

POWER WINDOWS

GENERAL DESCRIPTION CONCERNING THE POWER WINDOWS

M1549021900211

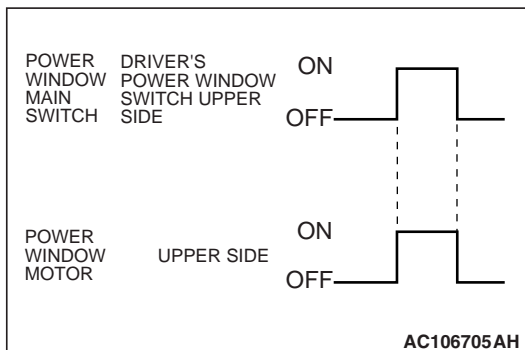
The following ECUs affect the functions and control of the power windows.

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

Power window main switch function

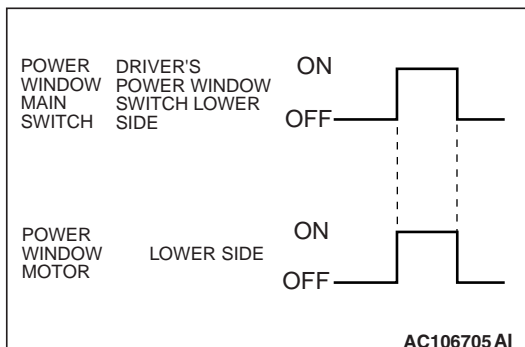
Raises the driver's power window

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



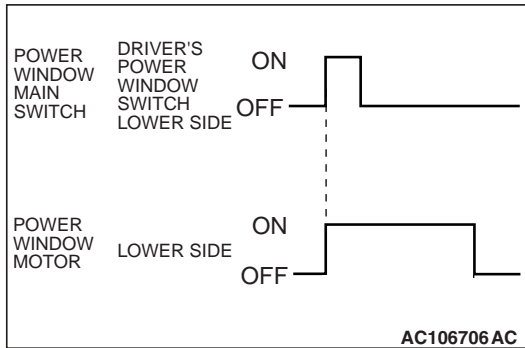
Lowers the driver's power window

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



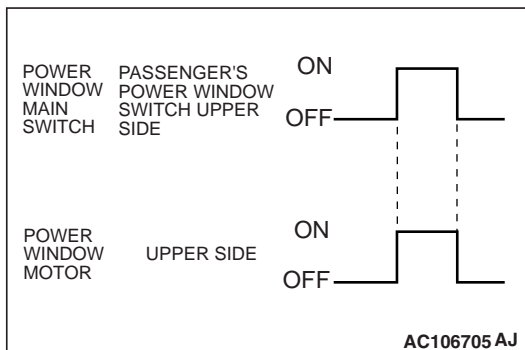
Lowers the driver's power window by one-shot down function

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



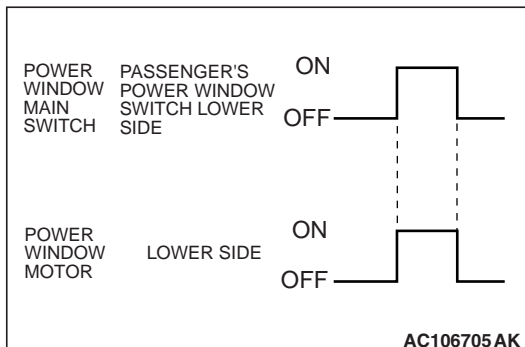
Raises the passenger's power window

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



Lowers the passenger's power window

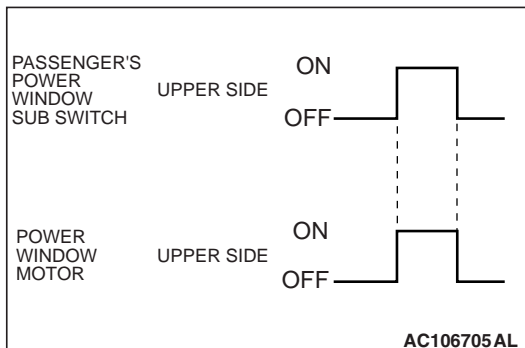
When the passenger's power window switch on the power window main switch is pushed down, the system energizes its respective power window motor, and then passenger's window glass lowers.

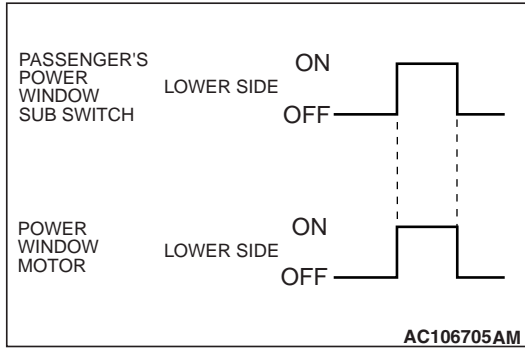


Power window sub switch function

Raises the passenger's power window

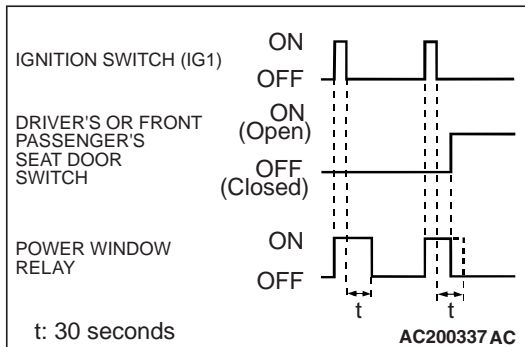
When the power window sub switch is pulled up, the system energizes its respective power window motor, and then passenger's window glass rises.





Lowers the passenger's power window

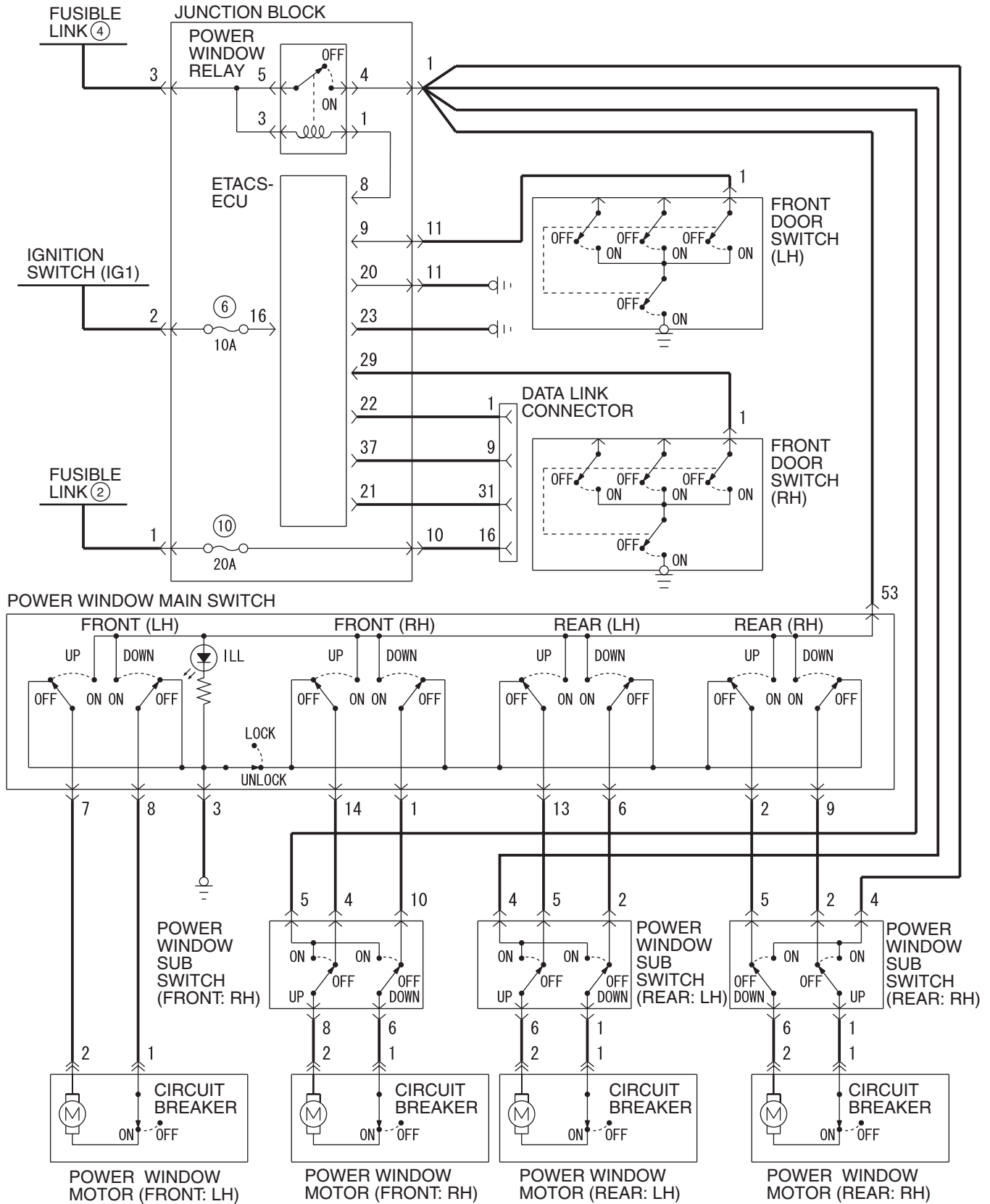
When the power window sub switch is pushed down, the system energizes its respective power window motor, and then passenger's window glass lowers.



Power window timer function

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

General circuit diagram for the power windows

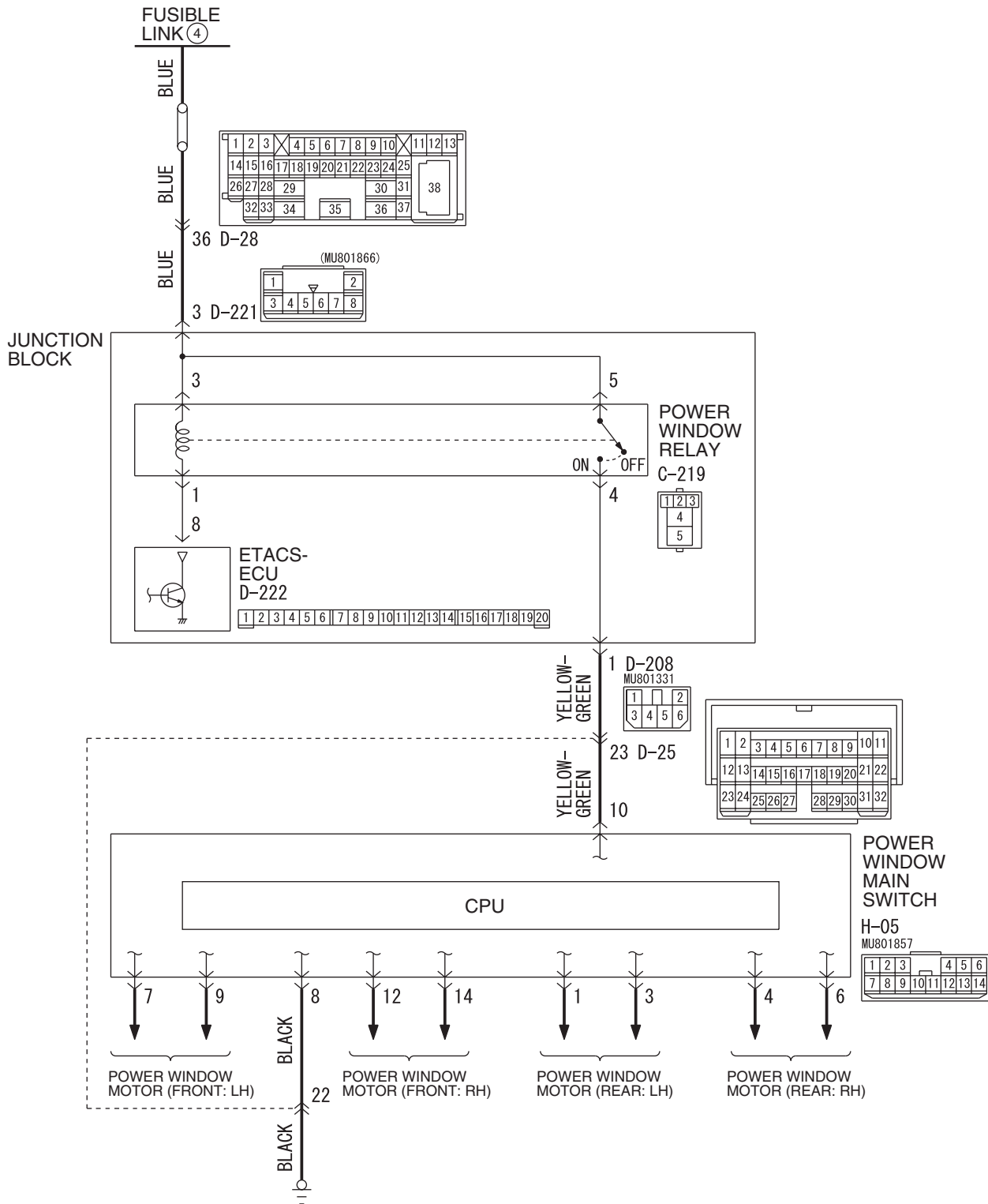


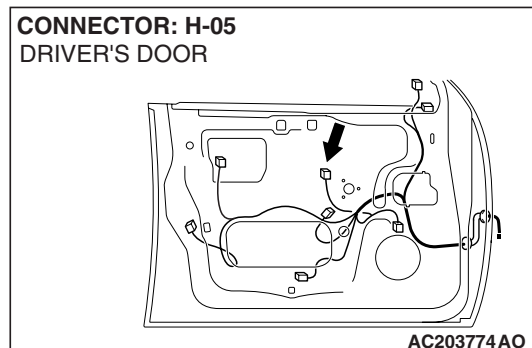
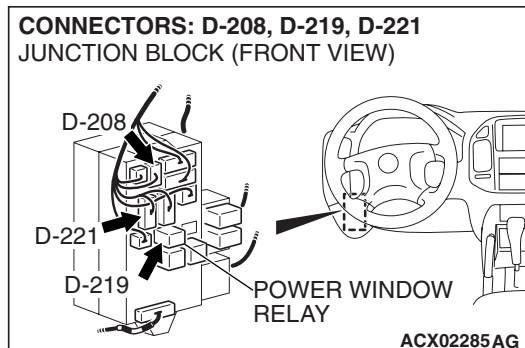
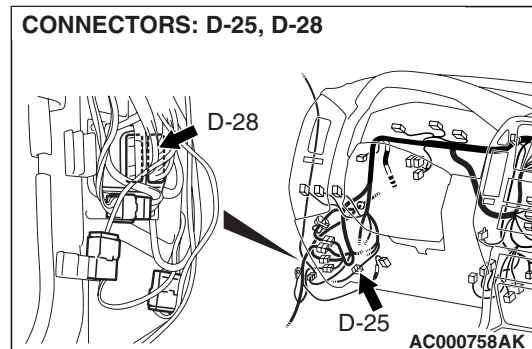
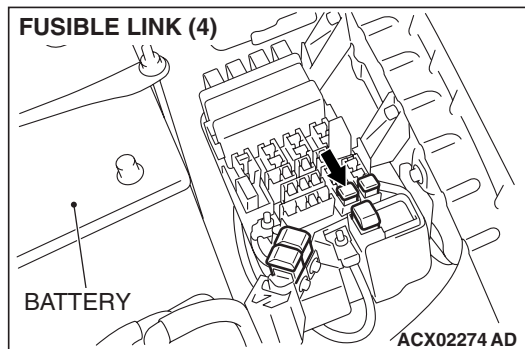
W4Q54M16AA

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

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

Power Window Relay Circuit





CIRCUIT OPERATION

The ETACS-ECU turns on the power window relay to activate the power windows when the ignition switch (IG1) is in the "ON" position. The power window relay is located in the under-dash junction block, to the left of the steering column. It plugs into connector D-219.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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

Check the ETACS-ECU.

⚠ CAUTION

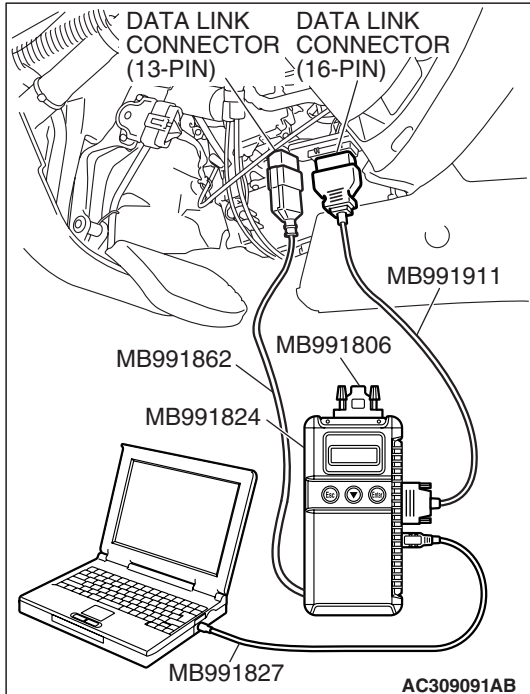
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM ECU" menu for the ETACS ECU menu.

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

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

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



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

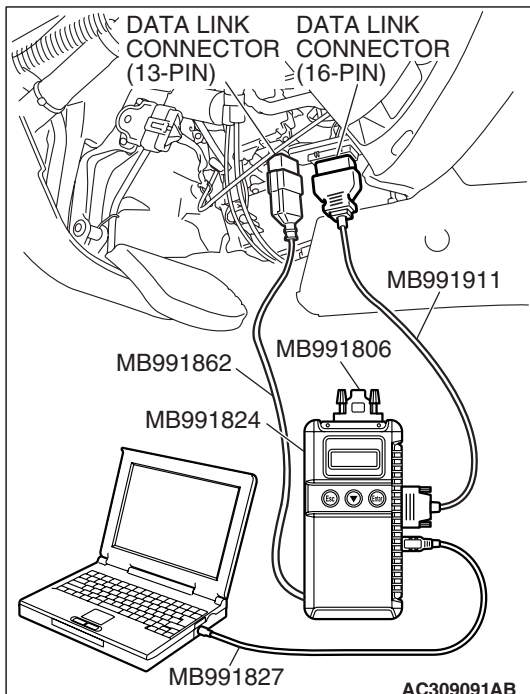
- (1) Turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1).
- (2) Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "ETACS ECU."
- (3) Check that normal conditions are displayed on the item described in the table below.

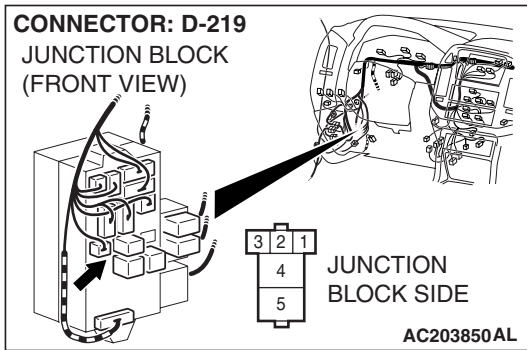
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON

Q: Is the scan tool display "IG SW (IG1)" as normal condition?

YES : Go to Step 3.

NO : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-496."



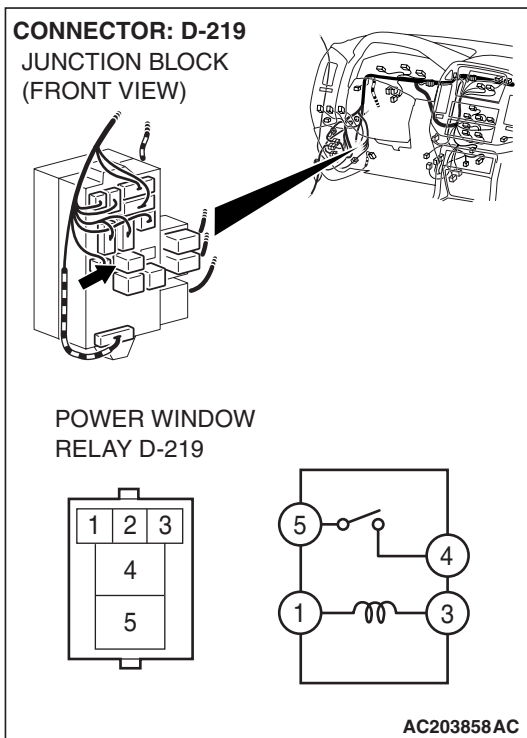


STEP 3. Check power window relay connector D-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window relay connector D-219 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the power windows function should now work normally.



STEP 4. Check the power window relay.

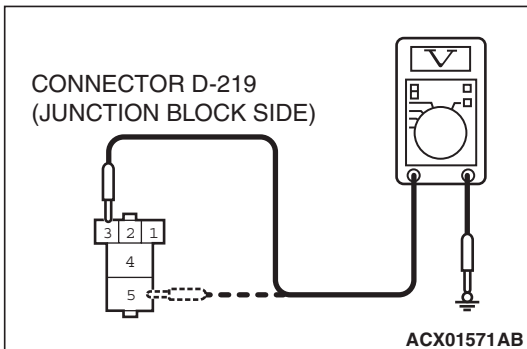
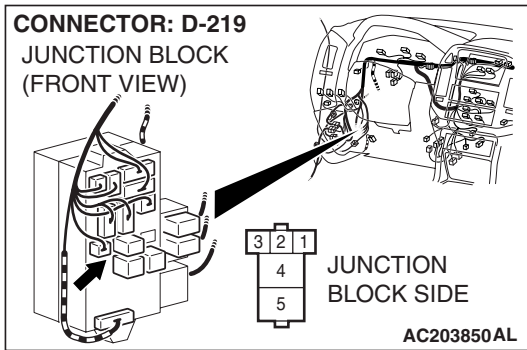
Properly identify and remove the relay from the under-dash junction block and test the relay using the chart as a guide.

BATTERY CONNECTION	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
<ul style="list-style-type: none"> Connect terminal No.3 and the positive battery terminal Connect terminal No.1 and the negative battery terminal 	4 – 5	Less than 2 ohms

Q: Is the power window relay in good condition?

YES : Go to Step 5.

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



STEP 5. Measure at power window relay connector D-219 in order to check the fusible link (4) line of power supply system to power window relay.

(1) Disconnect power window relay connector D-219, and measure at the junction block side.

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

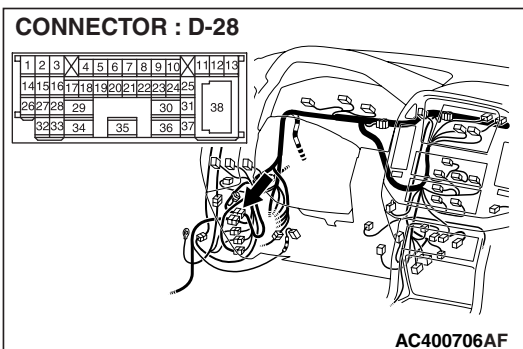
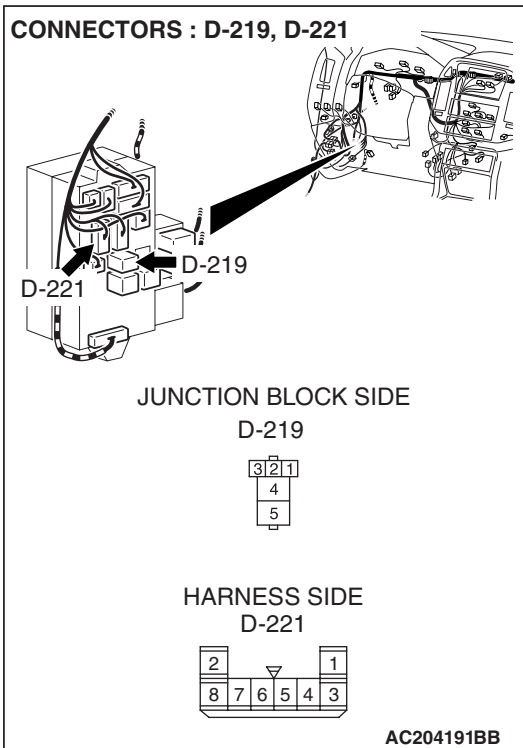
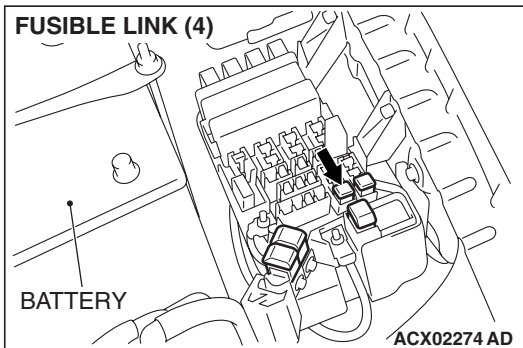
- The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between power window relay connector D-219 (terminal 5) and fusible link (4).

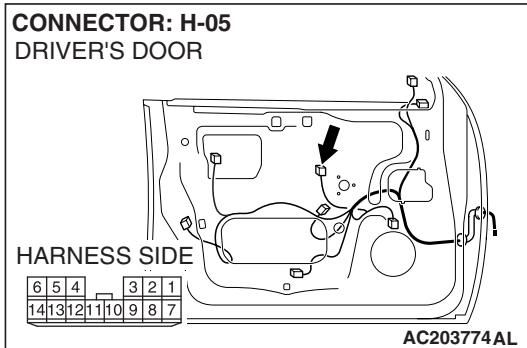


NOTE: Also check junction block connector D-221 and intermediate connector D-28 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If junction block connector D-221 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in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

Q: Is the wiring harness between power window relay connector D-219 (terminal 5) and fusible link (4) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power windows function should now work normally.

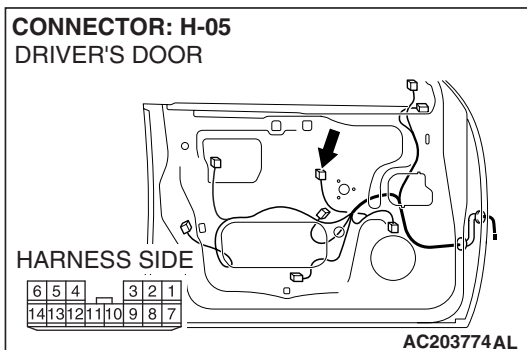


STEP 7. Check power window main switch connector H-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

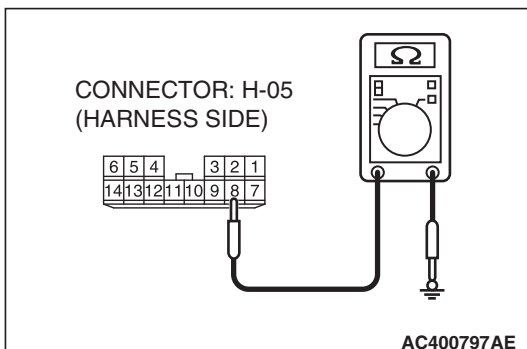
YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the power windows function should now work normally.



STEP 8. 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 harness side.



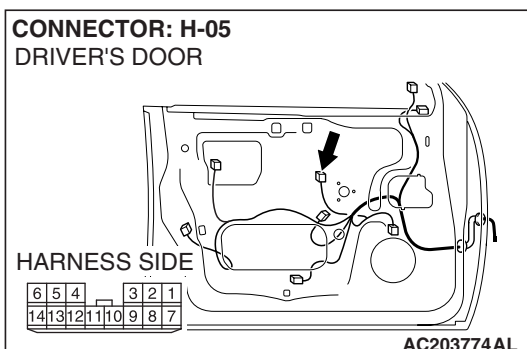
(2) Measure the resistance value between terminal 8 and ground.

- The resistance should equal 2 ohms or less.

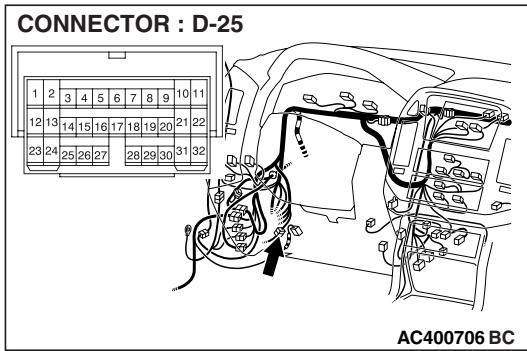
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between power window main switch connector H-05 (terminal 8) and ground.

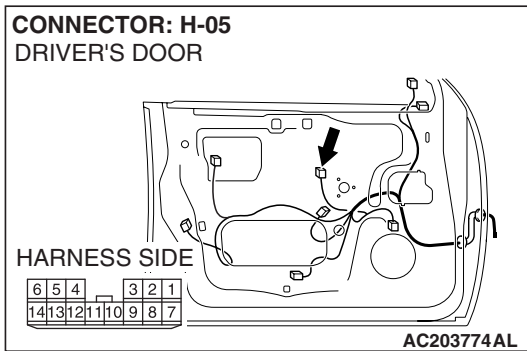


NOTE: Also check intermediate connector D-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

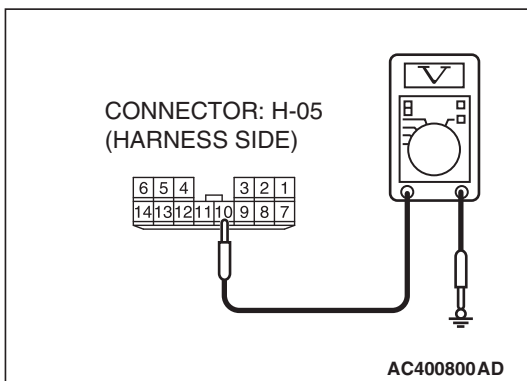
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power windows function should now work normally.



STEP 10. Check the battery power supply 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 voltage available at the harness side of the connector.
- (2) Turn the ignition switch to "ON" position.



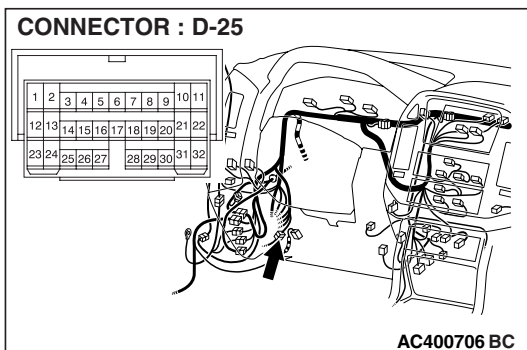
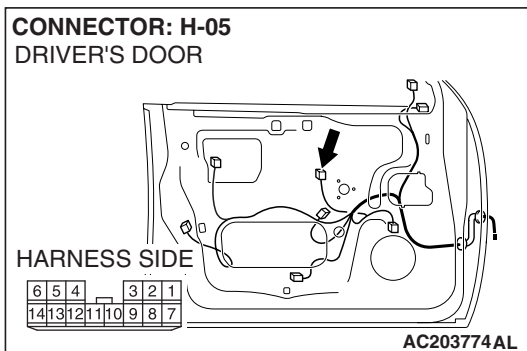
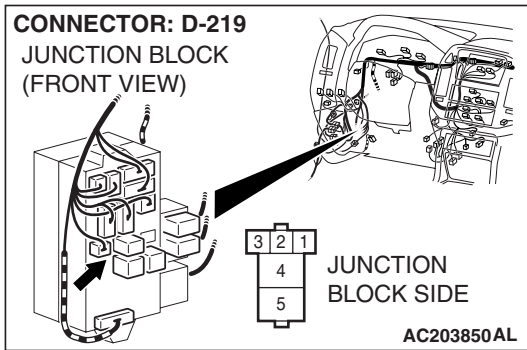
- (3) Measure the voltage between terminal 10 and ground.
 - The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Go to Step 12.

NO : Go to Step 11.

STEP 11. Check the wiring harness between power window relay connector D-219 (terminal 4) and power window main switch connector H-05 (terminal 10).

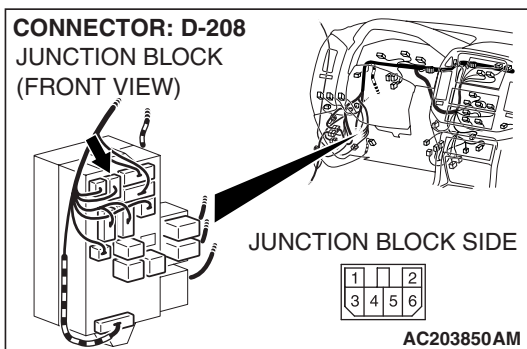


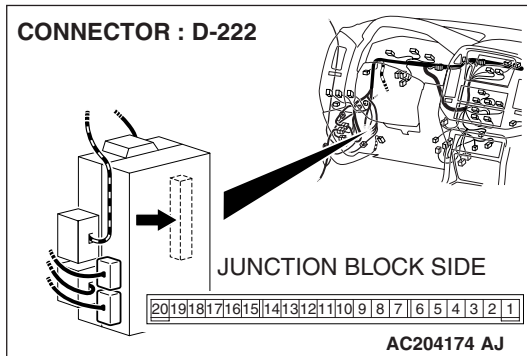
NOTE: Also check junction block connector D-208 and intermediate connector D-25 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If junction block connector D-208 or intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window relay connector D-219 (terminal 4) and power window main switch connector H-05 (terminal 10) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power windows function should now work normally.



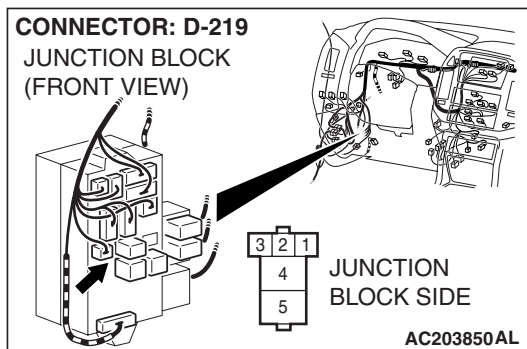


STEP 12. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the power windows function should now work normally.

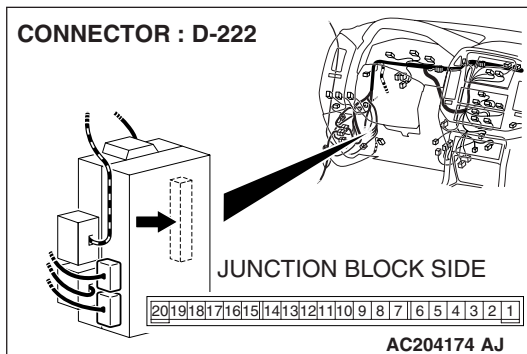


STEP 13. Check the wiring harness between power window relay connector D-219 (terminal 1) and ETACS-ECU connector D-222 (terminal 8).

Q: Is the wiring harness between power window relay connector D-219 (terminal 1) and ETACS-ECU connector D-222 (terminal 8) in good condition?

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

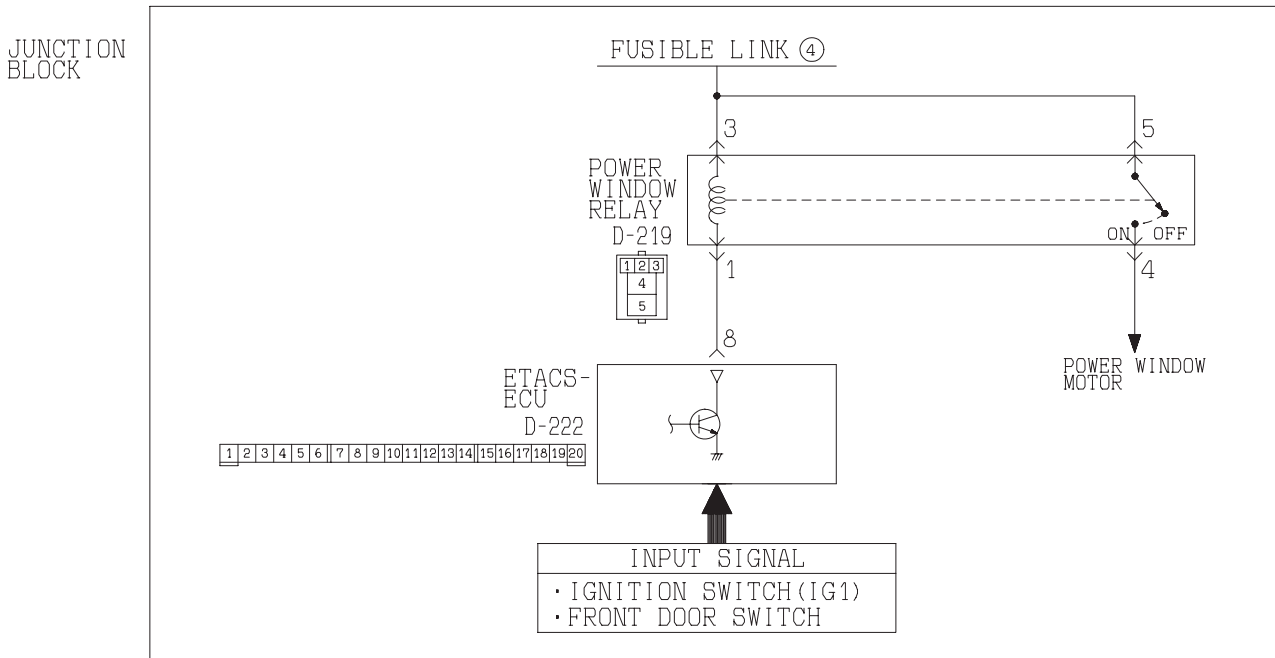
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the power windows function should now work normally.



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

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

Power Window Timer Function Circuit



W1Q15M16AA

CIRCUIT OPERATION

The ETACS-ECU activates the power window timer function with input signals from the followings:

- Ignition switch (IG1)
- Front door switch

TROUBLESHOOTING HINTS

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

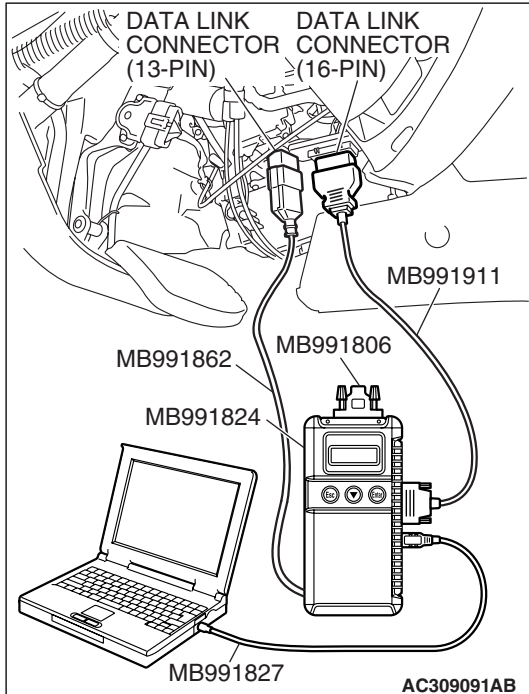
TECHNICAL DESCRIPTION (COMMENT)

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

DIAGNOSIS

Required Special Tools:

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



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

Check the ETACS-ECU.

⚠ CAUTION

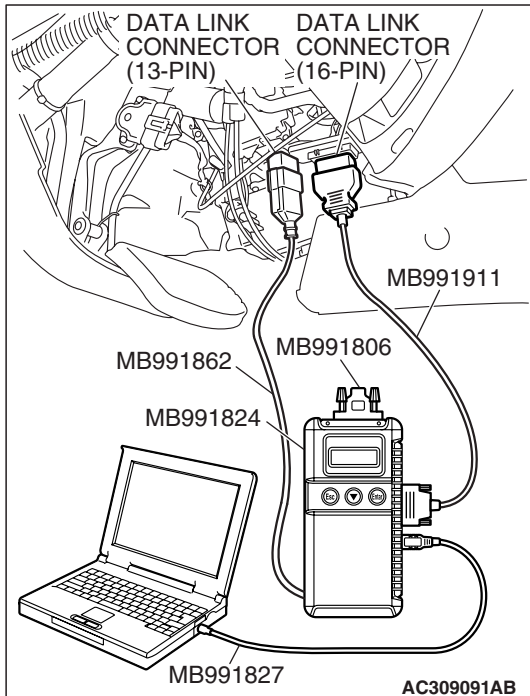
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7](#)
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM ECU" menu for the "ETACS ECU" menu.

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

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

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



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

- (1) Check the input signals from the following switches:
 - Ignition switch: ON to OFF
 - Driver's and front passenger's doors: closed
- (2) Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "ETACS ECU."
- (3) Check that normal conditions are displayed on the items described in the table below.

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

Q: Does the scan tool display the items "IG SW (IG1)" and "FRONT DOOR SW" as normal condition?

Normal conditions are displayed for all the items :

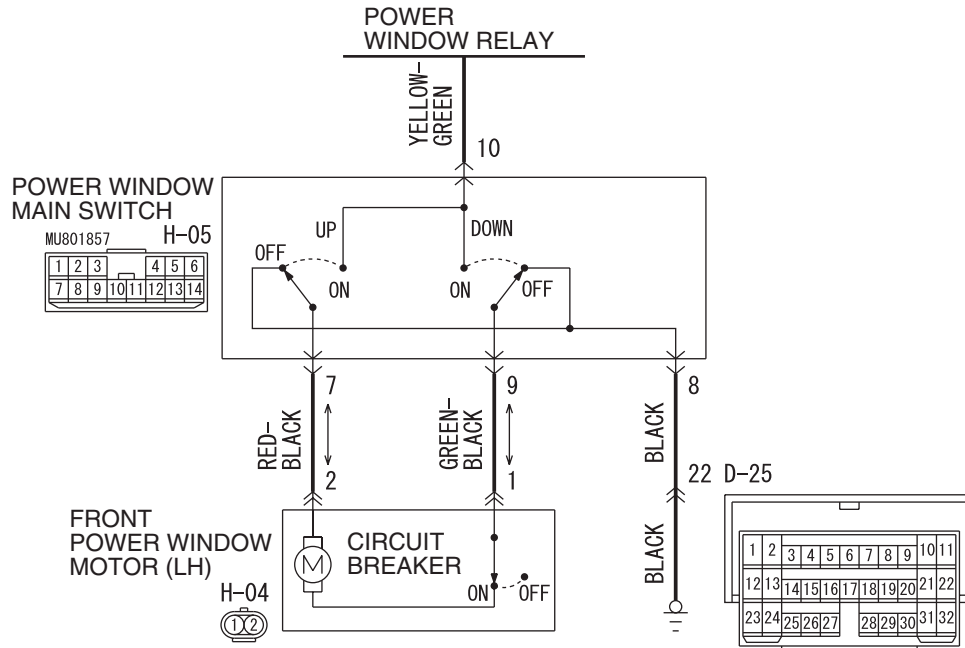
Replace the ETACS-ECU. Verify that the power window timer should now works normally.

The scan tool does not show the respective normal condition for item "IG SW (IG1)." : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-496.](#)"

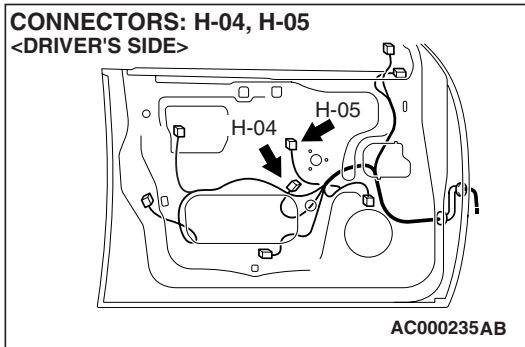
The scan tool does not show the respective normal condition for item "FRONT DOOR SW." : Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509.](#)"

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

Power Window (front: LH) Circuit



W5Q54M010A



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

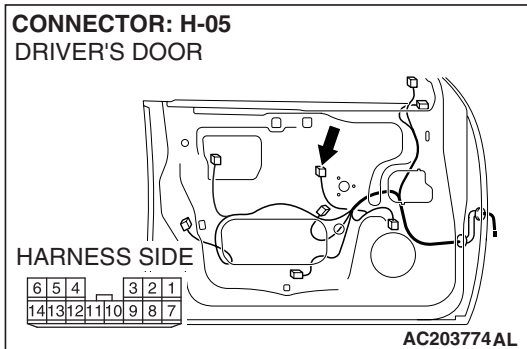
STEP 1. Check power window main switch connector H-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 2.

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

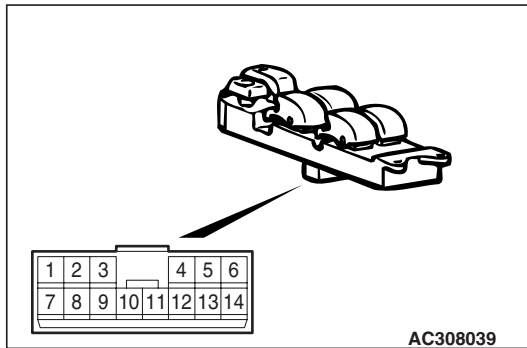
[P.00E-2](#). Verify that the front power window (LH) function should now work normally.



STEP 2. Check the power window main switch.

(1) Remove the power window main switch. Refer to GROUP 42, Door Trim [P.42-32](#).

(2) Check continuity while power window main switch is moved to "UP" and "DOWN" position.



FRONT (LH) SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	8 – 9, 7 – 10	Less than 2 ohms
OFF	7 – 8, 8 – 9, 7 – 9	
DOWN	7 – 8, 9 – 10	

Q: Is the power window main switch in good condition?

YES : Go to Step 3.

NO : Replace the power window main switch. Verify that the front power window (LH) function should now work normally.

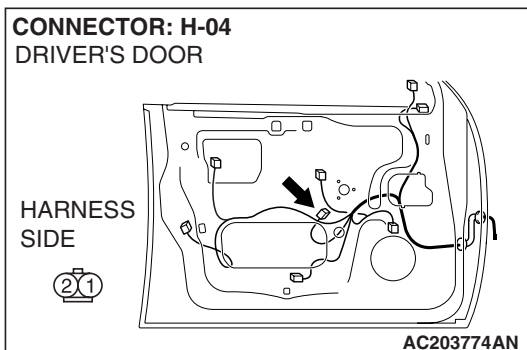
STEP 3. Check front power window motor (LH) connector H-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

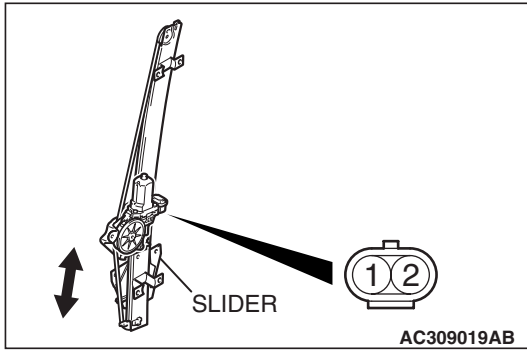
Q: Is front power window motor (LH) connector H-04 in good condition?

YES : Go to Step 4.

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

[P.00E-2](#). Verify that the front power window (LH) function should now work normally.





STEP 4. Check the front power window motor (LH).

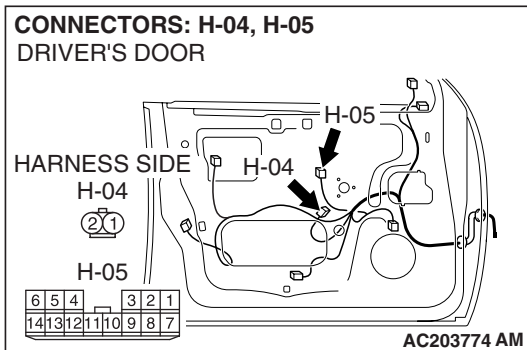
- (1) Remove the front power window motor (LH). Refer to GROUP 42, Door – Door Glass and Regulator P.42-38.
- (2) Follow the table below to check the front power window motor (LH) for correct operation.

BATTERY CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal 	The slider moves up
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The slider moves down

Q: Is the power window motor (LH) in good condition?

YES : Go to Step 5.

NO : Replace the front power window motor (LH). Verify that the front power window (LH) function should now work normally.

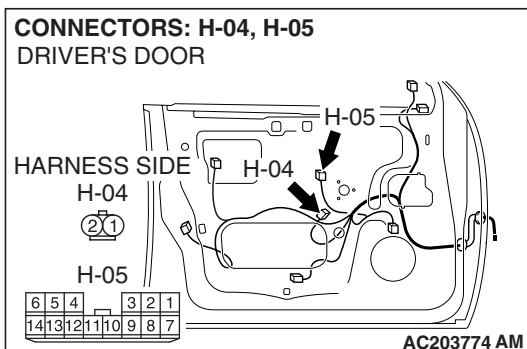


STEP 5. Check the wiring harness between power window main switch connector H-05 (terminal 7) and front power window motor (LH) connector H-04 (terminal 2).

Q: Is the wiring harness between power window main switch connector H-05 (terminal 7) and front power window motor (LH) connector H-04 (terminal 2) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window (LH) function should now work normally.



STEP 6. Check the wiring harness between power window main switch connector H-05 (terminal 9) and front power window motor (LH) connector H-04 (terminal 1).

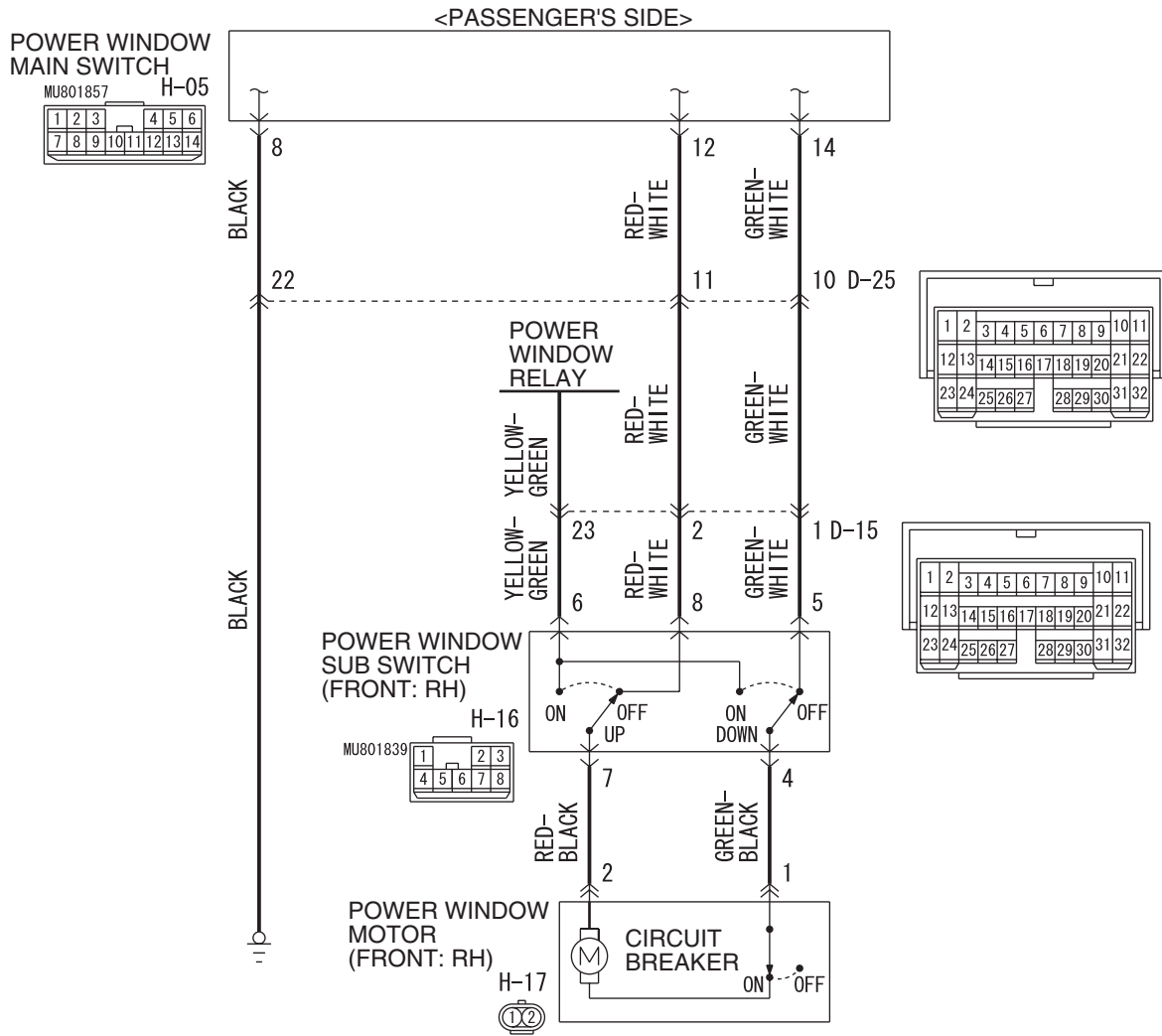
Q: Is the wiring harness between power window main switch connector H-05 (terminal 9) and front power window motor (LH) connector H-04 (terminal 1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window (LH) function should now work normally.

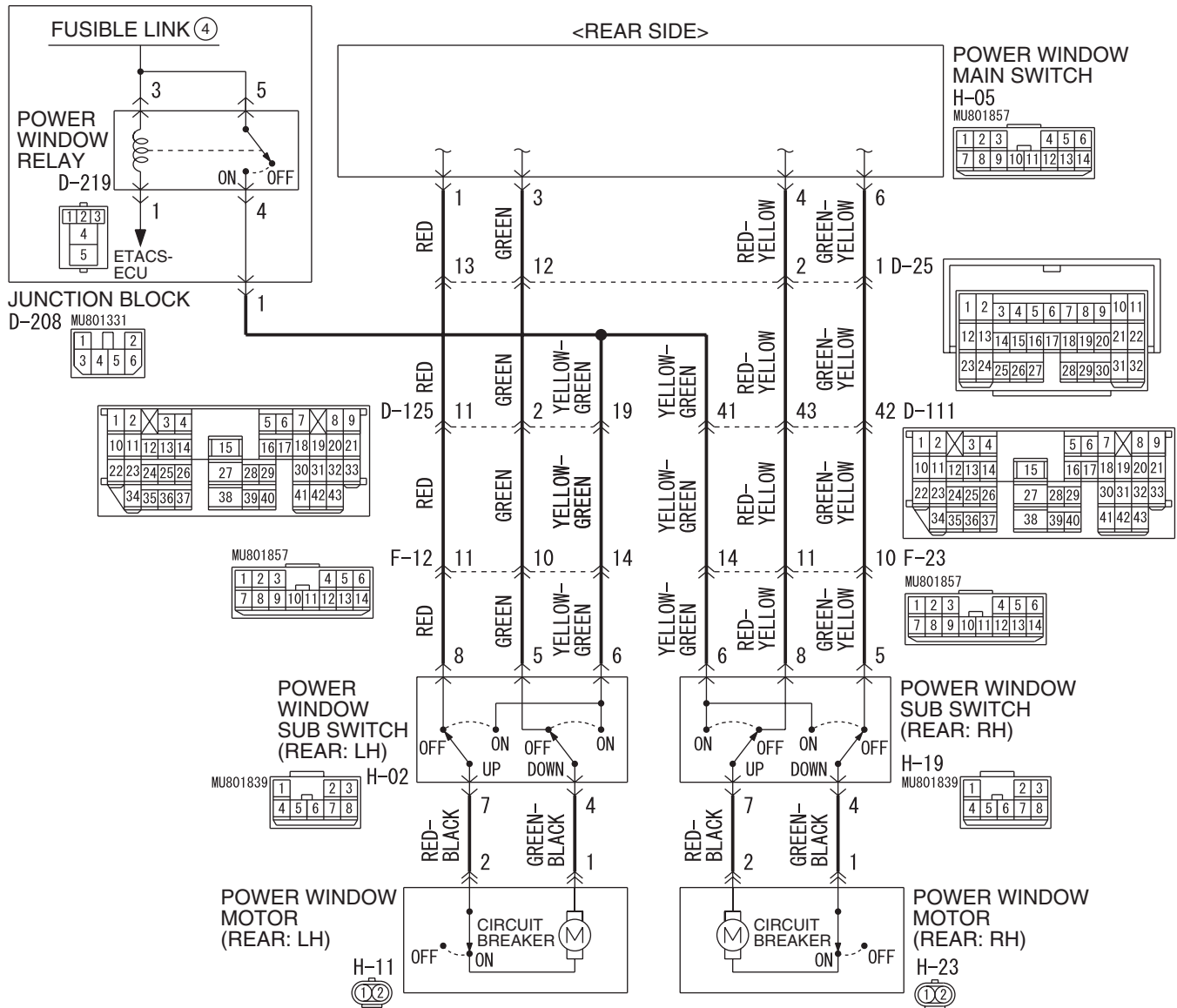
INSPECTION PROCEDURE D-4: Power Window: Power windows do not work normally by operating the front passenger's and rear power window sub-switches.

Power Window (front: RH) Circuit

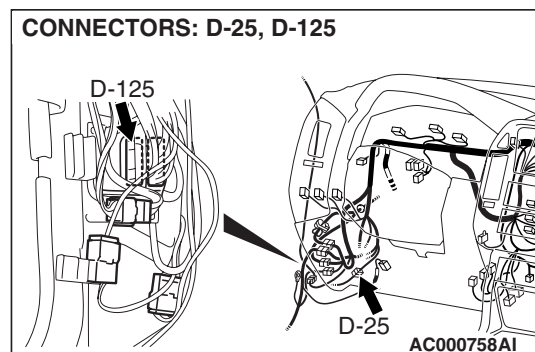
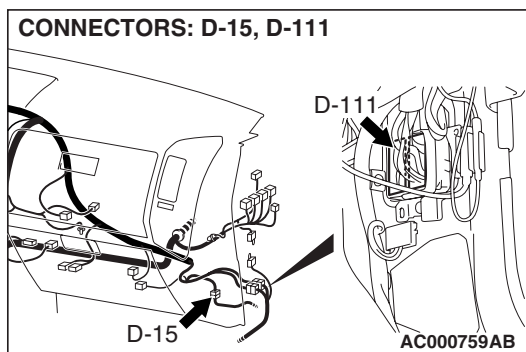


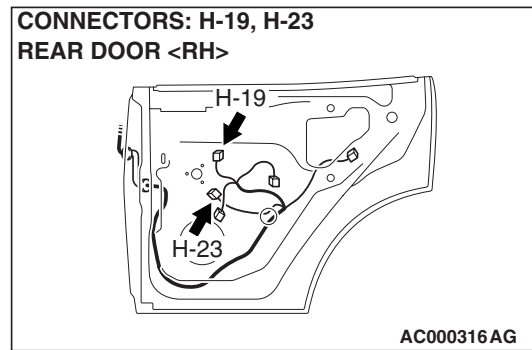
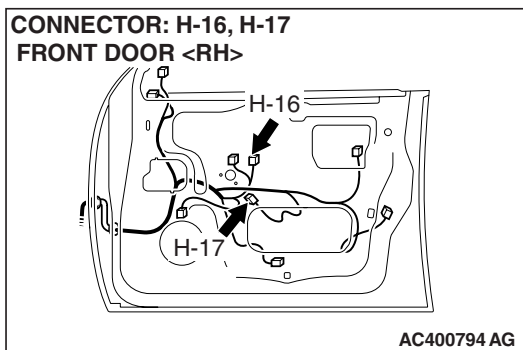
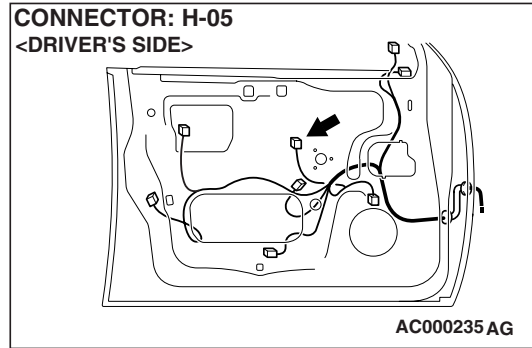
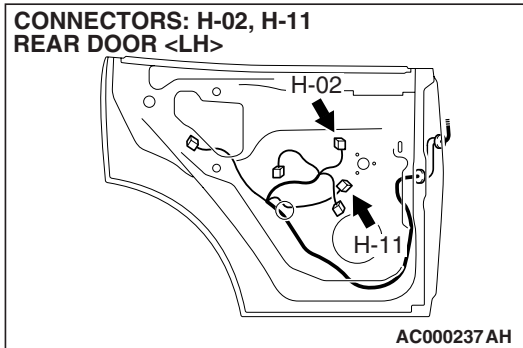
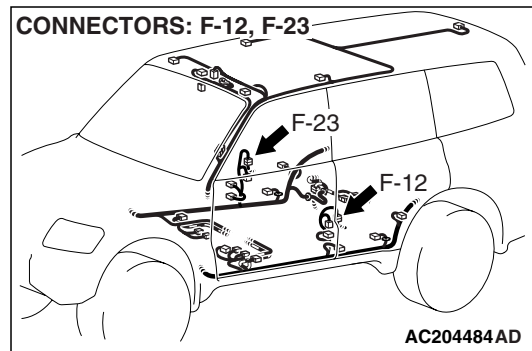
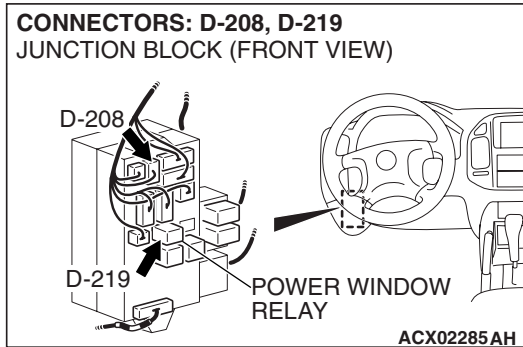
W5Q54M011A

Power Window Sub Switch Circuit



W5Q54M012A





CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The power window main switch may be defective

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

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

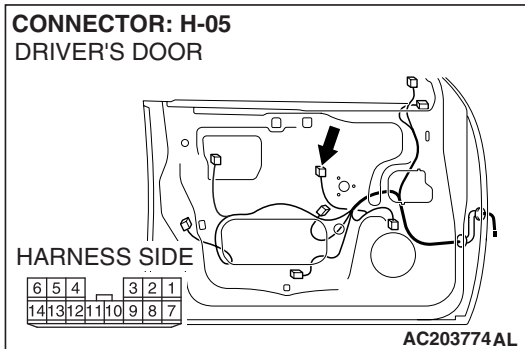
STEP 1. Check power window main switch connector H-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 2.

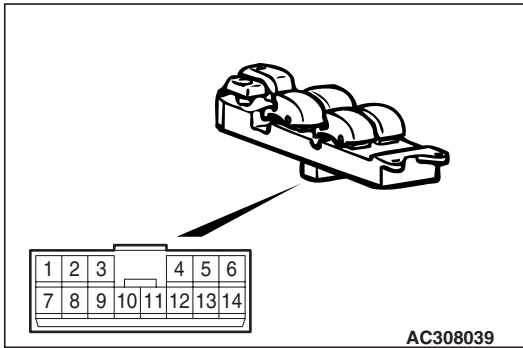
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). Verify that the front power window sub-switch (RH) should now work normally.



STEP 2. Check each switch on the power window main switch for continuity.

- (1) Remove the power window main switch. Refer to P.42-32.
- (2) Check continuity when each switch on the power window main switch is operated to "UP" or "DOWN" position.



SWITCHES TO BE CHECKED	SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
	Power window lock switch	Power window switches to be checked		
Front power window (RH)	Lock	UP	10 – 12	Less than 2 ohms
		OFF	12 – 14	
		DOWN	10 – 14	
	Unlock	UP	8 – 14, 10 – 12	
		OFF	8 – 14, 12 – 14, 8 – 12	
		DOWN	10 – 14, 8 – 12	
Rear power window (LH)	Lock	UP	1 – 10	Less than 2 ohms
		OFF	1 – 3	
		DOWN	3 – 10	
	Unlock	UP	3 – 8, 1 – 10	
		OFF	3 – 8, 1 – 8, 1 – 3	
		DOWN	1 – 8, 3 – 10	
Rear power window (RH)	Lock	UP	4 – 10	Less than 2 ohms
		OFF	4 – 6	
		DOWN	6 – 10	
	Unlock	UP	4 – 10, 6 – 8	
		OFF	4 – 8, 4 – 6, 6 – 8	
		DOWN	4 – 8, 6 – 10	

Q: Is the power window main switch normal?

YES : Go to Step 3.

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

STEP 3. Check the power window lock switch.

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

YES : Go to Step 4.

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

STEP 4. Check which door window is not opened or closed

Q: Which door window is not opened or closed?

Front passenger's side : Go to Step 5.

Rear passenger (LH) : Go to Step 18.

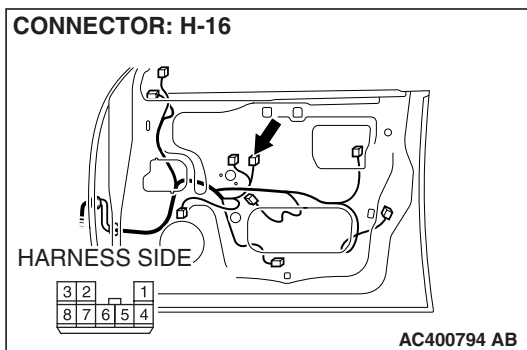
Rear passenger (RH) : Go to Step 31.

STEP 5. Check front power window sub-switch (RH) connector H-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

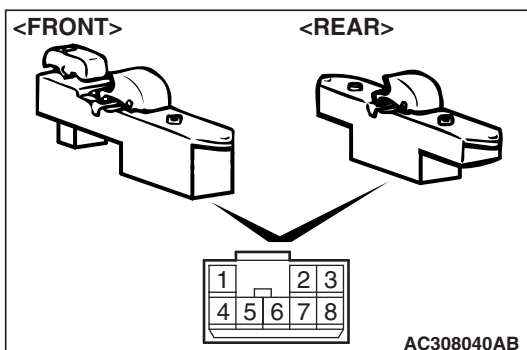
Q: Is front power window sub-switch (RH) connector H-16 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the front power window sub-switch (RH) should now work normally.

**STEP 6. Check the front power window sub-switch (RH) for continuity.**

- (1) Remove the front power window sub-switch (RH). Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-32](#).
- (2) Check continuity when the front power window sub-switch (RH) is operated to "UP" or "DOWN" position.

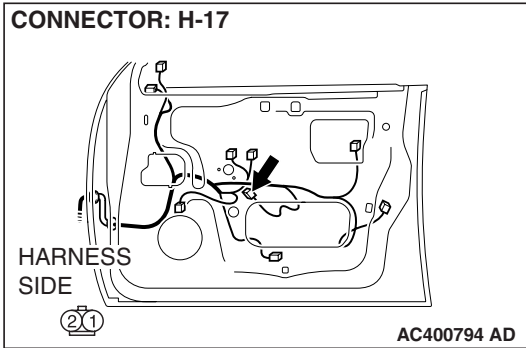


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	6 - 7, 4 - 5	Less than 2 ohms
OFF	7 - 8, 4 - 5	
DOWN	7 - 8, 4 - 6	

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

YES : Go to Step 7.

NO : Replace the front power window sub-switch (RH). Verify that the front power window sub-switch (RH) should now work normally.

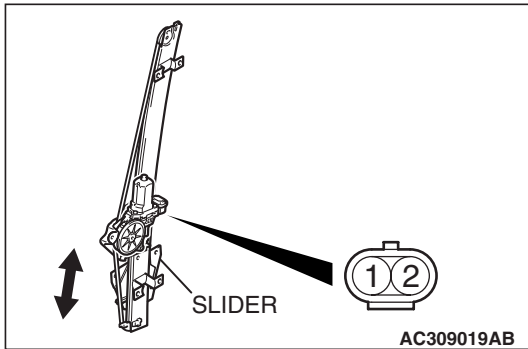


STEP 7. Check front power window motor (RH) connector H-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front power window motor (RH) connector H-17 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the front power window sub-switch (RH) should now work normally.



STEP 8. Check the front power window motor (RH).

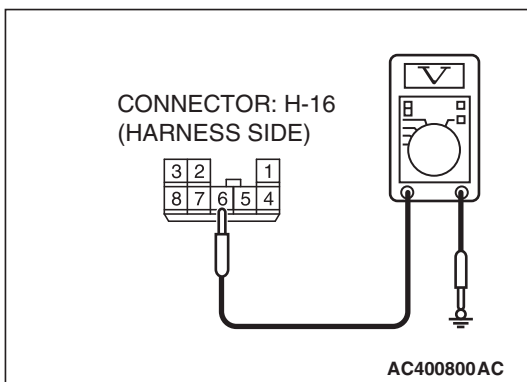
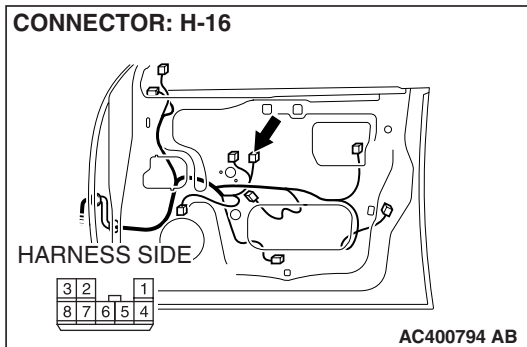
- (1) Remove the front power regulator assembly (RH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-38](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

BATTERY CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal 	The slider moves up
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The slider moves down

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

YES : Go to Step 9.

NO : Replace the front power regulator assembly (RH). Verify that the front power window sub-switch (RH) should now work normally.



STEP 9. Check at front power window sub-switch connector H-16 in order to check the power window relay circuit of the power supply to the front power window sub-switch (RH).

(1) Disconnect front power window sub-switch (RH) connector H-16, and measure at the harness side.

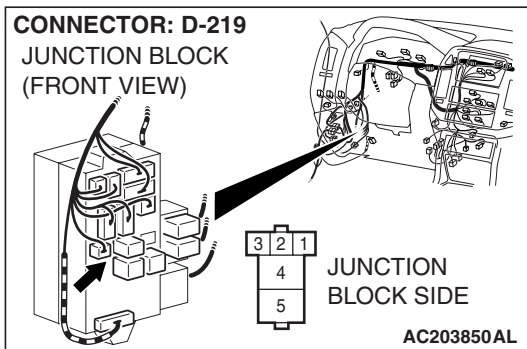
(2) Measure the voltage between terminal 6 and ground.

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

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

YES : Go to Step 12.

NO : Go to Step 10.



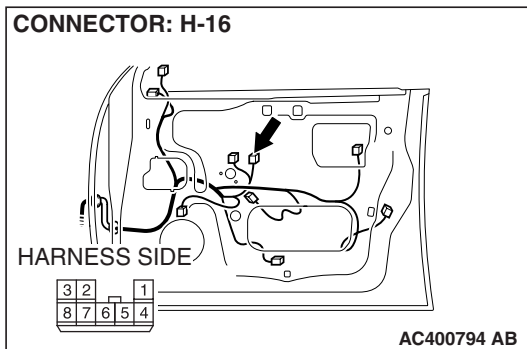
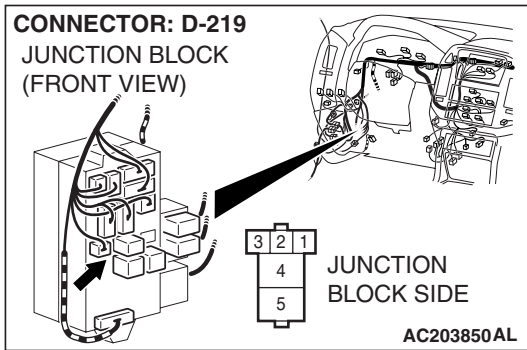
STEP 10. Check power window relay connector D-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window relay connector D-219 in good condition?

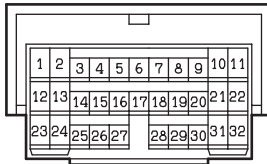
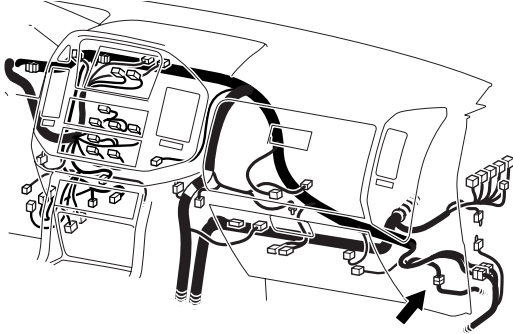
YES : Go to Step 11.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the front power window sub-switch (RH) should now work normally.

STEP 11. Check the harness wiring between power window relay connector D-219 (terminal 4) and front power window sub-switch (RH) connector H-16 (terminal 6).



CONNECTOR: D-15



AC203860 AD

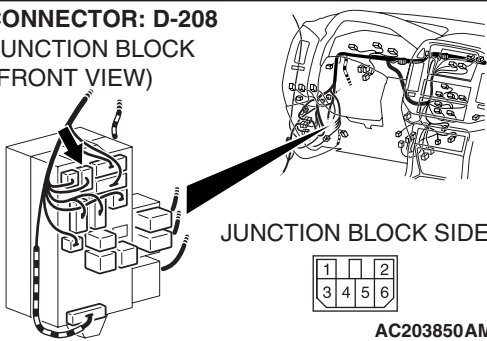
NOTE: Also check junction block connector D-208 and intermediate connector D-15. If junction block connector D-208 or intermediate connectors D-15 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window relay connector D-219 (terminal 4) and front power window sub-switch (RH) connector H-16 (terminal 6) in good condition?

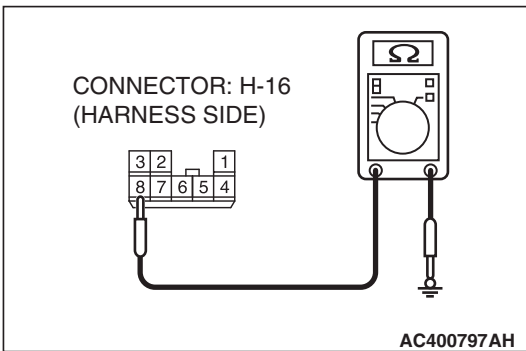
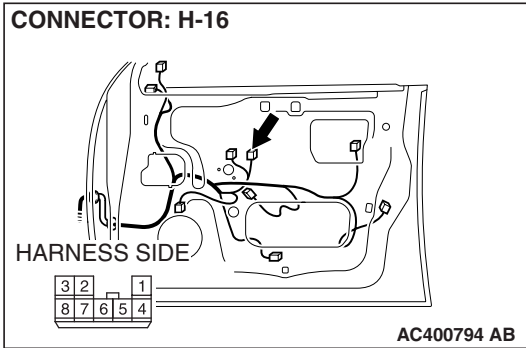
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window sub-switch (RH) should now work normally.

CONNECTOR: D-208
JUNCTION BLOCK
(FRONT VIEW)



AC203850 AM



STEP 12. Check at front power window sub-switch (RH) connector H-16 in order to check the ground circuit to the front power window sub-switch (RH).

(1) Disconnect front power window sub-switch (RH) connector H-16, and measure at the harness side.

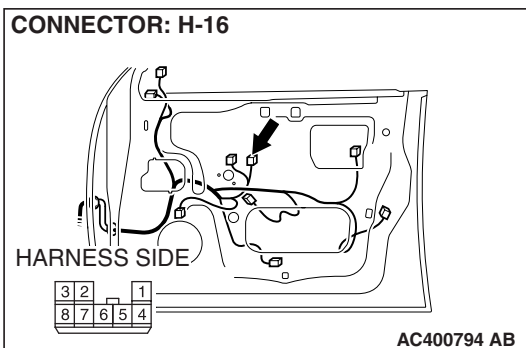
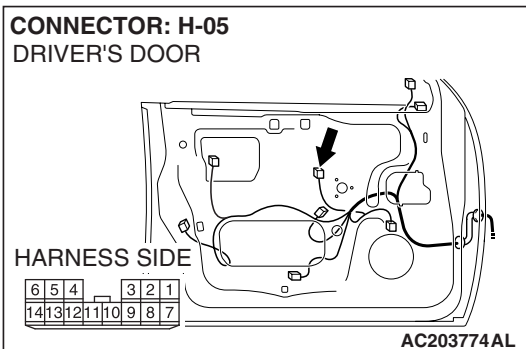
(2) Measure the resistance value between terminal 8 and ground.

- The resistance should measure 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

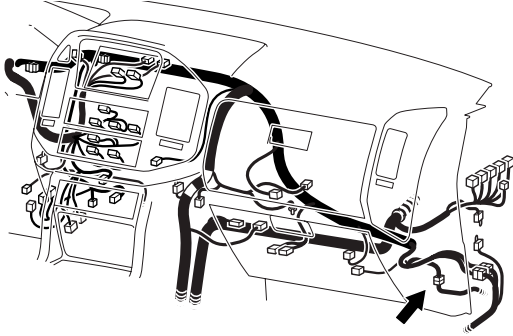
YES : Go to Step 14.

NO : Go to Step 13.



STEP 13. Check the harness wiring between power window main switch connector H-05 (terminal 12) and front power window sub-switch (RH) connector H-16 (terminal 8).

CONNECTOR: D-15



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

AC203860 AD

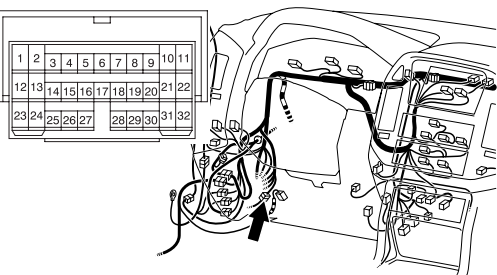
NOTE: Also check intermediate connectors D-25 and D-15. If intermediate connectors D-25 or D-15 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window main switch connector H-05 (terminal 12) and front power window sub-switch (RH) connector H-16 (terminal 8) in good condition?

YES : Replace the power window main switch. Verify that the front power window sub-switch (RH) should now work normally.

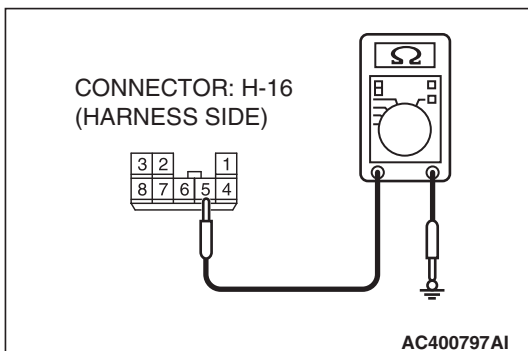
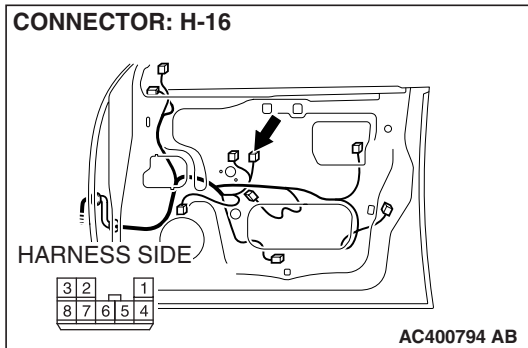
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window sub-switch (RH) should now work normally.

CONNECTOR : D-25



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

AC400706 BC



STEP 14. Check at front power window sub-switch (RH) connector H-16 in order to check the ground circuit to the front power window sub-switch (RH).

(1) Disconnect front power window sub-switch (RH) connector H-16, and measure at the harness side.

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

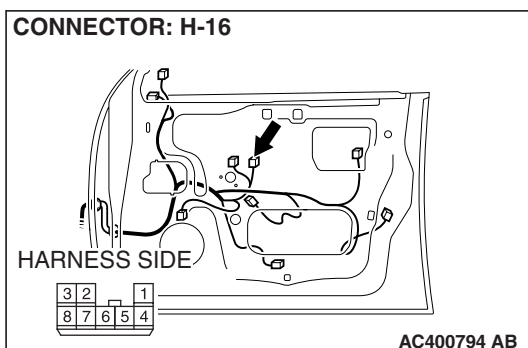
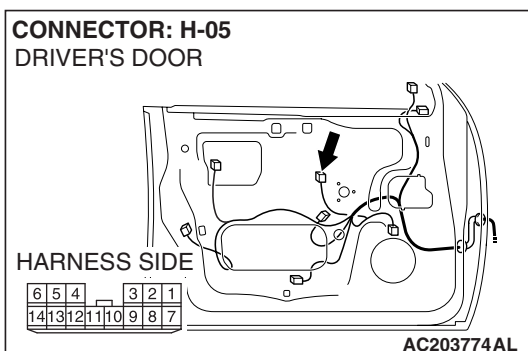
- The resistance should measure 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

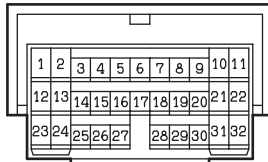
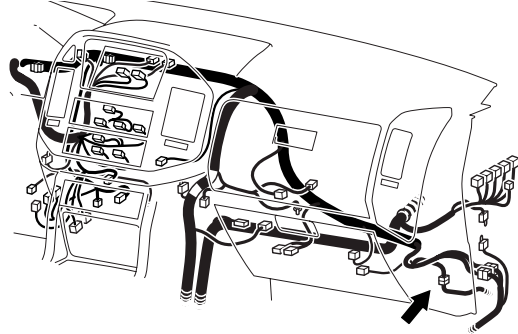
YES : Go to Step 16.

NO : Go to Step 15.

STEP 15. Check the harness wiring between power window main switch connector H-05 (terminal 14) and front power window sub-switch (RH) connector H-16 (terminal 5).



CONNECTOR: D-15



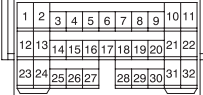
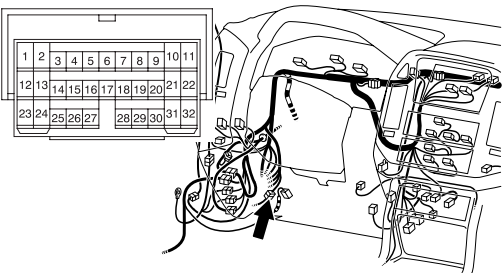
AC203860 AD

NOTE: Also check intermediate connectors D-25 and D-15. If intermediate connectors D-25 or D-15 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window main switch connector H-05 (terminal 14) and front power window sub-switch (RH) connector H-16 (terminal 5) in good condition?

- YES :** Replace the power window main switch. Verify that the front power window sub-switch (RH) should now work normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window sub-switch (RH) should now work normally.

CONNECTOR : D-25

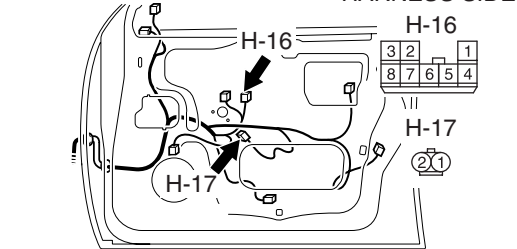


AC400706 BC

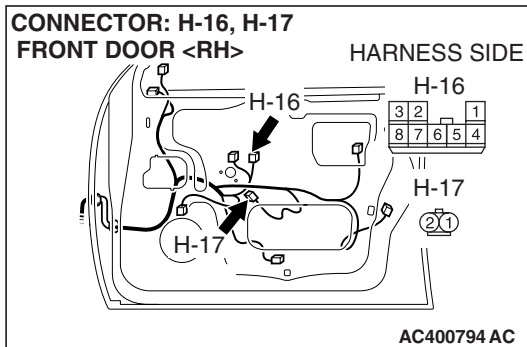
STEP 16. Check the harness wiring between front power window sub-switch (RH) connector H-16 (terminal 4) and front power window motor (RH) connector H-17 (terminal 1).

Q: Is the harness wiring between front power window main switch (RH) connector H-16 (terminal 4) and front power window motor (RH) connector H-17 (terminal 1) in good condition?

- YES :** Go to Step 17.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window sub-switch (RH) should now work normally.

CONNECTOR: H-16, H-17
FRONT DOOR <RH>

AC400794 AC

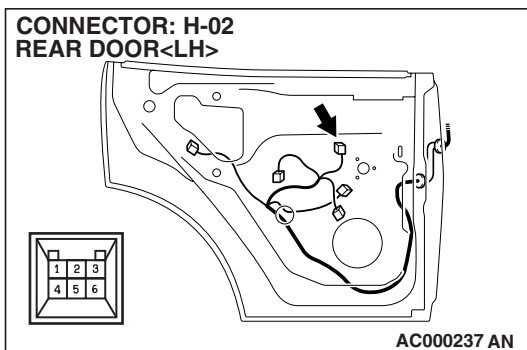


STEP 17. Check the harness wiring between front power window sub-switch (RH) connector H-16 (terminal 7) and front power window motor (RH) connector H-17 (terminal 2).

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

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the front power window sub-switch (RH) should now work normally.

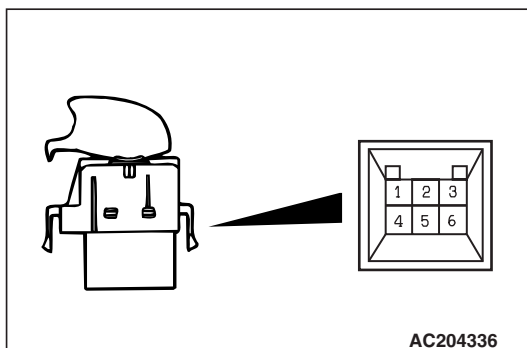


STEP 18. Check rear power window sub-switch (LH) connector H-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear power window sub-switch (LH) connector H-02 in good condition?

YES : Go to Step 19.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (LH) should now work normally.



STEP 19. Check the rear power window sub-switch (LH) for continuity.

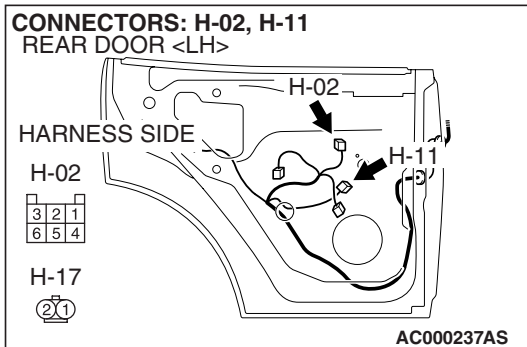
- (1) Remove the rear power window sub-switch (LH). Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-32](#).
- (2) Check continuity when the rear power window sub-switch (LH) is operated to "UP" or "DOWN" position.

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

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

YES : Go to Step 20.

NO : Replace the rear power window sub-switch (LH). Verify that the rear power window sub-switch (LH) should now work normally.

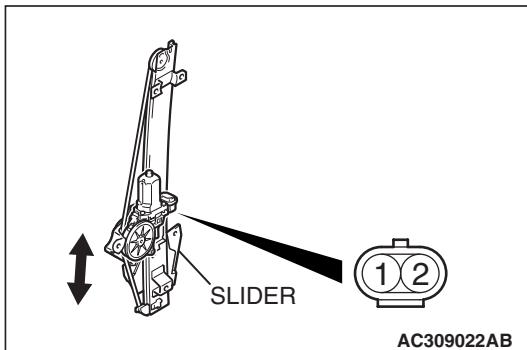


STEP 20. Check rear power window sub-switch (LH) connector H-02 and rear power window motor (LH) connector H-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub-switch (LH) connector H-02 and rear power window motor (LH) connector H-11 in good condition?

YES : Go to Step 21.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (LH) should now work normally.



STEP 21. Check the rear power window motor (LH).

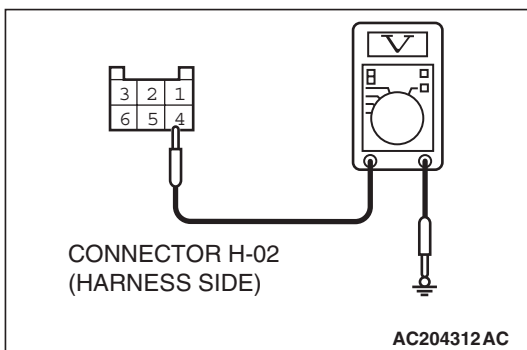
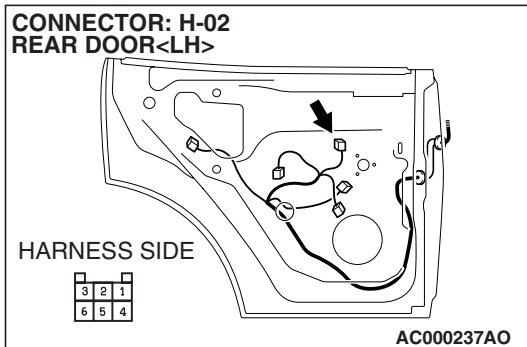
- (1) Remove the rear power regulator assembly (LH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-38](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

BATTERY CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal 	The slider moves up
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The slider moves down

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

YES : Go to Step 22.

NO : Replace the rear power regulator assembly (LH). Verify that the rear power window sub-switch (LH) should now work normally.



STEP 22. Check at rear power window sub-switch connector H-02 in order to check the power window relay circuit of the power supply to the rear power window sub-switch (LH).

(1) Disconnect rear power window sub-switch (LH) connector H-02, and measure at the harness side.

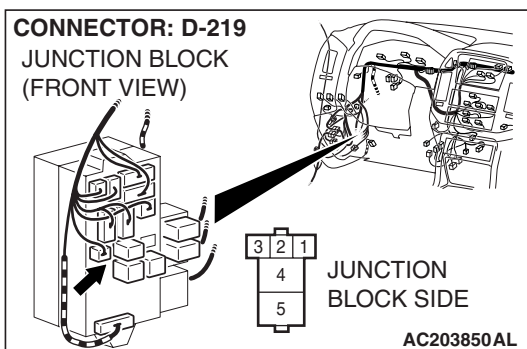
(2) Measure the voltage between terminal 6 and ground.

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

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

YES : Go to Step 25.

NO : Go to Step 23.



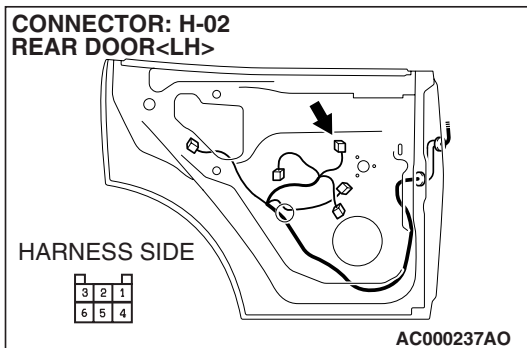
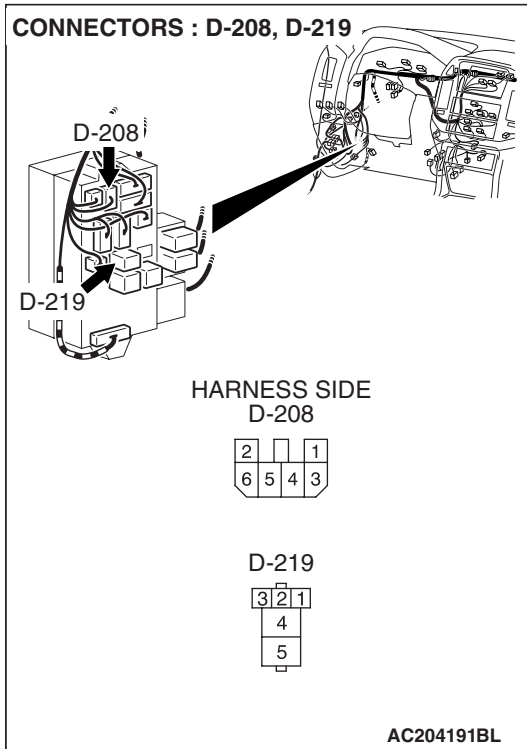
STEP 23. Check power window relay connector D-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window relay connector D-219 in good condition?

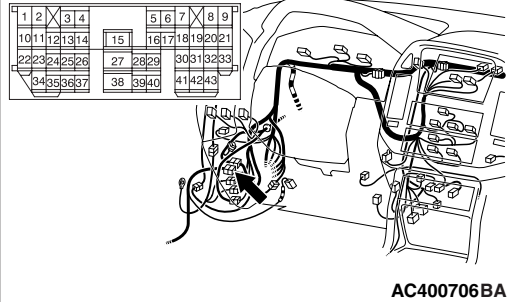
YES : Go to Step 24.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (LH) should now work normally.

STEP 24. Check the harness wiring between power window relay connector D-219 (terminal 4) and rear power window sub-switch (LH) connector H-02 (terminal 6).



CONNECTOR : D-125



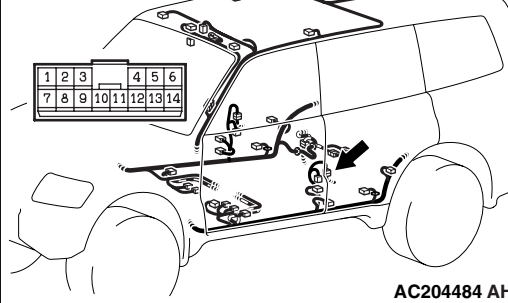
NOTE: Also check junction block connector D-208 and intermediate connectors D-125 and F-12. If junction block connector D-208, intermediate connector D-125 or F-12 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window relay connector D-219 (terminal 4) and rear power window sub-switch (LH) connector H-02 (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (LH) should now work normally.

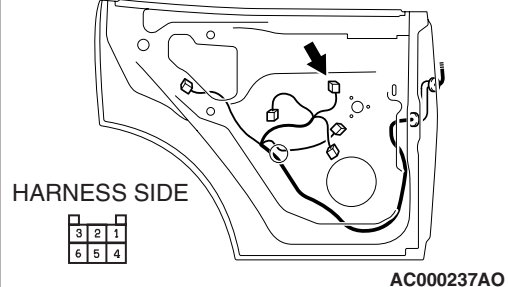
CONNECTOR: F-12



STEP 25. Check at rear power window sub-switch (LH) connector H-02 in order to check the ground circuit to the rear power window sub-switch (LH).

(1) Disconnect rear power window sub-switch (LH) connector H-02, and measure at the harness side.

**CONNECTOR: H-02
REAR DOOR<LH>**



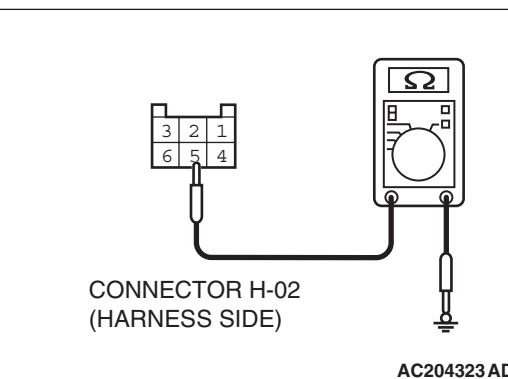
(2) Measure the resistance value between terminal 8 and ground.

- The resistance should measure 2 ohms or less.

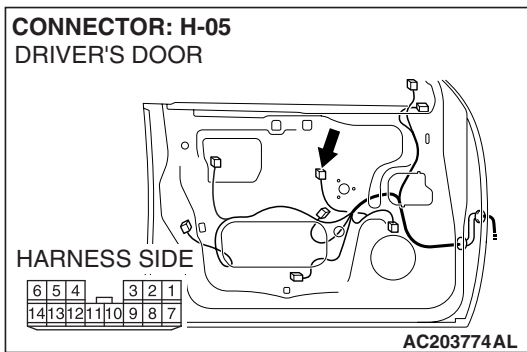
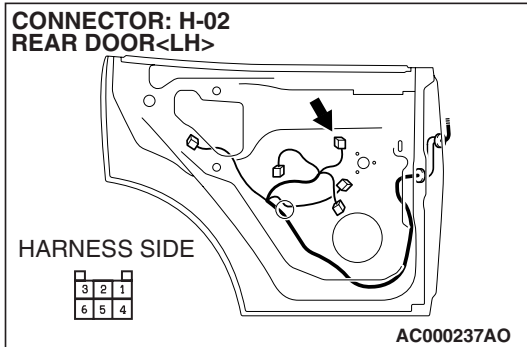
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 27.

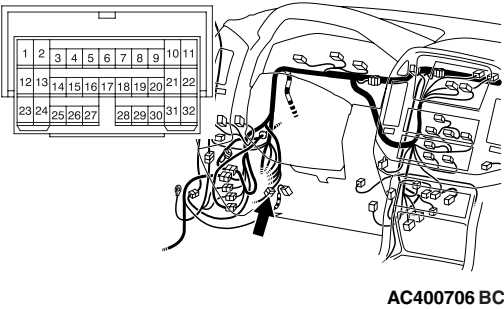
NO : Go to Step 26.



STEP 26. Check the harness wiring between power window main switch connector H-05 (terminal 1) and rear power window sub-switch (LH) connector H-02 (terminal 8).



CONNECTOR : D-25



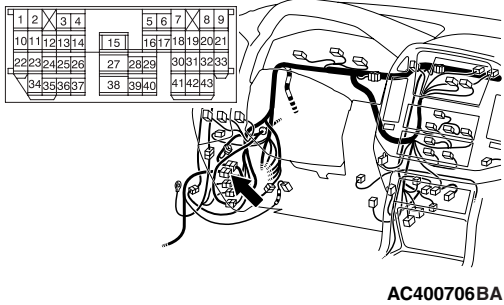
NOTE: Also check intermediate connectors, D-125, D-25 and F-12. If intermediate connector F-12, D-125 or D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window main switch connector H-05 (terminal 1) and rear power window sub-switch (LH) connector H-02 (terminal 8) in good condition?

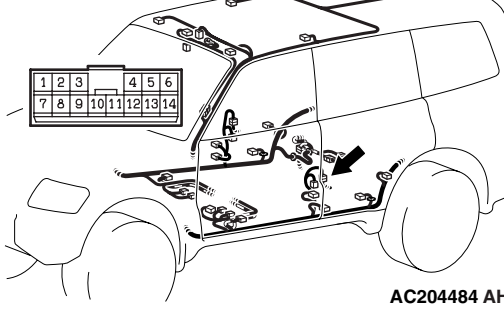
YES : Replace the power window main switch. Verify that the rear power window sub-switch (LH) should now work normally.

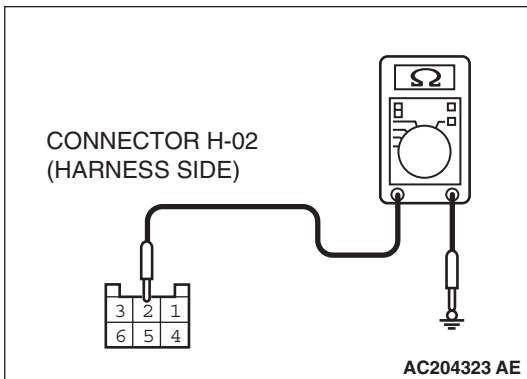
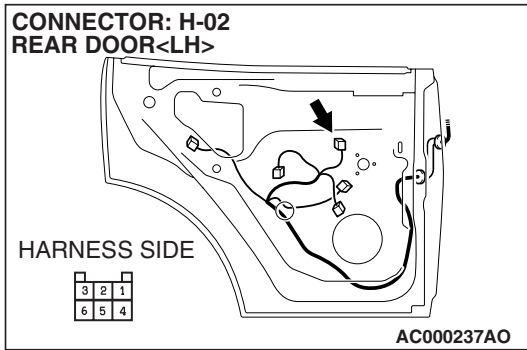
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (LH) should now work normally.

CONNECTOR : D-125



CONNECTOR: F-12





STEP 27. Check at rear power window sub-switch (LH) connector H-02 in order to check the ground circuit to the rear power window sub-switch (LH).

(1) Disconnect rear power window sub-switch (LH) connector H-02, and measure at the harness side.

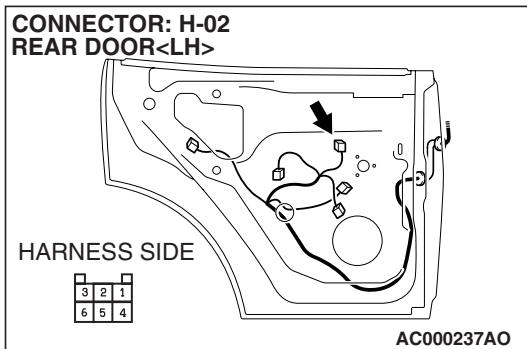
(2) Measure the resistance value between terminal 5 and ground.

- The resistance should measure 2 ohms or less.

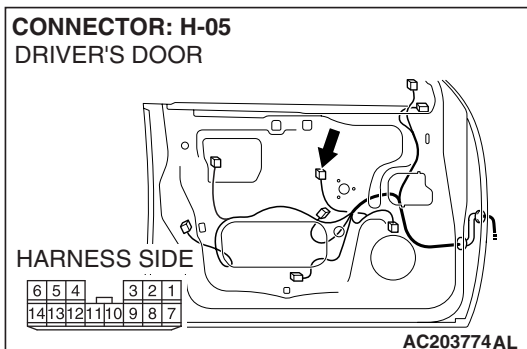
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 29.

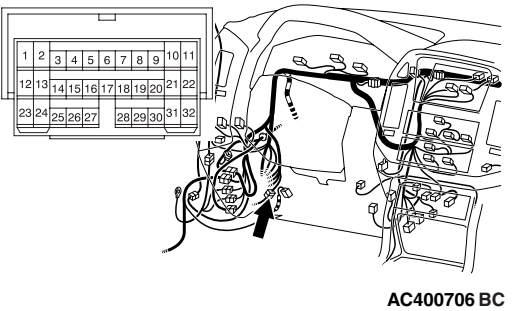
NO : Go to Step 28.



STEP 28. Check the harness wiring between power window main switch connector H-05 (terminal 3) and rear power window sub-switch (LH) connector H-02 (terminal 5).



CONNECTOR : D-25



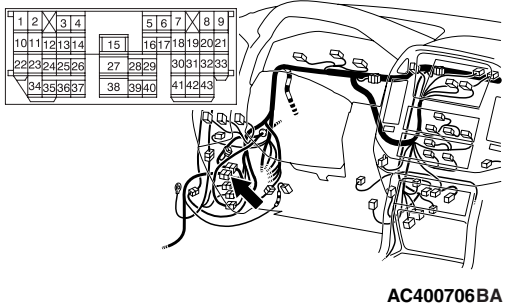
NOTE: Also check intermediate connectors, D-125, D-25 and F-12. If intermediate connector F-12, D-125 or D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window main switch connector H-05 (terminal 3) and rear power window sub-switch (LH) connector H-02 (terminal 5) in good condition?

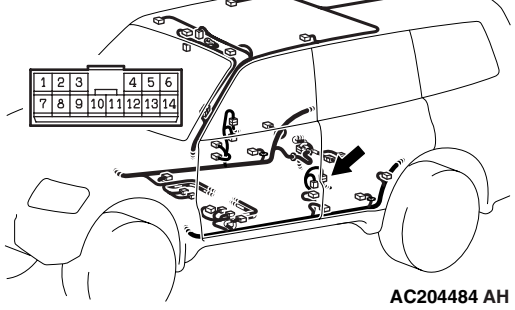
YES : Replace the power window main switch. Verify that the rear power window sub-switch (LH) should now work normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (LH) should now work normally.

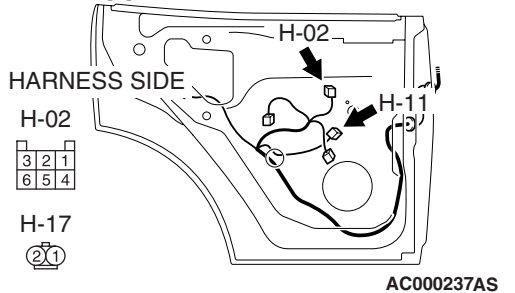
CONNECTOR : D-125



CONNECTOR: F-12



CONNECTORS: H-02, H-11
REAR DOOR <LH>

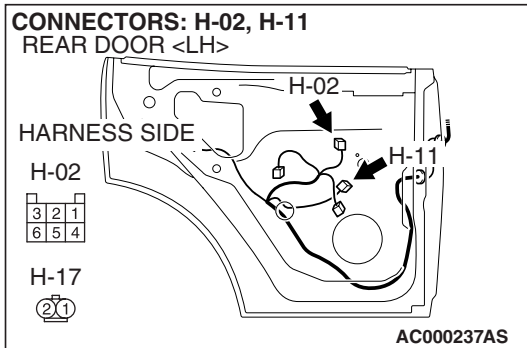


STEP 29. Check the harness wiring between rear power window sub-switch (LH) connector H-02 (terminal 4) and rear power window motor (LH) connector H-11 (terminal 1).

Q: Is the harness wiring between rear power window sub-switch (LH) connector H-02 (terminal 4) and rear power window motor (LH) connector H-11 (terminal 1) in good condition?

YES : Go to Step 30.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (LH) should now work normally.

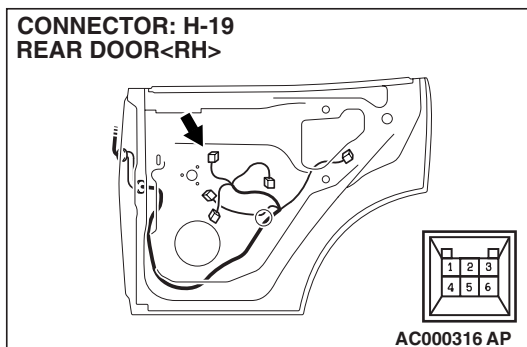


STEP 30. Check the harness wiring between rear power window sub-switch (LH) connector H-02 (terminal 7) and rear power window motor (LH) connector H-11 (terminal 2).

Q: Is the harness wiring between rear power window sub-switch (LH) connector H-02 (terminal 7) and rear power window motor (LH) connector H-11 (terminal 2) in good condition?

YES : Replace the power window main switch. Verify that the rear power window sub-switch (LH) should now work normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (LH) should now work normally.

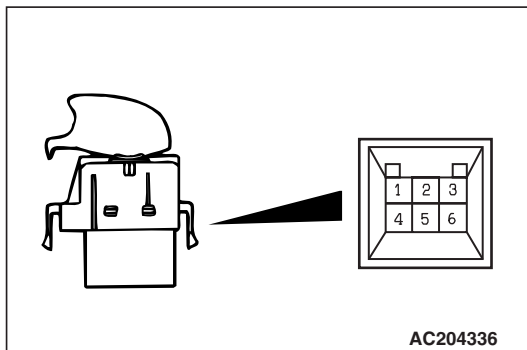


STEP 31. Check rear power window sub-switch (RH) connector H-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear power window sub-switch (RH) connector H-19 in good condition?

YES : Go to Step 32.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (RH) should now work normally.



STEP 32. Check the rear power window sub-switch (RH) for continuity.

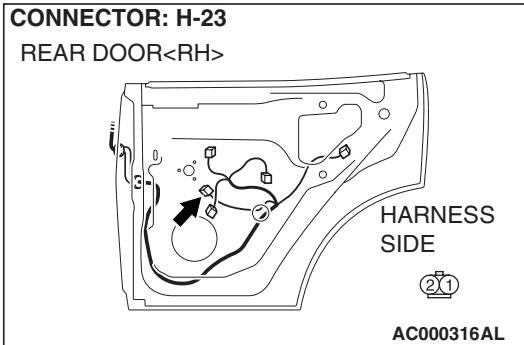
- (1) Remove the rear power window sub-switch (RH). Refer to GROUP 42, Door-Door Trim and Waterproof Film [P.42-32](#).
- (2) Check continuity when the rear power window sub-switch (RH) is operated to "UP" or "DOWN" position.

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

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

YES : Go to Step 33.

NO : Replace the rear power window sub-switch (RH). Verify that the rear power window sub-switch (RH) should now work normally.

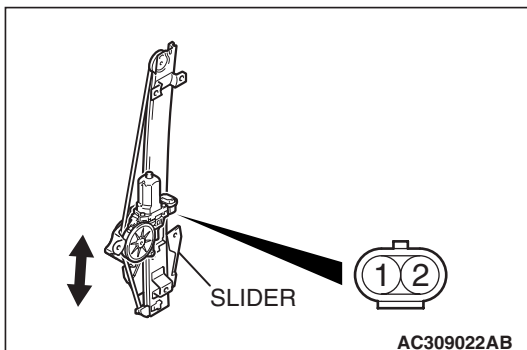


STEP 33. Check rear power window motor (RH) connector H-23 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear power window motor (RH) connector H-23 in good condition?

YES : Go to Step 34.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (RH) should now work normally.



STEP 34. Check the rear power window motor (RH).

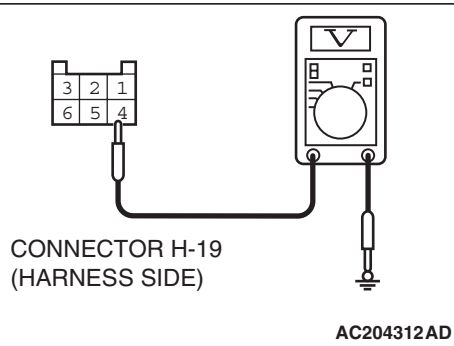
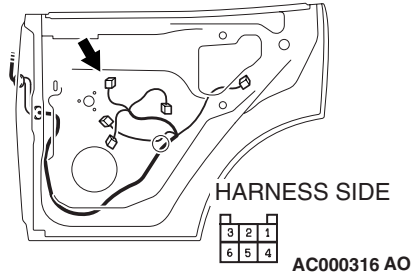
- (1) Remove the rear power regulator assembly (RH). Refer to GROUP 42, Door-Door Glass and Regulator [P.42-38](#).
- (2) Connect a battery to the motor terminal, and check that the motor runs freely.

BATTERY CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal 	The slider moves up
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The slider moves down

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

YES : Go to Step 35.

NO : Replace the rear power regulator assembly (RH). Verify that the rear power window (RH) function should now work normally.

CONNECTOR: H-19
REAR DOOR<RH>

STEP 35. Check at rear power window sub-switch (RH) connector H-19 in order to check the power window relay circuit of the power supply to the rear power window sub-switch (RH).

(1) Disconnect rear power window sub-switch (RH) connector H-19, and measure at the harness side.

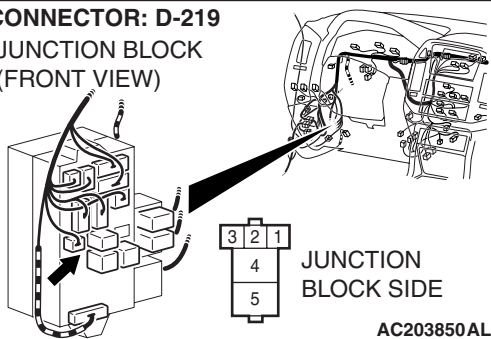
(2) Measure the voltage between terminal 6 and ground.

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

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

YES : Go to Step 38.

NO : Go to Step 36.

CONNECTOR: D-219
JUNCTION BLOCK
(FRONT VIEW)

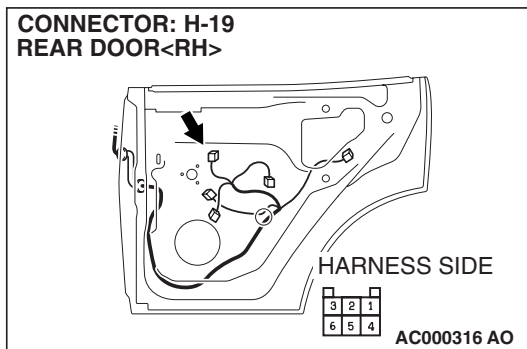
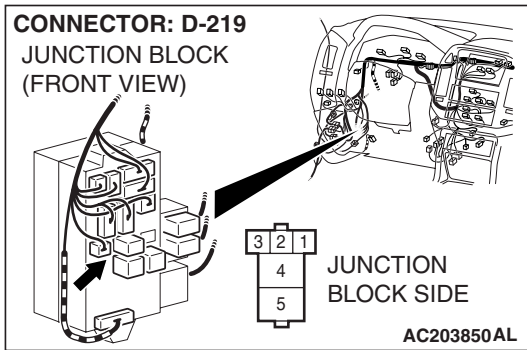
STEP 36. Check power window relay connector D-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

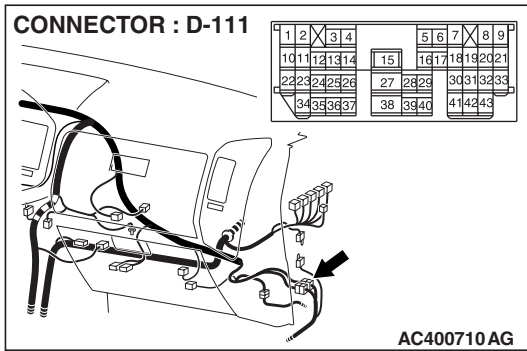
Q: Is power window relay connector D-219 in good condition?

YES : Go to Step 37.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear power window sub-switch (RH) should now work normally.

STEP 37. Check the harness wiring between power window relay connector D-219 (terminal 4) and rear power window sub-switch (RH) connector H-19 (terminal 6).



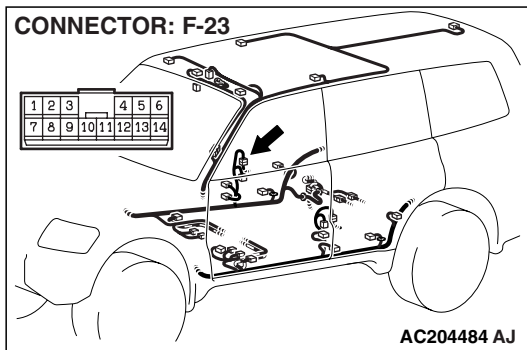
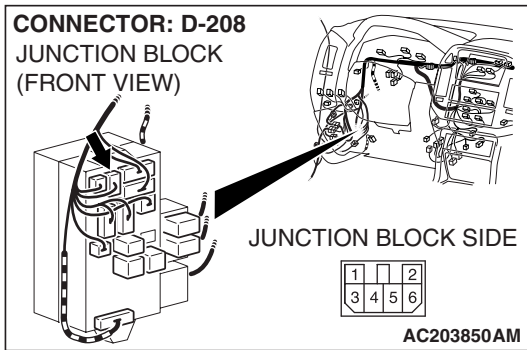


NOTE: Also check junction block connector D-208 and intermediate connectors D-111 and F-23. If junction block connector D-208, intermediate connector D-111 or F-23 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

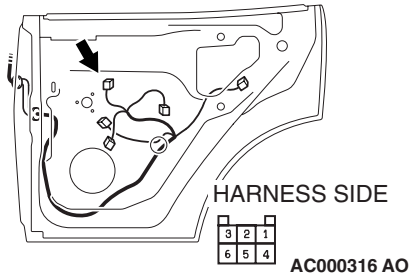
Q: Is the harness wiring between power window relay connector (terminal 4) and rear power window sub-switch (RH) connector H-19 (terminal 6) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (RH) should now work normally.



CONNECTOR: H-19
REAR DOOR<RH>



STEP 38. Check at rear power window sub-switch (RH) connector H-19 in order to check the ground circuit to the rear power window sub-switch (RH).

(1) Disconnect rear power window sub-switch (RH) connector H-19, and measure at the harness side.

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

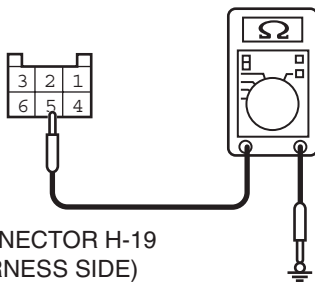
- The resistance should measure 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 40.

NO : Go to Step 39.

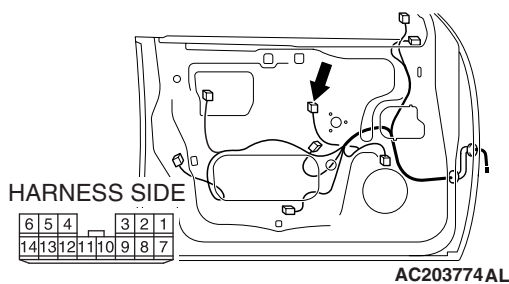
CONNECTOR H-19
(HARNESS SIDE)



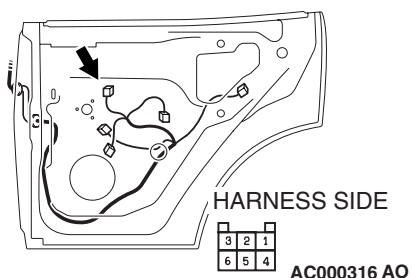
AC204323 AF

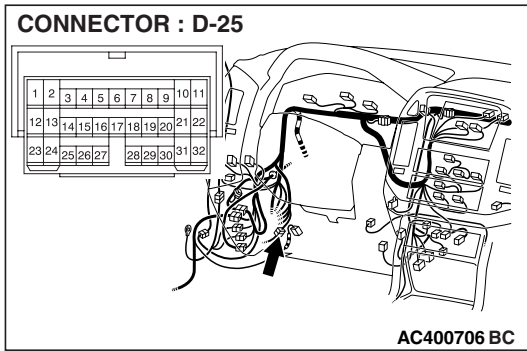
STEP 39. Check the harness wiring between power window main switch connector H-05 (terminal 4) and rear power window sub-switch (RH) connector H-19 (terminal 8).

CONNECTOR: H-05
DRIVER'S DOOR



CONNECTOR: H-19
REAR DOOR<RH>



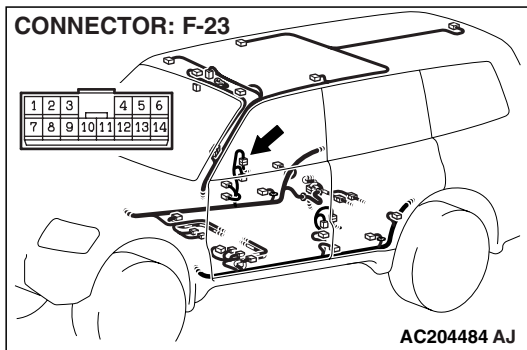
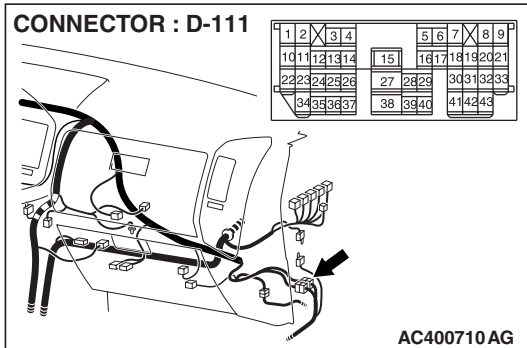


NOTE: Also check intermediate connectors D-25, D-111 and F-23. If intermediate connector D-25, D-111 or F-23 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

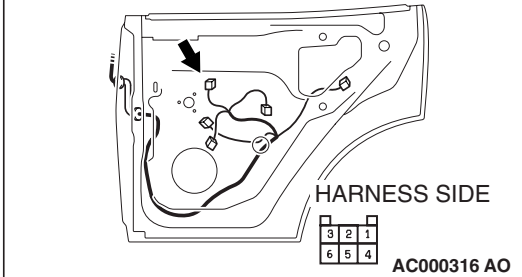
Q: Is the harness wiring between power window main switch connector H-05 (terminal 4) and rear power window sub-switch (RH) connector H-19 (terminal 8) in good condition?

YES : Replace the power window main switch. Verify that the rear power window sub-switch (RH) should now work normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (RH) should now work normally.



**CONNECTOR: H-19
REAR DOOR<RH>**



STEP 40. Check at rear power window sub-switch (RH) connector H-19 in order to check the ground circuit to the rear power window sub-switch (RH).

- (1) Disconnect rear power window sub-switch (RH) connector H-19, and measure at the harness side.

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

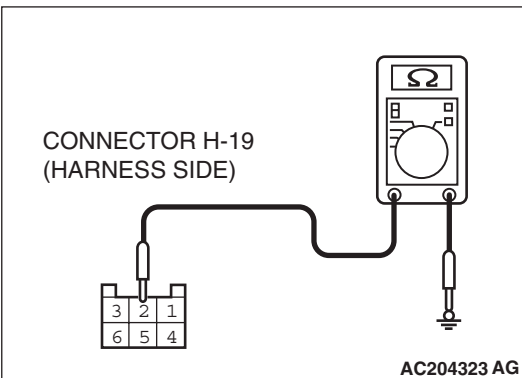
- The resistance should measure 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 42.

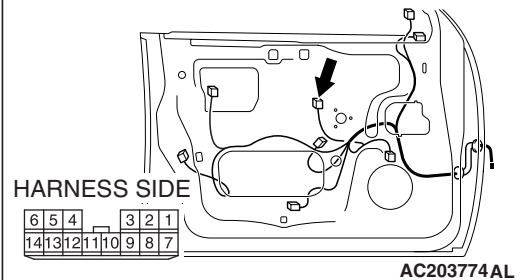
NO : Go to Step 41.

**CONNECTOR H-19
(HARNESS SIDE)**

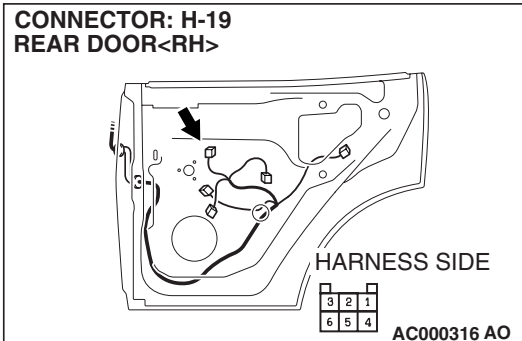


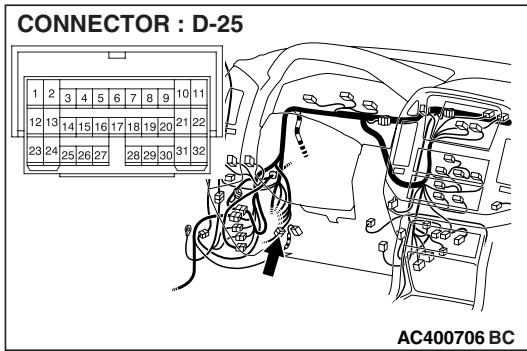
STEP 41. Check the harness wiring between power window main switch connector H-05 (terminal 6) and rear power window sub-switch (RH) connector H-19 (terminal 5).

**CONNECTOR: H-05
DRIVER'S DOOR**



**CONNECTOR: H-19
REAR DOOR<RH>**



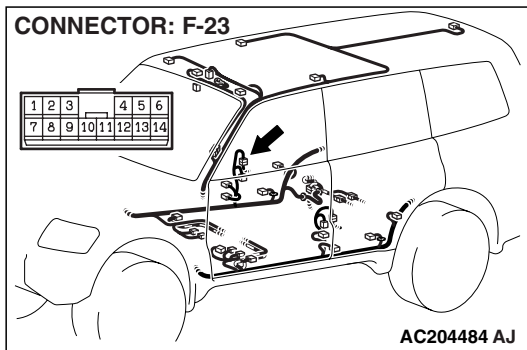
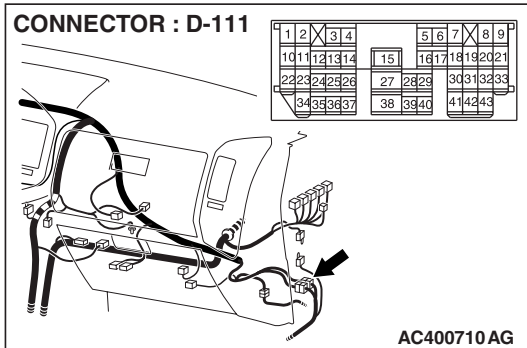


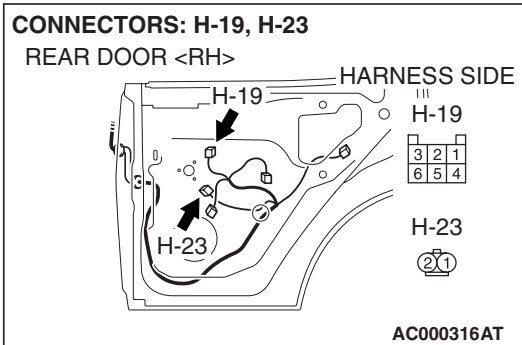
NOTE: Also check intermediate connectors D-25, D-111 and F-23. If intermediate connector D-25, D-111 or F-23 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wiring between power window main switch connector H-05 (terminal 6) and rear power window sub-switch (RH) connector H-19 (terminal 5) in good condition?

YES : Replace the power window main switch. Verify that the rear power window sub-switch (RH) should now work normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (RH) should now work normally.



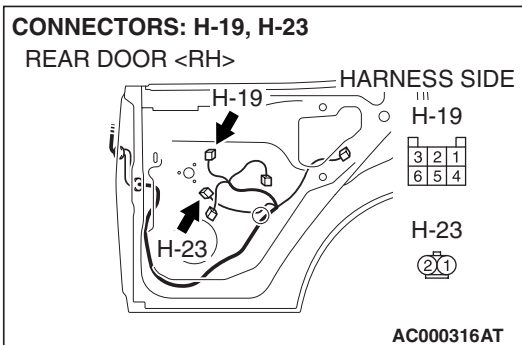


STEP 42. Check the harness wiring between rear power window sub-switch (RH) connector H-19 (terminal 4) and rear power window motor (RH) connector H-23 (terminal 1).

Q: Is the harness wiring between rear power window sub-switch (RH) connector H-19 (terminal 4) and rear power window motor (RH) connector H-23 (terminal 1) in good condition?

YES : Go to Step 43.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (RH) should now work normally.



STEP 43. Check the harness wiring between rear power window sub-switch (RH) connector H-19 (terminal 7) and rear power window motor (RH) connector H-23 (terminal 2).

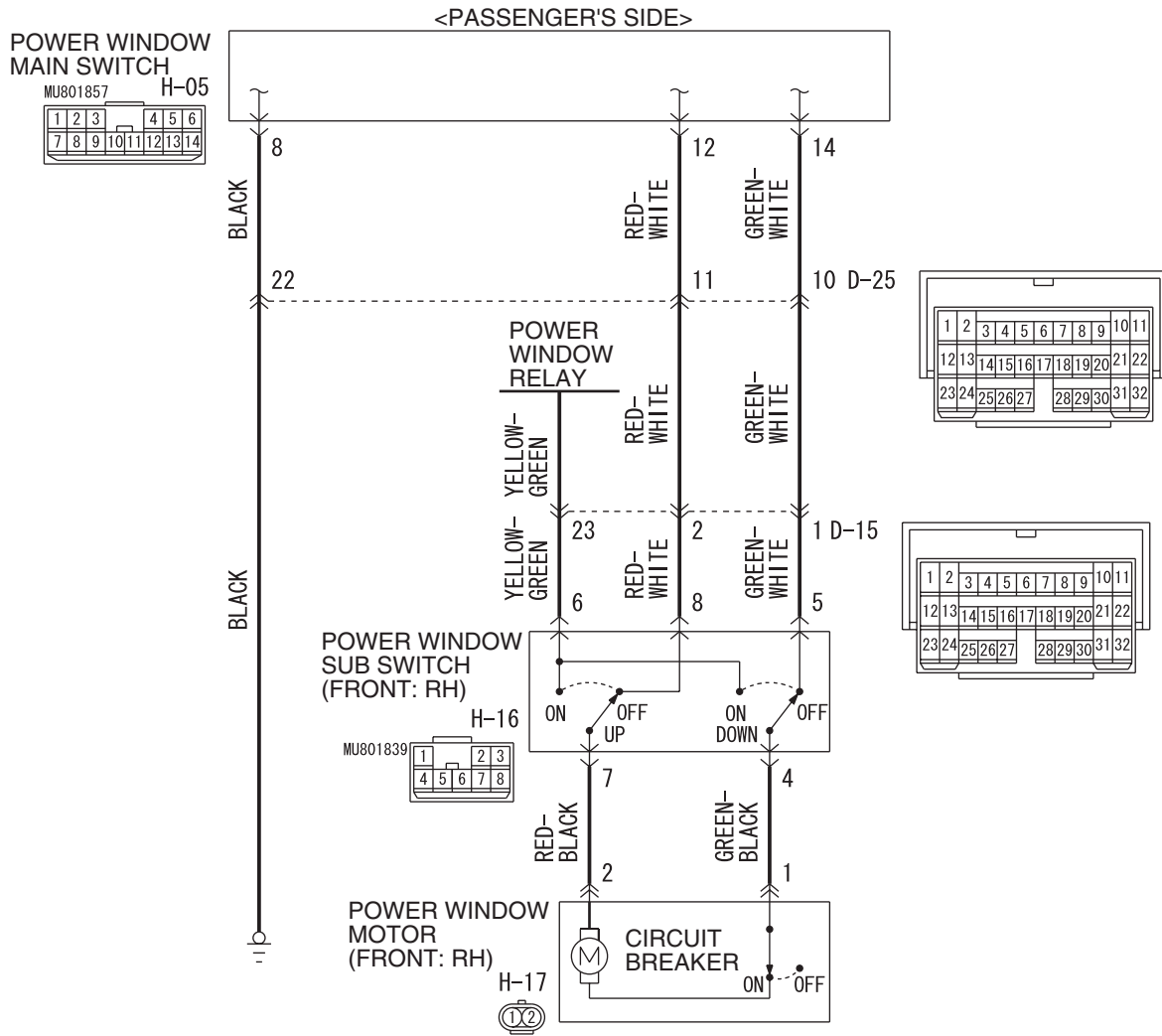
Q: Is the harness wiring between rear power window sub-switch (RH) connector H-19 (terminal 7) and rear power window motor (RH) connector H-23 (terminal 2) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear power window sub-switch (RH) should now work normally.

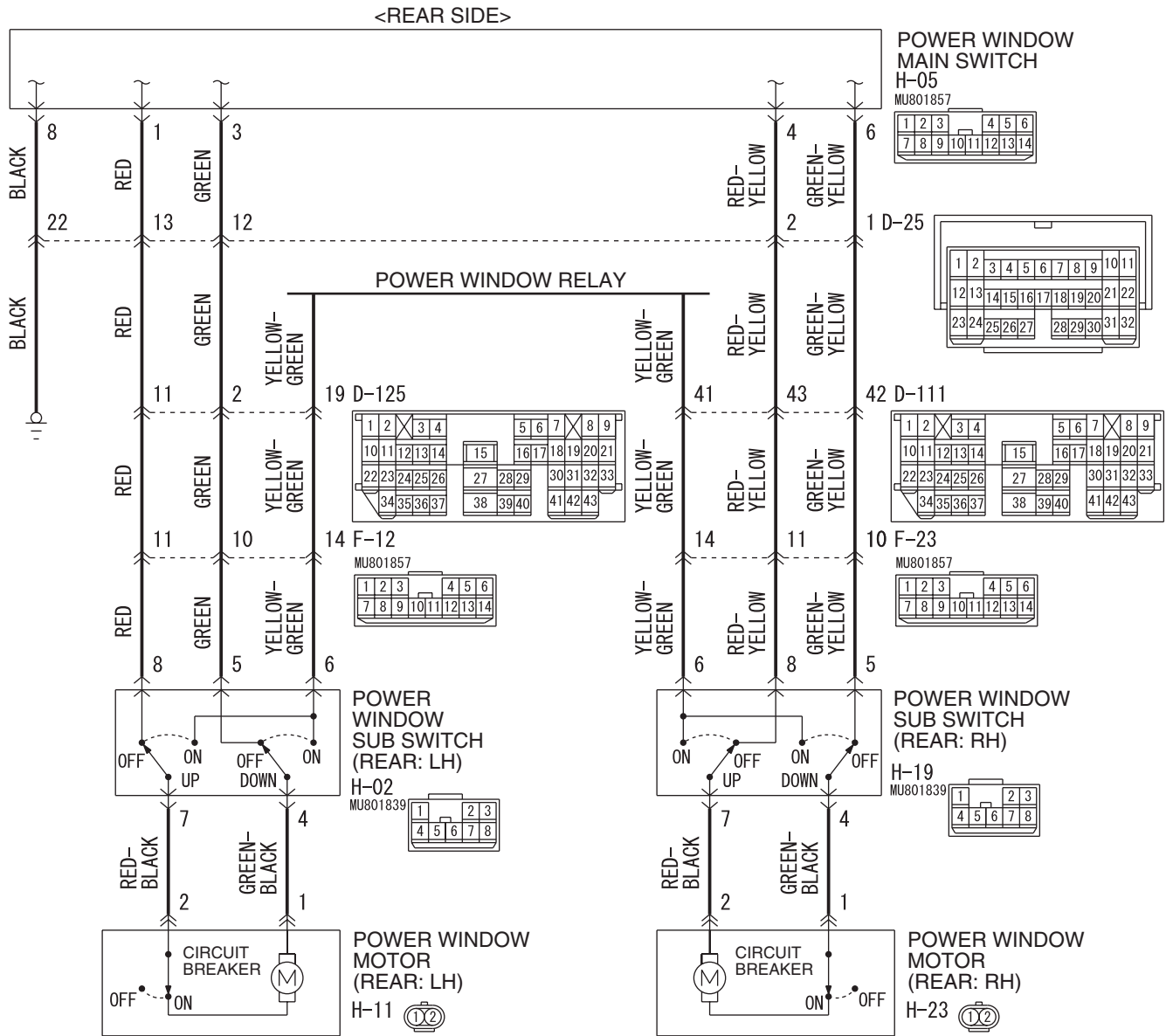
INSPECTION PROCEDURE D-5: Power Window: Front passenger's and rear power windows do not work normally by operating the power window main switch.

Power Window (front: RH) Circuit



W5Q54M011A

Power Window (rear) Circuit



W5Q54M013A

CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

The power window main switch may be defective

DIAGNOSIS

Check that power window sub-switches operate normally.

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

YES : Replace the power window main switch. The power window main switch is operated, the front passenger's or rear power window function should now work normally.

NO : Refer to Inspection Procedure D-4 "Power windows do not work normally by operating the passenger's and rear power window switches P.54B-157."

KEYLESS ENTRY SYSTEM

GENERAL DESCRIPTION CONCERNING THE KEYLESS ENTRY SYSTEM

M1549022000329

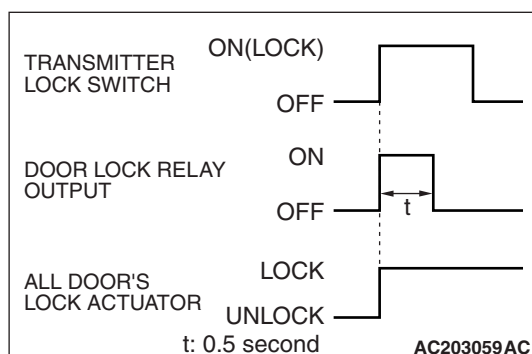
The following ECUs affect the functions and control of the keyless entry system.

FUNCTION		CONTROL ECU
All door lock function	Operate the transmitter lock switch	ETACS-ECU
Driver's door unlock function	Press the transmitter unlock switch once	
All door unlock function	Press the transmitter unlock switch twice	
Keyless entry hazard answerback and horn answerback function		

ALL DOOR LOCK FUNCTION

OPERATE THE TRANSMITTER LOCK SWITCH

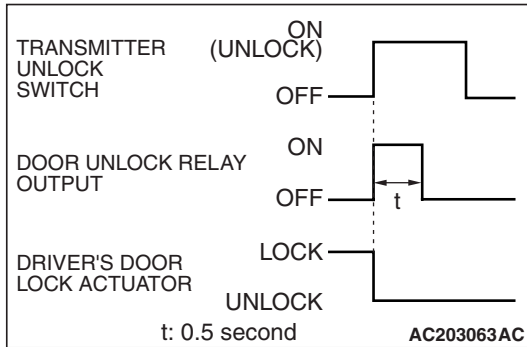
When the transmitter lock switch is pressed, the ETACS-ECU energizes its door lock relay to operate all the door lock actuators for 0.5 second thus causing all doors to be locked.



DRIVER'S DOOR UNLOCK FUNCTION

PRESS THE TRANSMITTER UNLOCK SWITCH ONCE

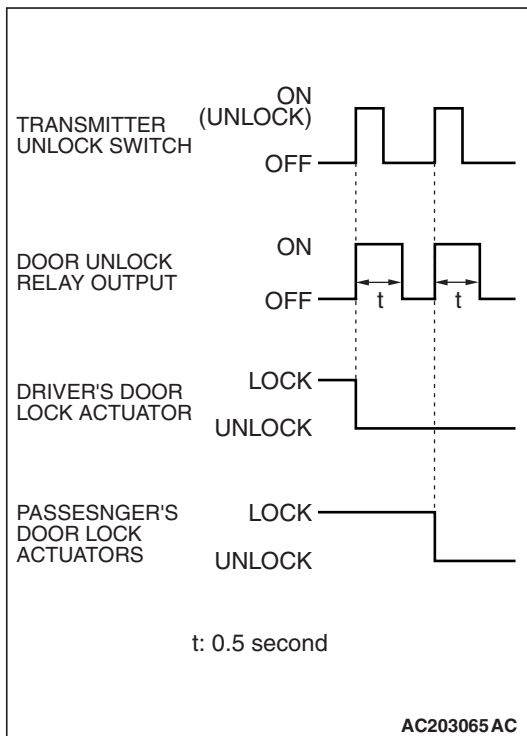
When the transmitter unlock switch is pressed once, the ETACS-ECU energizes its door unlock relay to operate the door lock actuator of the driver's door for 0.5 second thus causing only the driver's door to be unlocked.



ALL DOOR UNLOCK FUNCTION

PRESS THE TRANSMITTER UNLOCK SWITCH TWICE

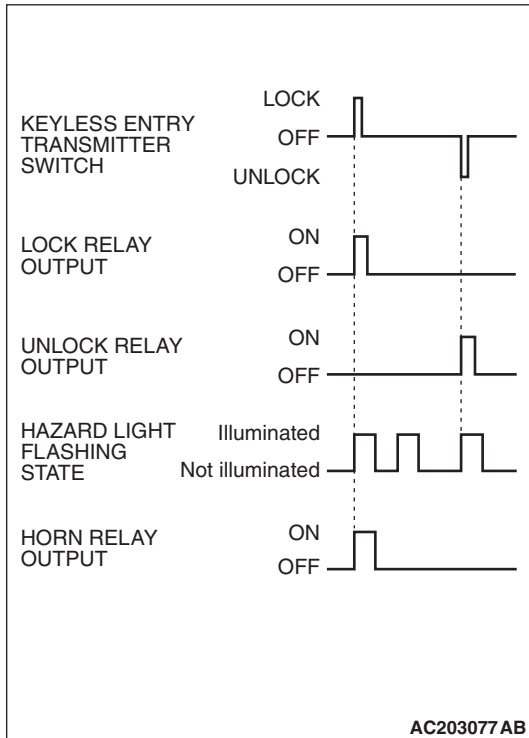
When the transmitter unlock switch is pressed twice, the ETACS-ECU energizes its door unlock relay to operate the driver's door lock actuator and the other door lock actuators for 0.5 second each in succession. Then, the doors will be unlocked.



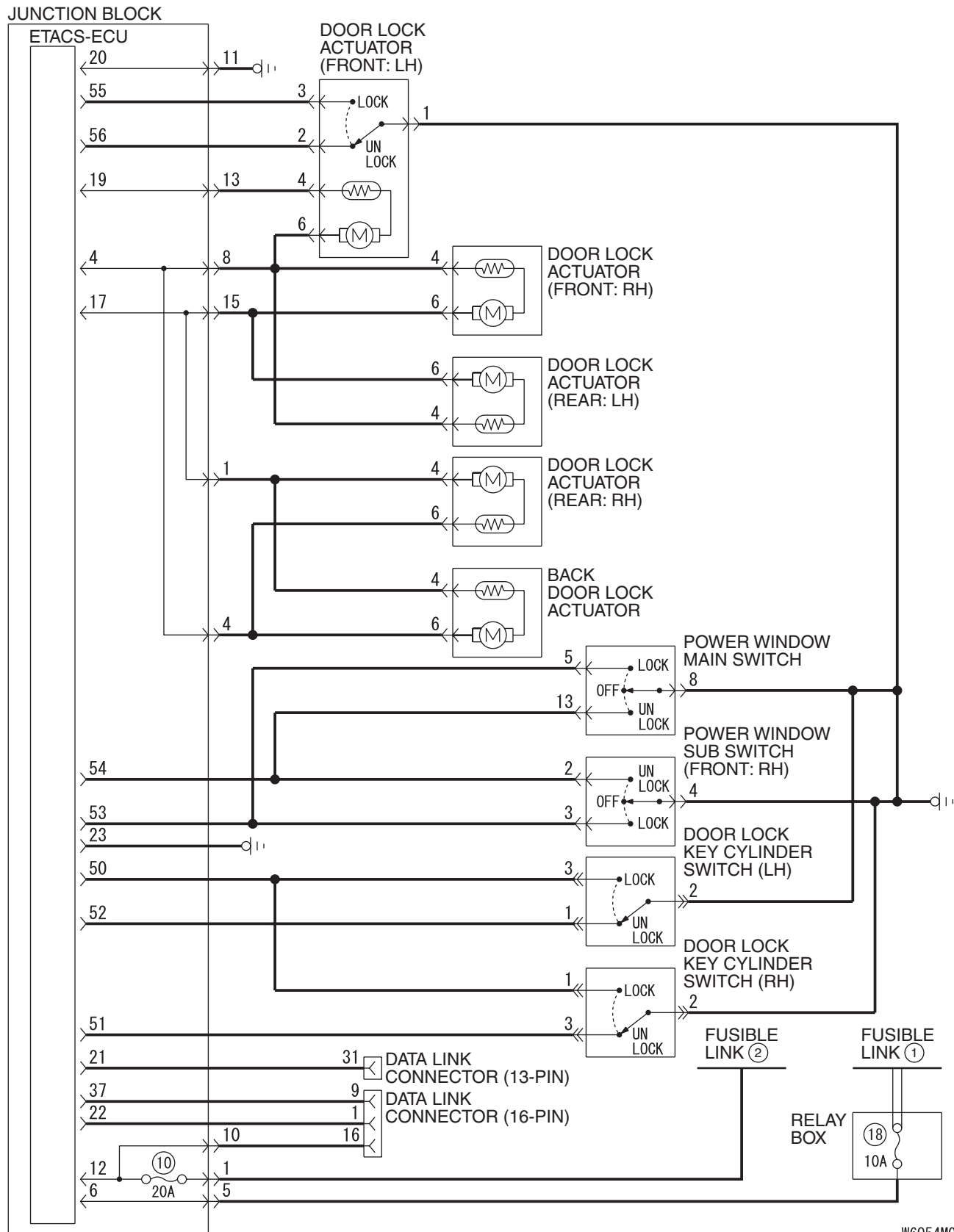
KEYLESS ENTRY HAZARD ANSWERBACK AND HORN ANSWERBACK FUNCTION

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

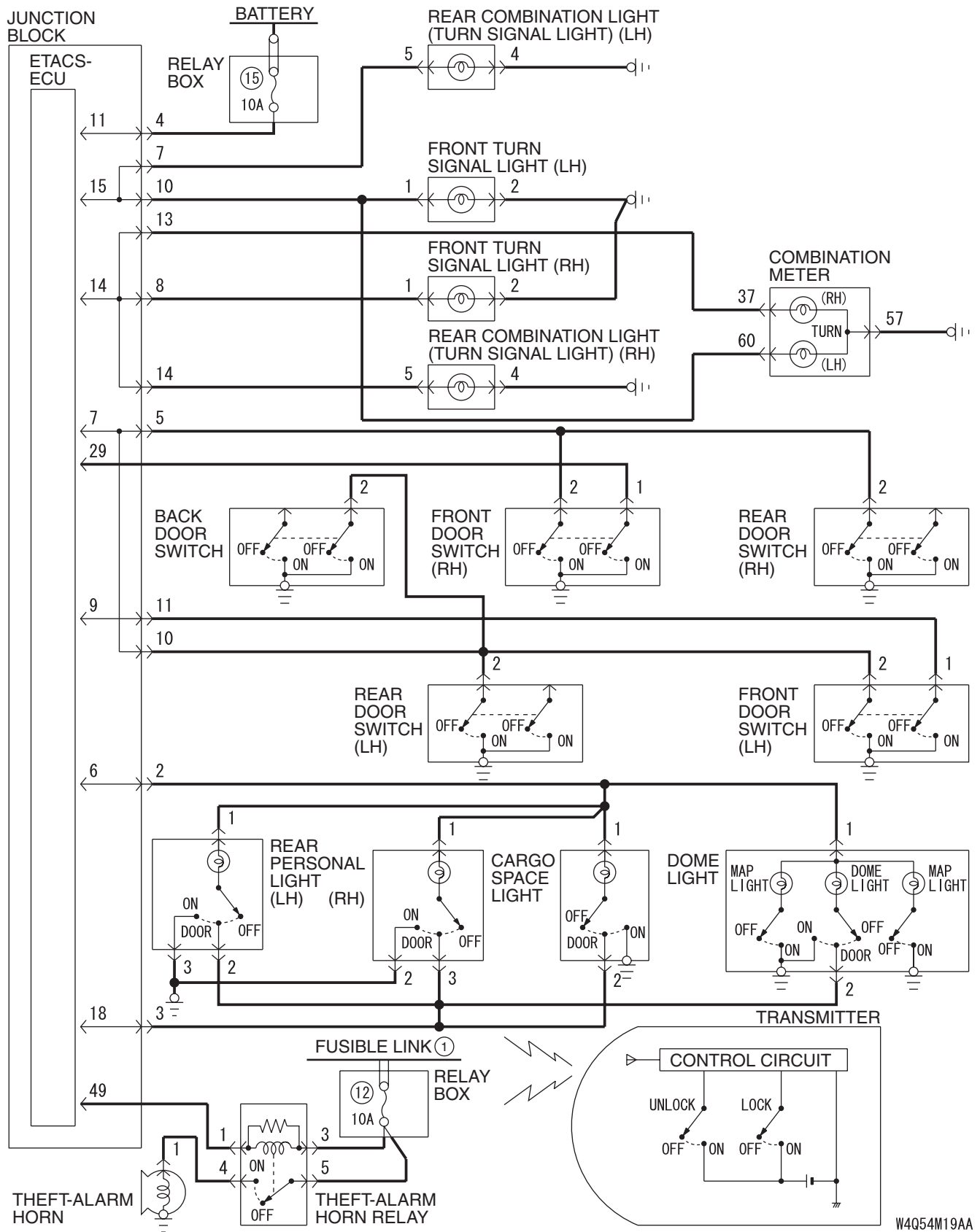
NOTE: Hazard answerback function can be disabled by the configuration function (Refer to GROUP 54B P.54B-622.)



GENERAL CIRCUIT DIAGRAM FOR THE KEYLESS ENTRY SYSTEM



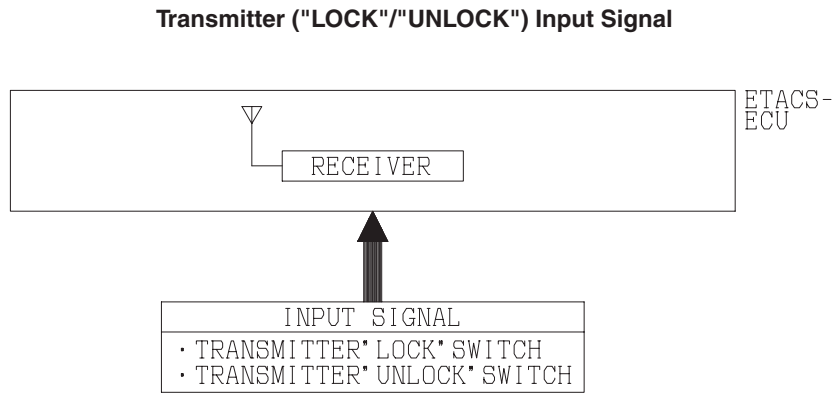
W6Q54M000A



W4Q54M19AA

INSPECTION PROCEDURE E-1: Keyless Entry System: Keyless entry system does not operate.

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



W2J08M49AA

CIRCUIT OPERATION

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

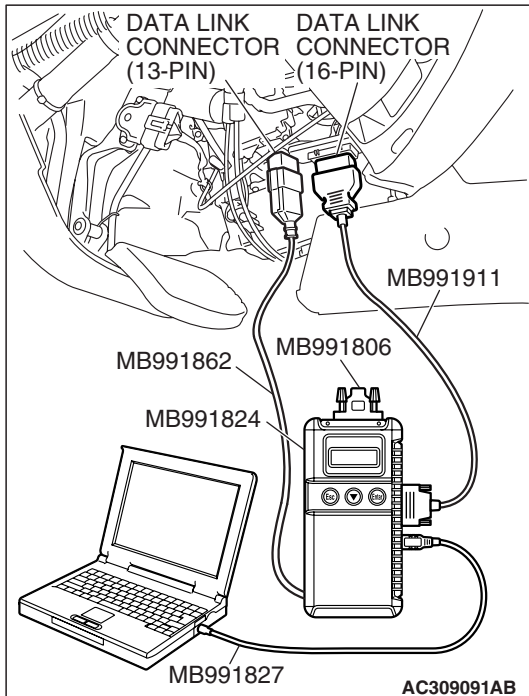
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

Check the ETACS-ECU.

⚠ CAUTION

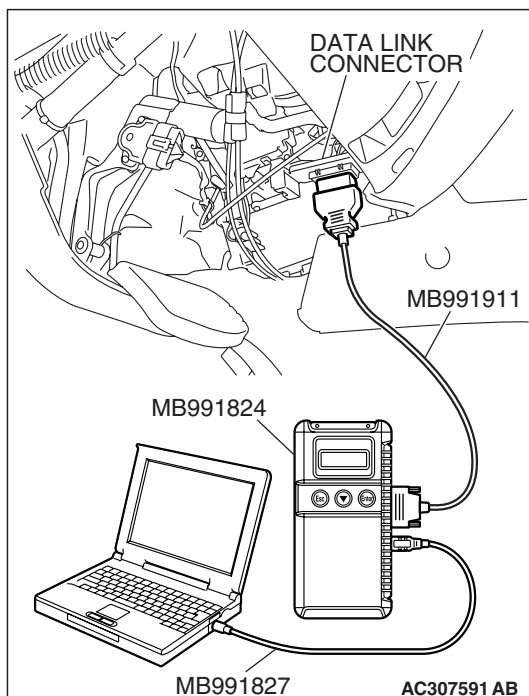
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

YES : Go to Step 2.

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



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

Check the input signals from the transmitter.

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Operate scan tool MB991958 as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Push the transmitter "LOCK" or "UNLOCK" switch.
- (4) Check that scan tool MB991958 sounds.

Q: When the transmitter "LOCK" or "UNLOCK" switch is pushed, does scan tool MB991958 sound?

YES : Replace the ETACS-ECU. Verify that all the doors can be locked or unlocked by using the transmitter.

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

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

CIRCUIT OPERATION

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

- Dome light answerback function
- Hazard warning lights answerback function
- Horn answerback function

TECHNICAL DESCRIPTION (COMMENT)

The hazard warning lights or horn answerback functions can be disabled. However, the dome light answerback function can be disabled.

TROUBLESHOOTING HINTS

- The hazard warning lights (turn-signal lights) may be defective
- The horn may be defective
- The dome light may be defective
- The ETACS-ECU may be defective
- The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

STEP 1. Verify the keyless entry system.

Q: Does the keyless entry system work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure E-1 "Keyless entry system does not operate [P.54B-197.](#)"

STEP 2. Verify the answerback adjustment function.

Check the answerback functions. (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Enabling/disabling the Answerback Function [P.42-57.](#))

Q: Does the answerback function work normally?

YES : No action is necessary and testing is complete.

NO : Go to Step 3.

STEP 3. Verify the trouble symptom.

Q: Which answerback function is defective?

Only the dome light : Go to Step 4.

Only the hazard warning lights (turn-signal lights) : Go to Step 5.

All functions do not work [dome light, hazard warning lights (turn-signal lights) and horn]. : Replace the ETACS-ECU. Verify that the answerback functions work normally.

STEP 4. Verify the dome light.

Q: Does the dome light illuminate normally?

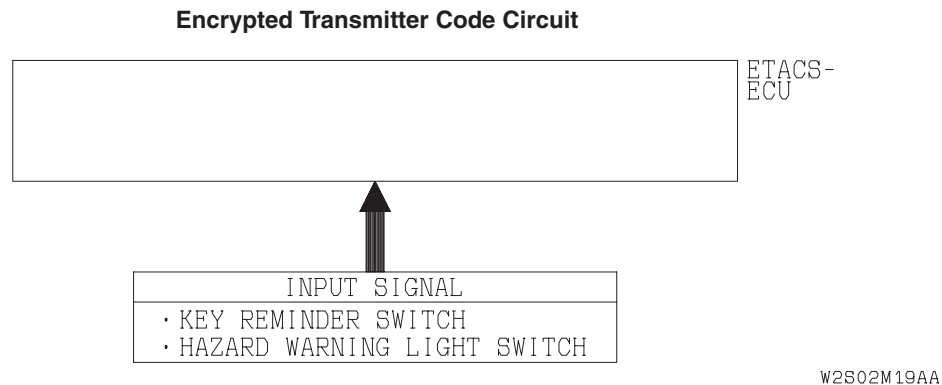
YES : Replace the ETACS-ECU. Verify that the answerback functions work normally.

NO : Refer to Inspection Procedure M-1 "The dome light do not illuminate or go out normally [P.54B-419.](#)"

STEP 5. Verify the hazard warning light.**Q: Do the hazard warning lights work normally?**

YES : Replace the ETACS-ECU. Verify that the answerback functions work normally.

NO : Refer to Inspection Procedure K-2 "Hazard warning lights do not illuminate [P.54B-370.](#)"

INSPECTION PROCEDURE E-3: Keyless Entry System: Encrypted code cannot be registered**CIRCUIT OPERATION**

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

- Key reminder switch
- Hazard warning light switch

TECHNICAL DESCRIPTION (COMMENT)

If the encrypted code register mode can not be set, the input circuits from the key reminder switch, hazard warning light switch or the ETACS-ECU may be defective.

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

TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The hazard warning light switch may be defective
- The transmitter may be defective
- The ETACS-ECU may be defective
- The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Verify the trouble symptom.

Q: Can the encrypted code register mode be set?

YES : Refer to Inspection Procedure P-10 "ETACS-ECU does not receive a signal from the lock, unlock switch or panic switch [P.54B-613.](#)"

NO : Go to Step 2.

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

Check the input signals from the following switches:

- Key reminder switch
- Hazard warning light switch

⚠ CAUTION

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

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Operate scan tool MB991958 as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Verify scan tool MB991958 sounds or not.
- (4) If the switches (see table below), which are applicable for the input signal check, are operated.

ITEM NAME	CHECK CONDITIONS
Key reminder switch	Insert and remove the ignition key
Hazard warning light switch	Turn the hazard warning light switch from the "OFF" to "ON" position.

Q: When the key reminder switch and the hazard warning light switch are operated, does scan tool MB991958 sound?

Buzzer of scan tool MB991958 sounds normally :

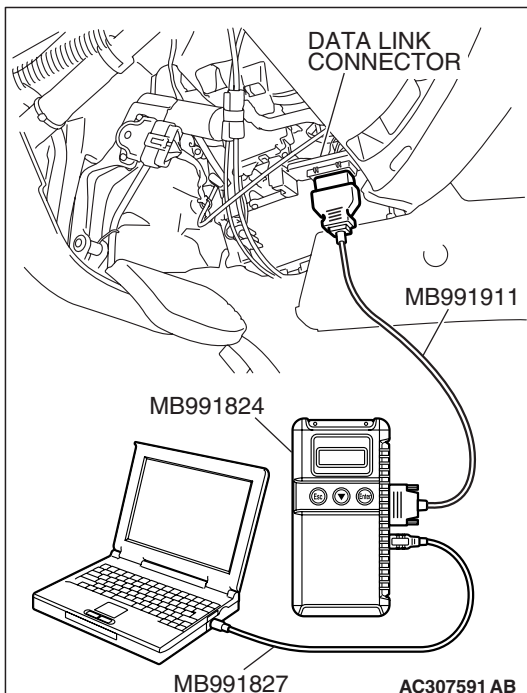
Replace the ETACS-ECU. Verify that the encrypted code can be registered in the transmitter.

Scan tool MB991958 does not sound when the ignition key is removed and reinserted :

Refer to Inspection Procedure P-1 "ETACS-ECU does not receive any signal from the key reminder switch [P.54B-532.](#)"

Scan tool MB991958 does not sound when the hazard warning light switch is turned from "OFF" to "ON" :

Refer to Inspection Procedure P-2 "ETACS-ECU does not receive any signal from the hazard warning light switch [P.54B-536.](#)"



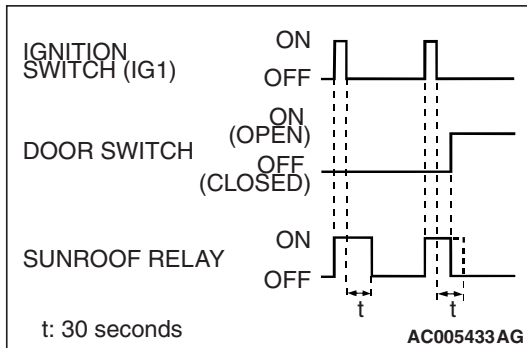
SUNROOF

GENERAL DESCRIPTION CONCERNING THE SUNROOF

M1549021200193

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

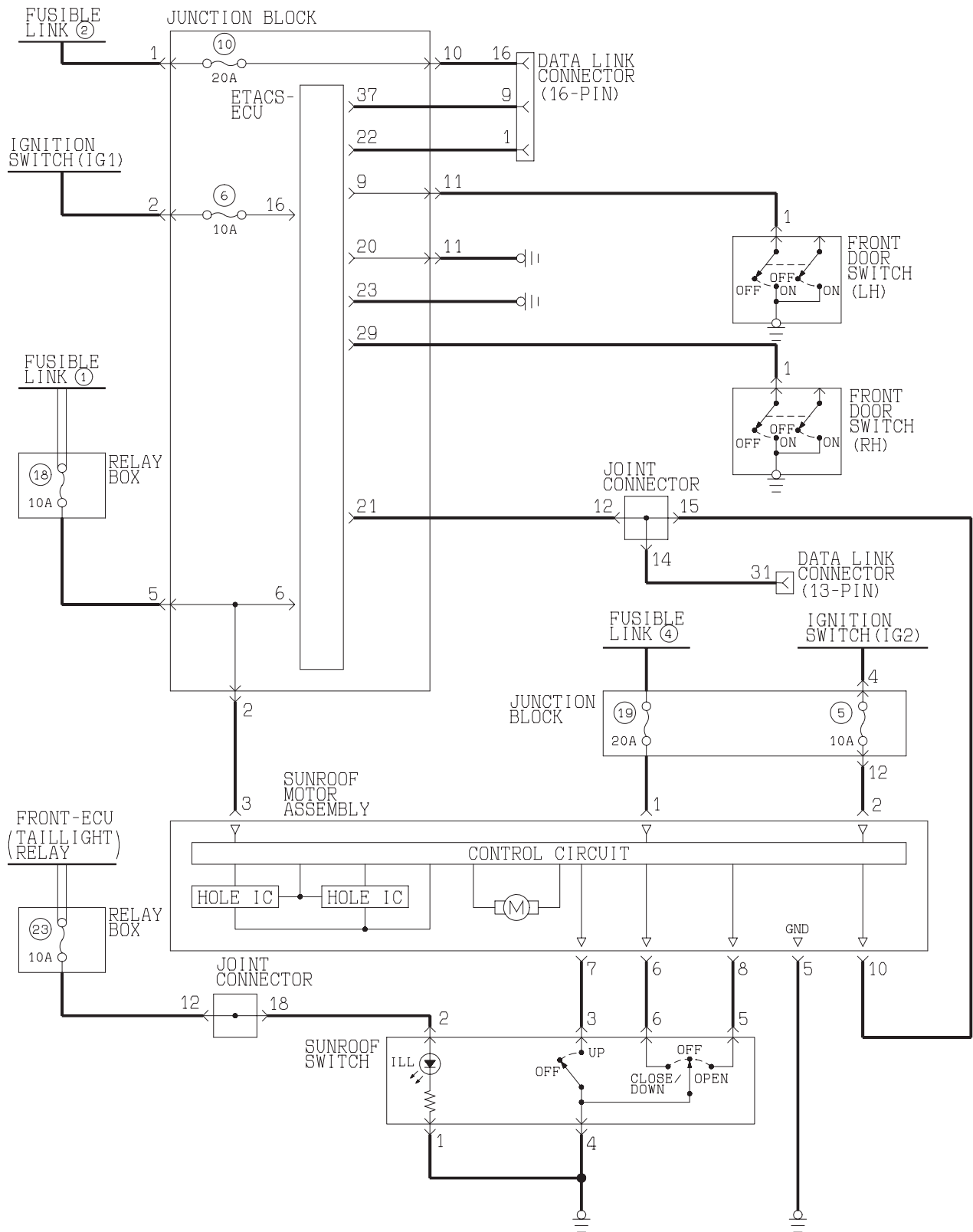
FUNCTION	CONTROL ECU
Sunroof timer function	ETACS-ECU, sunroof motor assembly



Sunroof timer function

After the ignition switch is turned OFF, the system continues to turn ON the sunroof relay for about 30 seconds and to enable the opening and closing of the sunroof by the sunroof switch. When the driver's or front passenger's door is opened while the timer is in operation, the sunroof relay will be turned OFF and the sunroof timer function will be finished. As for the sunroof functions, refer to GROUP 42 – Sunroof P.42-62.

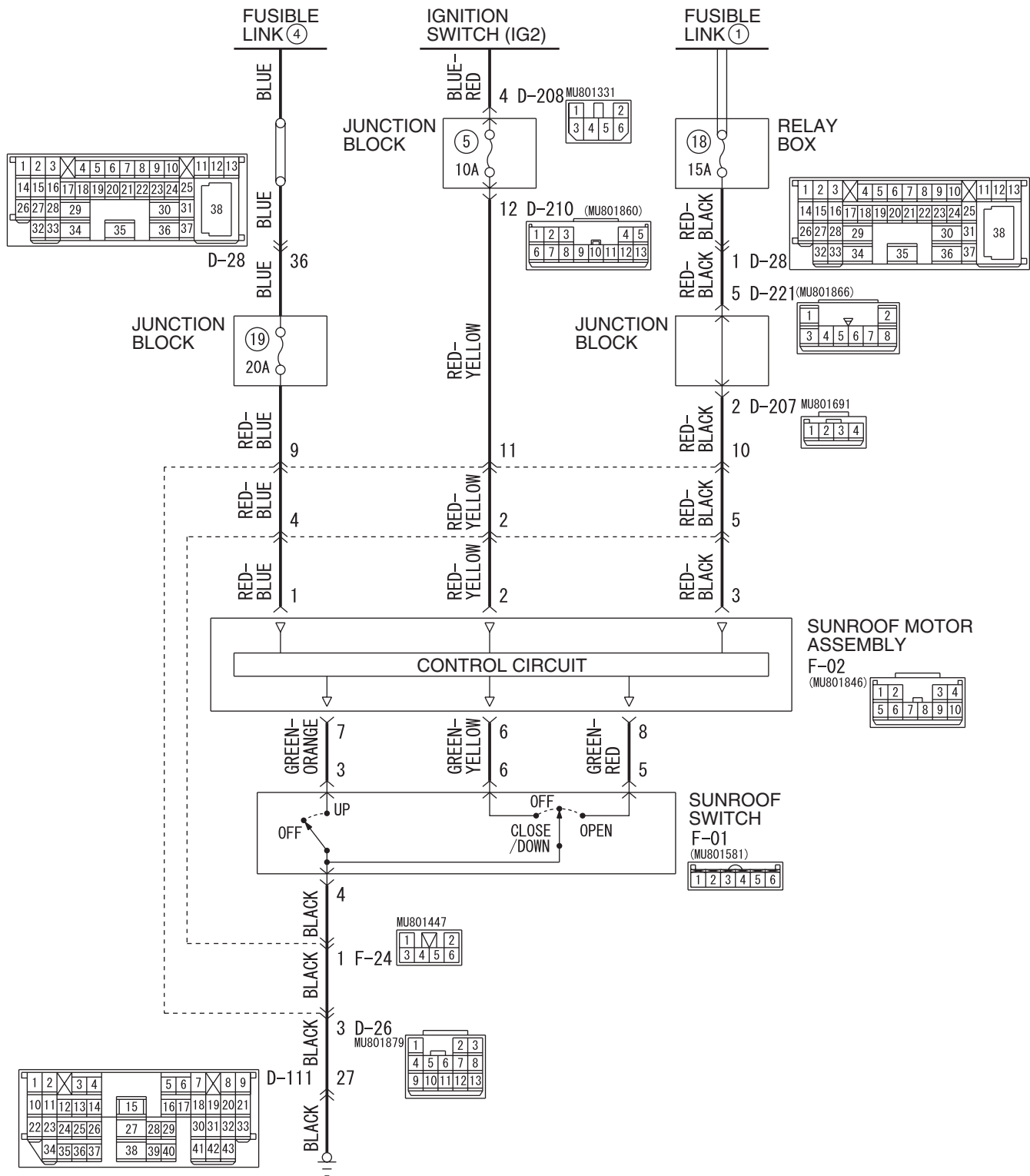
General circuit diagram regarding the sunroof

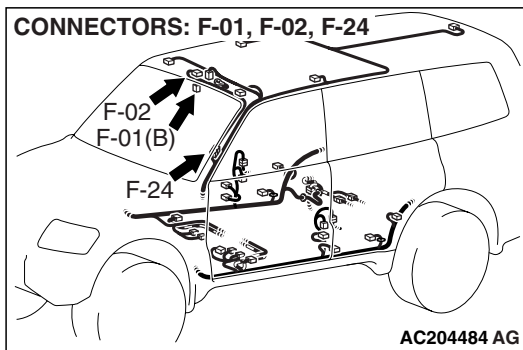
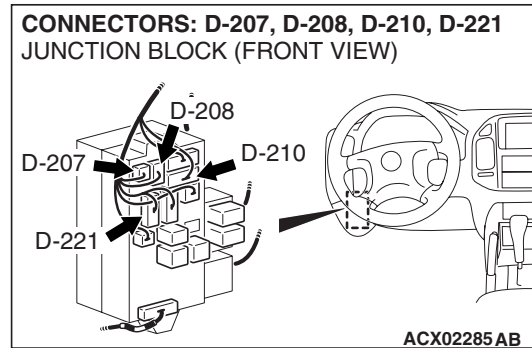
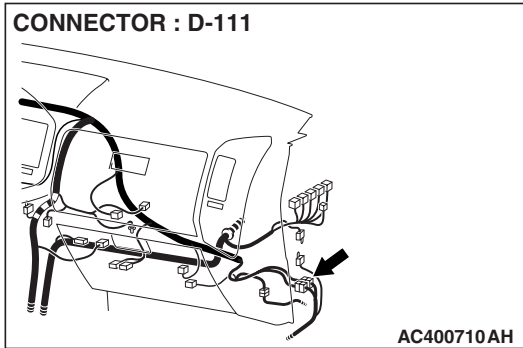
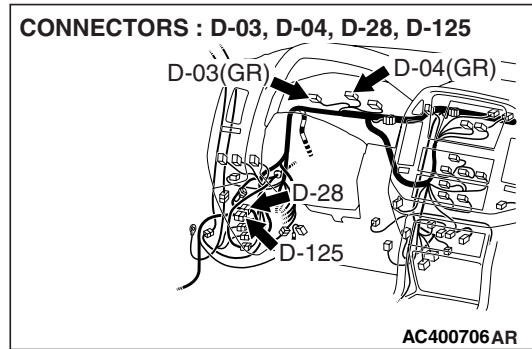
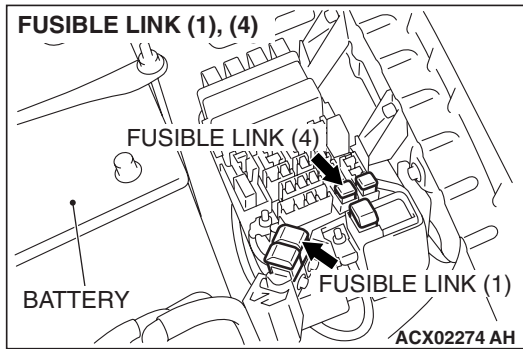


W3Q15M04AA

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

Sunroof Motor Assembly Power Supply Circuit





CIRCUIT OPERATION

- The sunroof motor assembly is energized through fusible link (1) and (4).
- When the ignition switch (IG2) signal is on, the sunroof motor assembly is ready to operate.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tool:**

- MB991223: Harness Set

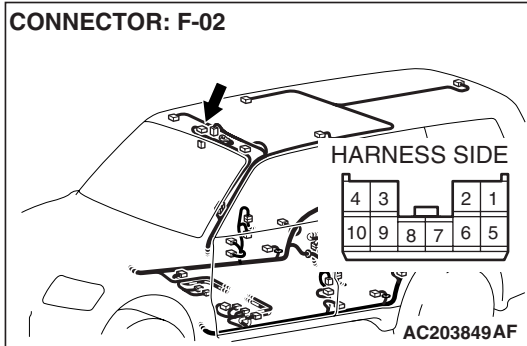
STEP 1. Check the sunroof motor assembly connector F-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof motor assembly connector F-02 in good condition?

YES : Go to Step 2.

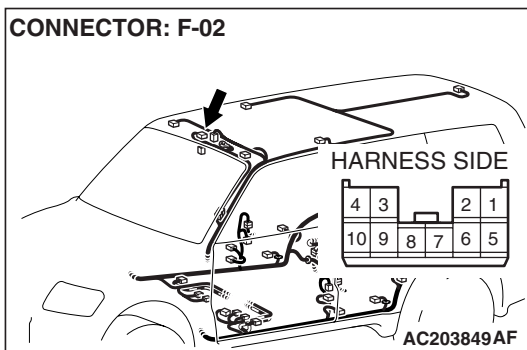
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. The sunroof should now work normally.



STEP 2. Check the fusible link (4) line of power supply circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.

(1) Disconnect sunroof motor assembly connector F-02 and measure the voltage available at the wiring harness side of the connector.



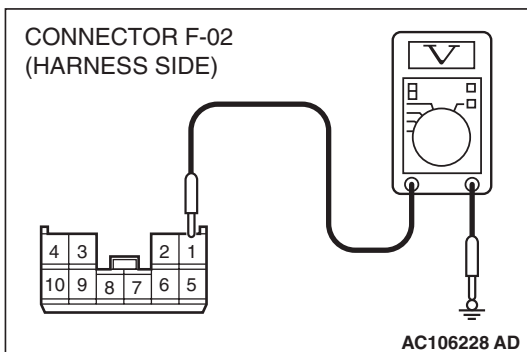
(2) Measure the voltage between terminal 1 and ground.

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

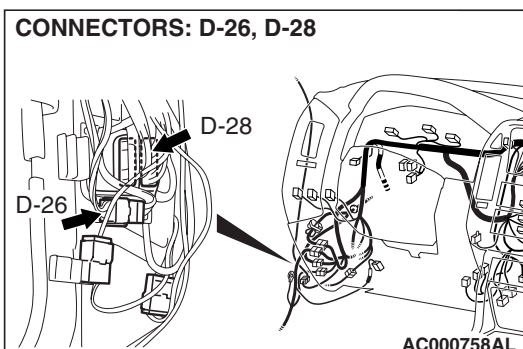
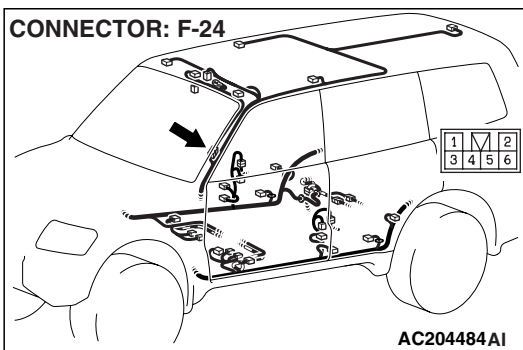
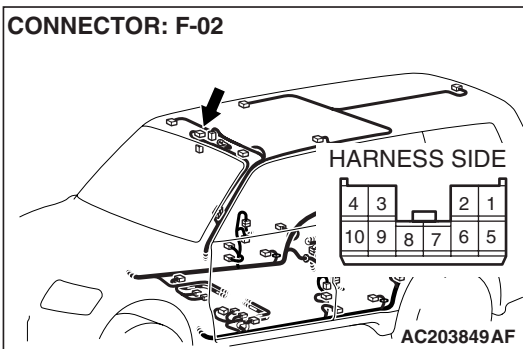
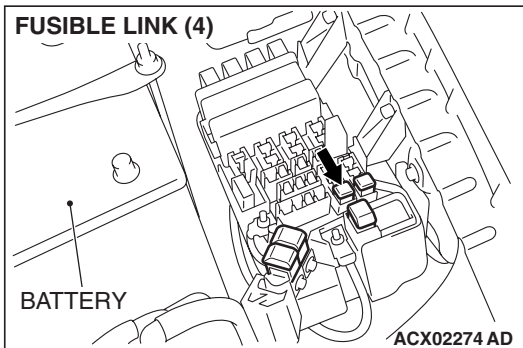
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 4.

NO : Go to Step 3.



STEP 3. Check the harness wires between sunroof motor assembly connector F-02 (terminal 1) and fusible link (4).

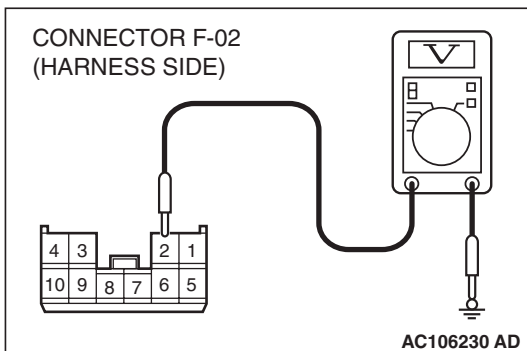
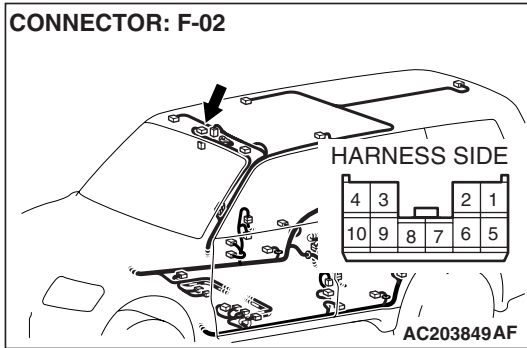


NOTE: Also check intermediate connectors F-24, D-26 and D-28 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If intermediate connector F-24, D-26 or D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector F-02 (terminal 1) and fusible link (4) in good condition?

YES : No action is necessary and testing is complete.

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



STEP 4. Check the ignition switch (IG2) circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.

(1) Disconnect sunroof motor assembly connector F-02 and measure the voltage available at the wiring harness side of the connector.

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

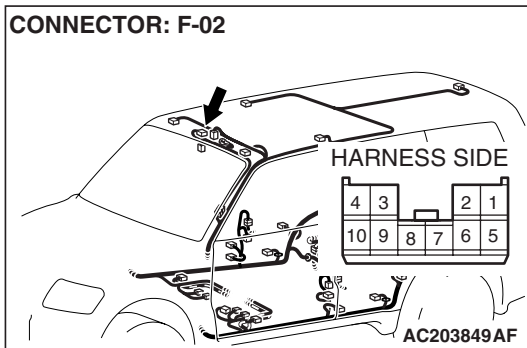
(3) Measure the voltage between terminal 2 and ground.

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

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

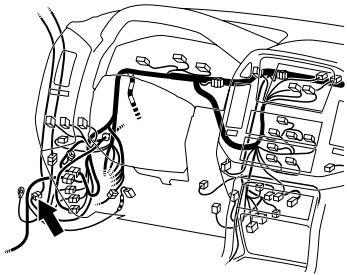
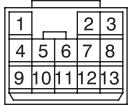
YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the harness wires between sunroof motor assembly connector F-02 (terminal 2) and ignition switch (IG2).

CONNECTOR : D-26



AC400706AL

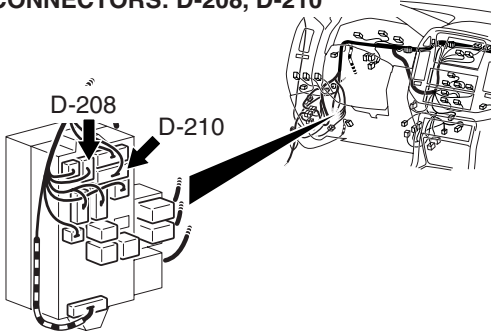
NOTE: Also check junction block connectors D-208, D-210, intermediate connectors F-24 and D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If junction block connectors D-208, D-210, intermediate connectors F-24 or D-26 are damaged, repair or replace the damaged 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 2) and ignition switch (IG2) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the sunroof function should now work normally.

CONNECTORS: D-208, D-210

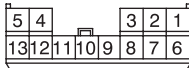


HARNESS SIDE

D-208

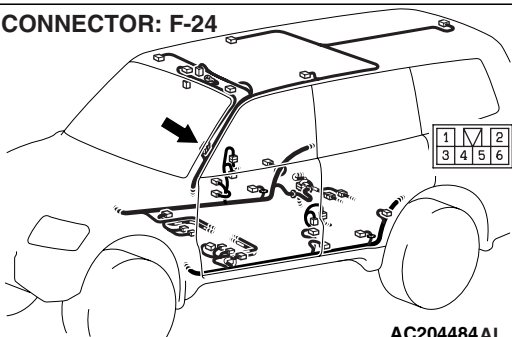


D-210



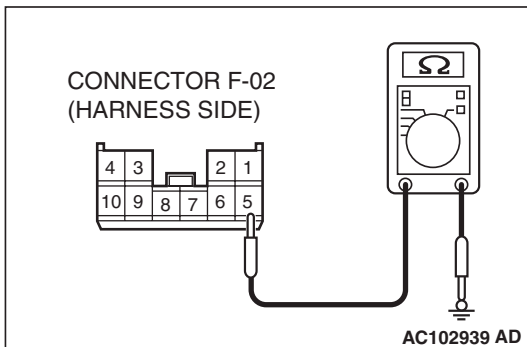
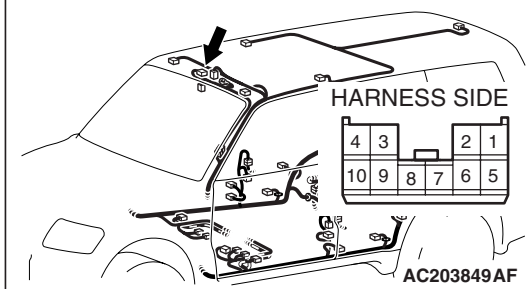
AC204191 BJ

CONNECTOR: F-24



AC204484 AI

CONNECTOR: F-02

**STEP 6. Check the ground circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.**

(1) Disconnect sunroof motor assembly connector F-02 and measure the resistance available at the wiring harness side of the connector.

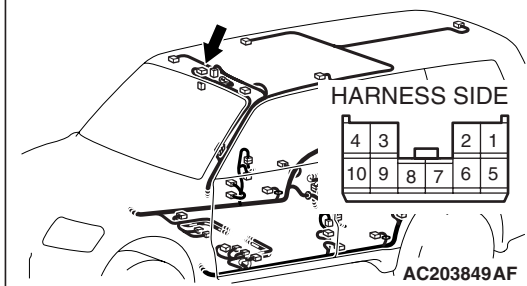
(2) Measure the resistance between terminal 5 and ground.
 • The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 7.

CONNECTOR: F-02

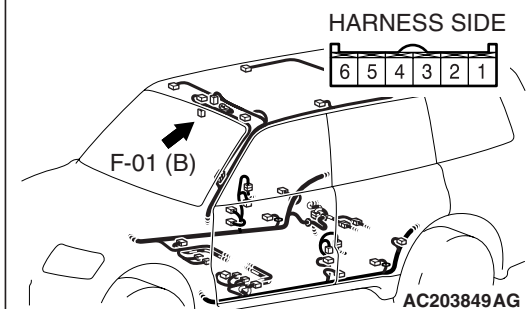
**STEP 7. Check the harness wire between sunroof motor assembly connector F-02 (terminal 5) and ground.**

Q: Is the harness wire between sunroof motor assembly connector F-02 (terminal 5) and ground in good condition?

YES : No action is necessary and testing is complete.

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

CONNECTOR: F-01

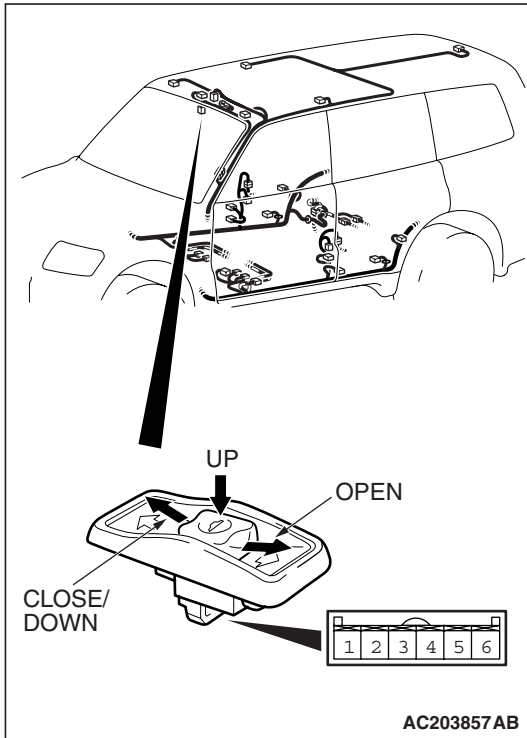
**STEP 8. Check sunroof switch connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

Q: Is sunroof switch connector F-01 in good condition?

YES : Go to Step 9.

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

STEP 9. Check the sunroof switch.



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	3 – 4, 4 – 5, 4 – 6	Open circuit
UP	3 – 4	Less than 2 ohms
OPEN	4 – 5	
CLOSE/DOWN	4 – 6	

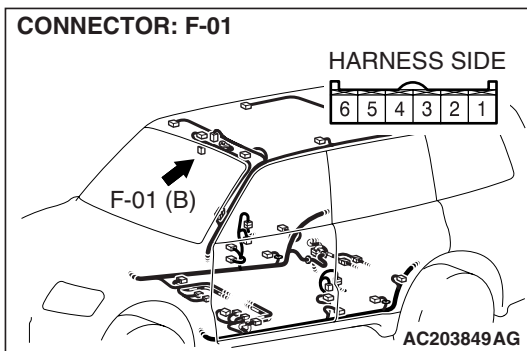
Q: Does the check above meet the values in the table?

YES : Go to Step 10.

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

**STEP 10. Check the ground circuit to the sunroof switch.
Test at sunroof switch connector F-01.**

(1) Disconnect the sunroof switch connector F-01 and measure at the harness side.



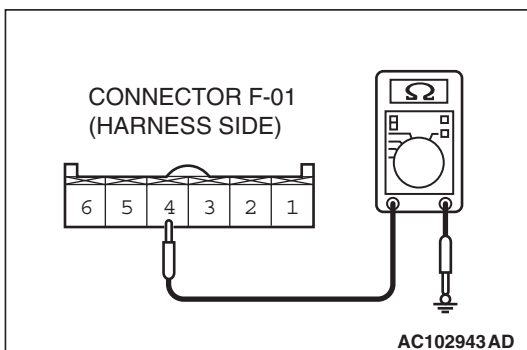
(2) Measure the resistance between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

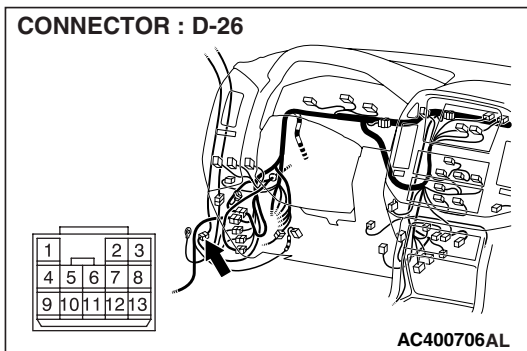
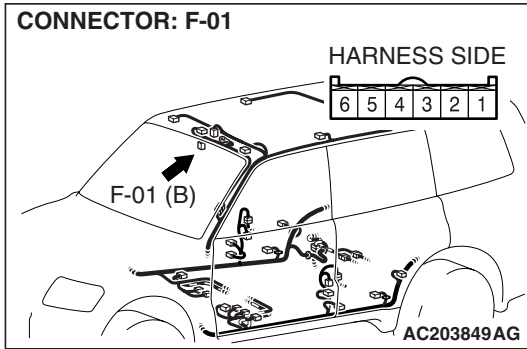
Q: Is the measured resistance 2 ohms or less?

YES : Replace the sunroof motor assembly. The sunroof function should now work normally.

NO : Go to Step 11.



STEP 11. Check the harness wire between sunroof switch connector F-01 (terminal 4) and ground.

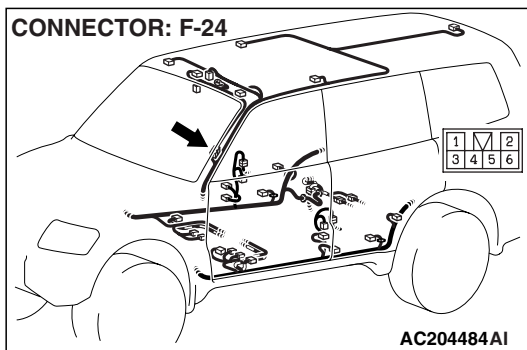
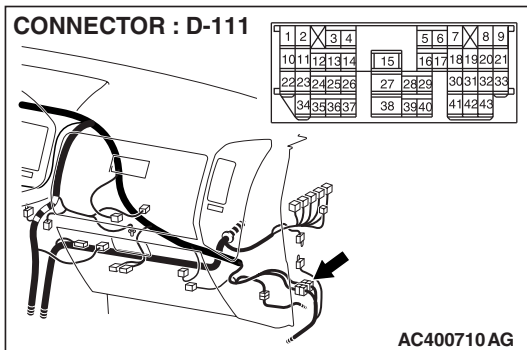


NOTE: Also check intermediate connectors F-24, D-26 and D-111 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If intermediate connectors F-24, D-26 or D-111 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

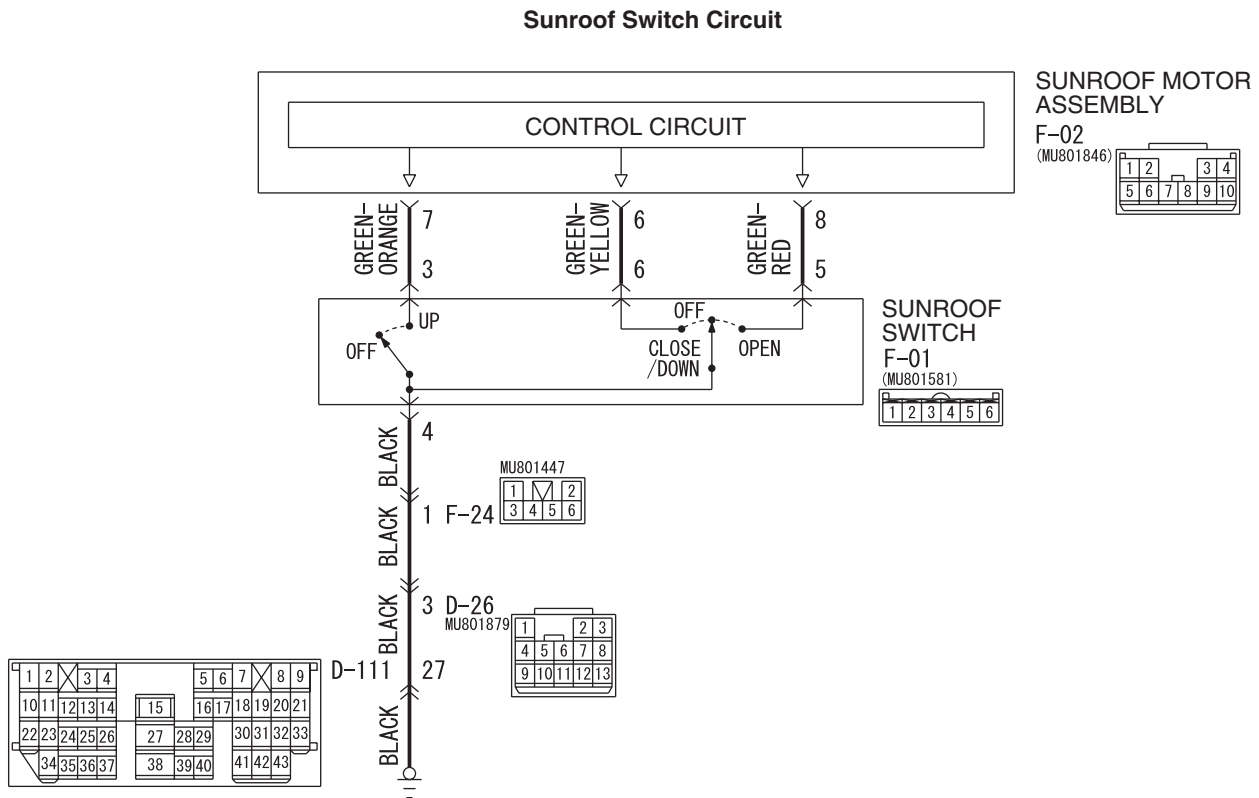
Q: Is the harness wire between sunroof switch connector F-01 (terminal 4) and ground in good condition?

YES : No action is necessary and testing is complete.

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



INSPECTION PROCEDURE F-2: Sunroof: Any of the sunroof switch positions is defective.



W5Q54M015A

TECHNICAL DESCRIPTION (COMMENT)

The sunroof switch or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

Check the input signals from the sunroof switch.

⚠ CAUTION

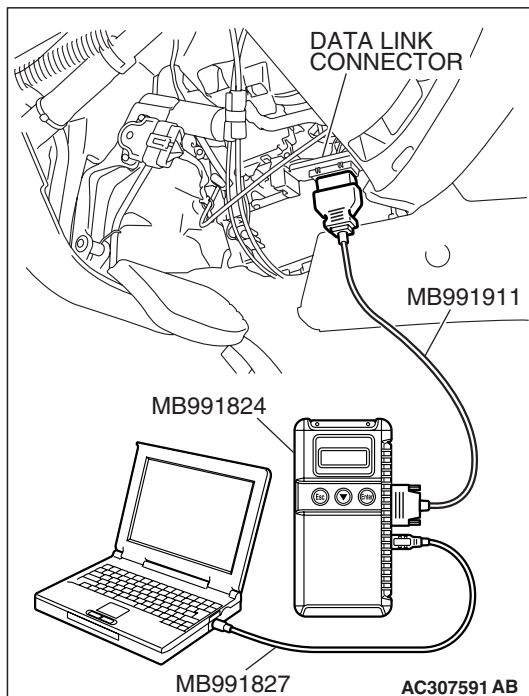
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) When each function of the sunroof switch is operated (turned on), check that scan tool MB991958 sounds.

Q: Does scan tool MB991958 sound when the sunroof switch is operated?

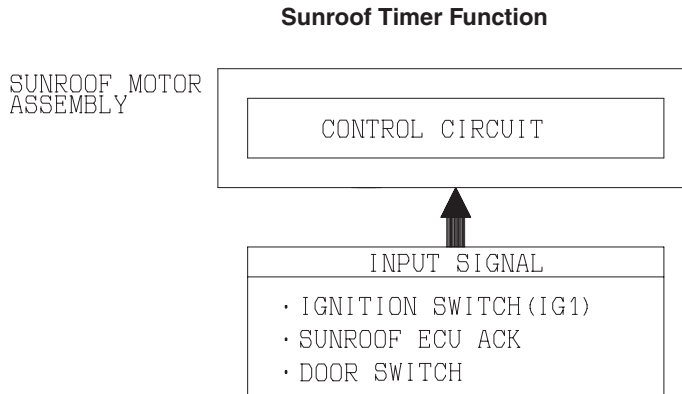
YES : Replace the sunroof motor assembly. The sunroof function should now work normally.

NO : Refer to Inspection Procedure O-9 "ETACS-ECU does not receive any signal from the up, open or close/down switch [P.54B-525](#)."



INSPECTION PROCEDURE F-3: Sunroof: Sunroof timer function does not work normally.

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



W3S12M02AA

CIRCUIT OPERATION

- The sunroof timer function works according to the signals from the following switches:
 - Ignition switch (IG1): OFF
 - Driver's and passenger's door switch: OFF
- Vehicle condition
 - Ignition switch: LOCK position
 - Driver's and passenger's door: Closed
- When a front door is opened and closed while the sunroof timer function is on, the sunroof operative duration will be changed.

TECHNICAL DESCRIPTION (COMMENT)

If the sunroof timer function does not work normally, the input circuits from the switches described in "CIRCUIT OPERATION", the sunroof motor assembly, the ETACS-ECU or the SWS communication line may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

Check the following ECUs:

- ETACS-ECU
- Sunroof motor assembly (sunroof-ECU)

⚠ CAUTION

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

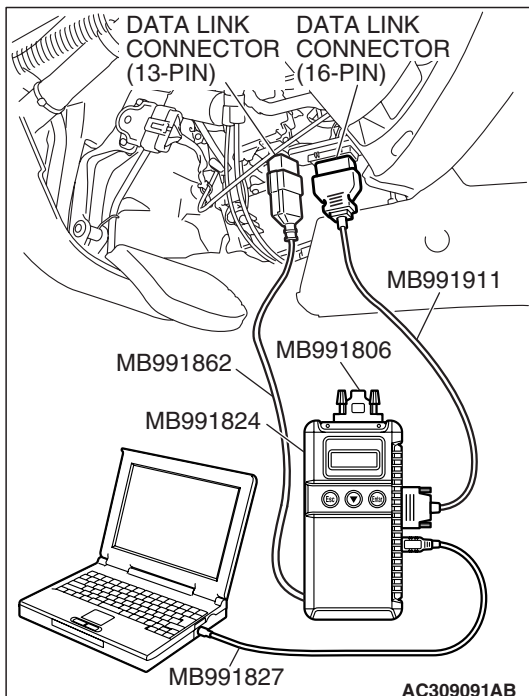
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7](#)
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK."
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for the "ETACS ECU" and "SUNROOF ECU" menus.

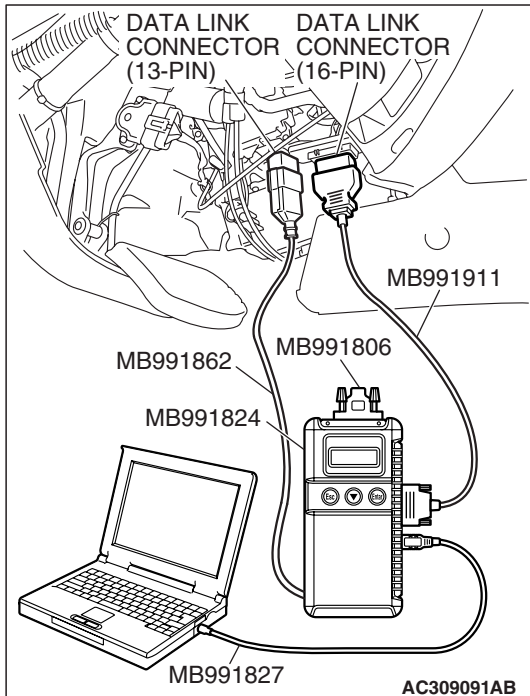
Q: Is "OK" displayed on the "ETACS ECU" and "SUNROOF ECU" menus?

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

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

"NG" is displayed on the "SUNROOF ECU" menu : Refer to Inspection Procedure A-5 "Communication with sunroof motor (sunroof-ECU) is not possible [P.54B-55](#)."





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

- (1) Turn the ignition switch to the "OFF" position to check the input signals from the following switches.
- (2) Operate scan tool MB991958 according to the procedure below to display "SUNROOF-OPE."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "SUNROOF."
 6. Select "SUNROOF-OPE."
- (3) Check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	OFF
ITEM 72	S/R ECU ACK	NORMAL ACK

Q: Are normal conditions displayed on the "IG SW (IG1)" and "S/R ECU ACK"?

Normal conditions displayed for all the items : Replace the sunroof motor assembly. The sunroof timer function should now work normally.

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

Normal condition is not displayed on the "S/R ECU ACK" : Replace the sunroof motor assembly. The sunroof timer function should now work normally.

INSPECTION PROCEDURE F-4: Sunroof: Safety mechanism does not function.

TECHNICAL DESCRIPTION (COMMENT)

The sunroof motor assembly monitors load condition according to the current, which runs in the motor. If a predetermined current is exceeded, the sunroof motor reverses due to safety mechanism. If the sunroof motor does not reverse when an excessive load is applied, the sunroof motor assembly may be defective.

TROUBLESHOOTING HINT

The sunroof motor assembly may be defective

DIAGNOSIS

Replace the sunroof motor assembly.
Verify the sunroof safety mechanism should now work normally.

WINDSHIELD WIPER AND WASHER**GENERAL DESCRIPTION CONCERNING THE WINDSHIELD WIPER AND WASHER**

M1549021500224

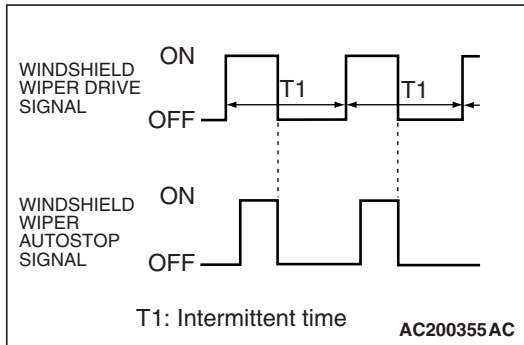
The following ECUs affect the functions and control of the windshield wiper and washer.

FUNCTION	CONTROL ECU
Intermittent control	ETACS-ECU, front-ECU, column switch
Mist wiper control	front-ECU, column switch
Low speed wiper, high speed wiper control	front-ECU, column switch
Washer control	front-ECU, column switch

Windshield wiper and washer control function**Intermittent control**

The ETACS-ECU calculates the intermittent time from the windshield wiper intermittent time adjusting knob at the column switch and sends it to the front-ECU as SWS data.

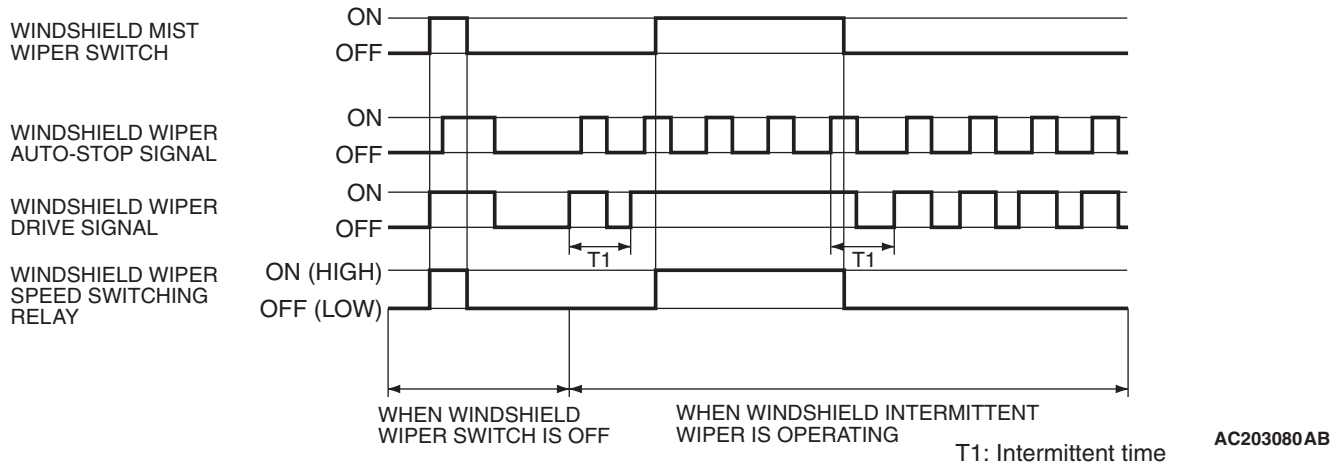
The front-ECU determines the intermittent time T1 from the input SWS data signal, and turns ON the windshield wiper drive signal. When the wiper is at the STOP position, the windshield wiper auto-stop signal goes OFF to turn OFF the windshield wiper drive signal. After the intermittent time T1 seconds from when the windshield wiper drive signal turned ON, the windshield wiper drive signal is turned ON again and the above operation is repeated.

**Mist wiper control**

When the ignition switch is at the ACC or ON position, if the windshield mist wiper switch of the column switch is turned ON, the front-ECU turns ON the windshield wiper drive signal. At the same time, the wiper speed switching relay is turned ON (HIGH-SPEED). While the windshield mist wiper switch is ON, the windshield wiper will operate at high speed. Then, if the windshield mist wiper switch is turned off, the wiper operates at low speed until it stops at the predetermined park position.

When the windshield mist switch is turned on briefly, the wiper operates at low speed once.

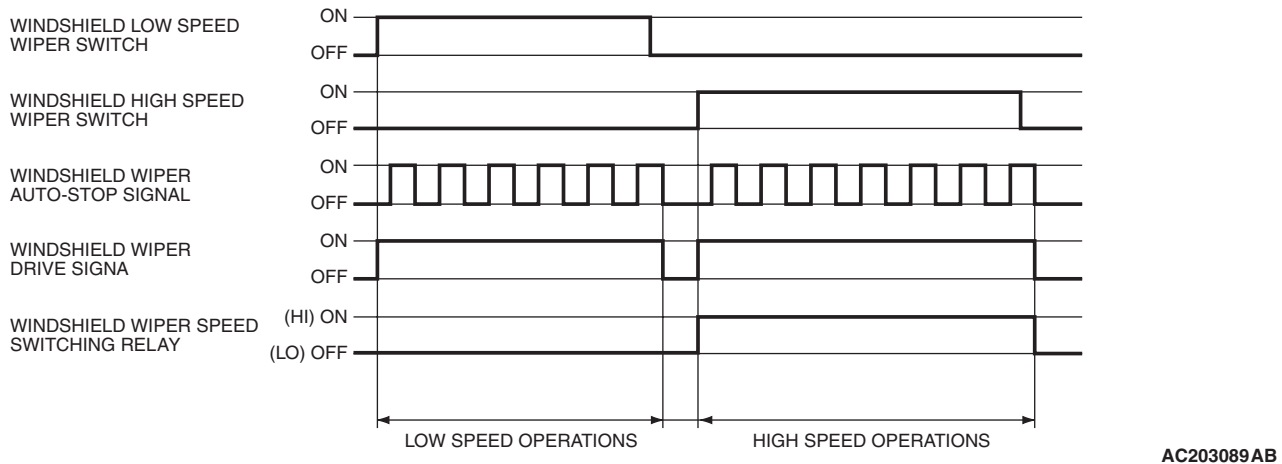
At the point the windshield mist switch is turned ON, if the windshield wiper has been operating intermittently, the same operations as the above will be performed while the windshield mist wiper switch is ON. After the windshield mist wiper switch goes OFF, the intermittent operations will be set again T1 seconds after the windshield wiper auto-stop signal is turned ON last.



Low speed wiper, high speed wiper control

When the ignition switch is at the ACC or ON position, if the windshield low speed wiper switch of the column switch is turned ON, the front-ECU turns ON the windshield wiper drive signal, turns OFF (LO) the windshield wiper speed switching relay, and operates

the windshield wiper at low speed. Next, when the windshield high speed wiper switch is turned ON, the windshield wiper drive signal is turned ON, the windshield wiper speed switching relay is turned ON (HI), and the windshield wiper is operated at high speed.

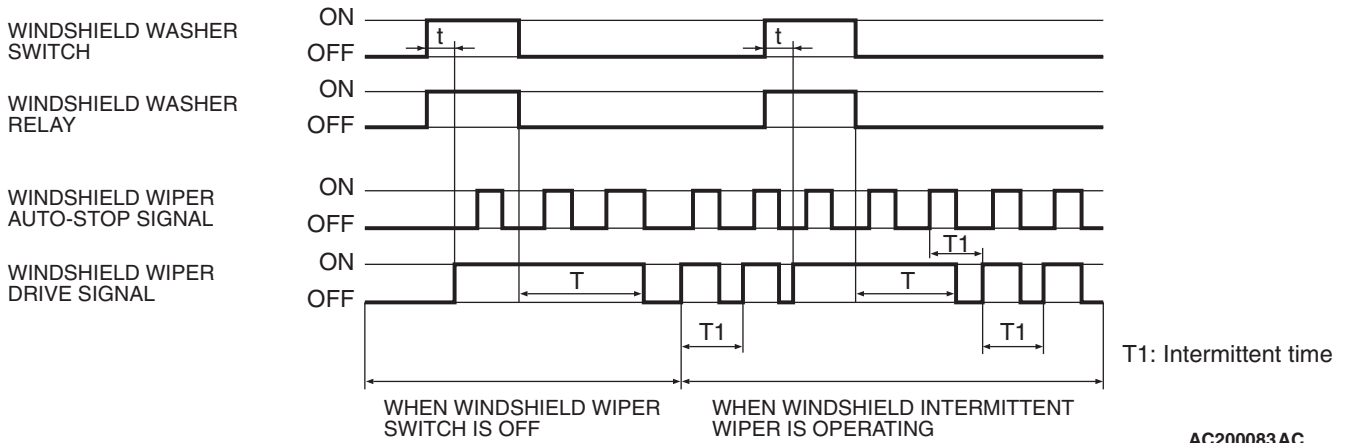


Washer control

When the ignition switch is at the ACC or ON position, if the windshield washer switch of the column switch is turned ON, the front-ECU turns ON the windshield washer relay. The windshield wiper drive signal is turned ON in 0.3 second until 3 seconds after the windshield washer switch goes OFF to

operate the windshield wiper continuously. When the windshield washer switch is turned ON, if the windshield wiper is operating intermittently, intermittent operations will be continued after continuous operations.

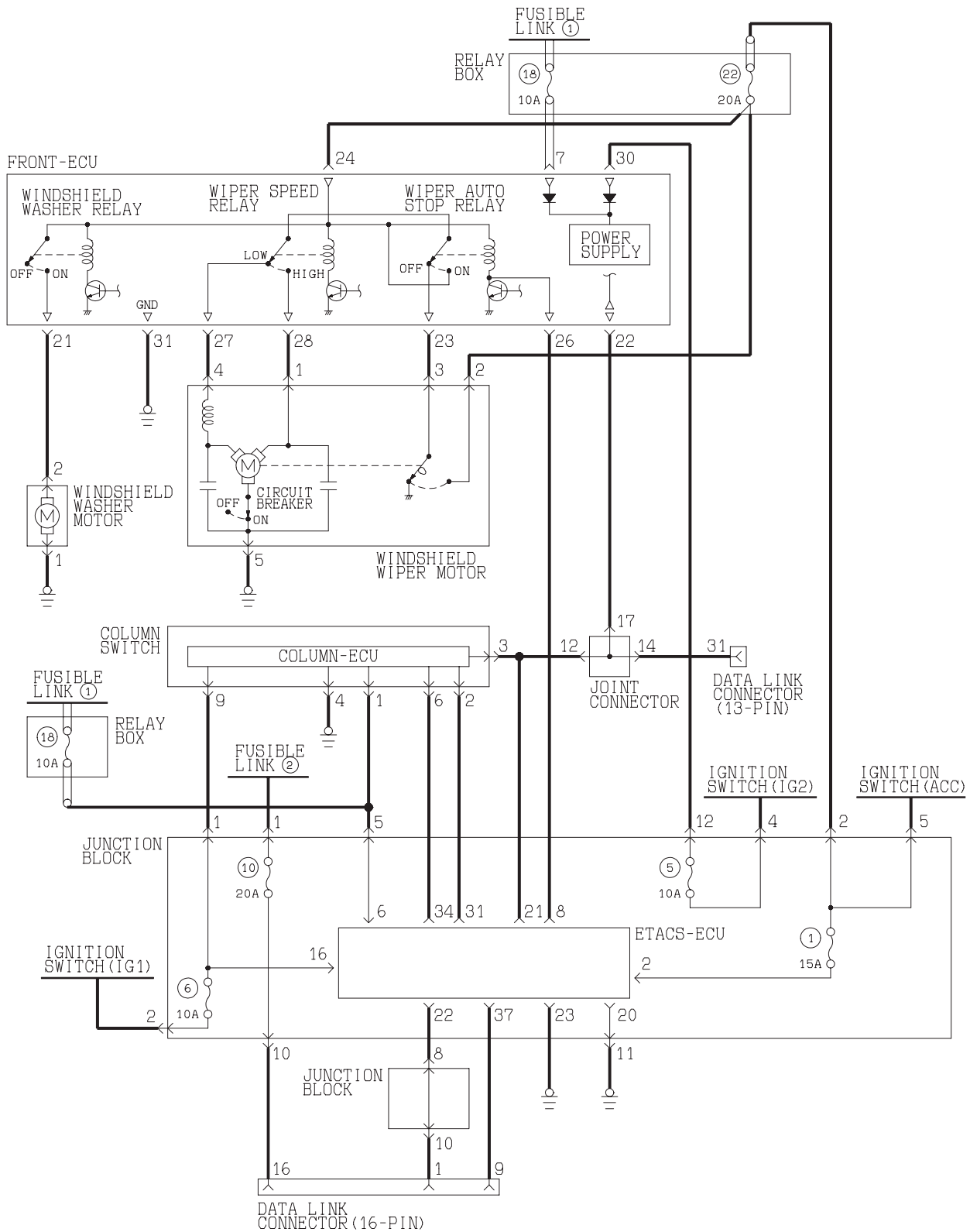
NOTE: The wiper drive signal output time varies according to the conditions. Refer to the following table for details.



AC200083AC

	WHEN WIPER SWITCH IS OFF				WHEN WIPER SWITCH IS INT				WHEN WIPER SWITCH IS LO OR HI
	t	T	T1	T2	t	T	T1	T2	
t	0.3 second or less	0.3 - 0.5 second	0.5 - 0.7 second	0.7 second	Less than 0.2 second	0.3 - 0.5 second	0.5 - 0.7 second	0.7 second	-
T	0 second	1 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

General circuit diagram for the windshield wiper and washer

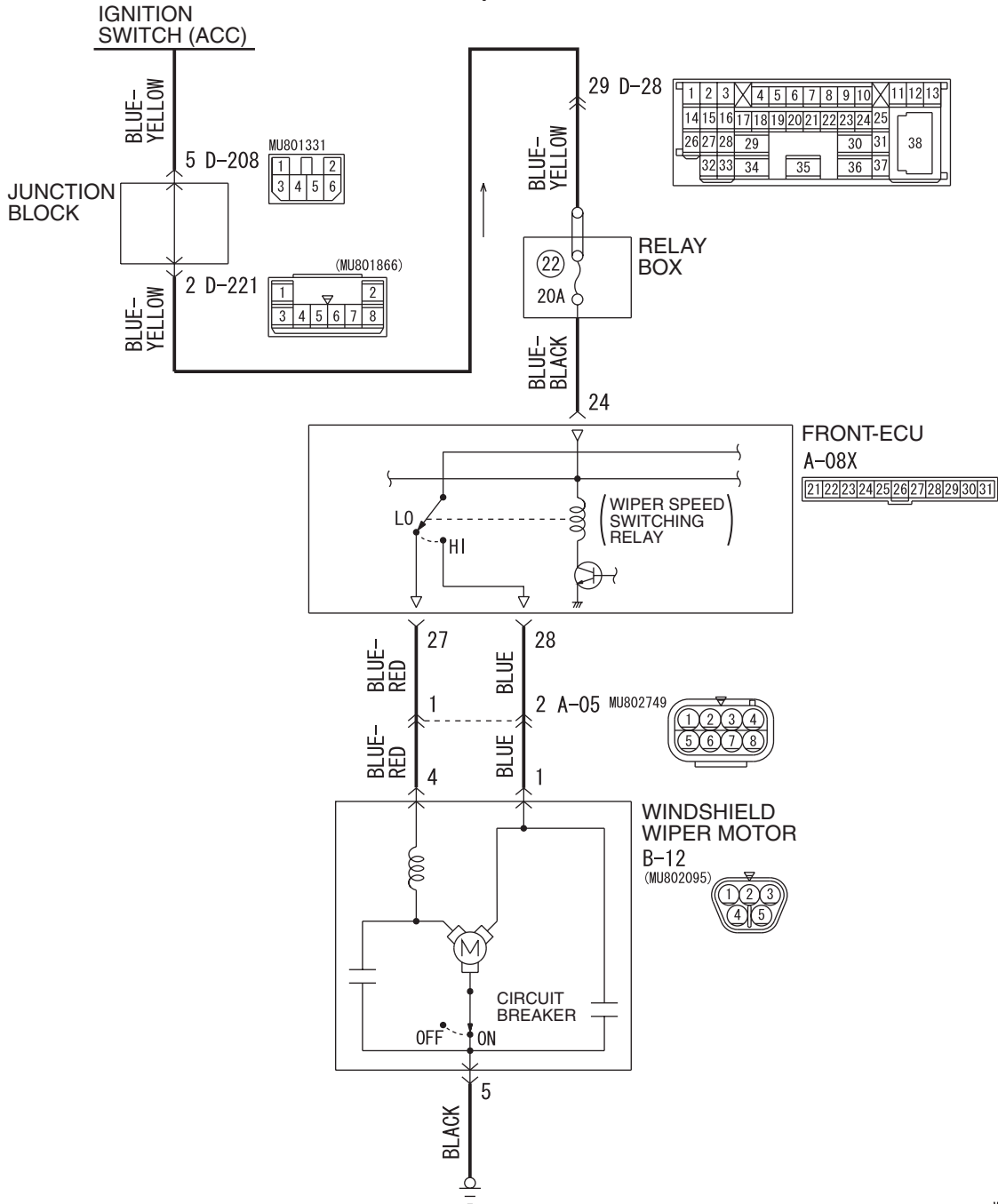


W3Q15M02AA

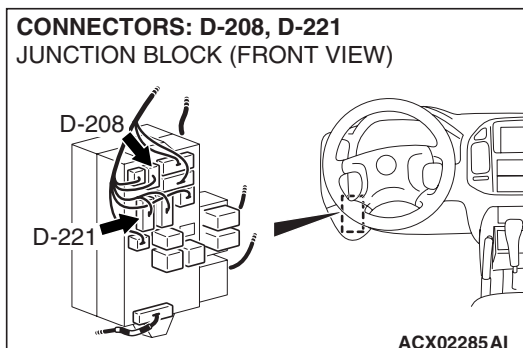
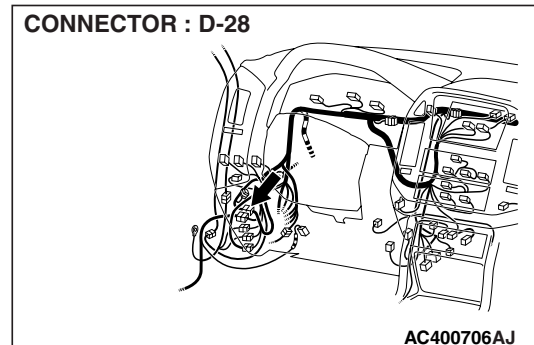
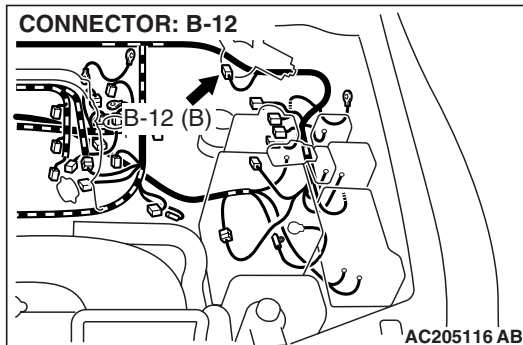
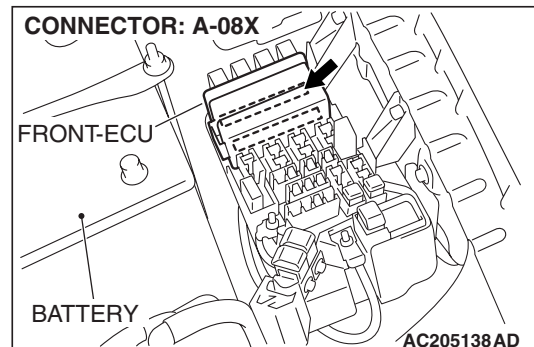
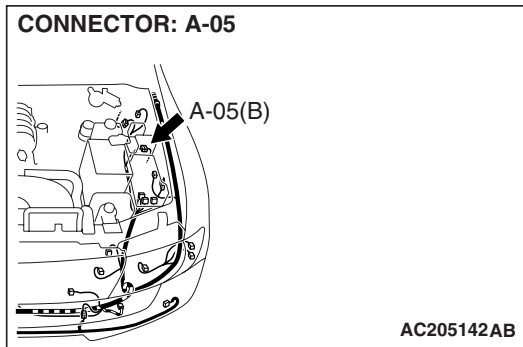
INSPECTION PROCEDURE G-1: Windshield Wiper and Washer: The windshield wipers does not work at all.

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

Windshield Wiper Motor Circuit



W4Q54M03AA



CIRCUIT OPERATION

- The windshield wiper and washer switch sends a signal through the column-ECU (incorporated in the column switch) to the front-ECU. If the column-ECU sends a windshield wiper and washer switch "ON" signal to the front-ECU, the front-ECU turns on the relay (incorporated in the front-ECU), thus causing the windshield wiper and washer motor to be turned on.
- If the SWS communication line is defective, the front-ECU operates windshield wiper motor by using the other communication lines (wiper backup circuit) instead of that line. In this case, the windshield wiper works at low speed regardless of the windshield wiper and washer switch positions ("LO" or "HIGH").

TECHNICAL DESCRIPTION (COMMENT)

If the windshield wiper does not work at all, the windshield wiper motor, column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

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

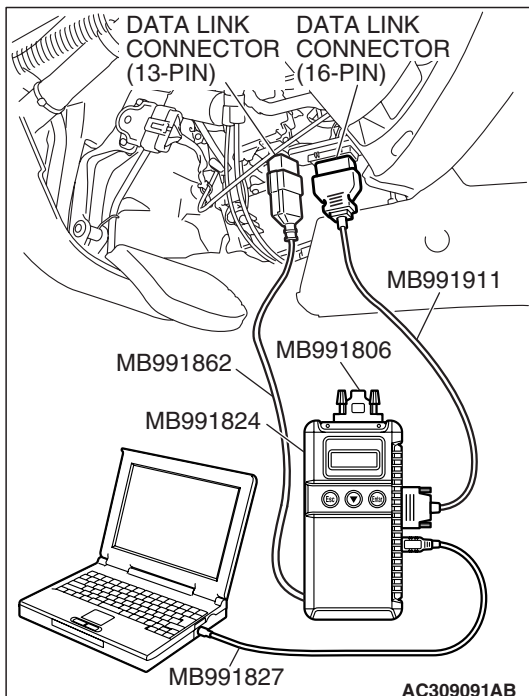
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK".
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for both the "COLUMN ECU" and the "FRONT ECU" menus.

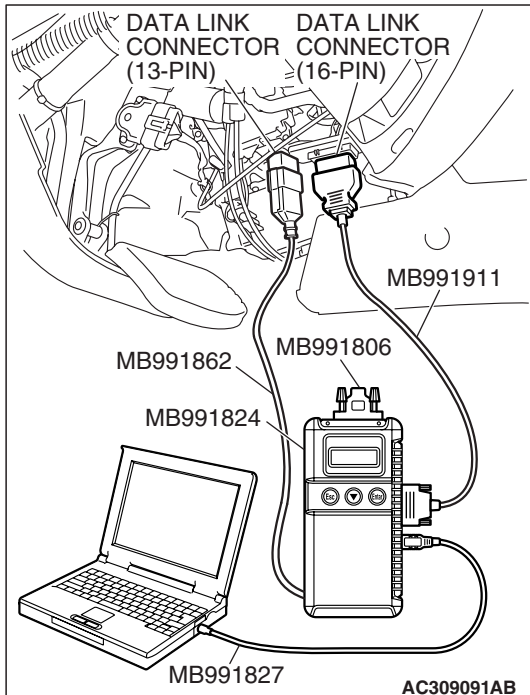
Q: Is "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

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

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





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

Check the input signals from the following switches:

- Ignition switch: ACC
- Windshield wiper switch: INT

Operate the scan tool according to the procedure below to display "F.WIPER INT."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "WIPER."
6. Select "F.WIPER INT."

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

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 05	INT WIPER SW	ON
ITEM 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

Q: Are normal conditions displayed for "INT WIPER SW" and "FRONT ECU ACK"?

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

The scan tool does not show the respective normal condition for item "INT WIPER SW" : Replace the column switch. Verify that the windshield wiper works normally.

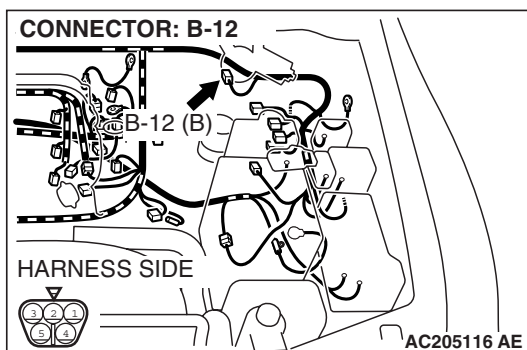
The scan tool does not show the respective normal condition for item "FRONT ECU ACK" : Replace the front-ECU. Verify that the windshield wiper works normally.

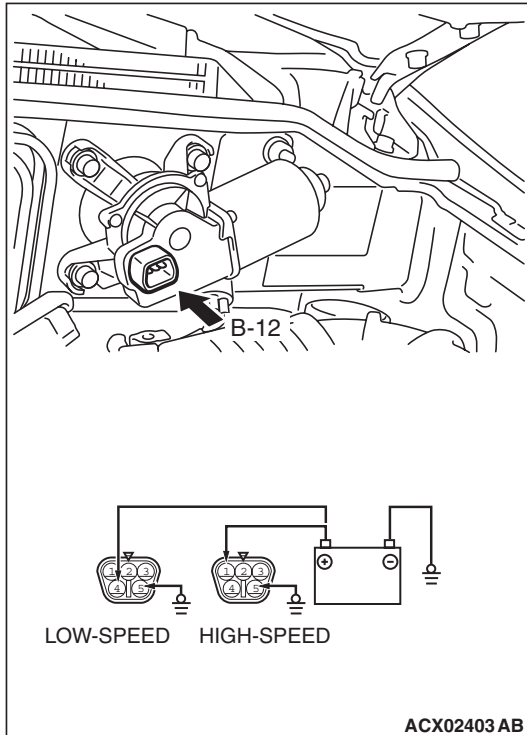
STEP 3. Check windshield wiper motor connector B-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield wiper motor connector B-12 in good condition?

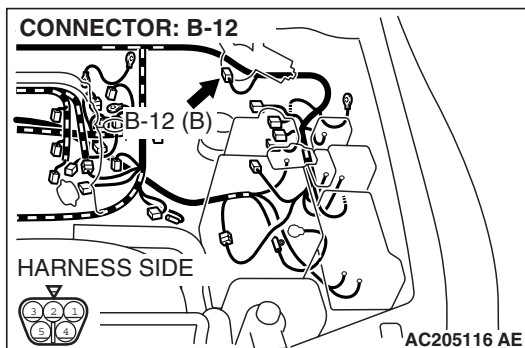
YES : Go to Step 4.

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

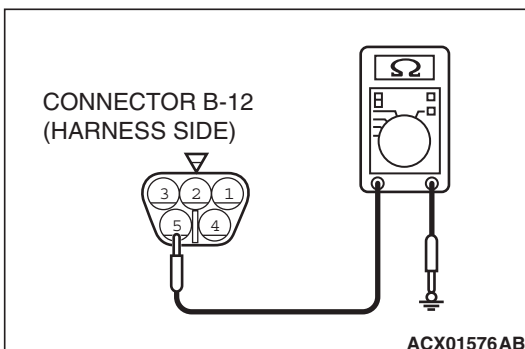


**STEP 4. Check the windshield wiper motor.**

- (1) Disconnect windshield wiper motor connector B-12.
- (2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?**YES :** Go to Step 5.**NO :** Replace the windshield wiper motor. Verify that the windshield wiper works normally.**STEP 5. Check the ground circuit to the windshield wiper motor. Test at windshield wiper motor connector B-12.**

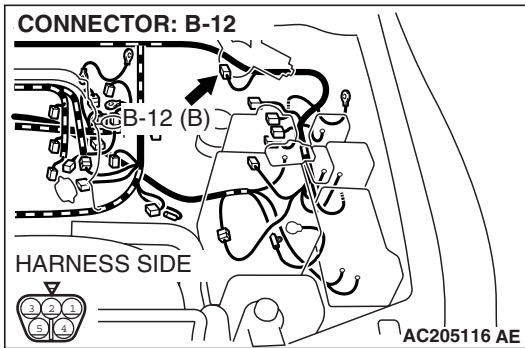
- (1) Disconnect windshield wiper motor connector B-12 and measure the resistance available at the wiring harness side of the connector.



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

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?**YES :** Go to Step 7.**NO :** Go to Step 6.

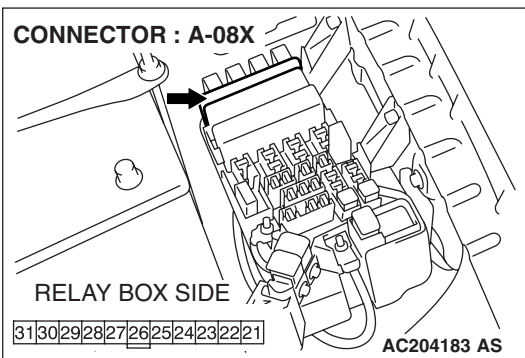


STEP 6. Check the wiring harness between windshield wiper motor connector B-12 (terminal 5) and ground.

Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 5) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper works normally.

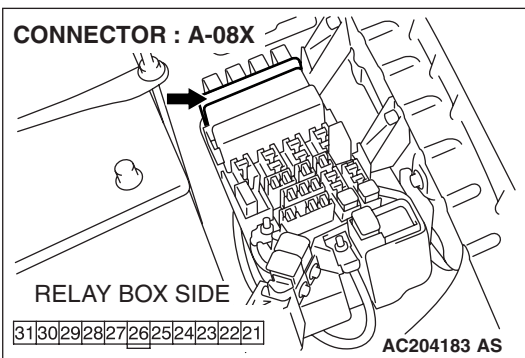


STEP 7. Check front-ECU connector A-08X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-08X in good condition?

YES : Go to Step 8.

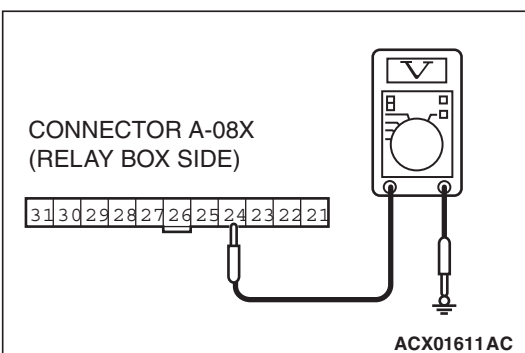
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the windshield wiper works normally.



STEP 8. Check the ignition switch (ACC) circuit to the front-ECU. Test at front-ECU connector A-08X.

(1) Disconnect front-ECU connector A-08X, and measure at the relay box side.

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



(3) Measure the voltage between terminal 24 and ground.

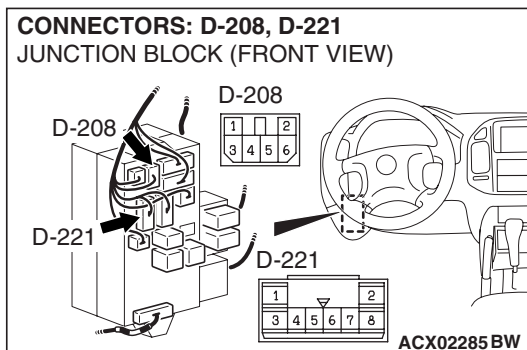
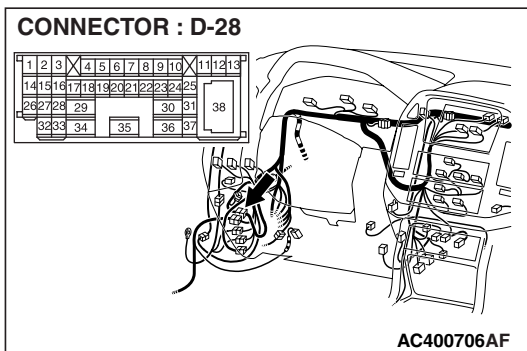
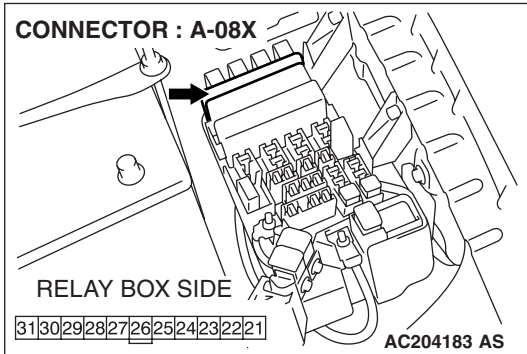
- The voltage should be approximately 12 volts (battery positive voltage).

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

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between front-ECU connector A-08X (terminal 24) and the ignition switch (ACC).

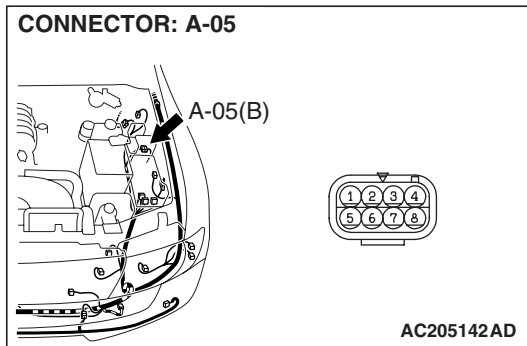
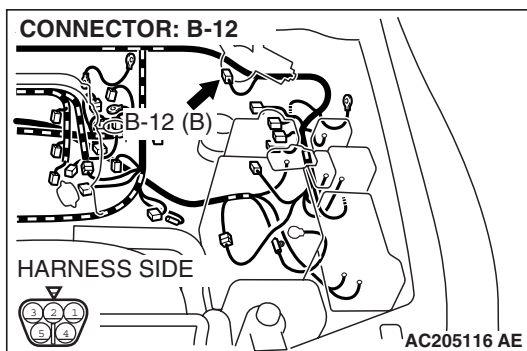
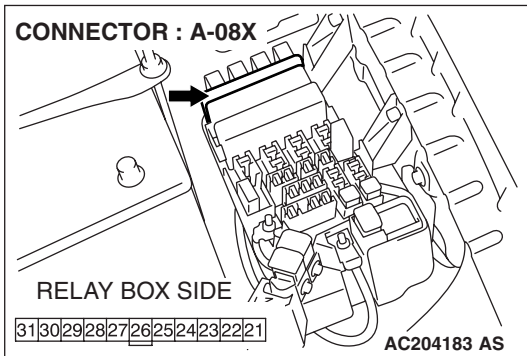


NOTE: Also check intermediate connector D-28, junction block connectors D-208 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28, junction block connector D-208 or D-221 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front-ECU connector A-08X (terminal 24) 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 may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper works normally.

STEP 10. Check the wiring harness between windshield wiper motor connector B-12 (terminal 1) and front-ECU connector A-08X (terminal 28).

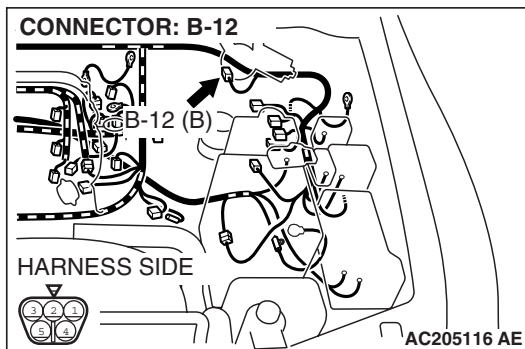
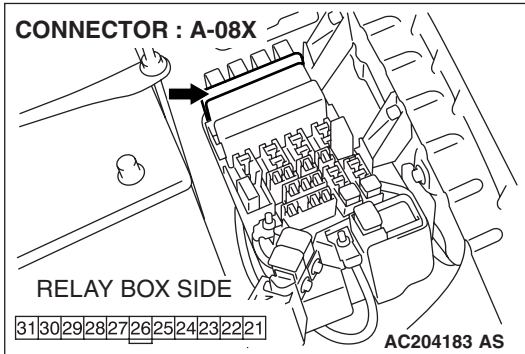


NOTE: Also check intermediate connector A-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-05 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 1) and front-ECU connector A-08X (terminal 28) in good condition?

YES : Go to Step 11.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.



STEP 11. Check the wiring harness between windshield wiper motor connector B-12 (terminal 4) and front-ECU connector A-08X (terminal 27).

Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 4) and front-ECU connector A-08X (terminal 27) in good condition?

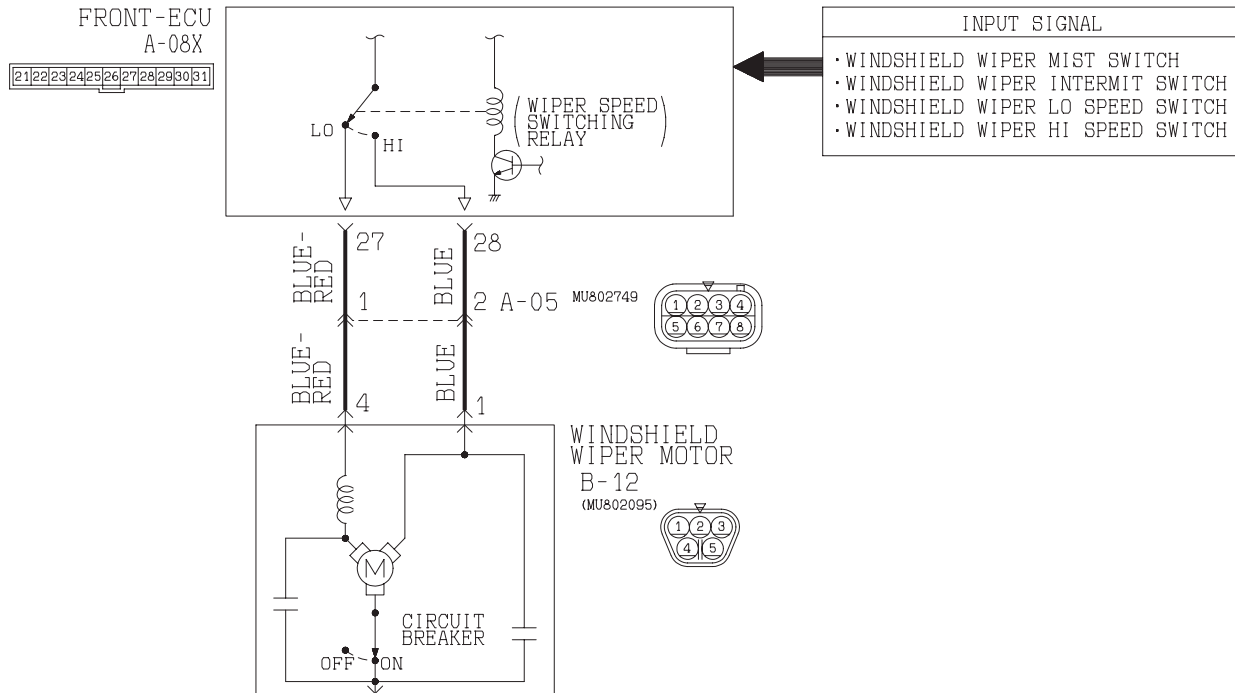
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

INSPECTION PROCEDURE G-2: Windshield Wiper and Washer: The windshield wipers do not work when the windshield wiper switch is at "INT" or "MIST" position or the windshield washer switch is at "ON" position. However, the wipers work at low speed when the windshield wiper switch is at "LO" or "HI."

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

Windshield Wiper Motor Drive Circuit



W2Q02M12AA

TECHNICAL DESCRIPTION (COMMENT)

The system may be at fail-safe mode as the SWS communication line is defective. If the system can not receive any signal from the column switch (windshield wiper and washer switch) due to an open circuit in the SWS communication line or other reasons, the system will enter the fail-safe mode when the ignition switch is at the "ACC" position.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

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

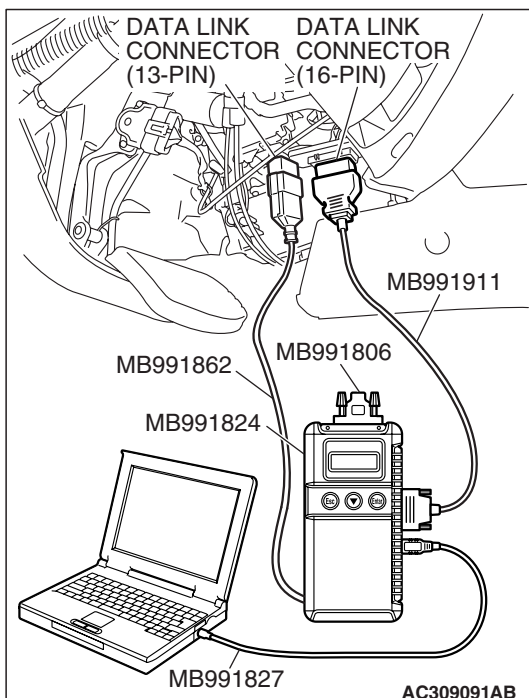
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "ON" position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4.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

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

"OK" is displayed for all the items : Replace the front-ECU. Verify that the windshield wiper works normally.

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

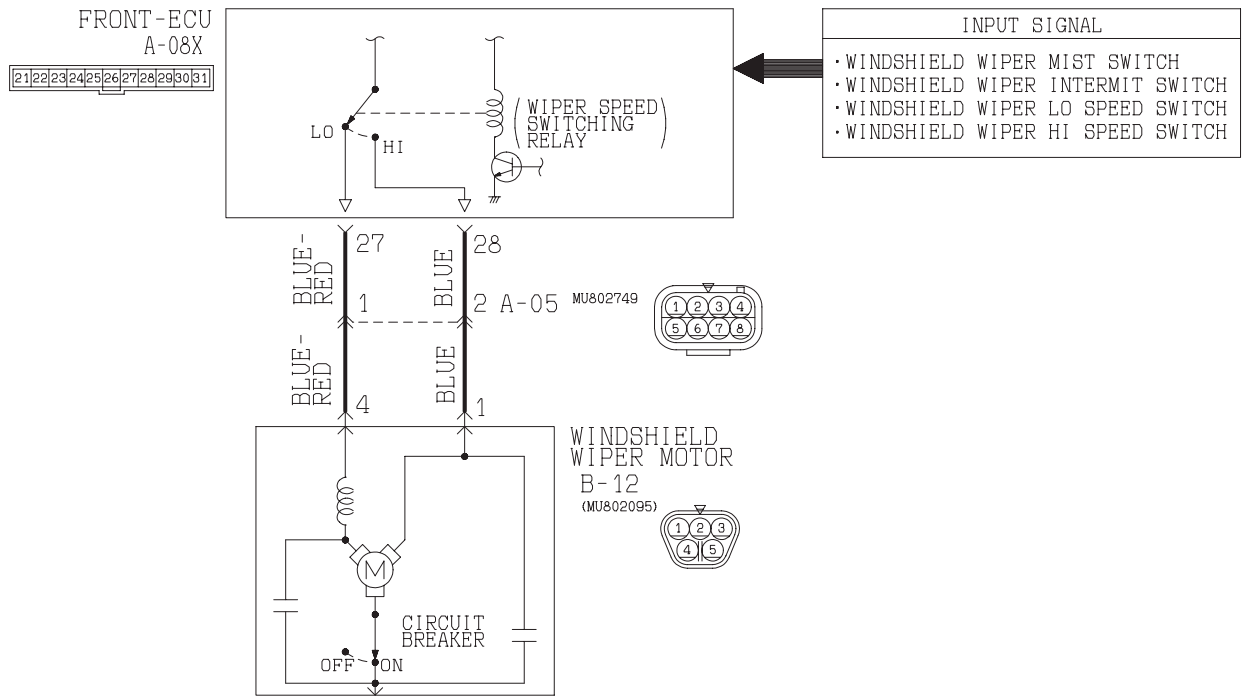
"NG" is displayed on the "FRONT ECU" menu : Refer to Inspection procedure A-4 "Communication with front-ECU is not possible P.54B-48."



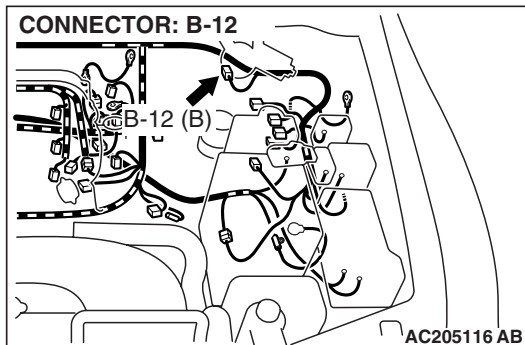
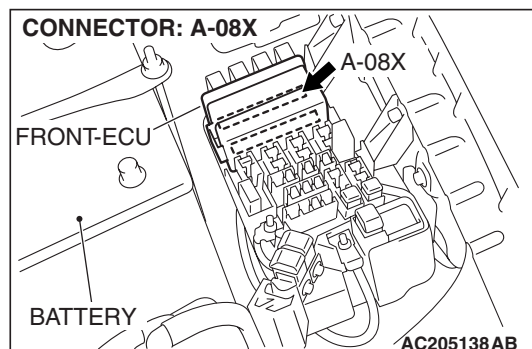
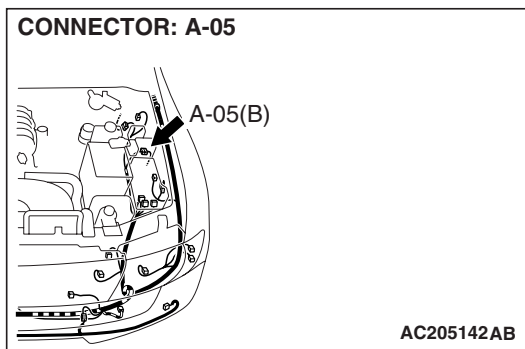
INSPECTION PROCEDURE G-3: Windshield Wiper and Washer: The windshield wipers do not work normally.

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

Windshield Wiper Motor Drive Circuit



W2Q02M12AA



TECHNICAL DESCRIPTION (COMMENT)

If either of the windshield wiper switch positions is defective, the windshield wiper motor, column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

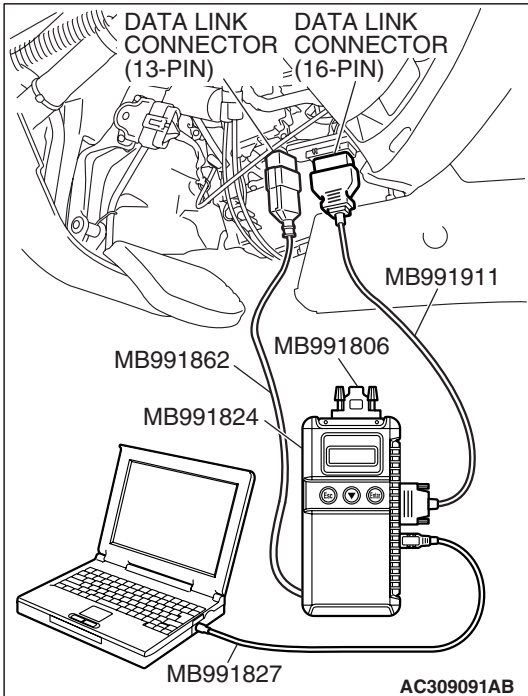
STEP 1. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Turn the ignition switch to the ACC position before checking input signals from the windshield wiper switch.

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Operate scan tool MB991958 according to the procedure below to display "COLUMN ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "COLUMN ECU."
- (4) Check that normal conditions are displayed on the items described in the table below.



ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 05	INT WIPER SW	ON
ITEM 06	LO WIPER SW	ON
ITEM 07	HI WIPER SW	ON
ITEM 08	MIST WIPER SW	ON

Q: Are normal conditions displayed for "INT WIPER SW", "LO WIPER SW", "HI WIPER SW" and "MIST WIPER SW"?

YES : Go to Step 2.

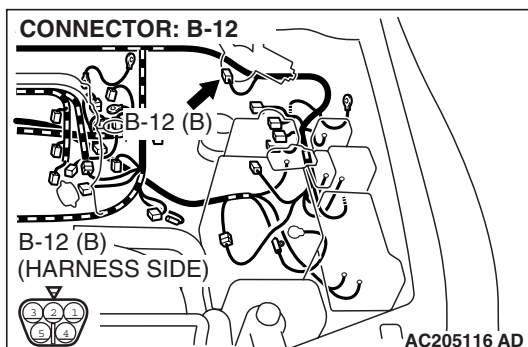
NO : Refer to Inspection Procedure O-7 "ETACS-ECU does not receive any signal from the windshield mist wiper switch P.54B-518."

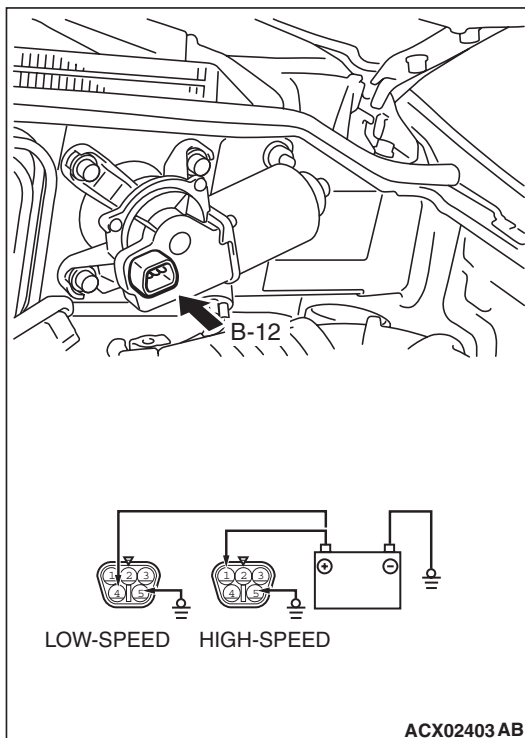
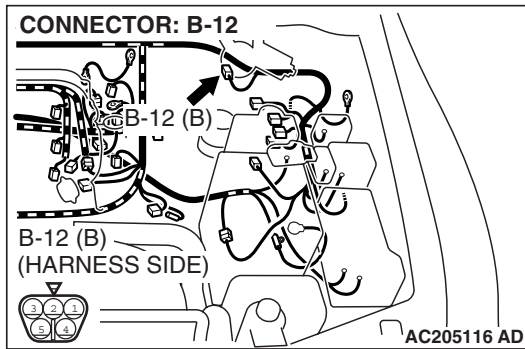
STEP 2. Check windshield wiper motor connector B-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield wiper motor connector B-12 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.



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

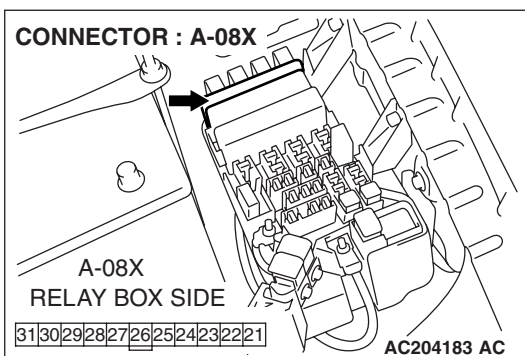
(1) Disconnect windshield wiper motor connector B-12.

(2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 4.

NO : Replace the windshield wiper motor. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.



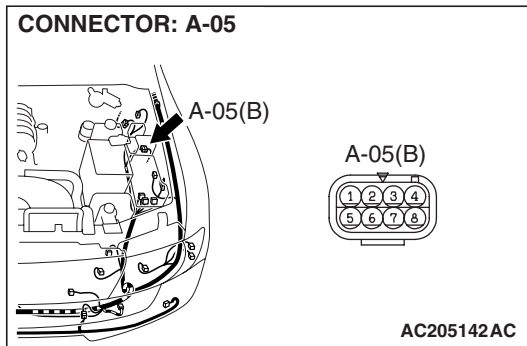
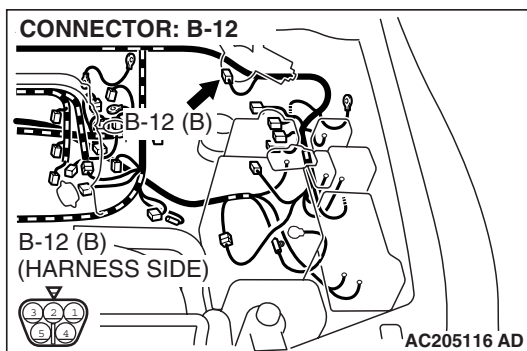
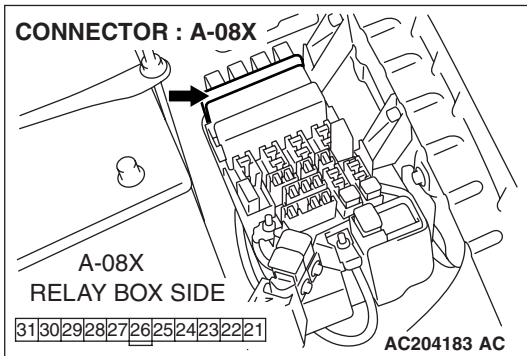
STEP 4. Check front-ECU connector A-08X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-08X in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

STEP 5. Check the wiring harness between windshield wiper motor connector B-12 (terminal 1) and front-ECU connector A-08X (terminal 28).

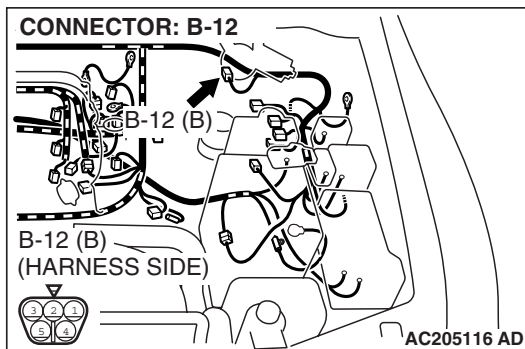
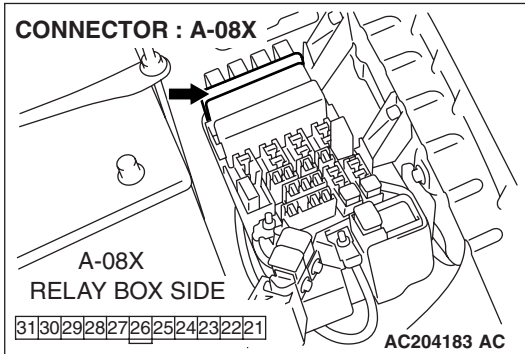


NOTE: Also check intermediate connector A-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-05 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 1) and front-ECU connector A-08X (terminal 28) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.



STEP 6. Check the wiring harness between windshield wiper motor connector B-12 (terminal 4) and front-ECU connector A-08X (terminal 27).

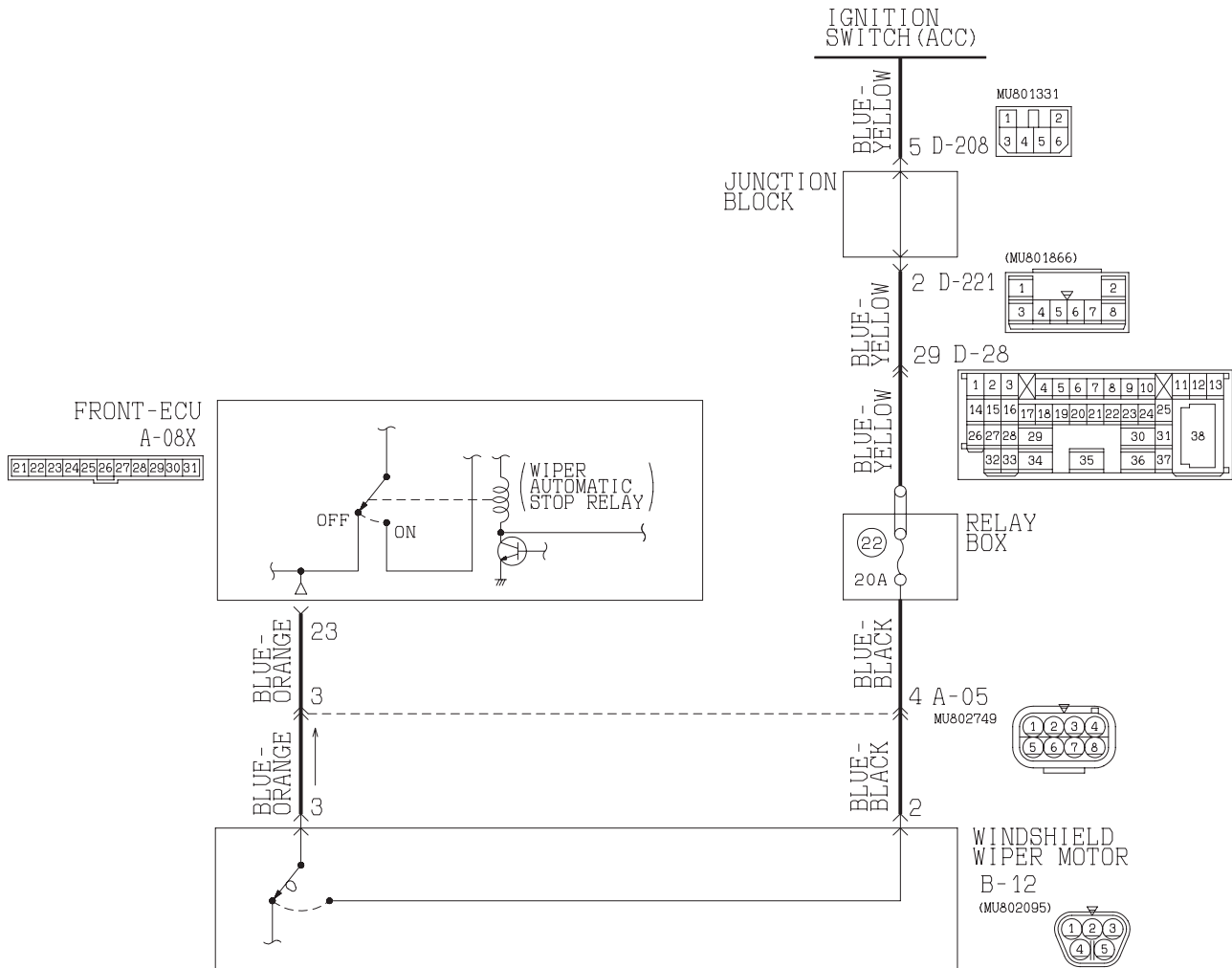
Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 4) and front-ECU connector A-08X (terminal 27) in good condition?

YES : No action is necessary and testing is complete.

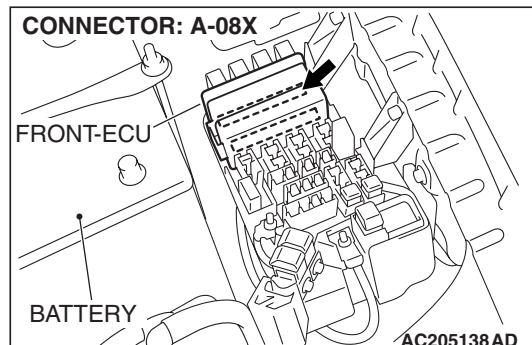
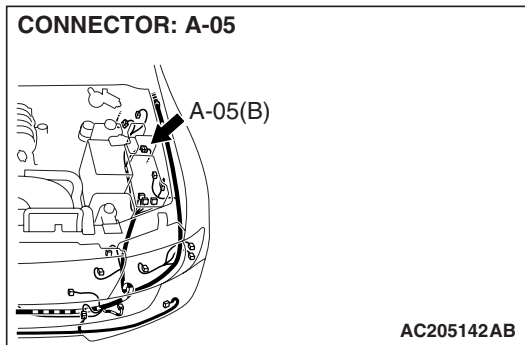
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

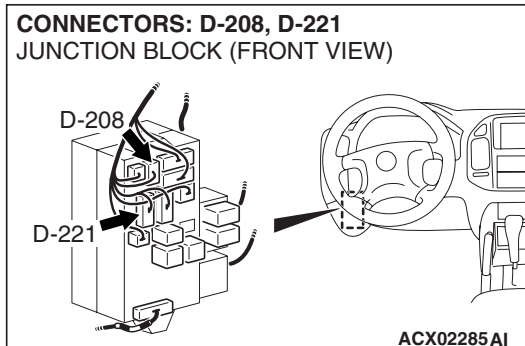
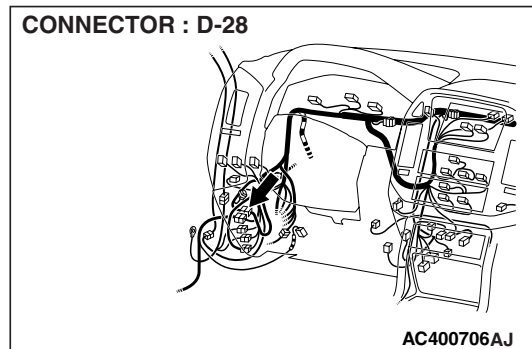
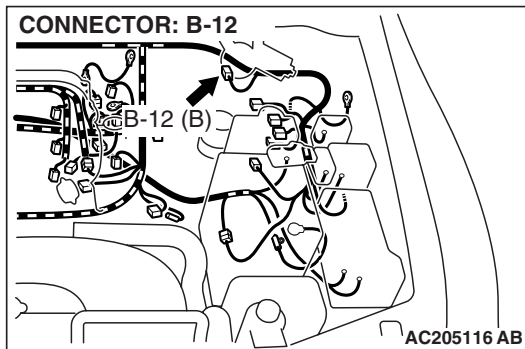
INSPECTION PROCEDURE G-4: Windshield Wiper and Washer: The windshield wipers do not stop at the specified park position.

Windshield Wiper Automatic Stop Relay Circuit



W3Q21M09AA



**TECHNICAL DESCRIPTION (COMMENT)**

If the windshield wiper does not stop at predetermined park position, the windshield wiper motor or the front-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tool:**

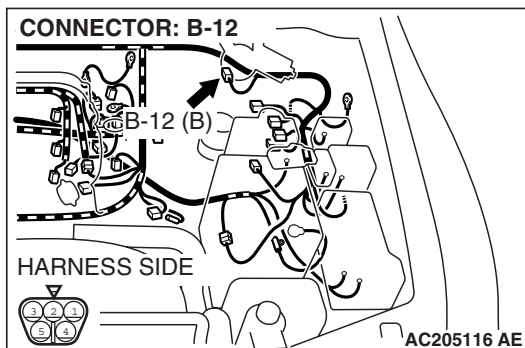
- MB991223: Harness Set

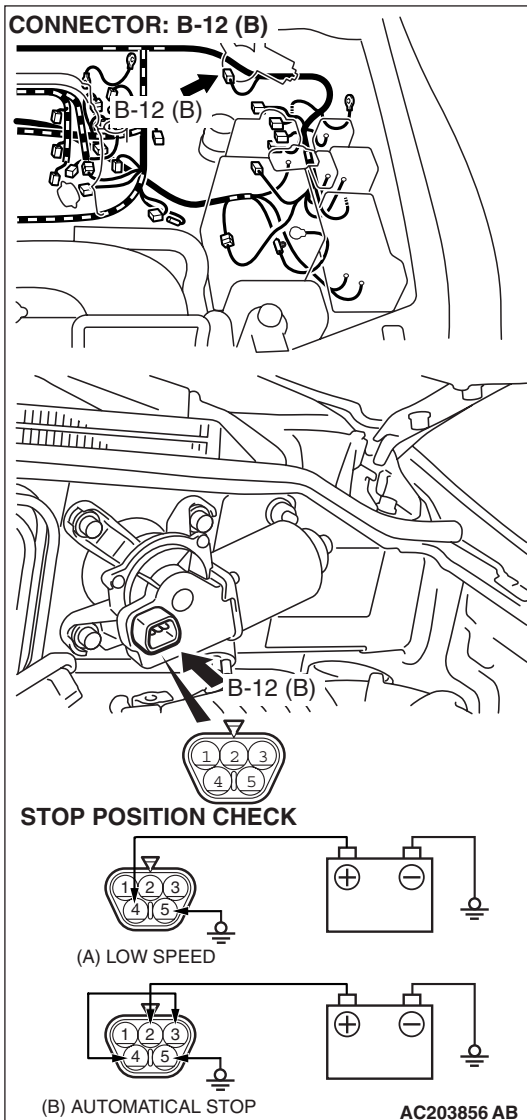
STEP 1. Check windshield wiper motor connector B-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield wiper motor connector B-12 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The windshield wiper should now stop at the predetermined park position.





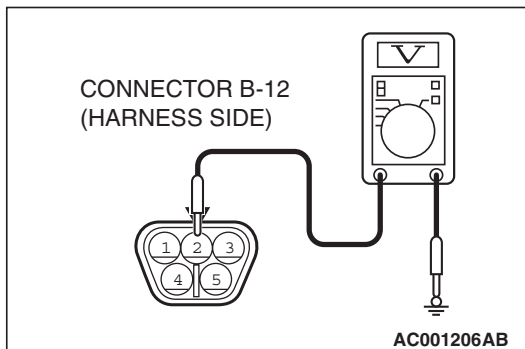
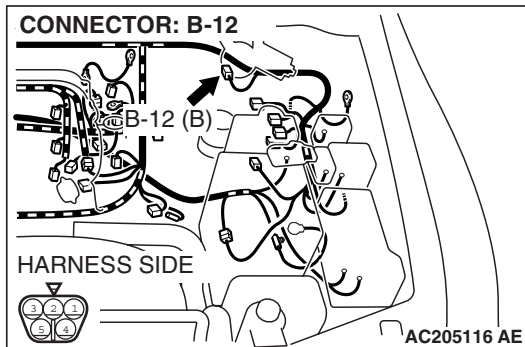
STEP 2. Check the windshield wiper motor.

- (1) Disconnect windshield wiper motor connector B-12.
- (2) Connect the windshield wiper motor connector terminal 4 to the positive battery terminal and terminal 5 to the ground as shown in the illustration (A), and operate the windshield wiper at low speed. While the windshield wiper is working, disconnect the battery at positions other than the predetermined park position to stop the windshield wiper motor.
- (3) When connect the windshield wiper motor connector terminal 2 to the positive battery terminal, terminal 5 to the ground and terminal 3 to terminal 4 as shown in the illustration (B), the motor should run at low speed, and then stop at the predetermined park position.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 3.

NO : Replace the windshield wiper motor. Verify the windshield wiper should now stop at the predetermined park position.



STEP 3. Check the battery power supply circuit to the windshield wiper motor. Test at the windshield wiper motor connector B-12.

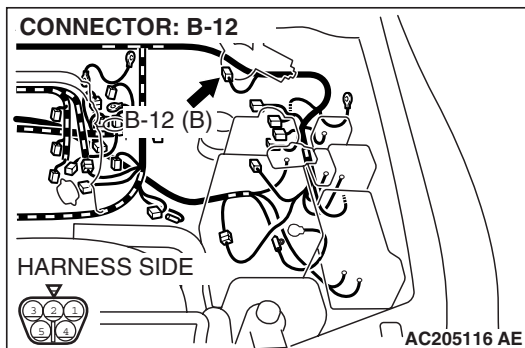
- (1) Disconnect windshield wiper motor connector B-12 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ACC" position.

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

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

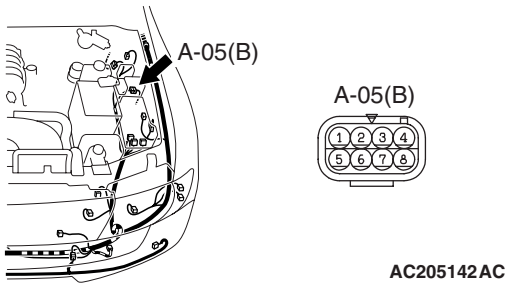
YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between windshield wiper motor connector B-12 and the ignition switch (ACC).

CONNECTOR: A-05



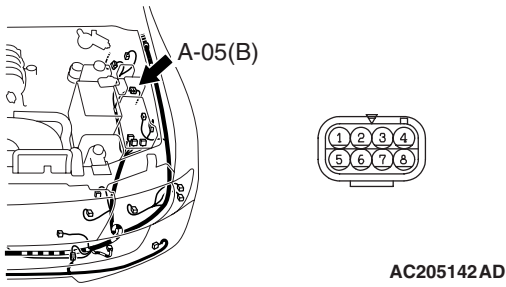
NOTE: Also check intermediate connector A-05, D-28, junction block connectors D-208 and D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-05, D-28, junction block connector D-208 and D-221 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between windshield wiper motor connector B-12 and the ignition switch (ACC) in good condition?

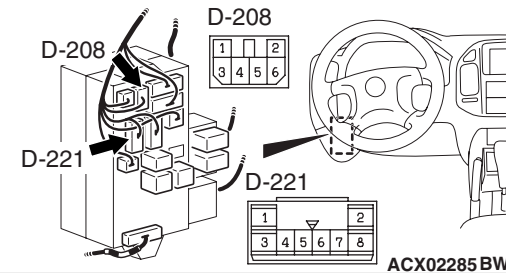
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The windshield wiper should now stop at the predetermined park position.

CONNECTOR: A-05



CONNECTORS: D-208, D-221
JUNCTION BLOCK (FRONT VIEW)



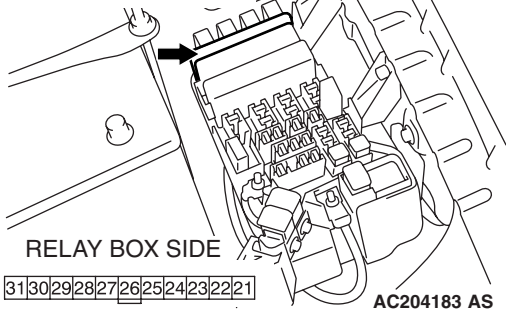
STEP 5. Check front-ECU connector A-08X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-08X in good condition?

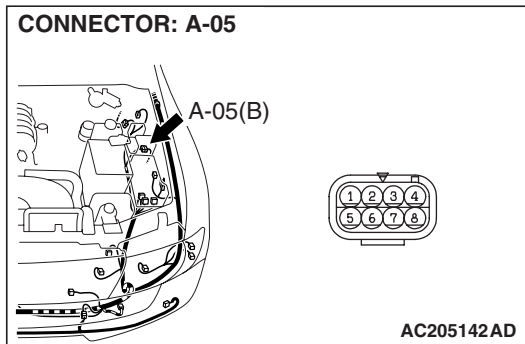
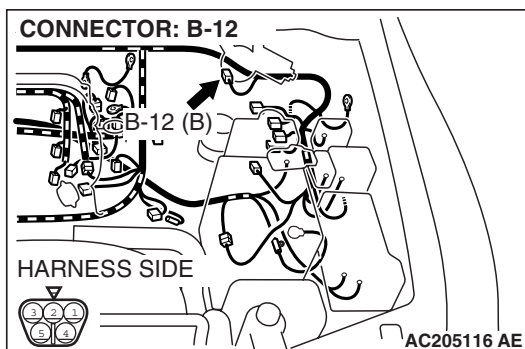
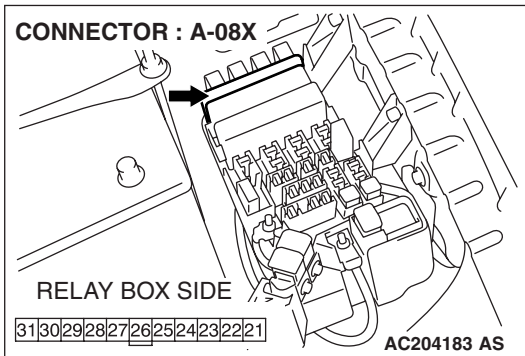
YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should now stop at the predetermined park position.

CONNECTOR : A-08X



STEP 6. Check the wiring harness between windshield wiper motor connector B-12 (terminal 3) and front-ECU connector A-08X (terminal 23).



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

Q: Is the wiring harness between windshield wiper motor connector B-12 (terminal 3) and front-ECU connector A-08X (terminal 23) in good condition?

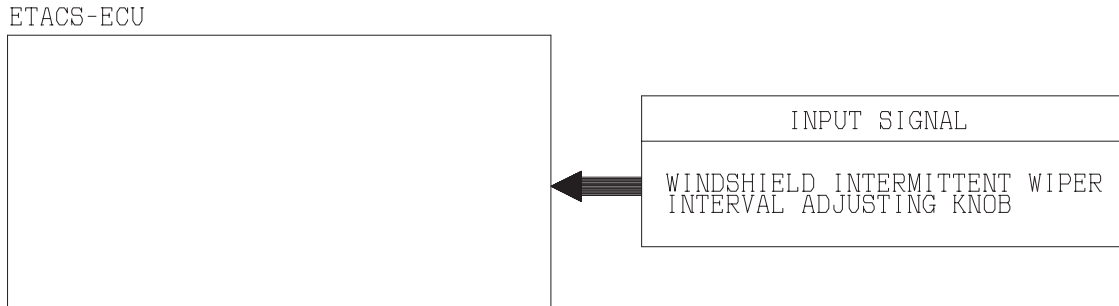
YES : Replace the front-ECU. The windshield wiper should stop at the predetermined park position.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The windshield wiper should now stop at the predetermined park position.

INSPECTION PROCEDURE G-5: Windshield Wiper and Washer: The windshield intermittent wiper interval is not changed by operating the windshield intermittent wiper interval adjusting knob or according to the vehicle speed.

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

Windshield Intermittent Wiper Interval Adjusting Knob Input Signal



W2J08M54AA

TECHNICAL DESCRIPTION (COMMENT)

If the windshield intermittent wiper interval is not changed by operating the windshield intermittent wiper interval adjusting knob or according to the vehicle speed, the column switch, the ETACS-ECU or the front-ECU may be defective.

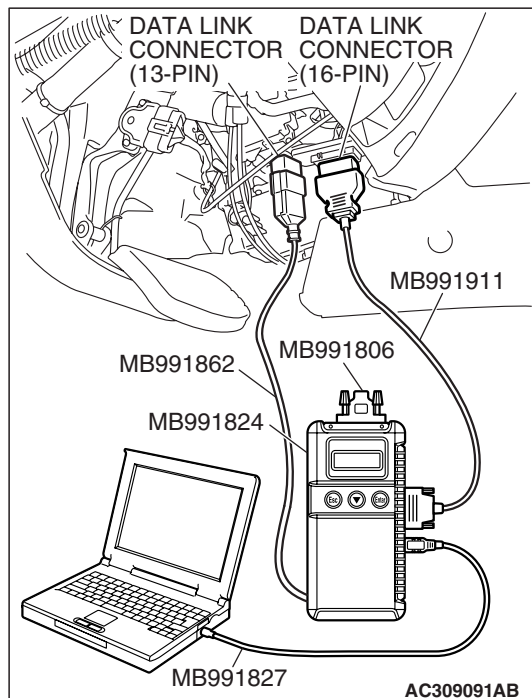
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

Set each switch to the following condition to check input signals from the windshield intermittent wiper interval adjusting knob:

- Ignition switch: ACC
- Windshield wiper switch: INT

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Operate scan tool MB991958 according to the procedure below to display "F.WIPER INT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "WIPER."
 6. Select "F.WIPER INT."
- (4) Check that normal conditions are displayed on the items described in the table below.

NOTE: Also check that the windshield wiper interval changes smoothly when the windshield intermittent wiper interval adjusting knob is rotated from "SLOW" to "FAST" positions.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 37	INT WIPER TIME	2.4 – 18.0 s

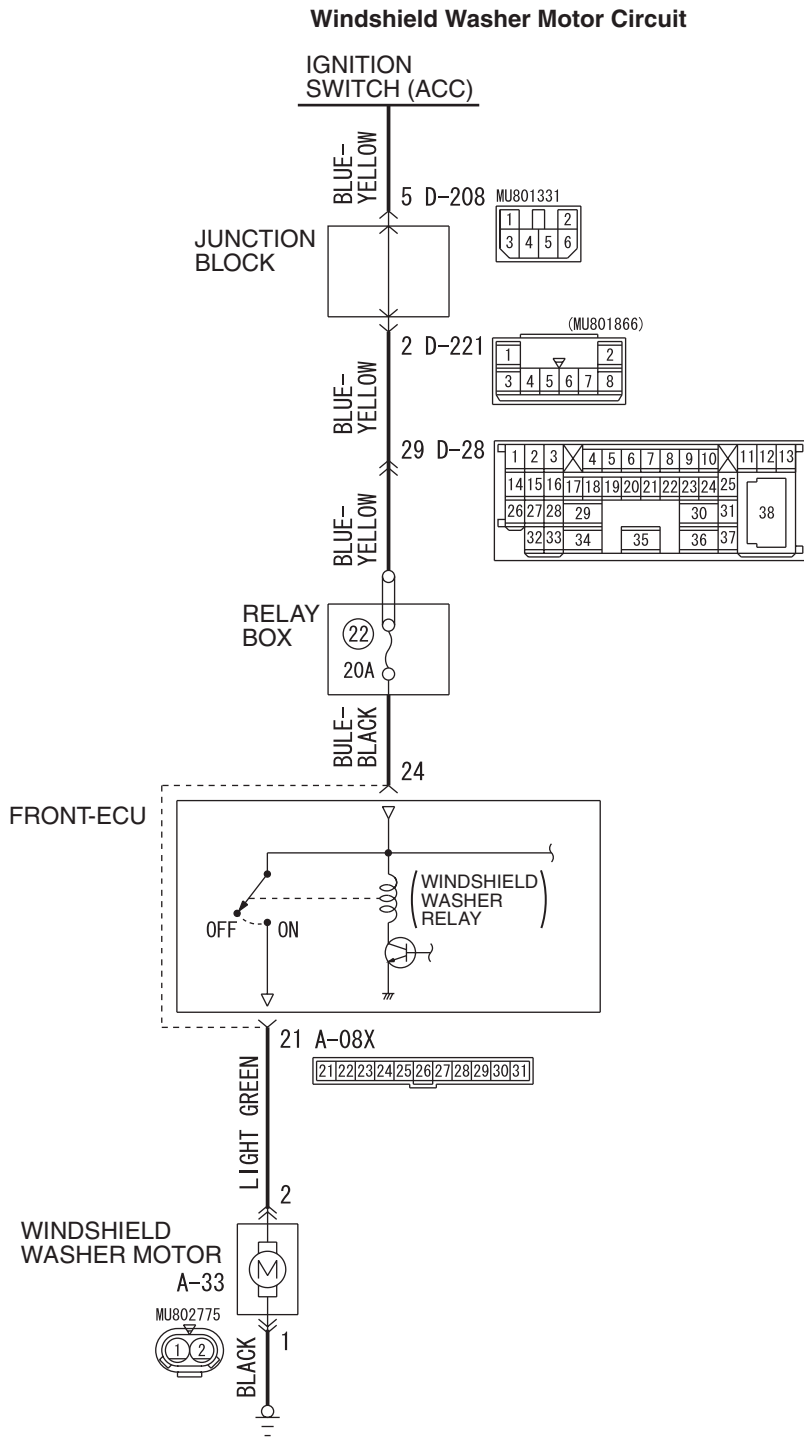
Q: Does the value change within the normal range when the windshield intermittent wiper interval adjusting knob is rotated?

YES : Replace the front-ECU. Check that the windshield intermittent wiper interval changes according to the vehicle speed or while the windshield intermittent wiper interval adjusting knob is rotated.

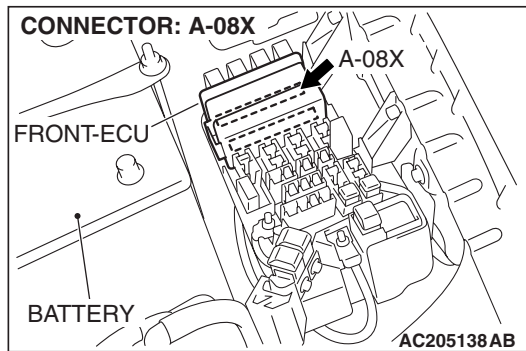
NO : Refer to Inspection Procedure O-8 "ETACS-ECU does not receive any signal from the windshield intermittent wiper interval adjusting knob P.54B-522."

INSPECTION PROCEDURE G-6: Windshield Wiper and Washer: The windshield washer does not work.

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

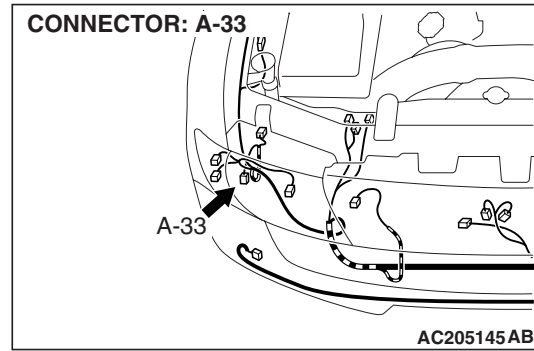


W4Q54M04AA



CIRCUIT OPERATION

The windshield washer switch sends a signal through the column-ECU (incorporated in the column switch) to the front-ECU. If the column-ECU sends a windshield washer switch "ON" signal to the front-ECU, the front-ECU turns on the relay (incorporated in the front-ECU), thus causing the windshield washer motor to be turned on.



TECHNICAL DESCRIPTION (COMMENT)

If the windshield washer does not work normally, the windshield washer motor, the column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Verify the windshield wiper.

Q: Does the windshield wiper operate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure G-1 "The windshield wiper does not work at all [P.54B-222](#)."

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

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

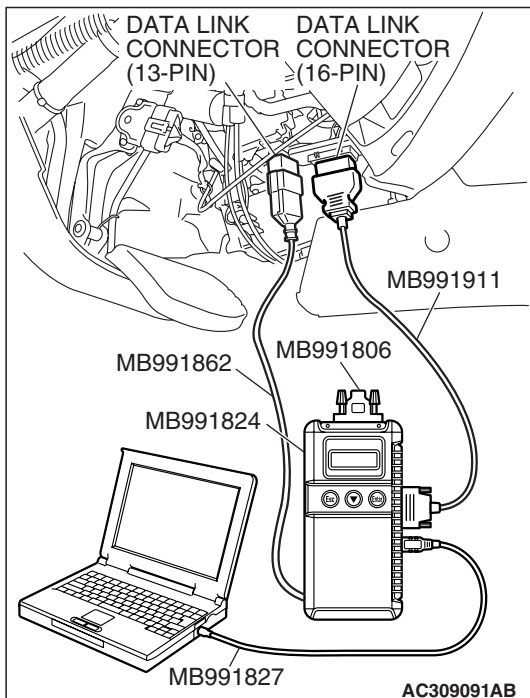
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHK".
- (5) Scan tool MB991958 should show "OK" on the "ECU COMM CHK" menus for both the "COLUMN ECU" and the "FRONT ECU" menus.

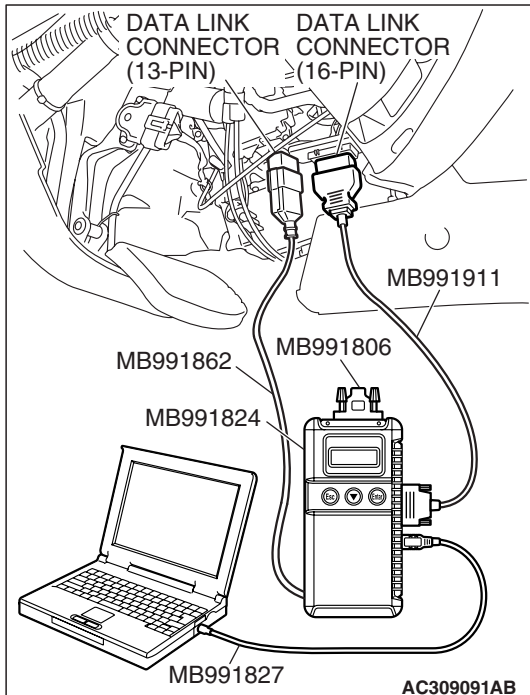
Q: Is "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

"OK" is displayed for all the items : Go to Step 3.

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

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





STEP 3. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Windshield washer switch: ON

Operate scan tool MB991958 according to the procedure below to display "F.WIPER WASH."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "WIPER."
6. Select "F.WIPER WASH."

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

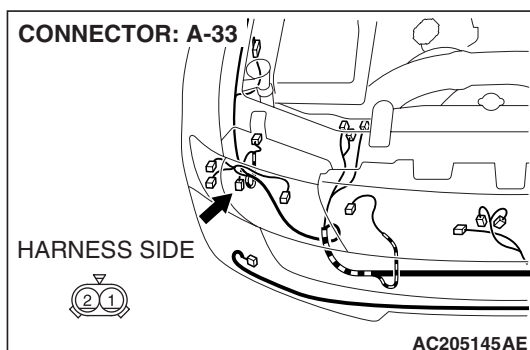
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 09	FRONT WASH.SW	ON
ITEM 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

Q: Are normal conditions displayed for "FRONT WASH.SW" and "FRONT ECU ACK"?

Normal conditions displayed for all the items : Go to Step 4.

The scan tool does not show the respective normal condition for item "FRONT WASH. SW" : Replace the column switch. Verify that the windshield washer works normally.

The scan tool does not show the respective normal condition for item "FRONT ECU ACK" : Replace the front-ECU. Verify that the windshield washer works normally.

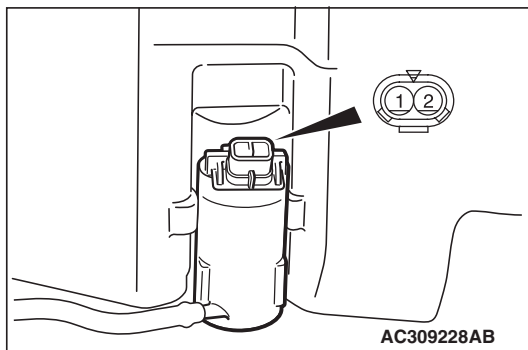
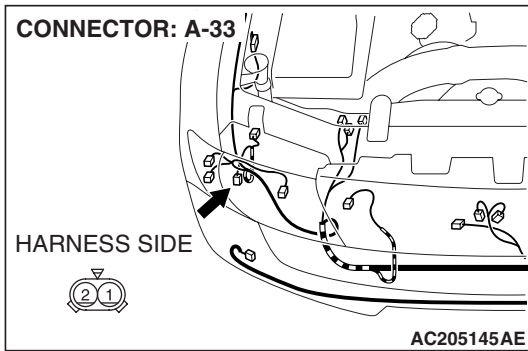


STEP 4. Check windshield washer motor connector A-33 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is windshield washer motor connector A-33 in good condition?

YES : Go to Step 5.

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



STEP 5. Check the windshield washer motor.

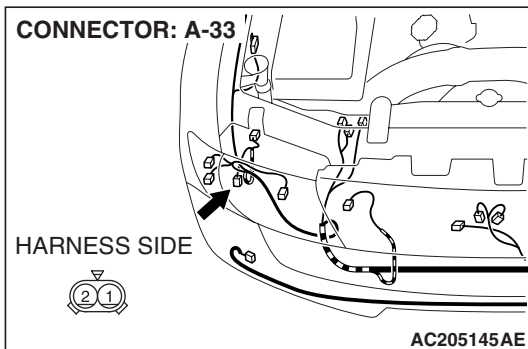
- (1) Disconnect windshield washer motor connector A-33, and check at windshield washer motor connector side.
- (2) Fill the windshield washer tank with washer fluid.

- (3) Connect windshield washer motor connector terminal 1 to the positive battery terminal, and terminal 2 to the negative battery terminal, respectively. Washer fluid should spray out.

Q: Does the windshield washer motor operate normally?

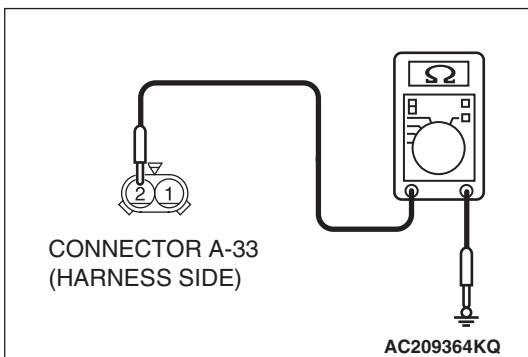
YES : Go to Step 6.

NO : Replace the windshield washer motor. Verify that the windshield washer works normally.



STEP 6. Check the ground circuit to the windshield washer motor. Test at connector A-33.

- (1) Disconnect windshield washer motor connector A-33 and measure the resistance available at the wiring harness side of the connector.



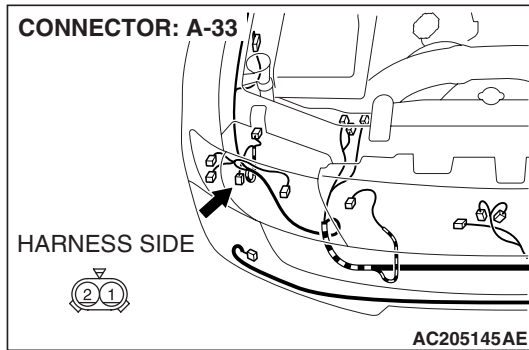
- (2) Measure the resistance value between terminal 2 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 7.

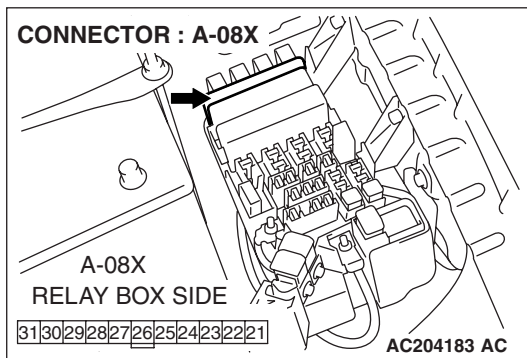


STEP 7. Check the wiring harness between windshield washer motor connector A-33 (terminal 1) and ground.

Q: Is the wiring harness between windshield washer motor connector A-33 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

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

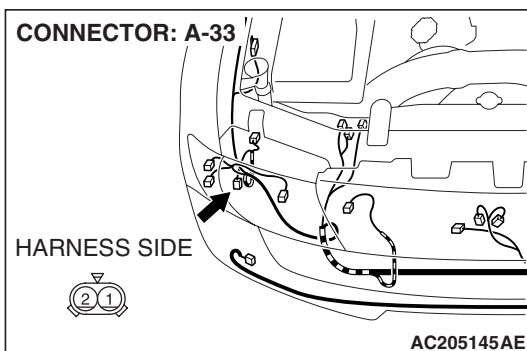
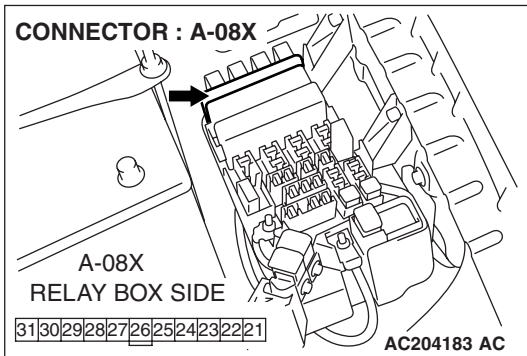


STEP 8. Check front-ECU connector A-08X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front-ECU connector A-08X in good condition?

YES : Go to Step 9.

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



STEP 9. Check the wiring harness between windshield washer motor connector A-33 (terminal 1) and front-ECU connector A-08X (terminal 21).

Q: Is the wiring harness between windshield washer motor connector A-33 (terminal 1) and front-ECU connector A-08X (terminal 21) in good condition?

YES : No action is necessary and testing is complete.

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

REAR WIPER AND WASHER

GENERAL DESCRIPTION CONCERNING THE REAR WIPER AND WASHER

M1549021600210

The following ECUs affect the functions and control of the rear wiper and washer.

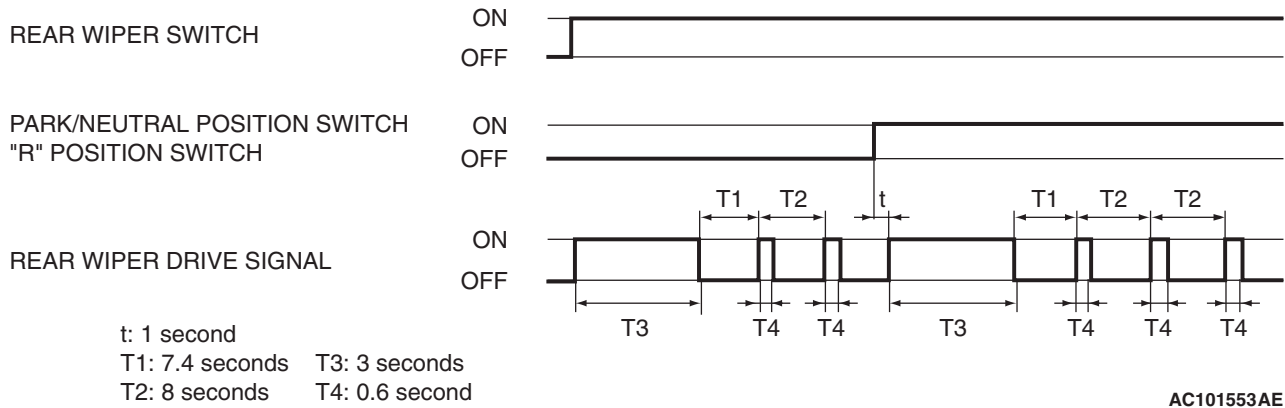
FUNCTION	CONTROL ECU
Rear wiper control	ETACS-ECU, column switch
Rear washer control	

Rear wiper and washer control function

Rear wiper control

If the rear wiper switch of the column switch assembly is turned ON with the ignition switch in the ACC or ON position, the ETACS-ECU will turn the rear wiper drive signal ON for 3 seconds (approximately 2 operations), and then will carry out intermittent operation in a 7.4 to 8 seconds cycle.

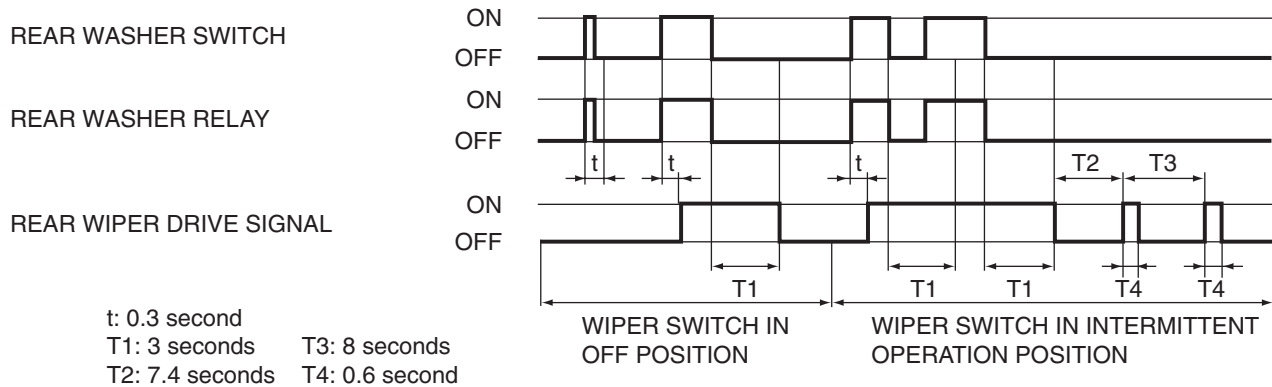
If the selector lever is moved to the "R" position when the rear wiper switch of the column switch assembly is turned ON and the ignition switch is in any position other than OFF, the transmission range switch "R" position switch turns ON. One second later, the ETACS-ECU turns the rear wiper drive signal ON for 3 seconds (approximately 2 operations), to clear the rear view, and then returns to intermittent operation at a 7.4 to 8 seconds cycle.



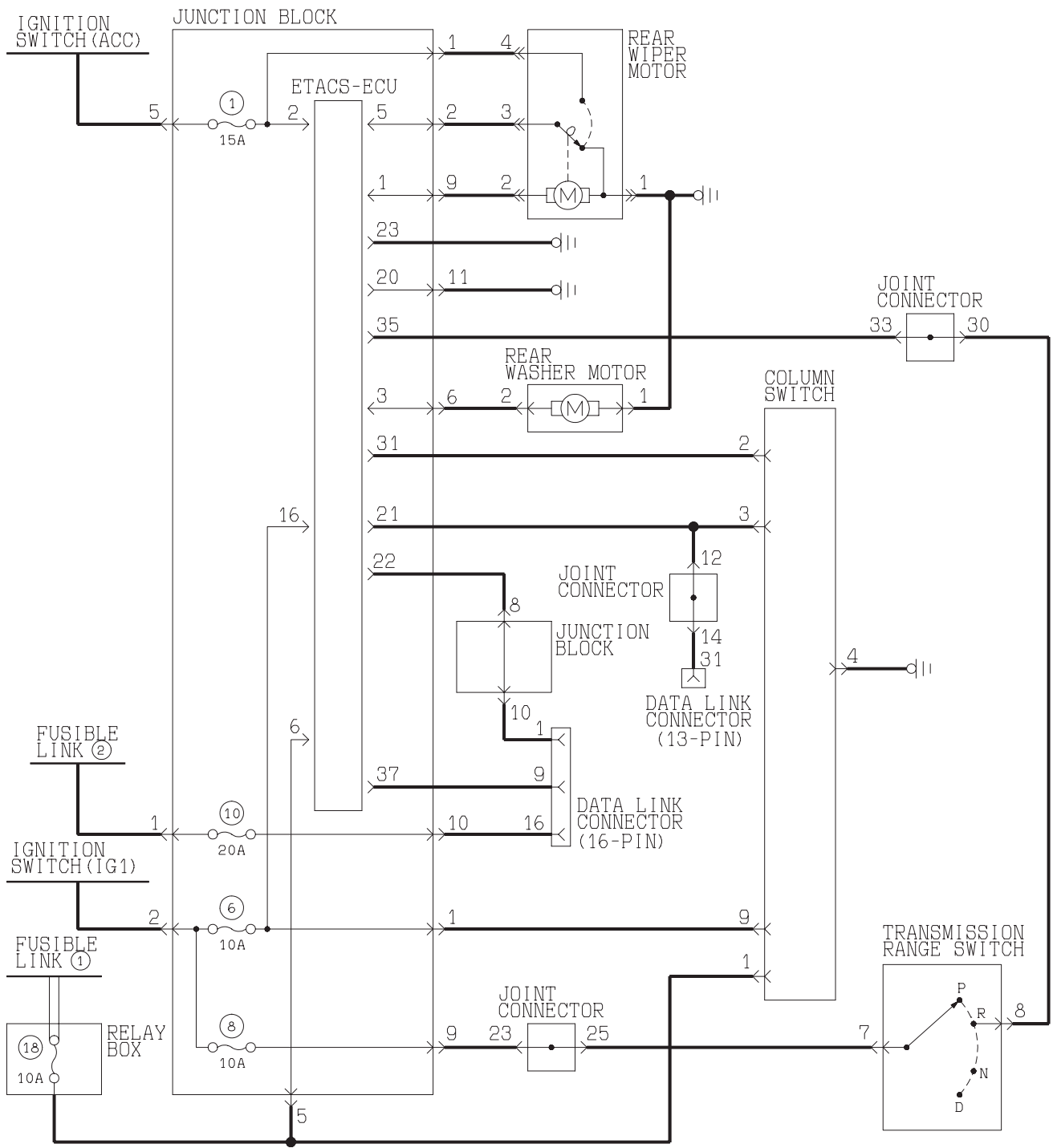
Rear washer control

When the ignition switch is at the ACC or ON position, if the rear washer switch of the column switch is turned ON, the ETACS-ECU turns ON the rear washer relay. The rear wiper drive signal is turned ON in 0.3 second until 3 seconds after the rear washer switch goes OFF to operate the rear wiper continuously.

If the rear wiper is in intermittent operation when the rear washer switch is turned ON, 7.4 seconds after the rear wiper drive signal turns OFF, the 8 seconds cycle intermittent operation will continue.



General circuit diagram for the rear wiper and washer

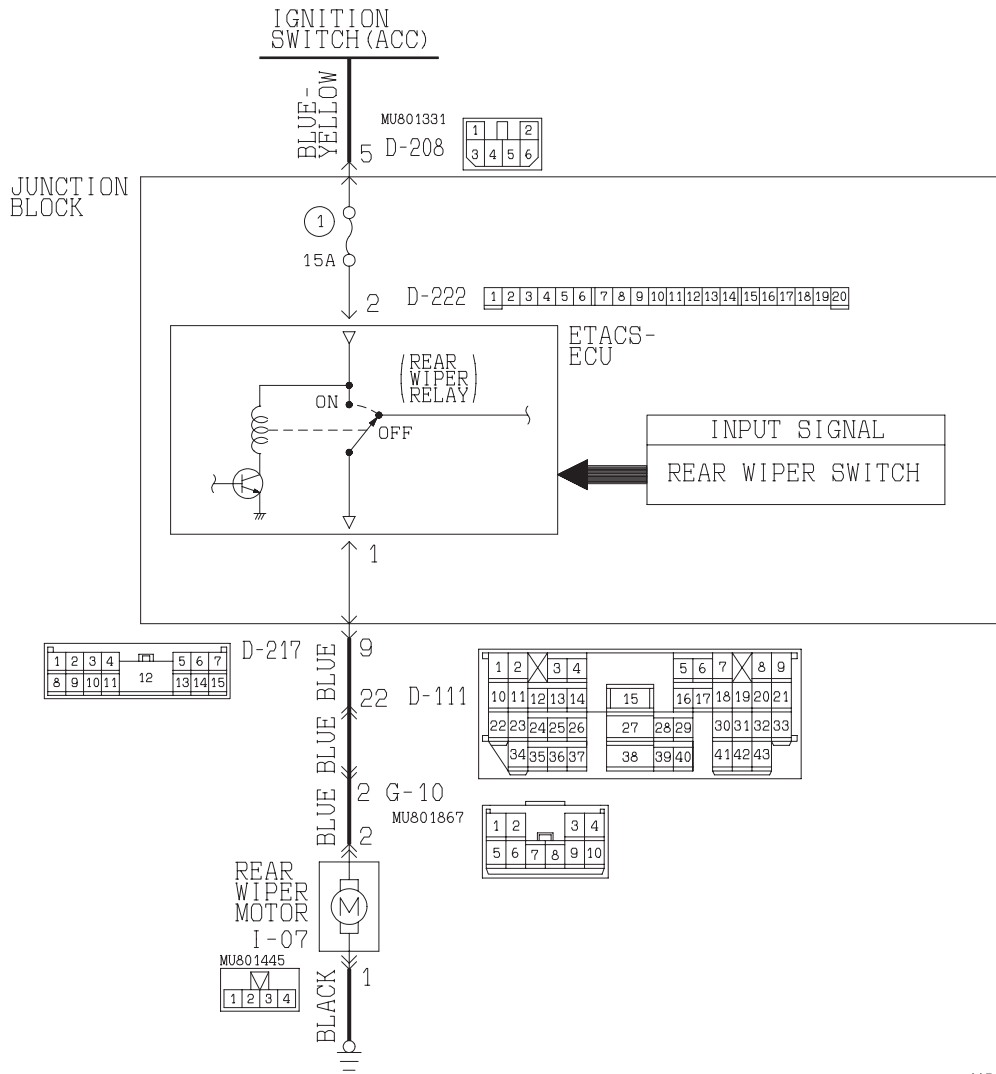


W3Q15M03AA

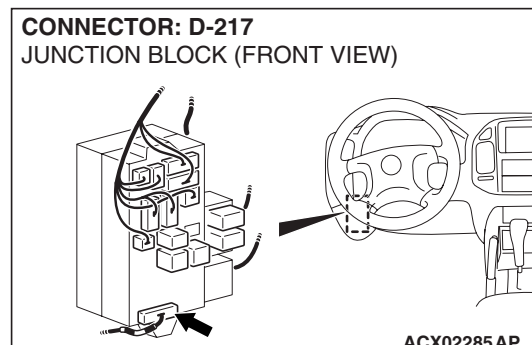
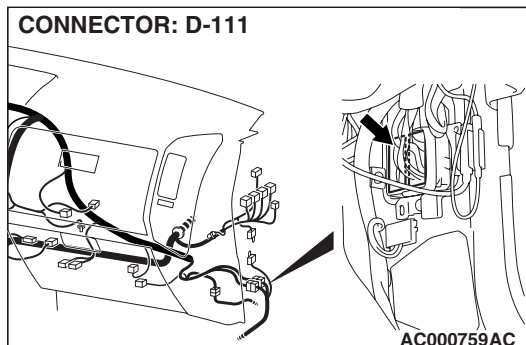
INSPECTION PROCEDURE H-1: Rear Wiper and Washer: Rear wiper does not work at all.

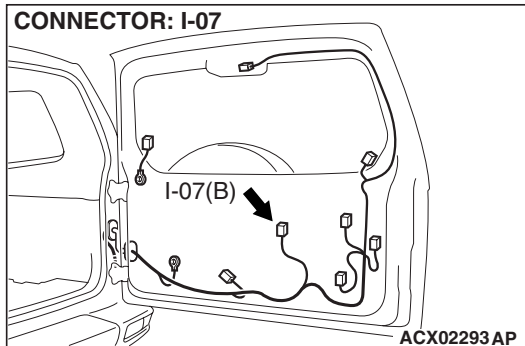
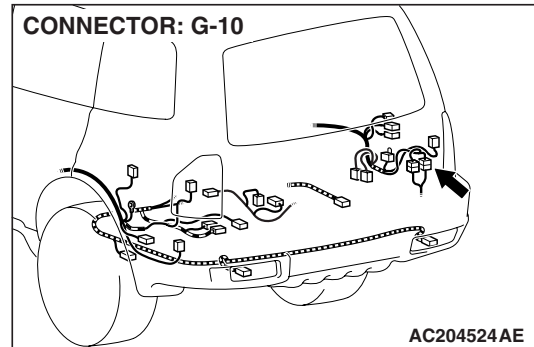
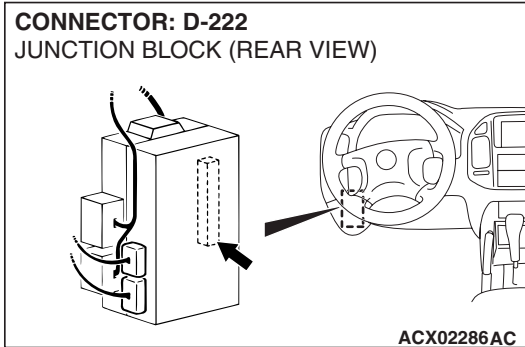
NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Rear Wiper Drive Circuit



W2Q02M15AA





CIRCUIT OPERATION

- The rear wiper switch sends a signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a rear wiper switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the relay (incorporated in the ETACS-ECU), thus causing the rear wiper motor to be turned on.
- The ETACS-ECU operates the rear wiper according to the following switches:
 - Ignition switch (ACC)
 - Rear wiper switch

TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not work normally, the input circuit system from the switches, the rear wiper motor, the column switch (windshield wiper and windshield washer switch) or the ETACS-ECU may be defective (refer to "CIRCUIT OPERATION").

TROUBLESHOOTING HINTS

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

DIAGNOSIS**Required Special Tools:**

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

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU

⚠ CAUTION

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

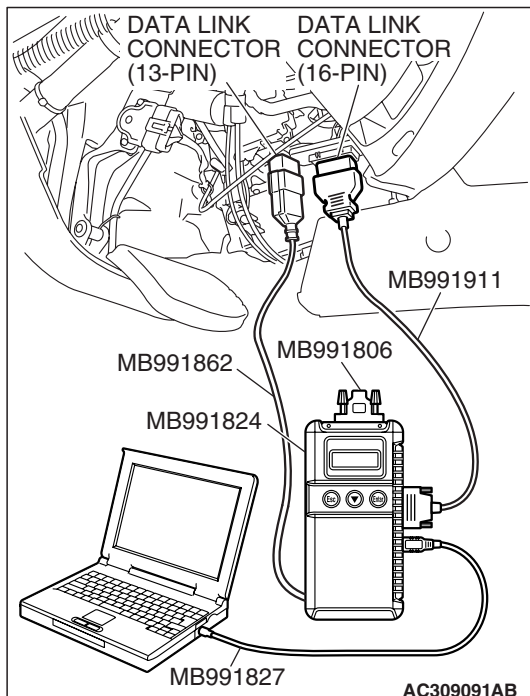
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "ON" position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4.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

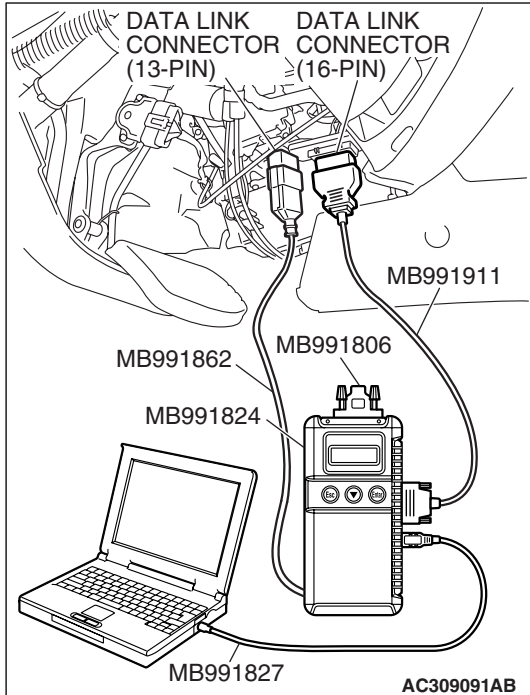
Q: Is "OK" displayed on both the "ETACS ECU" and "COLUMN ECU" menus?

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

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

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





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

Check the input signals from the following switches:

- Ignition switch: ACC
- Rear wiper switch: INT

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

1. Select "SWS."
2. Select "SYSTEM SELECT."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "REAR WIPER."

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

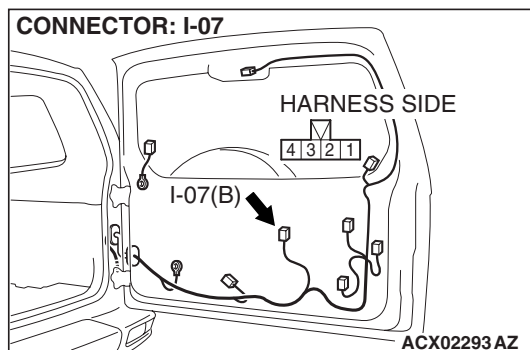
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 13	REAR WIPER SW	ON
ITEM 31	IG SW (ACC)	ON

Q: Are normal conditions displayed for "REAR WIPER SW" and "IG SW (ACC)"?

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

Normal condition is not displayed "REAR WIPER SW" :
Refer to Inspection Procedure O-7 "ETACS-ECU does not receive any signal from the rear wiper switch [P.54B-518.](#)"

Normal condition is not displayed for "IG SW (ACC)" :
Refer to Inspection Procedure O-1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) [P.54B-493.](#)"

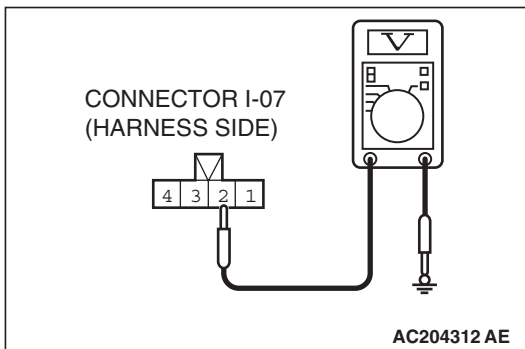
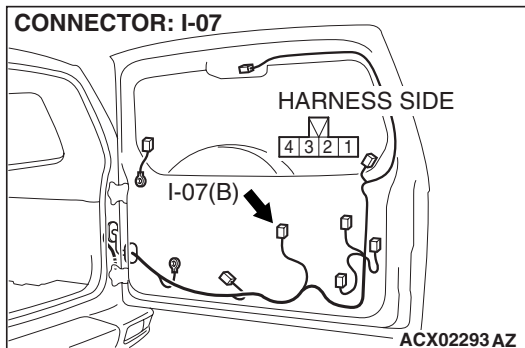


STEP 3. Check the rear wiper motor connector I-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 4.

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



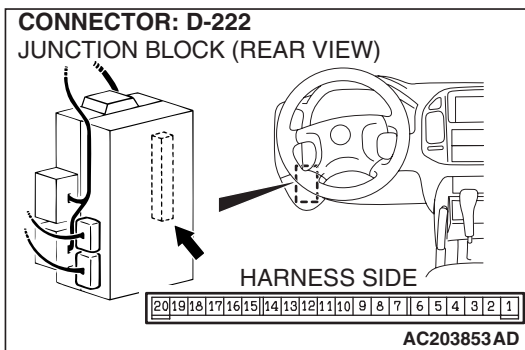
STEP 4. Check the battery power supply circuit to the rear wiper motor. Test at rear wiper motor connector I-07.

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

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

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

- YES :** Go to Step 8.
NO : Go to Step 5.

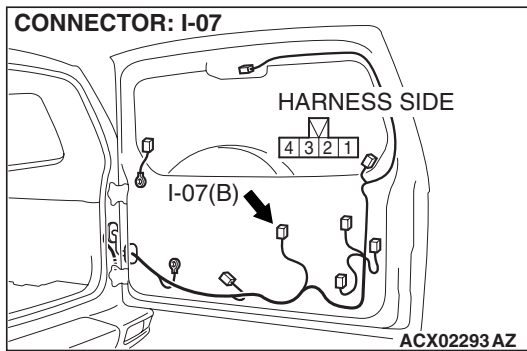
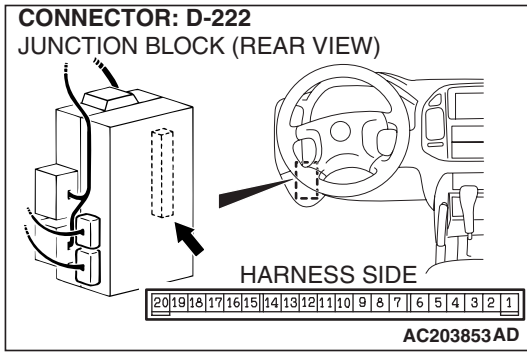


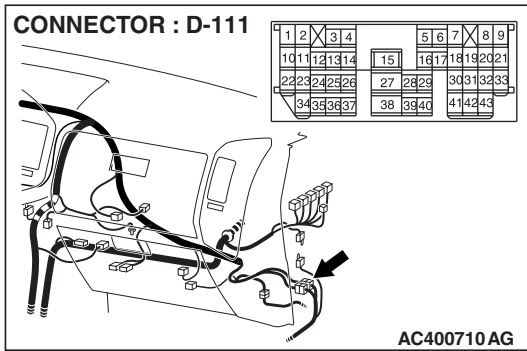
STEP 5. Check the ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

- YES :** Go to Step 6.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Verify that the rear wiper works normally.

STEP 6. Check the harness wires between rear wiper motor connector I-07 (terminal 2) and ETACS-ECU connector D-222 (terminal 1).



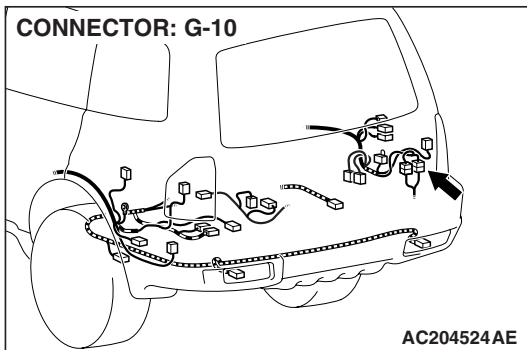
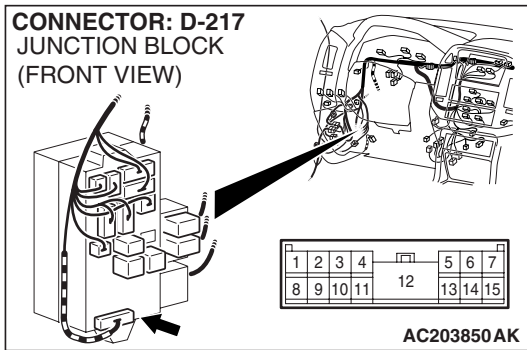


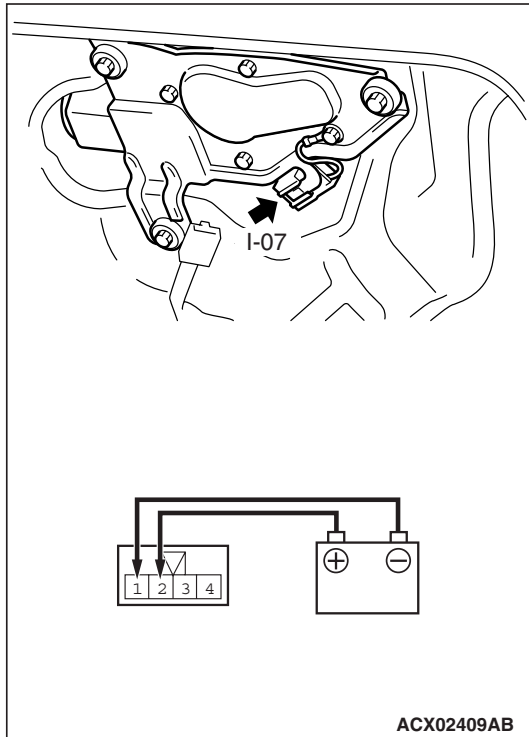
NOTE: Also check intermediate connectors G-10, D-111 and junction block connector D-217. If intermediate connectors G-10, D-111 or junction block connector D-217 are damaged, repair or replace damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between rear wiper motor connector I-07 (terminal 2) and ETACS-ECU connector D-222 (terminal 1) in good condition?

YES : Go to step 7.

NO : The wiring harness may be damaged or the connectors may have loose, corroded or damaged terminals or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear wiper works normally.





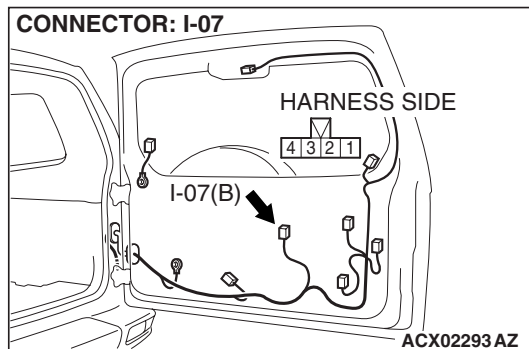
STEP 7. Check the rear wiper motor.

- (1) Disconnect the rear wiper motor connector I-07.
- (2) Connect a battery to the wiper motor as shown in the illustration and inspect the motor operation.

Q: Is the rear wiper motor in good condition?

YES : No action is necessary and testing is complete.

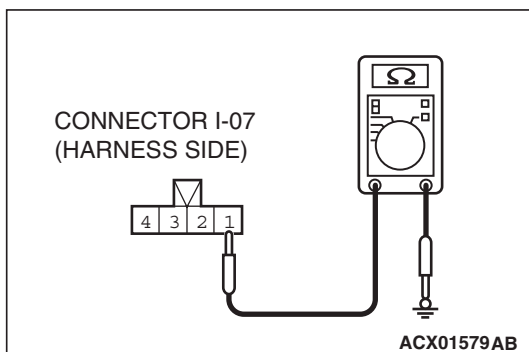
NO : Replace the rear wiper motor. Verify that the rear wiper works normally.



STEP 8. Check the ground 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 resistance available at the harness side of the connector.



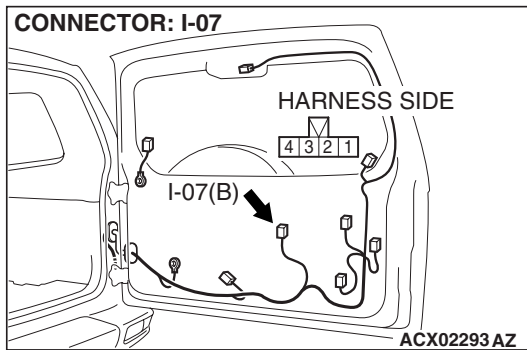
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.

NO : Go to Step 9.



STEP 9. Check the wiring harness between rear wiper motor connector I-07 (terminal 1) and ground.

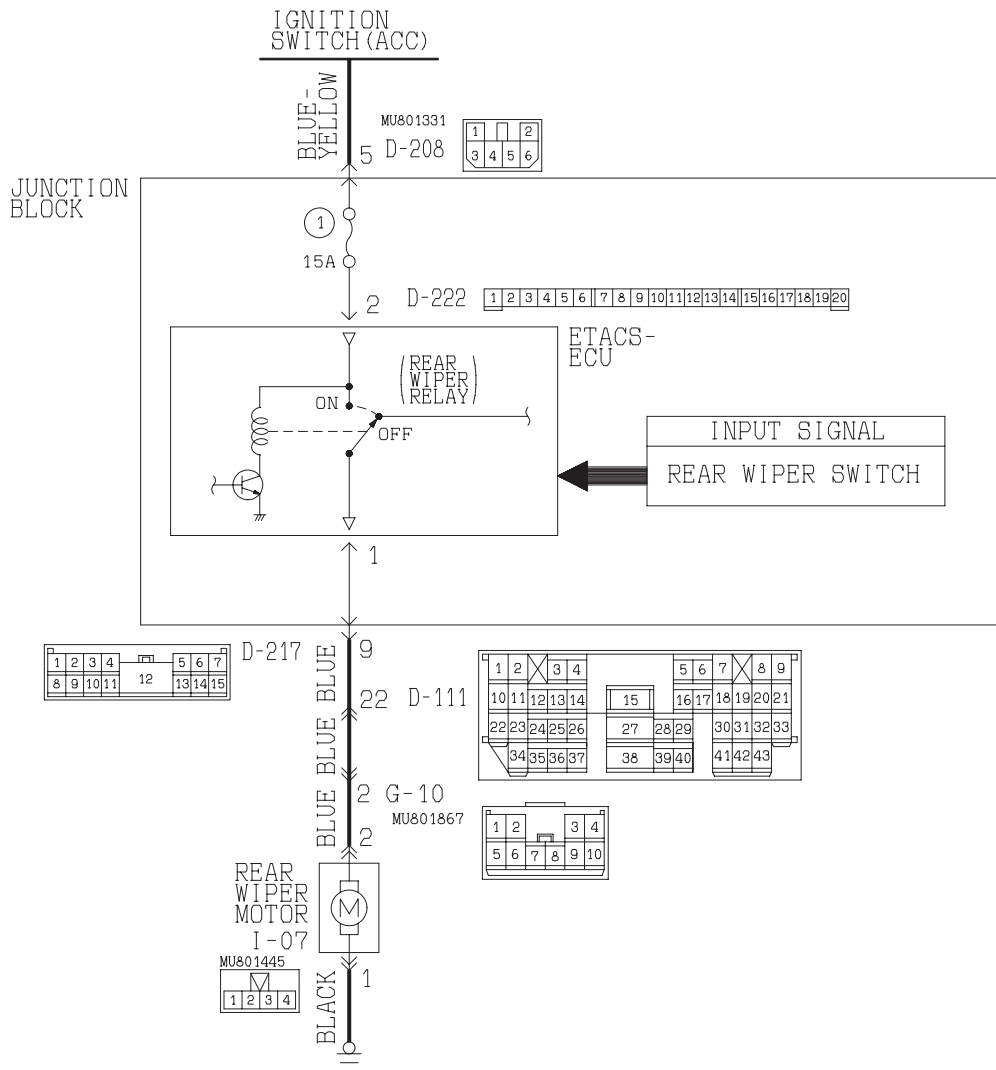
Q: Is the wiring harness between rear wiper motor connector I-07 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the windshield wiper works normally.

INSPECTION PROCEDURE H-2: Rear Wiper and Washer: Rear wiper does not stop at the predetermined park position.

Rear Wiper Drive Circuit



W2Q02M15AA

TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not stop at predetermined park position, the rear wiper motor or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

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

Check the automatic stop signal, which the rear wiper motor sends to the ETACS-ECU.

NOTE: When the rear wiper is operated, a signal is sent to the ETACS-ECU.

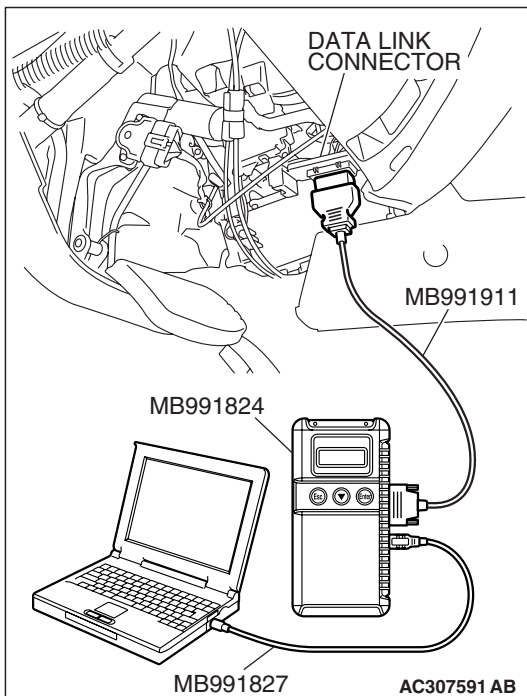
⚠ CAUTION

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

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

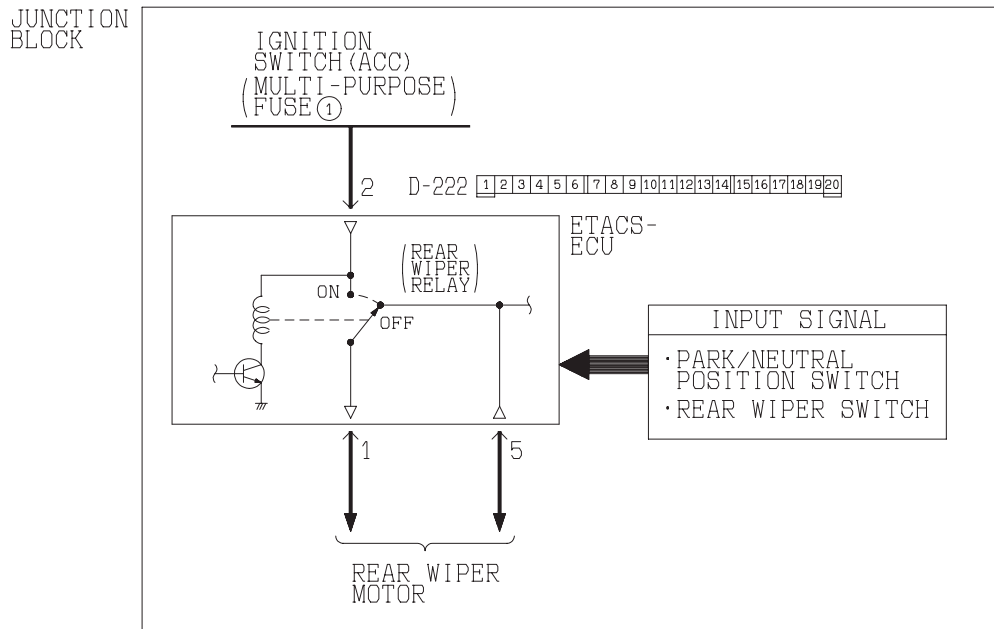
Q: Does scan tool MB991958 sound when the rear wiper switch is operated?

- YES :** Replace the ETACS-ECU. The rear wiper should stop automatically at the predetermined park position.
- NO :** Refer to Inspection Procedure P-8 "ETACS-ECU does not receive an auto-stop signal from the rear wiper motor [P.54B-602.](#)"



INSPECTION PROCEDURE H-3: Rear Wiper and Washer: When the selector lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.

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

"R" Position during Rear Wiper Operation Circuit

W2Q02M17AA

CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper consecutively approximately twice when the selector lever is moved to "R" position while the rear wiper is turned on.

TECHNICAL DESCRIPTION (COMMENT)

If the rear wiper does not work consecutively approximately twice, the transmission range switch ("R" position) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

STEP 1. Verify the rear wiper operation.

Q: Does the rear wiper operate normally?

YES : Go to Step 2.

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

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

Set each switch to the following condition before checking input signal from the transmission range switch ("R" position).

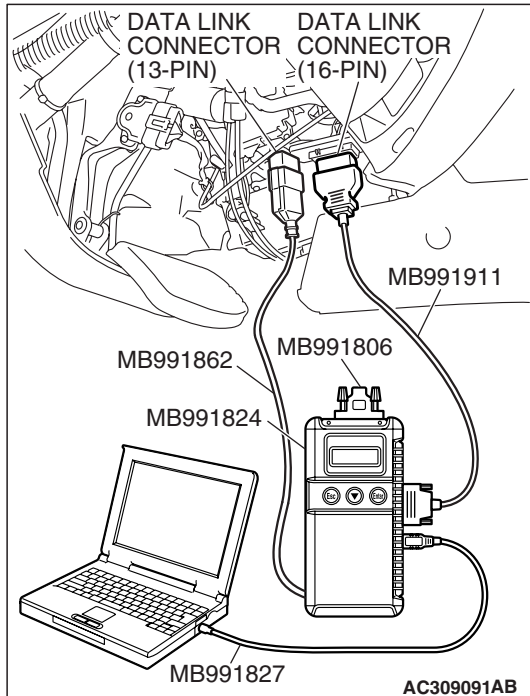
- Ignition switch: ON
- Rear wiper switch: ON
- Shift position: "R" position

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-7](#)
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Operate scan tool MB991958 according to the procedure below to display "REV. INTERLOCK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REV. INTERLOCK."
- (4) Check that normal conditions are displayed on the item described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 41	PNP SW (R)	ON

**Q: Are normal conditions displayed?**

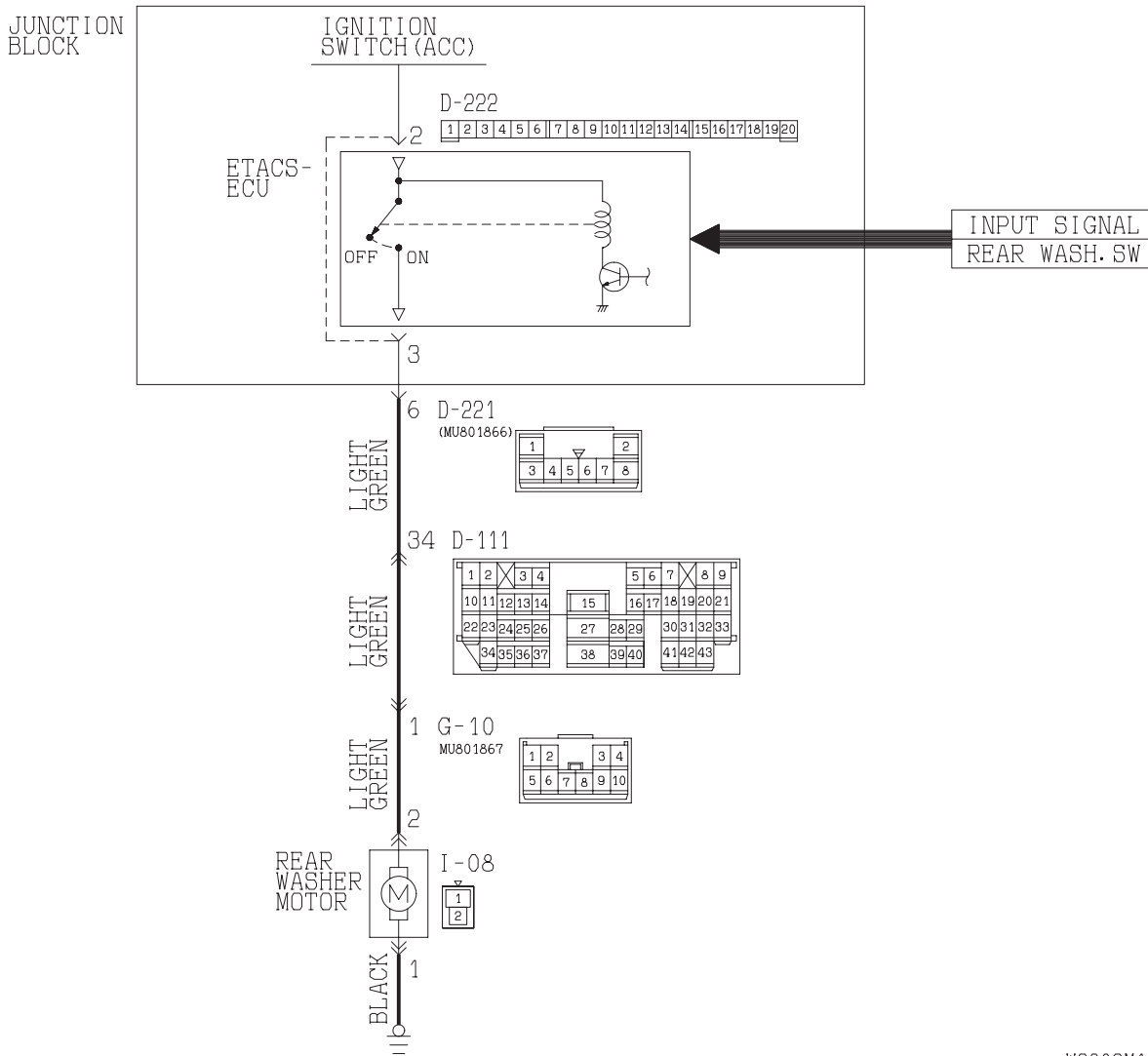
YES : Replace the ETACS-ECU. When the selector lever is moved to the "R" position, the rear wiper should operate consecutively approximately twice.

NO : Refer to Inspection Procedure O-4 "ETACS-ECU does not receive "R" position signal from the transmission range switch [P.54B-502.](#)"

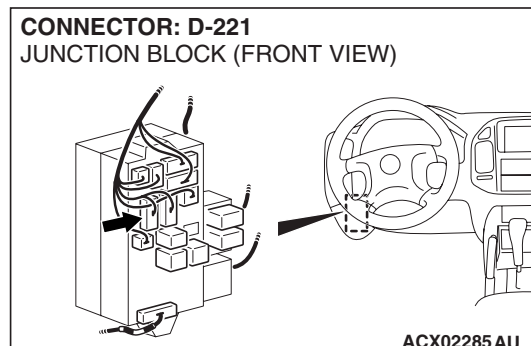
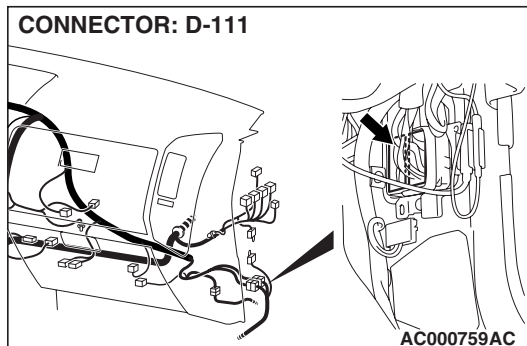
INSPECTION PROCEDURE H-4: Rear Wiper and Washer: The windshield washer does not work.

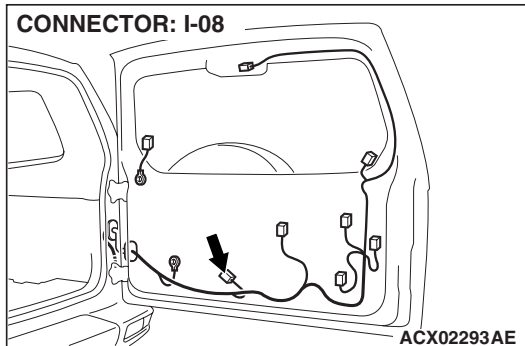
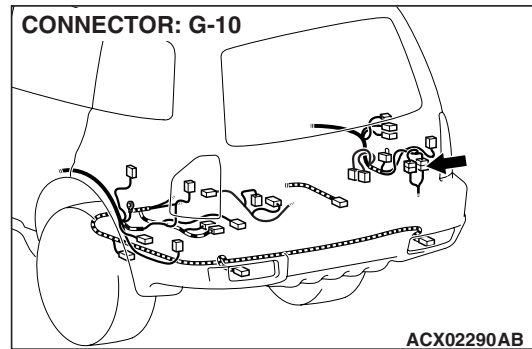
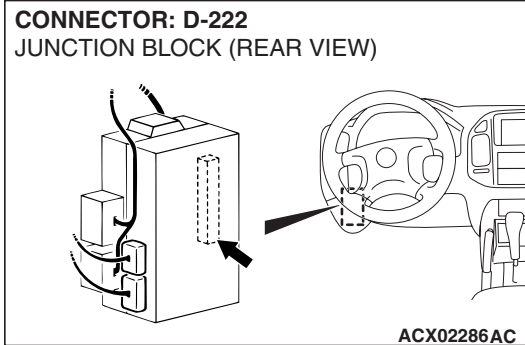
NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Rear Washer Drive Circuit



W2Q02M18AA





CIRCUIT OPERATION

The rear washer switch sends a signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a rear washer switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the relay (incorporated in the ETACS-ECU), thus causing the rear washer motor to be turned on.

TECHNICAL DESCRIPTION (COMMENT)

If the rear washer does not work normally, the rear washer motor, the column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- The rear washer motor may be defective
- The column switch (windshield wiper and washer switch) may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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

STEP 1. Verify the rear wiper operation.

Q: Does the rear wiper operate normally?

YES : Go to Step 2.

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

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

Set each switch to the following condition before checking input signals from the rear washer switch:

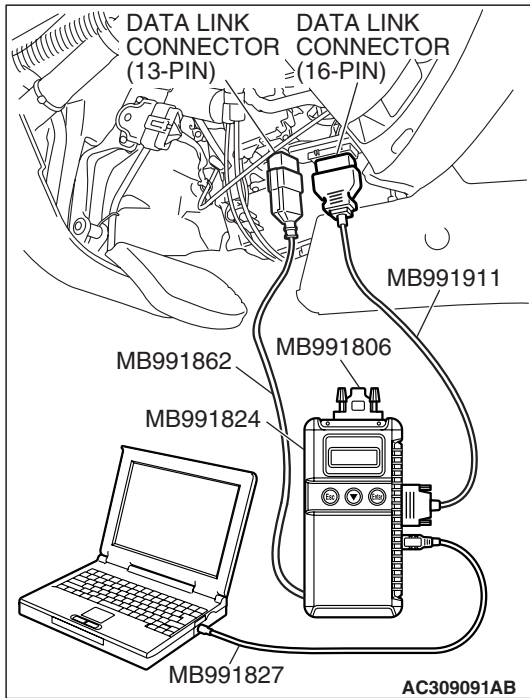
- Ignition switch: ACC
- Rear washer switch: ON

⚠ CAUTION

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

- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Operate scan tool MB991958 according to the procedure below to display "REAR WASHER."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REAR WASHER."
- (4) Check that normal conditions are displayed on the item described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 14	REAR WASH.SW	ON



Q: Are normal conditions displayed?

YES : Go to Step 3.

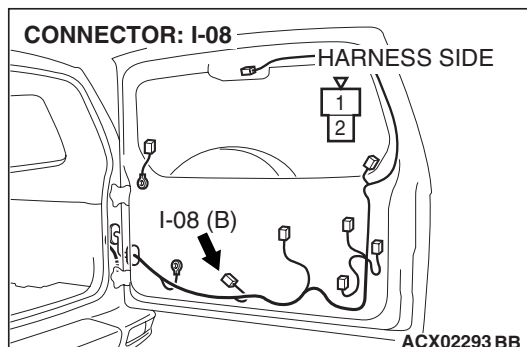
NO : Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the rear washer switch P.54B-518."

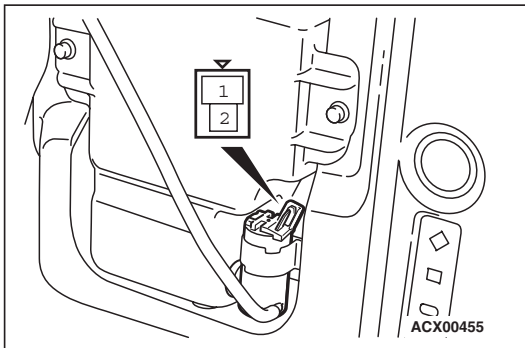
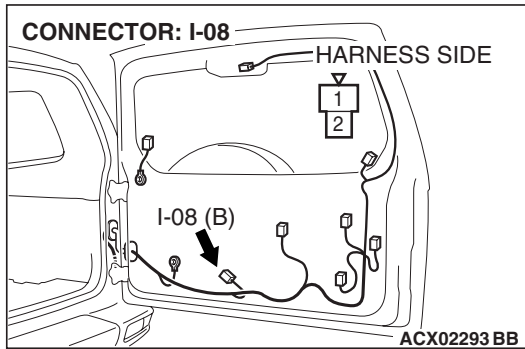
STEP 3. Check rear washer motor connector I-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear washer motor connector I-08 in good condition?

YES : Go to Step 4.

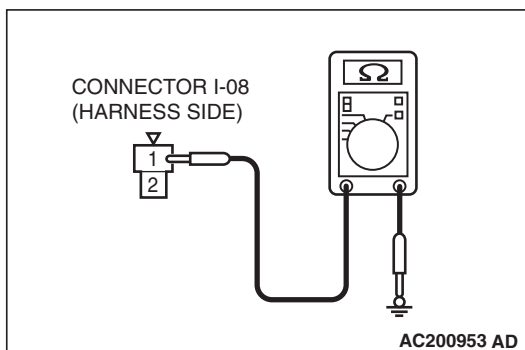
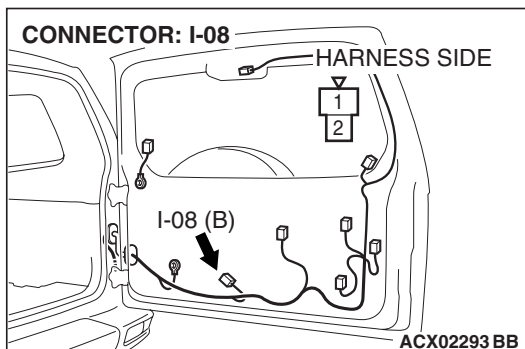
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the rear washer works normally.



**STEP 4. Check the rear washer motor.**

- (1) Disconnect rear washer motor connector I-08.
- (2) Fill the washer tank with washer fluid.

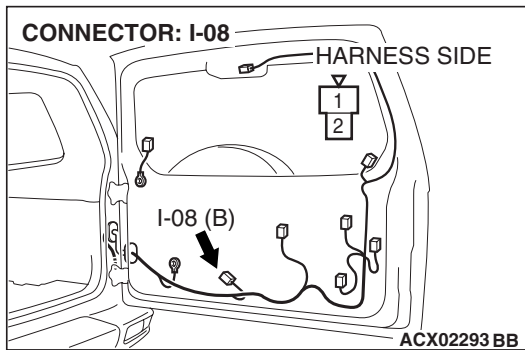
- (3) Connect rear washer motor connector terminal 2 to the positive battery terminal, and terminal 1 to the negative battery terminal, respectively. Washer fluid should spray out.

Q: Does the rear washer motor operate normally?**YES :** Go to Step 5.**NO :** Replace the rear washer motor. Verify that the rear washer works normally.**STEP 5. Check the ground circuit to the rear washer motor.
Test at rear washer motor connector I-08.**

- (1) Disconnect rear washer motor connector I-08 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 ohm or less.

Q: Is the measured resistance 2 ohms or less?**YES :** Go to Step 7.**NO :** Go to Step 6.

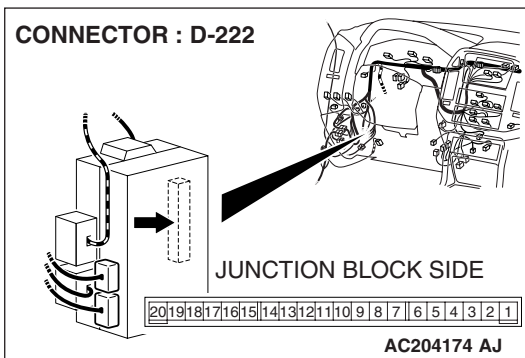


STEP 6. Check the wiring harness between rear washer motor connector I-08 (terminal 1) and ground.

Q: Is the wiring harness between rear washer motor connector I-08 (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 may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear washer works normally.

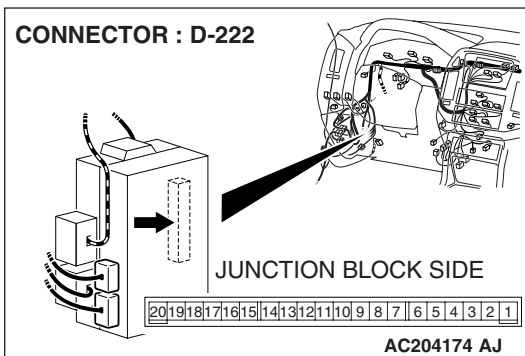


STEP 7. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

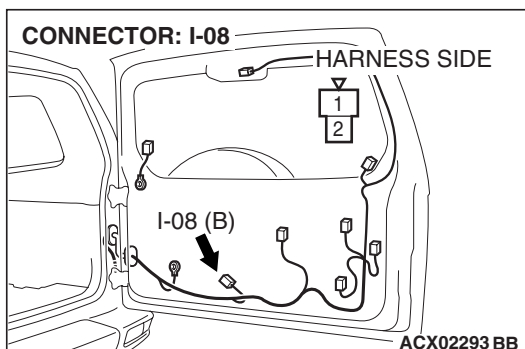
Q: Is ETACS-ECU connector D-222 in good condition?

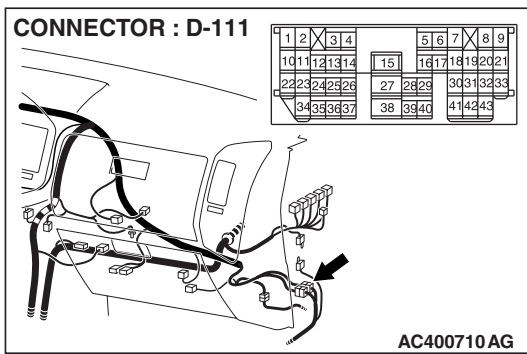
YES : Go to Step 8.

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



STEP 8. Check the wiring harness between rear washer motor connector I-08 (terminal 2) and ETACS-ECU connector D-222 (terminal 3).



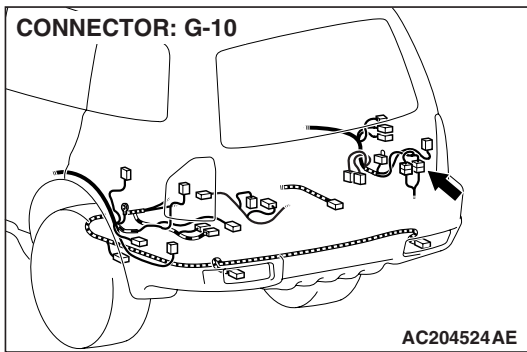
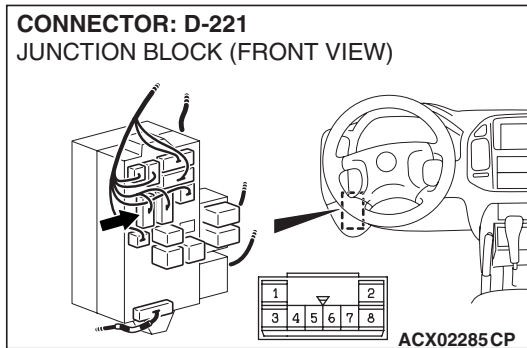


NOTE: Also check intermediate connectors D-111, G-10 and junction block connector D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-111, G-10 and junction block connector D-221 is damaged, repair or replace damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear washer motor connector I-08 (terminal 2) and ETACS-ECU connector D-222 (terminal 3) in good condition?

YES : Replace the ETACS-ECU. Verify that the rear washer works normally.

NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the rear washer works normally.



SEAT BELT WARNING LIGHT

GENERAL DESCRIPTION CONCERNING SEAT BELT WARNING LIGHT

M1549023900198

The ECU related to the seat belt warning light function is as follows.

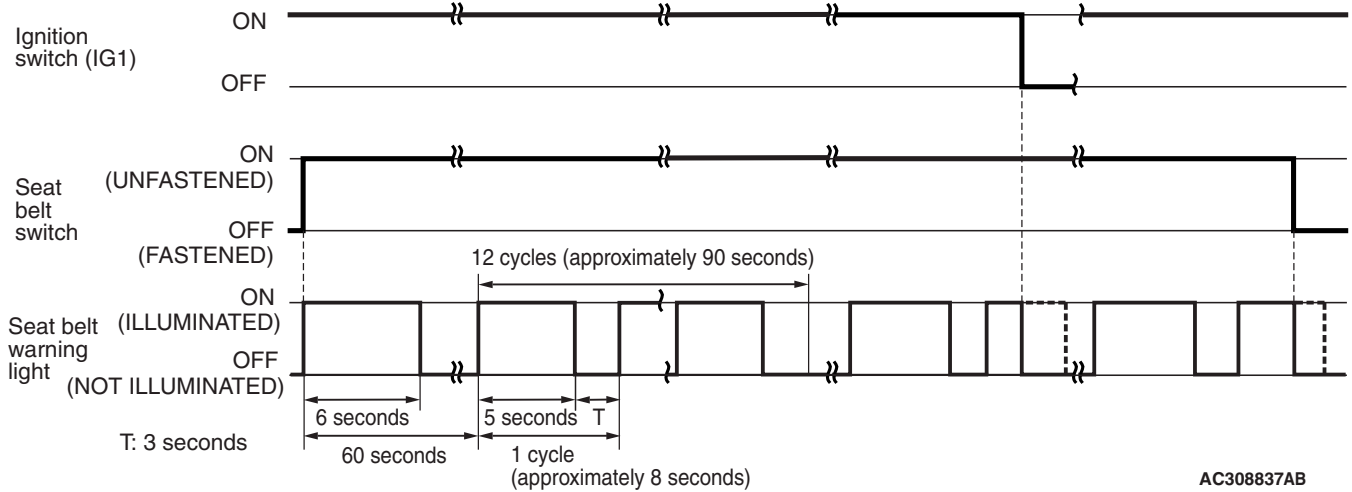
FUNCTION	CONTROL ECU
Seat belt warning light function	ETACS-ECU

Seat belt warning light function

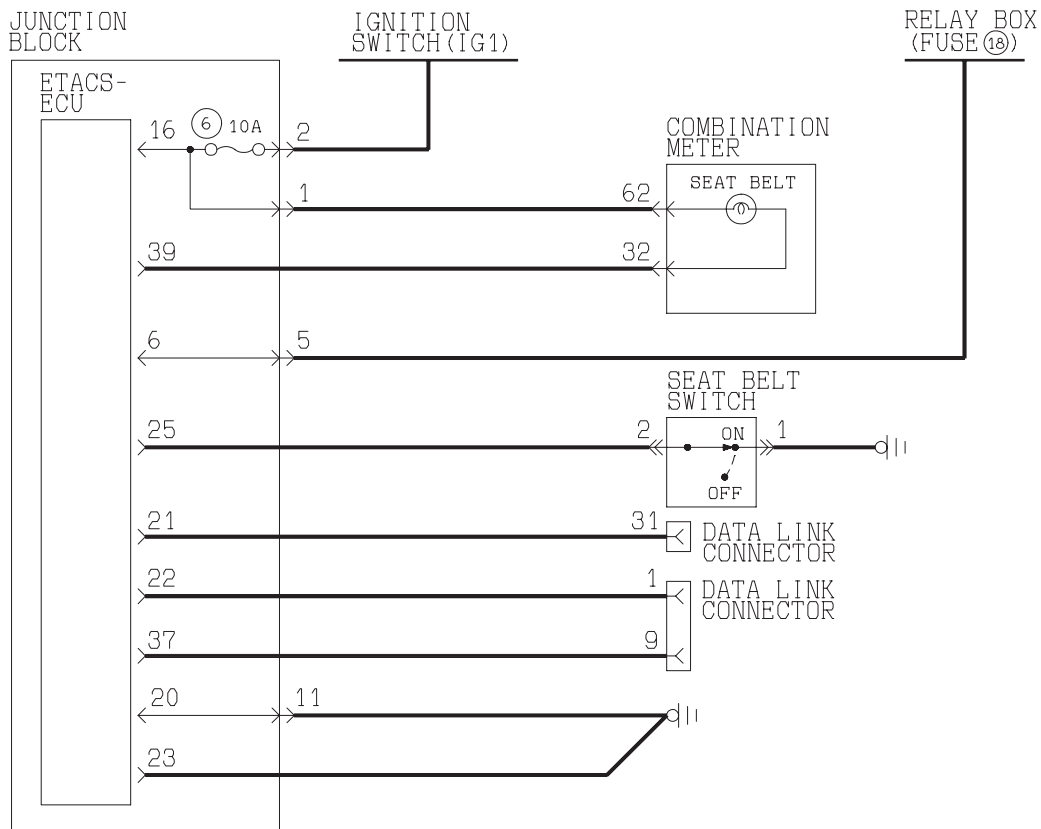
If any of the following conditions is met with the ignition switch at "ON" or "ST", the ETACS-ECU illuminates the indicator light by using the driver's seat belt switch signal.

- The ETACS-ECU illuminates the indicator light for six seconds if the ignition switch is turned "ON" while the seat belt switch is on (the driver's seat belt is not fastened).
- The ETACS-ECU flashes the indicator light 12 cycles (after 0.5 seconds) if the seat belt switch is on (driver's seat belt is not fastened) when sixty seconds or more have elapsed since the ignition switch is turned "ON". One cycle consists of five-second "on" and then three-second "off".

NOTE: The ETACS-ECU stops flashing the indicator light immediately when the seat belt witch is off (driver's seat belt is fastened) or the ignition switch is turned to the "OFF" or "ACC" position while the seat belt tone alarm function is working.



General circuit diagram for the seat belt warning light function

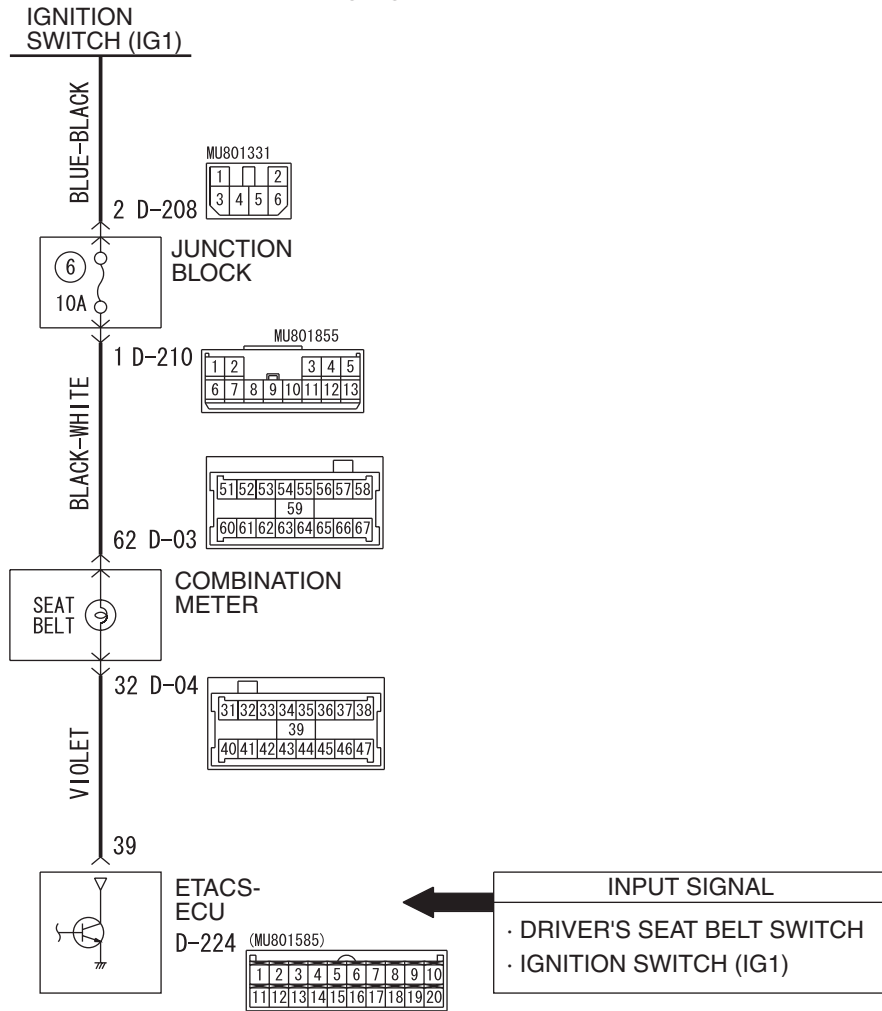


W3Q04M18AA

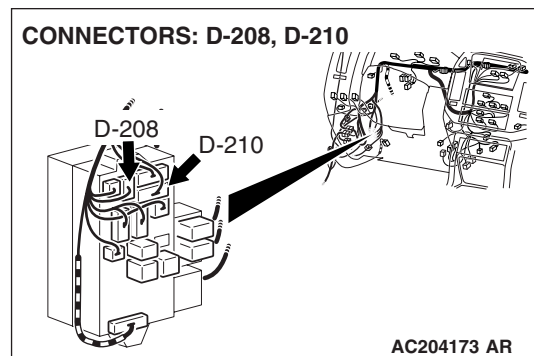
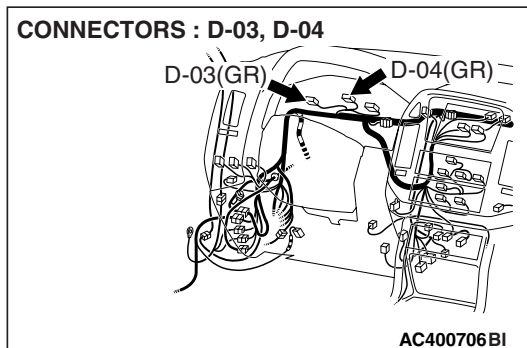
INSPECTION PROCEDURE I-1: Seat Belt Warning Light: Seat belt warning light does not illuminate.

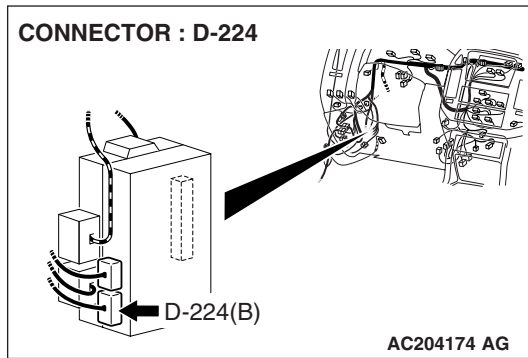
NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."

Seat Belt Warning Light Circuit



W4Q54M05AA





CIRCUIT OPERATION

- The ETACS-ECU operates the seat belt warning light according to the following switch signals:
 - Ignition switch (IG1)
 - Driver's seat belt switch
- If the driver turn the ignition switch to the "ON" position without fastening the seat belt, the seat belt warning light illuminates.

TECHNICAL DESCRIPTION (COMMENT)

If the seat belt warning light does not illuminate, the input circuit, the combination meter (seat belt warning light bulb or printed-circuit board) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- The driver's side seat belt switch may be defective
- The combination meter (seat belt warning light bulb or printed-circuit board) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

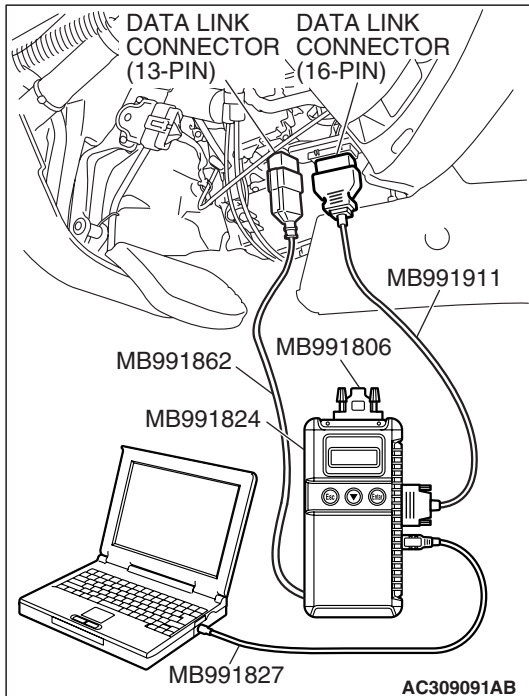
STEP 1. Use scan tool MB991958 to select "ECU COMM CHK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

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

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

Q: Is "OK" displayed on the "ETACS ECU" menu?**YES** : Go to Step 2.**NO** : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is not possible P.54B-41."**STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.**

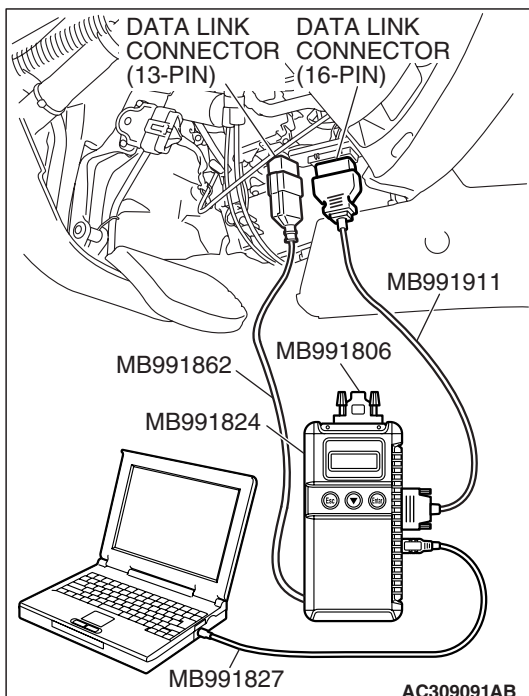
Turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1).

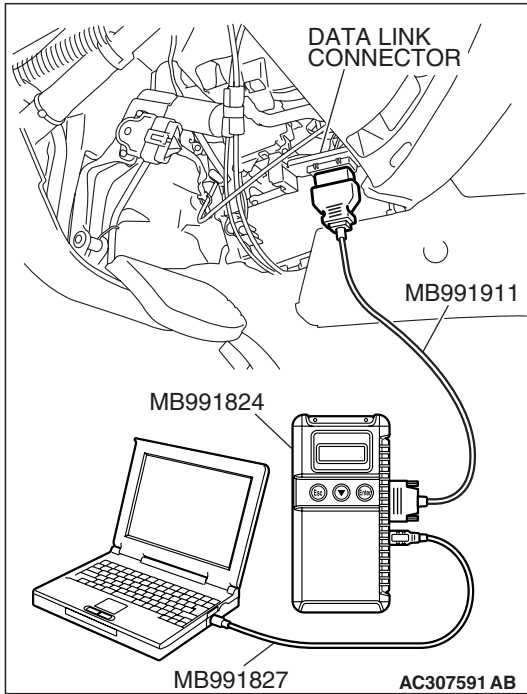
Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."

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

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

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

Q: Is normal condition displayed "IG SW (IG1)"?**YES** : Go to Step 3.**NO** : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-496."



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

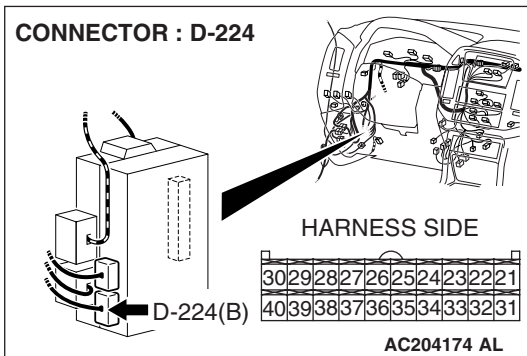
Check input signal from the driver's side seat belt switch. Operate scan tool MB991958 according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
 - When the driver's seat belt is fastened, check if scan tool MB991958 sounds or not.

Q: Does scan tool MB991958 sound when the driver's side seat belt is fastened?

YES : Go to Step 4.

NO : Refer to Inspection Procedure P-3 "ETACS-ECU does not receive any signal from the driver's side seat belt switch [P.54B-540.](#)"

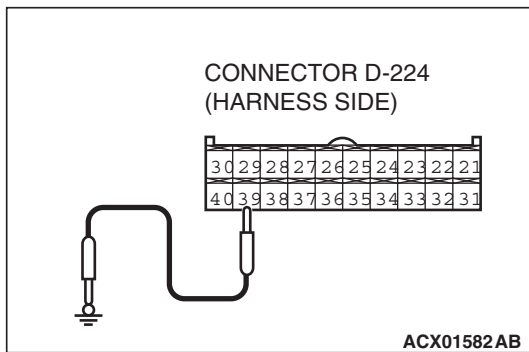
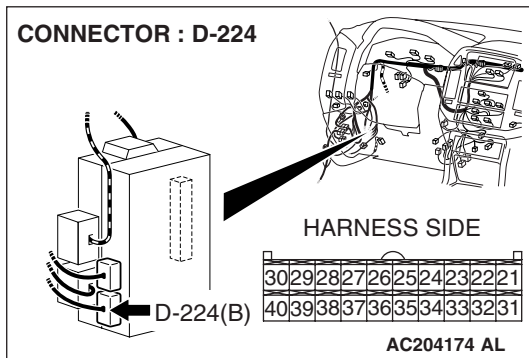


STEP 4. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 5.

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



STEP 5. Check at ETACS-ECU connector D-224 in order to check the ground circuit to the seat belt warning light.

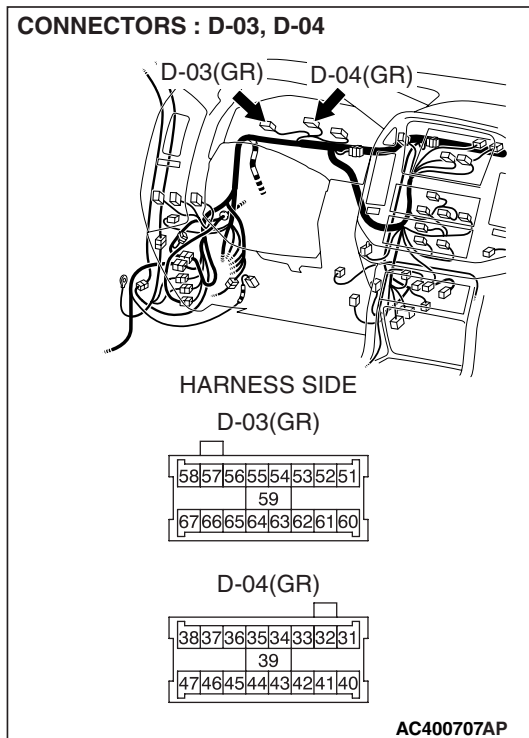
- (1) Disconnect ETACS-ECU connector D-224, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Connect terminal 39 to ground.

Q: Does the seat belt warning light illuminate?

YES : Replace the ETACS-ECU. Verify that the seat belt warning light illuminates normally.

NO : Go to Step 6.

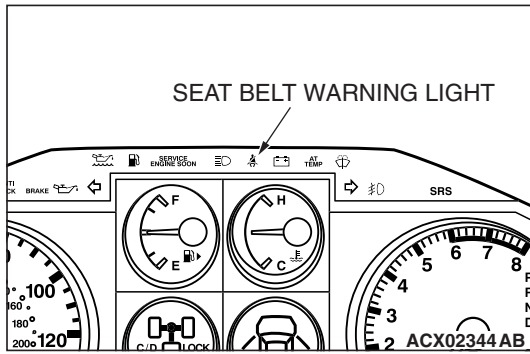


STEP 6. Check combination meter connector D-03 and D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are combination meter connector D-03 and D-04 in good condition?

YES : Go to Step 7.

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

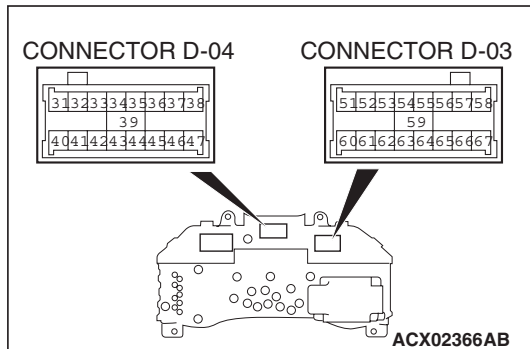


STEP 7. Check the seat belt warning light bulb.

Q: Is the seat belt warning light bulb in good condition?

YES : Go to Step 8.

NO : Replace the bulb. Verify that the seat belt warning light illuminates normally.



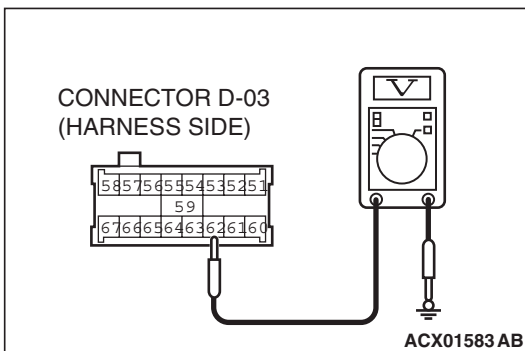
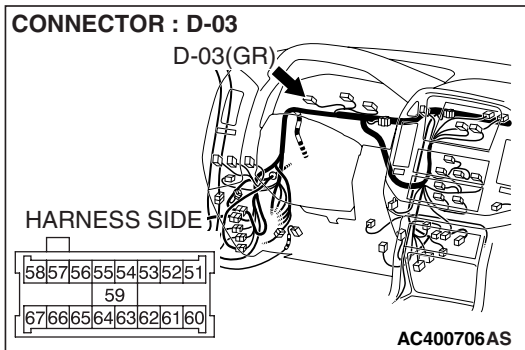
STEP 8. Check the combination meter (printed-circuit board).

- (1) Remove the combination meter.
- (2) Remove the seat belt warning light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector D-04 terminal 32 and connector D-03 terminal 62. The measured resistance value should be roughly the same as the value measured in Step (2).

Q: Are these two resistance values extremely different?

YES : Repair or replace the combination meter (printed circuit board). Verify that the seat belt warning light illuminates normally.

NO (much the same) : Go to Step 9.



STEP 9. Measure at combination meter connector D-03 in order to check the ignition switch (IG1) line of the power supply to the combination meter.

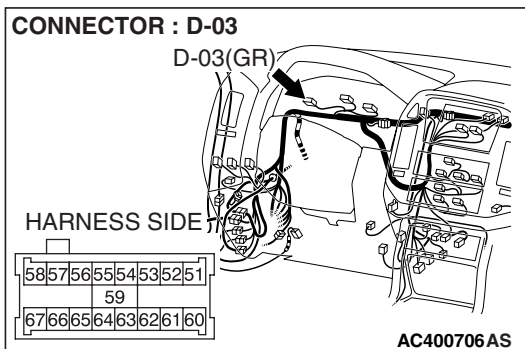
- (1) Disconnect combination meter connector D-03, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 62 and ground.
 - The voltage should be approximately 12 volts (battery positive voltage).

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

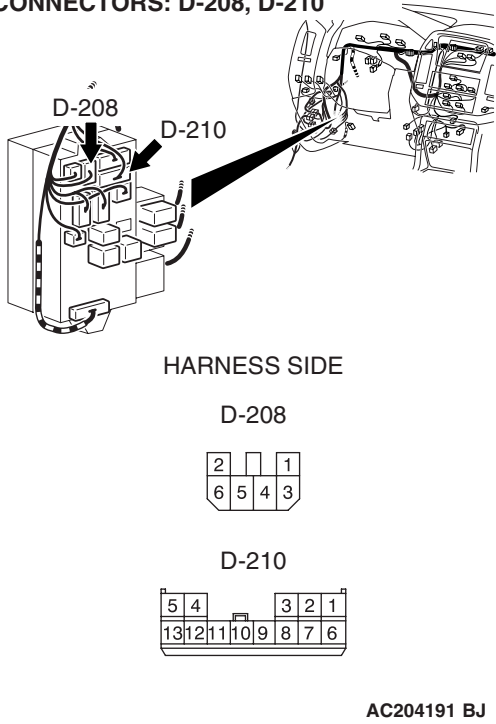
YES : Go to Step 11.

NO : Go to Step 10.



STEP 10. Check the wiring harness between combination meter connector D-03 (terminal 62) and the ignition switch (IG1).

CONNECTORS: D-208, D-210



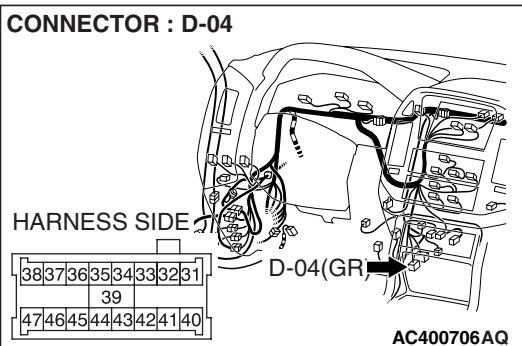
NOTE: Also check junction block connectors D-208 and D-210 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-208 or D-210 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector D-03 (terminal 62) and the ignition switch (IG1) in good condition?

YES : No action is necessary and testing is complete.

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

CONNECTOR : D-04



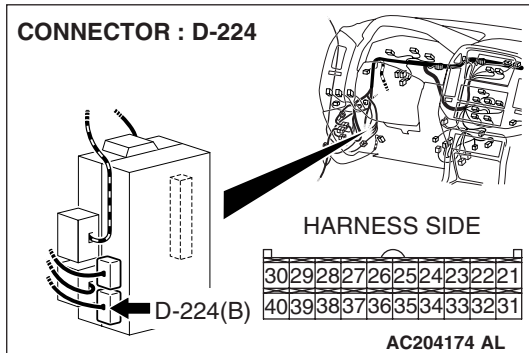
STEP 11. Check the wiring harness between combination meter connector D-04 (terminal 32) and ETACS-ECU connector D-224 (terminal 39).

Q: Is the wiring harness between combination meter connector D-04 (terminal 32) and ETACS-ECU connector D-224 (terminal 39) in good condition?

YES : No action is necessary and testing is complete.

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

CONNECTOR : D-224



NEXT>>