GROUP 54Bc

SWS INPUT SIGNAL PROCEDURES

CONTENTS

INPUT SIGNAL CHART

M1549024200062

<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.54Bc-4
ETACS-ECU does not receive any signal from the ignition switch (IG1).	O-2	P.54Bc-7
ETACS-ECU does not receive any signal from the fog light switch.	O-3	P.54Bc-10
ETACS-ECU does not receive "R" position signal from the transmission range switch.	O-4	P.54Bc-14
ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch.	O-5	P.54Bc-23

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
Column Switch	ETACS-ECU does not receive any signal from the tail light switch.	O-6	P.54Bc-31
	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.54Bc-33
	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.54Bc-37
	ETACS-ECU does not receive any signal from the windshield washer switch.	O-7	P.54Bc-33
	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.54Bc-41
RV meter	ETACS-ECU does not receive any signal from any control switches.	O-10	P.54Bc-46

<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.54Bc-49
ETACS-ECU does not receive any signal from the hazard warning light switch.	P-2	P.54Bc-53
ETACS-ECU does not receive any signal from the driver's seat belt switch.	P-3	P.54Bc-57

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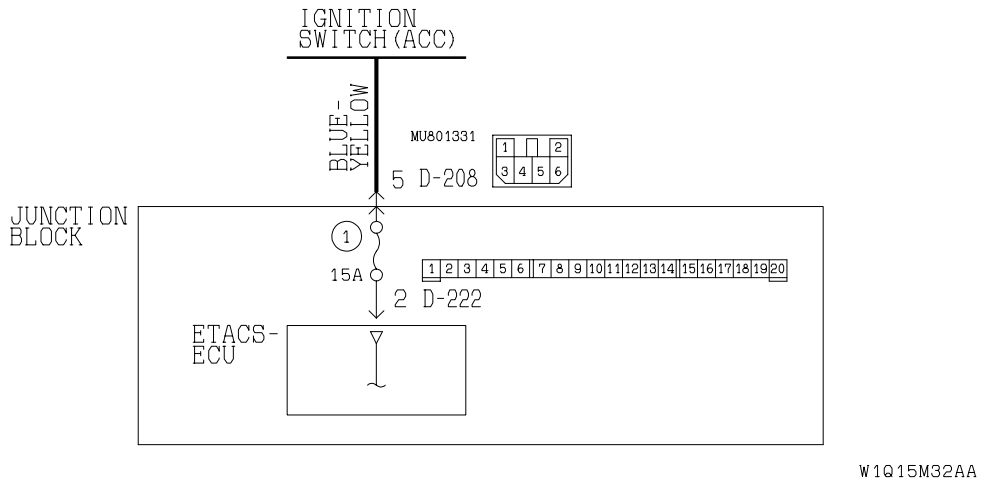
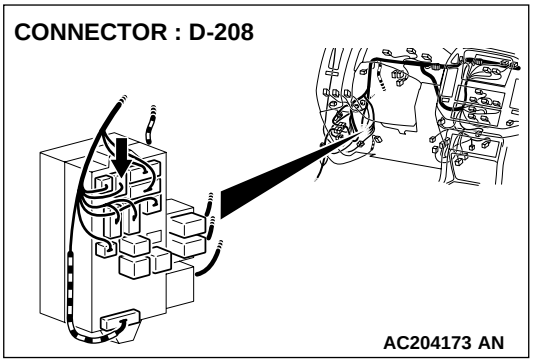
SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive any signal from all the door switches.		P-4	P.54Bc-62
ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock key cylinder switch.		P-5	P.54Bc-75
ETACS-ECU does not receive any signal from the driver's, front passenger's, rear or back door lock actuator switch.		P-6	P.54Bc-93
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.54Bc-119
ETACS-ECU does not receive an auto-stop signal from the rear wiper motor.		P-8	P.54Bc-131
ETACS-ECU does not receive any signal from hood switch.		P-9	P.54Bc-140
Transmitter	ETACS-ECU does not receive any signal from the lock, unlock switch or panic switch.	P-10	P.54Bc-145

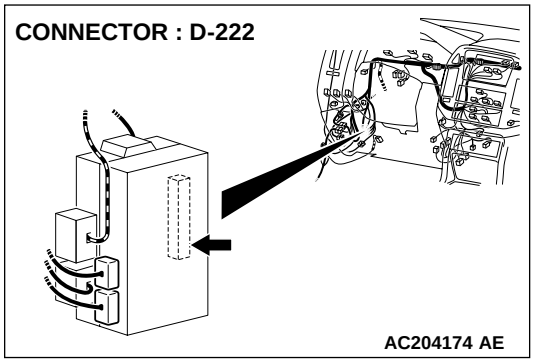
INPUT SIGNAL PROCEDURES

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

Ignition switch (ACC) Input Circuit







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

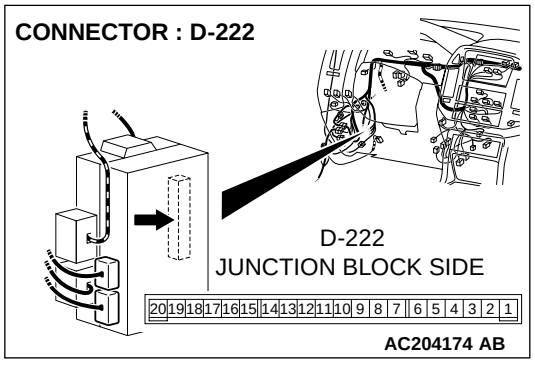
Required Special Tools:

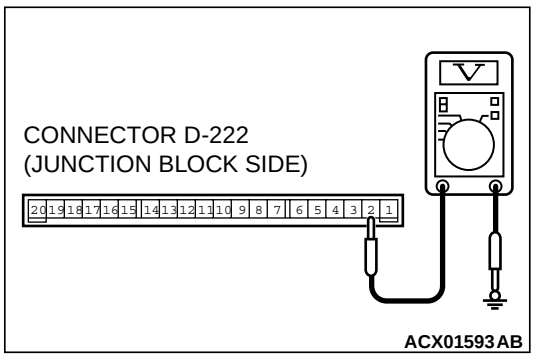
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. 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.





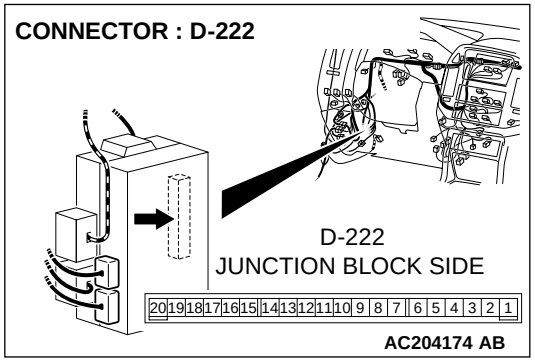
(3) Measure the voltage between terminal 2 and ground.

- 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 2.

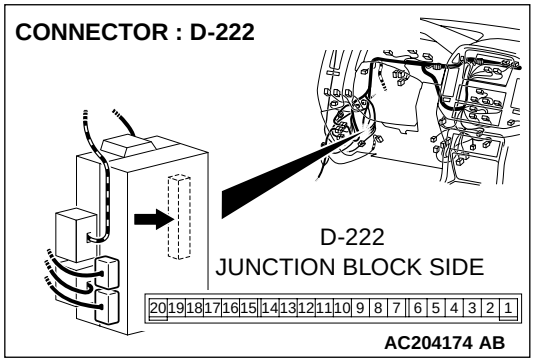


STEP 2. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

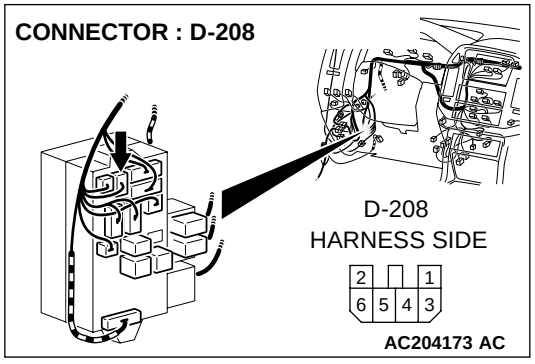
Q: Is ETACS-ECU connector D-222 in good condition?

YES : Go to Step 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 ignition switch (ACC) should be normal.



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.

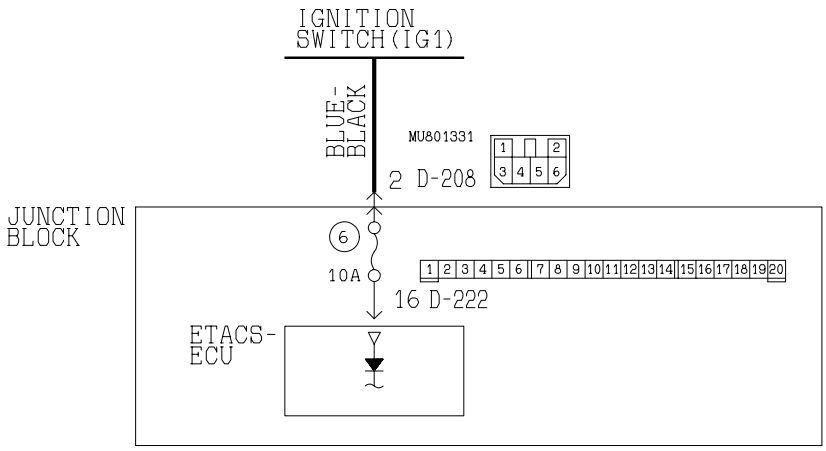
Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 2) and ignition switch (ACC) in good condition?

YES : No action is necessary and testing is complete.

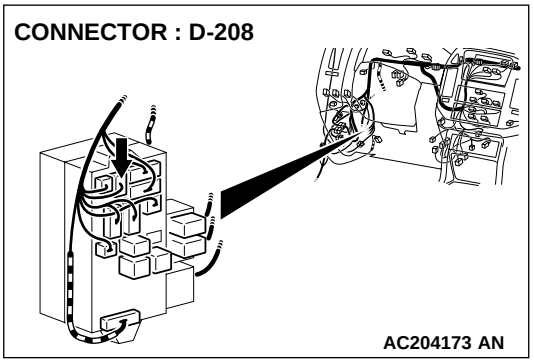
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition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

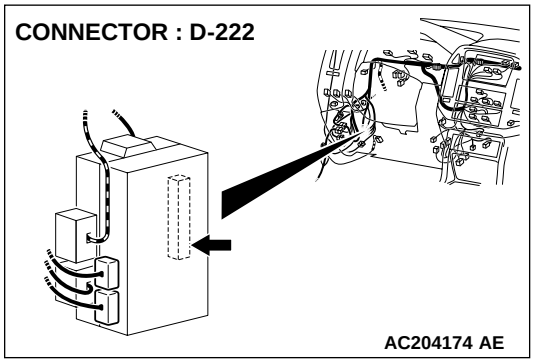
INSPECTION PROCEDURE O-2: ETACS-ECU does not receive any signal from the ignition switch (IG1).

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.

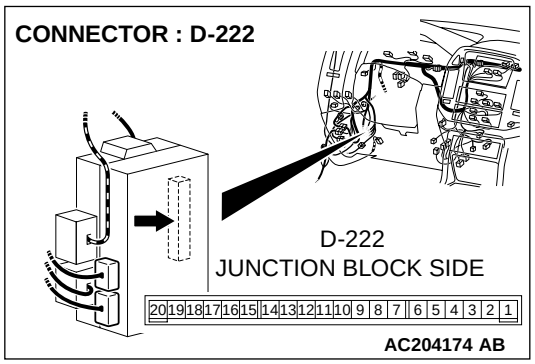
TROUBLESHOOTING HINTS

- 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

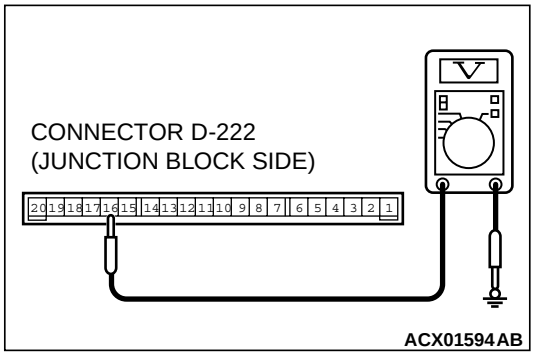
DIAGNOSIS

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

STEP 1. 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.

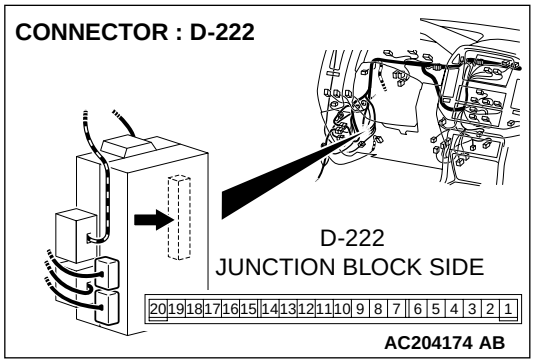
NO : Go to Step 2.

STEP 2. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

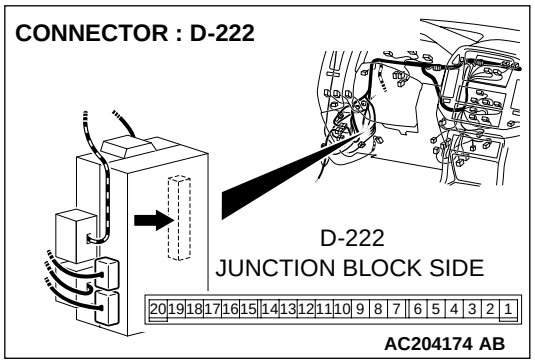
Q: Is ETACS-ECU connector D-222 in good condition?

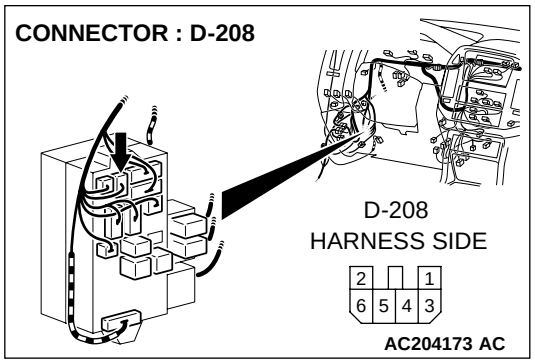
YES : Go to Step 3.

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 ignition switch (IG1) should be normal.



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.

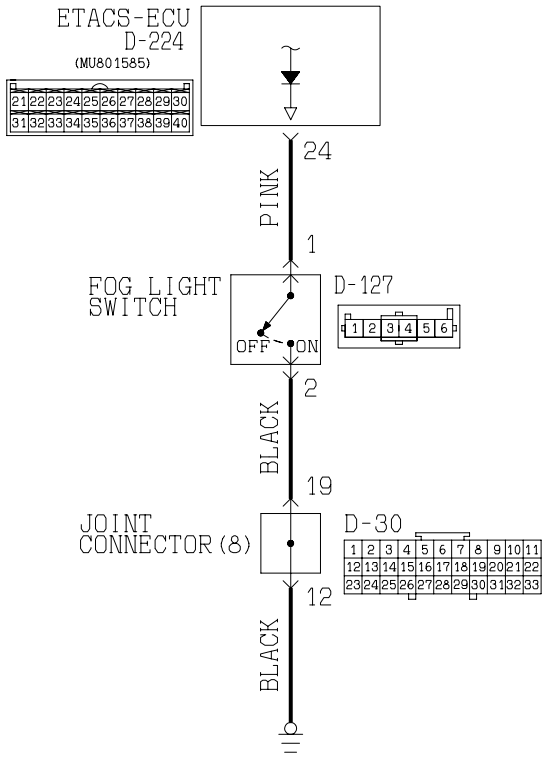
Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 16) and ignition switch (IG1) in good condition?

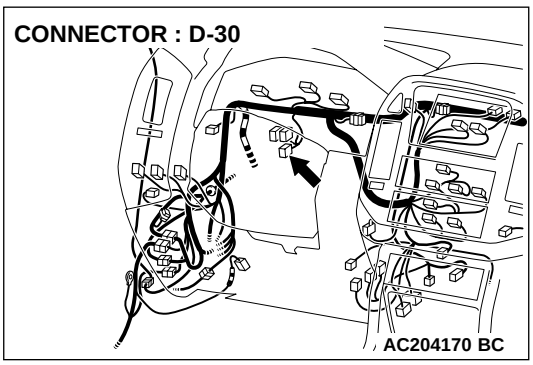
YES : No action is necessary and testing is complete.

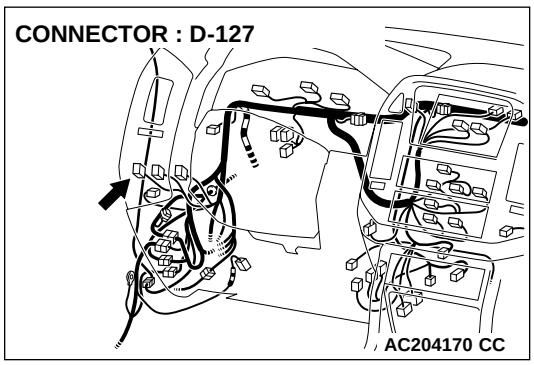
NO : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

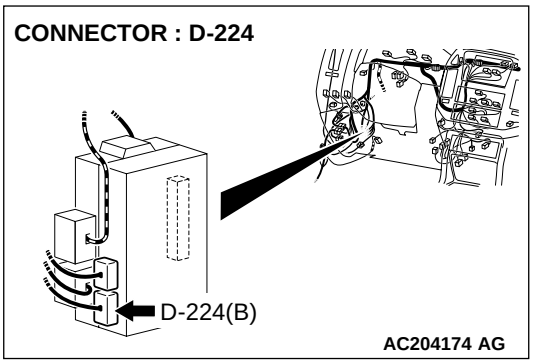
INSPECTION PROCEDURE O-3: ETACS-ECU does not receive any signal from the fog light switch.

Fog light Switch Input Circuit









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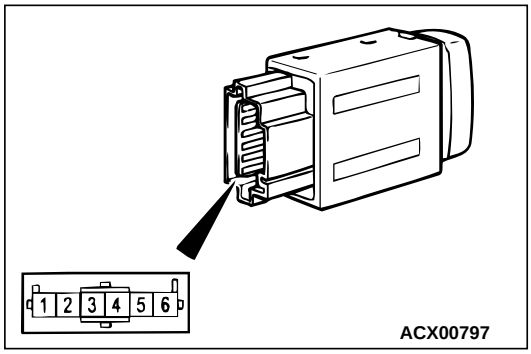
CIRCUIT OPERATION
The ETACS-ECU operates the fog lights according to signal from the fog light switch.

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
- MB991502: Scan Tool (MUT-II)

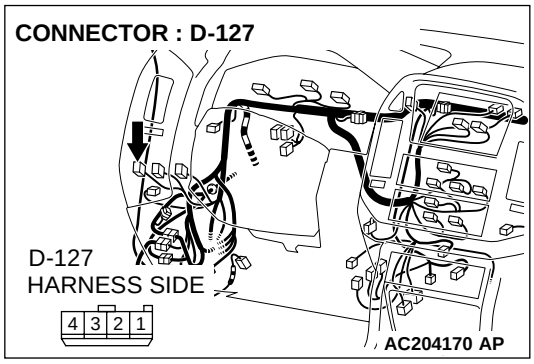


STEP 1. Check the fog light switch.
Remove the fog light switch. Then check continuity between the switch terminals.

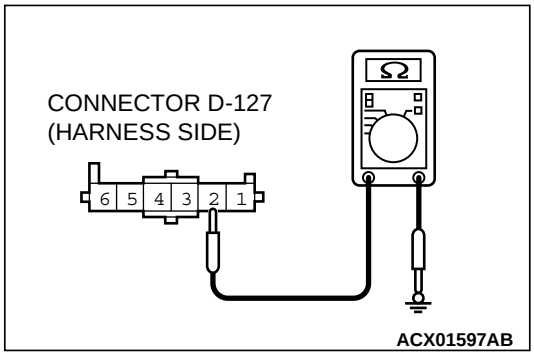
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Open circuit
Pressed	1 – 2	Less than 2 ohms

Q: Is the fog light switch in good condition?
YES : Go to Step 2.
NO : Repair the fog light switch. If the for light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

STEP 2. Check the ground circuit to the fog light switch. Test at fog light switch connector D-127.

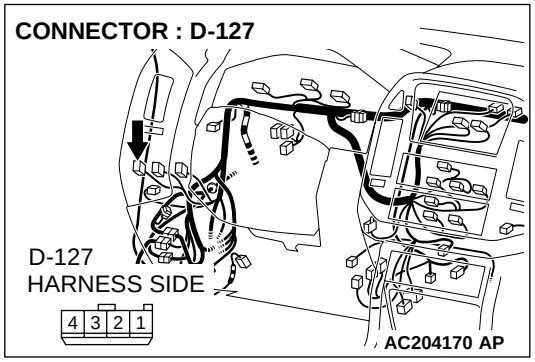


(1) Disconnect fog light switch connector D-127 and measure the resistance available at the wiring harness side of the connector.



(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 3.

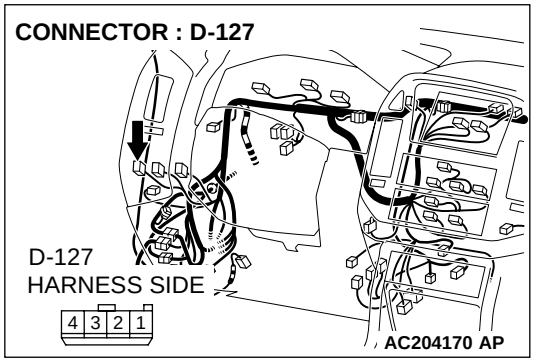


STEP 3. Check fog light switch connector D-127 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

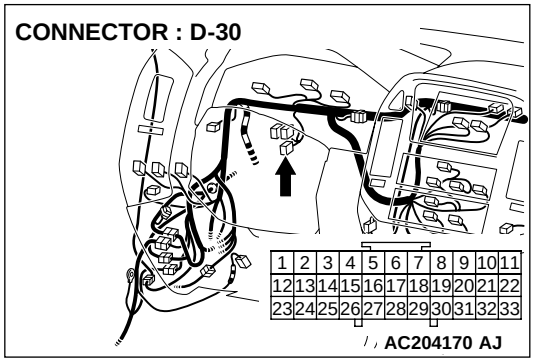
Q: Is fog light switch connector D-127 in good condition?

YES : Go to Step 4.

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



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



NOTE: Also check joint connector D-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-30 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

YES : No action is necessary and testing is complete.

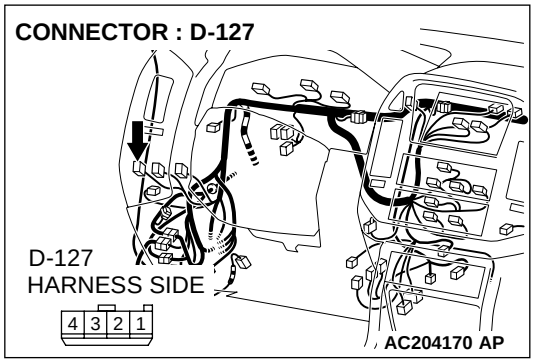
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the for light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

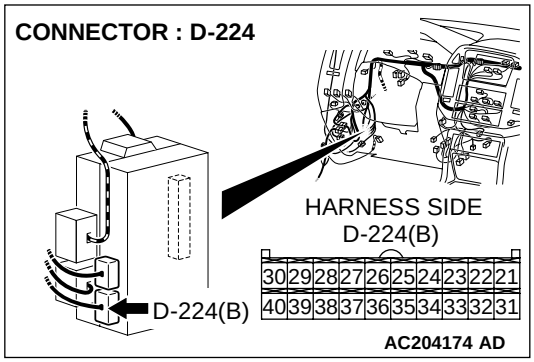
STEP 5. Check fog light switch connector D-127 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are fog light switch connector D-127 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 for light switch operates normally, it indicates that a correct signal is sent from the fog light switch.



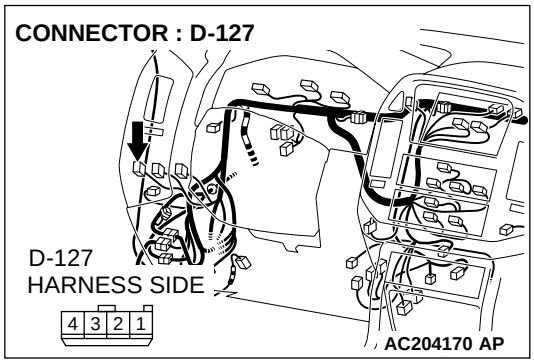


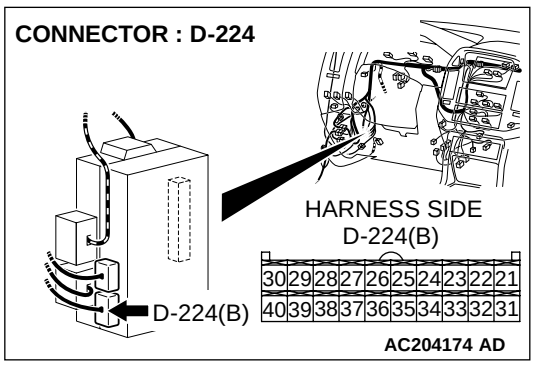
STEP 6. Check the wiring harness between fog light switch connector D-127 (terminal 1) and ETACS-ECU connector D-224 (terminal 24).

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

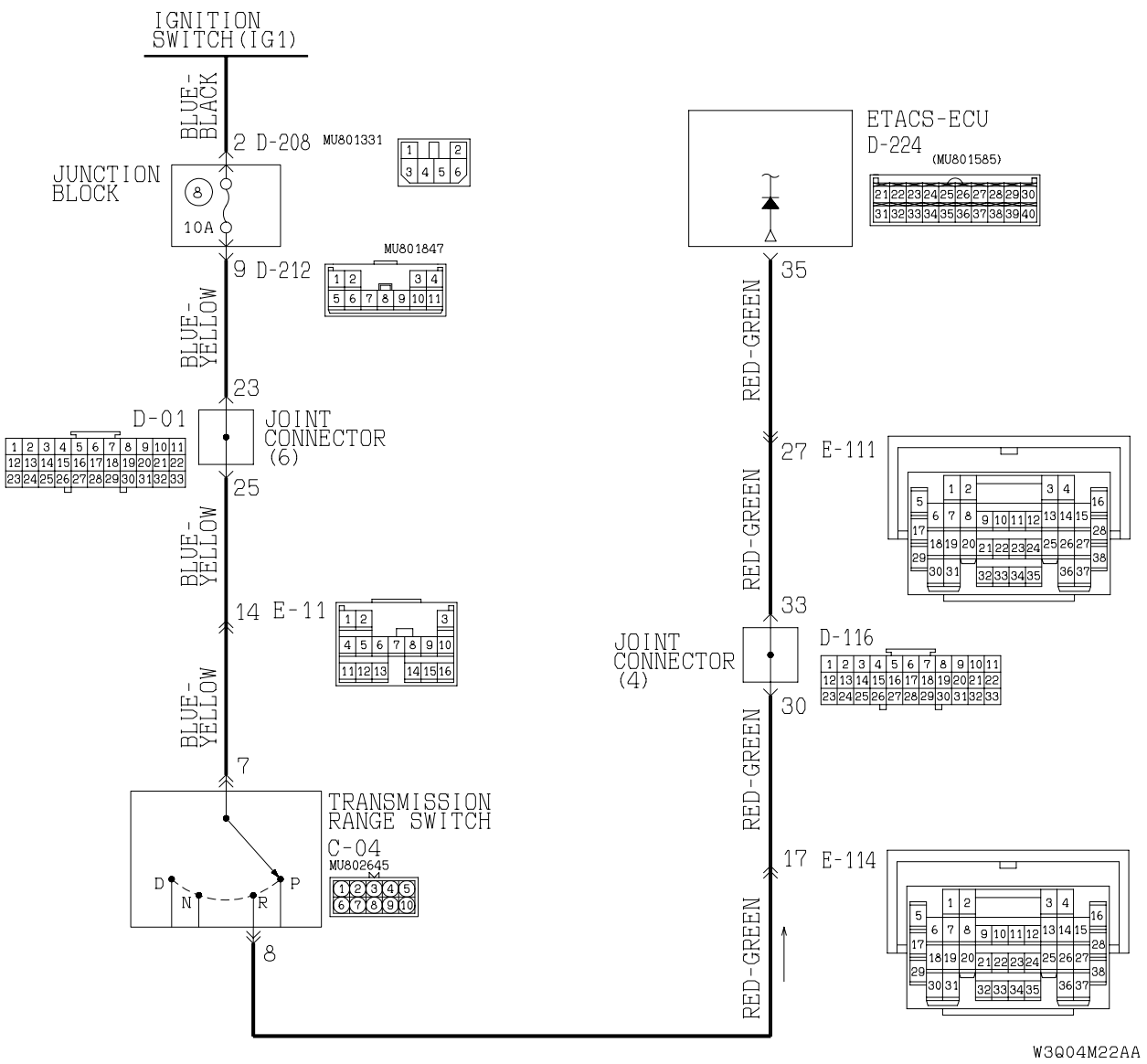
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the for light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

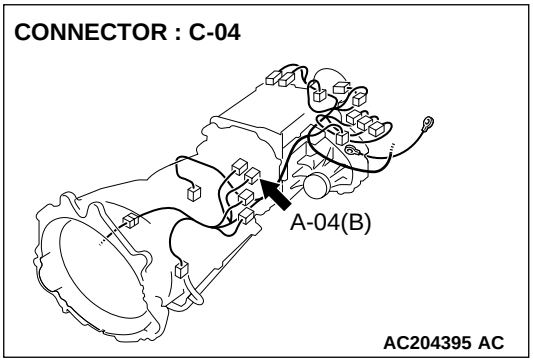


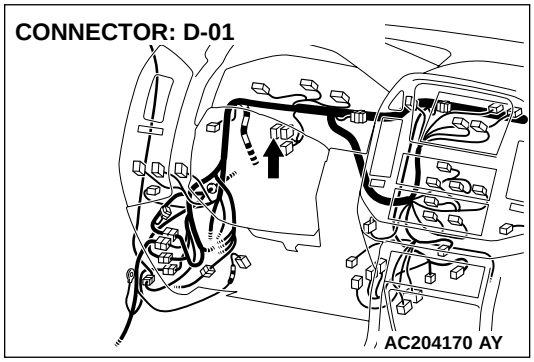


INSPECTION PROCEDURE O-4: ETACS-ECU does not receive "R" position signal from the transmission range switch.

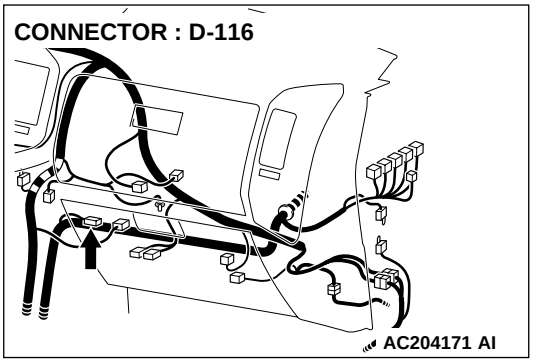
Transmission Range Switch Input Circuit

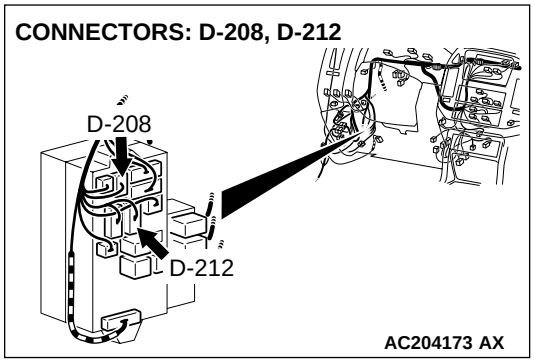


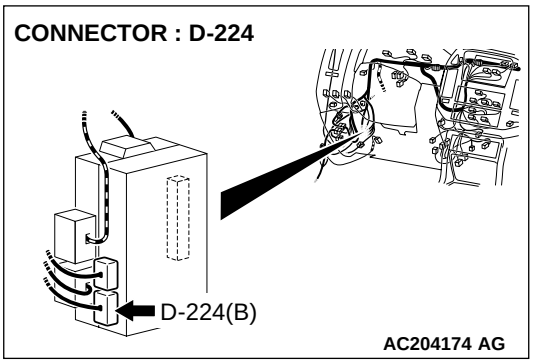


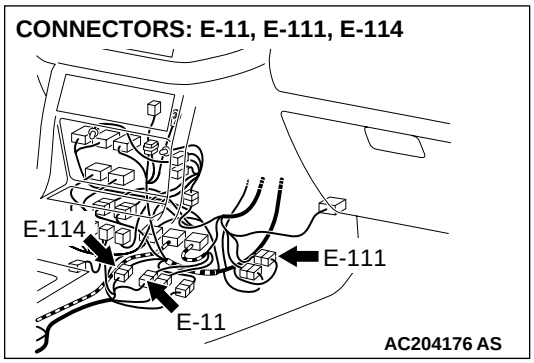


TSB Revision









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

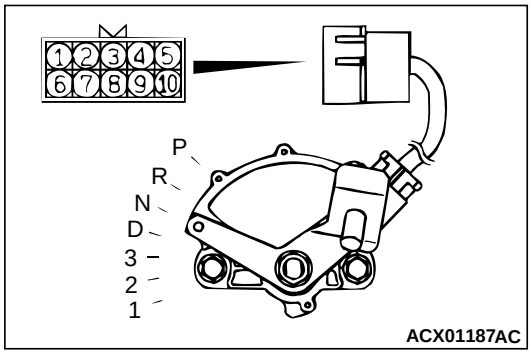
TECHNICAL DESCRIPTION (COMMENT)
If the signal is not normal, the rear wiper does not operate consecutively twice when the selector lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the transmission range switch or the ETACS-ECU may be defective.

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.23Ab-2.

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
- MB991502: Scan Tool (MUT-II)

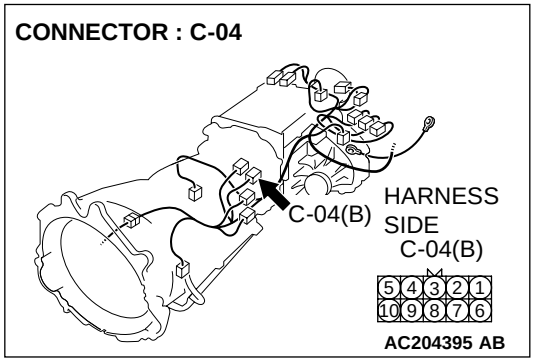


STEP 1. Check the transmission range switch.
Disconnect transmission range switch connector C-04. Then check continuity between the switch terminals.

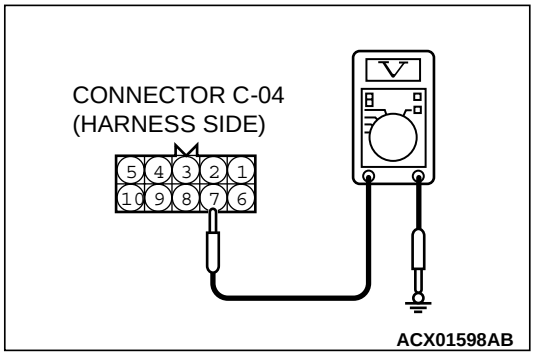
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
P, N, D	7 – 8	Open circuit
R	7 – 8	Less than 2 ohms

Q: Is the transmission range switch in good condition?
YES : Go to Step 2.
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.

STEP 2. Check the ignition switch (IG1) line of the power supply circuit to the transmission range switch. Test at transmission range switch connector C-04.

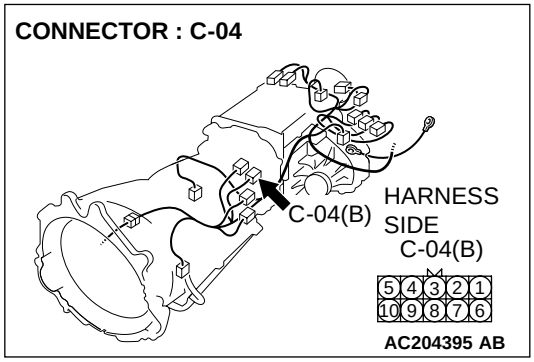


(1) Disconnect transmission range switch connector C-04 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ON" position.



(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 3.



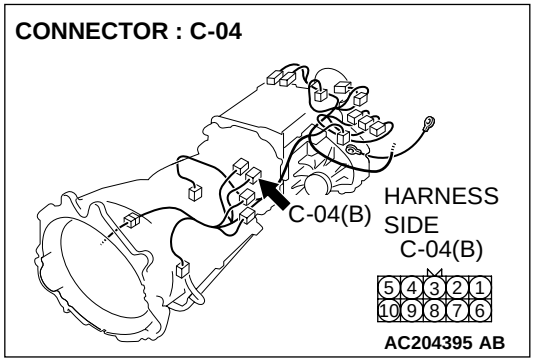
STEP 3. Check transmission range switch connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

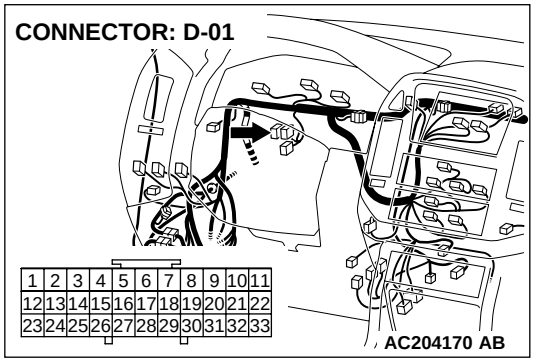
Q: Is transmission range switch connector C-04 in good condition?

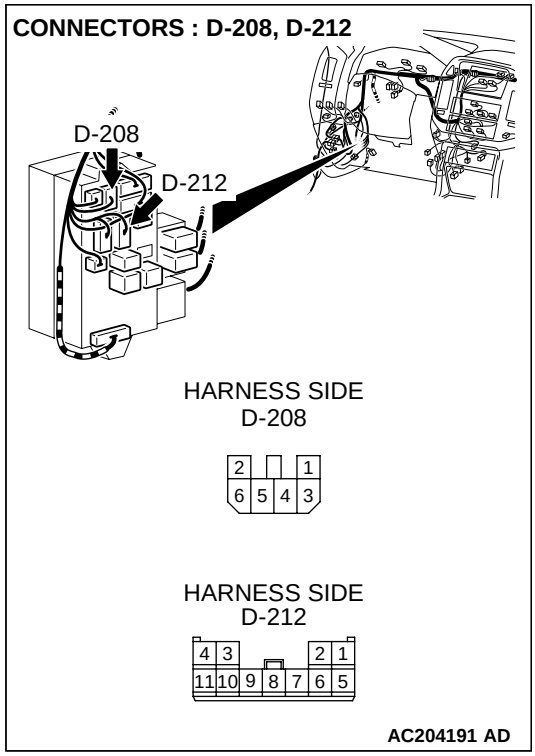
YES : Go to Step 4.

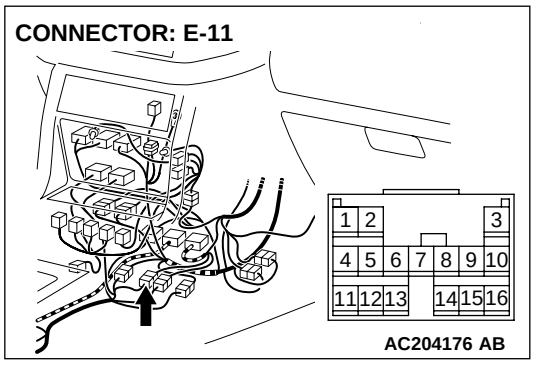
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

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









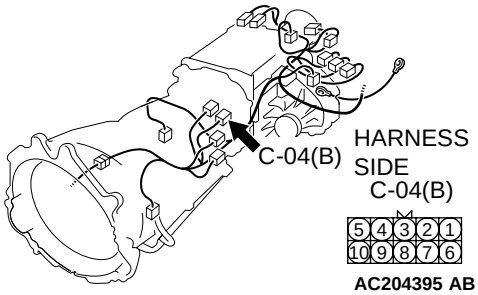
NOTE: Also check joint connector D-01, junction block connectors D-208, D-212 and intermediate connector E-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-01, junction block connector D-208, D-212 or intermediate connector E-11 is damaged, 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.

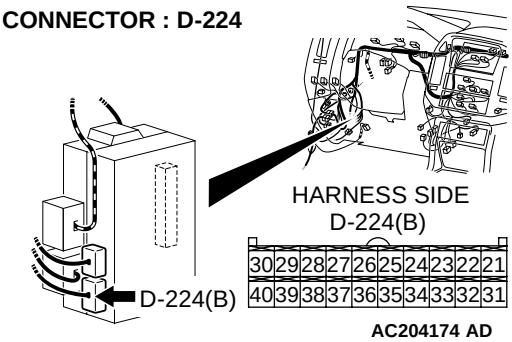
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission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

CONNECTOR : C-04



AC204395 AB

CONNECTOR : D-224



AC204174 AD

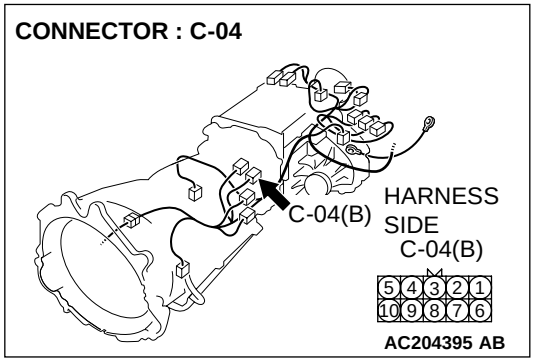
STEP 5. Check transmission range switch connector C-04 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

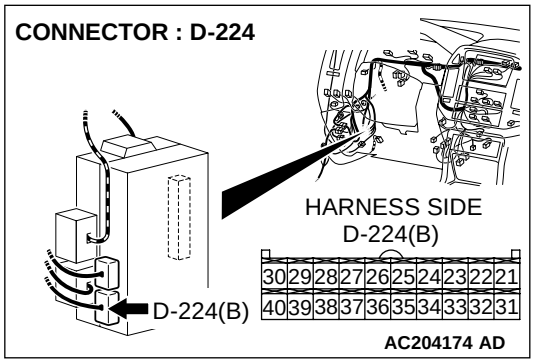
Q: Are transmission range switch connector C-04 and ETACS-ECU connector D-224 in good condition?

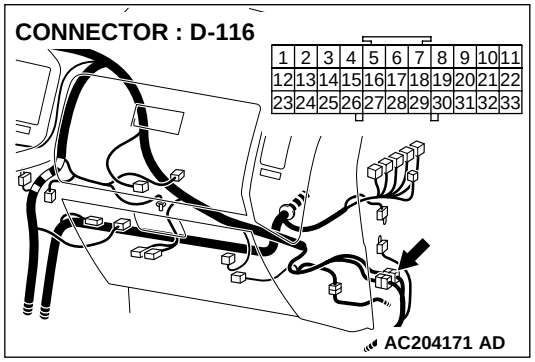
YES : Go to Step 6.

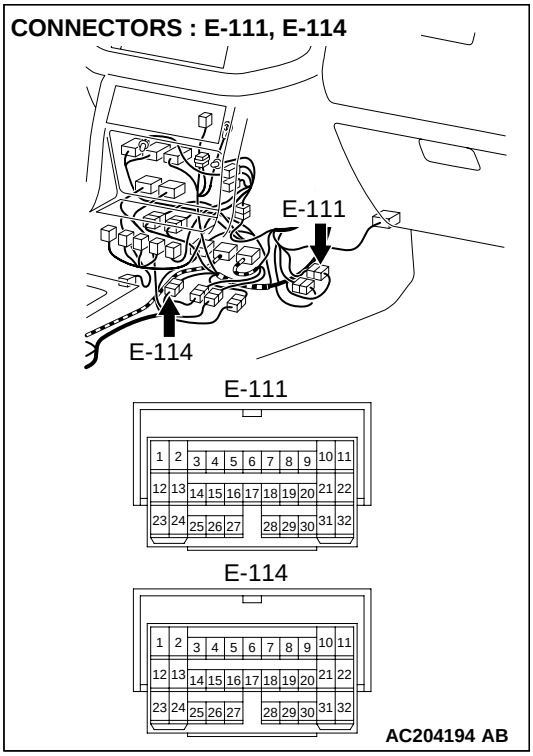
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

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.

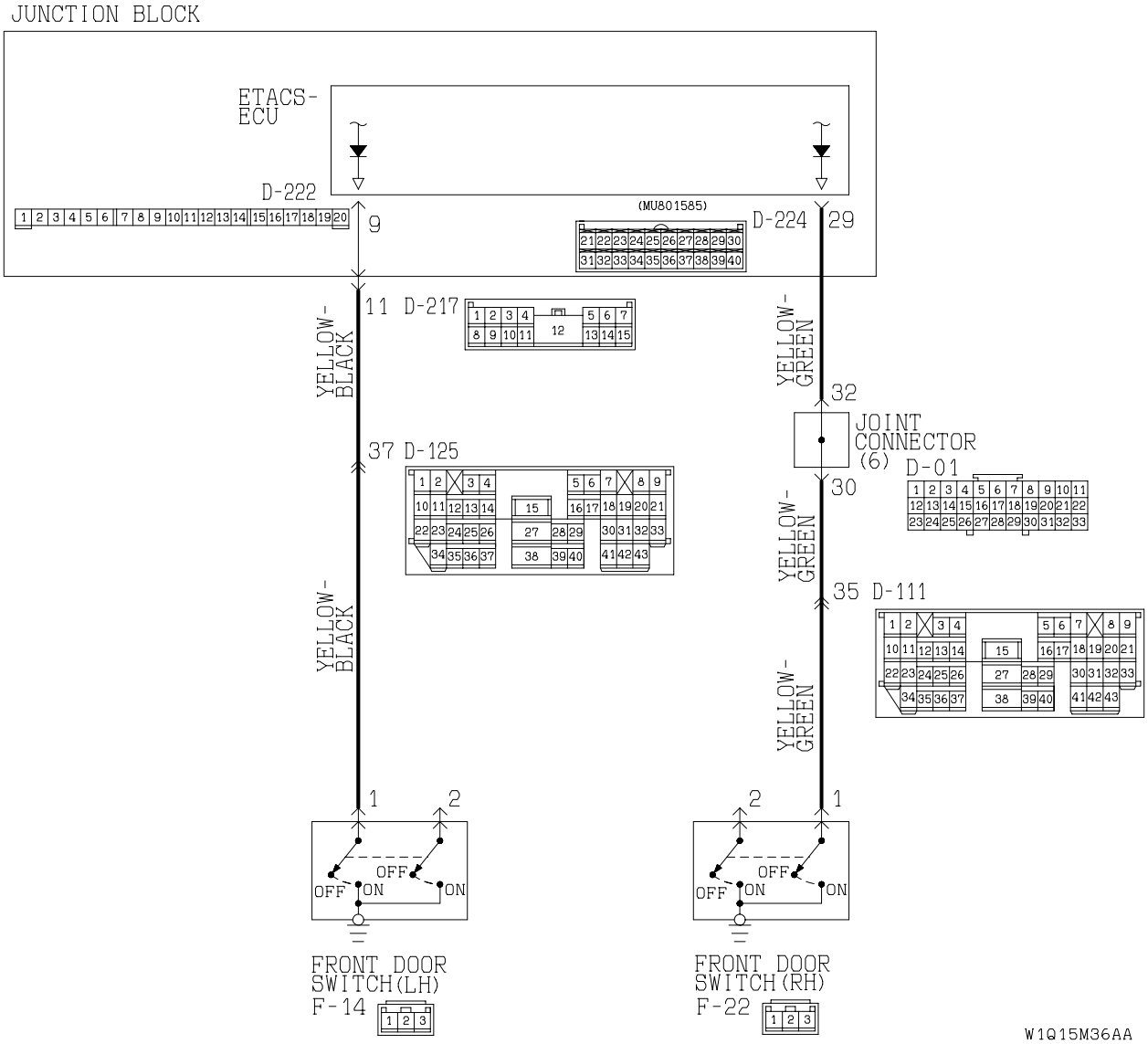
Q: Is the wiring harness between transmission range switch connector C-04 (terminal 8) and ETACS-ECU connector D-224 (terminal 35) in good condition?

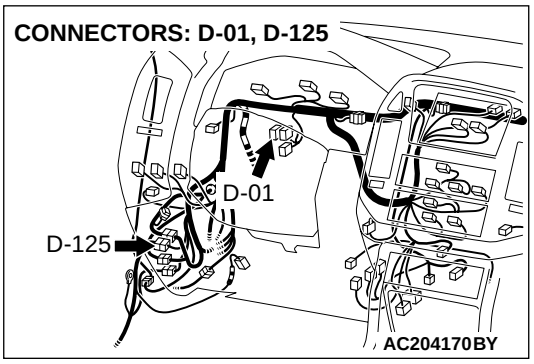
YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission range switch.

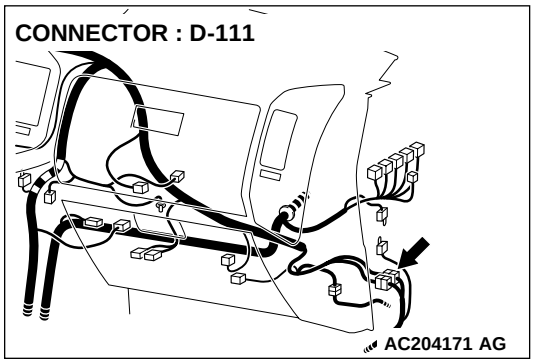
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the transmission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







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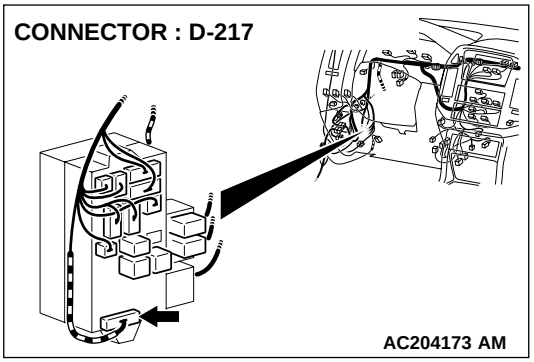
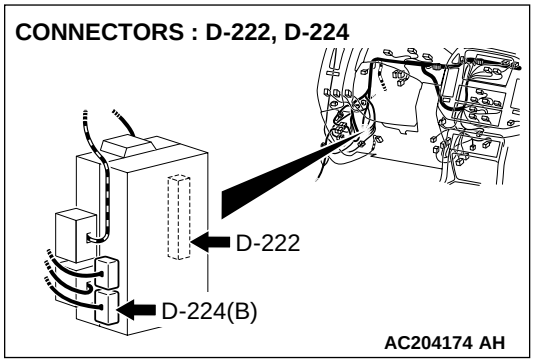
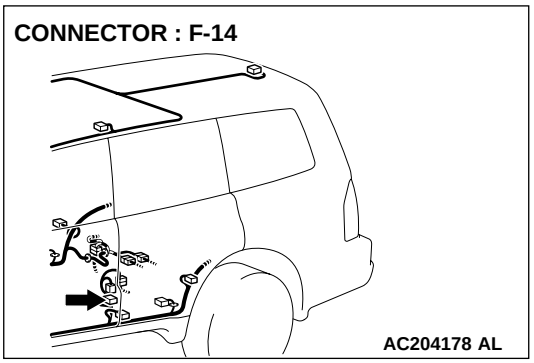
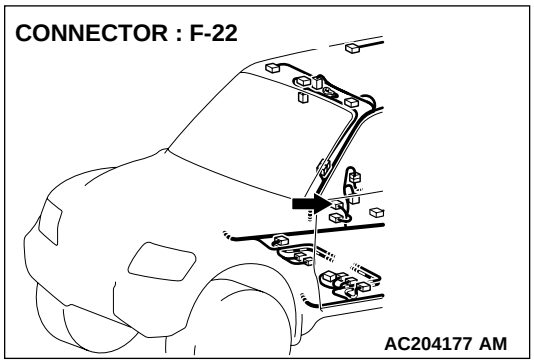








CIRCUIT OPERATION

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

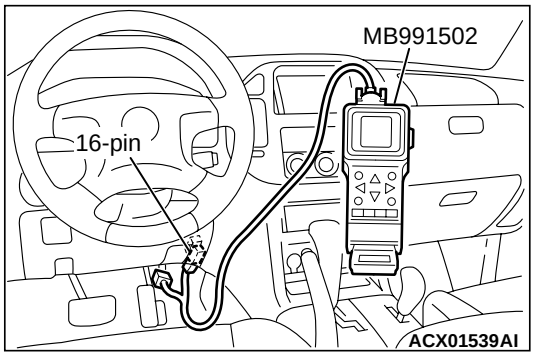
Required Special Tools:
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

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



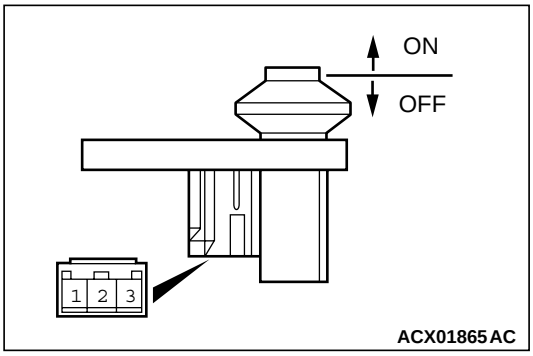
(1) Connect scan tool MB991502 to the data link connector (16-pin).
(2) Operate scan tool MB991502 according to the procedure below to display "PULSE CHECK."
   1. Select "SYSTEM SELECT."
   2. Select "SWS."
   3. Select "PULSE CHECK."
(3) When each front door is opened and closed, check if scan tool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

Q: Does scan tool MB991502 sound when each front door is opened and closed?

When the driver's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 2.
When the front passenger's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 6.
when each front door is opened and closed, scan tool MB991502 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 the driver's door switch.

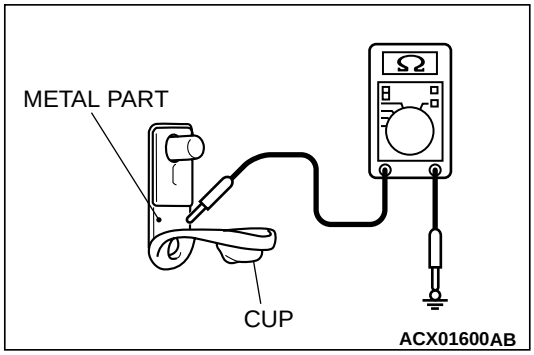
Remove the driver's door switch. Then check the continuity between the switch terminals and the switch body.



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 3.
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 3. 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.

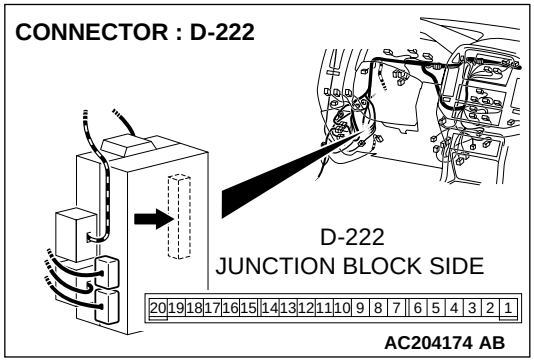
Remove the cap, and measure the resistance value between the lower metal part and the ground.

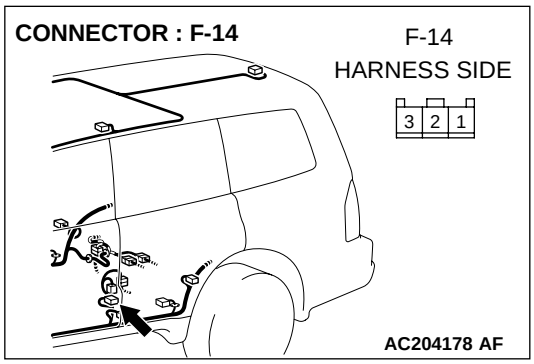
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

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.





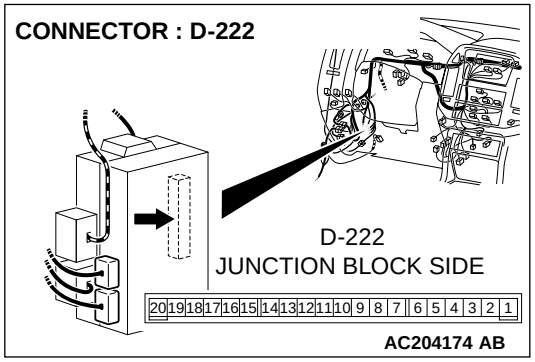
STEP 4. Check driver's door switch connector F-14 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

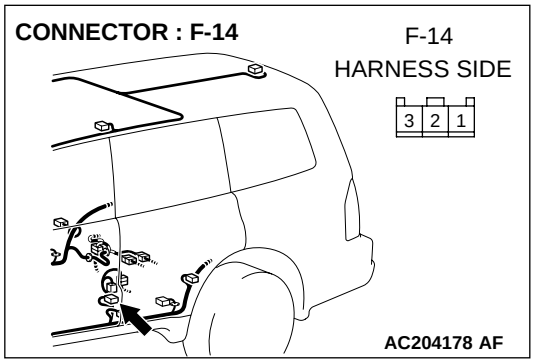
Q: Are driver's door switch connector F-14 and ETACS-ECU connector D-222 in good condition?

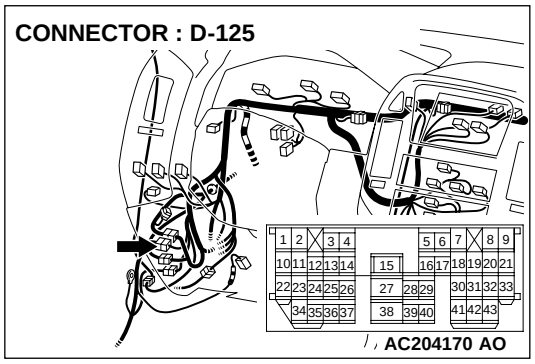
YES : Go to Step 5.

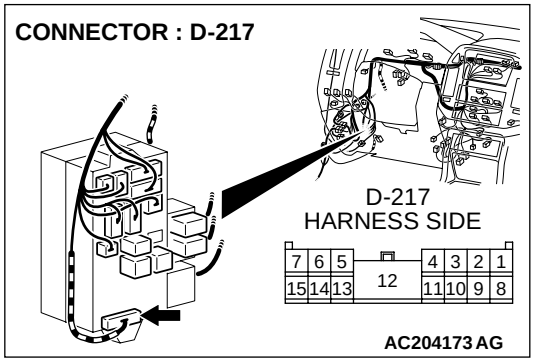
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.

STEP 5. Check the wiring harness between driver's door switch connector F-14 (terminal 1) and ETACS-ECU connector D-222 (terminal 9).







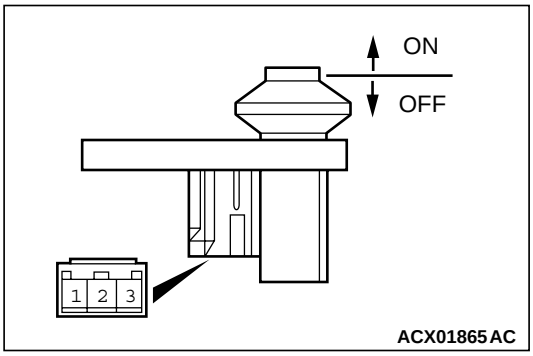


NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, Repair or replace the damaged component(s) as described 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 6. 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 7.

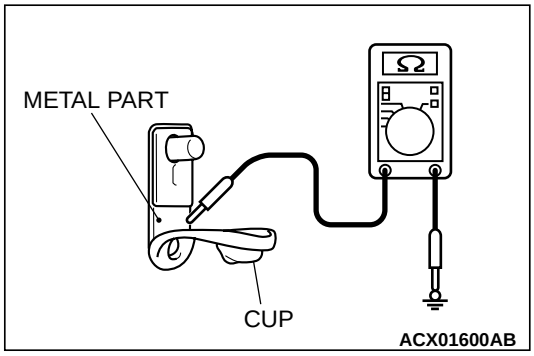
NO : Replace the passenger's door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

STEP 7. 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.

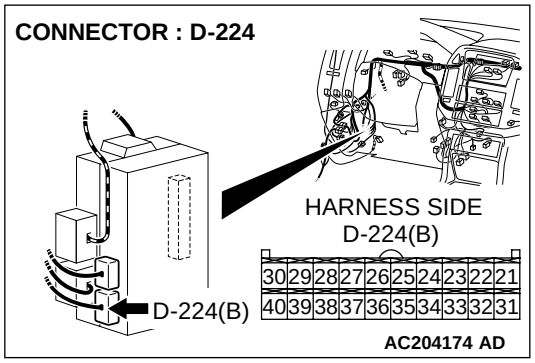
- The resistance should equal 2 ohms or less.

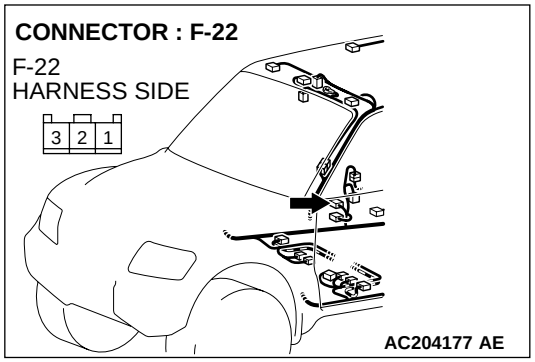


Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

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.





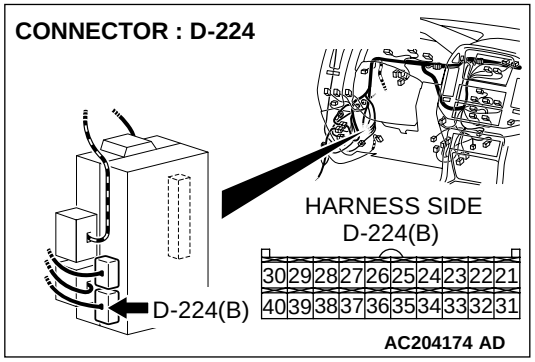
STEP 8. Check passenger's door switch connector F-22 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

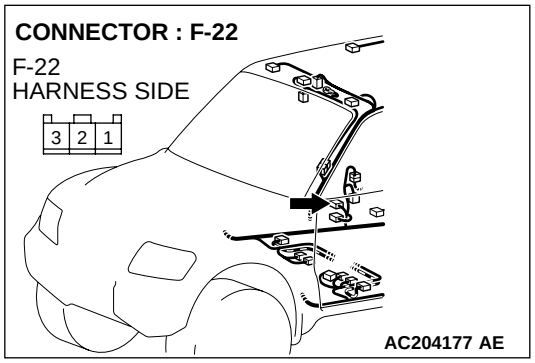
Q: Are passenger's door switch connector F-22 or ETACS-ECU connector D-224 in good condition?

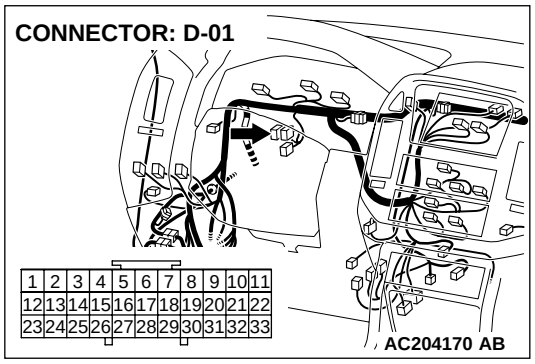
YES : Go to Step 9.

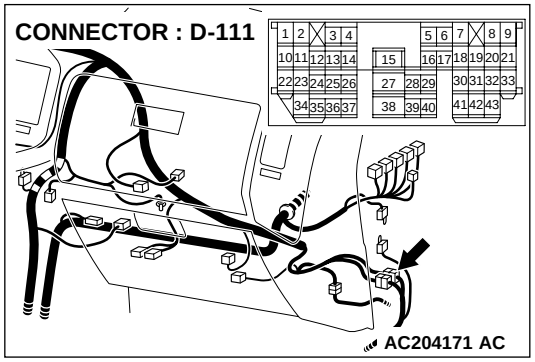
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

STEP 9. 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 joint connector D-01 and intermediate connector D-111 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-01 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 passenger's door switch connector F-22 (terminal 1) and ETACS-ECU connector D-224 (terminal 2) in good condition?

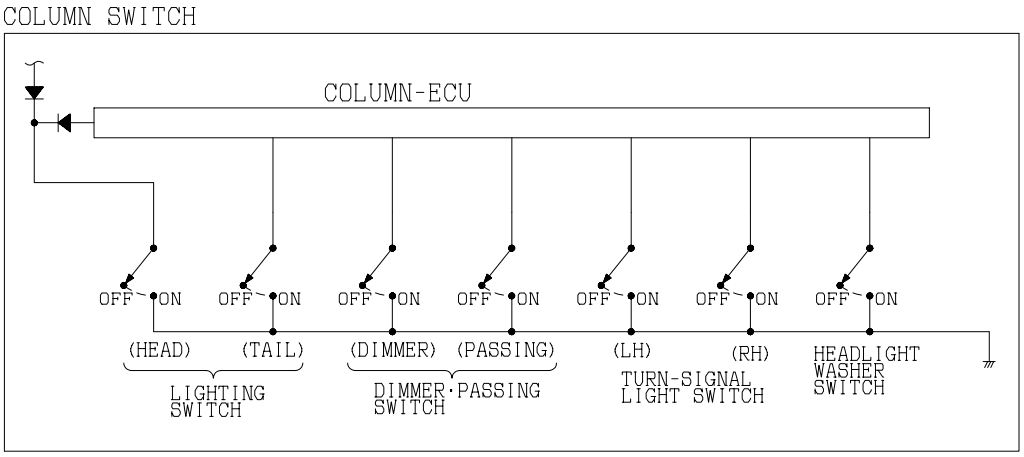
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

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 MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-8."

Turn-signal Light and Lighting Switch Input Circuit



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

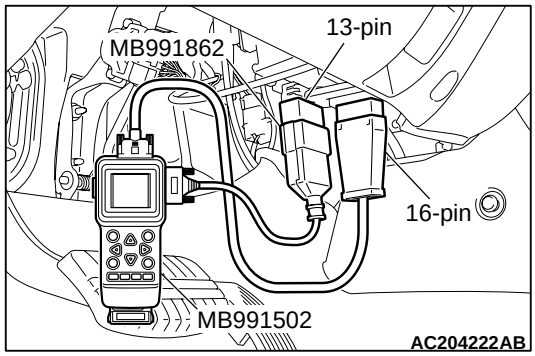
Required Special Tools:
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

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

Check the column-ECU.

⚠ CAUTION

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



(1) Connect scan tool MB991502 to the data link connector (16-pin).
(2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
(3) Turn the ignition switch to the "LOCK" (OFF) position.
(4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
    1. Select "SYSTEM SELECT."
    2. Select "SWS."
    3. Select "SWS MONITOR."
    4. Select "ECU COMM CHK."
(5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menu for the "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.54Bb-16."

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.

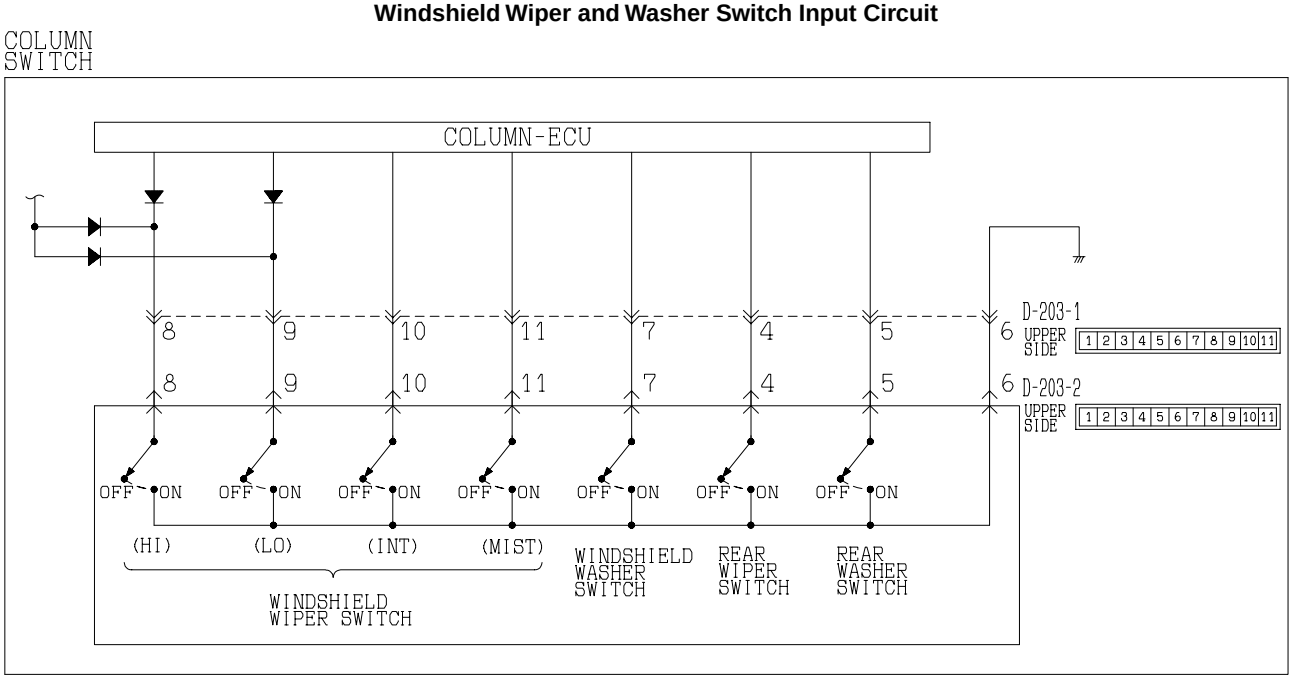
Q: Does the column switch (lighting and turn-signal light switch) send normal signal to the ECU?

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 MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-8."

Windshield Wiper and Washer Switch Input Circuit



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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:

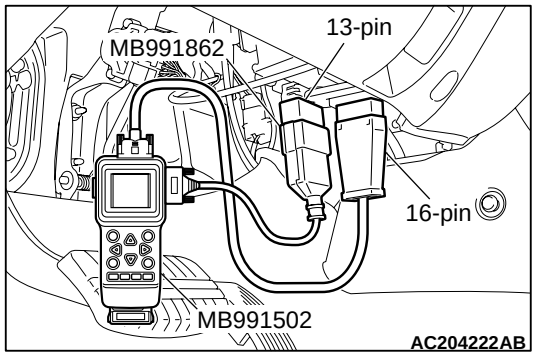
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

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

Check the column-ECU.

⚠ CAUTION

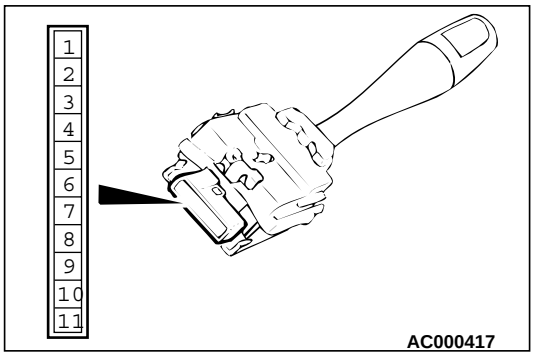
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.



(1) Connect scan tool MB991502 to the data link connector (16-pin).
(2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
(3) Turn the ignition switch to the "LOCK" (OFF) position.
(4) Operate scan tool MB991502 according to the procedure below to display "ECU COMM CHK."
    1. Select "SYSTEM SELECT."
    2. Select "SWS."
    3. Select "SWS MONITOR."
    4. Select "ECU COMM CHK."
(5) Scan tool MB991502 should show "OK" on the "ECU COMM CHK" menu for the "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.54Bb-16."



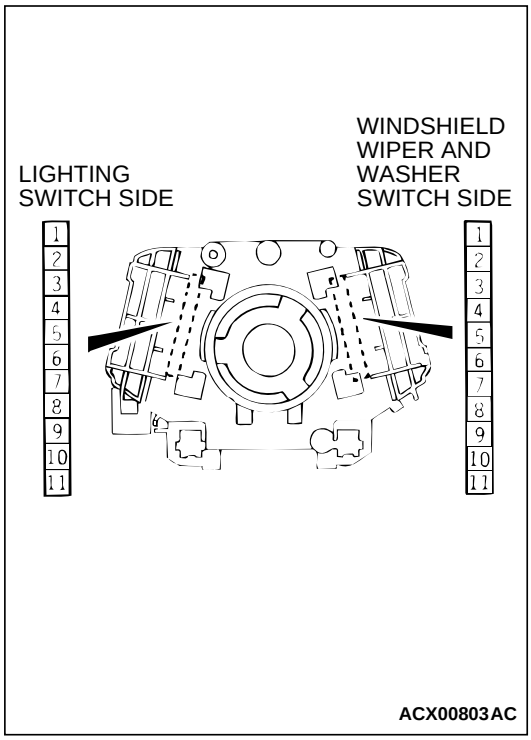
STEP 2. Check the windshield wiper and washer switch.
Remove the windshield wiper and washer switch. Then check continuity between the switch terminals.

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?

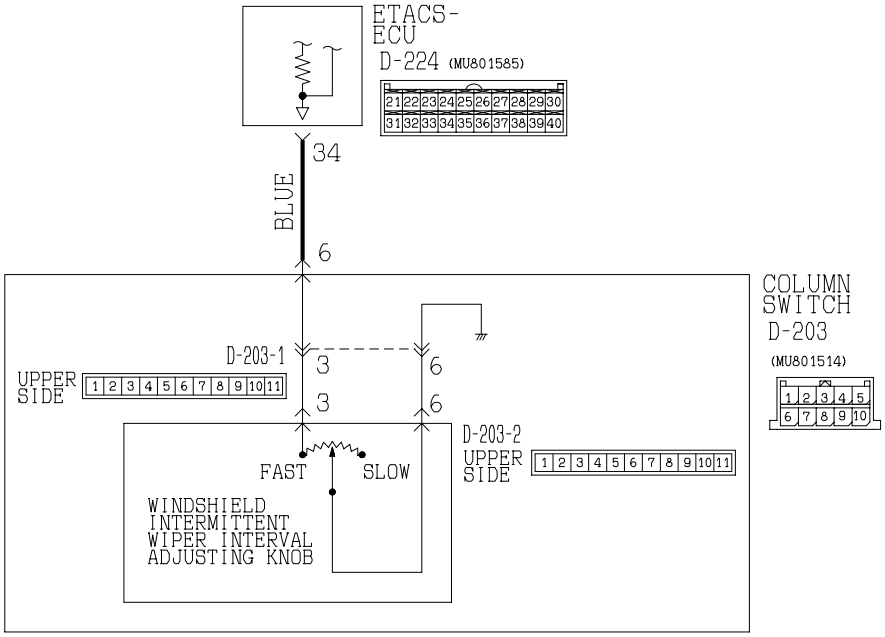
YES : No action is necessary and testing is complete.

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.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-8."

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



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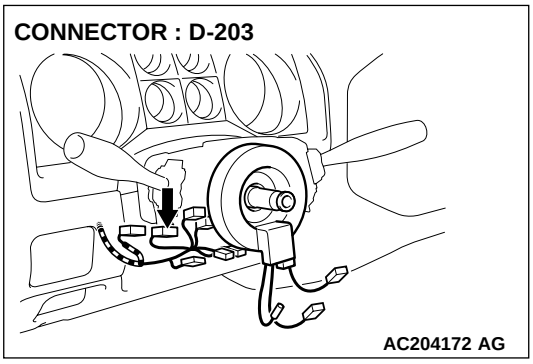

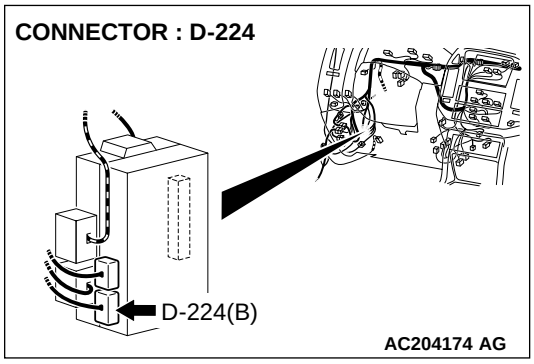

CIRCUIT OPERATION
The ETACS-ECU calculates the windshield intermittent wiper interval according to the position of the windshield intermittent wiper interval adjusting knob, which is incorporated in column switch (windshield wiper and washer switch).

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

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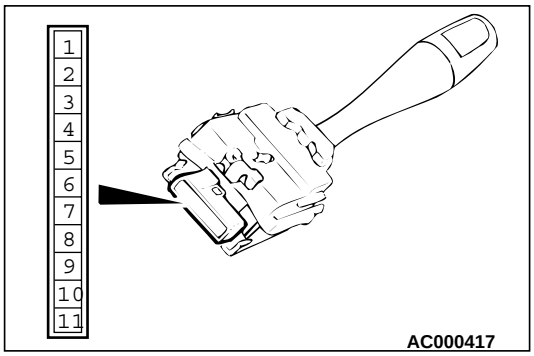
DIAGNOSIS

Required Special Tools:

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

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



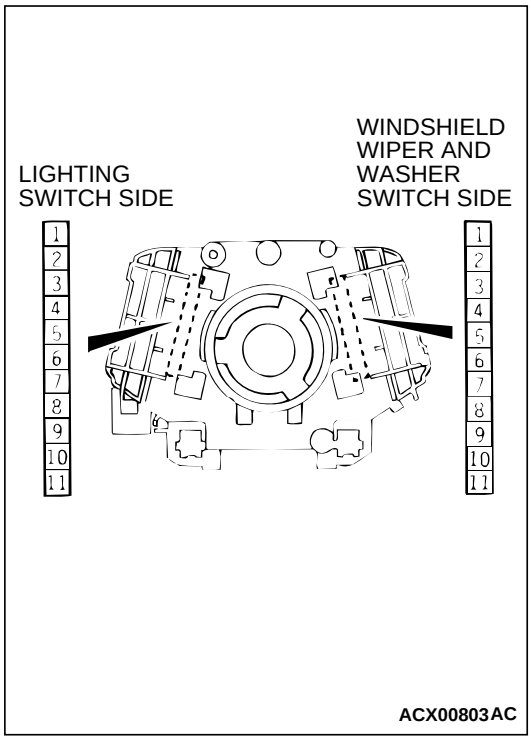
(1) Remove the windshield wiper and washer switch, and check at the switch side.
(2) Measure the resistance value between terminals 3 and 6. The measured resistance should change smoothly from approximately 0 ohm ("FAST" position) to 1 kiloohm ("SLOW" position).

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?

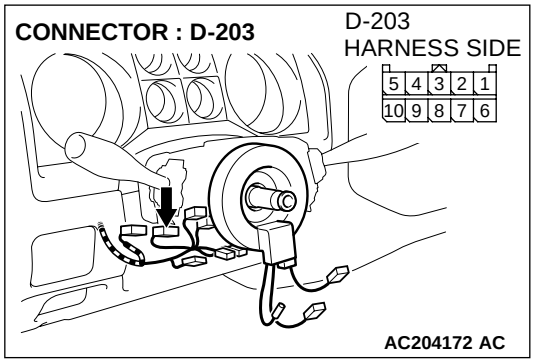
YES : Go to Step 3.
NO : Replace the column switch body. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

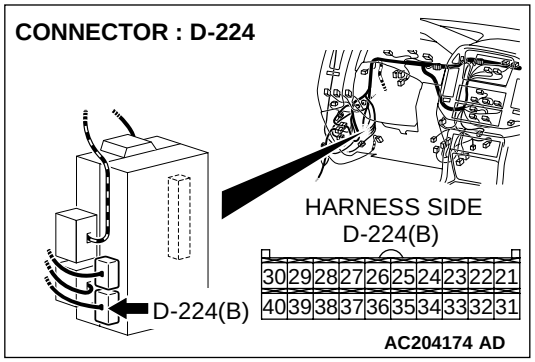
STEP 3. Check column switch connector D-203 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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.



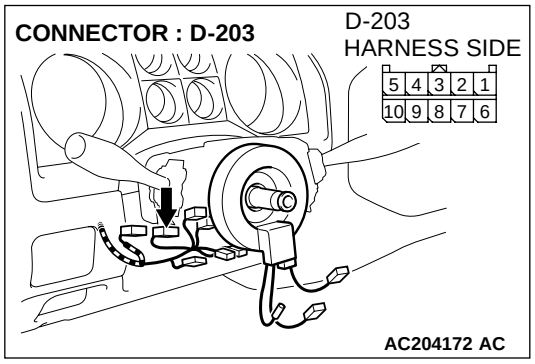


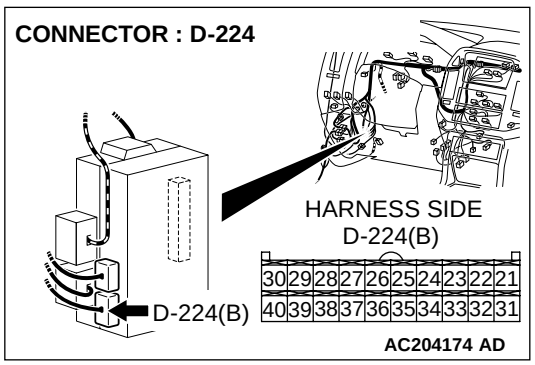
STEP 4. Check the wiring harness between column switch connector D-203 (terminal 6) and ETACS-ECU connector D-224 (terminal 34).

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.

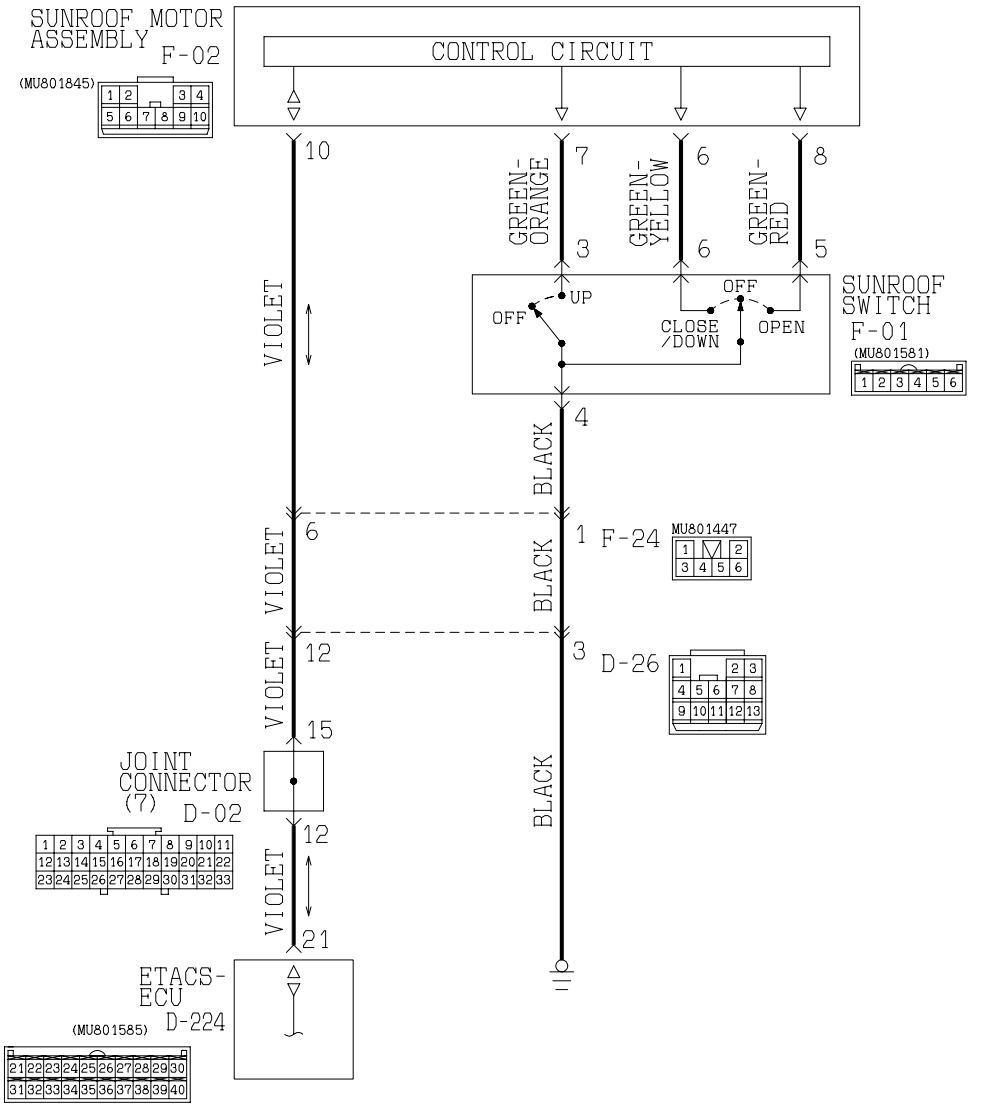
Q: Can input signal be confirmed when the windshield intermittent wiper interval adjusting knob is operated?

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.

Sunroof Switch Input Circuit



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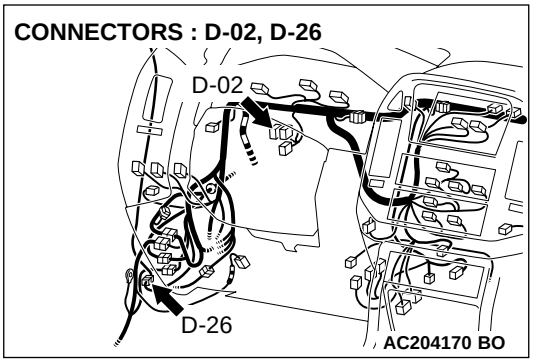

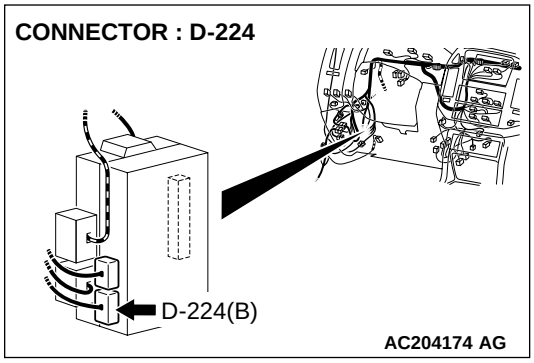

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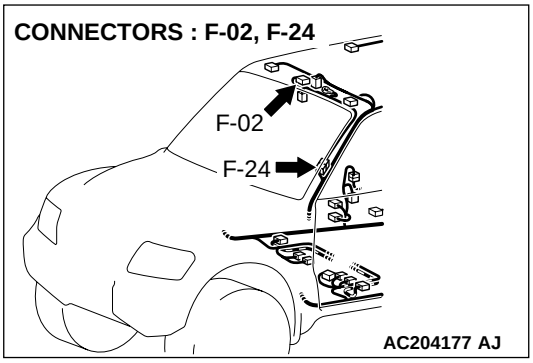


CIRCUIT OPERATION

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:

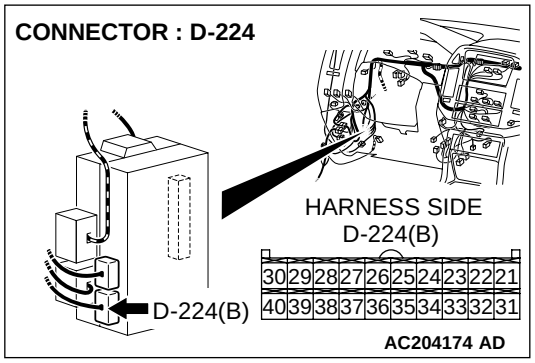
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS monitor kit

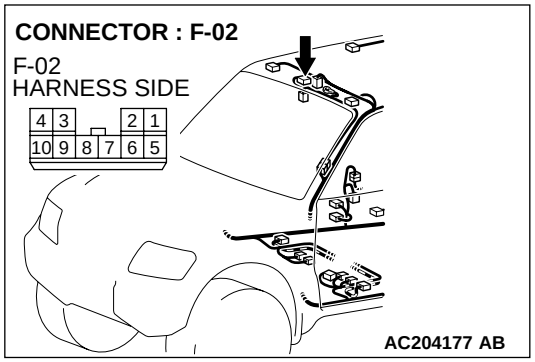
STEP 1. Verify the sunroof operation.

Q: Does the sunroof work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure F-1 "Sunroof does not operate P.54Bb-212."





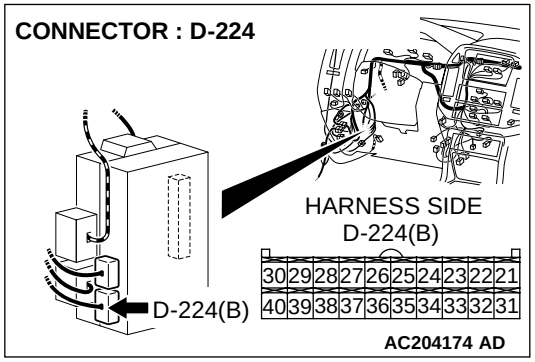
STEP 2. Check sunroof motor assembly connector F-02 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

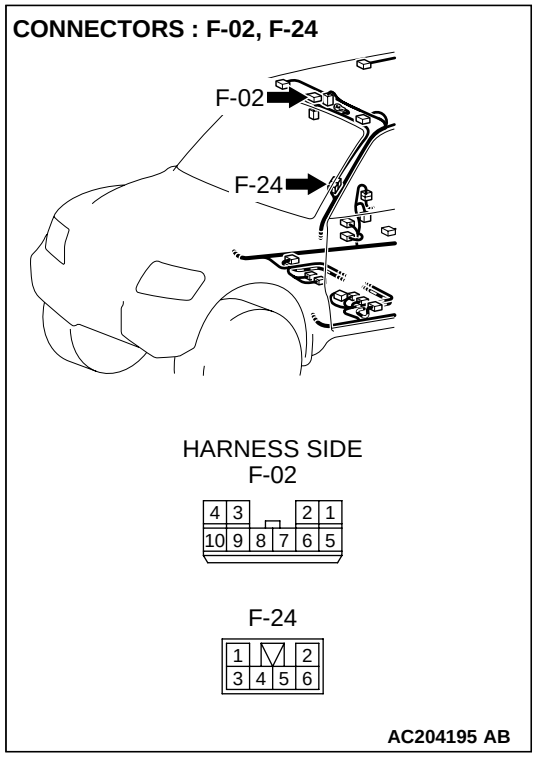
Q: Are sunroof motor assembly connector F-02 and ETACS-ECU connector D-224 in good condition?

YES : Go to Step 3.

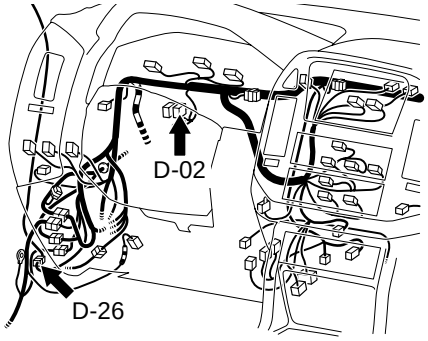
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

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

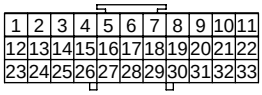




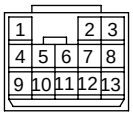
CONNECTORS : D-02, D-26



D-02



D-26



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NOTE: Also check intermediate connectors F-24, D-26 and joint connector D-02 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-24, D-26 or joint connector D-02 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?

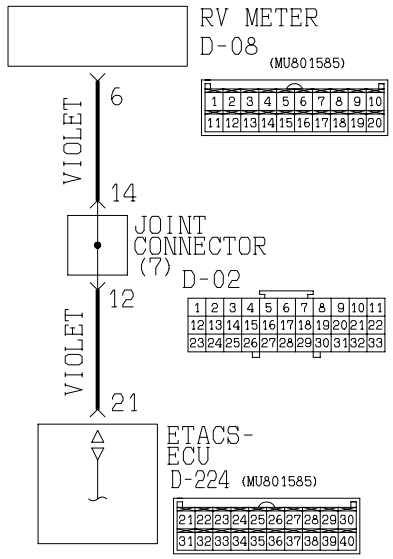
YES : No action is necessary and testing is complete.

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.

NOTE: This troubleshooting procedure requires the use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor P.54Ba-8."

RV Meter Any Control Switch Circuit



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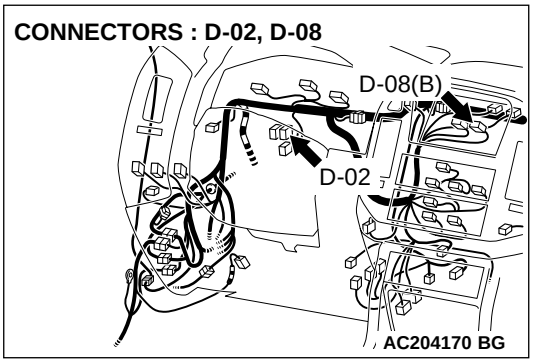
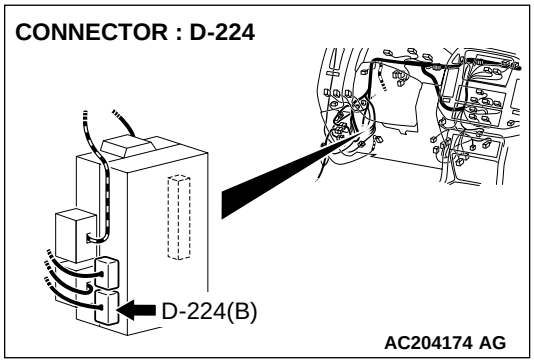




CIRCUIT OPERATION
The RV meter sends a tone alarm request signal to the SWS communication line. If the ETACS-ECU receives the request signal, it sound its tone alarm.

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

STEP 1. Check the RV meter.

Q: Does the RV meter work normally?

YES : Go to Step 2.

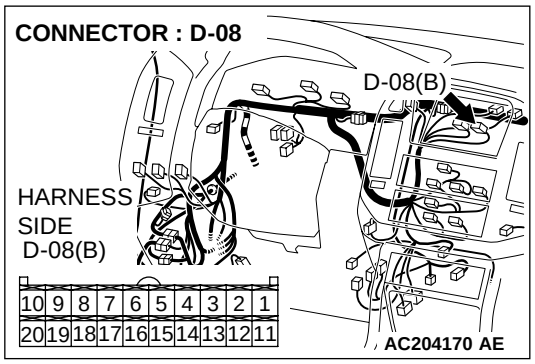
NO : First, repair the RV meter. Refer to GROUP 54A, RV meter P.54A-235.

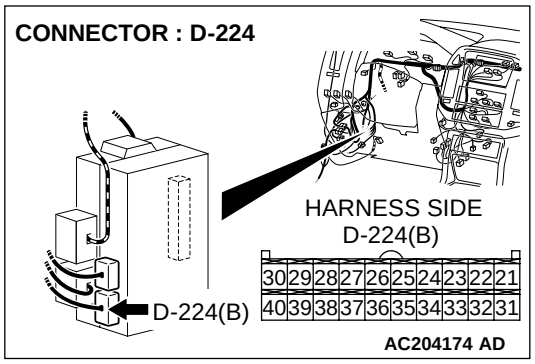
STEP 2. Check RV meter connector D-08 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

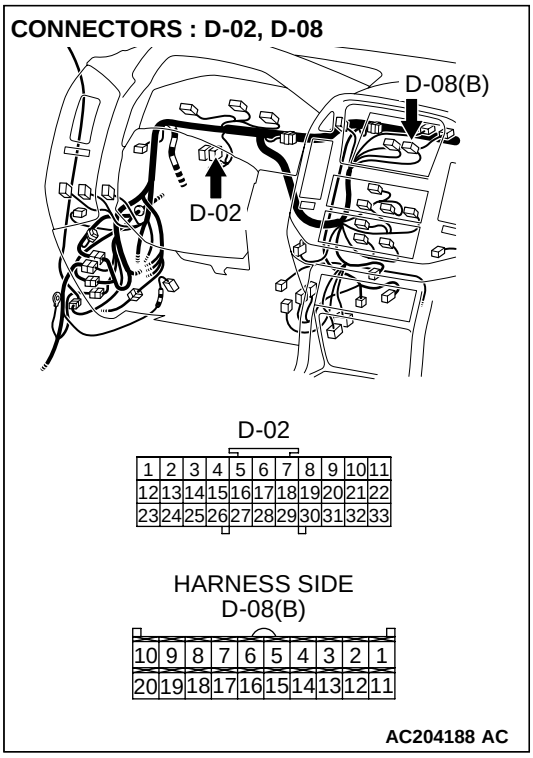
Q: Are RV meter connector D-08 and ETACS-ECU connector D-224 in good condition?

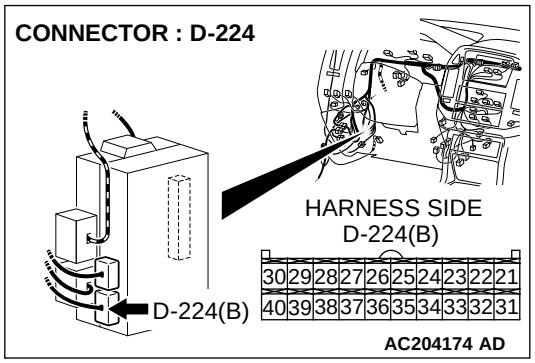
YES : Go to Step 3.

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).

NOTE: Also check joint connector D-02 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-02 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 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.

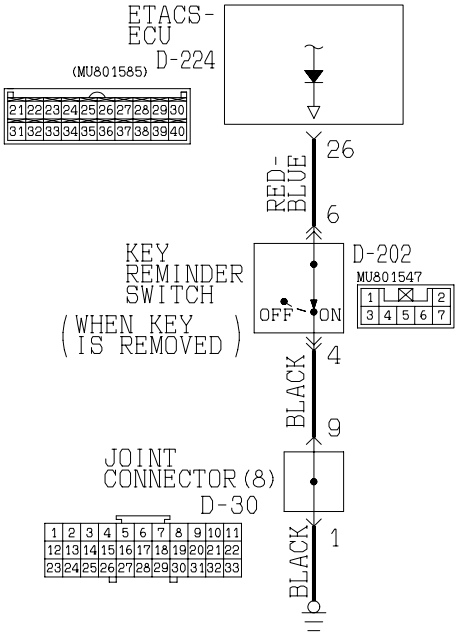
Q: Does the ETACS-ECU receive correct signals from the RV meter switch?

YES : No action is necessary and testing is complete.

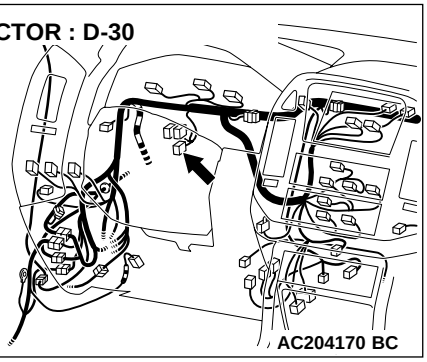
NO : Replace the ETACS-ECU. If the RV meter works normally, it indicates that a correct signal is sent from the RV meter switch.

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

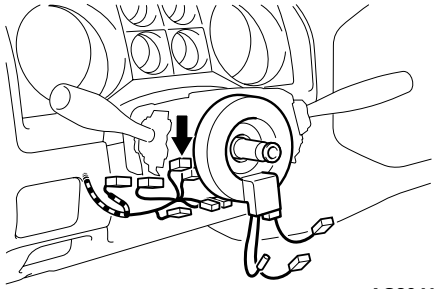
Key Reminder Switch Input Circuit



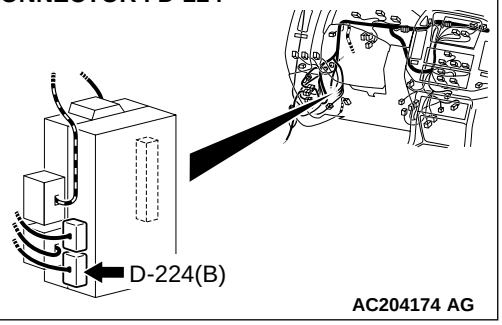
CONNECTOR : D-30



CONNECTOR : D-202



CONNECTOR : D-224



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

TSB Revision

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
- MB991502: Scan Tool (MUT-II)

STEP 1. Check the key reminder switch.

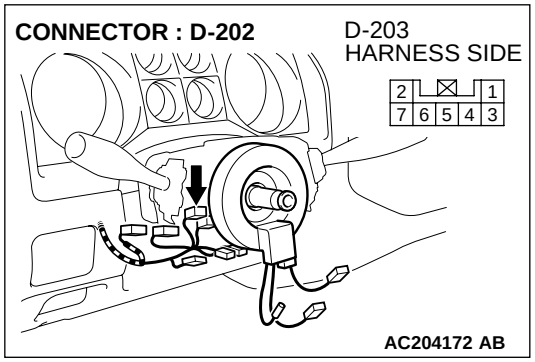
Disconnect key reminder switch connector D-202. Then check continuity between terminals.

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?

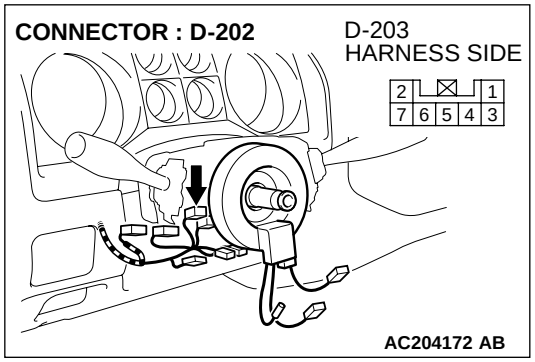
YES : Go to Step 2.

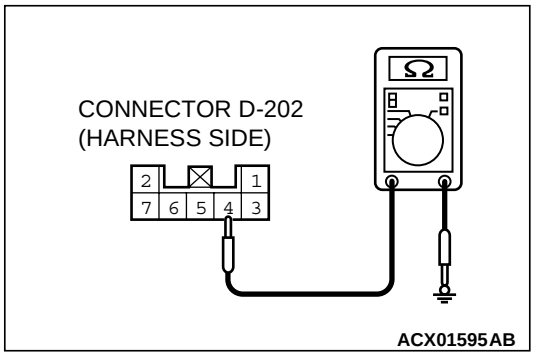
NO : Replace the key reminder switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.



STEP 2. 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.





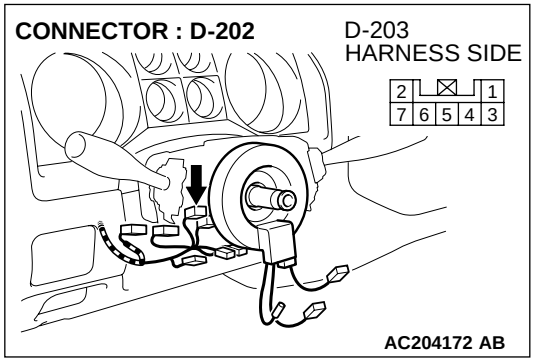
(2) Measure the resistance value between terminal 4 and ground.

- 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 3.

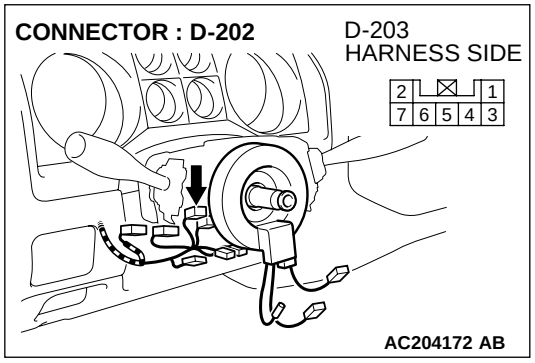


STEP 3. Check key reminder switch connector D-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

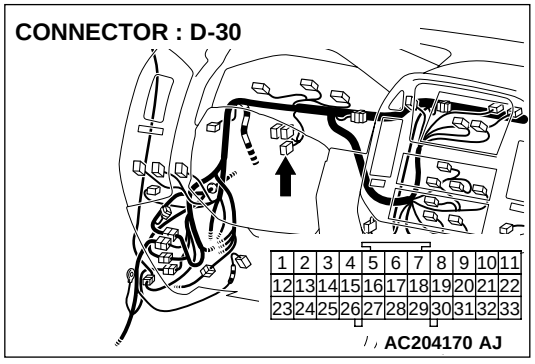
Q: Is key reminder switch connector D-202 in good condition?

YES : Go to Step 4.

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

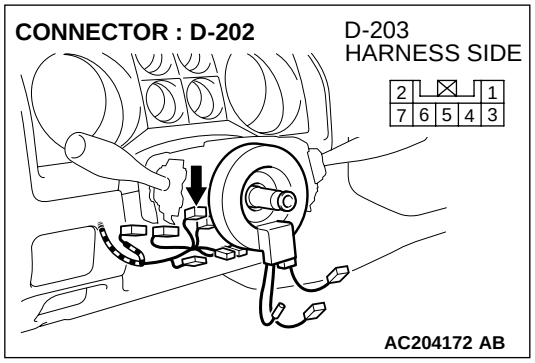


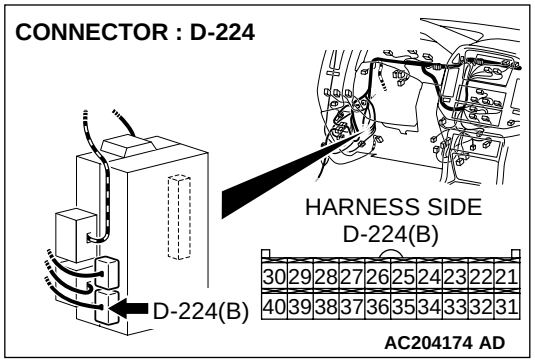
NOTE: Also check joint connector D-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector D-30 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between key reminder switch connector D-202 (terminal 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.



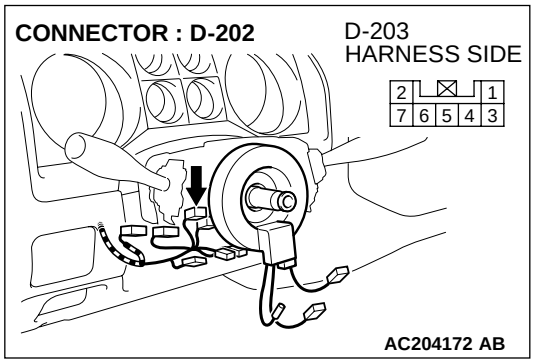


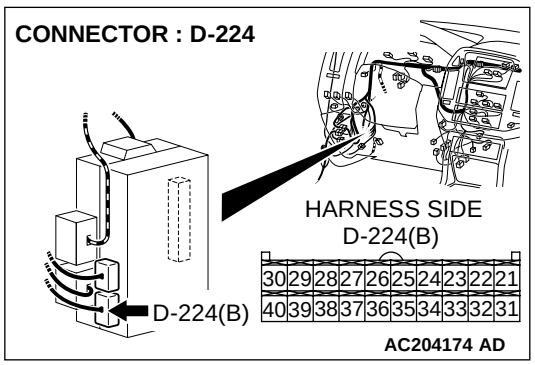
STEP 5. Check key reminder switch connector D-202 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are key reminder switch connector D-202 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 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).

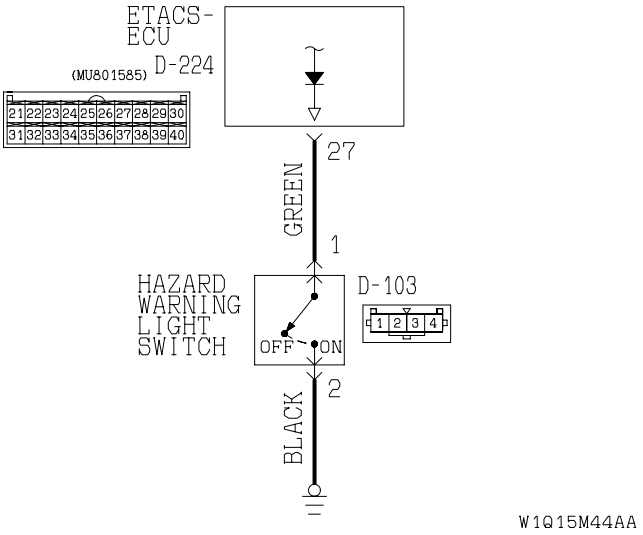
Q: Is the wiring harness between key reminder switch connector D-202 (terminal 6) and ETACS-ECU connector D-224 (terminal 26) in good condition?

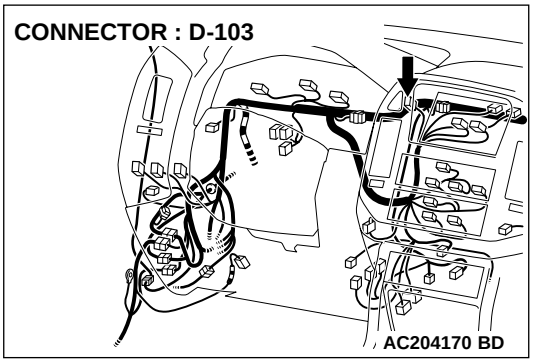
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

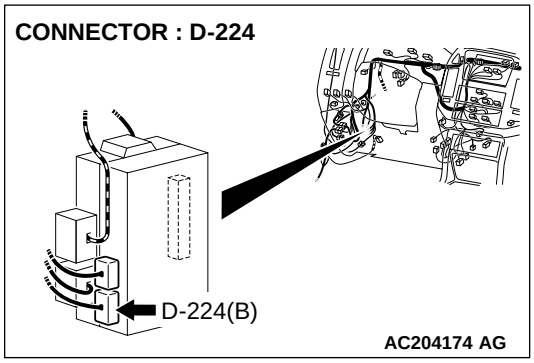
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder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

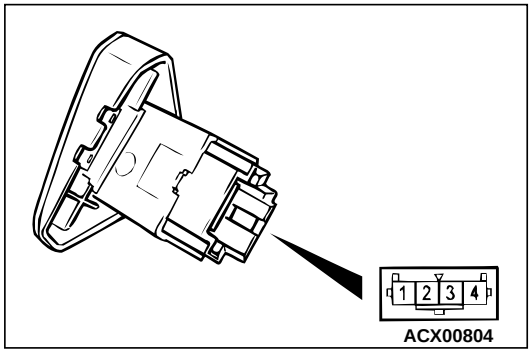
If the signal is not normal, the equipment or systems, which are described in "CIRCUIT OPERATION", do not work normally.

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
- MB991502: Scan Tool (MUT-II)

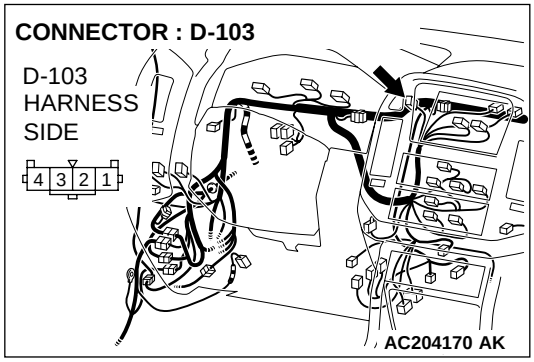


STEP 1. Check the hazard warning light switch.
Remove the hazard warning light switch. Then check continuity between the switch terminals.

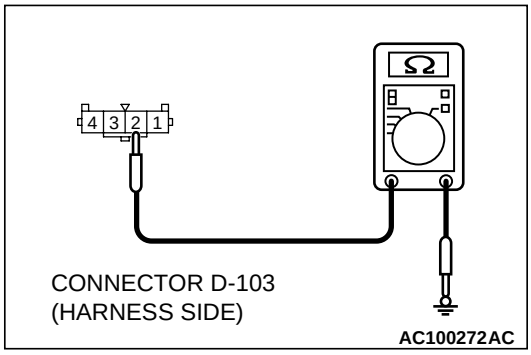
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Open circuit
Pressed	1 – 2	Less than 2 ohms

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

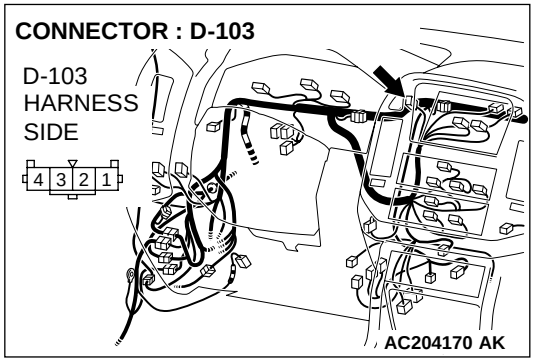


(1) Disconnect hazard warning light switch connector D-103 and measure the resistance available at the wiring harness side of the connector.



(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 3.

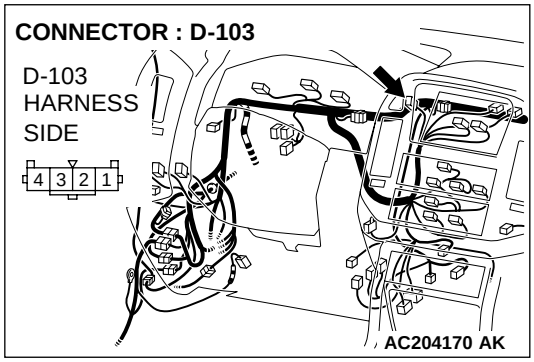


STEP 3. Check hazard warning light switch connector D-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hazard warning light switch connector D-103 in good condition?

YES : Go to Step 4.

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.

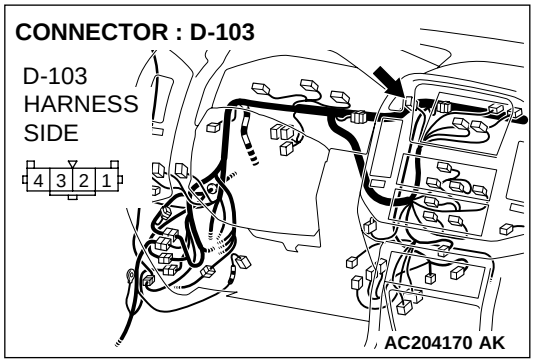


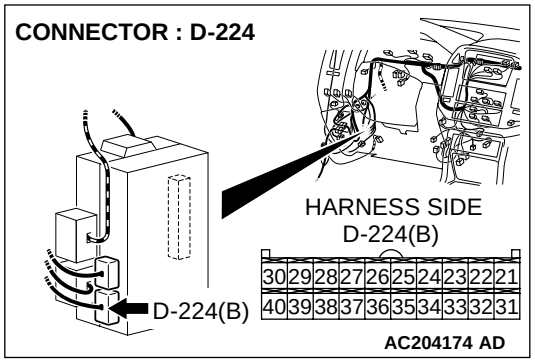
STEP 4. Check the wiring harness between hazard warning light switch connector D-103 (terminal 2) and ground.

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.



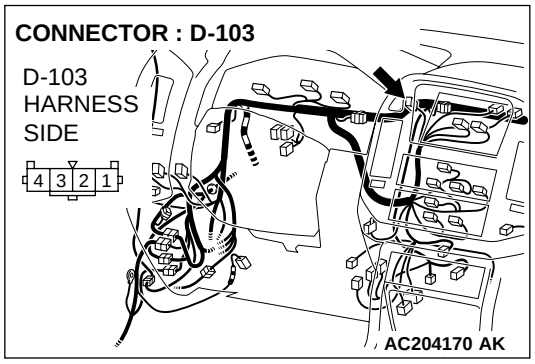


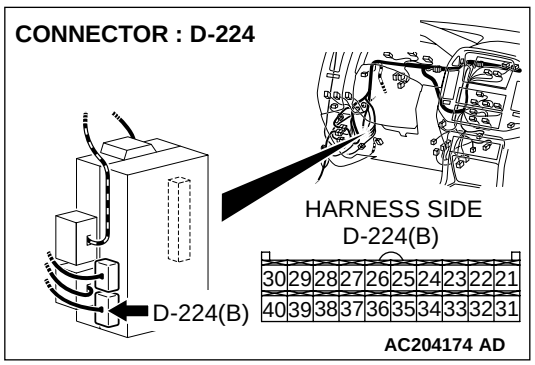
STEP 5. Check hazard warning light switch connector D-103 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hazard warning light switch connector D-103 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 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).

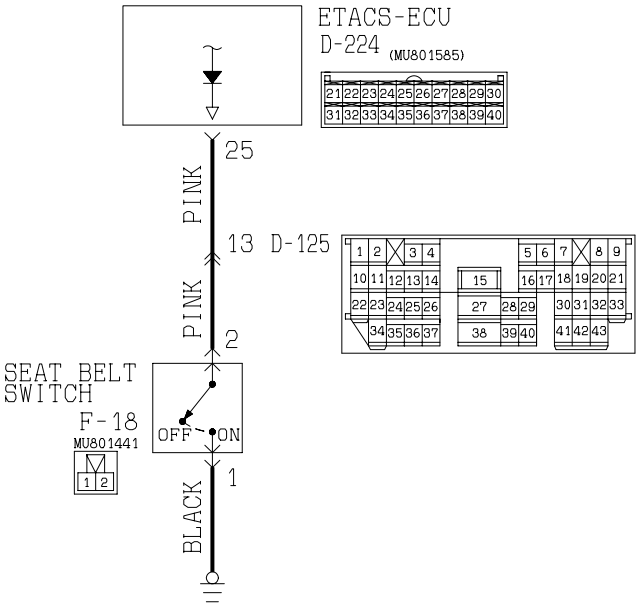
Q: Is the wiring harness between hazard warning light switch connector D-103 (terminal 1) and ETACS-ECU connector D-224 (terminal 27) in good condition?

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



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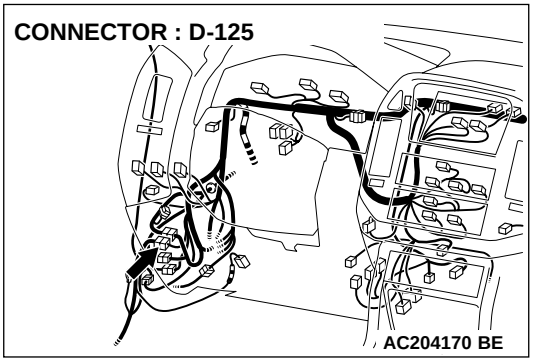

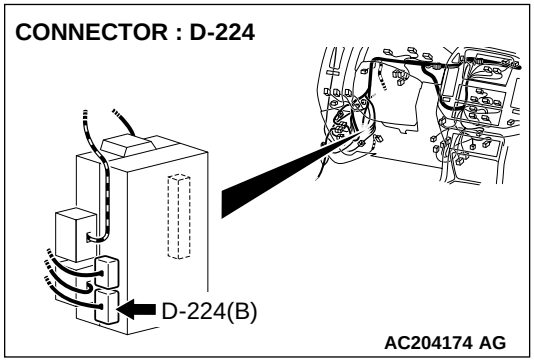

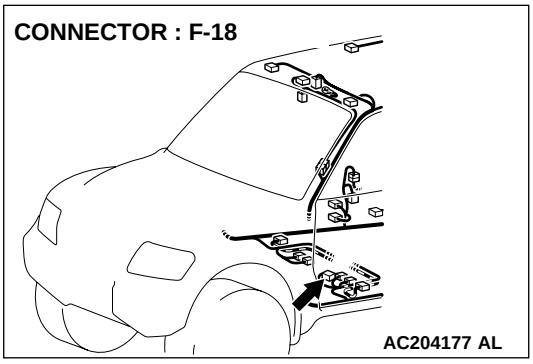

CIRCUIT OPERATION

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

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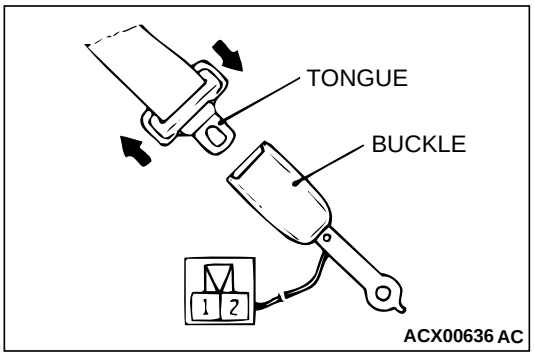
TECHNICAL DESCRIPTION (COMMENT)
If the signal is not normal, the equipment and functions, which are described in "CIRCUIT OPERATION", do not work normally.

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
- MB991502: Scan Tool (MUT-II)

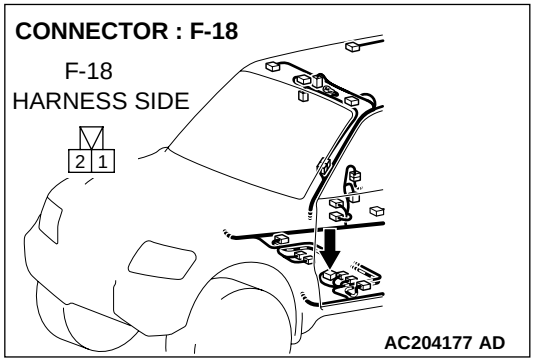


STEP 1. Check the driver's seat belt switch.
Disconnect driver's seat belt switch connector F-18. Then check continuity between the switch terminals.

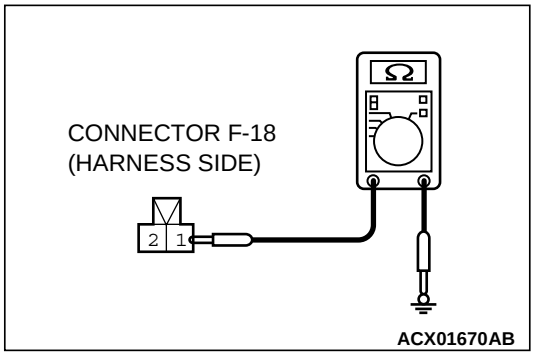
ITEM	TESTER CONNECTION	SPECIFIED CONDITION
Fastened seat belt	1 – 2	Open circuit
Unfastened seat belt	1 – 2	Less than 2 ohms

Q: Is the driver's seat belt switch in good condition?
YES : Go to Step 2.
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 2. 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.

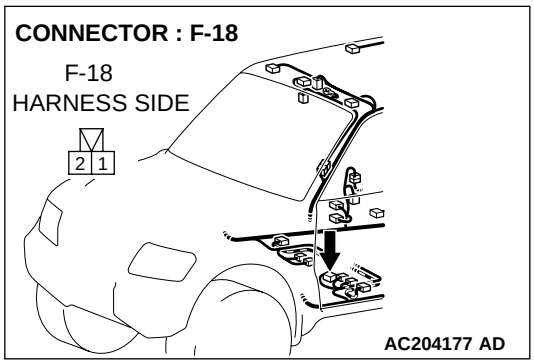


(2) Measure the resistance value between terminal 1 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

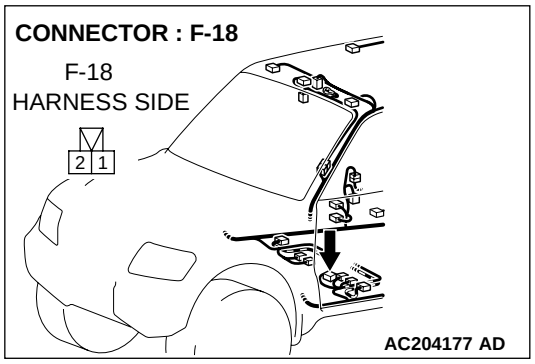
YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. 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 4.
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.

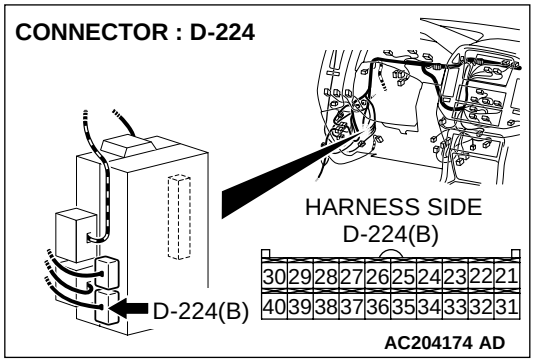


STEP 4. Check the wiring harness between driver's seat belt switch connector F-18 (terminal 1) and ground.

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.

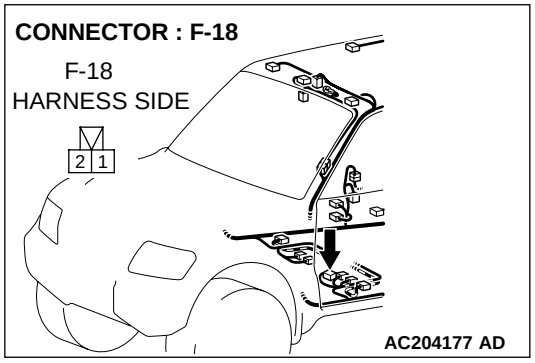


STEP 5. Check driver's seat belt switch connector F-18 and ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

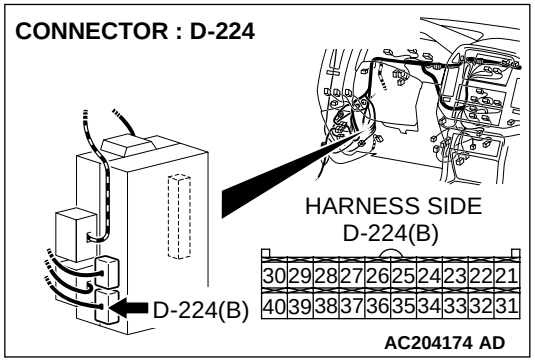
Q: Are driver's seat belt switch connector F-18 and ETACS-ECU connector D-224 in good condition?

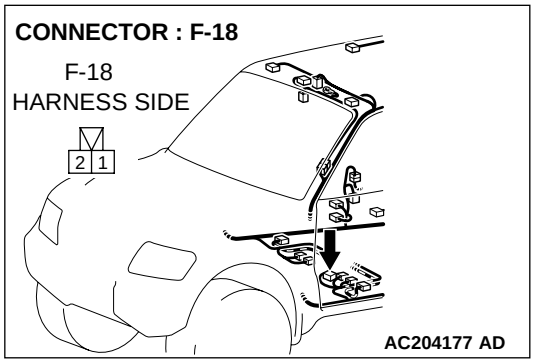
YES : Go to Step 6.

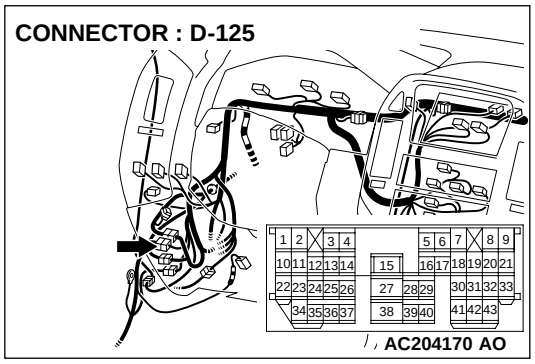
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.



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 connectors D-125 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

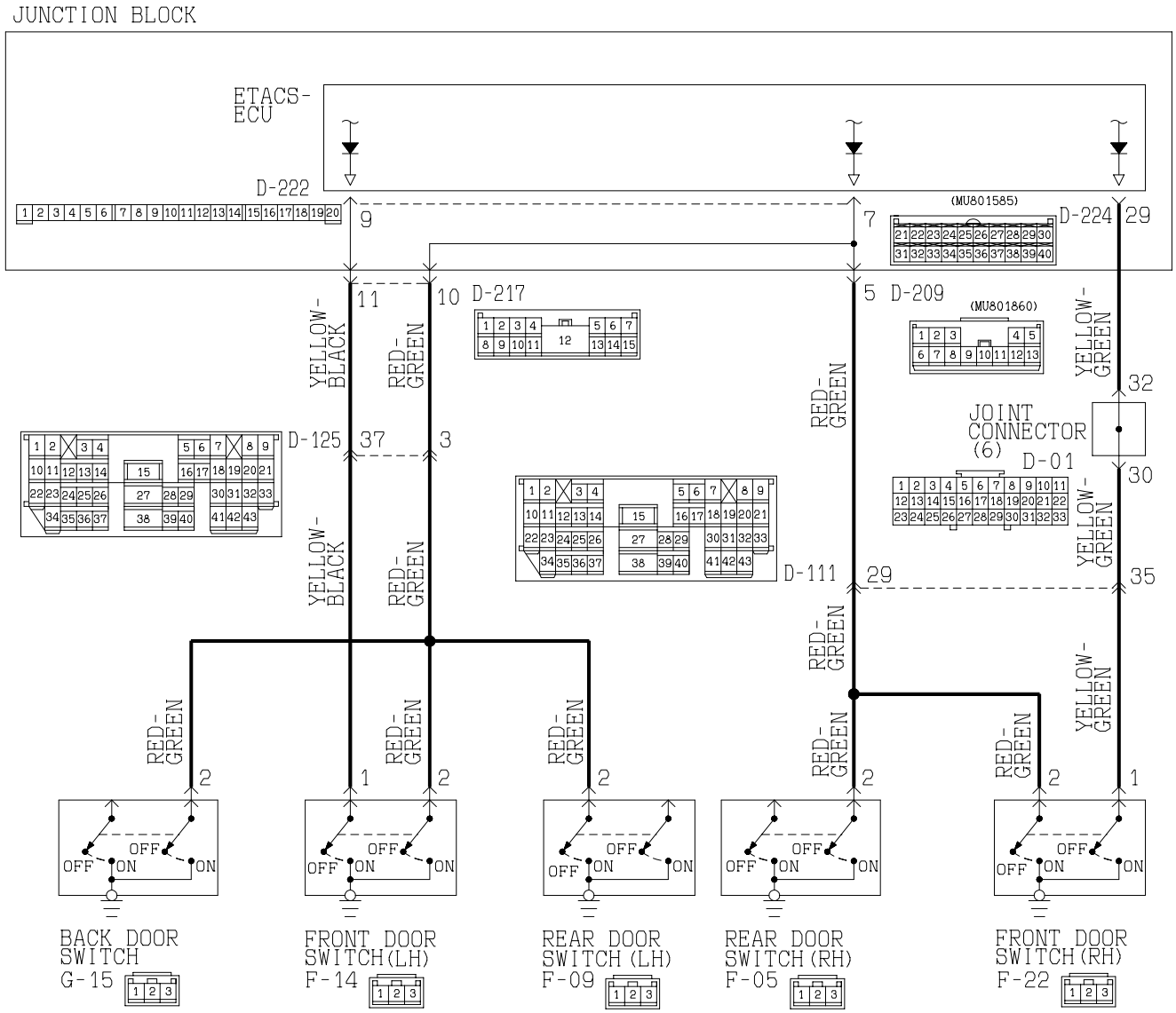
Q: Is the wiring harness between driver's seat belt switch connector F-18 (terminal 2) and ETACS-ECU connector D-224 (terminal 25) in good condition?

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



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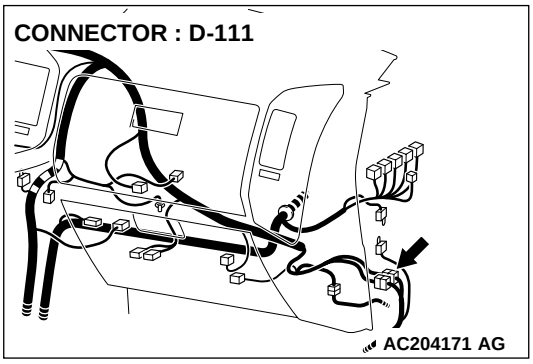

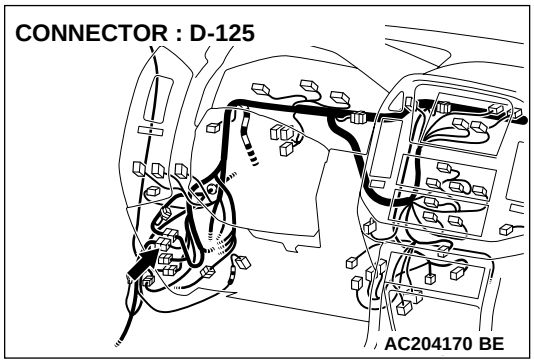

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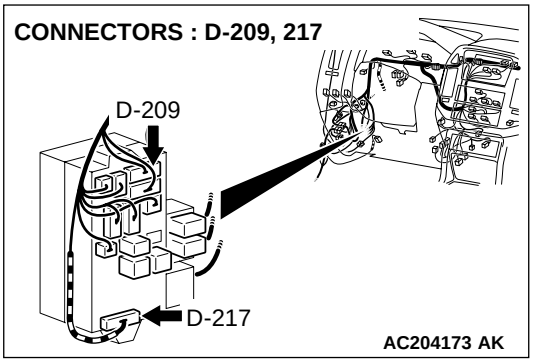

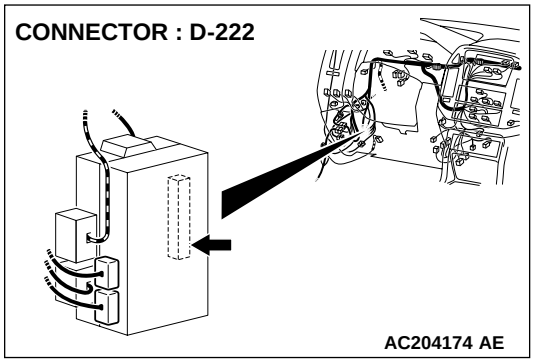

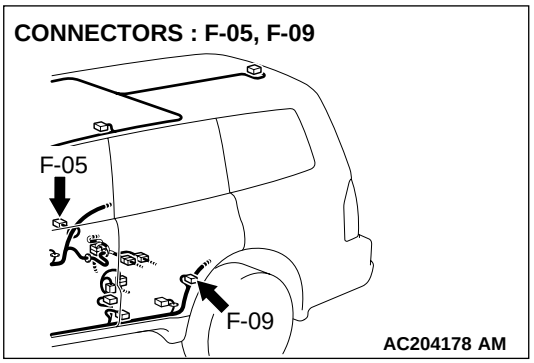

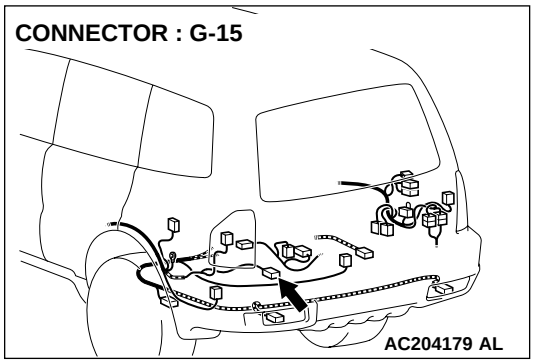

CIRCUIT OPERATION

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
- MB991502: Scan Tool (MUT-II)

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.54Bc-23."
Rear door (LH) : Go to Step 2.
Rear door (RH) : Go to Step 6.
Back door : Go to Step 10.
Driver's, rear (LH) and back door : Go to Step 14.

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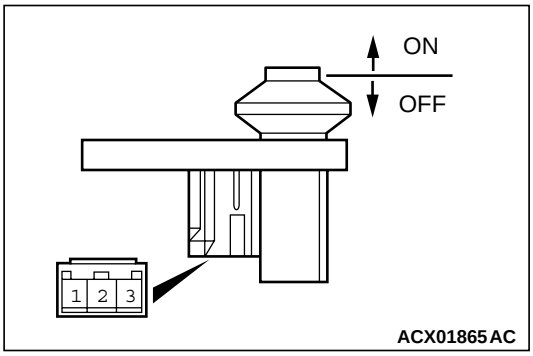


STEP 2. Check the rear door switch (LH).

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 3.

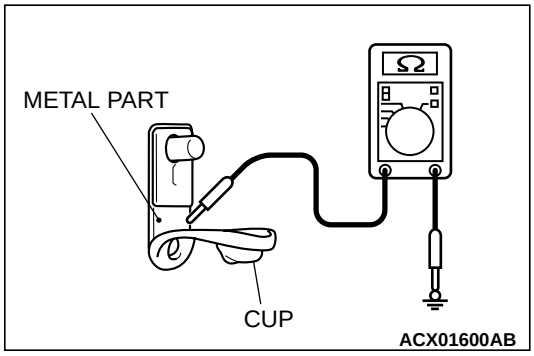
NO : Replace the rear door switch (LH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

STEP 3. 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.

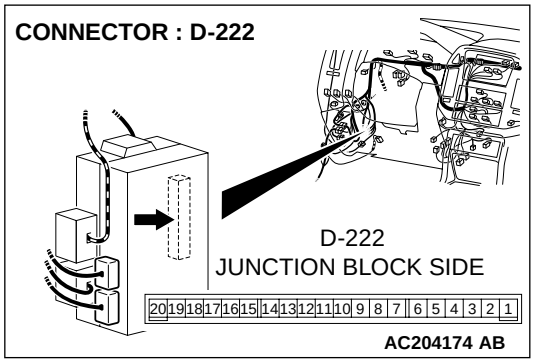
- The resistance should equal 2 ohms or less.

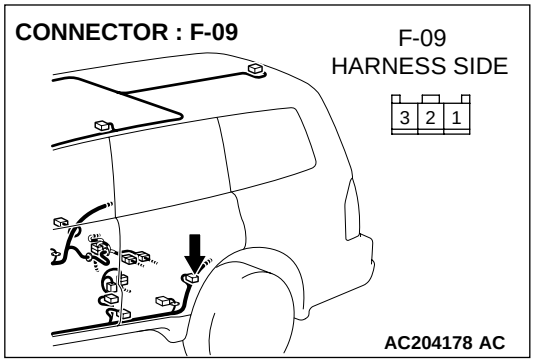


Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

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.





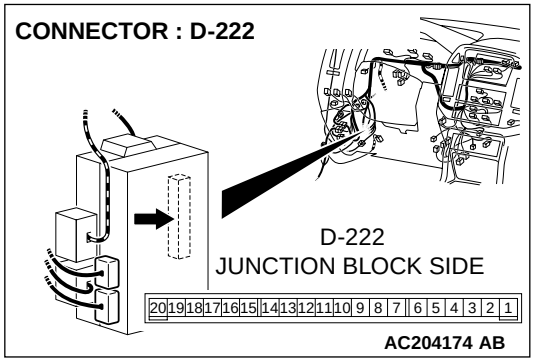
STEP 4. Check rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

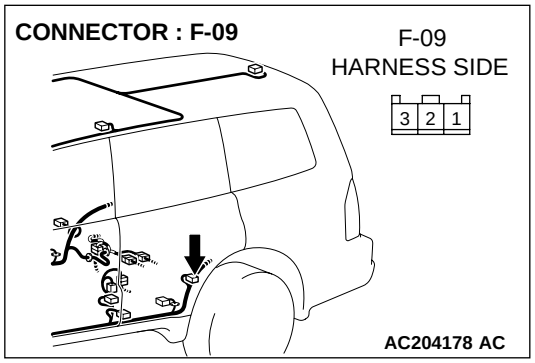
Q: Are rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 in good condition?

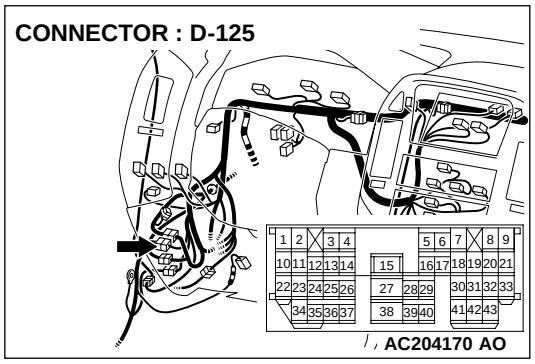
YES : Go to Step 5.

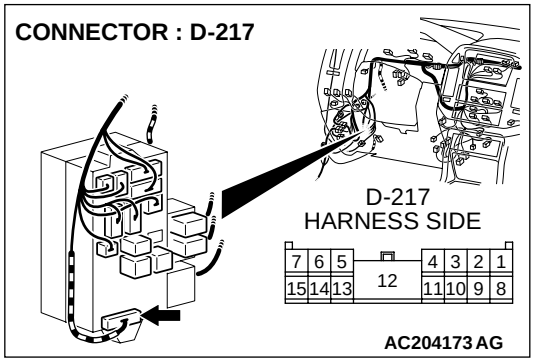
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

STEP 5. Check the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).







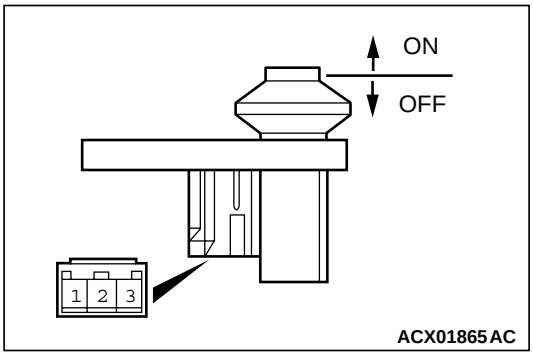


NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 is damaged, Repair or replace the damaged component(s) as described 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 6. 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 7.

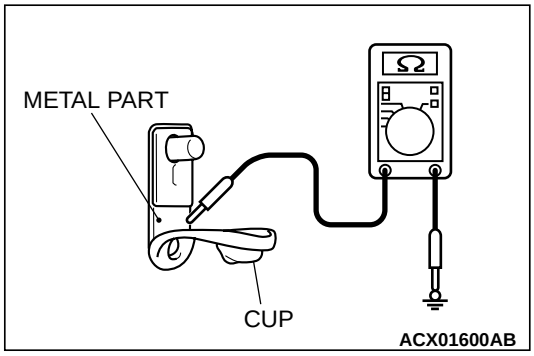
NO : Replace the rear door switch (RH). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

STEP 7. 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.

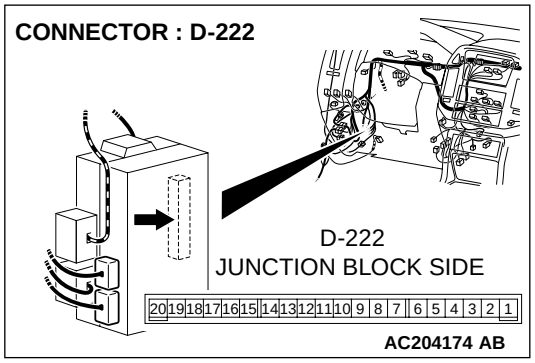
- The resistance should equal 2 ohms or less.

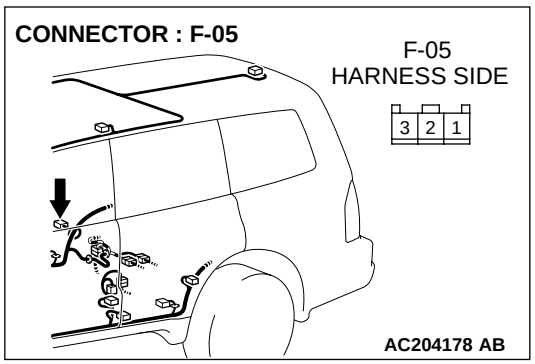


Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

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.





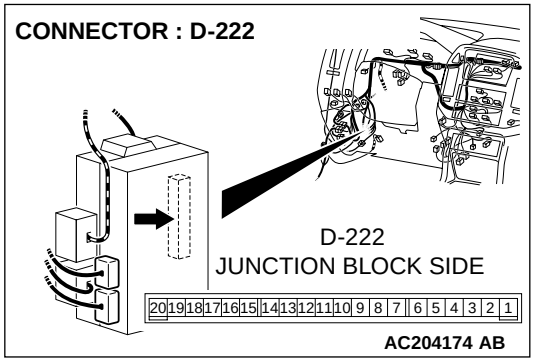
STEP 8. Check rear door switch (RH) connector F-05 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

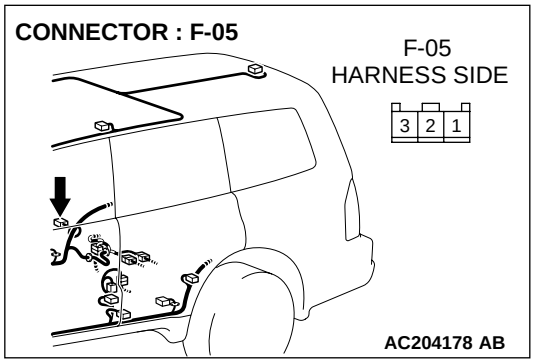
Q: Are rear door switch (RH) connector F-05 and ETACS-ECU connector D-222 in good condition?

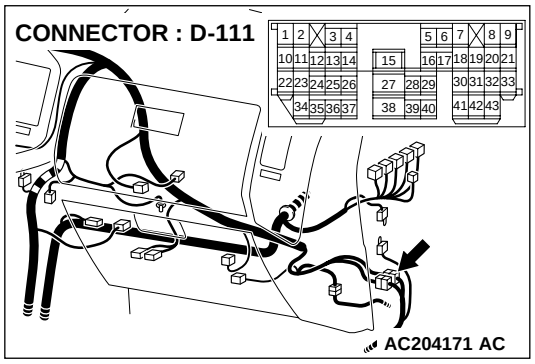
YES : Go to Step 9.

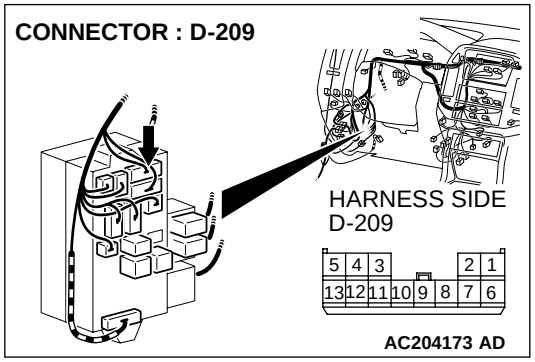
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (RH) should be normal.

STEP 9. Check the wiring harness between rear door switch (RH) connector F-05 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).







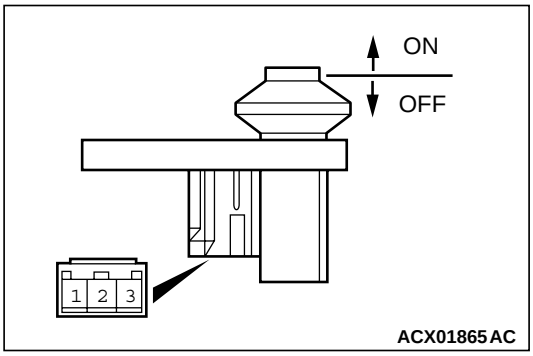


NOTE: Also check intermediate connector D-111 and junction block connector D-209 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 is damaged, Repair or replace the damaged component(s) as described 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 10. 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 11.

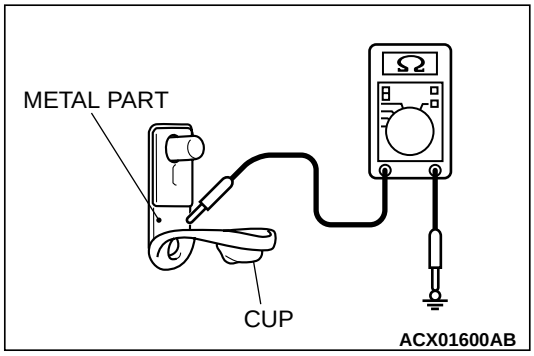
NO : Replace the back door switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

STEP 11. 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.

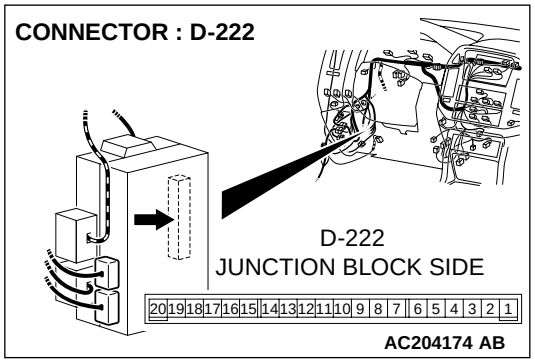
- The resistance should equal 2 ohms or less.

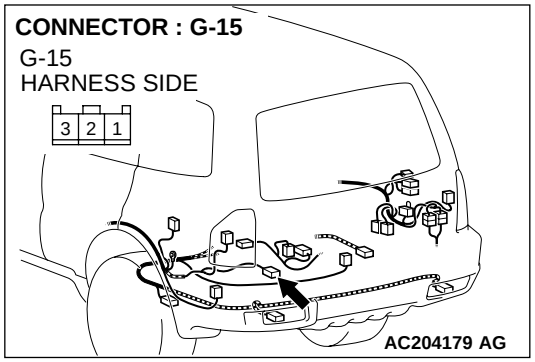


Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

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.





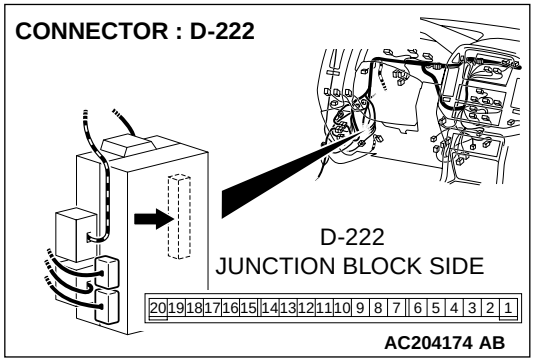
STEP 12. Check back door switch connector G-15 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

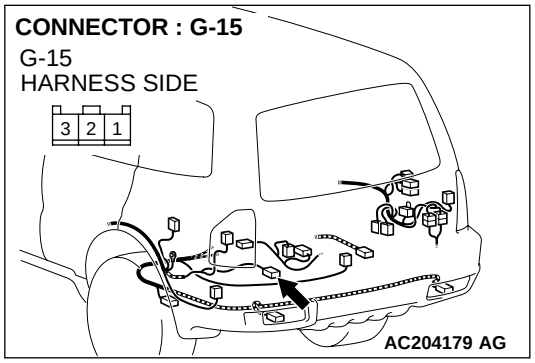
Q: Are back door switch connector G-15 and ETACS-ECU connector D-222 in good condition?

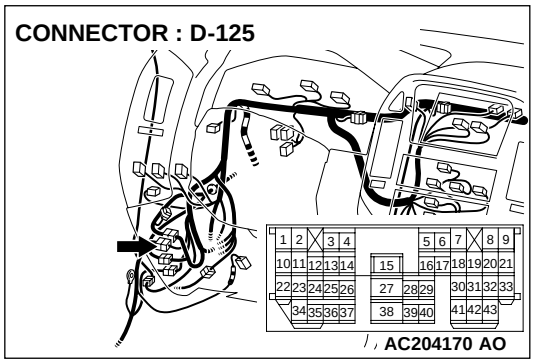
YES : Go to Step 13.

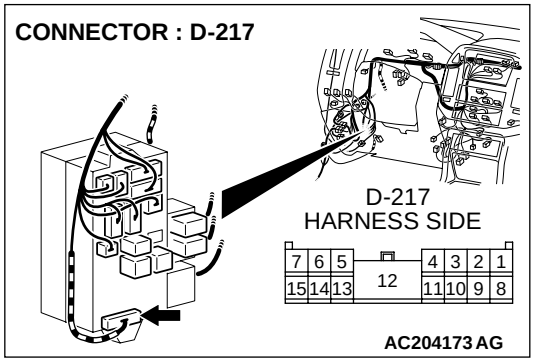
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door switch should be normal.

STEP 13. Check the wiring harness between back door switch connector G-15 (terminal 2) and ETACS-ECU connector D-222 (terminal 7).







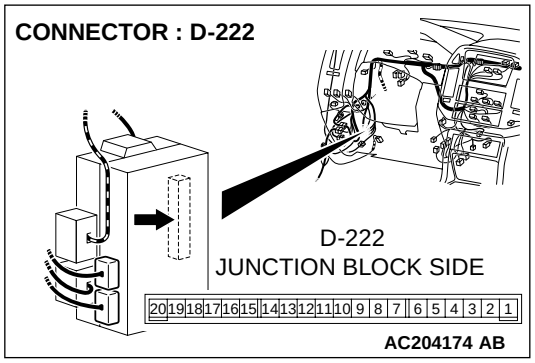


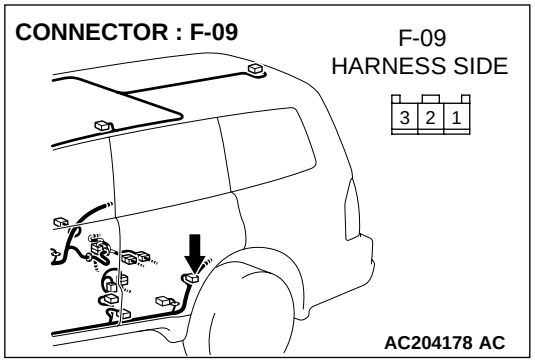
NOTE: Also check intermediate connector D-125 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-125 or junction block connector D-217 is damaged, Repair or replace the damaged component(s) as described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





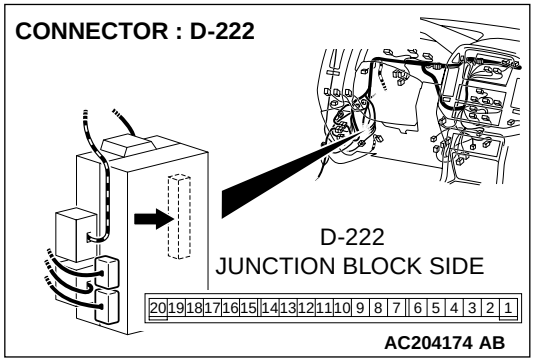
STEP 14. Check rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

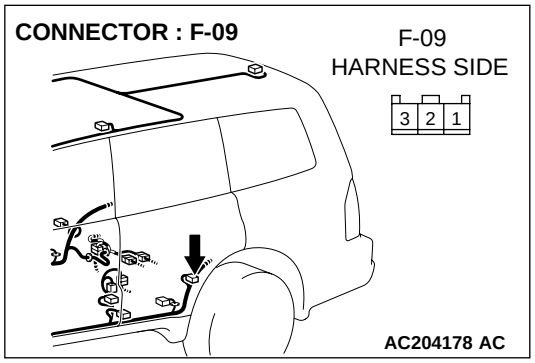
Q: Are rear door switch (LH) connector F-09 and ETACS-ECU connector D-222 in good condition?

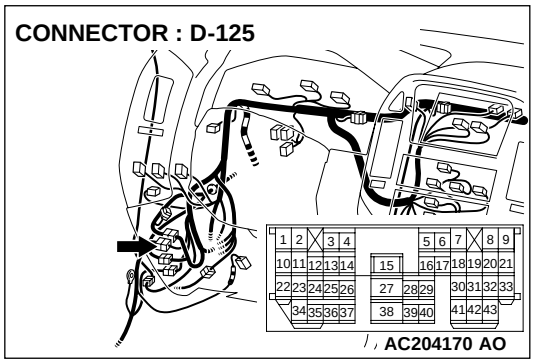
YES : Go to Step 15.

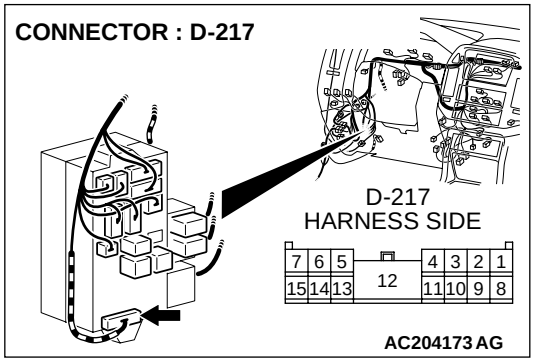
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

STEP 15. 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.*

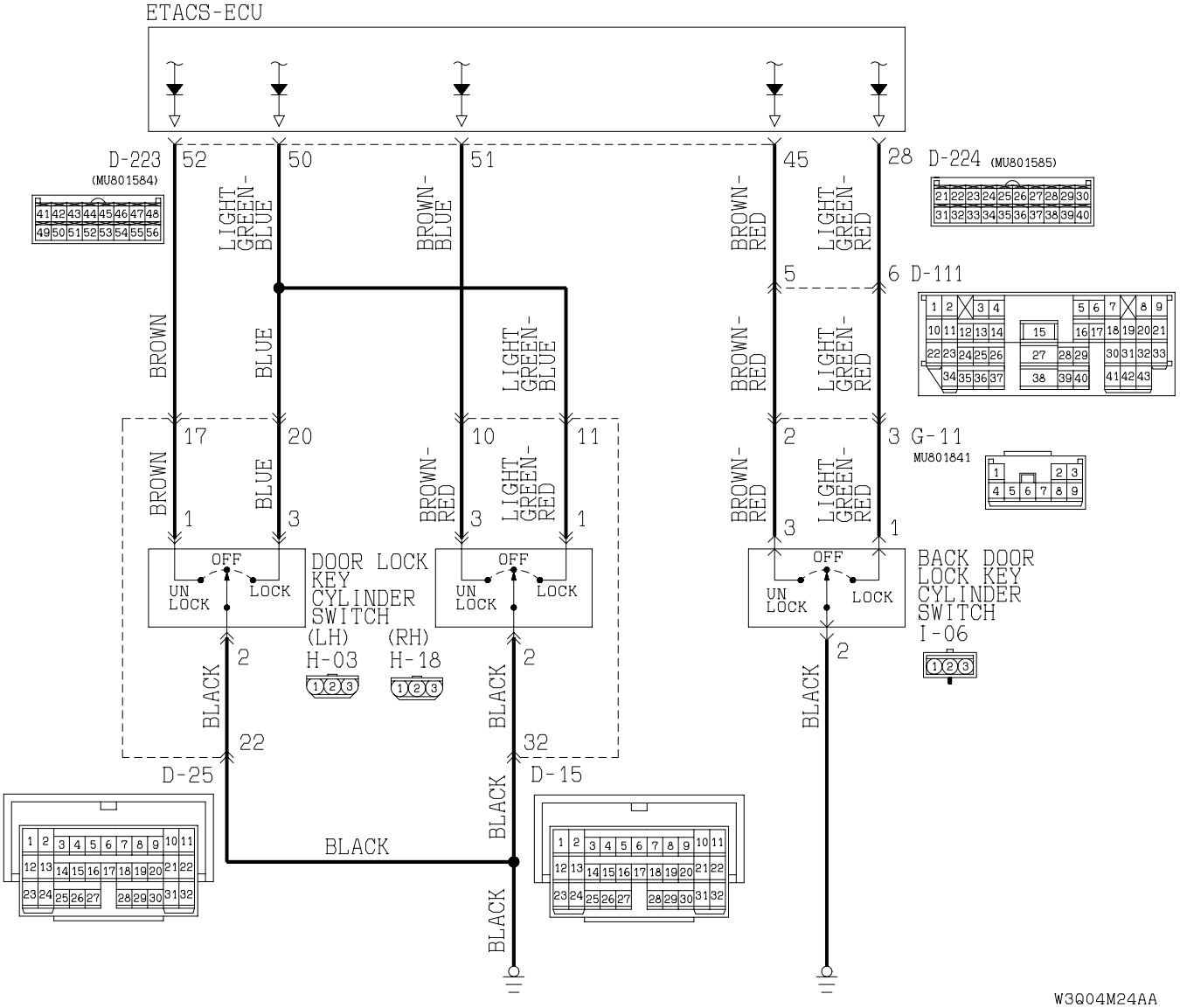
Q: Is the wiring harness between rear door switch (LH) connector F-09 (terminal 2) and ETACS-ECU connector D-222 (terminal 7) in good condition?

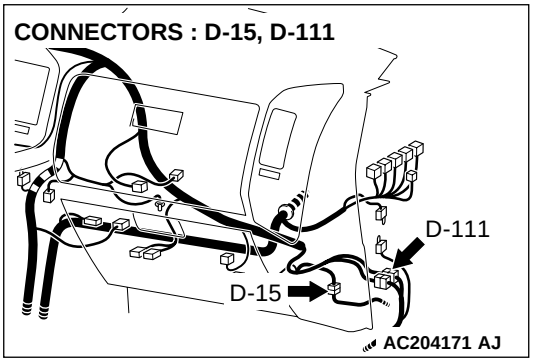
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door switch (LH) should be normal.

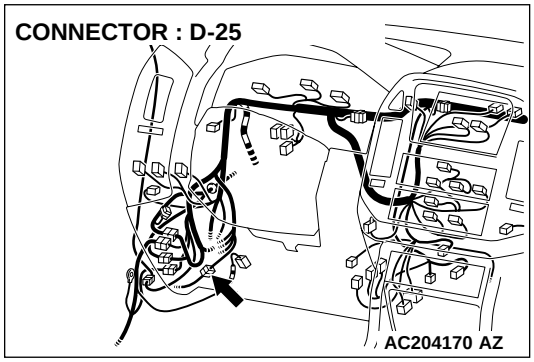
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door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

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

Door Lock Key Cylinder Switch Input Circuit

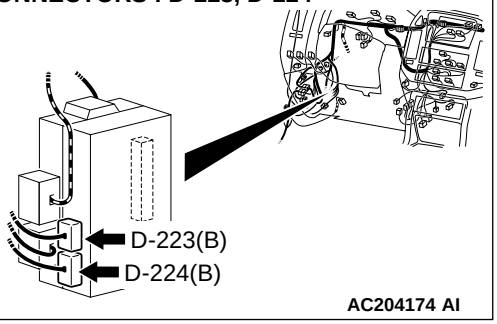






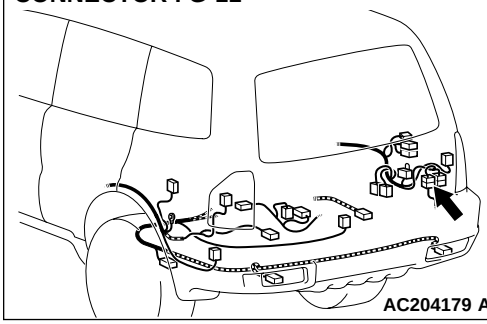
TSB Revision

CONNECTORS : D-223, D-224



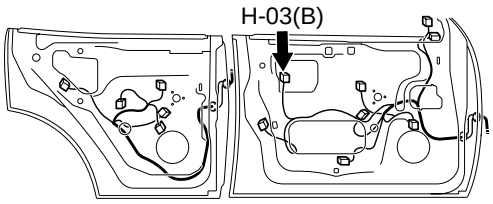
AC204174 AI

CONNECTOR : G-11



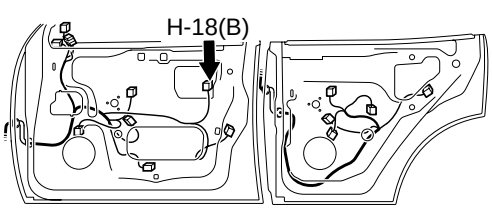
AC204179 AK

CONNECTOR : H-03



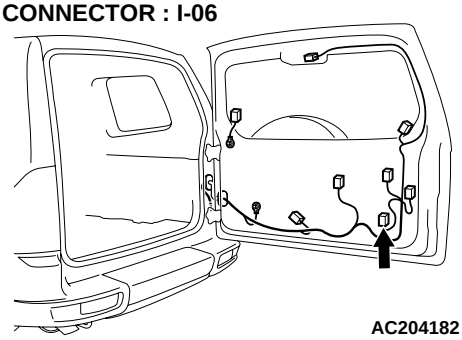
AC204180 AF

CONNECTOR : H-18



AC204181 AG

CONNECTOR : I-06



AC204182 AH

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
- MB991502: Scan Tool (MUT-II)

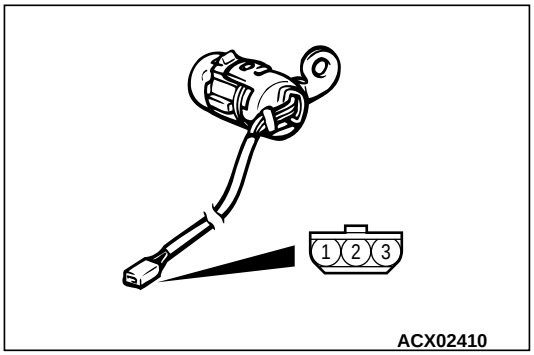
STEP 1. Check which door lock key cylinder switch is defective.

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 8.
Back door : Go to Step 14.
Driver's and front passenger's door : Go to Step 20.
Driver's and front passenger's door (Lock signal only) : Go to Step 22.

STEP 2. 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.

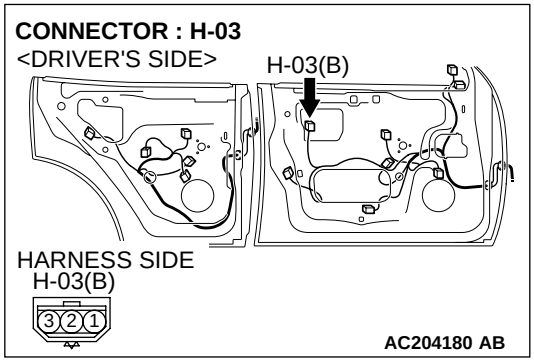


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	2 – 3	Less than 2 ohms
Neutral (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	1 – 2	Less than 2 ohms

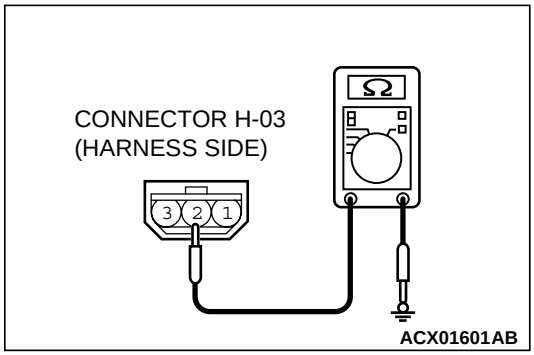
Q: Is the driver's door lock key cylinder switch in good condition?

YES : Go to Step 3.
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 3. 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.

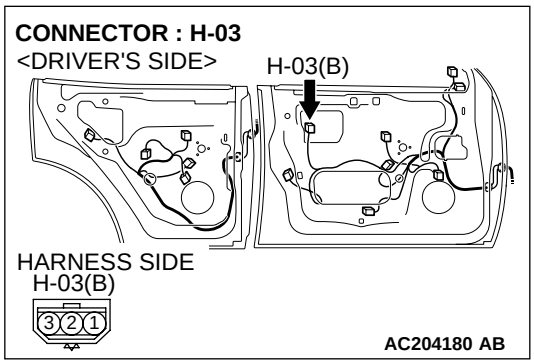


(2) Measure the resistance value between terminal 2 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.
NO : Go to Step 4.

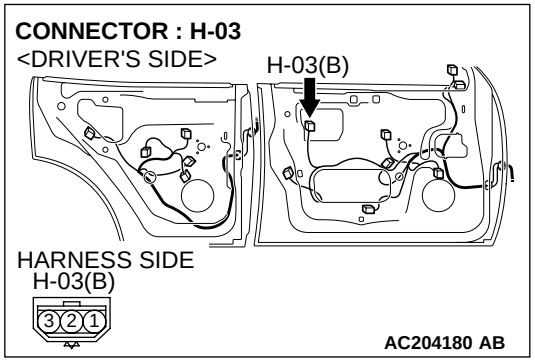
STEP 4. Check driver's door lock key cylinder switch connector H-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

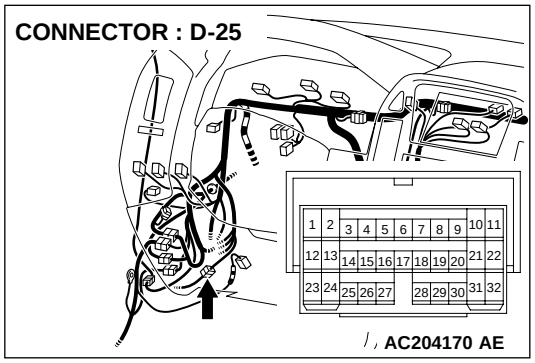


Q: Is driver's door lock key cylinder switch connector H-03 in good condition?

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



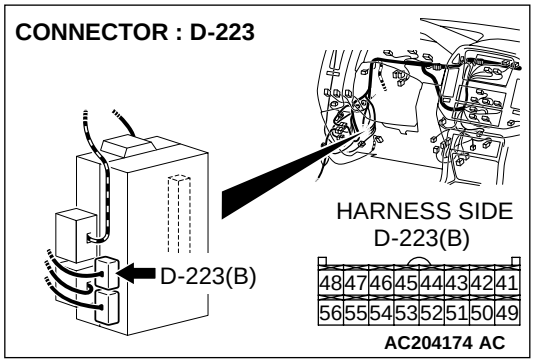


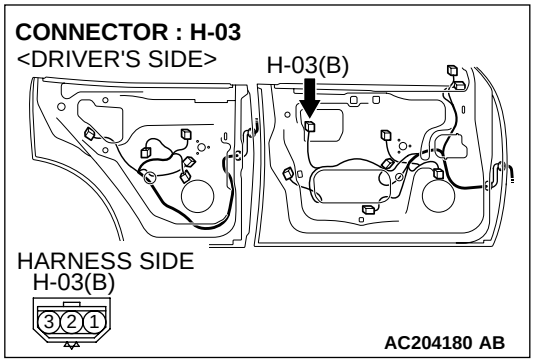
NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-25 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.





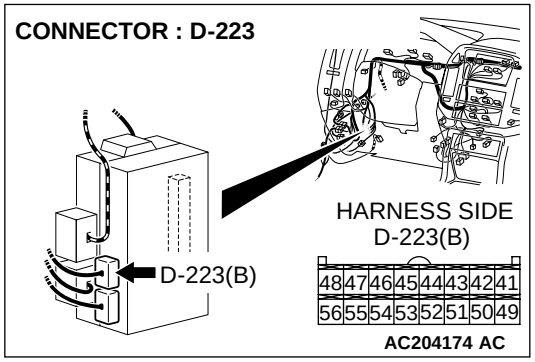
STEP 6. Check driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

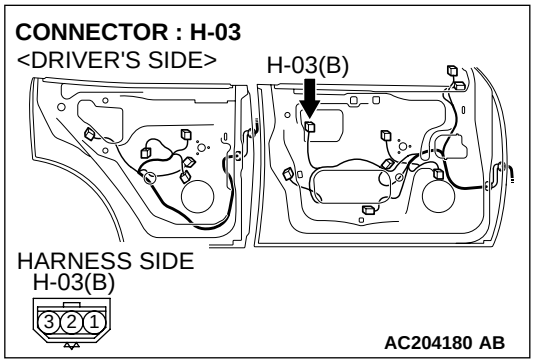
Q: Are driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 in good condition?

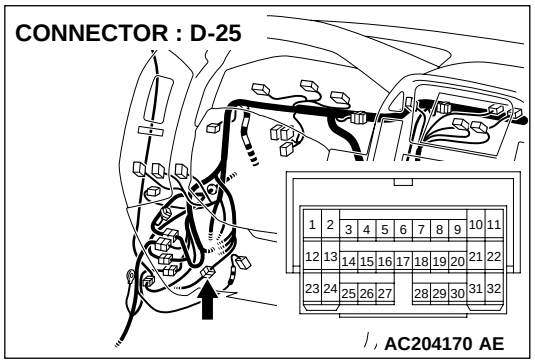
YES : Go to Step 7.

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 7. 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).





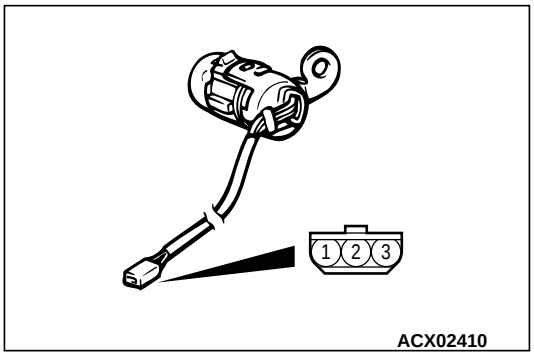


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-25 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (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 8. 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

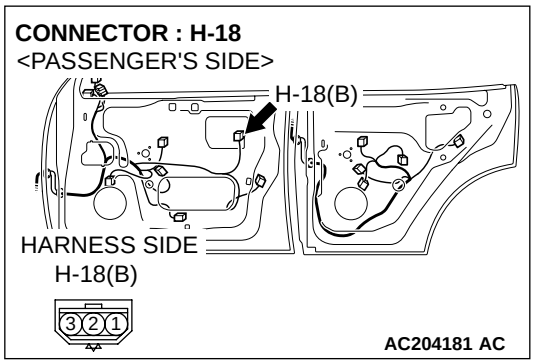
Q: Is the front passenger's door lock key cylinder switch in good condition?

YES : Go to Step 9.

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.

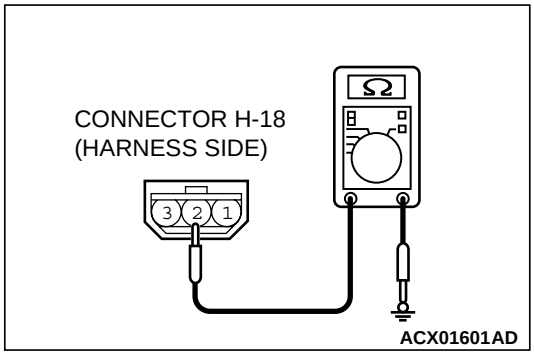
STEP 9. Check the ground circuit to the front passenger's door lock key cylinder switch. Test at front passenger's door lock key cylinder switch connector H-18.

(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 12.

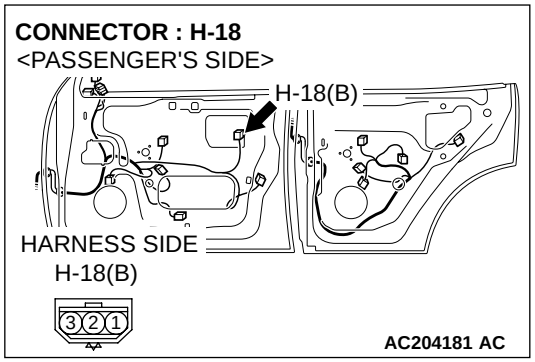
NO : Go to Step 10.

STEP 10. 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.

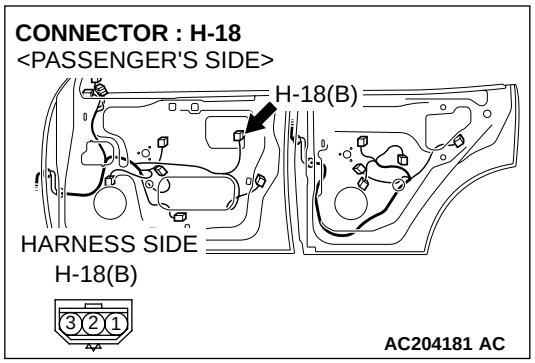
Q: Is front passenger's door lock key cylinder switch connector H-18 in good condition?

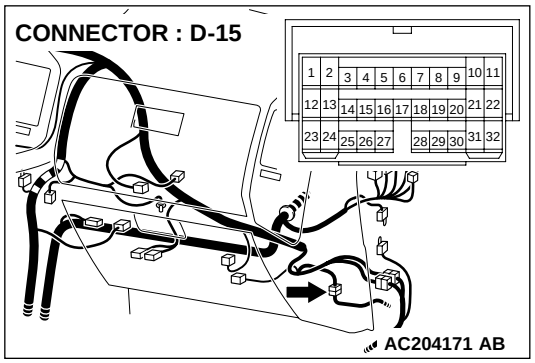
YES : Go to Step 11.

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



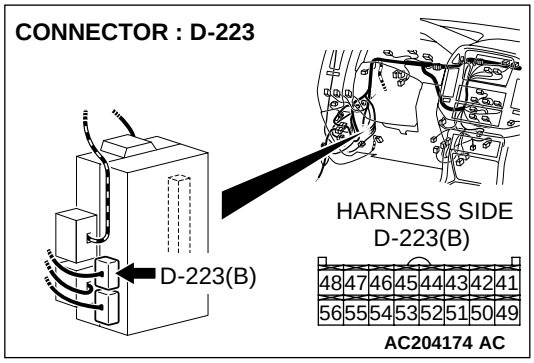


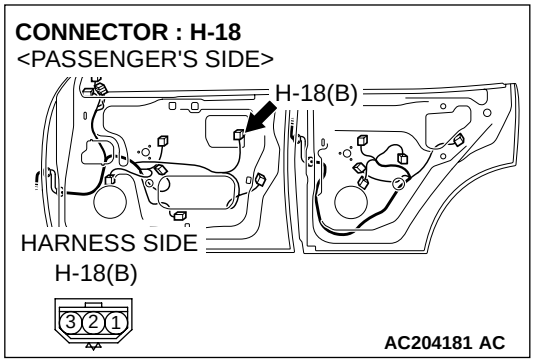
NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.





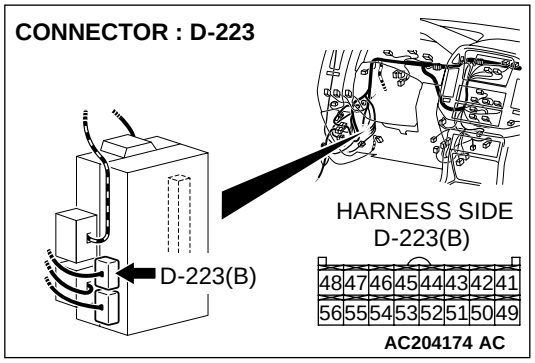
STEP 12. Check front passenger's door lock key cylinder switch connector H-18 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

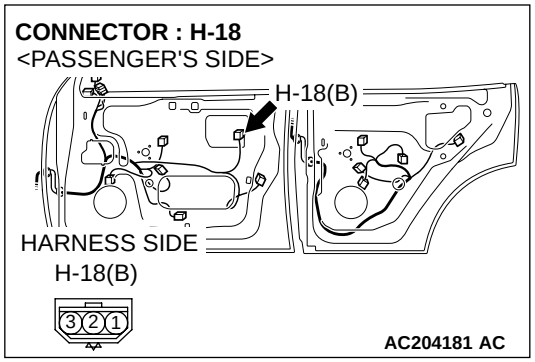
Q: Are front passenger's door lock key cylinder switch connector H-18 and ETACS-ECU connector D-223 in good condition?

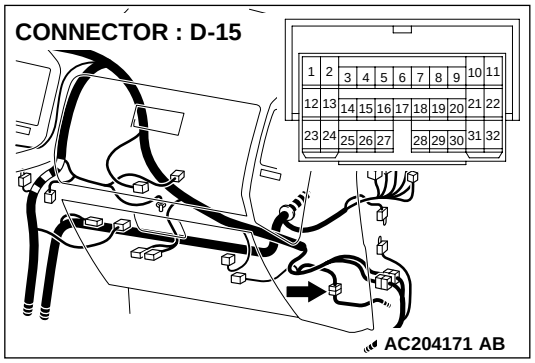
YES : Go to Step 13.

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





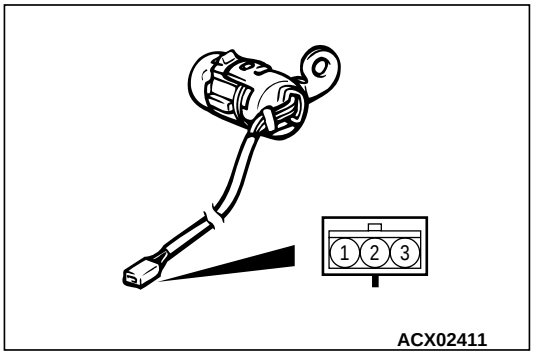


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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 14. 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.

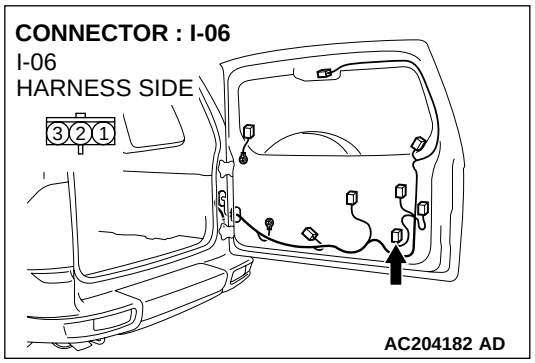
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Less than 2 ohms
Neutral (OFF)	1 – 2, 2 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms

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

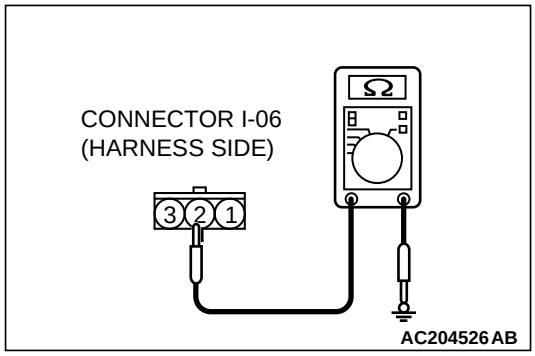
YES : Go to Step 15.

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 15. 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.

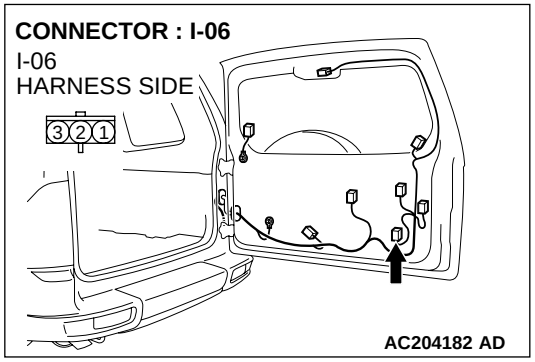


(2) Measure the resistance value between terminal 2 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 18.

NO : Go to Step 16.

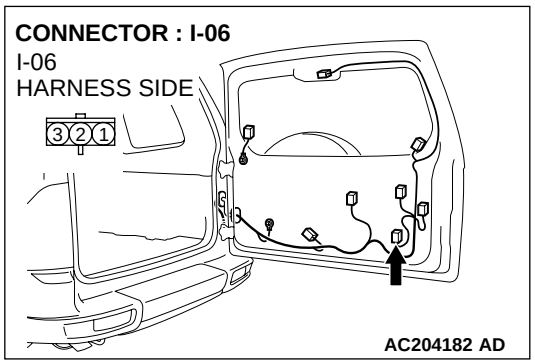


STEP 16. Check back door lock key cylinder switch connector I-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is back door lock key cylinder switch connector I-06 in good condition?

YES : Go to Step 17.

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.

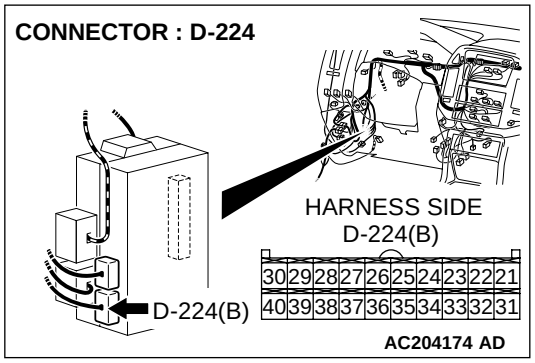


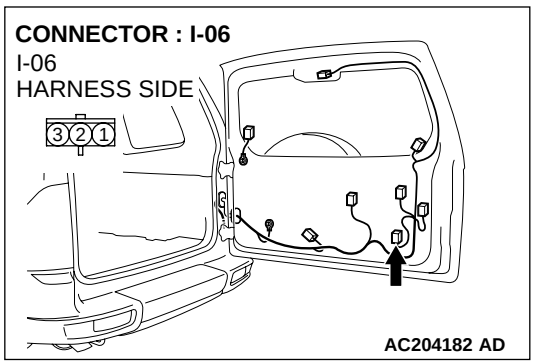
STEP 17. Check the wiring harness between back door lock key cylinder switch connector I-06 (terminal 2) and ground.

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.





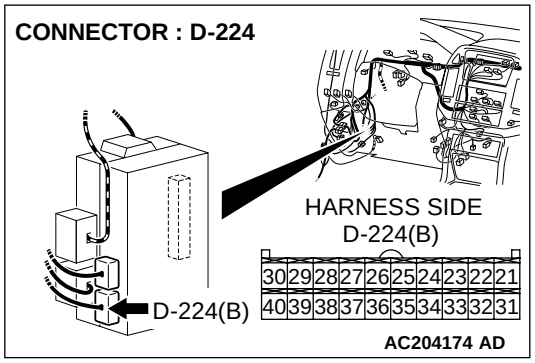
STEP 18. Check back door lock key cylinder switch connector I-06, ETACS-ECU connectors D-223 and D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

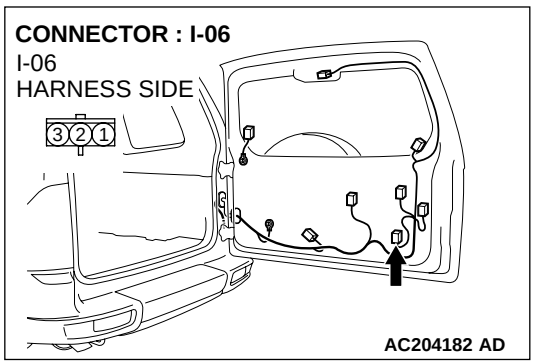
Q: Are back door lock key cylinder switch connector I-06, ETACS-ECU connectors D-223 and D-224 in good condition?

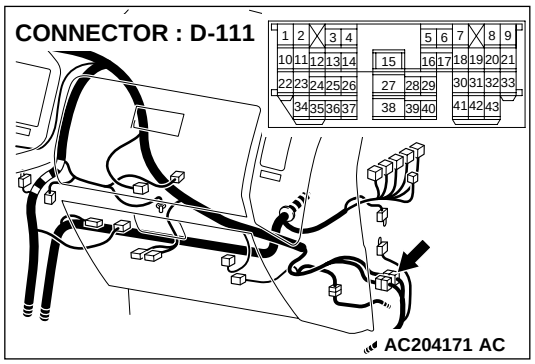
YES : Go to Step 19.

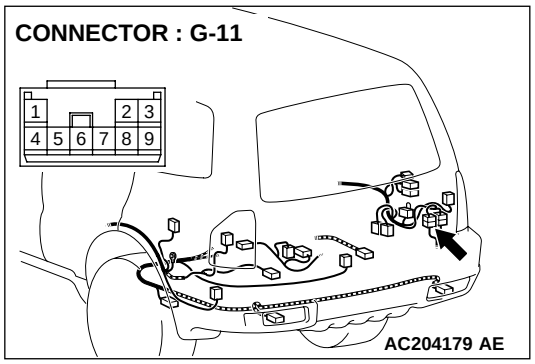
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock key cylinder switch should be normal.

STEP 19. Check 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).







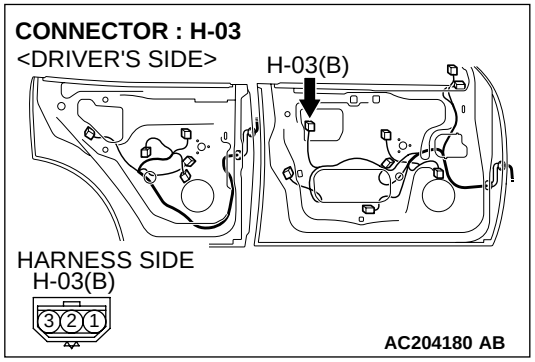


NOTE: Also check intermediate connectors D-111 and G-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111 or G-11 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.

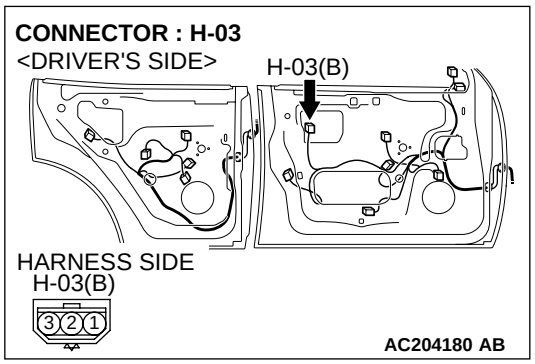


STEP 20. Check driver's door lock key cylinder switch connector H-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

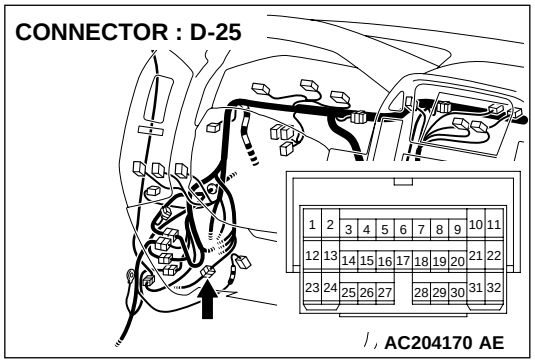
Q: Is driver's door lock key cylinder switch connector H-03 in good condition?

YES : Go to Step 21.

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

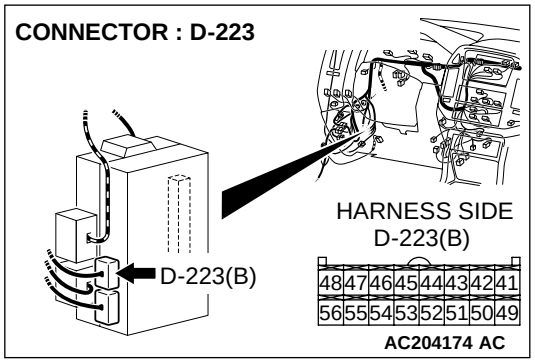


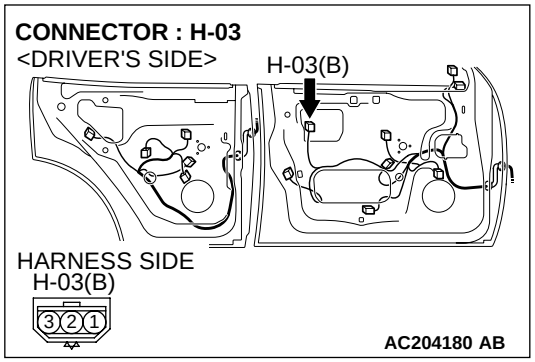
NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-25 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.





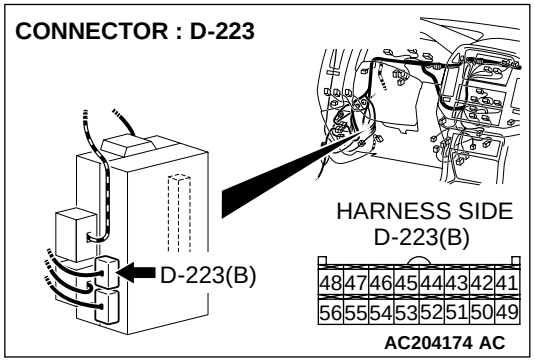
STEP 22. Check driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

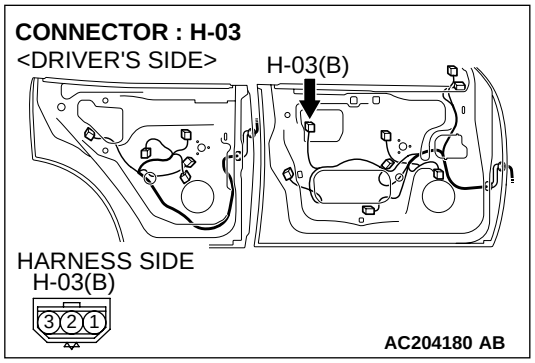
Q: Are driver's door lock key cylinder switch connector H-03 and ETACS-ECU connector D-223 in good condition?

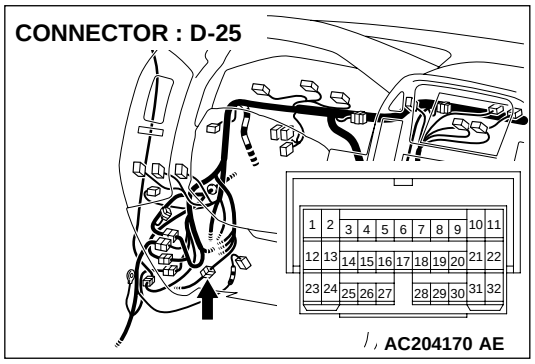
YES : Go to Step 23.

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 23. 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 connectors D-25 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

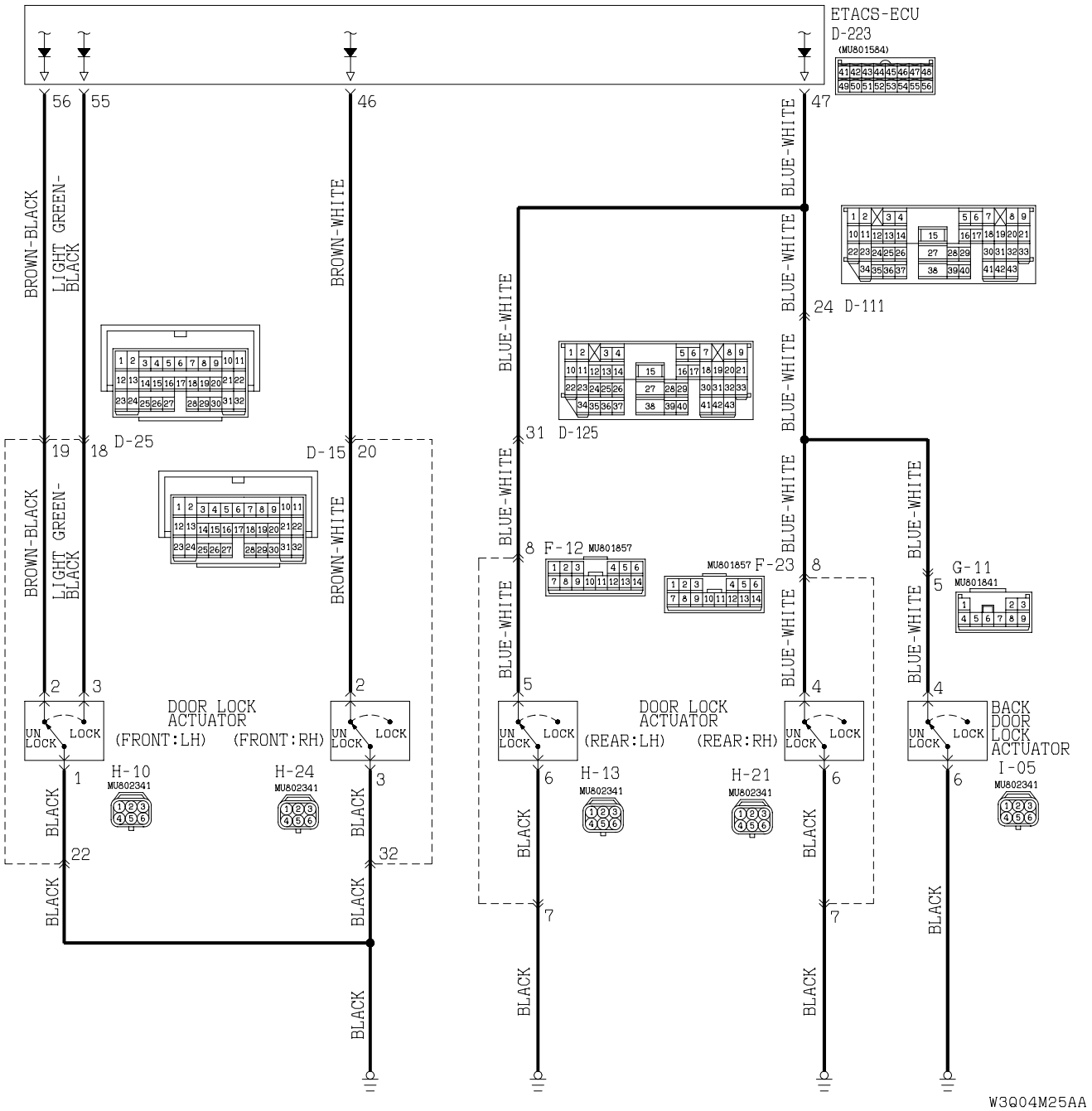
Q: Is the wiring harness between driver's door lock key cylinder switch connector H-03 (terminals 3) and ETACS-ECU connector D-223 (terminals 50) in good condition?

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.

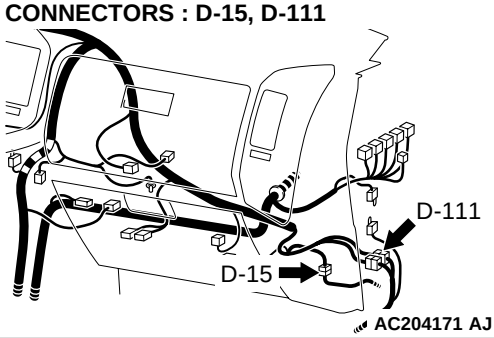
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door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

Door Lock Actuator Input Circuit

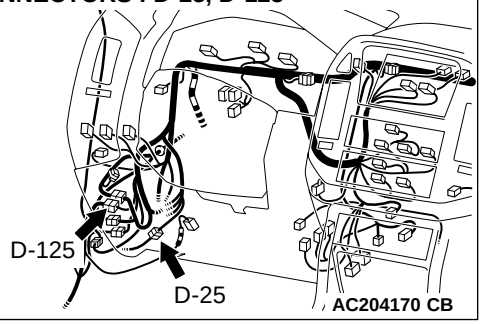


CONNECTORS : D-15, D-111



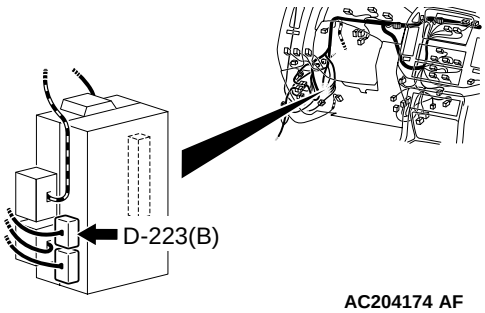
AC204171 AJ

CONNECTORS : D-25, D-125



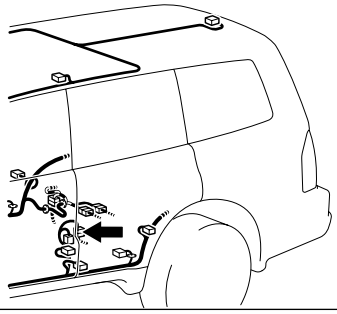
AC204170 CB

CONNECTOR : D-223



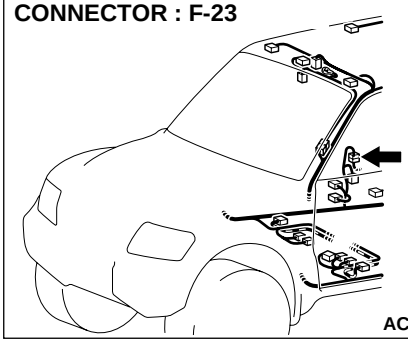
AC204174 AF

CONNECTOR : F-12



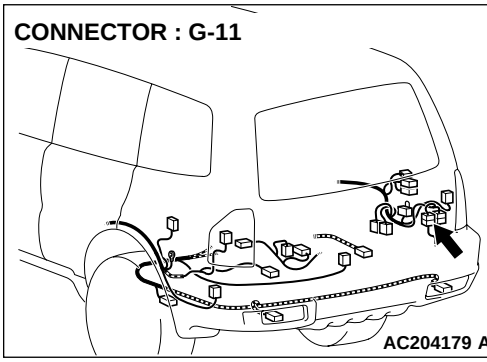
AC204178 AK

CONNECTOR : F-23



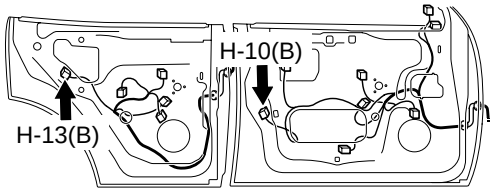
AC204177 AN

CONNECTOR : G-11



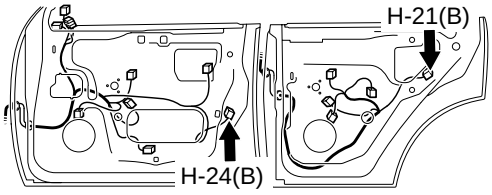
AC204179 AK

CONNECTORS : H-10, H-13



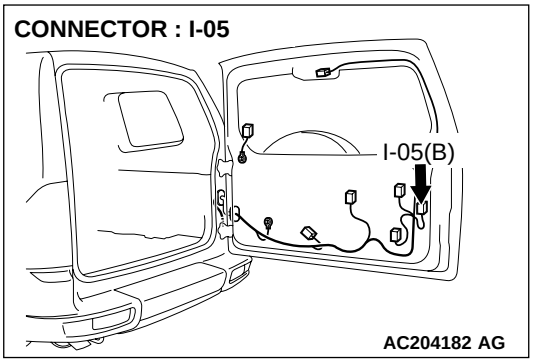
AC204180 AH

CONNECTORS : H-21, H-24



AC204181 AH

TSB Revision



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 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

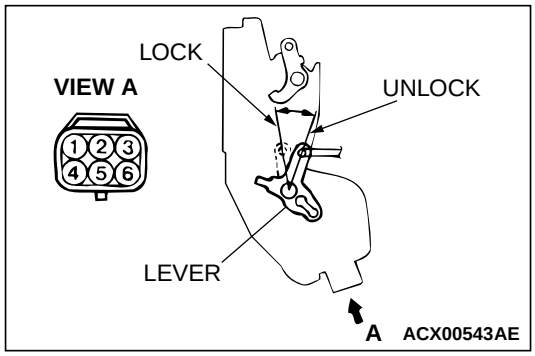
Required Special Tools:

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

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.
Rear door (LH) : Go to Step 14.
Rear door (RH) : Go to Step 20.
Back door : Go to Step 26.
Front doors : Go to Step 32.
Rear and back doors : Go to Step 33.
Rear (LH) and back doors : Go to Step 35.



STEP 2. 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

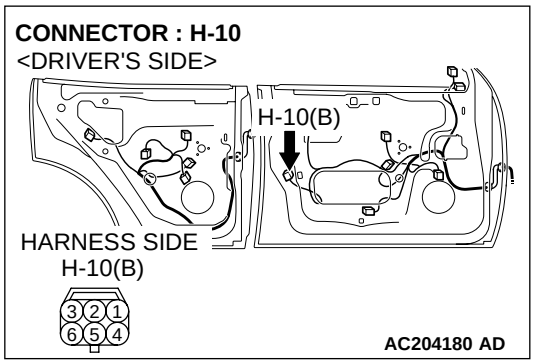
Q: Is the driver's door lock actuator switch in good condition?

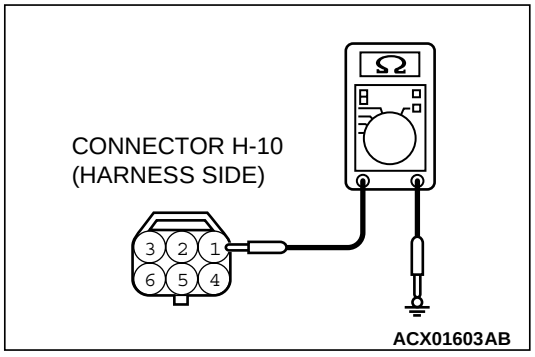
YES : Go to Step 3.

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 3. 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.





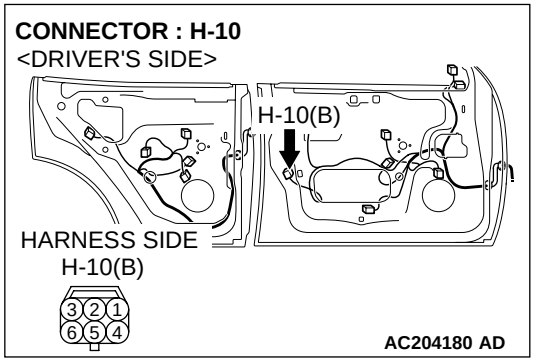
(2) Measure the resistance value between terminal 1 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 4.

STEP 4. Check driver's door lock actuator switch connector H-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

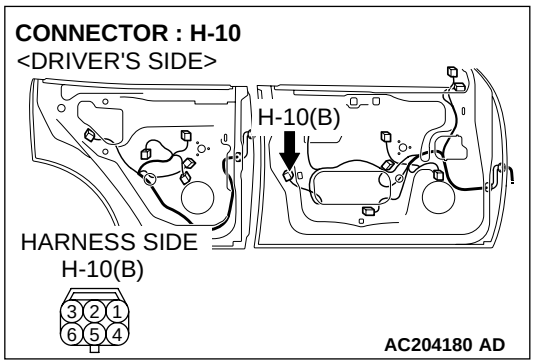


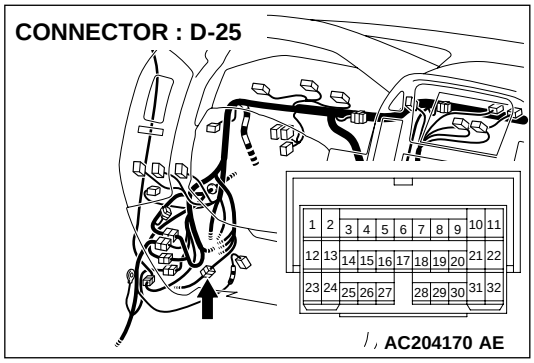
Q: Is driver's door lock actuator switch connector H-10 in good condition?

YES : Go to Step 5.

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



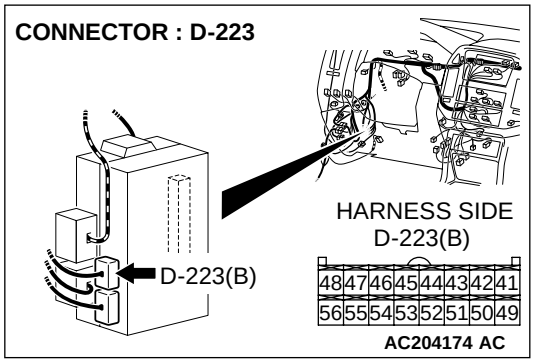


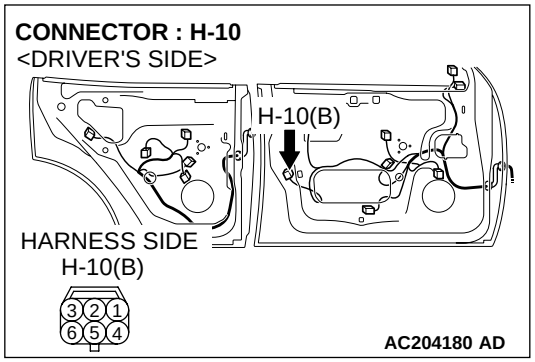
NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.





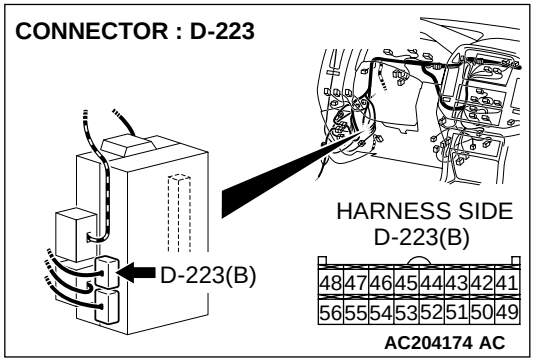
STEP 6. Check driver's door lock actuator switch connector H-10 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

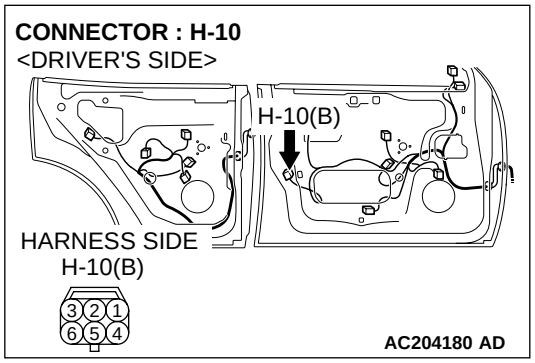
Q: Are driver's door lock actuator switch connector H-10 and ETACS-ECU connector D-223 in good condition?

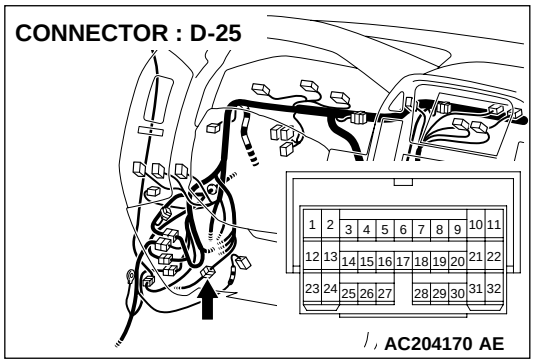
YES : Go to Step 7.

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).





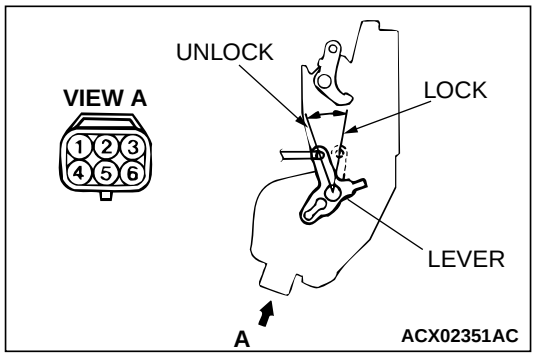


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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 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.

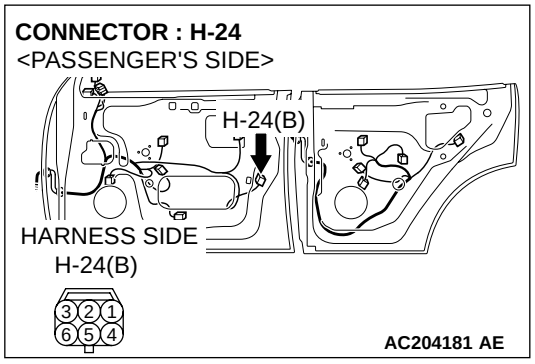
LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	2 – 3	Less than 2 ohms

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

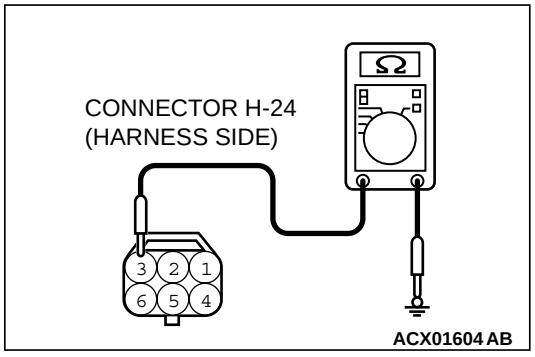
YES : Go to Step 9.

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.

STEP 9. 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.



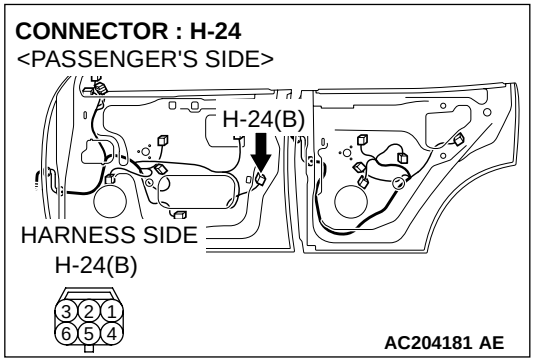
(2) Measure the resistance value between terminal 3 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 10.

STEP 10. Check front passenger's door lock actuator switch connector H-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

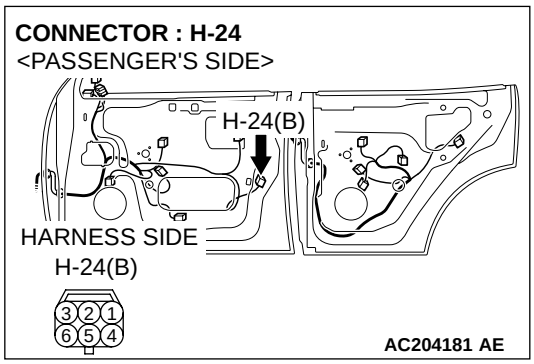


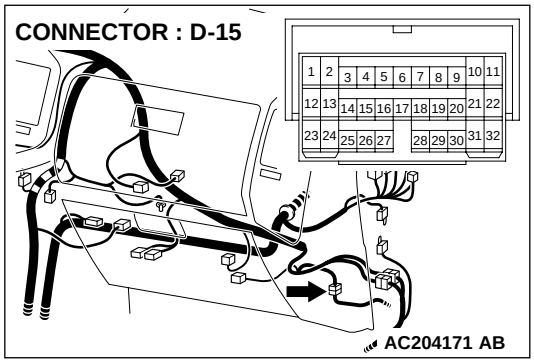
Q: Is front passenger's door lock actuator switch connector H-24 in good condition?

YES : Go to Step 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 front passenger's door lock actuator switch should be normal.

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



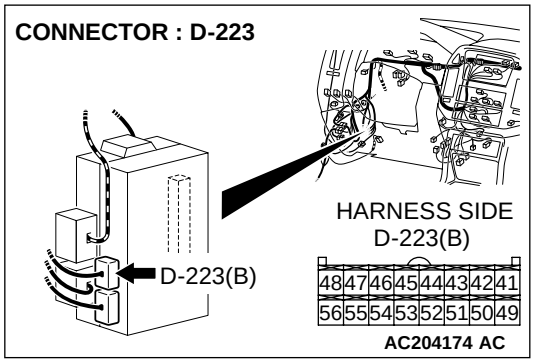


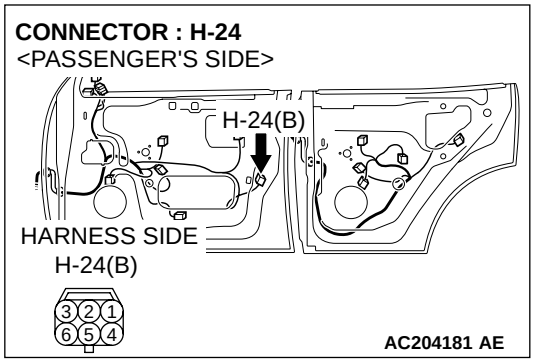
NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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.





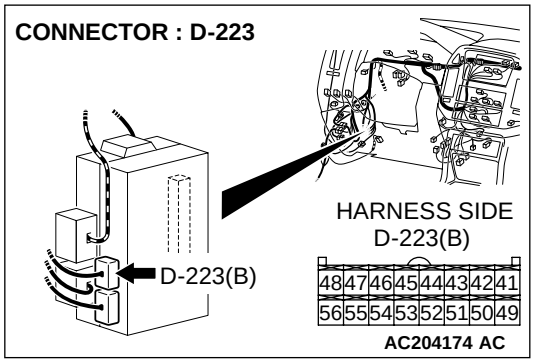
STEP 12. Check front passenger's door lock actuator switch connector H-24 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

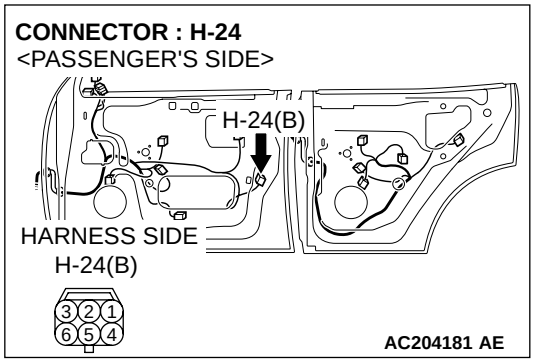
Q: Are front passenger's door lock actuator switch connector H-24 and ETACS-ECU connector D-223 in good condition?

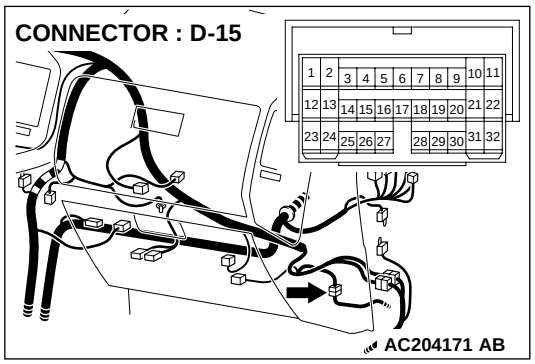
YES : Go to Step 13.

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).





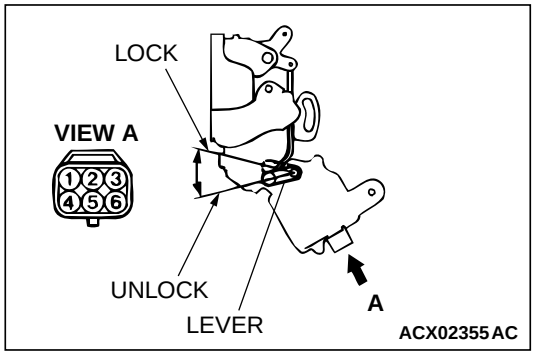


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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 the rear door lock actuator switch (LH).
Disconnect rear door lock actuator switch (LH) connector H-13. Then check continuity between the switch terminals.

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	5 – 6	Less than 2 ohms

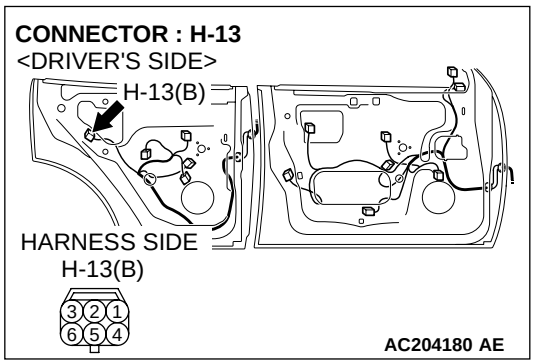
Q: Is the rear door lock actuator switch (LH) in good condition?

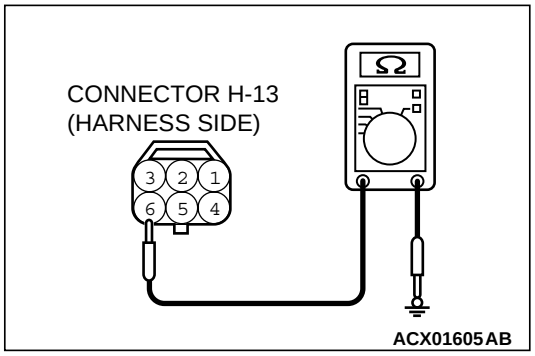
YES : Go to Step 15.

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

STEP 15. Check the ground circuit to the rear door lock actuator switch (LH). Test at rear door lock actuator switch (LH) connector H-13.

(1) Disconnect rear door lock actuator switch (LH) connector H-13 and measure the resistance available at the wiring harness side of the connector.





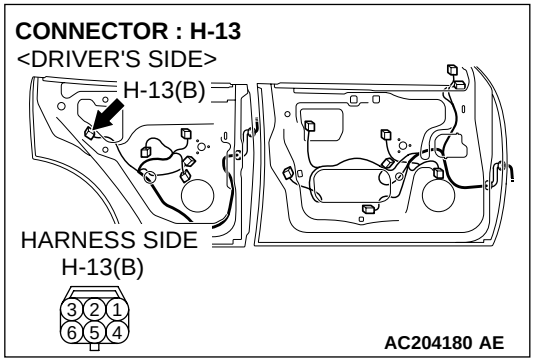
(2) Measure the resistance value between terminal 6 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 18.

NO : Go to Step 16.

STEP 16. Check rear door lock actuator switch (LH) connector H-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

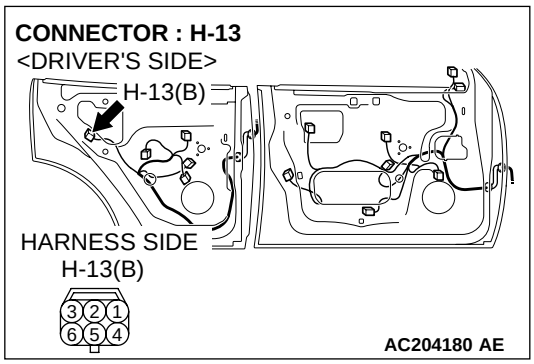


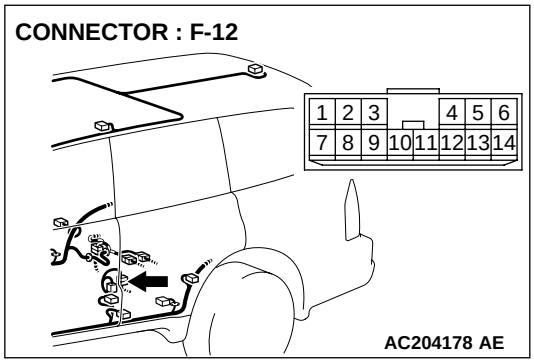
Q: Is rear door lock actuator switch (LH) connector H-13 in good condition?

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

STEP 17. Check the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 6) and ground.



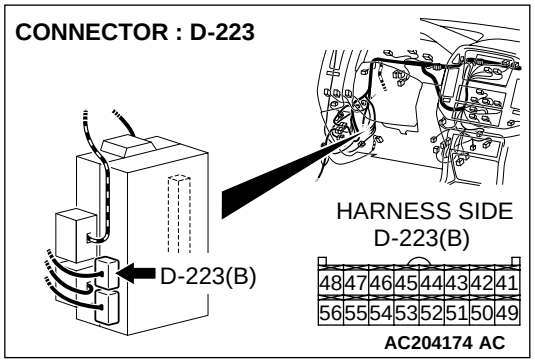


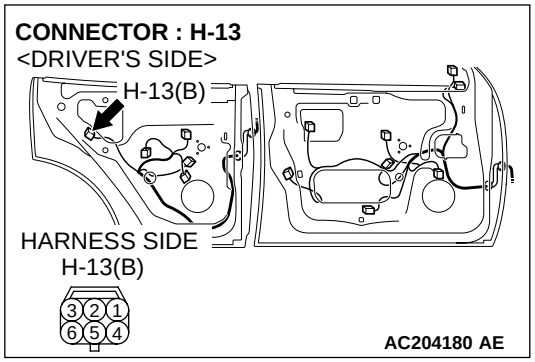
NOTE: Also check intermediate connector F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-12 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 6) and ground in good condition?

YES : No action is necessary and testing is complete.

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





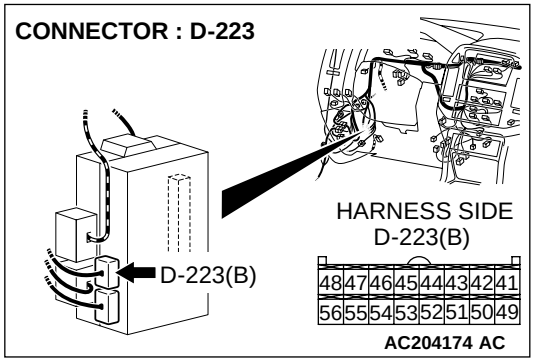
STEP 18. Check rear door lock actuator switch (LH) connector H-13 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

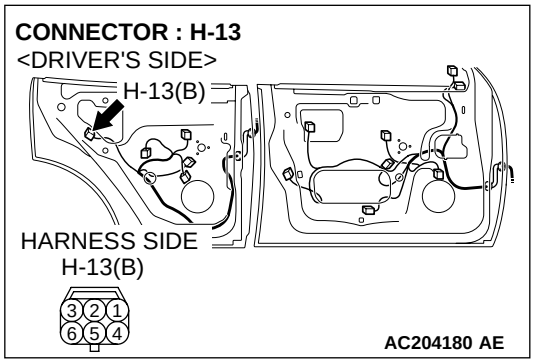
Q: Is rear door lock actuator switch (LH) connector H-13 and ETACS-ECU connector D-223 in good condition?

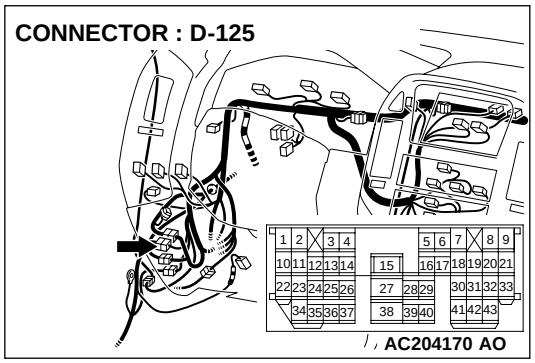
YES : Go to Step 19.

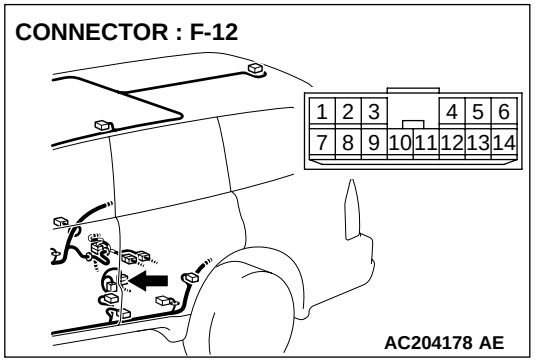
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door lock actuator switch (LH) should be normal.

STEP 19. Check the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 5) and ETACS-ECU connector D-223 (terminal 47).







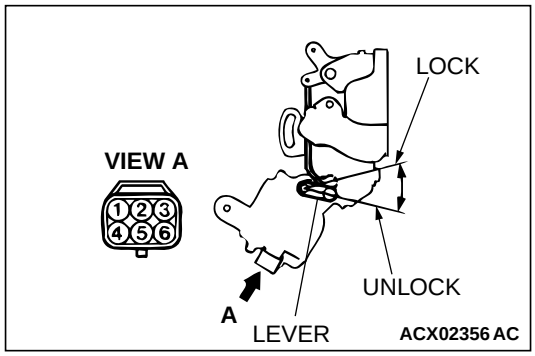


NOTE: Also check intermediate connectors D-125 and F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-125 or F-12 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

Q: Is the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 5) 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 rear door lock actuator 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 lock actuator switch (LH) should be normal.



STEP 20. Check the rear door lock actuator switch (RH).
Disconnect rear door lock actuator switch (RH) connector H-21. Then check continuity between the switch terminals.

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	4 – 6	Less than 2 ohms

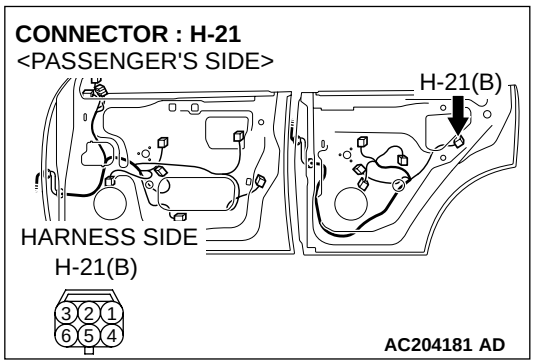
Q: Is the rear door lock actuator switch (RH) in good condition?

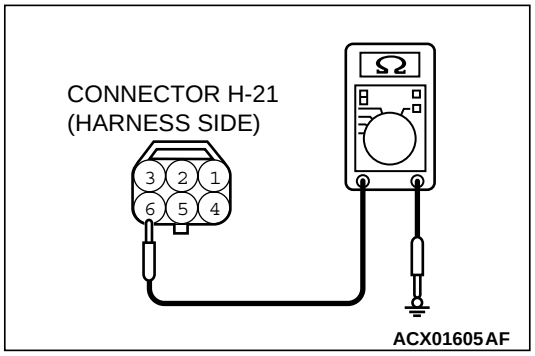
YES : Go to Step 21.

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

STEP 21. Check the ground circuit to the rear door lock actuator switch (RH). Test at rear door lock actuator switch (RH) connector H-21.

(1) Disconnect rear door lock actuator switch (RH) connector H-21 and measure the resistance available at the wiring harness side of the connector.





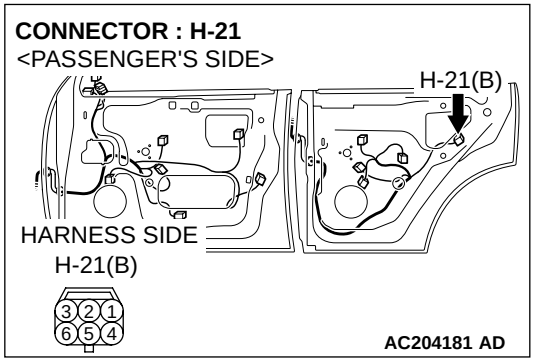
(2) Measure the resistance value between terminal 6 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 24.

NO : Go to Step 22.

STEP 22. Check rear door lock actuator switch (RH) connector H-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

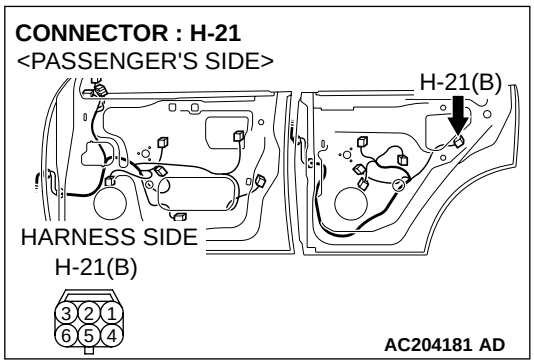


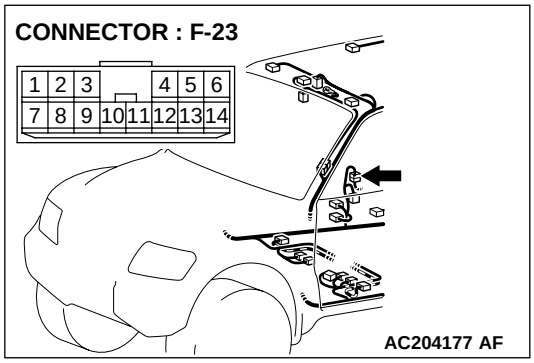
Q: Is rear door lock actuator switch (RH) connector H-21 in good condition?

YES : Go to Step 23.

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

STEP 23. Check the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 6) and ground.



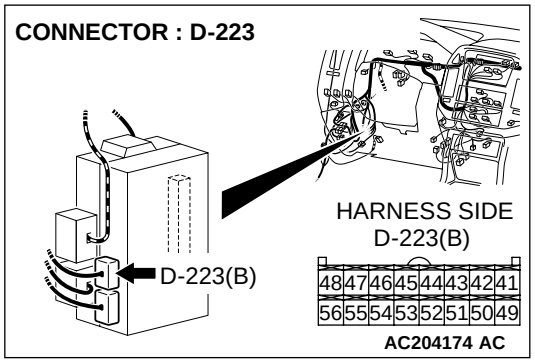


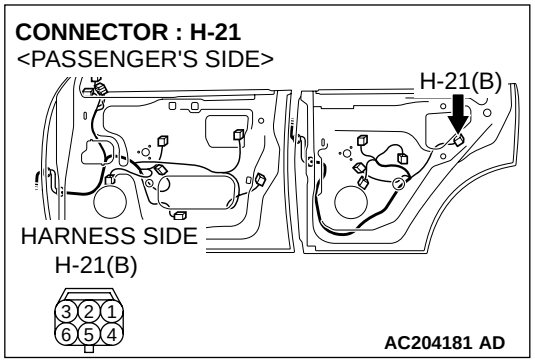
NOTE: Also check intermediate connector F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-23 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 6) and ground in good condition?

YES : No action is necessary and testing is complete.

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





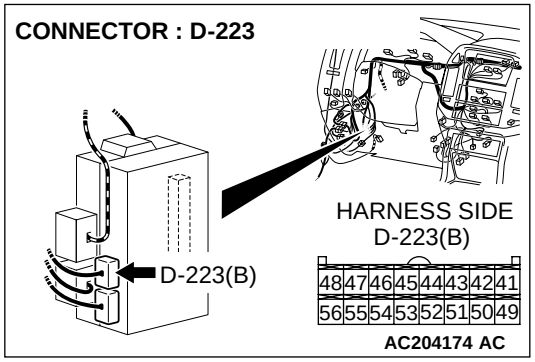
STEP 24. Check rear door lock actuator switch (RH) connector H-21 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

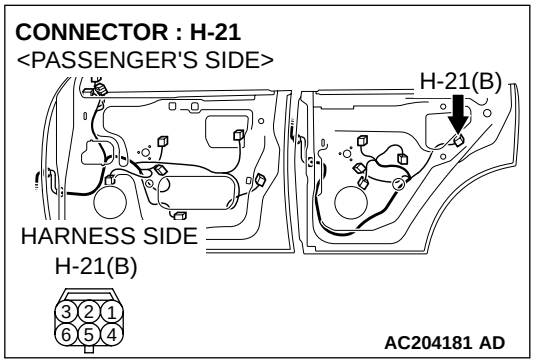
Q: Are rear door lock actuator switch (RH) connector H-21 and ETACS-ECU connector D-223 in good condition?

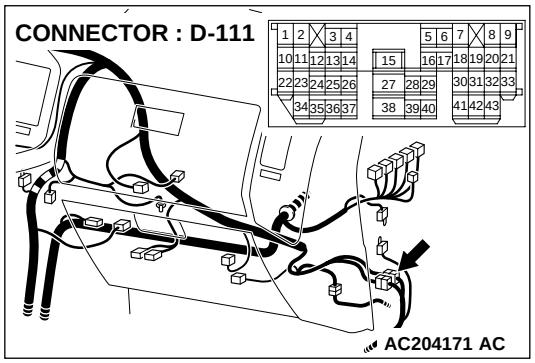
YES : Go to Step 25.

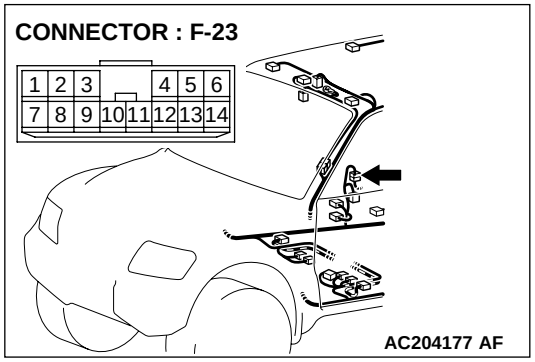
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door lock actuator switch (RH) should be normal.

STEP 25. Check the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 4) and ETACS-ECU connector D-223 (terminal 47).







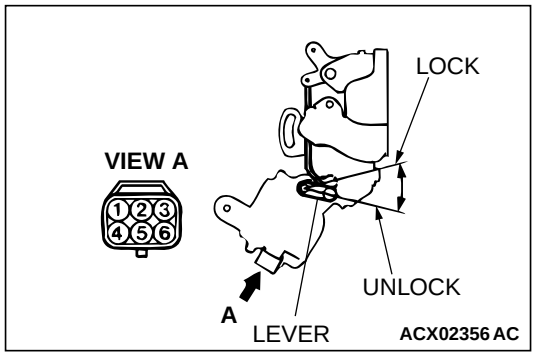


NOTE: Also check intermediate connectors D-111 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111 or F-23 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 4) 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 rear door lock actuator 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 lock actuator switch (RH) should be normal.



STEP 26. 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	4 – 6	Less than 2 ohms

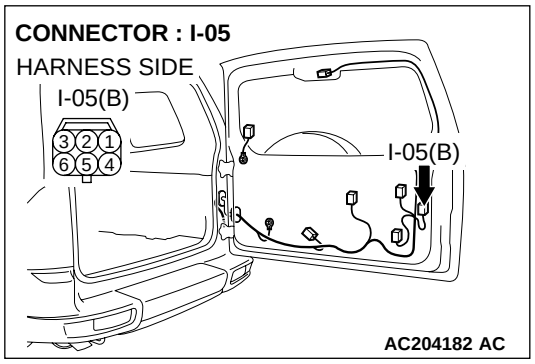
Q: Is the back door lock actuator switch in good condition?

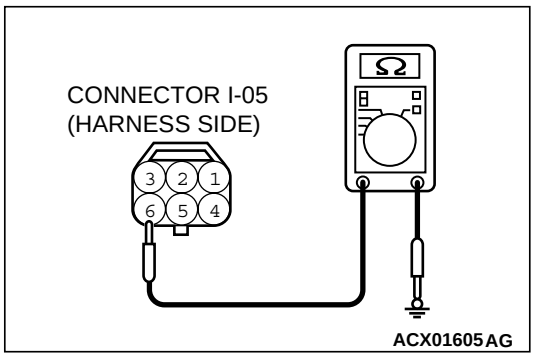
YES : Go to Step 27.

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 27. 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.



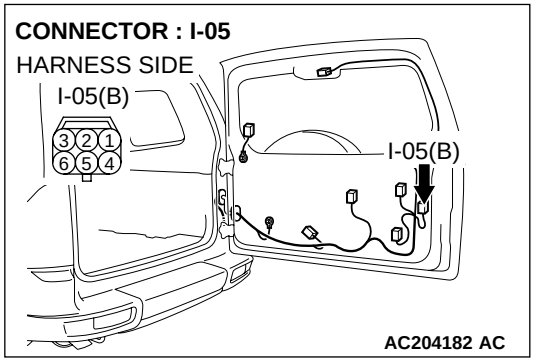


(2) Measure the resistance value between terminal 6 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 30.

NO : Go to Step 28.

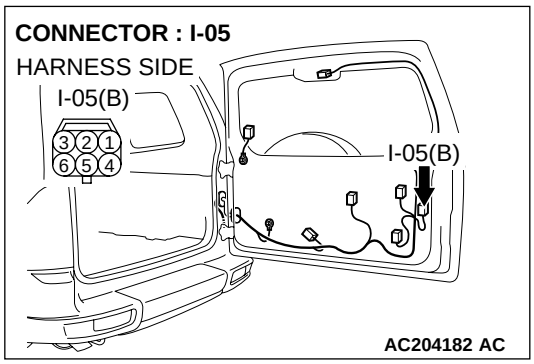


STEP 28. Check back door lock actuator switch connector I-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is back door lock actuator switch connector I-05 in good condition?

YES : Go to Step 29.

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.

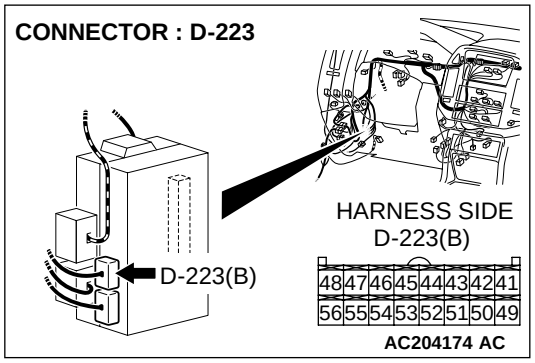


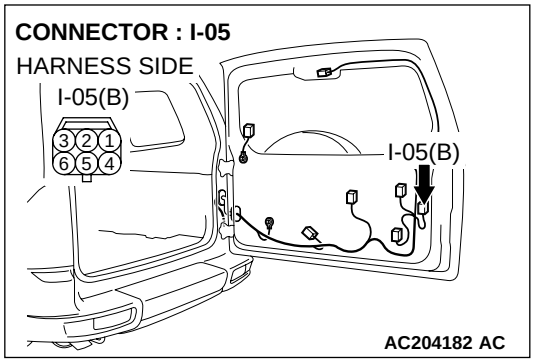
STEP 29. Check the wiring harness between back door lock actuator switch connector I-05 (terminal 6) and ground.

Q: Is the wiring harness between back door lock actuator switch connector I-05 (terminal 6) and ground in good condition?

YES : No action is necessary and testing is complete.

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





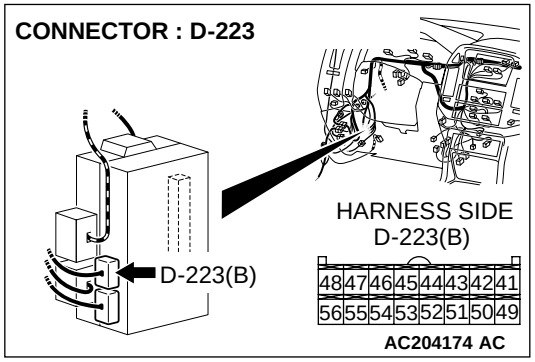
STEP 30. Check back door lock actuator switch connector I-05 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

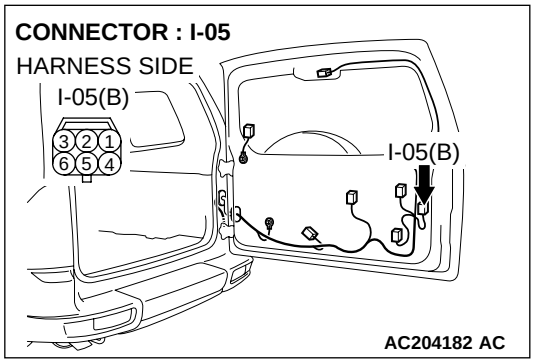
Q: Are back door lock actuator switch connector I-05 and ETACS-ECU connector D-223 in good condition?

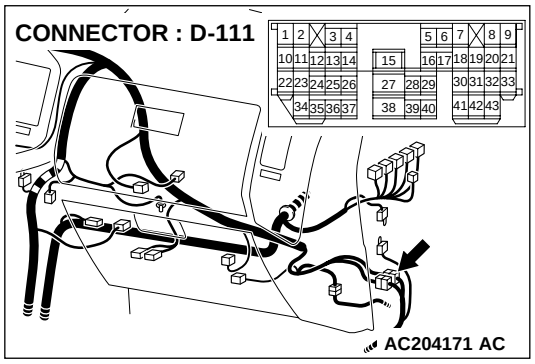
YES : Go to Step 31.

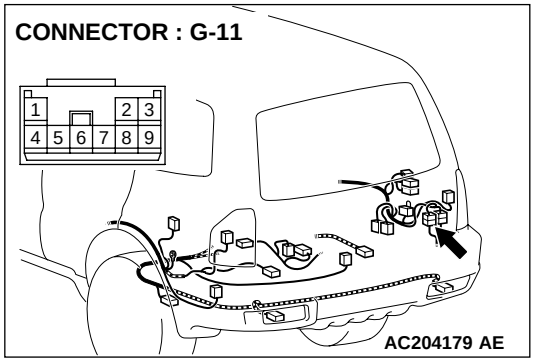
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the back door lock actuator switch should be normal.

STEP 31. Check the wiring harness between back door lock actuator switch connector I-05 (terminal 4) and ETACS-ECU connector D-223 (terminal 47).









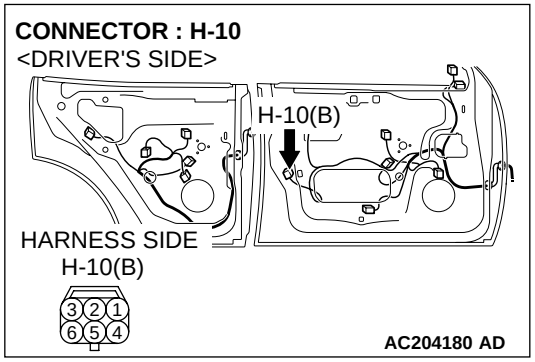
NOTE: Also check intermediate connectors D-111 and G-11 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111 or G-11 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

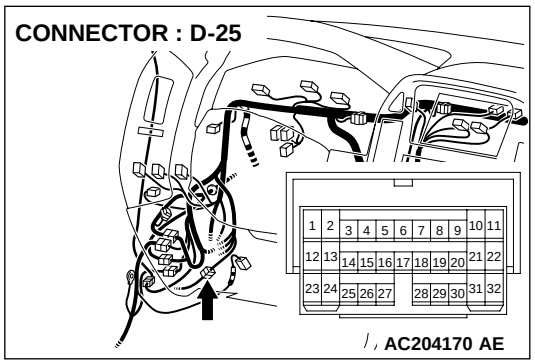
Q: Is the wiring harness between back door lock actuator switch connector I-05 (terminal 4) and ETACS-ECU connector D-223 (terminal 47) in good condition?

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 32. 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.

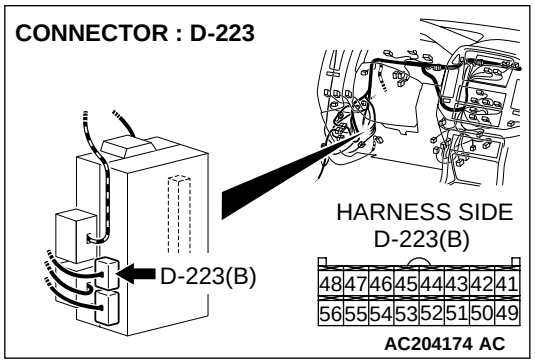
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's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

STEP 33. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

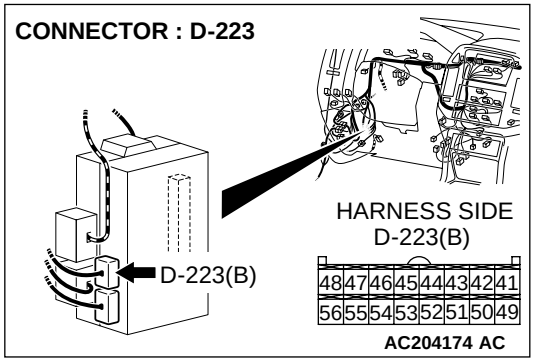
Q: Is the rear lock actuator switch good condition?

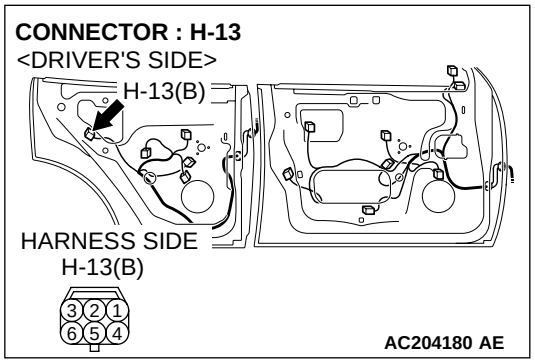
YES : Go to Step 34.

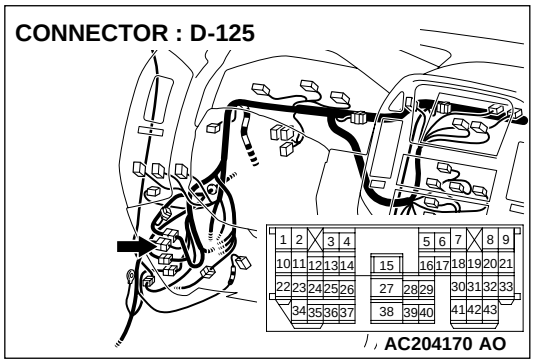
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door lock actuator switch (LH) should be normal.

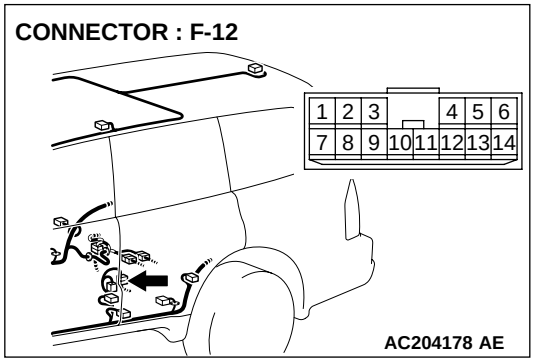


STEP 34. Check the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 5) and ETACS-ECU connector D-223 (terminal 47).









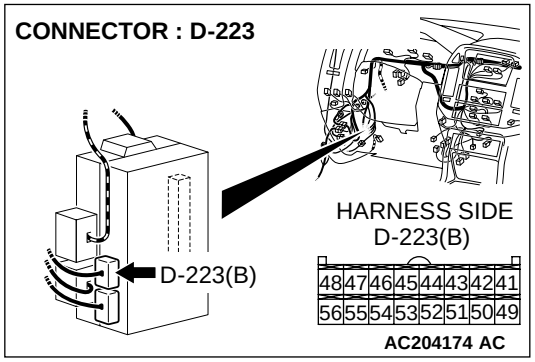
NOTE: Also check intermediate connectors D-125 and F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-125 or F-12 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

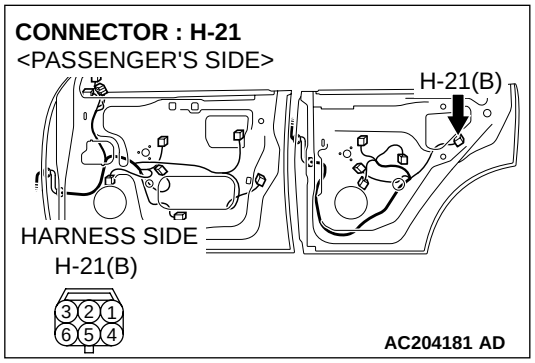
Q: Is the wiring harness between rear door lock actuator switch (LH) connector H-13 (terminal 5) and ETACS-ECU connector D-223 (terminal 47) in good condition?

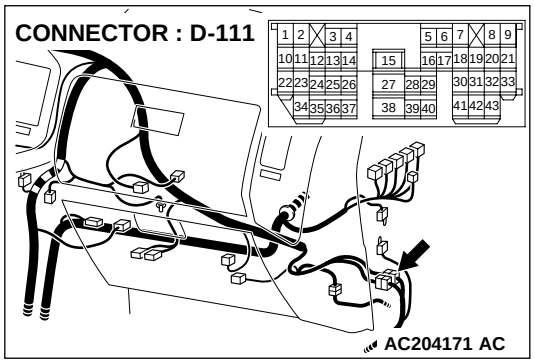
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door lock actuator switch (LH) should be normal.

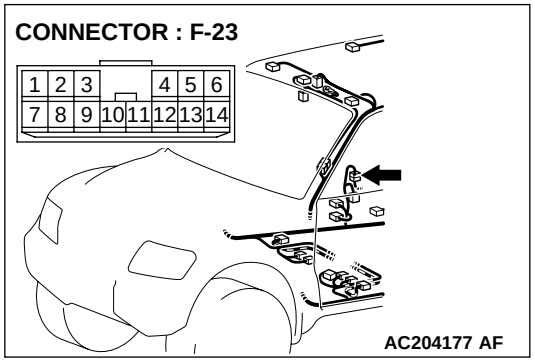
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door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

STEP 35. Check the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 4) and ETACS-ECU connector D-223 (terminal 47).









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.

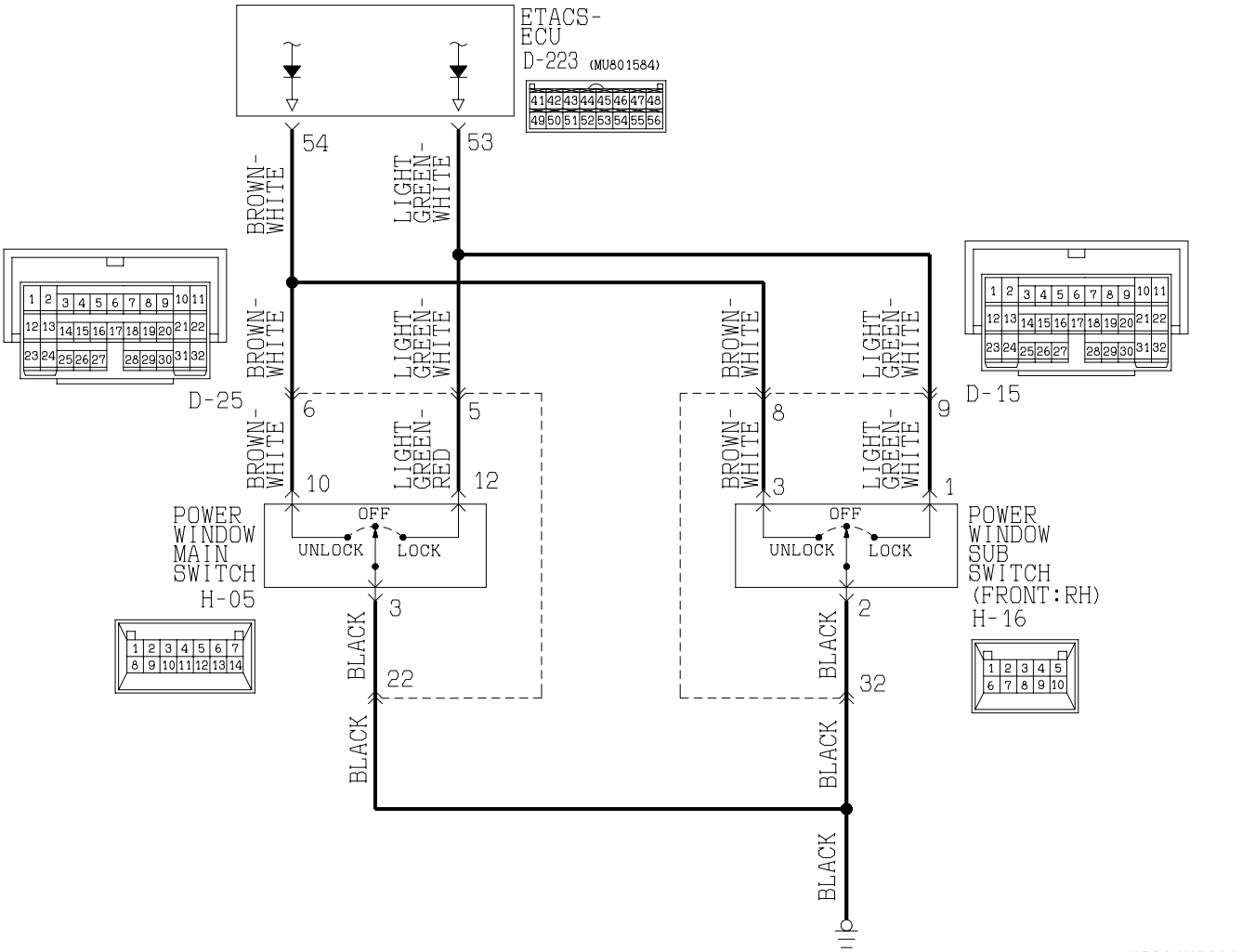
Q: Is the wiring harness between rear door lock actuator switch (RH) connector H-21 (terminal 4) and ETACS-ECU connector D-223 (terminal 47) in good condition?

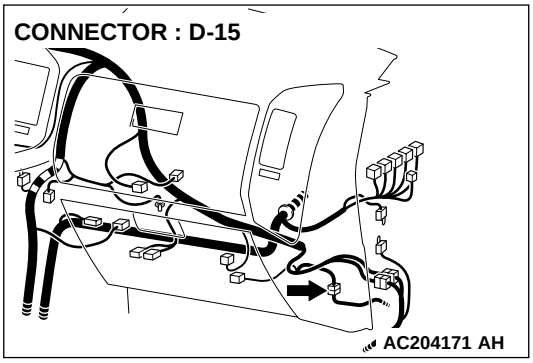
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door lock actuator switch (RH) should be normal.

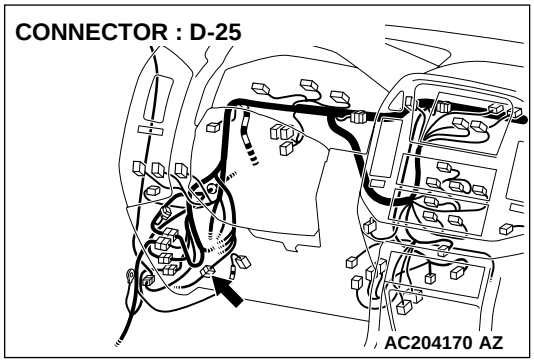
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the rear door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

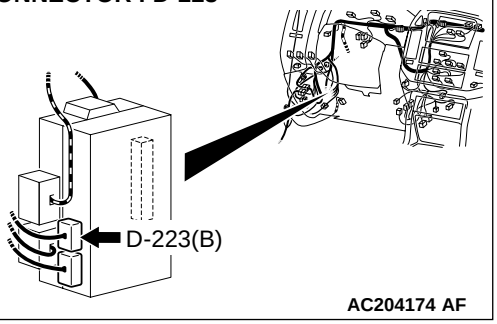






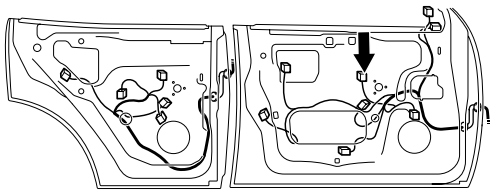
TSB Revision

CONNECTOR : D-223



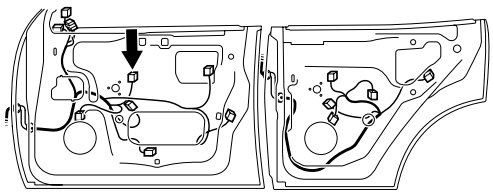
AC204174 AF

CONNECTOR : H-05



AC204180 AG

CONNECTOR : H-16



AC204181 AF

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
- MB991502: Scan Tool (MUT-II)

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.

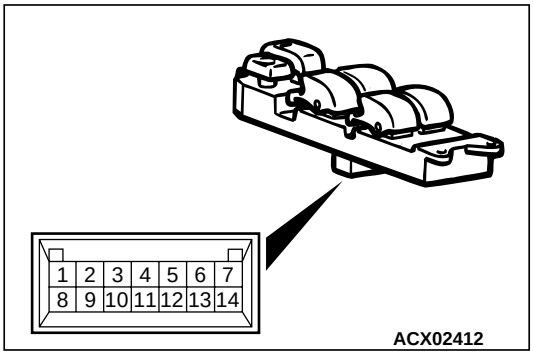
Power window sub switch (Front passenger's door) : Go to Step 8.

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.

TSB Revision



STEP 2. 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	3 – 12	Less than 2 ohms
OFF	3 – 10, 3 – 12	Open circuit
UNLOCK	3 – 10	Less than 2 ohms

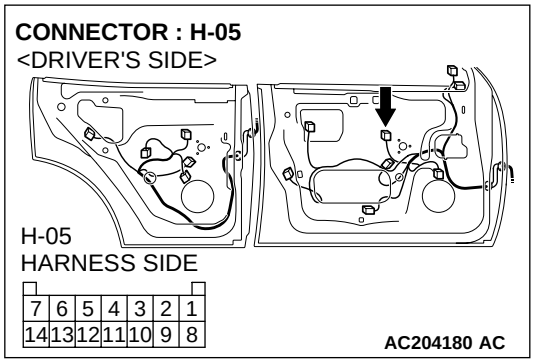
Q: Is the door lock switch (power window main switch) in good condition?

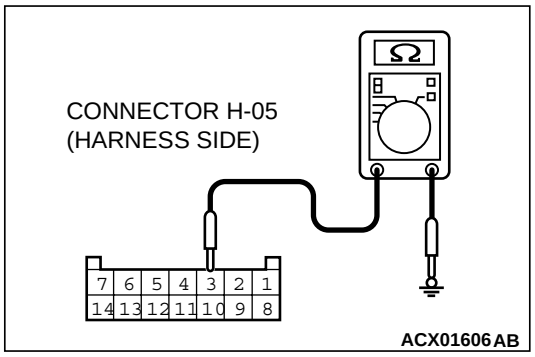
YES : Go to Step 3.

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 3. 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.



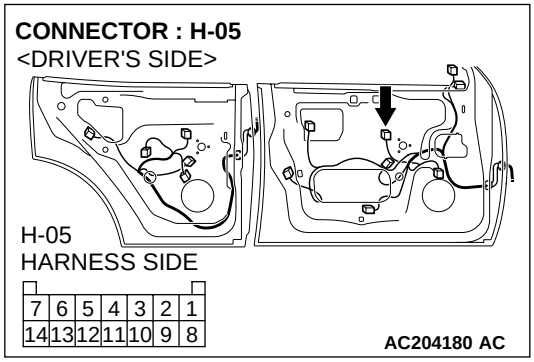


(2) Measure the resistance value between terminal 3 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 4.

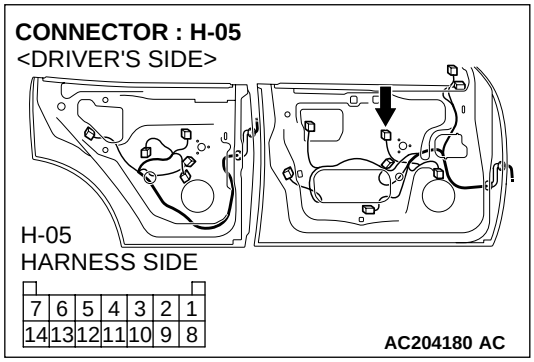


STEP 4. Check power window main switch connector H-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

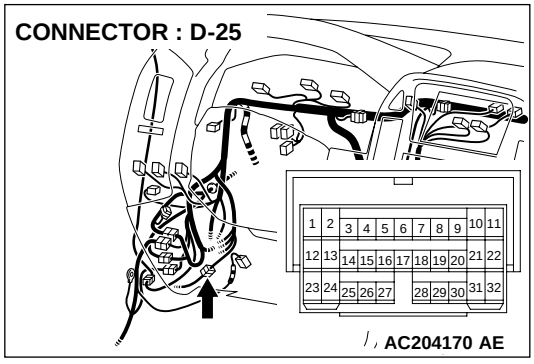
Q: Is power window main switch connector H-05 in good condition?

YES : Go to Step 5.

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 5. Check the wiring harness between power window main switch H-05 (terminal 3) 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 power window main switch connector H-05 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

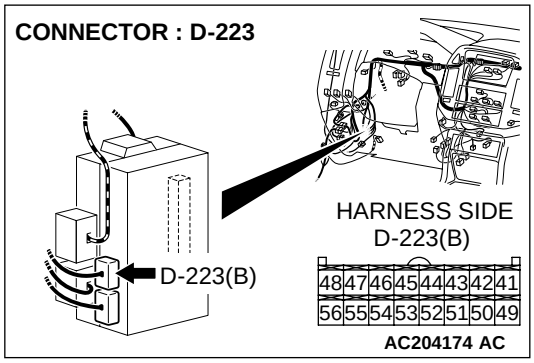
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

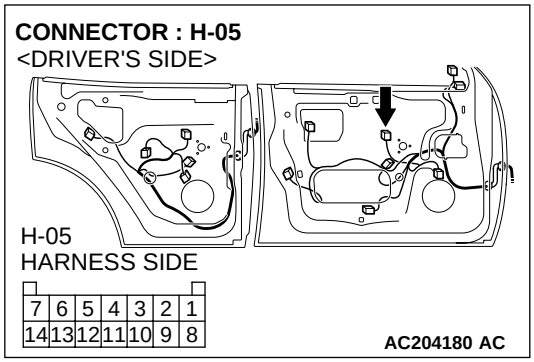
STEP 6. Check power window main switch connector H-05 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector H-05 and ETACS-ECU connector D-223 in good condition?

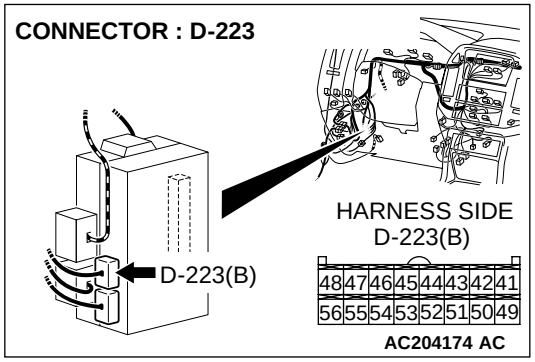
YES : Go to Step 7.

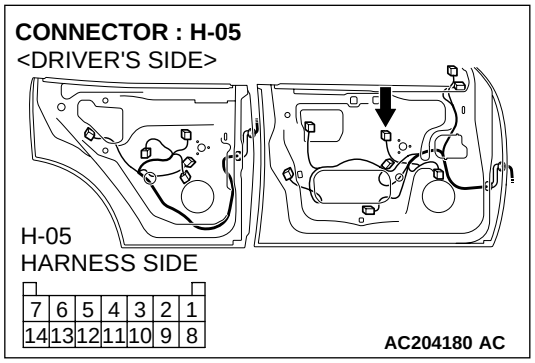
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the central door locking system works normally, input signal from the door lock switch should be normal.

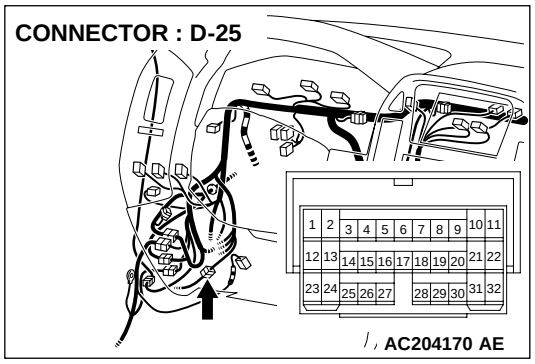




STEP 7. Check the wiring harness between power window main switch connector H-05 (terminals 10 and 12) and ETACS-ECU connector D-223 (terminals 54 and 53).





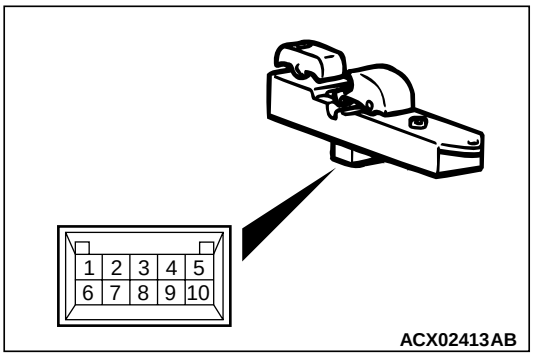


NOTE: Also check intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector H-05 (terminals 10 and 12) 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 8. 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	1 – 2	Less than 2 ohms
OFF	1 – 2, 2 – 3	Open circuit
UNLOCK	2 – 3	Less than 2 ohms

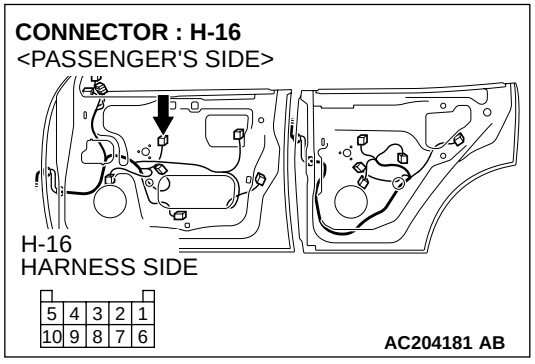
Q: Is the door lock switch (power window sub switch) in good condition?

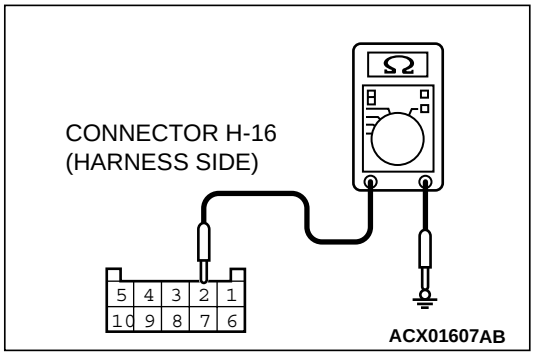
YES : Go to Step 9.

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 9. Check the ground circuit to the power window sub switch. Test at power window sub switch connector H-16.

(1) Disconnect power window sub switch connector H-16 and measure the resistance available at the wiring harness side of the connector.



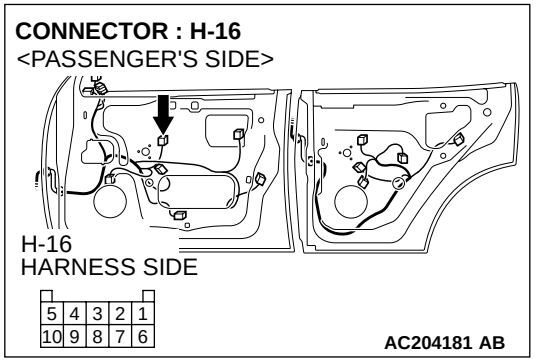


(2) Measure the resistance value between terminal 2 and ground.
- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 10.

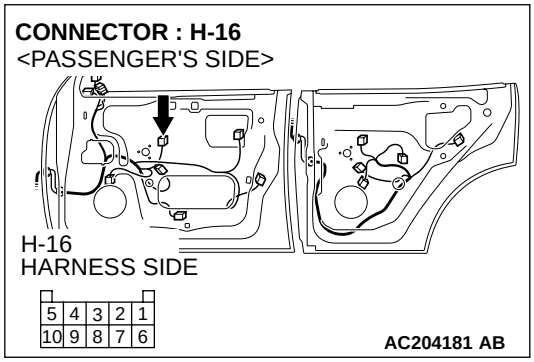


STEP 10. Check power window sub switch connector H-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

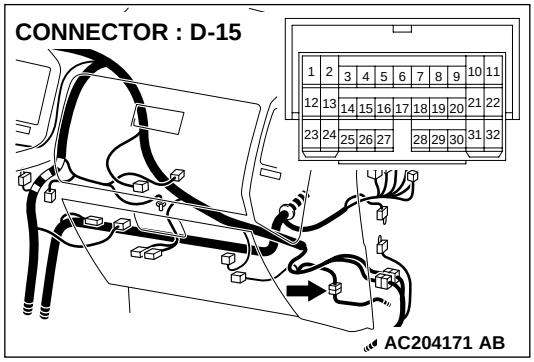
Q: Is power window sub switch connector H-16 in good condition?

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



STEP 11. Check the wiring harness between power window sub switch H-16 (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 power window sub switch connector H-16 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

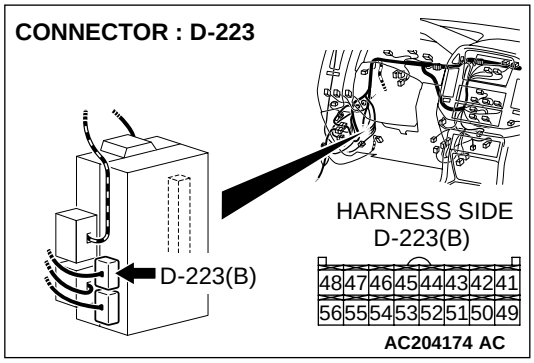
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

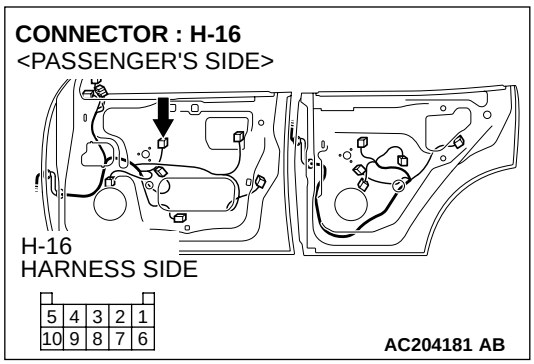
STEP 12. Check power window sub-switch connector H-16 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window sub-switch connector H-16 and ETACS-ECU connector D-223 in good condition?

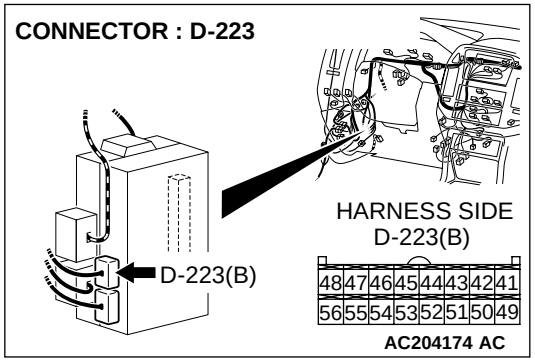
YES : Go to Step 13.

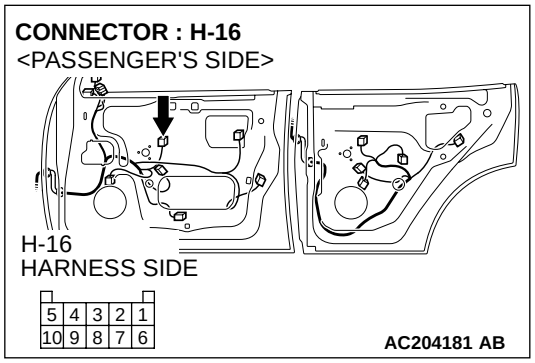
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the central door locking system works normally, input signal from the door lock switch should be normal.

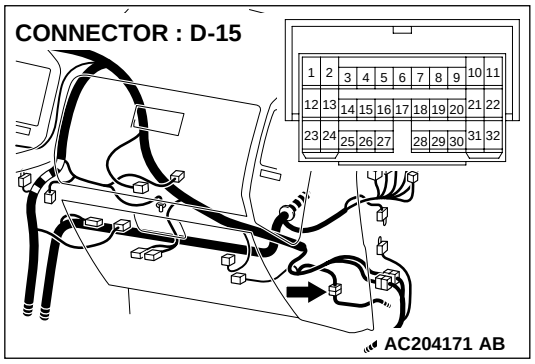




STEP 13. Check the wiring harness between power window sub-switch connector H-16 (terminals 1 and 3) and ETACS-ECU connector D-223 (terminals 53 and 54).





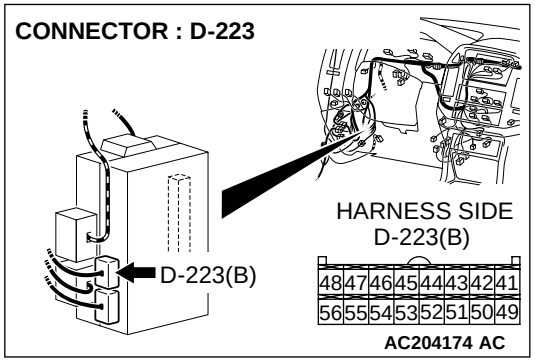


NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-15 is damaged, Repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window sub-switch connector H-16 (terminals 1 and 3) 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.

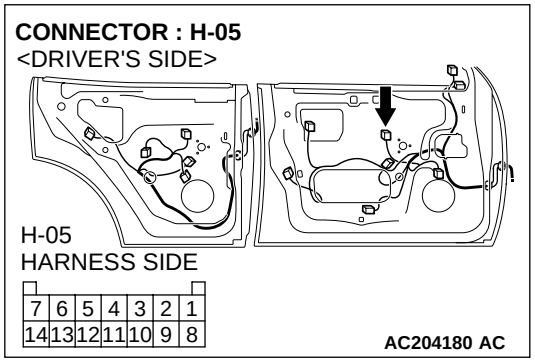


STEP 14. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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.

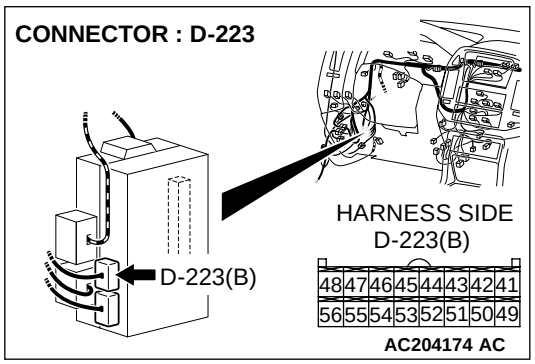


STEP 15. Check the wiring harness between power window main switch H-05 (terminal 3) and ground.

Q: Is the wiring harness between power window main switch connector H-05 (terminal 3) 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.

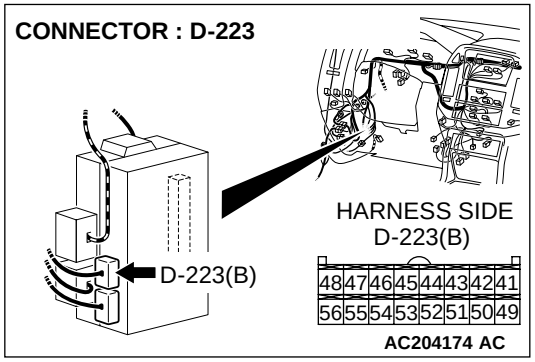


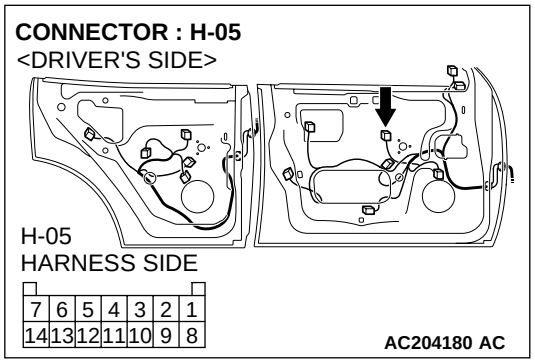
STEP 16. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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.



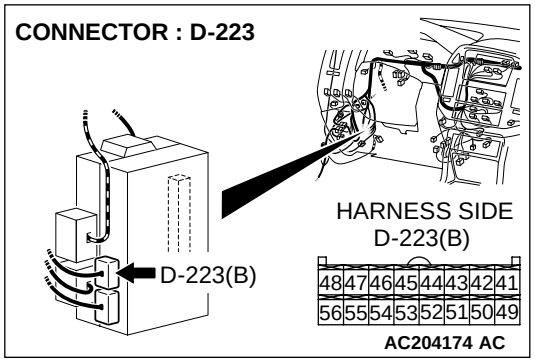


STEP 17. Check the wiring harness between power window main switch connector H-05 (terminals 12) and ETACS-ECU connector D-223 (terminals 53).

Q: Is the wiring harness between power window main switch connector H-05 (terminals 12) 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.

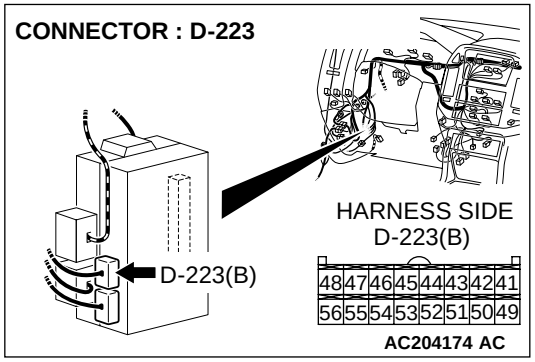


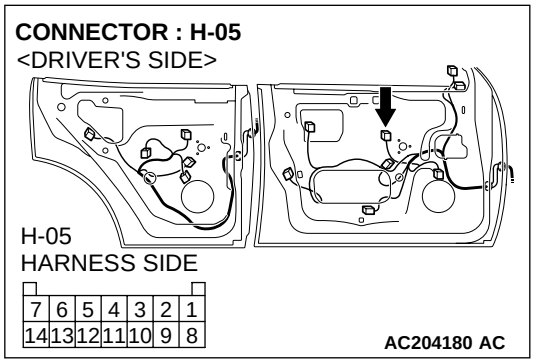
STEP 18. Check ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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 10) and ETACS-ECU connector D-223 (terminals 54).

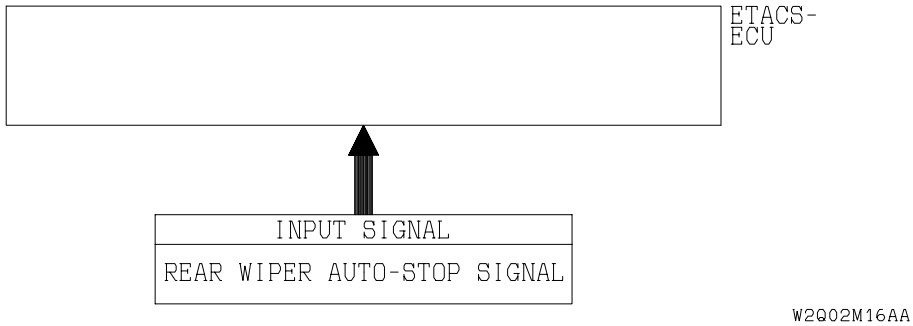
Q: Is the wiring harness between power window main switch connector H-05 (terminals 10) and ETACS-ECU connector D-223 (terminals 54) in good condition?

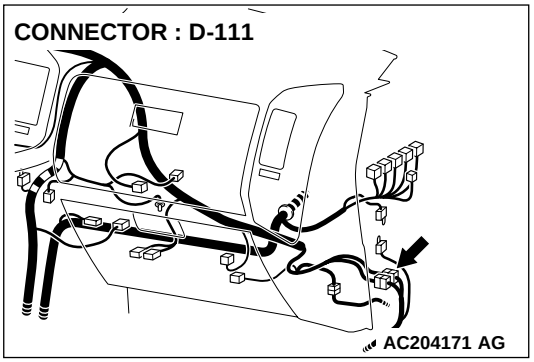
YES : Replace the ETACS-ECU. If the central door locking system works normally, input signal from the door lock switch should be normal.

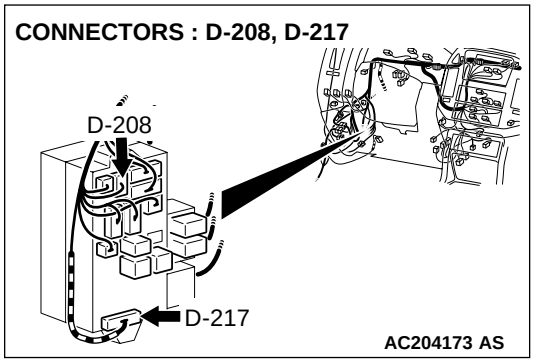
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

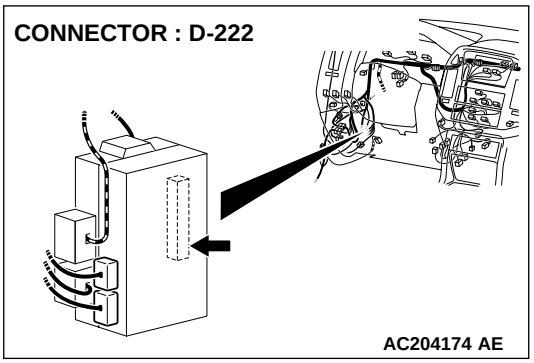
INSPECTION PROCEDURE P-8: ETACS-ECU does not receive an auto-stop signal from the rear wiper motor.

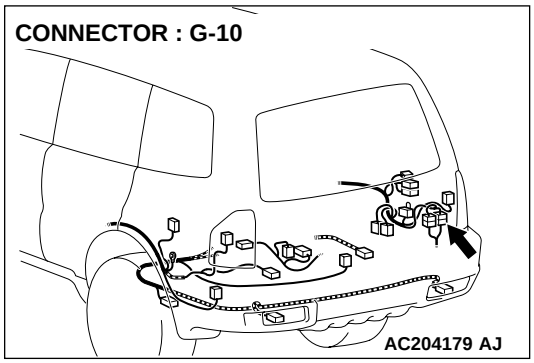
Rear Wiper Auto-stop Signal Input











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

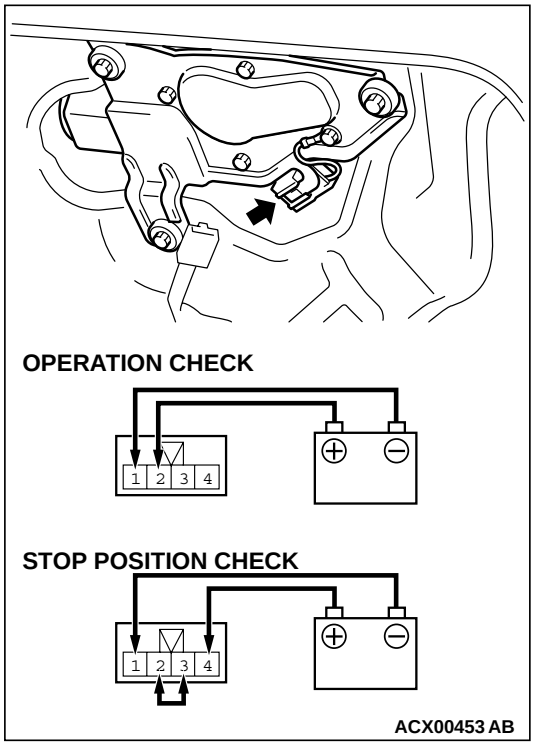
DIAGNOSIS

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

STEP 1. 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 2.
NO : Refer to Inspection Procedure H-1 "Rear wiper dose not work at all P.54Bb-268."

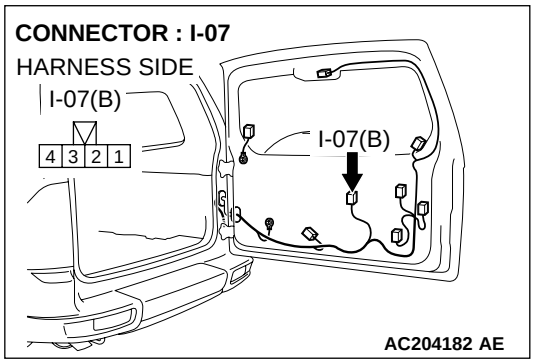


STEP 2. Check the rear wiper motor.

(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.

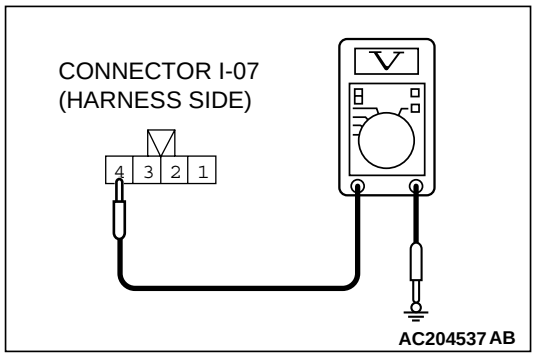
Q: Does the rear wiper motor operate normally?

YES : Go to Step 3.
NO : Replace the rear wiper motor. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.



STEP 3. Check the ignition switch (ACC) line of the power supply circuit to the rear wiper motor. Test at rear wiper motor connector I-07.

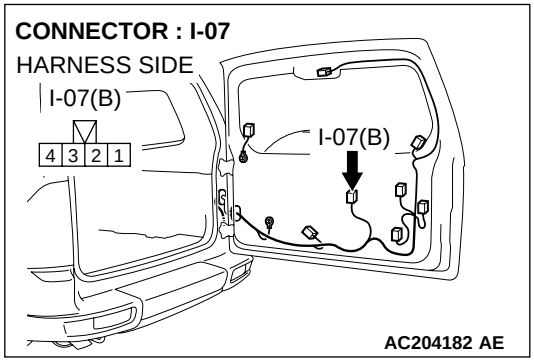
(1) Disconnect rear wiper motor connector I-07 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ACC" position.



(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 4.



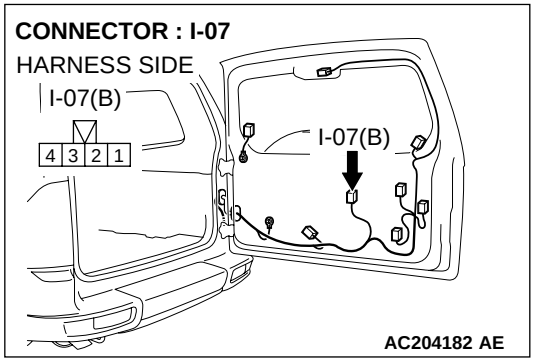
STEP 4. Check rear wiper motor connector I-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

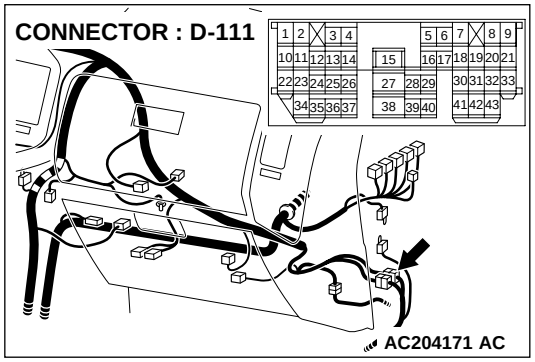
Q: Is rear wiper motor connector I-07 in good condition?

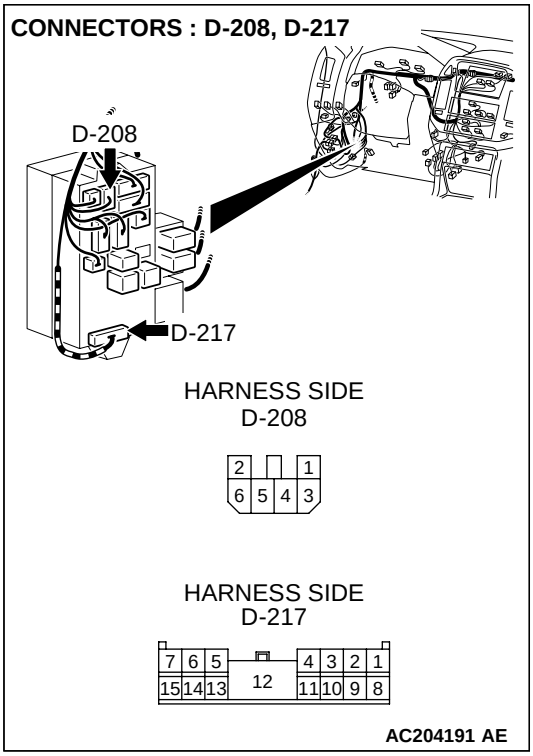
YES : Go to Step 5.

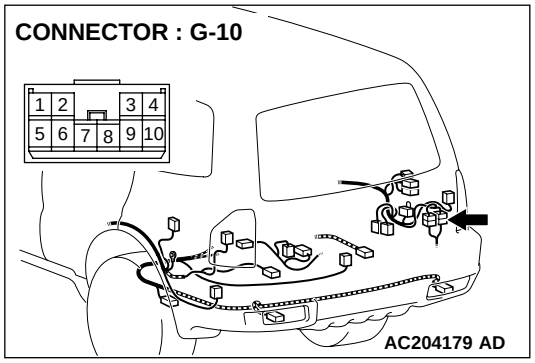
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

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







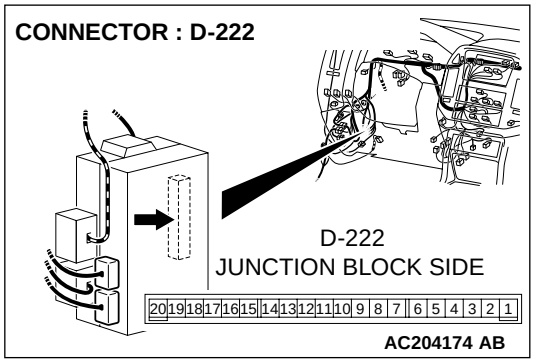


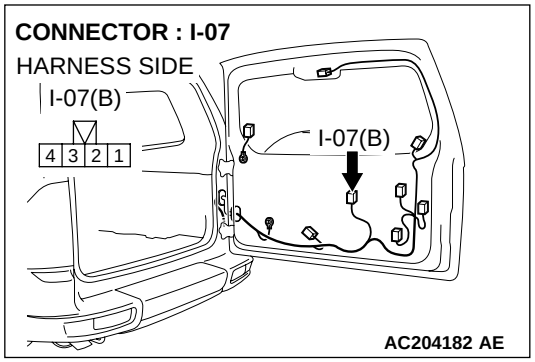
NOTE: Also check intermediate connectors D-111, G-10, junction block connectors D-208 and D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-111, G-10, junction block connector D-208 or D-217 is damaged, Repair or replace the damaged 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.





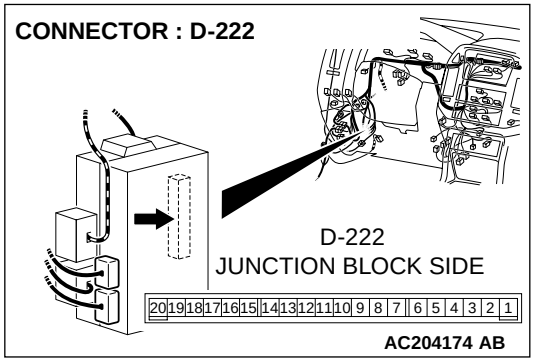
STEP 6. Check rear wiper motor connector I-07 and ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

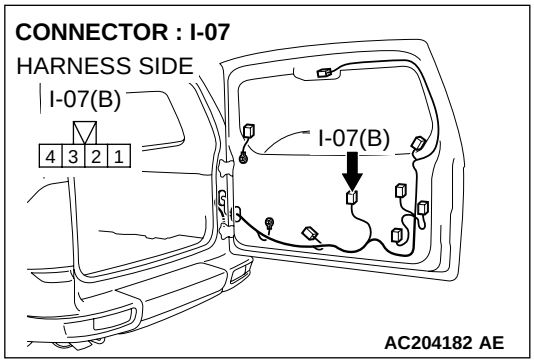
Q: Are rear wiper motor connector I-07 and ETACS-ECU connector D-222 in good condition?

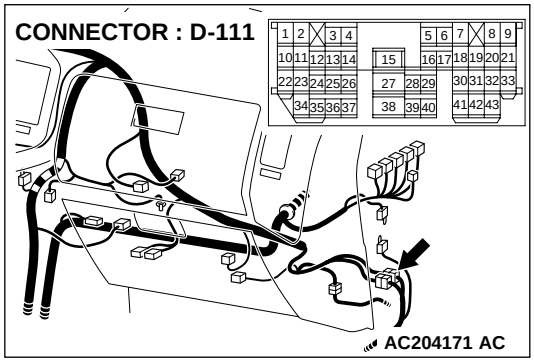
YES : Go to Step 7.

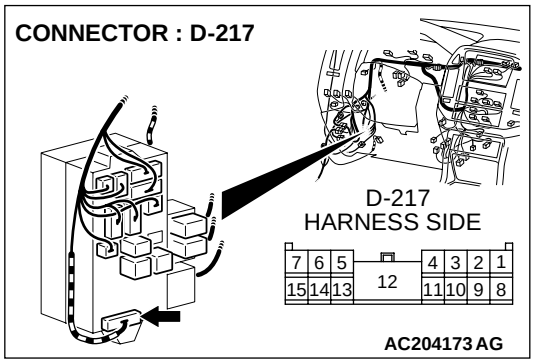
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

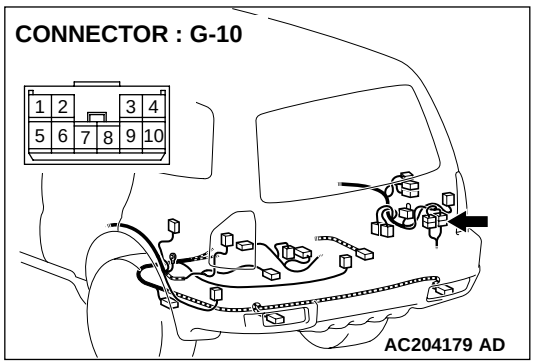
STEP 7. Check the wiring harness between rear wiper motor connector I-07 (terminal 3) and ETACS-ECU connector D-222 (terminal 5).











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.

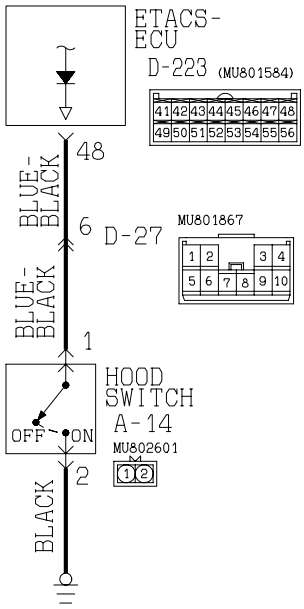
Q: Is the wiring harness between rear wiper motor connector I-07 (terminal 3) and ETACS-ECU connector D-222 (terminal 5) in good condition?

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.

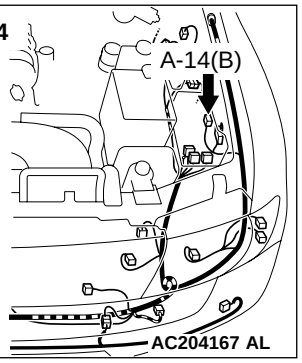
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

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

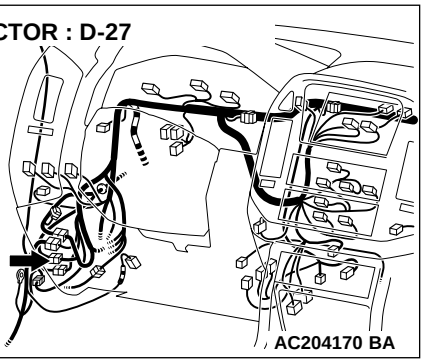
Hood Switch Input Circuit



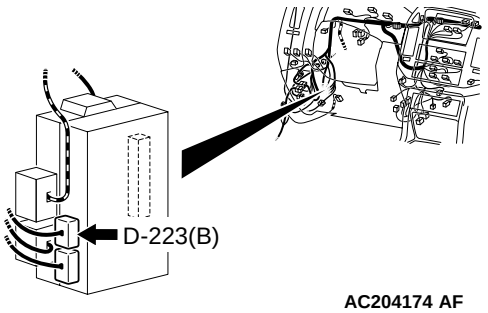
CONNECTOR : A-14



CONNECTOR : D-27



CONNECTOR : D-223



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.

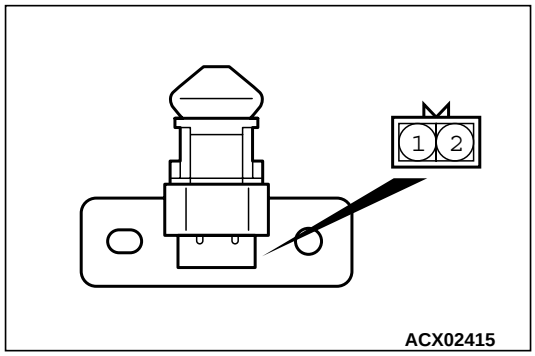
TROUBLESHOOTING HINTS

- 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
- MB991502: Scan Tool (MUT-II)



STEP 1. 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

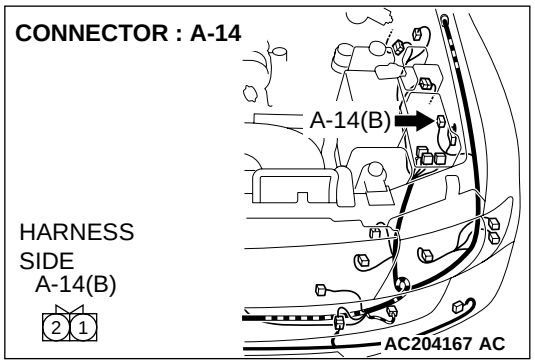
Q: Is the hood switch in good condition?

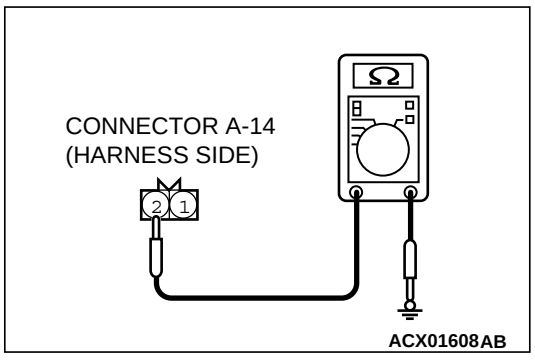
YES : Go to Step 2.

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 2. 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.





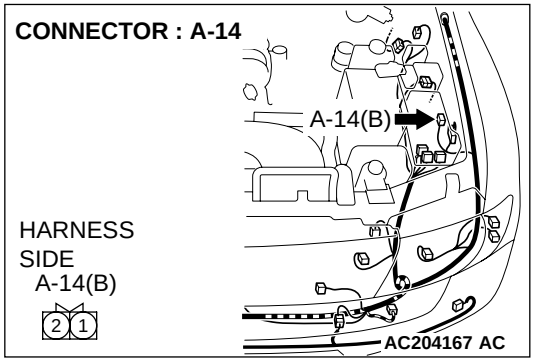
(2) Measure the resistance value between terminal 2 and ground.

- 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 3.

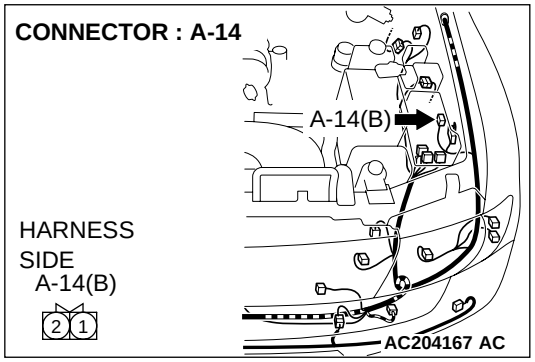


STEP 3. Check hood switch connector A-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 4.

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.

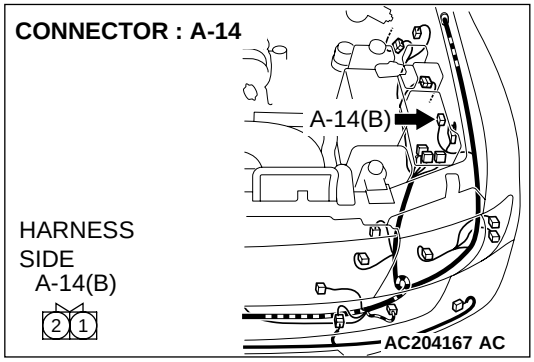


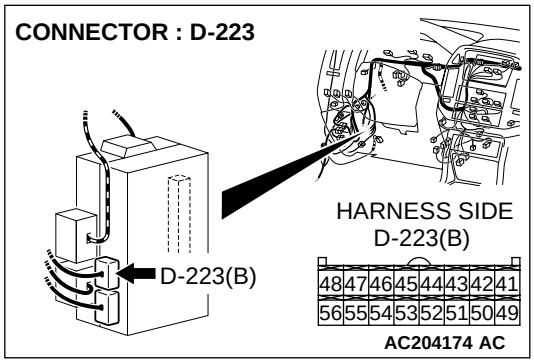
STEP 4. Check the wiring harness between hood switch connector A-14 (terminal 2) and ground.

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.





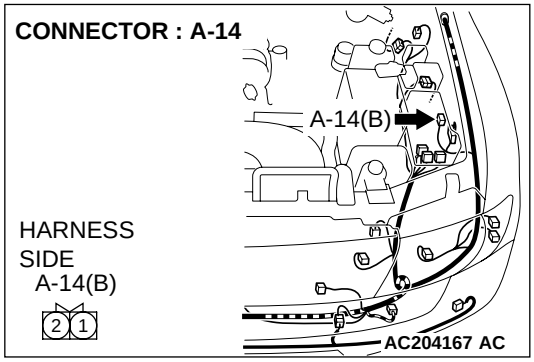
STEP 5. Check hood switch connector A-14 and ETACS-ECU connector D-223 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

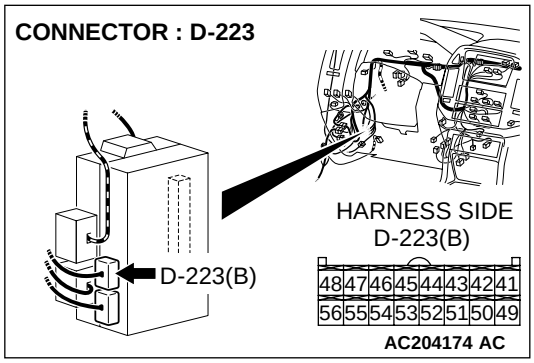
Q: Are hood switch connector A-14 and ETACS-ECU connector D-223 in good condition?

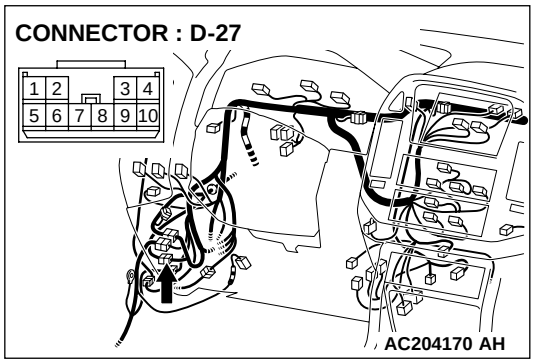
YES : Go to Step 6.

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).







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.

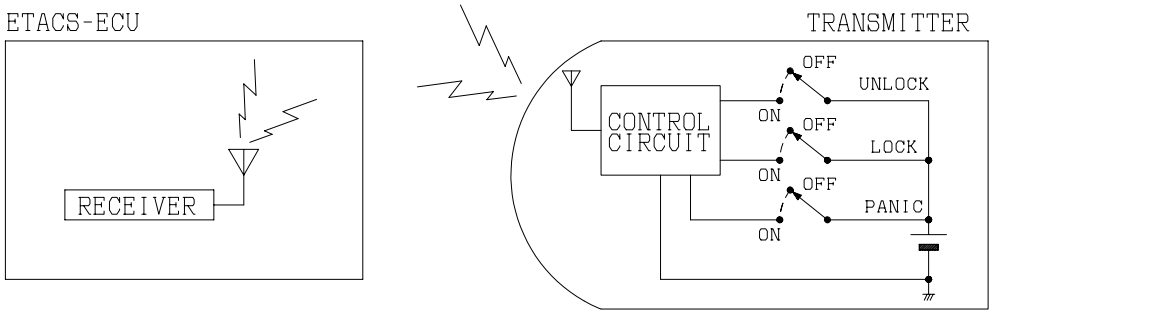
Q: Is the wiring harness between hood switch connector A-14 (terminal 1) and ETACS-ECU connector D-223 (terminal 48) in good condition?

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



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

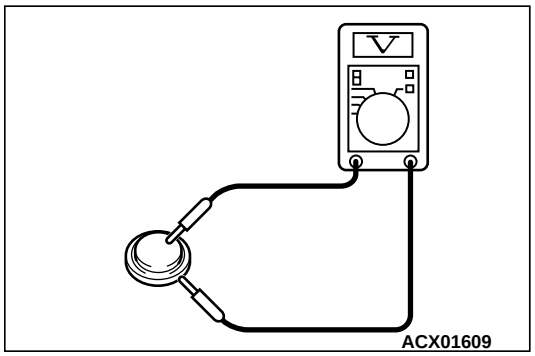
Required Special Tools:
- MB991223: Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Register the transmitter.
Replace the transmitter. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How to register secret code P.42-56.

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.42-56.

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.