

INTERIOR LAMP

GENERAL DESCRIPTION CONCERNING THE INTERIOR LAMP

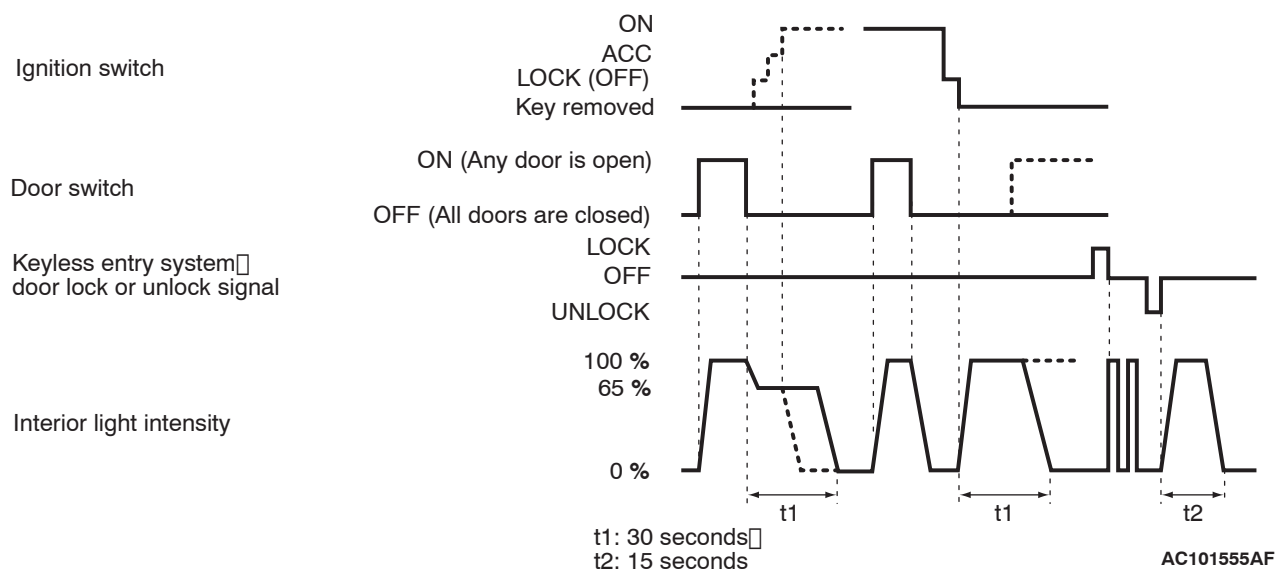
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- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)

The following ECUs affect the functions and control of the interior lamps.

FUNCTION	CONTROL ECU
Interior lamp control function	ETACS-ECU
Interior lamp automatic-shutoff function	ETACS-ECU
Ignition key hole illumination lamp function	ETACS-ECU
Door ajar indicator	ETACS-ECU
Seat belt indicator	ETACS-ECU

Interior lamp control function



The ETACS-ECU controls the interior lamps by turning them on and off in the following way:

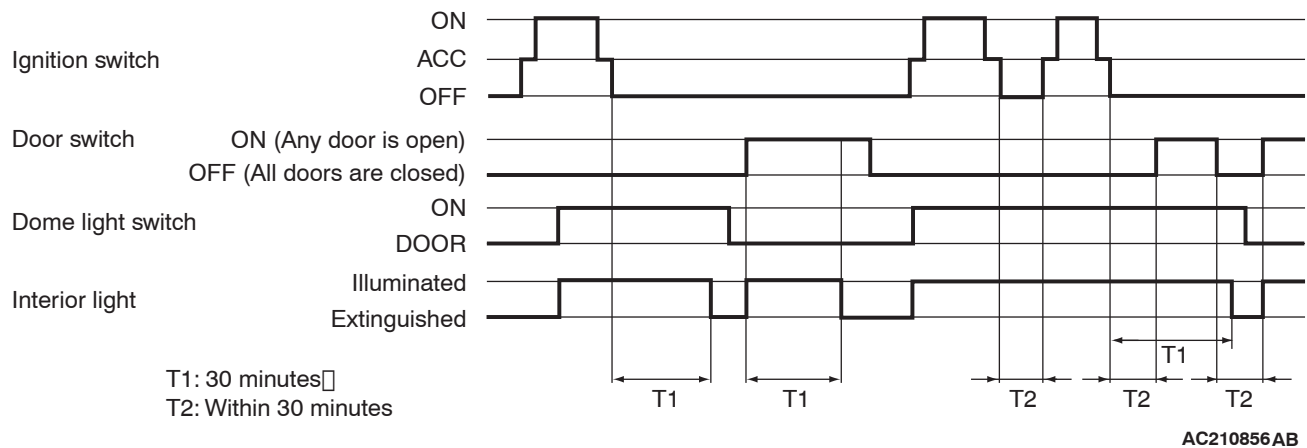
- When a door is opened with the ignition switch off, the interior lamps up to a luminance of 100 percent. When a door is closed, the interior lamps dims at a luminance of 65 percent, and goes off 30 seconds later. However if the ignition switch is turned ON or if a door is locked while the interior lamps is dimming, the dome lamp will go off at that point.
- When a door is opened with the ignition switch ON, the interior lamps up at a luminance of 100 percent. When a door is closed, the interior lamps go off.

- When the ignition key is removed with all doors closed, the interior lamps up at a luminance of 100 percent, and goes off 30 seconds later. However if the ignition key is inserted again or if a door is locked while the interior lamps is lighting, the interior lamps will go off at that point.
- To check keyless entry operations more easily, the interior lamps is flashed once when the doors are locked. When the doors are unlocked, the interior lamps at a luminance of 100 percent, and go off 15 seconds later.

NOTE: The dimmer function can be customised on vehicles equipped with a multi center display (middle grade type). Refer to [P.54B-486](#).

NOTE: The dotted lines indicate that lighting mode when the ignition switch is turned ON, door is locked, or any door is opened during the timer illumination time.

Interior lamp automatic-shutoff function



Illuminated interior lamps such as the front dome lamp, etc. (all lamps using the dome lamp fuse as the power supply) will automatically go off in the following conditions to prevent the battery from discharging as a result of forgetting to turn off the lamps or incomplete closing of the door.

- When the ignition switch is turned off and more than 30 minutes pass with the interior lamp illuminated, the interior lamps will go off automatically.

- When the ignition switch is turned off and one of the door switches remains open for 30 minutes continuously, the interior lamps will go off automatically.

NOTE: The interior lamp automatic shutoff function can be customised on vehicles equipped with a multi center display (middle grade type). Refer to [P.54B-486](#).

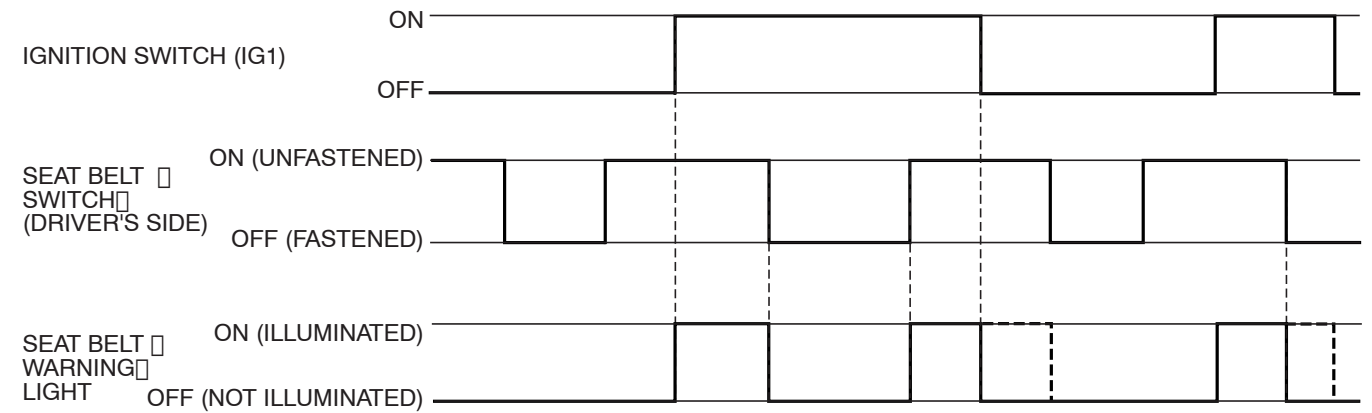
Ignition key hole illumination lamp function

The ignition key hole illumination lamp illuminates when the driver's door is opened with the ignition switch off, and for 30 seconds after the driver's door is closed. It also illuminates for 30 seconds after the ignition key is pulled out. In any case, it goes out when the ignition switch is turned on.

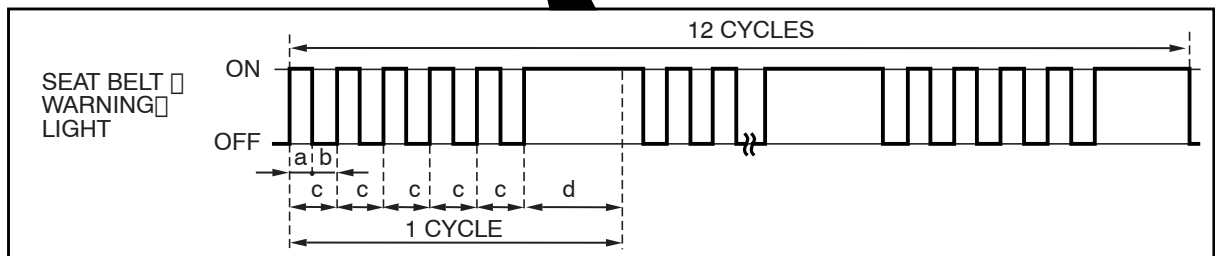
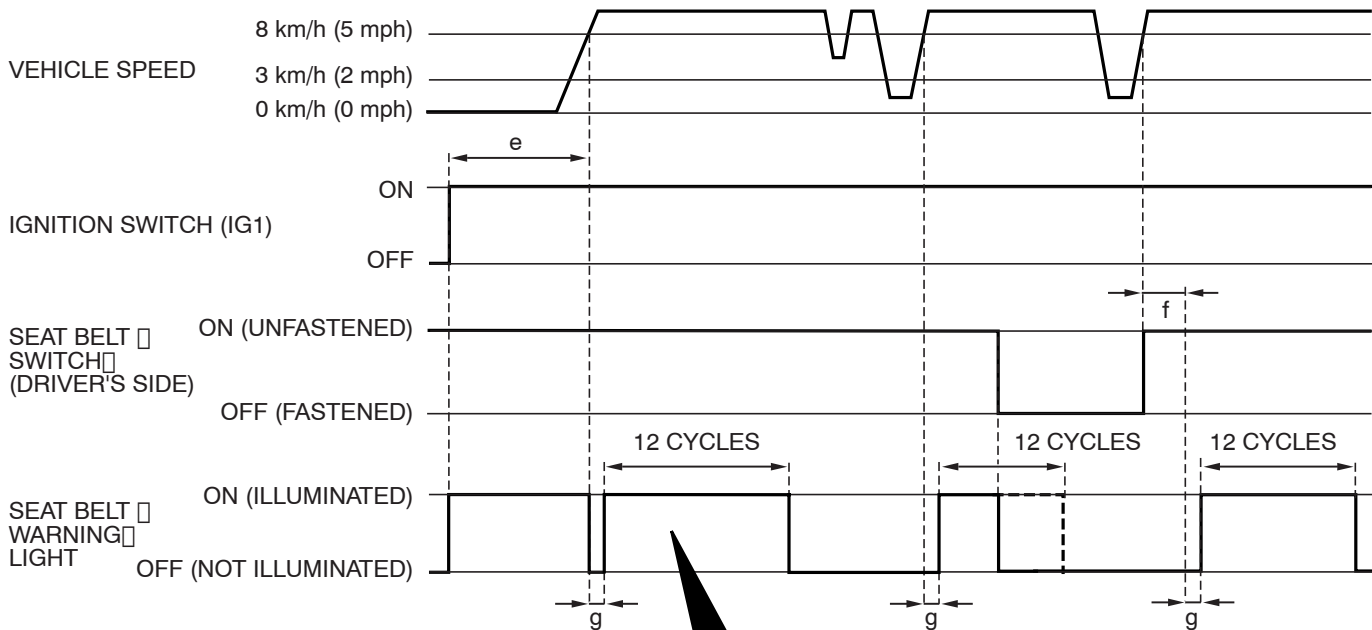
Door ajar indicator

The combination meter receives the signal sent from the ETACS-ECU about whether each door is open or closed and turns the door ajar indicator on and off. While the door ajar indicator is illuminated, the door ajar warning function is activated and the door ajar indicator flashes 4 times. If the door remains open even after the 4 warning flashes, the door ajar indicator will be illuminated again. And when the interior lamp automatic-shutoff function is activated, the door ajar indicator is extinguished.

Seat belt indicator



AC305420 AC



a: 0.48 SECOND

b: 0.52 SECOND

c: 1 SECOND

d: 3 SECONDS

e: 60 SECONDS OR MORE

f: 10 SECONDS

g: 0.5 SECOND

AC305443AB

If any of the following conditions is met with the ignition switch at "ON" or "ST", the ETACS-ECU illuminates, flashes or extinguishes the seat belt indicator by using the driver's seat belt switch signal and the vehicle speed signal sent from the combination meter.

- Illuminates when the ignition switch is at "ON" and the seat belt switch is turned on (the driver's seat belt is unfastened).
- Flashes and illuminates the indicator 12 cycles (after 0.5 seconds) if any of the following conditions is met when sixty seconds or more have elapsed since the ignition switch is turned "ON". One cycle consists of five-second "flashing" and then three-second "illumination".

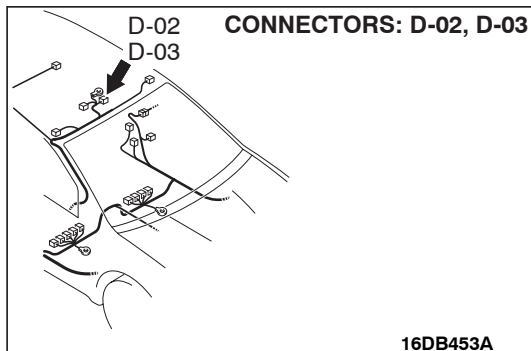
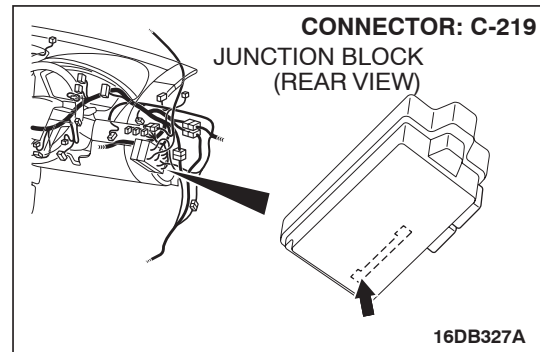
- a. The vehicle speed has reached 8 km/h (5 mph) while the seat belt switch is turned on (driver's seat belt is not fastened) with the ignition switch "ON".
- b. The seat belt switch has been turned on (driver's seat belt has not been fastened) for at least ten seconds while the ignition switch has been turned "ON" and the vehicle speed has been 8 km/h (5 mph) or more.

NOTE: Once this timer operation has been activated, it will not be activated again until the vehicle speed reduces to 3 km/h (2 mph) or less even if any of the following conditions is met.

- The indicator stops illuminating if the ignition switch or the seat belt switch is turned off (the driver's seat belt is fastened) while the timer operation is active.

INSPECTION PROCEDURE K-1: Interior Light: The dome lamp do not illuminate and go out normally.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."



CIRCUIT OPERATION

The ETACS-ECU operates the dome lamp according to the following signals:

- Ignition switch (IG1): ON or OFF
- Key reminder switch: ON or OFF
- Door switches: ON or OFF
- Driver's door lock actuator switch: ON or OFF
- Interior lamp loaded signal: ON

TECHNICAL DESCRIPTION (COMMENT)

If the dome lamp does not illuminate normally, a burned-out dome lamp bulb, the input circuits from the switches described in "CIRCUIT OPERATION", the power supply line to the switches or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- 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: Diagnostic 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: Test Probe Harness

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

Check the ETACS-ECU.

⚠ CAUTION

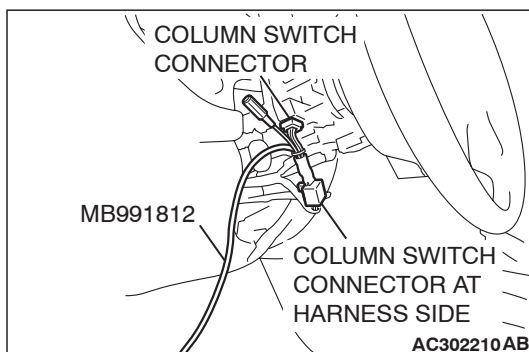
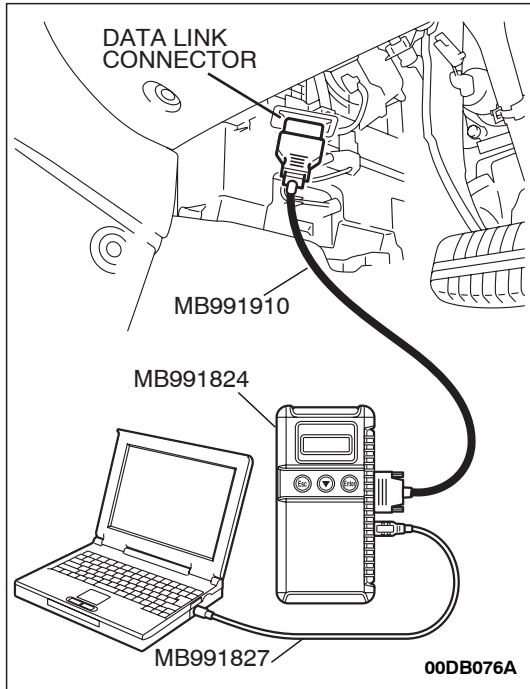
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

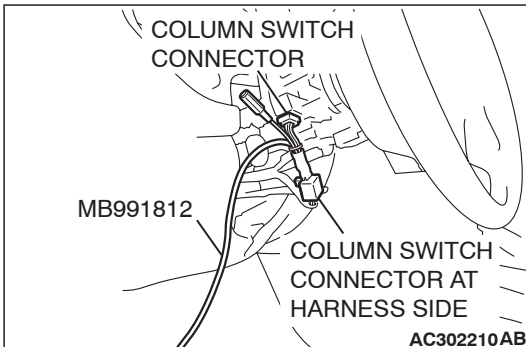
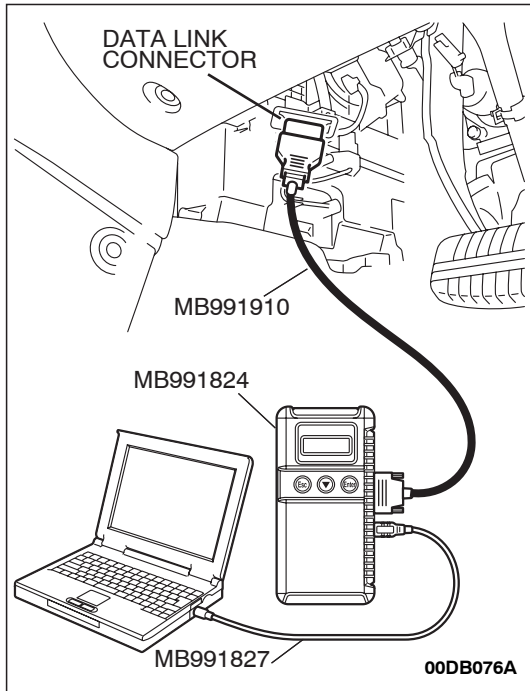
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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-74."





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

Check the input signals from the following switches:

- Ignition switch: ON or START
- Driver's or front passenger's door: open

(1) Operate diagnostic 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.

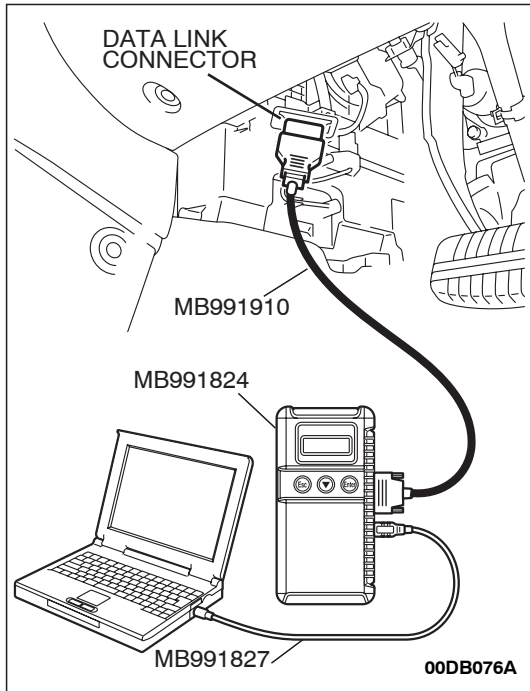
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	ON
ITEM 32	FRONT DOOR SW	ON

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

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

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-408.](#)"

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-413.](#)"



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
- Interior lamp loaded signal
- Door switches

- (1) Operate diagnostic 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 diagnostic tool MB991958 sounds or not.

ITEM NAME	CONDITION
key reminder switch	Remove and reinsert the ignition key
interior lamp loaded signal	Turn on one of the interior lamps
door switches	Open or close one of the doors

Q: When the key reminder switch, any door switch or interior lamp is operated, does diagnostic tool MB991958 sound?

Buzzer of diagnostic tool MB991958 sounds normally. :

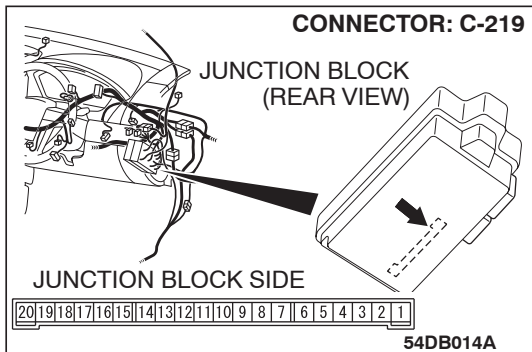
Go to Step 4.

Diagnostic 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-432.](#)"

When one of the interior lamps is illuminated, diagnostic tool MB991958 does not sound : Refer to Inspection Procedure N-9 "ETACS-ECU does not receive any interior lamp loaded signal [P.54B-474.](#)"

When one of the doors is opened and closed, diagnostic 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-440.](#)"

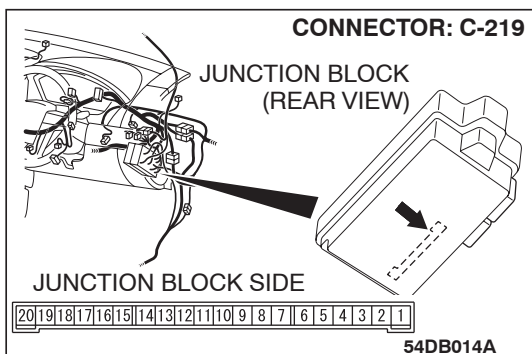


STEP 4. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

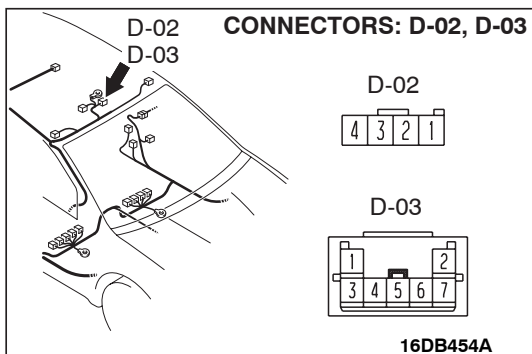
Q: Is ETACS-ECU connector C-219 in good condition?

YES : Go to Step 5.

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



STEP 5. Check the wiring harness between map lamp assembly connector D-02 (terminal 1) <without sunroof> or overhead console assembly connector D-03 (terminal 1) <with sunroof> and ETACS-ECU connector C-219 (terminal 6).



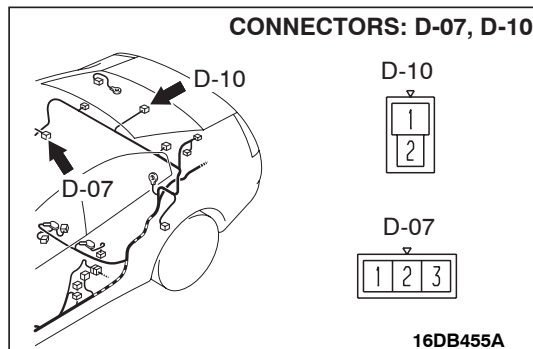
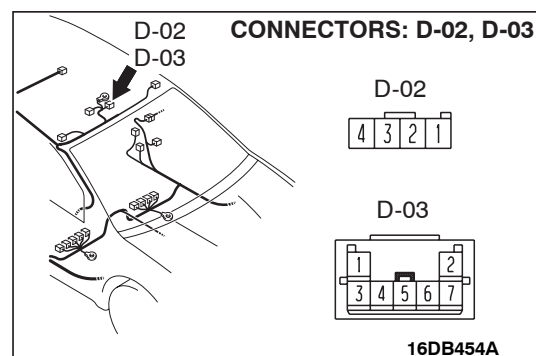
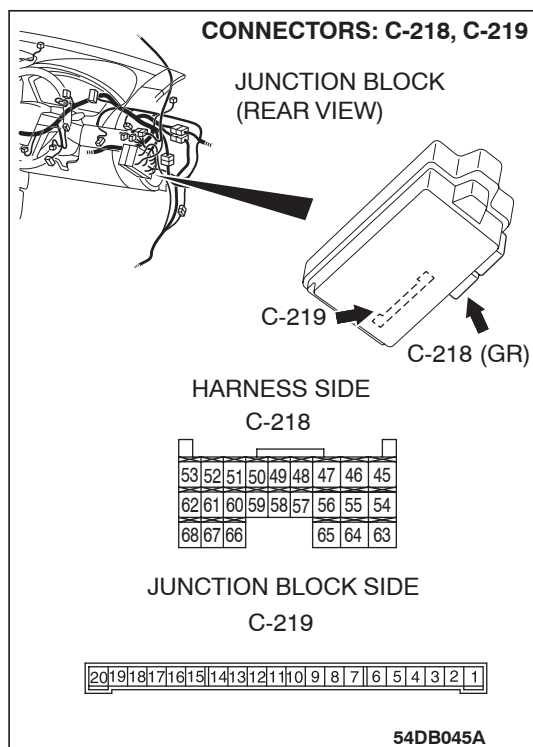
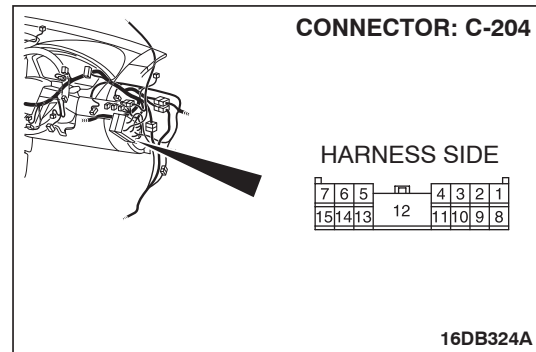
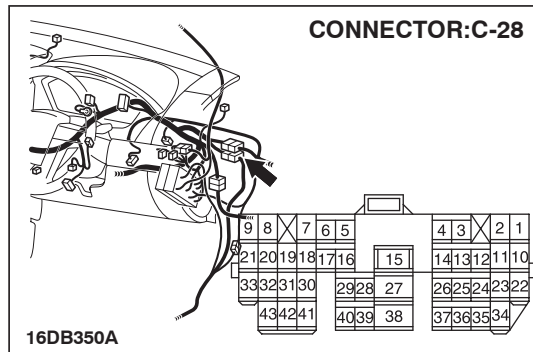
NOTE: Also check junction block connector C-205 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-205 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between map lamp assembly connector D-02 (terminal 1) <without sunroof> or overhead console assembly connector D-03 (terminal 1) <with sunroof> and ETACS-ECU connector C-219 (terminal 6) in good condition?

YES : Replace the ETACS-ECU. Verify that the dome lamp illuminates normally.

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

INSPECTION PROCEDURE K-2: Interior Light: The front dome lamp, rear dome lamp or trunk lamp do not illuminate or go out normally.



CIRCUIT OPERATION

The ETACS-ECU operates the dome lamp according to the following signals:

- Ignition switch (IG1): ON or OFF
- Key reminder switch: ON or OFF

- Door switches: ON or OFF
- Trunk lid latch assembly: ON or OFF
- Driver's door lock actuator switch: LOCK or UNLOCK

TECHNICAL DESCRIPTION (COMMENT)

Is the dome lamp does not flash normally, a burned-out dome lamp bulb, the input circuits from the switches described in "CIRCUIT OPERATION", the power supply line to the switches or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The front dome lamp bulb may be defective
- The rear dome lamp bulb may be defective
- The trunk lamp bulb 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 Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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 which of the front dome lamp, rear dome lamp or trunk lamp do not illuminate normally.

Q: Which of the front dome lamp, rear dome lamp or trunk lamp fail to illuminate normally?

Front dome lamp and rear dome lamp : Go to Step 2.

Front dome lamp : Go to Step 4.

Rear dome lamp : Go to Step 9.

Trunk lamp : Go to Step 14.

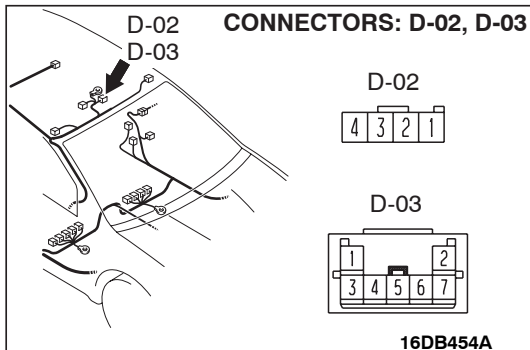
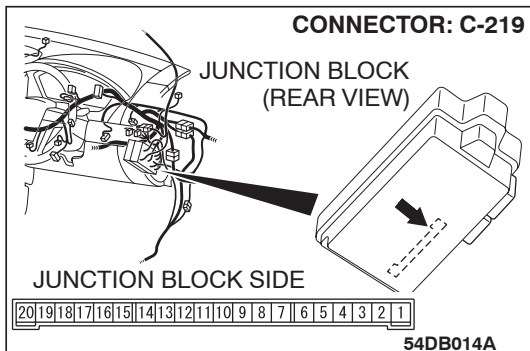
STEP 2. Check map lamp assembly connector D-02 <without sunroof>, overhead console assembly connector D-03 <with sunroof> and ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

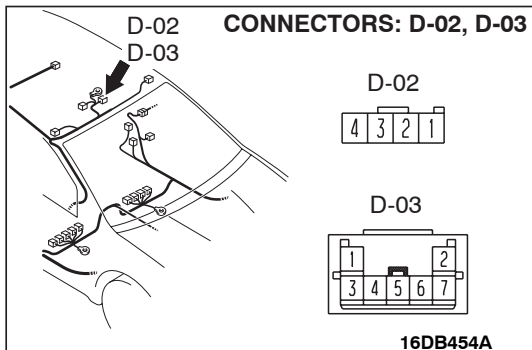
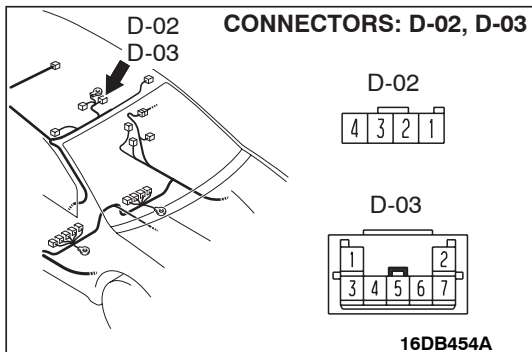
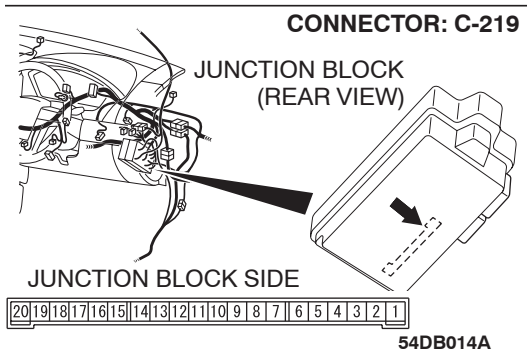
Q: Is map lamp assembly connector D-02 <without sunroof>, overhead console assembly connector D-03 <with sunroof> and ETACS-ECU connector C-219 in good condition?

YES : Go to Step 3.

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

[P.00E-2](#). Check that the front dome lamp and rear dome lamp illuminates normally.





STEP 3. Check the wiring harness between map lamp assembly connector D-02 (terminals 1 and 2) <without sunroof> or overhead console assembly connector D-03 (terminals 1 and 2) <with sunroof> and ETACS-ECU connector C-219 (terminals 6 and 5).

Q: Is the wiring harness between map lamp assembly connector D-02 (terminals 1 and 2) <without sunroof> or overhead console assembly connector D-03 (terminals 1 and 2) <with sunroof> and ETACS-ECU connector C-219 (terminals 6 and 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 front dome lamp and rear dome lamp illuminates normally.

STEP 4. Check map lamp assembly connector D-02 <without sunroof> or overhead console assembly connector D-03 <with sunroof> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is map lamp assembly connector D-02 <without sunroof> or overhead console assembly connector D-03 <with sunroof> in good condition?

YES : Go to Step 5.

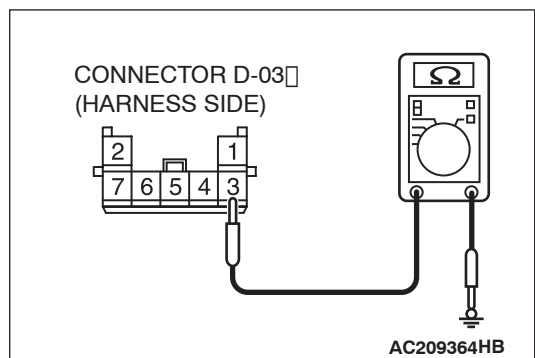
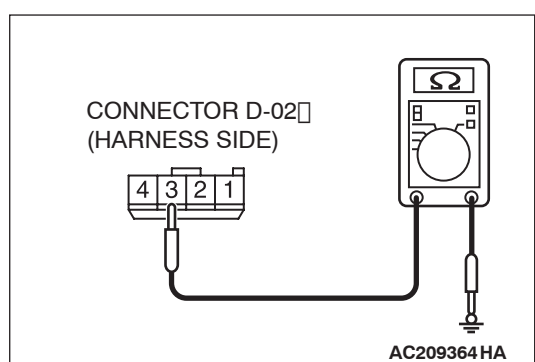
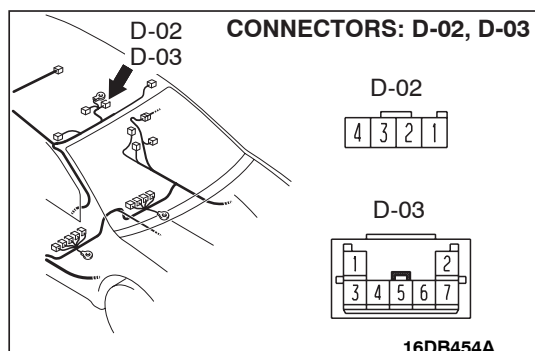
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the front dome lamp illuminates normally.

STEP 5. Check the front dome lamp bulb.

Q: Is the front dome lamp bulb in good condition?

YES : Go to Step 6.

NO : Replace the front dome lamp bulb. Check that the front dome lamp illuminates normally.



STEP 6. Check the ground circuit to the front dome lamp. Measure the resistance at map lamp assembly connector D-02 <without sunroof> or overhead console assembly connector D-03 <with sunroof>.

- (1) Disconnect map lamp assembly connector D-02 <without sunroof> or overhead console assembly connector D-03 <with sunroof> and measure the resistance available at the wiring harness side of the connector.

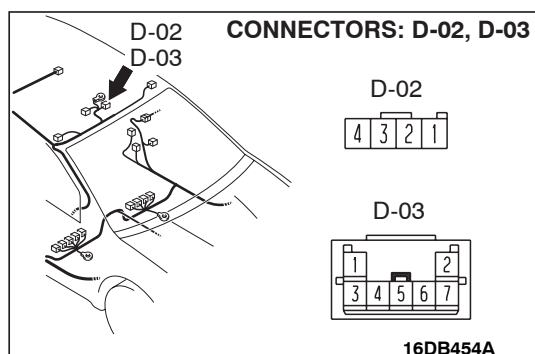
- (2) Measure the resistance value between terminal 3 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 8.

NO : Go to Step 7.

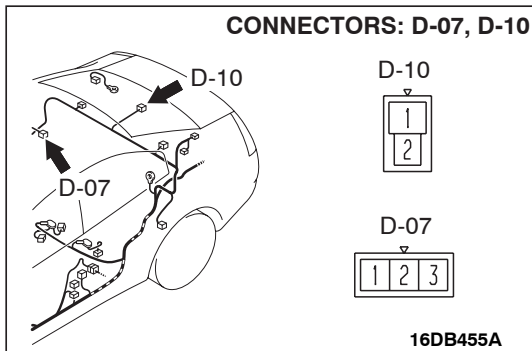
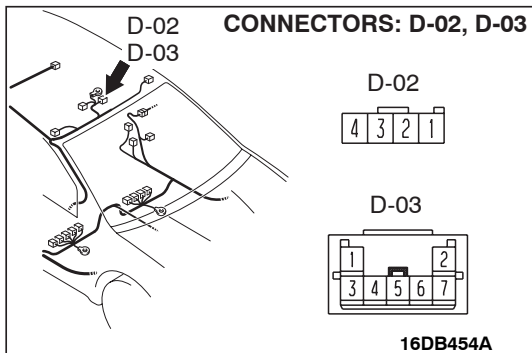
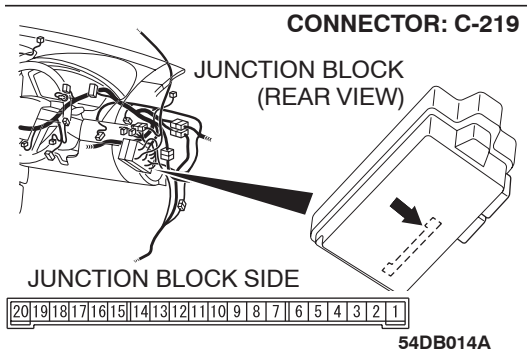


STEP 7. Check the wiring harness between map lamp assembly connector D-02 (terminal 3) <without sunroof> or overhead console assembly connector D-03 (terminal 3) <with sunroof> and ground.

Q: Is the wiring harness between map lamp assembly connector D-02 (terminal 3) <without sunroof> or overhead console assembly connector D-03 (terminal 3) <with sunroof> and ground in good condition?

YES : Replace the overhead console assembly. Check that the front dome lamp illuminates normally.

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



STEP 8. Check the wiring harness between map lamp assembly connector D-02 (terminals 1 and 2) <without sunroof> or overhead console assembly connector D-03 (terminals 1 and 2) <with sunroof> and ETACS-ECU connector C-219 (terminals 6 and 5).

Q: Is the wiring harness between map lamp assembly connector D-02 (terminals 1 and 2) <without sunroof> or overhead console assembly connector D-03 (terminals 1 and 2) <with sunroof> and ETACS-ECU connector C-219 (terminals 6 and 5) in good condition?

- YES :** Replace the map lamp assembly <without sunroof> or overhead console assembly <with sunroof>. Check that the front dome lamp illuminates normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the front dome lamp illuminates normally.

STEP 9. Check rear dome lamp connector D-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

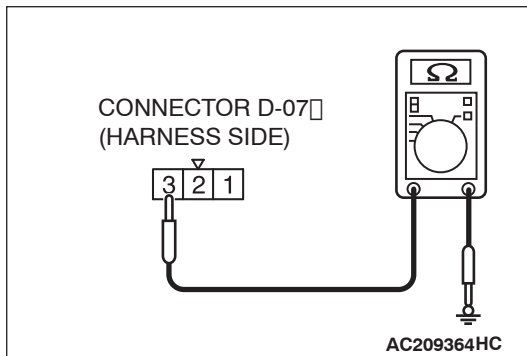
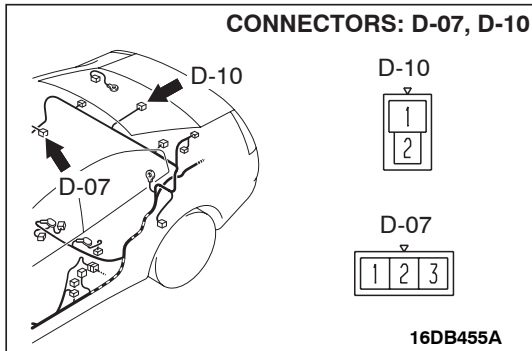
Q: Is rear dome lamp connector D-07 in good condition?

- YES :** Go to Step 10.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear dome lamp illuminates normally.

STEP 10. Check the rear dome lamp bulb.

Q: Is the rear dome lamp bulb in good condition?

- YES :** Go to Step 11.
- NO :** Replace the rear dome lamp bulb. Check that the rear dome lamp illuminates normally.



STEP 11. Check the ground circuit to the rear dome lamp. Measure the resistance at rear dome lamp connector D-07.

(1) Disconnect rear dome lamp connector D-07 and measure the resistance available at the wiring harness side of the connector.

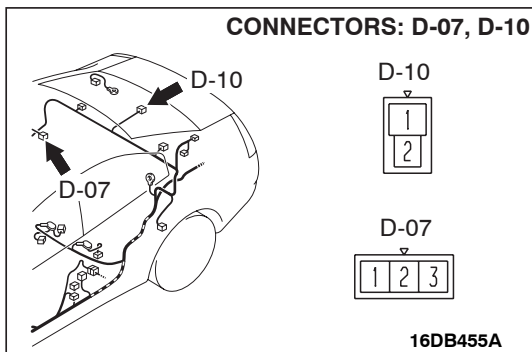
(2) Measure the resistance value between terminal 3 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 13.

NO : Go to Step 12.

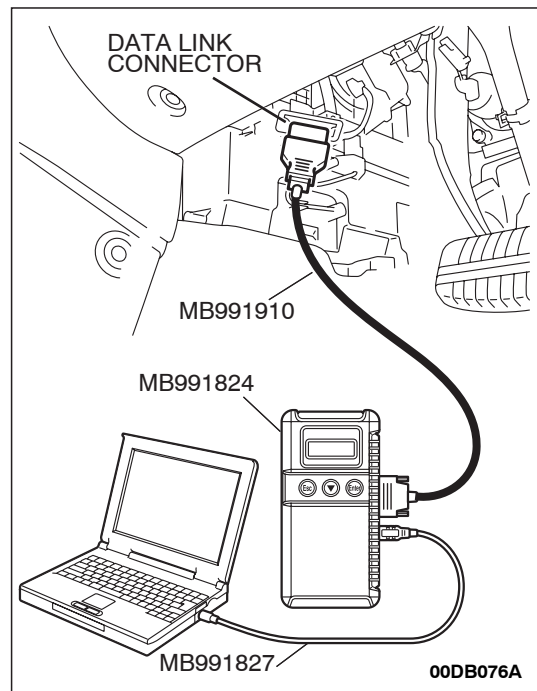
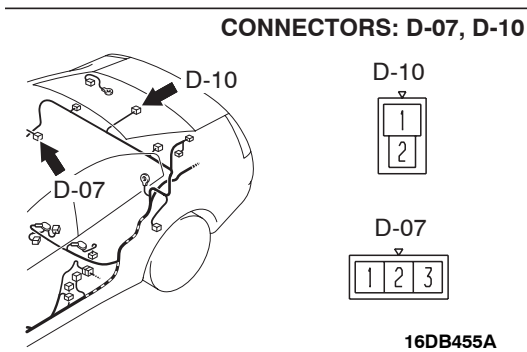
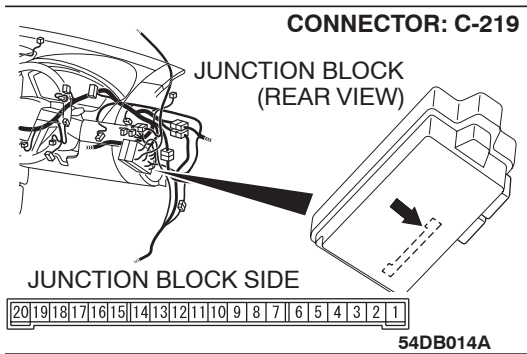


STEP 12. Check the wiring harness between rear dome lamp connector D-07 and ground.

Q: Is the wiring harness between rear dome lamp connector D-07 and ground in good condition?

YES : Replace the rear dome lamp. Check that the rear dome lamp illuminates normally.

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



STEP 13. Check the wiring harness between rear dome lamp connector D-07 (terminals 1 and 2) and ETACS-ECU connector C-219 (terminals 6 and 5).

Q: Is the wiring harness between rear dome lamp connector D-07 (terminals 1 and 2) and ETACS-ECU connector C-219 (terminals 6 and 5) in good condition?

YES : Replace the rear dome lamp. Check that the rear dome lamp illuminates normally.

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

STEP 14. Check the input signal (by using the pulse check mode of the monitor).

Check the input signals from the trunk lid latch assembly.

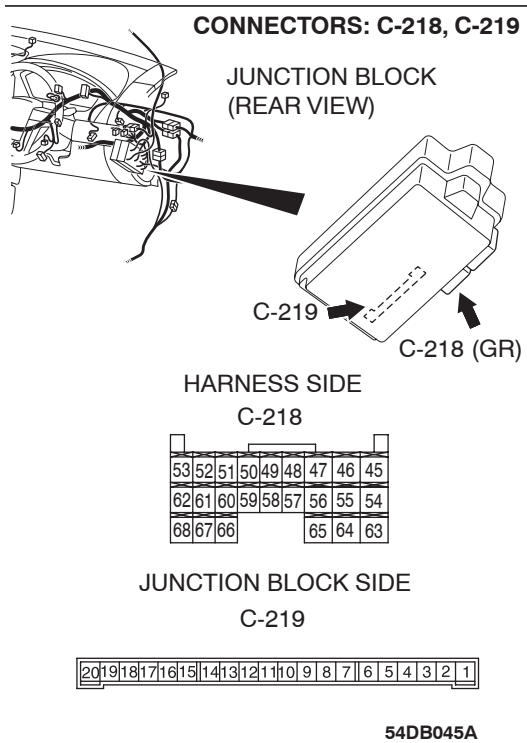
- Check whether diagnostic tool MB991958 sounds or not when the trunk is opened.

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

Q: Does diagnostic tool MB991958 sound when the trunk is opened and closed?

YES : Go to Step 15.

NO : Refer to Inspection Procedure N-7 "ETACS-ECU does not receive any signal from the trunk lid latch assembly [P.54B-469](#)."



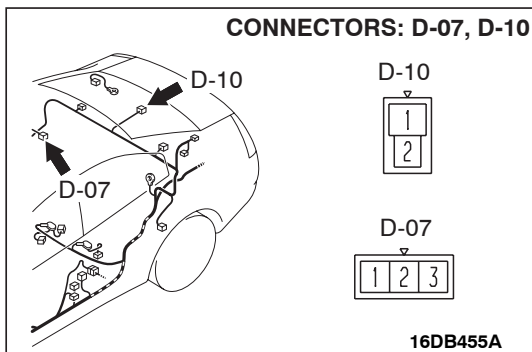
STEP 15. Check trunk lamp connector D-10, ETACS-ECU connectors C-218 and C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is trunk lamp connector D-10, ETACS-ECU connectors C-218 and C-219 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. Check that the trunk lamp illuminates normally.



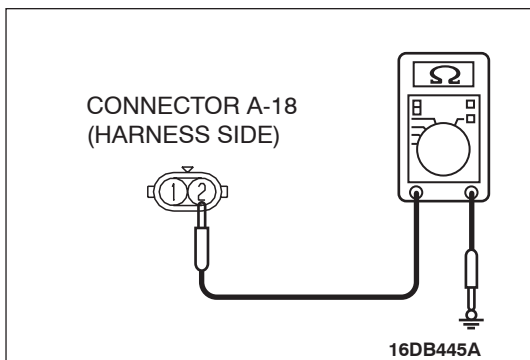
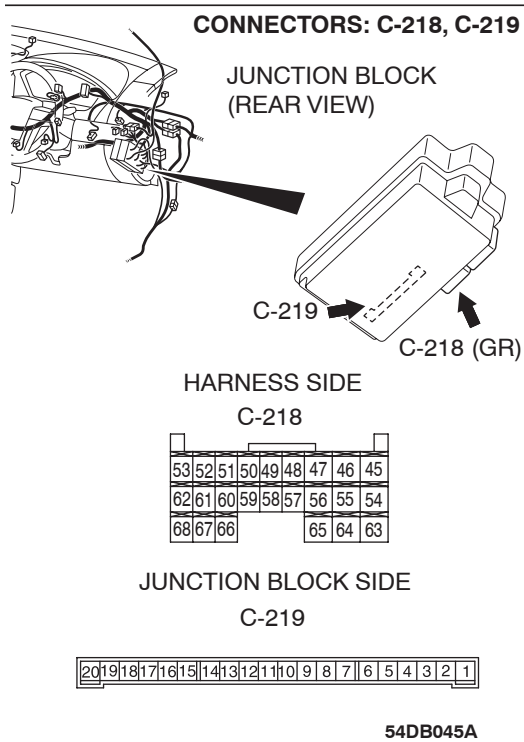
STEP 16. Check the trunk lamp bulb.

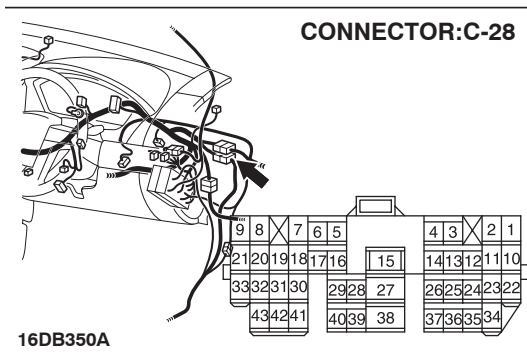
Q: Is the trunk lamp bulb in good condition?

YES : Go to Step 17.

NO : Replace the trunk lamp bulb. Check that the trunk lamp illuminates normally.

STEP 17. Check the wiring harness between trunk lamp connector D-10 (terminals 1 and 2) and ETACS-ECU connector C-219 (terminal 6) or C-218 (terminal 46).



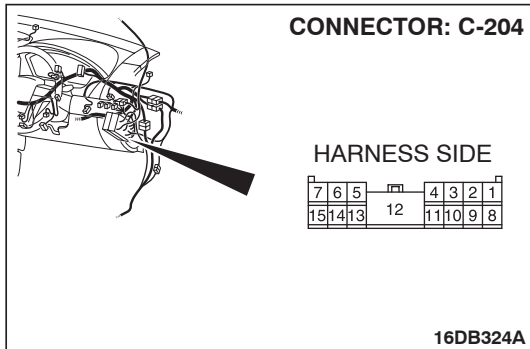


NOTE: Also check intermediate connector C-28 and junction block connector C-204 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-28 or junction block connector C-204 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between trunk lamp connector D-10 (terminals 1 and 2) and ETACS-ECU connector C-219 (terminal 6) or C-218 (terminal 46) in good condition?

YES : Replace the trunk lamp. Check that the trunk lamp illuminates normally.

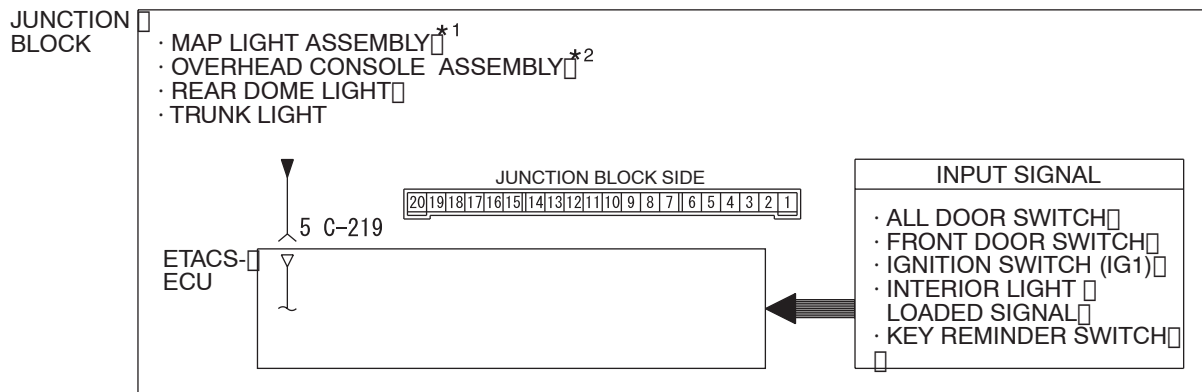
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the trunk lamp illuminates normally.



INSPECTION PROCEDURE K-3: Interior lamp: Dome lamp dimming function does not work normally.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor [P.54B-13](#)."

Ignition Dimming Function



NOTE
 *1: WITHOUT SUNROOF
 *2: WITH SUNROOF

CIRCUIT OPERATION

The ETACS-ECU operates the dome lamp dimming function according to the input signals from the following switches:

- Ignition switch (IG1): OFF
- Key reminder switch: ON
- Door switches: OFF
- Driver's door lock actuator switch: LOCK or UNLOCK

TECHNICAL DESCRIPTION (COMMENT)

If the dome lamps do not dim normally, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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: Diagnostic 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: Test Probe Harness

STEP 1. Check the dome lamp.

If a door is opened while the dome lamp switch is at "door-linked" position, the dome lamp should illuminate.

Q: Does the dome lamp illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure K-1 "The dome lamp do not illuminate and go out normally [P.54B-359](#)."

STEP 2. Check the adjustment function.

Q: Has the dome lamp delay-off time been set to other than "0 second" by the adjustment function?

YES : Go to Step 3.

NO : Set the dome lamp delay-off time to "0 second."

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

Check the ETACS-ECU.

⚠ CAUTION

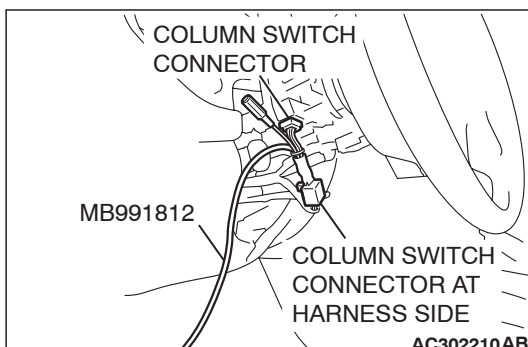
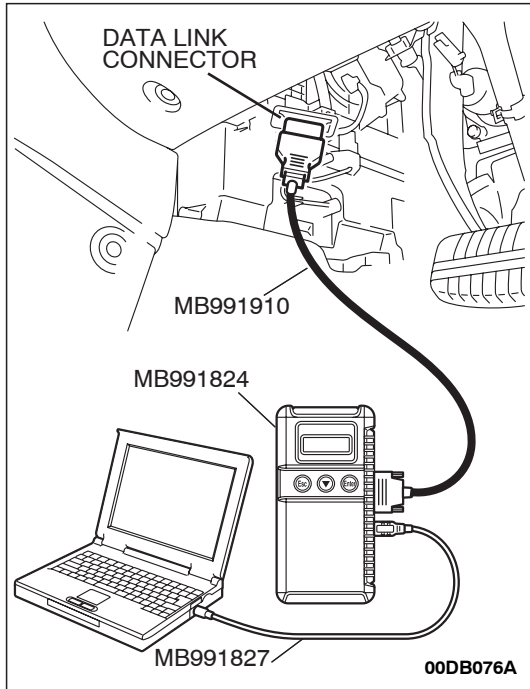
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

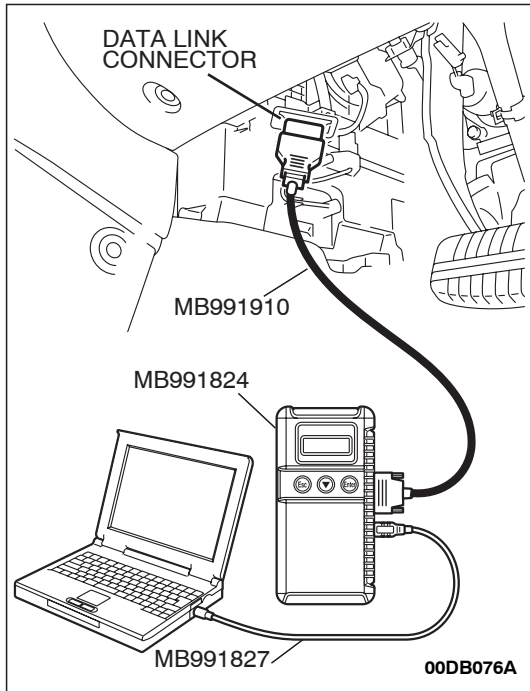
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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-74](#)."





STEP 4. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: OFF
- Driver's or front passenger's door: open

(1) Operate diagnostic 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."

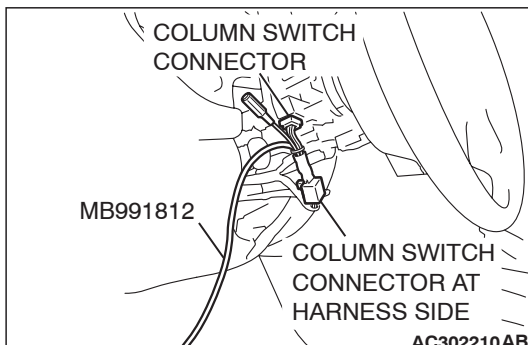
(2) Check that normal conditions are displayed for the item described in the table below.

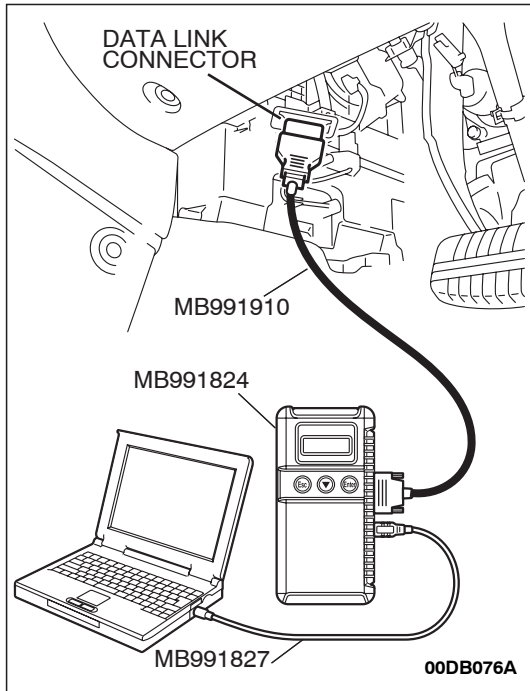
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW (IG1)	OFF

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

YES : Go to Step 5.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-408.](#)"





STEP 5. Check the input signal (by using the pulse check mode of the monitor).

Check the input signals from the following switches:

- Key reminder switch
- Door switches
- Trunk lid latch assembly

- (1) Operate diagnostic 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 diagnostic 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
trunk lid latch assembly	Open or close the trunk lid

Q: When the key reminder switch, any door switch, or the trunk lid is operated, does diagnostic tool MB991958 sound?

Buzzer of diagnostic tool MB991958 sounds normally. :

Replace the ETACS-ECU. Verify that the dome lamp dimming function works normally.

Diagnostic tool MB991958 does not sound when the ignition key is removed and reinserted : Refer to

Inspection Procedure N-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54B-432.](#)"

Diagnostic tool MB991958 does not sound whenever a door switch is operated : Refer to Inspection Procedure

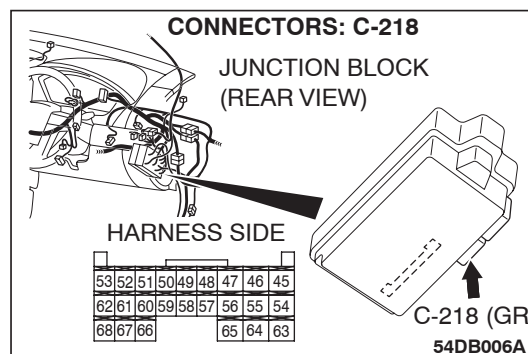
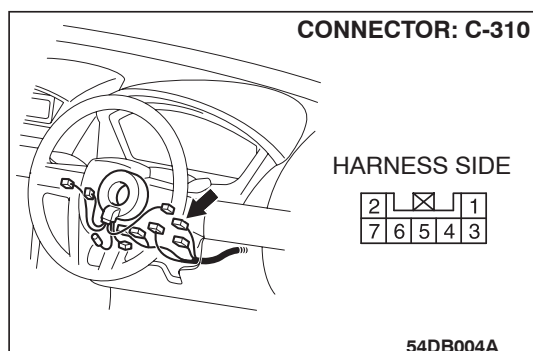
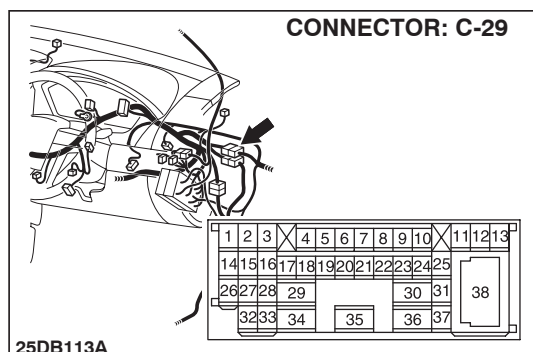
N-3 "ETACS-ECU does not receive any signal from any of the door switches [P.54B-440.](#)"

When the trunk lid is opened and closed, diagnostic tool MB991958 does not sound. : Refer to Inspection

Procedure N-7 "ETACS-ECU does not receive any signal from trunk lid latch assembly [P.54B-469.](#)"

INSPECTION PROCEDURE K-4: Interior Light: The ignition key hole illumination lamp does not illuminate or go out normally.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."



CIRCUIT OPERATION

- When the driver's door is opened with the ignition switch at "ACC" position, the ETACS-ECU illuminates the ignition key hole illumination lamp.
- The ignition key hole illumination lamp goes out in 30 seconds after the driver's door is closed. The ignition key hole illumination lamp remains illuminated for 30 seconds after the ignition key is pulled out.
- The ETACS-ECU operates the ignition key hole illumination lamp according to the input signals from the following switches:
 - Ignition switch (IG1): OFF
 - Key reminder switch: OFF
 - Interior lamp loaded signal: ON
- Vehicle condition:
 - Ignition switch: "LOCK" (OFF) or "ACC" position

- Ignition key: Removed from the ignition key cylinder
- Driver's door: Opened or closed

TECHNICAL DESCRIPTION (COMMENT)

If the ignition key hole illumination lamp does not illuminate, the input circuits from the switches described in "CIRCUIT OPERATION", the key reminder switch (ignition key hole illumination lamp bulb) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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: Diagnostic 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: Test Probe Harness

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

Check the ETACS-ECU.

⚠ CAUTION

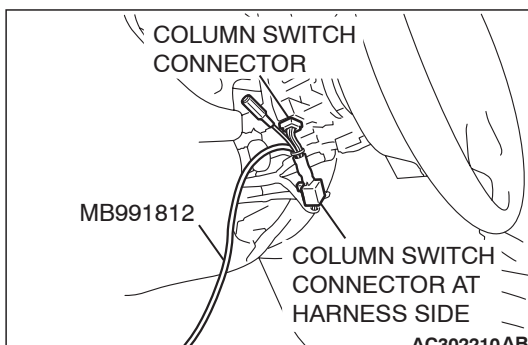
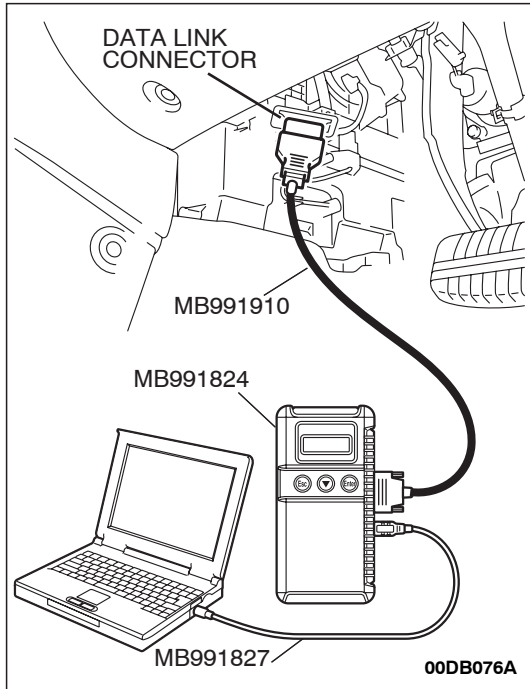
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

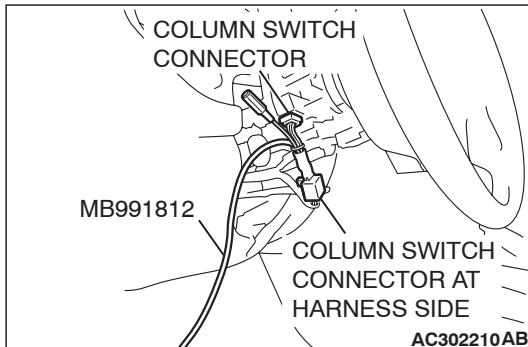
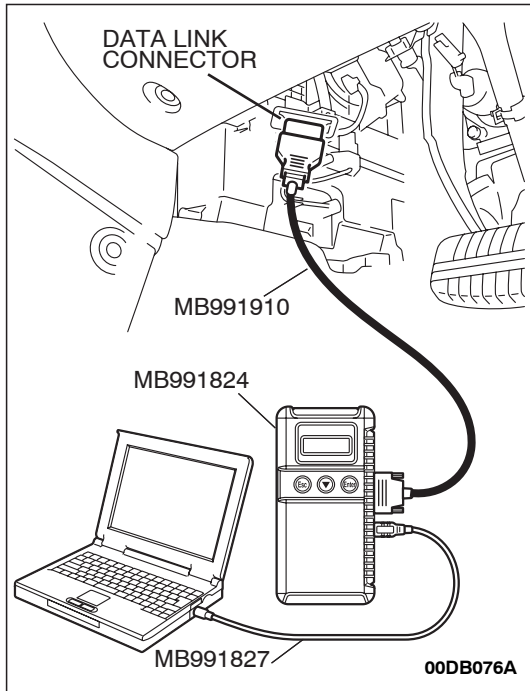
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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-74](#)."





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

Check the input signals from the following switches:

- Ignition switch: OFF
- Driver's door: open
- Front passenger's door: closed

(1) Operate diagnostic 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.

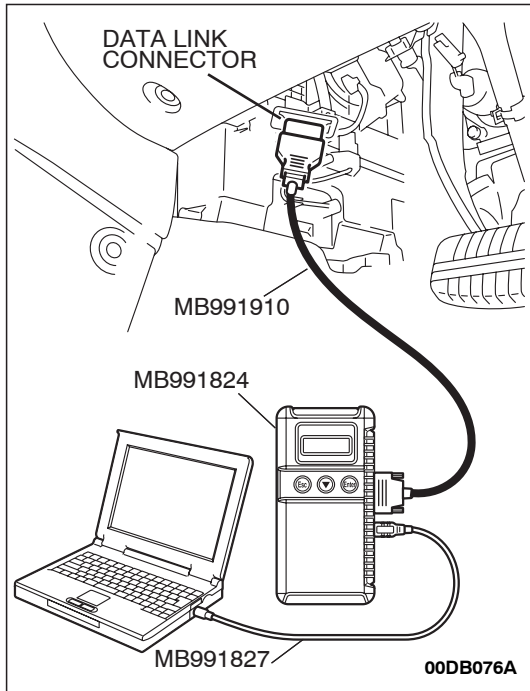
ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 30	IG SW(IG1)	OFF
ITEM 32	FRONT DOOR SW	ON

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

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

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-408.](#)"

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-413.](#)"



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
- Interior lamp loaded signal

- (1) Operate diagnostic 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) When the switches (see table below), which are applicable for the input signal check, are operated, check if diagnostic tool MB991958 sounds or not.

ITEM NAME	CONDITION
key reminder switch	Remove and reinsert the ignition key
interior lamp loaded signal	Turn on one of the interior lamps

Q: When the key reminder switch and the interior lamp are operated, does diagnostic tool MB991958 sound in each case?

Buzzer of diagnostic tool MB991958 sounds normally. :

Go to Step 4.

When the ignition key is removed and reinserted, diagnostic 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-432.](#)"

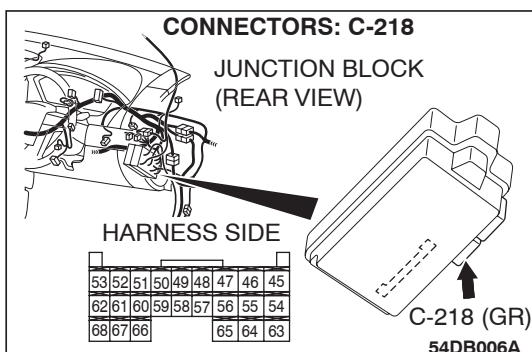
When one of the interior lamps is illuminated, diagnostic tool MB991958 does not sound : Refer to Inspection Procedure N-9 "ETACS-ECU does not receive any interior lamp loaded signal [P.54B-474.](#)"

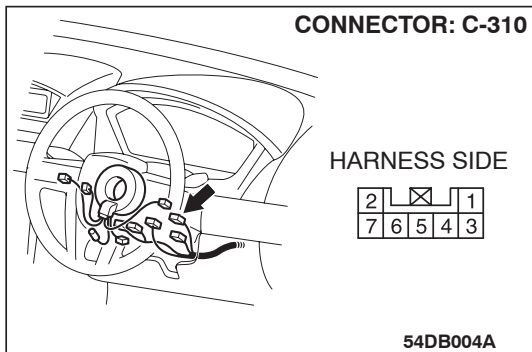
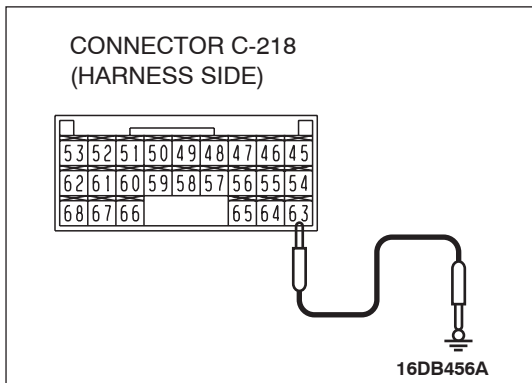
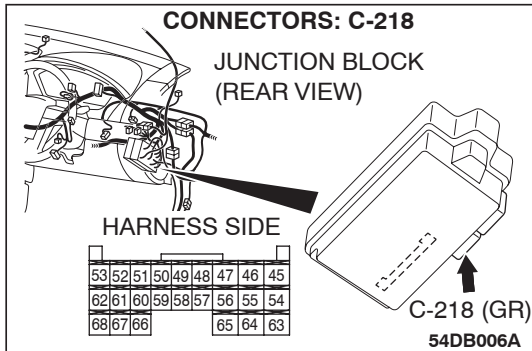
STEP 4. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2.](#) Verify that the ignition key hole illumination lamp illuminates normally.





STEP 5. Check at ETACS-ECU connector C-218 in order to check the ignition key hole illumination lamp circuit.

(1) Disconnect ETACS-ECU connector C-218, and measure at the wiring harness side.

(2) The ignition key hole illumination lamp should illuminate when terminal 63 is grounded.

Q: Does the ignition key hole illumination lamp illuminate?

YES : Replace the ETACS-ECU. Verify that the ignition key hole illumination lamp illuminates normally.

NO : Go to Step 6.

STEP 6. Check key reminder switch connector C-310 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-310 in good condition?

YES : Go to Step 7.

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

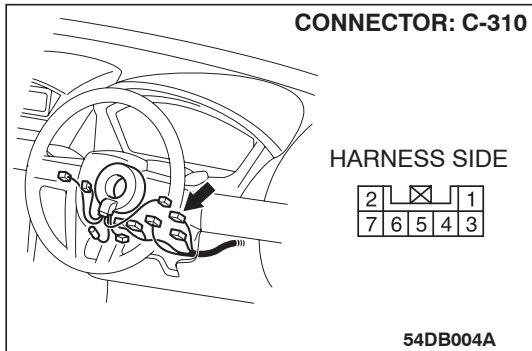
P.00E-2. Verify that the ignition key hole illumination lamp illuminates normally.

STEP 7. Check the ignition key hole illumination lamp bulb.

Q: Is the ignition key hole illumination lamp bulb in good condition?

YES : Go to Step 8.

NO : Replace the bulb. Verify that the ignition key hole illumination lamp illuminates normally.



STEP 8. Check the key reminder switch (ignition key hole illumination).

- (1) Disconnect key reminder switch connector C-310.
- (2) Remove the ignition key hole illumination lamp bulb. Then measure the resistance value between the bulb terminals.
- (3) Install a bulb to the key remainder switch, and measure the resistance between connector C-310 terminals 1 and 2. The measured resistance value should be roughly the same as the value measured in Step (2).

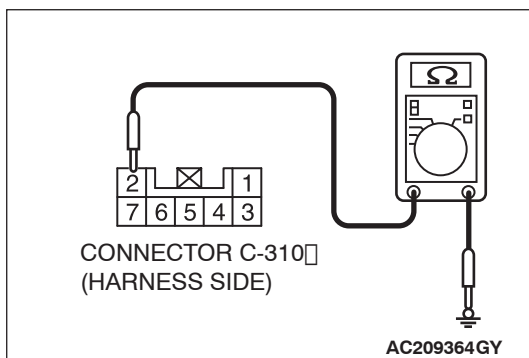
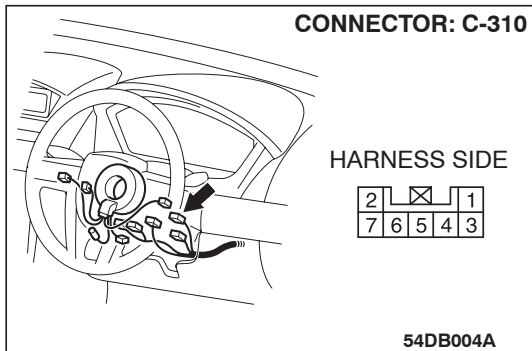
Q: Are these two resistance values extremely different?

YES : Replace the key reminder switch. Verify that the ignition key hole illumination lamp illuminates normally.

NO : <Nearly equal> Go to Step 9.

STEP 9. Check the battery power supply circuit to the key reminder switch circuit. Measure the voltage at key reminder switch connector C-310.

- (1) Disconnect key reminder switch connector C-310, and measure the voltage available at the wiring harness side of the connector.



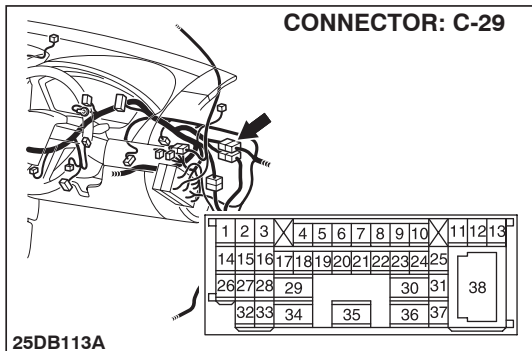
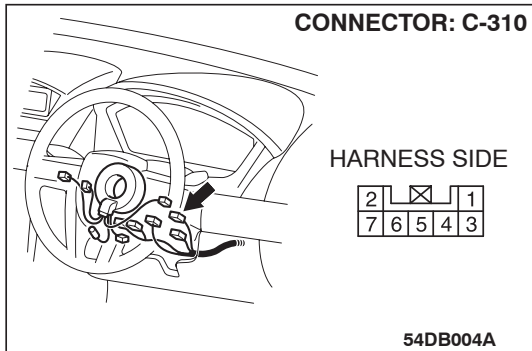
- (2) Measure the voltage between terminal 2 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 11.

NO : Go to Step 10.

STEP 10. Check the wiring harness between key reminder switch connector C-310 (terminal 2) and battery.

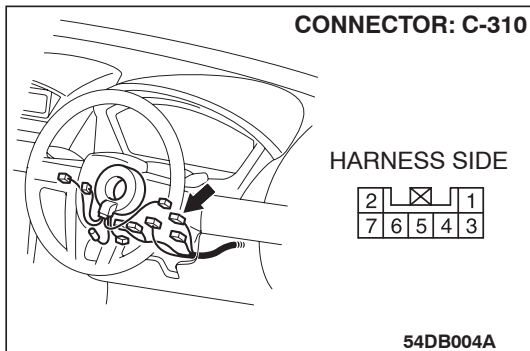
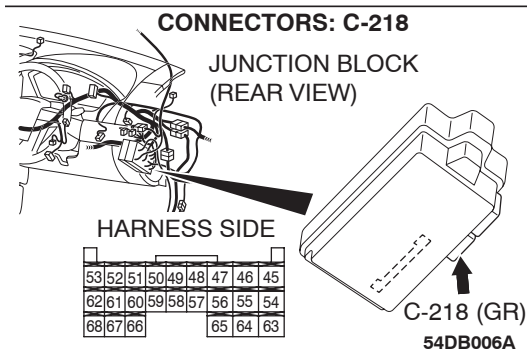


NOTE: Also check intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between key reminder switch connector C-310 (terminal 2) and battery in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Verify that the ignition key hole illumination lamp illuminates normally.



STEP 11. Check the wiring harness between key reminder switch connector C-310 (terminal 1) and ETACS-ECU connector C-218 (terminal 63).

Q: Is the wiring harness between key reminder switch connector C-310 (terminal 1) and ETACS-ECU connector C-218 (terminal 63) 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 ignition key hole illumination lamp illuminates normally.

INSPECTION PROCEDURE K-5: Interior Light: The interior lamp automatic shutoff function does not work normally.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."

CIRCUIT OPERATION

The ETACS-ECU operates the interior lamp automatic shutdown function according to the following switch signals:

- Ignition switch (ACC)
- Ignition switch (IG1)
- Front door switch (LH)
- Door switches
- interior lamp loaded signal

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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: Diagnostic 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: Test Probe Harness

STEP 1. Check the interior lamps.

If the interior lamp switch is moved to the "door interlock position", the interior lamps should illuminate when either door is opened.

Q: Do the interior lamp illuminate normally?

All the interior lamps illuminate normally. : Go to Step 2.

None of the interior lamps illuminate normally. : Refer to Inspection Procedure K-1 "The dome lamp do not illuminate and go out normally [P.54B-359](#)."

Some of the interior lamps do not illuminate normally. : Refer to Inspection Procedure K-2 "The front dome lamp, rear dome lamp or trunk lamp do not illuminate or go out normally [P.54B-366](#)."

STEP 2. Check the adjustment function.

Q: Has a setting other than "No auto-shutoff" been selected for the interior lamp automatic shutdown function by the adjustment function?

YES : Go to Step 3.

NO : Set the interior lamp automatic shutdown function to another setting other than "No auto-shutoff".

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

Check the ETACS-ECU.

⚠ CAUTION

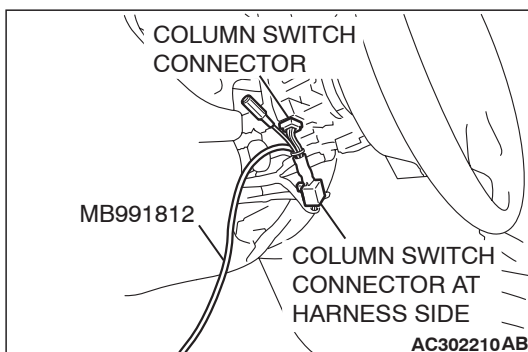
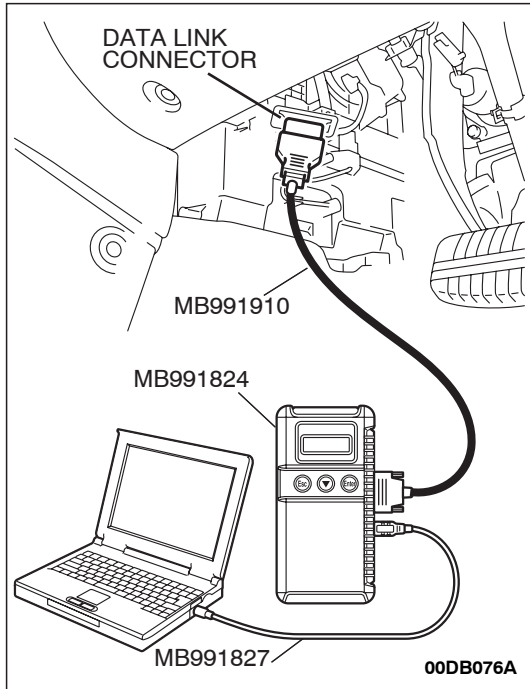
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

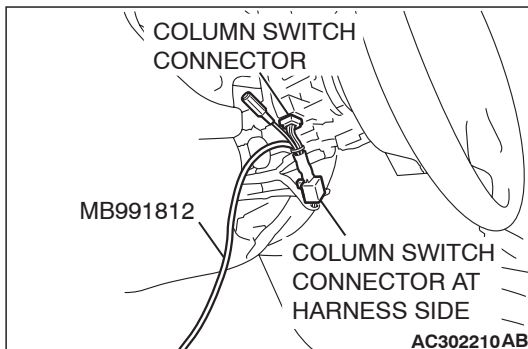
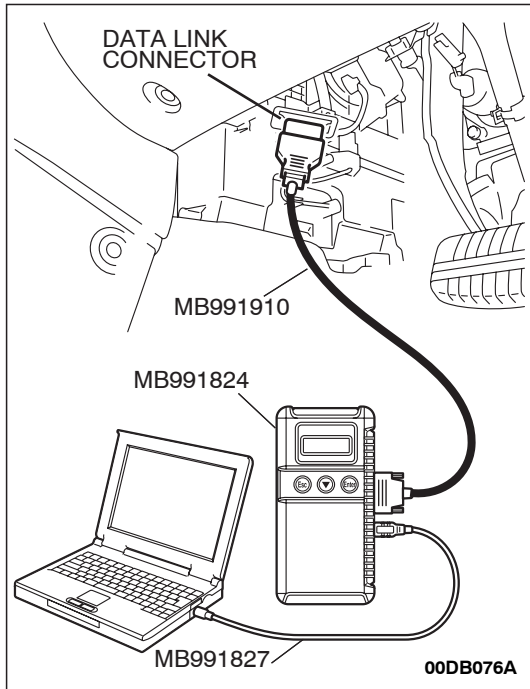
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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 Step4.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible [P.54B-74](#)."





STEP 4. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: OFF
- Driver's or front passenger's door: open

(1) Operate diagnostic 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 31	IG SW (ACC)	OFF
ITEM 32	FRONT DOOR SW	ON

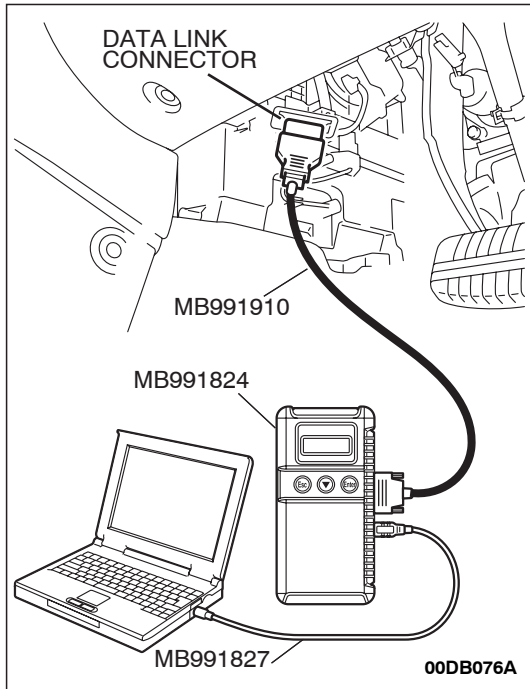
Q: Does the diagnostic tool MB991958 display the items "IG SW (IG1)", "IG SW (ACC)" and "FRONT DOOR SW" as normal condition?

Normal conditions are displayed for all the items : Go to Step 5.

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-408.](#)"

Normal condition is not displayed for "IG SW (ACC)" :
Refer to Inspection Procedure M-1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) [P.54B-405.](#)"

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-413.](#)"



STEP 5. Check the input signal (by using the pulse check mode of the monitor).

Check the following switches and input signals:

- Door switches
- Interior lamp loaded signal

- (1) Operate diagnostic 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 diagnostic tool MB991958 sounds or not.

ITEM NAME	CONDITION
interior lamp loaded signal	Turn on one of the interior lamps
door switch	Open or close one of the doors

Q: When any door switch, interior lamp or the trunk lid latch is operated, does diagnostic tool MB991958 sound?

Buzzer of diagnostic tool MB991958 sounds normally. :

Replace the ETACS-ECU. Verify that the dome lamp illuminates normally.

When one of the doors is opened and closed,

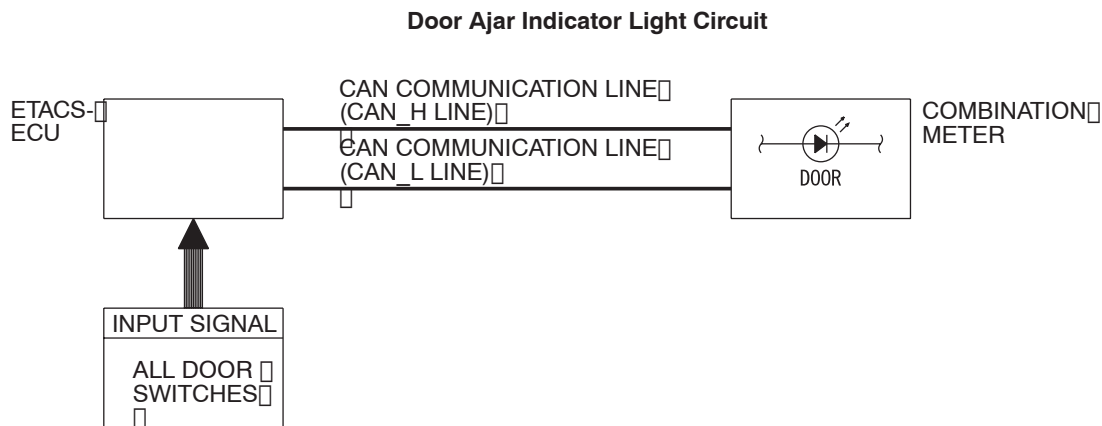
diagnostic tool MB991958 does not sound : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive any signal from any of the door switches [P.54B-440.](#)"

When one of the interior lamps is illuminated,

diagnostic tool MB991958 does not sound : Refer to Inspection Procedure N-9 "ETACS-ECU does not receive any interior lamp loaded signal [P.54B-474.](#)"

INSPECTION PROCEDURE K-6: Interior Light: The door ajar indicator lamps do not illuminate or go out normally

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."



W4P54M90AA

CIRCUIT OPERATION

The combination meter receives the door switches signals from the ETACS-ECU, and then controls the door ajar indicator, based on these signals.

TECHNICAL DESCRIPTION (COMMENT)

If the door ajar indicator does not illuminate, connector(s), wiring harness in the CAN bus lines, the door switches, the ETACS-ECU, or the combination meter may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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: Diagnostic 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: Test Probe Harness

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

⚠ CAUTION

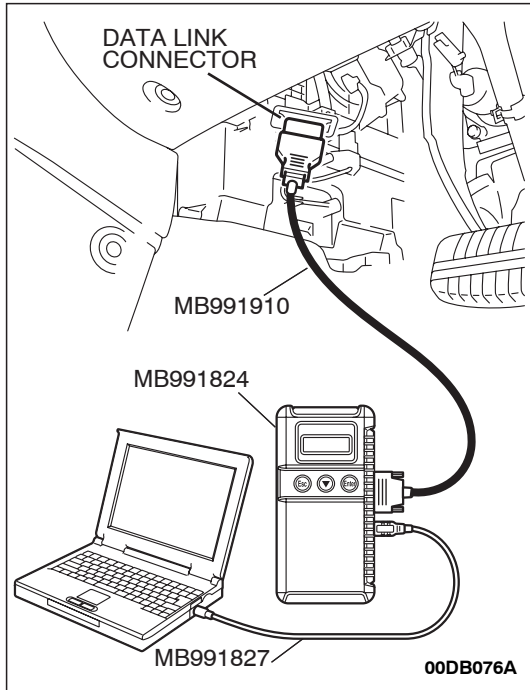
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic 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-15](#)).



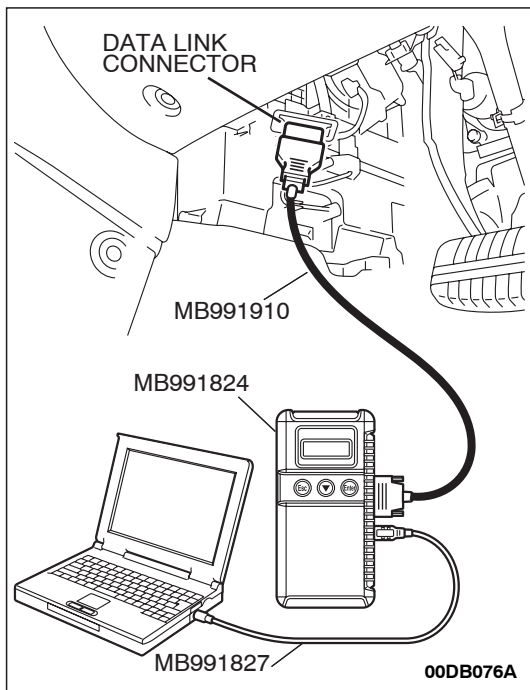
STEP 2. Using diagnostic tool MB991958, read the combination meter diagnostic trouble code.

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

Q: Is the DTC set?

YES : Diagnose the combination meter. Refer to [P.54A-48](#).

NO : Go to Step 3.



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

Check the ETACS-ECU.

⚠ CAUTION

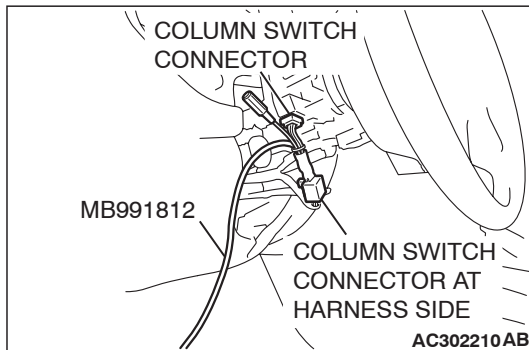
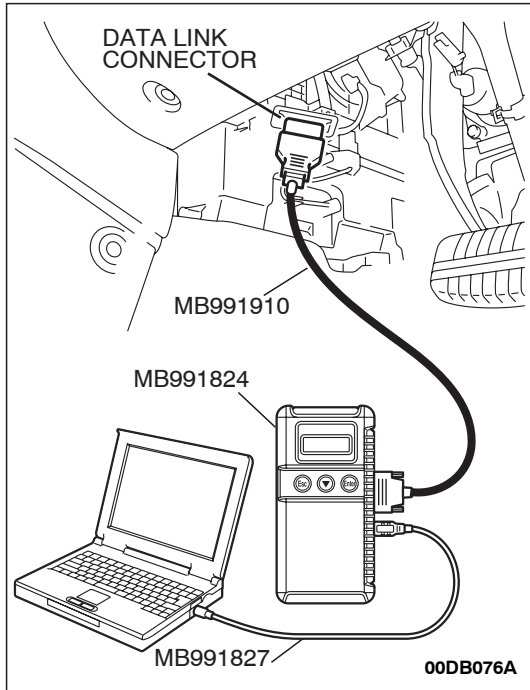
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

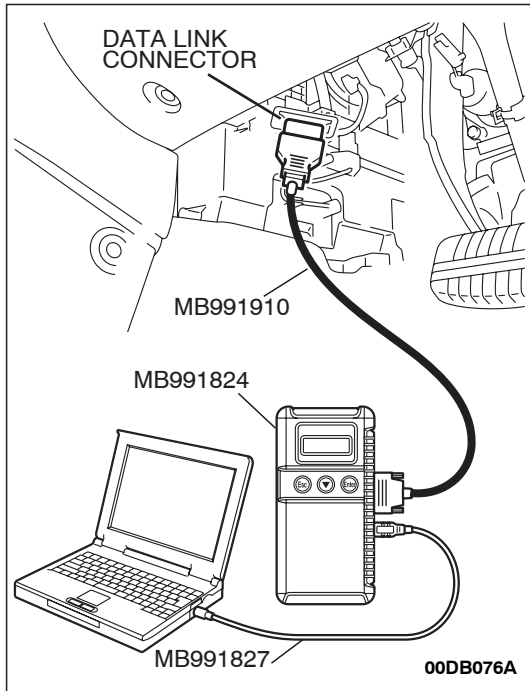
- (1) Connect the SWS monitor. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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-74](#)."





STEP 4. Check the input signal (by using the pulse check mode of the monitor).

Check the following switches and input signals:

- Door switches

- (1) Operate diagnostic 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 diagnostic tool MB991958 sounds or not.

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

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

YES : Go to Step 5.

NO : Refer to Inspection Procedure N-3 "ETACS-ECU does not receive any signal from any of the door switches [P.54B-440](#)."

STEP 5. Replace the combination meter.

- (1) Replace the combination meter.
- (2) Check that the door ajar indicator lamp illuminates normally.

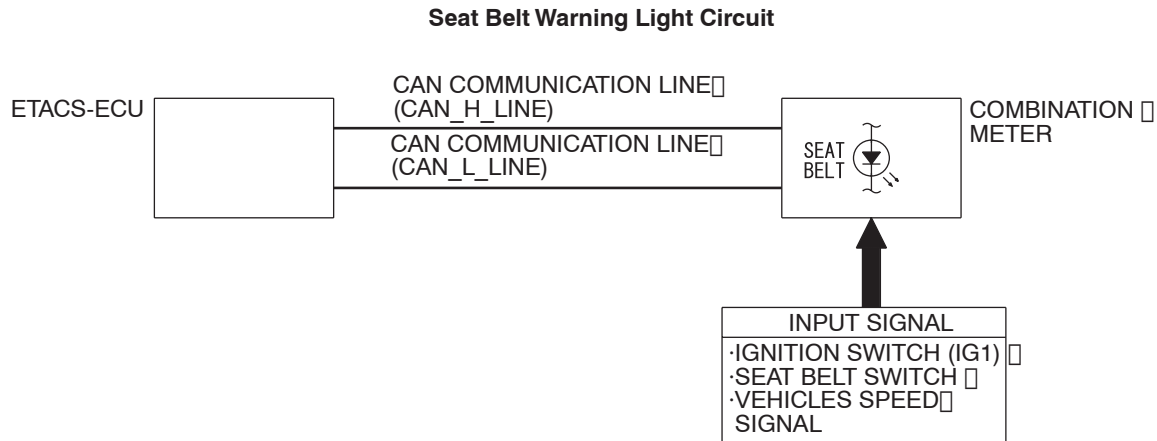
Q: Is the door ajar indicator lamp in good condition?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. Check that the door ajar indicator lamp illuminates normally.

INSPECTION PROCEDURE K-7: Interior Light: The seat belt warning lamp do not illuminate or go out normally

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."



W4P54M111A

CIRCUIT OPERATION

The combination meter and the ETACS-ECU illuminates and flashes the seat belt warning lamp by using the signal from the seat belt switch, the ignition switch (IG1) and the vehicle speed signal.

TECHNICAL DESCRIPTION (COMMENT)

If the seat belt warning lamp does not illuminate or flash correctly, connector(s), wiring harness in the CAN bus lines, the door switches, the ETACS-ECU, or the combination meter may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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: Diagnostic 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: Test Probe Harness

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

⚠ CAUTION

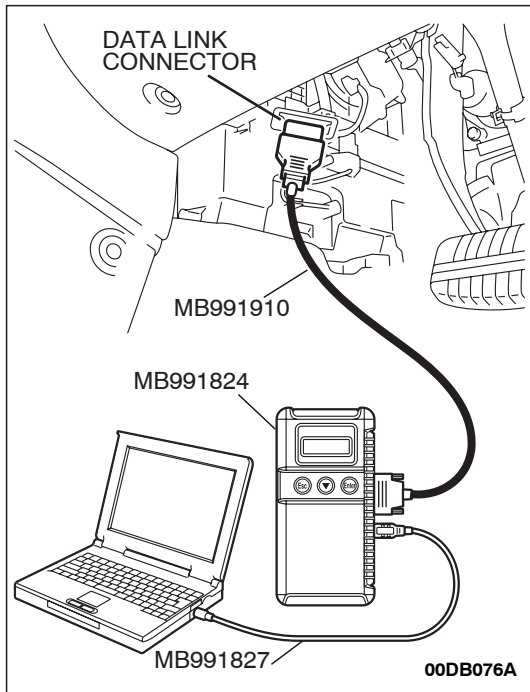
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic 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-15](#)).



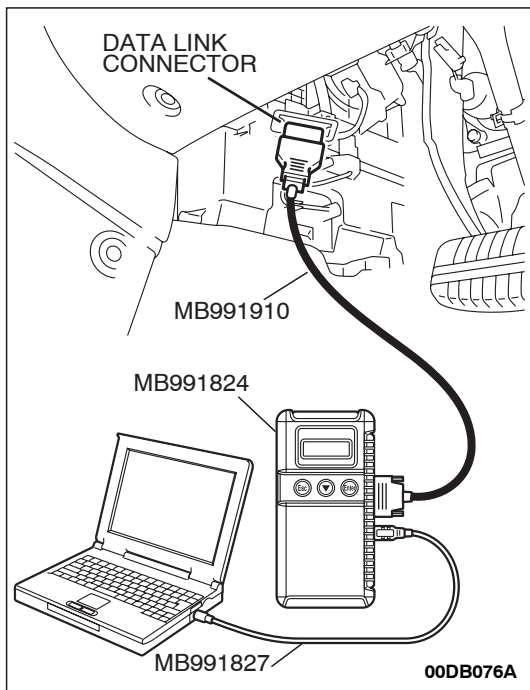
STEP 2. Using diagnostic tool MB991958, read the combination meter diagnostic trouble code.

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

Q: Is the DTC set?

YES : Diagnose the combination meter. Refer to [P.54A-48](#).

NO : Go to Step 3.



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

Check the ETACS-ECU.

⚠ CAUTION

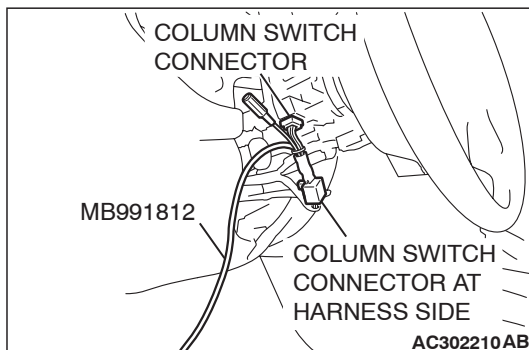
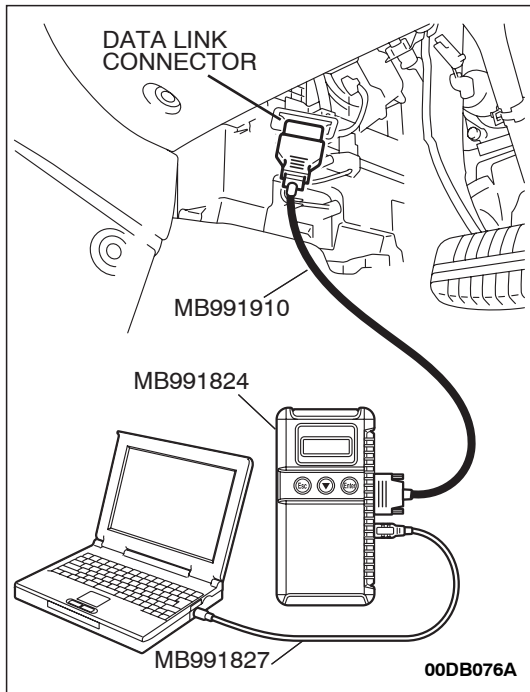
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

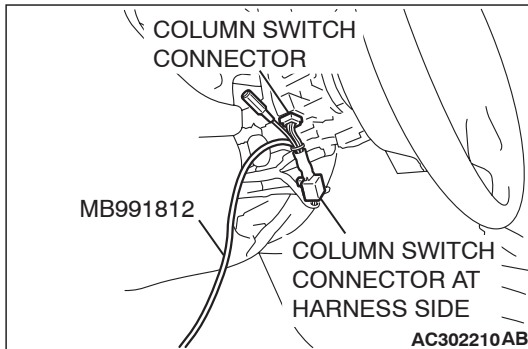
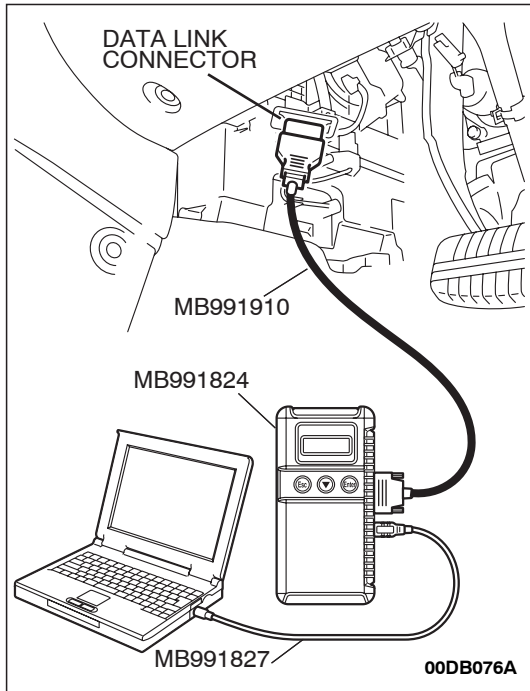
- (1) Connect the SWS monitor. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate diagnostic tool MB991958 according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "SWS MONITOR."
 - e. Select "ECU COMM Check."
- (4) Diagnostic 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-74](#)."





STEP 4. Check the input signal by using "DATA LIST" menu of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON

(1) Operate diagnostic 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: Is the diagnostic tool MB991958 display the items "IG SW (IG1)" normal condition?

YES : Go to Step 5.

NO : Refer to Inspection Procedure M-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-408.](#)"

STEP 5. Replace the combination meter.

(1) Replace the combination meter.

(2) Check that the seat belt warning lamp illuminates normally.

Q: Is the seat belt warning lamp in good condition?

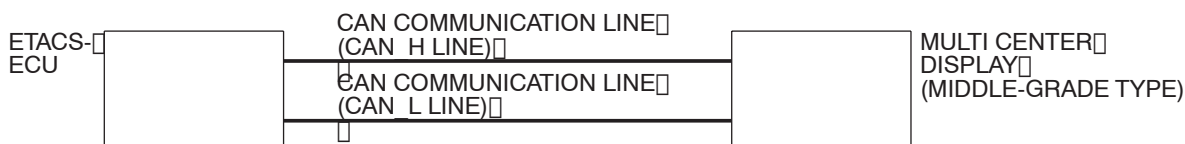
YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. Verify that the seat belt warning lamp illuminates normally.

INSPECTION PROCEDURE L-1: Can not customise the functions by operating the multi center display .

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."

Configuration Function



W4P54M59AA

CIRCUIT OPERATION

The ETACS-ECU enables/disables the functions and changes their operation time, based on the information sent from the multi center display

TECHNICAL DESCRIPTION (COMMENT)

If it is impossible to customise the functions by operating the multi center display , connector(s) or wiring harness in the CAN bus lines, the ETACS-ECU or the multi center display unit may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Trouble in input signal system
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- Malfunction of the multi center display
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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: Test Probe Harness

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

⚠ CAUTION

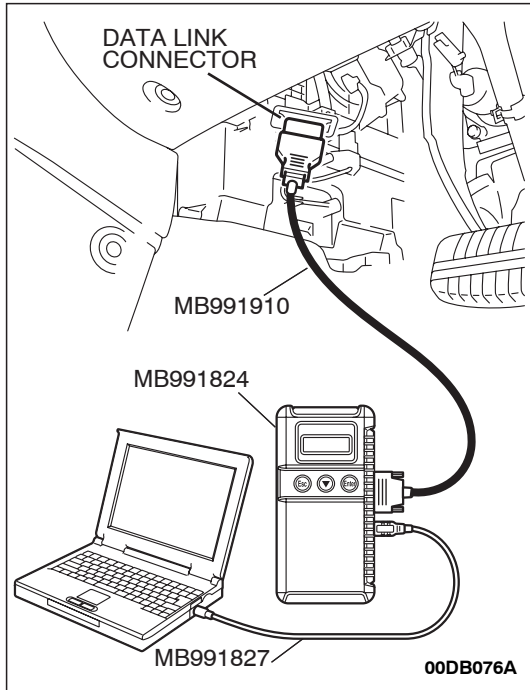
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic 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-15](#)).



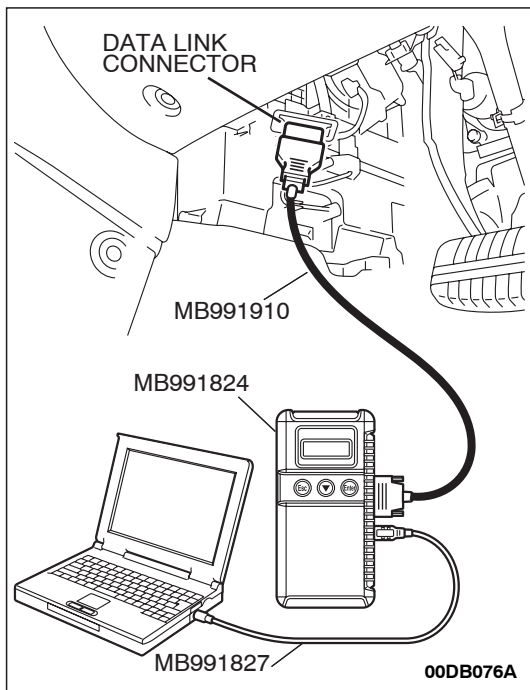
STEP 2. Using diagnostic tool MB991958, read the multi center display diagnostic trouble code.

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

Q: Is the DTC set?

YES : Diagnose the multi center display unit. Refer to [P.54A-254](#).

NO : Go to Step 3.



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

Check the ETACS-ECU.

⚠ CAUTION

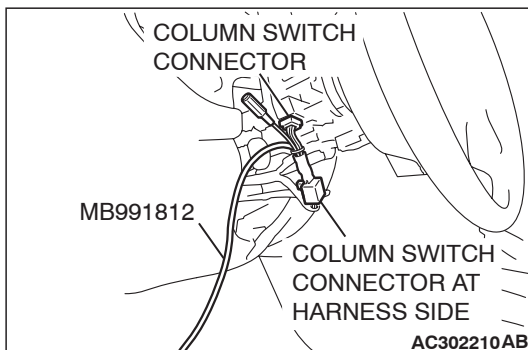
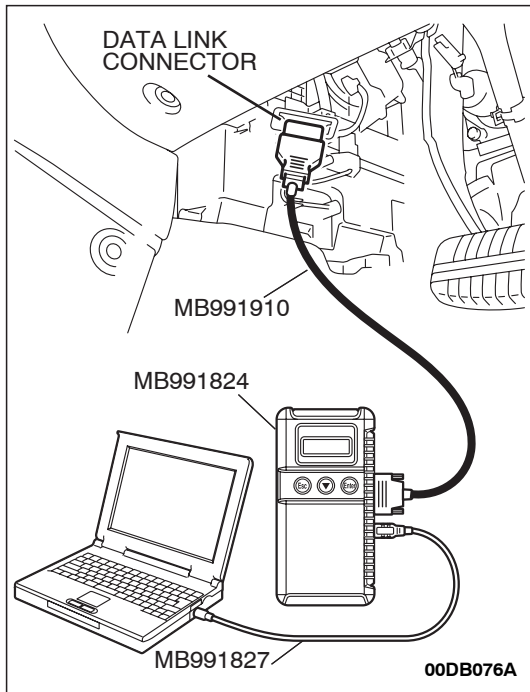
Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special tool MB991824.

- (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 diagnostic 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) Diagnostic 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-74](#)."



STEP 4. Replace the multi center display .

- (1) Replace the multi center display .
- (2) Check if it is possible to customise the functions by operating the new multi center display .

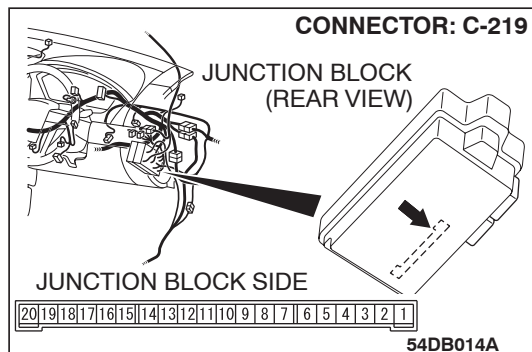
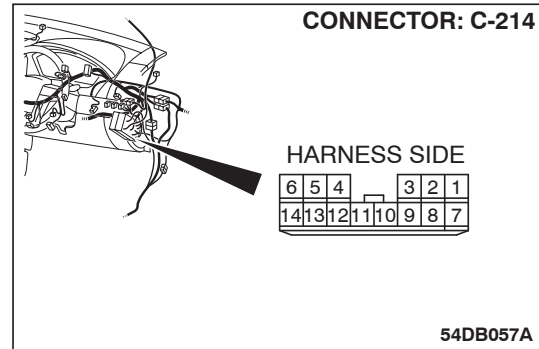
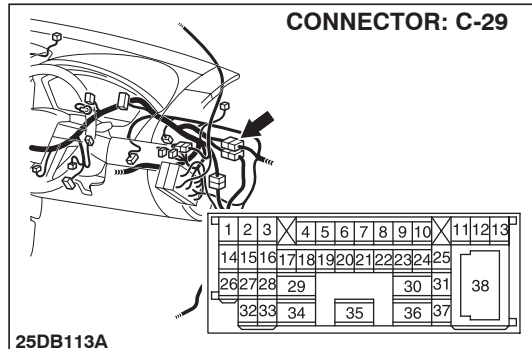
Q: Is it possible to customise the functions by operating the multi center display ?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. Verify that it is possible to customise the functions by operating the multi center display .

INPUT SIGNAL PROCEDURES

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



CIRCUIT OPERATION

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

- Windshield wiper and washer
- Interior lamp automatic shutoff function

The ETACS-ECU receives information on the ignition switch condition (ACC) from the middle-grade multi center display unit via CAN communication. If the ignition switch (ACC) input signal is incorrect, refer to the appropriate Diagnostic Trouble Code Chart [P.54B-25](#).

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- 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:

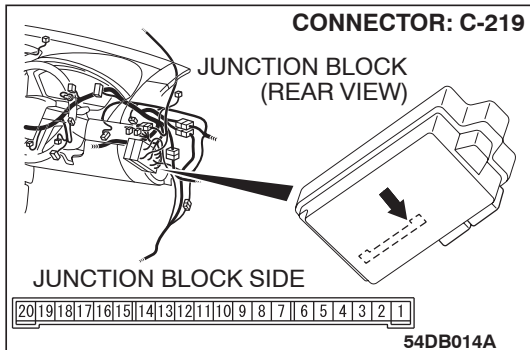
- MB991223: Harness Set

STEP 1. Check 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?

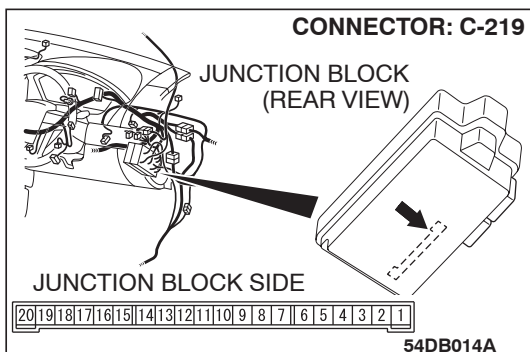
YES : Go to Step 2.

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



STEP 2. Check the ignition switch (ACC) line of the 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) Turn the ignition switch to the "ACC" position.

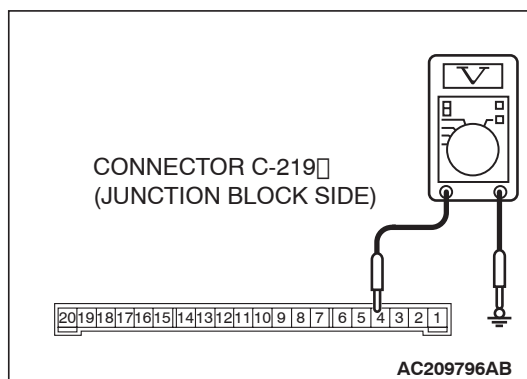


- (3) Measure the voltage between terminal 4 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

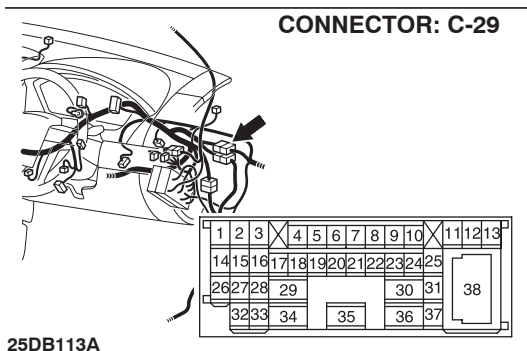
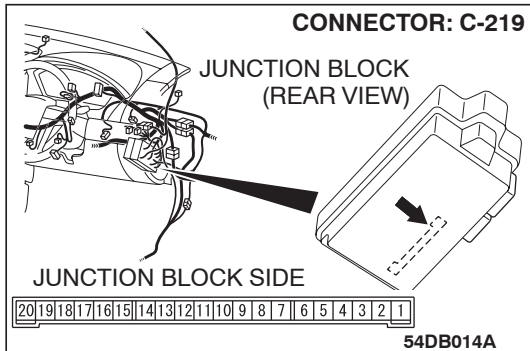
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

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

NO : Go to Step 3.



STEP 3. Check the wiring harness between ETACS-ECU connector C-219 (terminal 4) and the ignition switch (ACC).

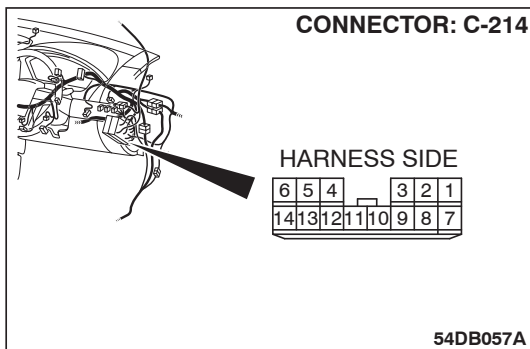


NOTE: Also check intermediate connector C-29 and junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 or junction block connector C-214 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

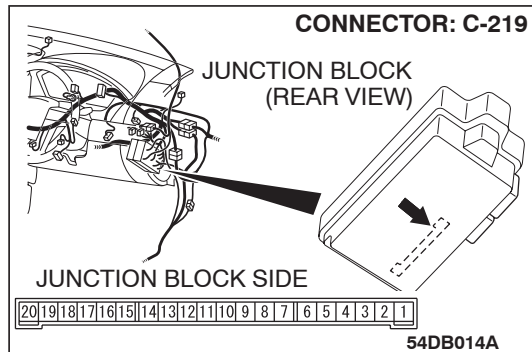
Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 4) and ignition switch (ACC) in good condition?

YES : No action is necessary and testing is complete.

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



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



CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions according to signal from the ignition switch (IG1):

- Light reminder tone alarm function
- Seat belt tone alarm function
- Door ajar warning buzzer
- Turn-signal lamp buzzer
- Multi center display operation tone <vehicles with multi center display (middle grade type)>
- Power window timer function
- Sunroof timer function
- Headlamp automatic shutdown function
- Turn-signal lamp
- Dome lamp dimming function
- Ignition key hole illumination lamp

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

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

The ETACS-ECU receives information on the ignition switch condition (IG1) from the combination meter via CAN communication. If the ignition switch (IG1) input signal is incorrect, refer to the Diagnostic Trouble Code Chart [P.54B-25](#).

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- 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:

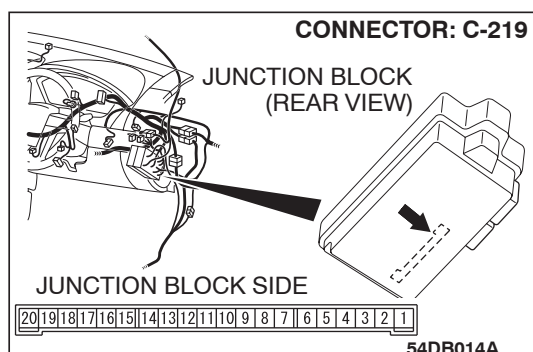
- MB991223: Harness Set

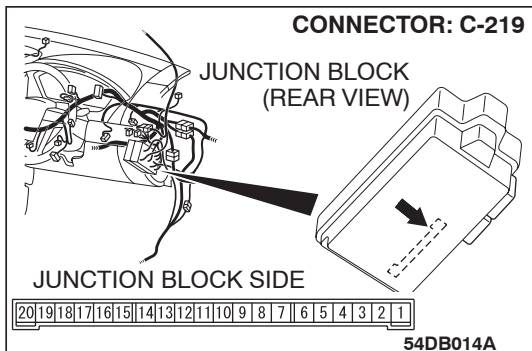
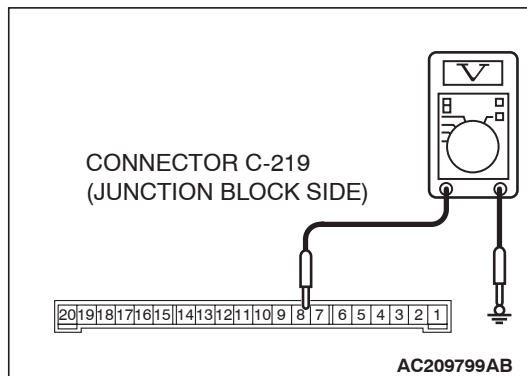
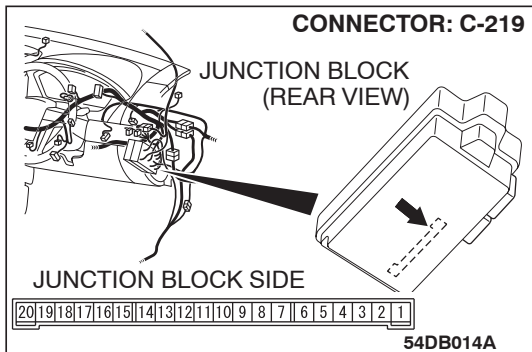
STEP 1. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 2.

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





STEP 2. Check the ignition switch (IG1) line of the 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) Turn the ignition switch to the "ON" position.

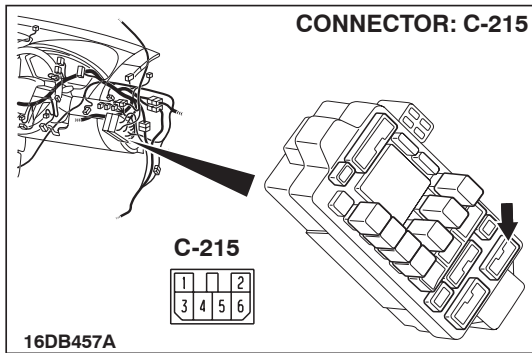
- (3) Measure the voltage between terminal 8 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

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

NO : Go to Step 3.

STEP 3. Check the wiring harness between ETACS-ECU connector C-219 (terminal 8) and the ignition switch (IG1).



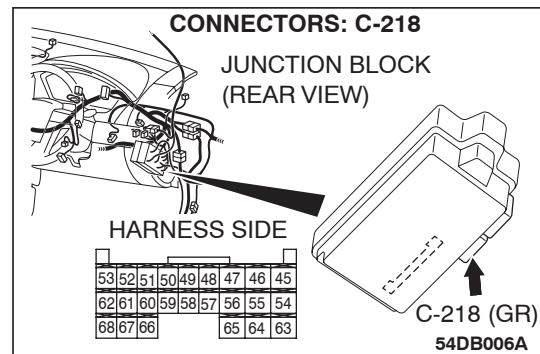
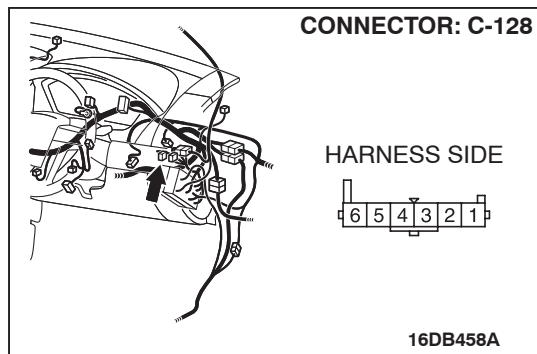
NOTE: Also check junction block connector C-215 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 8) and ignition switch (IG1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the ignition switch (IG1) should be normal.

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



CIRCUIT OPERATION

The ETACS-ECU operates the fog lamps according to signal from the fog lamp switch.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The fog lamp switch 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:

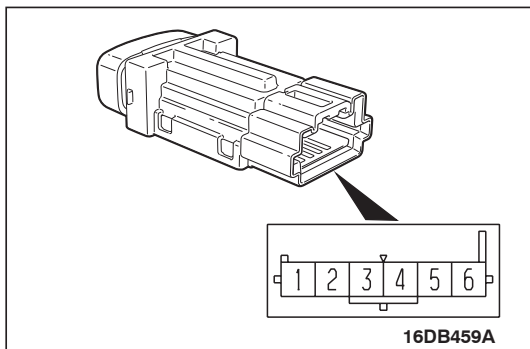
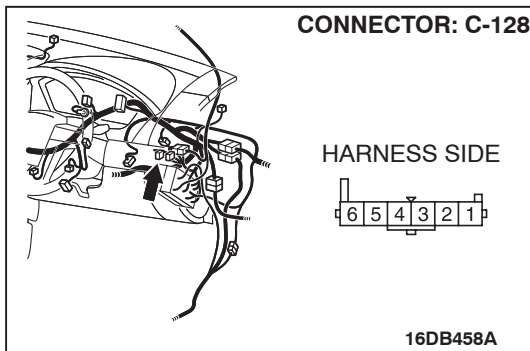
- MB991223: Harness Set

STEP 1. Check fog lamp switch connector C-128 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is fog lamp switch connector C-128 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](#). Repair the fog lamp switch. If the fog lamp switch operates normally, a correct signal is sent from the fog lamp switch.



STEP 2. Check the fog lamp switch.

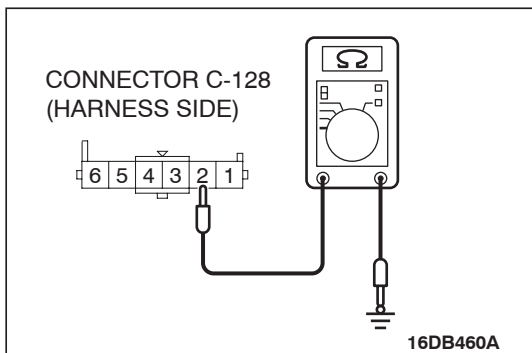
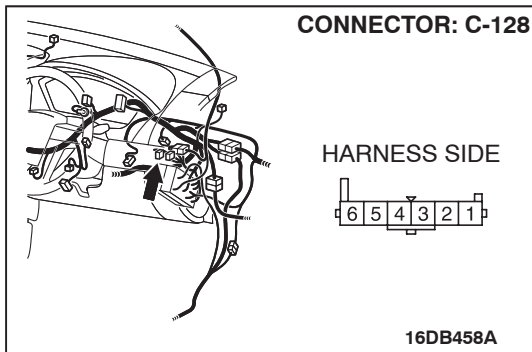
Remove the fog lamp switch. Refer to GROUP 54A, Fog lamp [P.54A-168](#). Then check continuity between the switch terminals.

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

Q: Is the fog lamp switch in good condition?

YES : Go to Step 3.

NO : Repair the fog lamp switch. If the fog lamp switch operates normally, a correct signal is sent from the fog lamp switch.



STEP 3. Check the ground circuit to the fog lamp switch. Measure the resistance at fog lamp switch connector C-128.

- (1) Disconnect fog lamp switch connector C-128 and measure the resistance available at the wiring harness side of the connector.

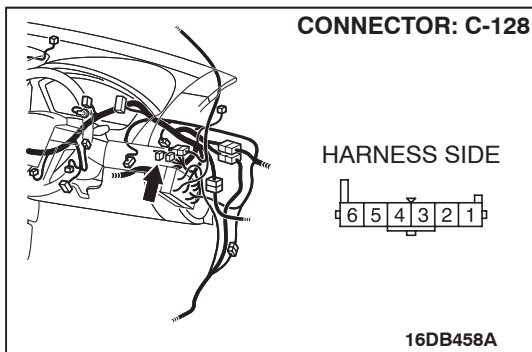
- (2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

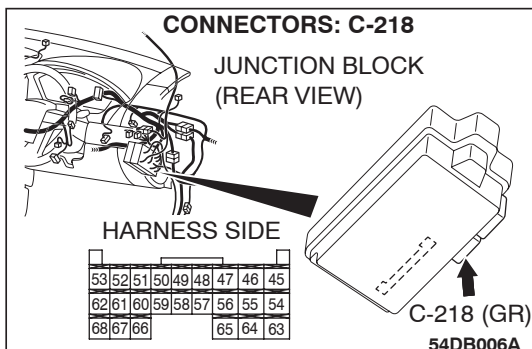


STEP 4. Check the wiring harness between fog lamp switch connector C-128 (terminal 2) and ground.

Q: Is the wiring harness between fog lamp switch connector C-128 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

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



STEP 5. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 6.

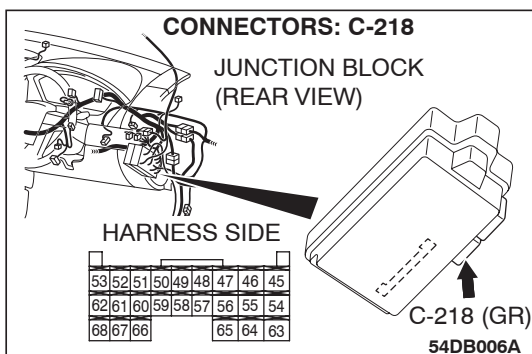
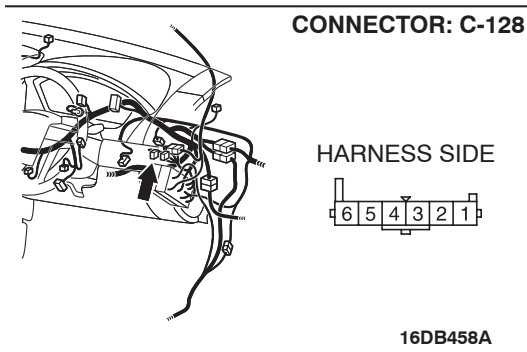
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the fog lamp switch operates normally, a correct signal is sent from the fog lamp switch.

STEP 6. Check the wiring harness between fog lamp switch connector C-128 (terminal 1) and ETACS-ECU connector C-218 (terminal 48).

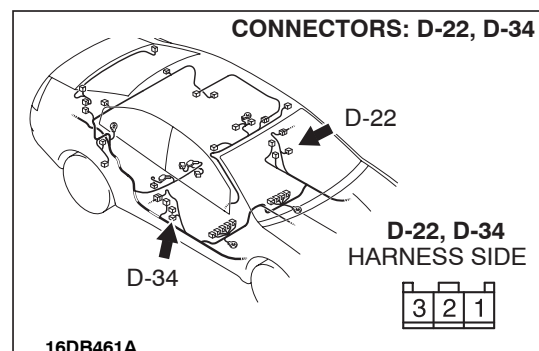
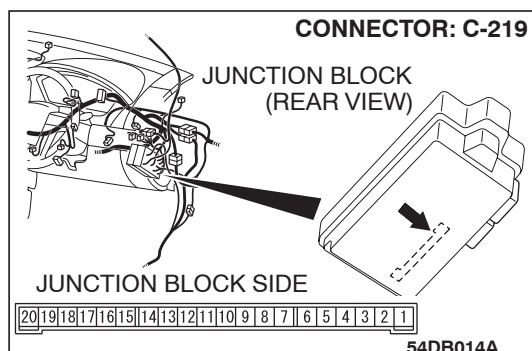
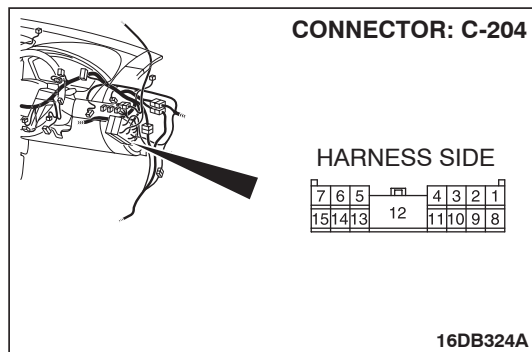
Q: Is the wiring harness between fog lamp switch connector C-128 (terminal 1) and ETACS-ECU connector C-218 (terminal 48) in good condition?

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

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



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



CIRCUIT OPERATION

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

- Light reminder tone alarm function <front door switch (RH)>
- Door ajar warning buzzer
- Forgotten key reminder
- Power window timer function
- Sunroof timer function <front door switch (RH)>
- Keyless entry system
- Timed locking mechanism
- Headlamp automatic shutdown function <front door switch (RH)>
- Dome lamp
- Interior lamp automatic-shutdown function
- Ignition key hole illumination lamp <front door switch (RH)>

- Door-ajar indicator lamp

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems described in "CIRCUIT OPERATION" do not work normally. If the signal is not normal, the front door switches or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The front door switches 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 Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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 the input signal (by using the pulse check mode of the monitor).

Check the input signals from the front door switches.

CAUTION

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

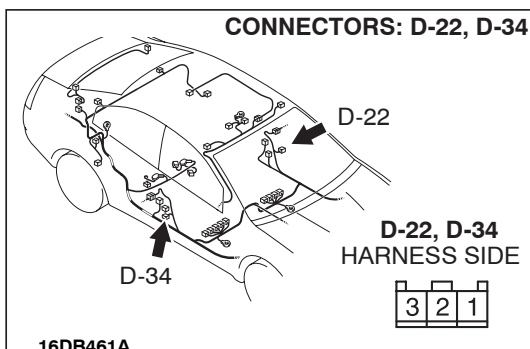
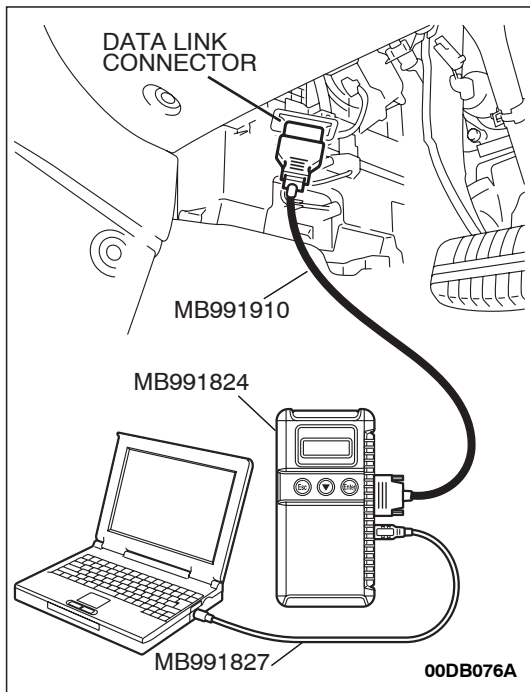
- (1) Connect the diagnostic tool MB991958. Refer to "How to connect SWS monitor P.54B-13."
- (2) Operate diagnostic tool MB991958 according to the procedure below to display "Pulse check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "Pulse Checking."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

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

When the front door (RH) is opened and closed, diagnostic tool MB991958 does not sound. : Go to Step 2.

When the front door (LH) is opened and closed, diagnostic tool MB991958 does not sound. : Go to Step 7.

When either front door is opened and closed, diagnostic tool MB991958 sounds. : Replace the ETACS-ECU. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the front door switches should be normal.

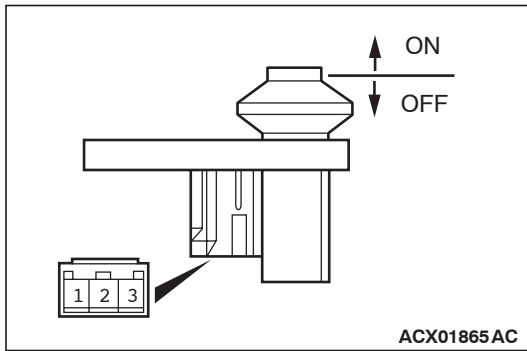


STEP 2. Check front door switch (RH) connector D-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (RH) connector D-34 in good condition?

YES : Go to Step 3.

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



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

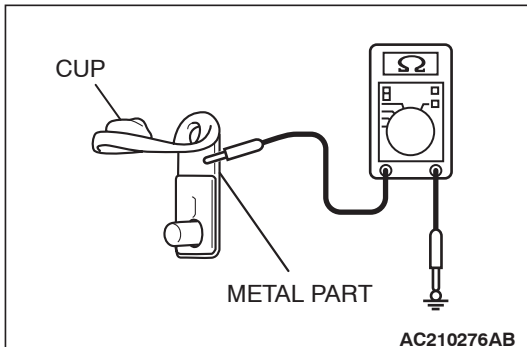
Remove the front door switch (RH). Refer to GROUP 42, Door, Door Assembly [P.42-37](#). Then check continuity between the switch terminals and the body ground.

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

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

YES : Go to Step 4.

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



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

NOTE: Check that the front door switch (RH) is grounded to the vehicle body via its mounting screw.

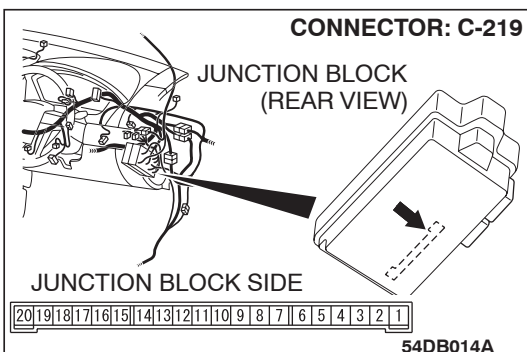
Remove the cap, and measure the resistance value between the lower metal part and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

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



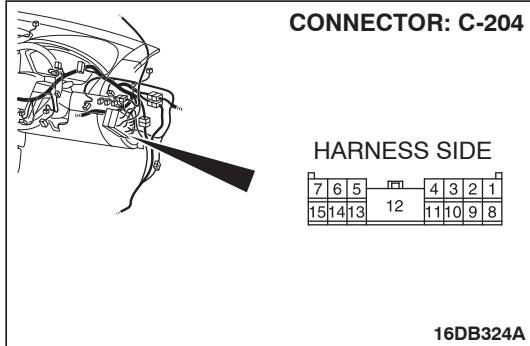
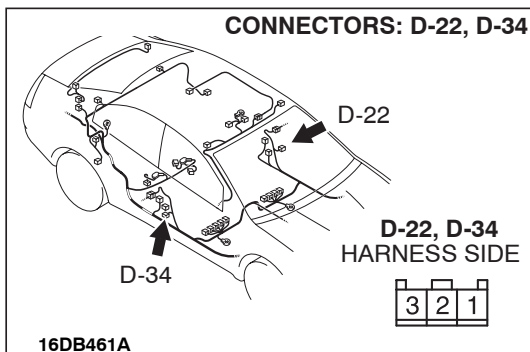
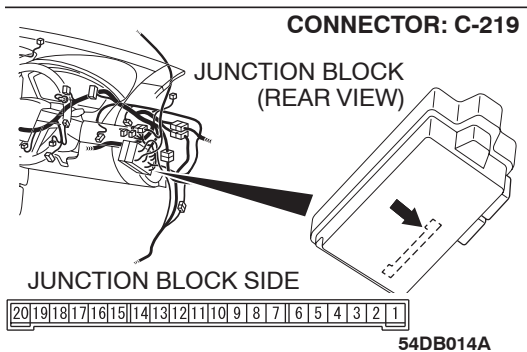
STEP 5. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between front door switch (RH) connector D-34 (terminal 1) and ETACS-ECU connector C-219 (terminal 10).

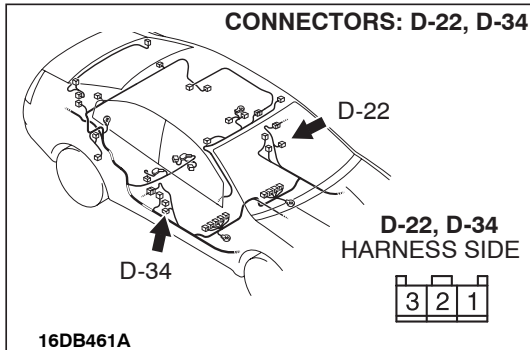


NOTE: Also check junction block connector C-204 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-204 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front door switch (RH) connector D-34 (terminal 1) and ETACS-ECU connector C-219 (terminal 10) in good condition?

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

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

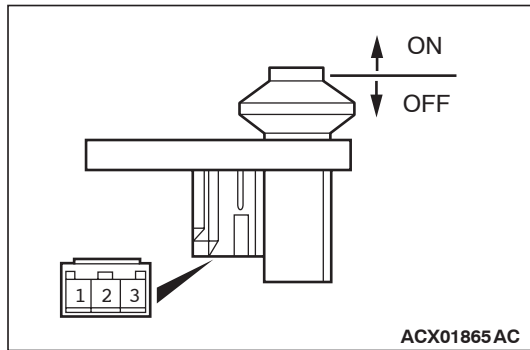


STEP 7. Check front door switch (LH) connector D-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (LH) connector D-22 in good condition?

YES : Go to Step 8.

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



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

Remove the front door switch (LH). Refer to GROUP 42, Door, Door Assembly [P.42-37](#). Then check continuity between the switch terminals and the body ground.

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

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

YES : Go to Step 9.

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

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

NOTE: Check that the front door switch (LH) is grounded to the vehicle body via its mounting screw.

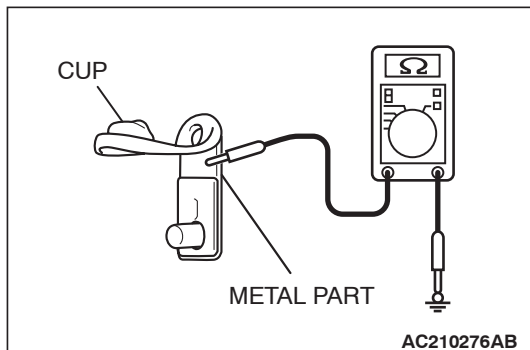
Remove the cap, and measure the resistance value between the lower metal part and ground.

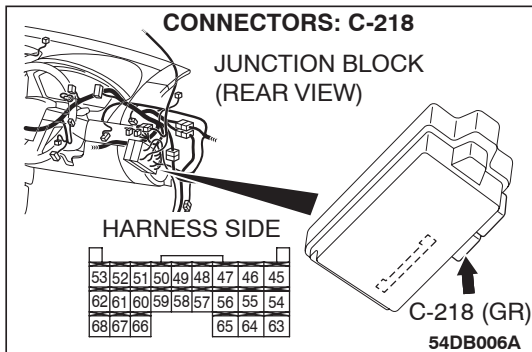
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

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



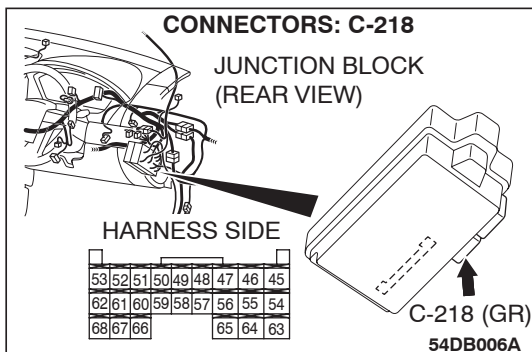


STEP 10. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 11.

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

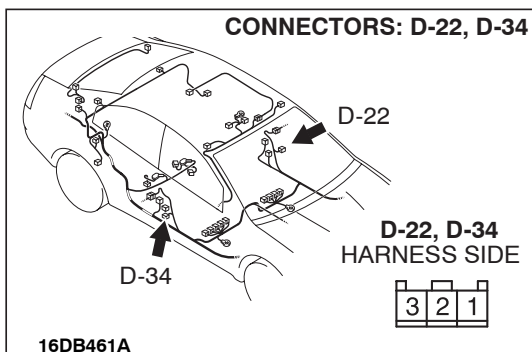


STEP 11. Check the wiring harness between front door switch (LH) connector D-22 (terminal 1) and ETACS-ECU connector C-218 (terminal 59).

Q: Is the wiring harness between front door switch (LH) connector D-22 (terminal 1) and ETACS-ECU connector C-218 (terminal 59) in good condition?

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

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



INSPECTION PROCEDURE M-5: Column Switch: ETACS-ECU does not receive any signal from the taillamp switch, the headlamp switch, the passing lamp switch, the dimmer switch or the turn-signal lamp switch.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."

CIRCUIT OPERATION

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

- Light reminder tone alarm function
- Turn-signal lamp buzzer
- Headlamp
- Turn-signal lamp
- High-beam indicator
- Turn-signal indicators

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The column switch (turn-signal lamp and lighting switch) may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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: Test Probe Harness

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

Check the column-ECU.

⚠ CAUTION

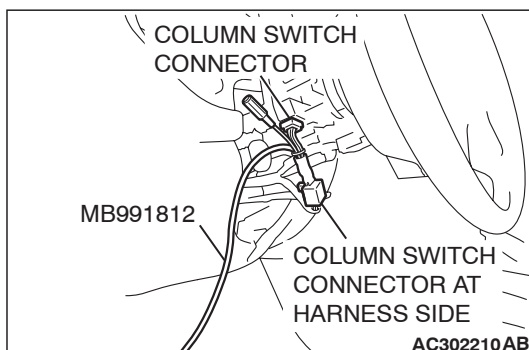
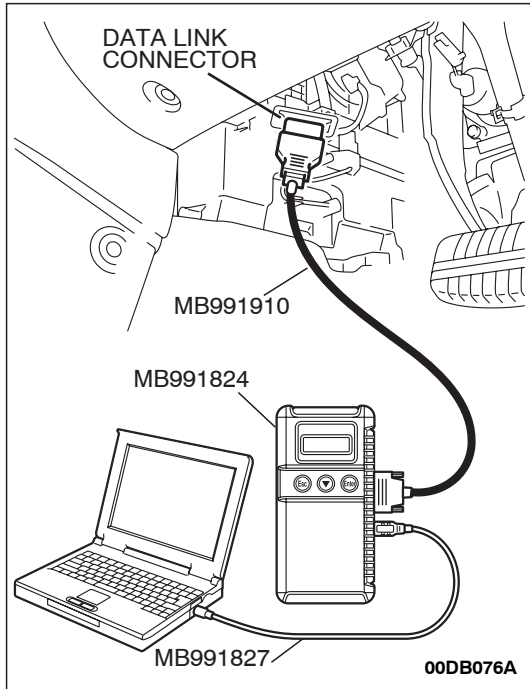
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

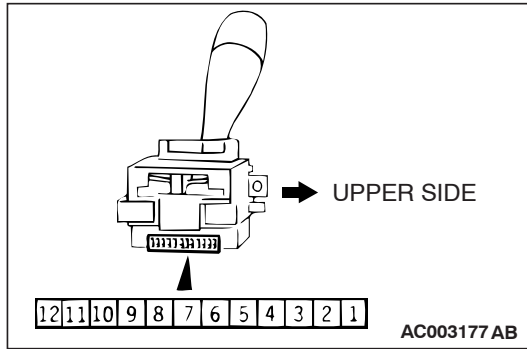
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-13."
- (2) Turn the ignition switch to the "ON" position.
- (3) Operate the diagnostic tool according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c.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

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

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54B-68."





STEP 2. Check the turn-signal lamp and lighting switch.

Remove the turn-signal lamp and the lighting switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	1 – 2, 2 – 3, 2 – 11, 2 – 12, 5 – 9, 7 – 9	Open circuit
Taillight switch	5 – 9	Less than 2 ohms
Headlamp switch	5 – 9, 7 – 9	Less than 2 ohms
Passing switch	2 – 12	Less than 2 ohms
Dimmer switch	2 – 11, 2 – 12	Less than 2 ohms
Turn-signal lamp switch (LH)	1 – 2	Less than 2 ohms
Turn-signal lamp switch (RH)	2 – 3	Less than 2 ohms

Q: Are the turn-signal lamp and lighting switch in good condition?

YES : Go to Step 3.

NO : Replace the turn-signal lamp and the lighting switch. The input signal from the column switch (turn-signal lamp and lighting switch) should be able to be checked and the functions described in the "CIRCUIT OPERATION" should work normally.

STEP 3. Replace the column switch.

- (1) Replace the column switch.
- (2) The input signal from the column switch (turn-signal lamp and lighting switch) should be able to be checked and the functions described in the "CIRCUIT OPERATION" should work normally.

Q: Is the input signal from the column switch (turn-signal lamp and lighting switch) input normal?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. The input signal from the column switch (turn-signal lamp and lighting switch) should be able to be checked and the functions described in the "CIRCUIT OPERATION" should work normally.

INSPECTION PROCEDURE M-6: Column switch: ETACS-ECU does not receive any signal from the windshield mist wiper switch, the windshield intermittent wiper switch, the windshield low-speed wiper switch, the windshield high-speed wiper switch or the windshield washer switch.

NOTE: This troubleshooting procedure requires the use of diagnostic tool MB991958 and SWS monitor kit MB991813. For details on how to use the SWS monitor, refer to "How to connect SWS monitor P.54B-13."

CIRCUIT OPERATION

The ETACS-ECU operates the windshield wiper and washer according to signal from the windshield wiper and washer switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the windshield wiper and washer do not work normally.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The column switch may be defective (windshield wiper and washer switch)
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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: Test Probe Harness

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

Check the column-ECU.

⚠ CAUTION

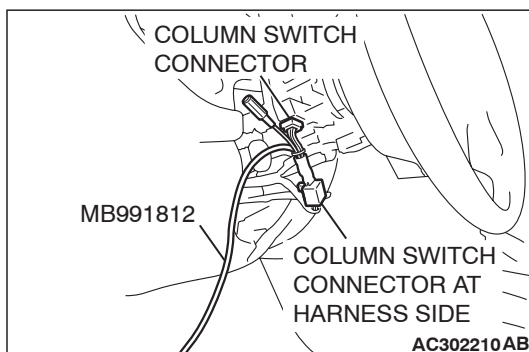
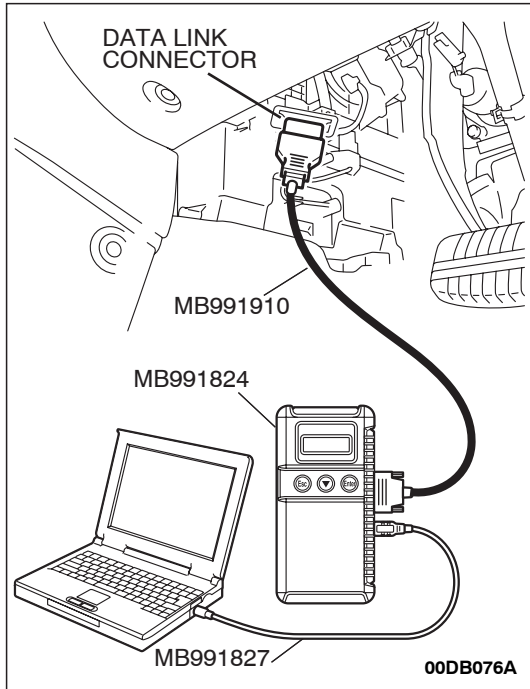
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958. Connect special tool MB991910 before connecting special tool MB991812. Be sure to connect special tool MB991806 after turning on special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

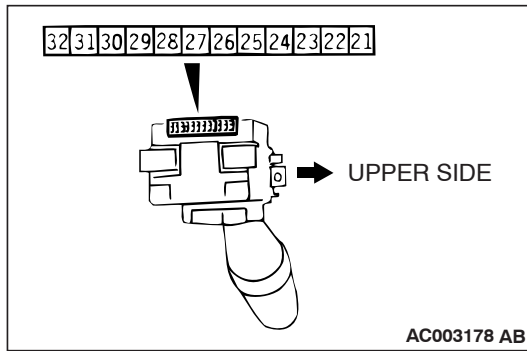
- (1) Connect the special tool. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Operate the diagnostic tool according to the procedure below to display "ECU COMM Check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."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

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

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible [P.54B-68](#)."





STEP 2. Check the windshield wiper and washer switch.

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

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	21 – 23, 22 – 23, 23 – 30, 23 – 31, 23 – 32, 25 – 26, 25 – 29	Open circuit
Windshield mist wiper switch	23 – 32	Less than 2 ohms
Windshield intermittent wiper switch	23 – 31	Less than 2 ohms
Windshield low-speed wiper switch	23 – 30	Less than 2 ohms
Windshield high-speed wiper switch	21 – 23	Less than 2 ohms
Windshield washer switch	22 – 23	Less than 2 ohms

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

YES : Go to Step 3.

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

STEP 3. Replace the column switch.

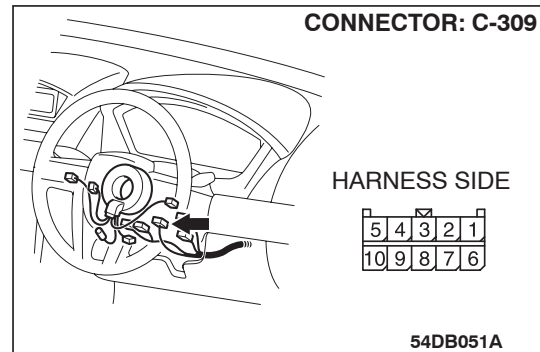
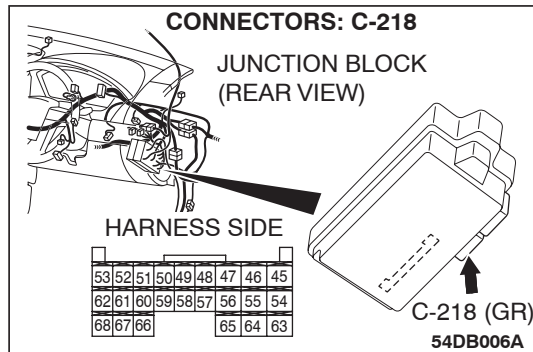
- (1) Replace the column switch.
- (2) If the equipment described in "CIRCUIT OPERATION" work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

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

YES : No action is necessary and testing is complete.

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

INSPECTION PROCEDURE M-7: Column Switch: ETACS-ECU does not receive any signal from the variable intermittent wiper control switch.



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- The column switch may be defective (windshield wiper and washer switch)
- 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:

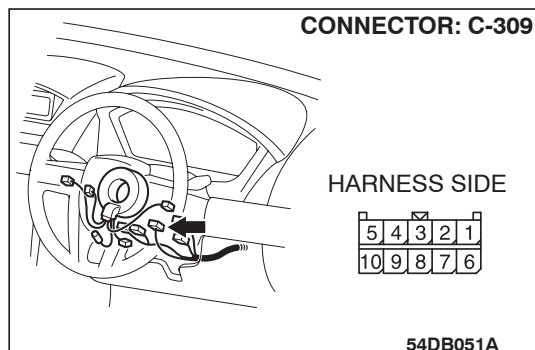
- MB991223: Harness Set

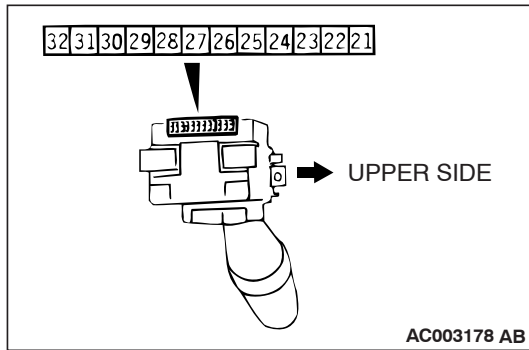
STEP 1. Check column switch connector C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is column switch connector C-309 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to [GROUP 00E, Harness Connector Inspection P.00E-2](#). If the wiper interval can be adjusted normally, the variable intermittent wiper control switch should send a signal to the ECU.





STEP 2. Check the variable intermittent wiper control switch.

- (1) Remove the windshield wiper and washer switch, and check at the switch side.
- (2) Measure the resistance value between terminals 27 and 28. The measured resistance should change smoothly from approximately 0 ohm ("FAST" position) to 1 k Ω ("SLOW" position).

Q: Is the variable intermittent wiper control switch in good condition?

YES : Go to Step 3.

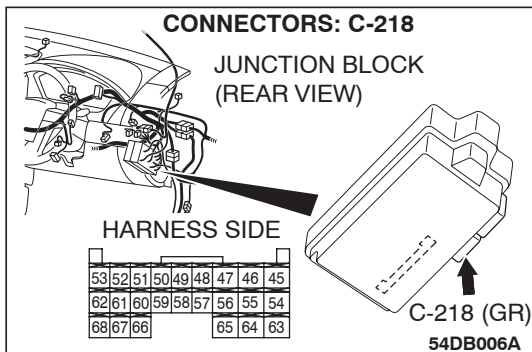
NO : Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, that the variable intermittent wiper control switch should send a signal to the ECU.

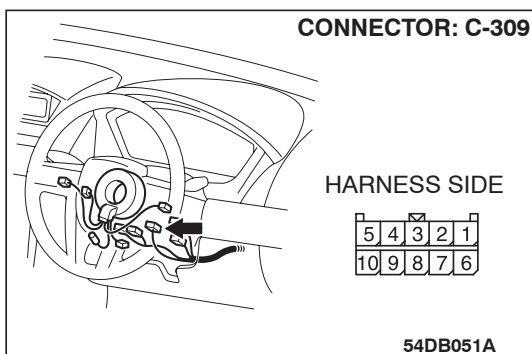
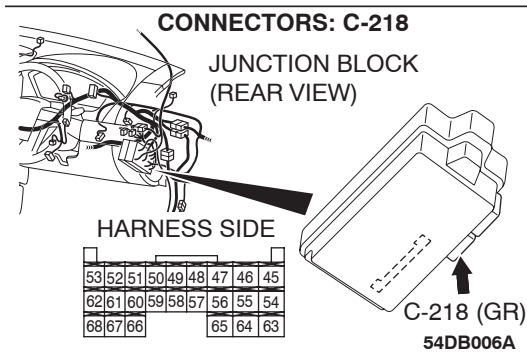
STEP 3. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the wiper interval can be adjusted normally, that the variable intermittent wiper control switch should send a signal to the ECU.





STEP 4. Check the wiring harness between column switch connector C-309 (terminal 6) and ETACS-ECU connector C-218 (terminal 60).

Q: Is the wiring harness between column switch connector C-309 (terminal 6) and ETACS-ECU connector C-218 (terminal 60) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the wiper interval can be adjusted normally, the variable intermittent wiper control switch should send a signal to the ECU.

STEP 5. Replace the column switch.

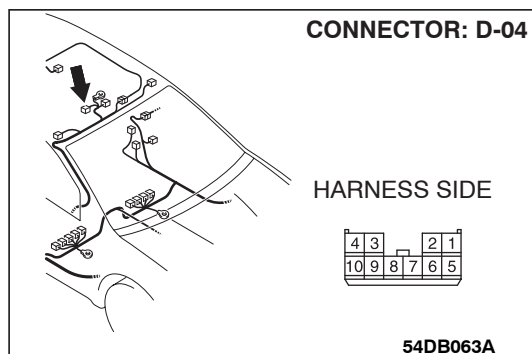
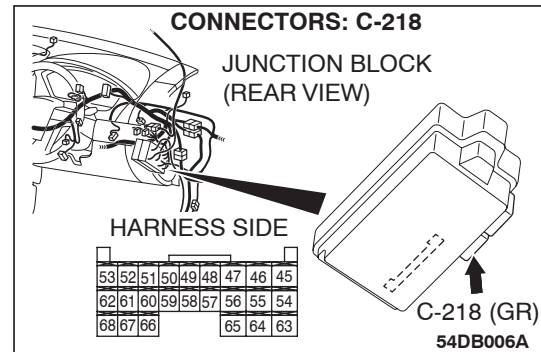
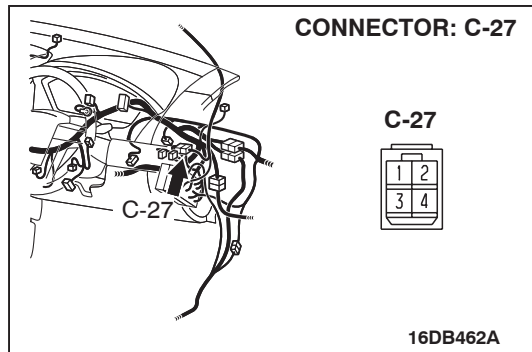
- (1) Replace the column switch.
- (2) If the wiper interval can be adjusted normally, the variable intermittent wiper control switch should send a signal to the ECU.

Q: Can input signal be confirmed when the variable intermittent wiper control switch is operated?

YES : No action is necessary and testing is complete.

NO : Replace the ETACS-ECU. If the wiper interval can be adjusted normally, the variable intermittent wiper control switch should send a signal to the ECU.

INSPECTION PROCEDURE M-8: Sunroof Switch: ETACS-ECU does not receive any signal from the up, open or close/down switch.



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The sunroof motor assembly may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check the sunroof operation.

Q: Does the sunroof work normally?

YES : Go to Step 2.

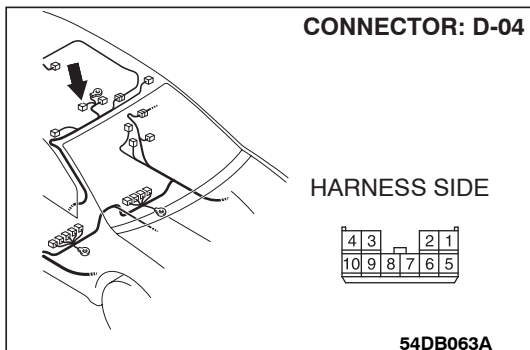
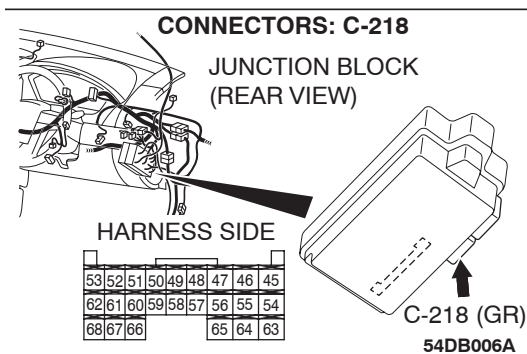
NO : Refer to Inspection Procedure F-1 "Sunroof does not operate [P.54B-210](#)."

STEP 2. Check sunroof motor assembly connector D-04 and ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

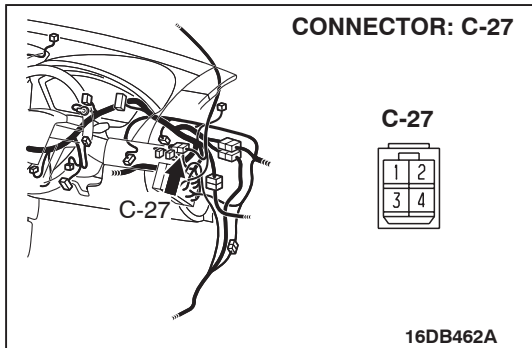
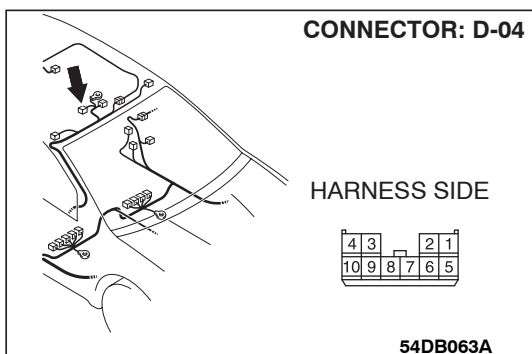
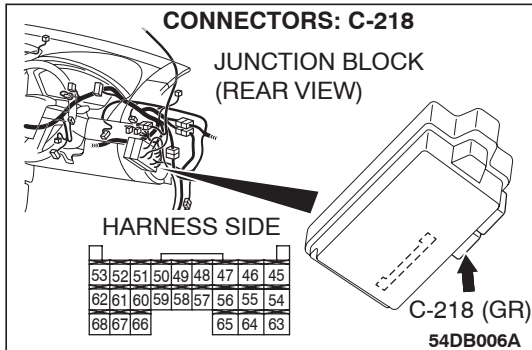
Q: Are sunroof motor assembly connector D-04 and ETACS-ECU connector C-218 in good condition?

YES : Go to Step 3.

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



STEP 3. Check the wiring harness between sunroof motor assembly connector D-04 (terminal 10) and ETACS-ECU connector C-218 (terminal 53).



NOTE: Also check intermediate connector C-27. If intermediate connector C-27 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between sunroof motor assembly connector D-04 (terminal 10) and ETACS-ECU connector C-218 (terminal 53) in good condition?

YES : Go to Step 4.

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

STEP 4. Replace the sunroof motor assembly.

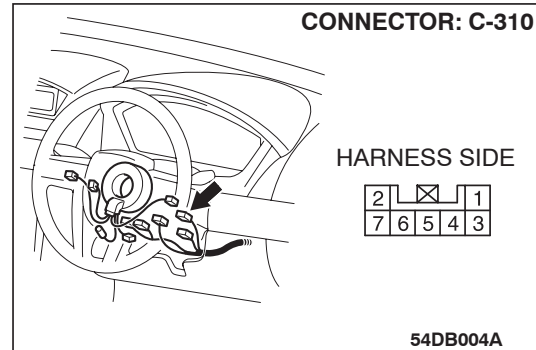
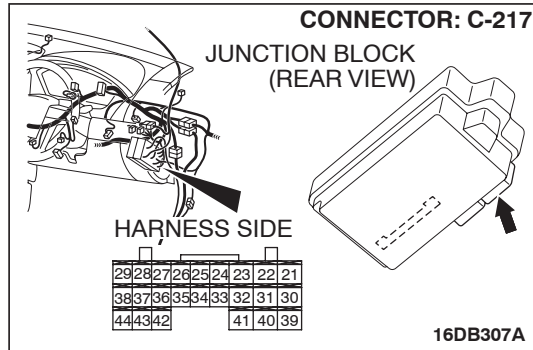
- (1) Replace the sunroof motor assembly.
- (2) If the sunroof operates normally, a correct signal is sent from the sunroof switch.

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

YES : No action is necessary and testing is complete.

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

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



CIRCUIT OPERATION

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

- Forgotten key reminder
- Keyless entry system
- Timed locking mechanism
- Dome lamp dimming function
- Ignition key hole illumination lamp

TECHNICAL DESCRIPTION (COMMENT)

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

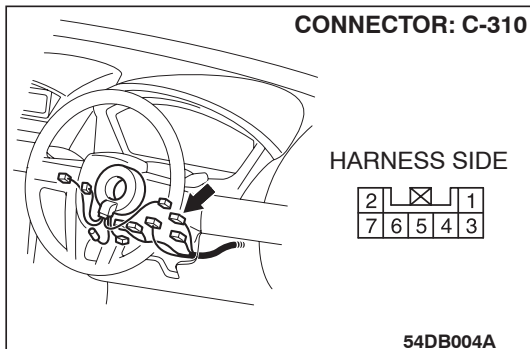
TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The key reminder switch 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

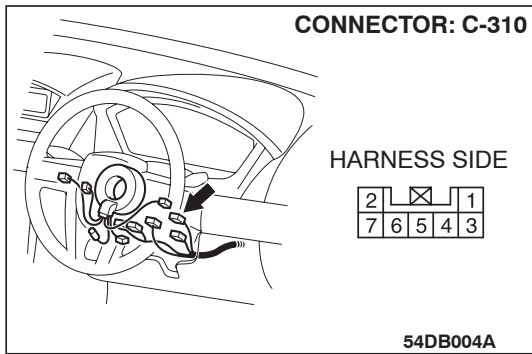


STEP 1. Check key reminder switch connector C-310 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-310 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the key reminder switch.

Disconnect key reminder switch connector C-310. Then check continuity between terminals.

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

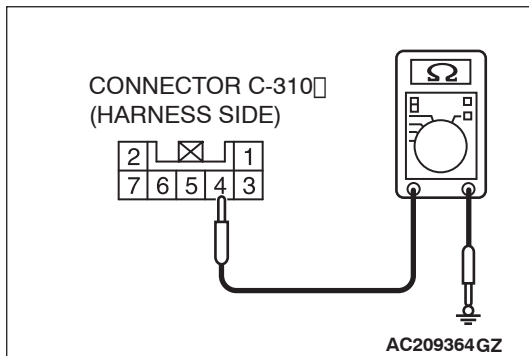
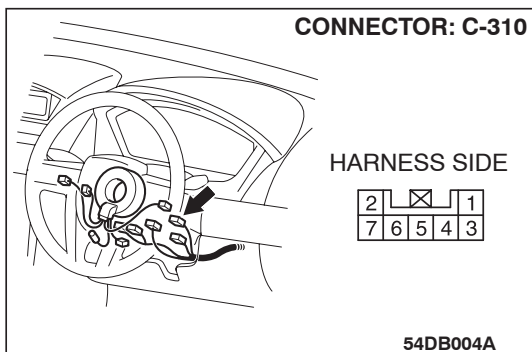
Q: Is the key reminder switch in good condition?

YES : Go to Step 3.

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

STEP 3. Check the ground circuit to the key reminder switch. Measure the resistance at key reminder switch connector C-310.

(1) Disconnect key reminder switch connector C-310 and measure the resistance available at the wiring harness side of the connector.



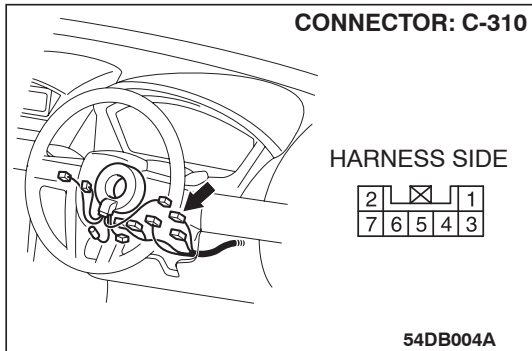
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

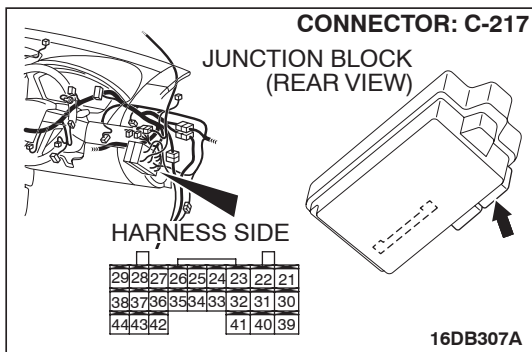


STEP 4. Check the wiring harness between key reminder switch connector C-310 (terminal 4) and ground.

Q: Is the wiring harness between key reminder switch connector C-310 (terminal 4) and ground in good condition?

YES : No action is necessary and testing is complete.

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

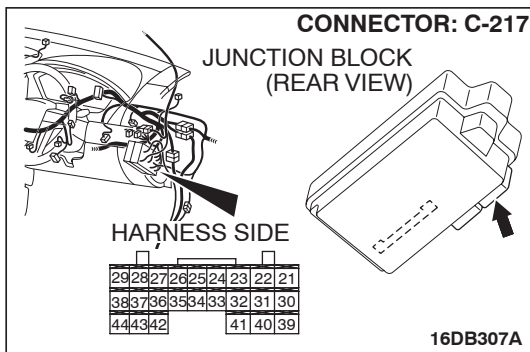
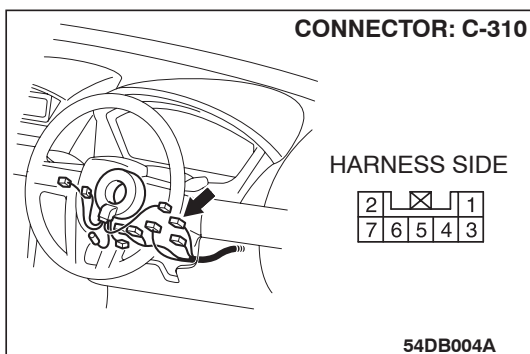
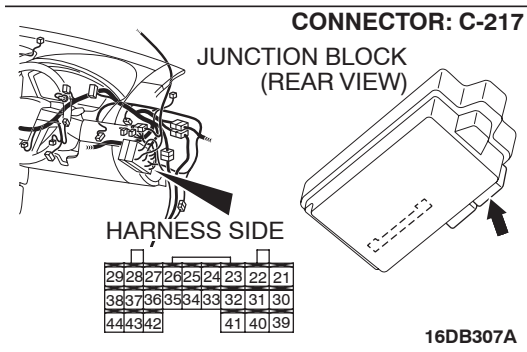


STEP 5. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

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



STEP 6. Check the wiring harness between key reminder switch connector C-310 (terminal 6) and ETACS-ECU connector C-217 (terminal 30).

Q: Is the wiring harness between key reminder switch connector C-310 (terminal 6) and ETACS-ECU connector C-217 (terminal 30) 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. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the key reminder switch should be normal.

STEP 7. Check for continuity between key reminder switch connector C-310 terminal 4 and each of the other terminals as well as terminal 6 and each of the other terminals.

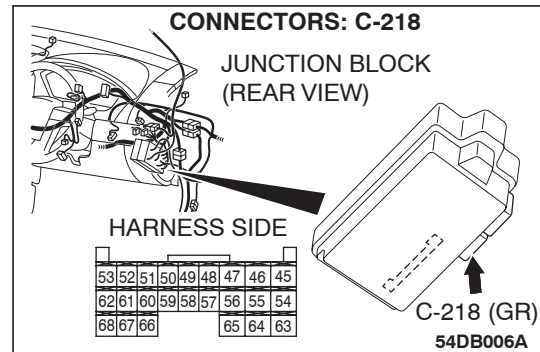
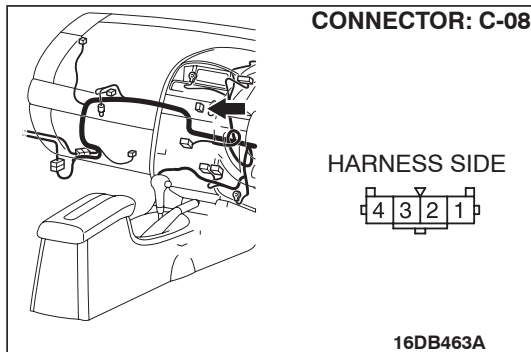
- (1) Disconnect key reminder switch connector C-310 and measure the resistance available at the equipment side of the connector.
- (2) Check for continuity between key reminder switch connector C-310 terminal 4 and each of the other terminals as well as terminal 6 and each of the other terminals.

Q: Does continuity exist between the terminals?

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

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

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



CIRCUIT OPERATION

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

- Turn-signal lamp buzzer
- Hazard warning lamp
- Keyless entry system (registering the encrypted code)

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- The hazard warning lamp switch 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:

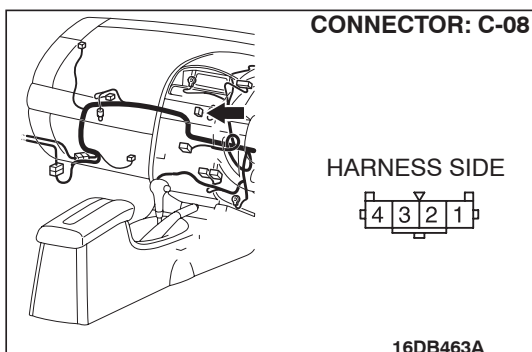
- MB991223: Harness Set

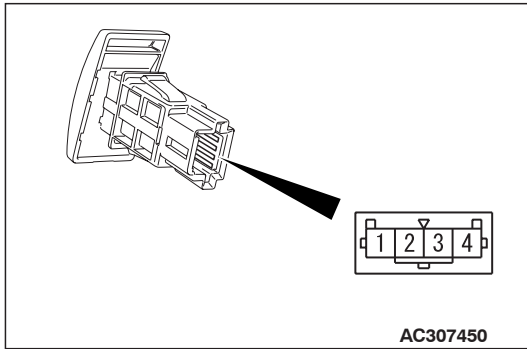
STEP 1. Check hazard warning lamp switch connector C-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hazard warning lamp switch connector C-08 in good condition?

YES : Go to Step 2.

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





STEP 2. Check the hazard warning lamp switch.

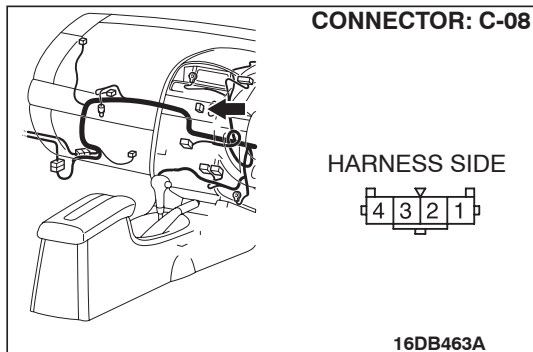
Remove the hazard warning lamp switch. Refer to GROUP 54A, Hazard Warning Light Switch P.54A-168. Then check continuity between the switch terminals.

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

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

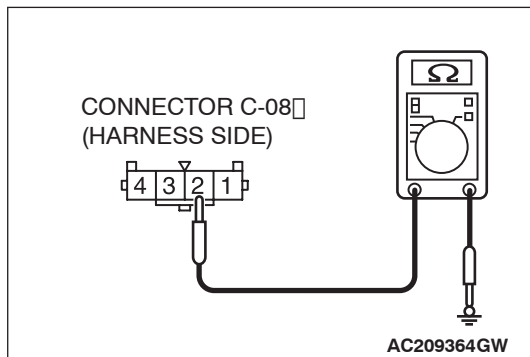
YES : Go to Step 3.

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



STEP 3. Check the ground circuit to the hazard warning lamp switch. Measure the resistance at hazard warning lamp switch connector C-08.

(1) Disconnect hazard warning lamp switch connector C-08 and measure the resistance available at the wiring harness side of the connector.



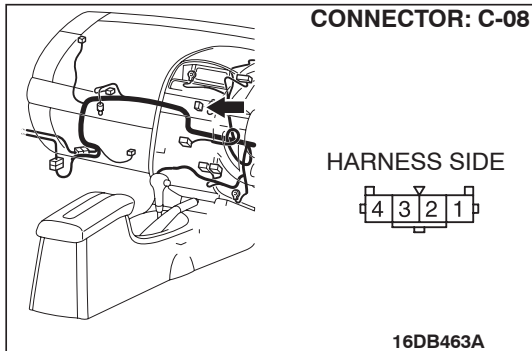
(2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.

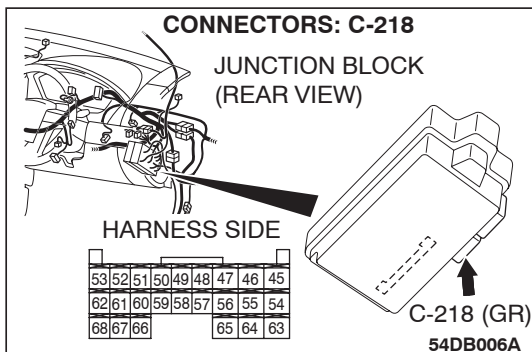


STEP 4. Check the wiring harness between hazard warning lamp switch connector C-08 (terminal 2) and ground.

Q: Is the wiring harness between hazard warning lamp switch connector C-08 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

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

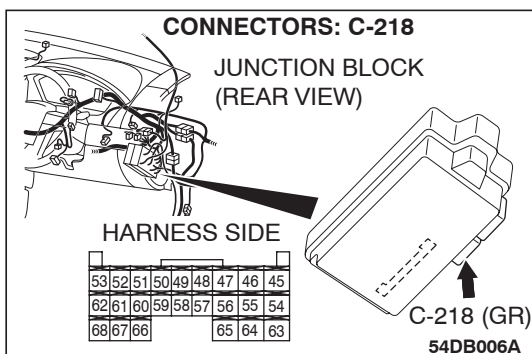
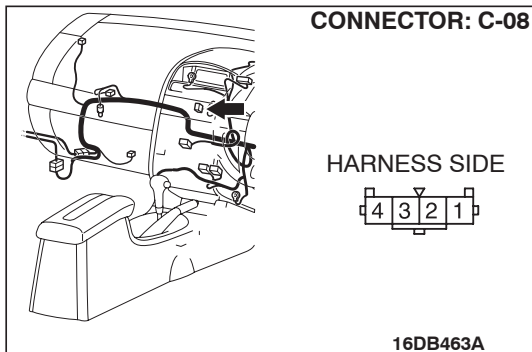


STEP 5. Check ETACS-ECU connector C-218 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-218 in good condition?

YES : Go to Step 6.

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



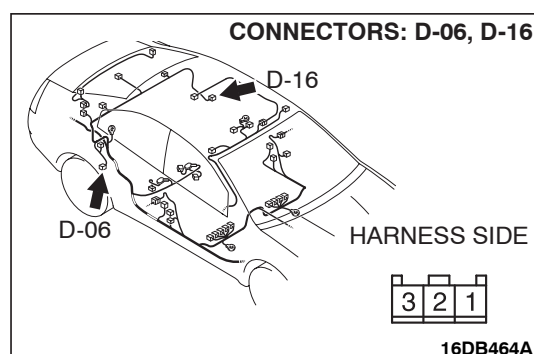
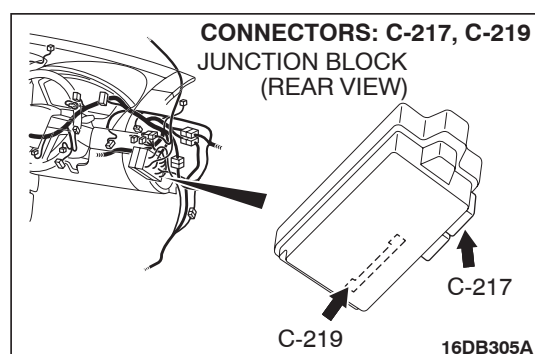
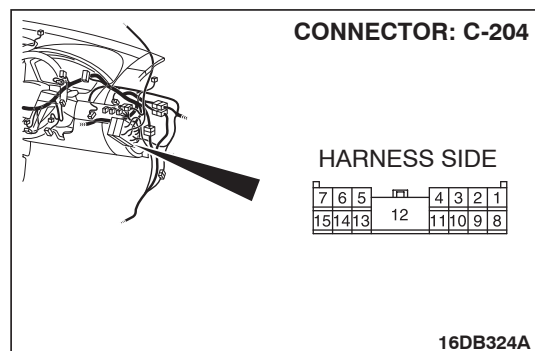
STEP 6. Check the wiring harness between hazard warning lamp switch connector C-08 (terminal 1) and ETACS-ECU connector C-218 (terminal 49).

Q: Is the wiring harness between hazard warning lamp switch connector C-08 (terminal 1) and ETACS-ECU connector C-218 (terminal 49) in good condition?

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

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

INSPECTION PROCEDURE N-3: ETACS-ECU does not receive any signal from any of the door switches.



CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the front or rear door switches:

- Light reminder tone alarm function <front door switch (RH)>
- Door ajar warning buzzer <all door switches>
- Ignition key reminder tone alarm <front door switches>
- Power window timer function <front door switches>
- Sunroof timer function <front door switch (RH)>
- Headlamp automatic shutdown function <front door switch (RH)>
- Keyless entry system <all door switches>
- Timer lock <all door switches>
- Dome lamp <all door switches>
- Interior lamp automatic-shutdown function <all door switches>

- Ignition key hole illumination lamp <front door switch (RH)>
- Door-ajar indicator lamp <all door switches>

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems described in "CIRCUIT OPERATION" do not work normally. If the signal is not normal, the front or rear door switches or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- The front or rear door switches 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 Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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 the input signal (by using the pulse check mode of the monitor).

Check the input signals from the all door switches.

⚠ CAUTION

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

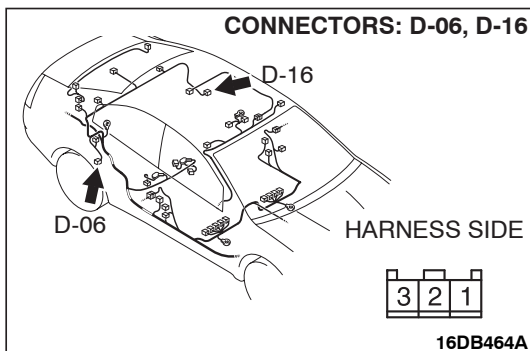
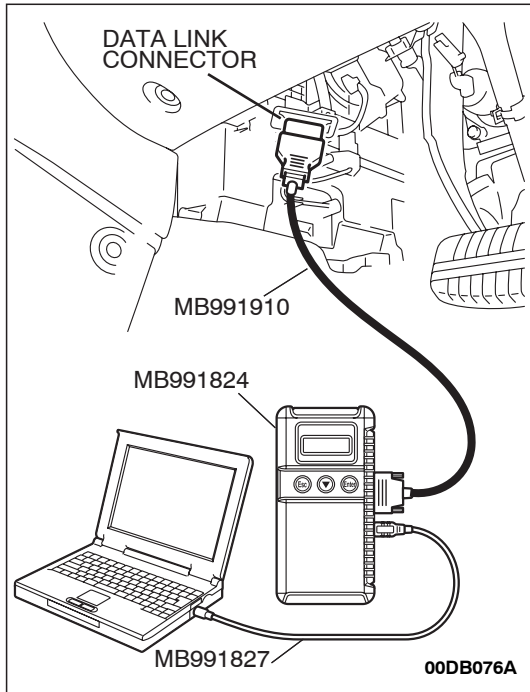
- (1) Connect the diagnostic tool MB991958. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Operate diagnostic tool MB991958 according to the procedure below to display "Pulse check."
 - a. Select "Interactive Diagnosis."
 - b. Select "System select."
 - c. Select "SWS."
 - d. Select "Pulse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

Q: When the front and rear doors are opened/closed, does the diagnostic tool MB991958 sound?

When the front doors are opened and closed, diagnostic tool MB991958 does not sound. : Refer to Inspection Procedure M-4 "ETACS-ECU does not receive any signal from the front door switches [P.54B-413](#)."

When the rear door (LH) is opened and closed, diagnostic tool MB991958 does not sound. : Go to Step 2.

When the rear door (RH) is opened and closed, diagnostic tool MB991958 does not sound. : Go to Step 7.

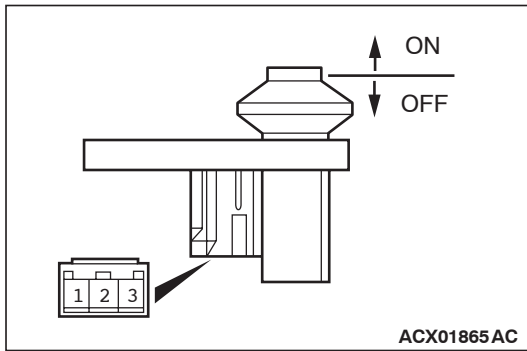


STEP 2. Check rear door switch (LH) connector D-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (LH) connector D-16 in good condition?

YES : Go to Step 3.

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



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

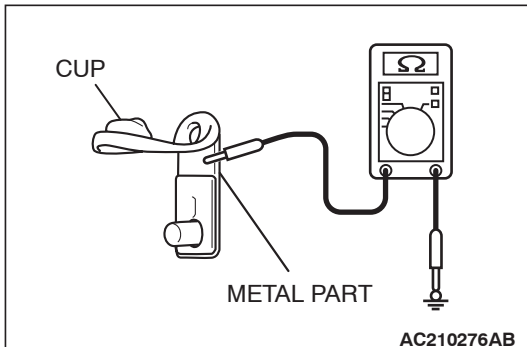
Remove the rear door switch (LH). Refer to GROUP 42, Door, Door Assembly P.42-37. Then check continuity between the switch terminals and the body ground.

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

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

YES : Go to Step 4.

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



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

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

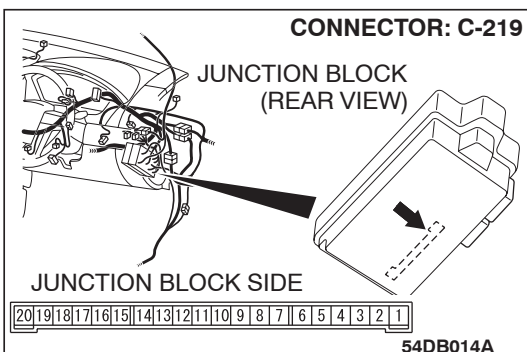
Remove the cap, and measure the resistance value between the lower metal part and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

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



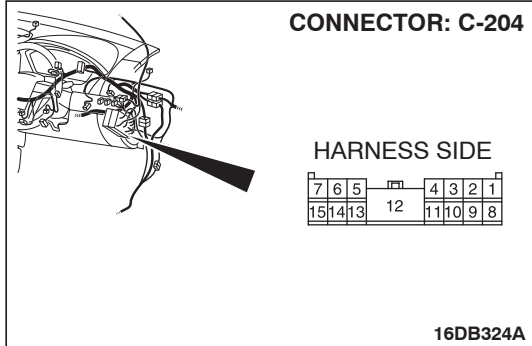
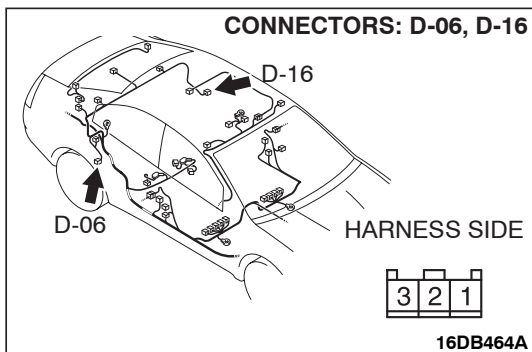
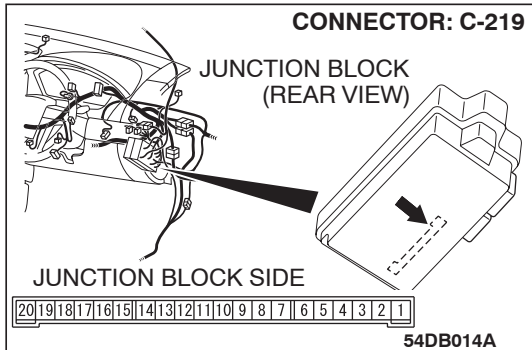
STEP 5. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 6.

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

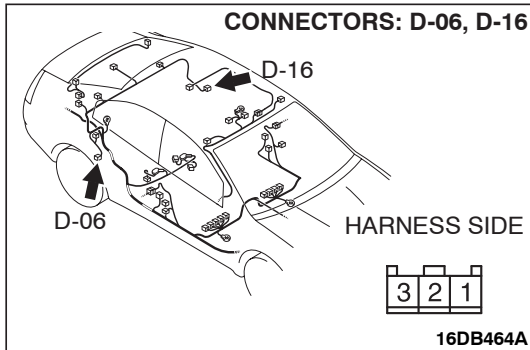
STEP 6. Check the wiring harness between rear door switch (LH) connector D-16 (terminal 1) and ETACS-ECU connector C-219 (terminal 7).



NOTE: Also check junction block connector C-204 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If 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 rear door switch (LH) connector D-16 (terminal 1) and ETACS-ECU connector C-219 (terminal 7) in good condition?

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

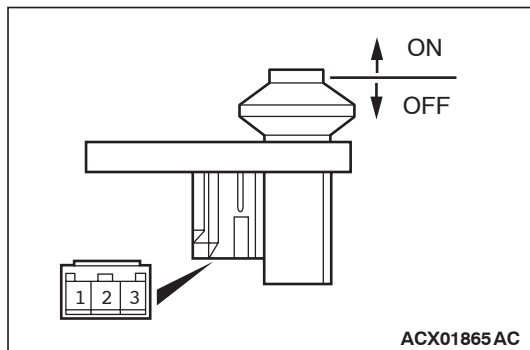


STEP 7. Check rear door switch (RH) connector D-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (RH) connector D-06 in good condition?

YES : Go to Step 8.

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



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

Remove the rear door switch (RH). Refer to GROUP 42, Door, Door Assembly [P.42-37](#). Then check continuity between the switch terminals and the body ground.

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

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

YES : Go to Step 9.

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

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

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

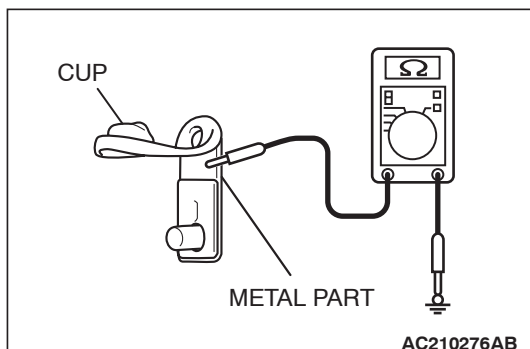
Remove the cap, and measure the resistance value between the lower metal part and ground.

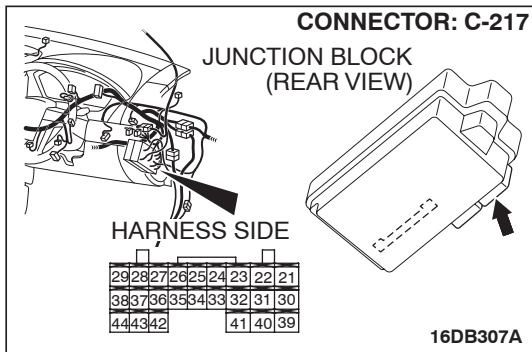
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.

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



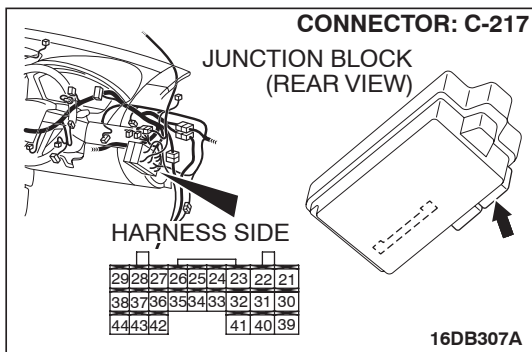


STEP 10. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 11.

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

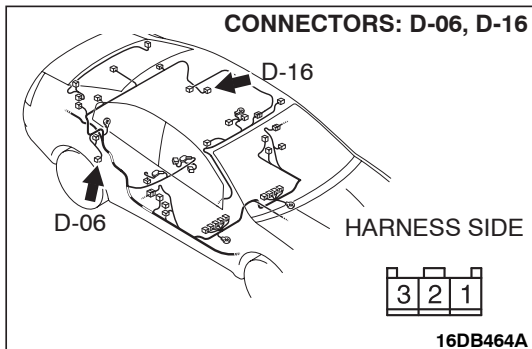


STEP 11. Check the wiring harness between rear door switch (RH) connector D-06 (terminal 1) and ETACS-ECU connector C-217 (terminal 35).

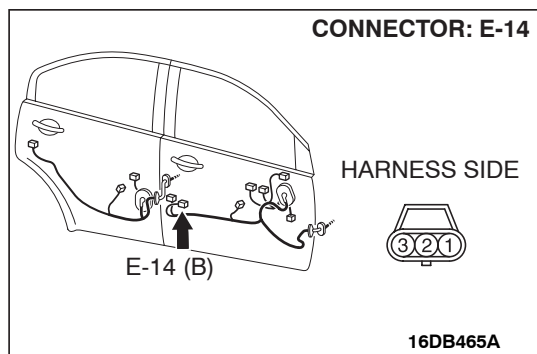
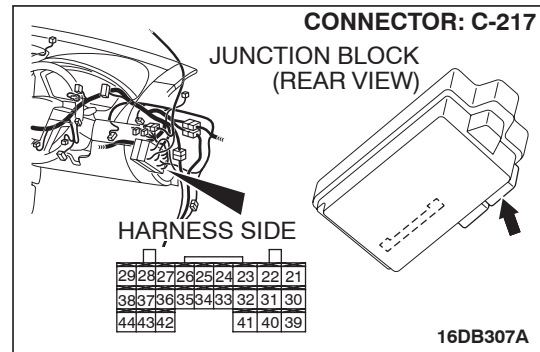
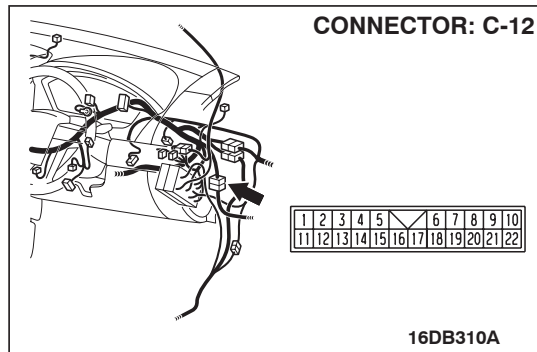
Q: Is the wiring harness between rear door switch (RH) connector D-06 (terminal 1) and ETACS-ECU connector C-217 (terminal 35) in good condition?

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

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



INSPECTION PROCEDURE N-4: ETACS-ECU does not receive any signal from the door lock key cylinder switch.



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The door lock key cylinder switch 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:

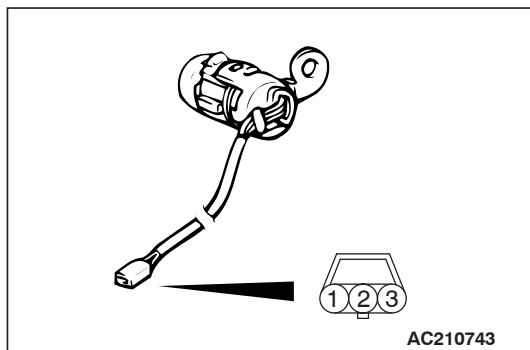
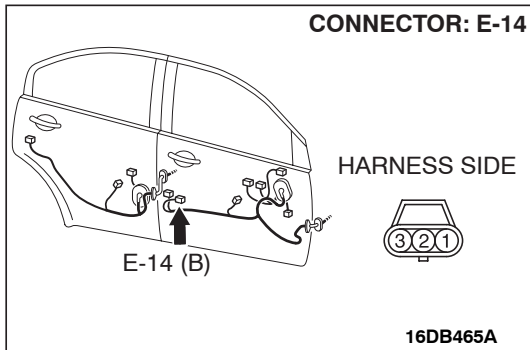
- MB991223: Harness Set

STEP 1. Check door lock key cylinder switch connector E-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door lock key cylinder switch connector E-14 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the door lock key cylinder switch.

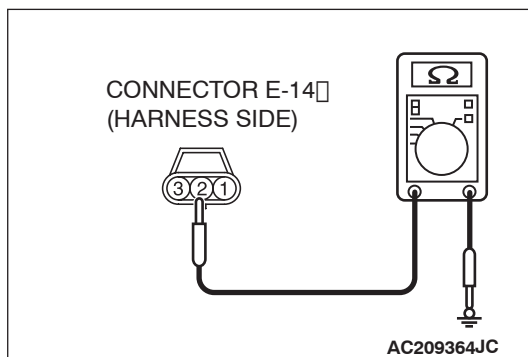
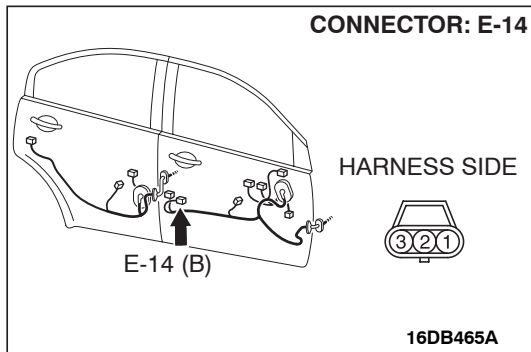
Disconnect door lock key cylinder switch connector E-14. Then check continuity between the switch terminals.

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

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

YES : Go to Step 3.

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



STEP 3. Check the ground circuit to the door lock key cylinder switch. Measure the resistance at door lock key cylinder switch connector E-14.

- (1) Disconnect door lock key cylinder switch connector E-14 and measure the resistance available at the wiring harness side of the connector.

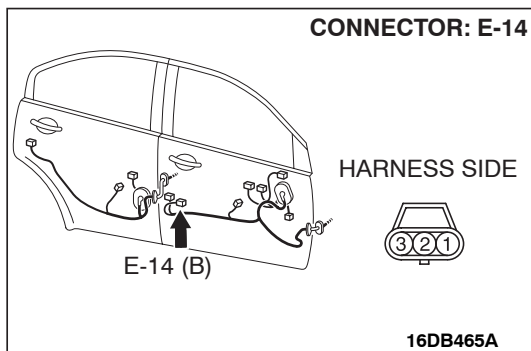
- (2) Measure the resistance value between terminal 2 and ground.

- The resistance should be 2 ohms or less.

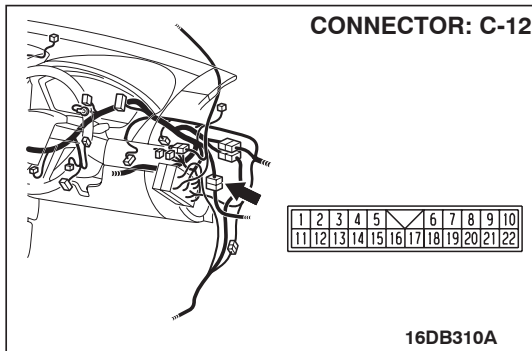
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between door lock key cylinder switch connector E-14 (terminal 2) and ground.



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

Q: Is the wiring harness between door lock key cylinder switch connector E-14 (terminals 2) and ground in good condition?

YES : No action is necessary and testing is complete.

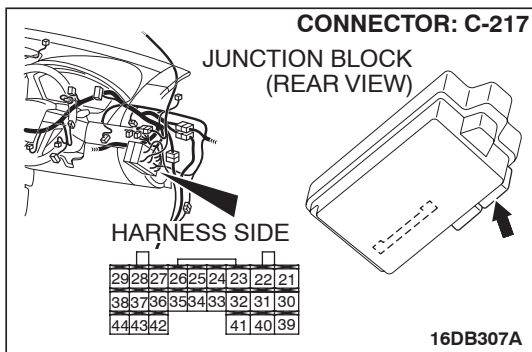
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the systems described in "CIRCUIT OPERATION" work normally, the input signal from the door lock key cylinder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

STEP 5. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

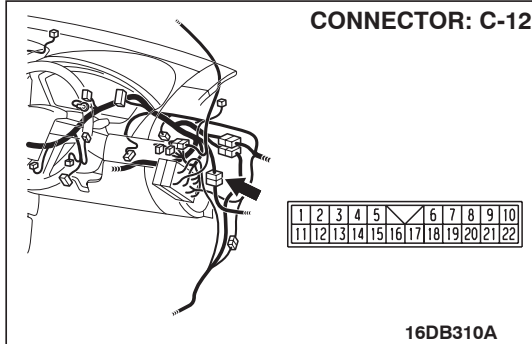
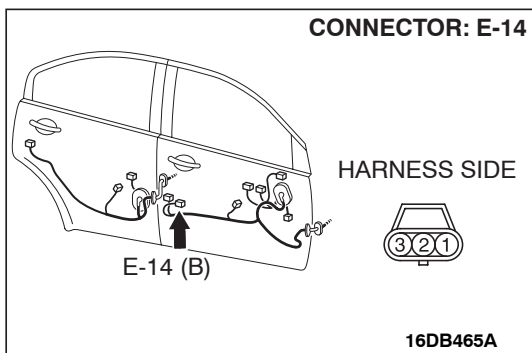
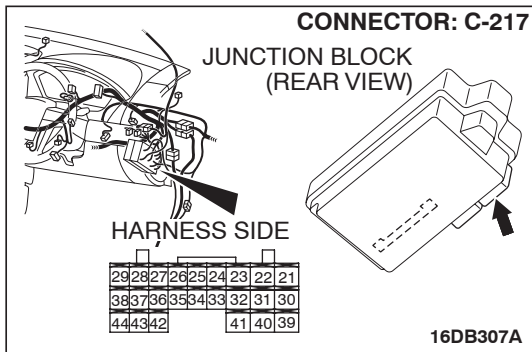
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 6.

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



STEP 6. Check the wiring harness between door lock key cylinder switch connector E-14 (terminals 1 and 3) and ETACS-ECU connector C-217 (terminals 25 and 42).



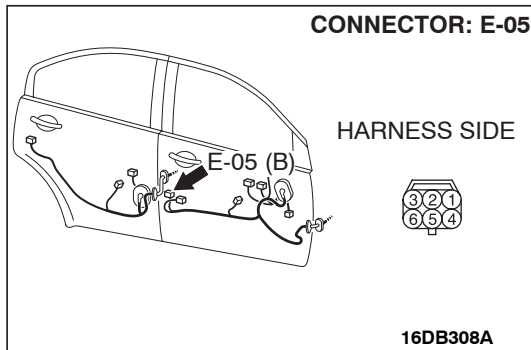
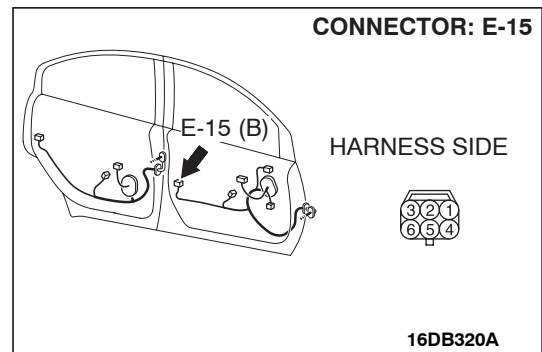
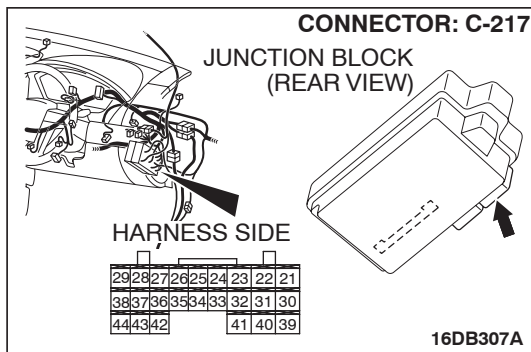
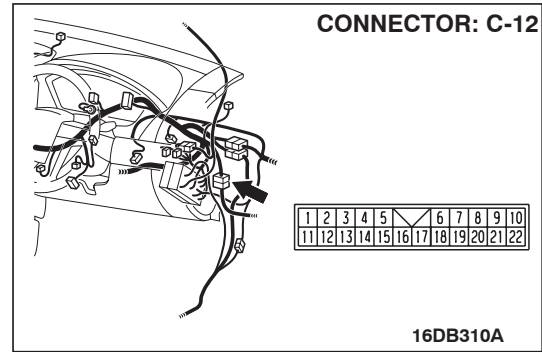
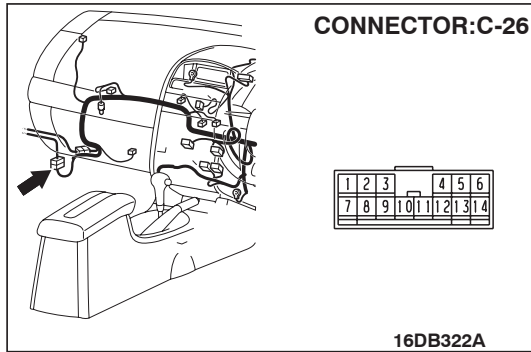
NOTE: Also check intermediate connector C-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-12 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between door lock key cylinder switch connector E-14 (terminals 1 and 3) and ETACS-ECU connector C-217 (terminals 25 and 42) in good condition?

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

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

INSPECTION PROCEDURE N-5: ETACS-ECU does not receive any signal from the front door lock actuator.



CIRCUIT OPERATION

The ETACS-ECU operates the following functions or systems according to signal from the front door lock actuator:

- Central door locking system
- Keyless entry system
- Dome lamp <front door lock actuator (RH)>

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The front 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 Tools:

- MB991223: Harness Set
- MB991958: Diagnostic 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 the input signal (by using the pulse check mode of the monitor).

Check the input signals from the front door lock actuators.

CAUTION

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

- (1) Connect the diagnostic tool MB991958. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Operate diagnostic 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 that diagnostic tool MB991958 sounds.

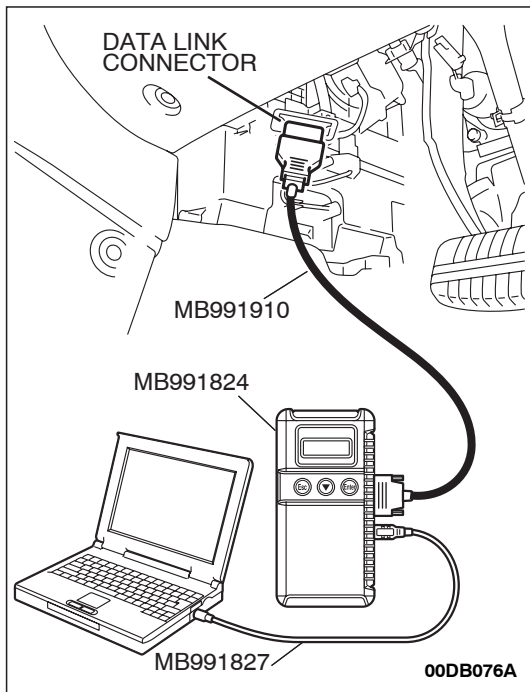
Q: When the front door lock actuators are operated, does the diagnostic tool MB991958 sound?

When the front door lock actuator (RH) is operated, the diagnostic tool MB991958 does not sound. : Go to Step

2.

When the front door lock actuator (LH) is operated, the diagnostic tool MB991958 does not sound. : Go to Step

8.

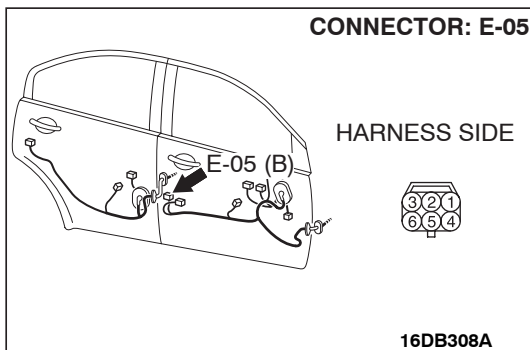


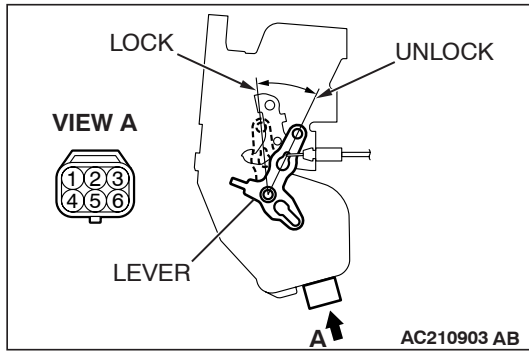
STEP 2. Check front door lock actuator (RH) connector E-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-05 in good condition?

YES : Go to Step 3.

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





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

Disconnect front door lock actuator (RH) connector E-05. Then check continuity between the terminals.

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

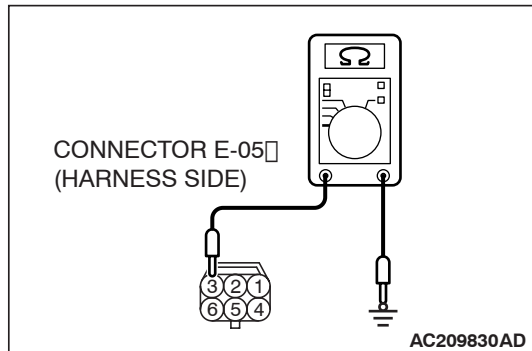
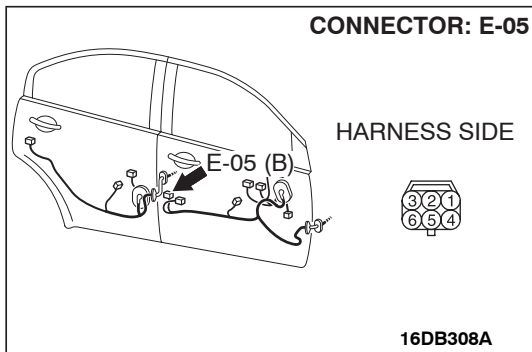
Q: Is the front door lock actuator (RH) in good condition?

YES : Go to Step 4.

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

STEP 4. Check the ground circuit to the front door lock actuator (RH). Measure the resistance at front door lock actuator (RH) connector E-05.

(1) Disconnect front door lock actuator (RH) connector E-05 and measure the resistance available at the wiring harness side of the connector.



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

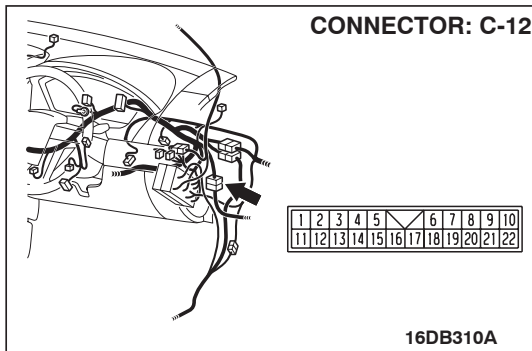
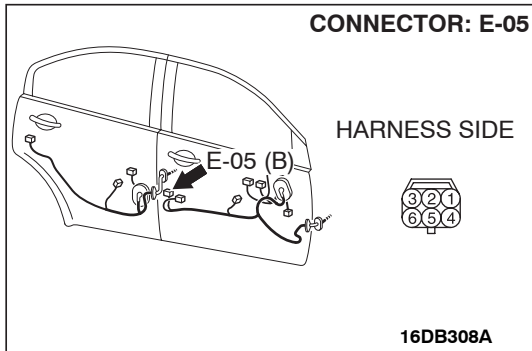
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between front door lock actuator (RH) connector E-05 (terminal 3) and ground.



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

Q: Is the wiring harness between front door lock actuator (RH) connector E-05 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

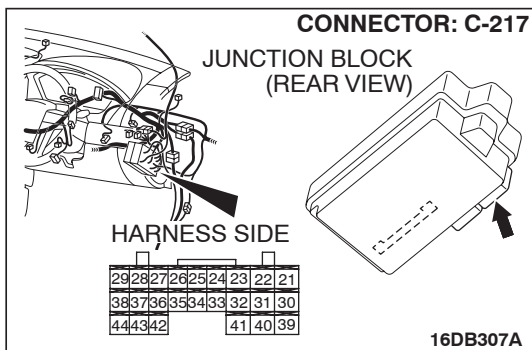
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the front door lock actuator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

STEP 6. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

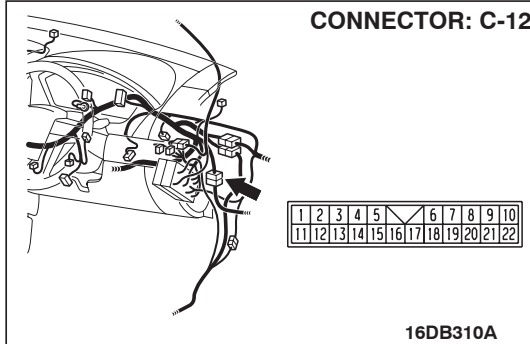
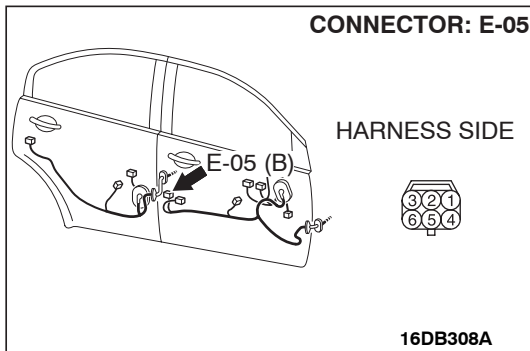
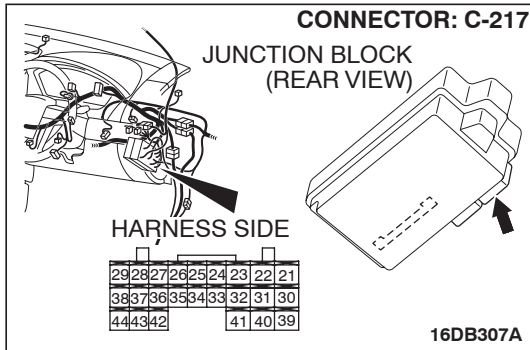
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 7.

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



STEP 7. Check the wiring harness between front door lock actuator (RH) connector E-05 (terminal 1) and ETACS-ECU connector C-217 (terminal 36).

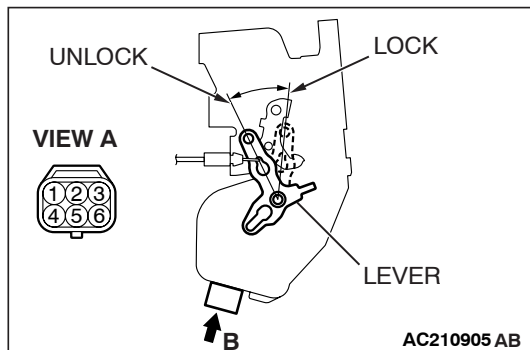
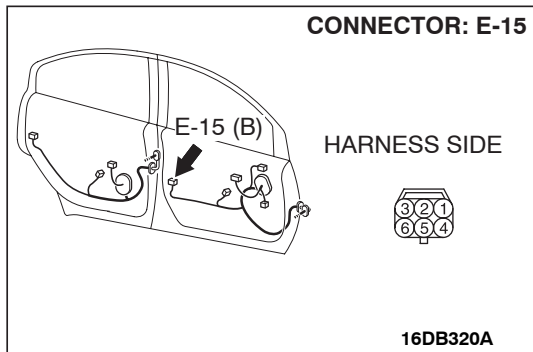


NOTE: Also check intermediate connector C-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-12 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front door lock actuator (RH) connector E-05 (terminal 1) and ETACS-ECU connector C-217 (terminal 36) in good condition?

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

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



STEP 8. 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 9.

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

STEP 9. Check the front door lock actuator (LH).

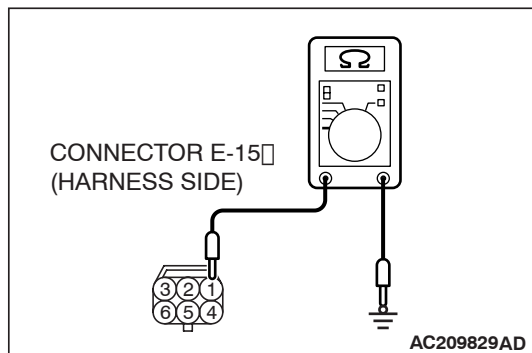
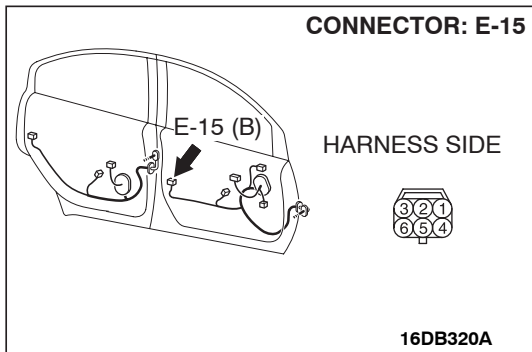
Disconnect front door lock actuator (LH) connector E-15. Then check continuity between the terminals.

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

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

YES : Go to Step 10.

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



STEP 10. Check the ground circuit to the front door lock actuator (LH). Measure the resistance at front door lock actuator (LH) connector E-15.

- (1) Disconnect front door lock actuator (LH) connector E-15 and measure the resistance available at the wiring harness side of the connector.

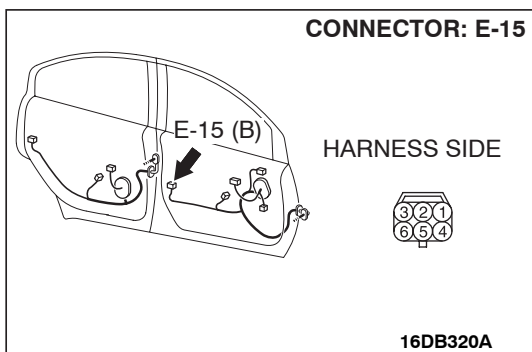
- (2) Measure the resistance value between terminal 1 and ground.

- The resistance should be 2 ohms or less.

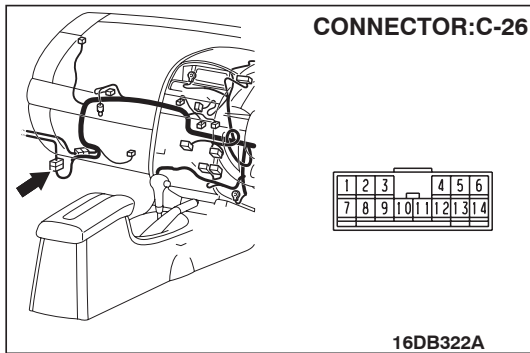
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between front door lock actuator (LH) connector E-15 (terminal 1) and ground.



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 connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front door lock actuator (LH) connector E-15 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

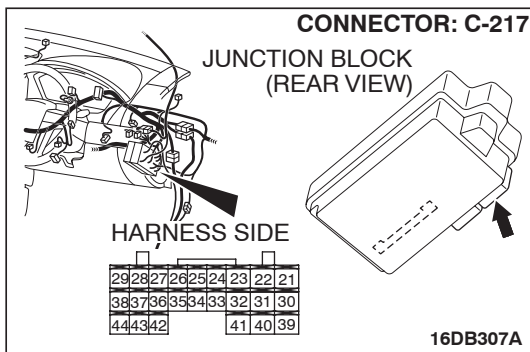
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the front door lock actuator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

STEP 12. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

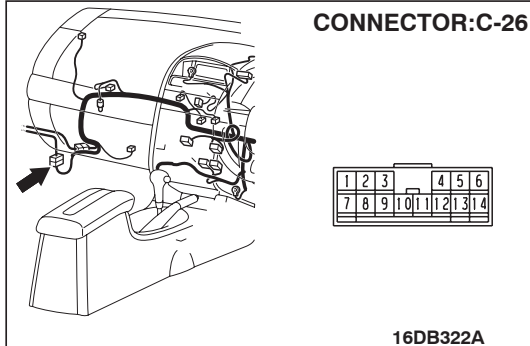
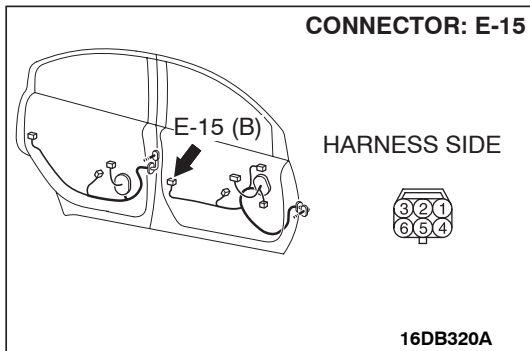
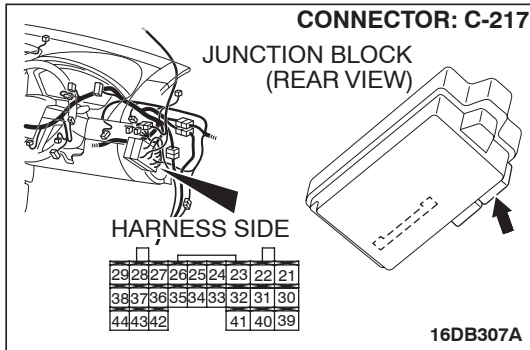
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 13.

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



STEP 13. Check the wiring harness between front door lock actuator (LH) connector E-15 (terminal 3) and ETACS-ECU connector C-217 (terminal 43).



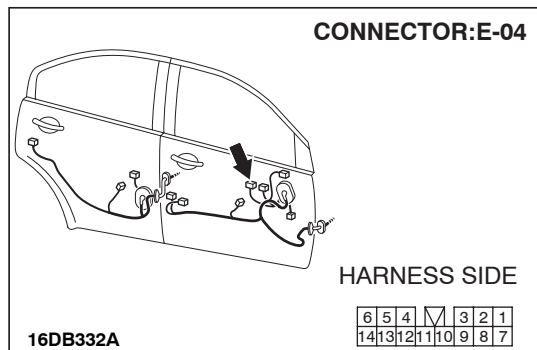
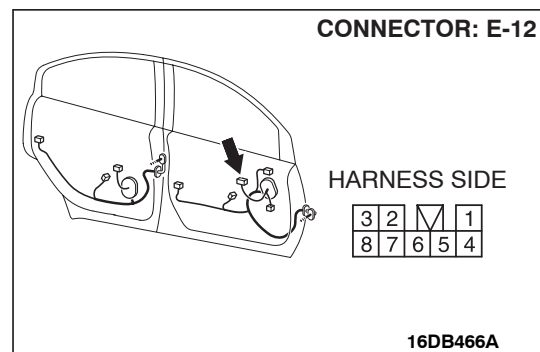
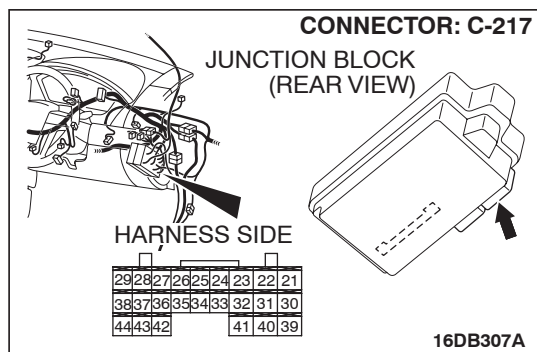
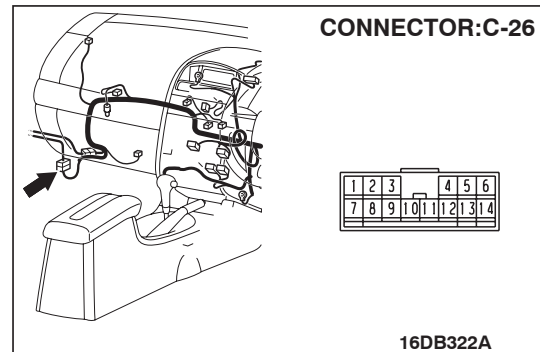
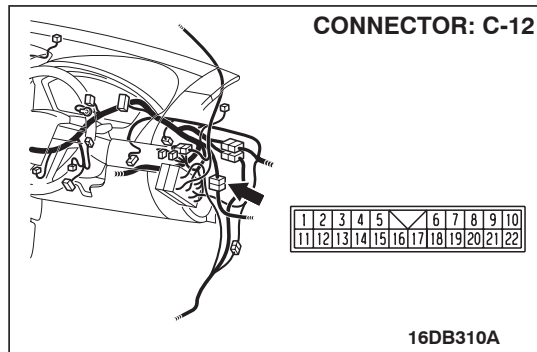
NOTE: Also check intermediate connector C-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front door lock actuator (LH) connector E-15 (terminal 3) and ETACS-ECU connector C-217 (terminal 43) in good condition?

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

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

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).



CIRCUIT OPERATION

The ETACS-ECU operates the central door locking system according to signal from the door lock switch (incorporated in the power window main switch and front power window sub switch).

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the doors will not lock or unlock. If the signal is not normal, the power window main switch, front power window sub switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The power window main switch or front power window sub switch 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
- MB991958: Diagnostic 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 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

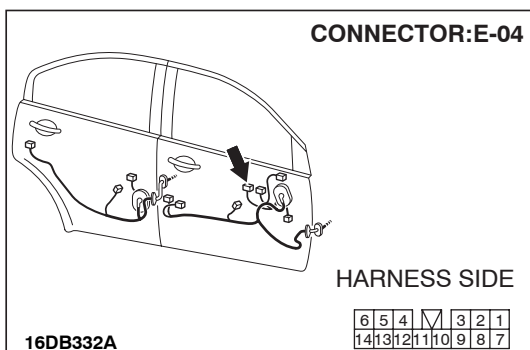
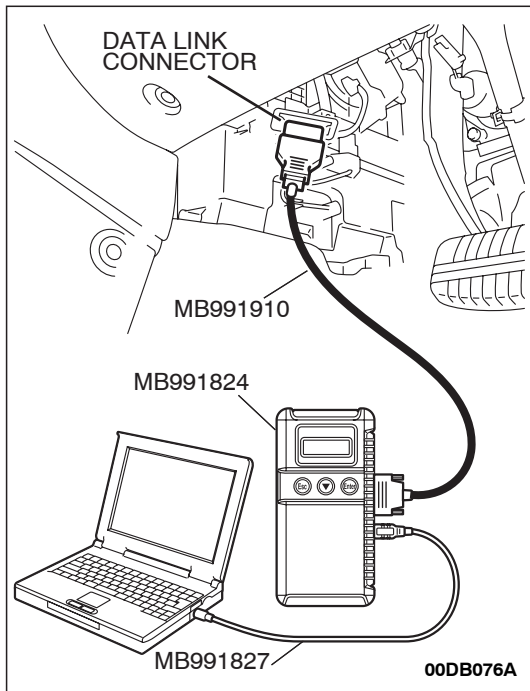
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect the diagnostic tool MB991958. Refer to "How to connect SWS monitor [P.54B-13](#)."
- (2) Operate diagnostic 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 that diagnostic tool MB991958 sounds.

Q: When the door lock switch (incorporated in the power window main switch and front power window sub switch) is operated, does the diagnostic tool MB991958 sound?

When the door lock switch (incorporated in the power window main switch) is operated, the diagnostic tool MB991958 does not sound. : Go to Step 2.

When the door lock switch (incorporated in the front power window sub switch) is operated, the diagnostic tool MB991958 does not sound. : Go to Step 8.

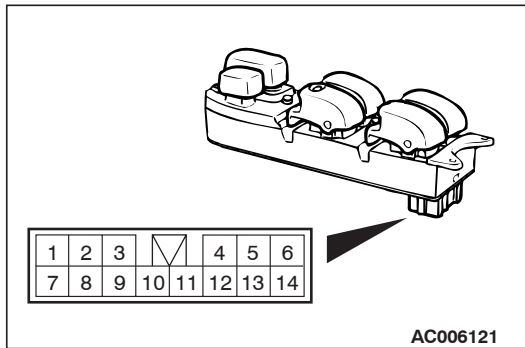


STEP 2. Check power window main switch connector E-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power window main switch connector E-04 in good condition?

YES : Go to Step 3.

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



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

Remove the power window main switch. Refer to GROUP 42, Door, Door Glass and Regulator P.42-39. Then check continuity between the switch terminals.

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

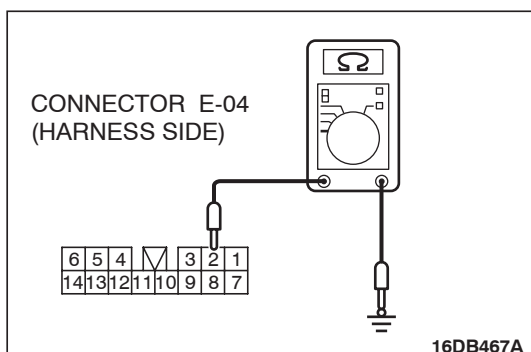
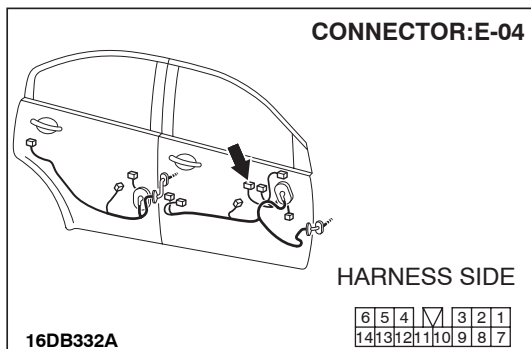
Q: Is the door lock switch (power window main switch) in good condition?

YES : Go to Step 4.

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

STEP 4. Check the ground circuit to the power window main switch. Measure the resistance at power window main switch connector E-04.

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



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

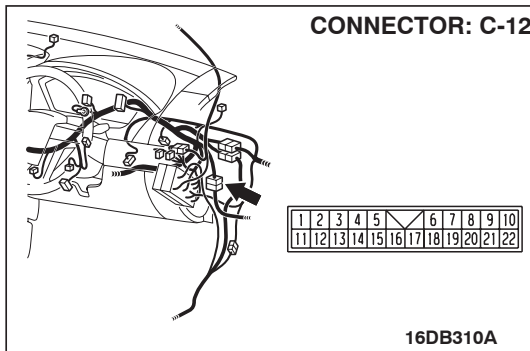
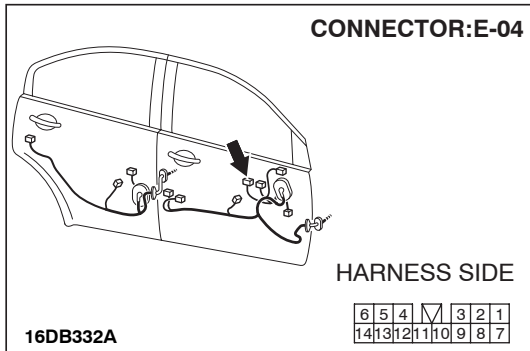
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between power window main switch E-04 (terminal 2) and ground.



NOTE: Also check intermediate connector C-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-12 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 main switch connector E-04 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

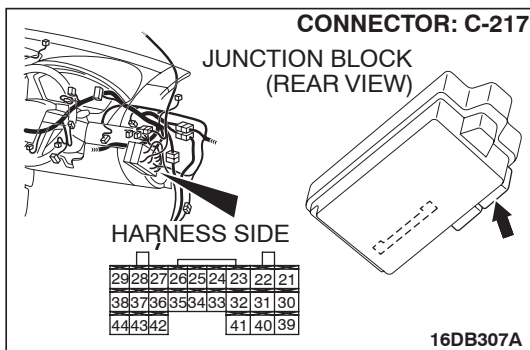
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch (power window main switch)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

STEP 6. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

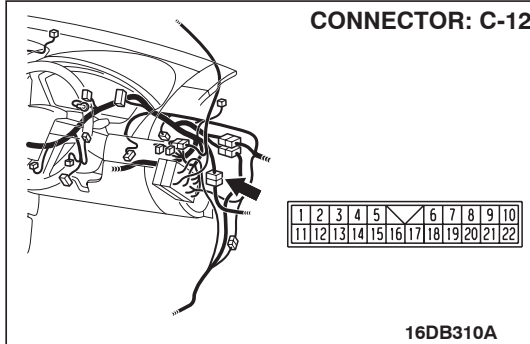
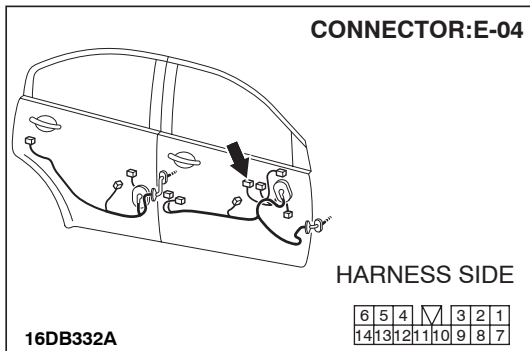
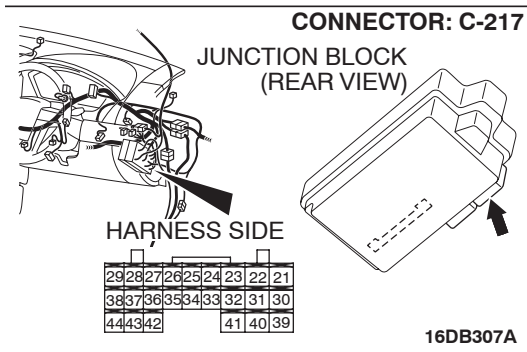
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 7.

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



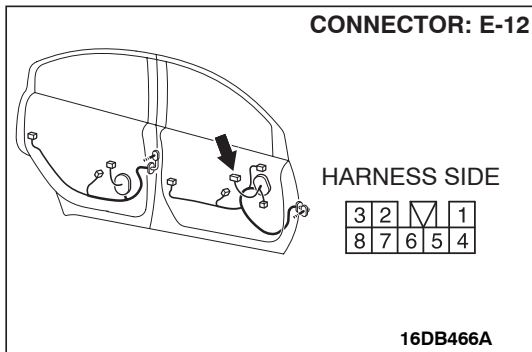
STEP 7. Check the wiring harness between power window main switch connector E-04 (terminals 5 and 13) and ETACS-ECU connector C-217 (terminals 33 and 34).



NOTE: Also check intermediate connector C-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-12 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 main switch connector E-04 (terminals 5 and 13) and ETACS-ECU connector C-217 (terminals 33 and 34) in good condition?

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

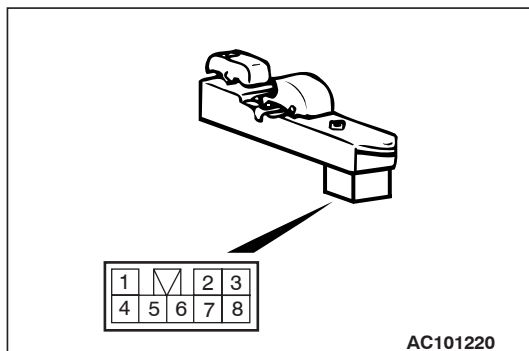


STEP 8. Check power window sub switch connector E-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 9.

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



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

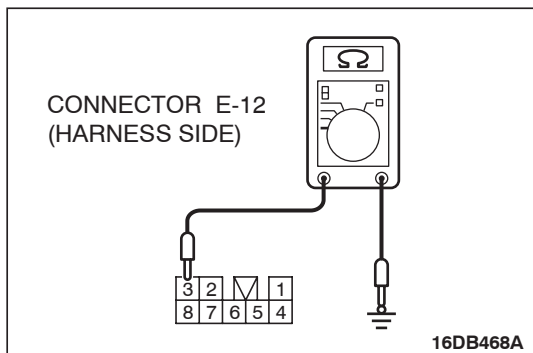
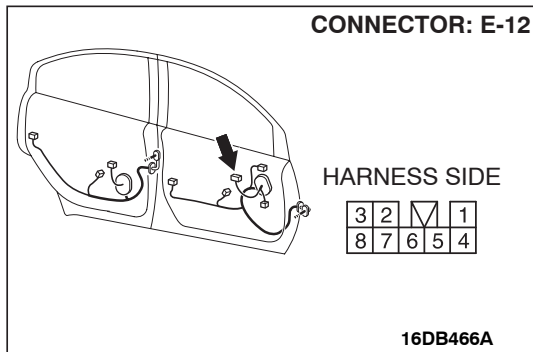
Remove the front power window sub switch. Refer to GROUP 42, Door, Door Glass and Regulator [P.42-39](#). Then check continuity between the switch terminals.

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

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

YES : Go to Step 10.

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



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

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

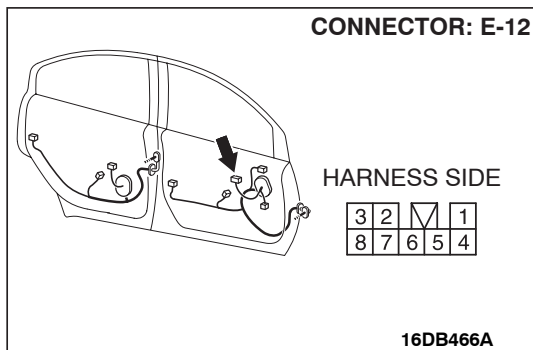
- (2) Measure the resistance value between terminal 3 and ground.

- The resistance should be 2 ohms or less.

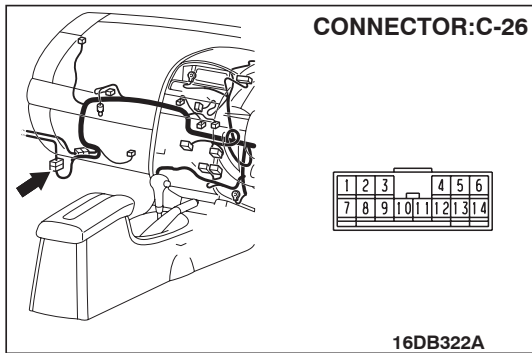
Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between front power window sub switch E-12 (terminal 3) and ground.



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 connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front power window sub switch connector E-12 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

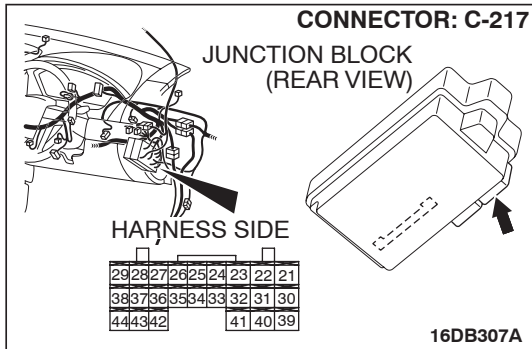
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the central door locking system works normally, input signal from the door lock switch should be normal.

STEP 12. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

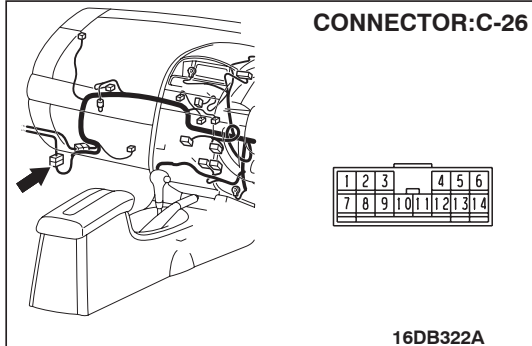
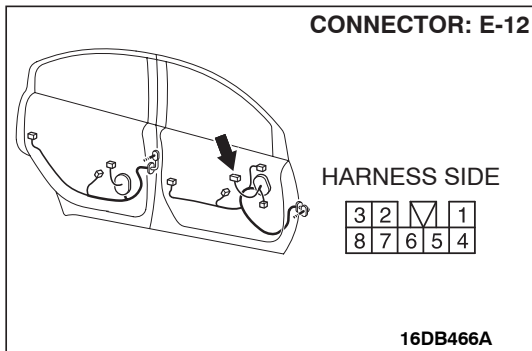
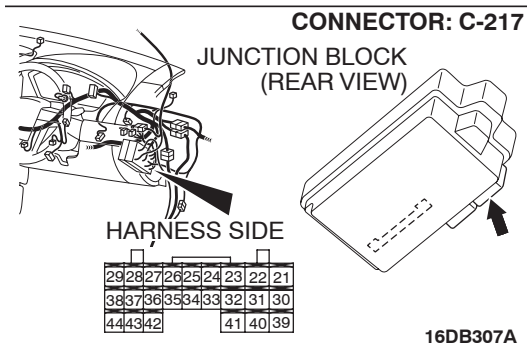
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 13.

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



STEP 13. Check the wiring harness between front power window sub switch connector E-12 (terminals 1 and 2) and ETACS-ECU connector C-217 (terminals 33 and 34).



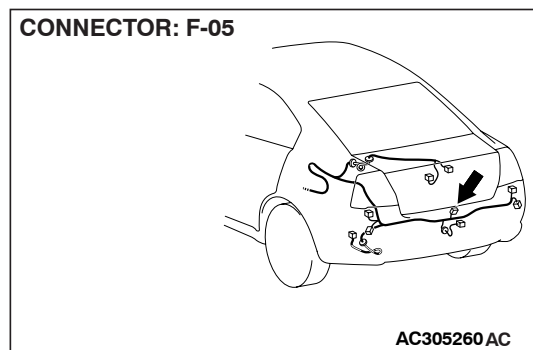
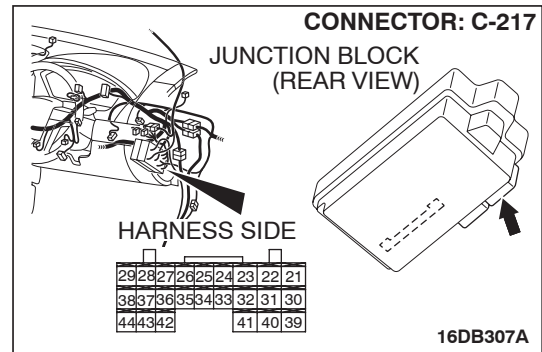
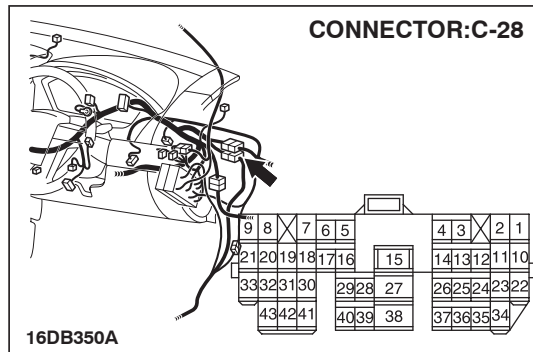
NOTE: Also check intermediate connector C-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front power window sub switch connector E-12 (terminal 1 and 2) and ETACS-ECU connector C-217 (terminals 33 and 34) in good condition?

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

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

INSPECTION PROCEDURE N-7: ETACS-ECU does not receive any signal from the trunk lid latch assembly.



CIRCUIT OPERATION

The ETACS-ECU operates the trunk lamp according to signal from the trunk lid latch assembly.

TECHNICAL DESCRIPTION (COMMENT)

The trunk lid latch assembly input signal is used to operate the trunk lamp. If the signal fails, this function will not work normally.

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- The trunk lid latch assembly may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tool:

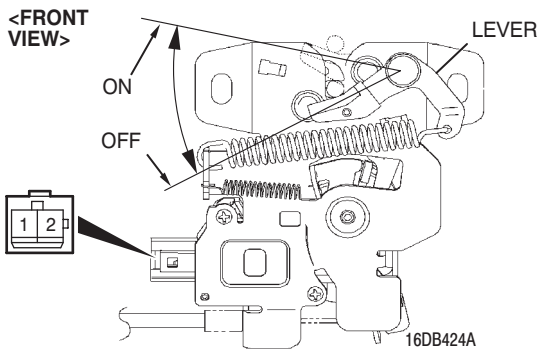
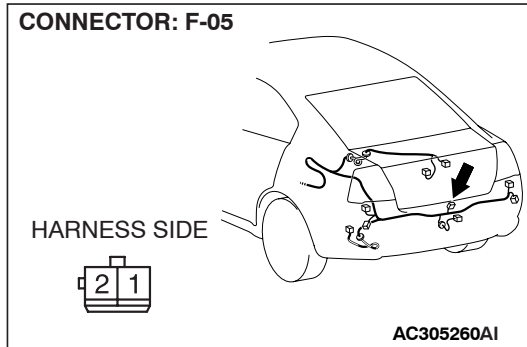
- MB991223: Harness Set

STEP 1. Check trunk lid latch assembly connector F-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is trunk lid latch assembly connector F-05 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the trunk lid latch assembly.

Remove the trunk lid latch assembly. Refer to GROUP 42, Trunk lid, Trunk lid latch inspection [P.42-65](#).

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

Q: Is the trunk lid latch assembly in good condition?

YES : Go to Step 3.

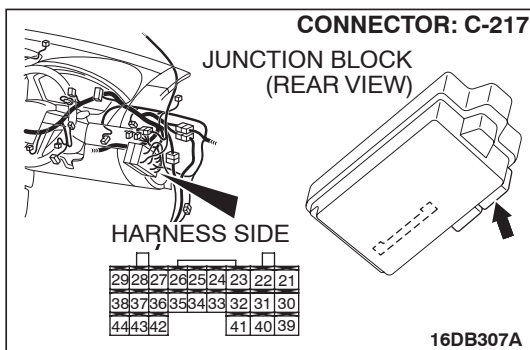
NO : Replace the trunk lid latch assembly. The input signal from the trunk lid latch assembly should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 3. Check ETACS-ECU connector C-217 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

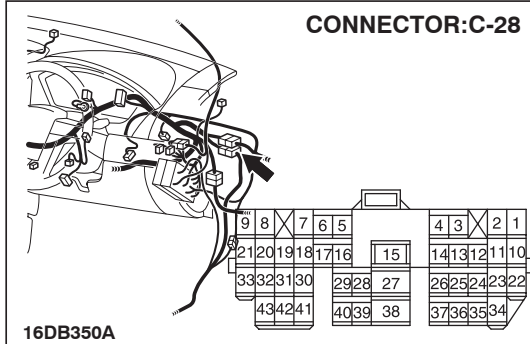
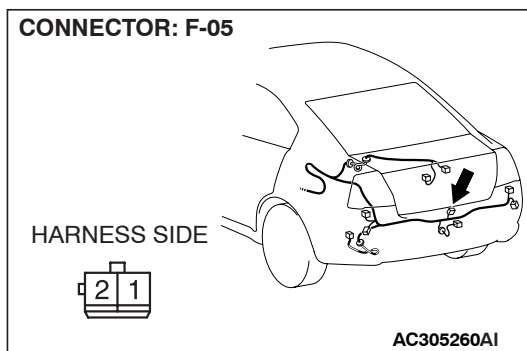
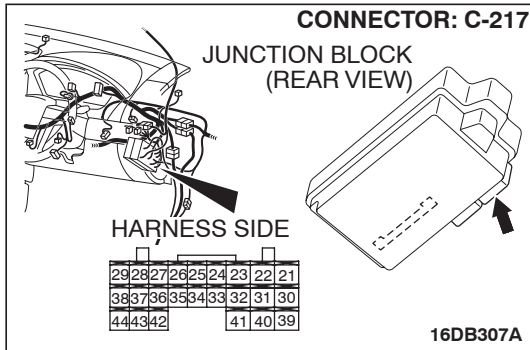
Q: Is ETACS-ECU connector C-217 in good condition?

YES : Go to Step 4.

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



STEP 4. Check the wiring harness between trunk lid latch assembly connector F-05 (terminal 2) and ETACS-ECU connector C-217 (terminal 37).



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 connector 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 2) and ETACS-ECU connector C-217 (terminal 37) in good condition?

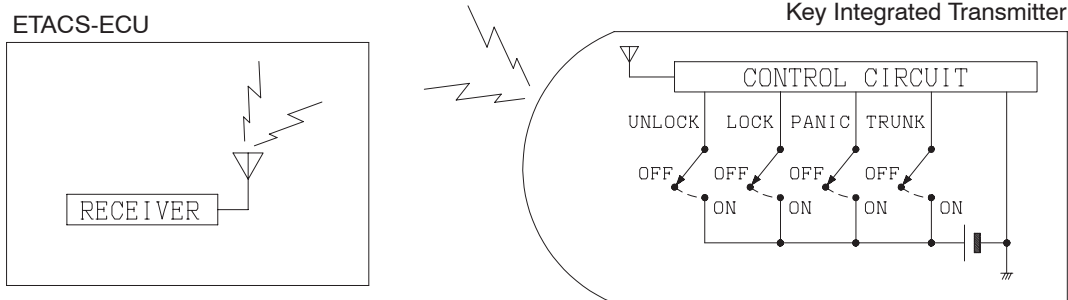
- YES :** Replace the ETACS-ECU. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the trunk lid latch assembly should be normal.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions described in "CIRCUIT OPERATION" work normally, the input signal from the trunk lid latch assembly should be normal.

INSPECTION PROCEDURE N-8: Transmitter (integrated into key): ETACS-ECU does not receive any signal from the lock, unlock, trunk or panic switch.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Receiver and Transmitter Communication Circuit



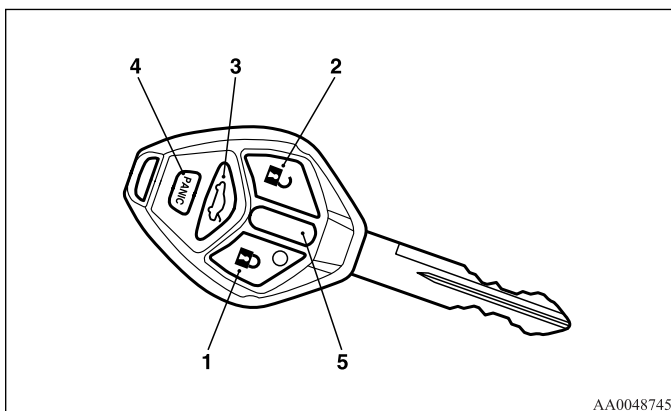
COMMENTS ON TROUBLE SYMPTOM

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)

Input signal from the keyless entry transmitter is used to operate the keyless entry system. If the signal is abnormal, the keyless entry system will not work normally.

POSSIBLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of the keyless entry transmitter
- Defective battery of the keyless entry transmitter



1. Lock switch
2. Unlock switch
3. Trunk switch
4. Panic switch
5. Indicator lamp

DIAGNOSTIC PROCEDURE

Step 1. Pulse check

Check whether the ETACS-ECU receives signal from a transmitter or not. For this check, you should use the 4-button-type transmitter (integrated with a key), which has already been registered.

NOTE: For how to register the keyless entry transmitter encrypted code, refer to GROUP 42 – On-vehicle Service P.42-73.

System switch	Check condition
Keyless entry transmitter "LOCK/UNLOCK" switch	When the switch is turned from off to on
Keyless entry transmitter "Panic" switch	When the switch is turned from off to on
Keyless entry transmitter "Trunk" switch	When the switch is turned from off to on

OK: The MUT-III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Go to Step 4.

Step 2. Check the transmitter battery.

Refer to GROUP 42 – Keyless entry system P.42-70.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the keyless entry key integrated transmitter battery.

Step 3. Register the encrypted code, and then retest the system.

(1) Register the keyless entry transmitter again.

(2) Check that each signal is received from the keyless entry transmitter.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the keyless entry transmitter.

Step 4. Retest the system.

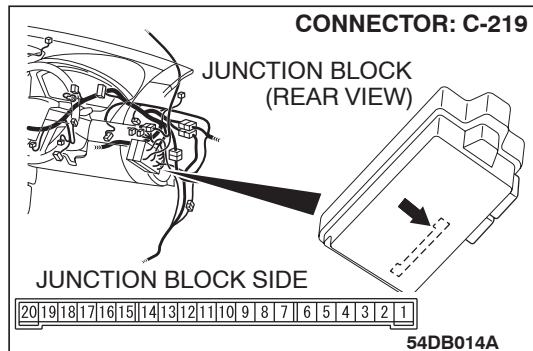
Check that each signal is received from the keyless entry key integrated transmitter.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-14).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-9: ETACS-ECU does not receive any interior lamp loaded signal.



CIRCUIT OPERATION

The ETACS-ECU operates the following equipment or functions by the interior lamp loaded signal:

- Interior lamp automatic shut-down function
- Dome lamp
- Ignition key hole illumination lamp

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- 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

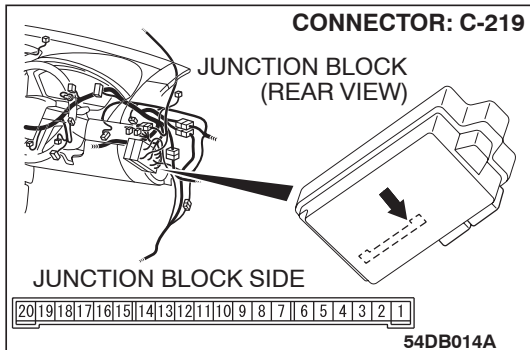
STEP 1. Check ETACS-ECU connector C-219 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

YES : Go to Step 2.

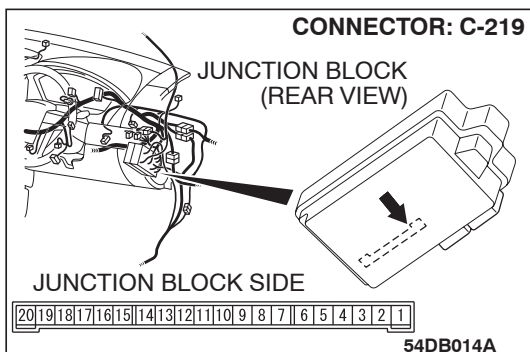
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

P.00E-2. If the functions or equipment described in "CIRCUIT OPERATION" work normally, the interior lamp loaded signal should be normal.



STEP 2. Check the battery line of 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.



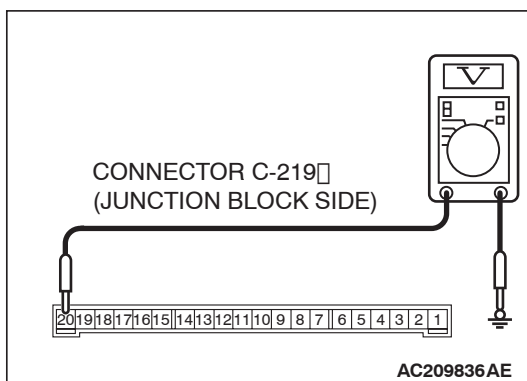
(2) Measure the voltage between terminal 20 and ground.

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

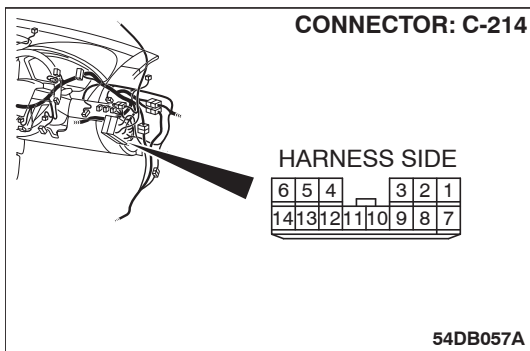
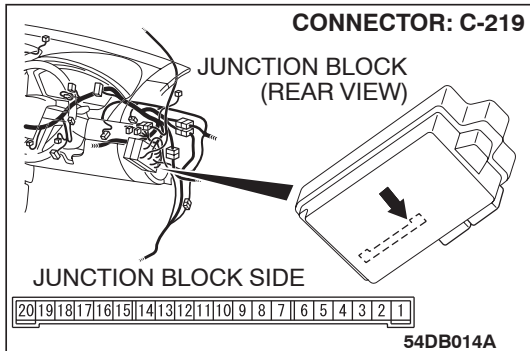
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 4.

NO : Go to Step 3.



STEP 3. Check the wiring harness between ETACS-ECU connector C-219 (terminal 20) and battery.

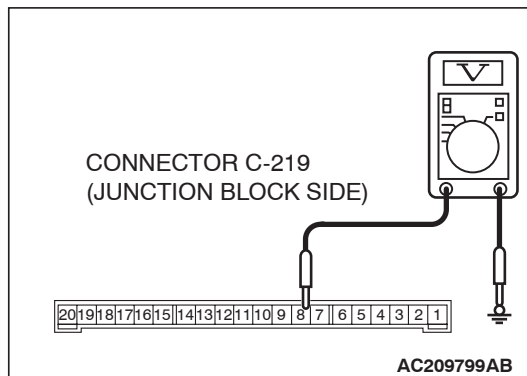
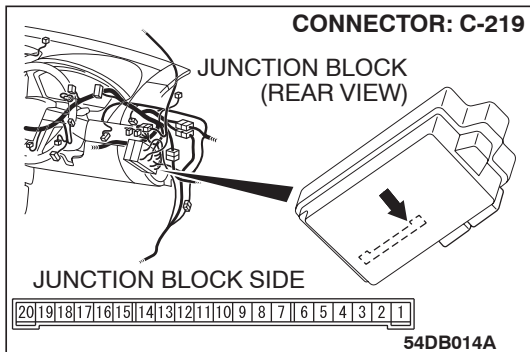


NOTE: Also check junction block connector C-214 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-214 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 20) and battery in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment described in "CIRCUIT OPERATION" work normally, the interior lamp loaded signal should be normal.



STEP 4. Check the ignition switch (IG1) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-219.

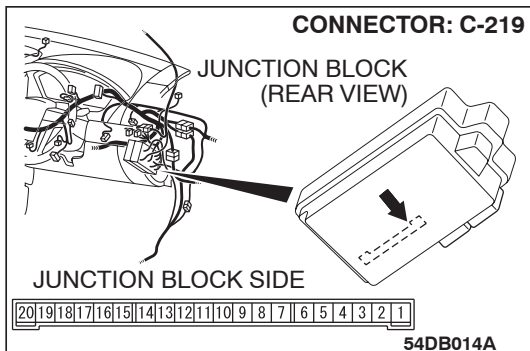
- (1) Disconnect ETACS-ECU connector C-219 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 8 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 ETACS-ECU connector C-219 (terminal 8) and the ignition switch (IG1).

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

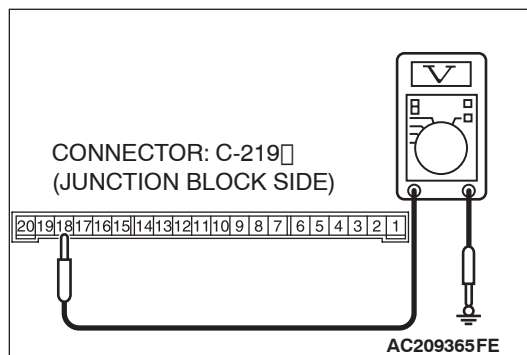
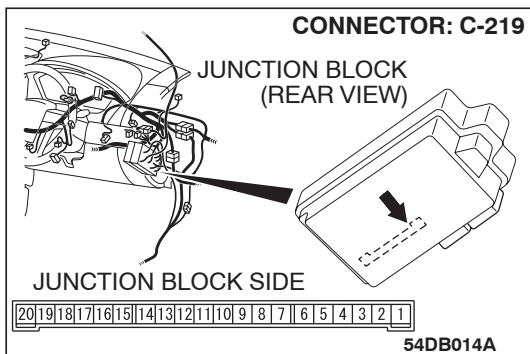
Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 8) and the ignition switch (IG1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment described in "CIRCUIT OPERATION" work normally, the interior lamp loaded signal should be normal.

STEP 6. Check the ignition switch (ACC) line of the 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) Turn the ignition switch to the "ACC" position.



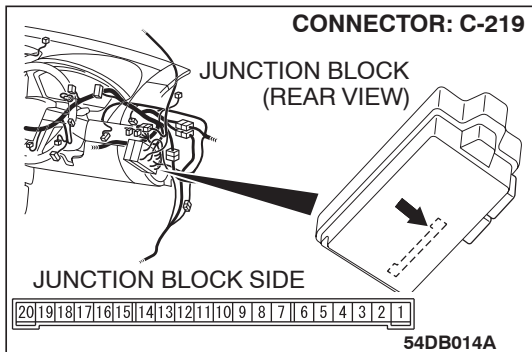
- (3) Measure the voltage between terminal 18 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Replace the ETACS-ECU. If the functions or equipment described in "CIRCUIT OPERATION" work normally, the interior lamp loaded signal should be normal.

NO : Go to Step 7.

STEP 7. Check the wiring harness between ETACS-ECU connector C-219 (terminal 18) and the ignition switch (ACC).



NOTE: Also check junction block connector C-215 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 is damaged, repair or replace the damaged component(s) as described in

Q: Is the wiring harness between ETACS-ECU connector C-219 (terminal 18) and ignition switch (ACC) in good condition?

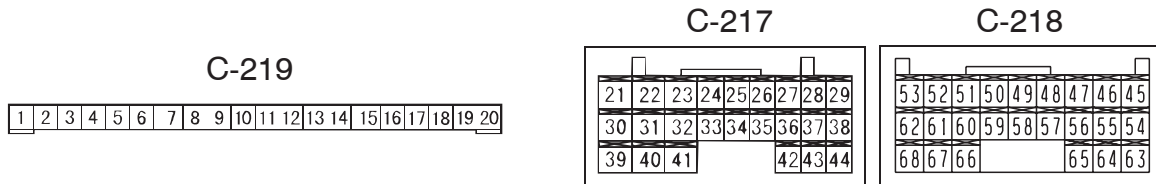
YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. If the functions or equipment described in "CIRCUIT OPERATION" work normally, the interior lamp loaded signal should be normal.

CHECK AT ECU TERMINAL

M1549001201031

ETACS-ECU



16DB471A

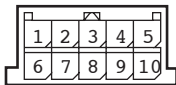
*NOTE: *:The terminal No.1 to 20 connectors cannot be measured as the ETACS-ECU is installed directly on the junction block. Therefore, this information is only for reference.*

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Output to power window relay	When the power windows can work	Battery positive voltage
2	Battery positive voltage (for central door lock)	Always	Battery positive voltage
3	Ground (for ECU)	Always	0 V
4	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
5	Output to dome lamp	When dome lamp is on	2 V or less
6	Power supply to interior lamp	Always (when interior lamp shutoff function is not operating)	Battery positive voltage
7	Input from rear door switch (LH)	Rear door switch (LH): ON (rear door (LH) open)	0 V
8	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
9	Output to turn-signal lamp (RH)	When turn-signal lamp (RH) is on	Battery positive voltage
10	Input from driver's door switch	Driver's door switch: ON (driver's door open)	0 V
11	Battery power supply for turn-signal lamp	Always	Battery positive voltage
12	Output to door lock	When door lock actuator is operating (doors locked)	Battery positive voltage
13	Output to door unlock (excluding driver's door)	When door lock actuator is operating (doors unlocked)	Battery positive voltage
14	Output to turn-signal lamp (LH)	When turn-signal lamp (LH) is on	Battery positive voltage
15 – 17	–	–	–
18	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
19	–	–	–
20	Battery power supply (for ECU)	Always	Battery positive voltage
21	–	–	–

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
22	Output to door unlock (for driver's door)	When driver's door lock actuator is operating (doors unlocked)	Battery positive voltage
23, 24	–	–	–
25	Input of door lock key cylinder switch (UNLOCK) signal	Door lock key cylinder switch: UNLOCK	0 V
26 – 28	–	–	–
29	Input of rear door lock actuator (UNLOCK) signal	Rear door lock actuator: UNLOCK	0 V
30	Input of key reminder switch signal	Key reminder switch: ON (when ignition key is removed)	0 V
31, 32	–	–	–
33	Input of door lock switch (LOCK) signal	Door lock switch (incorporated in power window switch): LOCK	0 V
34	Input of door lock switch (UNLOCK) signal	Door lock switch (incorporated in power window switch): UNLOCK	0 V
35	Input from rear door switch (RH)	Rear door switch (RH): ON (rear door (RH) open)	0 V
36	Input of driver's door lock actuator (UNLOCK) signal	Driver's door lock actuator: UNLOCK	0 V
37	Input from trunk lid latch assembly	Trunk lid latch: ON (trunk open)	0 V
38	Ground (for sensor)	Always	0 V
39 – 41	–	–	–
42	Input of door lock key cylinder switch (LOCK) signal	Door lock key cylinder switch: LOCK	0 V
43	Input of front passenger's door lock actuator (UNLOCK) signal	Front passenger's door lock actuator: UNLOCK	0 V
44	Output to horn relay	When a horn sounds by the keyless entry horn answerback function	2 V or less
45	Output to data link connector	When DTC sets	0 – 12 V (pulse signal)
		When input check signal is output	0 – 12 V (when input pulse signal is fluctuating)
46	Output to trunk lamp	When trunk lid latch on.	0 V
47	–	–	–
48	Input of fog lamp switch signal	Fog lamp switch: ON	0 V
49	Input of hazard warning lamp switch signal	Hazard warning lamp switch: ON (When the switch is depressed)	0 V
50	Ground (for sensor)	Always	0 V
51	Key Ring Antenna (+)	0 V	0 V
52	Key Ring Antenna (-)	0 V	0 V
53	SWS communication line	Always	0 – 12 V (pulse signal)

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
54 – 58	–	–	–
59	Input from front passenger's door switch	Front passenger's door switch: ON (front passenger's door open)	0 V
60	Input of signal from variable intermittent wiper control switch	Ignition switch: "ACC," Variable intermittent wiper control switch: "FAST" to "SLOW"	0 → 2.5 V
61	Input of diagnosis indication selection	When diagnostic tool is connected	0 V
62	Output of data request signal	Always	0 – 12 V (pulse signal)
63	Output to ignition key hole illumination lamp	When ignition key hole illumination lamp is on	0 V
64 – 65	–	–	–
66	CAN HI	Always	60 ± 10 Ω
67	CAN LO	Always	60 ± 10 Ω
68	Output to security lamp	–	0 V

COLUMN SWITCH



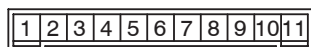
C-309

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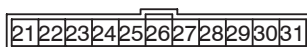
TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Battery power supply	Always	Battery positive voltage
2	Input of data request signal	Always	0 – 12 V (pulse signal)
3	SWS communication line	Always	0 – 12 V (pulse signal)
4	Ground	Always	0 V
5	–	–	–
6	Output of signal from variable intermittent wiper control switch: "FAST" to "SLOW"	Igniting switch: "ACC," Variable intermittent wiper control switch: "FAST" to "SLOW"	0 → 2.5 V
7	–	–	–
8	Output of backup signal from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
10	Output of backup signal from headlamp switch	Ignition switch: "ON," Headlamp switch: ON	0 V

FRONT-ECU

A-11X□



A-12X□



AC210659AB

NOTE: Terminal voltages cannot be measured as the front-ECU is installed directly on the relay box. Therefore, this information is only for reference.

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Output to fog lamp relay	When the fog lamps are on	Battery positive voltage
2	Output to headlamp (high-beam)	When headlights (high-beam) are on	Battery positive voltage
3, 4	Battery power supply (for headlamp)	Always	Battery positive voltage
5	Battery power supply (for taillamp)	Always	Battery positive voltage
6	Output to headlamp (low-beam)	When headlights (low-beam) are on	Battery positive voltage
7	Battery power supply (for ECU)	Always	Battery positive voltage
8	Output to taillamps	When taillamps are on	Battery positive voltage
9 – 11	–	–	–
21	Output to windshield washer	When windshield washer is on	Battery positive voltage
22	SWS communication line	Always	0 – 12 V (pulse signal)
23	Input of automatic stop signal to windshield wiper	When windshield wiper is on	Battery positive voltage
24	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
25	Input of backup signal from headlamp switch	Headlamp switch: ON	0 V
26	Input of backup signal to windshield wiper	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
27	Output to windshield wiper (low-speed)	When windshield wiper is on (at low speed)	Battery positive voltage
28	Output to windshield wiper (high-speed)	When windshield wiper is on (at high speed)	Battery positive voltage
30	Power supply to ignition switch (IG2)	Ignition switch: "ON"	Battery positive voltage
31	Ground	Always	0 V

SUNROOF-ECU

D-04



AC306356 AB

TERMINAL NO.	INSPECTION ITEM	INSPECTION CONDITION	NORMAL VALUE
1	Battery power supply (for motor)	Always	Battery positive voltage
2	Power supply to ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
3, 4	—	—	—
5	Ground	Always	0 V
6	Input signal ("CLOSE/DOWN") from the sunroof switch	Sunroof switch: "CLOSE/DOWN"	0 V
7	Input signal ("UP") from the sunroof switch	Sunroof switch: "UP"	0 V
8	Input signal ("OPEN") from the sunroof switch	Sunroof switch: "OPEN"	0 V
9	—	—	—
10	SWS communication line	Always	0 – 12 V (pulse signal)

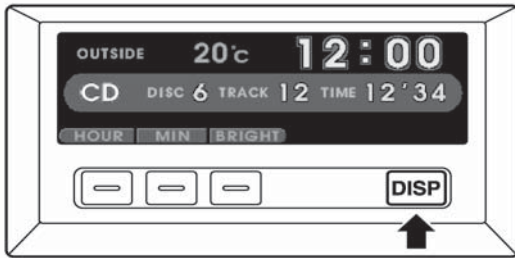
ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

M1549002500861

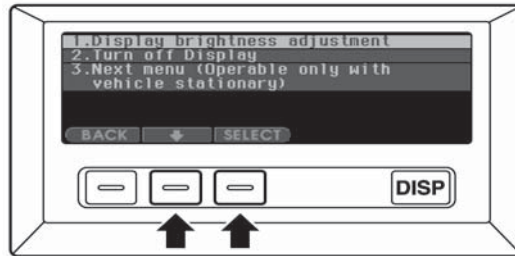
ADJUSTMENT BY OPERATING THE MULTI CENTER DISPLAY

The following function and system customizations
are possible by using the multi center display.



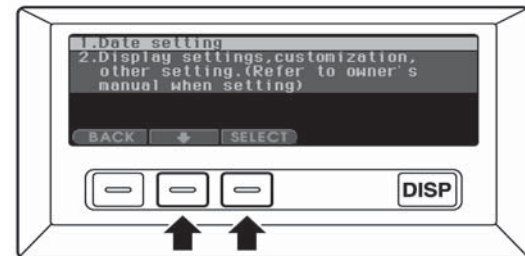
PRESS AND HOLD THE "DISP" BUTTON FOR AT LEAST 2 SECONDS
TO CHANGE THE DISPLAY

(for more information on display settings refer
to owner's manual).

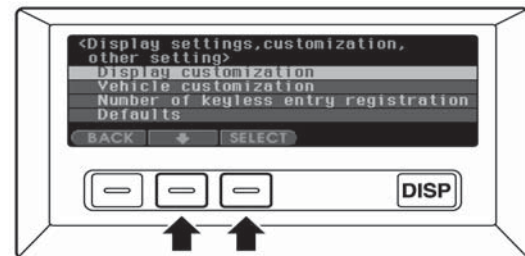


PRESS THE FUNCTION BUTTON AND SCROLL DOWN
CURSOR WITH DESIRED SETTING AND PRESS THE "SELECT" BUTTON

SELECT : "3. NEXT MENU (Operable only with vehicle stationary)



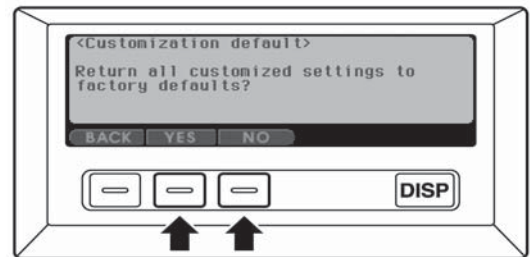
SELECT : "2. DISPLAY SETTINGS, CUSTOMIZATION, OTHER SETTINGS.
(refer to owner's manual when setting)



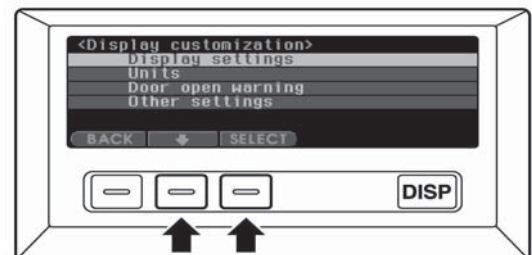
SELECT : VEHICLE
CUSTOMIZATION

SELECT : DEFAULTS

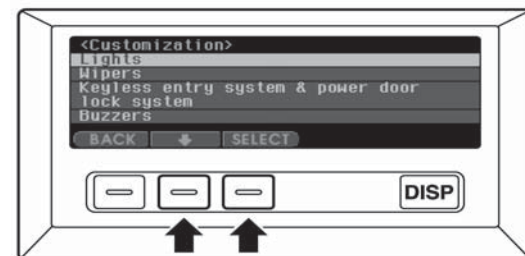
SELECT : DISPLAY
CUSTOMIZATION



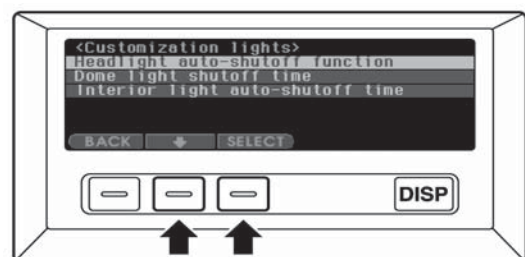
To return all customized settings to their
initial conditions, press the "YES" function
button. If you press the "NO" button, the
monitor will return to the "DEFAULTS" display.



select function you wish to change.



SELECT : LIGHTS



select function you wish to change.

ITEM (multi-center display)		ADJUSTMENT DETAILS
Lamps	Headlamp auto-cutout function	<p>The headlamp automatic shutoff function can be set in the following ways.</p> <ul style="list-style-type: none"> a. Auto-cutout only when the ignition is turned OFF and drivers side door is open while lamps are on (default- 1 minute timer) b. Auto-cutout when ignition is turned OFF and driver side door is open at any time (adjustable- 3 minute timer) c. No auto-cutout (adjustable)
	Dome lamp cutout time	<p>The interior dimmer delay period can be set in the following ways.</p> <ul style="list-style-type: none"> a. 0 second b. 15 seconds c. 30 seconds (default) d. 60 seconds e. 120 seconds f. 180 seconds
	Interior lamp auto-cutout time	<p>The period before the interior illumination is turned off automatically can be set in the following ways.</p> <ul style="list-style-type: none"> a. 3 minutes b. 30 minutes (default) c. 60 minutes d. No auto-cutout
Wipers	Windshield wiper speed-sensitive operation	<p>The speed-sensitive wiper function can be activated or deactivated. (ON by default)</p>

ITEM (multi-center display)		ADJUSTMENT DETAILS
Keyless entry and power door lock system	Keyless entry system confirmation by horn	The horn answerback honking conditions can be set in the following ways. a. Horn sounds b. Horn sounds if doors are already locked c. Horn does not sound (default)
	Keyless entry system confirmation by turn-signal lamps	The hazard answerback flashing conditions can be set in the following ways. a. Locking and unlocking (default) b. Locking only c. Unlocking only d. No indication
	Time until automatic relocking after unlock operation using keyless entry system	The timed lock period after unlocking with the keyless entry transmitter can be set to the following times. a. 30 seconds (default) b. 60 seconds c. 120 seconds d. 180 seconds
	Unlock operation using keyless entry system or door key	The unlocking operations after unlocking with or without a key can be set in the following ways. a. Unlock driver's door on first unlock operation, and unlock all doors on second unlock operation (default) b. Unlock all doors on first unlock operation
Buzzers	Turn-signal buzzer	The turn-signal buzzer function can be activated or deactivated. (OFF by default)
	Door-ajar warning buzzer	The door ajar warning buzzer function can be activated or deactivated (ON by default).
Default		Initialization of above mentioned functions