

THEFT-ALARM SYSTEM**GENERAL DESCRIPTION CONCERNING THE THEFT-ALARM SYSTEM**

M1549022100144

The following ECUs affect the functions and control of the theft-alarm function.

FUNCTION	CONTROL ECU
Theft-alarm system	ETACS-ECU, front-ECU

THEFT-ALARM SYSTEM**ARMING THE SYSTEM**

After the following procedures have been completed, the theft-alarm indicator light illuminates for about 20 seconds. When the light goes off, the system is armed.

1. Pull out the ignition key from the key cylinder.
2. Lock all doors with the key or the RKE transmitter.

NOTE: The system is set regardless of whether the hood/trunk is open or closed, and is armed as soon as the light goes off.

DISARMING THE SYSTEM

The system is disarmed if any of the following conditions is satisfied.

- Unlock the doors by using the door lock key cylinder.
- Unlock the doors by using the RKE transmitter.

ACTIVATING THE ALARM

1. If any door or hood is opened without key or RKE transmitter, while the system is armed, the horn (theft-alarm horn and horn) will sound intermittently and the headlights (high-beam) will flash on and off for approximately three minutes.
2. If any door or the hood is opened without disarming the alarm by using the key or the RKE transmitter, the alarm will be activated again. Note that the alarm will not be deactivated by disconnecting the battery.

DEACTIVATING THE ALARM

To deactivate the alarm, insert the key into the door's key cylinder and turn the key or operate the RKE transmitter (except "PANIC" button).

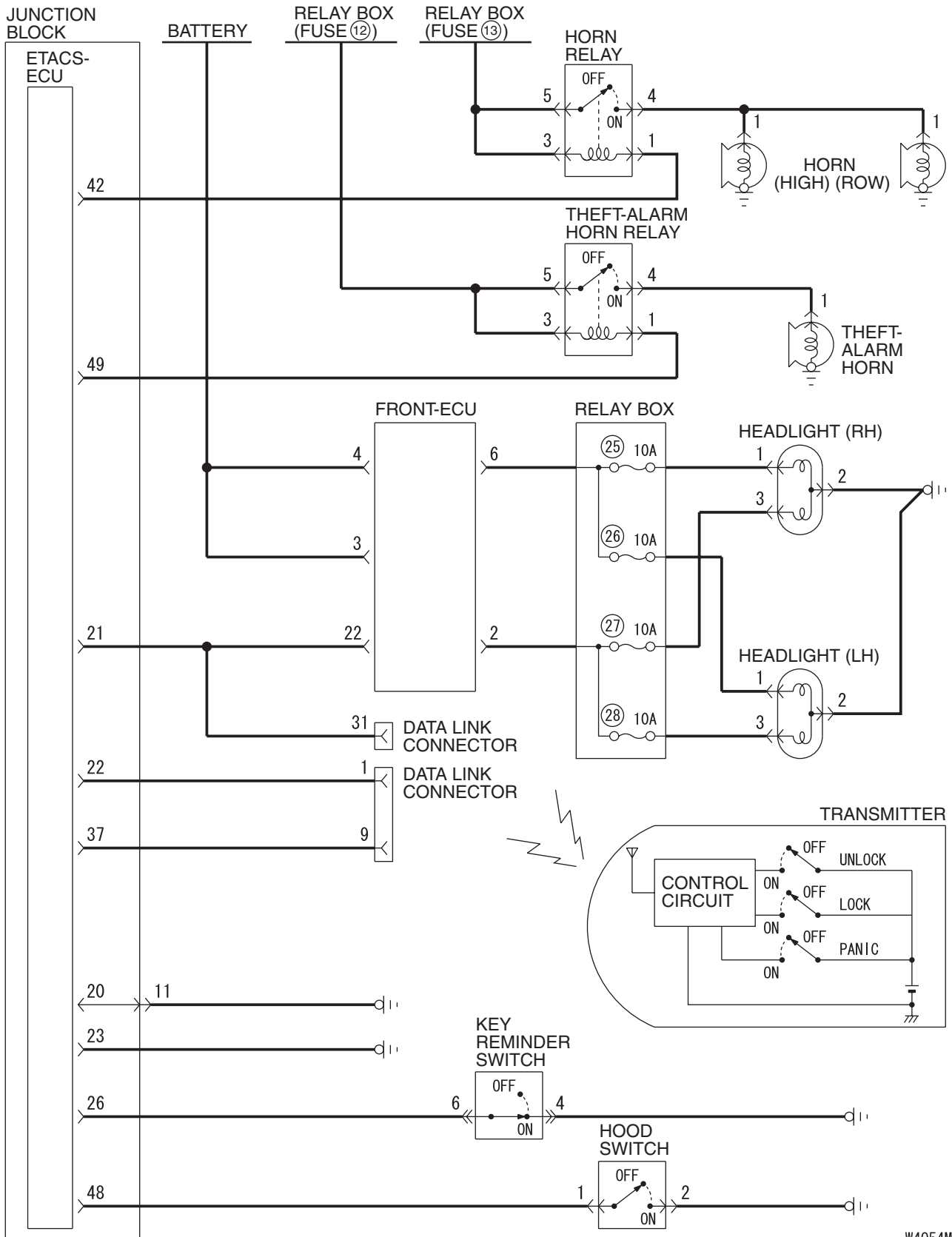
CHECKING THE SYSTEM OPERATION

The activation/operation of the system can be checked by following steps below.

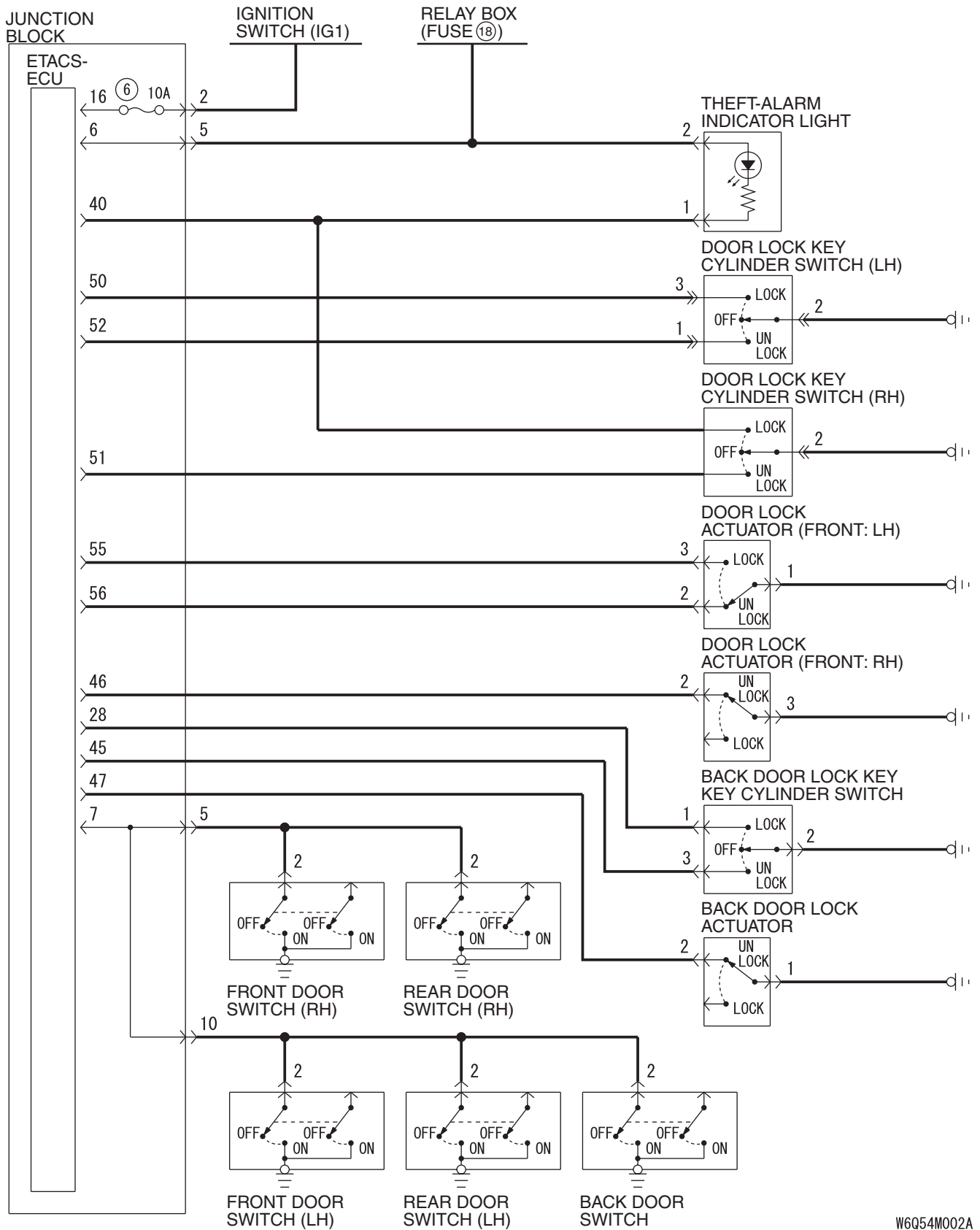
1. Turn the ignition key to the "ON" position and to fully open the window on the driver's side with the power window switch.
2. Turn the ignition key to the "LOCK" (OFF) position and then remove the key from the ignition.
3. Close all doors.
4. Lock all doors with the key or RKE transmitter.
5. The theft-alarm indicator light will illuminate; check to be sure that the light goes off in about 20 seconds.
6. After the theft-alarm indicator light goes off, unlock with the driver's door lock knob, and open the driver's door.
7. Check to be sure that, when the door is opened, the horn starts sounding and the headlights flash on and off.
8. To stop the alarm, insert the key into the door key cylinder and turn the key or press RKE transmitter switch.

NOTE: To check the alarm for the opening of the hood, open the hood by using the hood release lever, located on the driver's side either before the alarm is activated by the opening of a door, or after the finish of the first three-minute alarm.

General circuit diagram for the theft-alarm



W4Q54M17AA

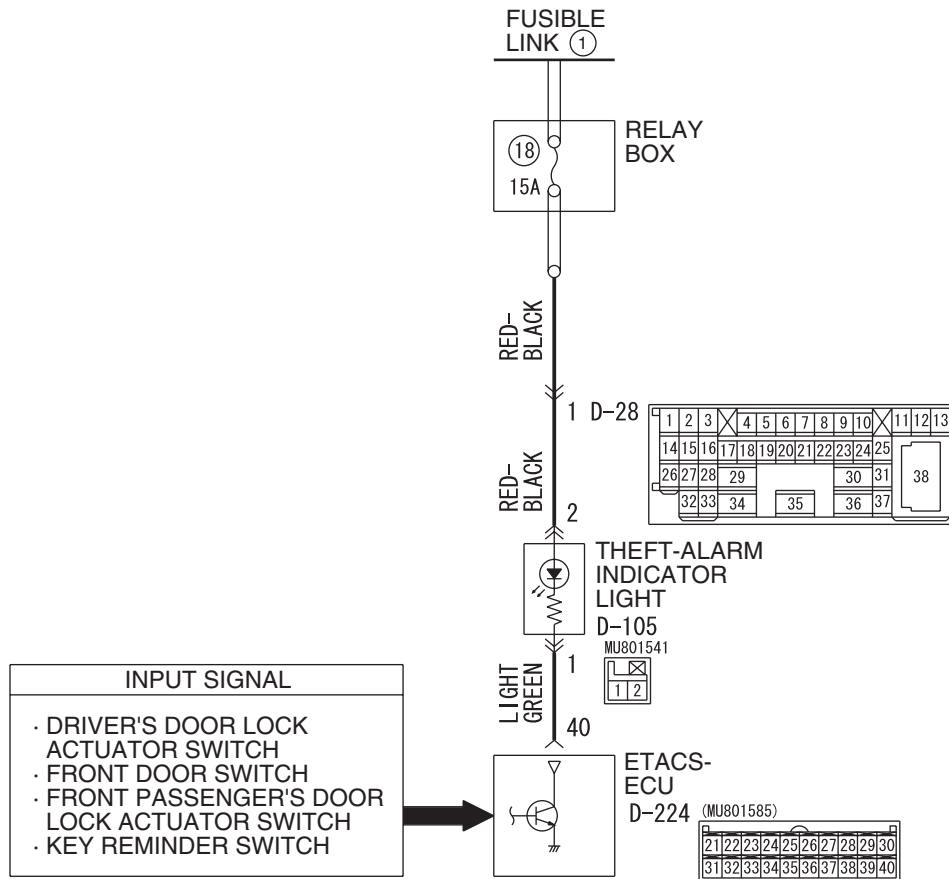


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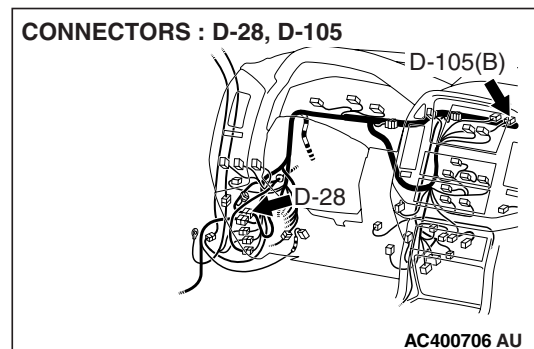
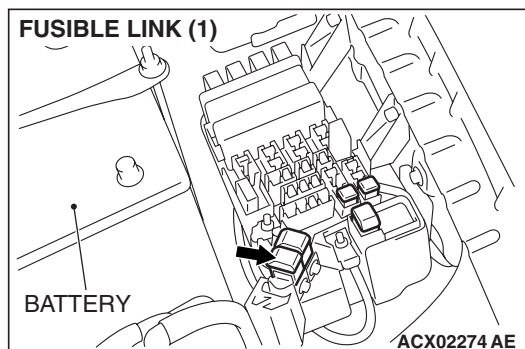
INSPECTION PROCEDURE N-1: Theft-alarm System: Theft-alarm system is not armed (theft-alarm indicator light does not illuminate).

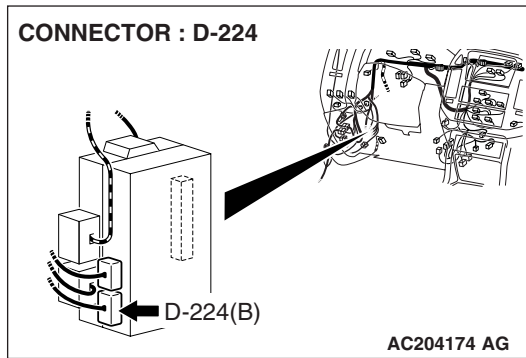
NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Theft-alarm Indicator Light Drive Circuit



W5Q54M024A





CIRCUIT OPERATION

- When the ETACS-ECU receives a "LOCK" signal from the door lock actuator switch, it illuminates the security indicator light for approximately 18 seconds, and then set the theft-alarm system.
- The ETACS-ECU sets the theft-alarm system according to the input signals from the following signals:
 - Ignition key reminder switch: ON
 - Driver's and front passenger's door switch: OFF
 - Rear door switches: OFF
 - Driver's, front passenger's and back door lock key cylinder switch: OFF
 - Driver's, front passenger's, rear and back doors actuator switch: LOCK
 - Hood switch: OFF
 - Transmitter switch: LOCK
- Vehicle condition:
 - Ignition key: Removed from the ignition key cylinder
 - All doors: Closed
 - Driver's, front passenger's and back door lock key cylinder: Not being operated
 - Hood: Closed
 - Transmitter: Turn to the "LOCK" position

TECHNICAL DESCRIPTION (COMMENT)

If the theft-alarm system is set normally, the input signal circuit, the "SECURITY" indicator light or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The theft-alarm indicator light may be defective
- The ignition key reminder switch may be defective
- The driver's or front passenger's door switch may be defective
- The door switches may be defective
- The driver's, the front passenger's or the back door lock key cylinder switch may be defective
- The driver's, front passenger's, the rear or the back door lock actuator switch may be defective
- The hood 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
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
 - MB991806: SWS Monitor Cartridge
 - MB991812: SWS Monitor Harness (For Column-ECU)
 - MB991822: Probe Harness
- MB991854: SWS Monitor Harness (For 13-pin)

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

Check the ETACS-ECU.

⚠ CAUTION

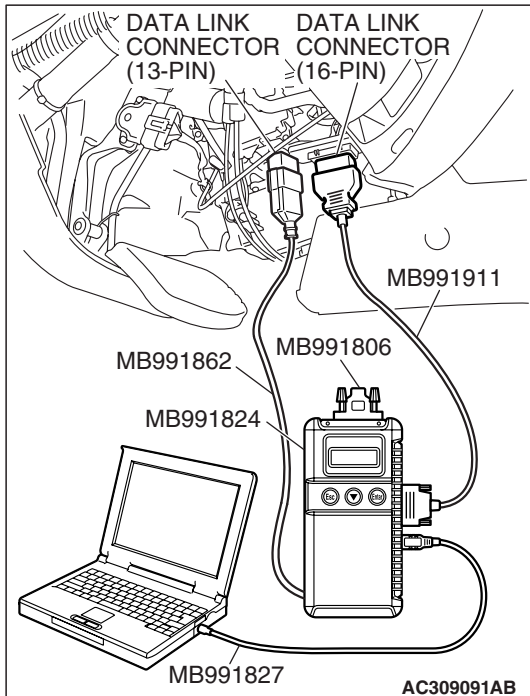
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-41."

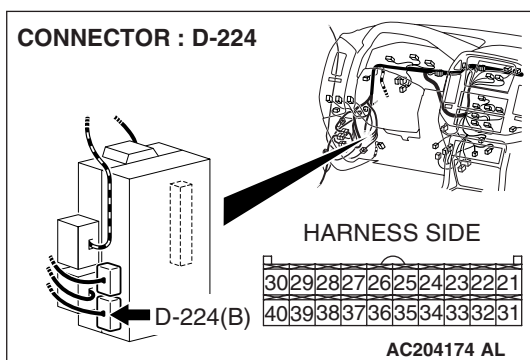


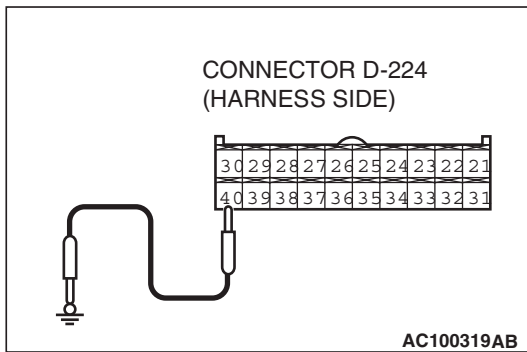
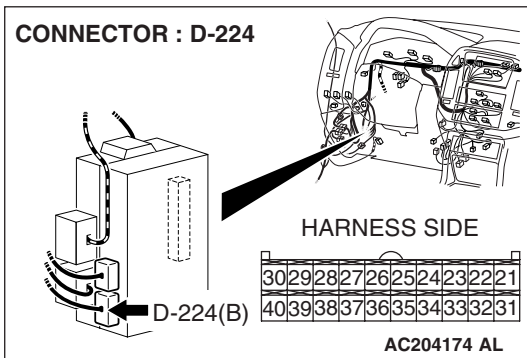
STEP 2. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.





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

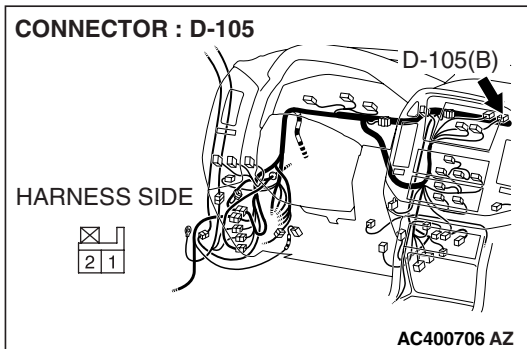
(1) Disconnect ETACS-ECU connector D-224, and measure at the wiring harness side.

(2) The theft-alarm indicator light should illuminate when terminal 40 is grounded.

Q: Does the theft-alarm indicator light illuminate?

YES : Go to Step 9.

NO : Go to Step 4.

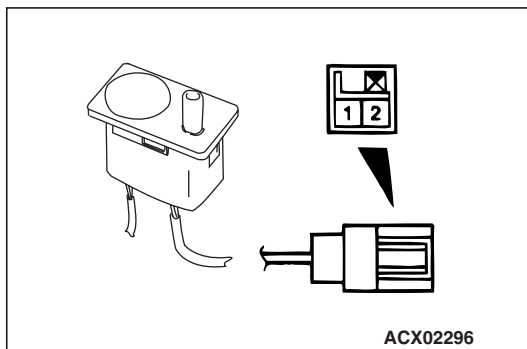
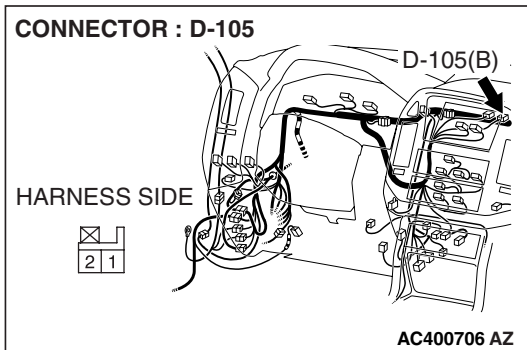


STEP 4. Check theft-alarm indicator light connector D-105 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is theft-alarm indicator light connector D-105 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 theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.



STEP 5. Check the theft-alarm indicator light.

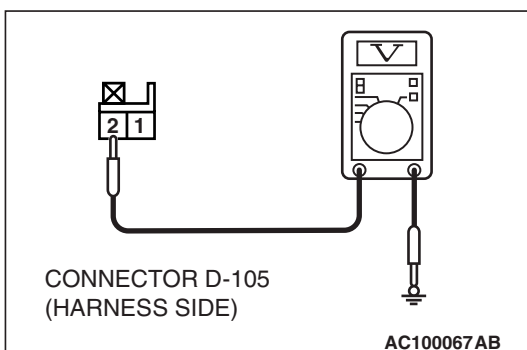
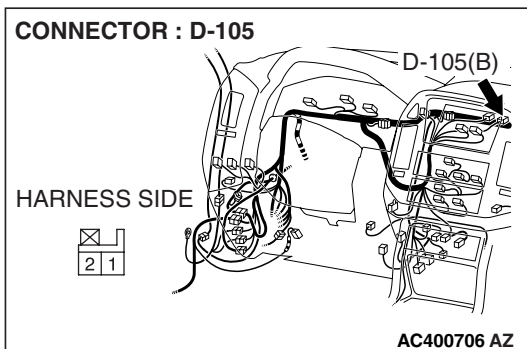
- (1) Remove the RV meter. Refer to GROUP 54A, RV meter P.54A-283.
- (2) Disconnect theft-alarm indicator light connector D-105.

- (3) The theft-alarm indicator light should illuminate when battery voltage is applied between terminals 1 and 2.

Q: Does the theft-alarm indicator light illuminate?

YES : Go to Step 6.

NO : Replace the theft-alarm indicator light. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.



STEP 6. Check the fusible link (1) line of power supply circuit to the theft-alarm indicator light circuit. Test at theft-alarm indicator light connector D-105.

- (1) Disconnect theft-alarm indicator light connector D-105 and measure the voltage available at the wiring harness side of the connector.

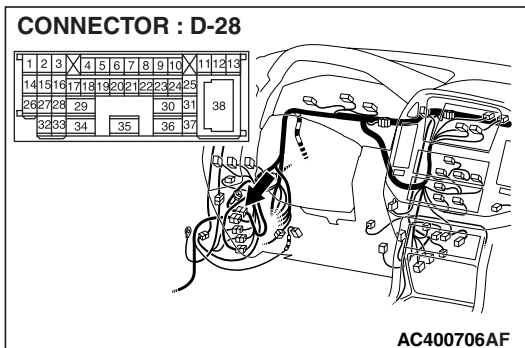
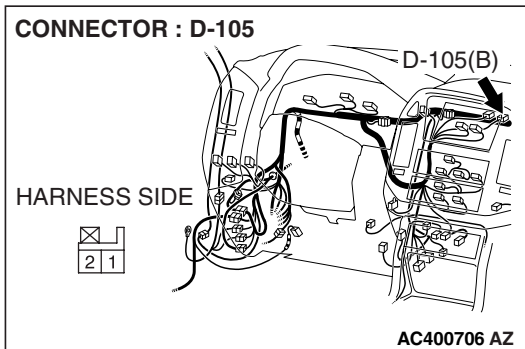
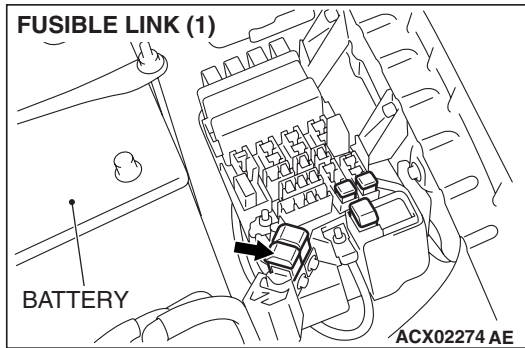
- (2) Measure the voltage between terminal 2 and ground.
 - The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check the wiring harness between theft-alarm indicator light connector D-105 (terminal 1) and the fusible link (1).



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

Q: Is the wiring harness between theft-alarm indicator light connector D-105 (terminal 1) and the fusible link (1) in good condition?

YES : No action is necessary and testing is complete.

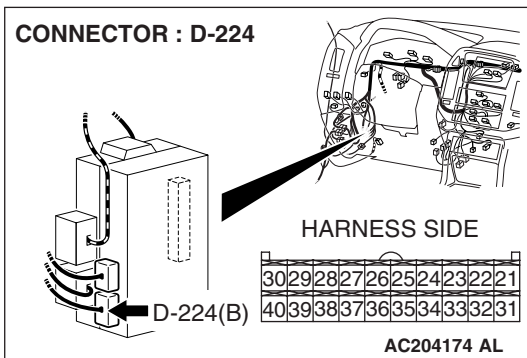
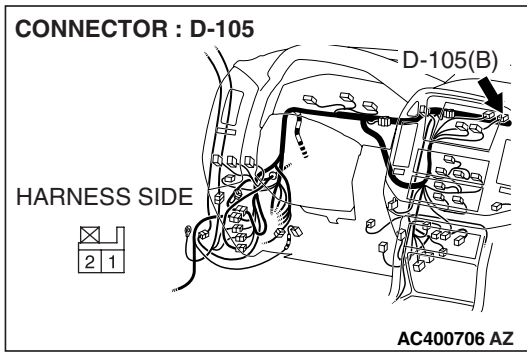
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.

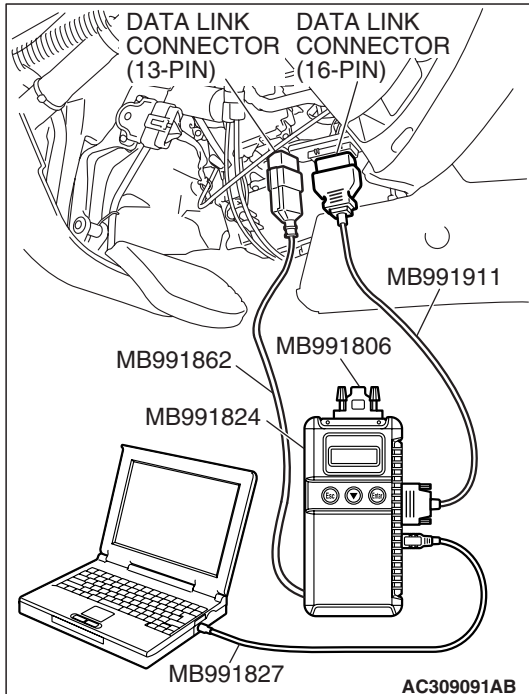
STEP 8. Check the wiring harness between theft-alarm indicator light connector D-105 (terminal 1) and ETACS-ECU connector D-224 (terminal 40).

Q: Is the wiring harness between theft-alarm indicator light connector D-105 (terminal 1) and ETACS-ECU connector D-224 (terminal 40) 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 theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.





STEP 9. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Satisfy the following conditions to check the driver's and front passenger's door switches.

- Driver's door: Open (driver's door switch is on)
However, the door should be closed when checking the front passenger's door switch.
- Front passenger's door: Open (front passenger's door switch is on)
However, the door should be closed when checking the driver's door switch.

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "ETACS ECU."
- (4) The scan tool should show the following values when each switch is operated.

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 32	FRONT DOOR SW	ON

Q: The scan tool shows the respective normal condition for item "FRONT DOOR SW."

YES : Go to Step 10.

NO : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch P.54B-509."

STEP 10. Check the input signal (by using the pulse check mode of the monitor.)

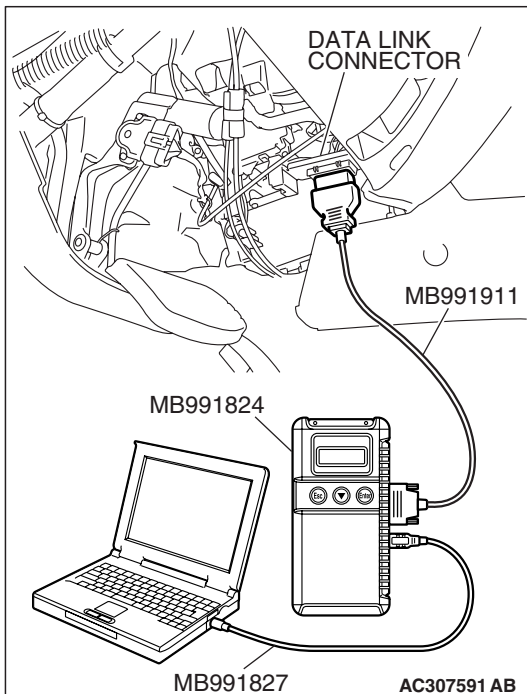
Check the input signals from the following switches:

- Key reminder switch
- Driver's, front passenger's, rear and back door lock actuator switch
- Driver's, front passenger's and back door lock key cylinder switch
- Hood switch

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

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

Check if scan tool MB991958 sounds or not.



ITEM NAME	CONDITION
Key reminder switch	Remove and reinsert the ignition key
Driver's, front passenger's, rear and back door lock actuator switches	Lock or unlock each door
Driver's, front passenger's, and back door lock key cylinder switches	Operate the door lock key cylinder at each door
Hood switch	Open and close the hood

Q: When the key reminder switch, driver's, front passenger's, rear and back door lock actuator switches, driver's, front passenger's and back door lock key cylinder switches, hood switch are operated, does scan tool MB991958 sound in all cases?

Scan tool MB991958 is sound in all cases : Replace the ETACS-ECU. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.

Scan tool MB991958 does not sound when the key reminder switch is operated : Refer to Inspection Procedure P-1 "ETACS-ECU does not receive any signal from the key reminder switch [P.54B-532.](#)"

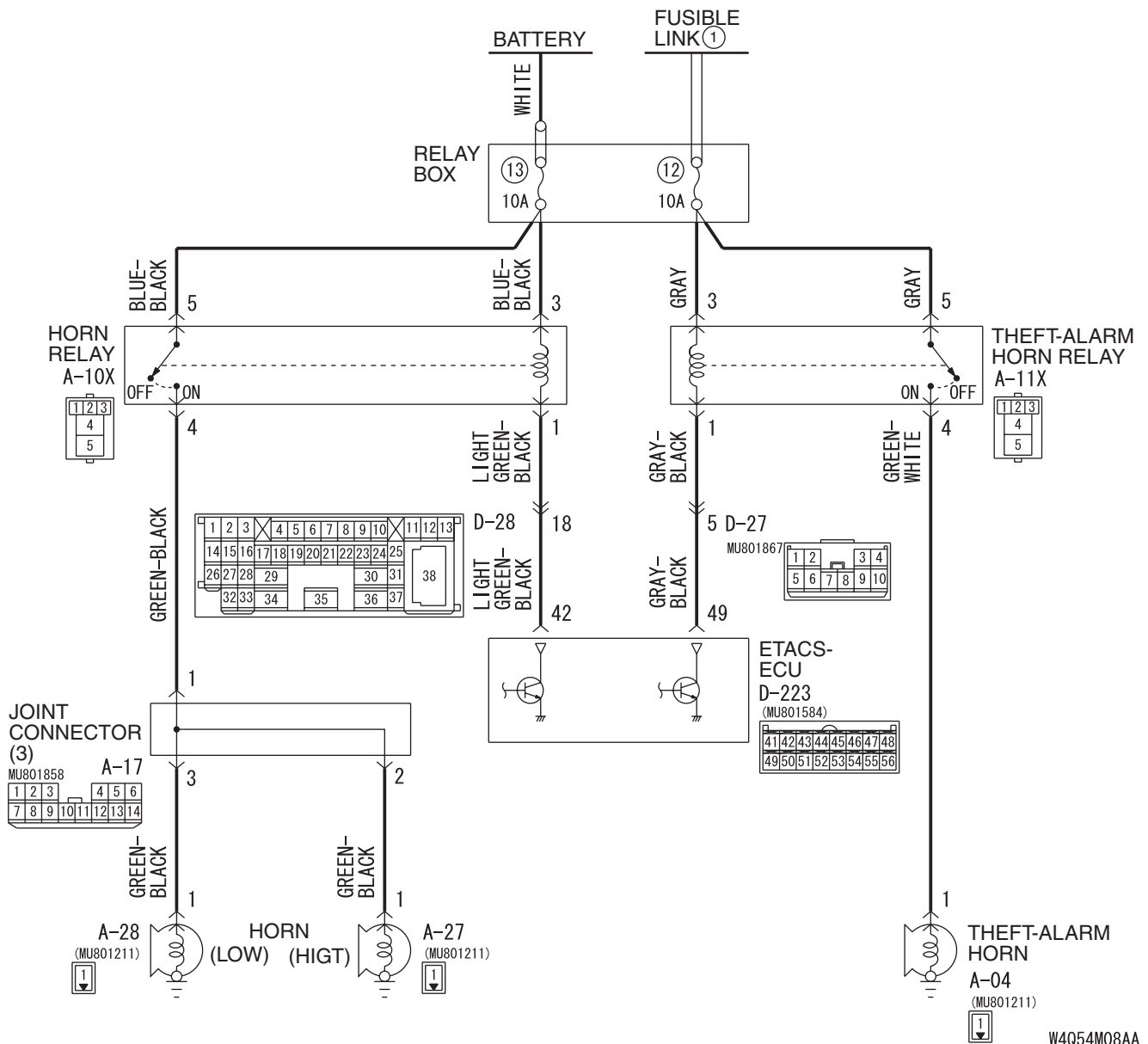
Scan tool MB991958 does not sound when the driver's, the front passenger's, the rear and the back door lock actuator switches are operated : Refer to Inspection Procedure P-6 "ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock actuator switch [P.54B-574.](#)"

Scan tool MB991958 does not sound when the driver's, the front passenger's, the rear and the back door lock actuator switches are operated : Refer to Inspection Procedure P-5 "ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock key cylinder switch P.54B-557."

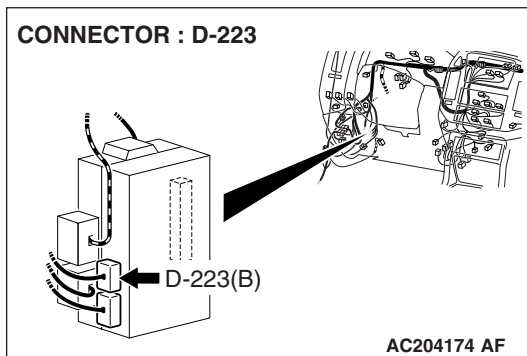
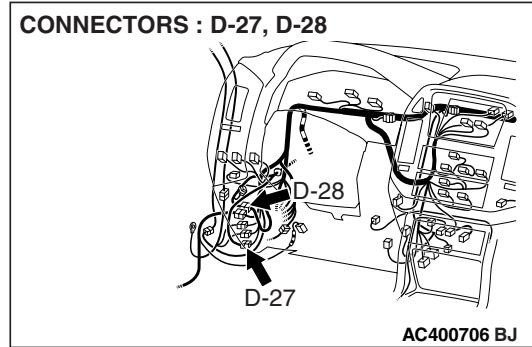
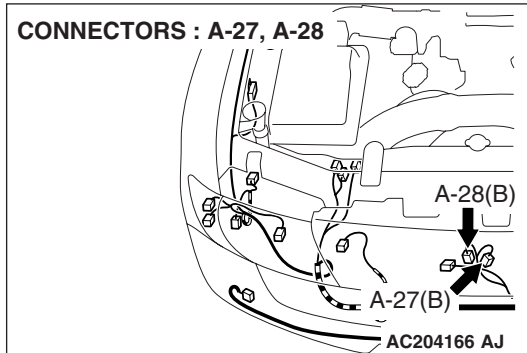
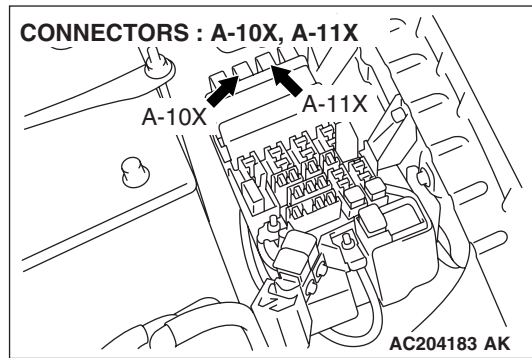
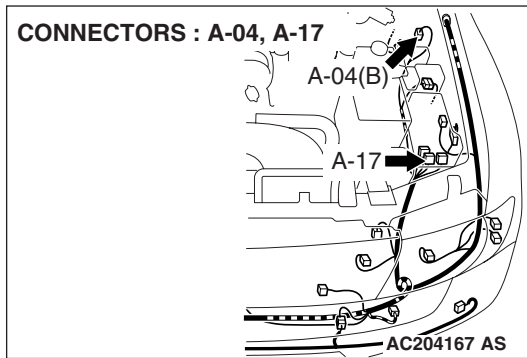
Scan tool MB991958 does not sound when the hood switch is operated : Refer to Inspection Procedure P-9 "ETACS-ECU does not receive any signal from the hood switch P.54B-609."

INSPECTION PROCEDURE N-2: Theft-alarm System: Horn does not sound when the theft-alarm is triggered.

Horn and Theft-alarm Horn Drive Circuit



W4Q54M08AA



CIRCUIT OPERATION

When the theft-alarm system is triggered, the ETACS-ECU sounds the theft-alarm horn and all the vehicle horns.

TECHNICAL DESCRIPTION (COMMENT)

If the theft-alarm horn and the vehicle horns do not sound when the theft-alarm system is triggered, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The theft-alarm horn may be defective
- The horn may be defective
- The theft-alarm horn relay may be defective
- The horn 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 Tool:**

- MB991223: Harness Set

STEP 1. Check which horn is defective.

Check which horn does not sound when the theft-alarm system is triggered.

Q: Which horn does not sound?

Theft-alarm horn : Go to Step 2.

Horns (high and low) : Go to Step 12.

Horn (high or low) : Go to Step 20.

Theft-alarm horn and all vehicle horns : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

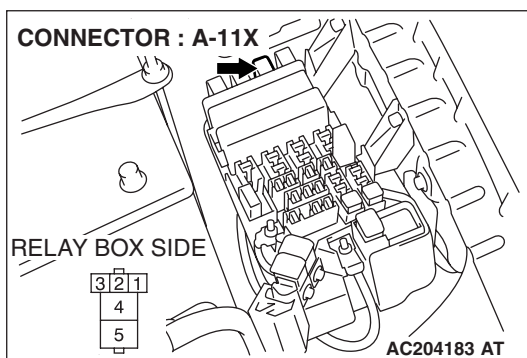
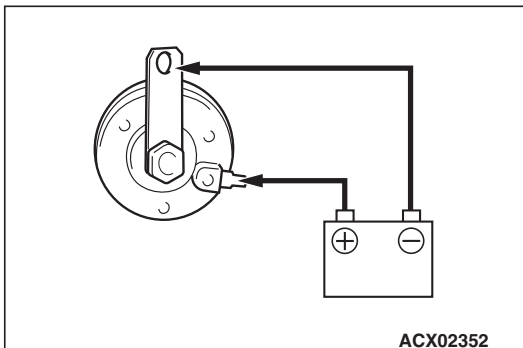
STEP 2. Check the theft-alarm horn.

Connect the battery as shown, and check that the theft-alarm horn sounds.

Q: Does the theft-alarm horn sound?

YES : Go to Step 3.

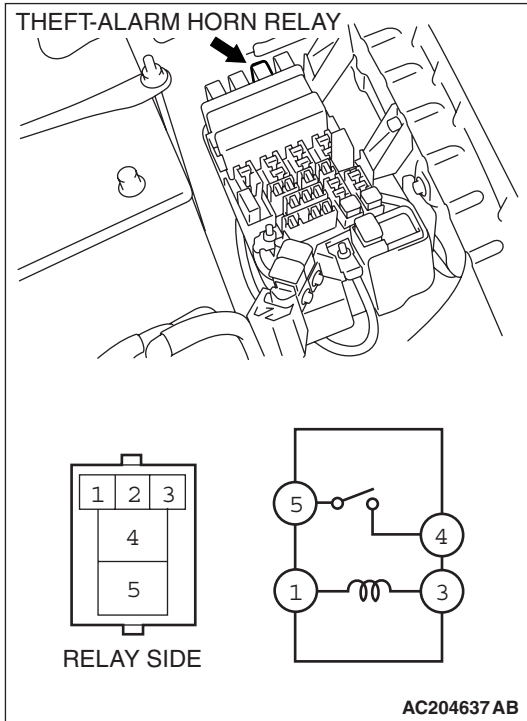
NO : Replace the theft-alarm horn. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

**STEP 3. Check theft-alarm horn relay connector A-11X for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is theft-alarm horn relay 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](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 4. Check the theft-alarm horn relay.



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

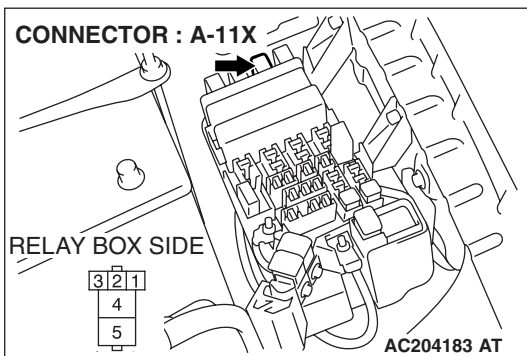
Q: Is the theft-alarm horn relay normal?

YES : Go to Step 5.

NO : Replace the theft-alarm horn relay. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 5. Check the fusible link (1) line of the power supply circuit to the theft-alarm horn relay. Test at theft-alarm horn relay connector A-11X.

(1) Disconnect theft-alarm horn relay connector A-11X and measure the voltage available at the relay box side of the connector.



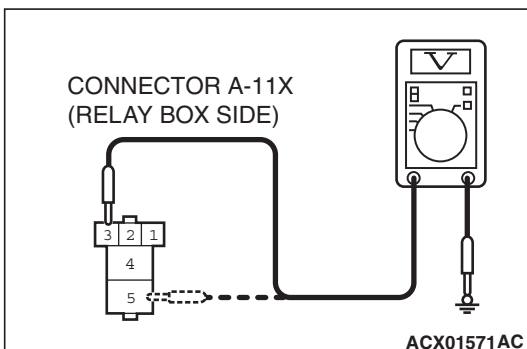
(2) Measure the voltage between terminal 3 and ground, and also between terminal 5 and ground.

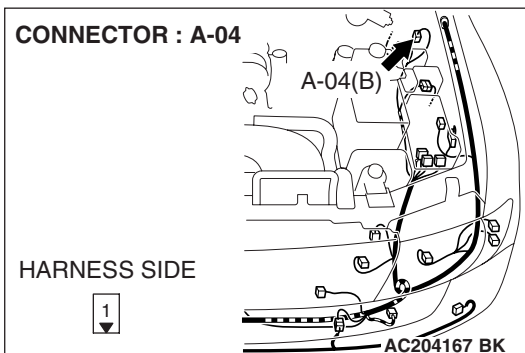
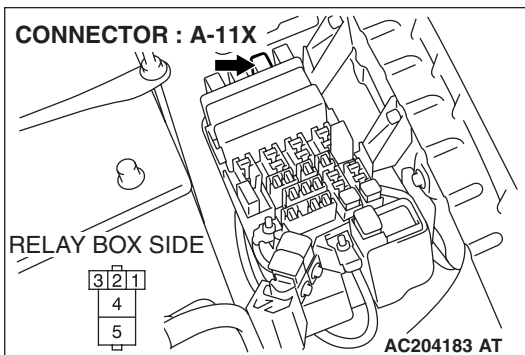
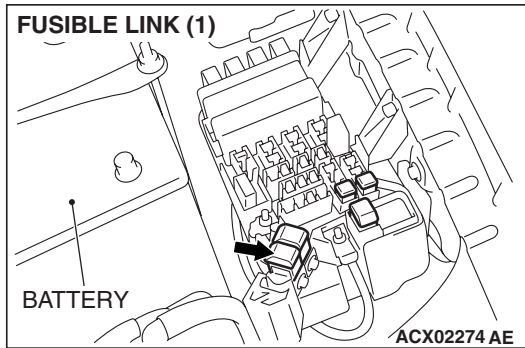
- The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Go to Step 7.

NO : Go to Step 6.





STEP 6. Check the wiring harness between theft-alarm horn relay connector A-11X (terminals 3 and 5) and fusible link (1).

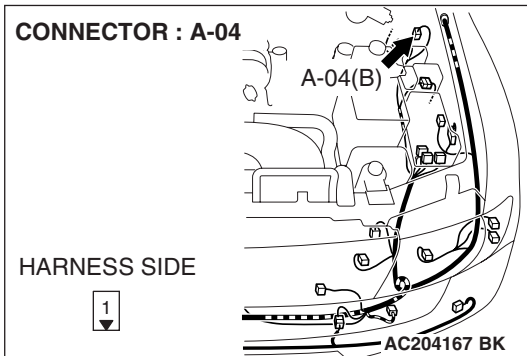
Q: Is the wiring harness between theft-alarm horn relay connector A-11X (terminals 3 and 5) and fusible link (1) in good condition?

- YES :** Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.
- 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. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 7. Check theft-alarm horn connector A-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is theft-alarm horn connector A-04 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](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

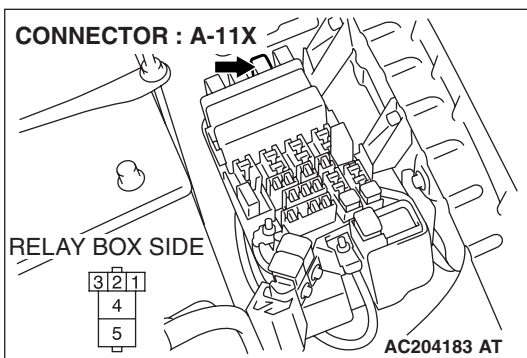


STEP 8. Check the wiring harness between theft-alarm horn relay connector A-11X (terminal 4) and theft-alarm horn connector A-04 (terminal 1).

Q: Is the wiring harness between horn relay connector A-11X (terminal 4) and theft-alarm horn connector A-04 (terminal 1) in good condition?

YES : Go to Step 9.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

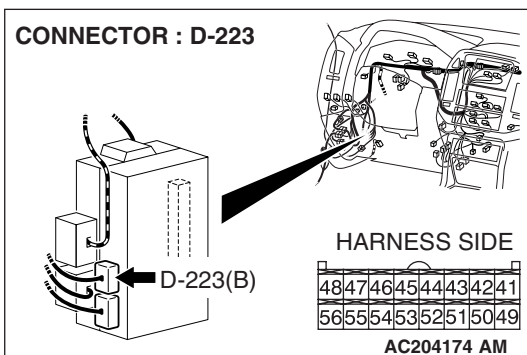
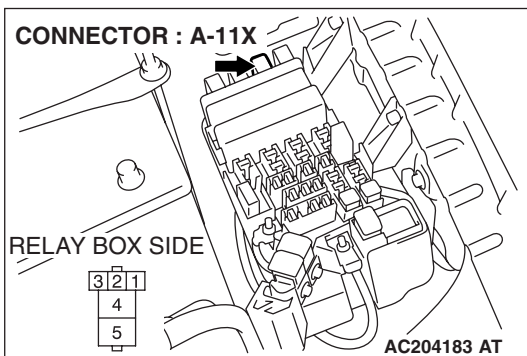


STEP 9. Check theft-alarm horn relay connector A-11X and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

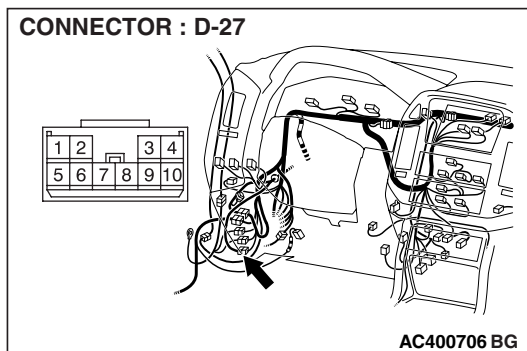
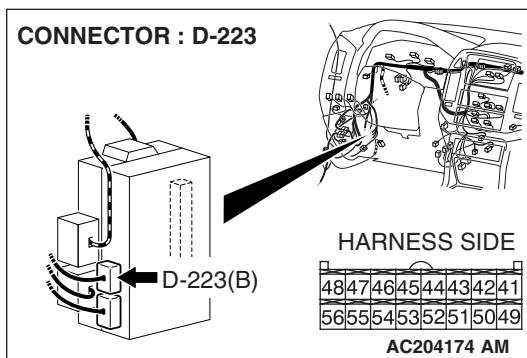
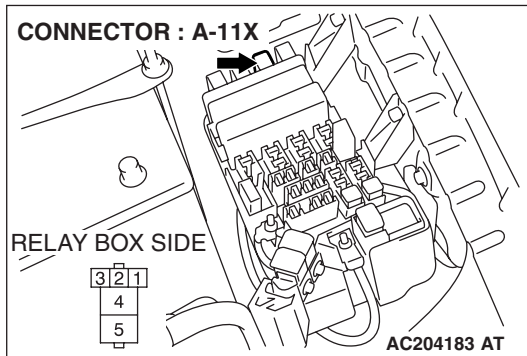
Q: Are theft-alarm horn relay connector A-11X and ETACS-ECU connector D-223 in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 10. Check the wiring harness between theft-alarm horn relay connector A-11X (terminal 1) and ETACS-ECU connector D-223 (terminal 49).



NOTE: Also check intermediate connector D-27 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-27 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 theft-alarm horn relay connector A-11X (terminal 1) and ETACS-ECU connector D-223 (terminal 49) 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. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

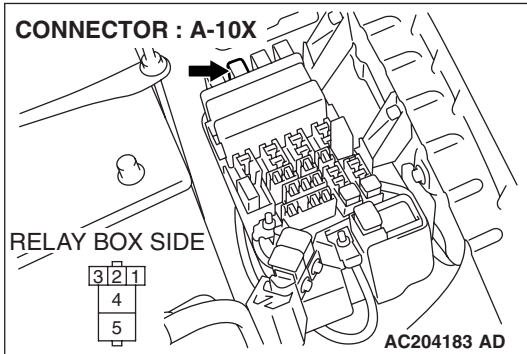
STEP 11. Check the fit of the theft-alarm horn.

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

Q: Is the theft-alarm horn installed correctly?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Install the theft-alarm horn correctly. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

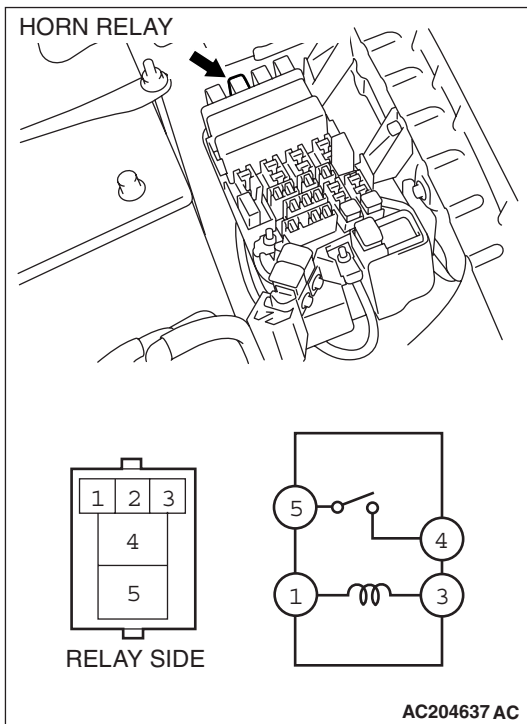


STEP 12. Check horn relay connector A-10X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay 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](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



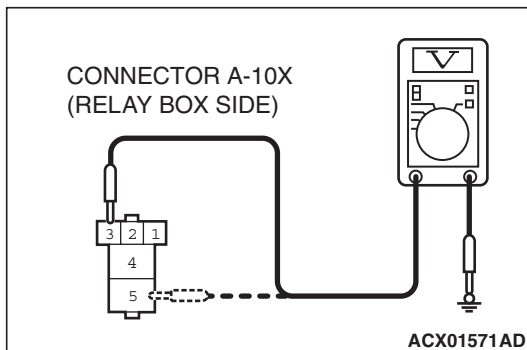
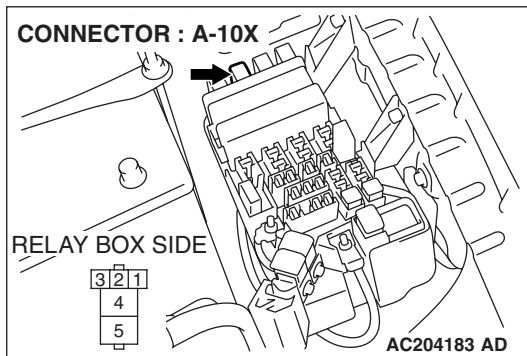
STEP 13. Check the horn relay.

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

Q: Is the horn relay normal?

YES : Go to Step 14.

NO : Replace the horn relay. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 14. Check the battery power supply circuit to the horn relay. Test at horn relay connector A-10X.

(1) Disconnect horn relay connector A-10X and measure the voltage available at the wiring harness side of the connector.

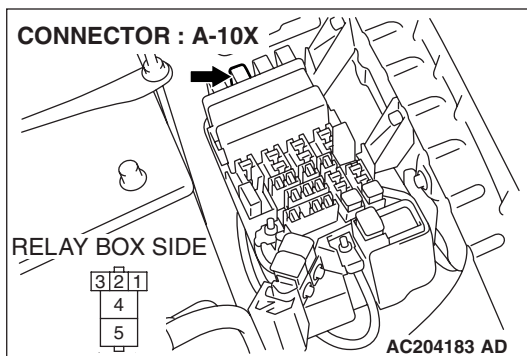
(2) Measure the voltage between terminal 3 and ground, and also between terminal 5 and ground.

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

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

YES : Go to Step 16.

NO : Go to Step 15.

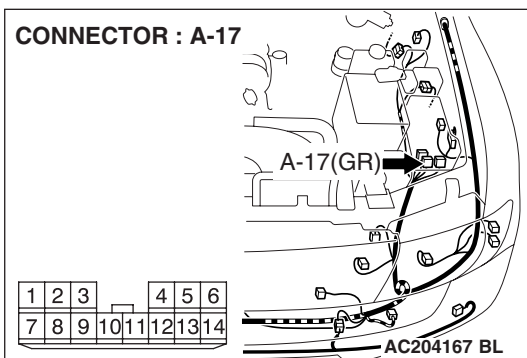
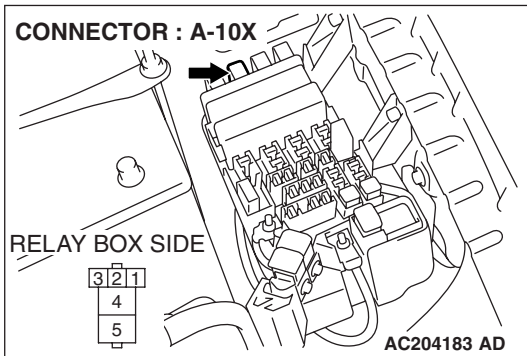


STEP 15. Check the wiring harness between horn relay connector A-10X (terminals 3 and 5) and the battery.

Q: Is the wiring harness between horn relay connector A-10X (terminals 3 and 5) and the battery in good condition?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

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. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

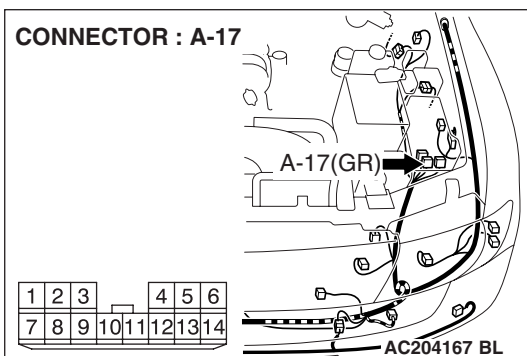
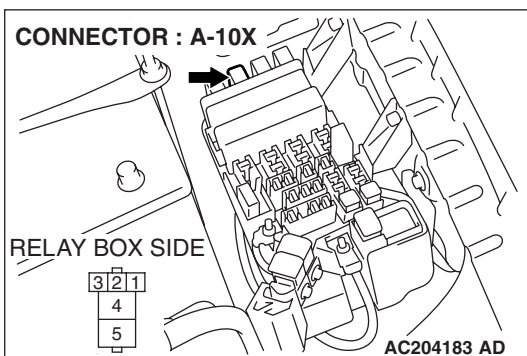


STEP 16. Check horn relay connector A-10X and joint connector (3) A-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-10X and joint connector (3) A-17 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](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 17. Check the wiring harnesses among horn relay connector A-10X (terminal 4) and joint connector (3) A-17 (terminal 1).

Q: Are the wiring harnesses among horn relay connector A-10X (terminal 4) and joint connector (3) A-17 (terminal 1) in good condition?

YES : Go to Step 18.

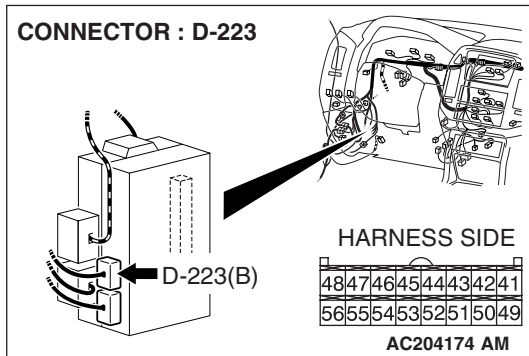
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 18. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

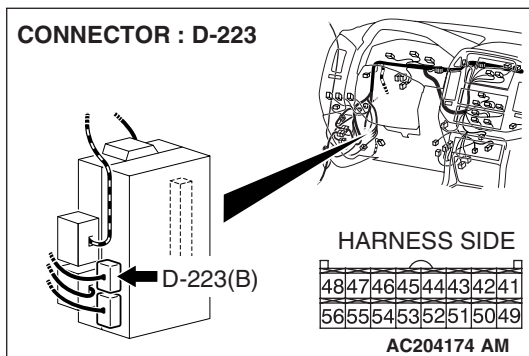
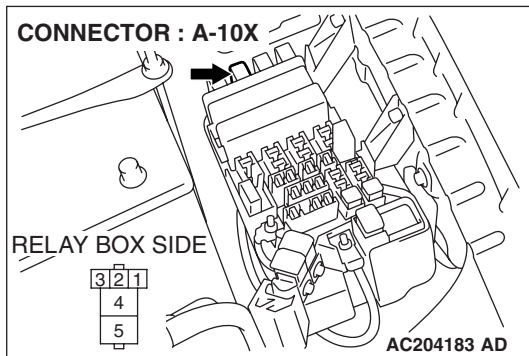
Q: Is ETACS-ECU connector D-223 in good condition?

YES : Go to Step 19.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

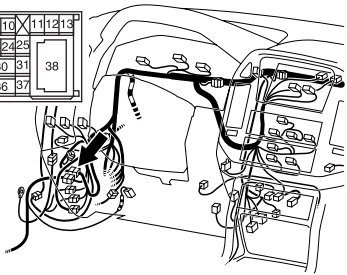


STEP 19. Check the wiring harness between horn relay connector A-10X (terminal 1) and ETACS-ECU connector D-223 (terminal 42).



CONNECTOR : D-28

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



AC400706AF

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

Q: Is the wiring harness between horn relay connector A-10X (terminal 1) and ETACS-ECU connector D-223 (terminal 42) in good condition?

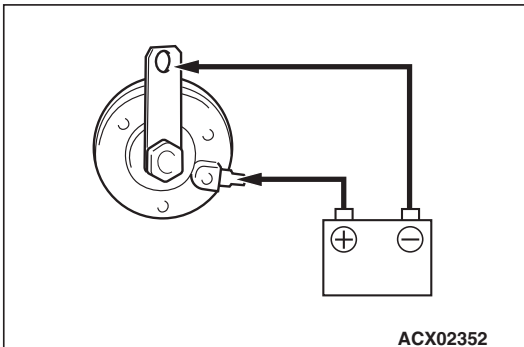
- YES :** Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 20. Check the horn.

- (1) When the theft-alarm system is triggered, remove the horn (high or low) which does not sound.
- (2) Connect the battery as shown, and Verify that the horn sounds.

Q: Is the horn normal?

- YES :** Go to Step 21.
- NO :** Replace the defective horn. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

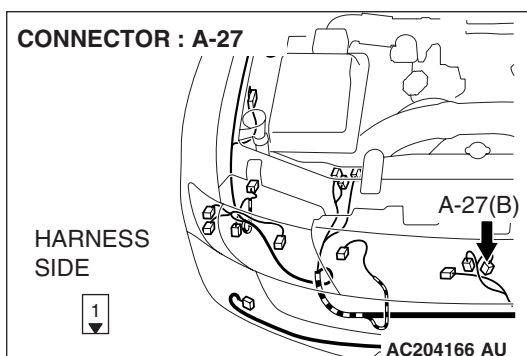
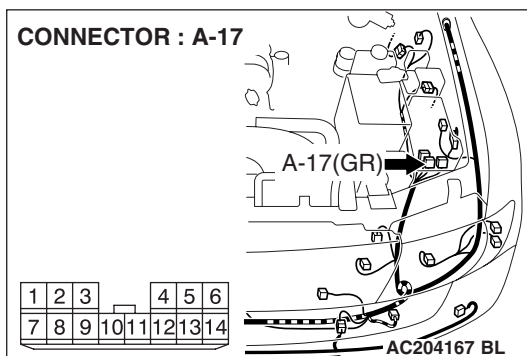
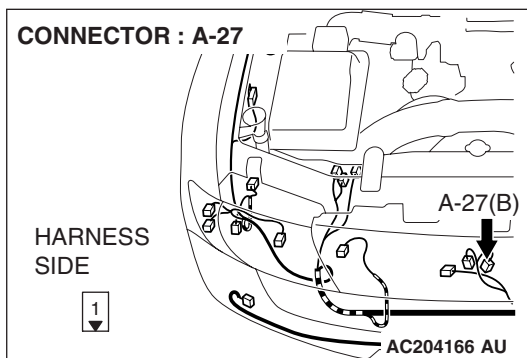
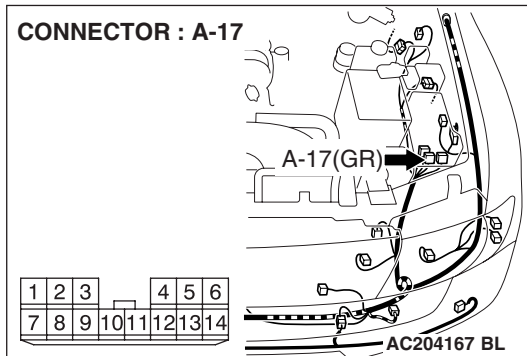


ACX02352

STEP 21. Check which horn is defective.

Q: Which horn does not sound?

- horn (high) :** Go to Step 22.
- horn (low) :** Go to Step 24.



STEP 22. Check joint connector (3) A-17 and horn (high) connector A-27 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are joint connector (3) A-17 and horn (high) connector A-27 in good condition?

YES : Go to Step 23.

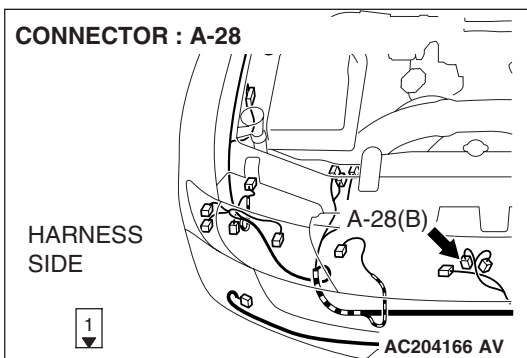
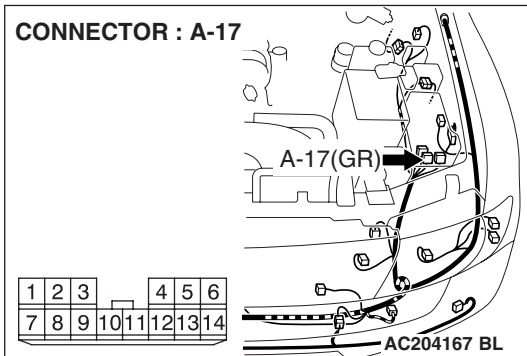
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 23. Check the wiring harness between joint connector (3) A-17 (terminal 2) and horn (high) connector A-27 (terminal 1).

Q: Is the wiring harness between joint connector (3) A-17 (terminal 2) and horn (high) connector A-27 (terminal 1) in good condition?

YES : Go to Step 26.

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. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

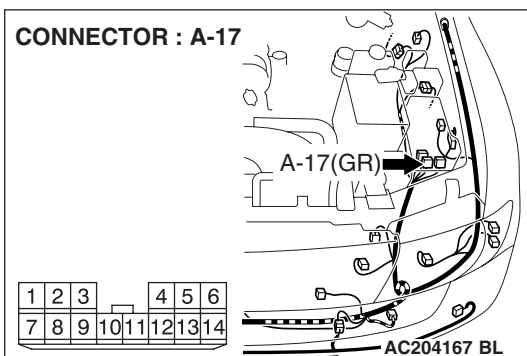


STEP 24. Check joint connector (3) A-17 and horn (low) connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are joint connector (3) A-17 and horn (low) connector A-28 in good condition?

YES : Go to Step 25.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

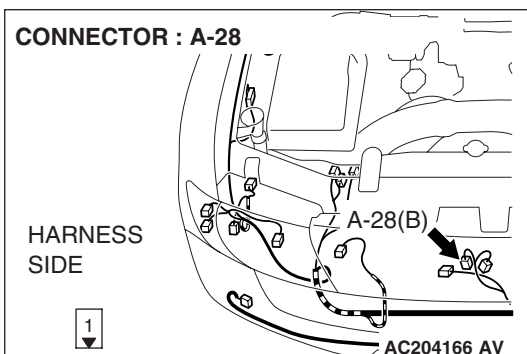


STEP 25. Check the wiring harness between joint connector (3) A-17 (terminal 3) and horn (low) connector A-28 (terminal 1).

Q: Is the wiring harness between joint connector (3) A-17 (terminal 3) and horn (low) connector A-28 (terminal 1) in good condition?

YES : Go to Step 26.

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. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 26. 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 : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Install the horn correctly. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

INSPECTION PROCEDURE N-3: Theft-alarm System: Headlights (high-beam) do not flash when the theft-alarm system is triggered.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights (high-beam) illuminate normally, the front-ECU or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- 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

STEP 1. Check the headlight (high-beam) operation.**Q: Do the headlights illuminate at high beam normally?**

YES : Go to Step 2.

NO : Refer to Inspection Procedure J-3 "Headlights (high-beam) does not illuminate [P.54B-299](#)."

STEP 2. Replace the ECU.

(1) Replace the ETACS-ECU.

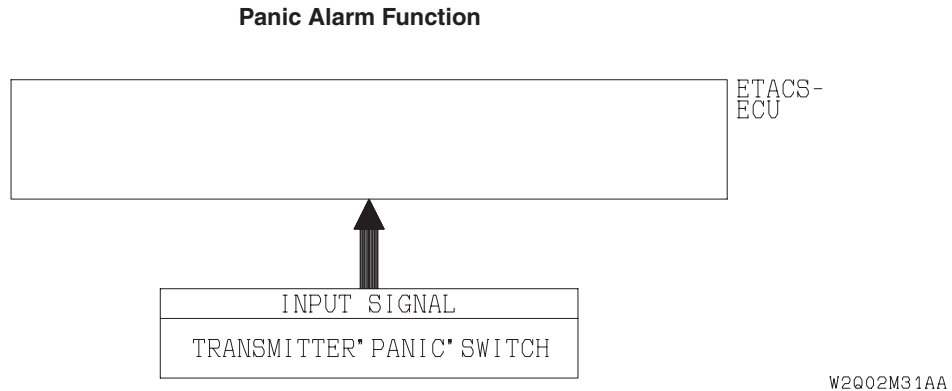
(2) The headlights should flash at high beam when the theft-alarm system is triggered.

Q: Do the headlights flash at high beam when the theft-alarm system is triggered?

YES : No action is necessary and testing is complete.

NO : Replace the front-ECU. The headlights should flash at high-beam when the theft-alarm system is triggered.

INSPECTION PROCEDURE N-4: Theft-alarm System: Panic alarm function does not work.



TECHNICAL DESCRIPTION (COMMENT)

If the keyless entry system is normal, the ETACS-ECU may be defective.

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

STEP 1. Check 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 operate [P.54B-197.](#)"

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

Check the input signals from the transmitter "PANIC" switch:

⚠ CAUTION

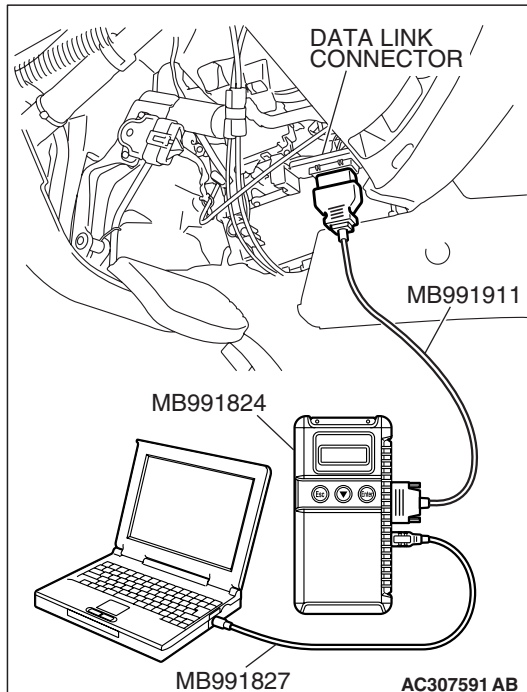
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Check that scan tool MB991958 sounds.

Q: Does scan tool MB991958 sound when the transmitter "PANIC" switch is operated?

YES : Replace the ETACS-ECU. Verify that the panic alarm works normally.

NO : Refer to Inspection Procedure P-10 "ETACS-ECU does not receive any signal from the lock, unlock switch or panic switch [P.54B-613.](#)"



INPUT SIGNAL CHART

M1549024200482

<SWS monitor>

If a problem is found in the Service Data inspection, observe the table below.

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive any signal from the ignition switch (ACC).		O-1	P.54B-493
ETACS-ECU does not receive any signal from the ignition switch (IG1).		O-2	P.54B-496
ETACS-ECU does not receive any signal from the fog light switch.		O-3	P.54B-498
ETACS-ECU does not receive "R" position signal from the transmission range switch.		O-4	P.54B-502
ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch.		O-5	P.54B-509
Column Switch	ETACS-ECU does not receive any signal from the taillight switch.	O-6	P.54B-516
	ETACS-ECU does not receive any signal from the headlight switch.		
	ETACS-ECU does not receive any signal from the passing light switch.		
	ETACS-ECU does not receive any signal from the dimmer switch.		
	ETACS-ECU does not receive any signal from the turn-signal light switch.		
	ETACS-ECU does not receive any signal from the windshield mist wiper switch.	O-7	P.54B-518
	ETACS-ECU does not receive any signal from the windshield intermittent wiper switch.		
	ETACS-ECU does not receive any signal from the windshield low-speed wiper switch.		
	ETACS-ECU does not receive any signal from the windshield high-speed wiper switch.		
	ETACS-ECU does not receive any signal from the windshield intermittent wiper interval adjusting knob.	O-8	P.54B-522
	ETACS-ECU does not receive any signal from the windshield washer switch.	O-7	P.54B-518
	ETACS-ECU does not receive any signal from the rear wiper switch.		
	ETACS-ECU does not receive any signal from the rear washer switch.		
Sunroof	ETACS-ECU does not receive any signal from the up, open or close/down switch.	O-9	P.54B-525
RV meter	ETACS-ECU does not receive any signal from any control switches.	O-10	P.54B-529

<Scan tool or voltmeter>

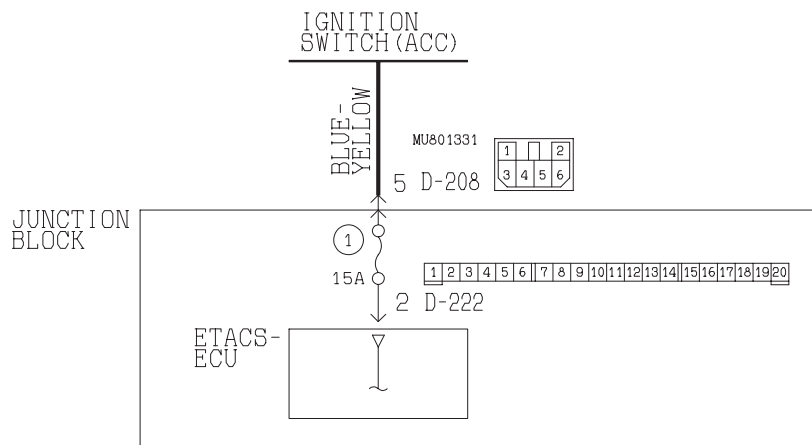
If a problem is found in the Pulse Check, observe the table below.

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive any signal from the key reminder switch.		P-1	P.54B-532
ETACS-ECU does not receive any signal from the hazard warning light switch.		P-2	P.54B-536
ETACS-ECU does not receive any signal from the driver's seat belt switch.		P-3	P.54B-540
ETACS-ECU does not receive any signal from all the door switches.		P-4	P.54B-545
ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock key cylinder switch.		P-5	P.54B-557
ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock actuator switch.		P-6	P.54B-574
ETACS-ECU does not receive any signal from the door lock switch (incorporated in the power window main switch and power window sub switch).		P-7	P.54B-589
ETACS-ECU does not receive an auto-stop signal from the rear wiper motor.		P-8	P.54B-602
ETACS-ECU does not receive any signal from the hood switch.		P-9	P.54B-609
Transmitter	ETACS-ECU does not receive any signal from the lock, unlock switch or panic switch.	P-10	P.54B-613

INPUT SIGNAL PROCEDURES

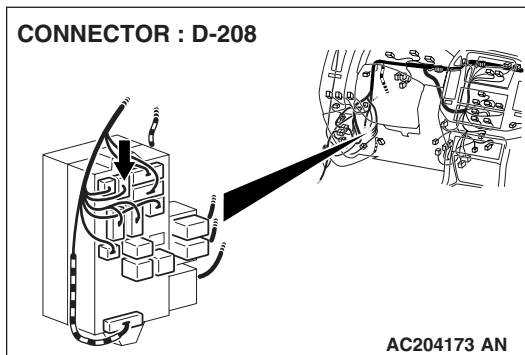
INSPECTION PROCEDURE O-1: ETACS-ECU does not receive any signal from the ignition switch (ACC).

Ignition switch (ACC) Input Circuit



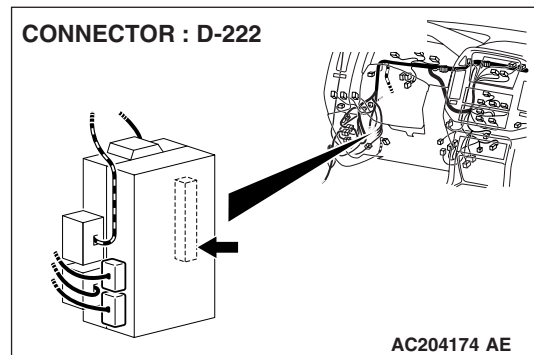
W1Q15M32AA

CONNECTOR : D-208



AC204173 AN

CONNECTOR : D-222



AC204174 AE

CIRCUIT OPERATION

The ETACS-ECU operates the following equipment according to signal from the ignition switch (ACC):

- Windshield wiper and washer
- Rear wiper and washer

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment, which is described in "CIRCUIT OPERATION", does not work normally.

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:**

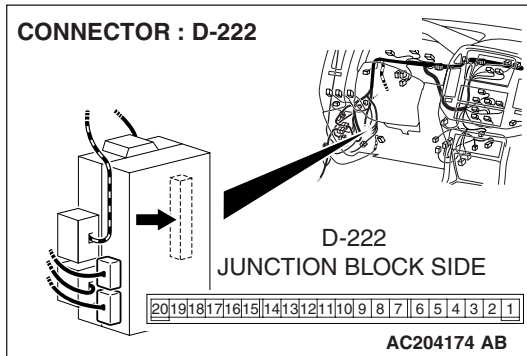
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

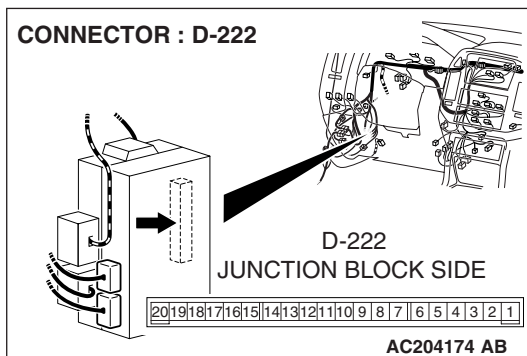
YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.



STEP 2. Check the ignition switch (ACC) circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.

- (1) Disconnect ETACS-ECU connector D-222 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ACC" position.

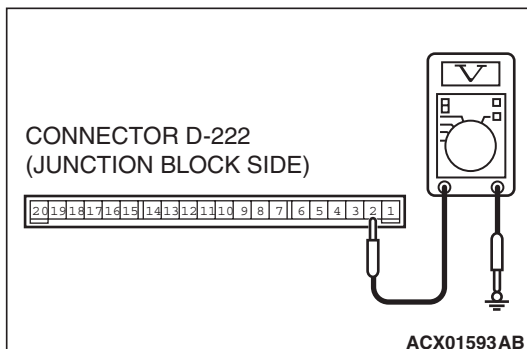


- (3) Measure the voltage between terminal 2 and ground.
 - The voltage should equal approximately 12 volts (battery positive voltage).

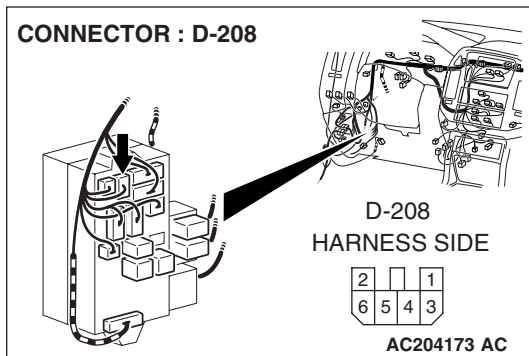
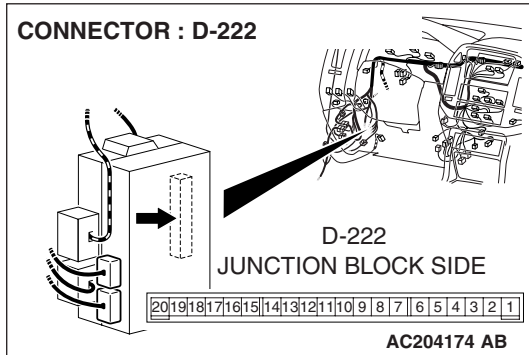
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.

NO : Go to Step 3.



STEP 3. Check the wiring harness between ETACS-ECU connector D-222 (terminal 2) and the ignition switch (ACC).



NOTE: Also check junction block connector D-208 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-208 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

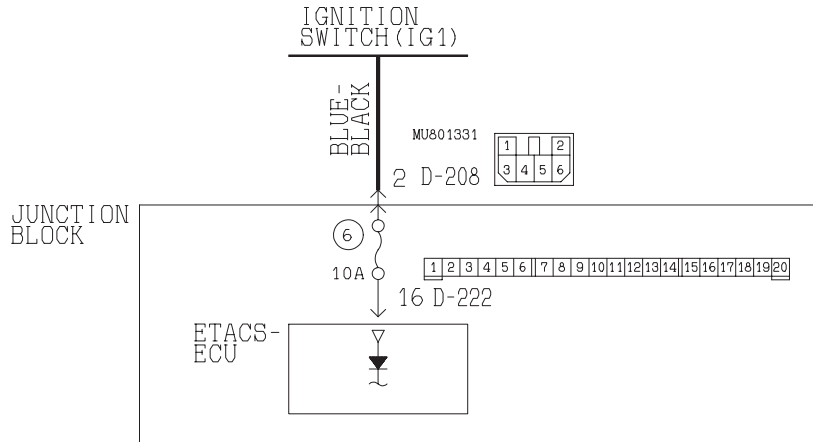
Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 2) and ignition switch (ACC) in good condition?

YES : No action is necessary and testing is complete.

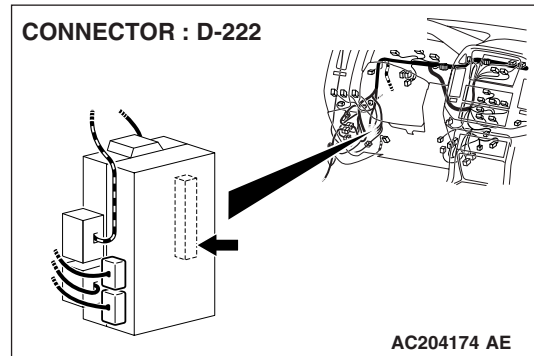
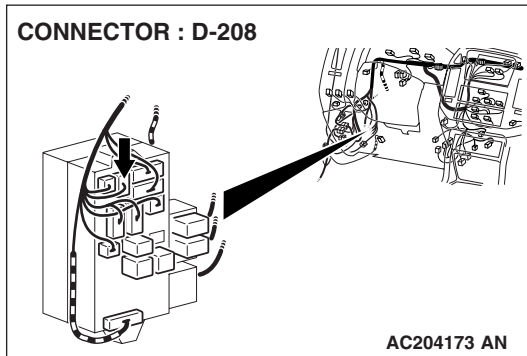
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.

INSPECTION PROCEDURE O-2: ETACS-ECU does not receive any signal from the ignition switch (IG1).

Ignition switch (IG1) Input Circuit



W1Q15M33AA



CIRCUIT OPERATION

- The ETACS-ECU operates the following equipment or functions according to signal from the ignition switch (IG1):
 - Ignition key reminder tone alarm function
 - Light reminder tone alarm function
 - Seat belt tone alarm function
 - Power window timer function
 - Seat belt warning light
 - Headlight automatic shutdown function
 - Turn-signal light
 - Dome light dimming function

- If the power supply circuit from the battery to the ETACS-ECU is open, this circuit is used as backup circuit.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or functions, which are described in "CIRCUIT OPERATION", do not work normally.

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:

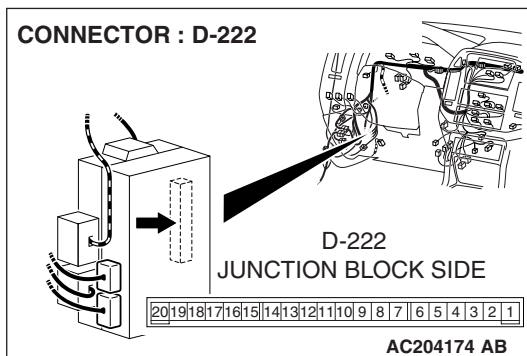
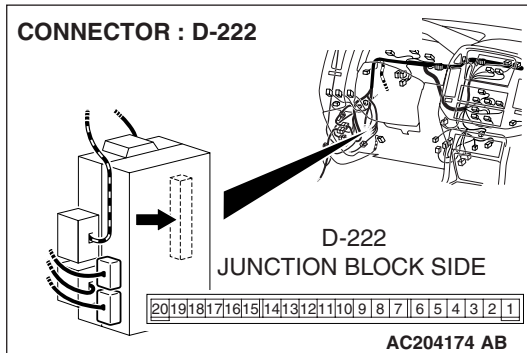
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

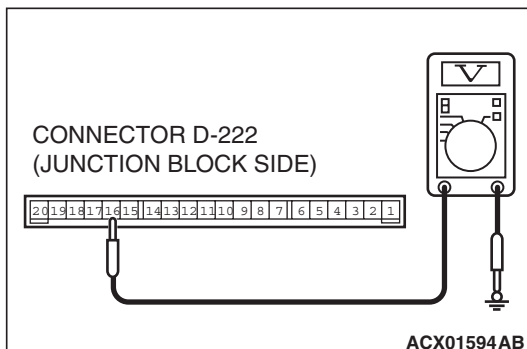
YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.



STEP 2. Check the ignition switch (IG1) circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.

- (1) Disconnect ETACS-ECU connector D-222 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ON" position.



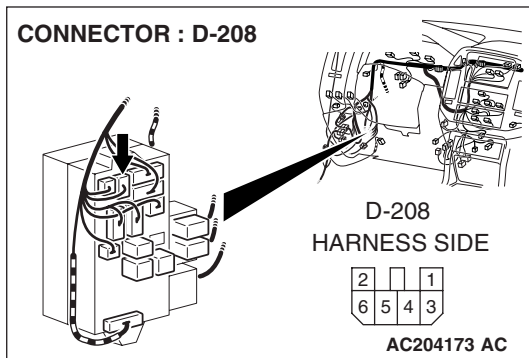
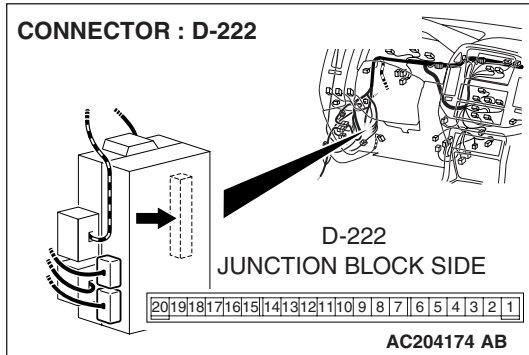
- (3) Measure the voltage between terminal 16 and ground.
 - The voltage should equal approximately 12 volts (battery positive voltage).

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

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

NO : Go to Step 3.

STEP 3. Check the wiring harness between ETACS-ECU connector D-222 (terminal 16) and the ignition switch (IG1).



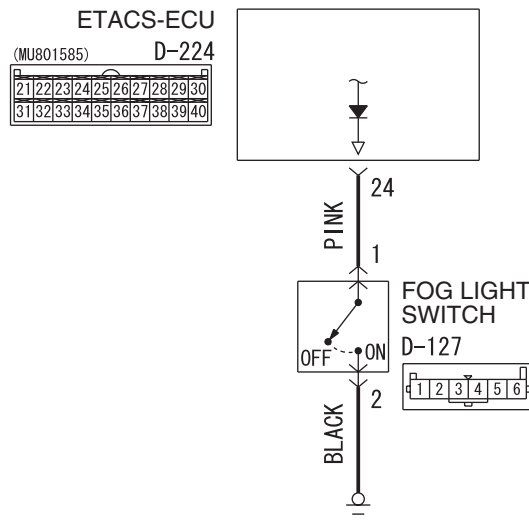
NOTE: Also check junction block connector D-208 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-208 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

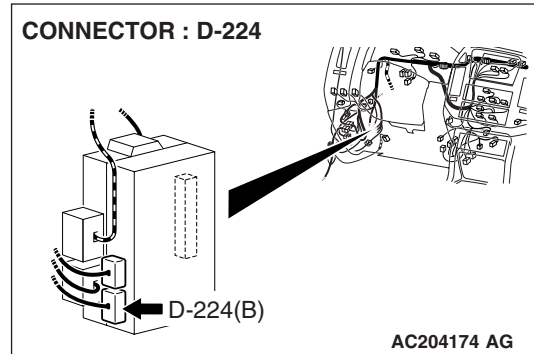
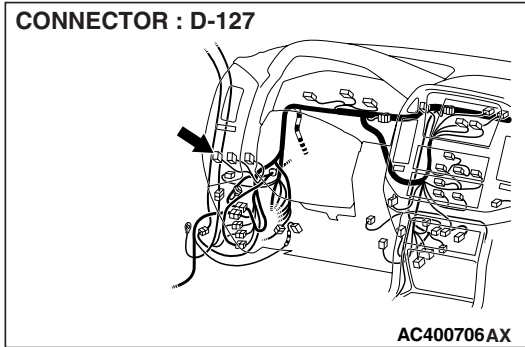
Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 16) and ignition switch (IG1) in good condition?

- YES :** No action is necessary and testing is complete.
- NO :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

INSPECTION PROCEDURE O-3: ETACS-ECU does not receive any signal from the fog light switch.

Fog Light Switch Input Circuit





CIRCUIT OPERATION

The ETACS-ECU operates the fog lights according to signal from the fog light switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the fog lights do not work normally. If the signal is not normal, the fog light switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

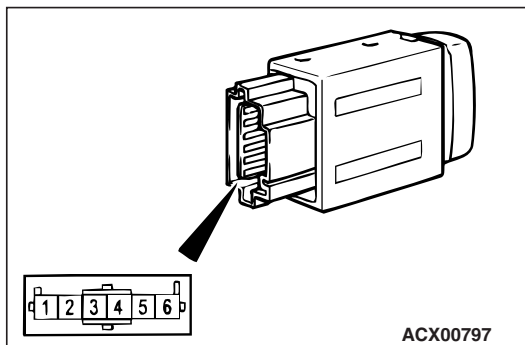
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the fog light switch.

Remove the fog light switch. Then check continuity between the switch terminals.

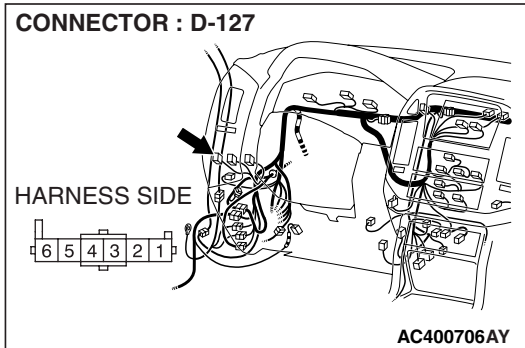


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 - 2	Open circuit
Pressed	1 - 2	Less than 2 ohms

Q: Is the fog light switch in good condition?

YES : Go to Step 2.

NO : Repair the fog light switch. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

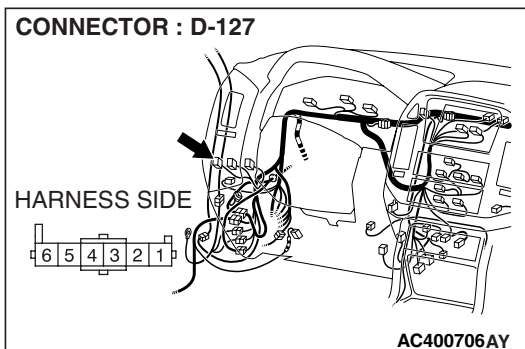


STEP 2. Check fog light switch connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog light switch connector D-127 in good condition?

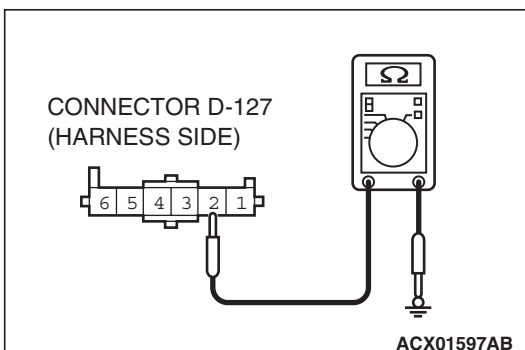
YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Repair the fog light switch. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.



STEP 3. Check the ground circuit to the fog light switch.
Test at fog light switch connector D-127.

(1) Disconnect fog light switch connector D-127 and measure the resistance available at the wiring harness side of the connector.



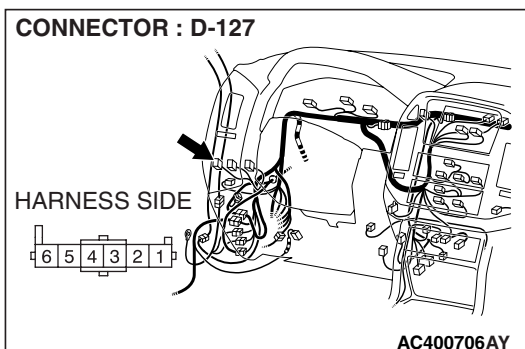
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between fog light switch connector D-127 (terminal 2) and ground.

Q: Is the wiring harness between fog light switch connector D-127 (terminal 2) and the ground in good condition?

YES : No action is necessary and testing is complete.

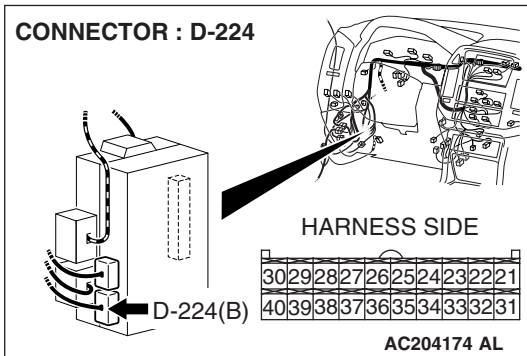
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

STEP 5. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

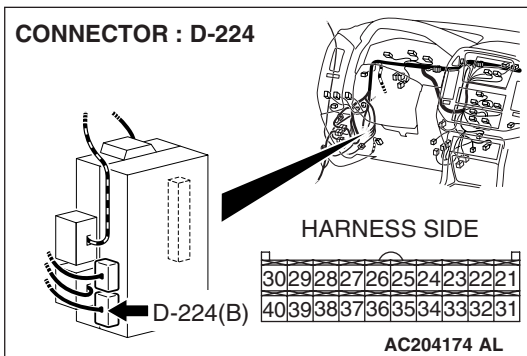
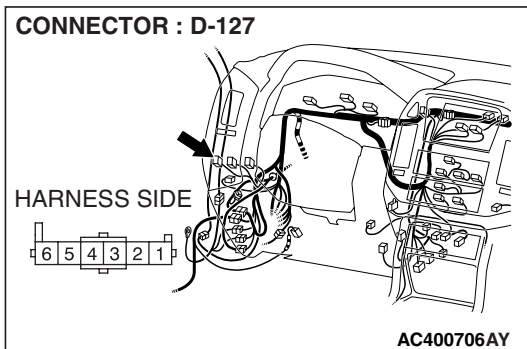


STEP 6. Check the wiring harness between fog light switch connector D-127 (terminal 1) and ETACS-ECU connector D-224 (terminal 24).

Q: Is the wiring harness between fog light switch connector D-127 (terminal 1) and ETACS-ECU connector D-224 (terminal 24) in good condition?

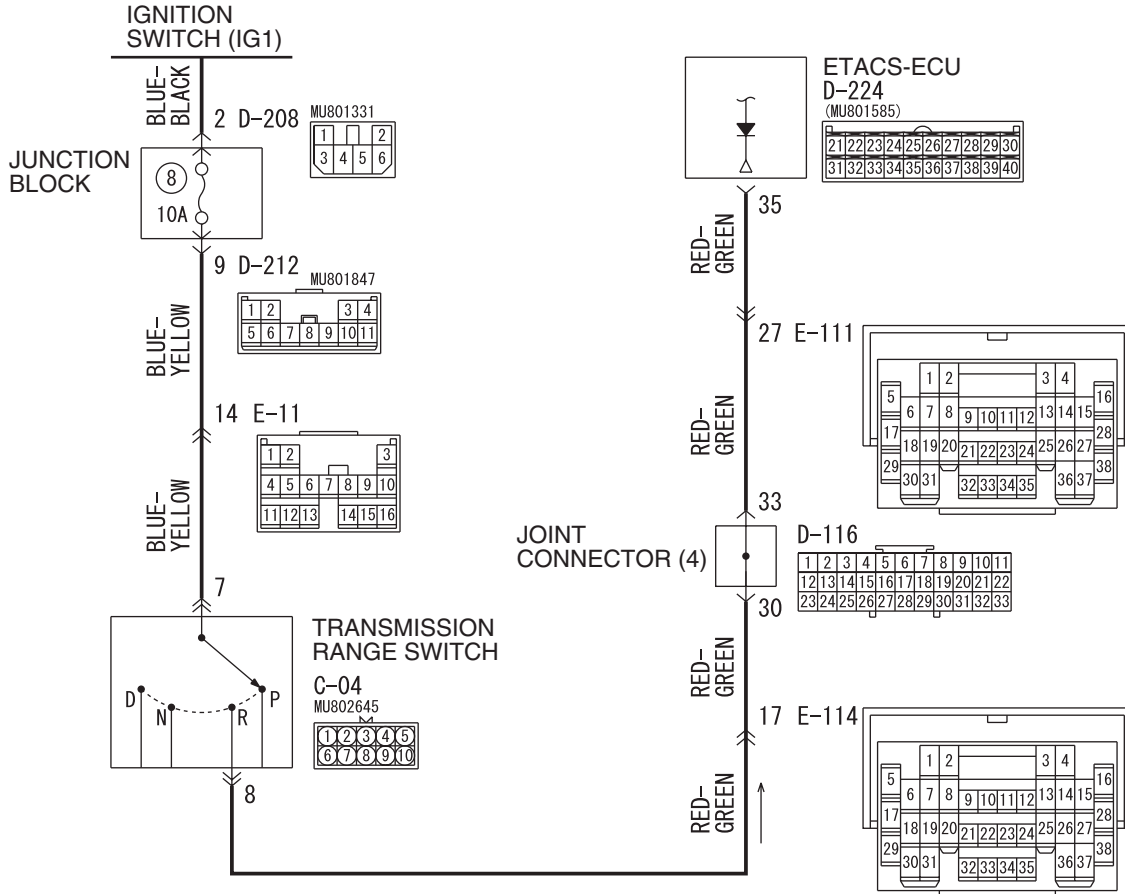
YES : Replace the ETACS-ECU. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

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 fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

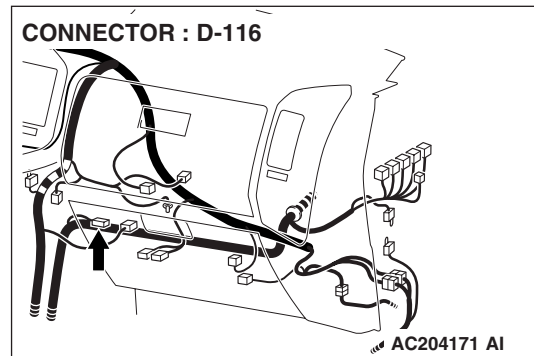
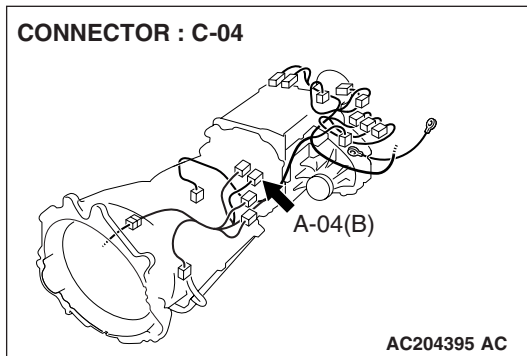


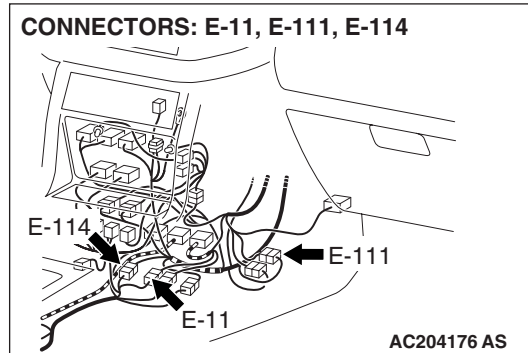
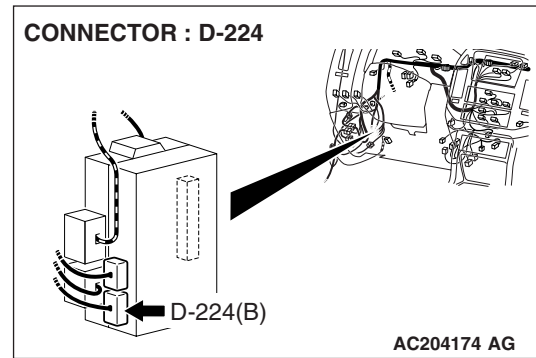
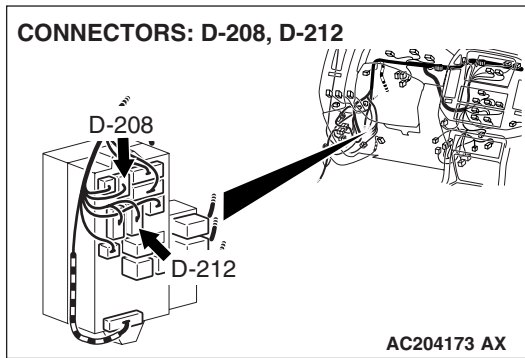
INSPECTION PROCEDURE O-4: ETACS-ECU does not receive "R" position signal from the transmission range switch.

Transmission Range Switch Input Circuit



W5Q54M026A





CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to signal from the transmission range switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the rear wiper does not operate consecutively twice when the selector lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the transmission range switch or the ETACS-ECU may be defective.

NOTE: The transmission range switch is shared with the automatic transmission control system. If this problem is not solved, carry out the troubleshooting regarding the automatic transmission control system. Refer to GROUP 23A, A/T Diagnosis P.23A-11.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

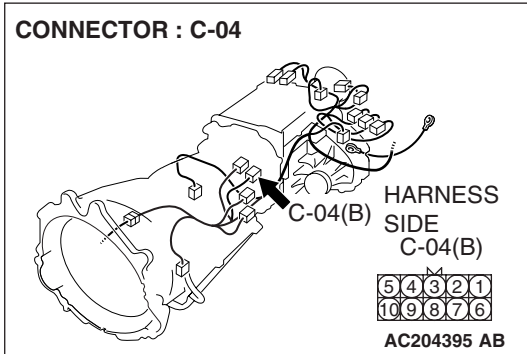
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check transmission range switch connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is transmission range switch connector C-04 in good condition?

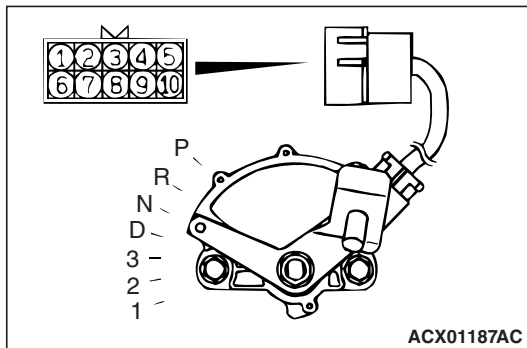
YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.



STEP 2. Check the transmission range switch.

Disconnect transmission range switch connector C-04. Then check continuity between the switch terminals.



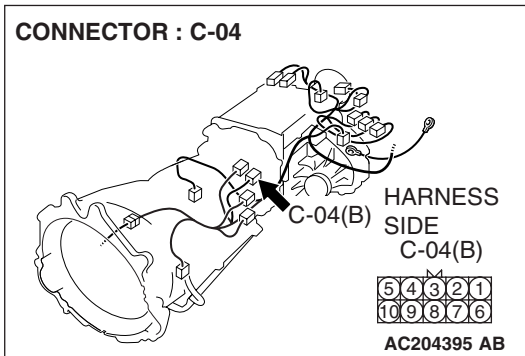
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
P, N, D	7 – 8	Open circuit
R	7 – 8	Less than 2 ohms

Q: Is the transmission range switch in good condition?

YES : Go to Step 3.

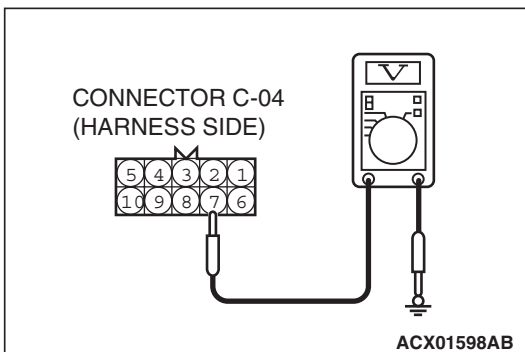
NO : Replace the transmission range switch. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

CONNECTOR : C-04



STEP 3. Check the ignition switch (IG1) line of the power supply circuit to the transmission range switch. Test at transmission range switch connector C-04.

- (1) Disconnect transmission range switch connector C-04 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.



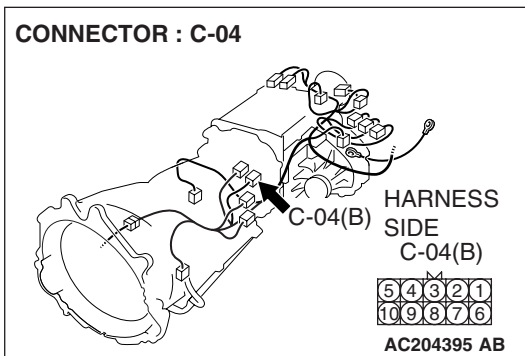
- (3) Measure the voltage between terminal 7 and ground.
 - The voltage should equal approximately 12 volts (battery positive voltage).

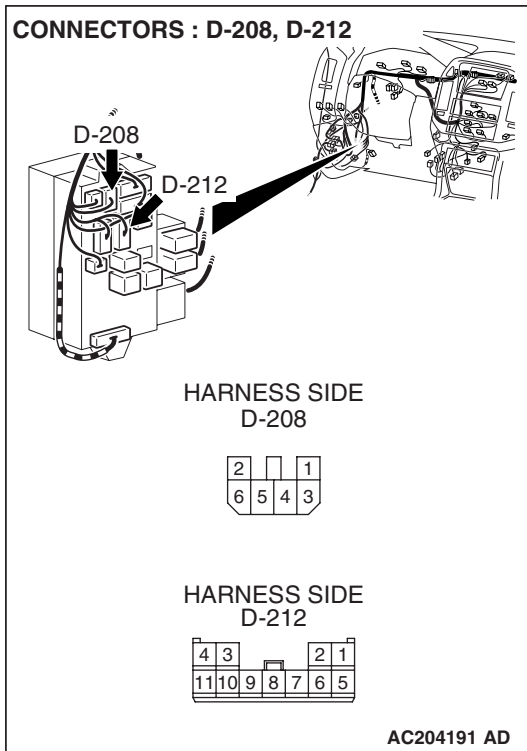
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

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

STEP 4. Check the wiring harness between transmission range switch connector C-04 (terminal 7) and the ignition switch (IG1).

CONNECTOR : C-04



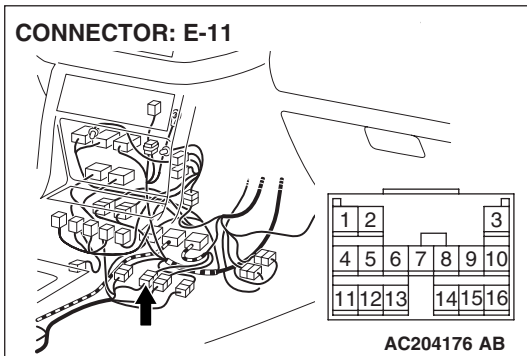


NOTE: Also check junction block connectors D-208, D-212 and intermediate connector E-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-208, D-212 or intermediate connector E-11 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between transmission range switch connector C-04 (terminal 7) 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. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

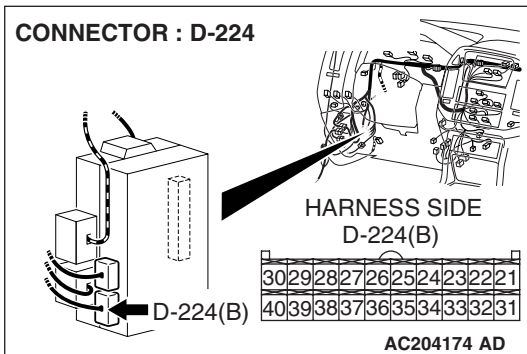


STEP 5. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

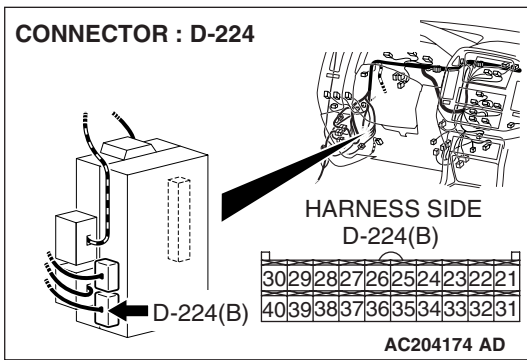
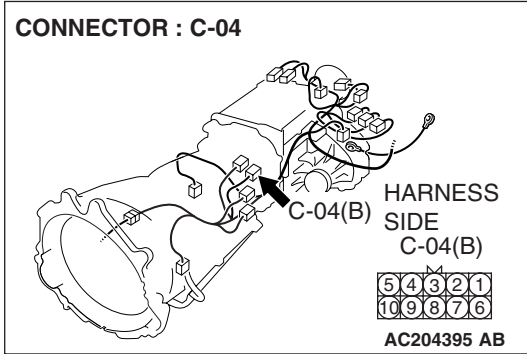
Q: Are ETACS-ECU connector D-224 in good condition?

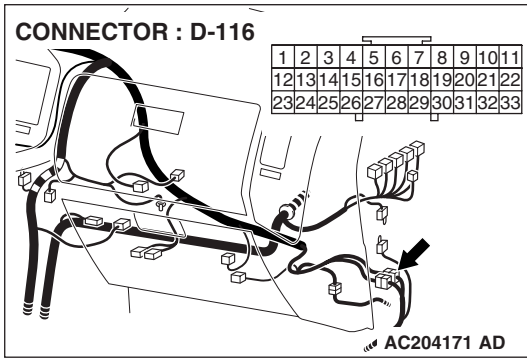
YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.



STEP 6. Check the wiring harness between transmission range switch connector C-04 (terminal 8) and ETACS-ECU connector D-224 (terminal 35).



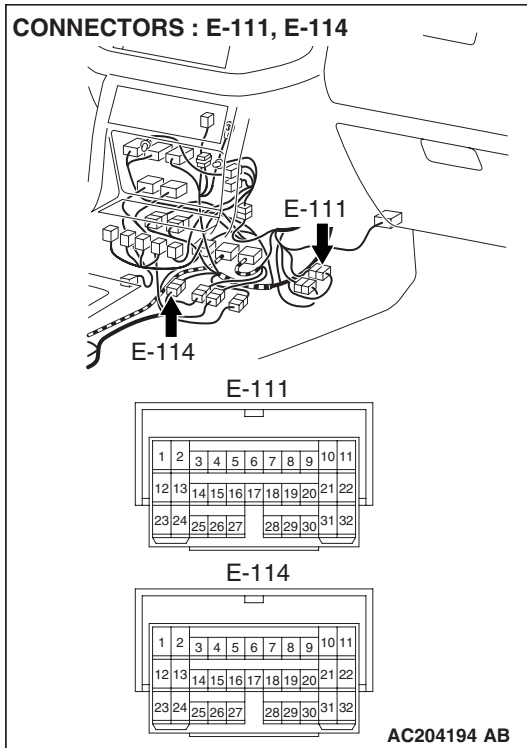


NOTE: Also check joint connector D-116, intermediate connectors E-111 and E-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-116, intermediate connector E-111 or E-114 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between transmission range switch connector C-04 (terminal 8) and ETACS-ECU connector D-224 (terminal 35) in good condition?

YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

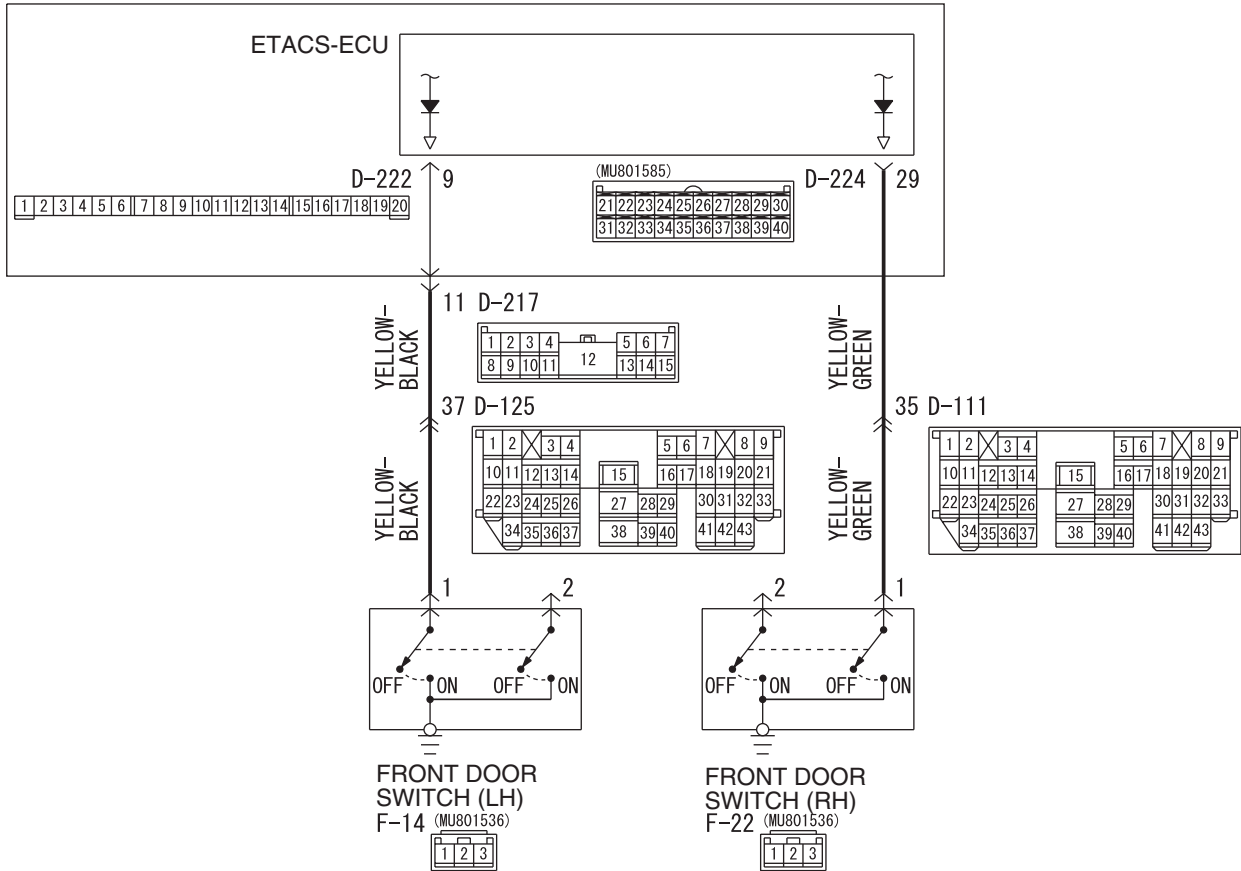
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.



INSPECTION PROCEDURE O-5: ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch.

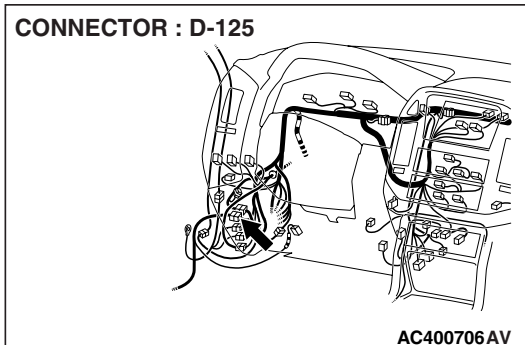
Front Door Switches Input Circuit

JUNCTION BLOCK

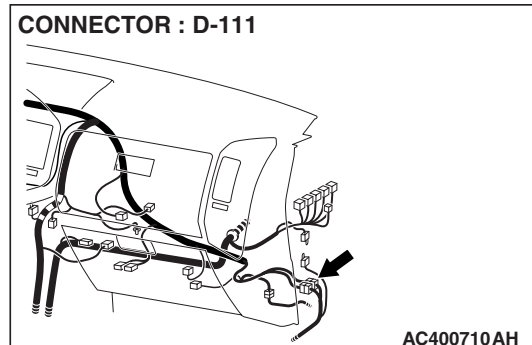


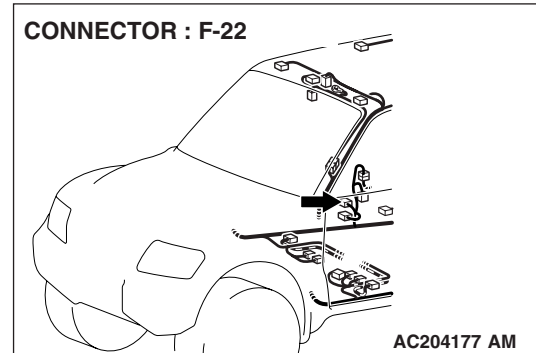
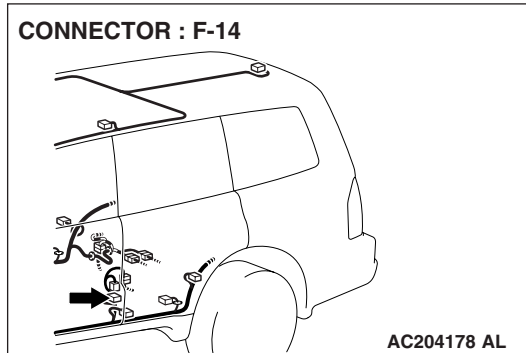
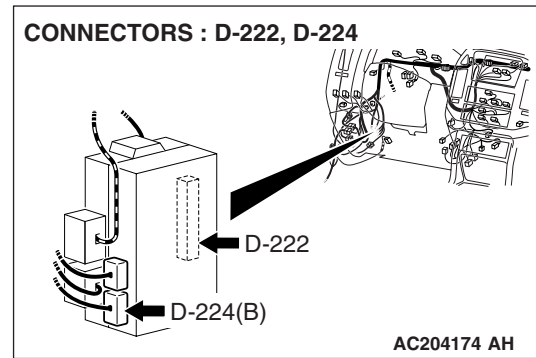
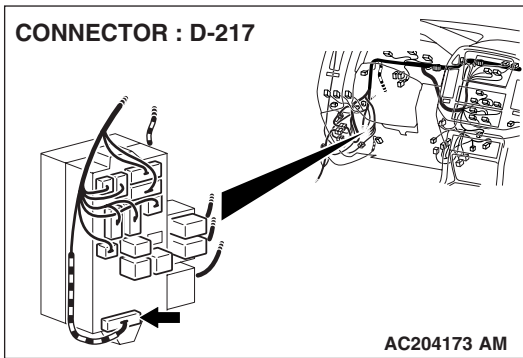
W5Q54M027A

CONNECTOR : D-125



CONNECTOR : D-111





CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's door switches:

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Power window timer function
- Headlight automatic shutdown function
- Dome light

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the driver's or front passenger's door switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The driver's or front passenger's 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
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check the input signal by using the pulse check mode of the monitor.

Check the input signals from the front door switches.

CAUTION

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

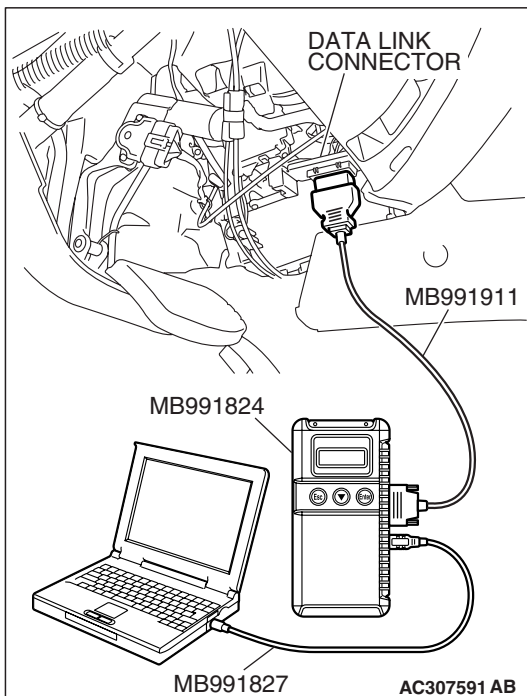
- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) When each front door is opened and closed, check if scan tool MB991958 sounds or not.

Q: Does scan tool MB991958 sound when each front door is opened and closed?

When the driver's door is opened and closed, scan tool MB991958 does not sound. : Go to Step 2.

When the front passenger's door is opened and closed, scan tool MB991958 does not sound. : Go to Step 7.

when each front door is opened and closed, scan tool MB991958 sounds. : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's or the front passenger's door switch should be normal.

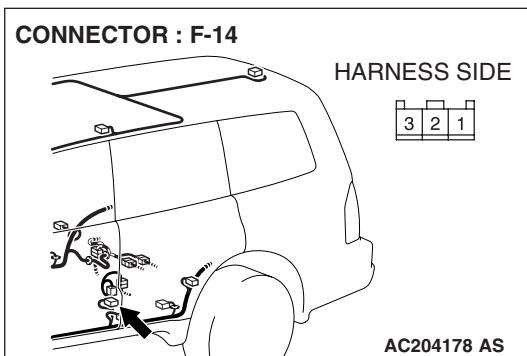


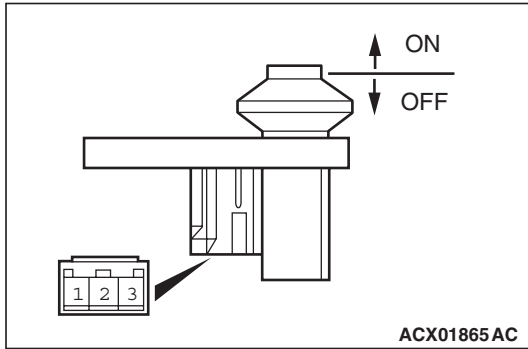
STEP 2. Check driver's door switch connector F-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is driver's door switch connector F-14 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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.





STEP 3. Check the driver's door switch.

Remove the driver's door switch. Then check the continuity between the switch terminals and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	1 – switch body	Less than 2 ohms
Depressed (OFF)	1 – switch body	Open circuit

Q: Is the driver's door switch in good condition?

YES : Go to Step 4.

NO : Replace the driver's door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

STEP 4. Measure at the lower metal part of the driver's door switch in order to check the ground circuit to the driver's door switch.

NOTE: Check that the driver's door switch is grounded to the vehicle body by means of its mounting screw.

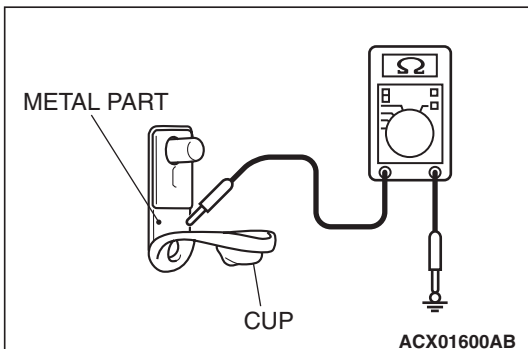
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

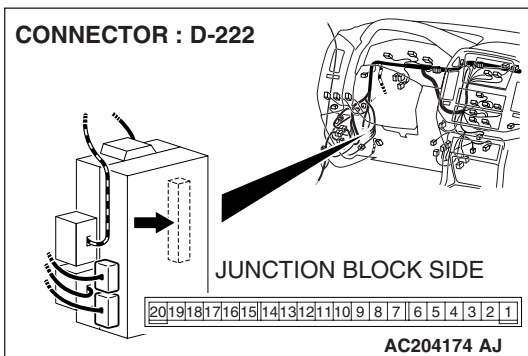


STEP 5. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

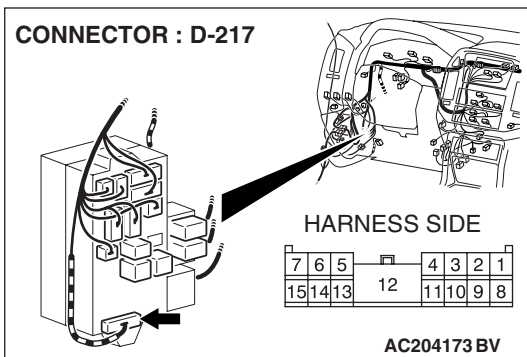
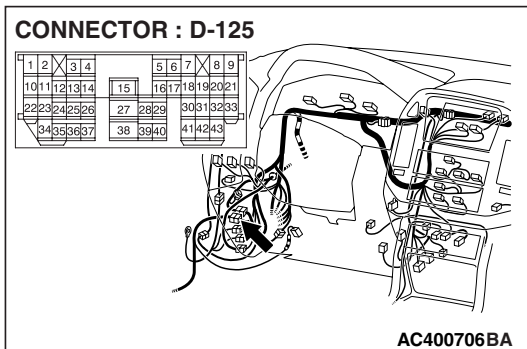
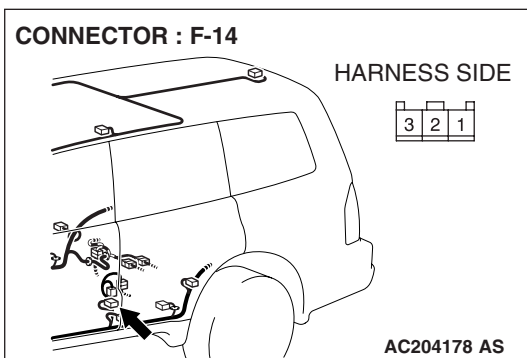
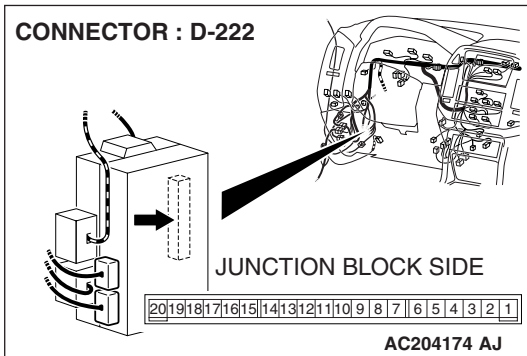
Q: Is ETACS-ECU connector D-222 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.



STEP 6. Check the wiring harness between driver's door switch connector F-14 (terminal 1) and ETACS-ECU connector D-222 (terminal 9).

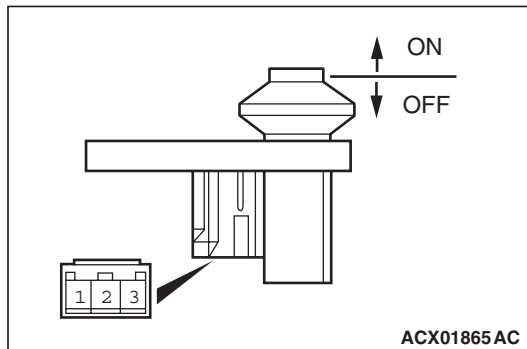
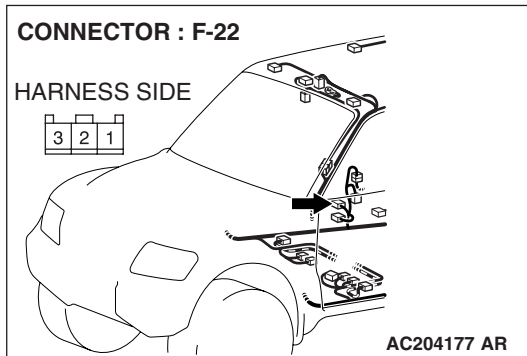


NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, Repair or replace the damaged component(s) as described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

Q: Is the wiring harness between driver's door switch connector F-14 and ETACS-ECU connector D-222 in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.



STEP 7. Check passenger's door switch connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is passenger's door switch connector F-22 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](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

STEP 8. Check the passenger's door switch.

Remove the passenger's door switch. Then check the continuity between the switch terminals and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	1 – switch body	Less than 2 ohms
Depressed (OFF)	1 – switch body	Open circuit

Q: Is the passenger's door switch in good condition?

YES : Go to Step 9.

NO : Replace the passenger's door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

STEP 9. Measure at the lower metal part of the passenger's door switch in order to check the ground circuit to the passenger's door switch.

NOTE: Check that the passenger's door switch is grounded to the vehicle body by means of its mounting screw.

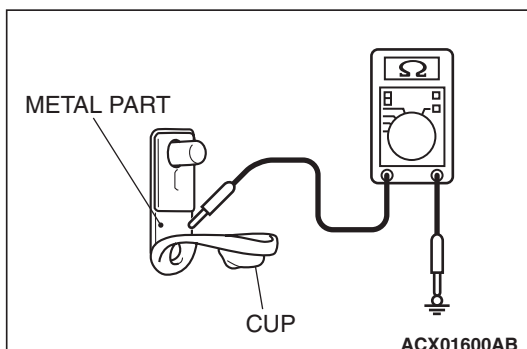
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

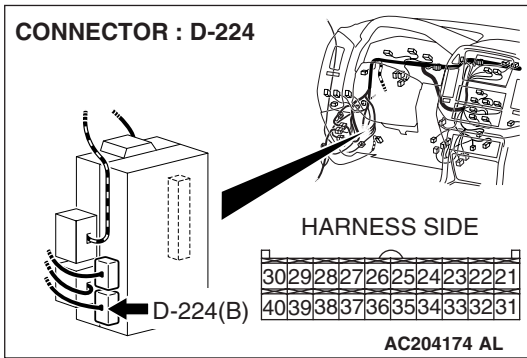


STEP 10. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

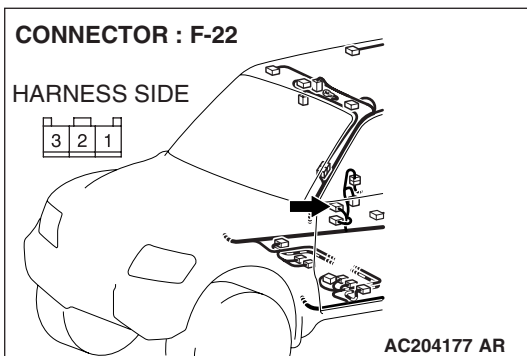
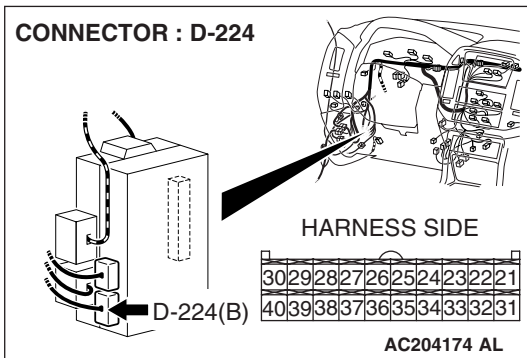
Q: Is ETACS-ECU connector D-224 in good condition?

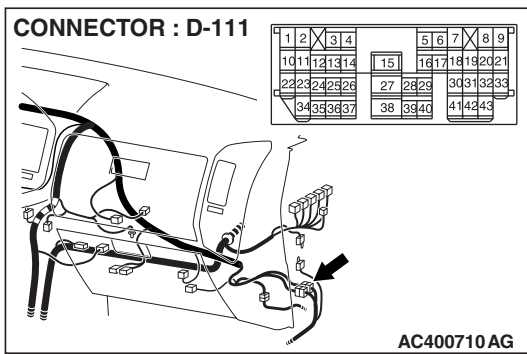
YES : Go to Step 11.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.



STEP 11. Check the wiring harness between passenger's door switch connector F-22 (terminal 1) and ETACS-ECU connector D-224 (terminal 29).





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

Q: Is the wiring harness between passenger's door switch connector F-22 (terminal 1) and ETACS-ECU connector D-224 (terminal 2) in good condition?

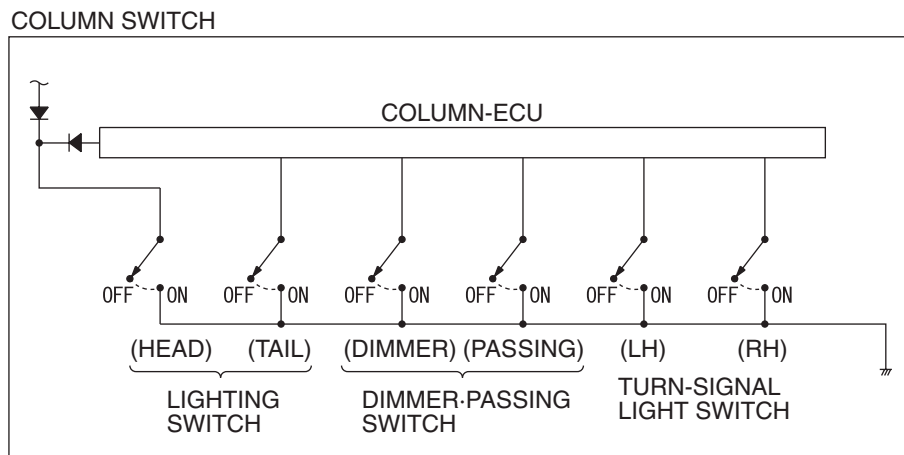
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

INSPECTION PROCEDURE O-6: Column Switch: ETACS-ECU does not receive any signal from the taillight switch, the headlight switch, the passing light switch, the dimmer switch or the turn-signal light switch.

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

Turn-Signal Light and Lighting Switch Input Circuit



W4Q54M09AA

CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions according to signal from the column switch (turn-signal light and lighting switch):

- Light reminder tone alarm function
- Headlight
- Turn-signal light

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or functions, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the column switch (turn-signal light and lighting switch) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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

Check the column-ECU.

CAUTION

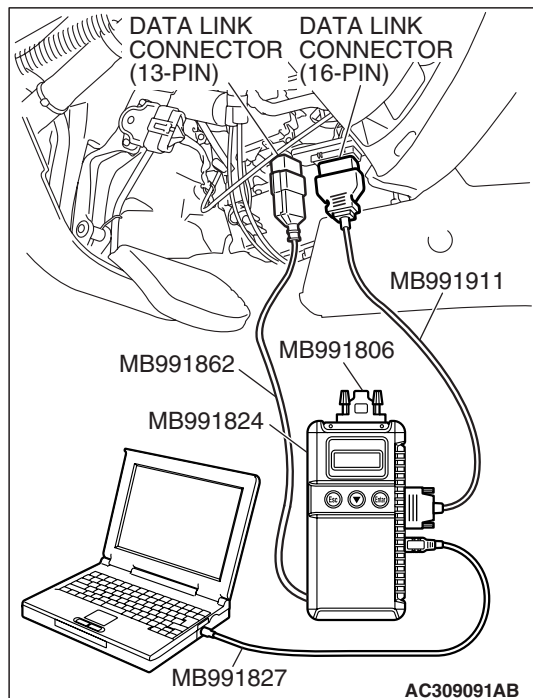
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."



STEP 2. Replace the ECU.

- (1) Replace the column switch (lighting and turn-signal light switch).
- (2) If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (lighting and turn-signal light switch) should be normal.

Q: Does the column switch (lighting and turn-signal light switch) send normal signal to the ECU?

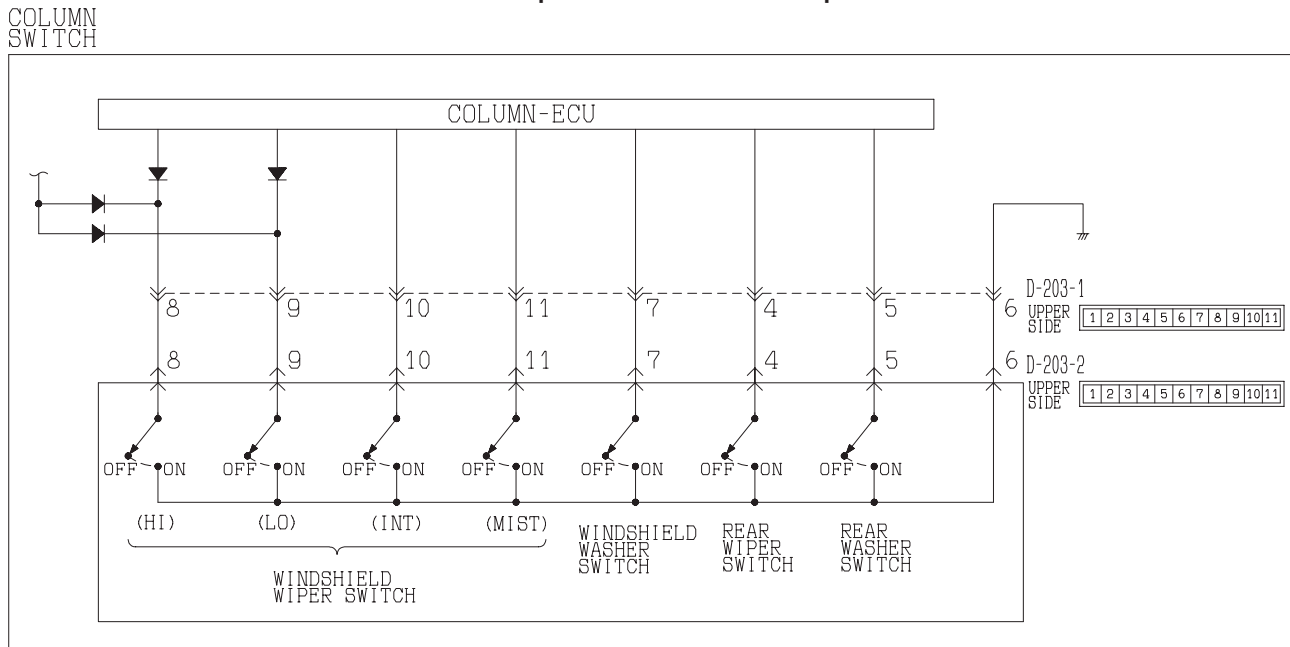
YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (lighting and turn-signal light switch) should be normal.

INSPECTION PROCEDURE O-7: Column Switch: ETACS-ECU does not receive any signal from windshield mist wiper switch, windshield intermittent wiper switch, windshield low-speed wiper switch, windshield high-speed wiper switch, windshield washer switch, rear wiper switch or rear washer switch.

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

Windshield Wiper and Washer Switch Input Circuit



W1Q15M39AA

CIRCUIT OPERATION

The ETACS-ECU operates the following equipment according to signal from the column switch (windshield wiper and washer switch):

- Windshield wiper and washer
- Rear wiper and washer

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment, which is described in "CIRCUIT OPERATION", does not work normally.

TROUBLESHOOTING HINTS

- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

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

Check the column-ECU.

⚠ CAUTION

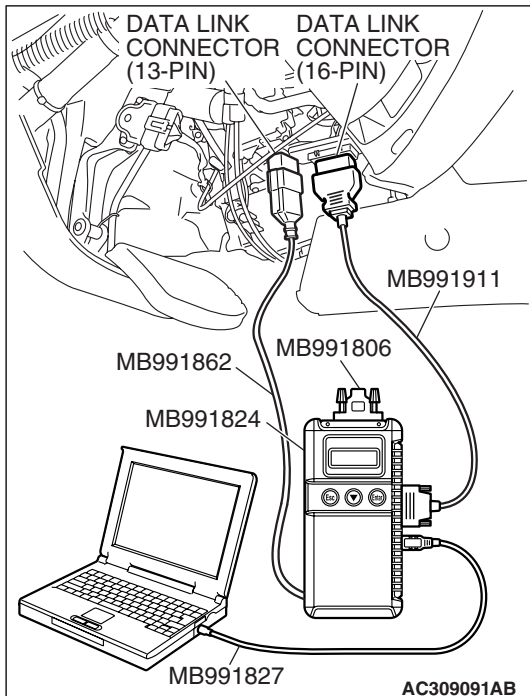
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

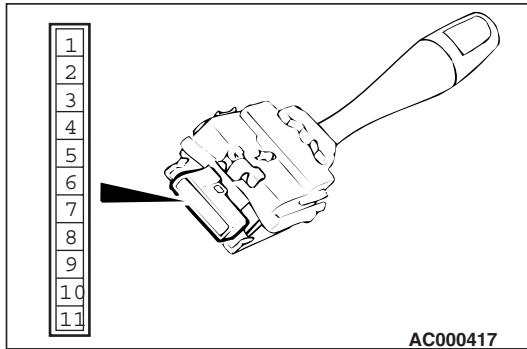
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."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

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

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is not possible P.54B-34."



**STEP 2. Check the windshield wiper and washer switch.**

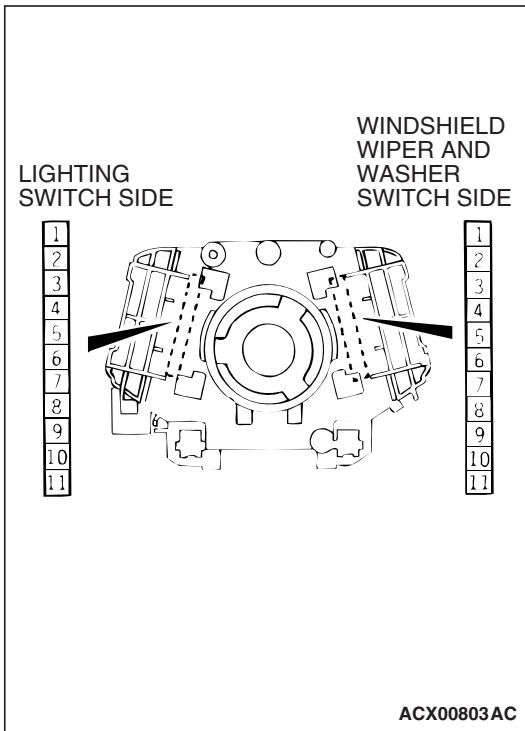
Remove the windshield wiper and washer switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	4 – 6, 5 – 6, 6 – 7, 6 – 8, 6 – 9, 6 – 10, 6 – 11	Open circuit
Windshield mist wiper switch	6 – 11	Less than 2 ohms
Windshield intermittent wiper switch	6 – 10	Less than 2 ohms
Windshield low-speed wiper switch	6 – 9	Less than 2 ohms
Windshield high-speed wiper switch	6 – 8	Less than 2 ohms
Windshield washer switch	6 – 7	Less than 2 ohms
Rear wiper switch	4 – 6	Less than 2 ohms
Rear washer switch	5 – 6	Less than 2 ohms

Q: Are the windshield wiper and washer switch in good condition?

YES : Go to Step 3.

NO : Replace the column switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.



STEP 3. Check the column switch body.

Remove the turn-signal light and lighting switch and windshield wiper and washer switch. Then check continuity between the switch body terminals.

SWITCH BODY	TESTER CONNECTION	SPECIFIED CONDITION
Lighting switch side – Windshield wiper and washer switch side	4 – 4, 5 – 5, 6 – 6, 7 – 7, 8 – 8, 9 – 9, 10 – 10, 11 – 11	Less than 2 ohms

Q: Is the switch body in good condition?

YES : Go to Step 4.

NO : Replace the column switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

STEP 4. Replace the ECU.

- (1) Replace the column switch (turn-signal light and lighting switch).
- (2) If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

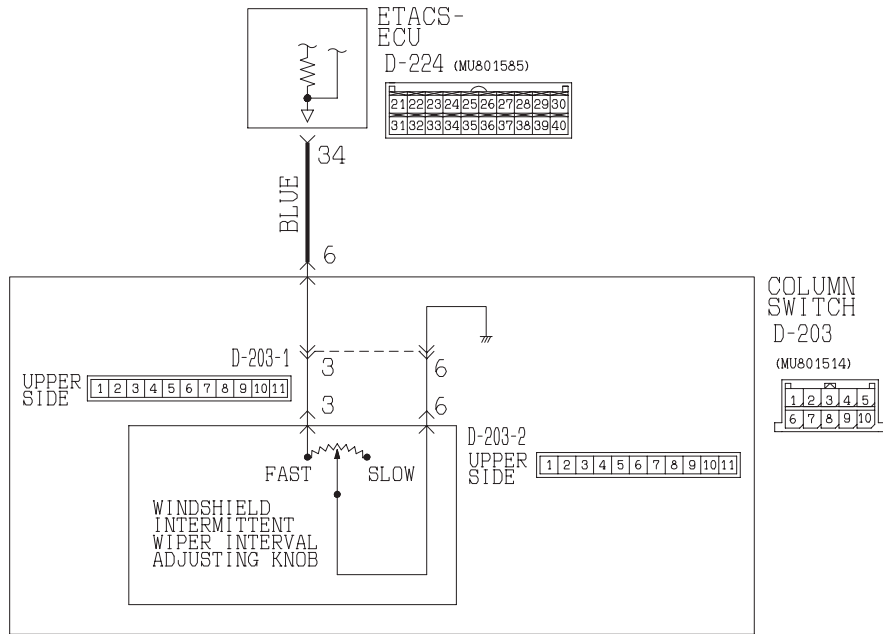
Q: Does the column switch (windshield wiper and washer switch) send a normal signal to the ECU?

YES : No action is necessary and testing is complete.

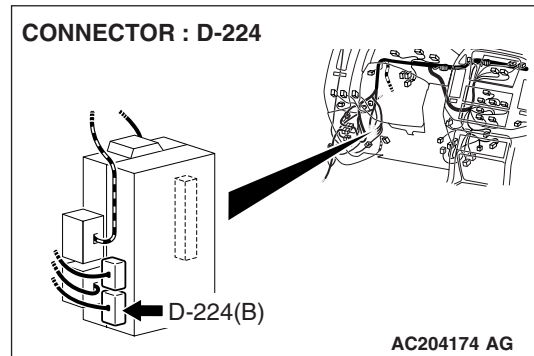
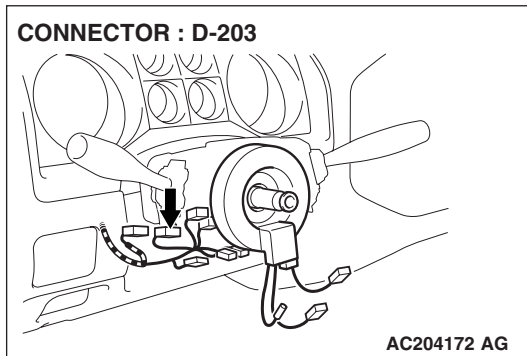
NO : Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

INSPECTION PROCEDURE O-8: Column Switch: ETACS-ECU does not receive any signal from the windshield intermittent wiper interval adjusting knob.

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



W1Q15M40AA



CIRCUIT OPERATION

The ETACS-ECU calculates the windshield intermittent wiper interval according to the position of the windshield intermittent wiper interval adjusting knob, which is incorporated in column switch (windshield wiper and washer switch).

TECHNICAL DESCRIPTION (COMMENT)

If the windshield intermittent wiper interval can not be adjusted, the column switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

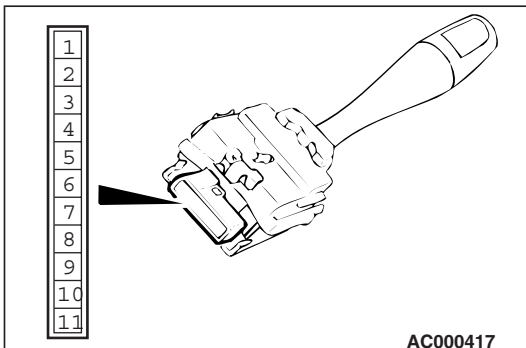
STEP 1. Check the windshield intermittent wiper interval adjusting knob.

- (1) Remove the windshield wiper and washer switch, and check at the switch side.
- (2) Measure the resistance value between terminals 3 and 6. The measured resistance should change smoothly from approximately 0 ohm ("FAST" position) to 1 kiloohm ("SLOW" position).

Q: Is the windshield intermittent wiper interval adjusting knob in good condition?

YES : Go to Step 2.

NO : Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.



STEP 2. Check the column switch body.

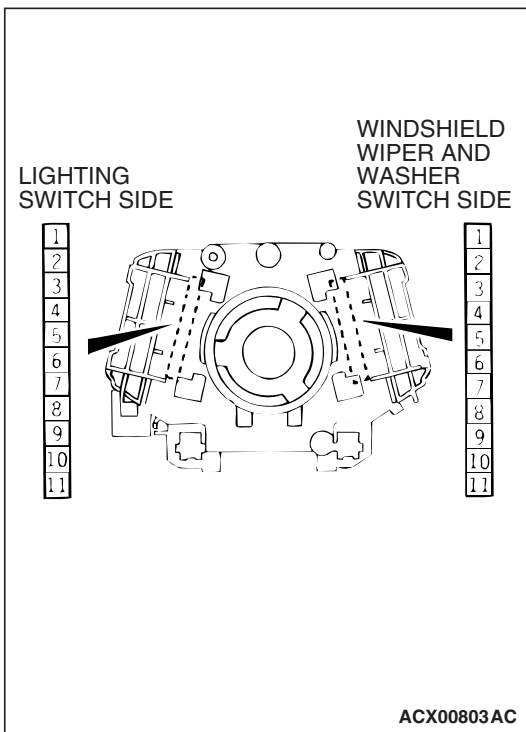
Remove the turn-signal light and lighting switch and windshield wiper and washer switch. Then check continuity between the switch body terminals.

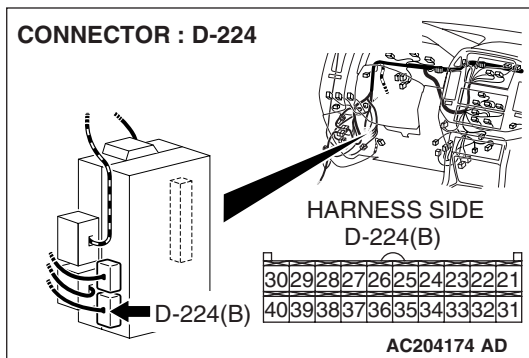
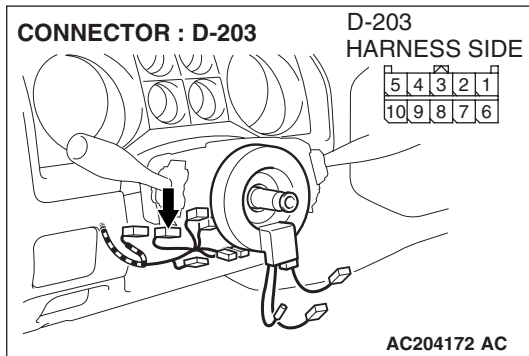
SWITCH BODY	TESTER CONNECTION	SPECIFIED CONDITION
Lighting switch side – Windshield wiper and washer switch side	3 – 3, 6 – 6	Less than 2 ohms

Q: Is the column switch body in good condition?

YES : Go to Step 3.

NO : Replace the column switch body. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.





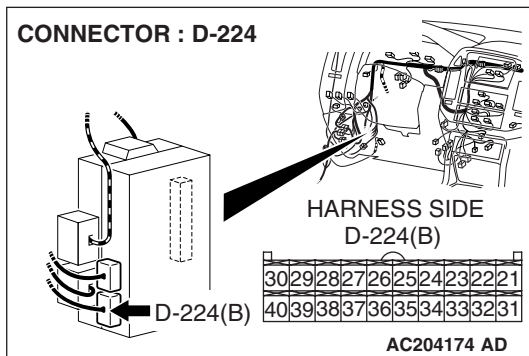
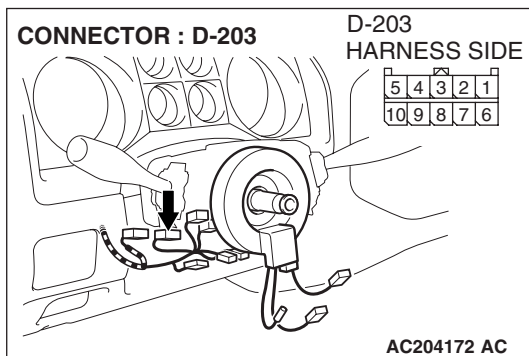
STEP 3. Check column switch connector D-203 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are column switch connector D-203 and ETACS-ECU connector D-224 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. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.



STEP 4. Check the wiring harness between column switch connector D-203 (terminal 6) and ETACS-ECU connector D-224 (terminal 34).

Q: Is the wiring harness between column switch connector D-203 (terminal 6) and ETACS-ECU connector D-224 (terminal 34) in good condition?

YES : Go to Step 5.

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 wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

STEP 5. Replace the ECU.

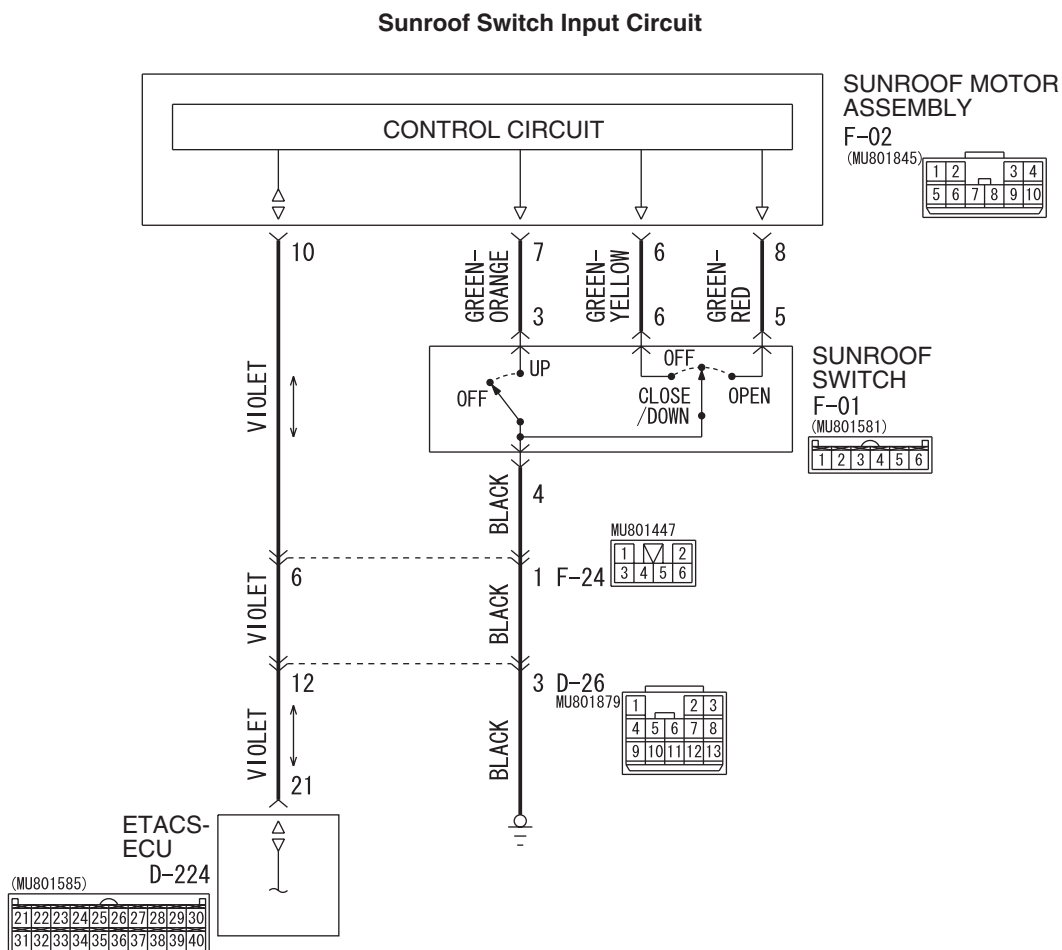
- (1) Replace the ETACS-ECU.
- (2) If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

Q: Can input signal be confirmed when the windshield intermittent wiper interval adjusting knob is operated?

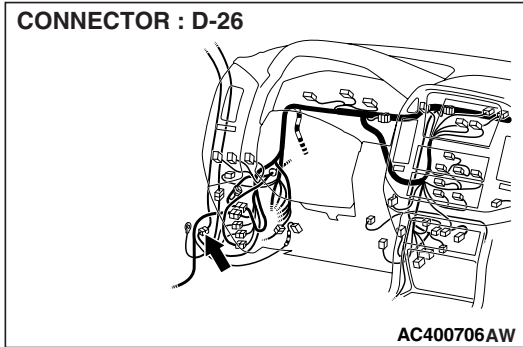
YES : No action is necessary and testing is complete.

NO : Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

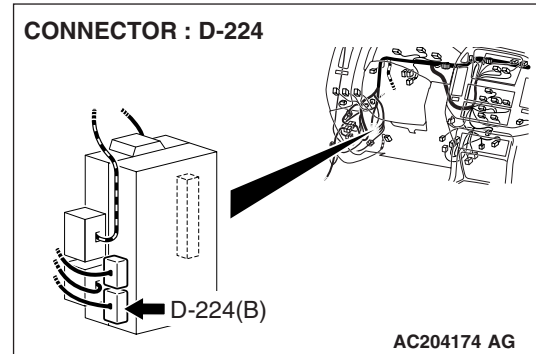
INSPECTION PROCEDURE O-9: Sunroof Switch: ETACS-ECU does not receive any signal from the up, open or close/down switch.



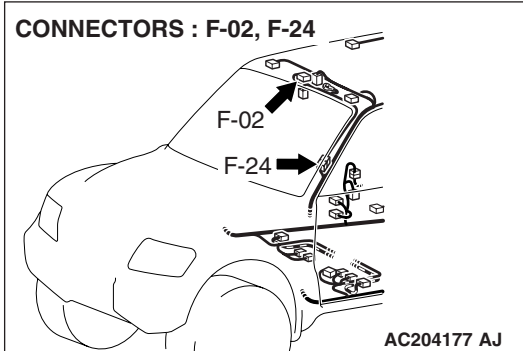
CONNECTOR : D-26



CONNECTOR : D-224



CONNECTORS : F-02, F-24

**CIRCUIT OPERATION**

The ETACS-ECU receives a signal through the sunroof motor assembly via the SWS communication line from the sunroof switch, and sends a signal to the data link connector.

TECHNICAL DESCRIPTION (COMMENT)

If the SWS communication line between the sunroof motor assembly and the ETACS-ECU is defective, the ETACS-ECU cannot identify the input signal from the sunroof switch even if the sunroof is normal.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Verify the sunroof operation.

Q: Does the sunroof work normally?

YES : Go to Step 2.

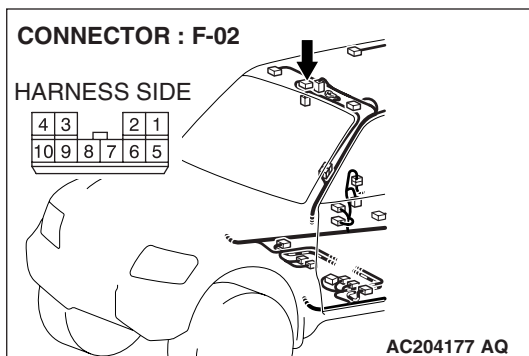
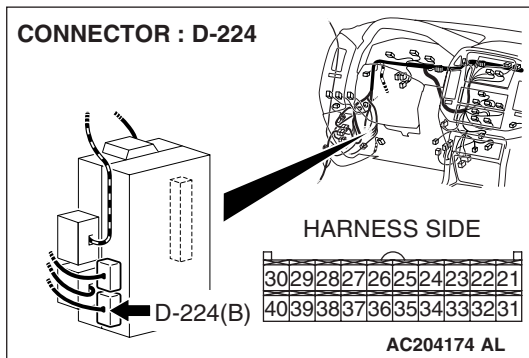
NO : Refer to Inspection Procedure F-1 "Sunroof does not operate [P.54B-204](#)."

STEP 2. Check sunroof motor assembly connector F-02 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

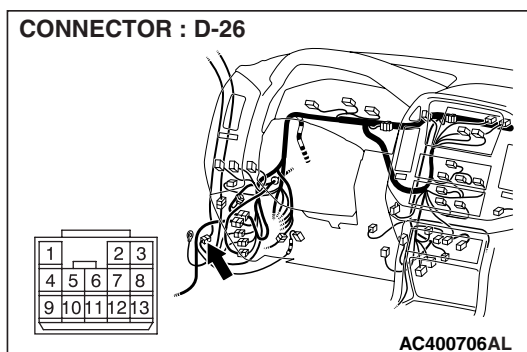
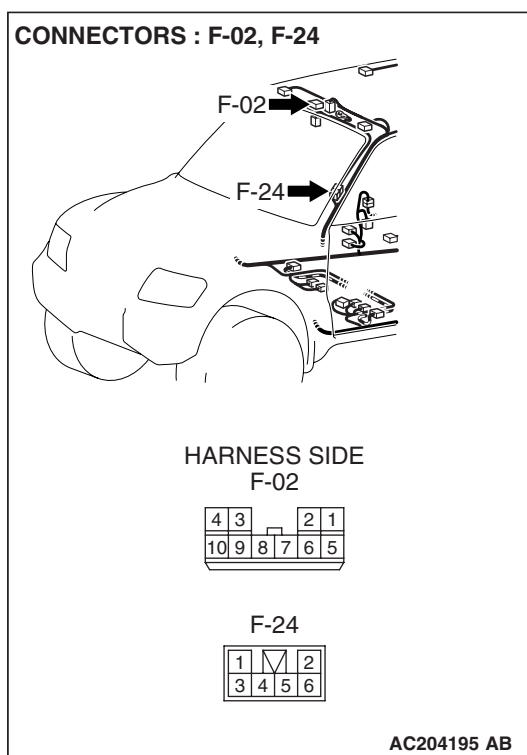
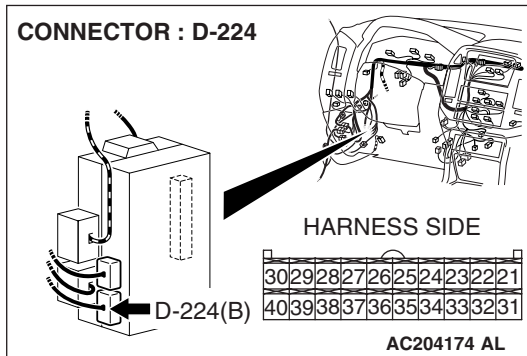
Q: Are sunroof motor assembly connector F-02 and ETACS-ECU connector D-224 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.



STEP 3. Check the wiring harness between sunroof motor assembly connector F-02 (terminal 10) and ETACS-ECU connector D-224 (terminal 21).



NOTE: Also check intermediate connectors F-24 and D-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-24 or D-26 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector F-02 (terminal 10) and ETACS-ECU connector D-224 (terminal 21) in good condition?

YES : Go to Step 4.

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 sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

STEP 4. Replace the ECU.

- (1) Replace the sunroof motor assembly.
- (2) If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

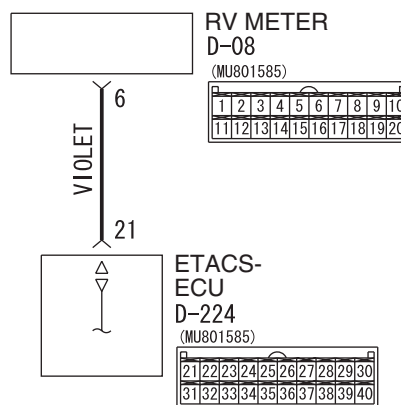
Q: Does the ETACS-ECU receive correct signals from the sunroof switch?

YES : No action is necessary and testing is complete.

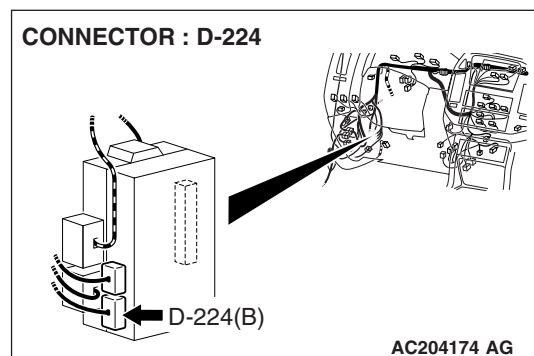
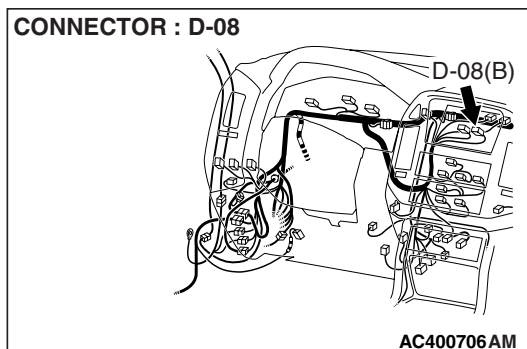
NO : Replace the ETACS-ECU. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

INSPECTION PROCEDURE O-10: RV Meter: ETACS-ECU does not receive any signal from any control switches.

RV Meter Any Control Switch Circuit



W5Q54M029A



CIRCUIT OPERATION

The RV meter sends a tone alarm request signal to the SWS communication line. If the ETACS-ECU receives the request signal, it sounds its tone alarm.

TECHNICAL DESCRIPTION (COMMENT)

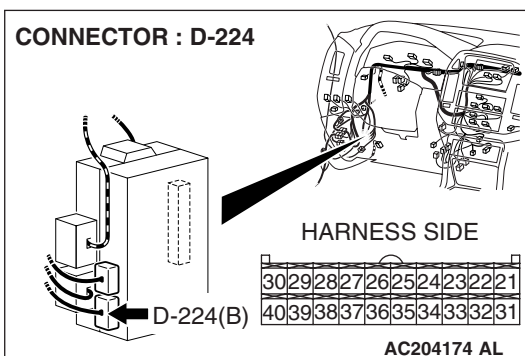
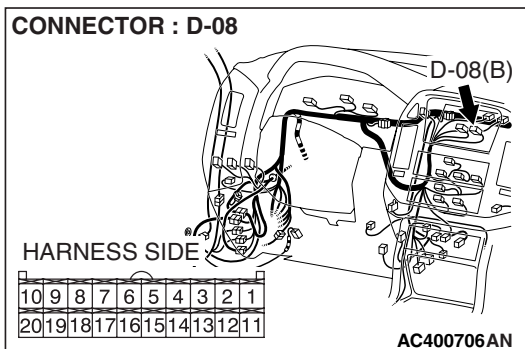
If the SWS communication line between the RV meter and the ETACS-ECU is defective, the ETACS-ECU can not identify any input signals from the RV meter even if the RV meter is normal.

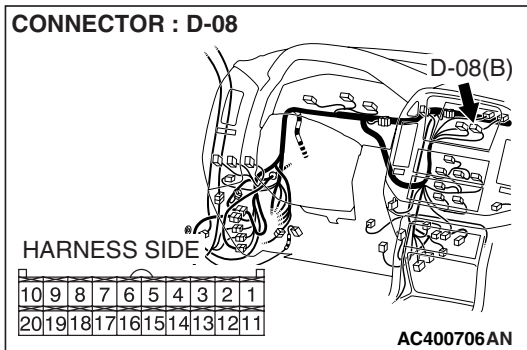
TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check the RV meter.**Q: Does the RV meter work normally?****YES** : Go to Step 2.**NO** : First, repair the RV meter. Refer to GROUP 54A, RV meter [P.54A-283](#).**STEP 2. Check RV meter connector D-08 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Are RV meter connector D-08 and ETACS-ECU connector D-224 in good condition?****YES** : Go to Step 3.**NO** : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the RV meter operating sound function works normally, it indicates that a correct signal is sent from the RV meter switch.

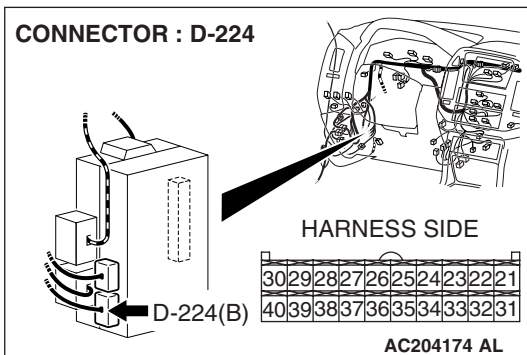


STEP 3. Check the wiring harness between RV meter connector D-08 (terminal 6) and ETACS-ECU connector D-224 (terminal 21).

Q: Is the wiring harness between RV meter connector D-08 (terminal 6) and ETACS-ECU connector D-224 (terminal 21) in good condition?

YES : Go to Step 4.

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 RV meter works normally, it indicates that a correct signal is sent from the RV meter switch.



STEP 4. Replace the ECU.

- (1) Replace the RV meter.
- (2) If the RV meter works normally, it indicates that a correct signal is sent from the RV meter switch.

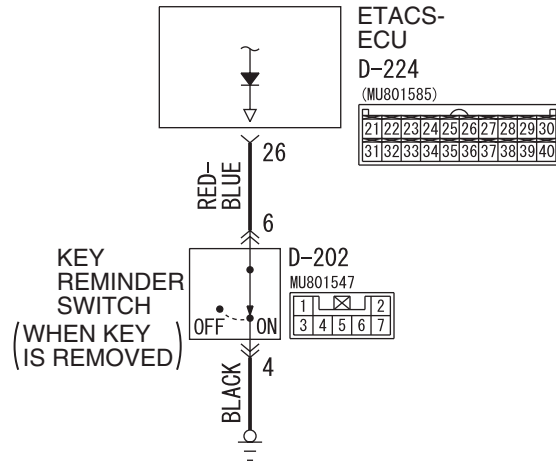
Q: Does the ETACS-ECU receive correct signals from the RV meter switch?

YES : No action is necessary and testing is complete.

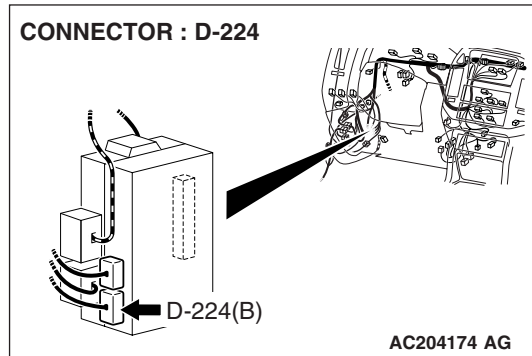
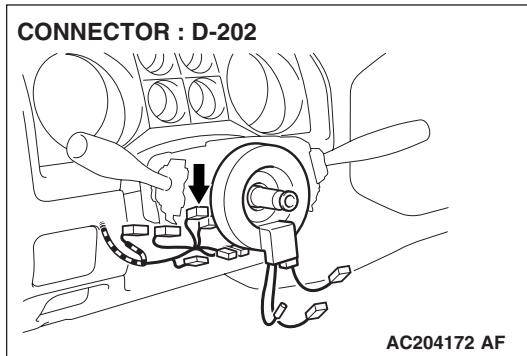
NO : Replace the ETACS-ECU. If the RV meter works normally, it indicates that a correct signal is sent from the RV meter switch.

INSPECTION PROCEDURE P-1: ETACS-ECU does not receive any signal from the key reminder switch.

Key Reminder Switch Input Circuit



W5Q54M030A



CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the key reminder switch:

- Ignition key reminder tone alarm function
- Keyless entry system
- Dome light dimming function

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

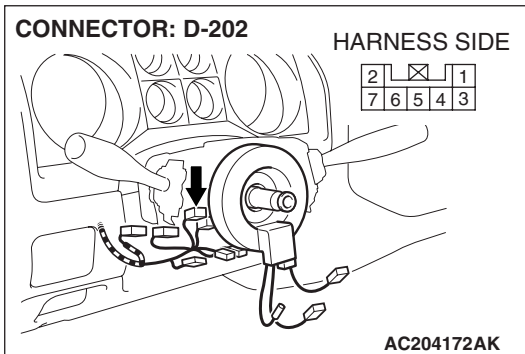
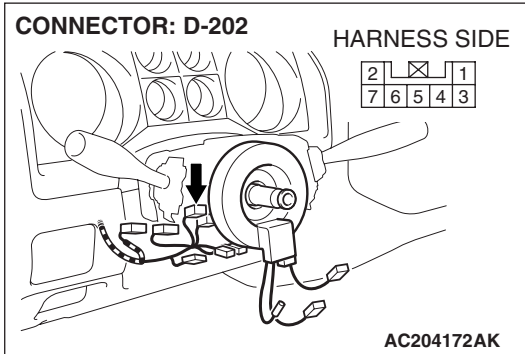
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check key reminder switch connector D-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector D-202 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



STEP 2. Check the key reminder switch.

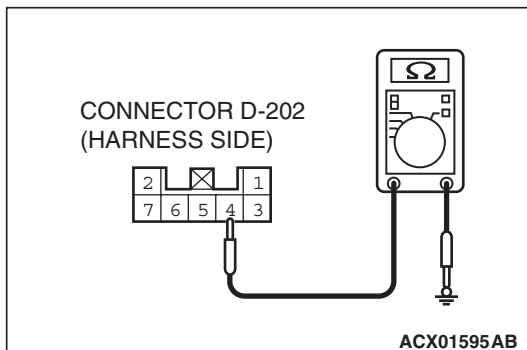
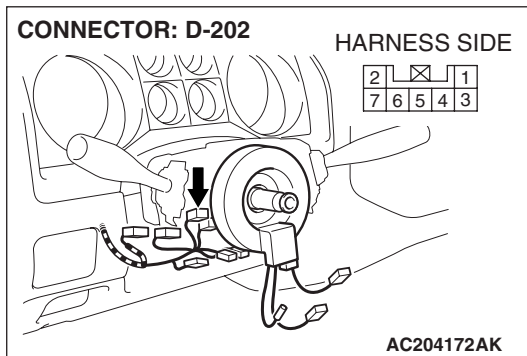
Disconnect key reminder switch connector D-202. Then check continuity between terminals.

IGNITION KEY	TESTER CONNECTION	SPECIFIED CONDITION
Inserted	4 – 6	Open circuit
Removed	4 – 6	Less than 2 ohms

Q: Is the key reminder switch in good condition?

YES : Go to Step 3.

NO : Replace the key reminder switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



STEP 3. Check the ground circuit to the key reminder switch. Test at key reminder switch connector D-202.

(1) Disconnect key reminder switch connector D-202 and measure the resistance available at the wiring harness side of the connector.

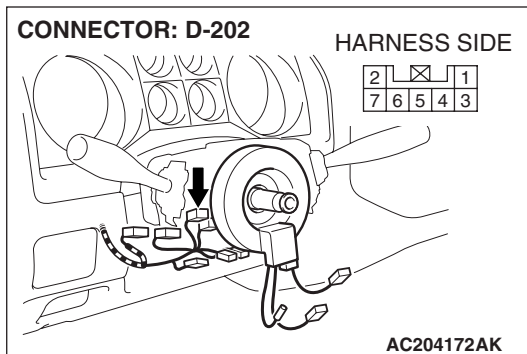
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

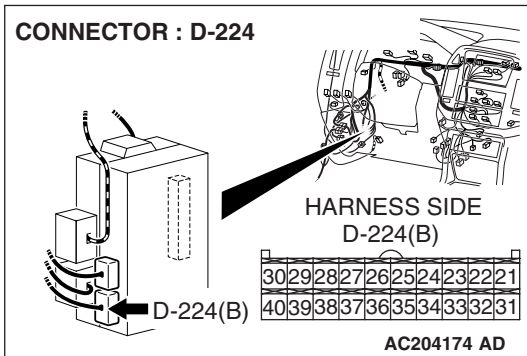


STEP 4. Check the wiring harness between key reminder switch connector D-202 (terminal 4) and ground.

Q: Is the wiring harness between key reminder switch connector D-202 (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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

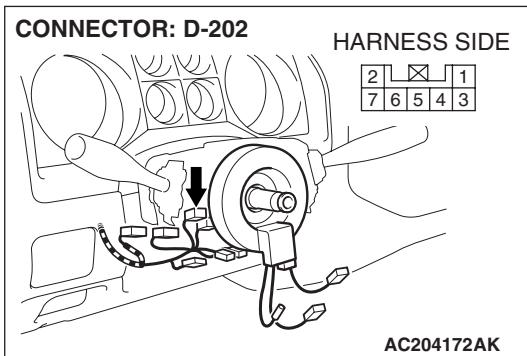


STEP 5. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

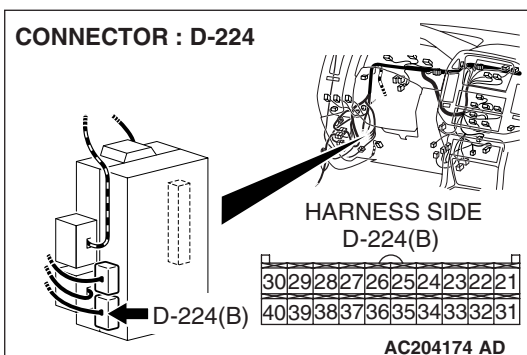


STEP 6. Check the wiring harness between key reminder switch connector D-202 (terminal 6) and ETACS-ECU connector D-224 (terminal 26).

Q: Is the wiring harness between key reminder switch connector D-202 (terminal 6) and ETACS-ECU connector D-224 (terminal 26) in good condition?

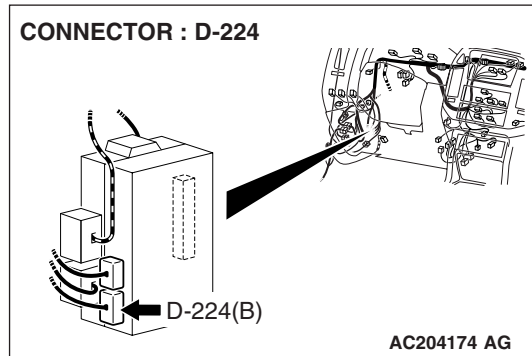
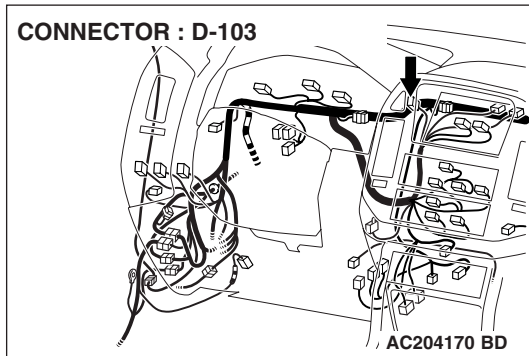
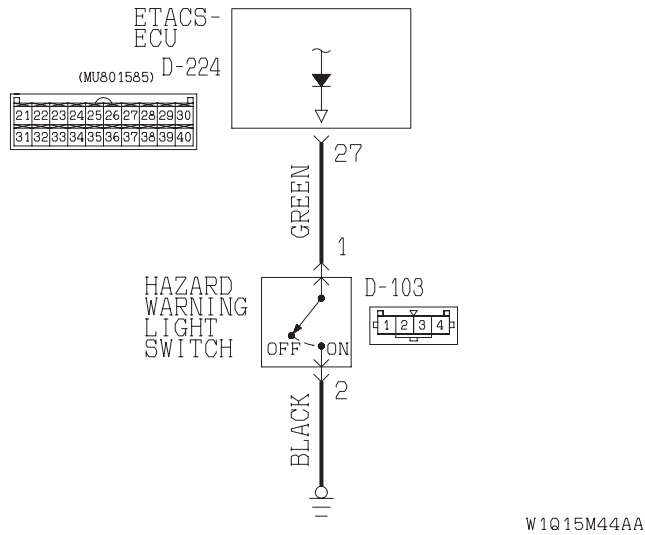
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



INSPECTION PROCEDURE P-2: ETACS-ECU does not receive any signal from the hazard warning light switch.

Hazard Warning Light Switch Input Circuit



CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the hazard warning light switch:

- Hazard warning light
- Keyless entry system (registering the encrypted code)

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment or systems, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

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

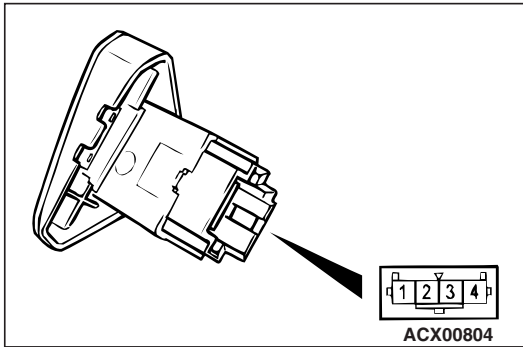
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the hazard warning light switch.

Remove the hazard warning light switch. Then check continuity between the switch terminals.



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Open circuit
Pressed	1 – 2	Less than 2 ohms

Q: Is the hazard warning light switch in good condition?

YES : Go to Step 2.

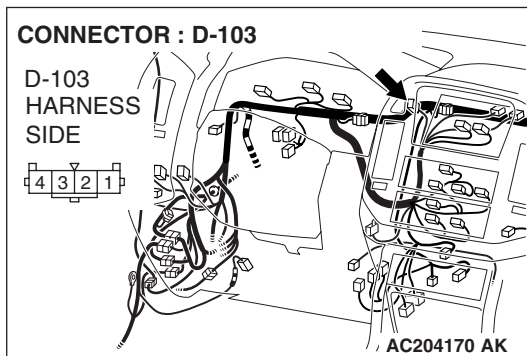
NO : Replace the hazard warning light switch. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

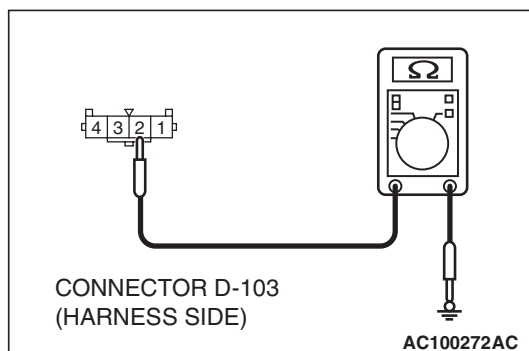
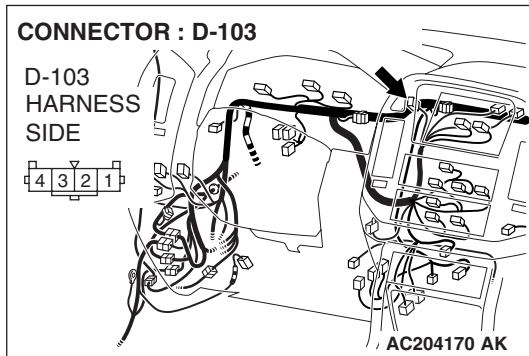
STEP 2. Check hazard warning light switch connector D-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hazard warning light switch connector D-103 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](#). If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.





STEP 3. Check the ground circuit to the hazard warning light switch. Test at hazard warning light switch connector D-103.

(1) Disconnect hazard warning light switch connector D-103 and measure the resistance available at the wiring harness side of the connector.

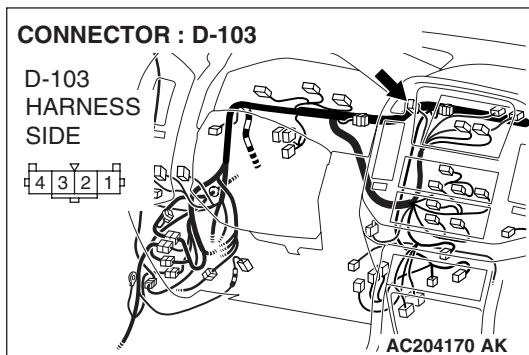
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

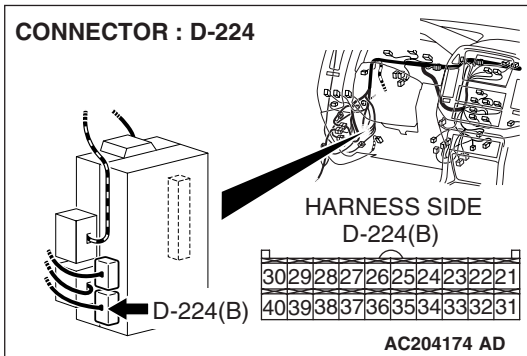


STEP 4. Check the wiring harness between hazard warning light switch connector D-103 (terminal 2) and ground.

Q: Is the wiring harness between hazard warning light switch connector D-103 (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. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

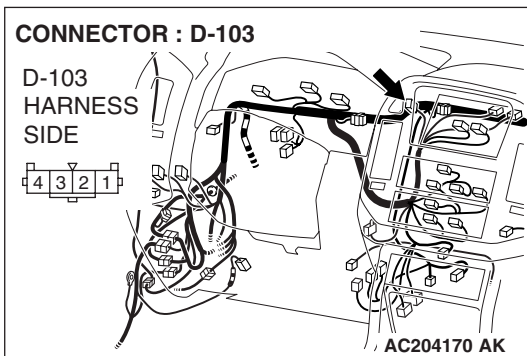


STEP 5. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

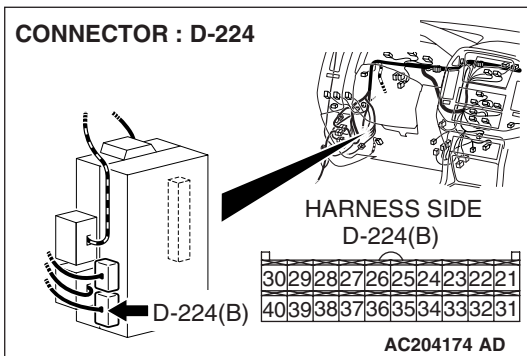


STEP 6. Check the wiring harness between hazard warning light switch connector D-103 (terminal 1) and ETACS-ECU connector D-224 (terminal 27).

Q: Is the wiring harness between hazard warning light switch connector D-103 (terminal 1) and ETACS-ECU connector D-224 (terminal 27) in good condition?

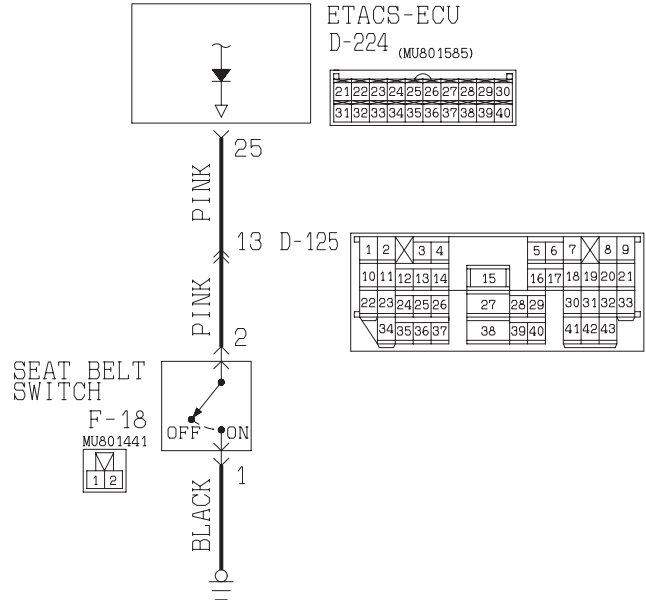
YES : Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

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 equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

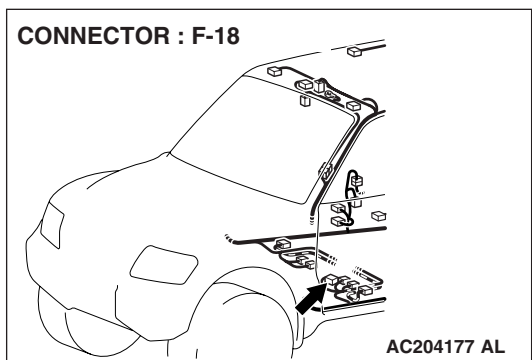
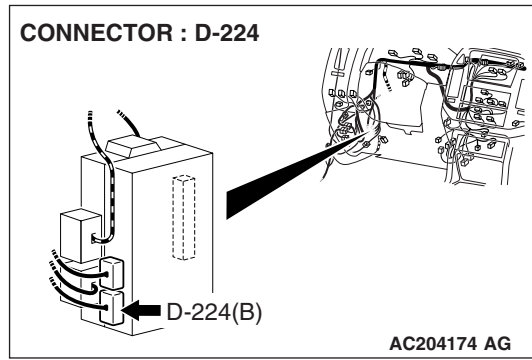
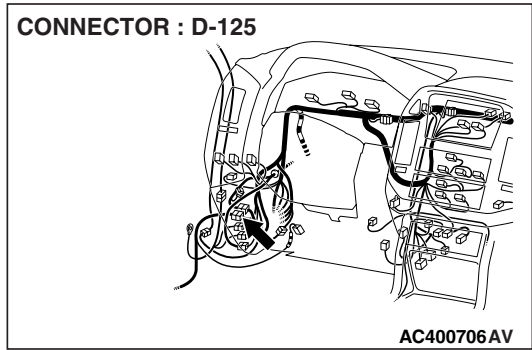


INSPECTION PROCEDURE P-3: ETACS-ECU does not receive any signal from the driver's seat belt switch.

Seat Belt Switch Input Circuit



W3Q04M23AA



CIRCUIT OPERATION

The ETACS-ECU operates the following functions and equipment according to signal from the driver's seat belt switch:

- Seat belt tone alarm function
- Seat belt warning light

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment and functions, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

- The driver's inner seat belt (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:

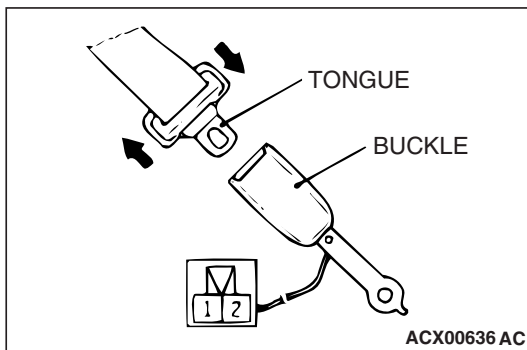
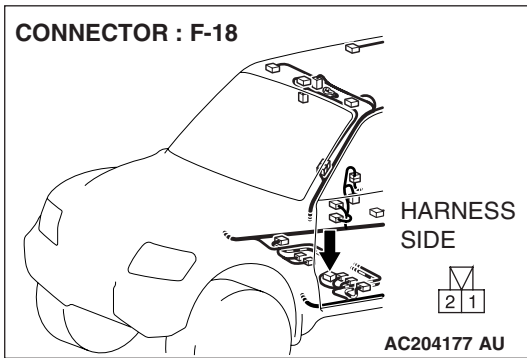
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check driver's seat belt switch connector F-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is driver's seat belt switch connector F-18 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



STEP 2. Check the driver's seat belt switch.

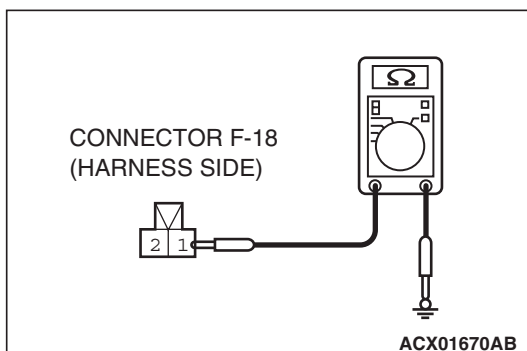
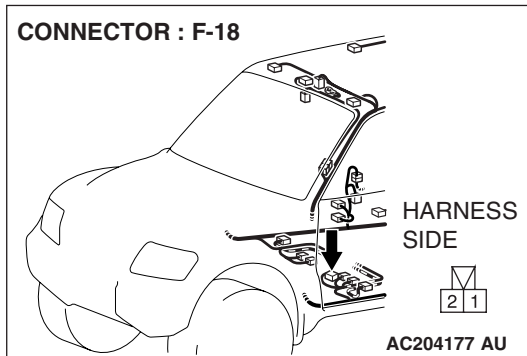
Disconnect driver's seat belt switch connector F-18. Then check continuity between the switch terminals.

ITEM	TESTER CONNECTION	SPECIFIED CONDITION
Fastened seat belt	1 - 2	Open circuit
Unfastened seat belt	1 - 2	Less than 2 ohms

Q: Is the driver's seat belt switch in good condition?

YES : Go to Step 3.

NO : Replace the driver's inner seat belt. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



STEP 3. Check the battery ground circuit to the driver's seat belt switch. Test at driver's seat belt switch connector F-18.

(1) Disconnect driver's seat belt switch connector F-18 and measure the resistance available at the wiring harness side of the connector.

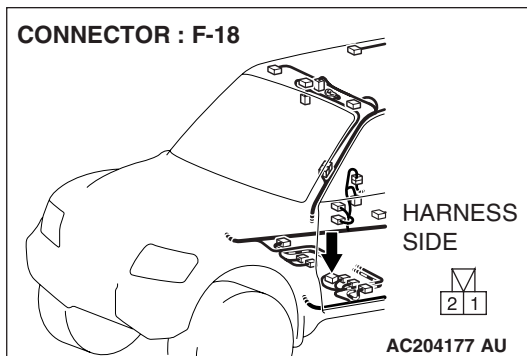
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between driver's seat belt switch connector F-18 (terminal 1) and ground.

Q: Is the wiring harness between driver's seat belt switch connector F-18 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

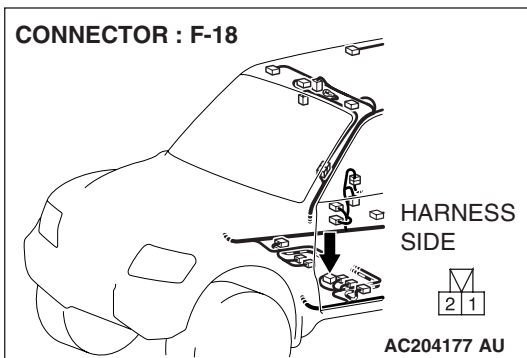
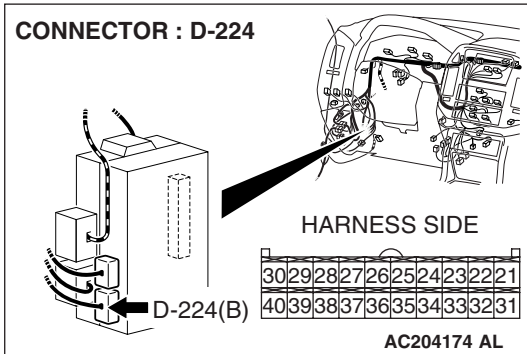
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

STEP 5. Check driver's seat belt switch connector F-18 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

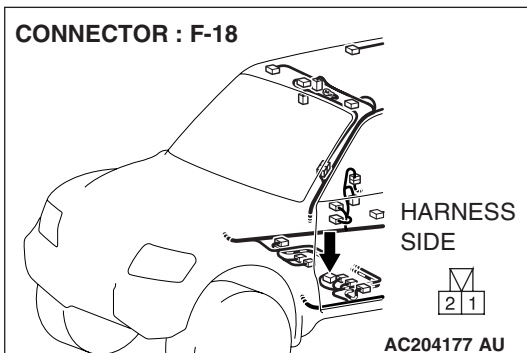
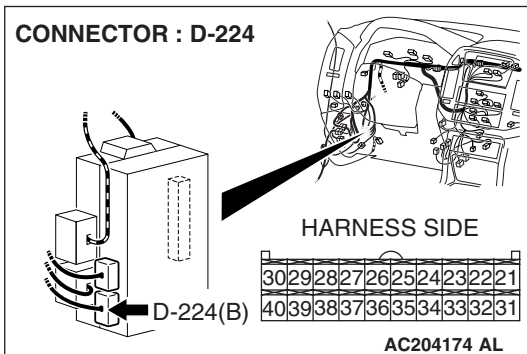
Q: Are driver's seat belt switch connector F-18 and ETACS-ECU connector D-224 in good condition?

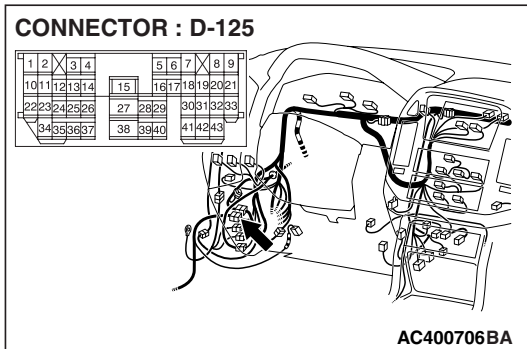
YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



STEP 6. Check the wiring harness between driver's seat belt switch connector F-18 (terminal 2) and ETACS-ECU connector D-224 (terminal 25).





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

Q: Is the wiring harness between driver's seat belt switch connector F-18 (terminal 2) and ETACS-ECU connector D-224 (terminal 25) in good condition?

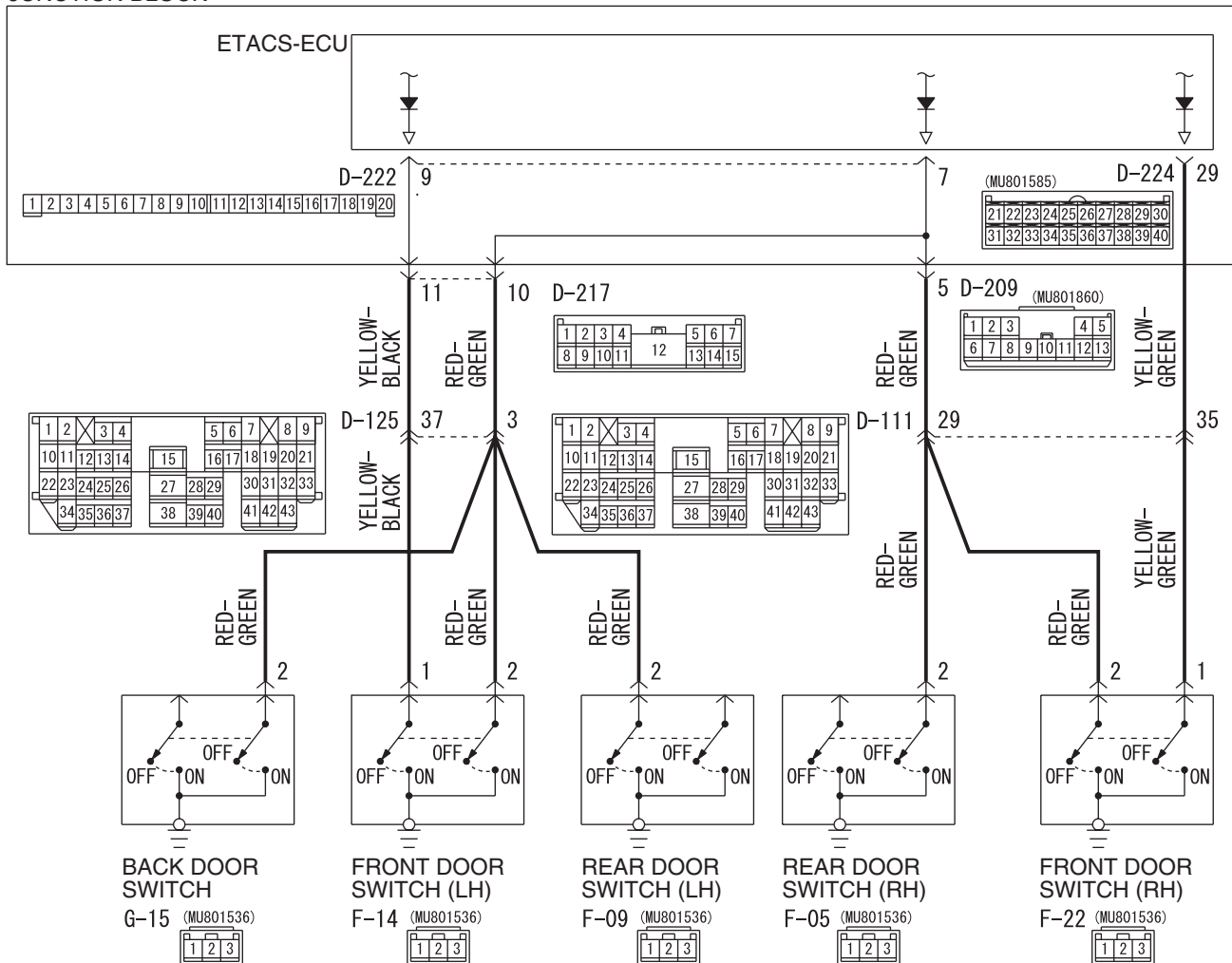
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

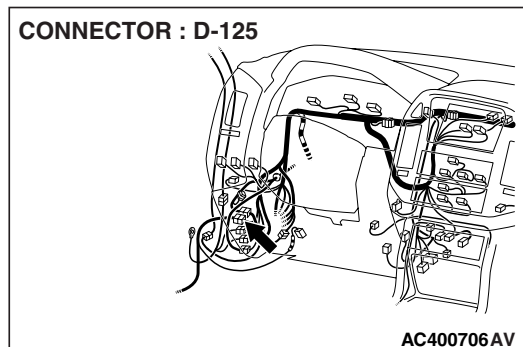
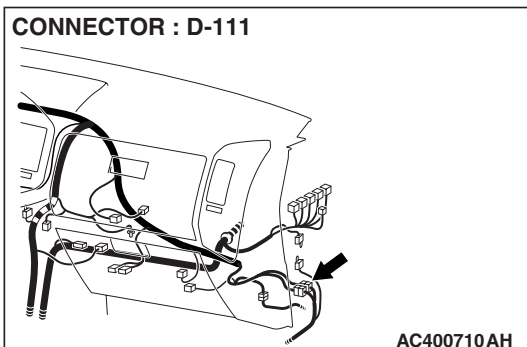
INSPECTION PROCEDURE P-4: ETACS-ECU does not receive any signal from all the door switches.

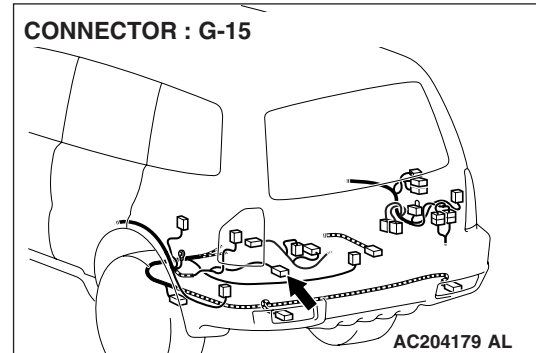
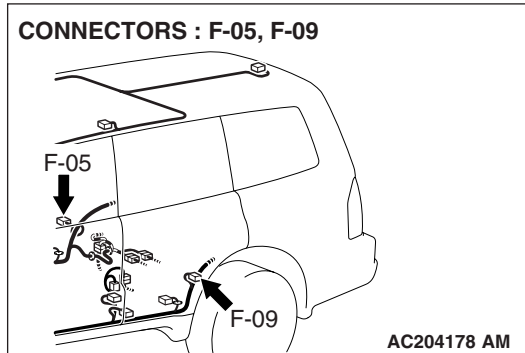
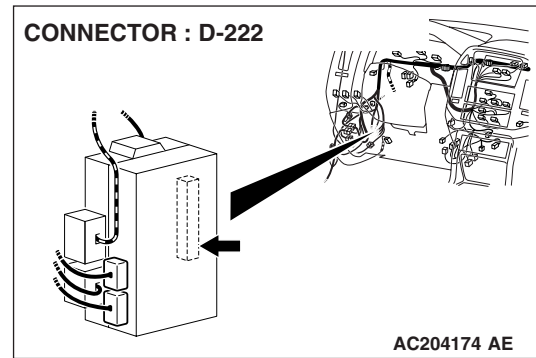
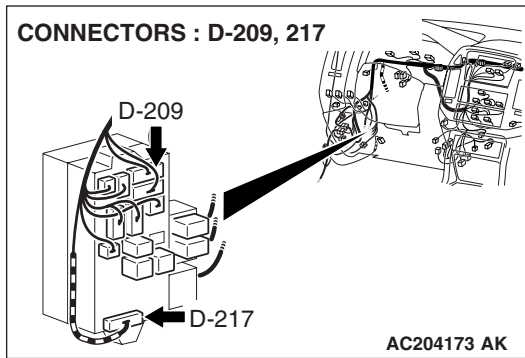
All Door Switches Input Circuit

JUNCTION BLOCK



W5Q54M032A





CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's, rear or back door switches:

- Light reminder tone alarm function <Driver's door switch>
- Power window timer function <Driver's, front passenger's door switch>
- Headlight automatic shutdown function <Driver's door switch>
- Keyless entry system <All door switches>
- Dome light <All door switches>

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the driver's, front passenger's, rear or back door switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The driver's, front passenger's, rear or back 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
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Verify which door switch is defective.

Q: Which door switch signal is not entered?

Driver's or front passenger's door : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch P.54B-509."

Rear door (LH) : Go to Step 2.

Rear door (RH) : Go to Step 7.

Back door : Go to Step 12.

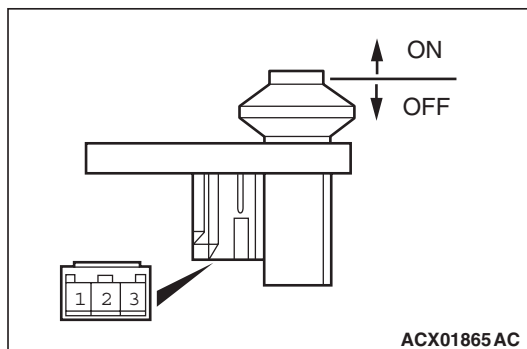
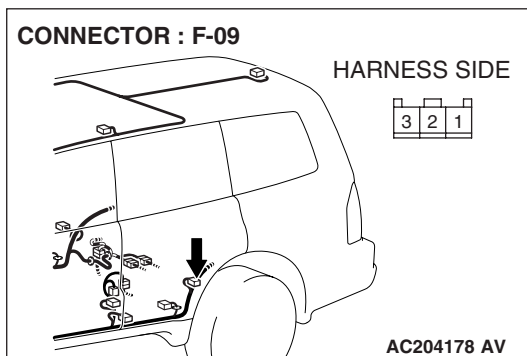
Driver's, rear (LH) and back door : Go to Step 17.

STEP 2. Check rear door switch (LH) connector F-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (LH) connector F-09 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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.



STEP 3. Check the rear door switch (LH).

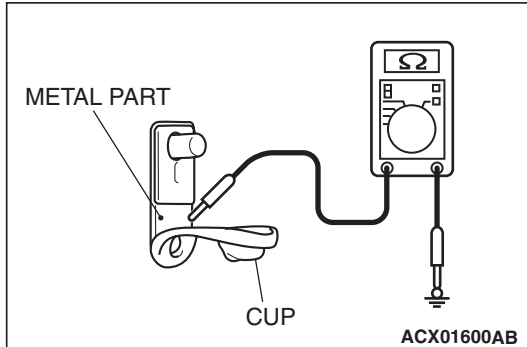
Remove the rear door switch (LH). Then check continuity between the switch terminals and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	2 – switch body	Less than 2 ohms
Depressed (OFF)	2 – switch body	Open circuit

Q: Is the rear door switch (LH) in good condition?

YES : Go to Step 4.

NO : Replace the rear door switch (LH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.



STEP 4. Measure at the lower metal part of the rear door switch (LH) in order to check the ground circuit to the rear door switch (LH).

NOTE: Check that the rear door switch (LH) is grounded to the vehicle body by means of its mounting screw.

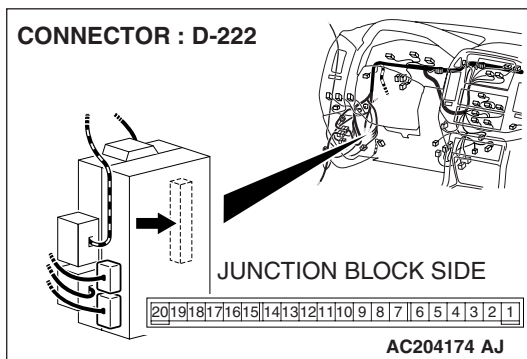
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.



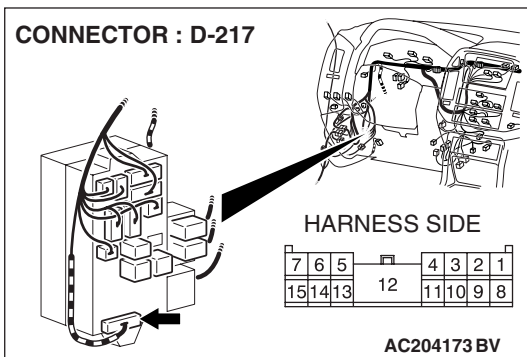
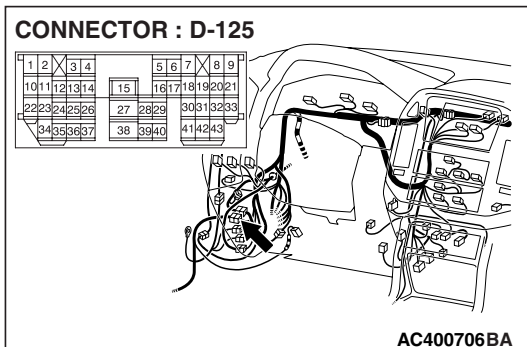
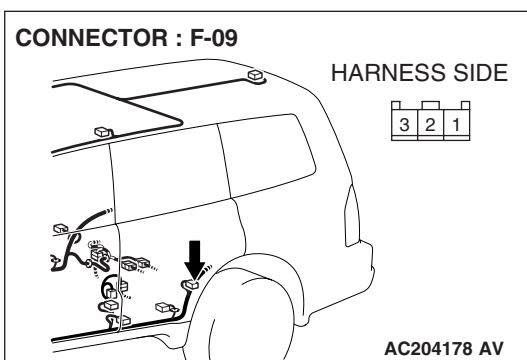
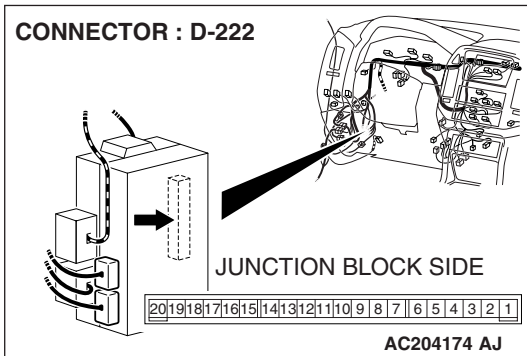
STEP 5. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

STEP 6. Check the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).

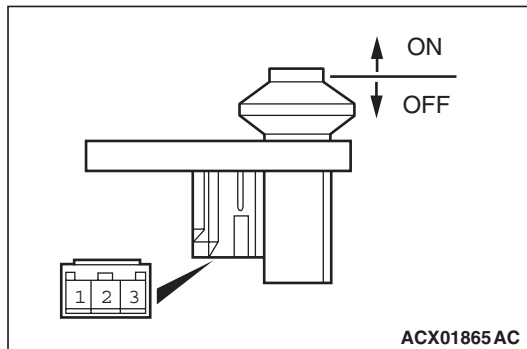
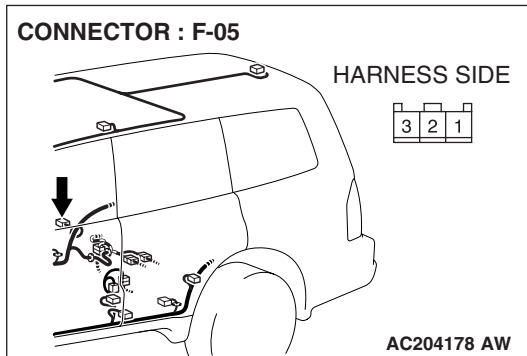


NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, Repair or replace the damaged component(s) as described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

Q: Is the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.



STEP 7. Check rear door switch (RH) connector F-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (RH) connector F-05 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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

STEP 8. Check the rear door switch (RH).

Remove the rear door switch (RH). Then check continuity between the switch terminals and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	2 – switch body	Less than 2 ohms
Depressed (OFF)	2 – switch body	Open circuit

Q: Is the rear door switch (RH) in good condition?

YES : Go to Step 9.

NO : Replace the rear door switch (RH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

STEP 9. Measure at the lower metal part of the rear door switch (RH) in order to check the ground circuit to the rear door switch (RH).

NOTE: Check that the rear door switch (RH) is grounded to the vehicle body by means of its mounting screw.

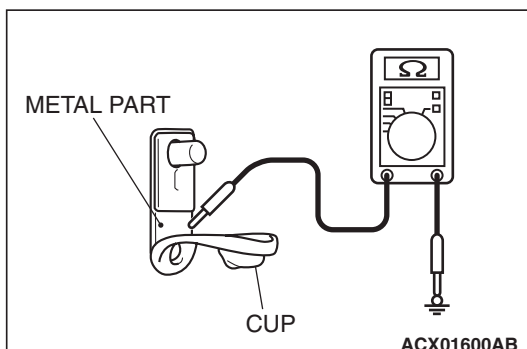
Remove the cap, and measure the resistance value between the lower metal part and the ground.

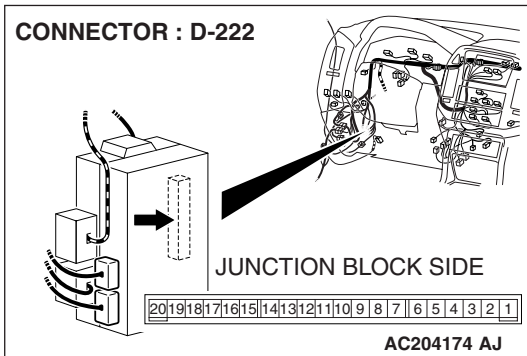
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.



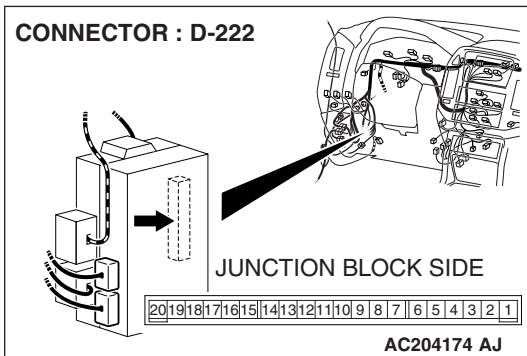


STEP 10. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

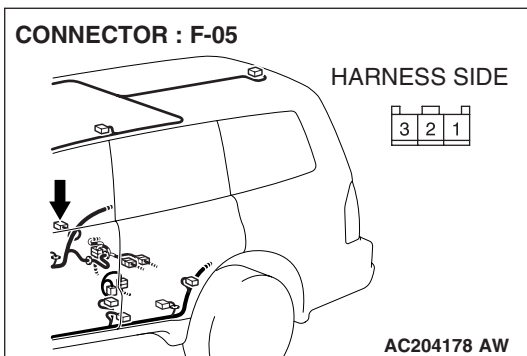
Q: Is ETACS-ECU connector D-222 in good condition?

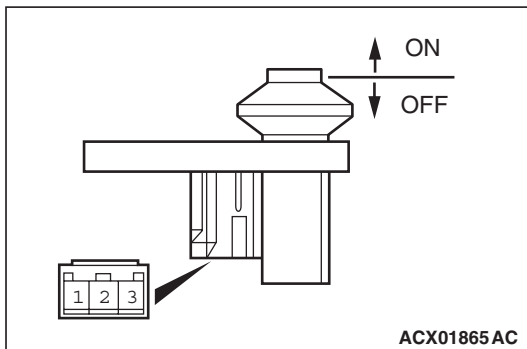
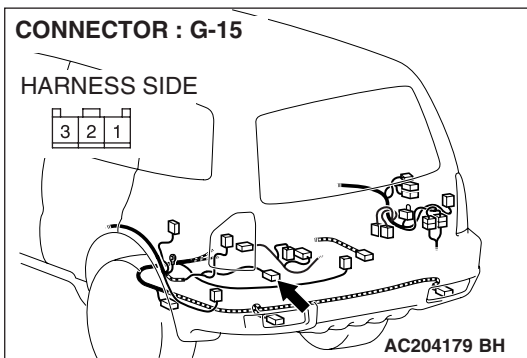
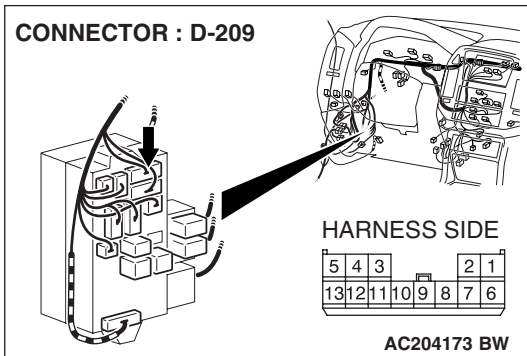
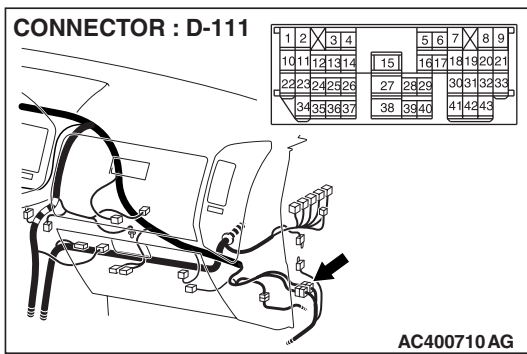
YES : Go to Step 11.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.



STEP 11. Check the wiring harness between rear door switch (RH) connector F-05 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).





NOTE: Also check intermediate connector D-111 and junction block connector D-209 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear door switch (RH) connector F-05 (terminal 2) and ETACS-ECU connector D-222 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

STEP 12. Check back door switch connector G-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are back door switch connector G-15 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

STEP 13. Check the back door switch.

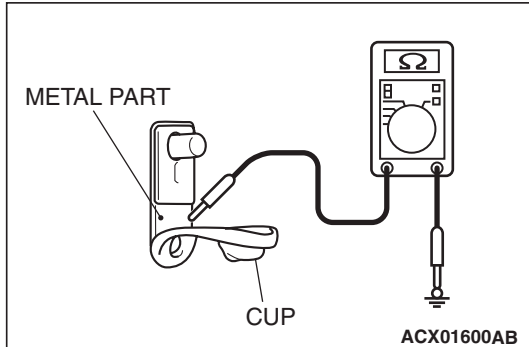
Remove the back door switch. Then check continuity between the switch terminals and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released (ON)	2 – switch body	Less than 2 ohms
Depressed (OFF)	2 – switch body	Open circuit

Q: Is the back door switch in good condition?

YES : Go to Step 14.

NO : Replace the back door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.



STEP 14. Measure at the lower metal part of the back door switch in order to check the ground circuit to the back door switch.

NOTE: Check that the back door switch is grounded to the vehicle body by means of its mounting screw.

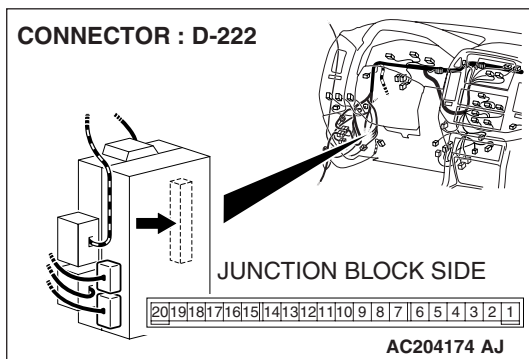
Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 15.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.



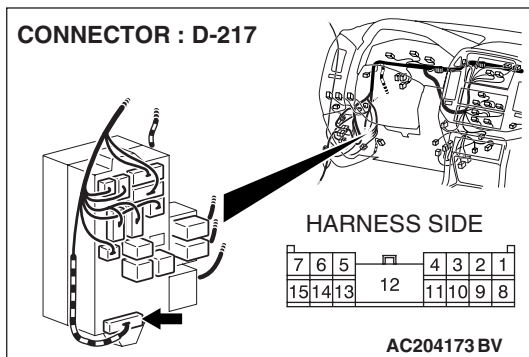
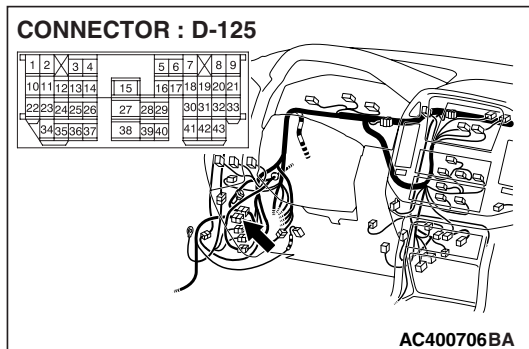
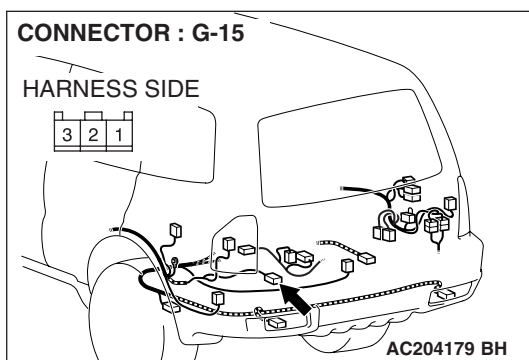
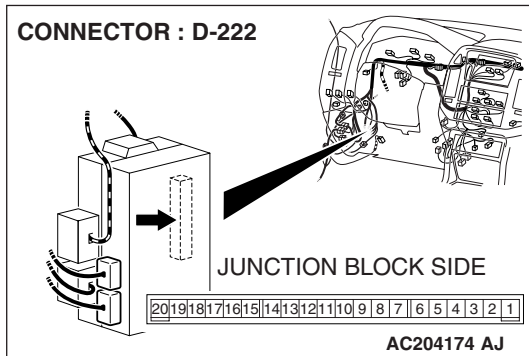
STEP 15. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 16.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

STEP 16. Check the wiring harness between back door switch connector G-15 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).



NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-125 or junction block connector D-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 back door switch connector G-15 (terminal 2) and ETACS-ECU connector D-222 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

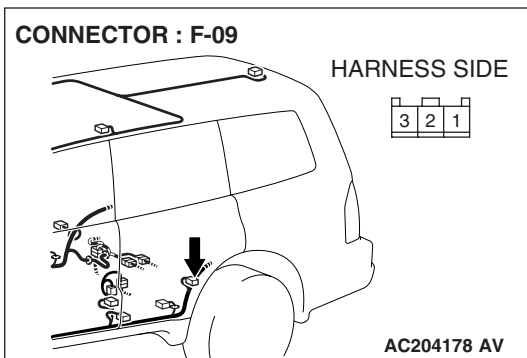
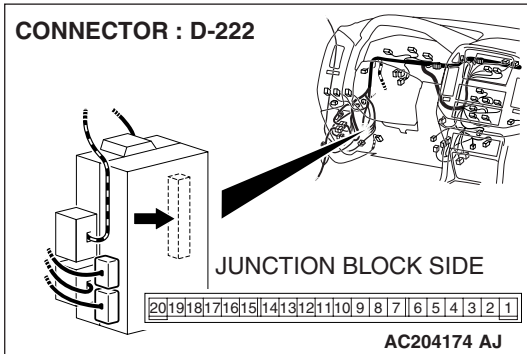
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

STEP 17. Check rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

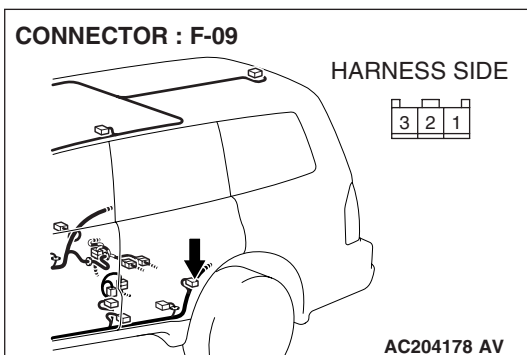
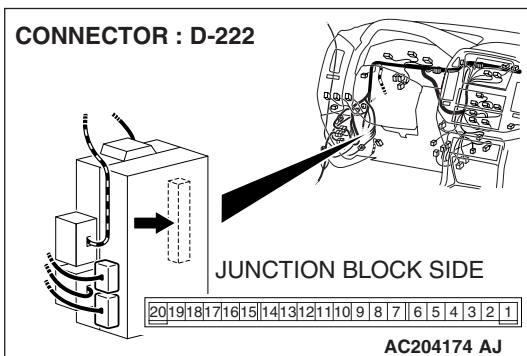
Q: Are rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 in good condition?

YES : Go to Step 18.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

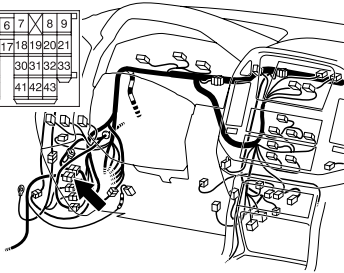


STEP 18. Check the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).



CONNECTOR : D-125

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



AC400706BA

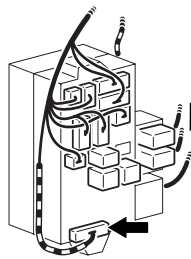
NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, Repair or replace the damaged component(s) as described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

Q: Is the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

CONNECTOR : D-217



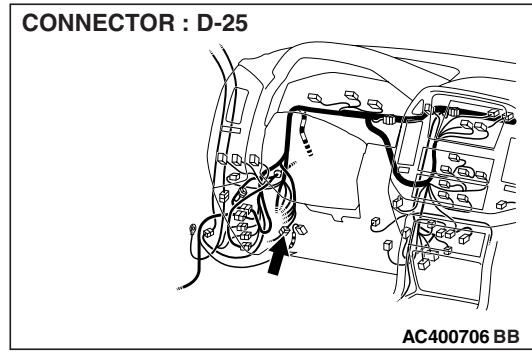
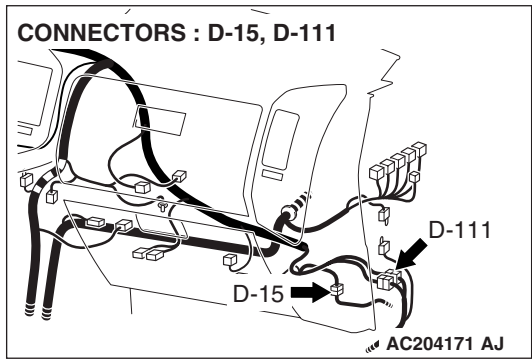
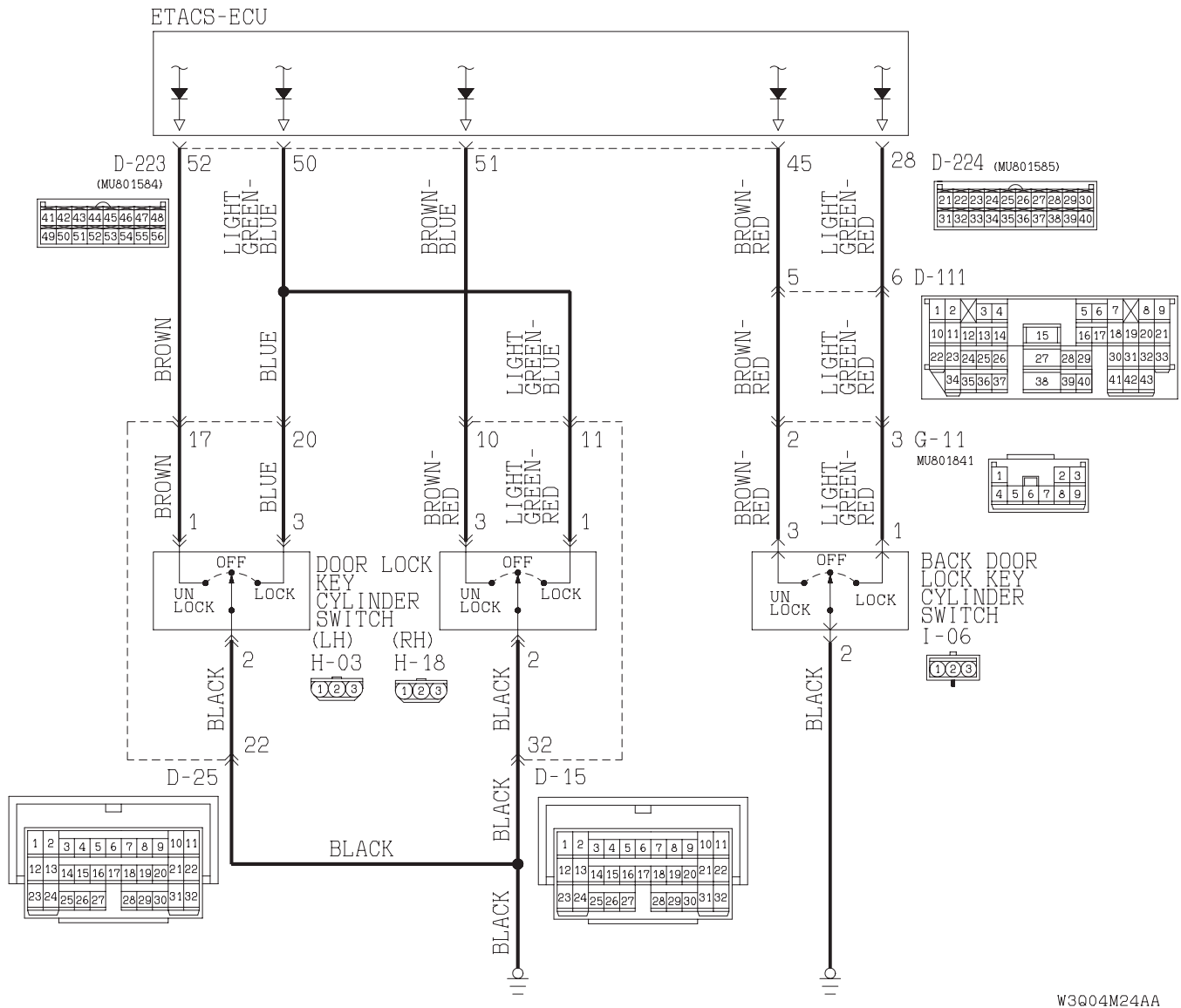
HARNES SIDE

7	6	5		4	3	2	1
15	14	13	12	11	10	9	8

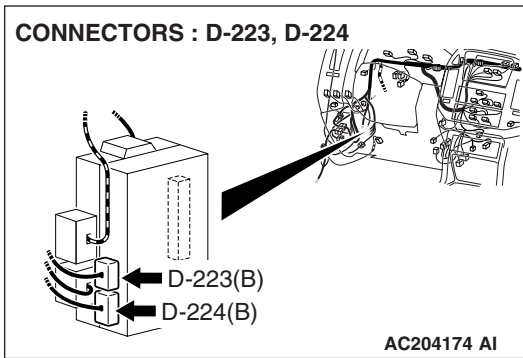
AC204173 BV

INSPECTION PROCEDURE P-5: ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock key cylinder switch.

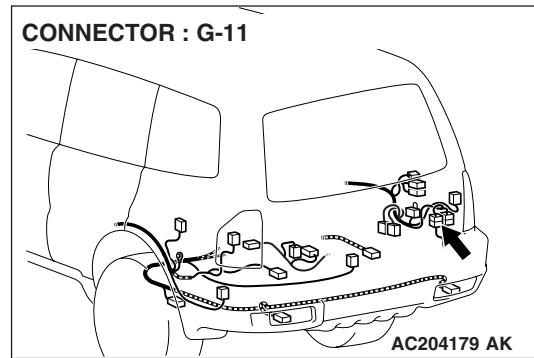
Door Lock Key Cylinder Switch Input Circuit



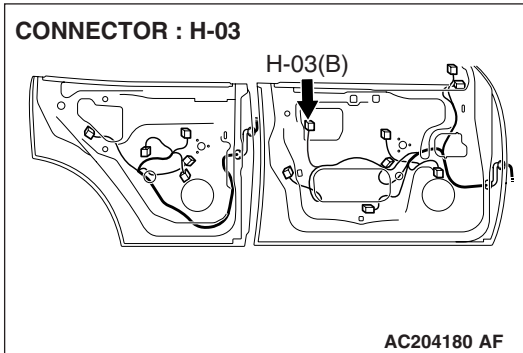
CONNECTORS : D-223, D-224



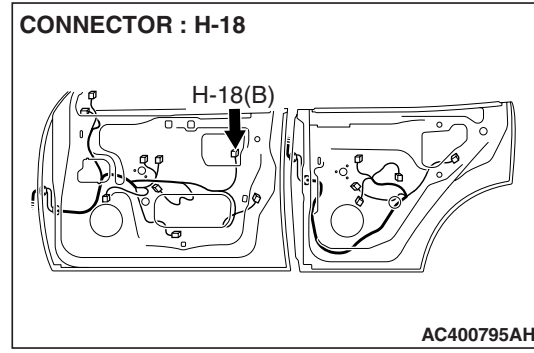
CONNECTOR : G-11



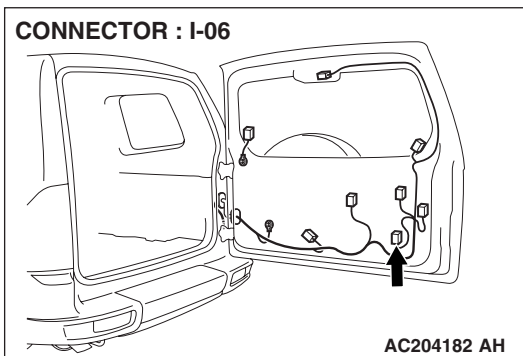
CONNECTOR : H-03



CONNECTOR : H-18



CONNECTOR : I-06

**CIRCUIT OPERATION**

The ETACS-ECU operates the central door locking system according to signal from the driver's, front passenger's or back door lock key cylinder switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the systems, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

- The driver's, front passenger's or back door lock key cylinder switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check which door lock key cylinder switch is defective.

Q: Which door lock key cylinder switch does not send a signal to the ECU?

Driver's door : Go to Step 2.

Front passenger's door : Go to Step 9.

Back door : Go to Step 15.

Driver's and front passenger's door : Go to Step 21.

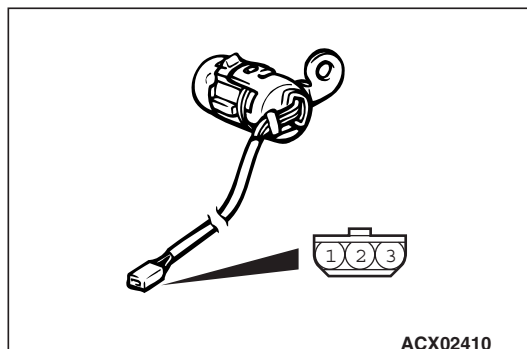
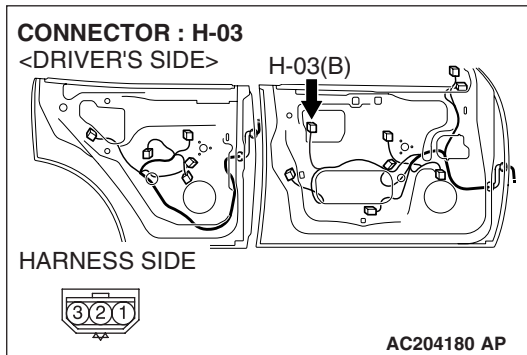
Driver's and front passenger's door (Lock signal only) :
Go to Step 23.

STEP 2. Check driver's door lock key cylinder switch connector H-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is driver's door lock key cylinder switch connector H-03 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](#). If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



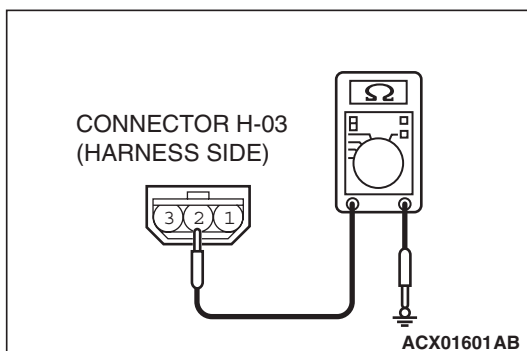
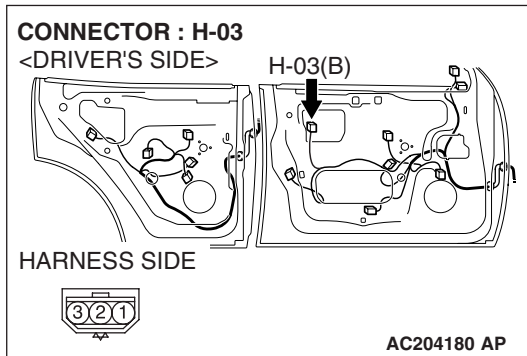
STEP 3. Check the driver's door lock key cylinder switch. Disconnect driver's door lock key cylinder switch connector H-03. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	2 – 3	Less than 2 ohms
Neutral (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	1 – 2	Less than 2 ohms

Q: Is the driver's door lock key cylinder switch in good condition?

YES : Go to Step 4.

NO : Replace the driver's door lock key cylinder switch. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 4. Check the ground circuit to the driver's door lock key cylinder switch. Test at driver's door lock key cylinder switch connector H-03.

(1) Disconnect driver's door lock key cylinder switch connector H-03 and measure the resistance available at the wiring harness side of the connector.

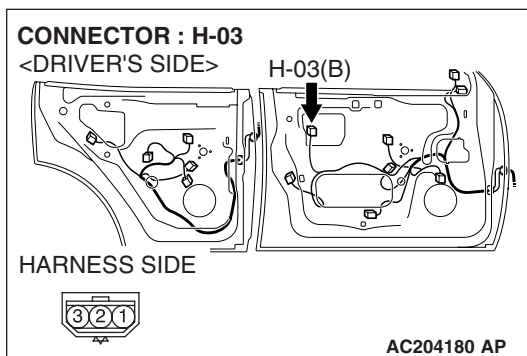
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

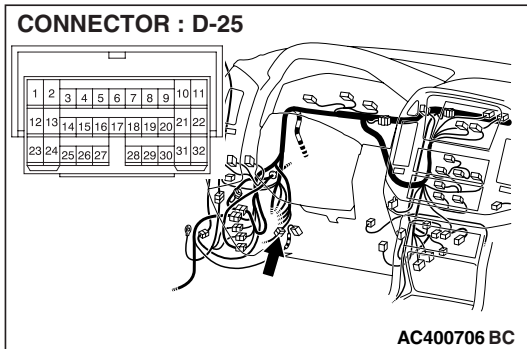
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between driver's door lock key cylinder switch connector H-03 (terminal 2) and ground.

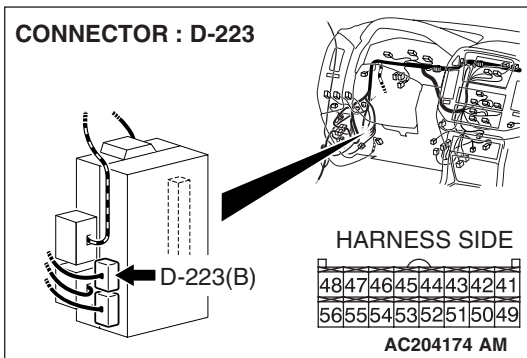


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-25 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (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. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 6. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 in good condition?

YES : Go to Step 7.

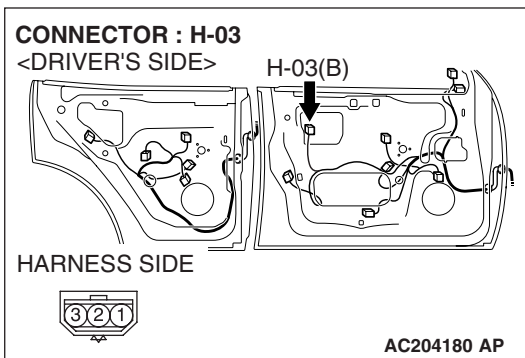
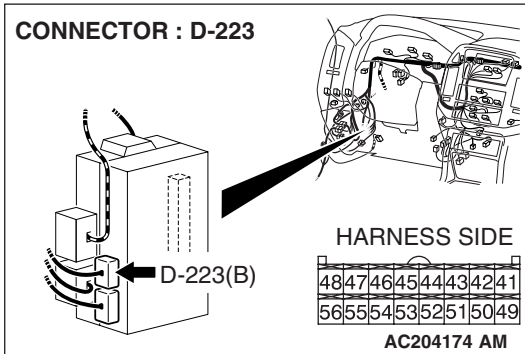
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

STEP 7. Check driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

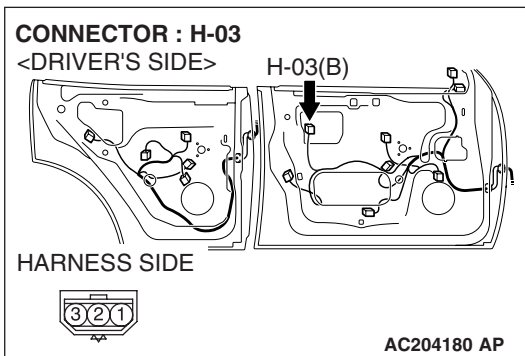
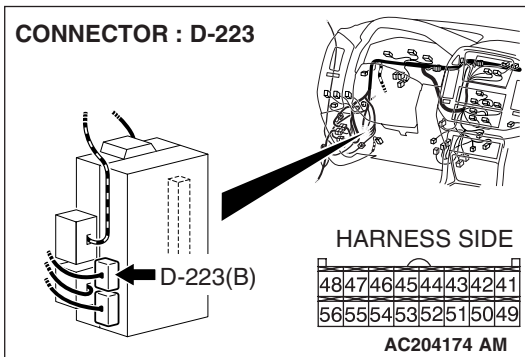
Q: Are driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 in good condition?

YES : Go to Step 8.

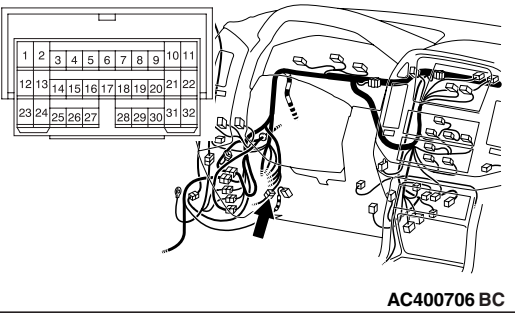
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 8. Check the wiring harness between driver's door lock key cylinder switch connector H-03 (terminals 1 and 3) and ETACS-ECU connector D-223 (terminals 52 and 50).



CONNECTOR : D-25



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

Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (terminals 1 and 3) and ETACS-ECU connector D-223 (terminals 52 and 50) in good condition?

YES : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

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 systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

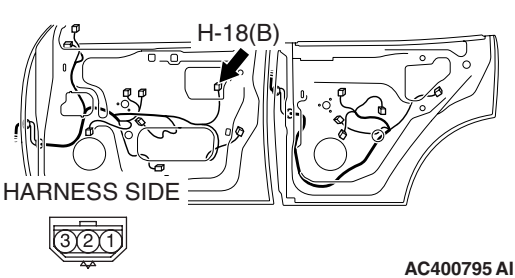
STEP 9. Check front passenger's door lock key cylinder switch connector H-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

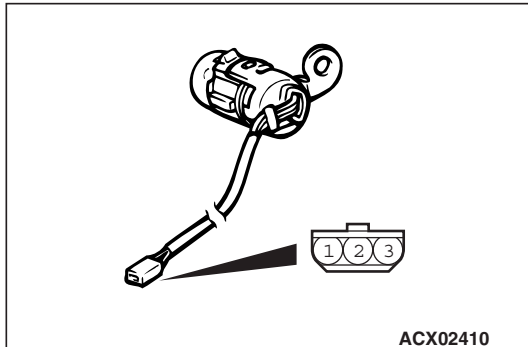
Q: Is front passenger's door lock key cylinder switch connector H-18 in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

**CONNECTOR : H-18
PASSENGER'S SIDE**





STEP 10. Check the front passenger's door lock key cylinder switch.

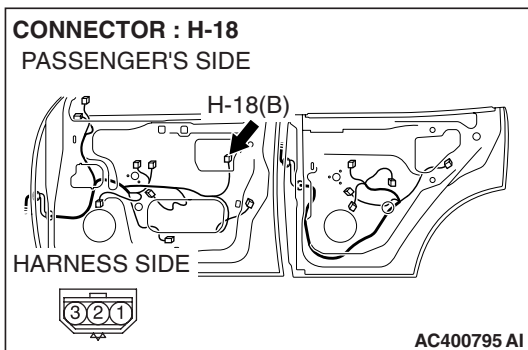
Disconnect front passenger's door lock key cylinder switch connector H-18. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
Neutral (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms

Q: Is the front passenger's door lock key cylinder switch in good condition?

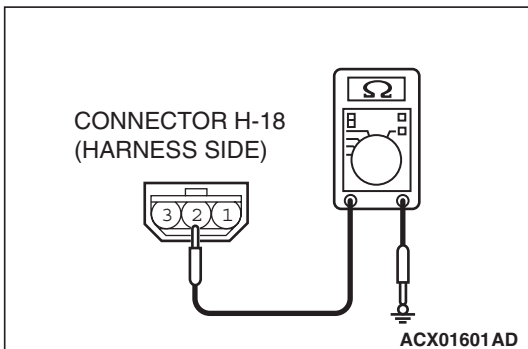
YES : Go to Step 11.

NO : Replace the front passenger's door lock key cylinder switch. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.



STEP 11. Check the ground circuit to the front passenger's door lock key cylinder switch. Test at front passenger's door lock key cylinder switch connector H-18.

(1) Disconnect front passenger's door lock key cylinder switch connector H-18 measure the resistance available at the wiring harness side of the connector.



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

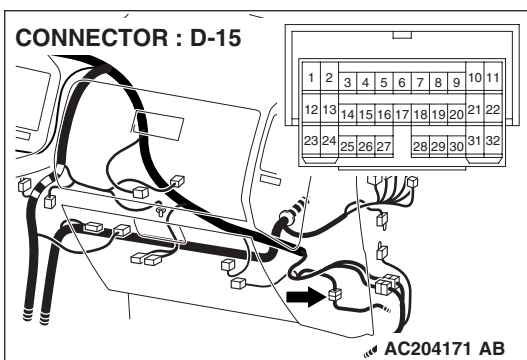
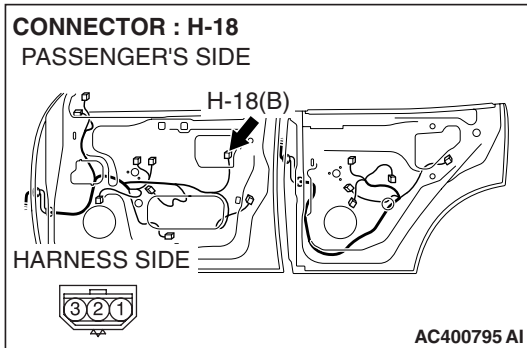
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 13.

NO : Go to Step 12.

STEP 12. Check the wiring harness between front passenger's door lock key cylinder switch connector H-18 (terminal 2) and ground.



NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors 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 front passenger's door lock key cylinder switch connector H-18 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

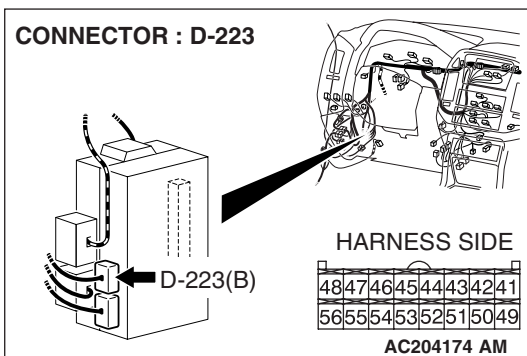
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

STEP 13. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

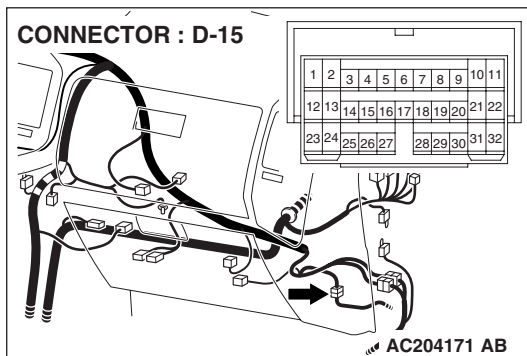
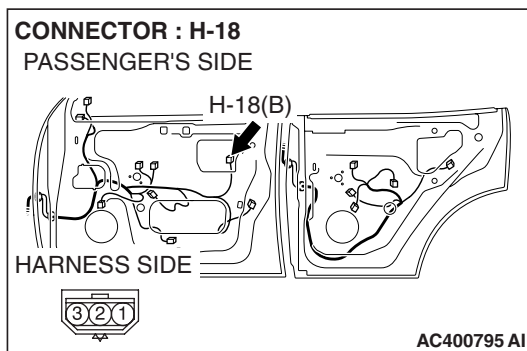
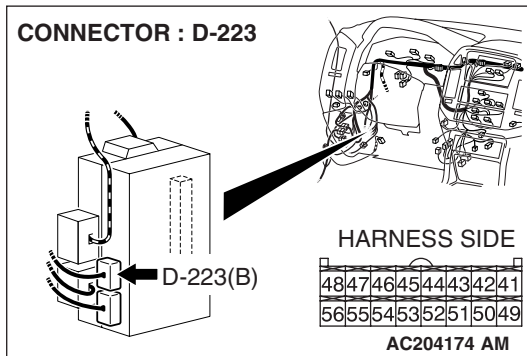
Q: Is ETACS-ECU connector D-223 in good condition?

YES : Go to Step 14.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.



STEP 14. Check the wiring harness between front passenger's door lock key cylinder switch connector H-18 (terminals 1 and 3) and ETACS-ECU connector D-223 (terminals 50 and 51).

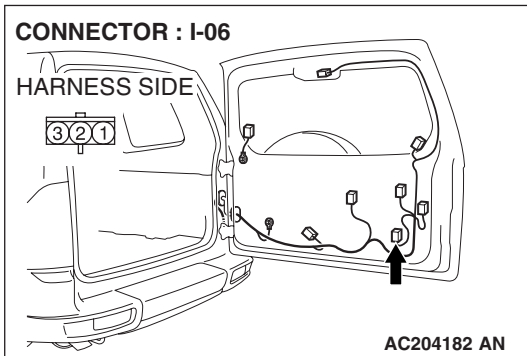


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front passenger's door lock key cylinder switch connector H-18 (terminals 1 and 3) and ETACS-ECU connector D-223 (terminals 50 and 51) in good condition?

YES : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

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 systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

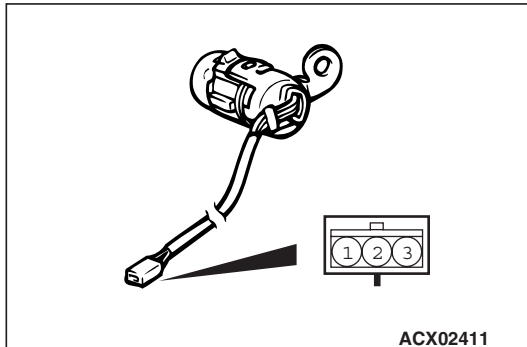


STEP 15. Check back door lock key cylinder switch connector I-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is back door lock key cylinder switch connector I-06 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](#). If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.



STEP 16. Check the back door lock key cylinder switch.

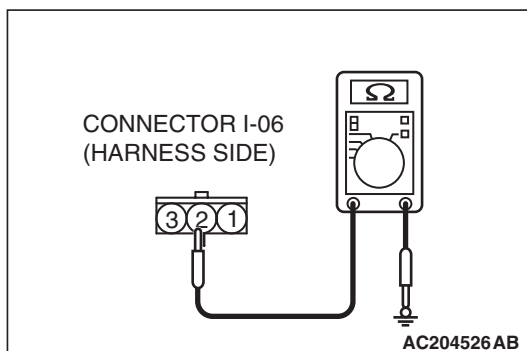
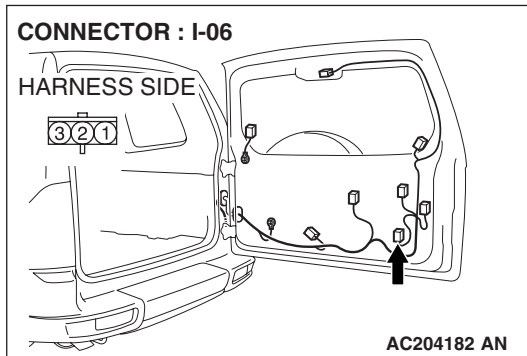
Disconnect back door lock key cylinder switch connector I-06. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
Neutral (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms

Q: Is the back door lock key cylinder switch in good condition?

YES : Go to Step 17.

NO : Replace the back door lock key cylinder switch. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.



STEP 17. Check the ground circuit to the back door lock key cylinder switch. Test at back door lock key cylinder switch connector I-06.

(1) Disconnect back door lock key cylinder switch connector I-06 measure the resistance available at the wiring harness side of the connector.

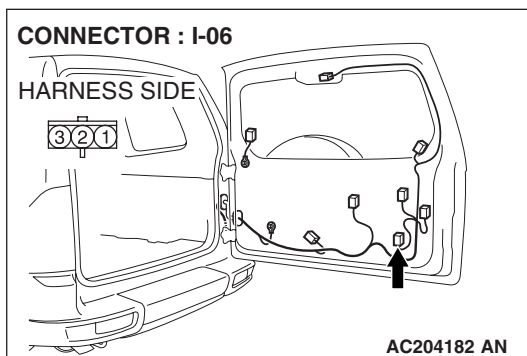
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 19.

NO : Go to Step 18.

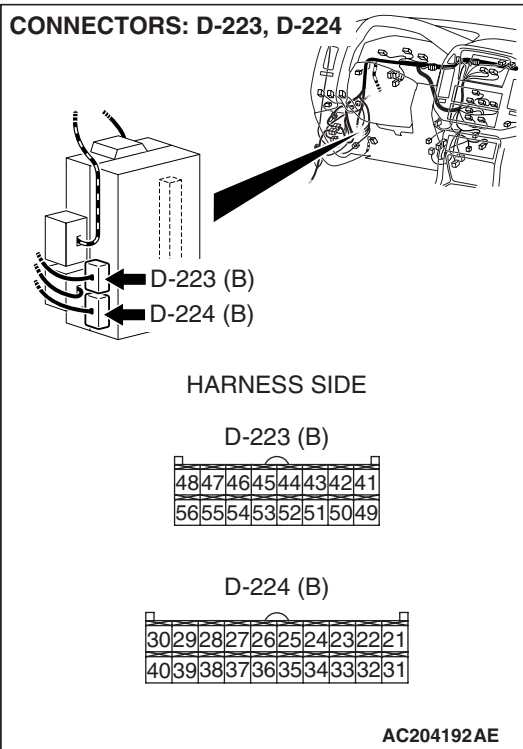


STEP 18. Check the wiring harness between back door lock key cylinder switch connector I-06 (terminal 2) and ground.

Q: Is the wiring harness between back door lock key cylinder switch connector I-06 (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. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.



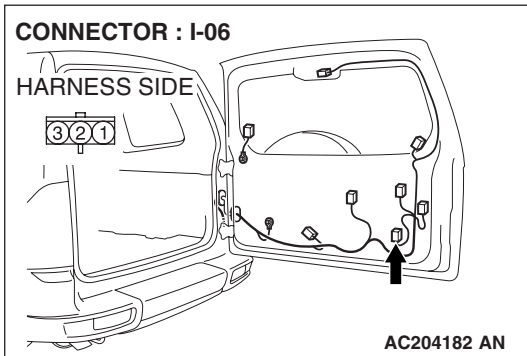
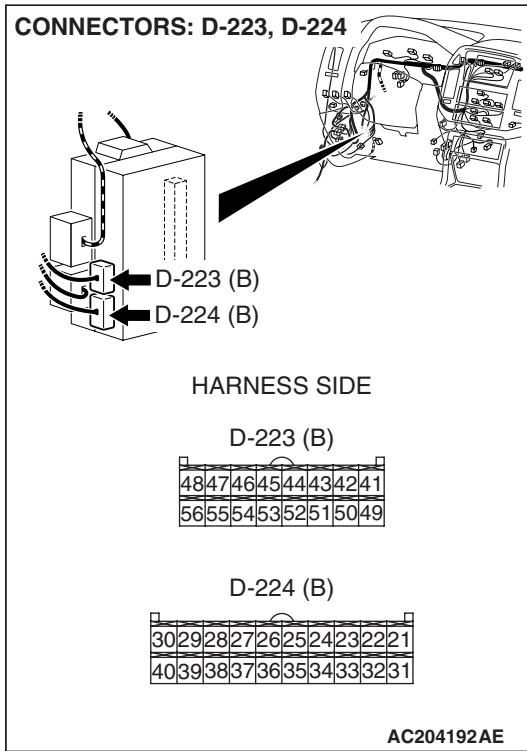
STEP 19. Check ETACS-ECU connectors D-223 and D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

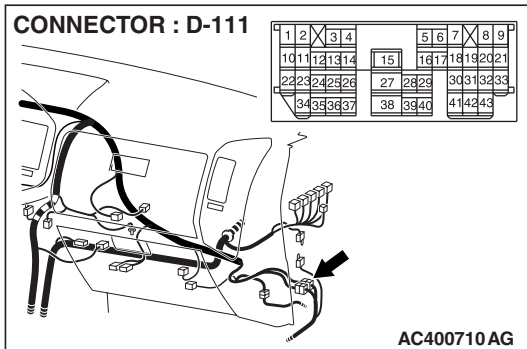
Q: Are ETACS-ECU connectors D-223 and D-224 in good condition?

YES : Go to Step 20.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.

STEP 20. Check the wiring harness between back door lock key cylinder switch connector I-06 (terminals 1 and 3) and ETACS-ECU connectors D-224 (terminal 28) and D-223 (terminal 45).



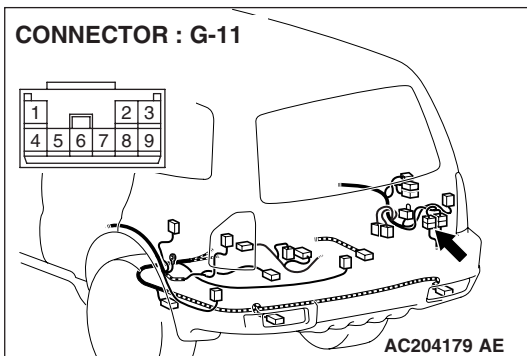


NOTE: Also check intermediate connectors D-111 and G-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111 or G-11 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between back door lock key cylinder switch connector I-06 (terminals 1 and 3) and ETACS-ECU connectors D-224 (terminal 28) and D-223 (terminal 45) in good condition?

YES : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.

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 systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.

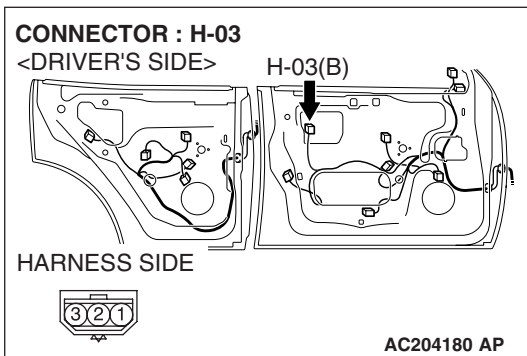


STEP 21. Check driver's door lock key cylinder switch connector H-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

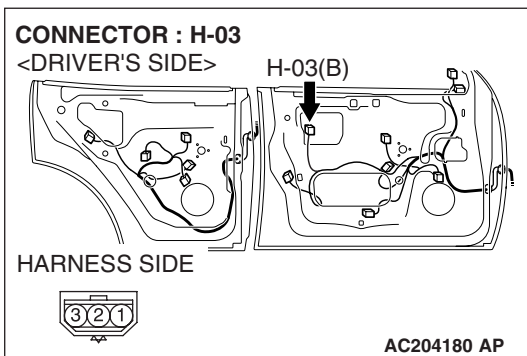
Q: Is driver's door lock key cylinder switch connector H-03 in good condition?

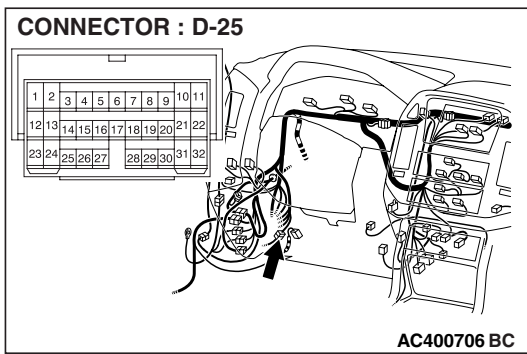
YES : Go to Step 22.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 22. Check the wiring harness between driver's door lock key cylinder switch connector H-03 (terminal 2) and ground.





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

Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

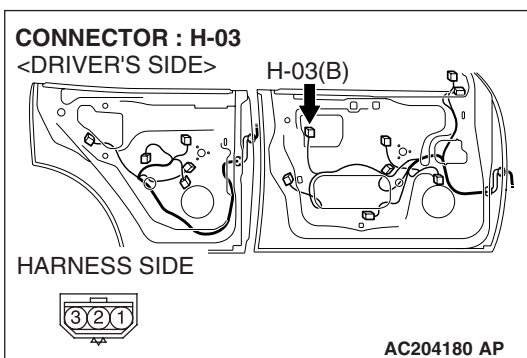
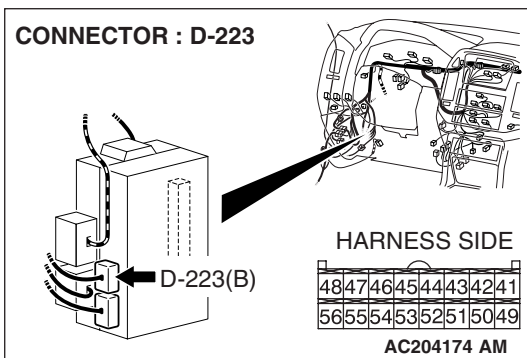
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

STEP 23. Check driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

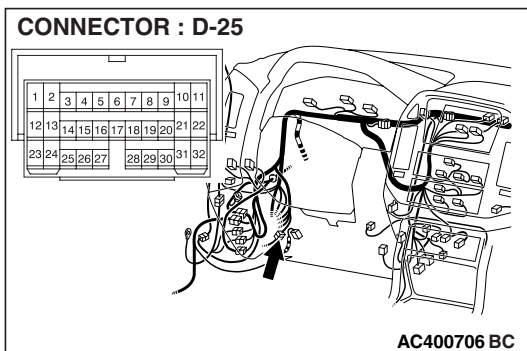
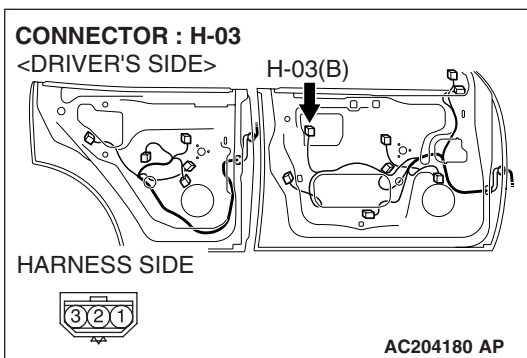
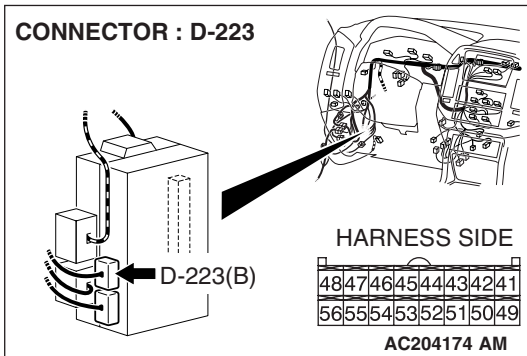
Q: Are driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 in good condition?

YES : Go to Step 24.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 24. Check the wiring harness between driver's door lock key cylinder switch connector H-03 (terminals 3) and ETACS-ECU connector D-223 (terminals 50).



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

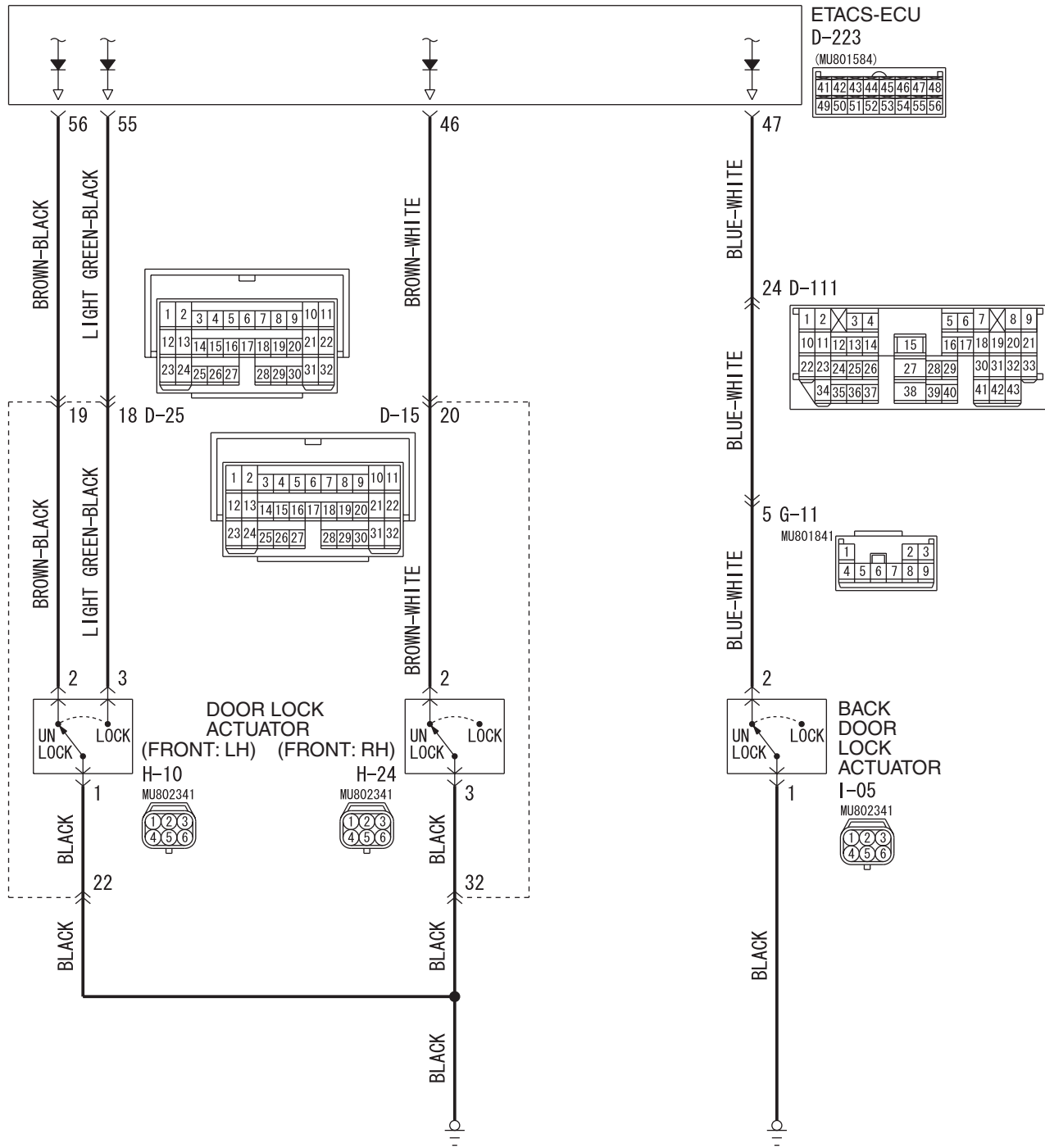
Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (terminals 3) and ETACS-ECU connector D-223 (terminals 50) in good condition?

YES : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

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 systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

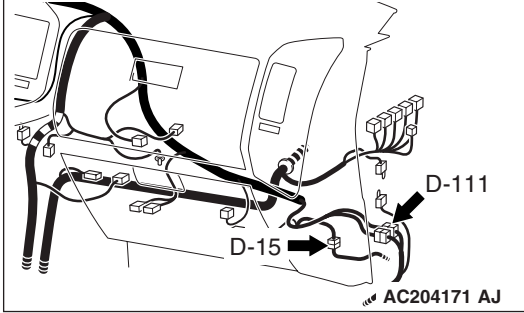
INSPECTION PROCEDURE P-6 : ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock actuator switch.

Door Lock Actuator Input Circuit

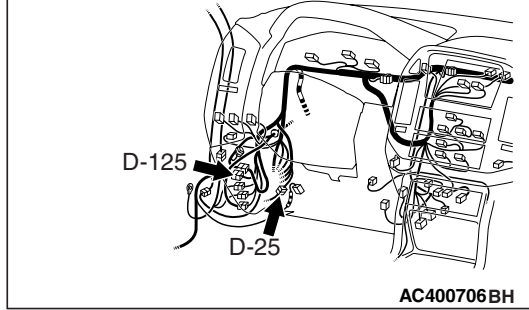


W6Q54M003A

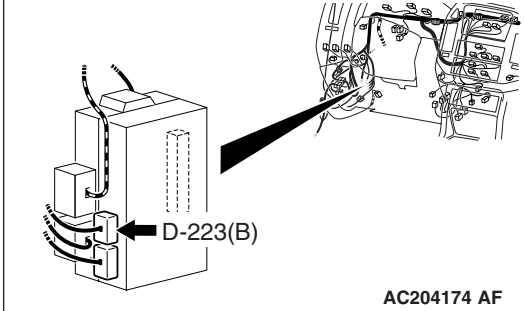
CONNECTORS : D-15, D-111



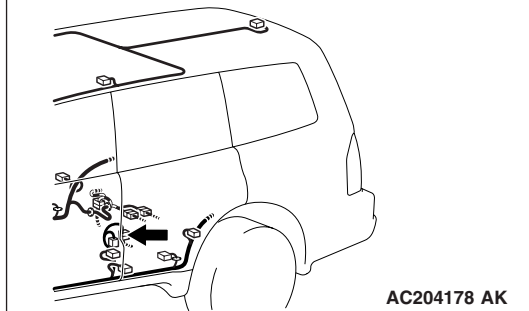
CONNECTOR : D-25, D-125



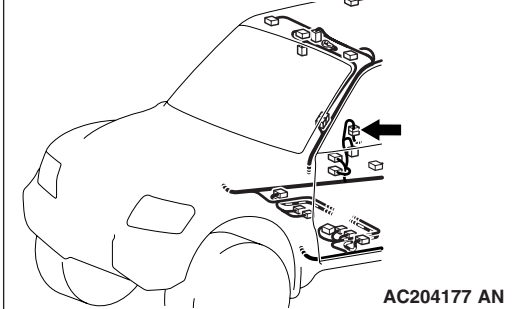
CONNECTOR : D-223



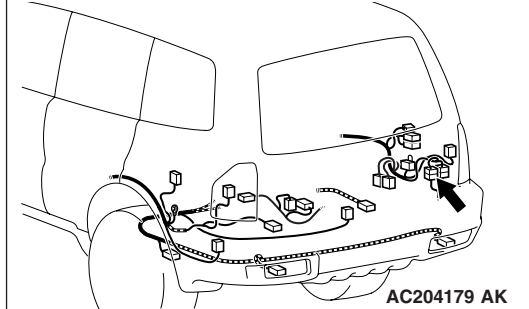
CONNECTOR : F-12



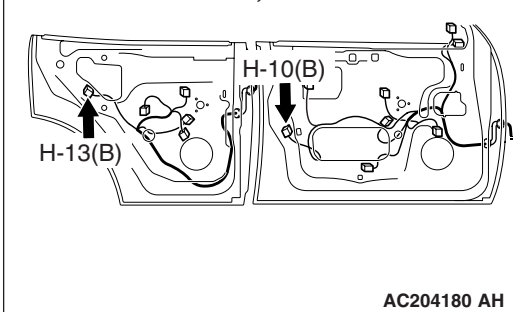
CONNECTOR : F-23



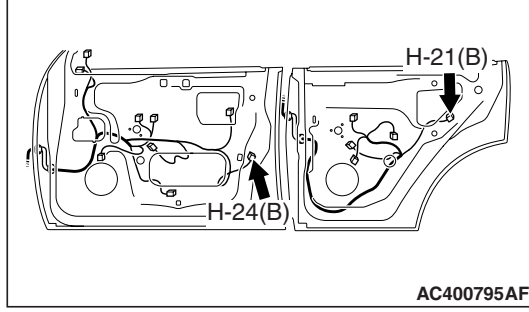
CONNECTOR : G-11

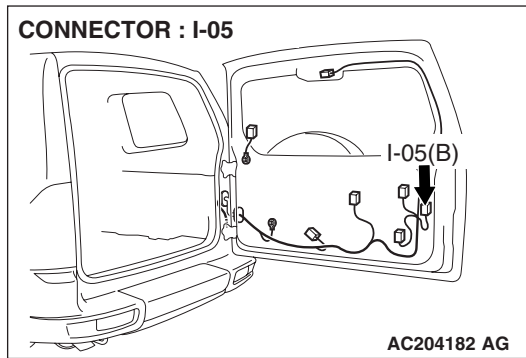


CONNECTORS : H-10, H-13



CONNECTORS : H-21, H-24



**CIRCUIT OPERATION**

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's or back door lock actuator switch:

- Central door locking system
- Keyless entry system
- Dome light dimming function

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Verify which door lock actuator switch is defective.

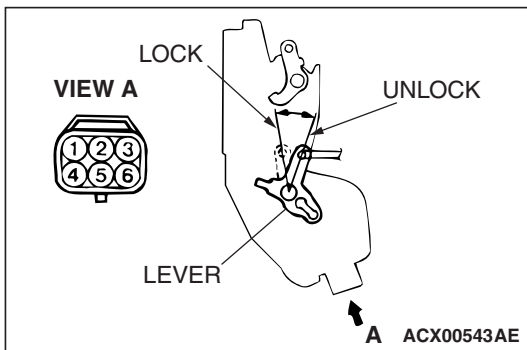
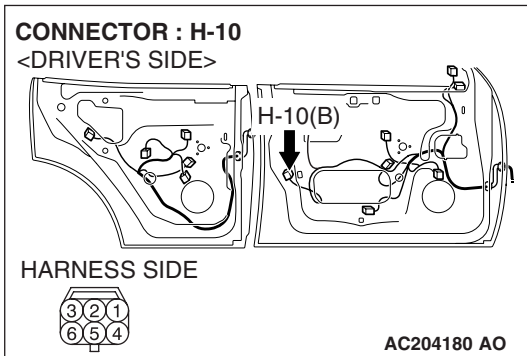
Q: Which door lock actuator switch signal is not entered?

Driver's door : Go to Step 2.

Front passenger's door : Go to Step 8.

Back door : Go to Step 14.

Front doors : Go to Step 20.



STEP 2. Check driver's door lock actuator switch connector H-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is driver's door lock actuator switch connector H-10 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](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

STEP 3. Check the driver's door lock actuator switch.

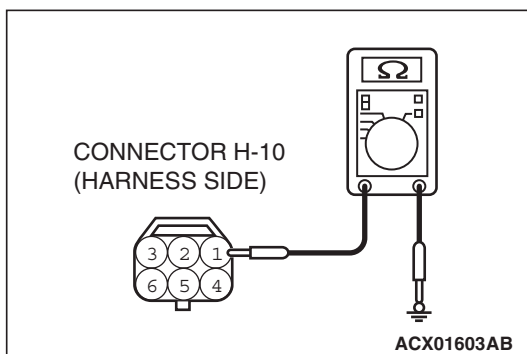
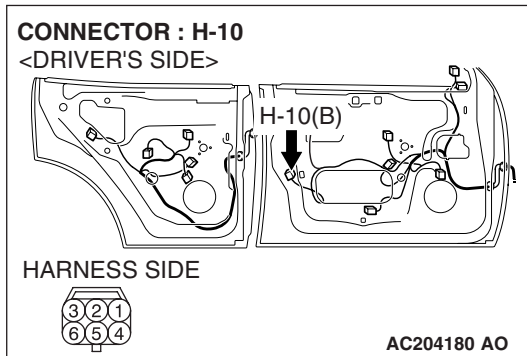
Disconnect driver's door lock actuator switch connector H-10. Then check continuity between the switch terminals.

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 3	Less than 2 ohms
UNLOCK	1 – 2	Less than 2 ohms

Q: Is the driver's door lock actuator switch in good condition?

YES : Go to Step 4.

NO : Replace the driver's door lock actuator switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



STEP 4. Check the ground circuit to the driver's door lock actuator switch. Test at driver's door lock actuator switch connector H-10.

(1) Disconnect driver's door lock actuator switch connector H-10 and measure the resistance available at the wiring harness side of the connector.

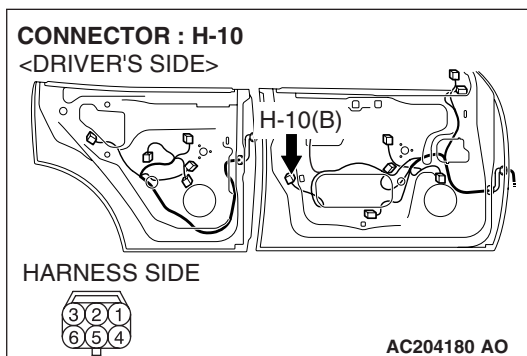
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

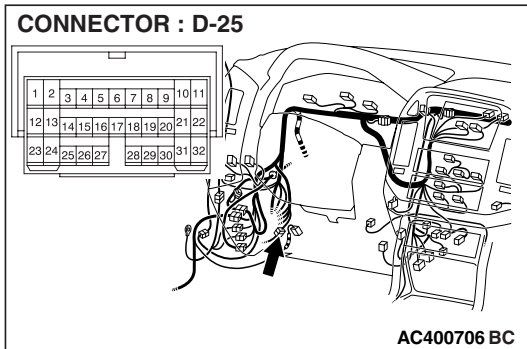
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between driver's door lock actuator switch connector H-10 (terminal 1) and ground.

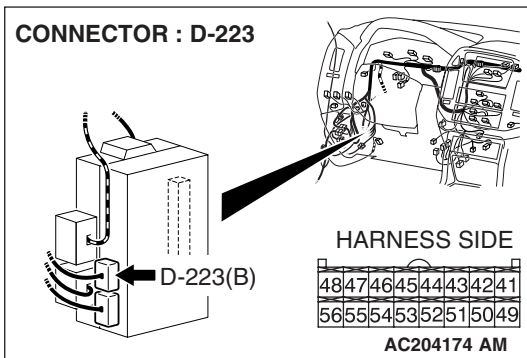


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between driver's door lock actuator switch connector H-10 (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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



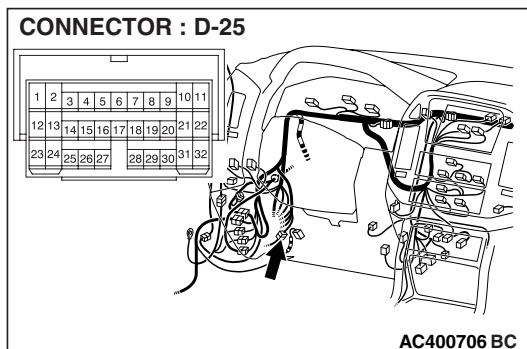
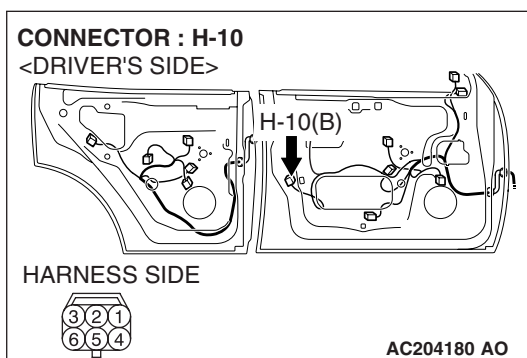
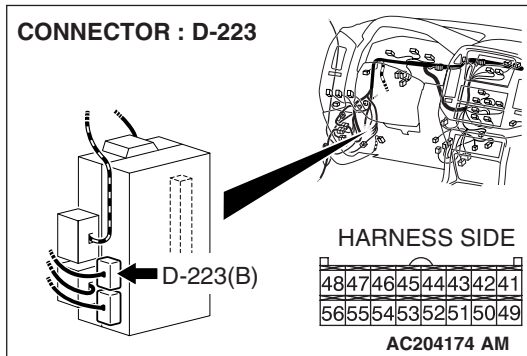
STEP 6. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

STEP 7. Check the wiring harness between driver's door lock actuator switch connector H-10 (terminals 2 and 3) and ETACS-ECU connector D-223 (terminals 56 and 55).

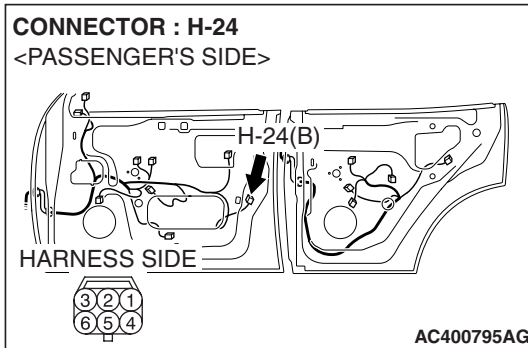


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between driver's door lock actuator switch connector H-10 (terminals 2 and 3) and ETACS-ECU connector D-223 (terminals 56 and 55) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

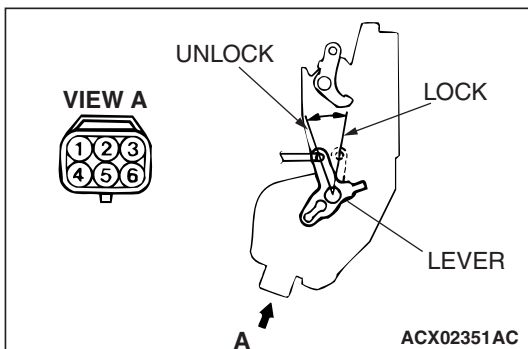


STEP 8. Check front passenger's door lock actuator switch connector H-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front passenger's door lock actuator switch connector H-24 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](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.



STEP 9. Check the front passenger's door lock actuator switch.

Disconnect front passenger's door lock actuator switch connector H-24. Then check continuity between the switch terminals.

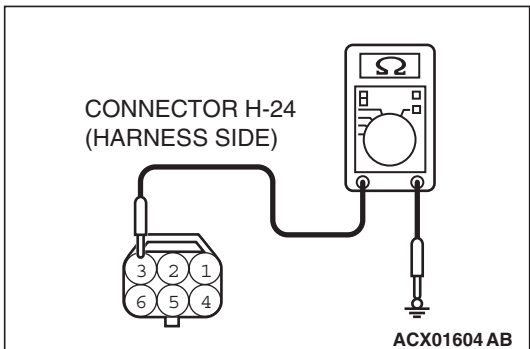
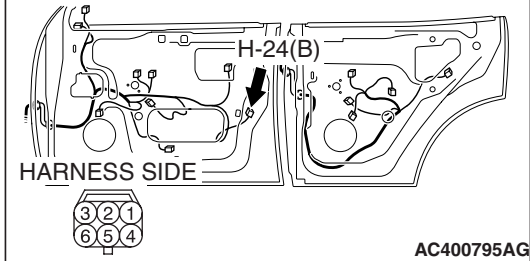
LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	2 - 3	Less than 2 ohms

Q: Is the front passenger's door lock actuator switch in good condition?

YES : Go to Step 10.

NO : Replace the front passenger's seat door lock actuator switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

CONNECTOR : H-24
<PASSENGER'S SIDE>



STEP 10. Check the ground circuit to the front passenger's door lock actuator switch. Test at front passenger's door lock actuator switch connector H-24.

(1) Disconnect front passenger's door lock actuator switch connector H-24 and measure the resistance available at the wiring harness side of the connector.

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

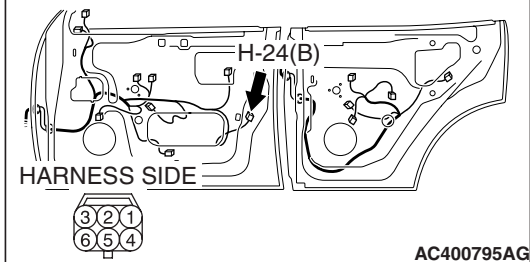
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

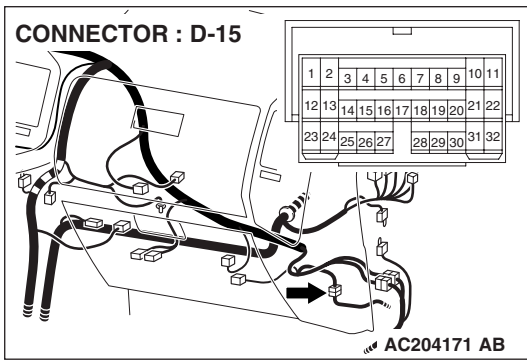
YES : Go to Step 12.

NO : Go to Step 11.

CONNECTOR : H-24
<PASSENGER'S SIDE>



STEP 11. Check the wiring harness between front passenger's door lock actuator switch connector H-24 (terminal 3) and ground.

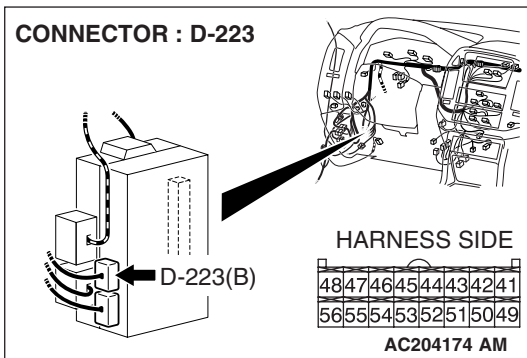


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front passenger's door lock actuator switch connector H-24 (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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.



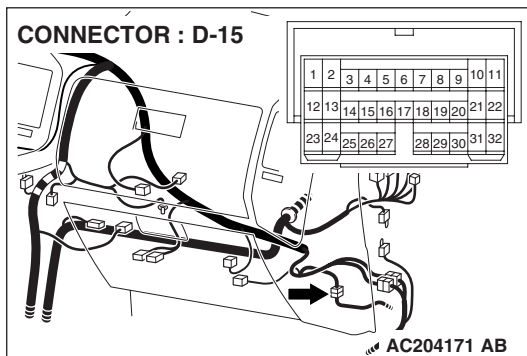
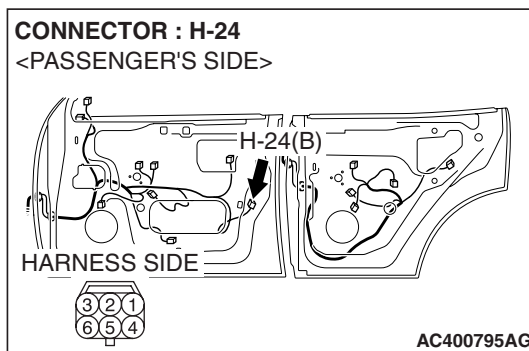
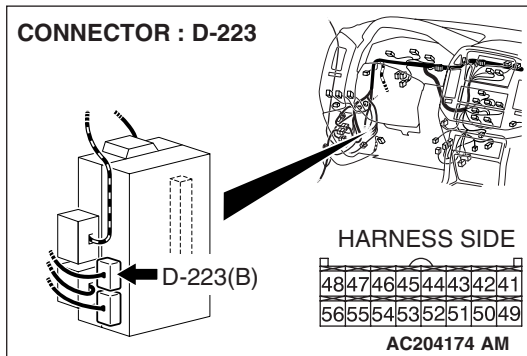
STEP 12. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

STEP 13. Check the wiring harness between front passenger's door lock actuator switch connector H-24 (terminal 2) and ETACS-ECU connector D-223 (terminal 46).

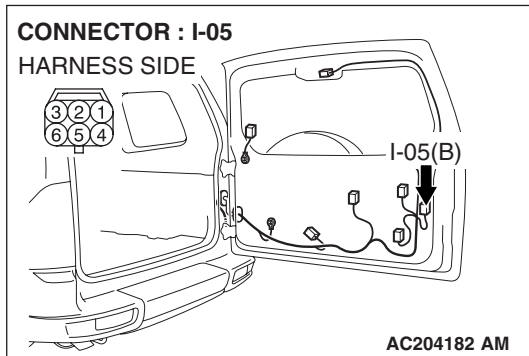


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front passenger's door lock actuator switch connector H-24 (terminal 2) and ETACS-ECU connector D-223 (terminal 46) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

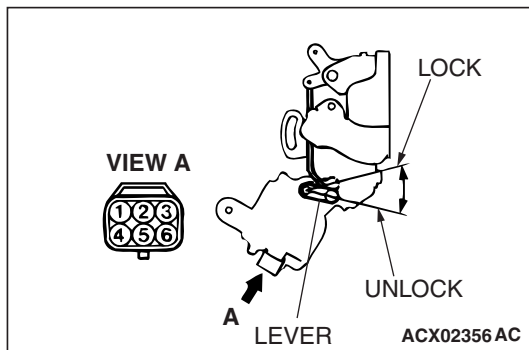


STEP 14. Check back door lock actuator switch connector I-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is back door lock actuator switch connector I-05 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. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.



STEP 15. Check the back door lock actuator switch.

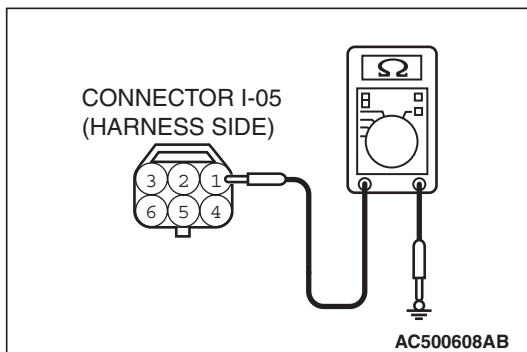
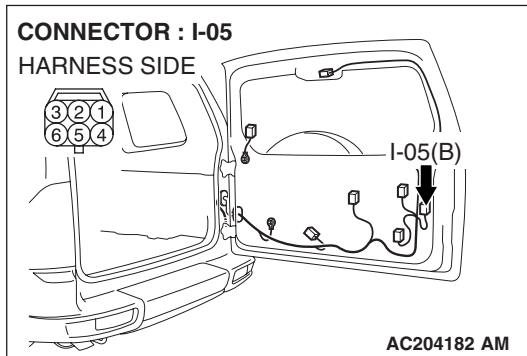
Disconnect back door lock actuator switch connector I-05. Then check continuity between the switch terminals.

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	1 – 2	Less than 2 ohms

Q: Is the back door lock actuator switch in good condition?

YES : Go to Step 16.

NO : Replace the back door lock actuator switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.



STEP 16. Check the ground circuit to the back door lock actuator switch. Test at back door lock actuator switch connector I-05.

(1) Disconnect back door lock actuator switch connector I-05 and measure the resistance available at the wiring harness side of the connector.

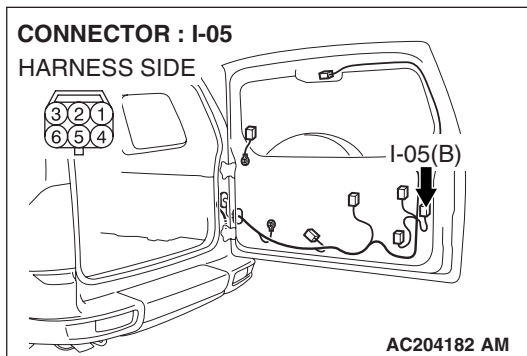
(2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 18.

NO : Go to Step 17.



STEP 17. Check the wiring harness between back door lock actuator switch connector I-05 (terminal 1) and ground.

Q: Is the wiring harness between back door lock actuator switch connector I-05 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

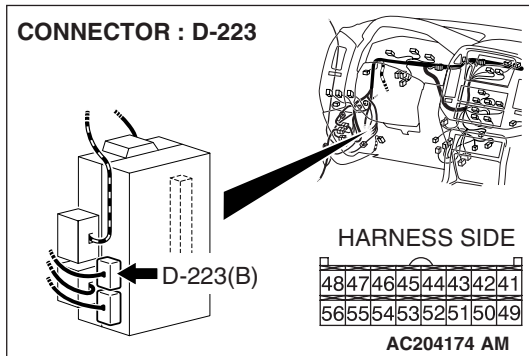
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.

STEP 18. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

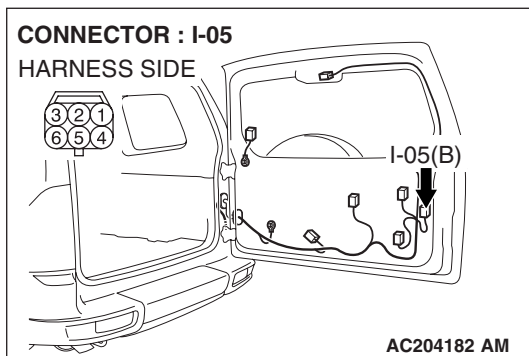
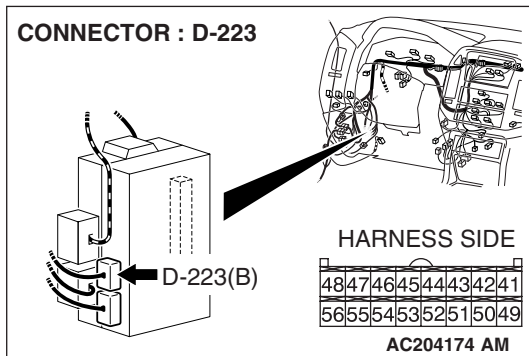
Q: Is ETACS-ECU connector D-223 in good condition?

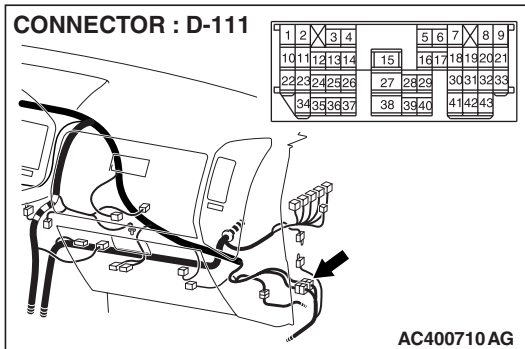
YES : Go to Step 19.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.



STEP 19. Check the wiring harness between back door lock actuator switch connector I-05 (terminal 2) and ETACS-ECU connector D-223 (terminal 47).



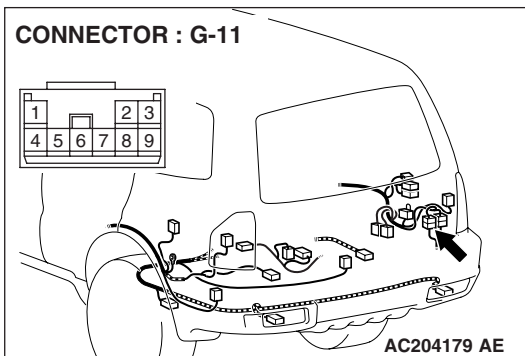


NOTE: Also check intermediate connectors D-111 and G-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111 or G-11 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

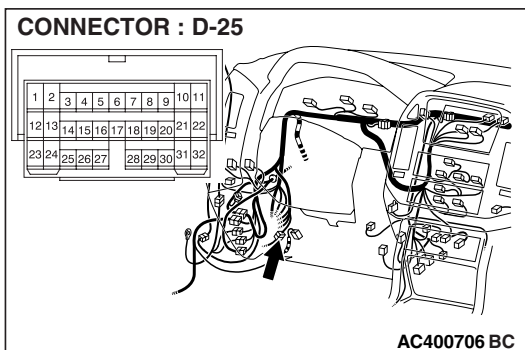
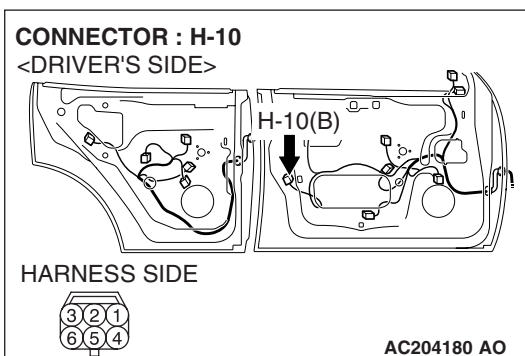
Q: Is the wiring harness between back door lock actuator switch connector I-05 (terminal 2) and ETACS-ECU connector D-223 (terminal 47) in good condition?

YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.

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 functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.



STEP 20. Check the wiring harness between driver's door lock actuator switch connector H-10 (terminal 1) and ground.



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

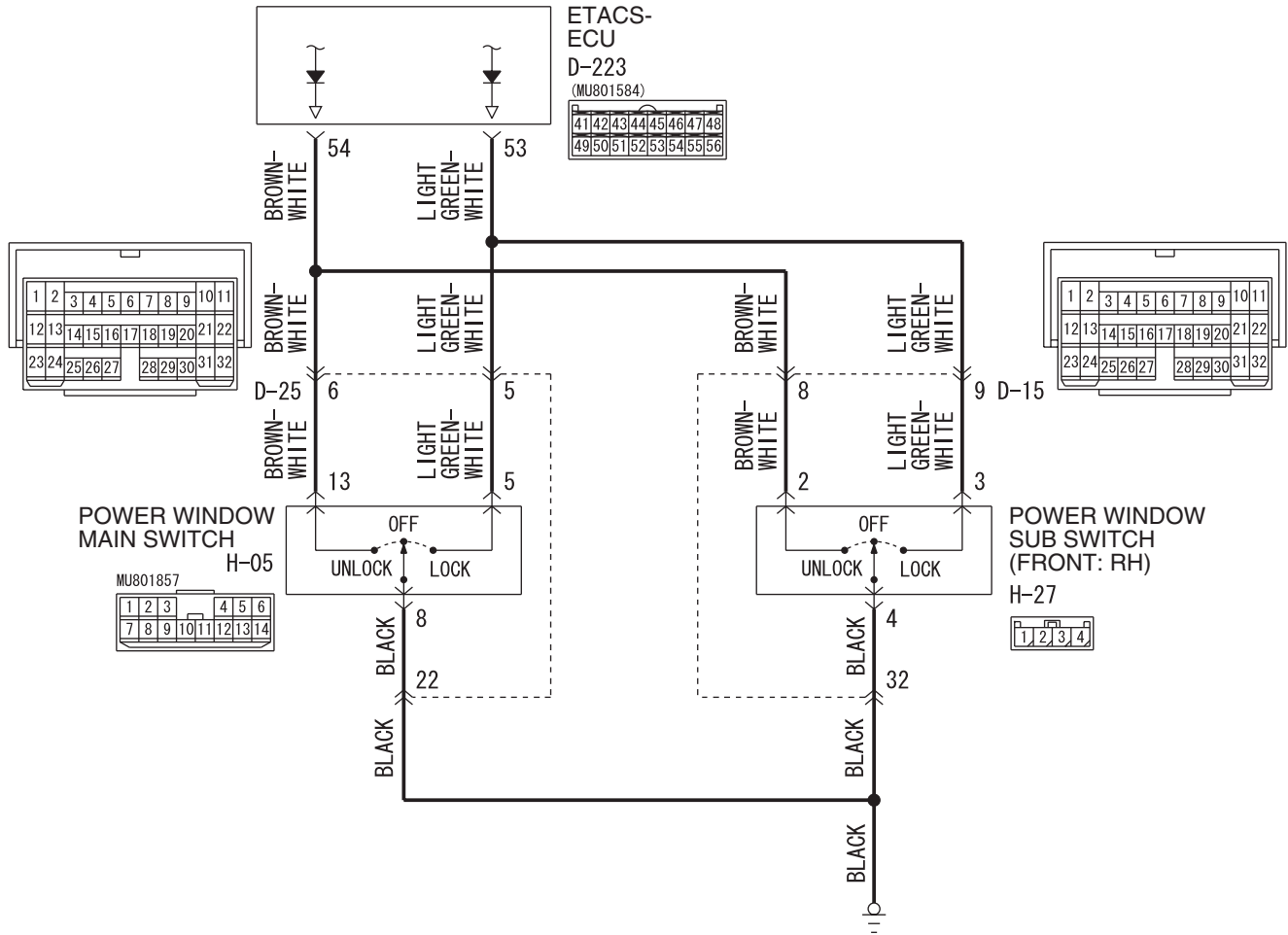
Q: Is the wiring harness between driver's door lock actuator switch connector H-10 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

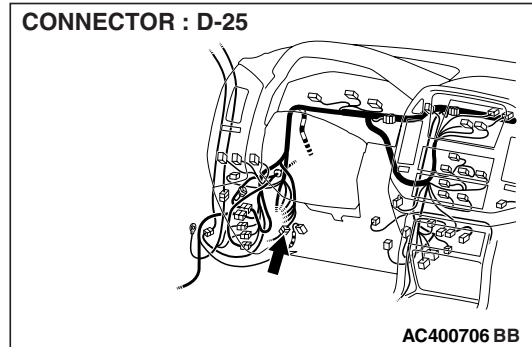
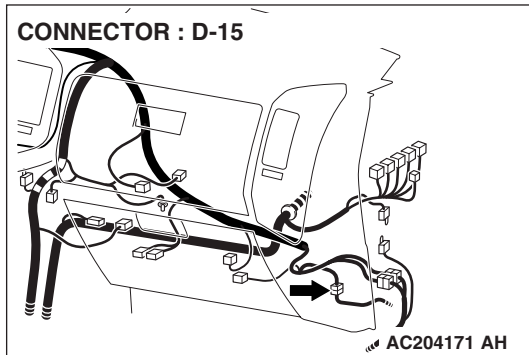
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

INSPECTION PROCEDURE P-7: ETACS-ECU does not receive any signal from the door lock switch (incorporated in power window main switch and power window sub switch).

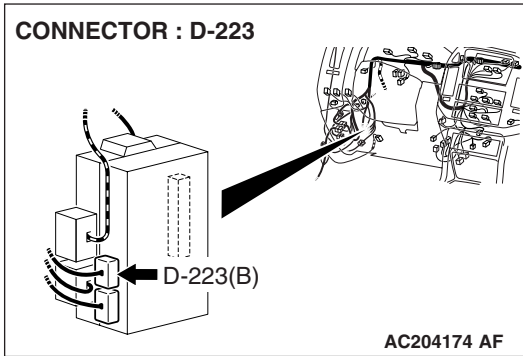
Door Lock Switch Input Circuit



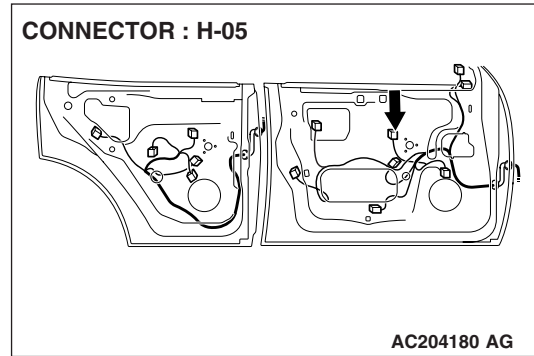
W5Q54M031A



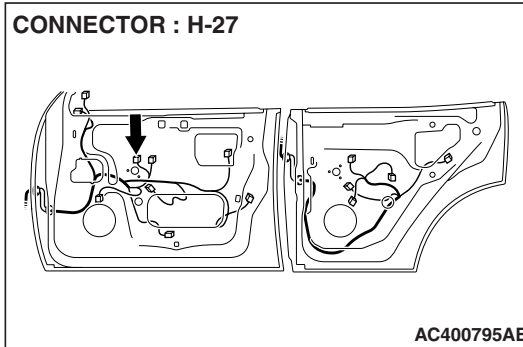
CONNECTOR : D-223



CONNECTOR : H-05



CONNECTOR : H-27

**CIRCUIT OPERATION**

The ETACS-ECU operates the central door locking system according to signal from the door lock switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the doors is not locked or unlocked. If the signal is not normal, the power window main switch, power window sub switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The power window main switch or power window sub 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
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Verify which door switch is defective.

Q: Which door switch signal is not entered?

Power window main switch (Driver's door) : Go to Step 2.

Power window sub switch (Front passenger's door) :
Go to Step 8.

Power window main switch (driver's door) and power window sub switch (front passenger's door) : Go to Step 14.

Power window main switch (driver's door) and power window sub switch (front passenger's door) (Lock signal only) : Go to Step 16.

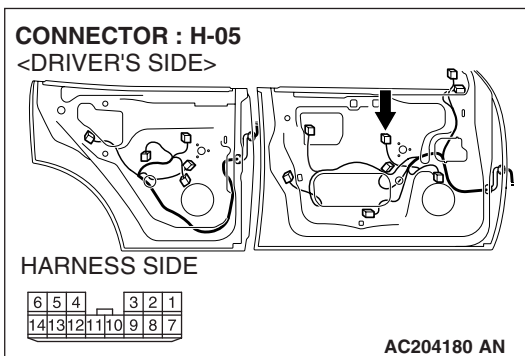
Power window main switch (driver's door) and power window sub switch (front passenger's door) (Unlock signal only) : Go to Step 18.

STEP 2. Check power window main switch connector H-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector H-05 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](#). If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 3. Check the door lock switch (power window main switch).

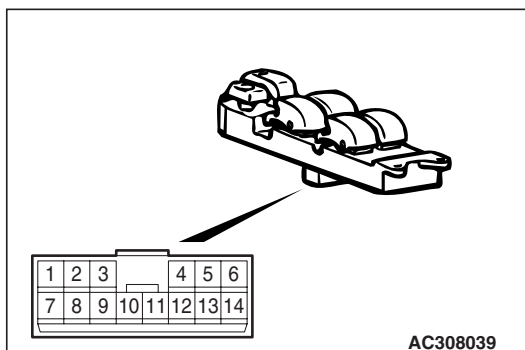
Remove the power window main switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	5 – 8	Less than 2 ohms
OFF	8 – 13, 5 – 8	Open circuit
UNLOCK	8 – 13	Less than 2 ohms

Q: Is the door lock switch (power window main switch) in good condition?

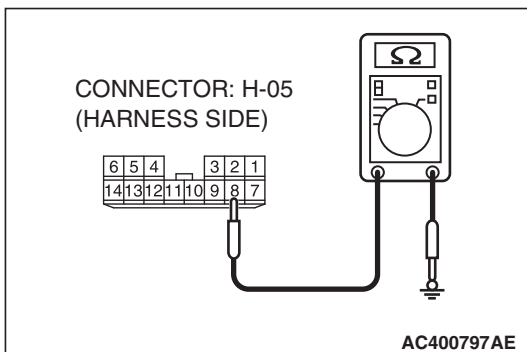
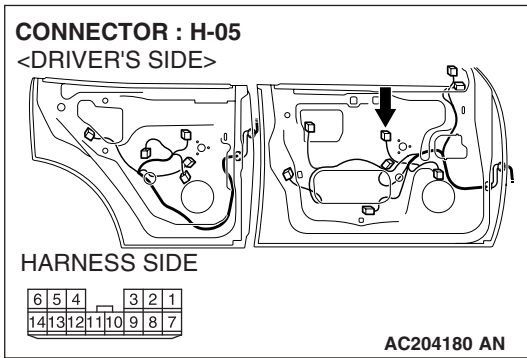
YES : Go to Step 4.

NO : Replace the power window main switch. If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 4. Check the ground circuit to the power window main switch. Test at power window main switch connector H-05.

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



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

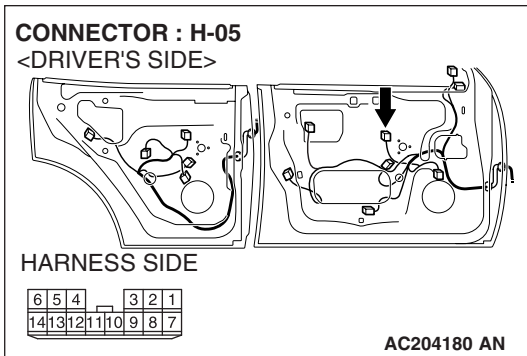
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

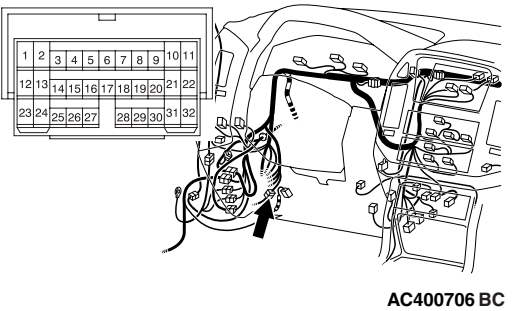
YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between power window main switch H-05 (terminal 8) and ground.



CONNECTOR : D-25



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

Q: Is the wiring harness between power window main switch connector H-05 (terminal 8) 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. If the central door locking system works normally, input signal from the door lock switch should be normal.

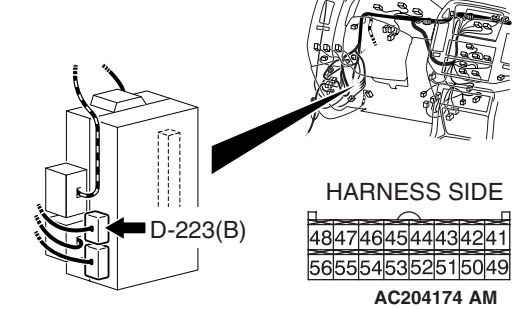
STEP 6. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 in good condition?

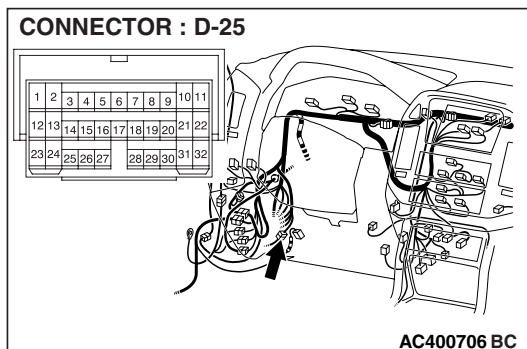
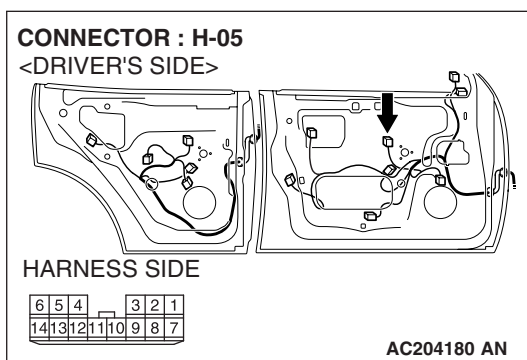
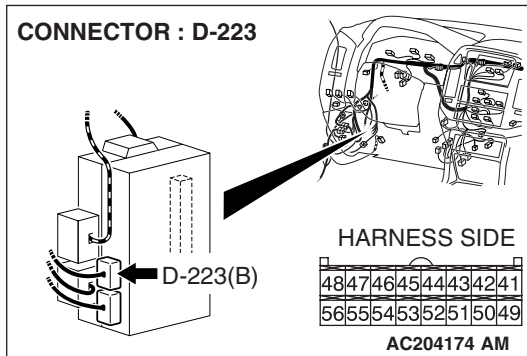
YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the central door locking system works normally, input signal from the door lock switch should be normal.

CONNECTOR : D-223



STEP 7. Check the wiring harness between power window main switch connector H-05 (terminals 5 and 13) and ETACS-ECU connector D-223 (terminals 53 and 54).

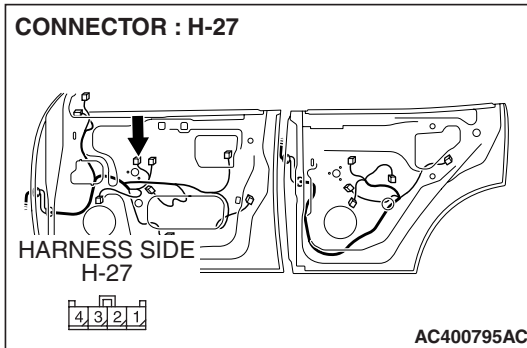


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector H-05 (terminals 5 and 13) and ETACS-ECU connector D-223 (terminals 53 and 54) in good condition?

YES : Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

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 central door locking system works normally, input signal from the door lock switch should be normal.

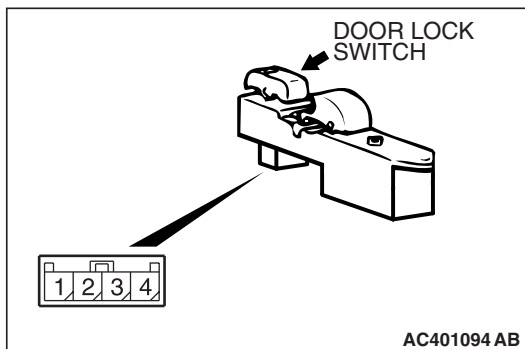


STEP 8. Check power window sub switch connector H-27 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window sub switch connector H-27 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](#). If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 9. Check the door lock switch (power window sub switch).

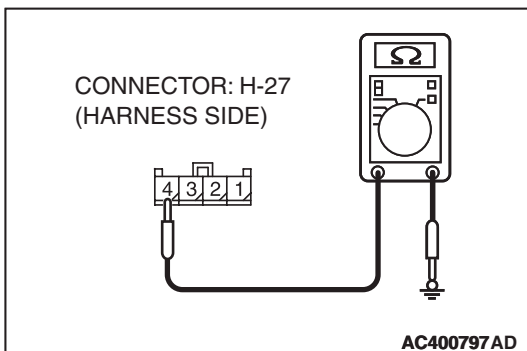
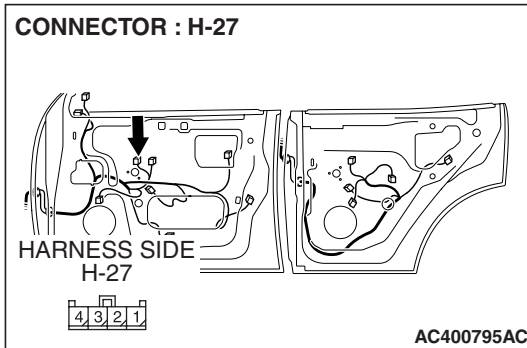
Remove the power window sub switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	3 - 4	Less than 2 ohms
OFF	3 - 4, 2 - 4	Open circuit
UNLOCK	2 - 4	Less than 2 ohms

Q: Is the door lock switch (power window sub switch) in good condition?

YES : Go to Step 10.

NO : Replace the power window sub switch. If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 10. Check the ground circuit to the power window sub switch. Test at power window sub switch connector H-27.

(1) Disconnect power window sub switch connector H-27 and measure the resistance available at the wiring harness side of the connector.

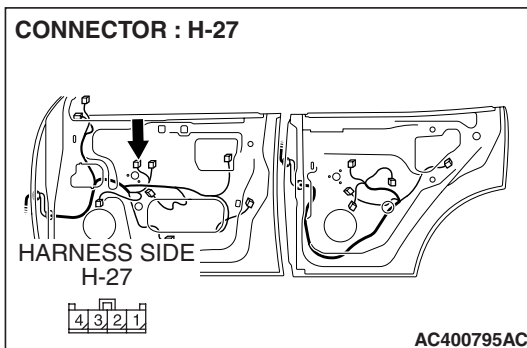
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

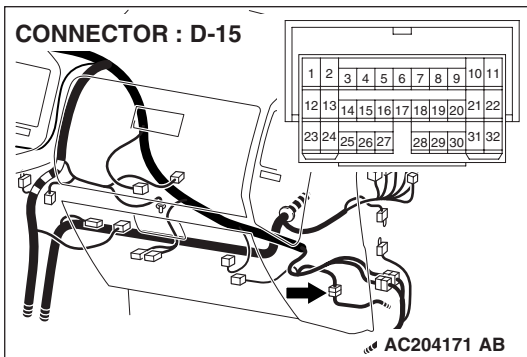
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between power window sub switch H-27 (terminal 4) and ground.



NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If 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 power window sub switch connector H-27 (terminal 4) and ground in good condition?

YES : No action is necessary and testing is complete.

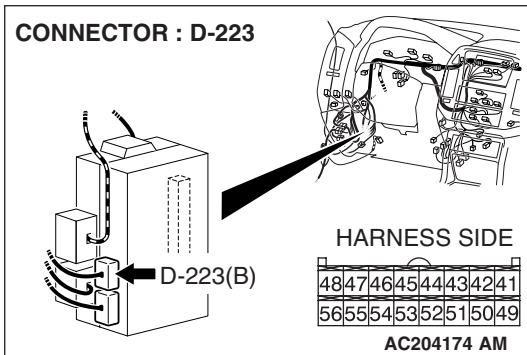
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

STEP 12. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

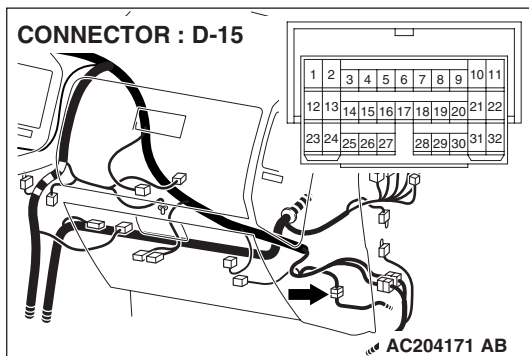
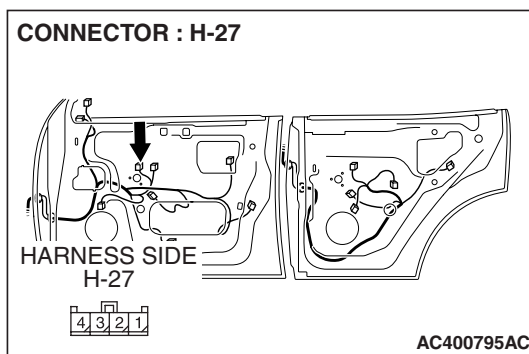
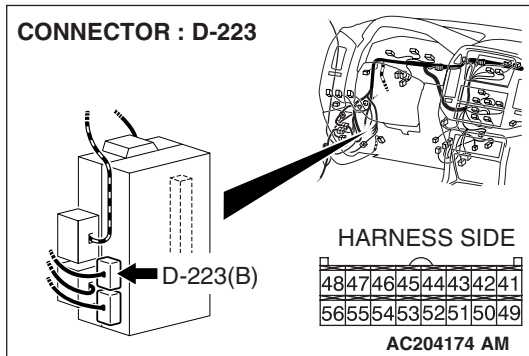
Q: Is ETACS-ECU connector D-223 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 13. Check the wiring harness between power window sub-switch connector H-27 (terminals 2 and 3) and ETACS-ECU connector D-223 (terminals 54 and 53).

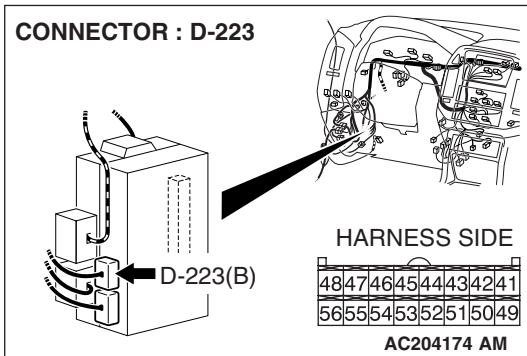


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window sub-switch connector H-27 (terminals 2 and 3) and ETACS-ECU connector D-223 (terminals 54 and 53) in good condition?

YES : Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

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 central door locking system works normally, input signal from the door lock switch should be normal.

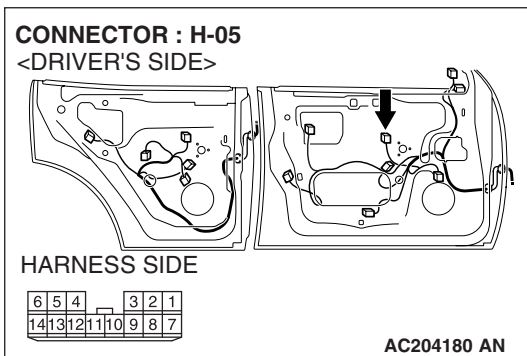


STEP 14. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 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](#). If the central door locking system works normally, input signal from the door lock switch should be normal.

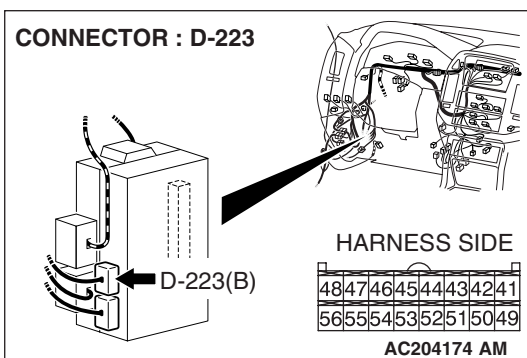


STEP 15. Check the wiring harness between power window main switch H-05 (terminal 8) and ground.

Q: Is the wiring harness between power window main switch connector H-05 (terminal 8) and ground in good condition?

YES : Replace the ETACS-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. If the central door locking system works normally, input signal from the door lock switch should be normal.

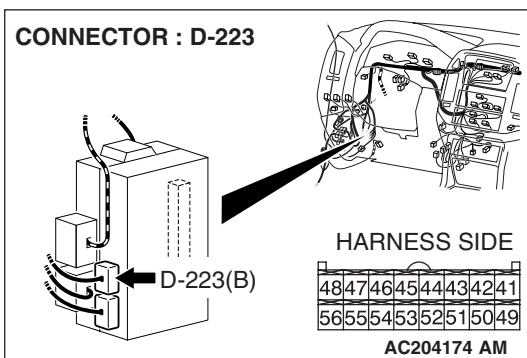
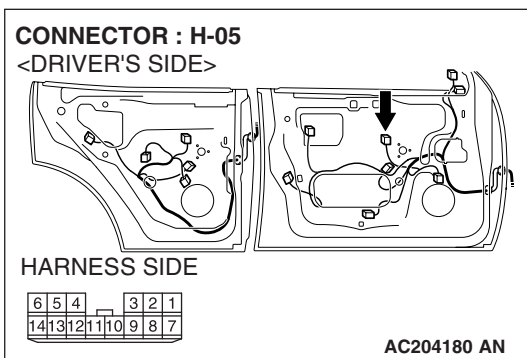
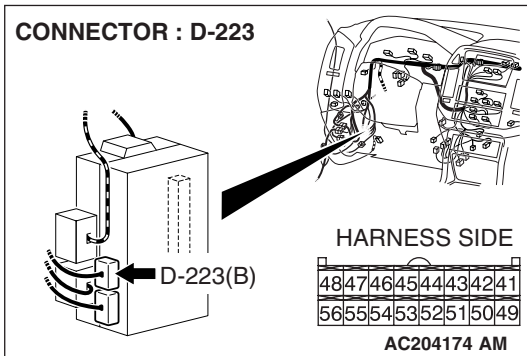


STEP 16. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 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](#). If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 17. Check the wiring harness between power window main switch connector H-05 (terminals 5) and ETACS-ECU connector D-223 (terminals 53).

Q: Is the wiring harness between power window main switch connector H-05 (terminals 5) and ETACS-ECU connector D-223 (terminals 53) in good condition?

YES : Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

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 central door locking system works normally, input signal from the door lock switch should be normal.

STEP 18. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector D-223 in good condition?

YES : Go to Step 19.

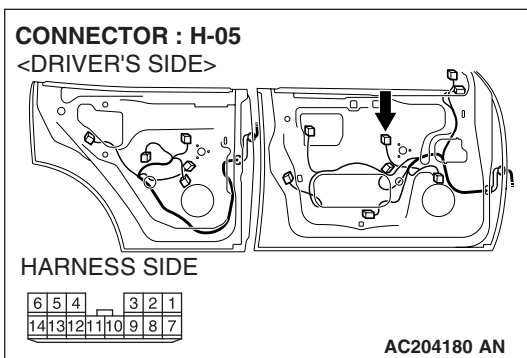
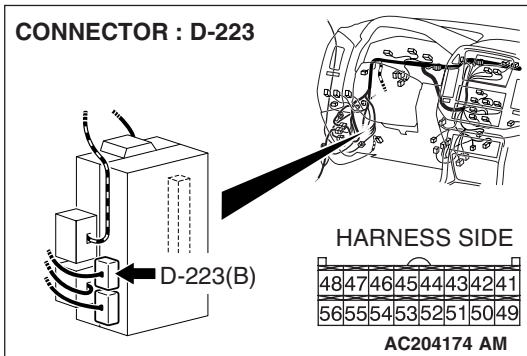
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the central door locking system works normally, input signal from the door lock switch should be normal.

STEP 19. Check the wiring harness between power window main switch connector H-05 (terminals 13) and ETACS-ECU connector D-223 (terminals 54).

Q: Is the wiring harness between power window main switch connector H-05 (terminals 13) and ETACS-ECU connector D-223 (terminals 54) in good condition?

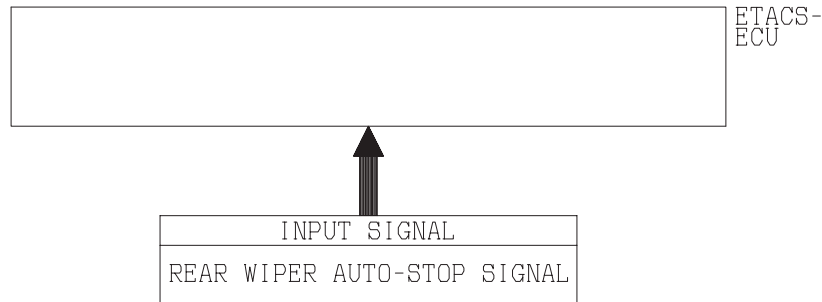
YES : Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

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 central door locking system works normally, input signal from the door lock switch should be normal.

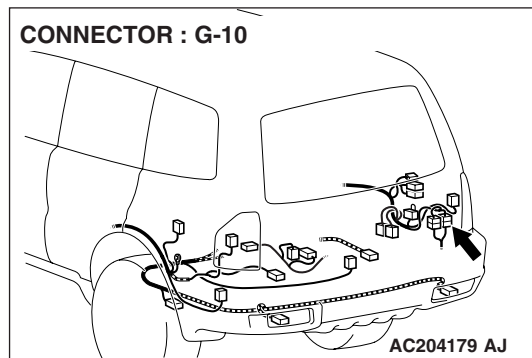
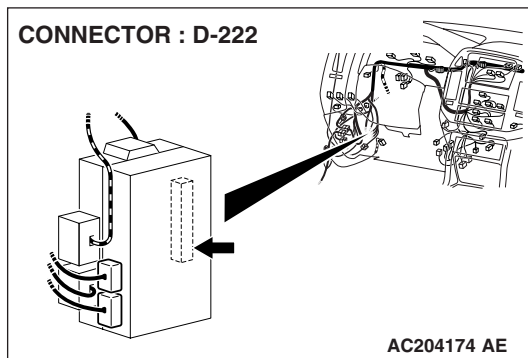
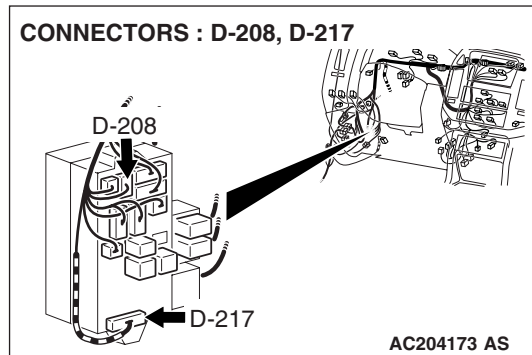
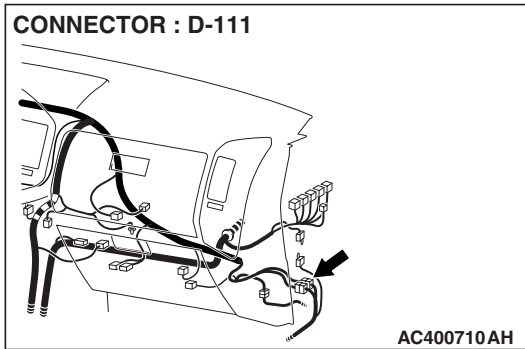


INSPECTION PROCEDURE P-8: ETACS-ECU does not receive an auto-stop signal from the rear wiper motor.

Rear Wiper Auto-stop Signal Input



W2002M16AA



CIRCUIT OPERATION

The ETACS-ECU makes the rear wiper stop at the predetermined park position according to the auto-stop signal from the rear wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

If this signal is not normal, the rear wiper does not stop at the predetermined park position.

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

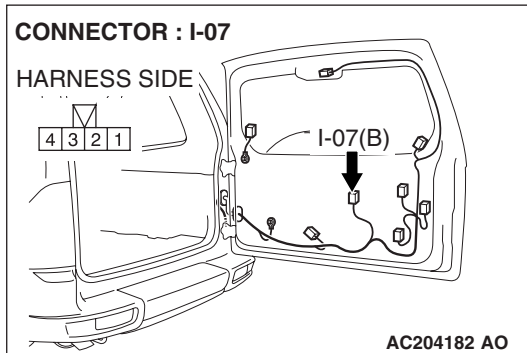
STEP 1. Check rear wiper motor connector I-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear wiper motor connector I-07 in good condition?

YES : Go to Step 2.

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

[P.00E-2](#). If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

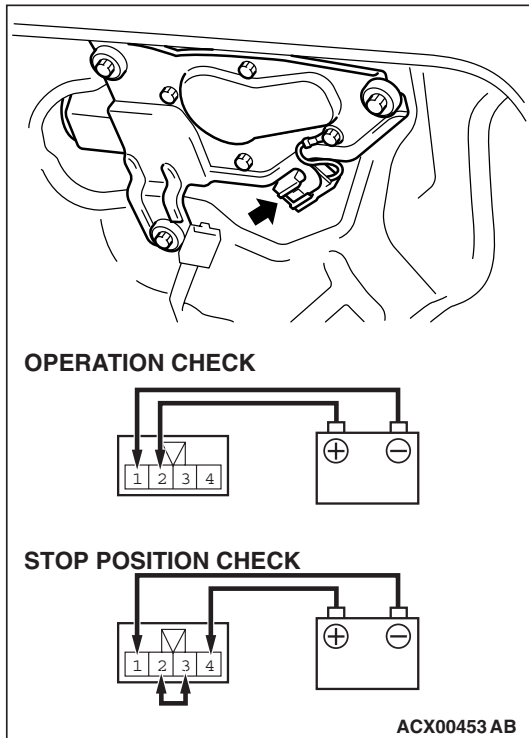


STEP 2. Check the rear wiper.

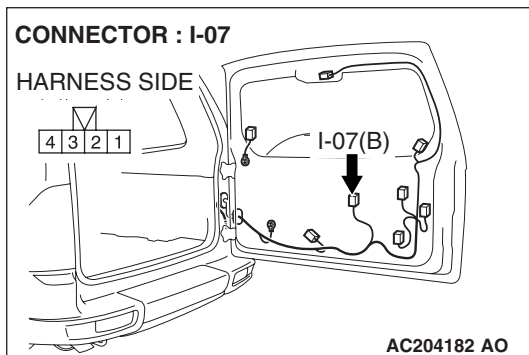
Q: Does the rear wiper motor operate (however, the rear wiper does not stop at the predetermined park position)?

YES : Go to Step 3.

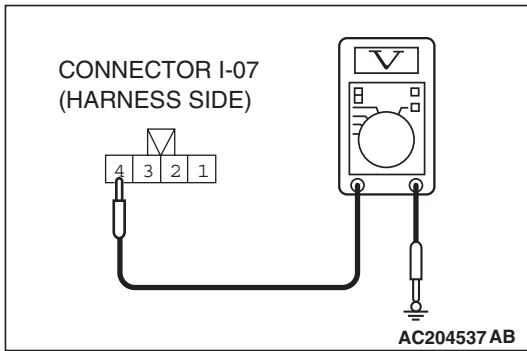
NO : Refer to Inspection Procedure H-1 "Rear wiper dose not work at all [P.54B-256](#)."

**STEP 3. Check the rear wiper motor.**

- (1) Disconnect rear wiper motor connector I-07.
- (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 4.**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 4. Check the ignition switch (ACC) line of the power supply circuit to the rear wiper motor. Test at rear wiper motor connector I-07.**

- (1) Disconnect rear wiper motor connector I-07 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ACC" position.



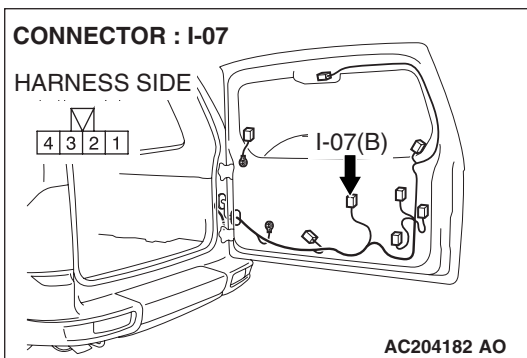
- (3) Measure the voltage between terminal 4 and ground.
- The voltage should equal approximately 12 volts (battery positive voltage).

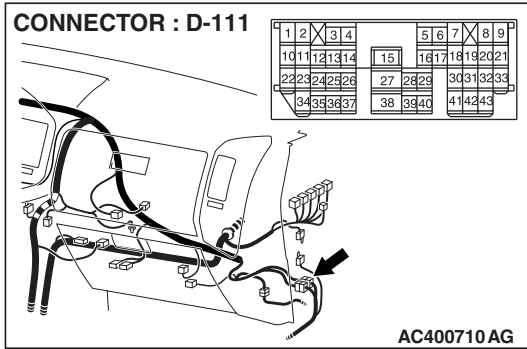
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between rear wiper motor connector I-07 (terminal 4) and the ignition switch (ACC).



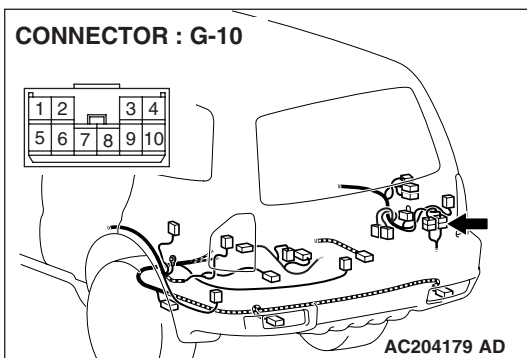
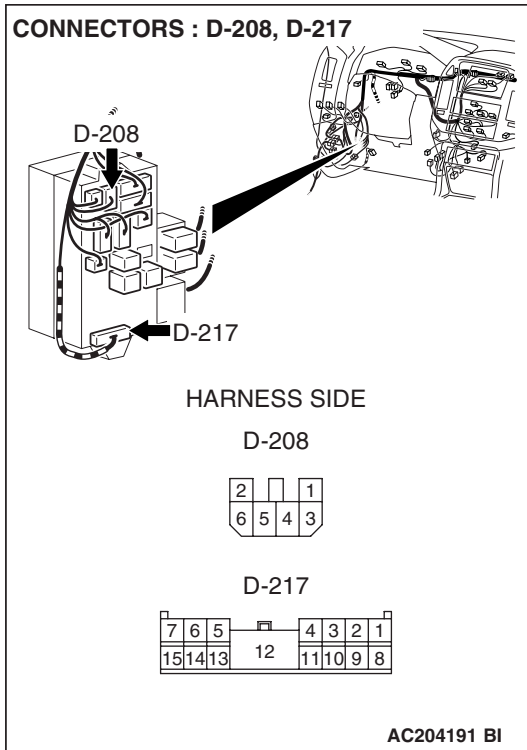


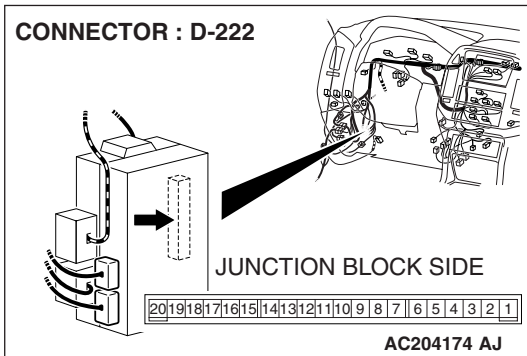
NOTE: Also check intermediate connectors D-111, G-10, junction block connectors D-208 and D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-111, G-10, junction block connector D-208 or D-217 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear wiper motor connector I-07 (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.



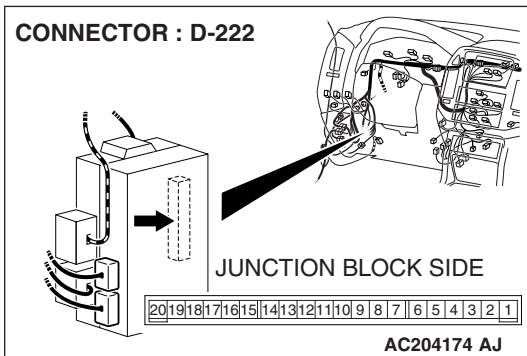


STEP 6. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

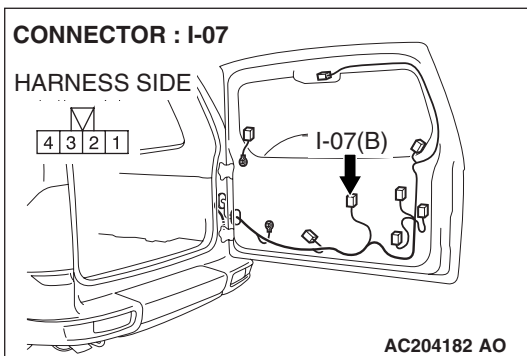
Q: Are rear ETACS-ECU connector D-222 in good condition?

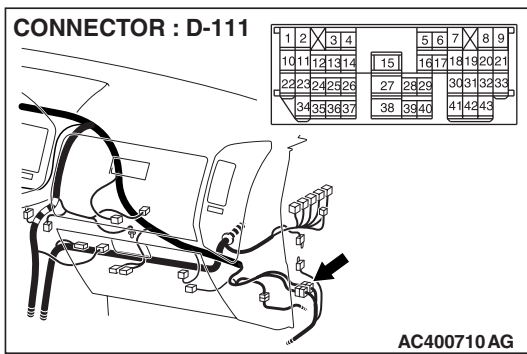
YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). 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 I-07 (terminal 3) and ETACS-ECU connector D-222 (terminal 5).



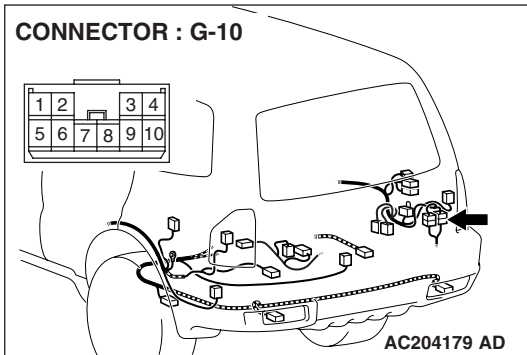
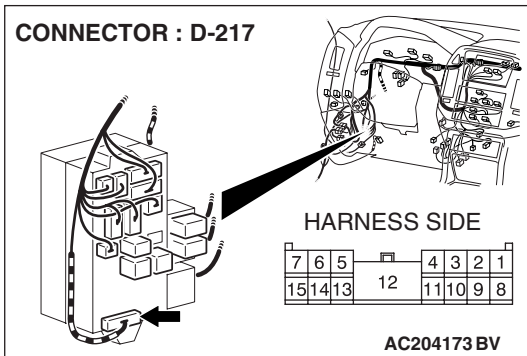


NOTE: Also check intermediate connectors D-111, G-10 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-111, G-10 or junction block connector D-217 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear wiper motor connector I-07 (terminal 3) and ETACS-ECU connector D-222 (terminal 5) in good condition?

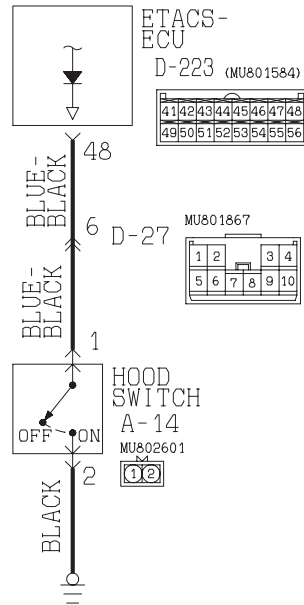
YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

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.

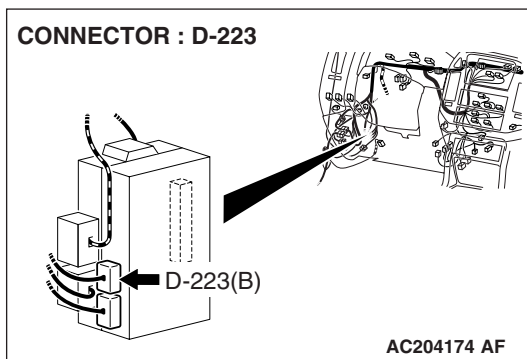
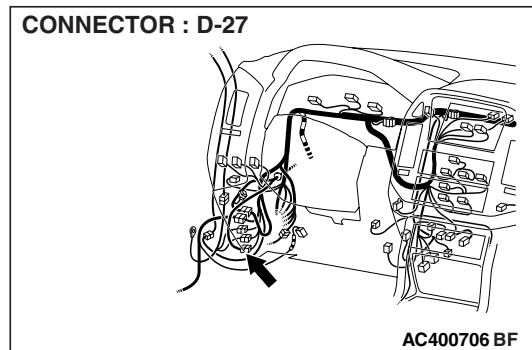
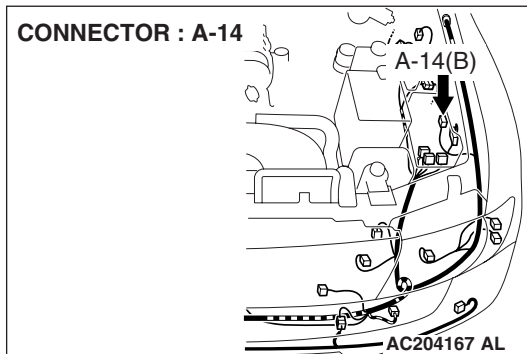


INSPECTION PROCEDURE P-9: ETACS-ECU does not receive any signal from hood switch.

Hood Switch Input Circuit



W1Q15M49AA



CIRCUIT OPERATION

The ETACS-ECU operates the theft-alarm system according to signal from the hood switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the theft-alarm system does not work normally.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

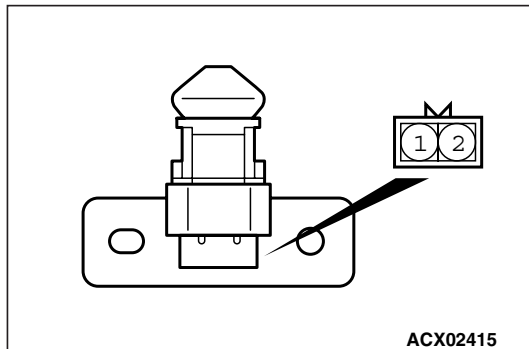
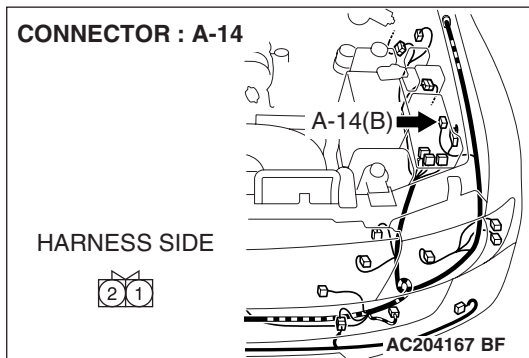
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B

STEP 1. Check hood switch connector A-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hood switch connector A-14 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.



STEP 2. Check the hood switch.

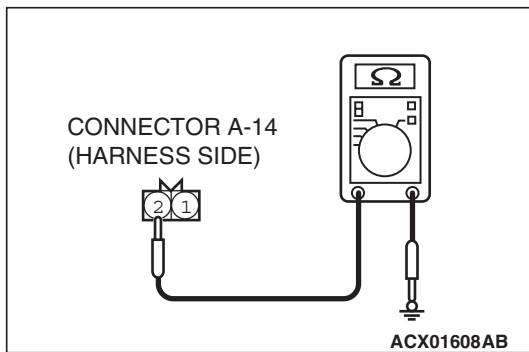
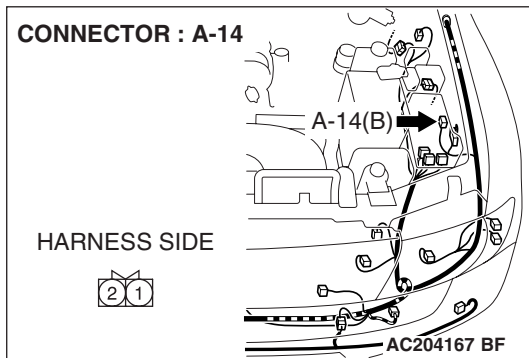
Remove the hood switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Less than 2 ohms
Pressed	1 – 2	Open circuit

Q: Is the hood switch in good condition?

YES : Go to Step 3.

NO : Replace the hood switch. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.



STEP 3. Check the ground circuit to the hood switch. Test at hood switch connector A-14.

(1) Disconnect hood switch connector A-14 and measure the resistance available at the wiring harness side of the connector.

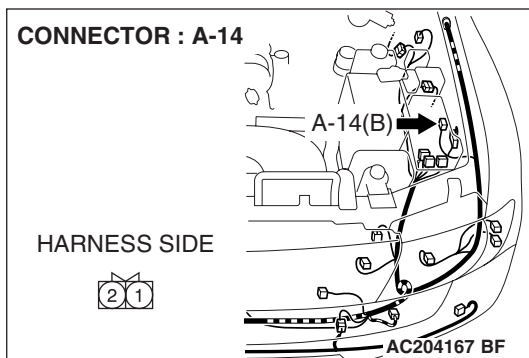
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between hood switch connector A-14 (terminal 2) and ground.

Q: Is the wiring harness between hood switch connector A-14 (terminal 2) and the ground in good condition?

YES : No action is necessary and testing is complete.

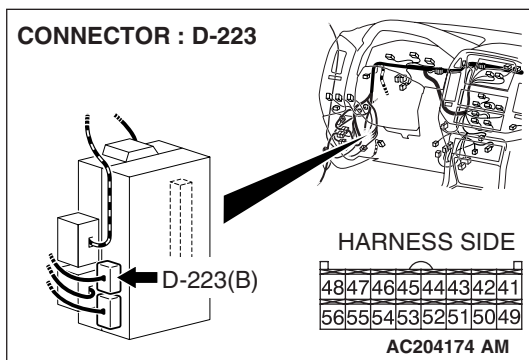
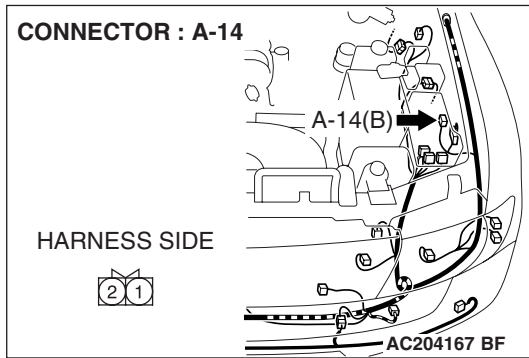
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

STEP 5. Check hood switch connector A-14 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

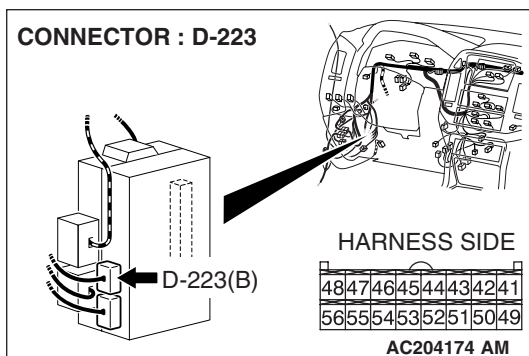
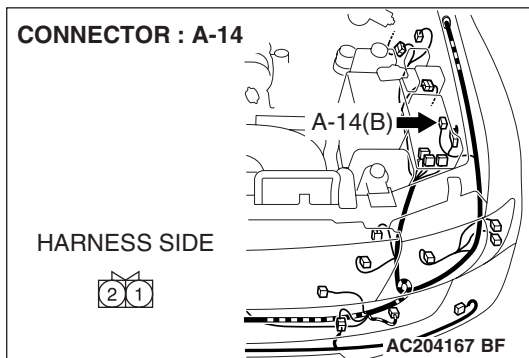
Q: Are hood switch connector A-14 and ETACS-ECU connector D-223 in good condition?

YES : Go to Step 6.

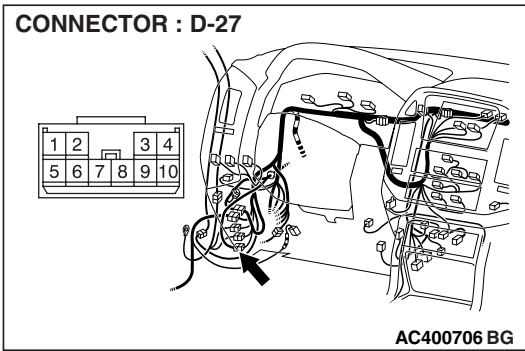
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.



STEP 6. Check the wiring harness between hood switch connector A-14 (terminal 1) and ETACS-ECU connector D-223 (terminal 48).



CONNECTOR : D-27



NOTE: Also check intermediate connector D-27 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-27 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

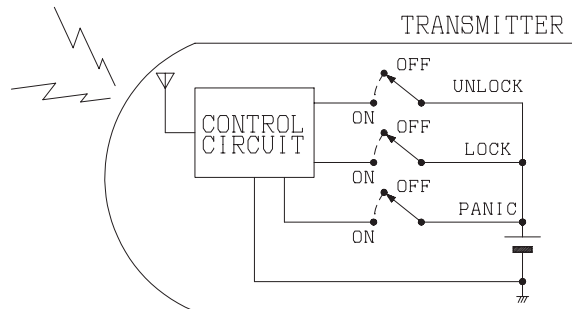
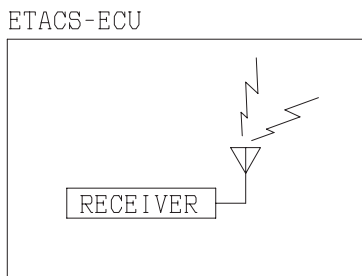
Q: Is the wiring harness between hood switch connector A-14 (terminal 1) and ETACS-ECU connector D-223 (terminal 48) in good condition?

YES : Replace the ETACS-ECU. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

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 theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

INSPECTION PROCEDURE P-10: Transmitter: ETACS-ECU does not receive any signal from the lock, unlock switch or panic switch.

Transmitter Input Circuit



W1Q15M50AA

CIRCUIT OPERATION

The ETACS-ECU receives signal through its receiver from the transmitter, and operates the keyless entry system according to the signal.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the systems, which are described in "CIRCUIT OPERATION", do not work normally.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Register the transmitter.

Replace the transmitter. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How to register secret code [P.42-59](#).

Q: Can the transmitter be registered correctly?

YES : If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

NO : Go to Step 2.

STEP 2. Check the transmitter battery.

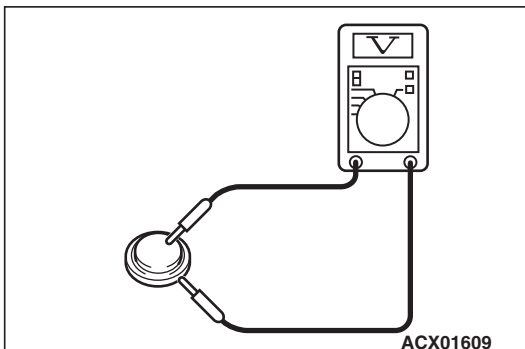
Measure the voltage of the transmitter battery.

- The voltage should equal approximately 2.5 - 3.2 volts.

Q: Is the measured voltage approximately 2.5 - 3.2 volts?

YES : Go to Step 3.

NO : Replace the battery. If the transmitter can be registered normally, and the systems, which are described in "CIRCUIT OPERATION", operate normally, it indicates that the transmitter is sending normal signal to the ECU.

**STEP 3. Check the transmitter.**

Substantial other transmitter in order to register encrypted code. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How to register secret code [P.42-59](#).

Q: Can the transmitter be registered correctly?

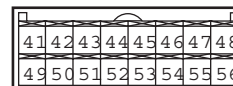
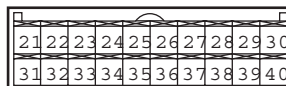
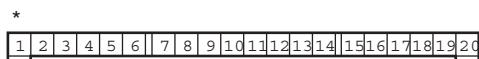
YES : If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

NO : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

CHECK AT ECU TERMINAL

M1549001201008

1. ETACS-ECU



ACX01511AB

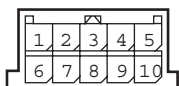
*NOTE: *: The terminal 1 to 20 connectors can not be measured as the ETACS-ECU is installed directly on the junction block. Therefore, this information is only for reference.*

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Output to rear wiper	When rear wiper is operating	Battery positive voltage
2	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
3	Output to rear washer	When rear washer is operating	Battery positive voltage
4	Output to door lock	When door lock actuator is operating (doors locked)	Battery positive voltage
5	Input of automatic stop signal to rear wiper	When rear wiper is operating	Battery positive voltage
6	Battery power supply (for ECU)	Always	Battery positive voltage
7	Input from door switches	Either of door switches: ON (Door open)	0 V
8	Output to power window relay	When the power windows can work	2 V or less
9	Input from driver's door switch	Driver's door switch: ON (Driver's door open)	0 V
11	Battery power supply (for turn-signal light)	Always	Battery positive voltage
12	Battery positive voltage (for central door lock)	Always	Battery positive voltage
14	Output to turn-signal light (LH)	When turn-signal light (LH) is on	Battery positive voltage
15	Output to turn-signal light (RH)	When turn-signal light (RH) is on	Battery positive voltage
16	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
17	Output to door unlock (excluding driver's door)	When door lock actuator is operating (doors unlocked)	Battery positive voltage
18	Output to dome light	When dome light is on	2 V or less
19	Output to door unlock (for driver's door)	When driver's door lock actuator is operating (doors unlocked)	Battery positive voltage
20	Ground (for ECU)	Always	0 V
21	SWS communication line	Always	0 – 12 V (pulse signal)
22	Input of diagnosis indication selection	When scan tool is connected	0 V
23	Ground (for sensor)	Always	0 V

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
24	Input from fog light switch	Fog light switch: ON (When the switch is depressed)	0 V
25	Input of driver's seat belt switch signal	Driver's seat belt switch: ON (seat belts unfastened)	0 V
26	Input of key reminder switch signal	Key reminder switch: ON (ignition key removed)	0 V
27	Input of hazard warning light switch signal	Hazard warning light switch: ON (When the switch is depressed)	0 V
28	Input of back door lock key cylinder switch (LOCK) signal	Back door lock key cylinder switch: LOCK	0 V
29	Input of front passengers's door switch signal	Front passenger's door switch: ON (Front passenger's door open)	0 V
31	Output of data request signal	Always	0 – 5 V (pulse signal)
34	Input of signal from windshield intermittent wiper interval adjusting knob	Ignition switch: "ACC," Windshield intermittent wiper interval adjusting knob: "FAST" → "SLOW"	0 → 2.5 V
35	Input of "R" position signal from transmission range switch	Ignition switch: "ON," Selector lever: "R"	Battery positive voltage
36	Output to ignition key hole illumination light	When ignition key hole illumination light is on	2 V or less
37	Output to data link connector	When DTC sets	0 – 12 V (pulse signal)
		When input check signal is output	0 – 12 V (when input pulse signal is fluctuating)
39	Output to seat belt warning light	When seat belt warning light is on	2 V or less
40	Output to the theft-alarm indicator light	When the theft-alarm indicator light is on	2 V or less
42	Output to horn	When a horn sounds by the keyless entry horn answerback function or the theft-alarm system	2 V or less
45	Input of back door lock key cylinder switch (UNLOCK) signal	Back door lock key cylinder switch: UNLOCK	0 V
46	Input of front passenger's door lock actuator switch (UNLOCK) signal	Front passenger's door lock actuator switch: UNLOCK	0 V
47	Input of rear and back door lock actuator switch (UNLOCK) signals	Rear or back door lock actuator switch: UNLOCK	0 V
48	Input signal from the hood switch	Hood switch: ON (Hood open)	0 V
49	Output to the theft-alarm horn	When theft-alarm horn is sounding	2 V or less

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
50	Input of driver's and front passenger's door lock key cylinder switch (LOCK) signals	Driver's or front passenger's door lock key cylinder switch: LOCK	0 V
51	Input of front passenger's door lock key cylinder switch (UNLOCK) signal	Front passenger's door lock key cylinder switch: UNLOCK	0 V
52	Input of driver's door lock key cylinder switch (UNLOCK) signal	Driver's door lock key cylinder switch: UNLOCK	0 V
53	Input of door lock switch signal (LOCK)	Door lock switch: LOCK	0 V
54	Input of door lock switch signal (UNLOCK)	Door lock switch: UNLOCK	0 V
55	Input of driver's door lock actuator switch (LOCK) signal	Driver's door lock actuator switch: LOCK	0 V
56	Input of driver's door lock actuator switch (UNLOCK) signal	Driver's door lock actuator switch: UNLOCK	0 V

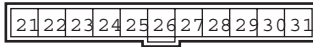
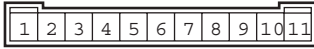
2. COLUMN SWITCH



ACX01512

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Battery power supply	Always	Battery positive voltage
2	Input of data request signal	Always	0 – 5 V (pulse signal)
3	SWS communication line	Always	0 – 12 V (pulse signal)
4	Ground	Always	0 V
6	Output of signal from windshield intermittent wiper interval adjusting knob	Igniting switch: "ACC," Windshield intermittent wipe interval adjusting knob: "FAST" to "SLOW"	0 → 2.5 V
8	Output of backup signal from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V (when the windshield wiper motor is on) 12 V (when the windshield wiper motor is off)
9	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
10	Output of backup signal from headlight switch	Ignition switch: "ON," Headlight switch: ON	0 – 1 V

3. FRONT-ECU

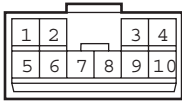


ACX01513

NOTE: Terminal voltages can not be measured as the front-ECU is installed directly on the relay box. Therefore, this information is only for reference.

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Output to the fog light relay	When the fog lights are on	2 V or less
2	Output to headlight (high-beam)	When headlights (high-beam) are on	Battery positive voltage
3, 4	Battery power supply (for headlight)	Always	Battery positive voltage
5	Battery power supply (for taillight)	Always	Battery positive voltage
6	Output to headlight (low-beam)	When headlights (low-beam) are on	Battery positive voltage
7	Battery power supply (for ECU)	Always	Battery positive voltage
8	Output to taillights	When taillights are on	Battery positive voltage
9	Battery power supply (for headlight washer)	Always	Battery positive voltage
11	Output to the headlight washer	When the headlight washer is working	Battery positive voltage
21	Output to windshield washer	When windshield washer is on	Battery positive voltage
22	SWS communication line	Always	0 – 12 V (pulse signal)
23	Input of automatic stop signal to windshield wiper	When windshield wiper is on	Battery positive voltage
24	Power supply to ignition switch (ACC)	Ignition switch: ACC	Battery positive voltage
25	Input of backup signal from headlight switch	Headlight switch: ON	0 V
26	Input of backup signal to windshield wiper	Windshield low-speed wiper switch or windshield high-speed wipe switch: ON	0 V
27	Output to windshield wiper (low-speed)	When windshield wiper is on (at low speed)	Battery positive voltage
28	Output to windshield wiper (high-speed)	When windshield wiper is on (at high speed)	Battery positive voltage
30	Power supply to ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
31	Ground	Always	0 V

4. SUNROOF MOTOR ASSEMBLY



ACX01514

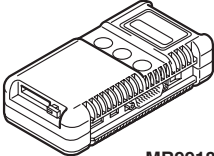
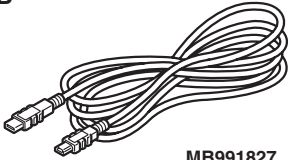

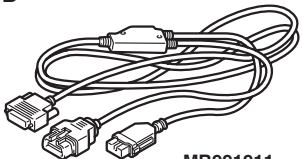
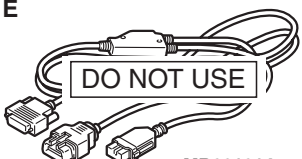
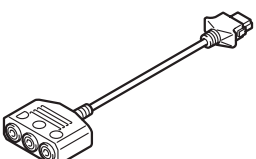
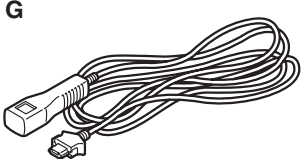
TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Battery power supply (for motor)	Always	Battery positive voltage
2	Power supply to ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
3	Battery power supply (for ECU)	Always	Battery positive voltage
5	Ground	Always	0 V
6	Input signal ("CLOSE/DOWN") from the sunroof switch	Sunroof switch: "CLOSE/DOWN"	0 V
7	Input signal ("UP") from the sunroof switch	Sunroof switch: "UP"	0 V
8	Input signal ("OPEN") from the sunroof switch	Sunroof switch: "OPEN"	0 V
10	SWS communication line	Always	0 – 12 V (pulse signal)

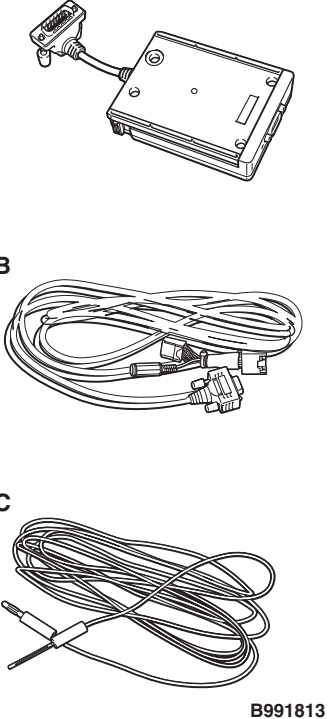
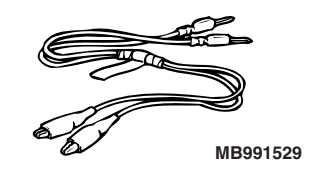
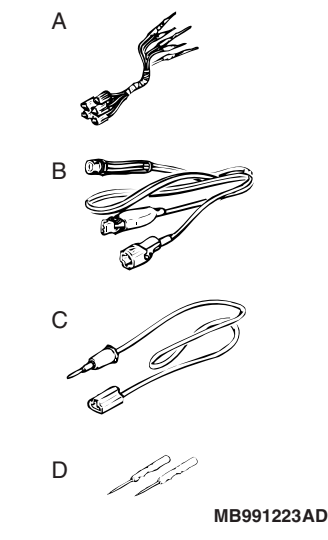
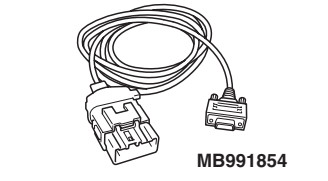
5. RV METER

Refer to GROUP 54A, RV Meter [P.54A-277](#).

SPECIAL TOOLS

M1549000300991

TOOL	TOOL NUMBER AND NAME	SUPERSESSON	APPLICATION
<p>A</p>  <p>MB991824</p> <p>B</p>  <p>MB991827</p> <p>C</p>  <p>MB991910</p> <p>D</p>  <p>MB991911</p> <p>E</p>  <p>MB991914</p> <p>F</p>  <p>MB991825</p> <p>G</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826</p> <p>MUT-III sub assembly</p> <p>A: Vehicle communication interface (V.C.I.)</p> <p>B: MUT-III USB cable</p> <p>C: MUT-III main harness A (Vehicles with CAN communication system)</p> <p>D: MUT-III main harness B (Vehicles without CAN communication system)</p> <p>E: MUT-III main harness C (for Daimler Chrysler models only)</p> <p>F: MUT-III measurement adapter</p> <p>G: MUT-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826</i></p> <p><i>MUT-III trigger harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>SWS communication line check (ECU check and service data)</p> <p>⚠ CAUTION</p> <p>MUT-III main harness B (MB991911) should be used. MUT-III main harness A and C should not be used for this vehicle.</p>

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
 <p>B</p> <p>C</p> <p align="right">B991813</p>	<p>MB991813 A: MB991806 B: MB991812 C: MB991822</p>	<p>SWS monitor kit A: SWS monitor cartridge B: SWS monitor harness (for column-ECU) C: Probe harness</p>	<p>SWS communication line check (ECU check and service data)</p>
 <p align="right">MB991529</p>	<p>MB991529 Diagnostic trouble code check harness</p>	<p>Tool not necessary if the scan tool (MUT-II) is available</p>	<p>Checking input signal when using a voltmeter</p>
 <p>A</p> <p>B</p> <p>C</p> <p>D</p> <p align="right">MB991223AD</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>MB991223</p>	<p>Making voltage and resistance measurement during troubleshooting A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>
 <p align="right">MB991854</p>	<p>MB991854</p>	<p>SWS monitor harness (for 13-pin)</p>	<p>SWS communication line check (ECU check, service data)</p>

ON-VEHICLE SERVICE

ADJUSTMENT PROCEDURES OF SWS FUNCTION <Vehicles with keyless entry system>

M1549002500838

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991911: MUT-III Main Harness B
- MB991529: Diagnostic Trouble Code Check Harness

The following functions can be enabled or disabled by operating input switches in a special manner. This set mode is stored after the battery is disconnected.

- Keyless entry hazard answerback function
- Headlight automatic shutdown function
- Initialization of above mentioned functions

NOTE: The keyless entry hazard answerback can be also adjusted by operating the RKE transmitter. (however, this adjustment can be done more easily by operating the transmitter.) Refer to GROUP 42, Keyless Entry System, On-vehicle Service, Enabling/disabling the Answerback Function P.42-57.

Entry conditions for adjustment mode

1. Set switches to the following conditions:
 - Hazard warning light switch: OFF
 - Diagnosis control: ON (Connect scan tool MB991958 to the data link connector, or connect the data link connector terminal 1 to ground.)
 - Key reminder switch: OFF (insert the ignition key)
 - Ignition switch: "LOCK" (OFF)
 - Driver's door switch: OFF (driver's door closed)
2. If the windshield washer switch remains on for 10 seconds or more, the tone alarm incorporated in the ETACS-ECU sounds once, and then enter the adjustment mode.

Release conditions for the adjustment mode

The adjustment mode will be released under one of the following conditions:

- Diagnosis control: ON (Disconnect scan tool MB991958 from the data link connector, or disconnect the data link connector terminal 1 from ground.)
- Key reminder switch: ON (ignition key removed)
- Ignition switch: Turn to the positions other than "LOCK" (OFF).
- Driver's door switch: ON (driver's door opened)
- After three minutes while the adjustment is not made (If any adjustment has been made within the three-minute period, cancel or complete the operation, and then release the adjustment mode within three minutes).
- When any other warning tone alarms sound

Configuration of Functions

ITEM	ADJUSTMENT PROCEDURE
Keyless entry hazard answerback	<p>If the transmitter "LOCK" switch is turned on twice within two seconds, the lock answerback function is enabled or disabled.</p> <ul style="list-style-type: none"> • If the function is enabled, the tone alarm sounds once. (initial status) • If the function is disabled, the tone alarm sounds twice. <p>If the transmitter "UNLOCK" switch is turned on twice within two seconds, the unlock answerback function is enabled or disabled.</p> <ul style="list-style-type: none"> • If the function is enabled, the tone alarm sounds once. (initial status) • If the function is disabled, the tone alarm sounds twice.
Vehicle speed-dependent wiper function	<p>The vehicle speed-dependent wiper function is enabled or disabled by turning on the windshield wiper mist switch for two seconds or more.</p> <ul style="list-style-type: none"> • Enabled: the tone alarm sounds once. (initial status) • Disabled: the tone alarm sounds twice.
Headlight automatic shutdown function	<p>If the passing switch is turned ON for more than two seconds with the headlight switch turned to ON and the turn signal light switch (RH) turned ON, the headlight automatic shutdown function is switched in the following order: (Next to "c," the function returns to "a" and repeats the sequence from "a".)</p> <ol style="list-style-type: none"> a. With the ignition switch in "LOCK" (OFF) position, the automatic shutdown function is enabled when the lighting switch is turned ON and the tone alarm sounds once. b. If the function is disabled, the tone alarm sounds twice. c. When the function is enabled (While the ignition switch is at "LOCK" (OFF) position, the automatic shutdown function is enabled when the lighting switch is turned ON.), the tone alarm sounds three times. (initial status)
The delay-off time of the dome light	<p>When the turn-signal light switch is moved in the order of LH → RH → LH → RH → LH, the dome light delay-off time will be changed as follows. (Next to "e," the function returns to "a" and repeats the sequence from "a".)</p> <ol style="list-style-type: none"> a. 30 seconds: the tone alarm sounds once. b. 10 seconds: the tone alarm sounds twice. c. 0 second (no delay-off time): the tone alarm sounds three times. d. 15 seconds: the tone alarm sounds four times. (initial status) e. 7.5 seconds: the tone alarm sounds five times.
Initialization of above mentioned functions	<p>If the windshield washer switch is turned ON for more than 20 seconds, the tone alarm sounds twice and all functions are initialized. (The configuration mode entry tone alarm sounds after 10 seconds, but the switch must kept ON for 20 seconds to achieve initialization.)</p> <p>If the windshield washer switch is kept ON for more than 20 seconds without prior entry of the configuration mode, the configuration mode is entered after 10 seconds and initialization does not take place.</p>

NOTES