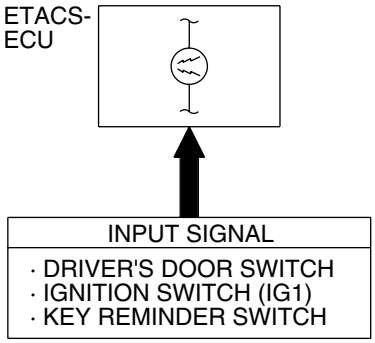
INSPECTION PROCEDURE B-1: Tone Alarm: Ignition Key Reminder Tone Alarm Function does not Work Normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Ignition Key Reminder Tone Alarm Function



W5Z54M058A

CIRCUIT OPERATION

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

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

The ETACS-ECU operates the ignition key reminder tone alarm function under the following conditions:

- Ignition key position: "LOCK" (OFF) position
- Ignition key: Inserted in the ignition key cylinder
- Driver's door: open

TECHNICAL DESCRIPTION (COMMENT)

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

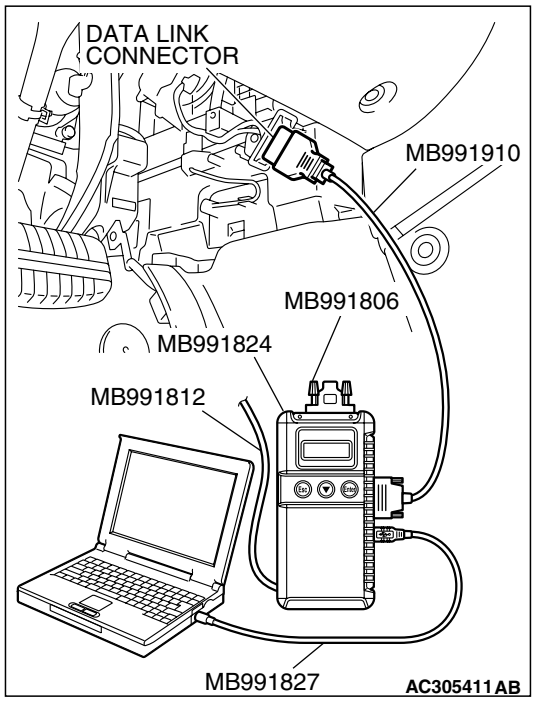
TROUBLESHOOTING HINTS

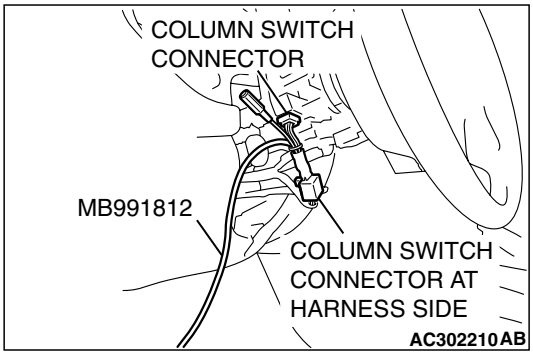
- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness





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

Check the ETACS-ECU.

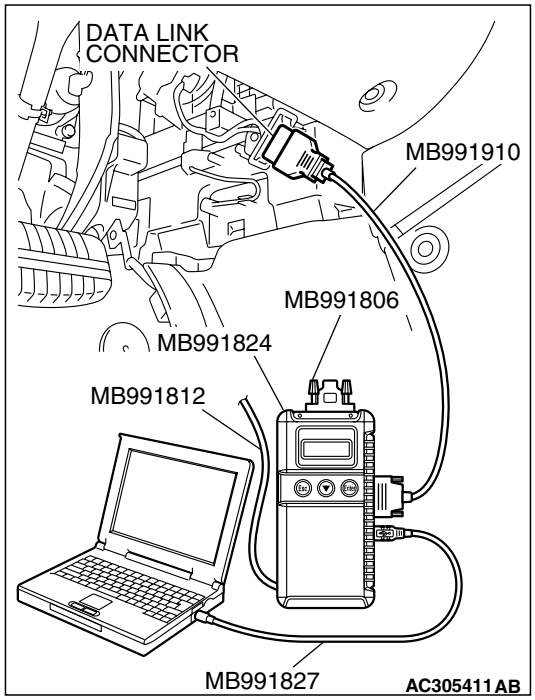
⚠ CAUTION

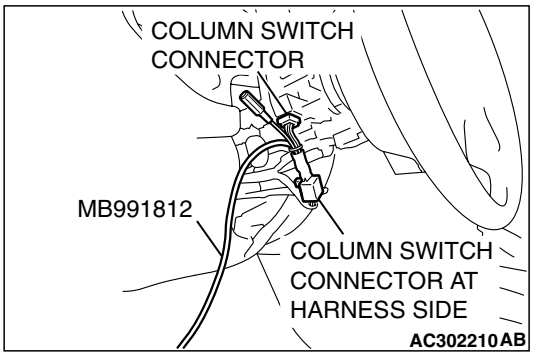
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitorP.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
  a. Select "Interactive Diagnosis."
  b. Select "System select."
  c. Select "SWS."
  d. Select "SWS MONITOR."
  e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





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

Check the input signals from the following switches:

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

(1) Operate scan tool MB991958 according to the procedure below to display "KEY RMND. ALM."
   a. Select "Interactive Diagnosis."
   b. Select "System select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "KEY RMND. ALM."

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: Scan tool MB991958 display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system cannot be checked correctly.

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

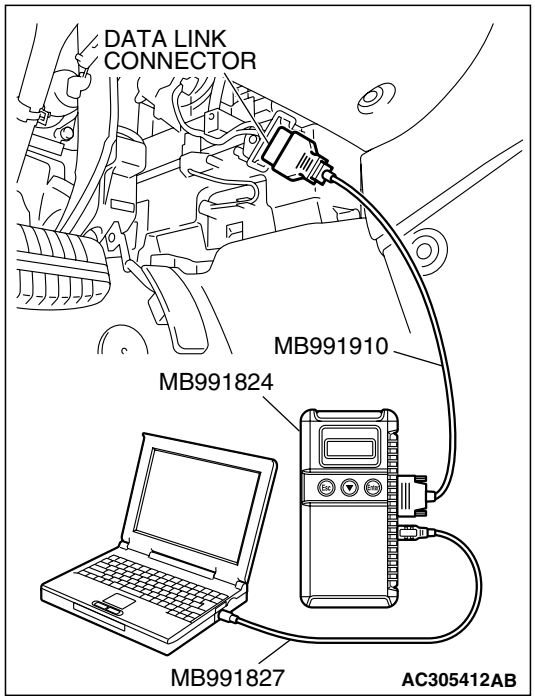
Q: Does scan tool MB991958 display the items "IG SW (IG1)", "FRONT DOOR SW" and "BUZZER" as normal condition?

Normal conditions are displayed for all the items : Replace the ETACS-ECU. The ignition key reminder tone alarm function should now work normally.

Normal condition is not displayed for "IG SW (IG1)" : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "FRONT DOOR SW" : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches P.54B-477."

Normal condition is not displayed for "BUZZER" : Go to Step 3.



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

Check the input signals from the key reminder switch.

- Check whether scan tool MB991958 sounds or not when the ignition key is removed.

(1) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "Pulse Checking."

Q: Does scan tool MB991958 sound when the ignition key is removed and reinserted?

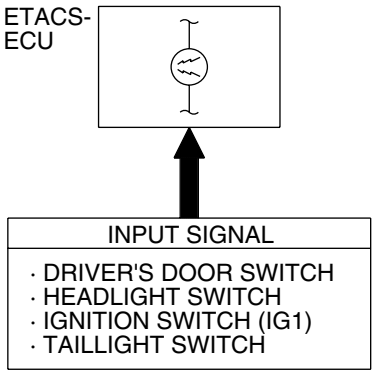
YES : Replace the ETACS-ECU. The ignition key reminder tone alarm function should now work normally.

NO : Refer to Inspection Procedure N-1 "ETACS-ECU does not receive any signal from the key reminder switch P.54B-497."

INSPECTION PROCEDURE B-2: Tone Alarm: Light Reminder Tone Alarm Function does not Work Normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Light Reminder Tone Alarm Function



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CIRCUIT OPERATION

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

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

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

- Ignition switch: "LOCK" (OFF) position
- Ignition key: Removed from the ignition key cylinder
- Driver's door: open
- Taillights or headlights: ON

TECHNICAL DESCRIPTION (COMMENT)

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

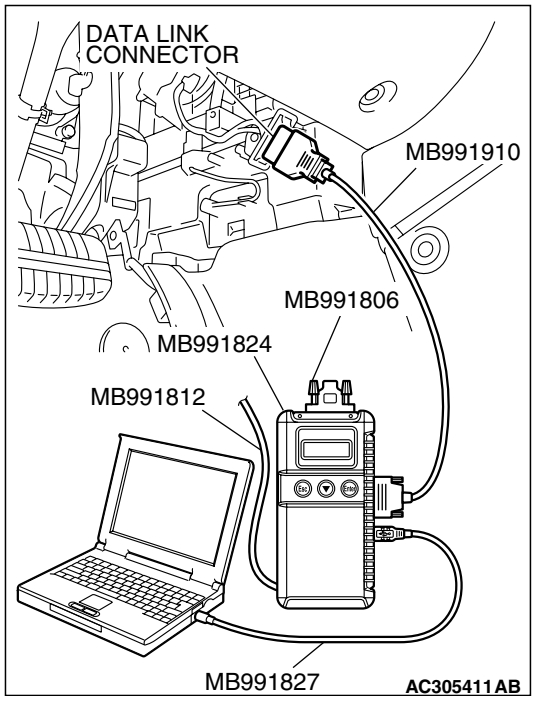
TROUBLESHOOTING HINTS

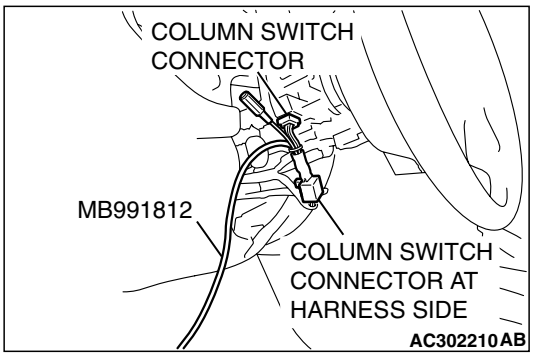
- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness





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

Check the following ECUs:

- ETACS-ECU
- Column switch (column-ECU)

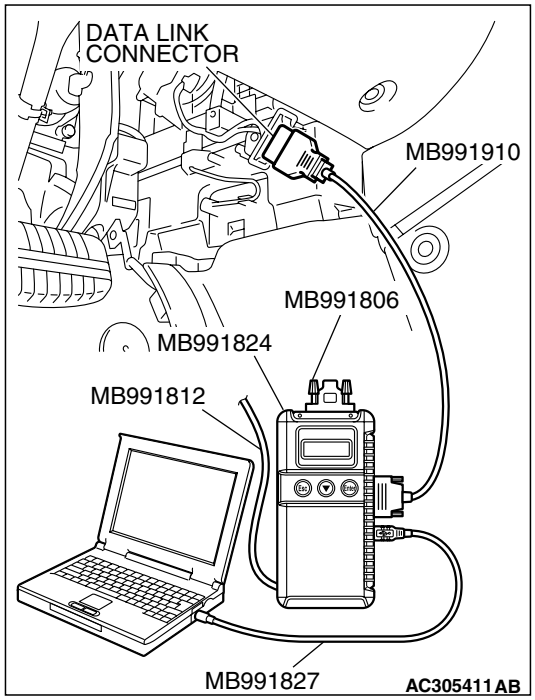
⚠ CAUTION

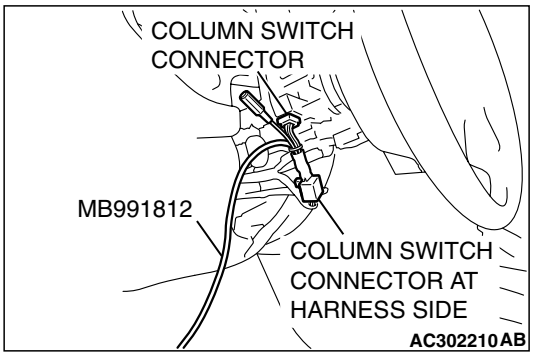
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menus for both the "ETACS ECU" and the "COLUMN ECU" menus.

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

"OK" is displayed for all the items : Go to Step 2.
"NG" is displayed for the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."
"NG" is displayed for the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54B-71."





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

Check the input signals from the following switches:

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

(1) Operate scan tool MB991958 according to the procedure below to display "LGT MONI. ALRM."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "LGT MONI. ALRM."

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: Scan tool MB991958 display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system cannot be checked correctly.

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

Q: Does scan tool MB991958 display "HEADLIGHT SW", "TAILLIGHT SW", "IG SW IG1", "FRONT DOOR SW", "H/L AUTO-CUT" and "BUZZER" as normal condition?

Normal conditions are displayed for all the items :
Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

Normal condition is not displayed for "HEADLIGHT SW" :
Refer to Inspection Procedure M-5 "ETACS-ECU does not receive any signal from the headlight switch P.54B-484."

Normal condition is not displayed for "TAILLIGHT SW" :
Refer to Inspection Procedure M-5 "ETACS-ECU does not receive any signal from the taillight switch P.54B-484."

Normal condition is not displayed for "IG SW (IG1)" :
Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "FRONT DOOR SW" : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches P.54B-477."

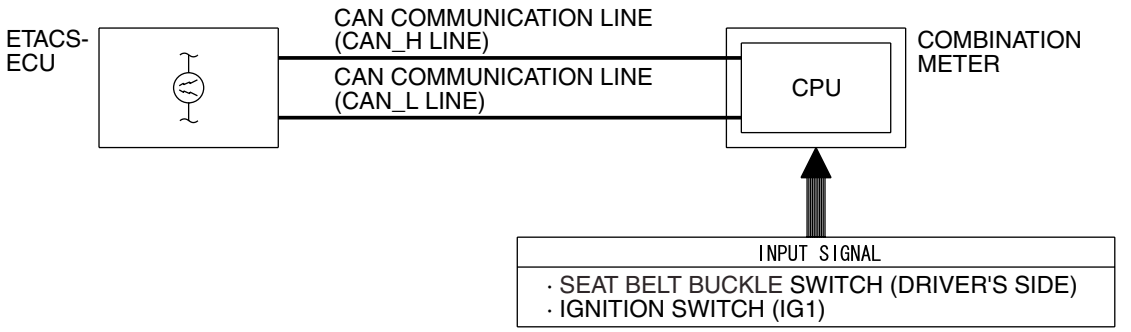
Normal condition is not displayed for "H/L AUTO-CUT" : Refer to Inspection Procedure H-9 "Headlight automatic shutoff function does not work normally P.54B-362."

Normal condition is not displayed for "BUZZER" : Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

INSPECTION PROCEDURE B-3: Tone Alarm: Seat Belt Tone Alarm Function does not Work Normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Seat Belt Tone Alarm Function



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CIRCUIT OPERATION

The ETACS-ECU receives the driver's seat belt switch ON signal from the ignition switch (IG1) and the combination meter, and then controls the seat belt tone alarm function.
The ETACS-ECU operates the seat belt tone alarm function under the following conditions:

- Ignition switch: "ON" position
- Driver's seat belt: Unfastened

TECHNICAL DESCRIPTION (COMMENT)

If the seat belt tone alarm does not work, connector(s), wiring harness in the CAN bus lines, the combination meter, the ETACS-ECU or the input signal circuit may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

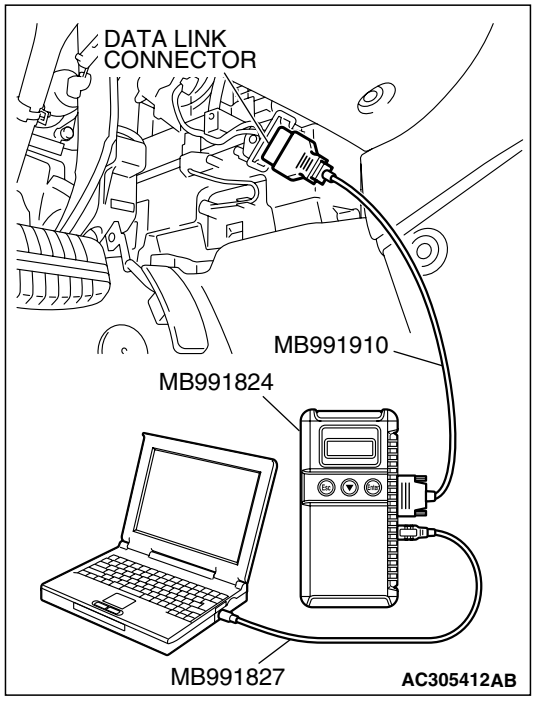
⚠ CAUTION

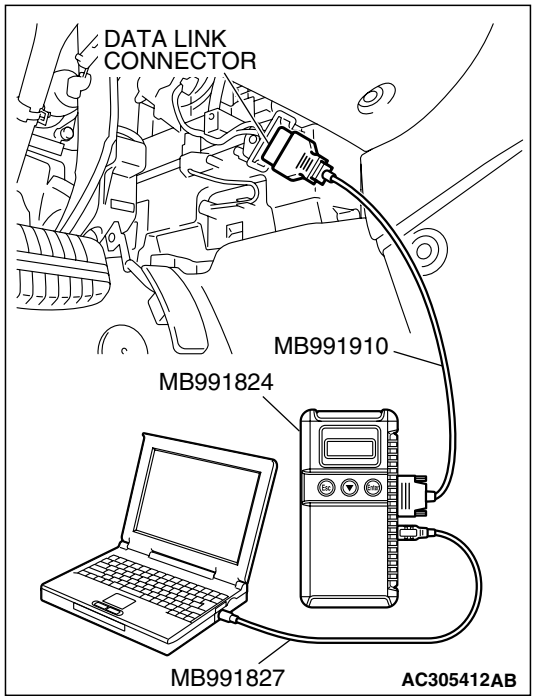
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-14).





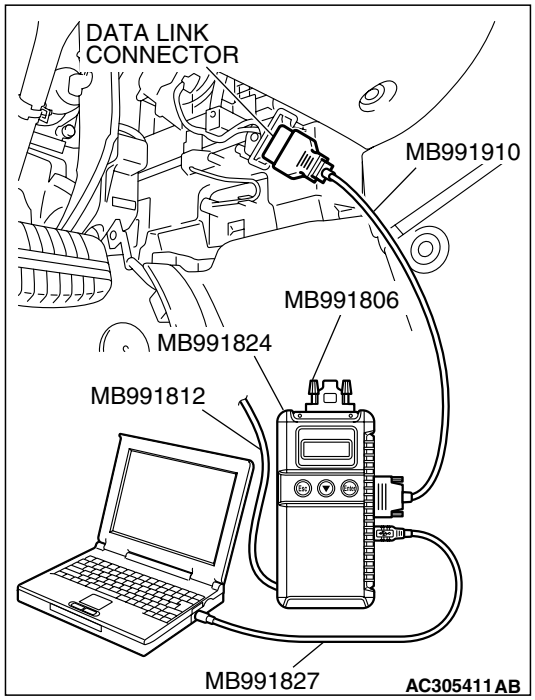
STEP 2. Using scan tool MB991958, read the combination meter diagnostic trouble code.

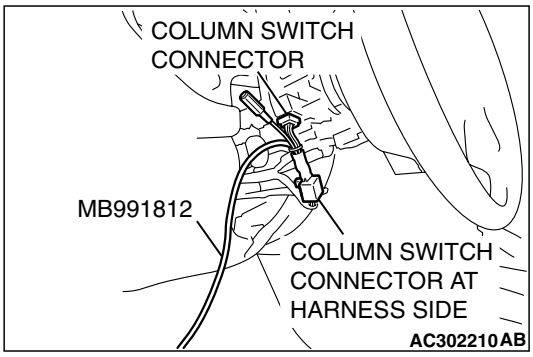
Check whether the combination meter-related DTC is set.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the combination meter-related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the multi center display unit (middle-grade type) (Refer to GROUP 54A, Diagnosis P.54A-224).

NO : Go to Step 3.





STEP 3. Use scan tool MB991958 to select "ECU COMM Check" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

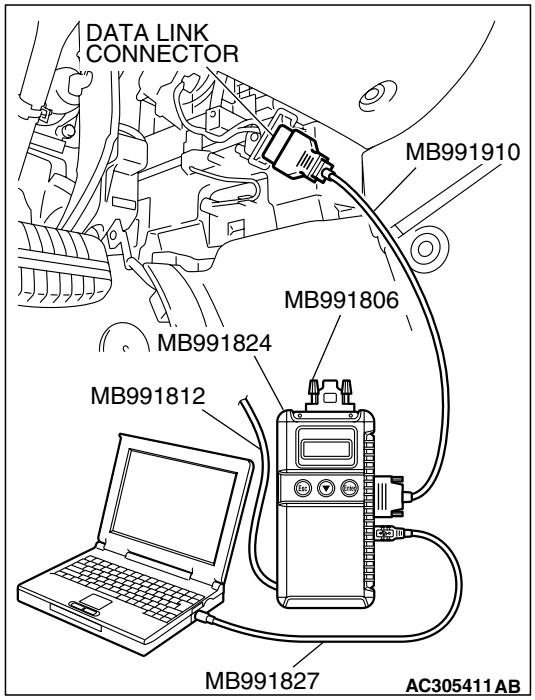
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

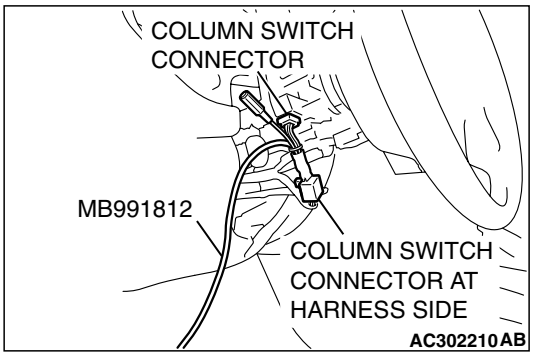
(1) Connect the SWS monitor. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
  a. Select "Interactive Diagnosis."
  b. Select "System Select."
  c. Select "SWS."
  d. Select "SWS MONITOR."
  e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 4.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





STEP 4. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: OFF → ON
- Driver's seat belt: Unfastened
- All door: Closed

(1) Operate scan tool MB991958 according to the procedure below to display "OTHER ALARM"
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "OTHER ALARM"

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: Turn the ignition switch from the OFF position to the ON position. Then item No.43 should be ON for approximately six seconds only.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON
ITEM 43	BUZZER	ON (for approximately six seconds after the ignition switch is turned from OFF to ON), and then OFF

Q: Does scan tool MB991958 display the items "IG SW (IG1)" and "BUZZER" as normal condition?

Normal conditions are displayed for all the items :
Replace the ETACS-ECU. Verify that the seat belt tone alarm function works normally.

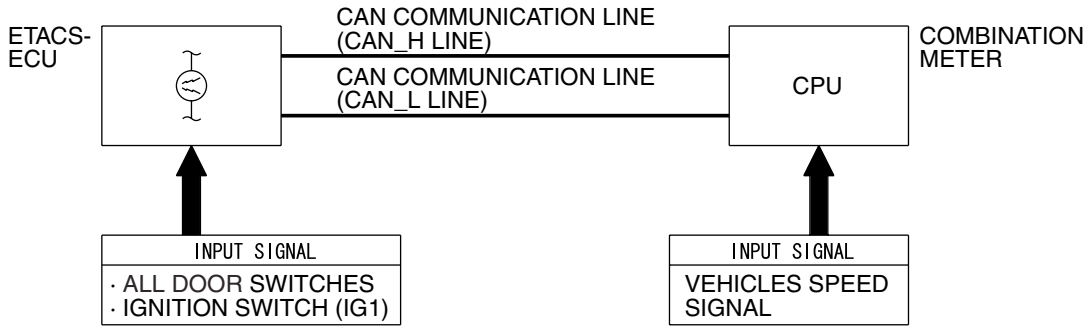
Normal condition is not displayed for "IG SW (IG1)" :
Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "BUZZER" :
Replace the ETACS-ECU. Verify that the seat belt tone alarm function works normally.

INSPECTION PROCEDURE B-4: Tone Alarm: Door ajar Warning Buzzer Function does not Work Normally.

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Door Ajar Tone Alarm Function Circuit



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CIRCUIT OPERATION

The ETACS-ECU controls the door-ajar warning tone alarm, based on the signals from the switches and sensors below.

- Ignition switch (IG1): ON
- One of the door switches: ON
- Vehicle speed signal: 8 km/h (5 mph) or more

TECHNICAL DESCRIPTION (COMMENT)

If the door-ajar warning tone alarm does not work, connector(s), wiring harness in the CAN bus lines, the combination meter, the ETACS-ECU or the input signal circuit may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The combination meter 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

STEP 1. Check the adjustment function.

Q: Has the door-ajar warning tone alarm function been enabled by the adjustment function?

YES : Go to Step 2.
NO : Enable the door-ajar warning tone alarm.

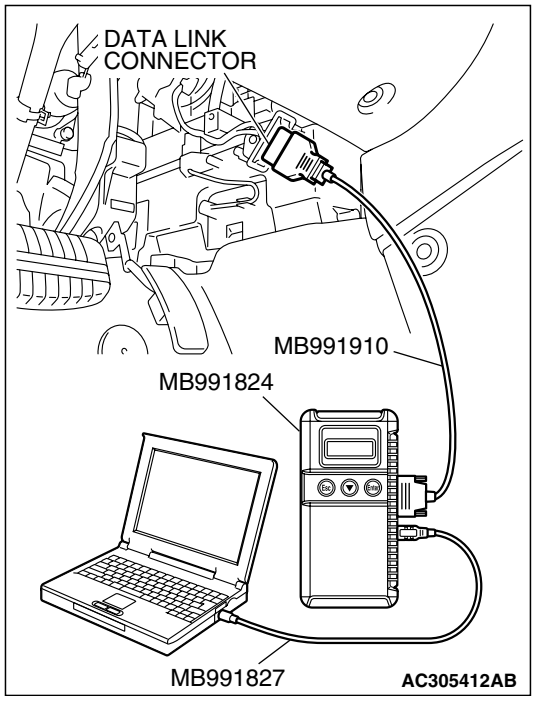
STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

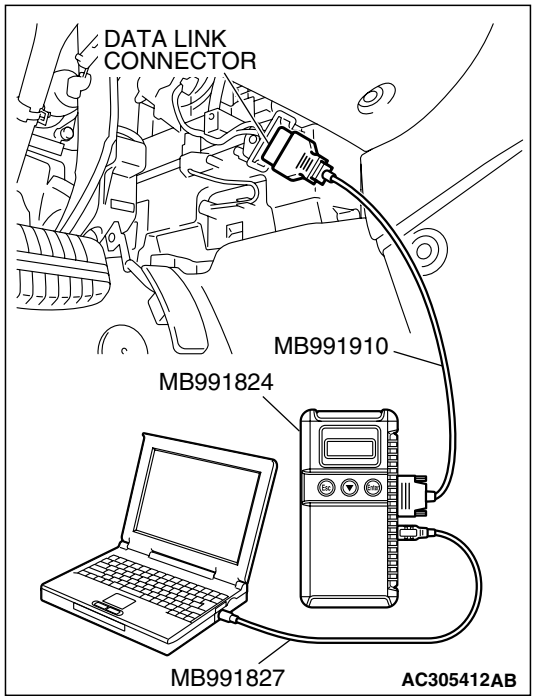
⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-14).





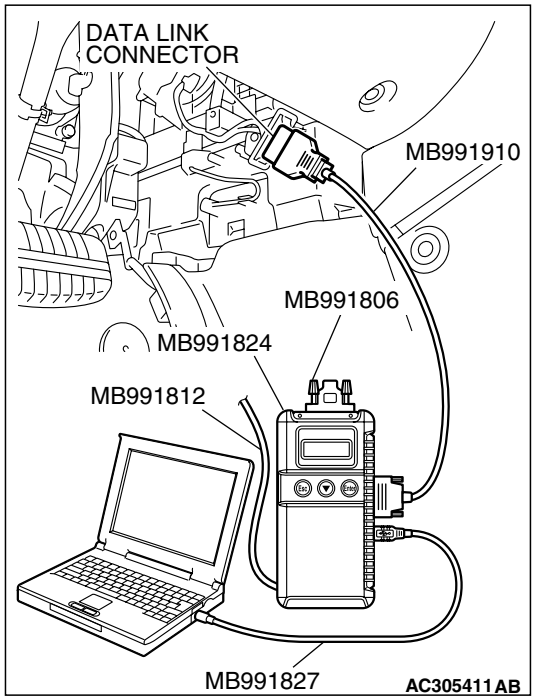
STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

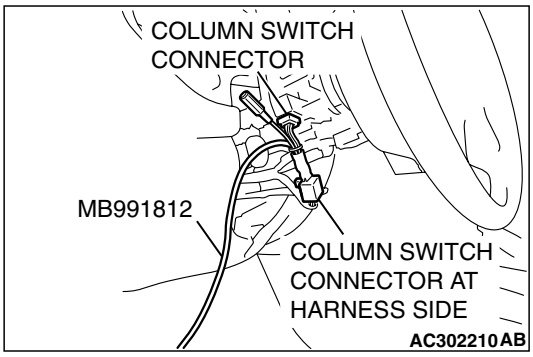
Check whether the combination meter-related DTC is set.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the combination meter-related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to GROUP 54A, Diagnostic trouble code chart P.54A-52).

NO : Go to Step 4.





STEP 4. Use scan tool MB991958 to select "ECU COMM Check" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

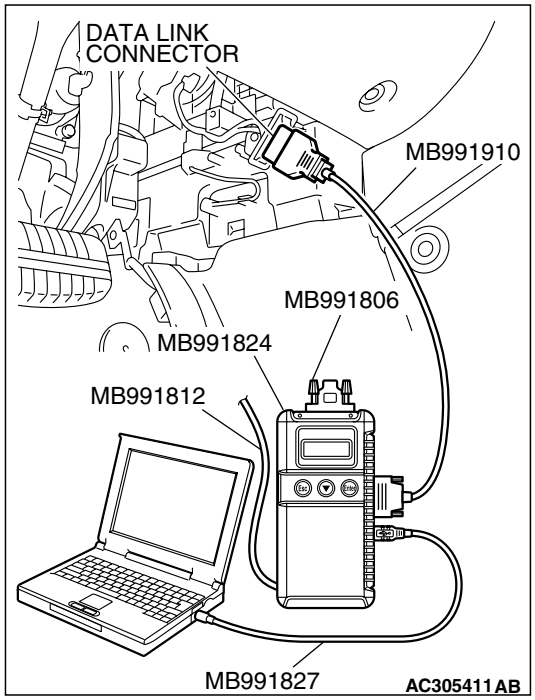
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

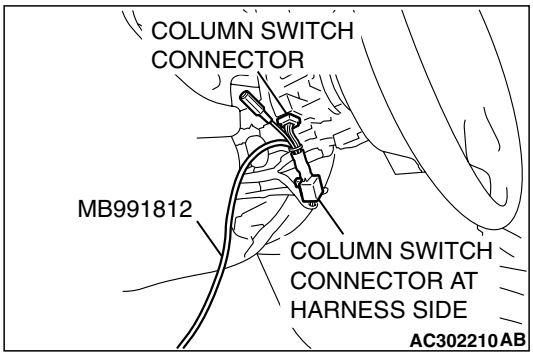
(1) Connect the SWS monitor. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
  a. Select "Interactive Diagnosis."
  b. Select "System Select."
  c. Select "SWS."
  d. Select "SWS MONITOR."
  e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 5.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





STEP 5. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Driver's door: Open
- Vehicle speed: 8 km/h (5 mph) or more

(1) Operate scan tool MB991958 according to the procedure below to display "OTHER ALARM"
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "OTHER ALARM"

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: The scan tool MB991958 display changes when the driver's or the front passenger's door is opened. If any of the doors are open, the system cannot be checked correctly.

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

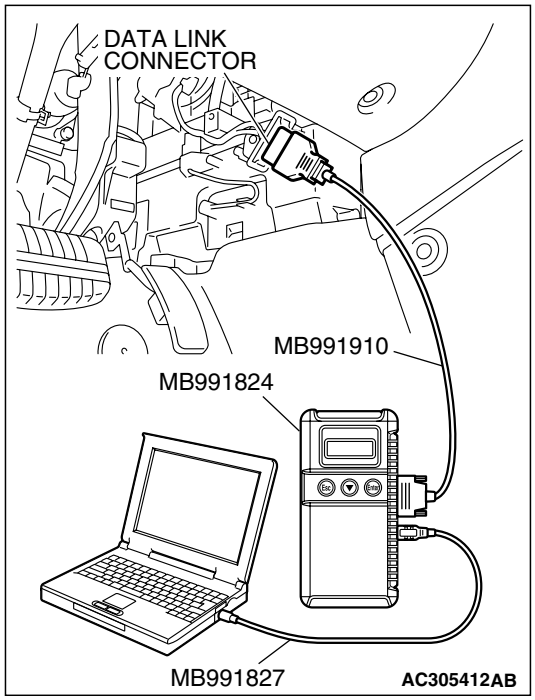
Q: Does scan tool MB991958 display the items "IG SW (IG1)", "FRONT DOOR SW" and "BUZZER" as normal condition?

Normal conditions are displayed for all the items : Go to Step 6.

Normal condition is not displayed for "IG SW (IG1)" : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "FRONT DOOR SW" : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches P.54B-477."

Normal condition is not displayed for "BUZZER" : Replace the ETACS-ECU. The ignition key reminder tone alarm function should now work normally.



STEP 6. Check the input signal (by using the pulse check mode of the monitor).

Check the following switches and input signals:

- Doors switches

(1) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "Pulse Checking."

(2) Check if scan tool MB991958 sounds or not.

ITEM NAME	CONDITION
door switch	Open or close one of the doors

Q: When any door switch is operated, does scan tool MB991958 sound?

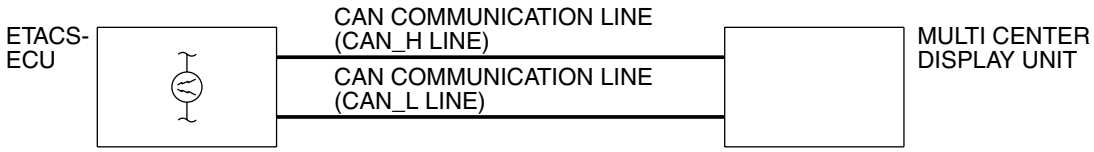
YES : Replace the ETACS-ECU. The door ajar warning buzzer function should now work normally.

NO : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive any signal from any of the door switches P.54B-505."

INSPECTION PROCEDURE B-5: Tone Alarm: The Multi center Display does not Sound Normally When it is Operated. <Multi center Display (Middle-grade Type)>

NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Multi Center Display Annunciation Function



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CIRCUIT OPERATION

The ETACS-ECU sounds the buzzer when it receives buzzer signal from the multi center display (middle-grade type).

TECHNICAL DESCRIPTION (COMMENT)

If this function does not work normally, connector(s), wiring harness in the CAN bus lines, the middle-grade multi center display unit or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

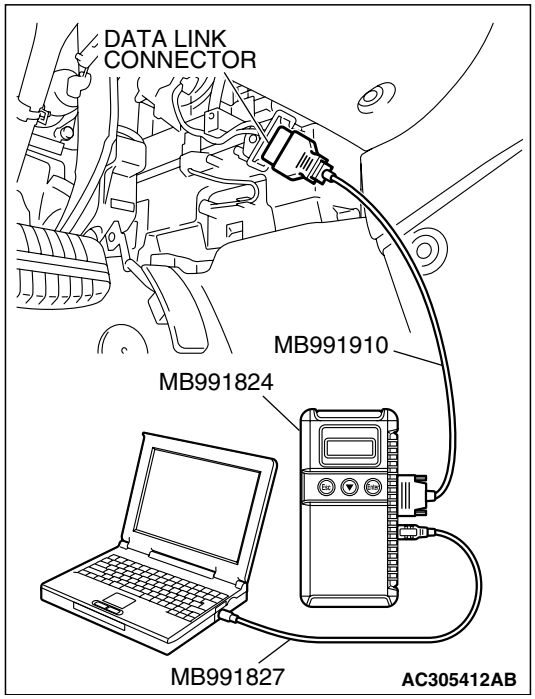
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

STEP 1. Check the operation of the multi center display (middle-grade type).

Q: Does the multi center display (middle-grade type) work normally?

YES : Go to Step 2.

NO : First, replace the multi center display (middle-grade type) unit.



STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

⚠ 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. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

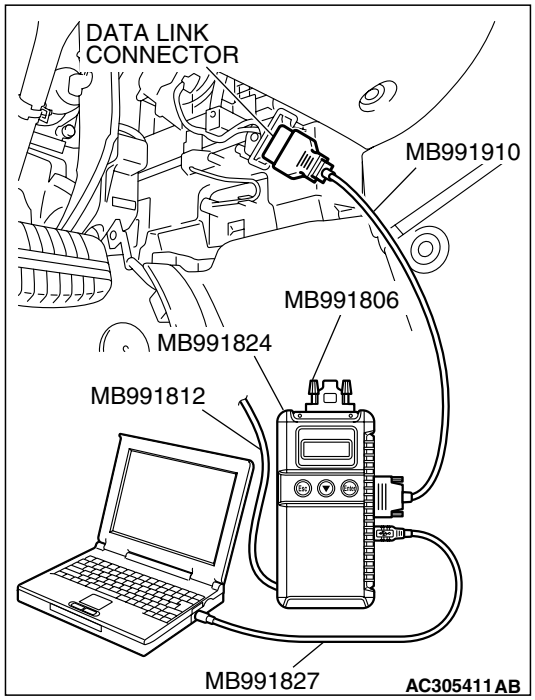
YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-14).

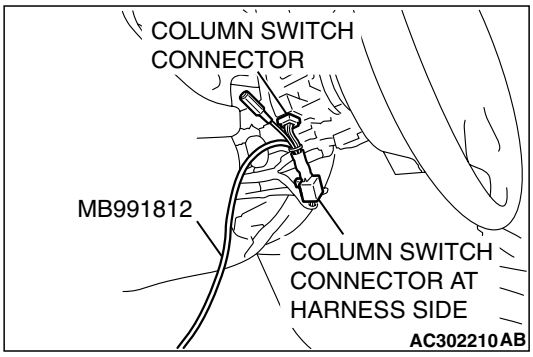
STEP 3. Using scan tool MB991958, read the multi center display (middle-grade type) diagnostic trouble code.

Check that a multi center display DTC is set.
(1) Turn the ignition switch to the "ON" position.
(2) Check if the multi center display DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the multi center display unit (middle-grade type) (Refer to GROUP 54A, Diagnosis P.54A-224).
NO : Go to Step 4.





STEP 4. Use scan tool MB991958 to select "ECU COMM Check" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

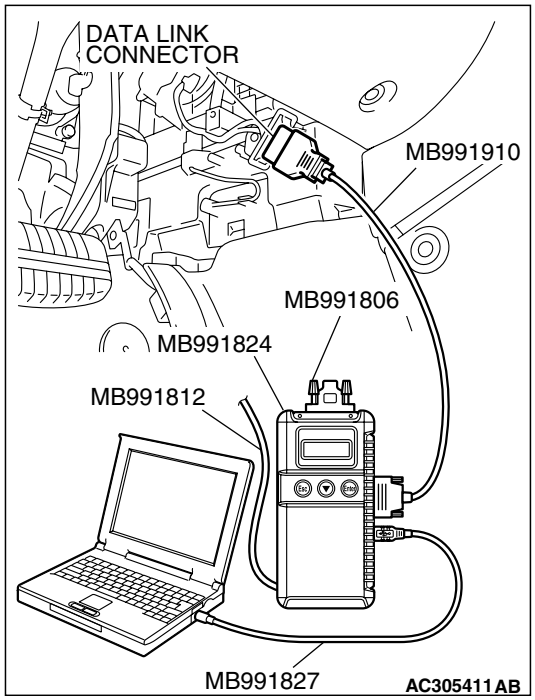
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

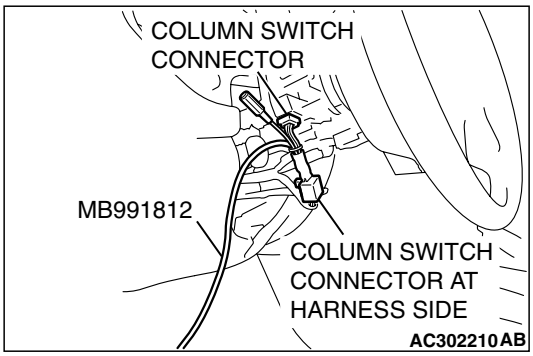
(1) Connect the SWS monitor. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
  a. Select "Interactive Diagnosis."
  b. Select "System Select."
  c. Select "SWS."
  d. Select "SWS MONITOR."
  e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 5.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





STEP 5. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Turn the ignition switch to the "ON" position to check the input signals from the following switches.

(1) Operate scan tool MB991958 according to the procedure below to display "OTHER ALARM."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "OTHER ALARM."

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: If the function switch of the multi center display (middle-grade type) is operated, check that No.43 "BUZZER" is displayed as normal condition.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON
ITEM 43	BUZZER	ON

Q: Are normal conditions displayed for the "IG SW (IG1)" and "BUZZER"?

Normal conditions are displayed for all the items :
Replace the ETACS-ECU. Verify that the multi center display operating sound function works normally.

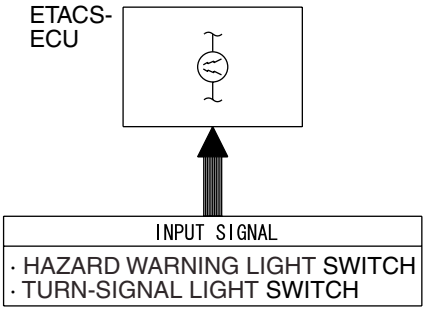
Normal condition is not displayed for "IG SW (IG1)" :
Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "BUZZER" :
Replace the ETACS-ECU. Verify that the multi center display operating sound function works normally.

INSPECTION PROCEDURE B-6: Tone Alarm: Turn-signal Light Buzzer Function does not Work Normally.

NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Turn-signal Annunciation Function



W4P54M34AA

CIRCUIT OPERATION

The ETACS-ECU controls the turn-signal light buzzer function, based on the switch signals below:

- Turn-signal light switch: ON
- Hazard switch: ON

TECHNICAL DESCRIPTION (COMMENT)

If the turn-signal light buzzer function does not work normally, connector(s), wiring harness, the column switch, the ETACS-ECU or the input signal circuit may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

STEP 1. Check the adjustment function.

Q: Has the turn-signal light buzzer function been enabled by the adjustment function?

YES : Go to Step 2.
NO : Enable the turn-signal light buzzer function.

STEP 2. Check whether the turn-signal lights illuminate.
When the turn-signal light switch or the hazard warning light switch is operated, check that the turn-signal lights flash.

Q: Are the turn-signal lights in good condition?

YES : Go to Step 3.

NO : First, repair the turn-signal light(s). Refer to Inspection Procedure I-3 "One of the turn-signal lights does not illuminate P.54B-377."

STEP 3. Use scan tool MB991958 to select "ECU COMM Check" 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. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(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 "Interactive Diagnosis."
   2. Select "System Select."
   3. Select "SWS."
   4. Select "SWS MONITOR."
   5. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menus for both the "ETACS ECU" and the "COLUMN ECU" menus.

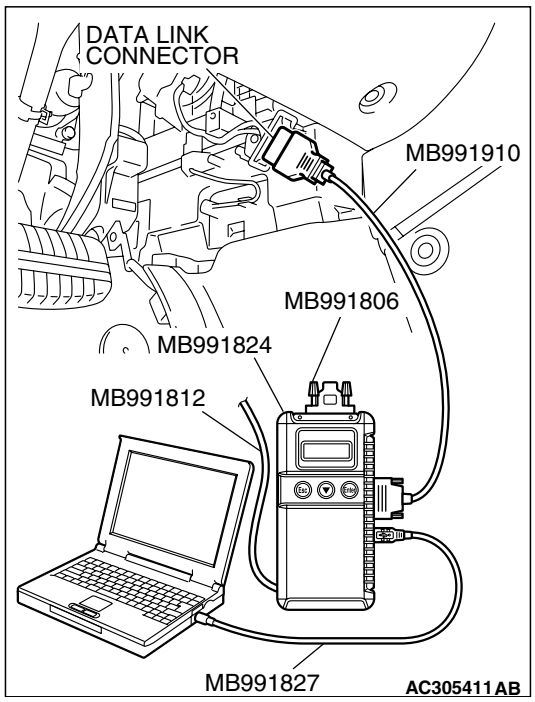
Q: Is "OK" displayed for both the "ETACS ECU" and "COLUMN ECU" menus?

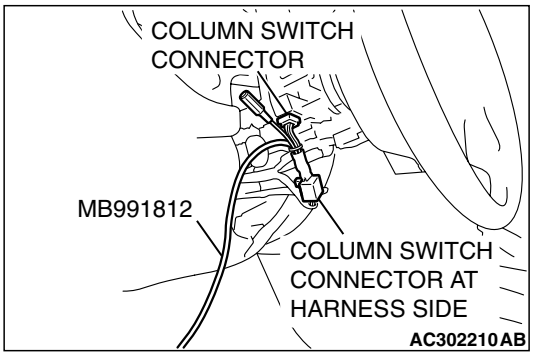
"OK" is displayed for all the items : Go to Step 4.

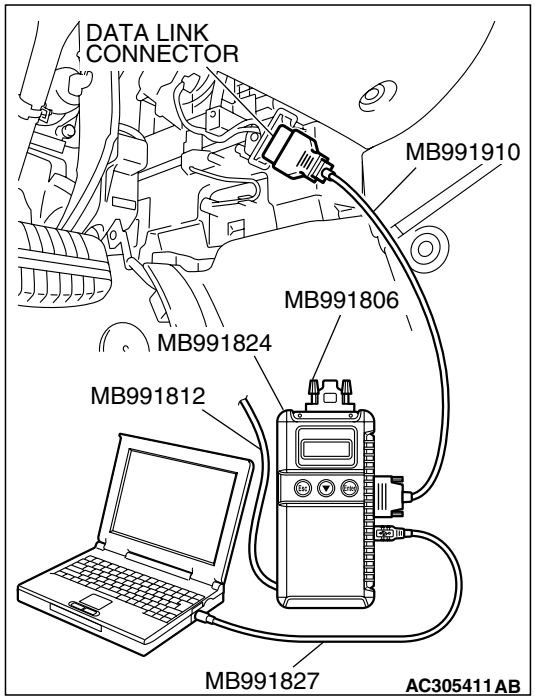
"NG" is displayed for the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54B-71."

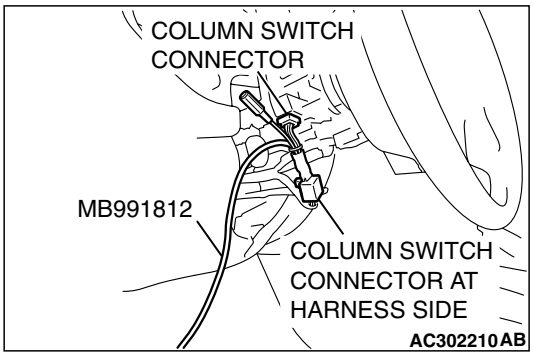
"NG" is displayed for the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."

"NG" is displayed for all the items : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."









STEP 4. Check the input signal by using "FUNCTION DIAG." menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Driver's door: Open
- All door: Closed

(1) Operate scan tool MB991958 according to the procedure below to display "OTHER ALARM"
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "BUZZER."
   g. Select "OTHER ALARM"

(2) Check that normal conditions are displayed for the items described in the table below.

NOTE: The scan tool MB991958 display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system cannot be checked correctly.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON
ITEM 43	BUZZER	ON

Q: Does scan tool MB991958 display the items "IG SW (IG1)" and "BUZZER" as normal condition?

Normal conditions are displayed for all the items :
Replace the ETACS-ECU. Check that the turn-signal light buzzer function works normally.

Normal condition is not displayed for "IG SW (IG1)" :
Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "BUZZER" :
Replace the ETACS-ECU. Check that the turn-signal light buzzer function works normally.

CENTRAL DOOR LOCKING SYSTEM

GENERAL DESCRIPTION CONCERNING CENTRAL DOOR LOCKING SYSTEM

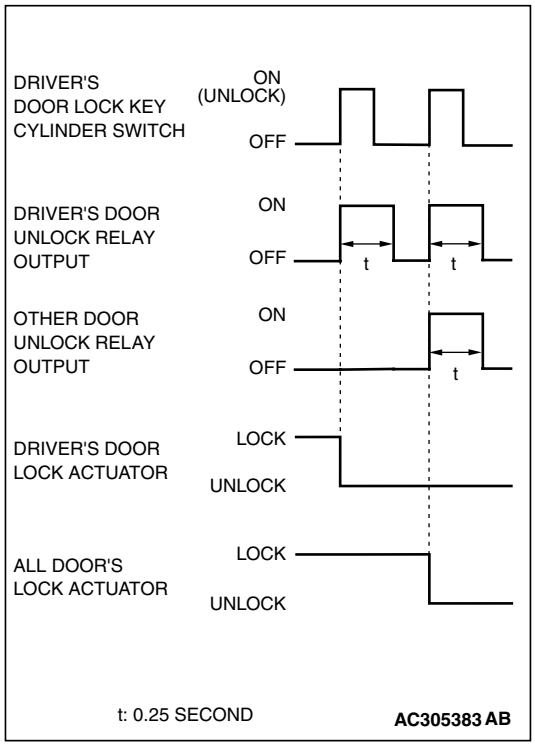
M1549021100271

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

FUNCTION	CONTROL ECU
Central door locking system	ETACS-ECU
Forgotten key prevention function	ETACS-ECU

CENTRAL DOOR LOCKING SYSTEM

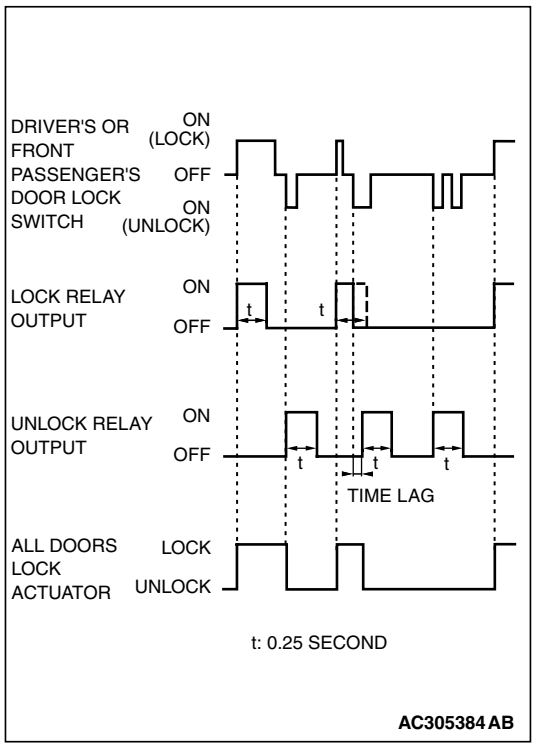
DOOR UNLOCKING BY OPERATING THE DRIVER'S DOOR LOCK KEY CYLINDER



When the ignition key is inserted in the driver's door lock key cylinder and turned clockwise to unlock the driver's door, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuator of the driver's door for 0.25 seconds to unlock only the driver's door.
When the ignition key is turned clockwise again, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuators of all doors for 0.25 seconds and to unlock all doors.

NOTE: Vehicles with a multi center display (middle grade type) can be customized so that a single unlock operation will unlock all doors. Refer to P. 54B-555.

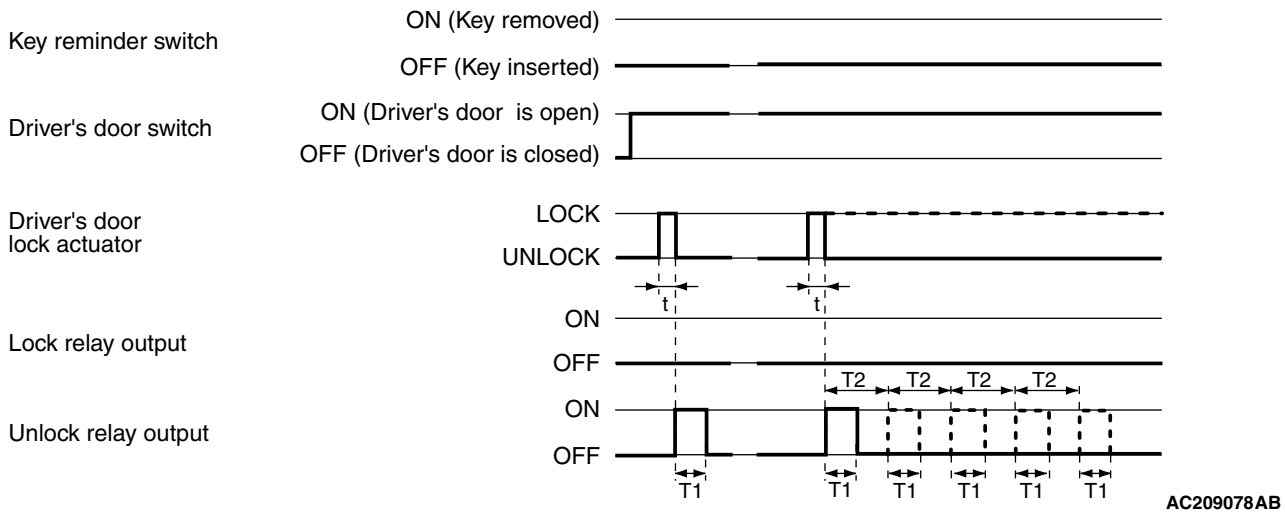
DOOR LOCKING OR UNLOCKING BY OPERATING THE DRIVER'S OR FRONT PASSENGER'S DOOR LOCK SWITCH



When the door is locked by the driver's or front passenger's door lock switch, the ETACS-ECU operates its door lock relay and passes a current through the door lock actuators of all doors for 0.25 seconds to lock all doors.
When the door is unlocked by the driver's or front passenger's door lock switch, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuators of all doors for 0.25 seconds to unlock all doors.
When the door is locked and unlocked by driver's or front passenger's door lock switch consecutively, the ETACS-ECU operates its door lock relay and passes a current through the door lock actuators of all doors for 0.25 seconds to lock all doors. Then, the ETACS-ECU operates its door unlock relay and passes a current through the door lock actuators of all doors for 0.25 seconds to unlock all doors. Due to this, there may be a time lag between the driver's or front passenger's door lock switch actuation and the time when all doors are unlocked.

FORGOTTEN KEY PREVENTION FUNCTION

If the driver's door is locked while it is open



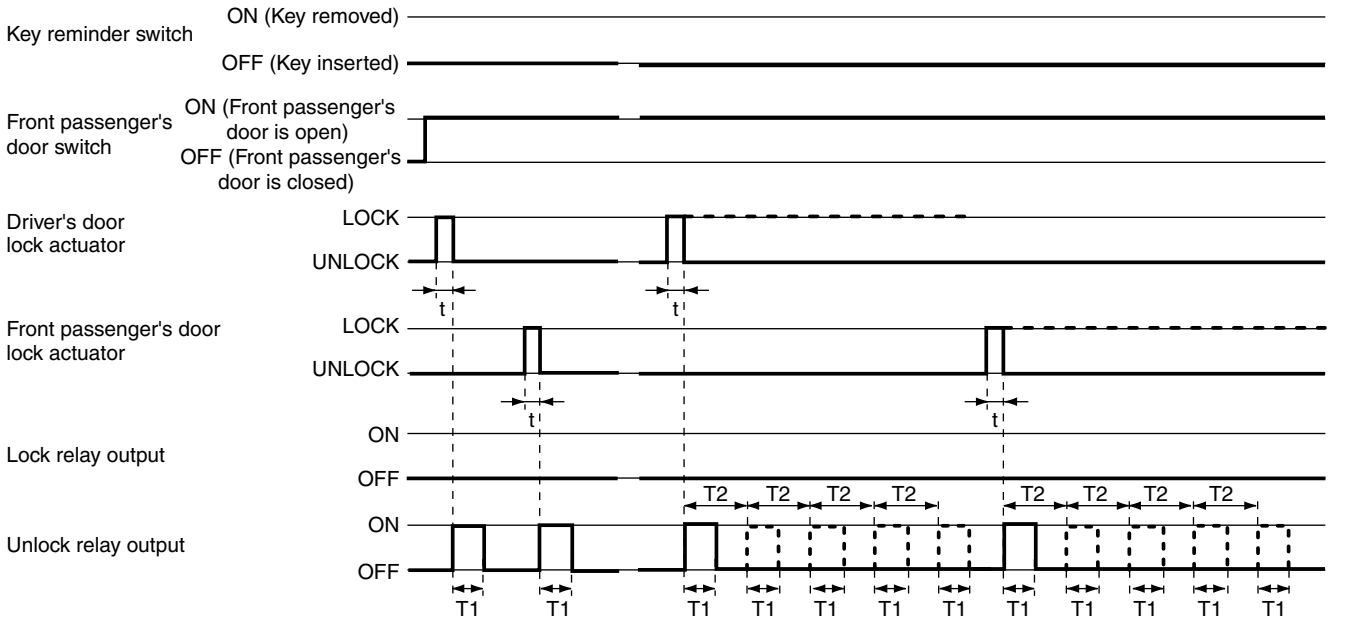
t: 0.3 seconds
T1: 0.25 seconds
T2: 1 seconds

If the driver's door is locked while it is open and when the key is still in the ignition key cylinder, approximately 0.3 second later the ETACS-ECU activates the unlock relay output for 0.25 second to prevent the door from being locked with the key inside the vehicle.

In addition, if locking the door was not prevented, a re-try current is sent (an unlock relay output ON is sent for 0.25 second up to 5 times including the first attempt).

NOTE: The dotted line indicates that the system is trying to turn on the unlock relay if the door cannot be unlocked.

If the front passenger's door is open when it is locked with the driver's door switch



t: 0.3 seconds
T1: 0.25 seconds
T2: 1 seconds

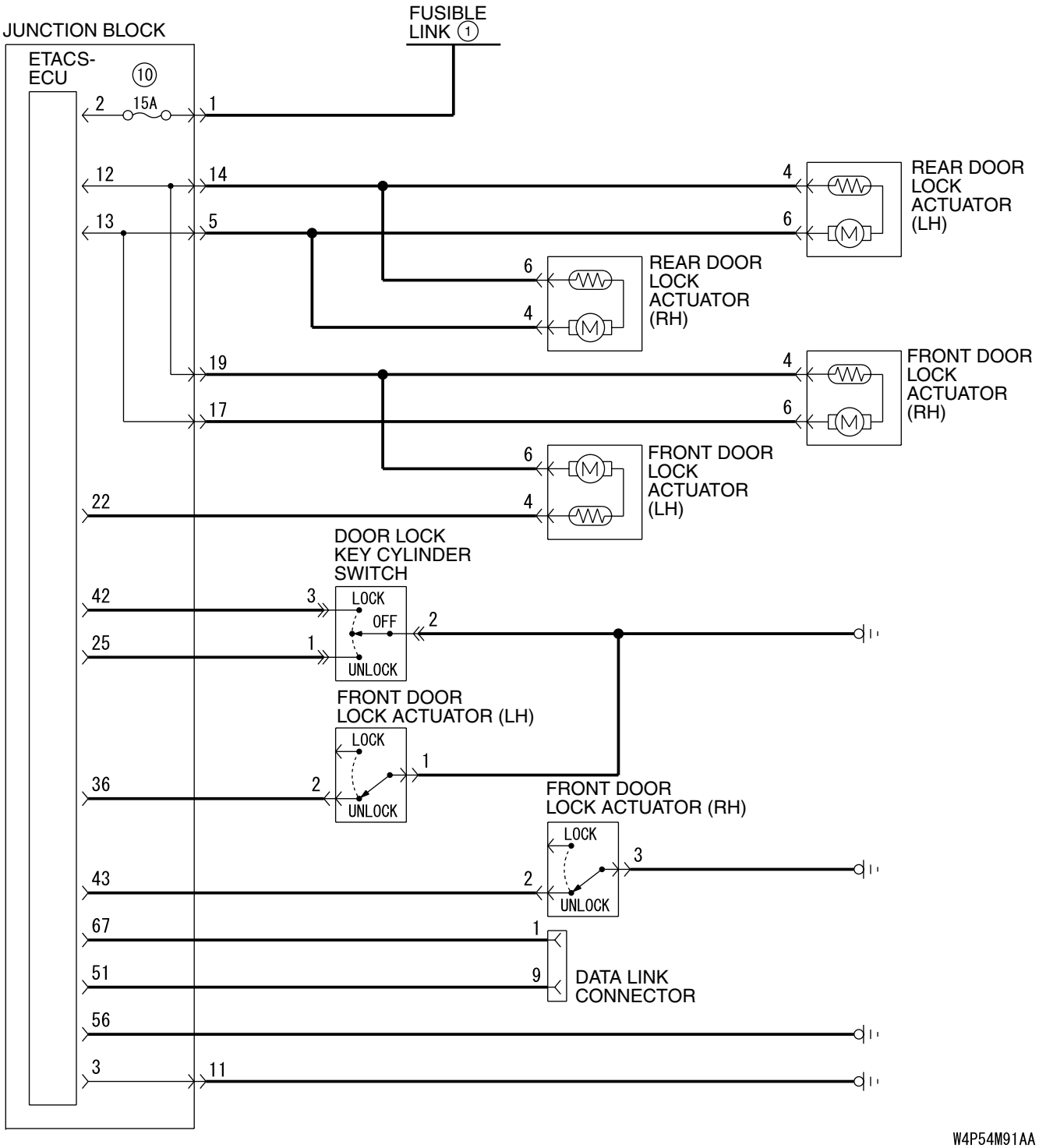
TSB Revision

If the passenger's door or driver's door are locked while the passenger's door is open and when the key is still in the ignition key cylinder, approximately 0.3 second later the ETACS-ECU activates the unlock relay output for 0.25 second to prevent the door from being locked with the key inside the vehicle.

In addition, if locking the door was not prevented, a re-try current is sent (an unlock relay output ON is sent for 0.25 second up to 5 times including the first attempt).

NOTE: The dotted line indicates that the system is trying to turn on the unlock relay if the door cannot be unlocked.

GENERAL CIRCUIT DIAGRAM FOR THE CENTRAL DOOR LOCKING SYSTEM



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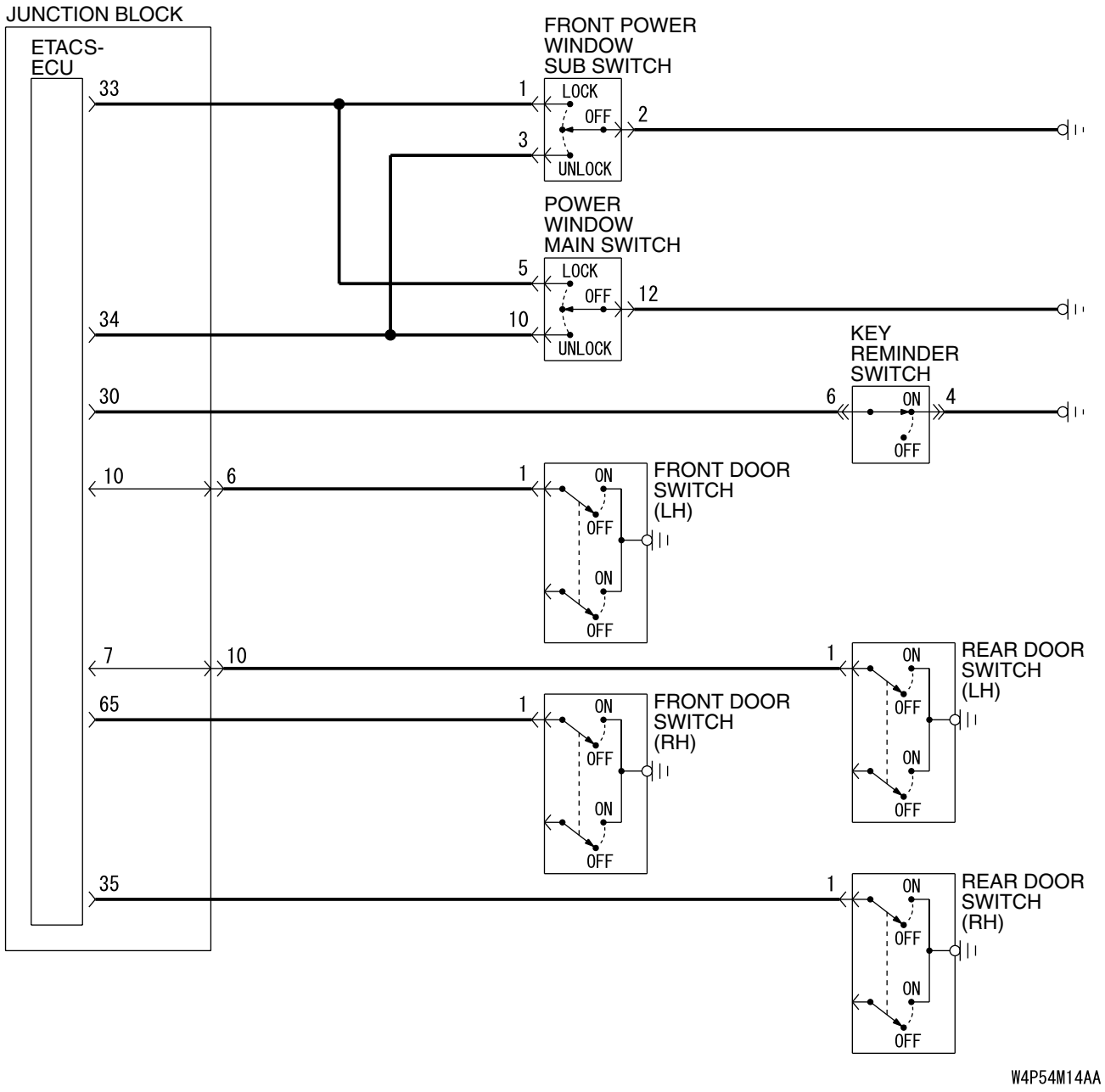
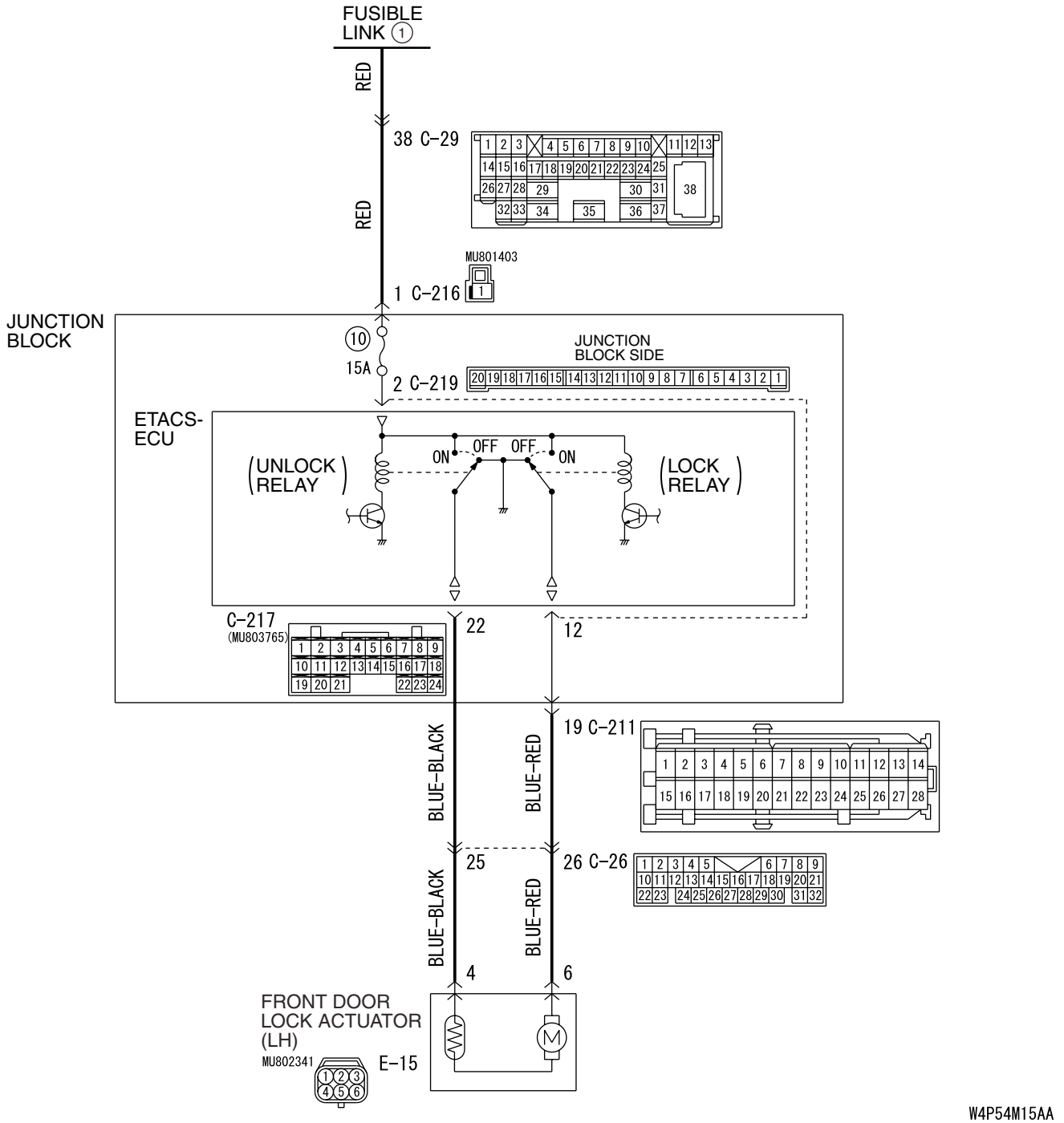
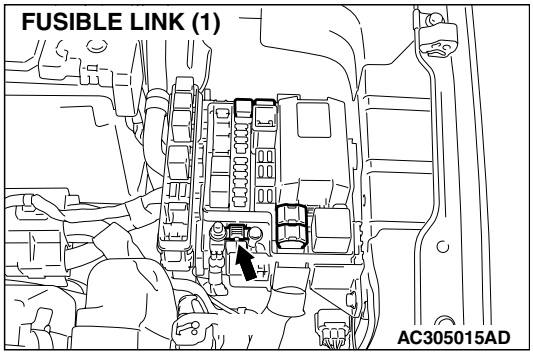

JUNCTION BLOCK
ETACS-ECU
33
34
30
10
7
65
35
FRONT POWER WINDOW SUB SWITCH
LOCK
OFF
UNLOCK
1
2
3
POWER WINDOW MAIN SWITCH
5
12
10
KEY REMINDER SWITCH
6
4
ON
OFF
6
FRONT DOOR SWITCH (LH)
FRONT DOOR SWITCH (RH)
REAR DOOR SWITCH (LH)
REAR DOOR SWITCH (RH)
W4P54M14AA

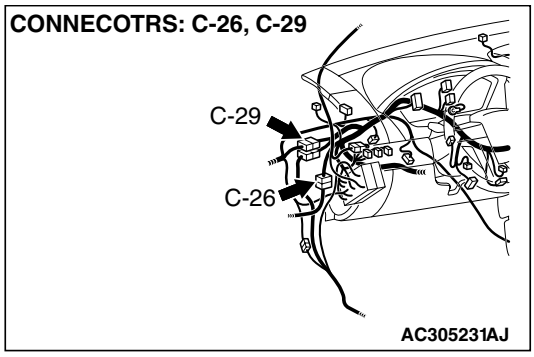
INSPECTION PROCEDURE C-1: Central Door Locking System: The Central Door Locking System does not Work at all.

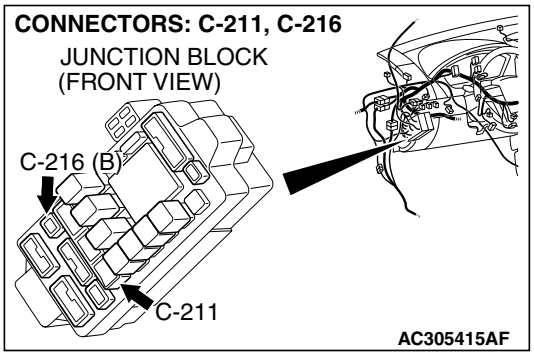
NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

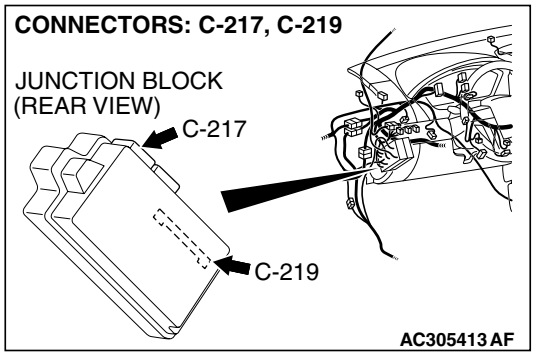
Central Door Lock Power Supply Circuit

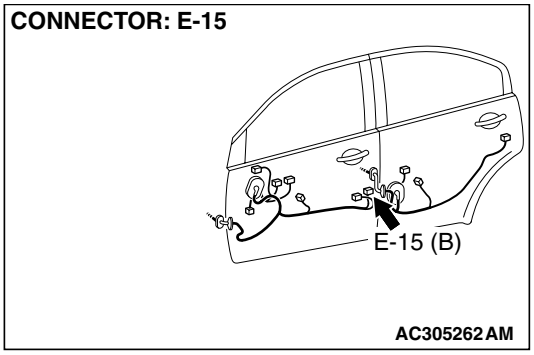












CIRCUIT OPERATION

- The ETACS-ECU controls the central door lock system, locking or unlocking all the doors by activating the central door lock relay (built into the ETACS-ECU). The ETACS-ECU uses inputs from the following components:
  - Front door lock actuator
  - Front door lock key cylinder switch
  - Door lock switch, which is incorporated in the power window main switch or front power window sub switch

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

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

Check the ETACS-ECU.

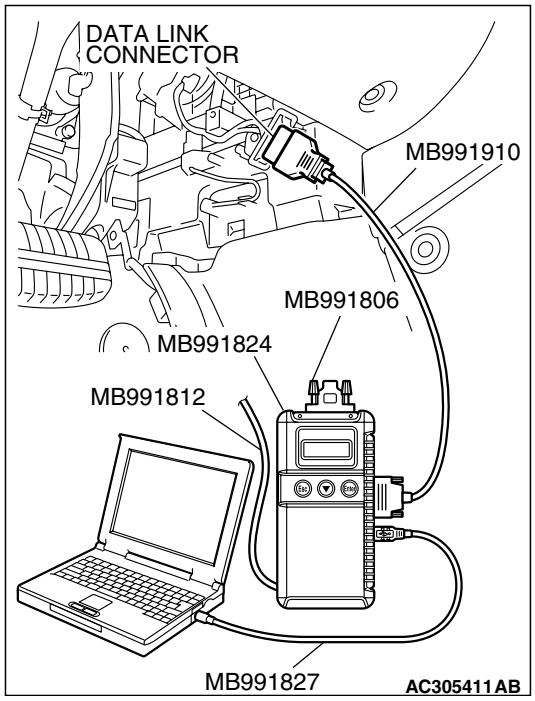
⚠ CAUTION

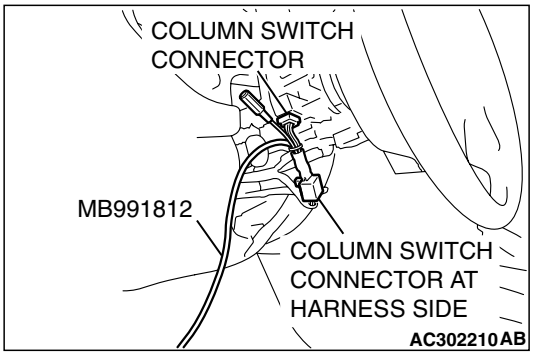
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

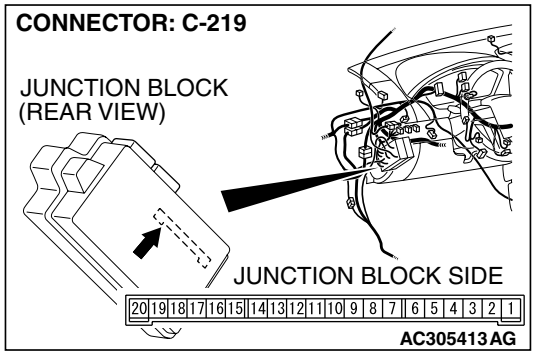
(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) MUT-III should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





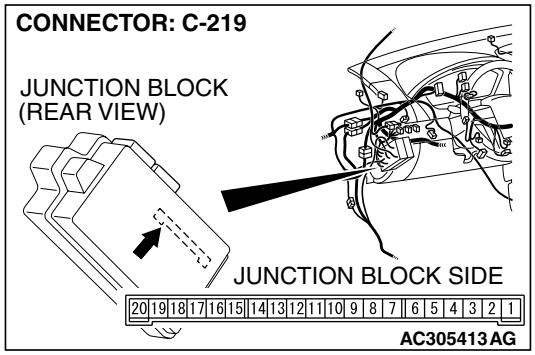


STEP 2. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-219 in good condition?

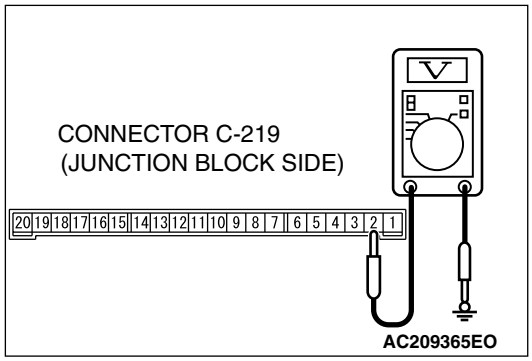
YES : Go to Step 3.

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



STEP 3. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-219.

(1) Disconnect ETACS-ECU connector C-219 and measure the voltage available at the junction block side of the connector.



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

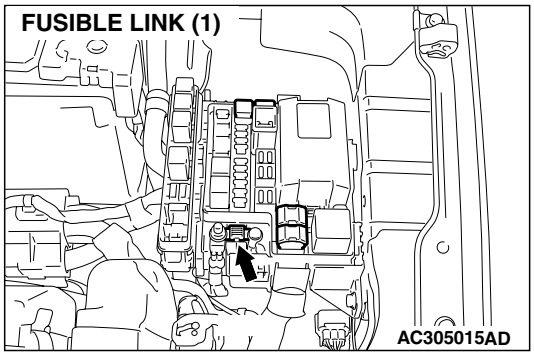
- The voltage should measure approximately 12 volts (battery positive voltage)

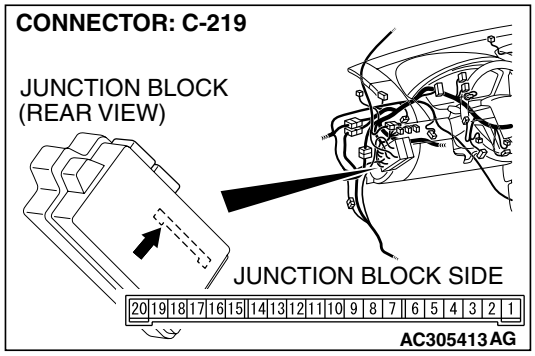
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

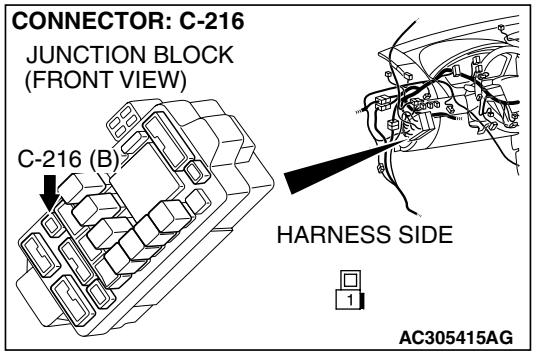
YES : Go to Step 5.

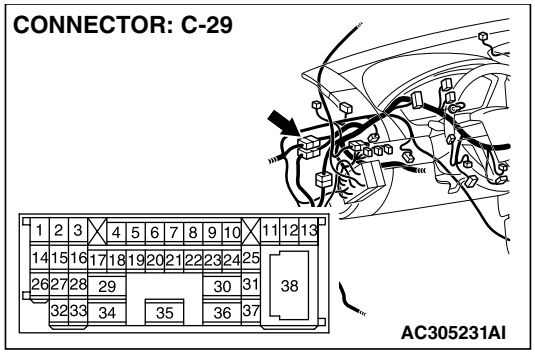
NO : Go to Step 4.

STEP 4. Check the wiring harness between ETACS-ECU connector C-219 (terminal 2) and fusible link (1).









NOTE: Also check junction block connector C-216 and intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-216 or intermediate connector C-29 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Hamess Connector Inspection *P.00E-2*.

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 2) and fusible link (1) in good condition?

YES : No action is necessary and testing is complete.

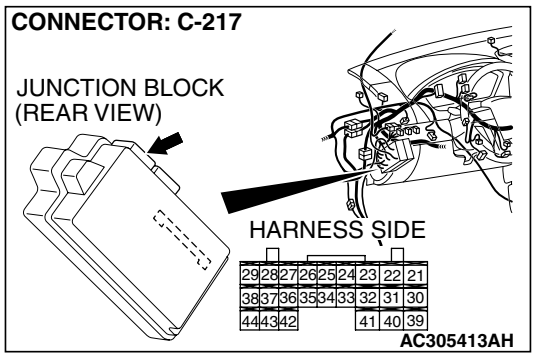
NO : The wiring harness may be damaged or the connector may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring hamess as necessary. Verify that the central door locking system works normally.

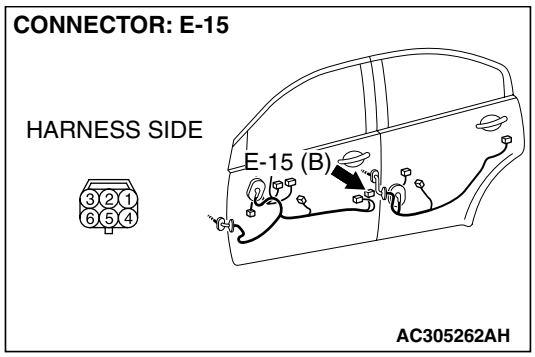
STEP 5. Check ETACS-ECU connectors C-217 and front door lock actuator (LH) connector E-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ETACS-ECU connectors C-217 and front door lock actuator (LH) connector E-15 in good condition?

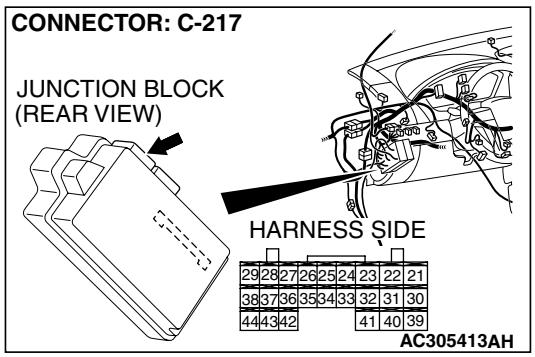
YES : Go to Step 6.

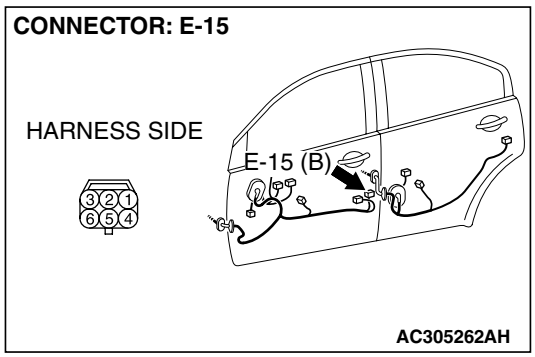
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the central door locking system works normally.

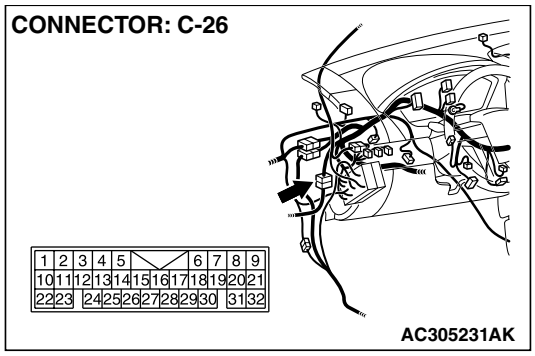




STEP 6. Check the wiring harness between ETACS-ECU connector C-217 (terminal 22) and front door lock actuator (LH) connector E-15 (terminal 4).







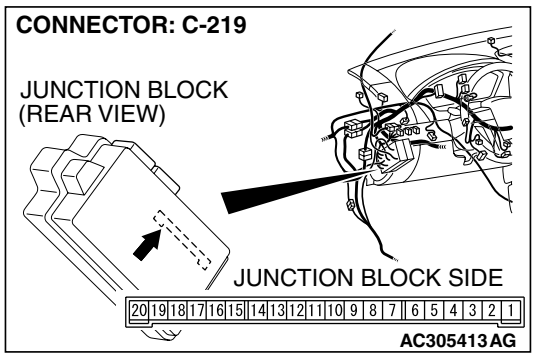
NOTE: Also check intermediate connector C-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

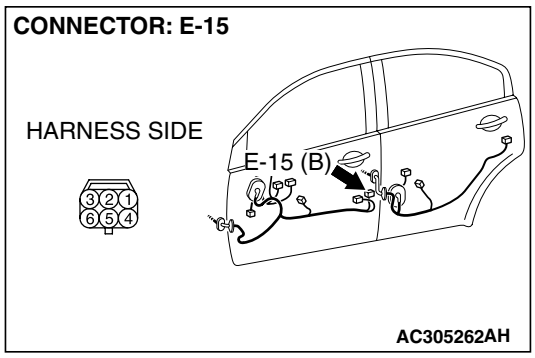
Q: Is the wiring harness between ETACS-ECU connector C-217 (terminal 22) and front door lock actuator (LH) connector E-15 (terminal 4) in good condition?

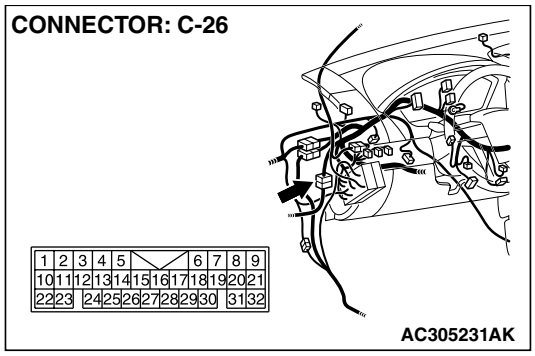
YES : Go to Step 7.

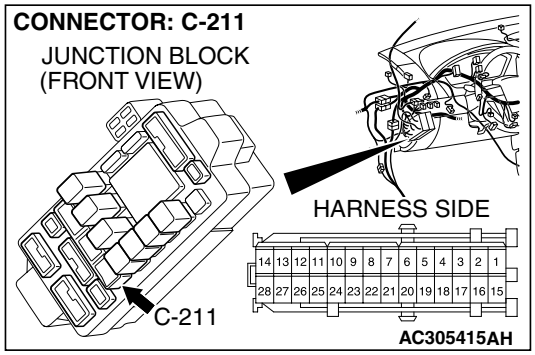
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check the wiring harness between ETACS-ECU connector C-219 (terminal 12) and front door lock actuator (LH) connector E-15 (terminal 6).









NOTE: Also check intermediate connector C-26 and junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 or junction block connector C-211 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

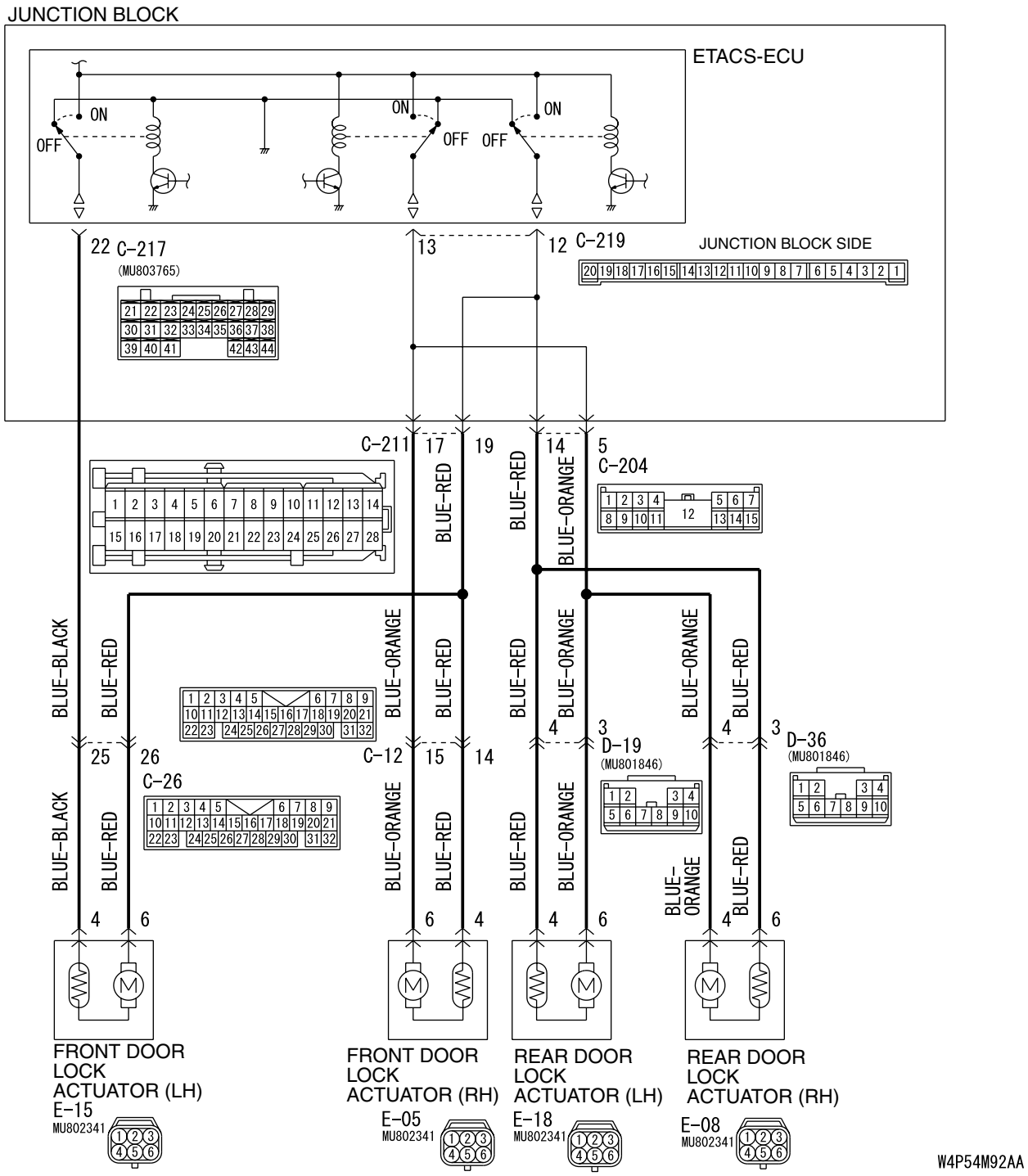
Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 12) and front door lock actuator (LH) connector E-15 (terminal 6) in good condition?

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

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that the central door locking system works normally.

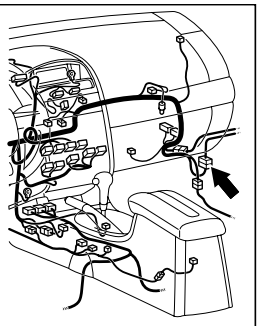
INSPECTION PROCEDURE C-2: Central Door Locking System: Some Doors do not Lock or Unlock.

Central Door Lock Circuit



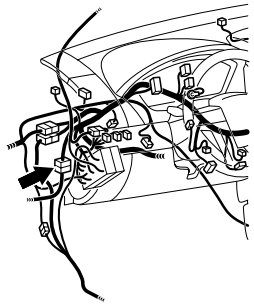
TSB Revision

CONNECTOR: C-12



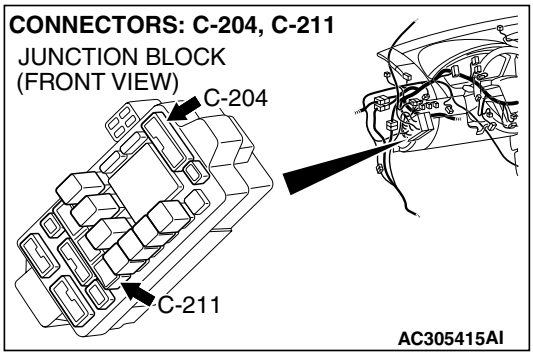
AC305233AE

CONNECTOR: C-26



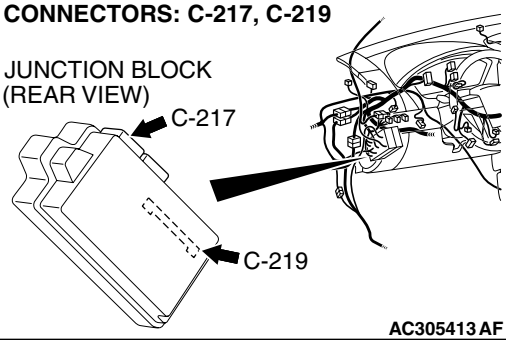
AC305231AL

CONNECTORS: C-204, C-211



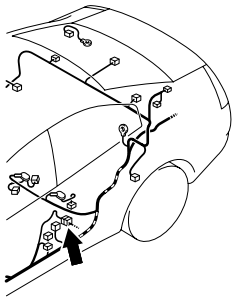
AC305415AI

CONNECTORS: C-217, C-219



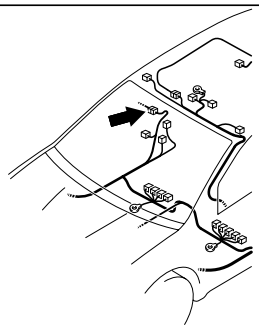
AC305413AF

CONNECTOR: D-19



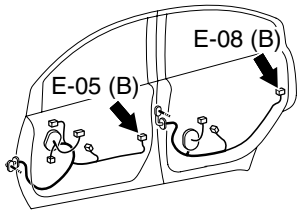
AC400532AB

CONNECTOR: D-36



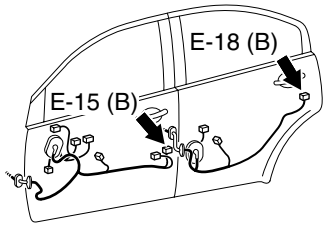
AC400530AC

CONNECTORS: E-05, E-08



AC305333AF

CONNECOTRS: E-15, E-18



AC305262AK

CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
  - Front door lock actuator switch
  - Door lock key cylinder switch
  - Door lock switch, which is incorporated in the power window main switch or front power window sub switch
- The ETACS-ECU locks or unlocks all the doors (except liftgate and glass hatch lock) by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check which door lock is defective.

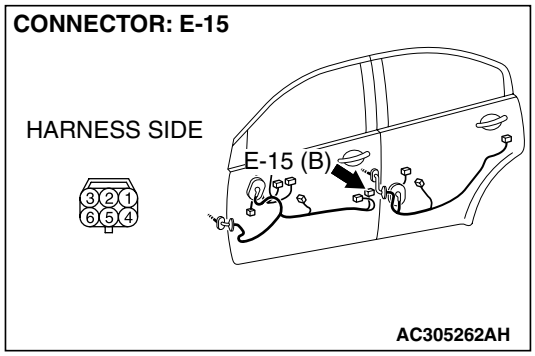
Q: Which of the door locks is defective?

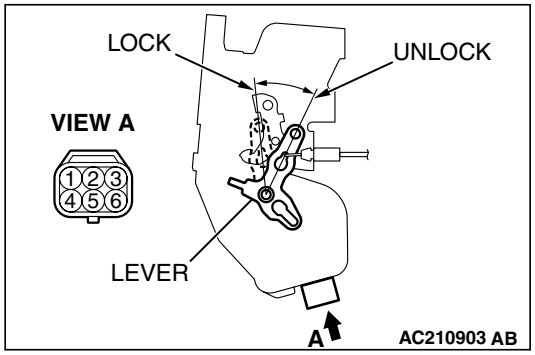
Driver's door : Go to Step 2.
Front passenger's door : Go to Step 7.
Rear door (LH) : Go to Step 11.
Rear door (RH) : Go to Step 15.

STEP 2. Check front door lock actuator (LH) connector E-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (LH) connector E-15 in good condition?

YES : Go to Step 3.
NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.





STEP 3. Check the front door lock actuator (LH).

Remove the front door lock actuator (LH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to GROUP 42 – Door Handle and Latch P.42-46.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal 6 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal 4 to the negative battery terminal • Connect terminal 6 to the positive battery terminal	The lever moves from the "UNLOCK" position to the "LOCK" position.

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

YES : Go to Step 4.

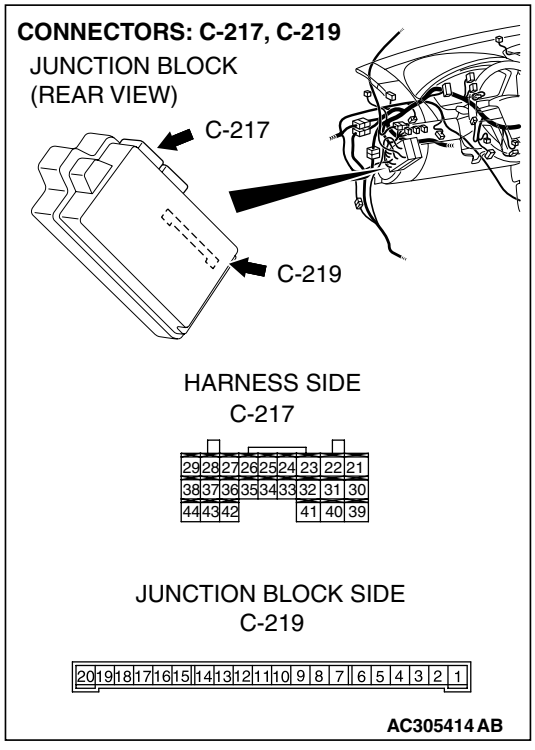
NO : Replace the front door lock actuator (LH). Verify that all the doors can be locked and unlocked normally.

STEP 4. Check ETACS-ECU connectors C-217 and C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

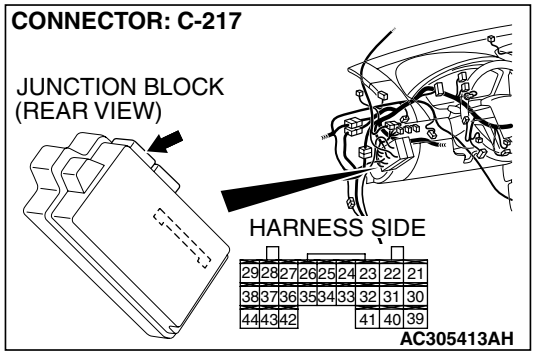
Q: Are ETACS-ECU connectors C-217 and C-219 in good condition?

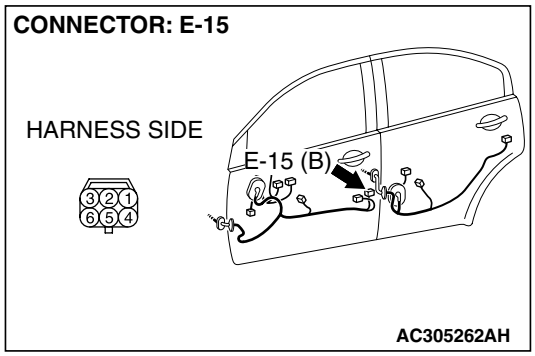
YES : Go to Step 5.

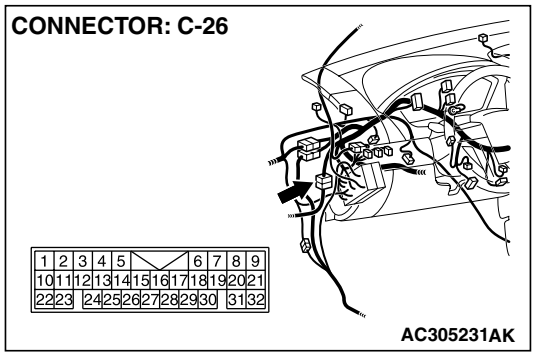
NO : Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.



STEP 5. Check the wiring harness between ETACS-ECU connector C-217 (terminal 22) and front door lock actuator (LH) connector E-15 (terminal 4).







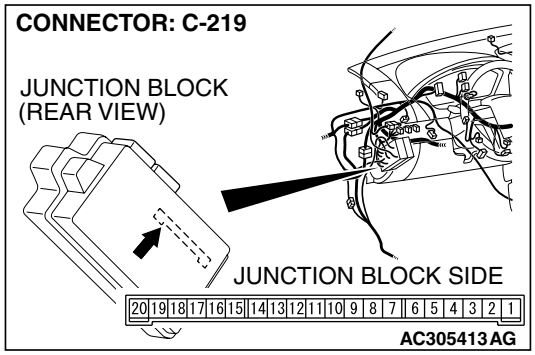
NOTE: Also check intermediate connector C-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

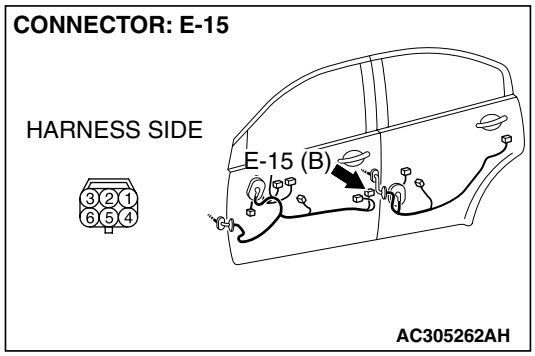
Q: Is the wiring harness between ETACS-ECU connector C-217 (terminal 22) and front door lock actuator (LH) connector E-15 (terminal 4) in good condition?

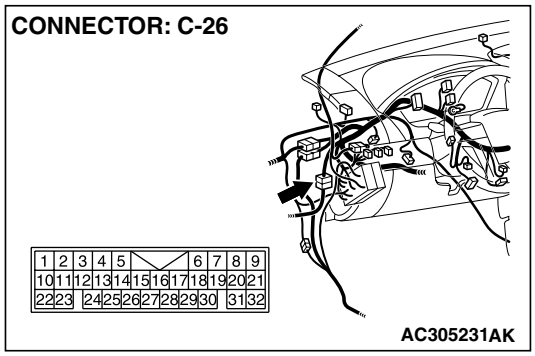
YES : Go to Step 6.

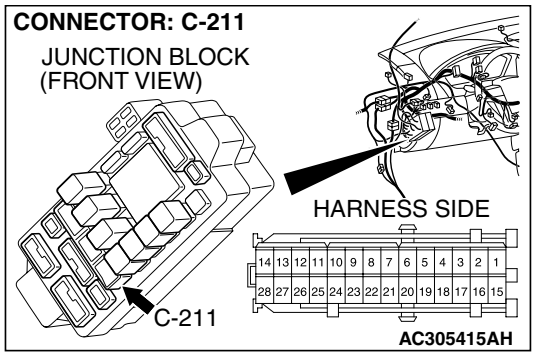
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that the central door locking system works normally.

STEP 6. Check the wiring harness between ETACS-ECU connector C-219 (terminal 12) and front door lock actuator (LH) connector E-15 (terminal 6).







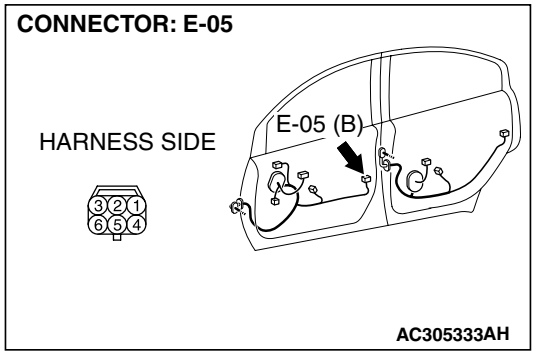


NOTE: Also check intermediate connector C-26 and junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 or junction block connector C-211 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 12) and front door lock actuator (LH) connector E-15 (terminal 6) in good condition?

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

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that the central door locking system works normally.

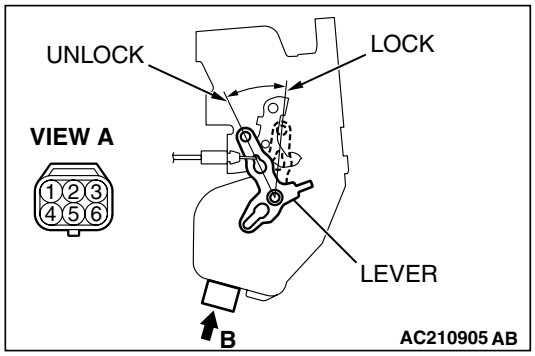


STEP 7. Check front door lock actuator (RH) connector E-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-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 all the doors can be locked and unlocked normally.



STEP 8. Check the front door lock actuator (RH).

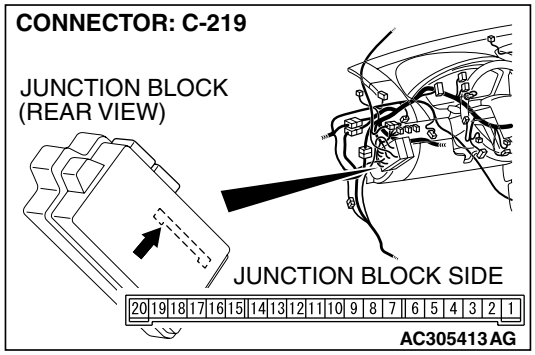
Remove the front door lock actuator (RH). The illustration shows when the door lock actuator is viewed from inside the door. Refer to GROUP 42 – Door Handle and Latch P.42-46.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal 4 to the negative battery terminal • Connect terminal 6 to the positive battery terminal	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal 6 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	The lever moves from the "UNLOCK" position to the "LOCK" position.

Q: Is the front door lock actuator (RH) normal?

YES : Go to Step 9.

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

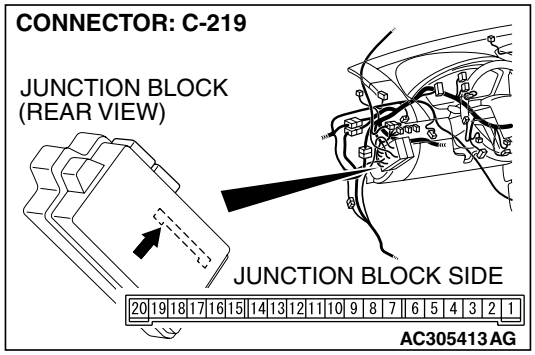


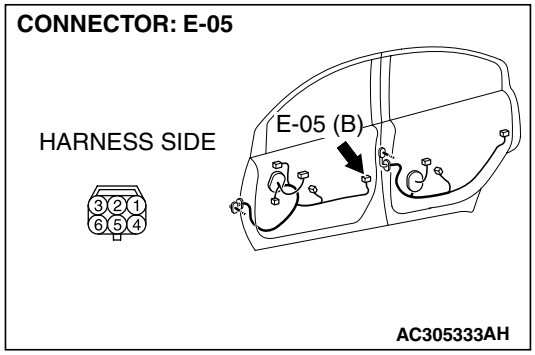
STEP 9. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-219 in good condition?

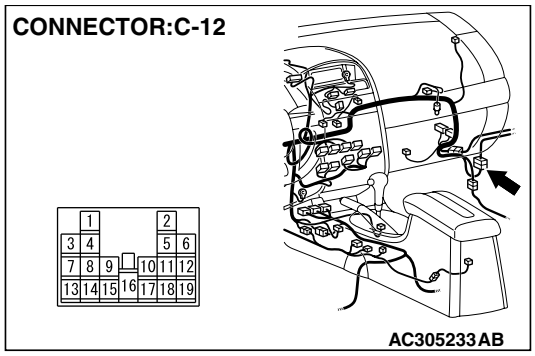
YES : Go to Step 10.

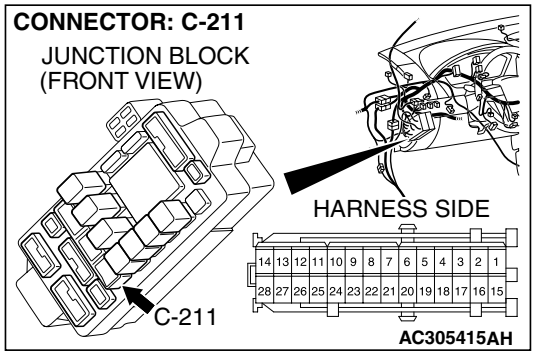
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.





STEP 10. Check the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and front door lock actuator (RH) connector E-05 (terminals 4 and 6).



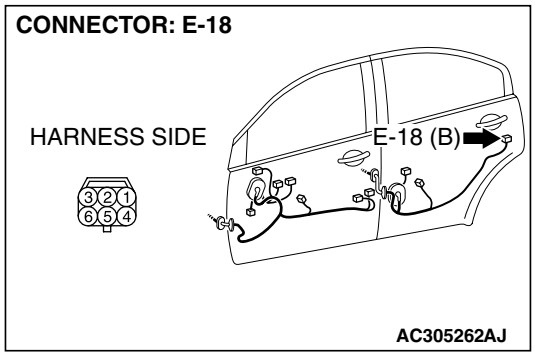


NOTE: Also check intermediate connector C-12 and junction block connector C-211 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-12 or junction block connector C-211 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and front door lock actuator (RH) connector E-05 (terminals 4 and 6) in good condition?

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

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

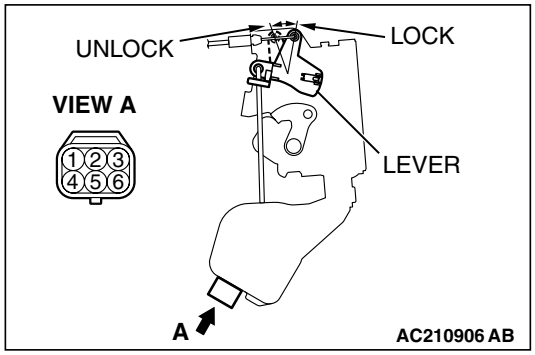


STEP 11. Check rear door lock actuator (LH) connector E-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door lock actuator (LH) connector E-18 in good condition?

YES : Go to Step 12.

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



STEP 12. Check the rear door lock actuator (LH).

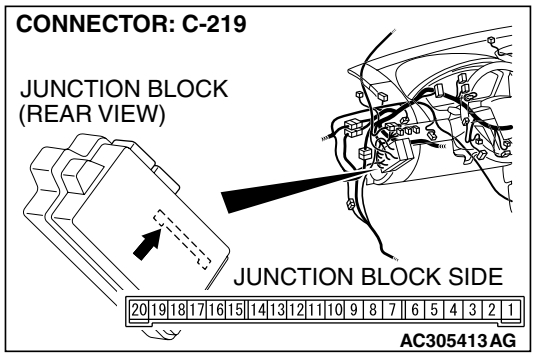
Remove the rear door lock actuator (LH). The illustration shows when the door lock actuator is viewed from outside the door. Refer to GROUP 42 – Door Handle and Latch P.42-46.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal 6 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal 4 to the negative battery terminal • Connect terminal 6 to the positive battery terminal	The lever moves from the "UNLOCK" position to the "LOCK" position.

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

YES : Go to Step 13.

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



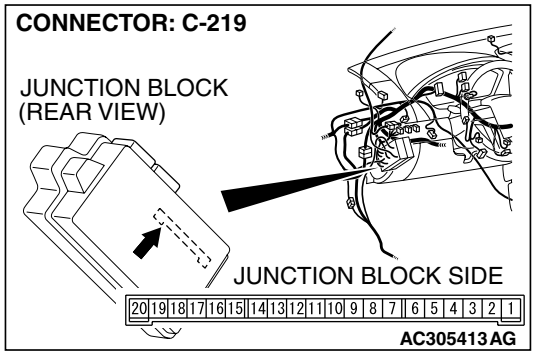
STEP 13. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

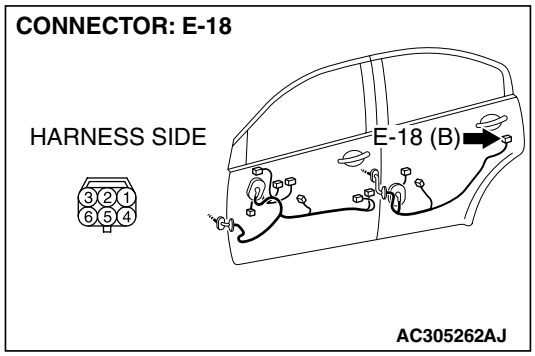
Q: Is ETACS-ECU connector C-219 in good condition?

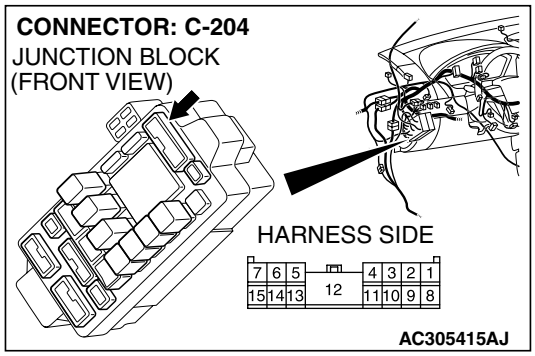
YES : Go to Step 14.

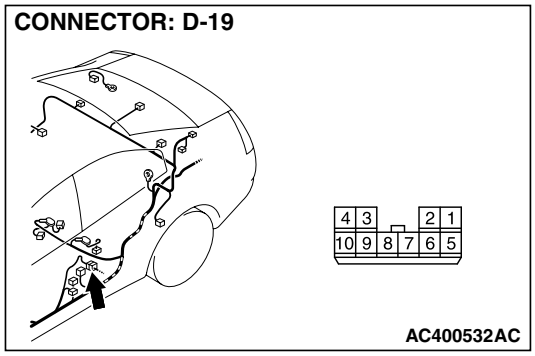
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.

STEP 14. Check the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and rear door lock actuator (LH) connector E-18 (terminals 4 and 6).







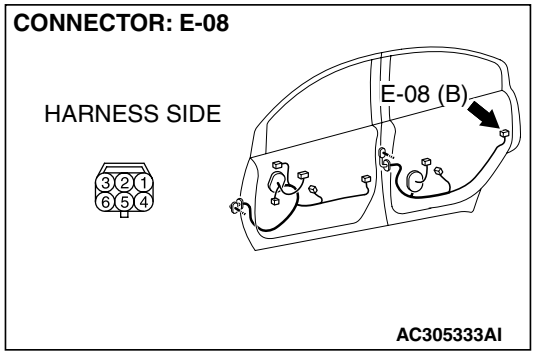


NOTE: Also check intermediate connector D-19 and junction block connector C-204 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-19 or junction block connector C-204 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and rear door lock actuator (LH) connector E-18 (terminals 4 and 6) in good condition?

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

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors can be locked and unlocked.

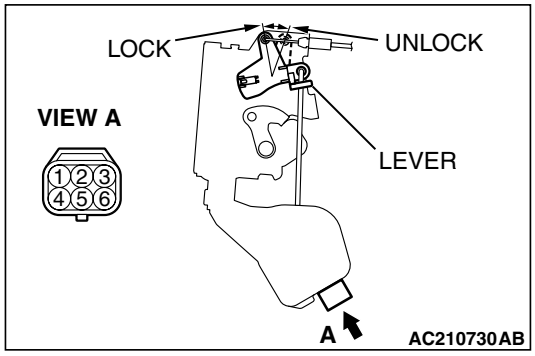


STEP 15. Check rear door lock actuator (RH) connector E-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door lock actuator (RH) connector E-08 in good condition?

YES : Go to Step 16.

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



STEP 16. Check the rear door lock actuator (RH).

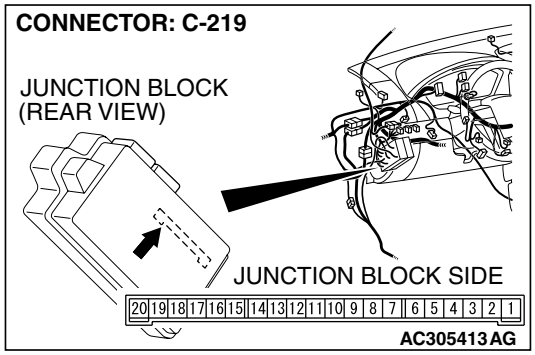
Remove the rear door lock actuator (RH). The illustration shows when the door lock actuator is viewed from outside the door. Refer to GROUP 42 – Door Handle and Latch P.42-46.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	• Connect terminal 4 to the negative battery terminal • Connect terminal 6 to the positive battery terminal	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	• Connect terminal 6 to the negative battery terminal • Connect terminal 4 to the positive battery terminal	The lever moves from the "UNLOCK" position to the "LOCK" position.

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

YES : Go to Step 17.

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

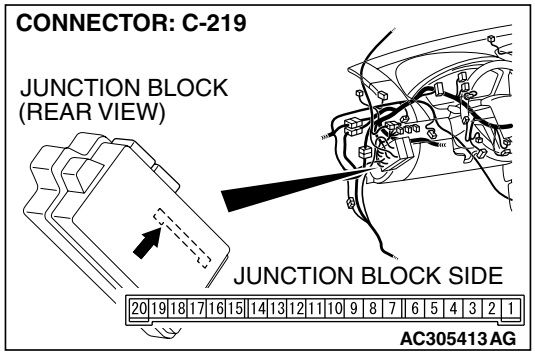


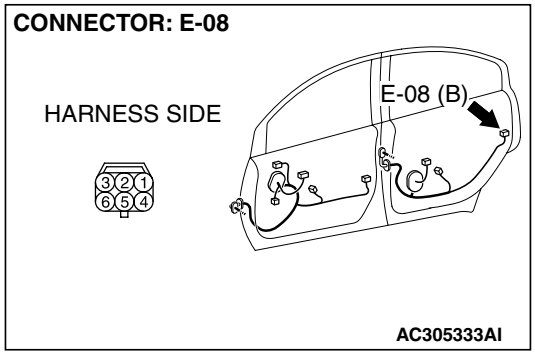
STEP 17. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-219 in good condition?

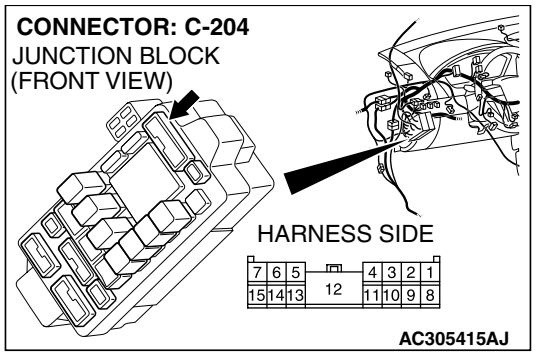
YES : Go to Step 18.

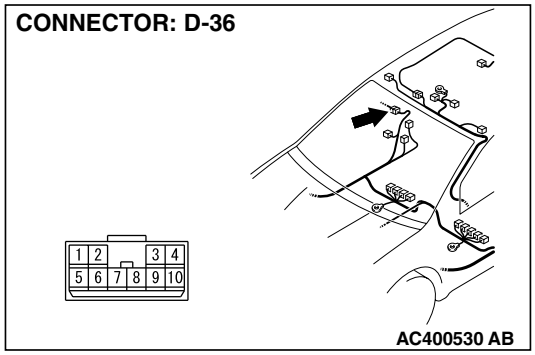
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors can be locked and unlocked normally.





STEP 18. Check the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and rear door lock actuator (RH) connector E-08 (terminals 6 and 4).





NOTE: Also check junction block connector C-204 and intermediate connectors D-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-204 or intermediate connector D-36 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection *P.00E-2**.*

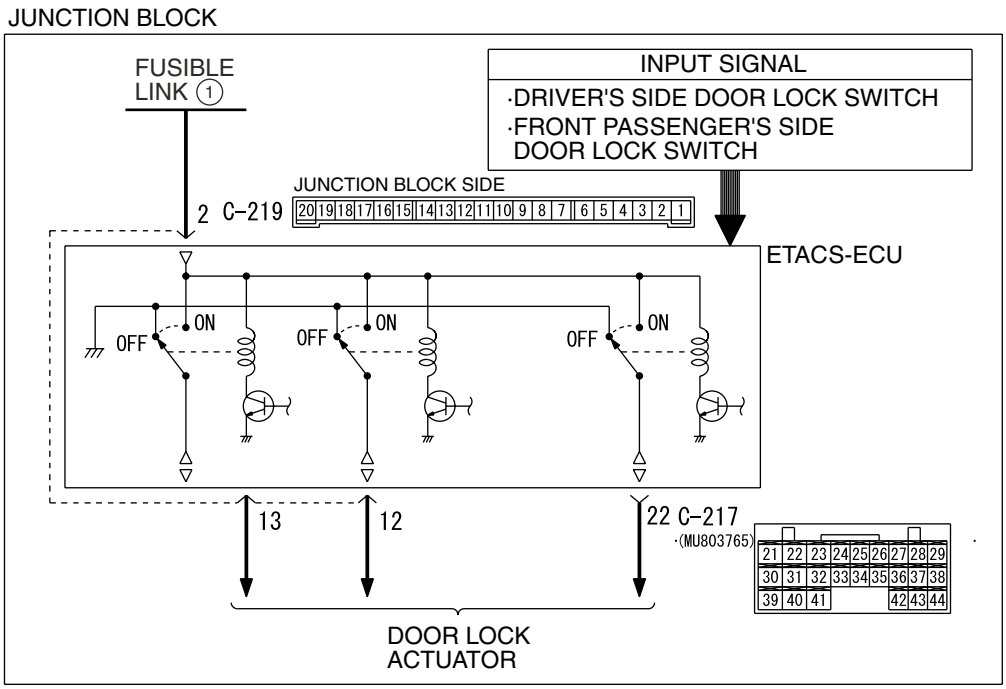
Q: Is the wiring harness between ETACS-ECU connector C-219 (terminals 12 and 13) and rear door lock actuator (RH) connector E-08 (terminals 6 and 4) in good condition?

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

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that all the doors can be locked and unlocked normally.

INSPECTION PROCEDURE C-3: Central Door Locking System: All the Doors do not Lock or Unlock with just the Door Lock Switch Operation.

Central Door Lock (Door Lock Switch) Circuit



W4P54M94AA

TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

The door lock switch (incorporated in the power window main switch and front power window sub switch) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A

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

Check the input signals from the door lock switch (incorporated in the power window main switch and front power window sub 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-13."

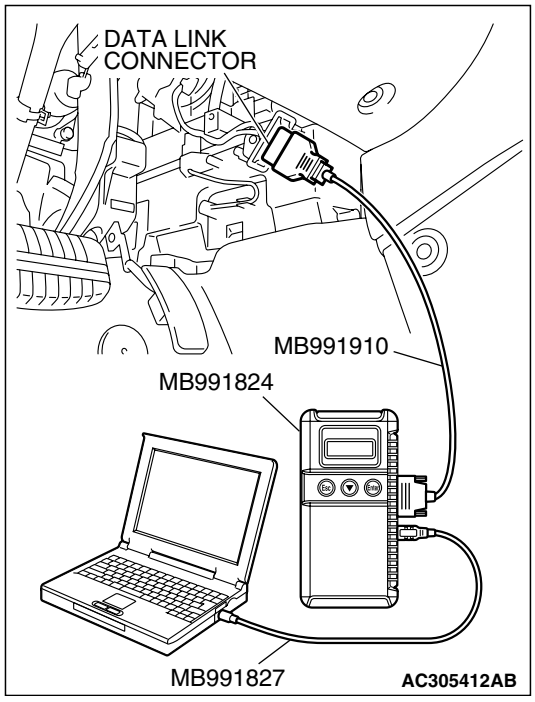
(2) When the driver's or the front passenger's door lock switch is moved from "LOCK" to "UNLOCK" and vice versa, check if scan tool MB991958 sounds or not.

(3) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "Pulse Checking."

Q: Does scan tool MB991958 sound when the driver's or the front passenger's door lock switch is moved from "LOCK" to "UNLOCK" and vice versa?

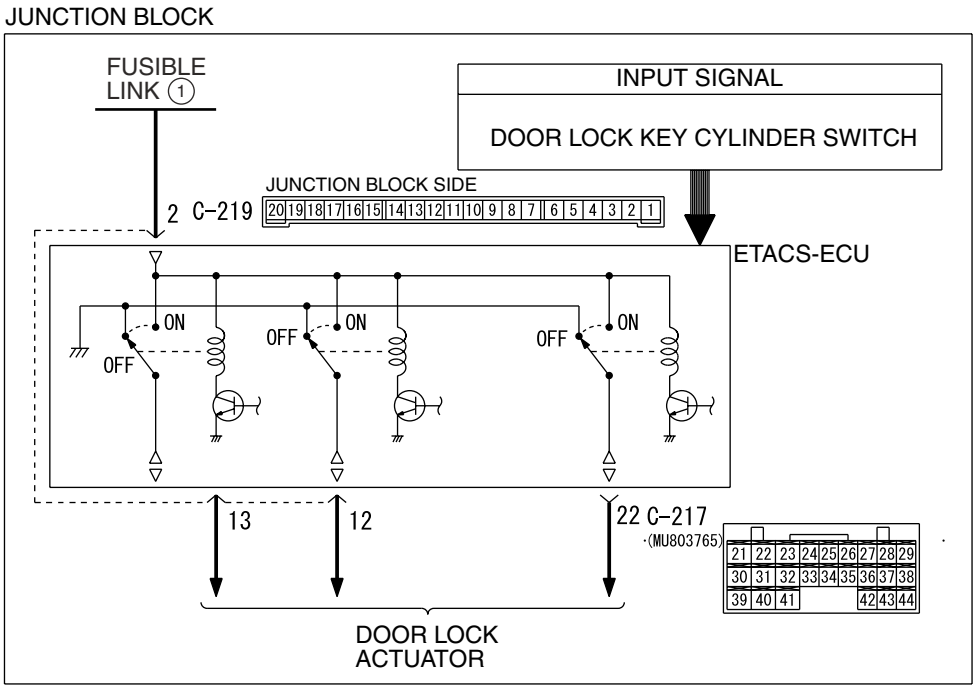
YES : Replace the ETACS-ECU. Check that all the doors should be locked and unlocked by the door lock switch.

NO : Refer to Inspection Procedure N-6 "ETACS-ECU does not receive any signal from the door lock switch (incorporated in the power window main switch and front power window sub switch) P.54B-527."



INSPECTION PROCEDURE C-4: Central Door Locking System: All the Doors do not Lock or Unlock with just the Door Lock Key Cylinder Key Operation.

Central Door Lock (Door Lock Key Cylinder Switch) Circuit



W4P54M93AA

TECHNICAL DESCRIPTION (COMMENT)

The door lock key cylinder switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A

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

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

⚠ CAUTION

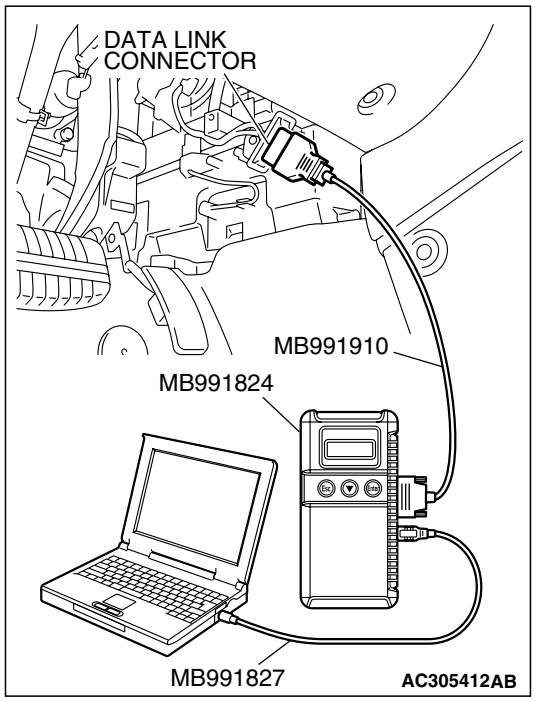
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."

(2) When the doors are locked and unlocked by using the driver's or front passenger's door lock key cylinder, check that scan tool MB991958 sounds.

(3) Operate scan tool MB991958 according to the procedure below to display "Pulse check."

a. Select "Interactive Diagnosis."
b. Select "System Select."
c. Select "SWS."
d. Select "Pulse Checking."



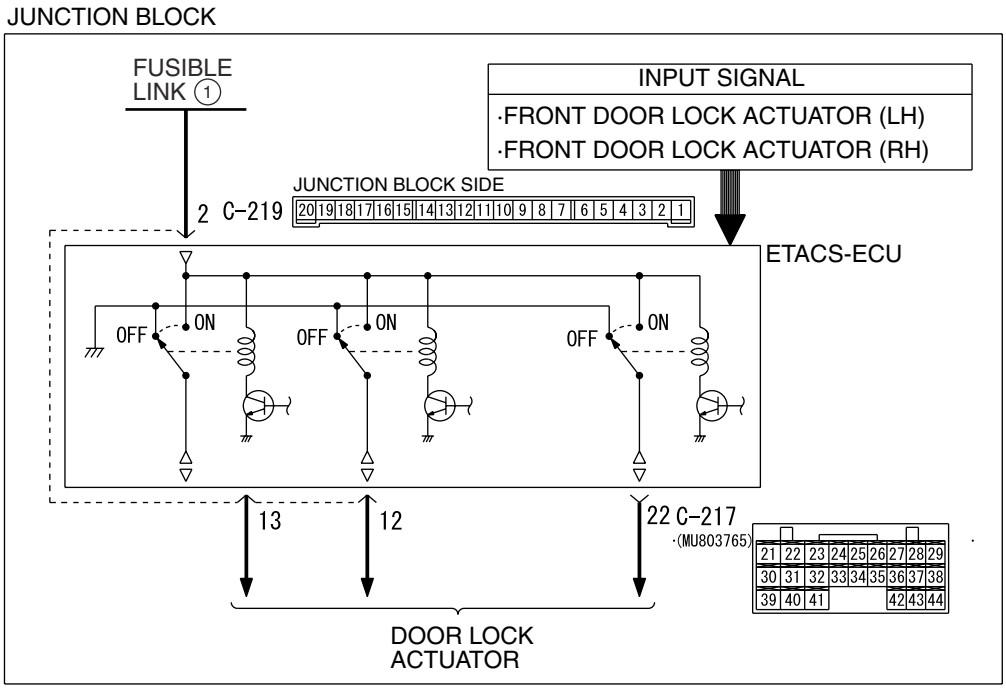
Q: When the doors are locked and unlocked by using the driver's or front passenger's door lock key cylinder, does scan tool MB991958 sound?

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

NO : Refer to Inspection Procedure N-4 "ETACS-ECU does not receive any signal from the door lock key cylinder switch P.54B-512."

INSPECTION PROCEDURE C-5: Central Door Locking System: All the Doors do not Lock or Unlock with just the Driver's or Front Passenger's inside Lock Knob Operation.

Central Door Lock (Door Lock Key Cylinder Switch) Circuit



W4P54M95AA

TECHNICAL DESCRIPTION

The door lock actuator or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A

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

Check the input signals from the driver's or front passenger's door lock actuator.

⚠ 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-13."

(2) When the driver's inside lock knob is locked or unlocked, check if scan tool MB991958 sounds or not.

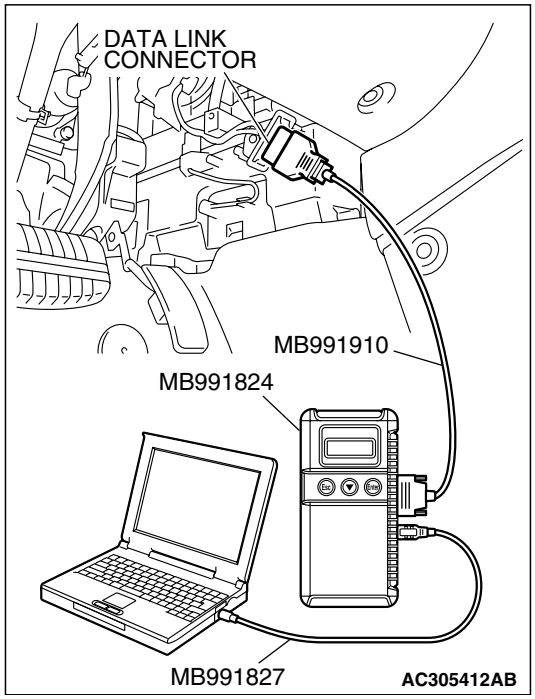
(3) Operate scan tool MB991958 according to the procedure below to display "Pulse check."

a. Select "Interactive Diagnosis."
b. Select "System Select."
c. Select "SWS."
d. Select "Pulse Checking."

Q: Does scan tool MB991958 sound when the driver's or the front passenger's inside lock knob is moved from "LOCK" to "UNLOCK" or vice versa?

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

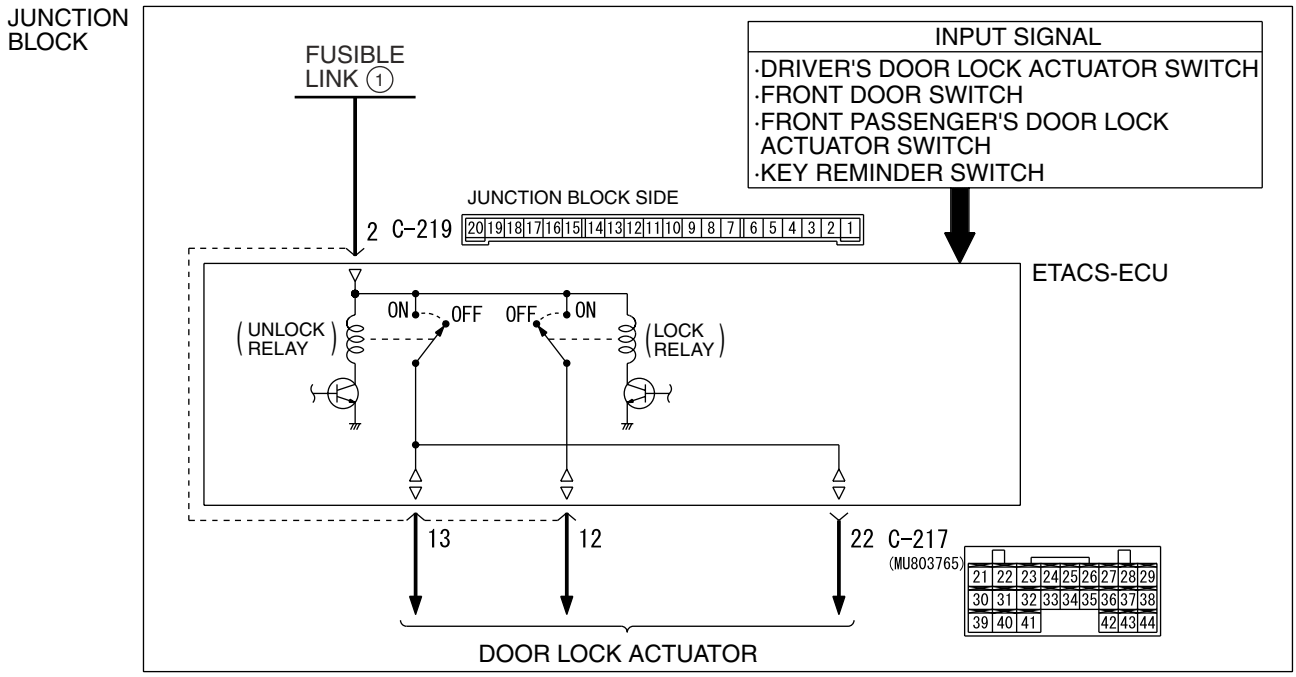
NO : Refer to Inspection Procedure N-5 "ETACS-ECU does not receive any signal from the front door lock actuator P.54B-517."



INSPECTION PROCEDURE C-6: Central Door Locking System: Forgotten Key Prevention Function does not Work Normally.

NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Forgotten Key Prevention Circuit



W4P54M20AA

CIRCUIT OPERATION

The ETACS-ECU operates the forgotten key prevention function according to the following switches:

- Key reminder switch: OFF
- Front door switch: ON
- Front door lock actuator switch: being turned on

The ETACS-ECU operates the forgotten key prevention function under the following conditions:

- Ignition key: inserted into the ignition key cylinder
- Front door: open
- Front door lock: being locked

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

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

Check the ETACS-ECU.

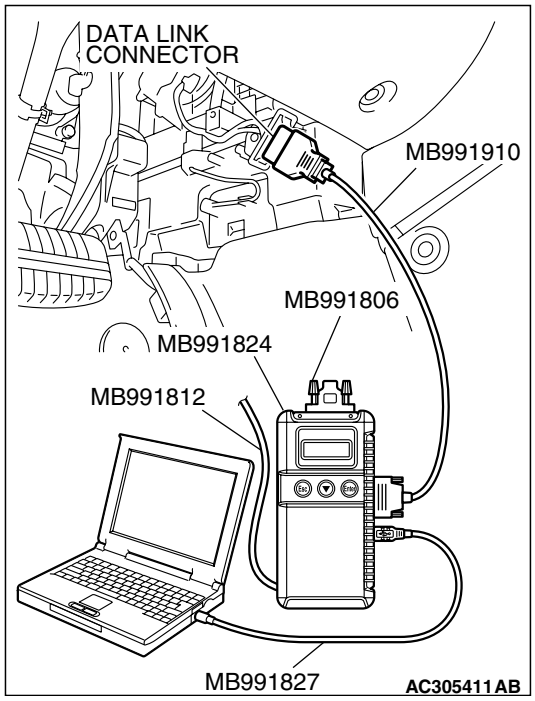
⚠ CAUTION

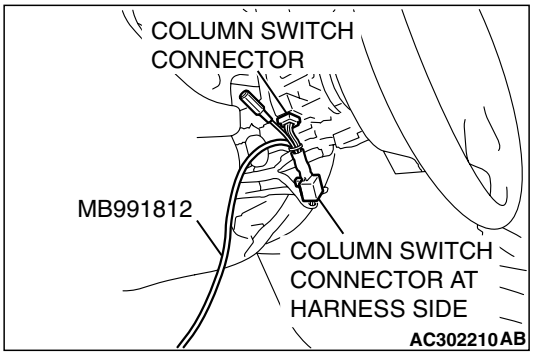
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





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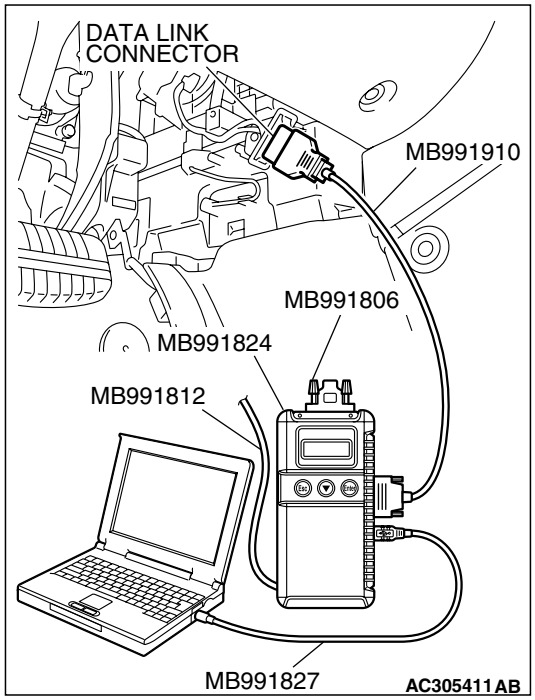
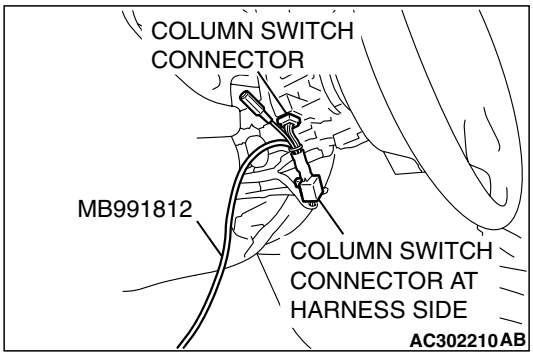




STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.

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

(1) Operate the scan tool MB991958 according to the procedure below to display "ETACS ECU."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Data List."
   f. Select "ETACS ECU."

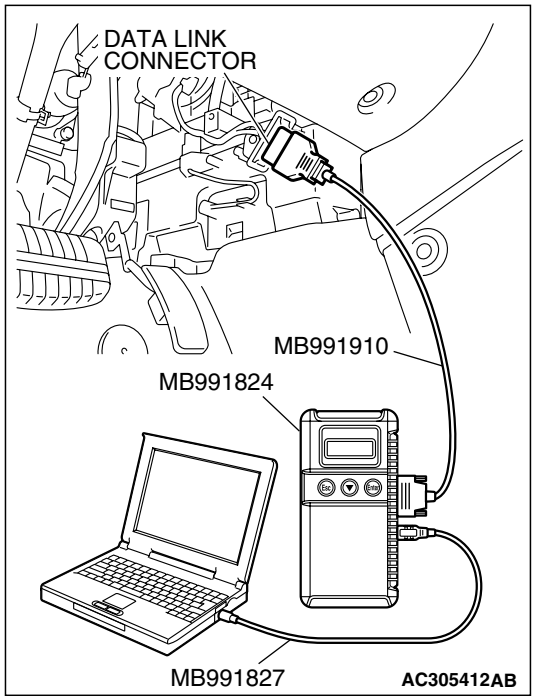
(2) Check that normal conditions are displayed for the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 32	FRONT DOOR SW	ON

Q: Does scan tool MB991958 display "FRONT DOOR SW" as normal condition?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches P.54B-477."



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

Check the following switches and input signals:

- Key reminder switch
- Door switches

(1) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "Pulse Checking."

(2) Check if scan tool MB991958 sounds or not.

ITEM NAME	CONDITION
key reminder switch	Remove and reinsert the ignition key
Door switches	Open or close one of the doors

Q: When the key reminder switch, any door switch is operated, does scan tool MB991958 sound?

Buzzer of scan tool MB991958 sounds normally. : Replace the ETACS-ECU. The forgotten key prevention function should work normally.

When the ignition key is removed and inserted, scan tool MB991958 does not sound. : Refer to Inspection Procedure N-1 "ETACS-ECU does not receive any signal from the key reminder switch P.54B-497."

When one of the doors is opened and closed, scan tool MB991958 does not sound : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive any signal from any of the door switches P.54B-505."

POWER WINDOWS

GENERAL DESCRIPTION CONCERNING THE POWER WINDOWS

M1549021900244

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

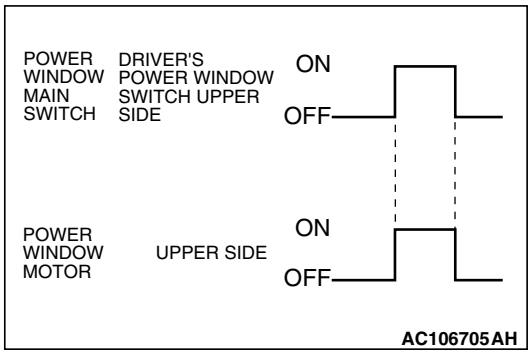
FUNCTION		CONTROL ECU
Power window main switch function	Raises the driver's power window	Power window main switch
	Lowers the driver's power window	Power window main switch
	Lowers the driver's power window by one-touch down function	Power window main switch
	Raises the passenger's power window	Power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

POWER WINDOW MAIN SWITCH FUNCTION

The main switch is located on the driver's door.

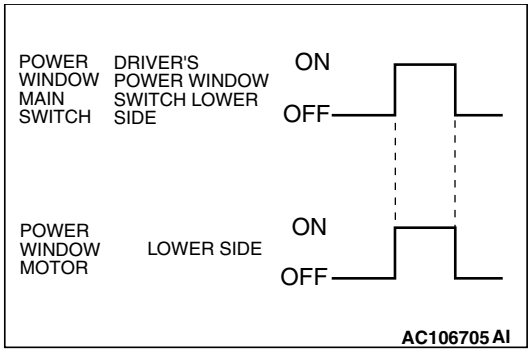
Raises the driver's power window

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 the driver's window glass rises.



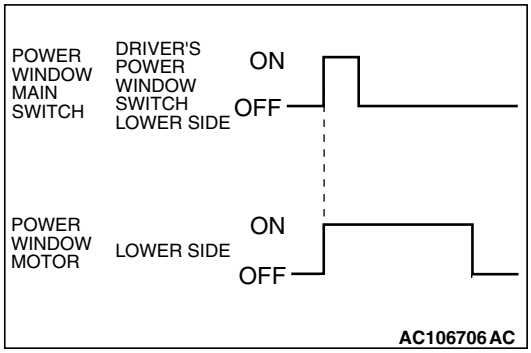
Lowers the driver's power window

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 the driver's window glass lowers.



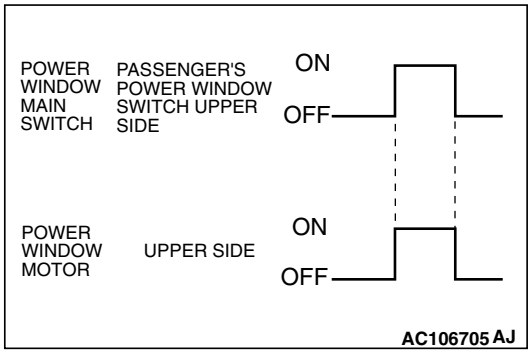
Lowers the driver's power window by one-touch down function

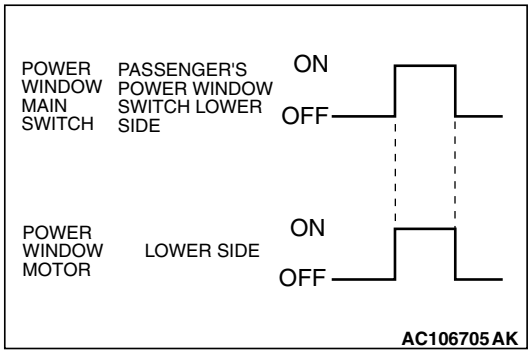
When the driver's power window switch on the power window main switch is pushed down fully, the system energizes its respective power window motor, and then the driver's window glass moves to its lowest position.



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 the passenger's window glass rises.





Lowers the passenger's power window

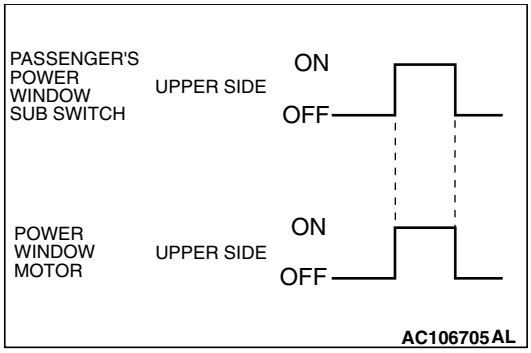
When the passenger's power window switch on the power window main switch is pushed down, the system energizes its respective power window motor, and then the passenger's window glass lowers.

POWER WINDOW SUB SWITCH FUNCTION

The sub switches are located on the passenger's doors.

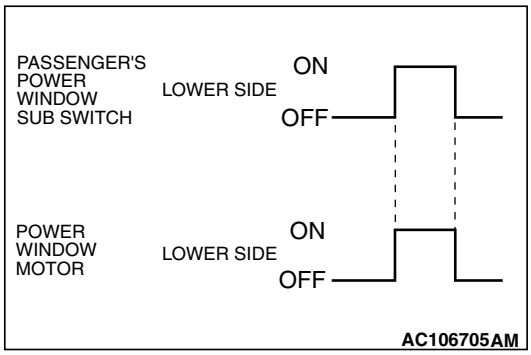
Raises the passenger's power window

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



Lowers the passenger's power window

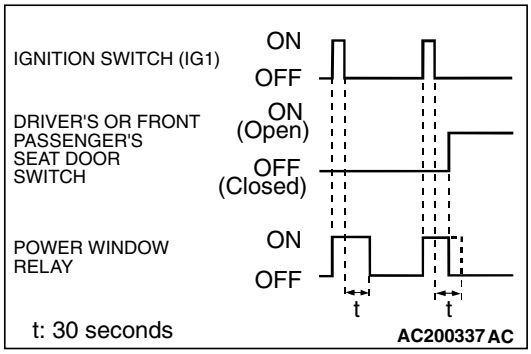
When the power window sub switch is pushed down, the system energizes its respective power window motor, and then the passenger's window glass lowers.



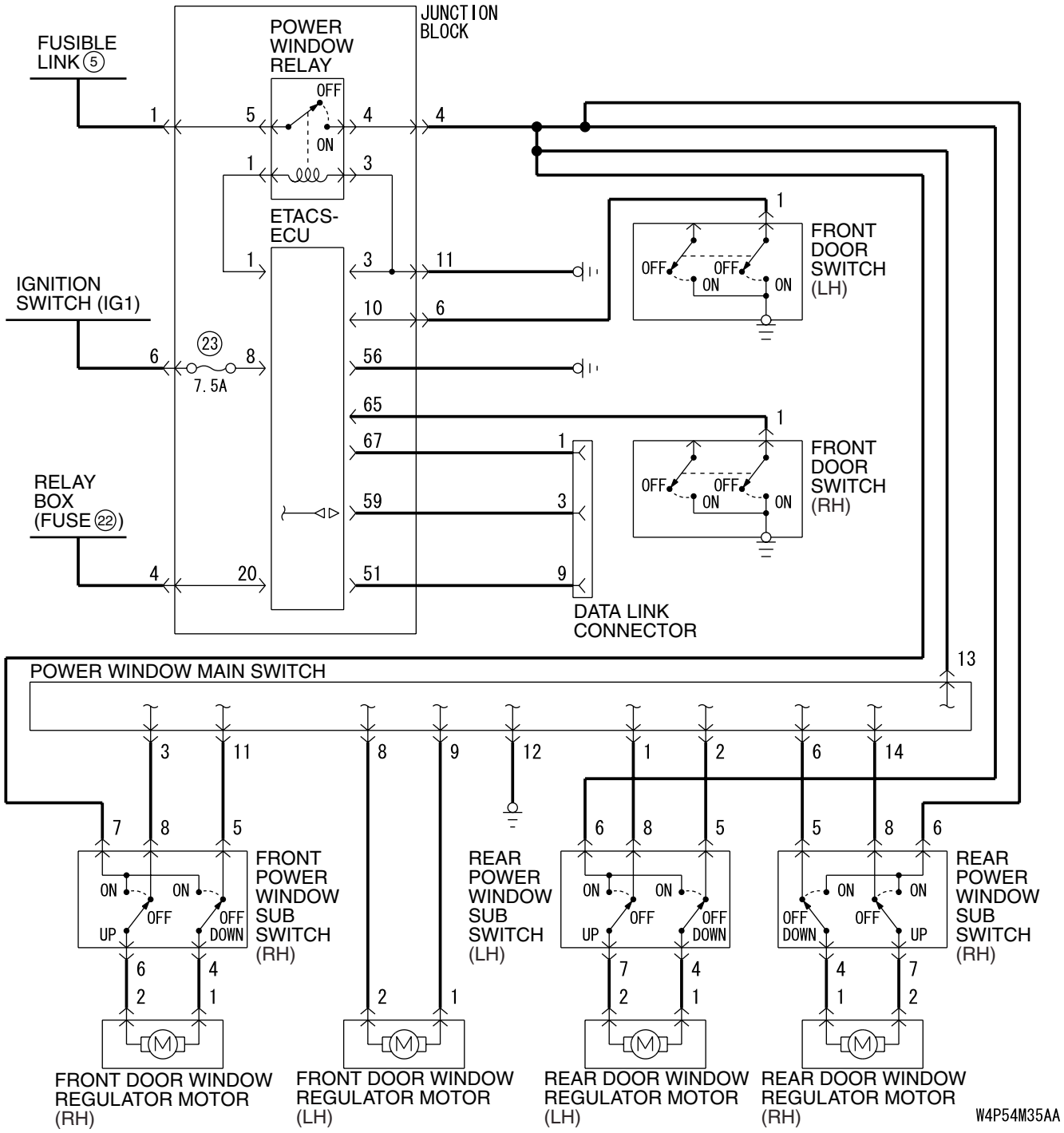
Power window timer function

Even after the ignition is switched off, the ETACS-ECU keeps the power window relay activated for approximately 30 seconds, enabling raising and lowering of the power windows by using the power window switches. After approximately 30 seconds, the power window relay is deactivated.

During this timed operation, if the driver or passenger doors are opened, the power window relay is deactivated from that moment.



GENERAL CIRCUIT DIAGRAM FOR THE POWER WINDOWS

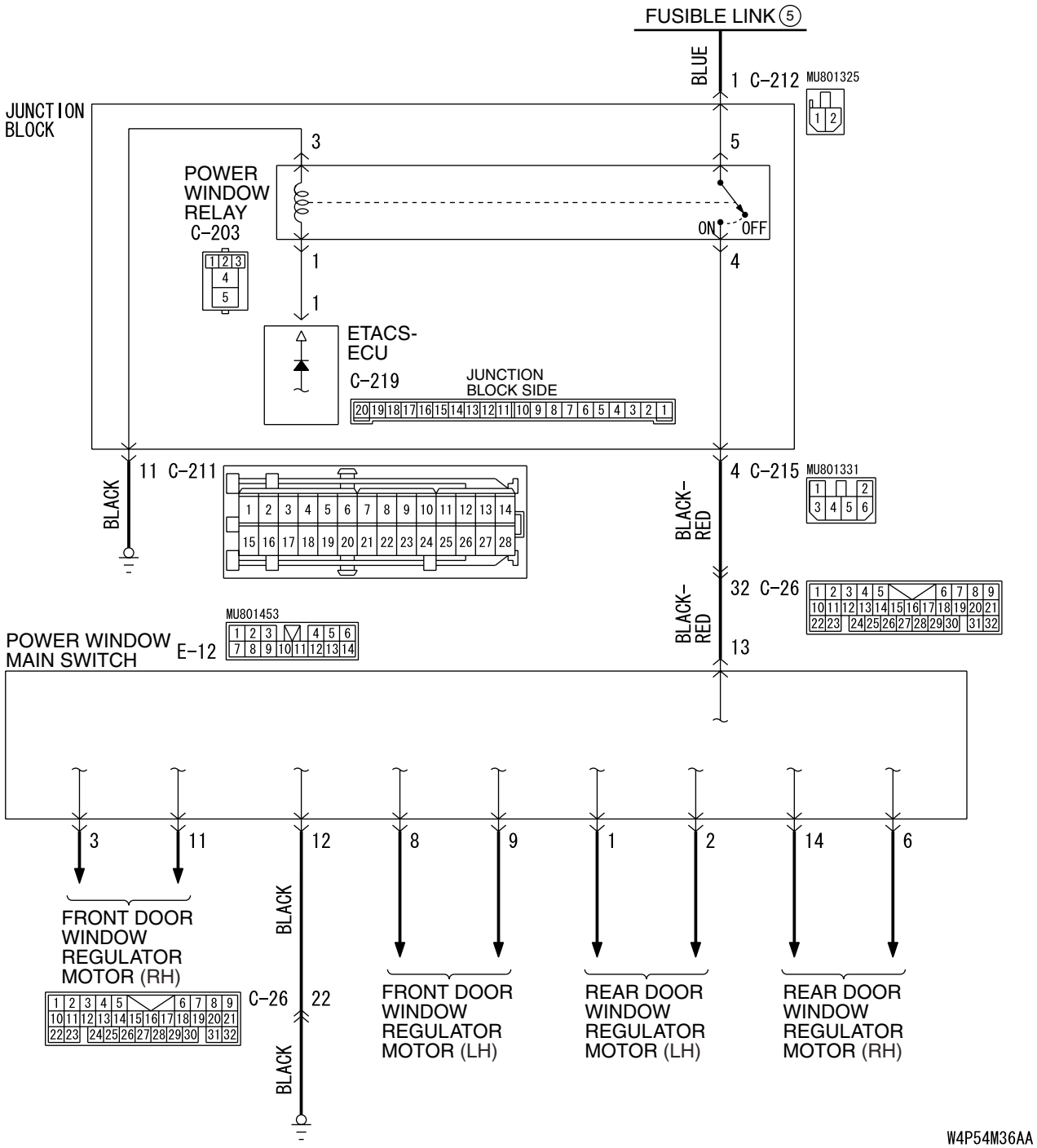


TSB Revision

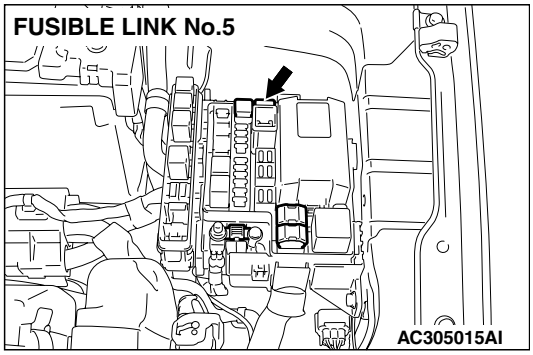
INSPECTION PROCEDURE D-1: Power Windows: Power windows do not work at all.

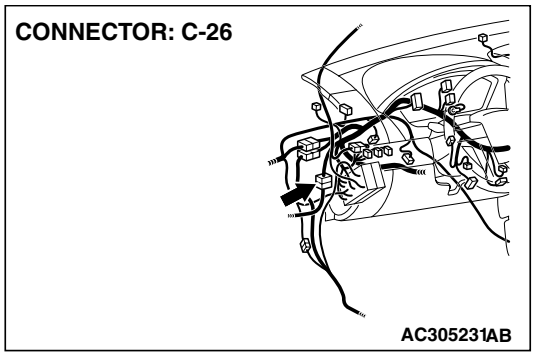
NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

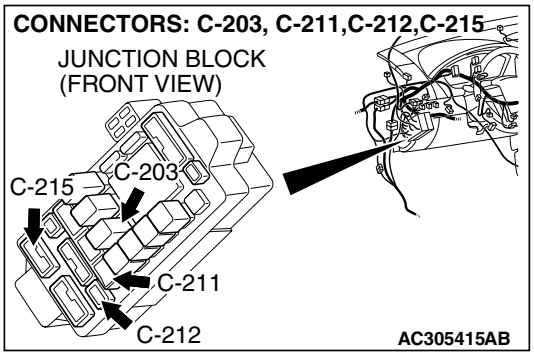
Power Window Relay Circuit

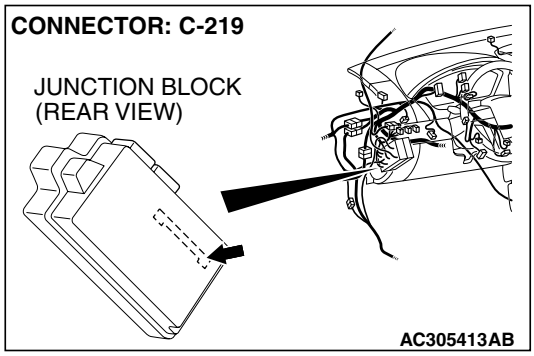


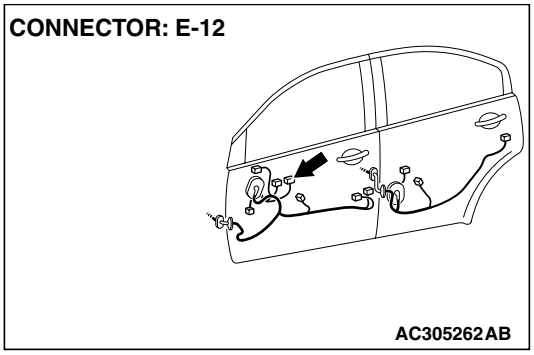
TSB Revision











CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The power window relay may be defective
- The power window main 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

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

Check the ETACS-ECU.

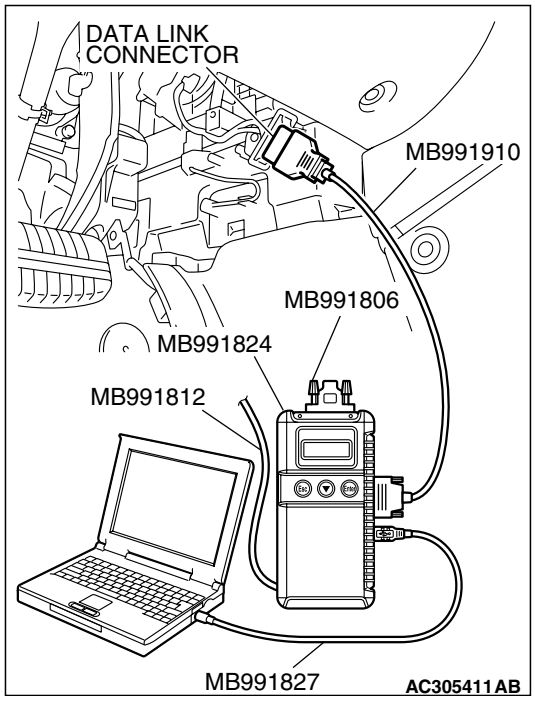
⚠ CAUTION

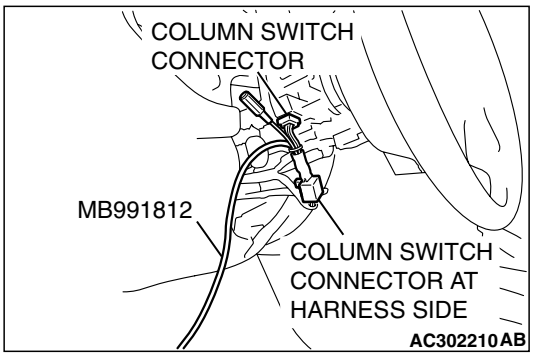
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Operate the scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

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

YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





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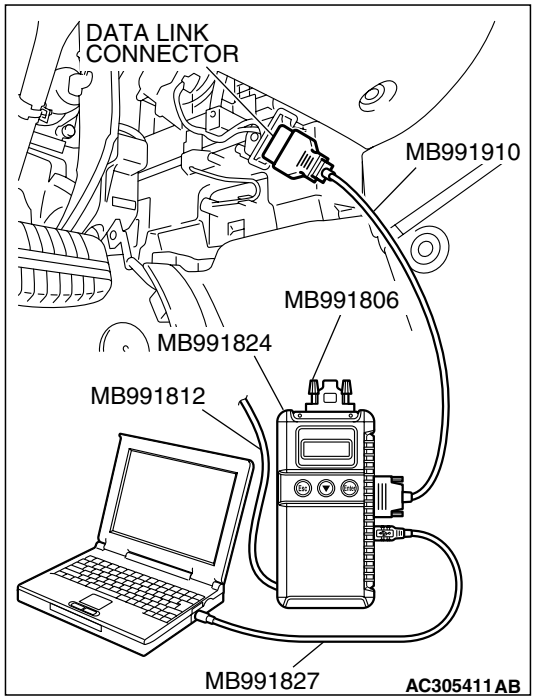


STEP 2. Check the input signal by using "DATA LIST" menu of the SWS monitor.

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

(1) Operate the scan tool MB991958 according to the procedure below to display "ETACS ECU."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Data List."
   f. Select "ETACS ECU."

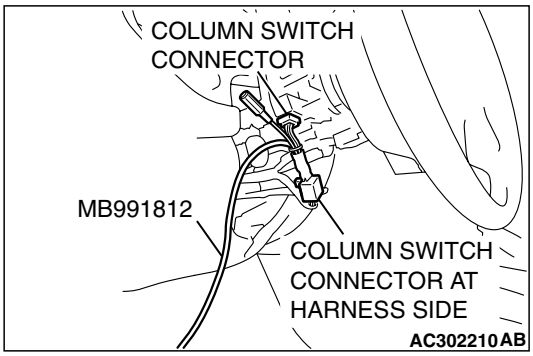
(2) Check that normal conditions are displayed for the items described in the table below.

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

Q: Does the scan tool MB991958 display "IG SW (IG1)" as normal condition?

YES : Go to Step 3.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

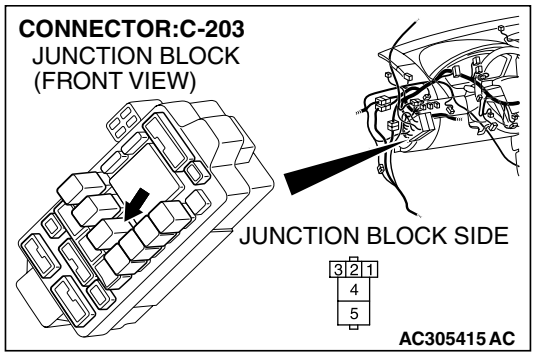


STEP 3. Check power window relay connector C-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

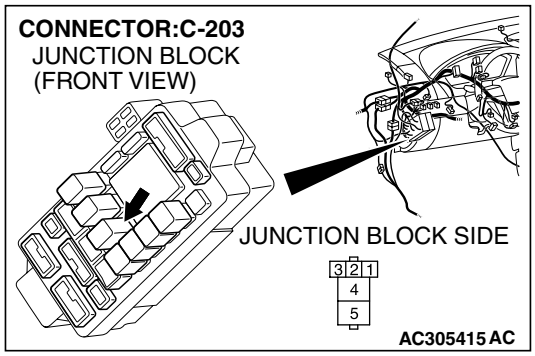
Q: Is power window relay connector C-203 in good condition?

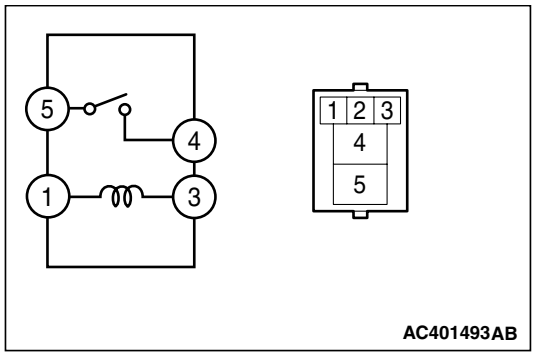
YES : Go to Step 4.

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



STEP 4. Check the power window relay.





BATTERY CONNECTION	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 3 to the negative battery terminal	4 – 5	Less than 2 ohms

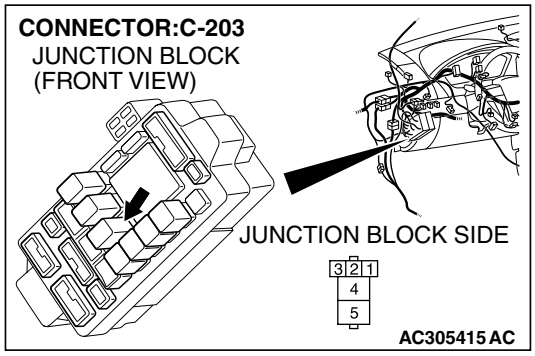
Q: Is the power window relay normal?

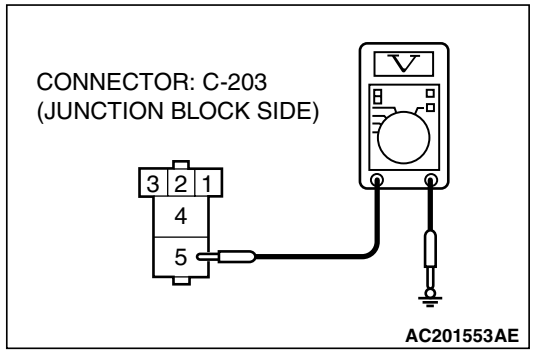
YES : Go to Step 5.

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

STEP 5. Check the battery power supply circuit to the power window relay. Measure the voltage at power window relay connector C-203.

(1) Disconnect power window relay connector C-203 and measure the voltage available at the junction block side of the connector.





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

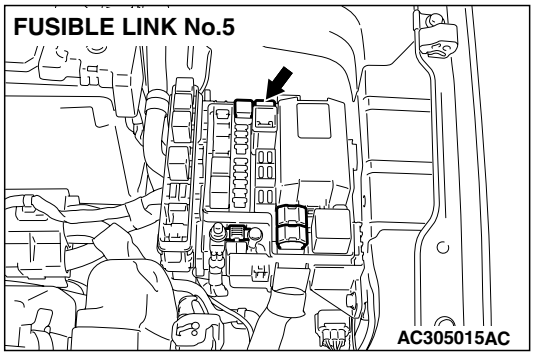
- The voltage should measure approximately 12 volts (battery positive voltage).

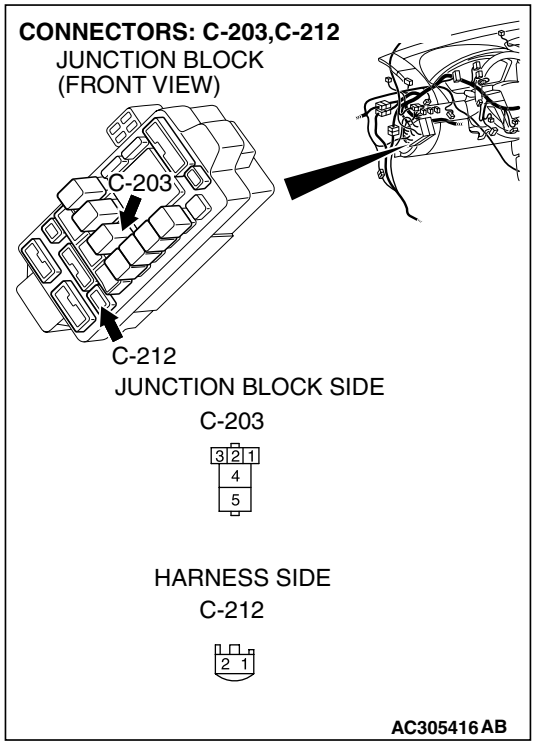
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between power window relay connector C-203 (terminal 5) and fusible link (5).





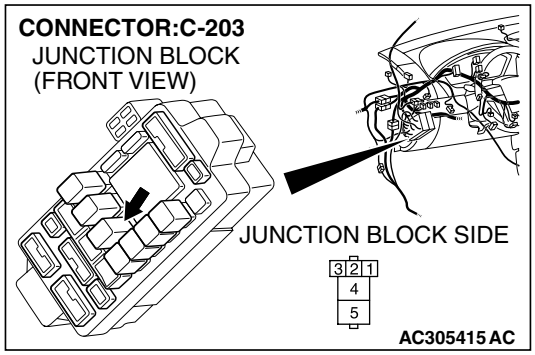
NOTE: Also check junction block connector C-212 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If junction block connector C-212 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window relay connector C-203 (terminal 5) and fusible link (5) in good condition?

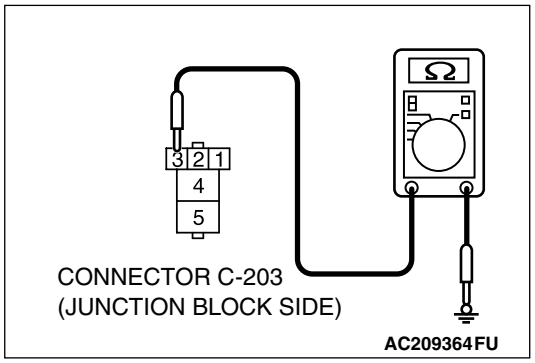
YES : No action is necessary and testing is complete.

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

STEP 7. Check the ground circuit to the power window relay. Measure the resistance at power window relay connector C-203.



(1) Disconnect power window relay connector C-203 and measure the resistance available at the junction block side of the connector.

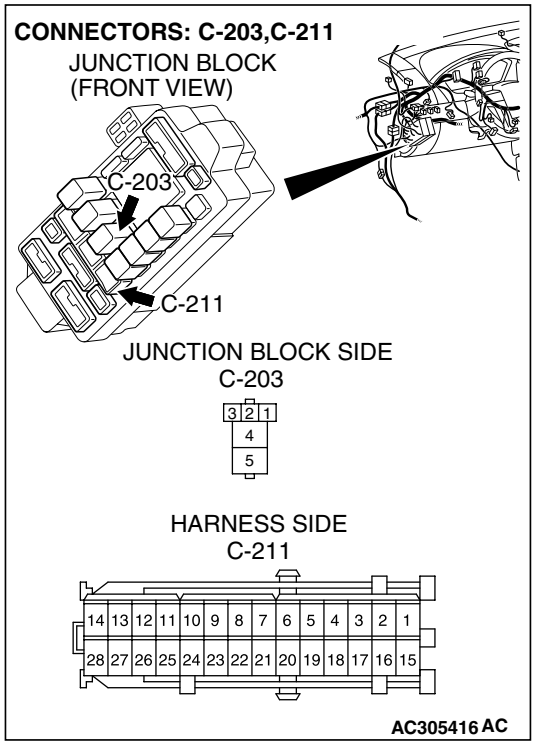


(2) Measure the resistance value between terminal 3 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 9.
NO : Go to Step 8.

STEP 8. Check the wiring harness between power window relay connector C-203 (terminal 3) and ground.



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

Q: Is the wiring harness between power window relay connector C-203 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

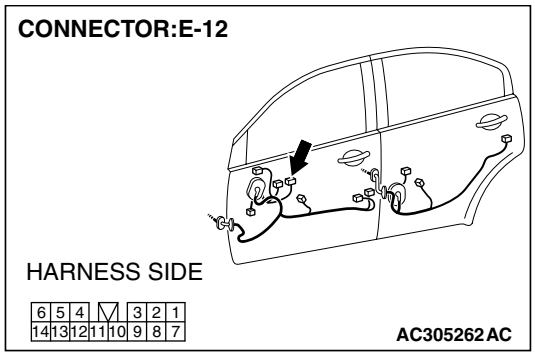
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The power windows function should now work normally.

STEP 9. Check power window main switch connector E-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

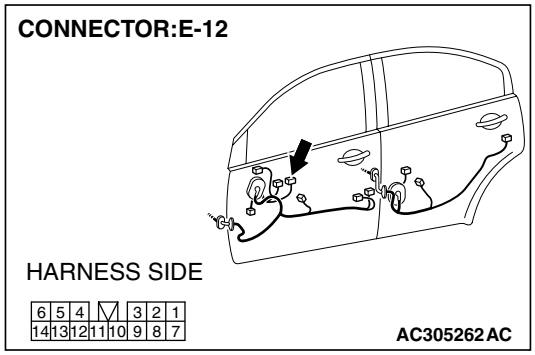
Q: Is power window main switch connector E-12 in good condition?

YES : Go to Step 10.

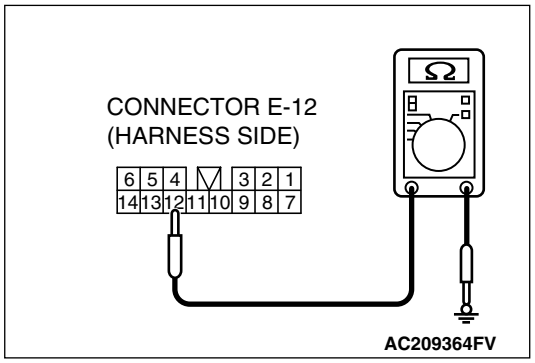
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The power windows function should now work normally.



STEP 10. Check the ground circuit to the power window main switch. Measure the resistance at power window main switch connector E-12.



(1) Disconnect power window main switch connector E-12 and measure the resistance available at the harness side of the connector.

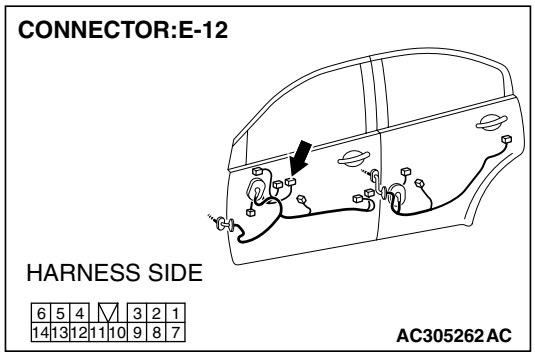


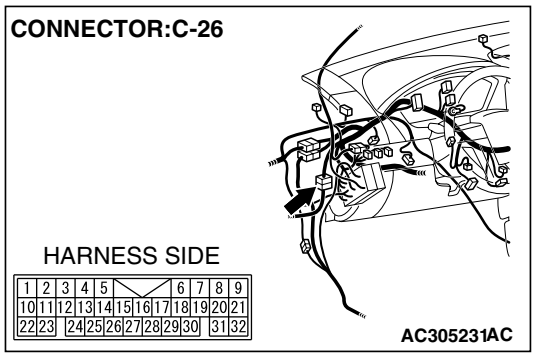
(2) Measure the resistance value between terminal 12 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.
NO : Go to Step 11.

STEP 11. Check the wiring harness between power window main switch E-12 (terminal 12) and ground.





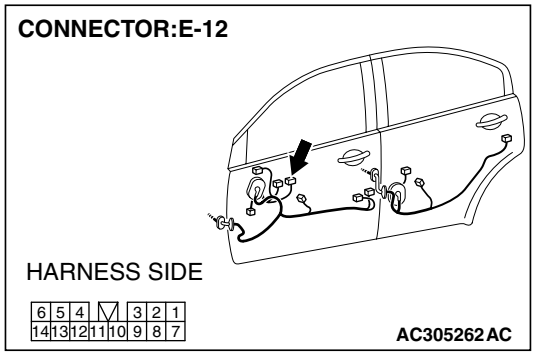
NOTE: Also check intermediate connectors C-26 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If intermediate connector C-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-12 (terminal 12) and ground in good condition?

YES : No action is necessary and testing is complete.

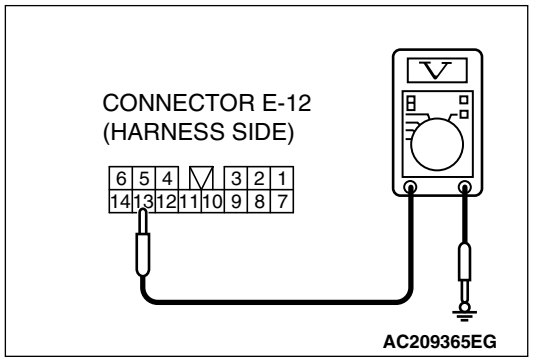
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The power windows function should now work normally.

STEP 12. Check the battery power supply circuit to the power window main switch. Measure the voltage at power window main switch connector E-12.



(1) Disconnect power window main switch connector E-12 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 13 and ground.

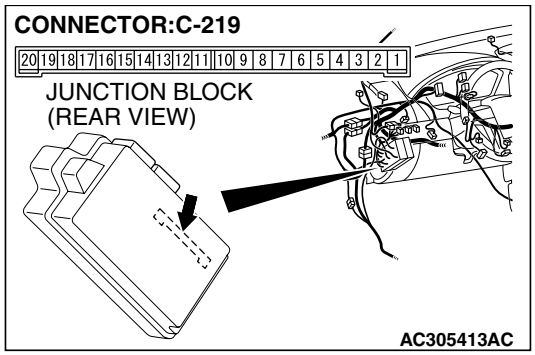
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Replace the power window main switch. The power windows function should now work normally.

NO : Go to Step 13.

STEP 13. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

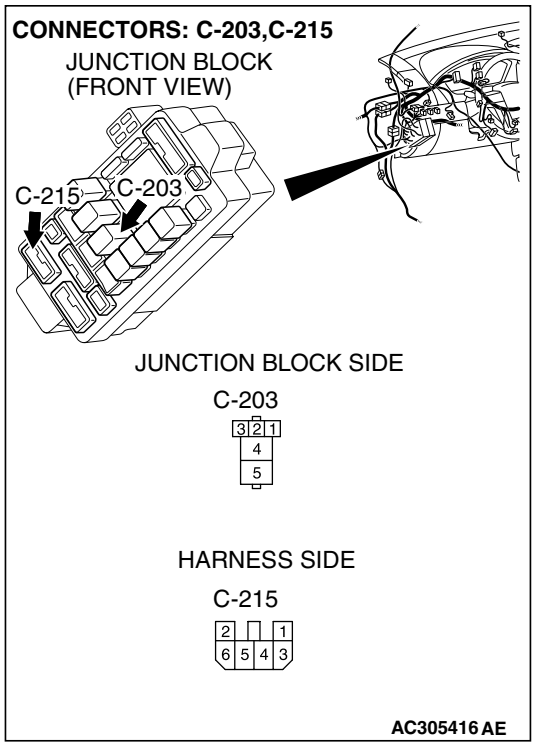


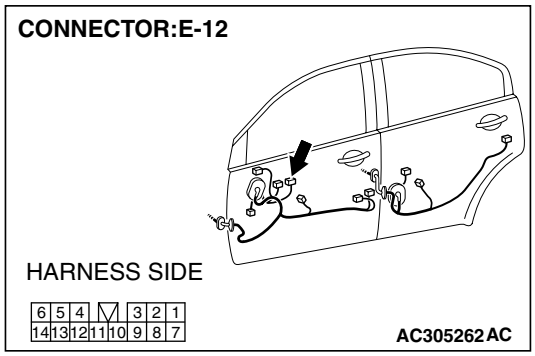
Q: Is ETACS-ECU connector C-219 in good condition?

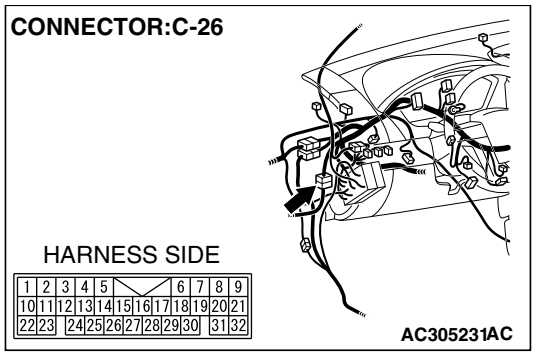
YES : Go to Step 14.

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

STEP 14. Check the wiring harness between power window relay connector C-203 (terminal 4) and power window main switch connector E-12 (terminal 13).







NOTE: Also check junction block connector C-215 and intermediate connectors C-26 for loose, corroded or damaged terminals, or terminals pushed back in the connectors. If junction block connector C-215 or intermediate connector C-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window relay connector C-203 (terminal 4) and power window main switch connector E-12 (terminal 13) in good condition?

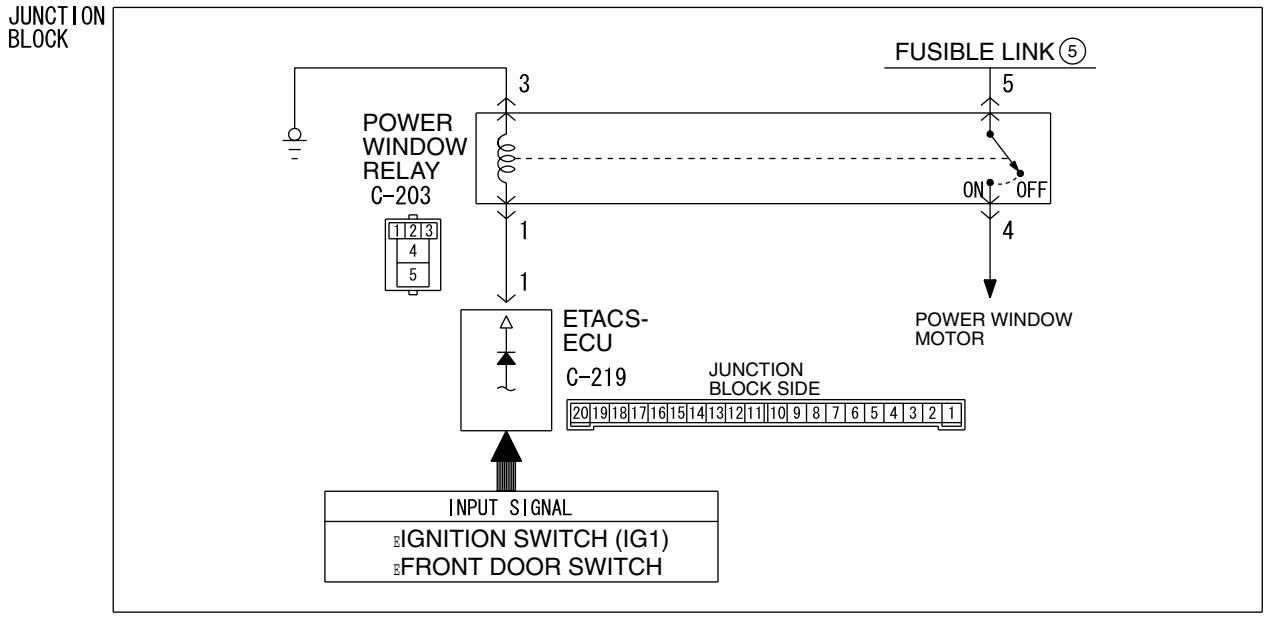
YES : Replace the ETACS-ECU. The power windows function should now work normally.

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. The power windows function should now work normally.

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

NOTE: This troubleshooting procedure requires use of scan tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Power Window Timer Function Circuit



W4P54M37AA

CIRCUIT OPERATION

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

- Ignition switch (IG1)
- Front door switch

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- 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
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness

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

Check the ETACS-ECU.

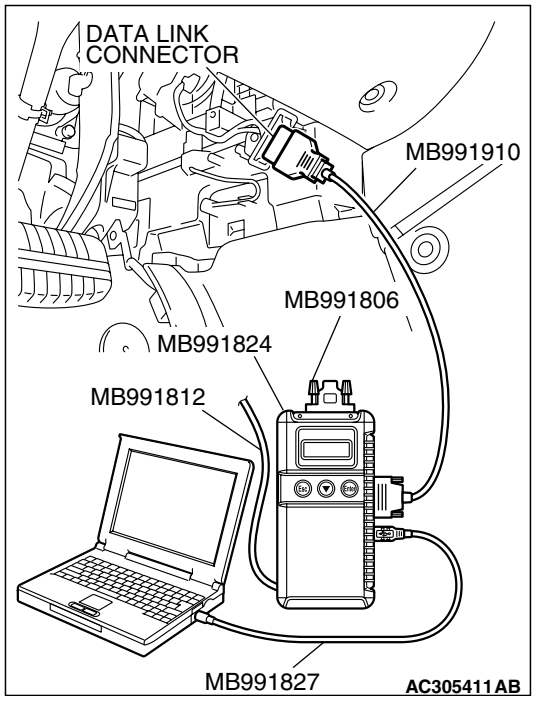
⚠ CAUTION

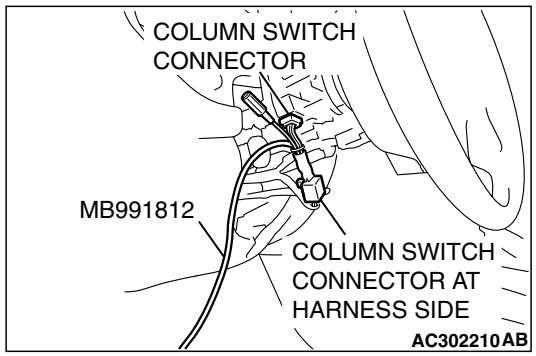
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Operate the scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System Select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menu for the "ETACS ECU" menu.

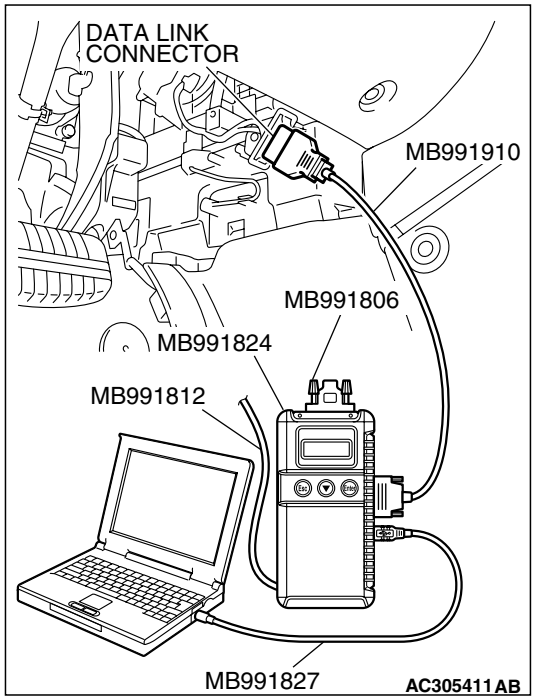
Q: Is "OK" displayed for the "ETACS ECU" menu?

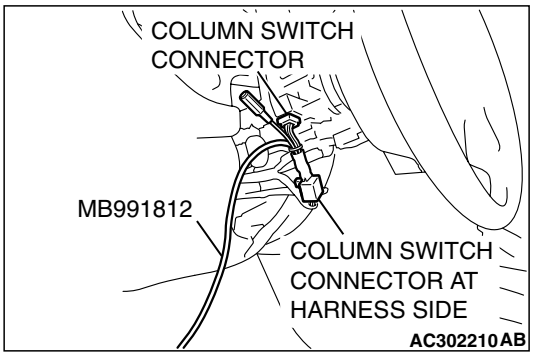
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."





TSB Revision





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

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

(1) Operate scan tool MB991958 according to the procedure below to display "ETACS ECU."
   a. Select "Interactive Diagnosis."
   b. Select "System select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Data List."
   f. Select "ETACS ECU."

(2) Check that normal conditions are displayed for the items described in the table below.

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

Q: Does the scan tool MB991958 display the items "IG SW (IG1)", "FRONT DOOR SW" as normal condition?

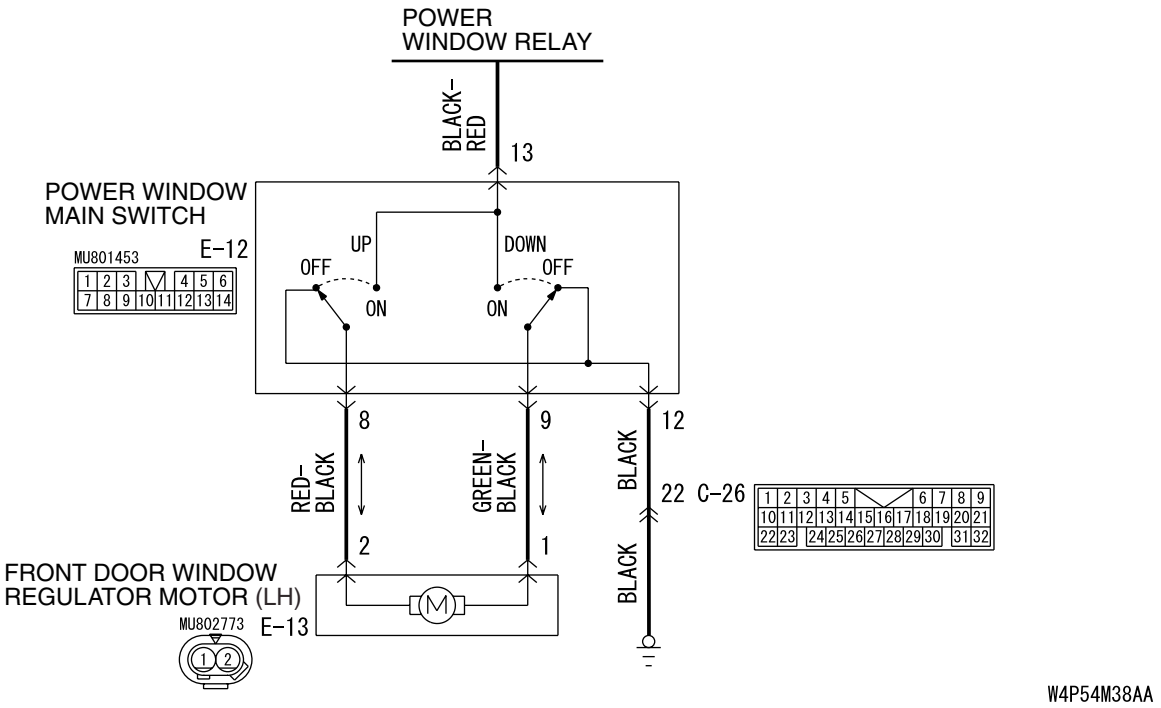
Normal condition displayed for all the items : Replace the ETACS-ECU. Verify that the power window timer works normally.

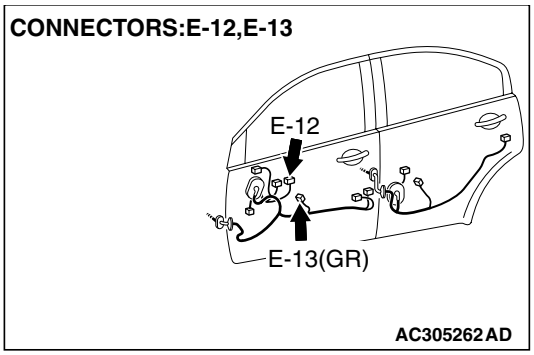
Normal condition is not displayed for "IG SW (IG1)" : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for "FRONT DOOR SW" : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches P.54B-477."

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

Power Window (front: LH) Circuit





CIRCUIT OPERATION

The front power window regulator motor (LH) lower or raises 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 regulator motor (LH) may be defective.

TROUBLESHOOTING HINTS

- The power window main switch may be defective
- The front power window regulator 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

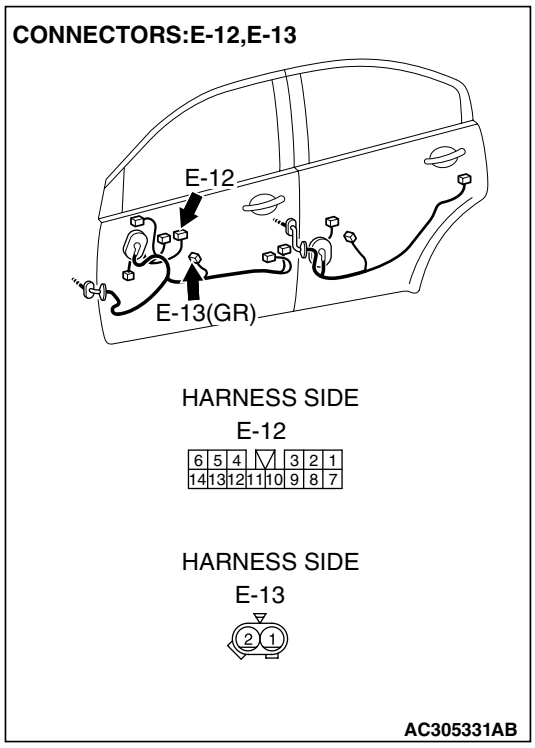
Required Special Tool:
- MB991223: Harness Set

STEP 1. Check power window main switch connector E-12 and front power window regulator motor (LH) connector E-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are power window main switch connector E-12 and front power window regulator motor (LH) connector E-13 in good condition?

YES : Go to Step 2.

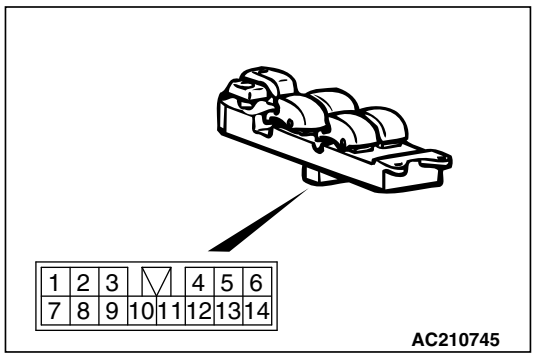
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the power window main switch is operated, the front power window (LH) should lower or raise normally.



STEP 2. Check the power window main switch.

(1) Remove the power window main switch. Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

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

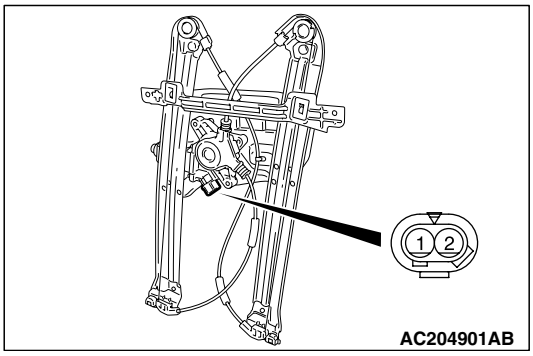


FRONT (LH) SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	8 – 13, 9 – 12	Less than 2 ohms
OFF	8 – 9, 8 – 12, 9 – 12	
DOWN	8 – 12, 9 – 13	

Q: Is the power window main switch normal?

YES : Go to Step 3.

NO : Replace the power window main switch. When the power window main switch is operated, the front power window (LH) should lower or raise normally.



STEP 3. Check the front power window regulator motor (LH).

(1) Remove the front power window regulator motor (LH). Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

BATTERY CONNECTION	SLIDER POSITION
• Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal	UP
• Connect terminal 2 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	DOWN

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

YES : Go to Step 4.

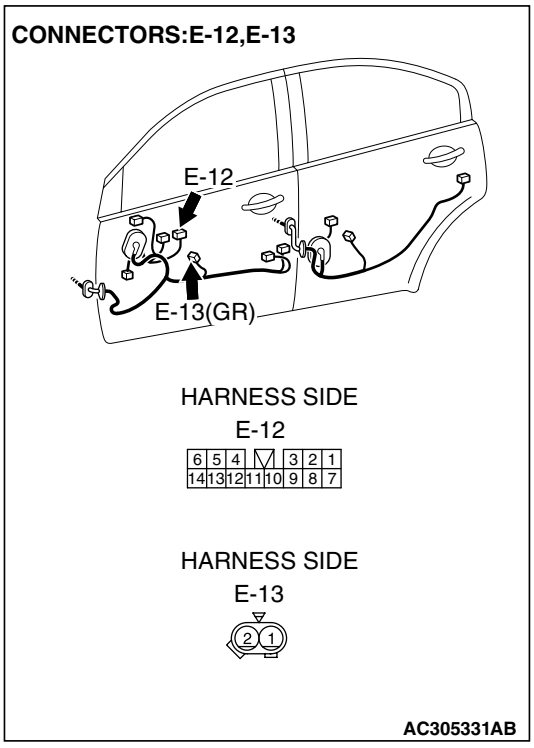
NO : Replace the front power window regulator motor (LH). When the power window main switch is operated, the front power window (LH) should lower or raise normally.

STEP 4. Check the wiring harness between power window main switch connector E-12 (terminals 8 and 9) and front power window regulator motor (LH) connector E-13 (terminals 2 and 1).

Q: Is the wiring harness between power window main switch connector E-12 (terminals 8 and 9) and front power window regulator motor (LH) connector E-13 (terminals 2 and 1) in good condition?

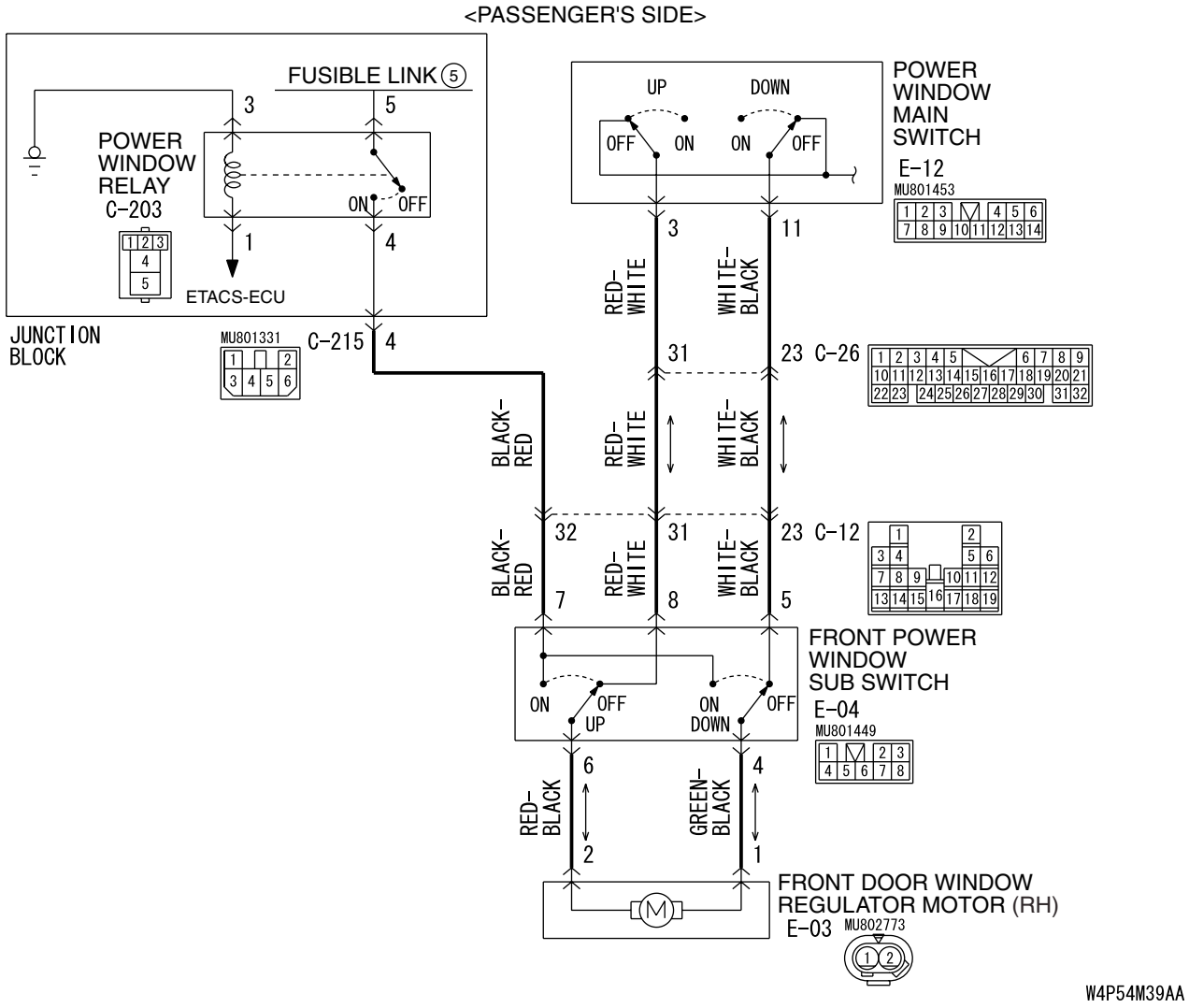
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the power window main switch is operated, the front power window (LH) should lower or raise normally.



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

Power Window (front: RH) Circuit



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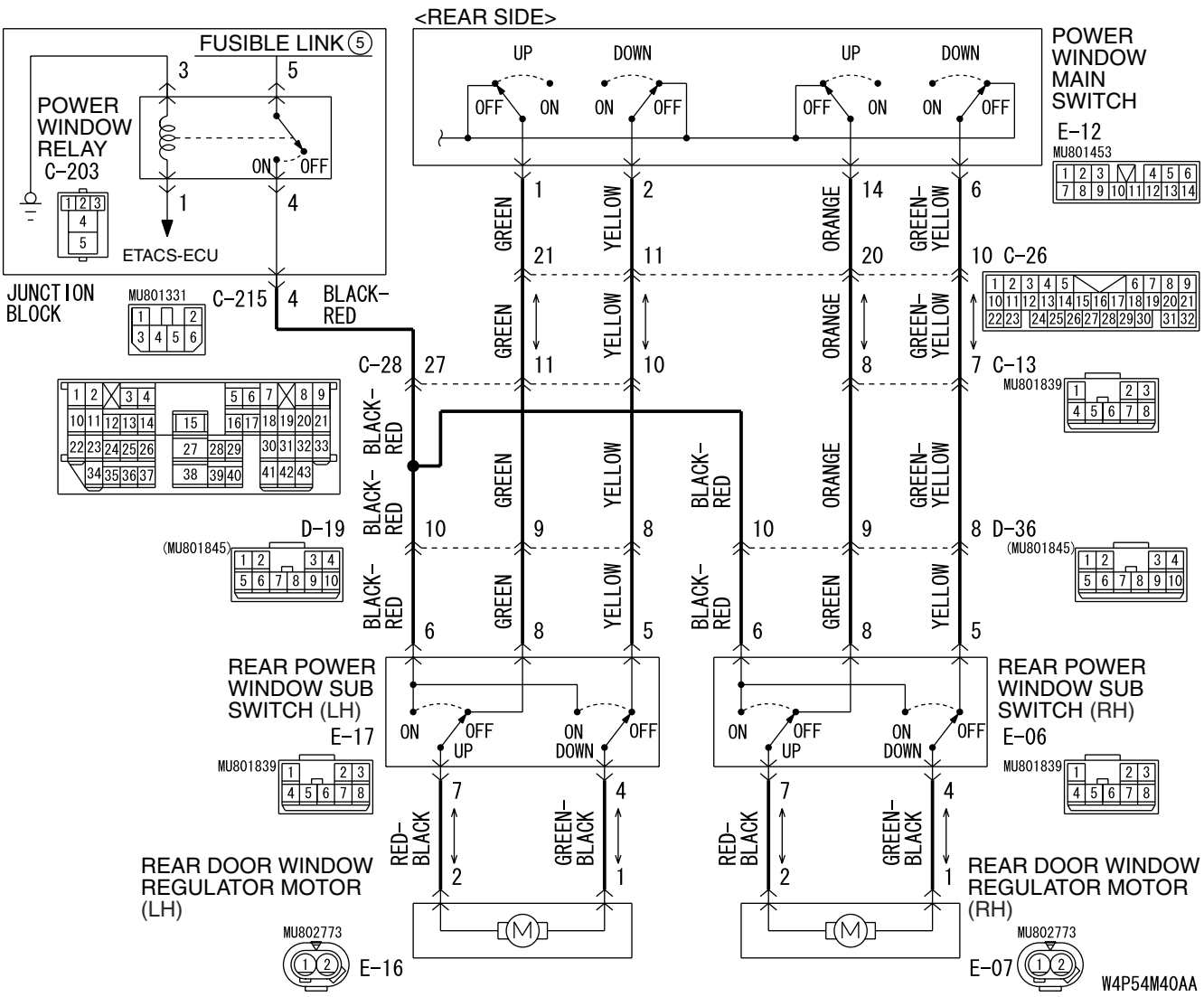
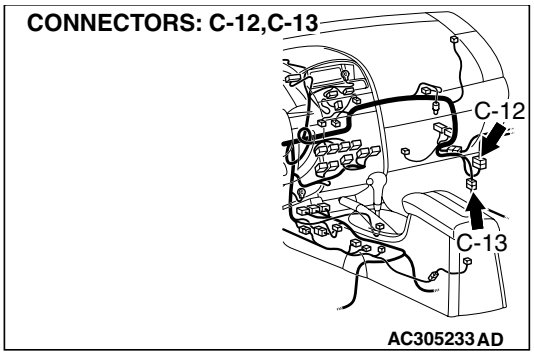
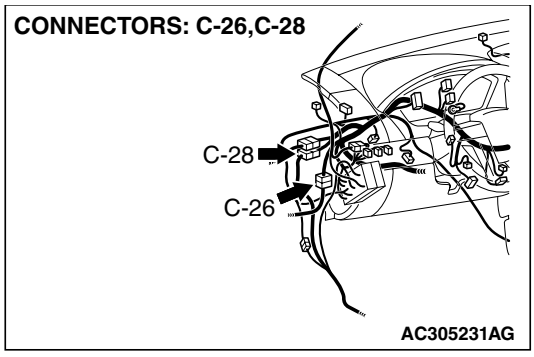
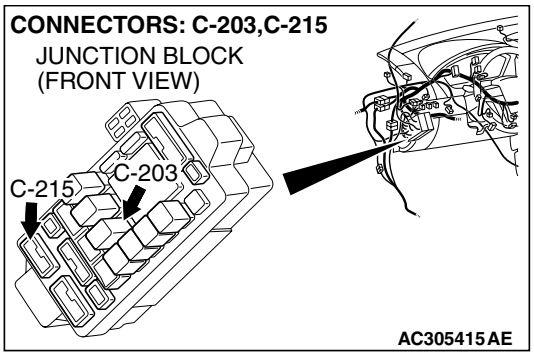
Power Window (rear) Circuit

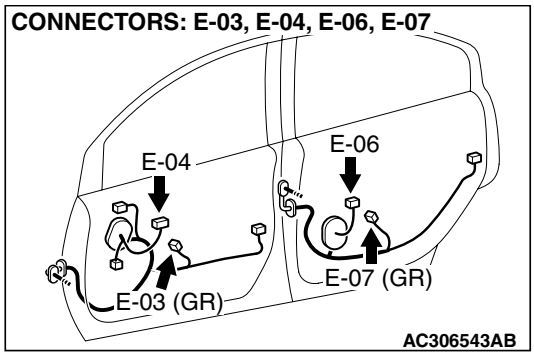


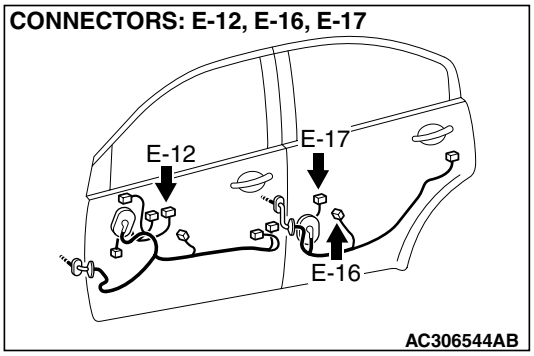


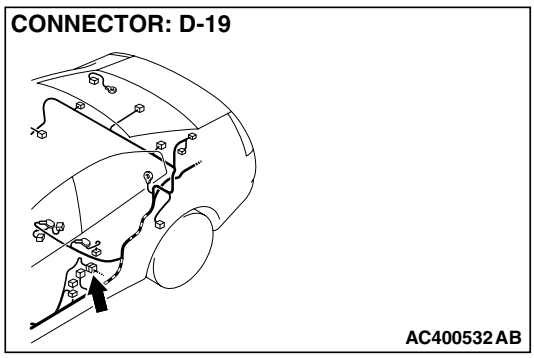


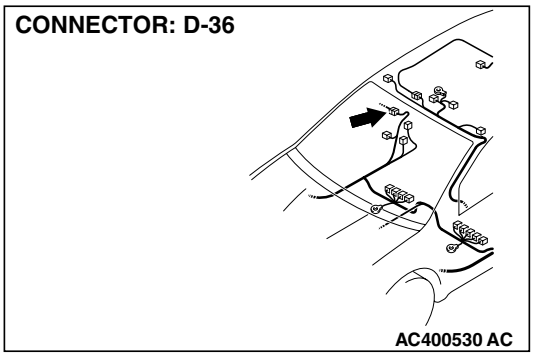
TSB Revision











CIRCUIT OPERATION

power window regulator motors raise and lower 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 regulator motor may be defective. Or, the power window lock switch (incorporated in the power window main switch in the driver's door) may remain pressed in the "LOCK" position.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

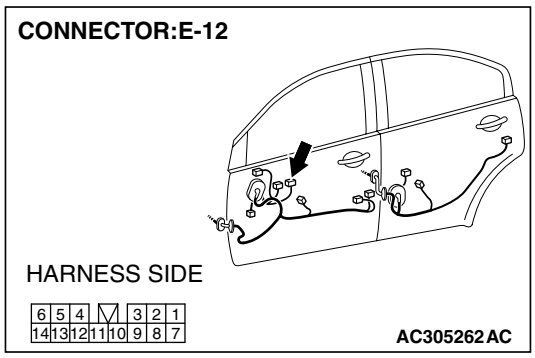
Required Special Tool:
- MB991223: Harness Set

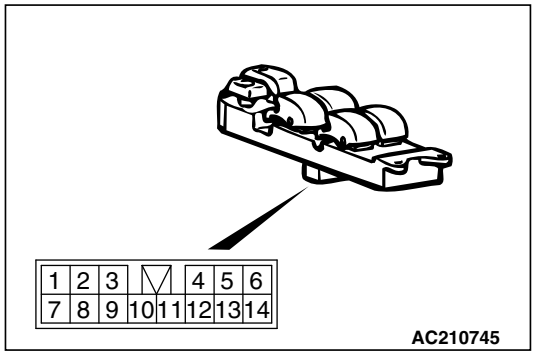
STEP 1. Check power window main switch connector E-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-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. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.





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

(1) Remove the power window main switch. Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

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

SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
FRONT (LH)	UP	8 – 13, 9 – 12,	Less than 2 ohms
	OFF	8 – 12, 9 – 12	Less than 2 ohms
	DOWN	9 – 13, 8 – 12	Less than 2 ohms
FRONT (RH)	UP	3 – 13, 11 – 12*	Less than 2 ohms
	OFF	3 – 11, 3 – 12*, 11 – 12*	Less than 2 ohms
	DOWN	11 – 13, 3 – 12*	Less than 2 ohms
REAR (LH)	UP	1 – 13, 2 – 12*	Less than 2 ohms
	OFF	1 – 2, 1 – 12*, 2 – 12*	Less than 2 ohms
	DOWN	2 – 13, 1 – 12*	Less than 2 ohms
REAR (RH)	UP	13 – 14, 6 – 12*	Less than 2 ohms
	OFF	6 – 14, 6 – 12*, 12* – 14	Less than 2 ohms
	DOWN	6 – 13, 12* – 14	Less than 2 ohms

*NOTE: *: Set the window lock switch to UNLOCK position.*

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 raise and lower normally.

STEP 3. Check the power window lock switch.

Q: Is the power window lock switch in 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 raise and lower normally.

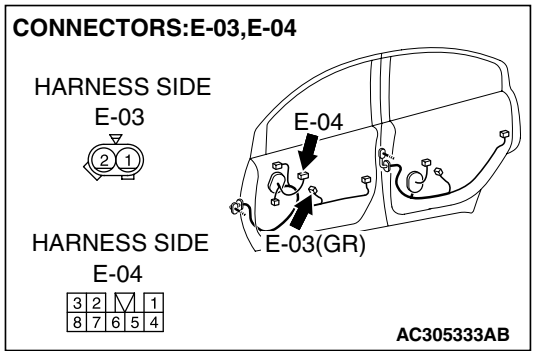
STEP 4. Check which door window does not move.

Q: Which door window does not move?

Front passenger's side : Go to Step 5.

Rear passenger (LH) : Go to Step 14.

Rear passenger (RH) : Go to Step 23.

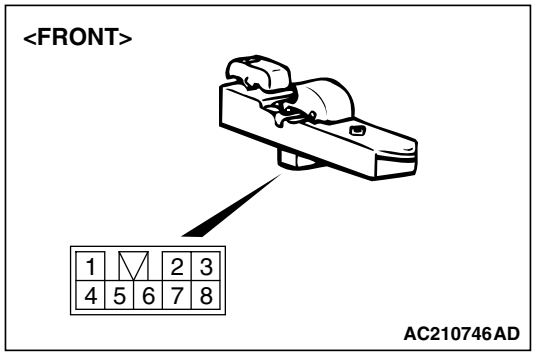


STEP 5. Check front power window sub switch connector E-04 and front power window regulator motor (RH) connector E-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front power window sub switch connector E-04 and front power window regulator motor (RH) connector E-03 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. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.



STEP 6. Check the front power window sub switch for continuity.

(1) Remove the front power window sub switch. Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

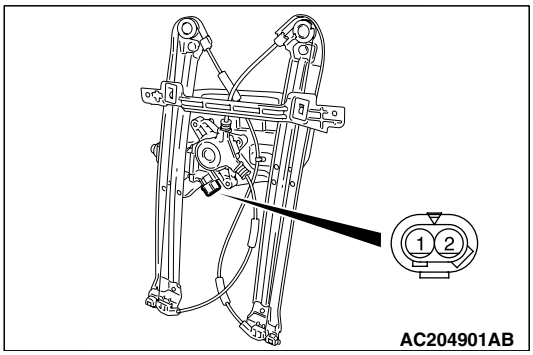
(2) Check continuity when the front power window sub switch is operated to "UP" or "DOWN" position.

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

Q: Is the front power window sub switch normal?

YES : Go to Step 7.

NO : Replace the front power window sub switch. When the front power window sub switch is operated, the front power window should raise and lower normally.



STEP 7. Check the front power window regulator motor (RH).

(1) Remove the front power regulator assembly (RH). Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

BATTERY CONNECTION	SLIDER POSITION
• Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal	UP
• Connect terminal 2 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	DOWN

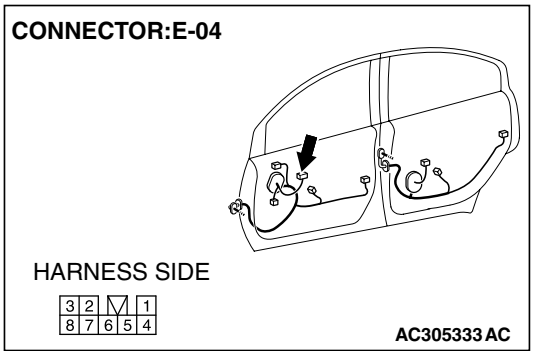
Q: Is the front power window regulator motor (RH) normal?

YES : Go to Step 8.

NO : Replace the front power regulator assembly (RH). When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

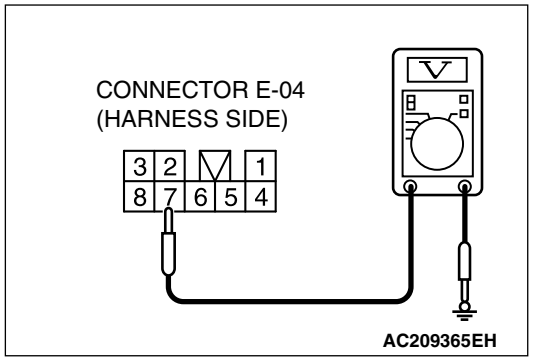
STEP 8. Check the battery power supply circuit to the front power window sub switch. Measure the voltage at front power window sub switch connector E-04.

(1) Disconnect front power window sub switch connector E-04 and measure the voltage available at the wiring harness side of the connector.



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

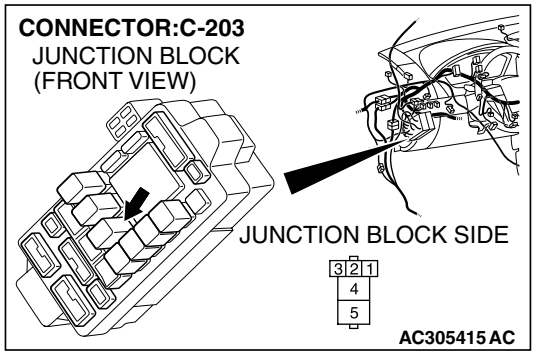
- The voltage should measure approximately 12 volts (battery positive voltage).



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

YES : Go to Step 11.

NO : Go to Step 9.



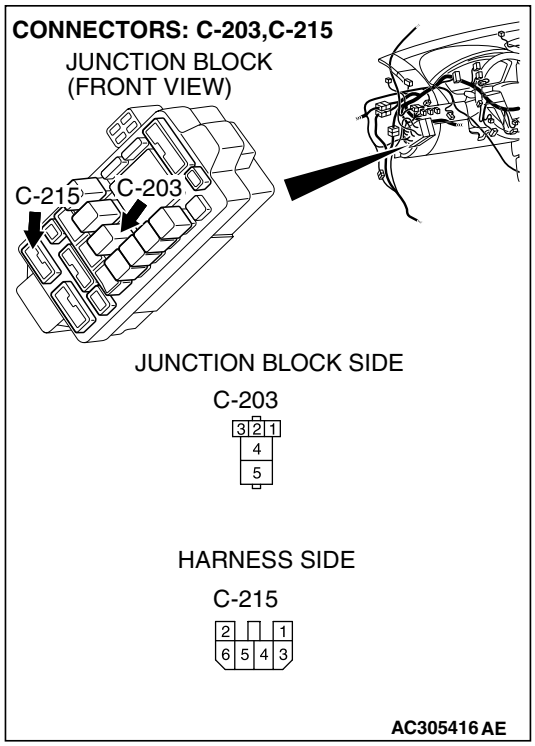
STEP 9. Check power window relay connector C-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

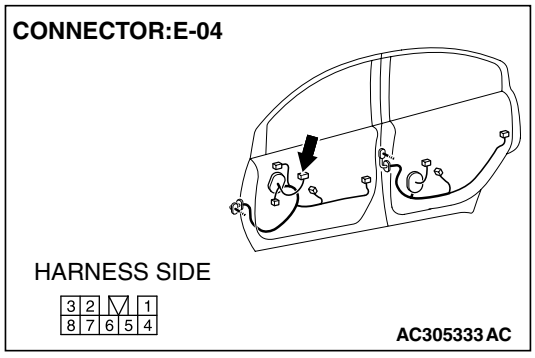
Q: Is power window relay connector C-203 in good condition?

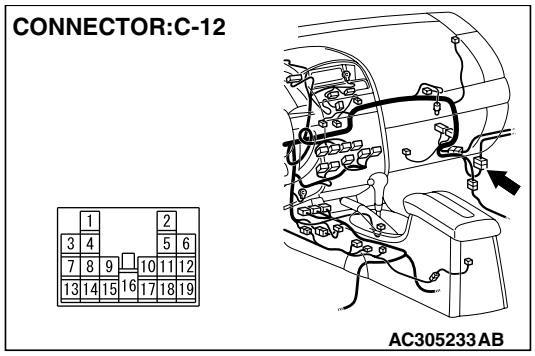
YES : Go to Step 10.

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

STEP 10. Check the wiring harness between power window relay connector C-203 (terminal 4) and front power window sub switch connector E-04 (terminal 7).







NOTE: Also check junction block connector C-215 and intermediate connector C-12. If junction block connector C-215 or intermediate connectors C-12 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

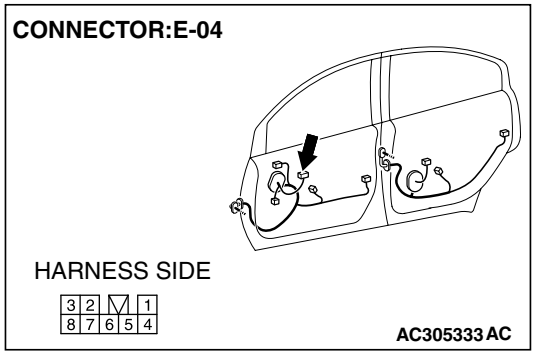
Q: Is the wiring harness between power window relay connector C-203 (terminal 4) and front power window sub switch connector E-04 (terminal 7) in good condition?

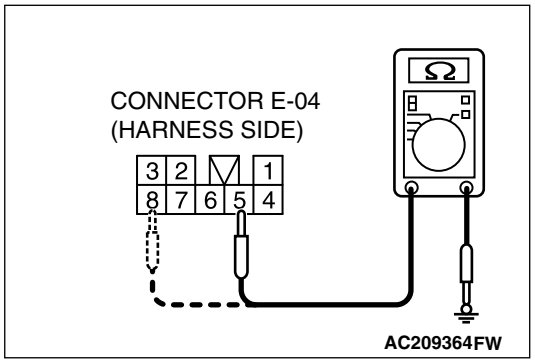
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch is operated, the front power window (RH) should raise and lower normally.

STEP 11. Check the ground circuit to the front power window sub switch. Measure the resistance at front power window sub switch connector E-04.

(1) Disconnect front power window sub switch connector E-04 and measure the resistance available at the wiring harness side of the connector.





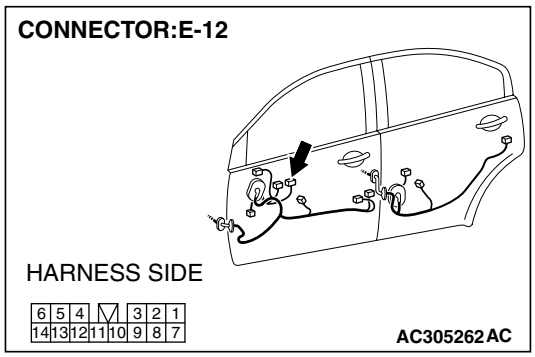
(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.
- The resistance should be 2 ohms or less.

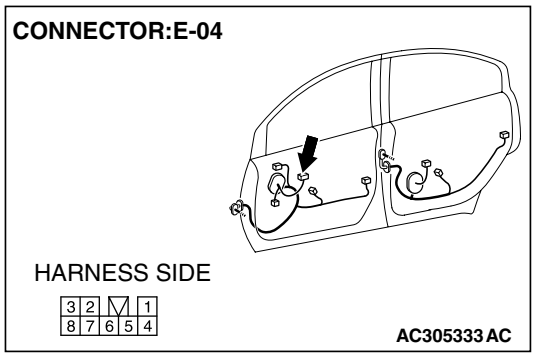
Q: Is the measured resistance 2 ohms or less?

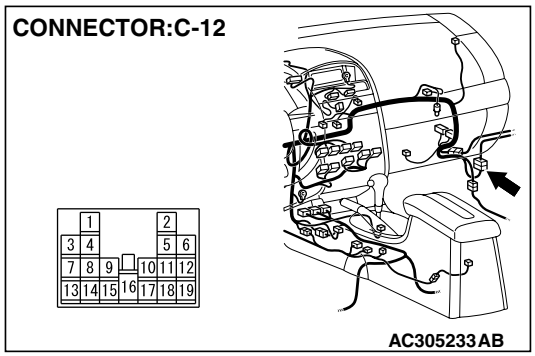
YES : Go to Step 13.

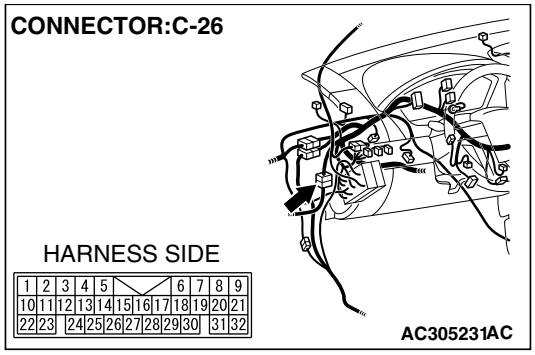
NO : Go to Step 12.

STEP 12. Check the wiring harness between power window main switch connector E-12 (terminals 3 and 11) and front power window sub switch connector E-04 (terminals 8 and 5).







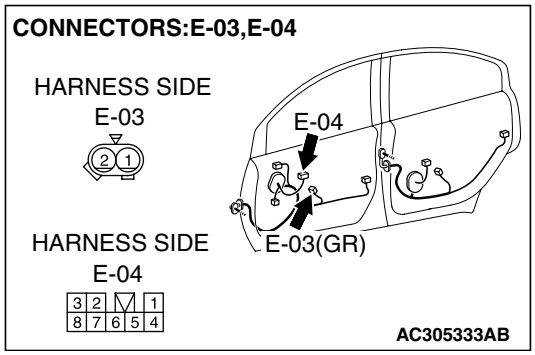


NOTE: Also check intermediate connectors C-12 and C-26. If intermediate connector C-12 or C-26 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-12 (terminals 3 and 11) and front power window sub switch connector E-04 (terminals 8 and 5) in good condition?

YES : Replace the power window main switch. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

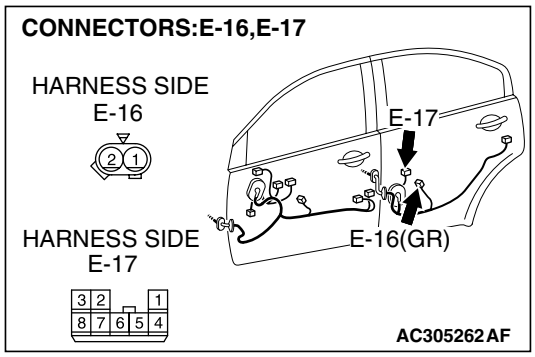


STEP 13. Check the wiring harness between front power window sub switch connector E-04 (terminals 4 and 6) and front power window regulator motor (RH) connector E-03 (terminals 1 and 2).

Q: Is the wiring harness between front power window sub switch connector E-04 (terminals 4 and 6) and front power window regulator motor (RH) connector E-03 (terminals 1 and 2) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the front power window sub switch (RH) is operated, the front power window (RH) should raise and lower normally.

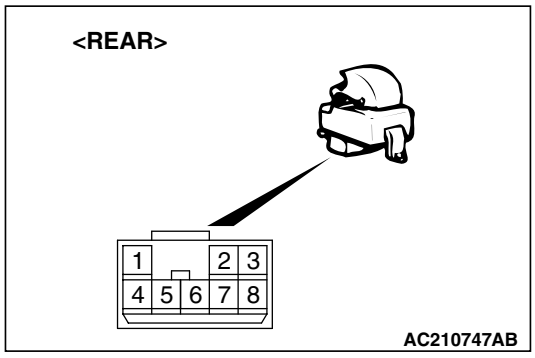


STEP 14. Check rear power window sub switch (LH) connector E-17 and rear power window regulator motor (LH) connector E-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 15.

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



STEP 15. 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 Glass and Regulator P.42-39.

(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 16.

NO : Replace the rear power window sub switch (LH). When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

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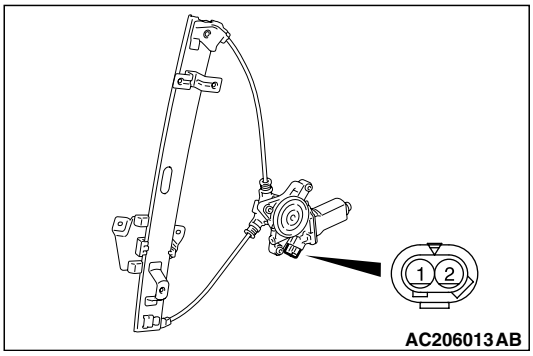


STEP 16. Check the rear power window regulator motor (LH).

(1) Remove the rear power window regulator assembly (LH). Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

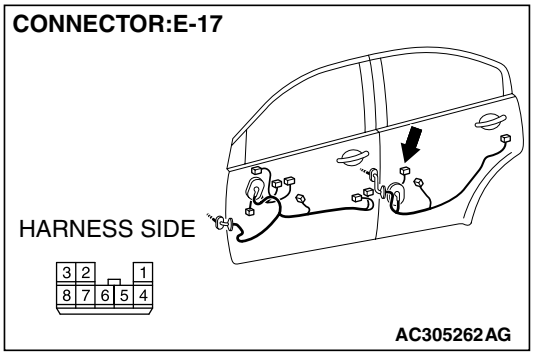
BATTERY CONNECTION	SLIDER POSITION
• Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal	UP
• Connect terminal 2 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	DOWN

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

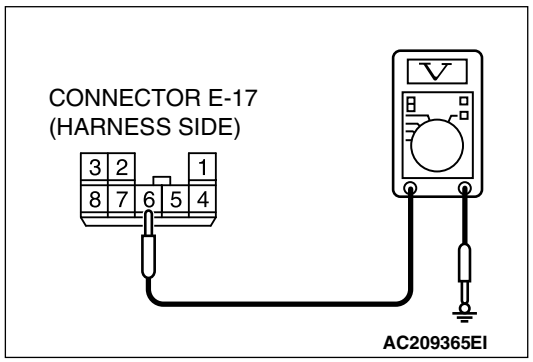
YES : Go to Step 17.

NO : Replace the rear power regulator assembly (LH). When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 17. Check the battery power supply circuit to the rear power window sub switch (LH). Measure the voltage at rear power window sub switch (LH) connector E-17.



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

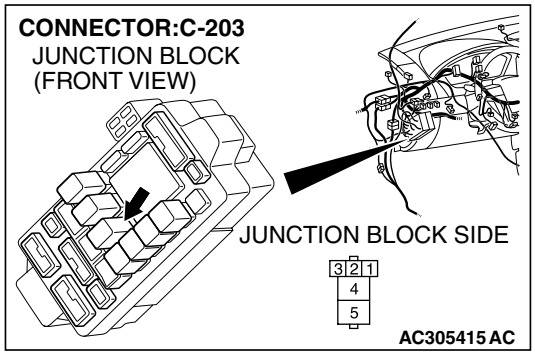


(2) Measure the voltage between terminal 6 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 20.

NO : Go to Step 18.



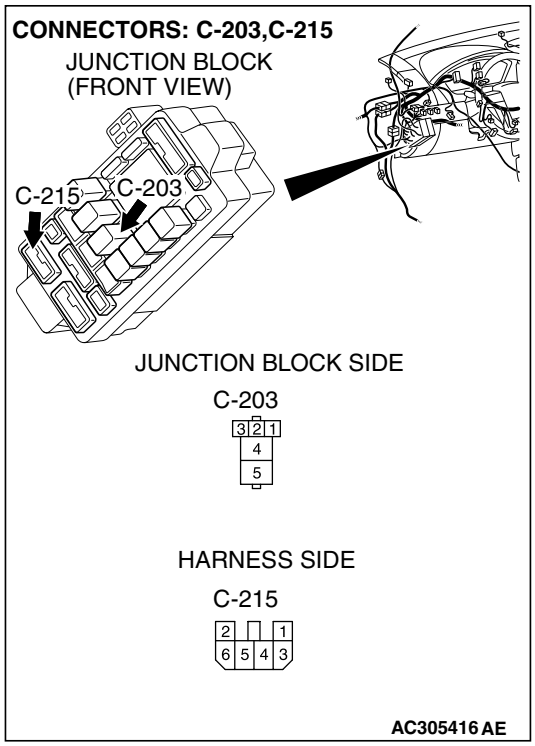
STEP 18. Check power window relay connector C-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

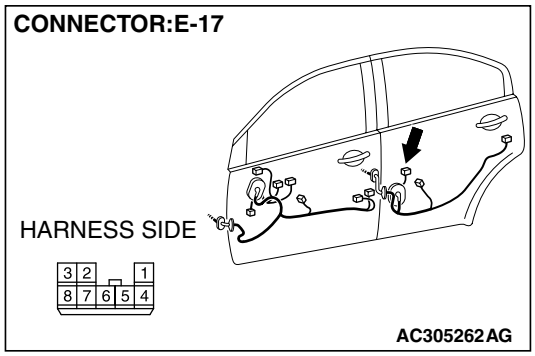
Q: Is power window relay connector C-203 in good condition?

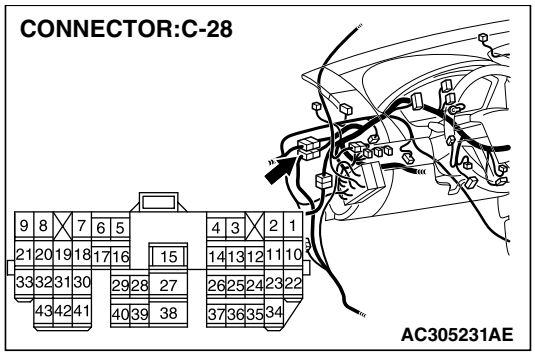
YES : Go to Step 19.

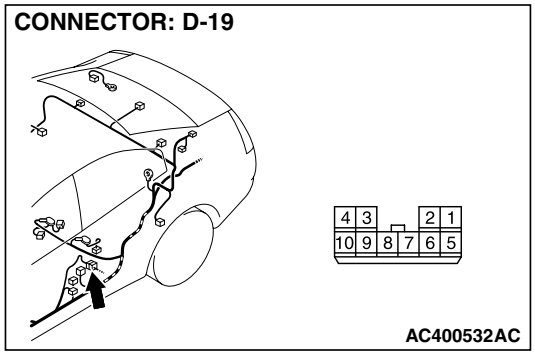
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 19. Check the wiring harness between power window relay connector C-203 (terminal 4) and rear power window sub switch (LH) connector E-17 (terminal 6).









NOTE: Also check junction block connector C-215, intermediate connectors C-28 and D-19. If junction block connector C-215, intermediate connector C-28 or D-19 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

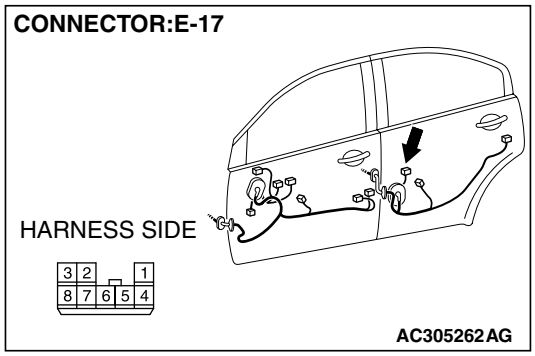
Q: Is the wiring harness between power window relay connector C-203 (terminal 4) and rear power window sub switch (LH) connector E-17 (terminal 6) in good condition?

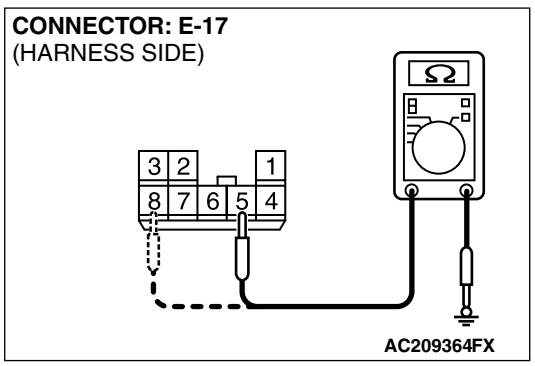
YES : No action is necessary and testing is complete.

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. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

STEP 20. Check the ground circuit to the rear power window sub switch (LH). Measure the resistance at rear power window sub switch (LH) connector E-17.

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





(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.
- The resistance should be 2 ohms or less.

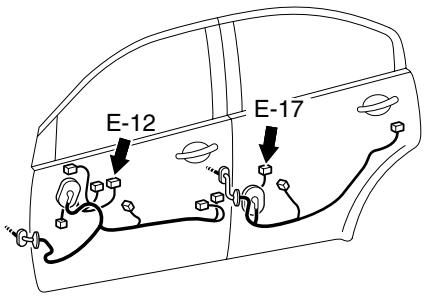
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 22.

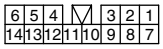
NO : Go to Step 21.

STEP 21. Check the wiring harness between power window main switch connector E-12 (terminals 1 and 2) and rear power window sub switch (LH) connector E-17 (terminals 8 and 5).

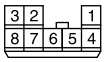
CONNECTOR:E-12,E-17



HARNESS SIDE
E-12



HARNESS SIDE
E-17



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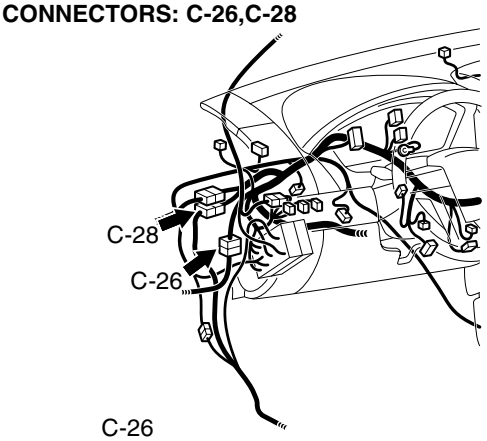
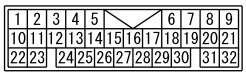
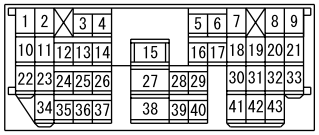
CONNECTORS: C-26,C-28



C-26



C-28



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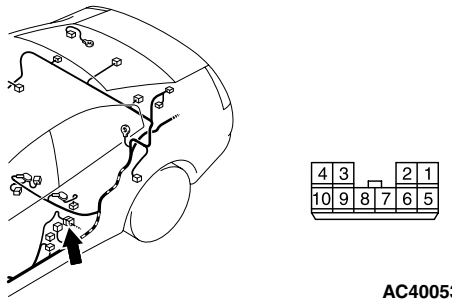
NOTE: Also check intermediate connectors C-26, C-28 and D-19. If intermediate connector C-26, C-28 or D-19 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-12 (terminals 1 and 2) and rear power window sub switch (LH) connector E-17 (terminals 8 and 5) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

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

CONNECTOR: D-19



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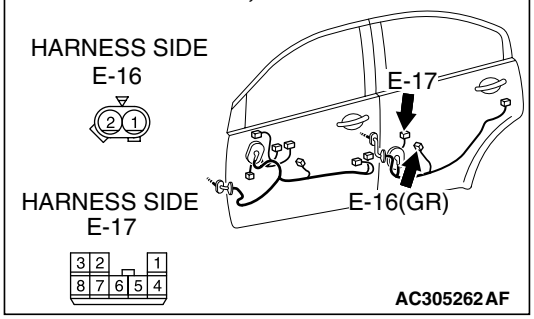
STEP 22. Check the wiring harness between rear power window sub switch (LH) connector E-17 (terminals 4 and 7) and rear power window regulator motor (LH) connector E-16 (terminals 1 and 2).

CONNECTORS:E-16,E-17



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Q: Is the wiring harness between rear power window sub switch (LH) connector E-17 (terminals 4 and 7) and rear power window regulator motor (LH) connector E-16 (terminals 1 and 2) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (LH) is operated, the rear power window (LH) should raise and lower normally.

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

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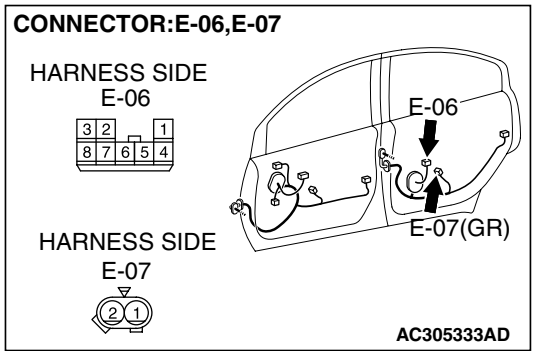
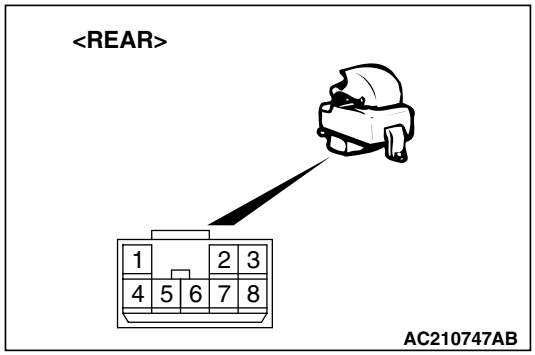


STEP 23. Check rear power window sub switch (RH) connector E-06 and rear power window regulator motor (RH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear power window sub switch (RH) connector E-06 and rear power window regulator motor (RH) connector E-07 in good condition?

YES : Go to Step 24.

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



STEP 24. 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 Glass and Regulator P.42-39.

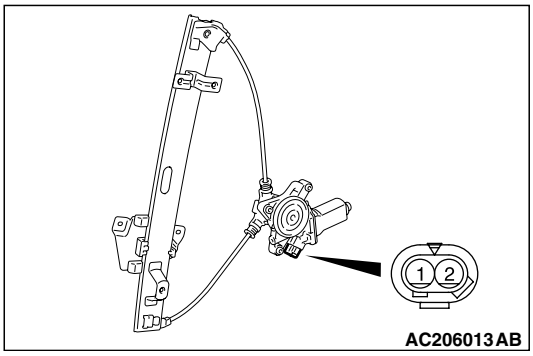
(2) Check continuity when the rear power window sub switch (RH) is operated to "UP" or "DOWN" position.

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 25.

NO : Replace the rear power window sub switch (RH). When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.



STEP 25. Check the rear power window regulator motor (RH).

(1) Remove the rear power window regulator assembly (RH). Refer to GROUP 42, Door, Door Glass and Regulator P.42-39.

(2) Connect a battery to the motor terminal, and check that the motor runs freely.

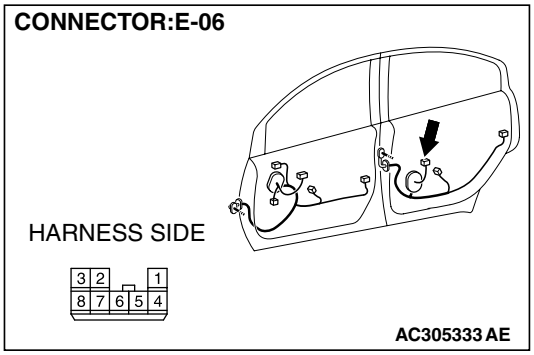
BATTERY CONNECTION	SLIDER POSITION
• Connect terminal 1 to the negative battery terminal • Connect terminal 2 to the positive battery terminal	UP
• Connect terminal 2 to the negative battery terminal • Connect terminal 1 to the positive battery terminal	DOWN

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

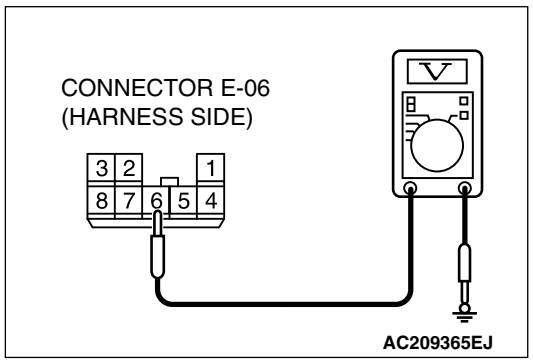
YES : Go to Step 26.

NO : Replace the rear power regulator assembly (RH). When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 26. Check the battery power supply circuit to the rear power window sub switch (RH). Measure the voltage at rear power window sub switch (RH) connector E-06.



(1) Disconnect rear power window sub switch (RH) connector E-06 and measure the voltage available at the wiring harness side of the connector.

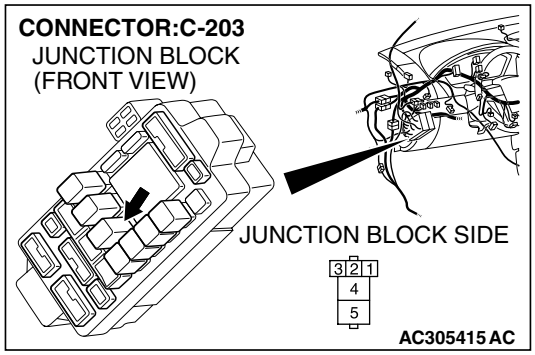


(2) Measure the voltage between terminal 6 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 29.

NO : Go to Step 27.

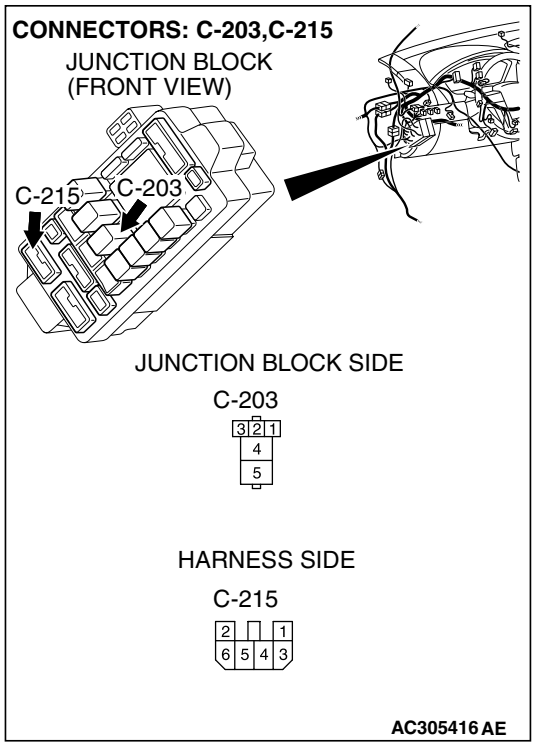


STEP 27. Check power window relay connector C-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

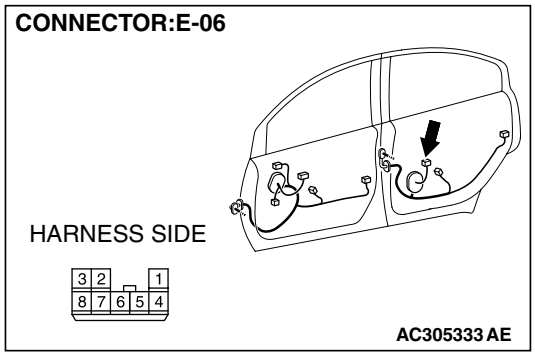
Q: Is power window relay connector C-203 in good condition?

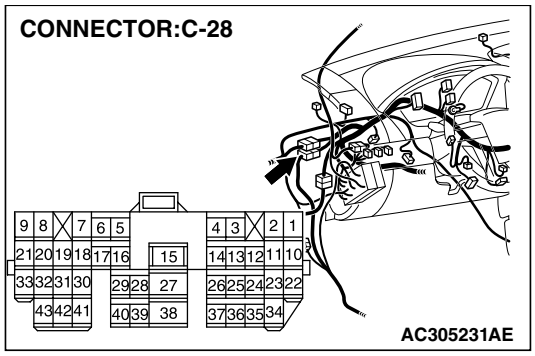
YES : Go to Step 28.

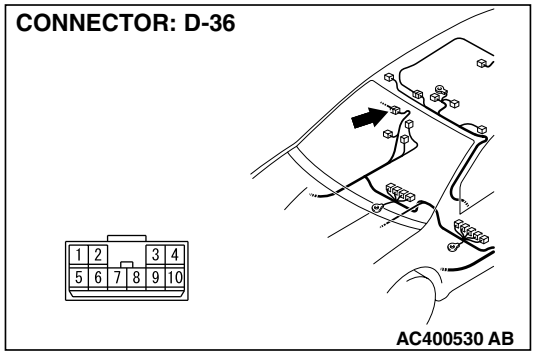
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.



STEP 28. Check the wiring harness between power window relay connector C-203 (terminal 4) and rear power window sub switch (RH) connector E-06 (terminal 6).







NOTE: Also check junction block connector C-215, intermediate connectors C-28 and D-36. If junction block connector C-215, intermediate connector C-28 or D-36 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

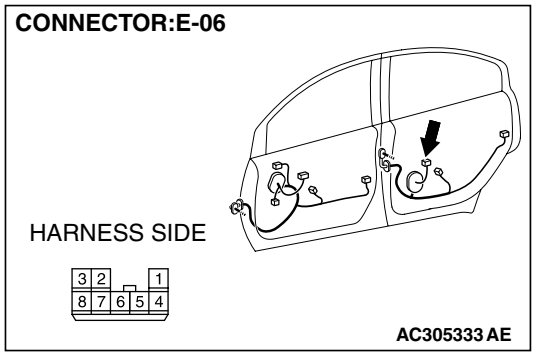
Q: Is the wiring harness between power window relay connector C-203 (terminal 4) and rear power window sub switch (RH) connector E-06 (terminal 6) in good condition?

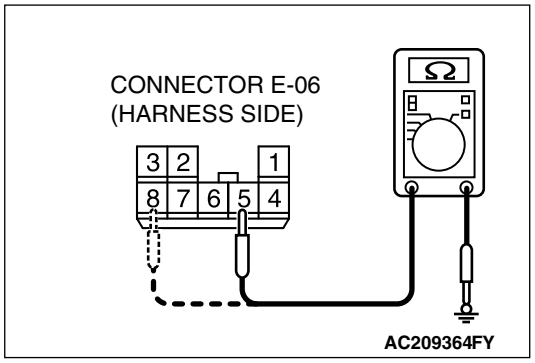
YES : No action is necessary and testing is complete.

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. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

STEP 29. Check the ground circuit to the rear power window sub switch (RH). Measure the resistance at rear power window sub switch (RH) connector E-06.

(1) Disconnect rear power window sub switch (RH) connector E-06 and measure the resistance available at the wiring harness side of the connector.





(2) Measure the resistance value between terminal 5 and ground, and also between terminal 8 and ground.
- The resistance should be 2 ohms or less.

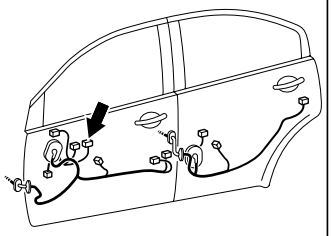
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 31.

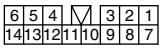
NO : Go to Step 30.

STEP 30. Check the wiring harness between power window main switch connector E-12 (terminals 6 and 14) and rear power window sub switch (RH) connector E-06 (terminals 5 and 8).

CONNECTOR:E-12

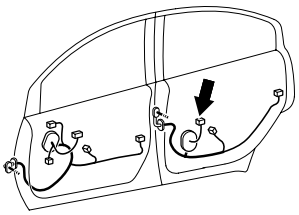


HARNESS SIDE

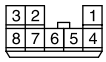


AC305262 AC

CONNECTOR:E-06

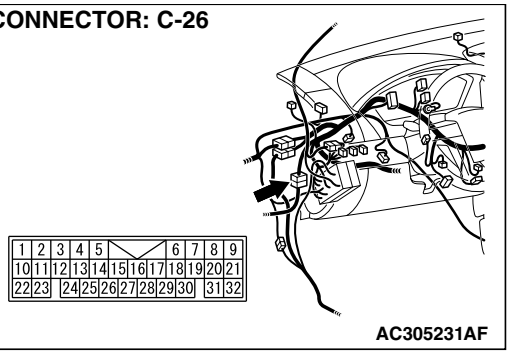


HARNESS SIDE

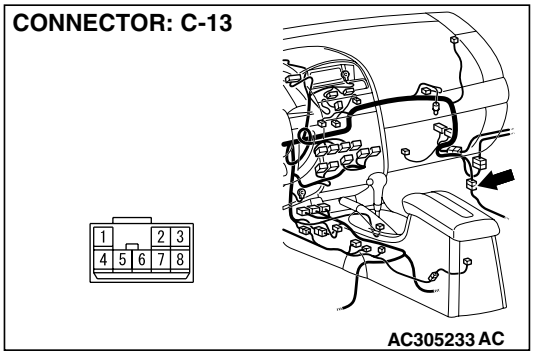


AC305333 AE

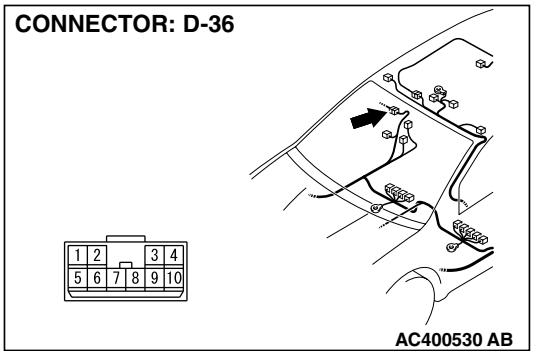
CONNECTOR: C-26



CONNECTOR: C-13



CONNECTOR: D-36



NOTE: Also check intermediate connectors C-26, C-13 and D-36. If intermediate connector C-26, C-13 or D-36 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

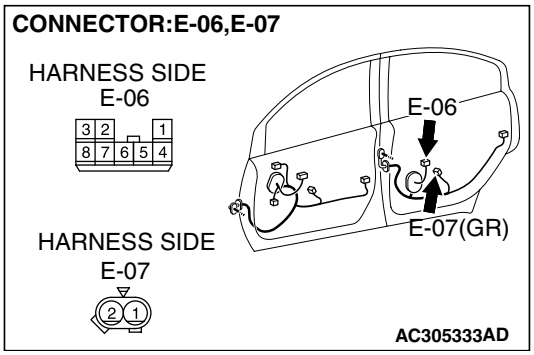
Q: Is the wiring harness between power window main switch connector E-12 (terminals 6 and 14) and rear power window sub switch (RH) connector E-06 (terminals 5 and 8) in good condition?

YES : Replace the power window main switch. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

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

STEP 31. Check the wiring harness between rear power window sub switch (RH) connector E-06 (terminals 4 and 7) and rear power window regulator motor (RH) connector E-07 (terminals 1 and 2).

CONNECTOR:E-06,E-07



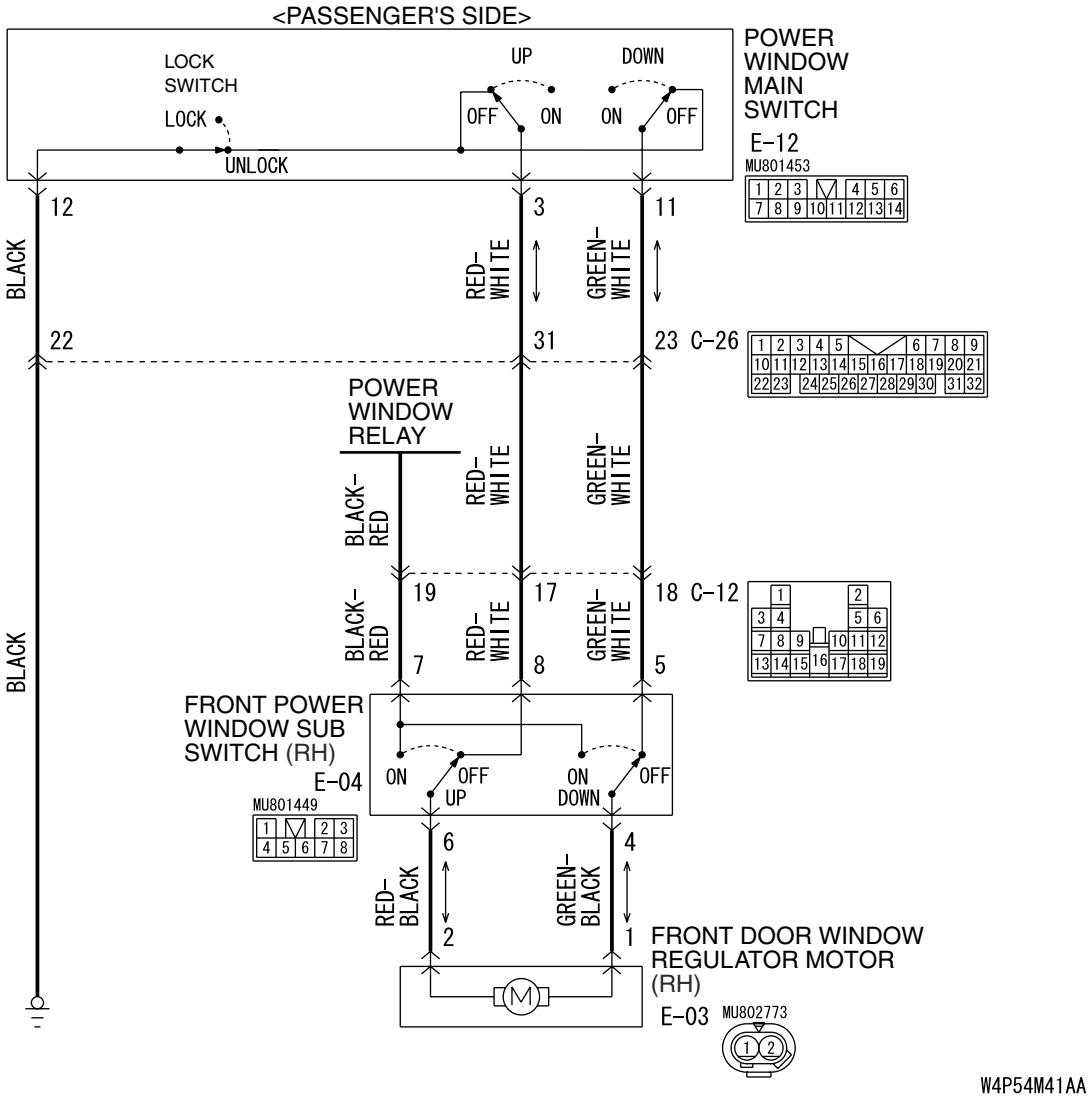
Q: Is the wiring harness between rear power window sub switch (RH) connector E-06 (terminals 4 and 7) and rear power window regulator motor (RH) connector E-07 (terminals 1 and 2) in good condition?

YES : No action is necessary and testing is complete.

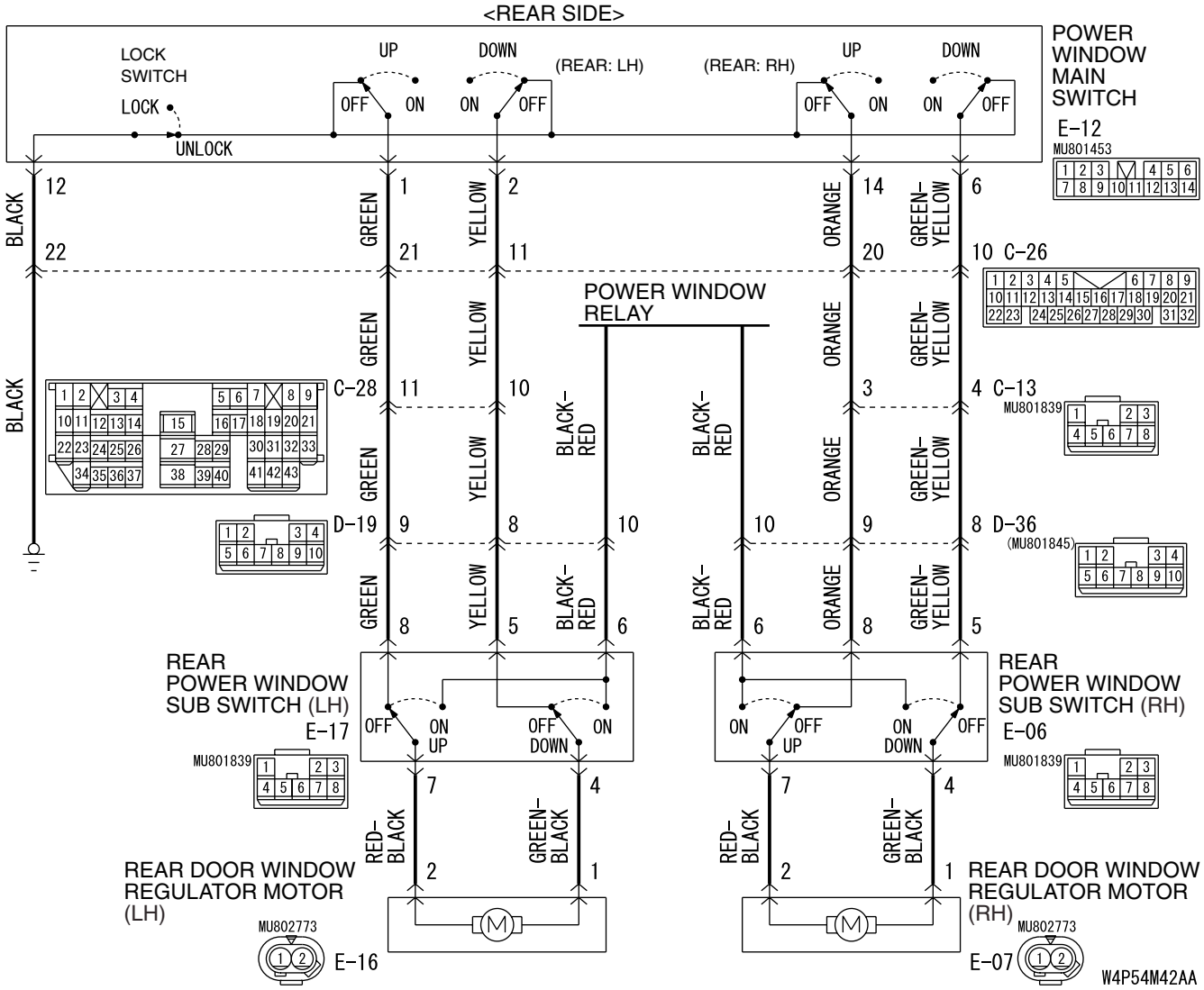
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. When the rear power window sub switch (RH) is operated, the rear power window (RH) should raise and lower normally.

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

Power Window (front: RH) Circuit



Power Window (rear) Circuit



CIRCUIT OPERATION

When you operate each power window switch for front or rear passengers (incorporated in the power window main switch), the corresponding power window motor operates, opening or closing each power window.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINT

The power window main switch may be defective

DIAGNOSIS

Check that power window sub switches operate normally.

Q: A power window cannot work by using the power window main switch. Can you operate the power window by using the corresponding power window sub switch?

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

NO : Refer to Symptom Chart P.54B-59 before resolving this trouble.

KEYLESS ENTRY SYSTEM

GENERAL DESCRIPTION CONCERNING THE KEYLESS ENTRY SYSTEM

M1549022000255

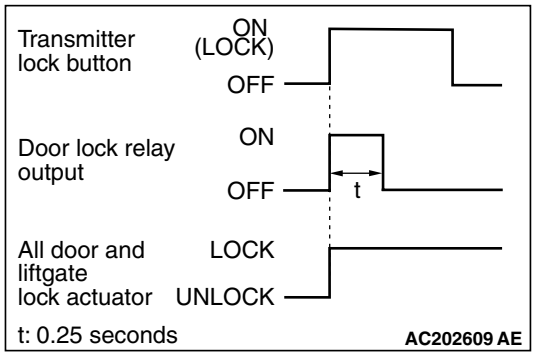
The following ECUs affect the functions and control of the keyless entry system.

FUNCTION		CONTROL ECU
All door lock function	Pressing the transmitter lock button	ETACS-ECU
Driver's door unlock function	Pressing the transmitter unlock button once	ETACS-ECU
All door unlock function	Pressing the transmitter unlock button twice	ETACS-ECU
Trunk unlock function	Pressing the transmitter trunk button	ETACS-ECU
Keyless entry hazard answerback and horn answerback function		ETACS-ECU
Timed locking mechanism		ETACS-ECU

ALL DOOR LOCK FUNCTION

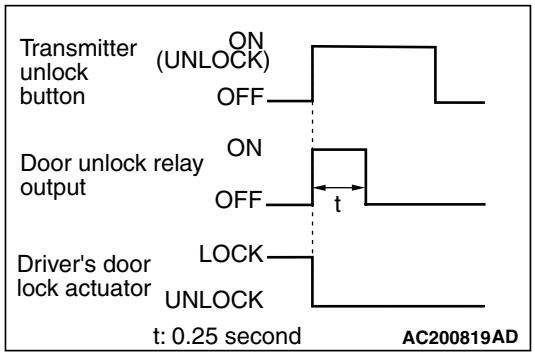
PRESSING THE TRANSMITTER LOCK BUTTON

When the transmitter lock button is pressed, the ETACS-ECU energizes its door lock relay to operate all the door lock actuators for 0.25 second, locking all doors.



DRIVER'S DOOR UNLOCK FUNCTION

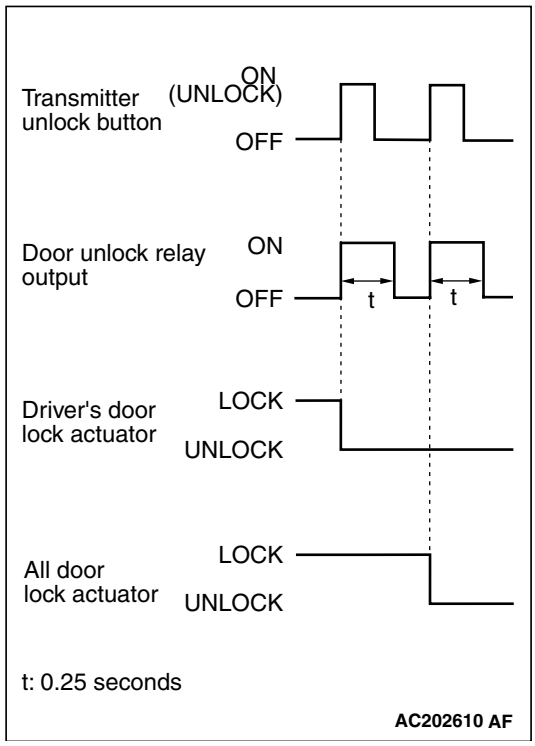
PRESSING THE TRANSMITTER UNLOCK BUTTON ONCE



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

ALL DOOR UNLOCK FUNCTION

PRESSING THE TRANSMITTER UNLOCK BUTTON TWICE



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

NOTE: If the timed locking function is available, the doors will be locked in 30 seconds after the initial unlocking. Therefore, the second door unlocking should be done within 30 seconds after that initial unlocking.

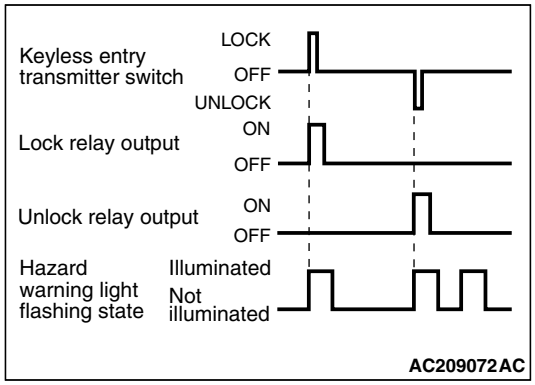
TRUNK UNLOCK FUNCTION

PRESSING THE TRANSMITTER TRUNK BUTTON

Press the "TRUNK" button twice within 5 seconds and the trunk lid will be unlocked.

KEYLESS ENTRY HAZARD ANSWERBACK AND HORN ANSWERBACK FUNCTION

KEYLESS ENTRY HAZARD ANSWERBACK FUNCTION*1

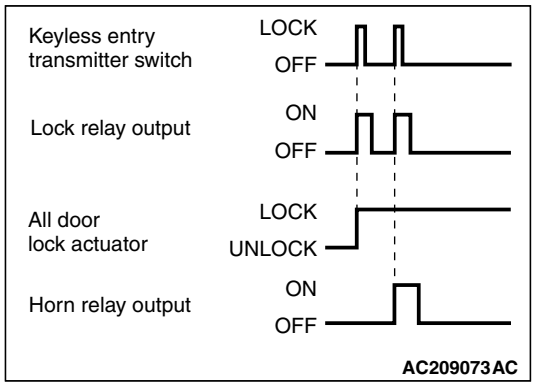


If the keyless entry transmitter is used to send a lock signal to the ETACS-ECU, all doors are locked and the hazard warning lights flash once. If an unlock signal is sent, the driver's door is unlocked first,*2 and if a second signal is sent, all doors are unlocked. Each time the unlock signal is sent, the hazard warning lights flash twice.

*NOTE: *1: The hazard answerback function can be customized using the keyless entry transmitter (Refer to Group 42 P.42-69, Keyless Entry System) or by using the multi center display (middle grade type). Refer to P.54B-555.*

*NOTE: *2: Vehicles with a multi center display (middle grade type) can be customized so that a single unlock operation will unlock all doors. Refer to P.54B-555.*

KEYLESS ENTRY HORN ANSWERBACK FUNCTION



If the keyless entry transmitter is used to send a lock signal to the ETACS-ECU, the first signal locks all doors while the second signal sounds the horn once.

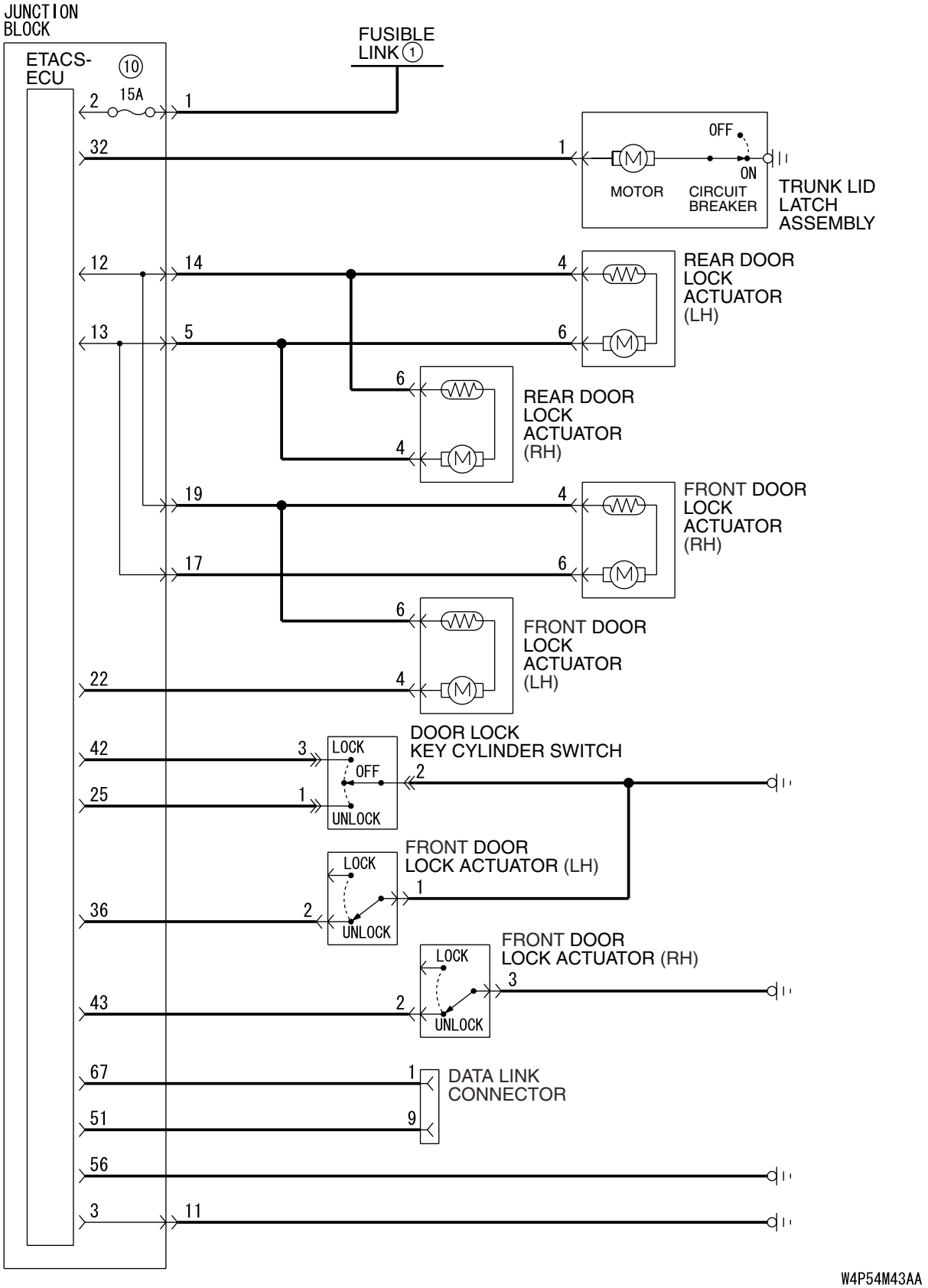
NOTE:: The horn answerback function can be customized by using the keyless entry transmitter (Refer to Group 42 P.42-69, Keyless Entry System) or by using the multi center display (middle grade type). Refer to P.54B-555.

TIMED LOCKING MECHANISM

After unlocking the doors with the keyless entry transmitter, if no doors are opened, if the ignition key is not inserted or if the locking function is not operated, the ETACS-ECU automatically locks the doors in 30 seconds.

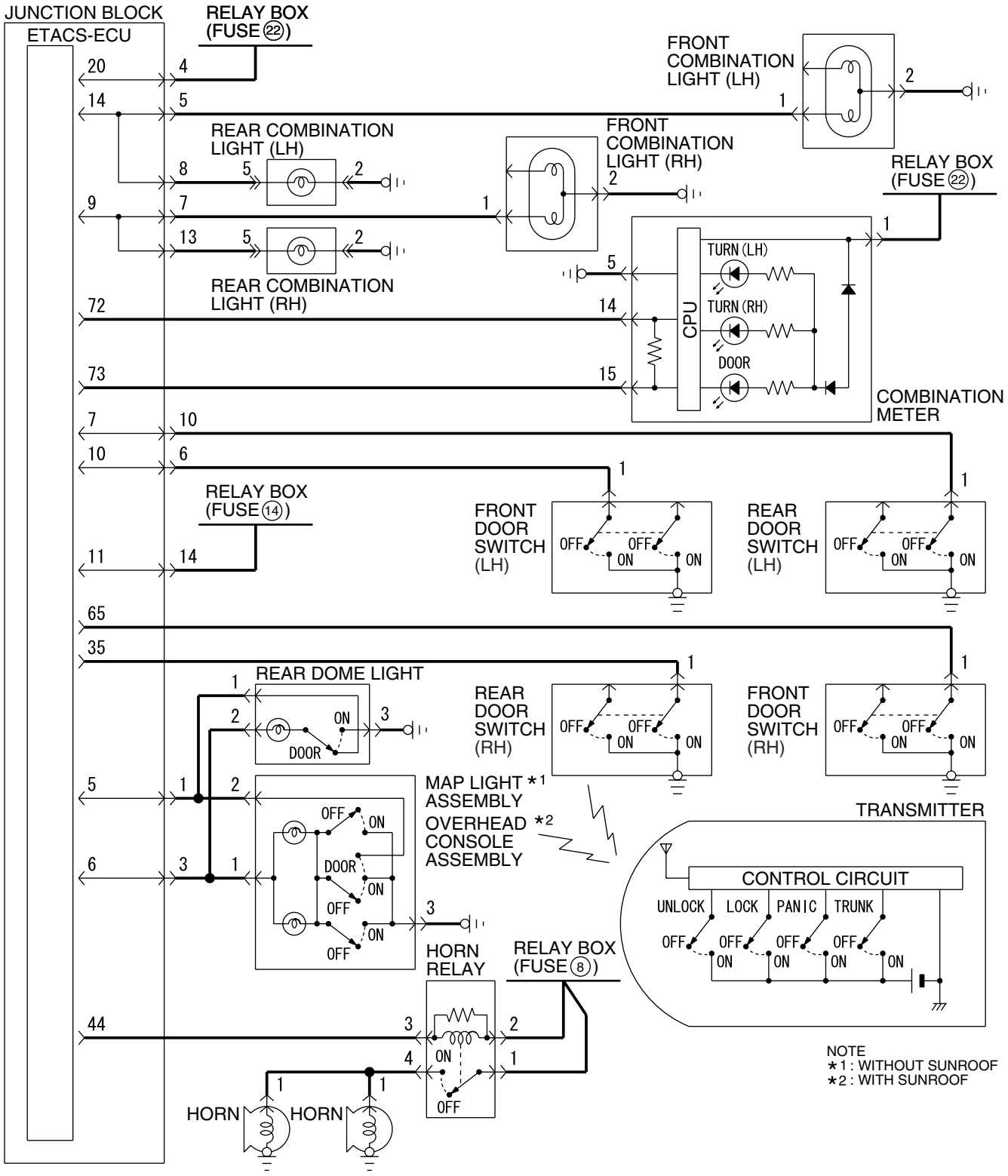
NOTE: The timed locking function can be customized on vehicles equipped with a multi center display (middle grade type). Refer to P.54B-555.

GENERAL CIRCUIT DIAGRAM FOR THE KEYLESS ENTRY SYSTEM



W4P54M43AA

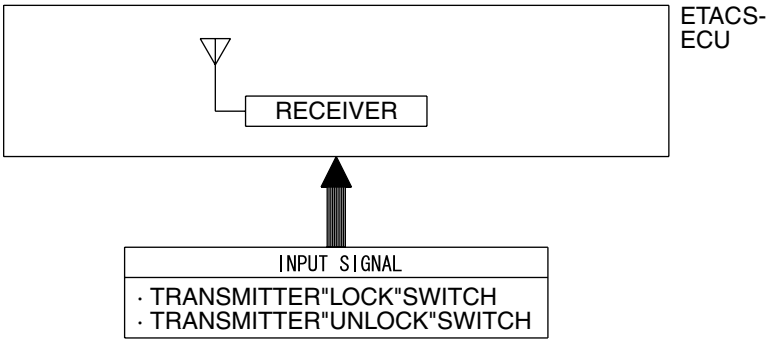
TSB Revision



TSB Revision

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

Transmitter ("LOCK"/"UNLOCK") Input Signal



W4P54M44AA

CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

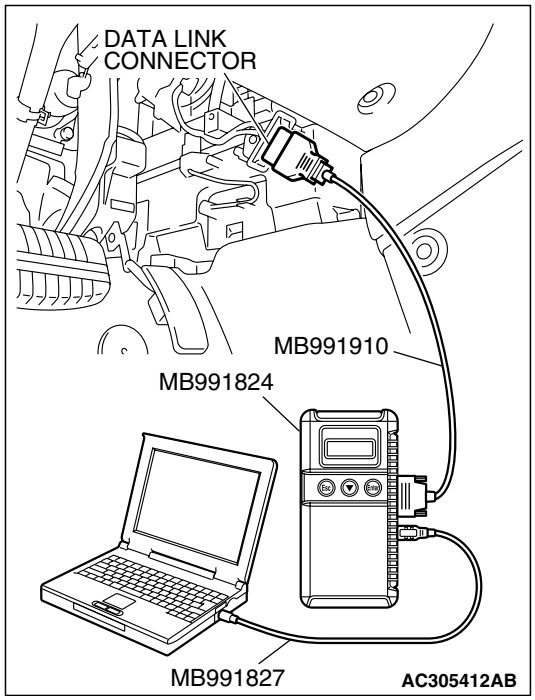
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A

STEP 1. Verify the central door locking system.

Q: Does the central door locking system work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure C-1 "The central door locking system does not work at all P.54B-137."



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

Check input signals from the transmitter.

⚠ CAUTION

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

(1) Connect scan tool MB991958.Refer to "How to connect SWS monitor P.54B-13."
(2) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
  a. Select "Interactive Diagnosis."
  b. Select "System select."
  c. Select "SWS."
  d. Select "Pulse Checking."
(3) Push the transmitter "LOCK" or "UNLOCK" button.
(4) Check that scan tool MB991958 sounds

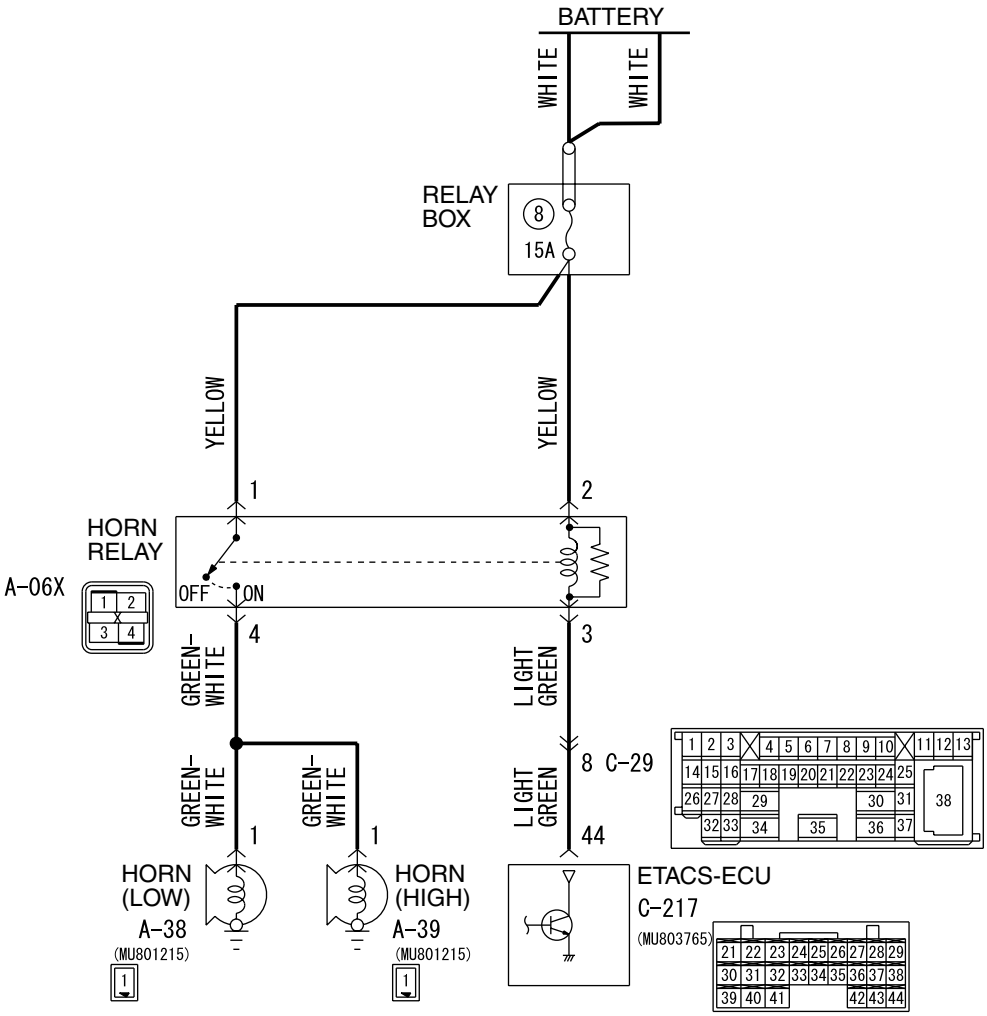
Q: When the transmitter "LOCK" or "UNLOCK" button is turned ON, does scan tool MB991958 sound?

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

NO : Refer to Inspection Procedure N-8 "ETACS-ECU does not receive any signal from the lock, unlock, trunk or panic switch P.54B-540."

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

Horn Drive Circuit



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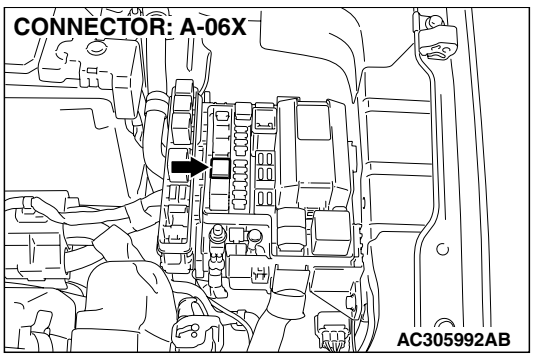
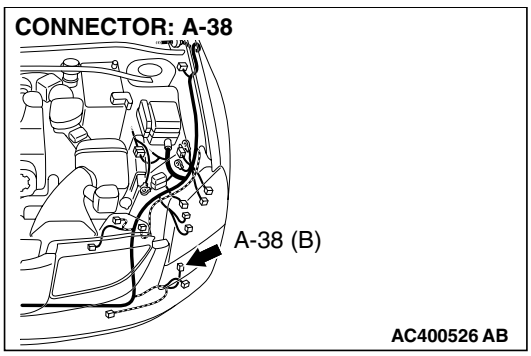
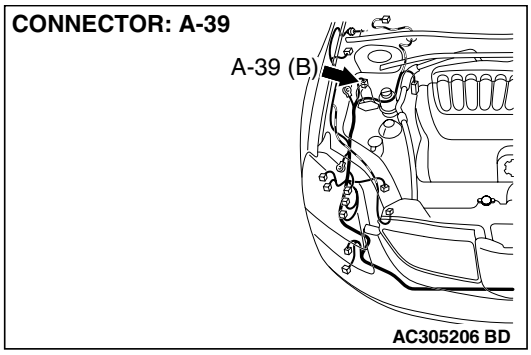
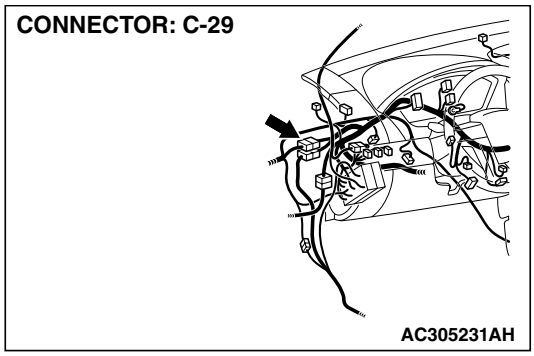
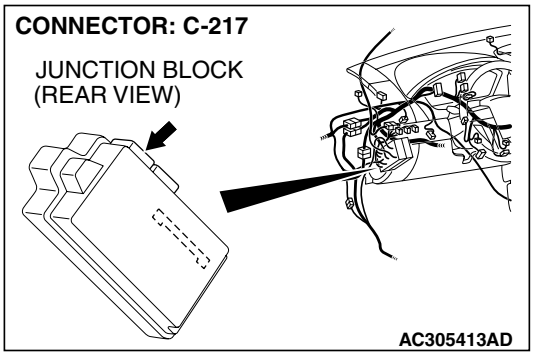




TSB Revision







CIRCUIT OPERATION

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A

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-218."

STEP 2. Check the configuration function.

Q: Has the answerback function been enabled by means of the adjustment function?

YES : Go to Step 3.

NO : Enable the answerback function by means of the adjustment function. Verify that the answerback functions work normally.

STEP 3. Verify trouble symptom.

Q: Which answerback function is defective?

Only the dome light : Go to Step 4.

Only the turn-signal lights : Go to Step 5.

Only the horn : Go to Step 6.

Dome light, 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 K-1 "The dome light do not illuminate and go out normally P.54B-420."

STEP 5. Verify the hazard warning light.

Q: Does the hazard warning light work normally?

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

NO : Refer to Inspection Procedure I-2 "Hazard warning lights do not flash when the hazard warning light switch is turned on P.54B-375."

STEP 6. Verify which horn is defective.

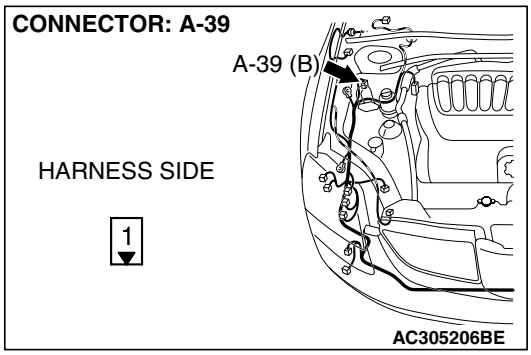
Q: Which horn does not sound?

Horn (HIGH) : Go to Step 7.
Horn (LOW) : Go to Step 11.
Both horns : Go to Step 15.

STEP 7. Check horn connector A-39 (HIGH) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn (HIGH) connector A-39 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 horn sounds normally.

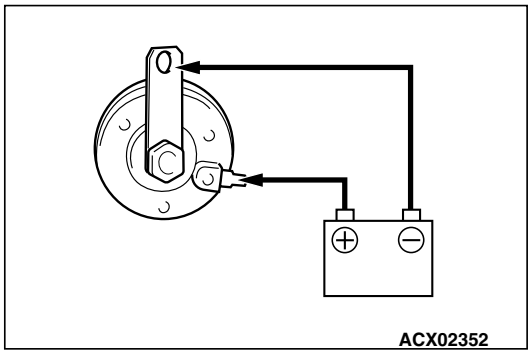


STEP 8. Check the horn (HIGH).

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

Q: Is the horn normal?

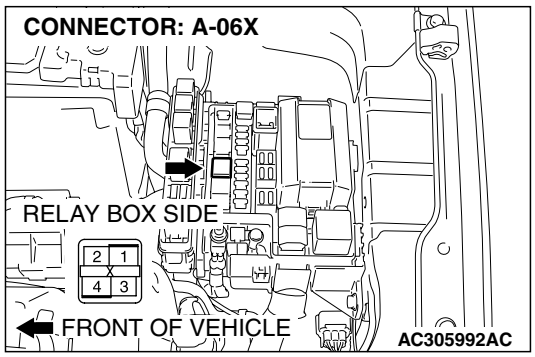
YES : Go to Step 9.
NO : Replace the horn (HIGH). Verify that the horn sounds normally.

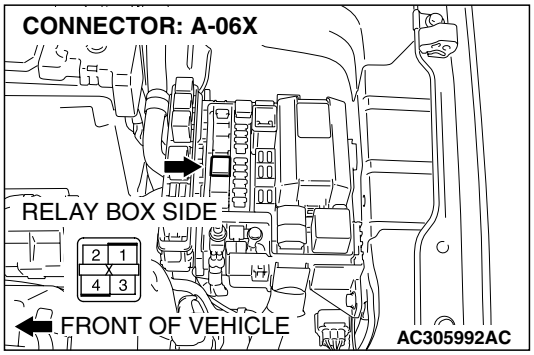


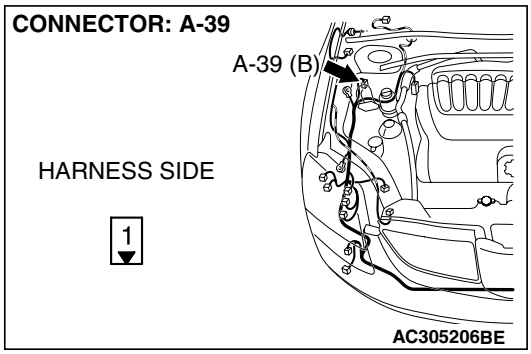
STEP 9. Check horn relay connector A-06X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-06X in good condition?

YES : Go to Step 10.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the horn sounds normally.





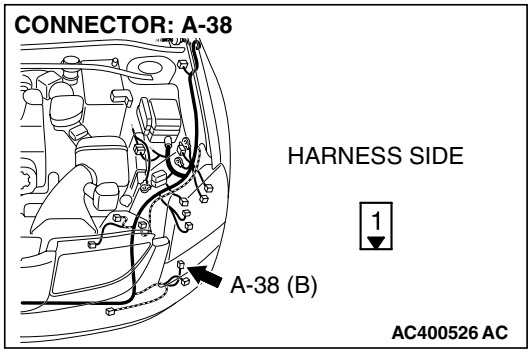


STEP 10. Check the wiring harness between horn relay connector A-06X (terminal 4) and horn (HIGH) connector A-39 (terminal 1).

Q: Is the wiring harness between horn relay connector A-06X (terminal 4) and horn (HIGH) connector A-39 (terminal 1) in good condition?

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

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

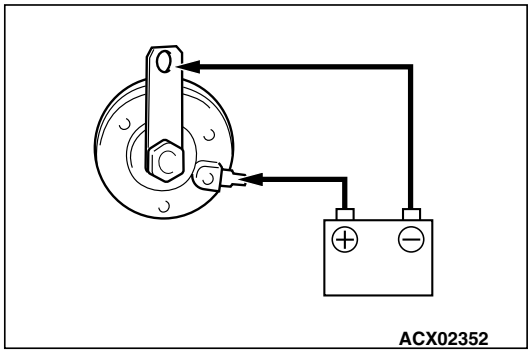


STEP 11. Check horn connector A-38 (LOW) for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn (LOW) connector A-38 in good condition?

YES : Go to Step 12.

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



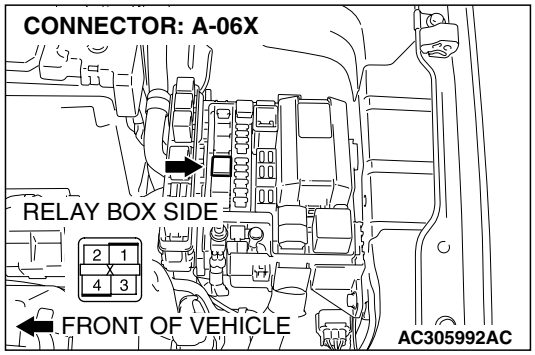
STEP 12. Check the horn (LOW).

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

Q: Is the horn normal?

YES : Go to Step 13.

NO : Replace the horn (LOW). Verify that the horn sounds normally.

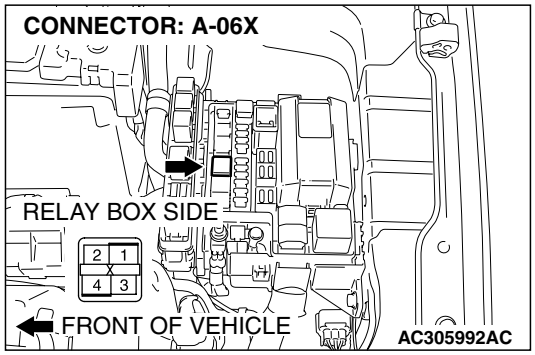


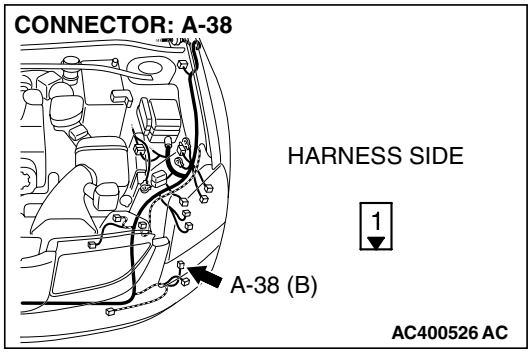
STEP 13. Check horn relay connector A-06X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-06X in good condition?

YES : Go to Step 14.

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



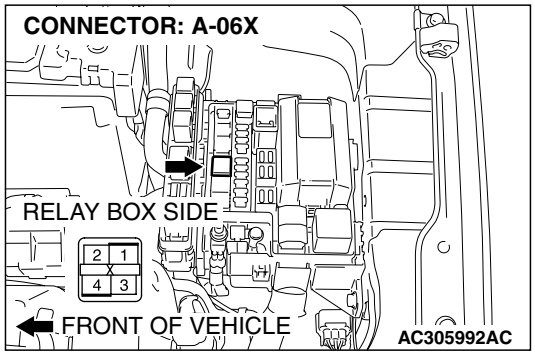


STEP 14. Check the wiring harness between horn relay connector A-06X (terminal 4) and horn (LOW) connector A-38 (terminal 1).

Q: Is the wiring harness between horn relay connector A-06X (terminal 4) and horn (LOW) connector A-38 (terminal 1) in good condition?

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

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

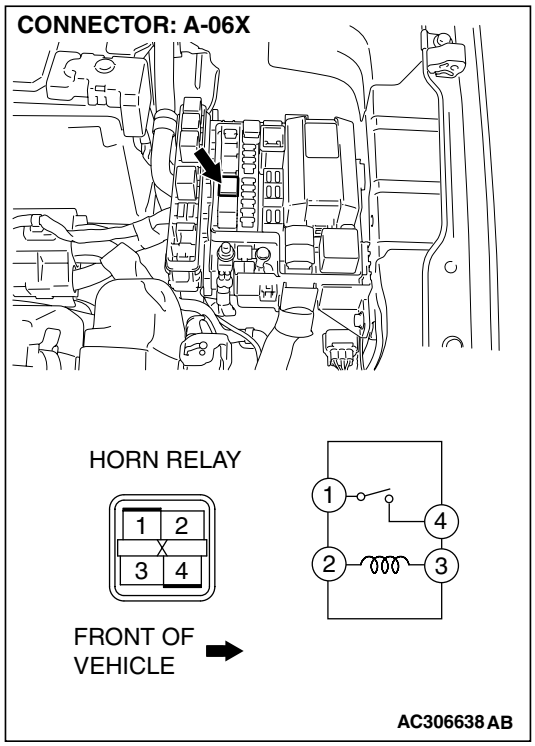


STEP 15. Check horn relay connector A-06X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-06X in good condition?

YES : Go to Step 16.

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



STEP 16. Check the horn relay.

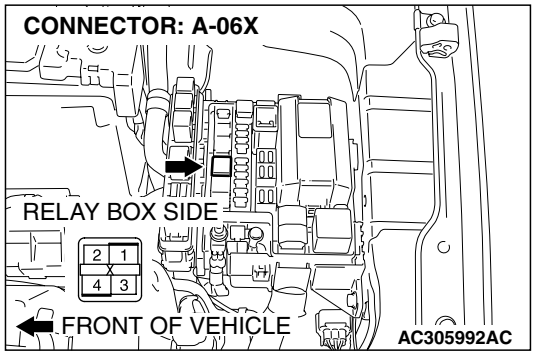
BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
• Connect terminal 2 to the positive battery terminal • Connect terminal 3 to the negative battery terminal	1 – 4	Less than 2 ohms

Q: Is the horn relay normal?

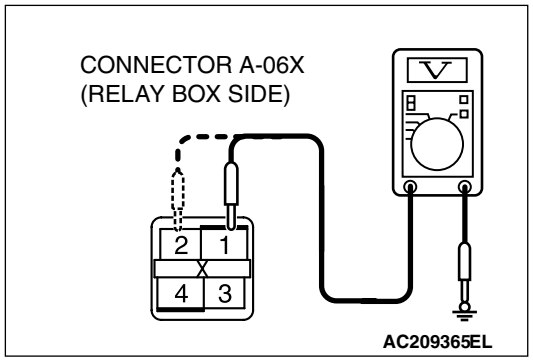
YES : Go to Step 17.

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

STEP 17. Check the battery power supply circuit to the horn relay. Measure the voltage at horn relay connector A-06X.



(1) Disconnect horn relay connector A-06X and measure the voltage available at the relay box side of the connector.

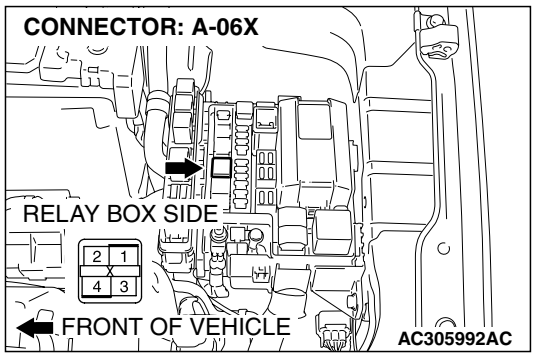


(2) Measure the voltage between terminal 1 and ground, and also between terminal 2 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 19.
NO : Go to Step 18.

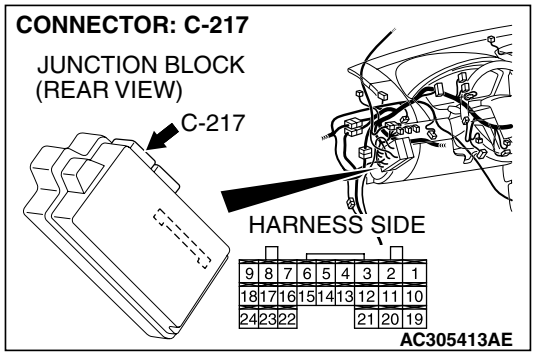
STEP 18. Check the wiring harness between horn relay connector A-06X (terminals 1 and 2) and the battery.



Q: Is the wiring harness between horn relay connector A-06X (terminals 1 and 2) and the battery in good condition?

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

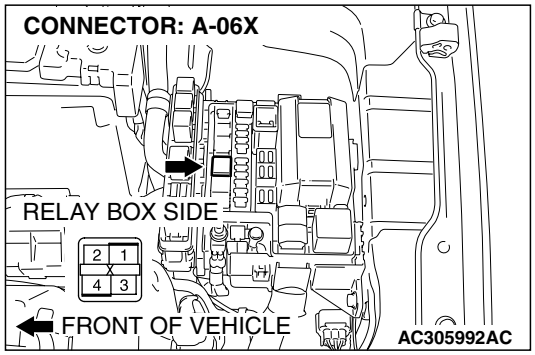
STEP 19. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

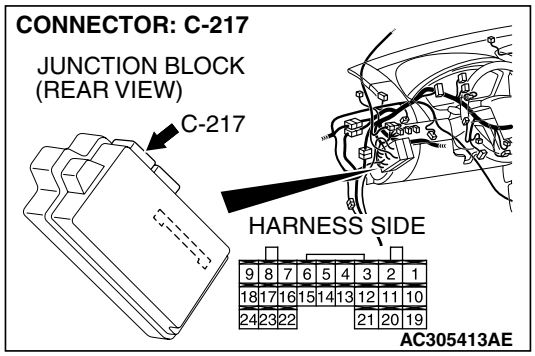


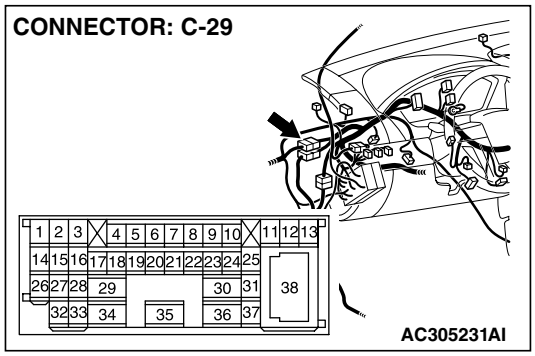
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 20.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that the horn sounds normally.

STEP 20. Check the wiring harness between horn relay connector A-06X (terminal 3) and ETACS-ECU connector C-217 (terminal 44).





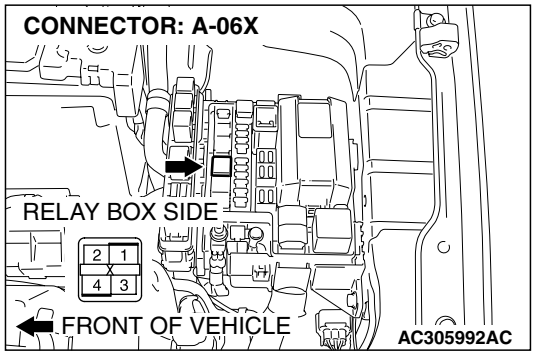


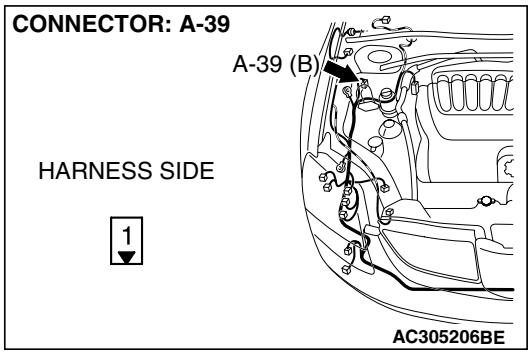
NOTE: Also check intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between horn relay connector A-06X (terminal 3) and ETACS-ECU connector C-217 (terminal 44) in good condition?

YES : Go to Step 21.

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





STEP 21. Check the wiring harness between horn relay connector A-06X (terminal 4) and horn (HIGH) connector A-39 (terminal 1).

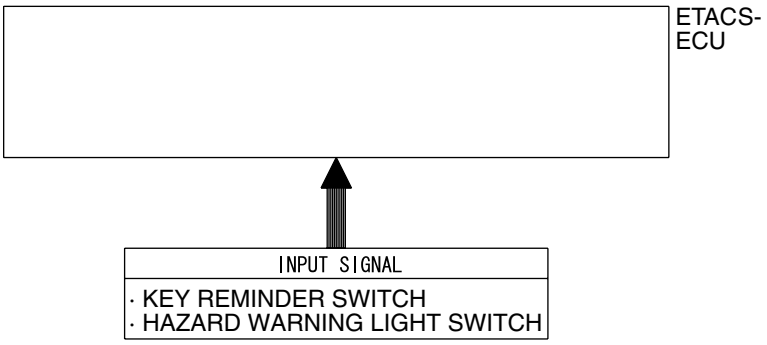
Q: Is the wiring harness between horn relay connector A-06X (terminal 4) and horn (HIGH) connector A-39 (terminal 1) in good condition?

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

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

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

Encrypted Transmitter Code Register Mode



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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 cannot be set, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective.

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

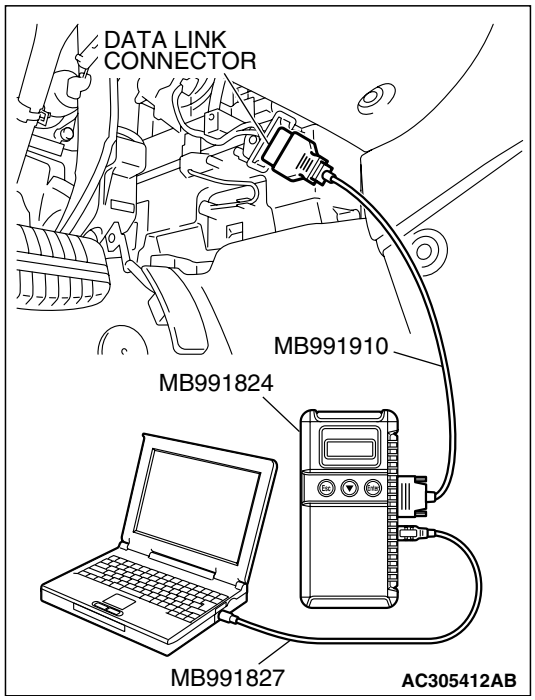
Required Special Tools:

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A

STEP 1. Verify trouble symptom.

Q: Can the encrypted code register mode be set?

YES : Go to Step 3.
NO : Go to Step 2.



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

Check the input signals from the following switches:

- Key reminder switch
- Hazard warning light switch

⚠ CAUTION

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

(1) Connect scan tool MB991958.Refer to "How to connect SWS monitor P.54B-13."

(2) Operate scan tool MB991958 according to the procedure below to display "Pulse check."

a. Select "Interactive Diagnosis."
b. Select "System select."
c. Select "SWS."
d. Select "Pulse Checking."

(3) Check the switches (see table below) applicable for the input signal check are operated.

(4) Check scan tool MB991958 sounds or not.

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

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

Buzzer of scan tool MB991958 sounds normally. : Replace the ETACS-ECU. Verify that the 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 N-1 "ETACS-ECU does not receive any signal from the key reminder switch P.54B-497."

Scan tool MB991958 does not sound when the hazard warning light switch is turned from "OFF" to "ON" : Refer to Inspection Procedure N-2 "ETACS-ECU does not receive any signal from the hazard warning light switch P.54B-501."

STEP 3. Check the transmitter.

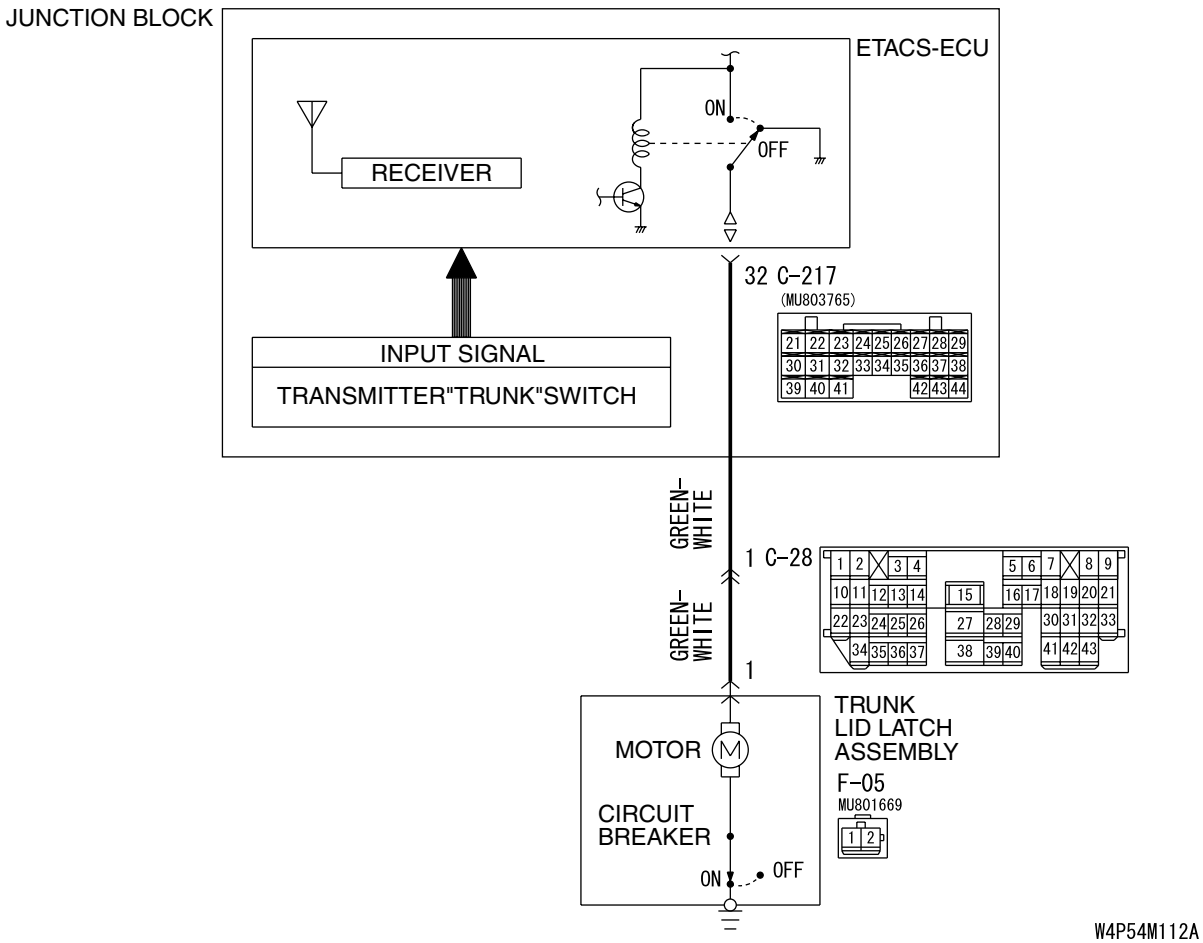
Q: When the transmitter's battery is replaced, can the encrypted code be registered?

YES : No action is necessary and testing is complete.

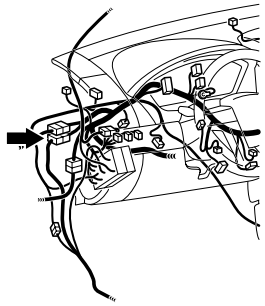
NO : Replace the transmitter. If the encrypted code cannot be registered using the new transmitter, replace the ETACS-ECU. Verify that the encrypted code can be registered in the transmitter.

INSPECTION PROCEDURE E-4: Keyless Entry System: The trunk is not opened when the keyless entry transmitter "TRUNK" button is operated.

Transmitter "TRUNK" Input Signal



CONNECTOR: C-28



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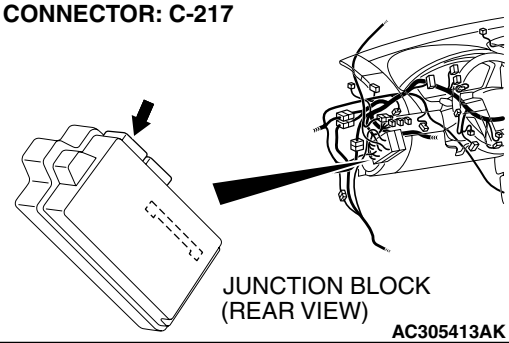
CONNECTOR: C-217



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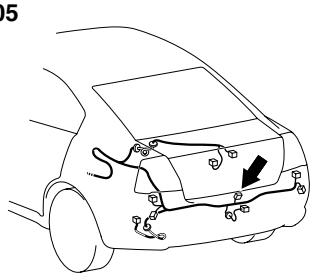
CONNECTOR: F-05



AC305260AC

CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

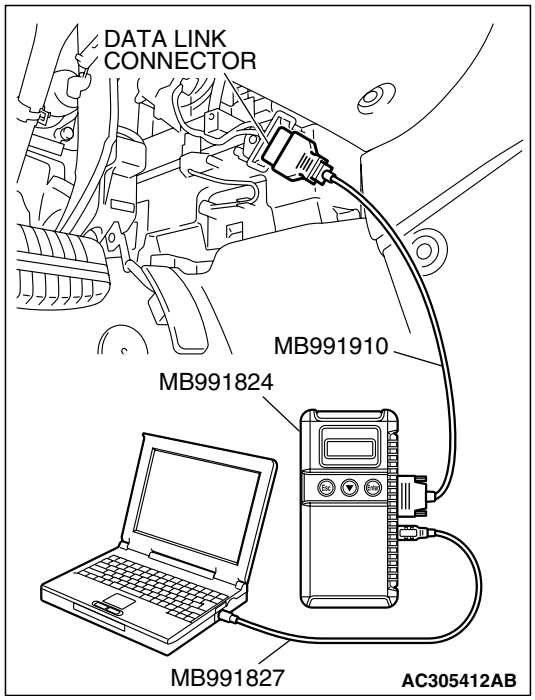
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A

STEP 1. Check that the doors can be locked and unlocked by using the keyless entry transmitter.

Q: Can the doors be locked and unlocked normally when the keyless entry transmitter is operated?

YES : Go to Step 2.

NO : Refer to Inspection Procedure E-1 "Keyless entry system does not operate P.54B-218."



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

Check input signals from the transmitter.

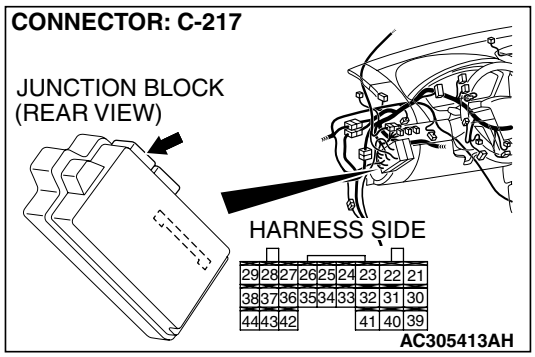
⚠ CAUTION

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

(1) Connect scan tool MB991958.Refer to "How to connect SWS monitor P.54B-13."
(2) Operate scan tool MB991958 according to the procedure below to display "Pulse check."
  a. Select "Interactive Diagnosis."
  b. Select "System select."
  c. Select "SWS."
  d. Select "Pulse Checking."
(3) Push the transmitter "TRUNK" button.
(4) Check that scan tool MB991958 sounds

Q: When the transmitter "TRUNK" button is turned ON, does scan tool MB991958 sound?

YES : Go to Step 3.
NO : Refer to Inspection Procedure N-8 "ETACS-ECU does not receive any signal from the lock, unlock, trunk or panic switch P.54B-540."

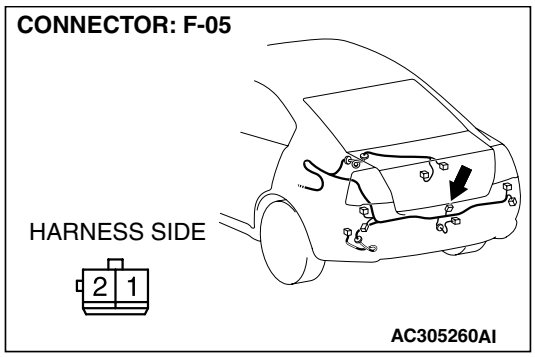


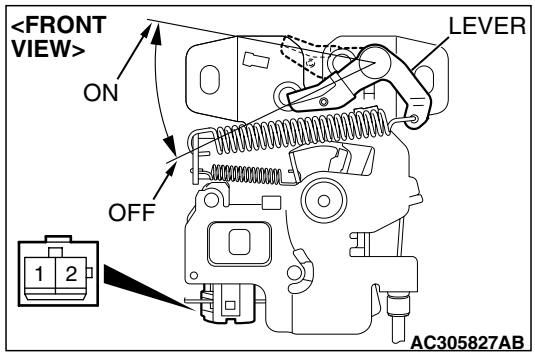
STEP 3. Check trunk lid latch assembly connector F-05 and ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is trunk lid latch assembly connector F-05 and ETACS-ECU connector C-217 in good condition?

YES : Go to Step 4.

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





STEP 4. Check the trunk lid latch assembly.

Remove the trunk lid latch assembly. Refer to GROUP 42, Trunk lid, Trunk lid latch inspection P.42-64.

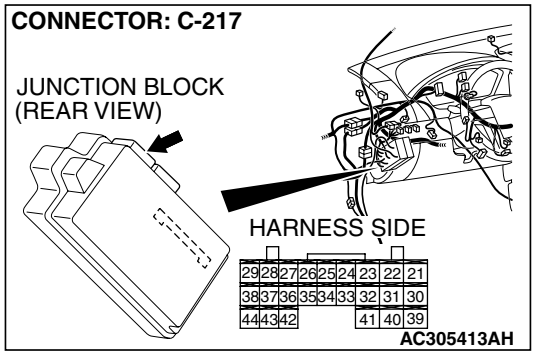
LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON (Latch open)	2 – Ground	Less than 2 ohms
OFF (Latch shut)	2 – Ground	Open circuit

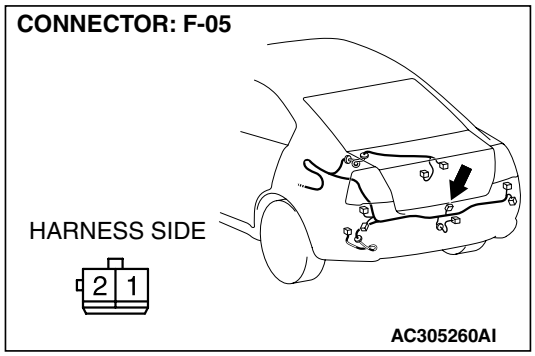
Q: Does the windshield washer motor operate normally?

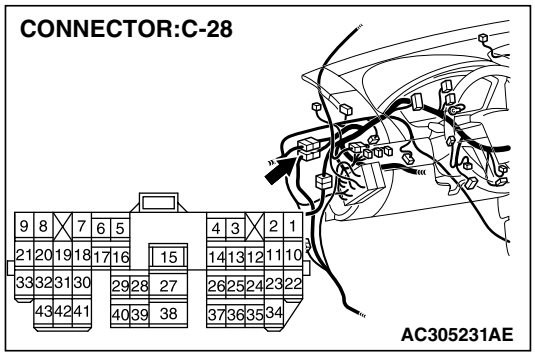
YES : Go to Step 5.

NO : Replace the trunk lid latch assembly. Verify that the windshield washer works normally.

STEP 5. Check the wiring harness between trunk lid latch assembly connector F-05 (terminal 1) and ETACS-ECU connector C-217.







NOTE: Also check intermediate connector C-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-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 trunk lid latch assembly connector F-05 (terminal 1) and ETACS-ECU connector C-217 in good condition?

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

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

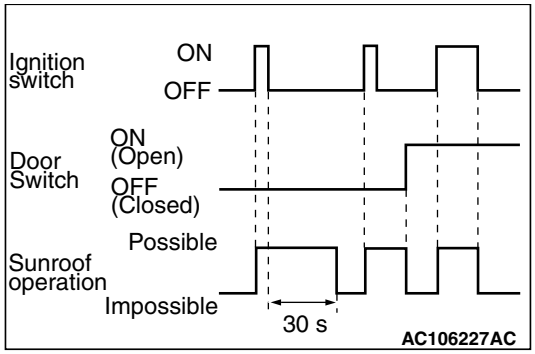
SUNROOF

GENERAL DESCRIPTION CONCERNING THE SUNROOF

M1549021200223

The following ECU affects the functions and control of the sunroof.

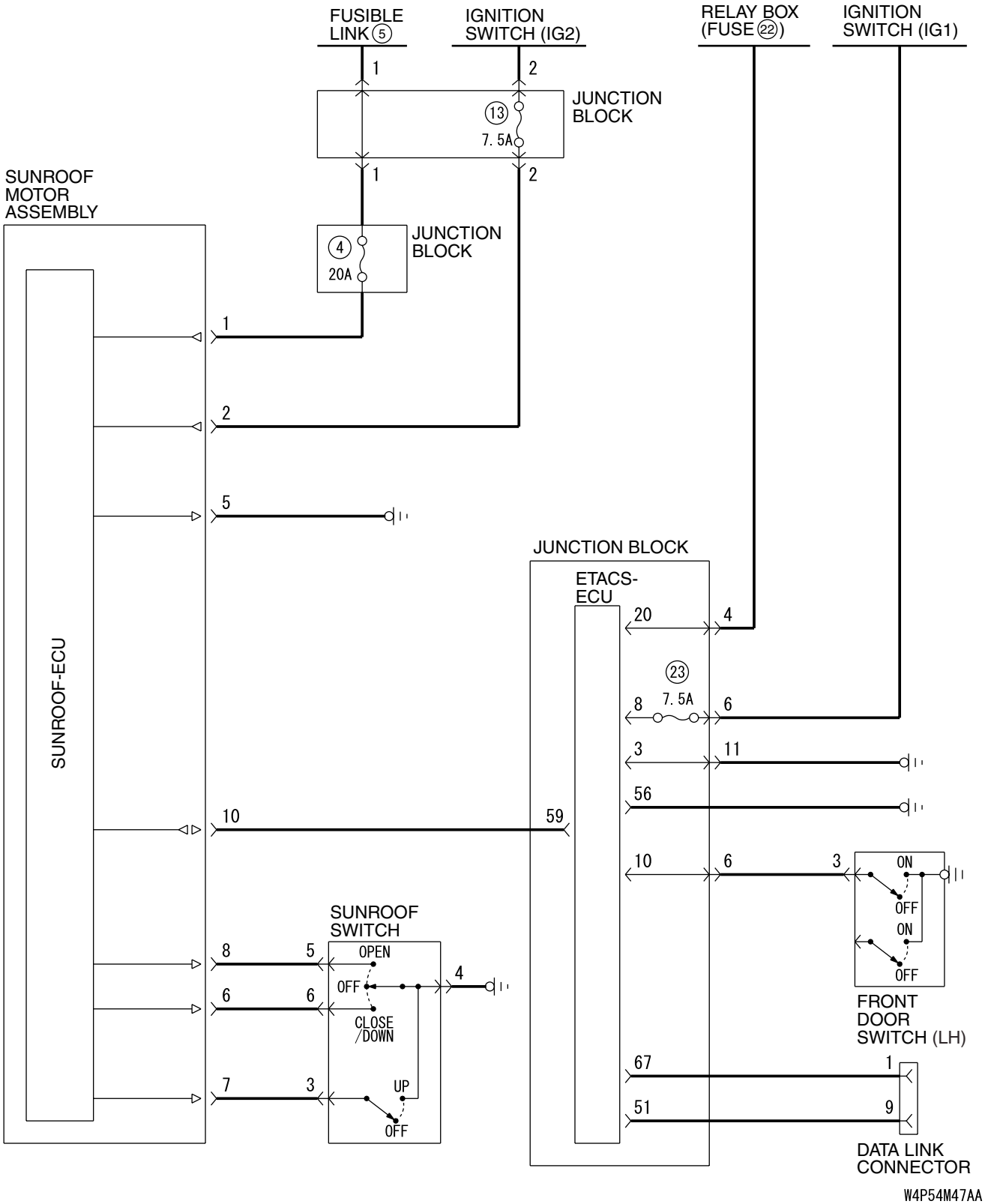
FUNCTION	CONTROL ECU
Sunroof timer function	ETACS-ECU, sunroof motor assembly



Sunroof timer function

The ETACS-ECU enables opening and closing of the sunroof for 30 seconds after the ignition is switched off.
During this timed operation, if the driver's door or passenger's door is opened, the sunroof timer function is deactivated from that moment.

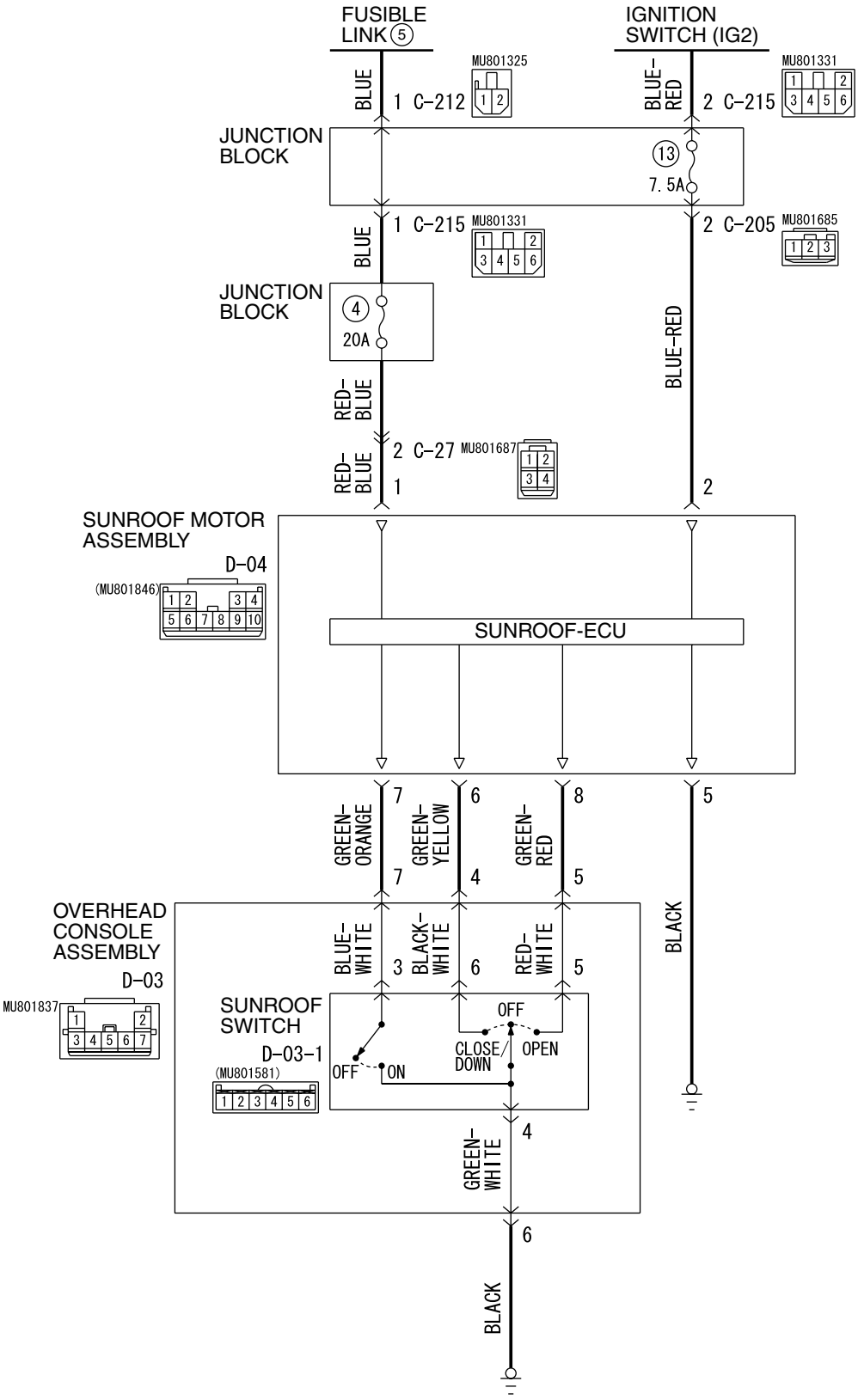
GENERAL CIRCUIT DIAGRAM REGARDING THE SUNROOF



TSB Revision

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

Sunroof Motor Assembly Power Supply Circuit



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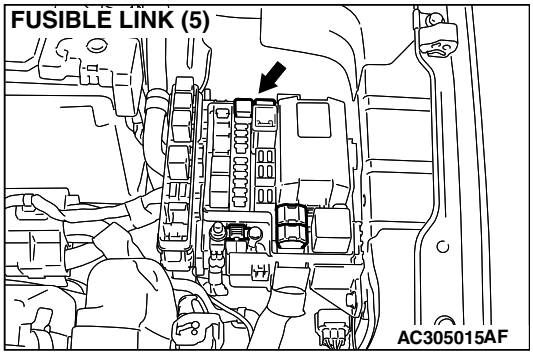
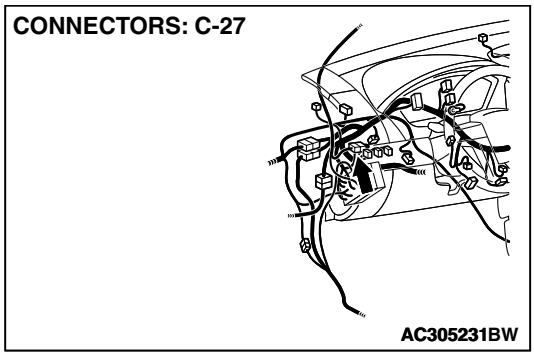
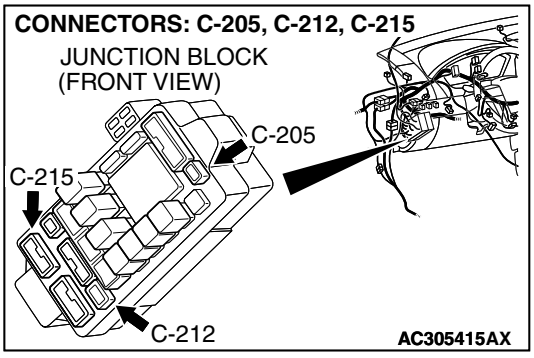
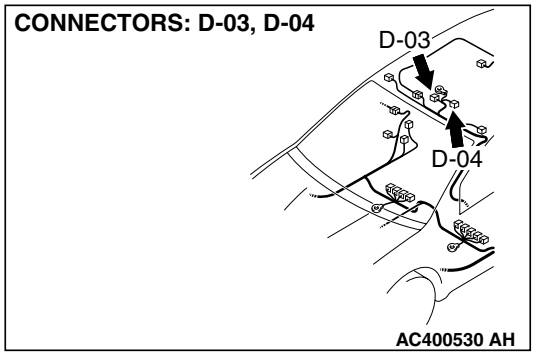
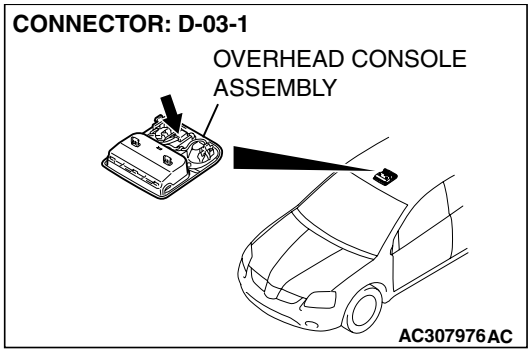
TSB Revision











CIRCUIT OPERATION

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

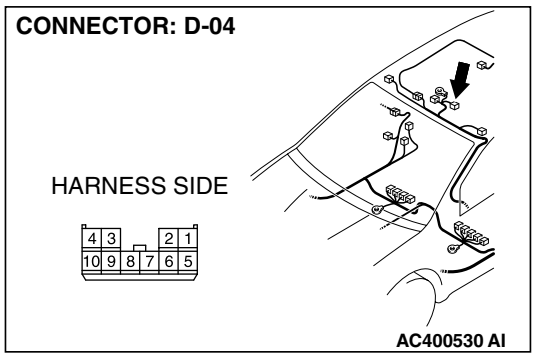
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:
- MB991223: Test Harness Set

STEP 1. Check sunroof motor assembly connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



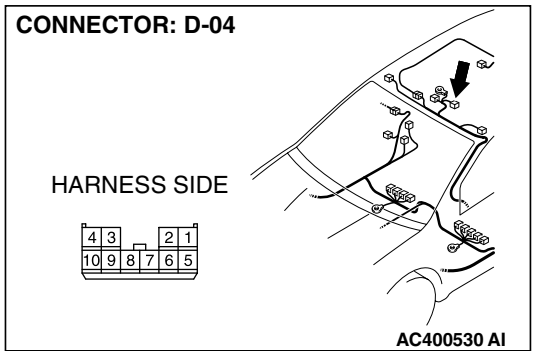
Q: Is sunroof motor assembly connector D-04 in good condition?

YES : Go to Step 2.

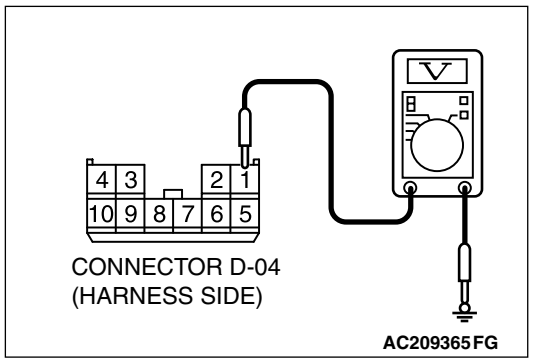
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the sunroof works normally.

STEP 2. Check the fusible link (5) line of power supply circuit to the sunroof motor assembly. Measure the voltage at sunroof motor assembly connector D-04.

(1) Disconnect sunroof motor assembly connector D-04 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 measure approximately 12 volts (battery positive voltage).

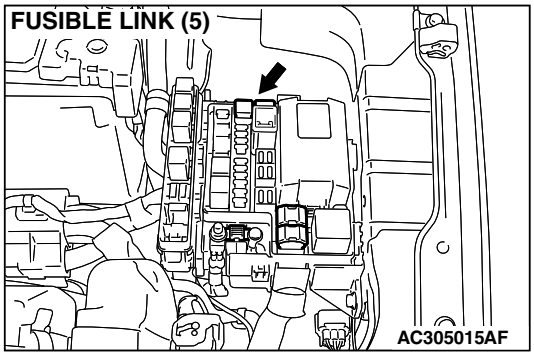


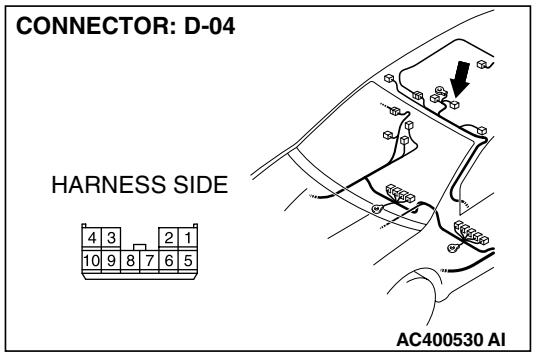
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

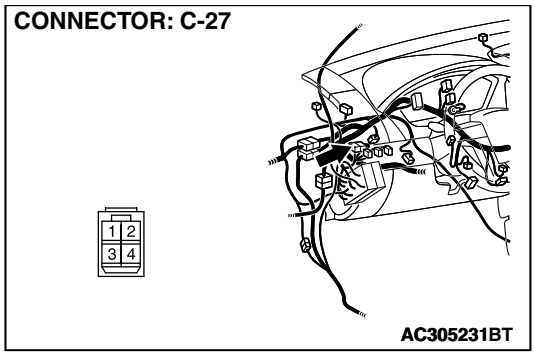
YES : Go to Step 4.

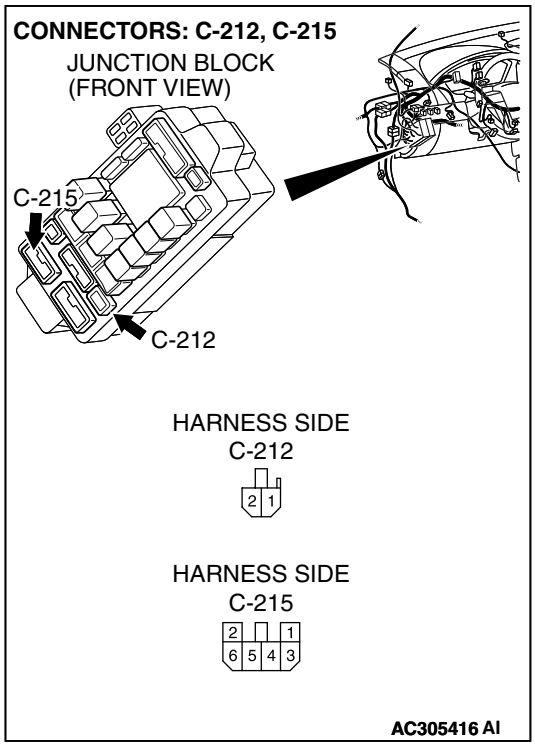
NO : Go to Step 3.

STEP 3. Check the wiring harness between sunroof motor assembly connector D-04 (terminal 1) and fusible link (5).









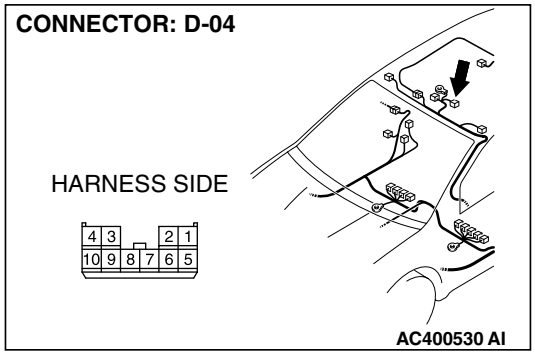
NOTE: Also check junction block connectors C-212, C-215 and intermediate connector C-27 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-212, C-215 or intermediate connector C-27 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector D-04 (terminal 1) and fusible link (5) in good condition?

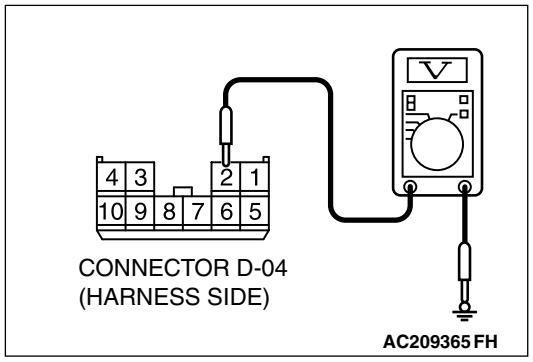
YES : No action is necessary and testing is complete.

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

STEP 4. Check the ignition switch (IG2) circuit to the sunroof motor assembly. Measure the voltage at sunroof motor assembly connector D-04.



(1) Disconnect sunroof motor assembly connector D-04 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ON" position.

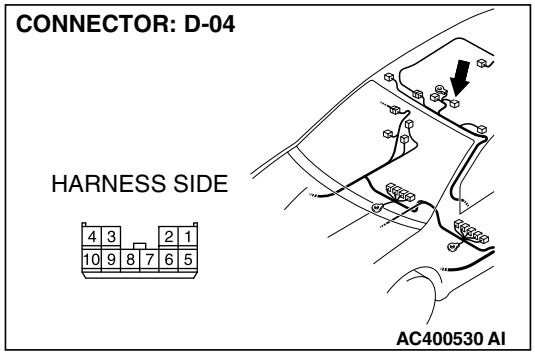


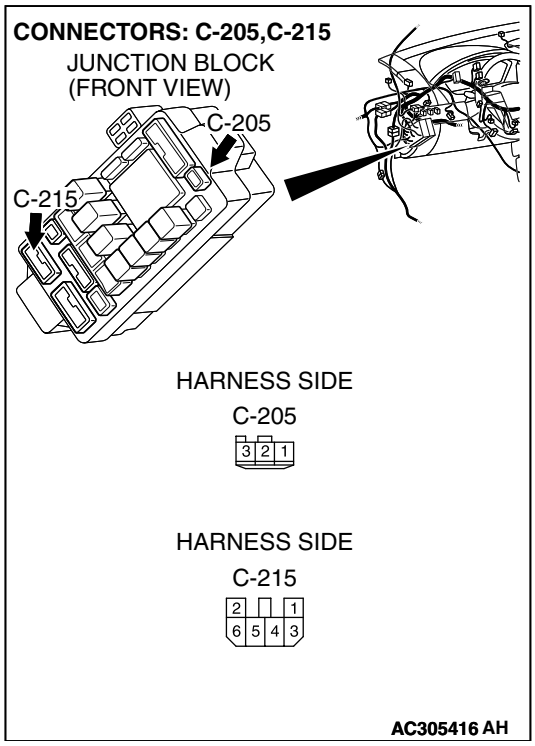
(3) Measure the voltage between terminal 2 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between sunroof motor assembly connector D-04 (terminal 2) and ignition switch (IG2).





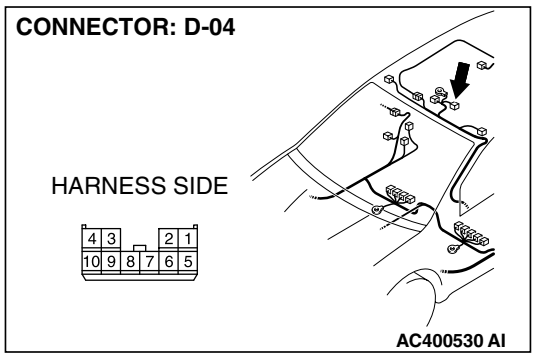
NOTE: Also check junction block connectors C-215 and C-205 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 or C-205 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector D-04 (terminal 2) and the ignition switch (IG2) in good condition?

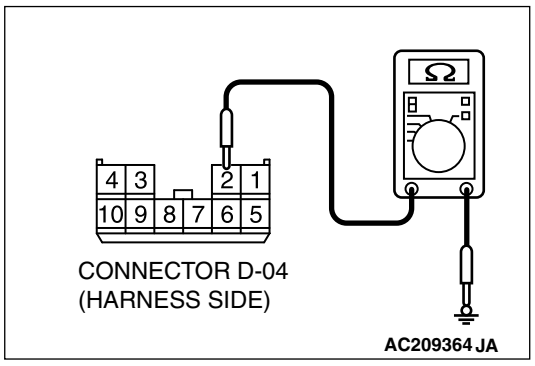
YES : No action is necessary and testing is complete.

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

STEP 6. Check the ground circuit to the sunroof motor assembly. Measure the resistance at sunroof motor assembly connector D-04.



(1) Disconnect sunroof motor assembly connector D-04 and measure the resistance available at the wiring harness side of the connector.

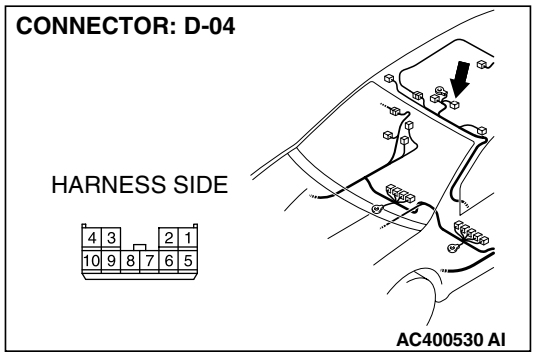


(2) Measure the resistance value between terminal 2 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 7.

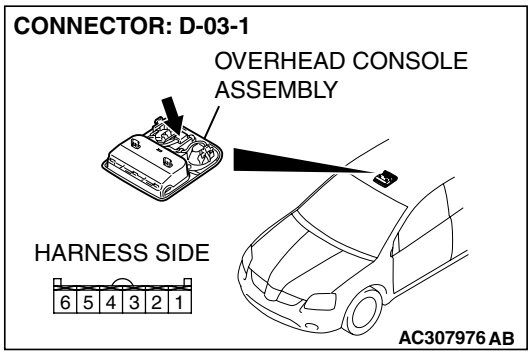


STEP 7. Check the wiring harness between sunroof motor assembly connector D-04 (terminal 5) and ground.

Q: Is the wiring harness between sunroof motor assembly connector D-04 (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. Check that the sunroof works normally.

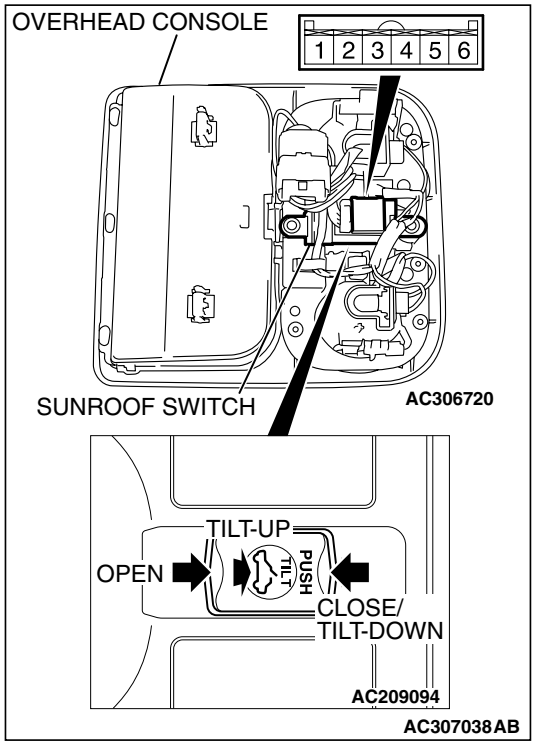


STEP 8. Check the sunroof switch connector D-03-1 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is sunroof switch connector D-03-1 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. Check that the sunroof works normally.



STEP 9. Check the sunroof switch.

(1) Remove the sunroof switch. Refer to GROUP 42, Sunroof Assembly P.42-78.

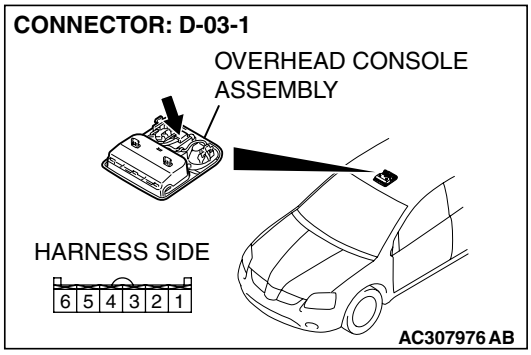
(2) Check continuity when the sunroof switch is operated to "OPEN", "TILT UP" or "CLOSE/TILT DOWN" positions.

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

Q: Does the check meet the specified conditions?

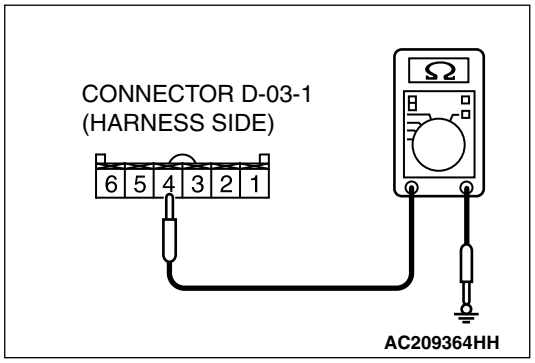
YES : Go to Step 10.

NO : Replace the sunroof switch. Check that the sunroof works normally.



STEP 10. Check the ground circuit to the sunroof switch. Measure the resistance at sunroof switch connector D-03-1.

(1) Disconnect sunroof switch connector D-03-1 and measure the resistance available at the wiring harness side of the connector.



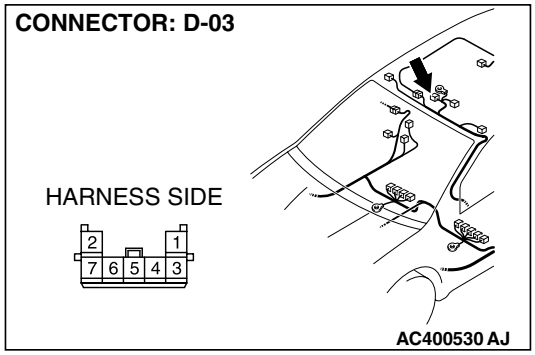
(2) Measure the resistance between terminal 4 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 14.

NO : Go to Step 11.

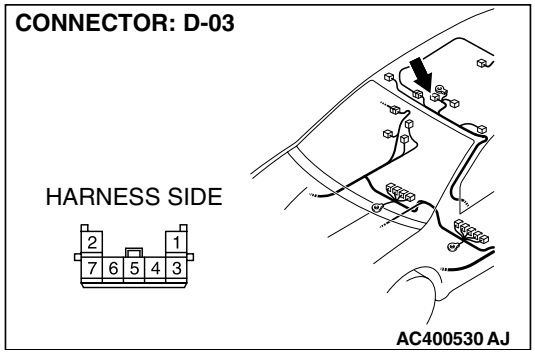


STEP 11. Check overhead console assembly connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is overhead console assembly connector D-03 in good condition?

YES : Go to Step 12.

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

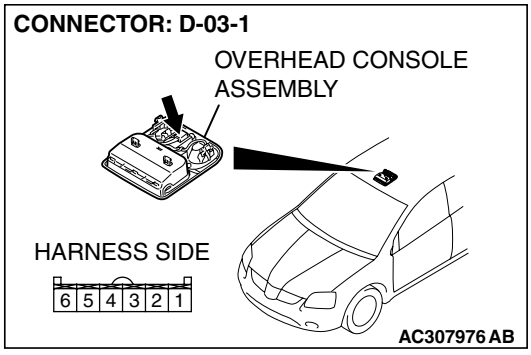


STEP 12. Check the wiring harness between sunroof switch connector D-03-1 (terminal 4) and overhead console assembly connector D-03 (terminal 6).

Q: Is the wiring harness between sunroof switch connector D-03-1 (terminal 4) and overhead console assembly connector D-03 (terminal 6) in good condition?

YES : Go to Step 13.

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

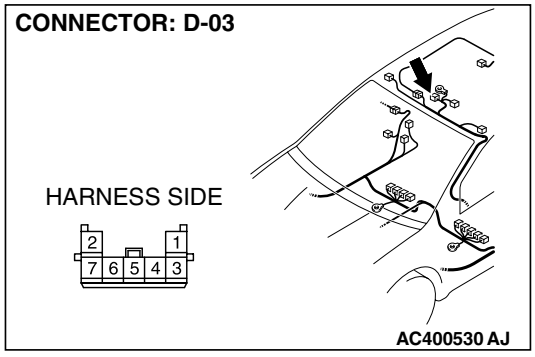


STEP 13. Check the wiring harness between overhead console assembly connector D-03 (terminal 6) and ground.

Q: Is the wiring harness between overhead console assembly connector D-03 (terminal 6) and ground in good condition?

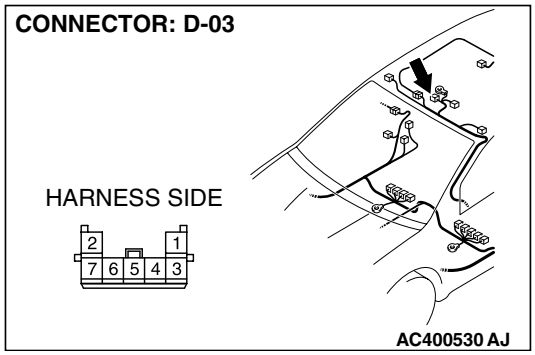
YES : No action is necessary and testing is complete.

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



TSB Revision

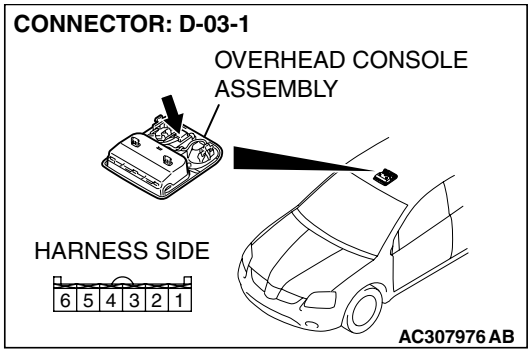
STEP 14. Check the wiring harness between sunroof switch connector D-03-1 (terminals 3, 5 and 6) and overhead console assembly connector D-03 (terminals 7, 5 and 4).



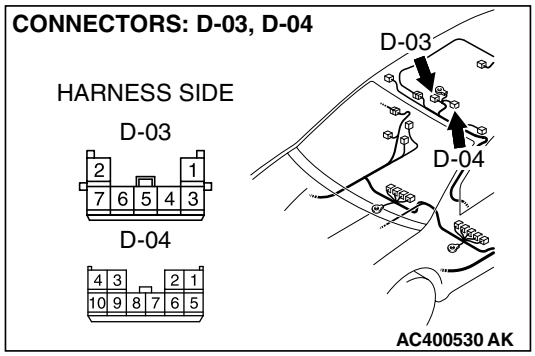
Q: Is the wiring harness between sunroof switch connector D-03-1 (terminals 3, 5 and 6) and overhead console assembly connector D-03 (terminals 7, 5 and 4) in good condition?

YES : Go to Step 15.

NO : The wiring harness may be damaged 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 works normally.



STEP 15. Check the wiring harness between sunroof motor assembly connector D-04 (terminals 6, 7 and 8) and overhead console assembly connector D-03 (terminals 4, 7 and 5).



Q: Is the wiring harness between sunroof motor assembly connector D-04 (terminals 6, 7 and 8) and overhead console assembly connector D-03 (terminals 4, 7 and 5) in good condition?

YES : Go to Step 16.

NO : The wiring harness may be damaged 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 works normally.

STEP 16. Replace the sunroof switch.

(1) Replace the sunroof switch.

(2) Check that the sunroof works normally.

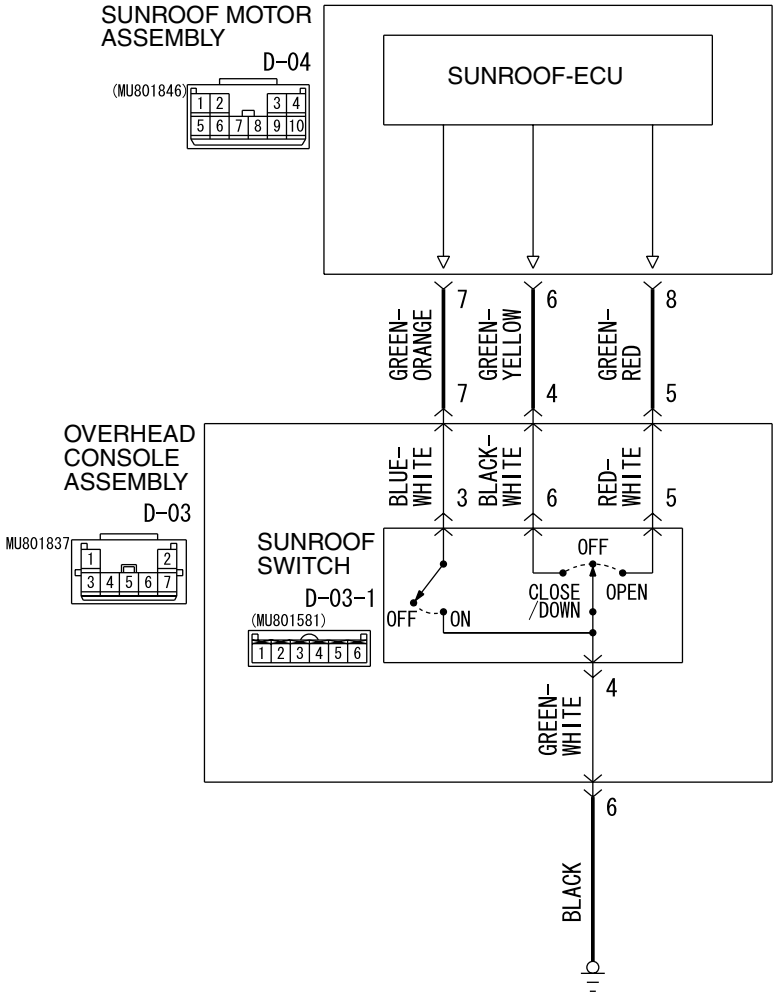
Q: Does the sunroof works normally?

YES : No action is necessary and testing is complete.

NO : Replace the sunroof motor assembly. Check that the sunroof works normally.

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

Sunroof Switch Circuit



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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
  - MB991910: MUT-III Main Harness A

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 MB991958.Refer to "How to connect SWS monitor P.54B-13."

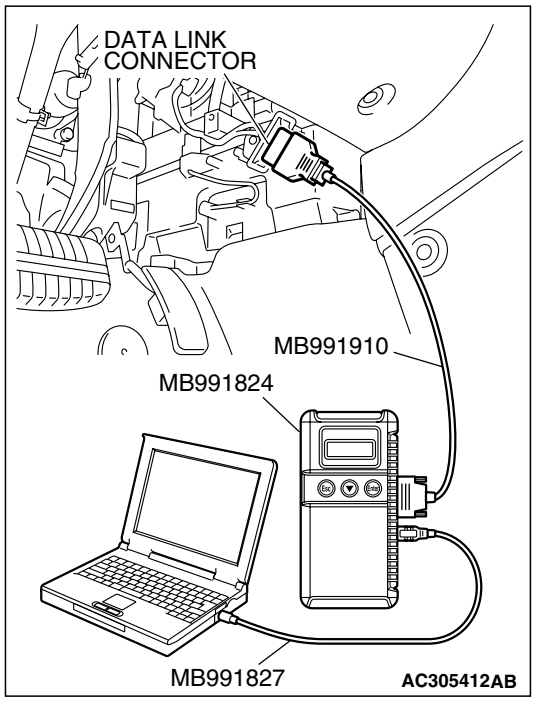
(2) Operate the scan tool MB991958 according to the procedure below to display "Pulse check."
   a. Select "Interactive Diagnosis."
   b. Select "System select."
   c. Select "SWS."
   d. Select "Pulse Checking."

(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. Check that the sunroof works at all positions normally.

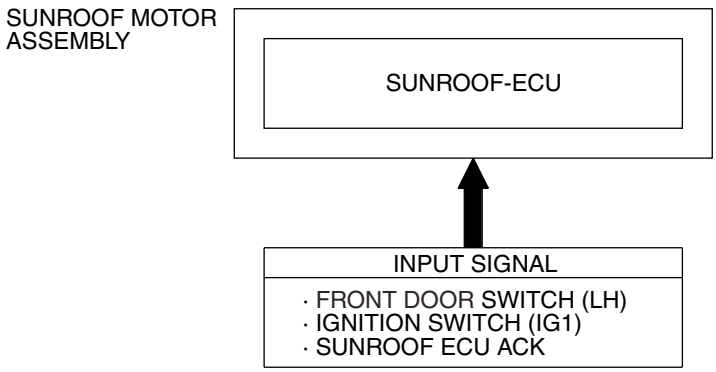
NO : Refer to Inspection Procedure M-8 "ETACS-ECU does not receive any signal from the up, open or close/down switch P.54B-494."



INSPECTION PROCEDURE F-3: Sunroof: Sunroof Timer Function does not Work Normally.

NOTE: This troubleshooting requires use of scan tool MB991958 and SWS monitor kit MB991813. For details of how to use the SWS monitor, refer to "How to use SWS monitor P.54B-15."

Sunroof Timer Function



W4P54M50AA

CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

Is 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.

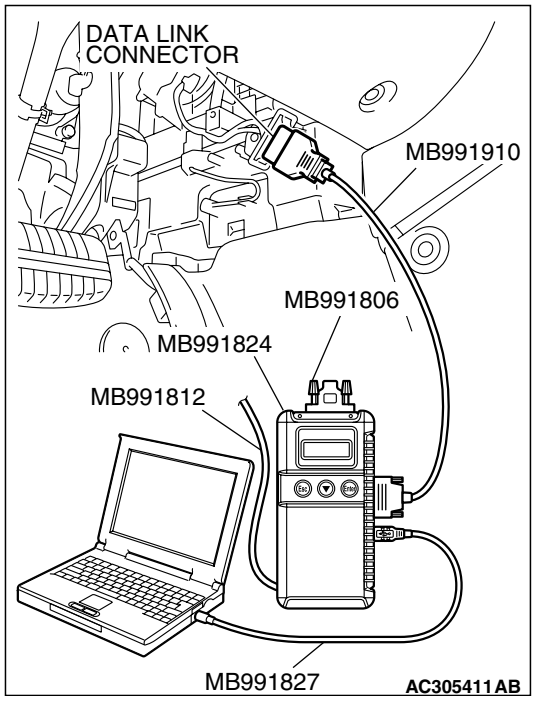
TROUBLESHOOTING HINTS

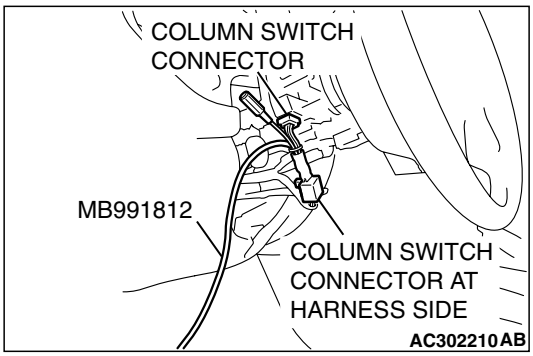
- The front door switch may be defective
- The sunroof motor assembly may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness





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

Check the following ECUs:

- ETACS-ECU
- Sunroof-ECU

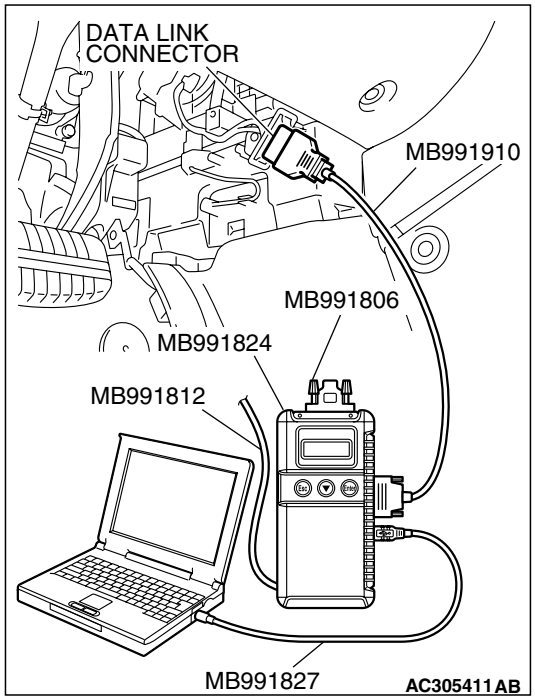
⚠ CAUTION

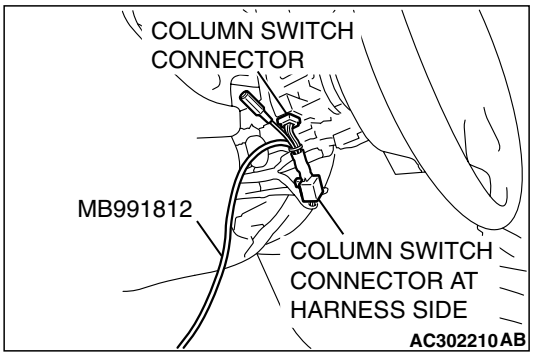
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

(1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "LOCK" (OFF) position.
(3) Operate the scan tool MB991958 according to the procedure below to display "ECU COMM Check."
   a. Select "Interactive Diagnosis."
   b. Select "System select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "ECU COMM Check."
(4) Scan tool MB991958 should show "OK" on the "ECU COMM Check" menus for both the "ETACS ECU" and the "SUNROOF ECU" menus.

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

"OK" is displayed for all the items : Go to Step 2.
"NG" is displayed for the "ETACS ECU" menu : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54B-78."
"NG" is displayed for the "SUNROOF ECU" menu : Refer to Inspection Procedure A-5 "Communication with the sunroof-ECU is not possible P.54B-93."





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

Observe how the input signal is changed when the ignition switch is turned from the ON position to the "LOCK" (OFF) position.

(1) Operate the MUT-III according to the procedure below to display "SUNROOF-OPE."
   a. Select "Interactive Diagnosis."
   b. Select "System select."
   c. Select "SWS."
   d. Select "SWS MONITOR."
   e. Select "Function Diag."
   f. Select "SUNROOF."
   g. Select "SUNROOF-OPE."

(2) Check that normal conditions are displayed for 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: Does the MUT-III display the items "IG SW (IG1)" and "S/R ECU ACK" as normal condition?

Normal conditions displayed for all the items : Replace the sunroof motor assembly. Check that the sunroof timer function works normally.

Normal condition is not displayed for the "IG SW (IG1)" : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) P.54B-470."

Normal condition is not displayed for the "S/R ECU ACK" : Replace the sunroof motor assembly. Check that the sunroof timer function works normally.

NEXT>>