

## GROUP 54B

# SIMPLIFIED WIRING SYSTEM (SWS)

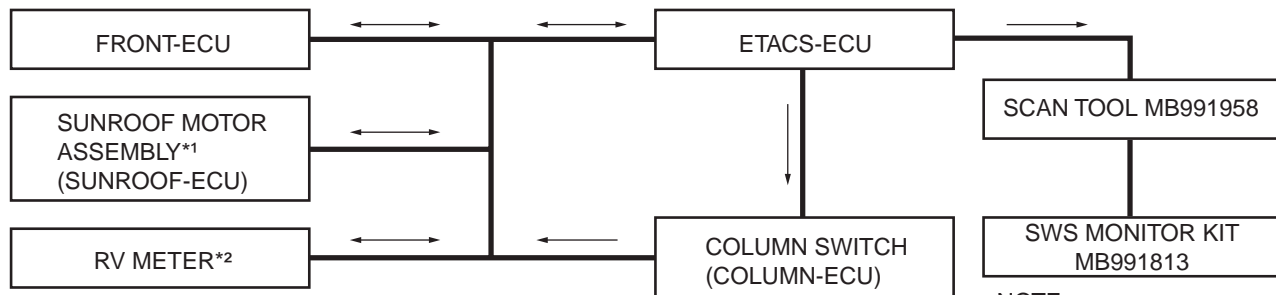
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## GENERAL DESCRIPTION

## COMMUNICATION METHOD

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## NOTE

\*1: Vehicles with sunroof

\*2: Vehicles with RV meter

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As shown below, signal wires used exclusively for transmitting multiplex signal data connect the ETACS-ECU, front-ECU, column switch (incorporating the column-ECU), sunroof motor assembly (incorporating the sunroof-ECU), RV meter and these components communicate with each other.

## OPERATION

## TONE ALARM FUNCTION

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**Ignition key reminder tone alarm function**

When the driver's door is opened (driver's door switch ON) without removing the ignition key [ignition switch to the "LOCK" (OFF) or "ACC" position], the tone alarm will sound intermittently to remind the driver that the ignition key has not been removed.

**Light reminder tone alarm function**

When the driver's door is opened (driver's door switch ON) with lighting switch (taillight switch or headlight switch) in the ON position and ignition switch in the "LOCK" (OFF) or "ACC" position, the tone alarm will sound continuously to remind the driver that the lights (taillights or headlights) are ON. This function does not work if the taillights or headlights are switched off through the headlight automatic shutdown function. In addition, the ignition key reminder tone alarm function has a priority over this function.

**Seat belt tone alarm function**

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

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

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

**RV meter tone alarm function**

When tone alarm sounding is requested from the RV meter, the ETACS-ECU activates the built-in tone alarm. The RV meter will "beep" when adjusting the brightness level, only with the ignition key in the "ACC" position.

## CENTRAL DOOR LOCKING SYSTEM

**Central door locking system operation**

- When the driver's inside lock knob is locked or unlocked, the lock relay inside the ETACS-ECU turns on to lock or unlock all doors.

- With all the doors locked, turning the key in the driver's door unlocks the door. Turning it again makes the door unlock relay close to send a signal for unlocking all doors.
- When the door lock switch (built into the power window switch) is operated, the lock or unlock relay inside the ETACS-ECU is turned on to lock or unlock all doors.

#### Forgotten key prevention function

- If the driver's door is open (door switch turned ON), when the key is inserted in the ignition switch (key reminder switch turned OFF), the ETACS-ECU activates the door unlock relay for 0.5 second to prevent the door from being locked.
- If you try to lock either the driver's or passenger's door when the passenger's door is open (door switch turned ON) and the key is inserted in the ignition switch (key reminder switch turned OFF), the ETACS-ECU prevents the doors from being locked by activating the door unlock relay for 0.5 second.

### POWER WINDOW RELAY CONTROL

#### Power window relay operation

If the ignition switch is turned to "ON" position, the power window relay is energized to activate the power windows.

#### Power window timer function

When the ignition switch is turned from the "ON" position to "LOCK" (OFF) or "ACC" position, the power windows can be operated for 30 seconds. If any door is opened for the 30 seconds, the power windows will be immobilized at that point.

### KEYLESS ENTRY SYSTEM

If the RKE transmitter "LOCK" or "UNLOCK" switch is pressed while the ignition key is removed, the doors can be locked or unlocked. If the doors are closed, the hazard warning lights, the dome light and the horn will operate due to answerback function. Because of the answerback function, the hazard warning lights flash twice, and the horn sounds once, the dome light flashes twice when the doors are locked. Meanwhile, when the doors are unlocked, the hazard warning lights flash and the dome light illuminates for 15 seconds. The hazard and the horn answerback functions can be cancelled by using the RKE transmitter.

### SUNROOF

#### Sunroof operation

- All of the slide open/close, tilt up/down, and stop operations can be performed by a single switch.
- When the roof lid glass is tilted up, the sunshade opens approximately 98 mm (3.9 inches) in combined operation with the roof lid glass for better ventilation.
- A jam preventing mechanism has been adopted. When a slide-close or tilt-down operation is blocked by an external force, the roof lid glass moves back and stops.
- The electronic sunroof system cannot be operated manually. The sunroof wrench that was used in previous models is not provided. If the anti-jam mechanism reverses the sunroof five or more times consecutively due to deformation or other problem with the sunroof components, it deactivates and allows the sunroof to make small movements [30 mm (1.2 inches)] until it closes completely.

#### Sunroof timer function

When the ignition switch is turned from "ON" position to "LOCK" (OFF) or "ACC" position, the sunroof can be operated for thirty seconds. If any door is opened for the 30 seconds, the sunroof will be immobilized at that point.

### WINDSHIELD WIPERS AND WASHERS

#### Windshield low-speed (and high-speed) wiper operation

- If the windshield low-speed wiper switch is turned to the ON position with the ignition switch at the "ACC" or "ON" position, the column switch sends a low-speed wiper ON and high-speed wiper OFF signals to the front-ECU. This turns the wiper signal on and the wiper speed control relay off (low-speed), causing the wipers to operate at low-speed.
- If the windshield high-speed wiper switch is turned to the ON position, the column switch sends a low-speed wiper OFF and high-speed wiper ON signals to the front-ECU. This turns both the wiper signal and the wiper speed control relay on (high-speed), causing the wipers to operate at high-speed.

*NOTE: The windshield wiper speed is changed by wiper speed control relay incorporated in front-ECU. When the wiper speed control relay is at "ON" position, the windshield wiper operates at high-speed, and the wiper speed control relay is at "OFF" position, the windshield wiper operates at low-speed.*

**Windshield intermittent wiper operation**

The ETACS-ECU calculates the wiper operation interval according to the voltage signal sent from the column switch. Then the ETACS-ECU sends a signal to the front-ECU. The front-ECU determines the wiper operation interval and turns on the wiper relay signal relay. This causes the wiper auto stop relay to turn on. Then the wiper auto stop relay will turn off after the wipers reach the park position. This causes the wiper signal relay and then the wipers to turn off. If the wiper signal relay remains off for the wiper operation interval, the relay turns on again, causing the wipers to operate in intermittent mode.

**Windshield mist wiper operation**

- If the windshield mist wiper switch is turned to the ON position with the ignition switch at the "ACC" or "ON" position, the mist wiper high-speed operation signal is sent to the front-ECU. This signal turns on the wiper speed control relay, causing the wipers to work at high-speed while the mist switch is on.
- While the windshield mist wiper switch remains turned on when the intermittent mode is still working, the wipers work as the mist wiper. However, the wipers return to the intermittent mode again when the switch is changed back to "INT" position.
- To prevent the windshield mist wiper from operating when the windshield wiper switch is turned OFF, the windshield mist wiper does not work for 0.5 second after the windshield intermittent wiper switch, the windshield low-speed wiper switch and the windshield high-speed wiper switch are turned OFF.

**Windshield washer operation**

- If the windshield washer switch is turned to ON position with the ignition switch at "ACC" or "ON" position, the windshield washer ON signal is sent to the front-ECU. After 0.3 seconds, the windshield wiper signal to turn on. After the windshield washer switch signal turns off, the windshield wiper signal turns off in three seconds.
- If the windshield washer switch is turned on while the windshield wiper is at intermittent mode, when the windshield washer switch is turned OFF within 0.2 second, the wiper works only once to perform mist operation by the windshield washer switch. When the ON condition of the windshield

washer switch continues more than 0.2 second, the wiper performs the same movement as normal condition from the time when 0.2 second has elapsed and then returns to the intermittent motion.

**REAR WIPER AND WASHER****Rear wiper operation**

If the rear wiper and washer switch is turned to "INT" position with the ignition switch at "ACC" or "ON" position, the ETACS-ECU turns ON the rear wiper drive signal for three seconds (approximately two cycles), then 7.4 seconds later the intermittent motion operates every eight seconds. If the selector lever is moved to the "R" position when the rear wiper and washer switch is turned to the "INT" position and the ignition switch is at the "ACC" or "ON" position, the transmission range switch "R" turns ON. One second later, the ETACS-ECU turns ON the rear wiper drive signal for three seconds (approximately two cycles). Then, 7.4 seconds later, the intermittent motion of eight seconds' cycle is restored.

**Rear washer operation**

If the rear wiper and washer switch is turned to the ON (washer) position with the ignition switch at the "ACC" or "ON" position, the rear washer ON signal is sent to the ETACS-ECU, causing the rear wiper signal to turn on after 0.3 seconds. After the rear washer switch signal turns off, the rear wiper signal turns off in three seconds. If the rear washer switch is turned to the ON position while the rear wiper is in intermittent mode, the rear washer works for that period when the washer switch remains on. Then the rear wipers return to the intermittent mode.

**SEAT BELT WARNING LIGHT**

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

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

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

## HEADLIGHT

### Headlight automatic shutdown function

When the headlights or taillights are on, and the ignition switch is turned from "ON" to "LOCK" (OFF) or "ACC" position or the ignition key is removed, the headlights will be switched off in three minutes. If the driver's door is opened within that three-minute period, the headlights will be switched off automatically. This prevents the battery from discharging.

*NOTE: The headlight automatic shutdown function can be disabled by the SWS configuration function. Refer to P.54B-622.*

### Headlight dimmer switch automatic resetting function

This function allows the dimmer switch to be reset to the low-beam position whenever the headlight switch is turned to the ON position.

## FLASHER TIMER

### Turn-signal light

When the ignition switch is turned to the "ON" position and turn-signal light switch is placed in the ON position for right or left turn-signaling, the system generates turn-signal light drive signals (flashing signals). The system also notifies of a blown turn-signal light bulb by shortening the flashing intervals of the corresponding indicator light.

### Hazard warning light

The system detects a change from OFF to ON of the hazard warning input signal and activates or shuts off the hazard warning lights accordingly.

## FOG LIGHT

The fog light switch becomes active only when the headlights are at the low-beam mode. Therefore, if the headlights are turned off, the fog lights will also be switched off. When the headlights are turned on during the next key cycle, the fog lights will be off regardless of the fog light switch position.

## DOME LIGHT

With the dome light switch in the "door controlled operation" (middle) position, the ETACS-ECU controls the dome light operation as follows:

- When a door is opened from outside or inside [with the ignition switch turned to "LOCK" (OFF)]: When a door is opened, the ETACS-ECU causes the dome light to be illuminated at 100% intensity. When the door is closed, it dims the dome light to 65% intensity and approximately 30 seconds later, turns out the light completely. During this period (timer controlled period), the dome light goes out if the ignition switch is turned "ON" or the doors are locked.
- When a door is opened or closed with the ignition switch in the "ON" position: The dome light illuminates at 100% intensity when a door is opened and turned out when it is closed.
- When no door is opened and the ignition key is removed: The dome light is illuminated at 100% intensity and turned off approximately 30 seconds later. During that time (timer-controlled period), the dome light goes out if the ignition key is inserted and turned to "ON" or the door locking system is activated.
- Dome light's answerback operation in response to door lock control by keyless entry system: To allow the driver to confirm the doors have locked by the keyless entry system, the ETACS-ECU causes the dome light to blink twice when the doors are locked by the RKE system and to illuminate for approximately 15 seconds when the doors are locked. The dome light's answerback operation in response to a keyless entry system control action is accompanied by flashing of the hazard warning lights.

## THEFT-ALARM SYSTEM

### Theft-alarm System Operation

If a door, back door or hood is opened, when the theft-alarm system has been armed the horn (theft-alarm horn and horn) will sound and headlights flash (high-beam) intermittently for a period of 180 seconds.

### Panic Alarm Function

With the theft-alarm function armed, pressing the panic button on the keyless entry system transmitter causes the horn (theft-alarm horn and horn) to sound for about 180 seconds in an attempt to prevent theft. The alarm is turned off by pressing any switch on the transmitter.

## CONFIGURATION FUNCTION

The keyless entry hazard answerback function and the headlight automatic shutdown function can be adjusted by the special operation. Or they can be returned to the initial condition.

# SWS DIAGNOSIS

## GENERAL DESCRIPTION

### BEFORE CARRYING OUT TROUBLESHOOTING

Before carrying out troubleshooting, check the following two items.

- Make sure that the ETACS-ECU, the junction block (J/B), the front-ECU and the engine compartment relay box are connected securely.

- Make sure that fuses and fusible links related to relevant systems are not blown.

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### SWS DIAGNOSTIC TROUBLESHOOTING STRATEGY

1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists.

*NOTE: If an error occurs in the SWS communication line, the ECU isolated from the communication line performs a fail-safe or backup operation, so the problem may not match the one shown in the Trouble Symptom Chart. However, the cause of the failure can be tracked down by performing the following troubleshooting with the SWS monitor.*

3. Version number and destination check  
Check whether the SWS version number (0) and destination (North America) meet the vehicle specifications. If they are different, replace the ETACS-ECU with a correct one.
4. Use scan tool to select "ECU COMM CHK" on the SWS monitor display.

Check whether the communication status of the input- or output-signal-side ECU associated with the defective function is normal.

- If "OK" is displayed for all related ECUs, they communicate with each other normally and the input or output signal circuit system may be defective. Therefore, check SWS monitor service data.

- If "NG" is displayed for any of the related ECUs, something may be wrong with the ECU for which "NG" appears, its power supply or grounding system, or a wiring harness or connector between the SWS monitor and the ECU. Check the wiring harness and connectors associated with the ECU and examine the ECU itself.

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5. Service data on the SWS monitor

Select the defective function from the function-specific diagnostic menu, and check the service data that appears for each function item.

*NOTE: . In addition to the function-specific diagnostic menu, a service data menu is available for SWS monitor service data to check all items for each ECU.*

- (1) When the SWS communication line is monitored.
- (2) You can determine whether the problem lies in the input or output signal circuit system by checking whether communication data is correct.
  - The switch condition does not meet the service data display: Input signal system related to defective functions
  - The switch condition meets the service data display: Output signal system related to defective functions
6. Check of input signal circuit system  
Check relevant switch, sensor, input signal-side ECU and their wiring harness and connector.
7. Check of output signal circuit system  
Check an output signal-side ECU, electrical load components and their wiring harness and connector.

## HOW TO CONNECT SWS MONITOR

### Required Special Tools:

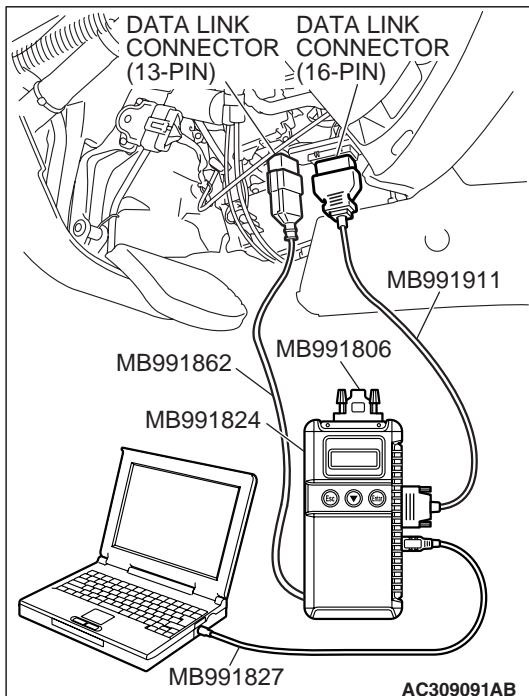
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)
  - MB991822: Probe Harness
- MB991863: SWS Monitor Harness (For 13-pin)

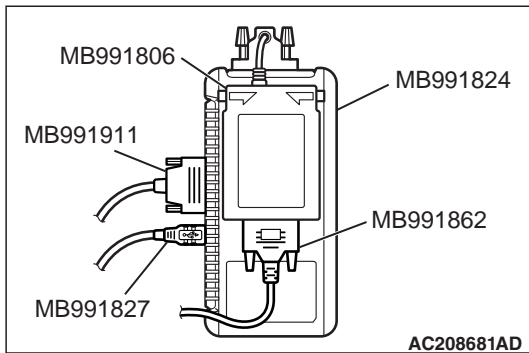
### **⚠ CAUTION**

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958. Connect the main harness B MB991911 before connecting the SWS monitor harness (for 13-pin) MB991862 or the SWS monitor harness (for column-ECU) MB991812. Be sure to connect SWS monitor cartridge MB991806 after turning on the V.C.I. MB991924.

### SWS communication line connecting method <SWS monitor harness (for 13-pin)>

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991911 to special tool MB991824.
5. Connect special tool MB991911 to the data link connector (16-pin).
6. Connect special tool MB991812 to data link connector (13-pin).

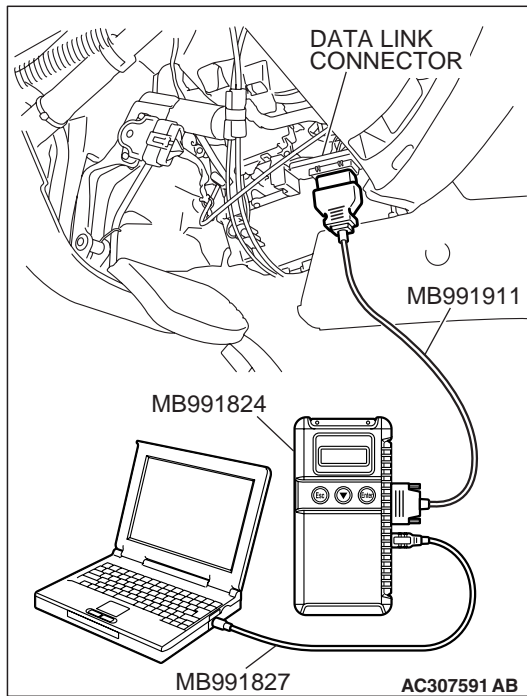




7. Connect special tool MB991862 to special tool MB991806.
8. Connect special tool MB991806 to special tool MB991824.
9. Turn the power switch of special tool MB991824 to the "ON" position.

*NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.*

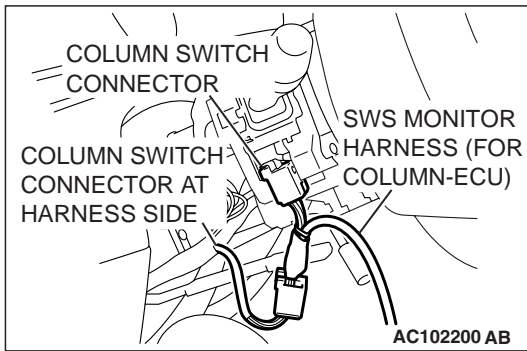
10. Start the MUT-III system on the personal computer.



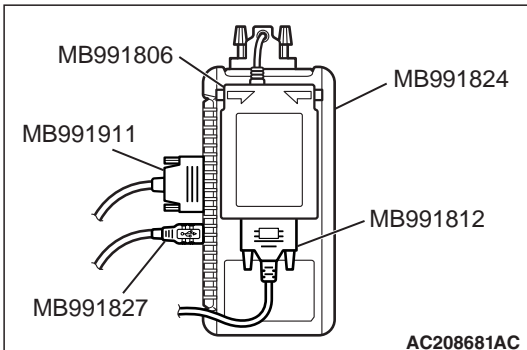
#### **SWS communication line connecting method <SWS monitor harness (for column-ECU)>**

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991911 to special tool MB991824.
5. Connect special tool MB991911 to the data link connector.





6. Remove the steering column cover.
7. Remove the steering column switch connector.
8. Connect special tool MB991812 to column switch connector.



9. Connect special tool MB991812 to special tool MB991806.
10. Connect special tool MB991806 to special tool MB991824.
11. Turn the power switch of special tool MB991824 to the "ON" position.

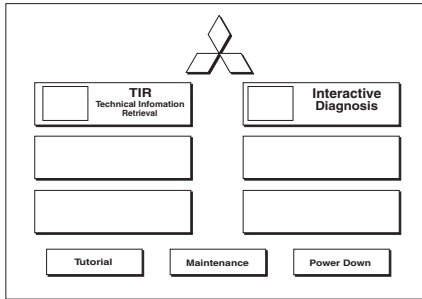
*NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.*

12. Start the MUT-III system on the personal computer.

HOW TO USE SWS MONITOR

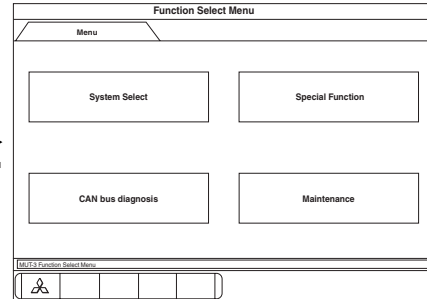
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To carry out troubleshooting, operate scan tool MB991958 (MUT-III Sub Assembly) as follows.

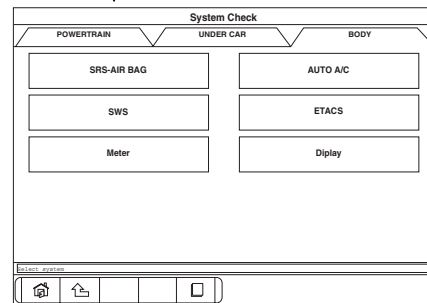


Start-up the MUT-III system.

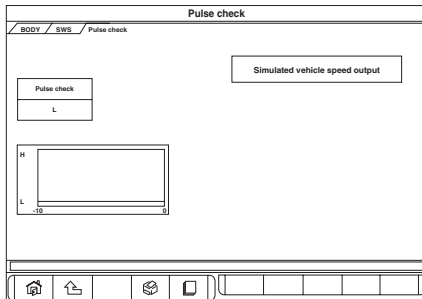
Select "Interactive Diagnosis"



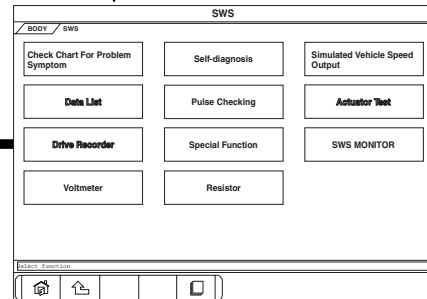
Select "System Select".



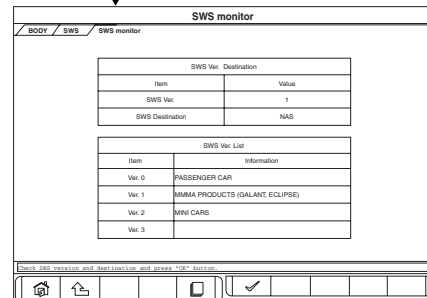
Select "SWS" from the "BODY" tab.



For the pulse check, select "Pulse Checking".



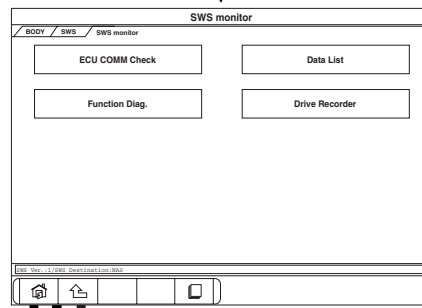
For the SWS monitor, select "SWS MONITOR".



Confirm the SWS version and destination.

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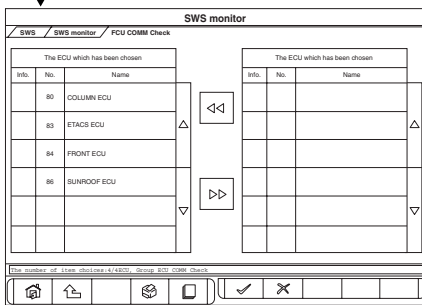
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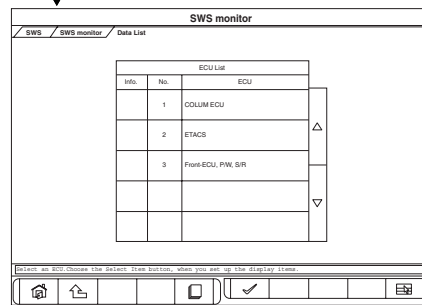
For the ECU comm check, select "ECU COMM Check".

For the data list, select "Data List".

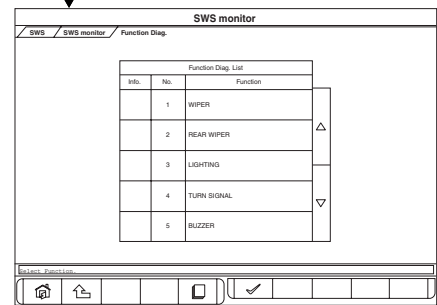
For the function diagnosis, select "Function Diag".



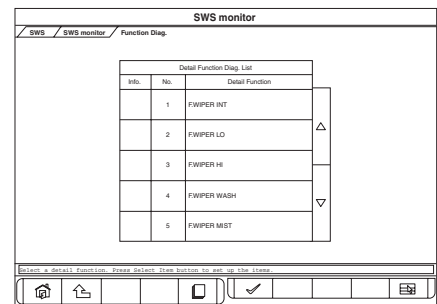
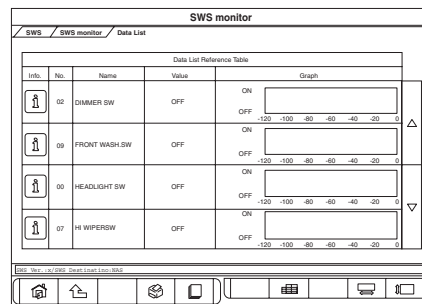
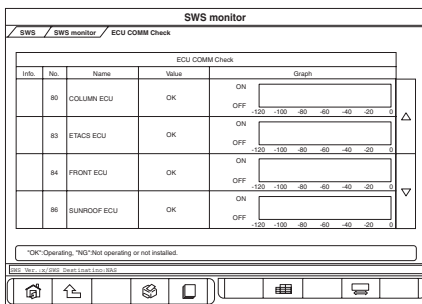
Press the "OK" button.



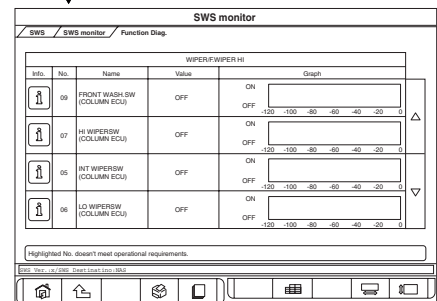
Select the ECU, and then press the "OK" button.



Select the desired item from "Function", and then press the "OK" button.



Select the desired function from "Detail Function", and then press the "OK" button.



AC207215AB

**HOW TO CHECK ECUs**

M1549014900606

1. Use the scan tool MB991958 (MUT-III Sub Assembly) and the SWS monitor kit to check ECUs. (Refer to MUT-III Operating Instructions)
2. The following ECUs can be checked by using the scan tool and the SWS monitor kit.

*NOTE: The "ECU COMM CHK" function checks a communication status of ECUs "NG" does not always mean ECU malfunction. If a malfunction is found by the "ECU COMM CHK," proceed "Symptom Procedure" (Refer to P.54B-22).*

SWS monitor kit-compatible ECUs and their conditions

ECUs TO BE CHECKED	DISPLAY ON SCAN TOOL	NORMAL CONDITION	ECU CONDITION
Column switch (column-ECU)	COLUMN ECU	OK*1	All of the column switch, power supply, ground and interconnecting communication line are normal
ETACS-ECU	ETACS ECU	OK	All of the ETACS-ECU switch, power supply, ground and interconnecting communication line are normal
Front-ECU	FRONT ECU	OK*2	All of the front-ECU, power supply, ground and interconnecting communication line are normal
Sunroof motor assembly (sunroof-ECU)	SUNROOF ECU	OK*2	All of the sunroof motor assembly, power supply, ground and interconnecting communication line are normal
RV meter	CENTER DISP.	OK*3	All of the RV meter, power supply, ground and interconnecting communication line are normal
Other SWS-related ECUs	Other ECUs	NG	ECUs are not used

**NOTE:**

- \*1: If the ignition switch is turned to the "LOCK" (OFF) or "ACC" when "NG" is displayed beside the "ETACS ECU" or the signal request line is abnormal, the scan tool shows "NG" beside the "COLUMN ECU."
- \*2: When "NG" is displayed beside the "ETACS ECU," the scan tool shows "NG" beside the "FRONT ECU" and "SUNROOF ECU."
- \*3: If "NG" is displayed beside the "COLUMN ECU," "NG" is displayed on the "CENTER DISP."

**SERVICE DATA CHECK**

M1549015000662

1. Use the scan tool and the SWS monitor kit to check "Service Data."

This "Service Data" check is applicable for signals, which are transmitted and received through the SWS communication line. For input signals, which are not compatible with the SWS monitor kit, refer to the Pulse Check procedure (by using the scan tool or voltmeter) P.54B-21.

2. The following input signals can be checked by using the scan tool and the SWS monitor kit.

*NOTE: If a problem is found in the "Service Data" check, refer to the Problems during Input Signal Check <SWS monitor>. (Refer to P.54B-491.)*

<DATA LIST REFERENCE TABLE>

- COLUMN ECU (column switch)

CHECK ITEM	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITION	NORMAL CONDITION
Dimmer switch	02	DIMMER SW	Dimmer switch: ON	ON
			Dimmer switch: OFF	OFF
Windshield washer switch	09	FRONT WASH.SW	Windshield washer switch: ON	ON
			Windshield washer switch: OFF	OFF
Headlight washer switch	16	H/L WASHER SW	Headlight washer switch: ON	ON
			Headlight washer switch: OFF	OFF
Headlight switch	00	HEADLIGHT SW	Lighting switch: HEAD	ON
			Lighting switch: Other than HEAD	OFF
Windshield high-speed wiper switch	07	HI WIPER SW	Wiper switch: HI	ON
			Wiper switch: Other than HI	OFF
With or without windshield intermittent wiper interval adjusting knob	15	INT WIPE KNOB	Vehicles with intermittent wiper adjusting knob	EQUIP
			Vehicles without intermittent wiper adjusting knob	NON
Windshield intermittent wiper switch	05	INT WIPER SW	Wiper switch: INT	ON
			Wiper switch: Other than INT	OFF
Windshield low-speed wiper switch	06	LO WIPER SW	Wiper switch: LO	ON
			Wiper switch: Other than LO	OFF
Windshield mist wiper switch	08	MIST WIPER SW	Wiper switch: Mist	ON
			Wiper switch: Other than "Mist" position	OFF
Passing light switch	03	PASSING SW	Passing light switch: ON	ON
			Passing light switch: OFF	OFF
Taillight switch	01	TAILLIGHT SW	Lighting switch: TAIL	ON
			Lighting switch: OFF	OFF
Turn-signal light switch (LH)	11	T/S LH SW	Turn-signal light switch: LH	ON
			Turn-signal light switch: Other than LH	OFF
Turn-signal light switch (RH)	10	T/S RH SW	Turn-signal light switch: RH	ON
			Turn-signal light switch: Other than RH	OFF
Rear wiper switch	13	REAR WIPER SW	Rear wiper switch: INT	ON
			Rear wiper switch: Other than INT	OFF
Rear washer switch	14	REAR WASH.SW	Rear wiper switch: Washer	ON
			Rear wiper switch: Other than "Washer" position	OFF

## • ETACS ECU

CHECK ITEM	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITION	NORMAL CONDITION
BEEP DATA	60	beep data	1. Ignition switch: ACC or ON 2. Carry out the audio preset operation.	ON (2 kHz) (only momentarily when switch is operated)
			Other than the condition above	OFF
Tone alarm	43	BUZZER	1. Ignition switch: LOCK (OFF) 2. Key reminder switch: ON 3. Front door switch: ON (front door open)	ON
			When requirements for sounding each warning tone alarm are not satisfied	OFF
Front door switch	32	FRONT DOOR SW	Front door switch (right or left): right or left door switch is on (right or left front door is open)	ON
			Front door switches (right and left): both right and left door switches are off (both right and left front doors are closed)	OFF
Center display input signal	62	DISPLAY SIGNAL	1. Ignition switch: ACC or ON 2. Carry out the audio preset operation.	YES (only momentarily when switch is operated)
			Other than the condition above	NO
Center display sleep status	61	DISPLAY SLEEP	Ignition switch: LOCK (OFF)	SLEEPING
			Ignition switch: ACC or ON	OPERATING
Front door switch	32	FRONT DOOR SW	Front door switch (right or left): right front door or left front door switch is on (right or left front door is open):	ON
			Front door switch (right or left): Both right and left door switches are off (both right and left front doors are closed)	OFF
Front fog lights	36	F.FOG LIGHT	1. Lighting switch: HEAD or TAIL 2. Fog light switch: ON	ON
			Other than the condition above	OFF
Headlight automatic shutdown function	35	H/L AUTO-CUT	1. Lighting switch: Other than OFF 2. Ignition switch: from ON or START to LOCK (OFF) or ACC 3. Front door switch: ON (front door open)	OFF to ON (after approximately one second)
			When requirements for the headlight automatic shutdown are not satisfied	OFF
Ignition switch (IG1)	30	IG SW (IG1)	Ignition switch: ON or START	ON
			Ignition switch: LOCK (OFF) or ACC	OFF
Ignition switch (ACC)	31	IG SW (ACC)	Ignition switch: ACC or ON	ON
			Ignition switch: LOCK (OFF) or START	OFF

CHECK ITEM	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITION	NORMAL CONDITION
Transmission range switch ("R" position)	41	INHIBITOR SW	Transmission range switch: R position	ON
			Transmission range switch: Other than R position	OFF
Windshield intermittent wiper interval	37	INT WIPE TIME	1. Ignition switch: ACC or ON 2. Operate the intermittent wiper adjusting knob, and change the wiper interval	The scan tool displays intermittent wiper interval in response to the intermittent wiper adjusting knob positions
Theft-alarm headlights	45	THEFTALM. H/L	Keyless entry transmitter panic button: ON	ON
			Keyless entry transmitter panic button: OFF	OFF

*NOTE: For item number 43, the scan tool also display "ON" when the light reminder tone alarm or R (reverse) position warning tone alarm is triggered.*

- FRONT ECU

CHECK ITEM	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITION	NORMAL CONDITION
Response by the front-ECU	70	FRONT ECU ACK	Lighting switch is at position other than OFF (excluding when high-beam is on) or the wiper switch is at position other than OFF	NORMAL ACK
			<ul style="list-style-type: none"> <li>• Ignition switch: ON or START</li> <li>• Lighting switch: OFF</li> <li>• Wiper switch: OFF</li> </ul>	SLEEP ACK
			<ul style="list-style-type: none"> <li>• Lighting switch: HEAD</li> <li>• Headlight: High-beam</li> </ul>	HI-BEAM ACK
			Except above conditions	NO ACK

*NOTE: For item number 70, the scan tool also displays "NG" under the "ECU COMM CHK" when it displays "NO ACK" under the front-ECU check.*

- SUNROOF ECU (sunroof motor assembly)

CHECK ITEM	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITION	NORMAL CONDITION
Response by the sunroof-ECU	72	S/R ECU ACK	1. Ignition switch: ON or START 2. While sunroof is off	NORMAL ACK → SLEEP ACK (after approximately 30 seconds)
			1. Ignition switch: ON or START 2. One of the sunroof switches is on	INPUT CHECK → NORMAL ACK
			Except above conditions	NO ACK

*NOTE: For item number 72, the scan tool also displays "NG" under the "ECU COMM CHK" when it displays "No response" under the sunroof-ECU check.*

## &lt;FUNCTION DIAGNOSIS&gt;

The table below shows the service data and their normal condition, which are displayed during the "FUNCTION DIAG." The row "Normal condition" shows values, which are shown when each operation is made.

- WIPER

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
F.WIPER HI	05	Windshield intermittent wiper switch	INT WIPER SW	OFF
	06	Windshield low-speed wiper switch	LO WIPER SW	OFF
	07	Windshield high-speed wiper switch	HI WIPER SW	ON
	08	Windshield mist wiper switch	MIST WIPER SW	OFF
	09	Windshield washer switch	FRONT WASH.SW	OFF
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.WIPER INT	05	Windshield intermittent wiper switch	INT WIPER SW	ON
	06	Windshield low-speed wiper switch	LO WIPER SW	OFF
	07	Windshield high-speed wiper switch	HI WIPER SW	OFF
	08	Wind shield mist wiper switch	MIST WIPER SW	OFF
	09	Windshield washer switch	FRONT WASH.SW	OFF
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	37	Windshield intermittent wiper interval	INT WIPE TIME	The scan tool displays intermittent wiper interval in response to the intermittent wiper adjusting knob positions
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK



<b>ITEM</b>	<b>ITEM NO.</b>	<b>INPUT SIGNAL</b>	<b>DISPLAY ON SCAN TOOL</b>	<b>NORMAL CONDITION</b>
F.WIPER LO	05	Windshield intermittent wiper switch	INT WIPER SW	OFF
	06	Windshield low-speed wiper switch	LO WIPER SW	ON
	07	Windshield high-speed wiper switch	HI WIPER SW	OFF
	08	Wind shield mist wiper switch	MIST WIPER SW	OFF
	09	Windshield washer switch	FRONT WASH.SW	OFF
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.WIPER MIST	05	Windshield intermittent wiper switch	INT WIPER SW	OFF
	06	Windshield low-speed wiper switch	LO WIPER SW	OFF
	07	Windshield high-speed wiper switch	HI WIPER SW	OFF
	08	Wind shield mist wiper switch	MIST WIPER SW	ON
	09	Windshield washer switch	FRONT WASH.SW	OFF
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.WIPER WASH	08	Wind shield mist wiper switch	MIST WIPER SW	OFF
	09	Windshield washer switch	FRONT WASH.SW	ON
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

## • REAR WIPER

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
REAR WASHER	14	Rear washer switch	REAR WASH.SW	ON
	31	Ignition switch (ACC)	IG SW (ACC)	ON
REAR WIPER	13	Rear wiper switch	REAR WIPER SW	ON
	14	Rear washer switch	REAR WASH.SW	OFF
	31	Ignition switch (ACC)	IG SW (ACC)	ON
REV.INTERLOCK	13	Rear wiper switch	REAR WIPER SW	ON
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	41	Transmission range switch ("R" position)	PNP SW (R)	ON

## • LIGHTING

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
H/L AUTO-CUT	00	Headlight switch	HEADLIGHT SW	Either is on
	01	Taillight switch	TAILLIGHT SW	
	30	Ignition switch (IG1)	IG SW (IG1)	OFF
	32	Front door switch	FRONT DOOR SW	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
OFF	00	Headlight switch	HEADLIGHT SW	OFF
	01	Taillight switch	TAILLIGHT SW	OFF
	03	Passing light switch	PASSING SW	OFF
	04	Automatic lighting switch	AUTOLAMP SW	OFF
	30	Ignition switch (IG1)	IG SW (IG1)	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	OFF
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or SLEEP ACK

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
HEADLIGHT HI	00	Headlight switch	HEADLIGHT SW	ON
	02	Dimmer switch	DIMMER SW	ON
	03	Passing light switch	PASSING SW	ON
	30	Ignition switch (IG1)	IG SW (IG1)	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	OFF
	70	Response by the front-ECU	FRONT ECU ACK	HI-BEAM ACK
HEADLIGHT LO	00	Headlight switch	HEADLIGHT SW	ON
	03	Passing light switch	PASSING SW	OFF
	30	Ignition switch (IG1)	IG SW (IG1)	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	OFF
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK
PASSING LIGHT	03	Passing light switch	PASSING SW	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
TAILLIGHT	00	Headlight switch	HEADLIGHT SW	OFF
	01	Taillight switch	TAILLIGHT SW	ON
	03	Passing light switch	PASSING SW	OFF
	30	Ignition switch (IG1)	IG SW (IG1)	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	OFF
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK

*NOTE: When checking the input signals (off, tail, low-beam or high-beam), turn the ignition switch to the "ON" position in order to disable the headlight automatic shutdown function. However, the headlight operation does not depend on the ignition switch positions, the scan tool does not display the title "IGNITION SWITCH."*

*For checking item "HI (High-beam)," the scan tool displays "OFF" on the item No.2 "Dimmer SW" when the headlights are at high-beam. Therefore, the scan tool should display "ON" momentarily when the dimmer switch is operated.*

## • TURN SIGNAL

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
TURN-SIG.LH	10	Turn-signal light switch (RH)	T/S RH SW	OFF
	11	Turn-signal light switch (LH)	T/S LH SW	ON
	30	Ignition switch (IG1)	IG SW (IG1)	ON
TURN-SIG.RH	10	Turn-signal light switch (RH)	T/S RH SW	ON
	11	Turn-signal light switch (LH)	T/S LH SW	OFF
	30	Ignition switch (IG1)	IG SW (IG1)	ON

## • BUZZER

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
CENTR.DIS.ALM	43	Tone alarm	BUZZER	ON
	60	BEEP DATA	beep data	ON (2 kHz) (only momentarily when switch is operated)
KEY REMND.ALM	30	Ignition switch (IG1)	IG SW (IG1)	OFF
	32	Front door switch	FRONT DOOR SW	ON
	43	Tone alarm	BUZZER	ON
LGT MONI.ALM	00	Headlight switch	HEADLIGHT SW	Either is on
	01	Taillight switch	TAILLIGHT SW	
	30	Ignition switch (IG1)	IG SW (IG1)	OFF
	32	Front door switch	FRONT DOOR SW	ON
	35	Headlight automatic shutdown function	H/L AUTO-CUT	OFF
	43	Tone alarm	BUZZER	ON
OTHER ALARM	30	Ignition switch (IG1)	IG SW (IG1)	ON
	43	Tone alarm	BUZZER	ON

*NOTE: The headlight automatic shutdown function works in approximately one second after the lighting monitor tone alarm starts sounding, and then the tone alarm ceases sounding.*

• SUNROOF

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
SUNROOF OPE.	30	Ignition switch (IG1)	IG SW (IG1)	ON
	72	Response by the sunroof-ECU	S/R ECU ACK	INPUT CHECK (only momentarily when switch is operated)

• THEFT-ALARM

ITEM	ITEM NO.	INPUT SIGNAL	DISPLAY ON SCAN TOOL	NORMAL CONDITION
THEFT-ALARM	45	Theft-alarm headlight	THEFTALM. H/L	ON
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK

**PULSE CHECK**

M1549015100528

1. The input signals (signals other than SWS communication line signals), which are compatible with the SWS monitor by using the scan tool or voltmeter, can be confirmed by the Pulse Check.

2. Use the scan tool or voltmeter to check the following input signals.

*NOTE: If a problem is found the Pulse Check, proceed to the Problems during Input Signal Check <Scan tool or voltmeter> (Refer to P.54B-491).*

Switches and their conditions, which are applicable for Pulse Check

INPUT SIGNAL	REQUIREMENT FOR SOUNDING TONE ALARM
Key reminder switch	When the inserted ignition key is pulled out
Hazard light switch	When the switch is turned from off to on
Seat belt which	When the seat belt is fastened
All door switches (excluding front door switch)	Either of the doors (excluding front door) is opened
Driver's, front passenger's or back door lock key cylinder switch	When the key cylinder is locked or unlocked
Driver's, front passenger's, rear or back door lock actuator	When the driver's key cylinder or inside lock knob is unlocked or locked
Door lock switch (incorporated in the power window main switch)	When a door is locked or unlocked by a door lock switch
Hood switch	When the hood is opened
Keyless entry system transmitter	Switches When the switch is turned from off to on

**SYMPTOM CHART**

## &lt;ECU communication system&gt;

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Communication with the SWS monitor kit is not possible.	A-1	<a href="#">P.54B-27</a>
Communication with the column switch (column-ECU) is not possible.	A-2	<a href="#">P.54B-34</a>
Communication with the ETACS-ECU is not possible.	A-3	<a href="#">P.54B-41</a>
Communication with the front-ECU is not possible.	A-4	<a href="#">P.54B-48</a>
Communication with the sunroof motor assembly (sunroof-ECU) is not possible.	A-5	<a href="#">P.54B-55</a>
Communication with the RV meter is not possible.	A-6	<a href="#">P.54B-67</a>

## &lt;Function system&gt;

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Tone alarm	General description concerning the tone alarm function	–	<a href="#">P.54B-70</a>
	Ignition key reminder tone alarm function does not work normally.	B-1	<a href="#">P.54B-75</a>
	Light reminder tone alarm function does not work normally.	B-2	<a href="#">P.54B-79</a>
	Seat belt tone alarm function does not work normally.	B-3	<a href="#">P.54B-82</a>
	RV meter operating sound function does not work normally.	B-4	<a href="#">P.54B-85</a>
Central door locking system	General description concerning the central door locking system	–	<a href="#">P.54B-87</a>
	Central door lock system does not work at all.	C-1	<a href="#">P.54B-92</a>
	Some doors do not lock or unlock.	C-2	<a href="#">P.54B-100</a>
	All the doors do not lock or unlock with just the door lock switch operation.	C-3	<a href="#">P.54B-127</a>
	All the doors do not lock or unlock with just the door lock key cylinder key operation.	C-4	<a href="#">P.54B-129</a>
	All the doors do not lock with just the driver's inside lock knob operation.	C-5	<a href="#">P.54B-131</a>
	Forgotten key prevention function does not work normally.	C-6	<a href="#">P.54B-133</a>

<b>SYSTEM</b>	<b>SYMPTOM</b>	<b>INSPECTION PROCEDURE</b>	<b>REFERENCE PAGE</b>
Power windows	General description concerning the power windows function	–	<a href="#">P.54B-137</a>
	Power windows do not work at all.	D-1	<a href="#">P.54B-141</a>
	The power window timer function does not work normally.	D-2	<a href="#">P.54B-151</a>
	Only the front power window (LH) does work normally by operating the power window main switch.	D-3	<a href="#">P.54B-154</a>
	Power windows do not work normally by operating the front passenger's and rear power window sub-switches.	D-4	<a href="#">P.54B-157</a>
	Front passenger's and rear power windows do not work normally by operating the power window main switch.	D-5	<a href="#">P.54B-190</a>
Keyless entry system	General description concerning keyless entry system	–	<a href="#">P.54B-192</a>
	Keyless entry system does not operate.	E-1	<a href="#">P.54B-197</a>
	The dome light, hazard warning lights (turn-signal lights) and horn do not operate through the answerback function.	E-2	<a href="#">P.54B-199</a>
	Encrypted code cannot be registered.	E-3	<a href="#">P.54B-200</a>
Sunroof	General description concerning the sunroof	–	<a href="#">P.54B-202</a>
	Sunroof does not operate.	F-1	<a href="#">P.54B-204</a>
	Any of the sunroof switch positions is defective.	F-2	<a href="#">P.54B-213</a>
	Sunroof timer function does not work normally.	F-3	<a href="#">P.54B-215</a>
	Safety mechanism does not function.	F-4	<a href="#">P.54B-217</a>

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Windshield wiper and washer	General description concerning the windshield wiper and washer function	–	<a href="#">P.54B-218</a>
	The windshield wipers do not work at all.	G-1	<a href="#">P.54B-222</a>
	The windshield wipers do not work when the windshield wiper switch is at "INT" or "MIST" position or the windshield washer switch is at "ON" position. However, the wipers work at low speed when the windshield wiper switch is at "LO" or "HI."	G-2	<a href="#">P.54B-231</a>
	The windshield wipers do not work normally.	G-3	<a href="#">P.54B-233</a>
	The windshield wipers do not stop at the specified park position.	G-4	<a href="#">P.54B-239</a>
	The windshield intermittent wiper interval is not changed by operating the windshield intermittent wiper interval adjusting knob or according to the vehicle speed.	G-5	<a href="#">P.54B-245</a>
	The windshield washer does not work.	G-6	<a href="#">P.54B-247</a>
Rear wiper and washer	General description concerning the rear wiper and washer function	–	<a href="#">P.54B-253</a>
	Rear wiper does not work at all.	H-1	<a href="#">P.54B-256</a>
	Rear wiper does not stop at the predetermined park position.	H-2	<a href="#">P.54B-264</a>
	When the selector lever is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.	H-3	<a href="#">P.54B-266</a>
	Rear washer does not work.	H-4	<a href="#">P.54B-269</a>
Seat belt warning light	General description concerning the seat belt warning light function	–	<a href="#">P.54B-274</a>
	The seat belt warning light does not illuminate.	I-1	<a href="#">P.54B-276</a>



**SIMPLIFIED WIRING SYSTEM (SWS)  
SYMPTOM CHART**

**54B-25**

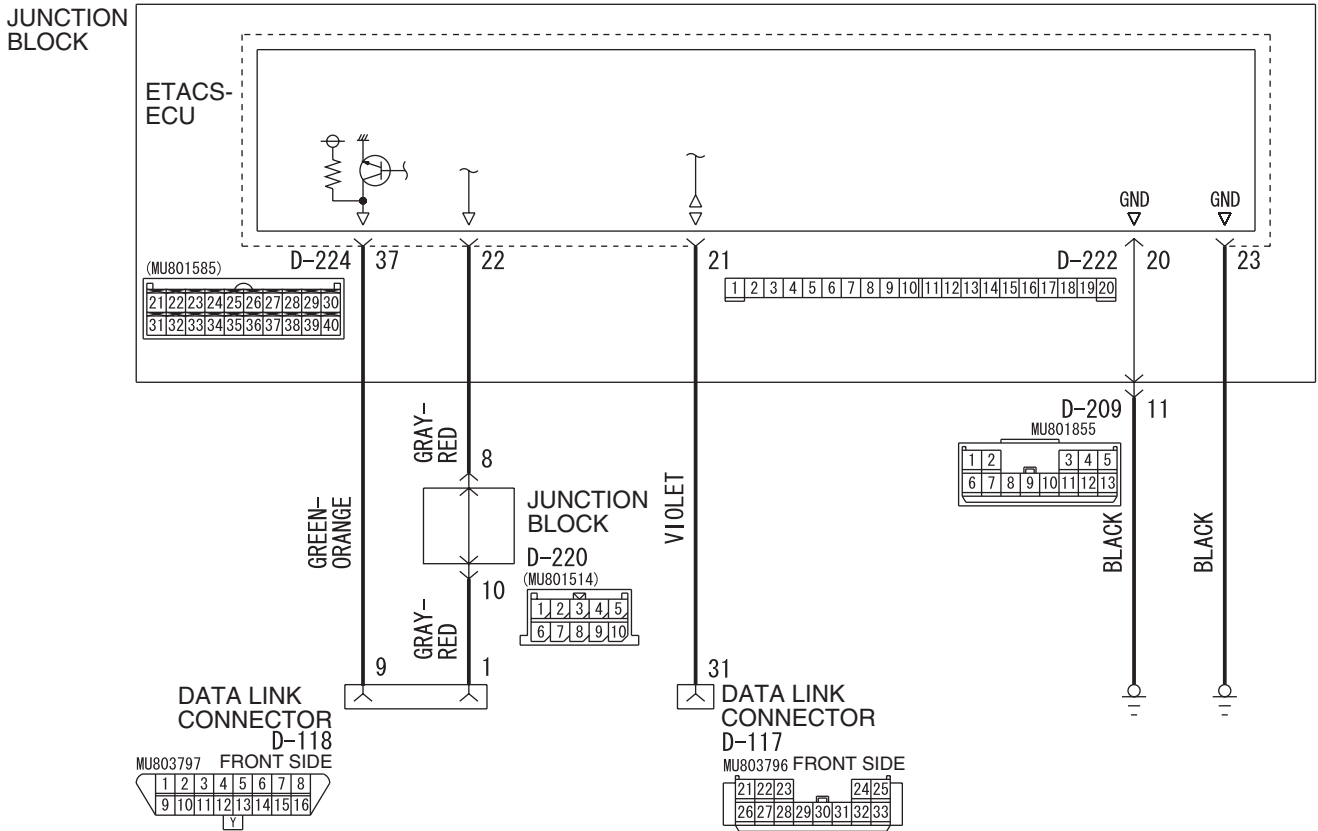
<b>SYSTEM</b>	<b>SYMPTOM</b>	<b>INSPECTION PROCEDURE</b>	<b>REFERENCE PAGE</b>
Headlight and taillight	General description concerning headlight and taillight function	–	<a href="#">P.54B-284</a>
	The taillights do not illuminate.	J-1	<a href="#">P.54B-289</a>
	Headlights (low-beam) do not illuminate.	J-2	<a href="#">P.54B-294</a>
	Headlights (high-beam) do not illuminate.	J-3	<a href="#">P.54B-299</a>
	Headlights do not illuminate when the passing switch is operated.	J-4	<a href="#">P.54B-303</a>
	Headlights do not illuminate when the lighting switch is at "TAIL," and "PASSING" position, but illuminate at low-beam when the switch is at "HEAD" position. At this position, the headlights cannot be changed into high beam by operating the dimmer switch.	J-5	<a href="#">P.54B-305</a>
	Any of taillights, the position lights, the side marker lights or license plate lights does not illuminate.	J-6	<a href="#">P.54B-307</a>
	One of the headlights does not illuminate.	J-7	<a href="#">P.54B-337</a>
	The high-beam indicator light does not illuminate.	J-8	<a href="#">P.54B-348</a>
	Headlight automatic shutdown function does not work normally.	J-9	<a href="#">P.54B-354</a>
	Headlight dimmer switch automatic resetting function does not work normally.	J-10	<a href="#">P.54B-356</a>
	Daytime running light function does not work normally. <vehicles for Canada>	J-11	<a href="#">P.54B-357</a>
Flasher timer	General description concerning the flasher timer function	–	<a href="#">P.54B-360</a>
	Turn-signal lights do not flash when the turn signal light switch is operated.	K-1	<a href="#">P.54B-363</a>
	Hazard warning lights do not illuminate.	K-2	<a href="#">P.54B-370</a>
	One of the turn-signal lights do not illuminate.	K-3	<a href="#">P.54B-372</a>
Fog light	General description concerning the fog light function	–	<a href="#">P.54B-393</a>
	Fog lights do not illuminate when the fog light switch is operated.	L-1	<a href="#">P.54B-395</a>
	Fog lights do not go out when the headlights (low-beam) are turned off while the fog lights are on.	L-2	<a href="#">P.54B-402</a>
	One of the fog lights does not illuminate.	L-3	<a href="#">P.54B-403</a>

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Interior light	General description concerning the interior light function	–	<a href="#">P.54B-416</a>
	The dome light do not illuminate or go out normally.	M-1	<a href="#">P.54B-419</a>
	Dome light dimming function does not work normally.	M-2	<a href="#">P.54B-449</a>
	The ignition key hole illumination light does not illuminate or go out normally.	M-3	<a href="#">P.54B-453</a>
Theft-alarm system	General description concerning the theft-alarm system	–	<a href="#">P.54B-462</a>
	Theft-alarm system is not armed (theft-alarm indicator light does not illuminate).	N-1	<a href="#">P.54B-465</a>
	Horn does not sound when the theft-alarm system is triggered.	N-2	<a href="#">P.54B-474</a>
	Headlights (high-beam) do not flash when the theft-alarm system is triggered.	N-3	<a href="#">P.54B-488</a>
	Panic alarm function does not work.	N-4	<a href="#">P.54B-489</a>

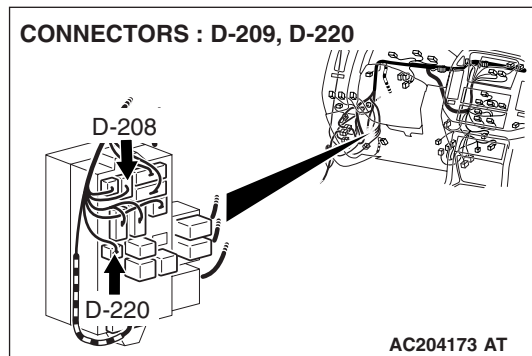
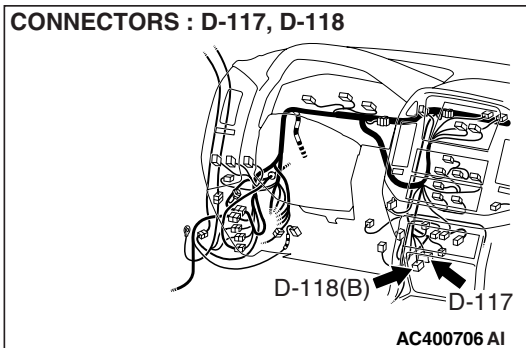
# SYMPTOM PROCEDURES

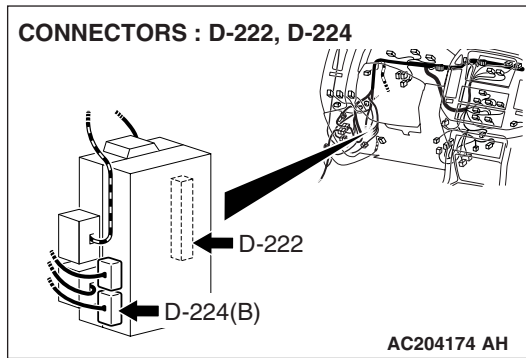
**INSPECTION PROCEDURE A-1: Communication with the SWS monitor kit is not possible.**

Scan Tool Communication and ETACS-ECU Ground Circuit



W5Q54M002A



**TECHNICAL DESCRIPTION (COMMENT)**

The SWS monitor kit may be connected improperly.

**TROUBLESHOOTING HINTS**

- The SWS monitor body (I/F cartridge) may be defective

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

**DIAGNOSIS****Required Special Tools:**

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

**STEP 1. Verify SWS monitor kit MB991862 for proper connection.**

**Q: Is SWS monitor kit MB991862 connected with the column switch properly?**

**YES :** Go to Step 2.

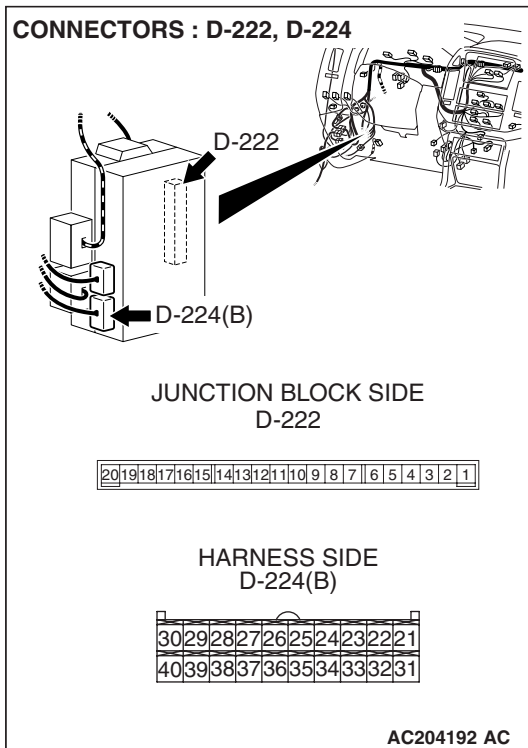
**NO :** Connect SWS monitor kit MB991862 to the column switch securely.

**STEP 2. Verify the power supply circuit to the ETACS-ECU.**

**Q: Does the system communicate with scan tool MB991502 when the ignition switch is turned to the "ON" position?**

**YES :** Go to Step 3.

**NO :** Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible [P.54B-41](#)."

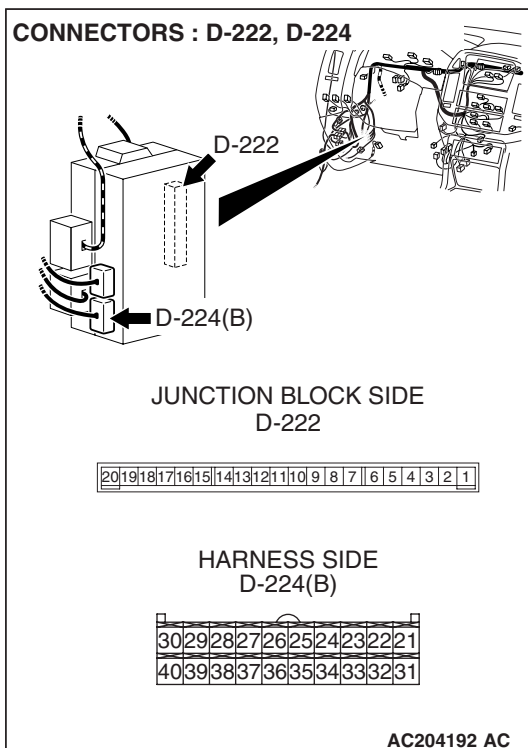


**STEP 3. Check ETACS-ECU connector D-222 and D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are ETACS-ECU connector D-222 and D-224 in good condition?**

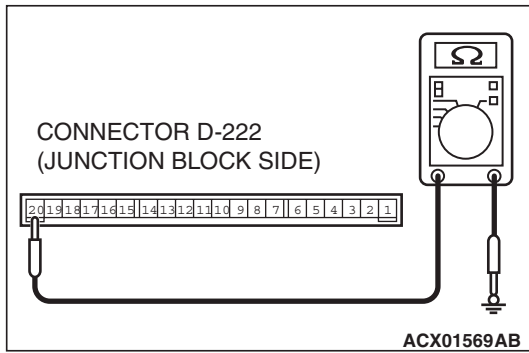
**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the SWS monitor normally.



**STEP 4. Check the ground circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222 and D-224.**

(1) Disconnect ETACS-ECU connector D-222 and D-224, and measure the resistance available at the junction block side of the connector.

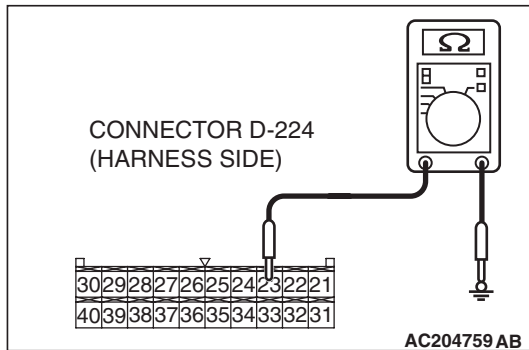


- (2) Measure the resistance value between ETACS-ECU connector D-222 terminal 20 and ground, and also between ETACS-ECU connector D-224 terminal 23 and ground.
- The resistance should equal 2 ohms or less.

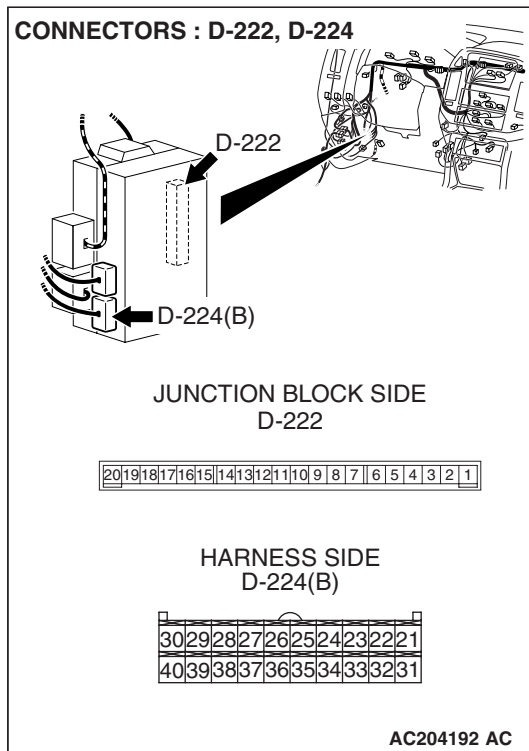
**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 6.

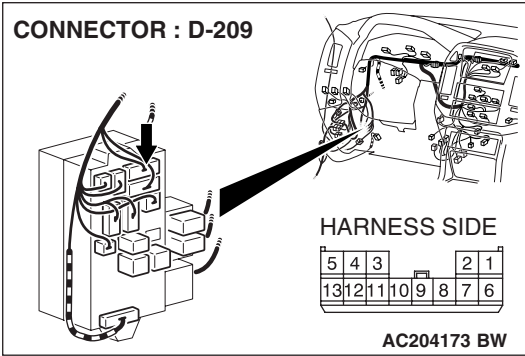
**NO :** Go to Step 5.



**STEP 5. Check the wiring harness between ETACS-ECU connector D-222 (terminal 20) or D-224 (terminal 23) and the ground.**



**CONNECTOR : D-209**



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

**Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 20) or D-224 (terminal 23) and the ground in good condition?**

**YES :** No action is necessary and testing is complete.

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

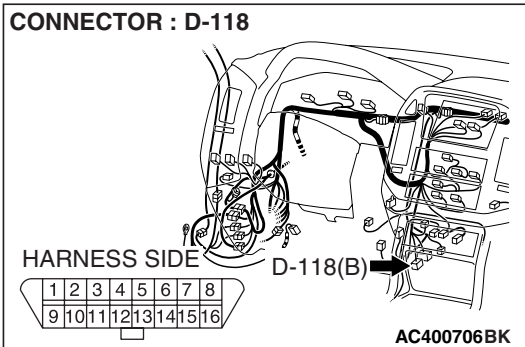
**STEP 6. Check data link connector D-118 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is and data link connector D-118 in good condition?**

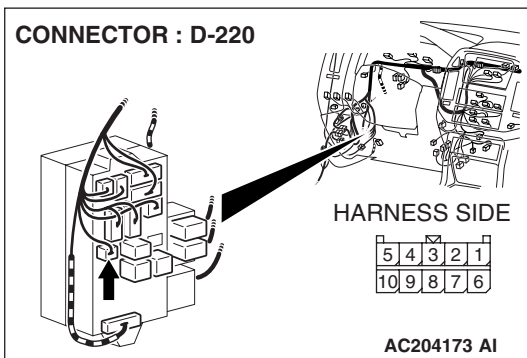
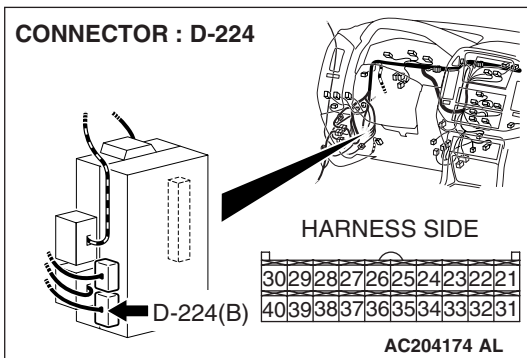
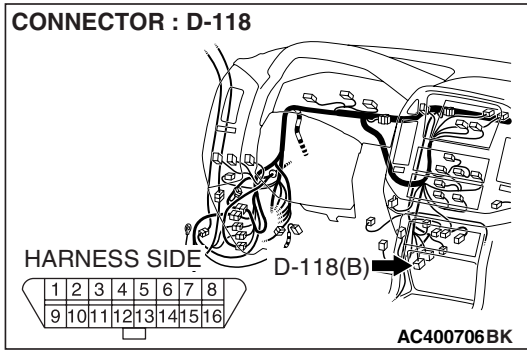
**YES :** Go to Step 7.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the SWS monitor kit normally.

**CONNECTOR : D-118**



**STEP 7. Check the wiring harness between ETACS-ECU connector D-224 (terminals 22 and 37) and data link connector D-118 (terminals 1 and 9).**



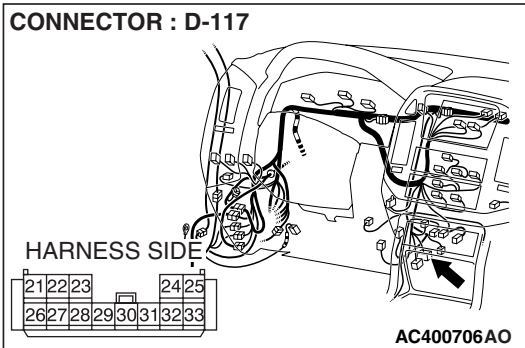
*NOTE: Also check junction block connector D-220 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-220 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).*

**Q: Is the wiring harness between ETACS-ECU connector D-224 (terminals 22 and 37) and data link connector D-118 (terminals 1 and 9) in good condition?**

**YES :** Go to Step 8.

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



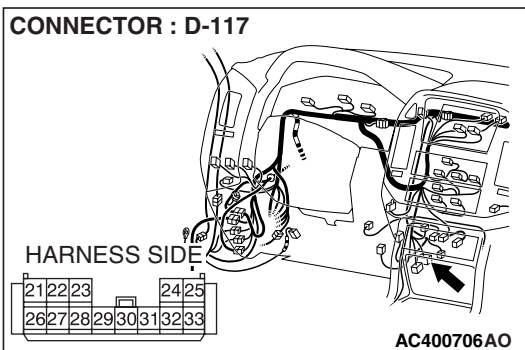


**STEP 8. Check data link connector D-117 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is data link connector D-117 in good condition?**

**YES :** Go to Step 9.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the SWS monitor kit normally.

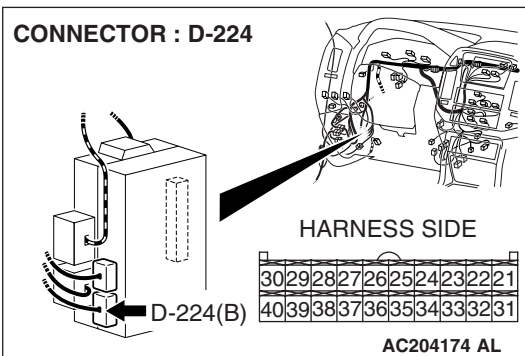


**STEP 9. Check the wiring harness between ETACS-ECU connector D-224 (terminal 21) and data link connector D-117 (terminal 31).**

**Q: Is the wiring harness between ETACS-ECU connector D-224 (terminal 21) and data link connector D-117 (terminal 31) in good condition?**

**YES :** Replace the ETACS-ECU. The system should communicate with the SWS monitor kit normally.

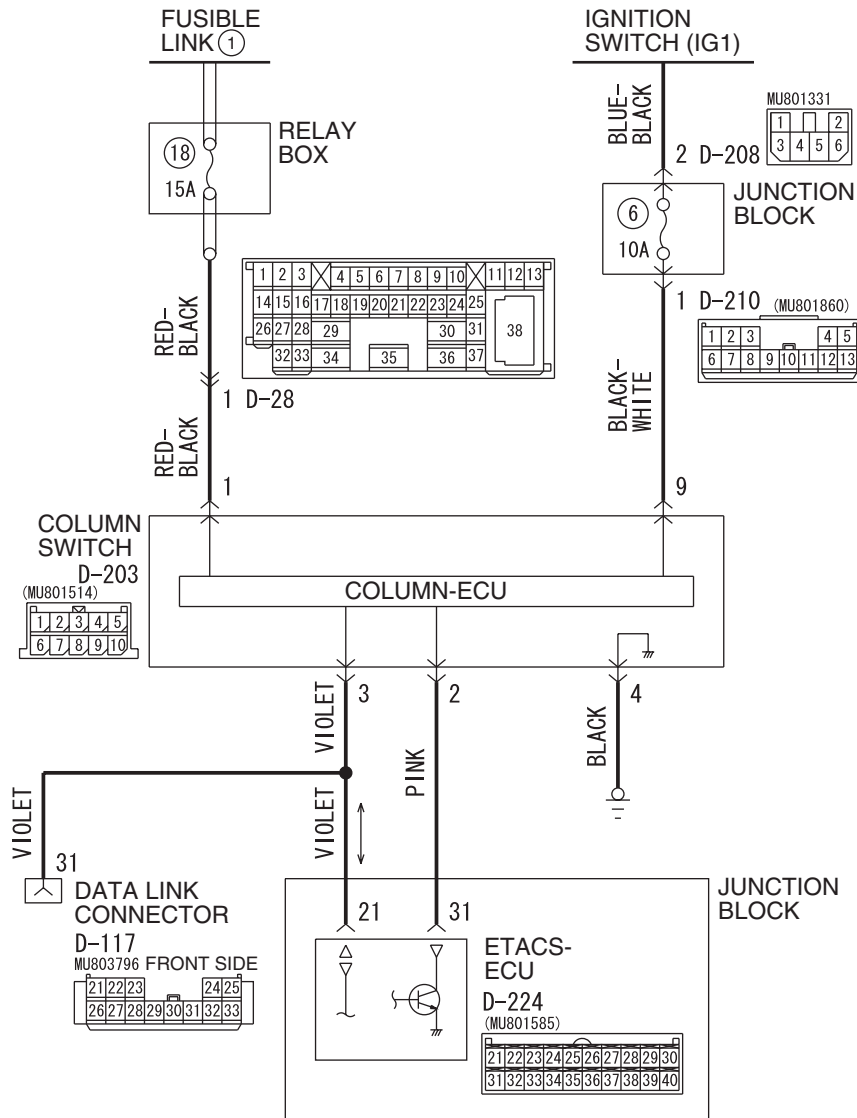
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the SWS monitor kit normally.



**INSPECTION PROCEDURE A-2: Communication with the column switch (column-ECU) is not possible.**

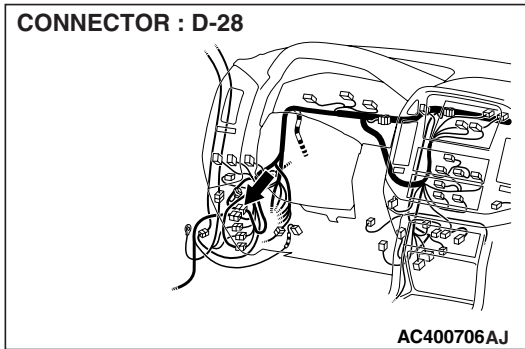
*NOTE: This troubleshooting procedure requires the use of scan tool MB991958 and SWS monitor kit MB991862. For details on how to use the SWS monitor, refer to "How to use SWS monitor P.54B-10."*

**Column Switch Power Supply and SWS Communication Circuit**

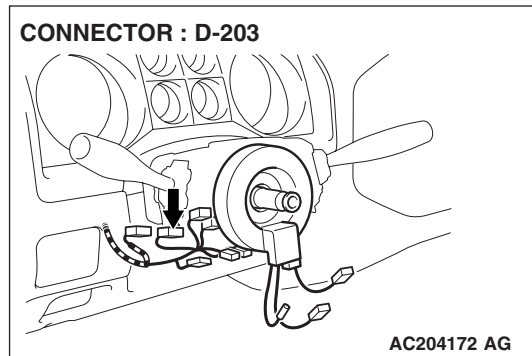


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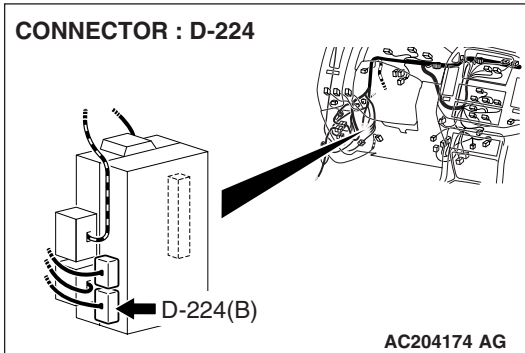
CONNECTOR : D-28



CONNECTOR : D-203



CONNECTOR : D-224



### CIRCUIT OPERATION

- The power supply to the column switch is provided by the battery and the ignition switch (IG1).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

### TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the column switch (column-ECU) may be defective. If the battery power supply circuit (terminal 1 of the column switch) to the ECU is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal 9 of the column switch), and repair if necessary.

### TROUBLESHOOTING HINTS

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU

**⚠ CAUTION**

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

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

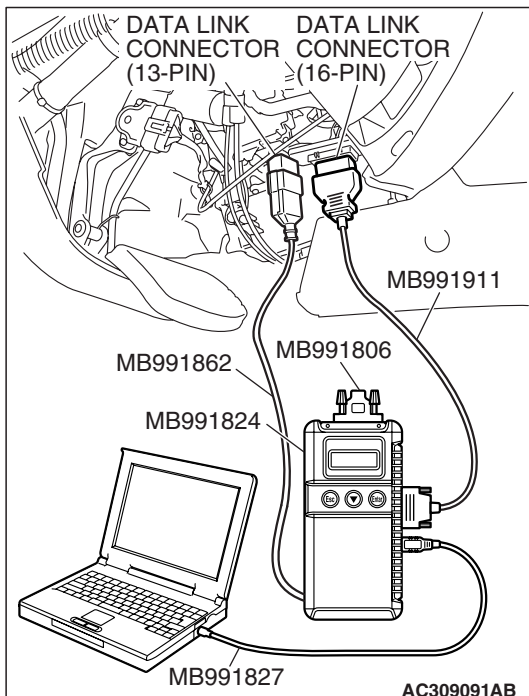
**Q: Is "OK" displayed on both the "ETACS ECU" and "COLUMN ECU" menus?**

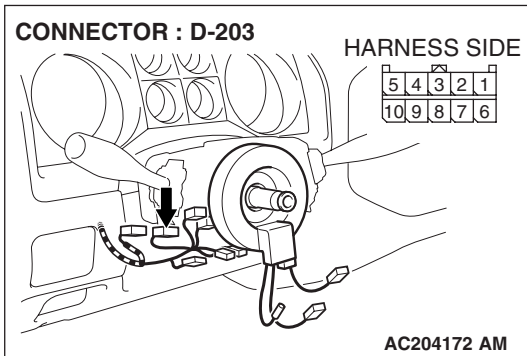
"OK" are displayed for all the items : Go to Step 2.

"NG" is displayed on the "COLUMN ECU" menu : Go to Step 2.

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

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



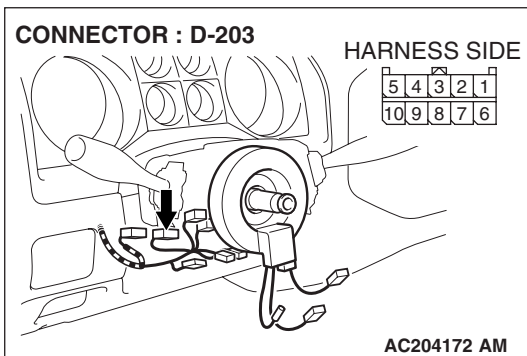


**STEP 2. Check column switch connector D-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is column switch connector D-203 in good condition?**

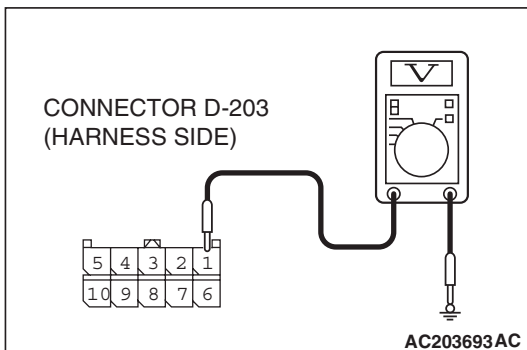
**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). The system should communicate with the column switch (column-ECU) normally.



**STEP 3. Check the battery power supply circuit to the column switch. Test at column switch connector D-203.**

(1) Disconnect column switch connector D-203 and measure the voltage available at the wiring harness side of the connector.



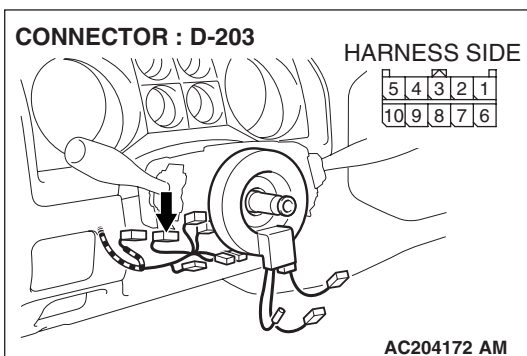
(2) Measure the voltage between terminal 1 and ground by backprobing.

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

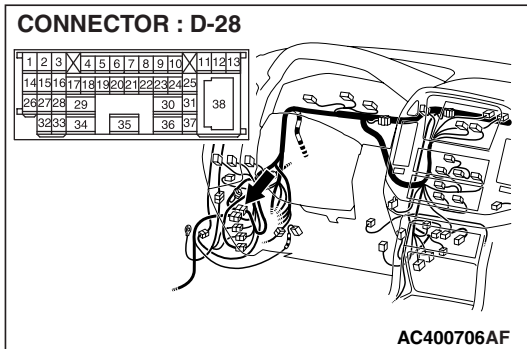
**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Go to Step 5.

**NO :** Go to Step 4.



**STEP 4. Check the wiring harness between column switch connector D-203 (terminal 1) and the battery.**

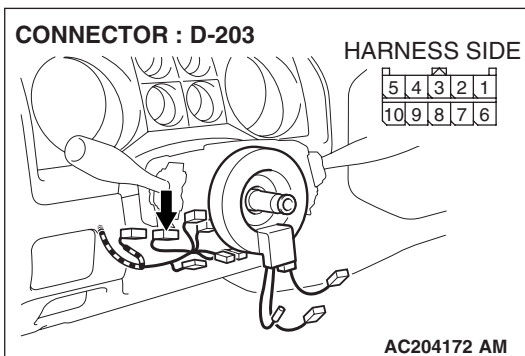


*NOTE: Also check intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between column switch connector D-203 (terminal 1) and the battery in good condition?**

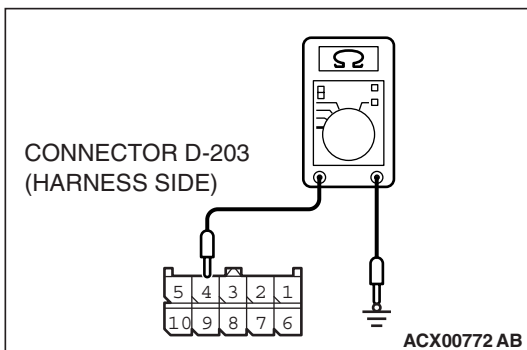
**YES :** No action is necessary and testing is complete.

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



**STEP 5. Check the ground circuit to the column switch. Test at column switch connector D-203.**

(1) Disconnect column switch connector D-203 and measure the resistance available at the wiring harness side of the connector.



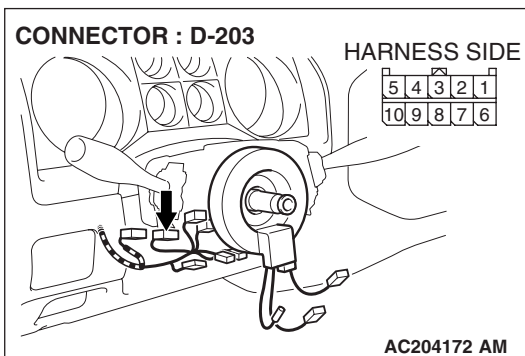
(2) Measure the resistance value between terminal 4 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 7.

**NO :** Go to Step 6.

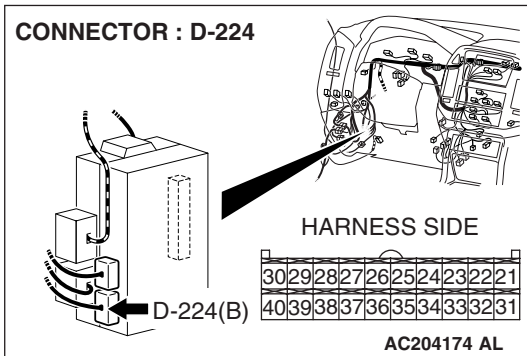


**STEP 6. Check the wiring harness between column switch connector D-203 (terminal 4) and the ground.**

**Q: Is the wiring harness between column switch connector D-203 (terminal 4) and the ground in good condition?**

**YES :** No action is necessary and testing is complete.

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

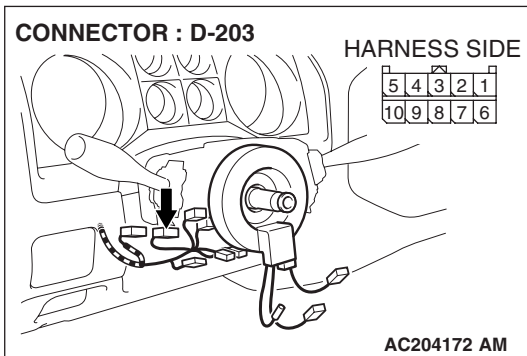


**STEP 7. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

**YES :** Go to Step 8.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the column switch (column-ECU) normally.

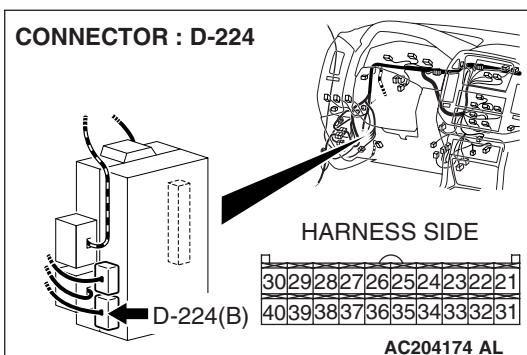


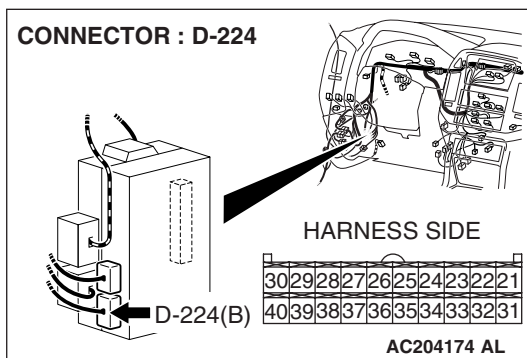
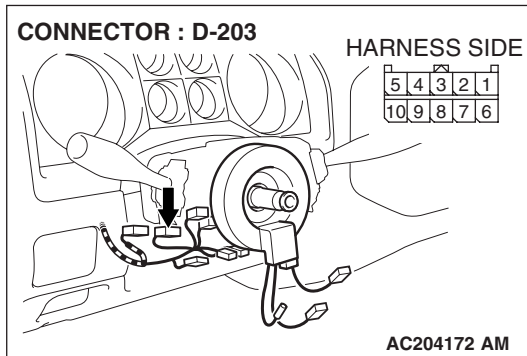
**STEP 8. Check the wiring harness between column switch connector D-203 (terminal 3) and ETACS-ECU connector D-224 (terminal 21).**

**Q: Is the wiring harness between column switch connector D-203 (terminal 3) and ETACS-ECU connector D-224 (terminal 21) in good condition?**

**YES :** Go to Step 9.

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





**STEP 9. Check the wiring harness between column switch connector D-203 (terminal 2) and ETACS-ECU connector D-224 (terminal 31).**

**Q: Is the wiring harness between column switch connector D-203 (terminal 2) and ETACS-ECU connector D-224 (terminal 31) in good condition?**

**YES :** Go to Step 10.

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

**STEP 10. Replace the ECU.**

- (1) Replace the column switch.
- (2) The system should communicate with the column switch (column-ECU) normally.

**Q: Can the system communicate with the column switch (column-ECU)?**

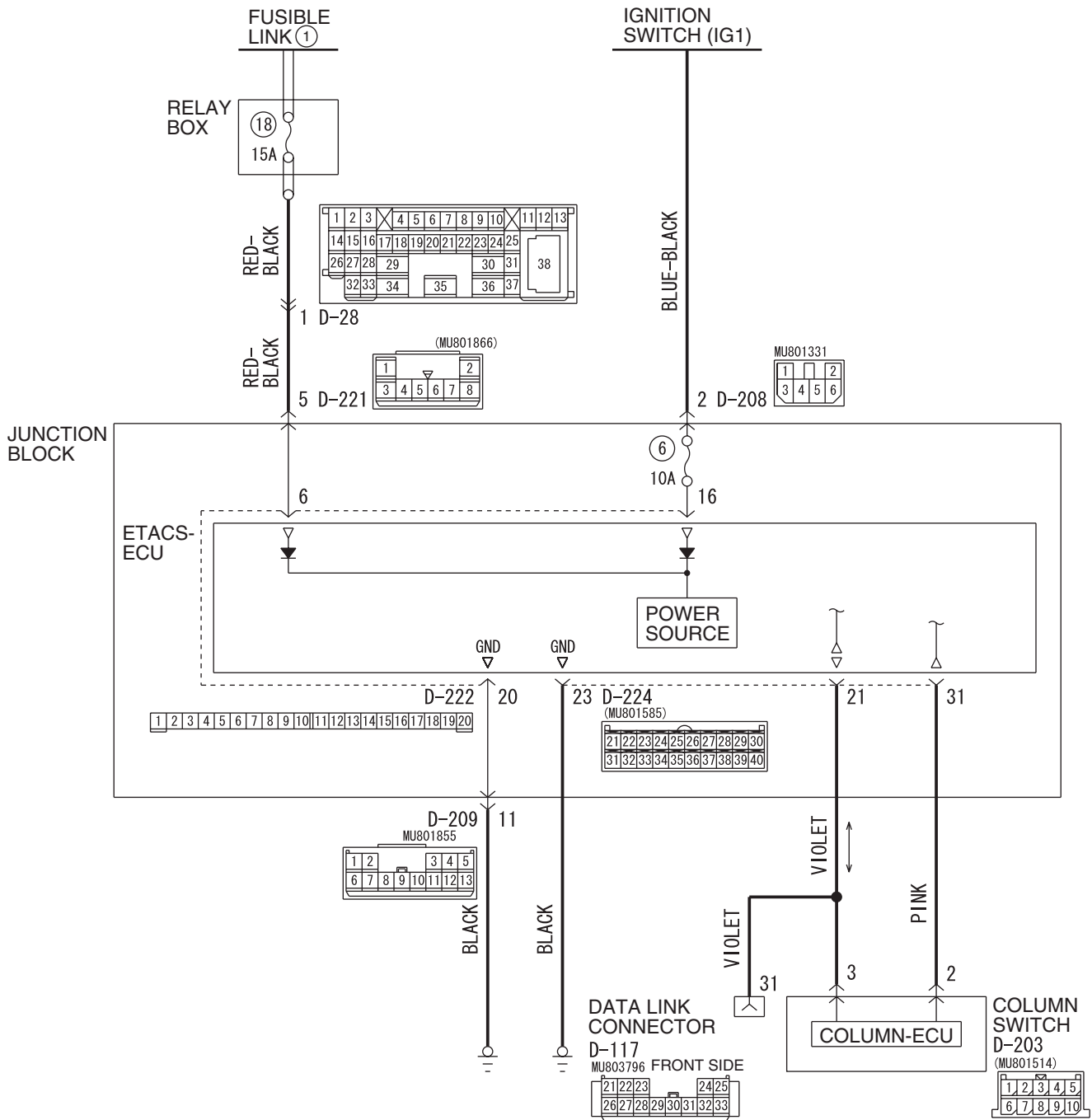
**YES :** No action is necessary and testing is complete.

**NO :** Replace the ETACS-ECU. The system should communicate with the column switch (column-ECU) normally.



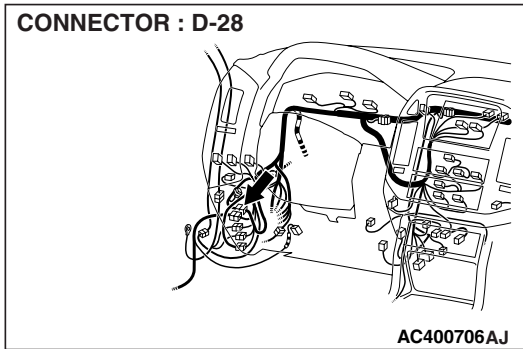
**INSPECTION PROCEDURE A-3: Communication with the ETACS-ECU is not possible.**

**ETACS-ECU Power Supply and SWS Communication Circuit**



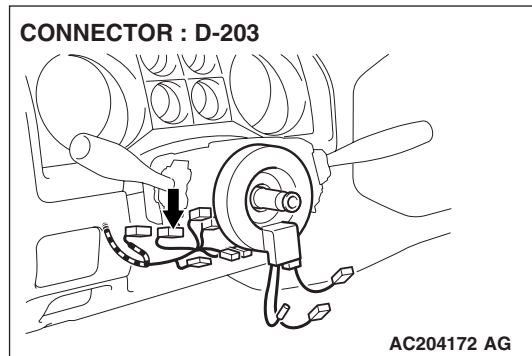
W5Q54M004A

CONNECTOR : D-28



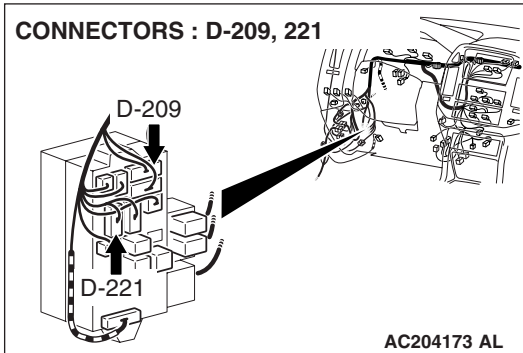
AC400706AJ

CONNECTOR : D-203



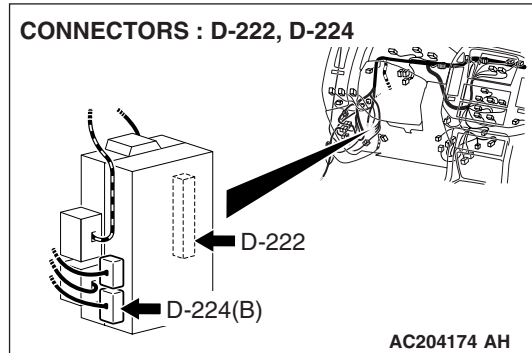
AC204172 AG

CONNECTORS : D-209, 221



AC204173 AL

CONNECTORS : D-222, D-224



AC204174 AH

**CIRCUIT OPERATION**

- The power supply to the ETACS-ECU is provided by the battery and the ignition switch (IG1).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

**TECHNICAL DESCRIPTION (COMMENT)**

It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the SWS monitor kit and the ETACS-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal 6 of the ETACS-

ECU) is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal 16 of the ETACS-ECU), and repair if necessary. If the ground circuit to the ECU (terminal 20 of the ETACS-ECU) is damaged, also check the ground circuit to the sensor (terminal 23 of the ETACS-ECU), and repair if necessary.

**TROUBLESHOOTING HINTS**

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

## DIAGNOSIS

### Required Special Tools:

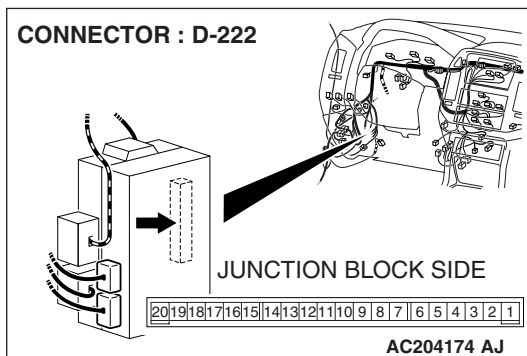
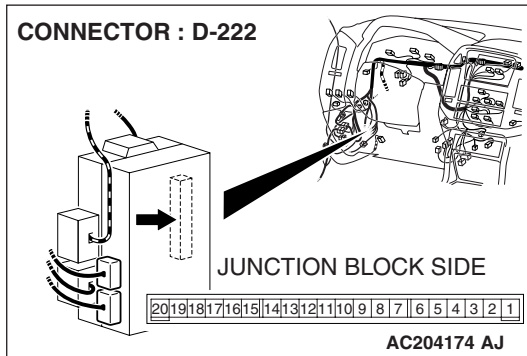
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991911: MUT-III Main Harness B

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

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

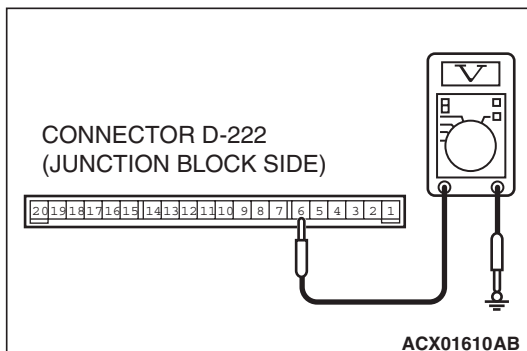
**YES :** Go to Step 2.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the ETACS-ECU normally.



**STEP 2. Check the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.**

(1) Disconnect ETACS-ECU connector D-222 and measure the voltage available at the junction block side of the connector.



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

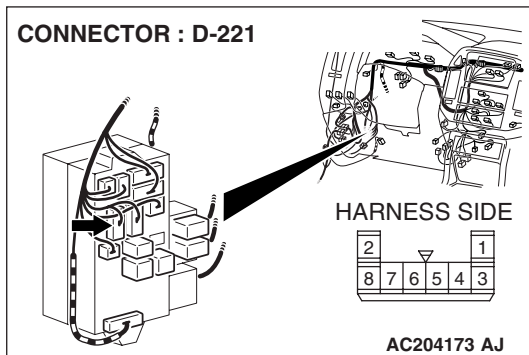
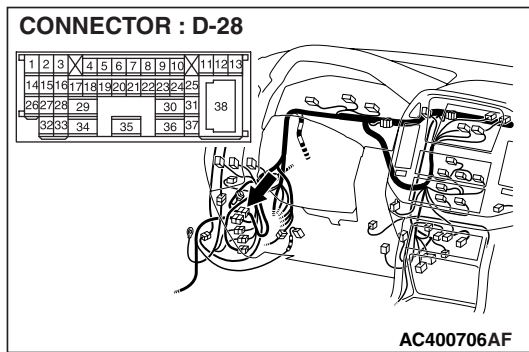
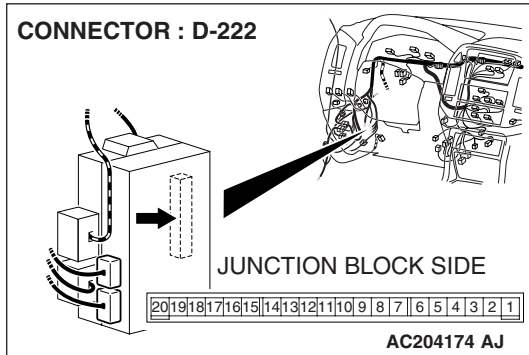
- The voltage should be approximately 12 volts (battery positive voltage).

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

**YES :** Go to Step 4.

**NO :** Go to Step 3.

**STEP 3. Check the wiring harness between ETACS-ECU connector D-222 (terminal 6) and the battery.**

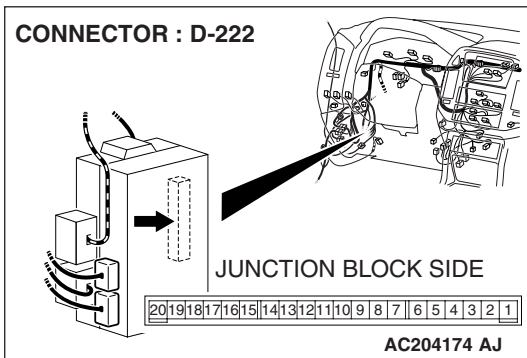


*NOTE: Also check intermediate connector D-28 and junction block connector D-221 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-28 or junction block connector D-221 is damaged, repair or replace the damaged component(s) as described in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

**Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 6) and the battery in good condition?**

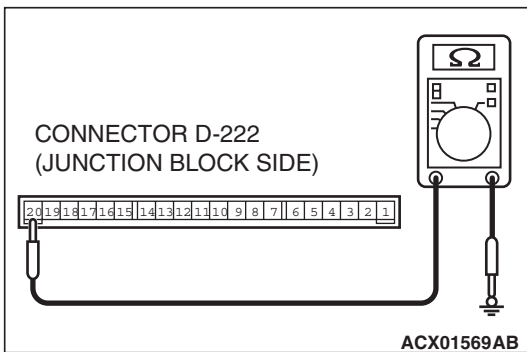
**YES :** No action is necessary and testing is complete.

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



**STEP 4. Check the ground circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.**

(1) Disconnect ETACS-ECU connector D-222 and measure the resistance available at the junction block side of the connector.



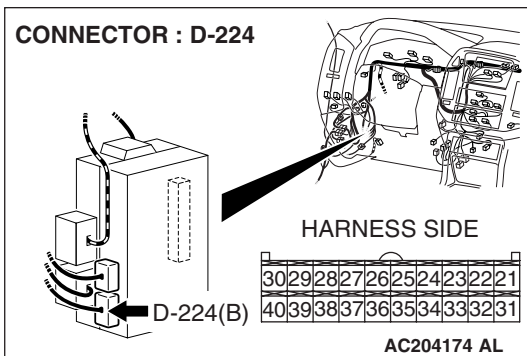
(2) Measure the resistance value between terminal 20 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 7.

**NO :** Go to Step 5.



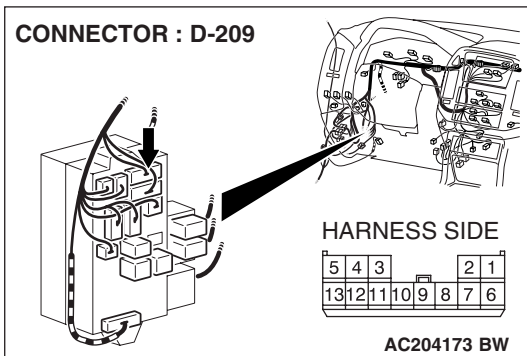
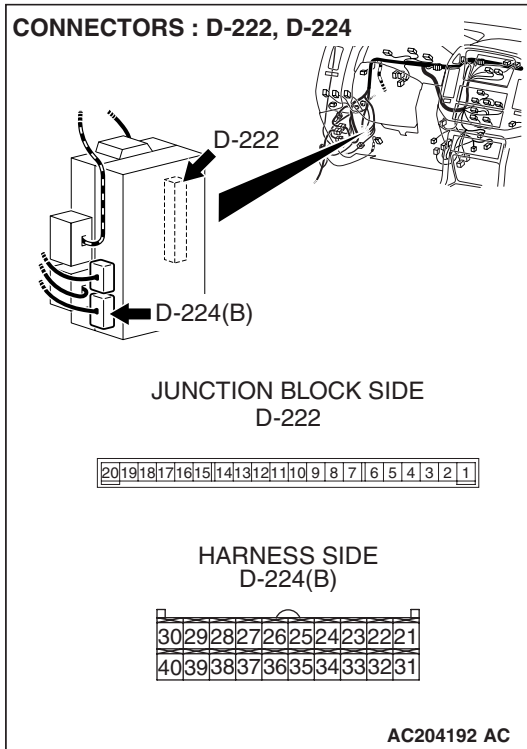
**STEP 5. Check ETACS-ECU D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the ETACS-ECU normally.

**STEP 6. Check the wiring harness between ETACS-ECU connector D-222 (terminal 20) and C-224 (terminal 23) and the ground.**

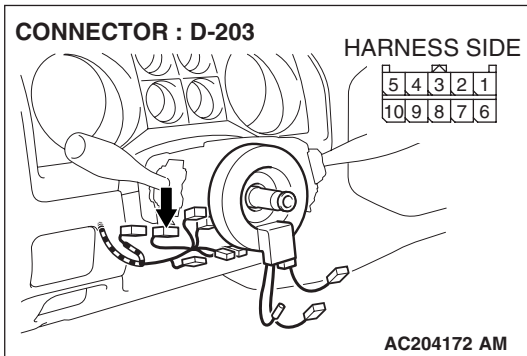


*NOTE: Also check junction block connector D-209 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 20) and D-224 (terminal 23) and the ground in good condition?**

**YES :** No action is necessary and testing is complete.

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

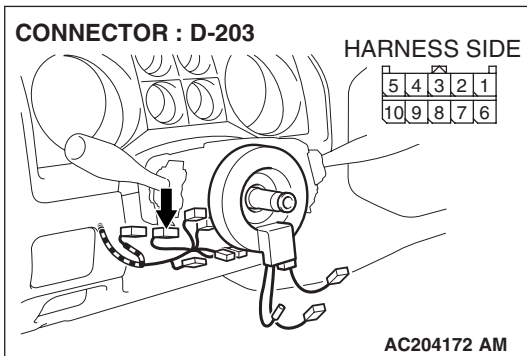


**STEP 7.** Check column switch connector D-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

**Q:** Is column switch connector D-203 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. The system should communicate with the ETACS-ECU normally.

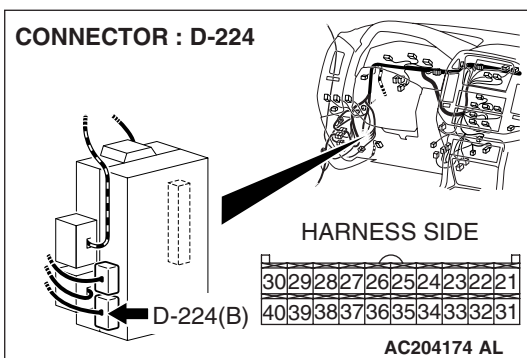


**STEP 8.** Check the wiring harness between column switch connector D-203 (terminals 2 and 3) and ETACS-ECU connector D-224 (terminals 31 and 21).

**Q:** Is the wiring harness between column switch connector D-203 (terminals 2 and 3) and ETACS-ECU connector D-224 (terminals 31 and 21) in good condition?

**YES :** Replace the ETACS-ECU. The system should communicate with the ETACS-ECU normally.

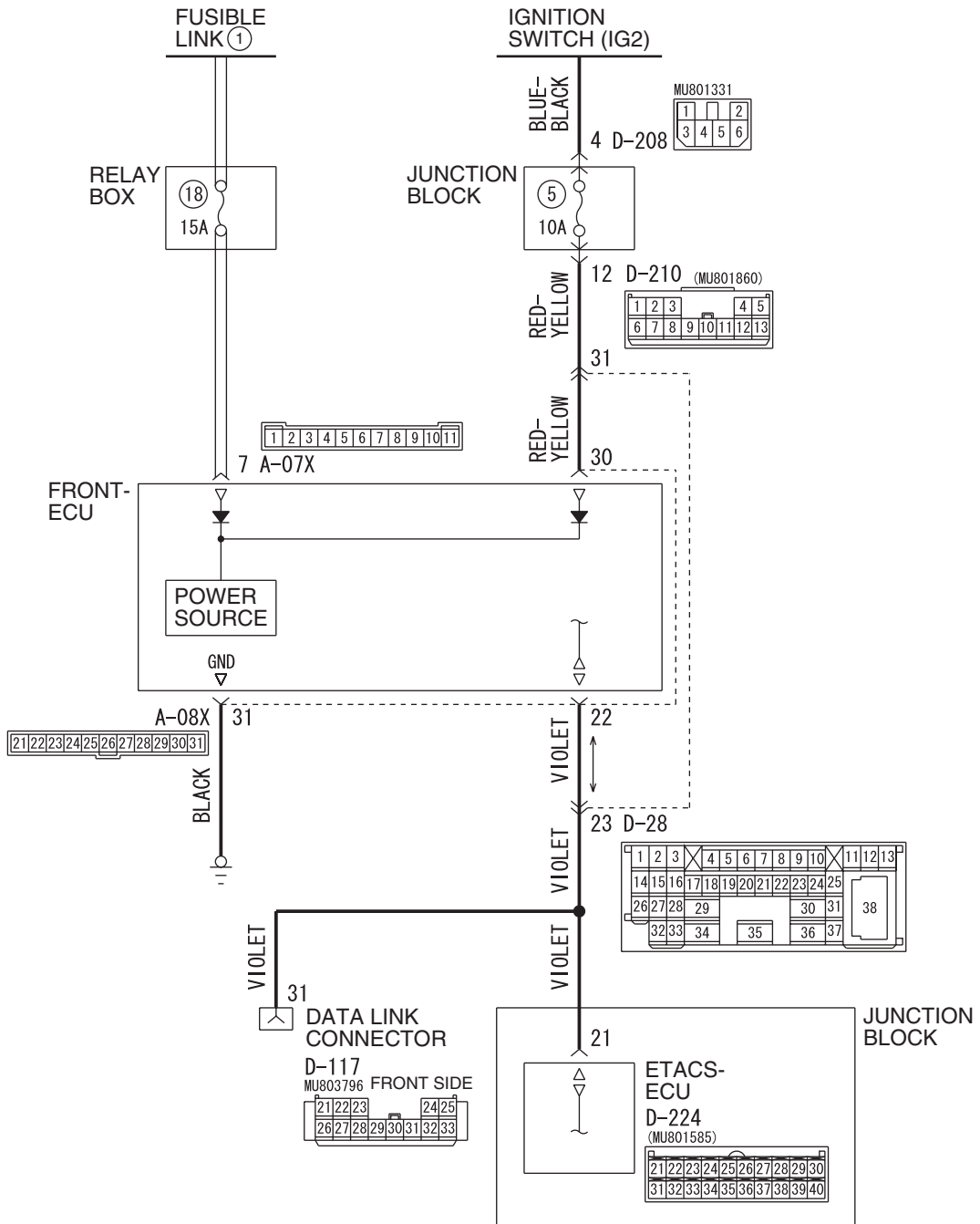
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the ETACS-ECU normally.



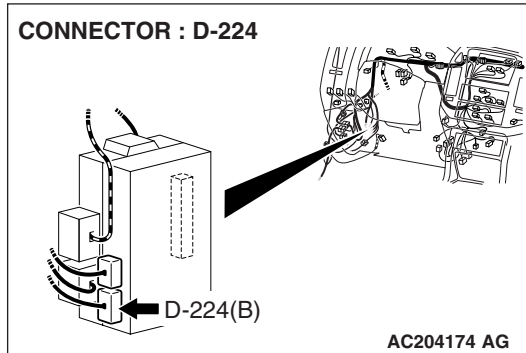
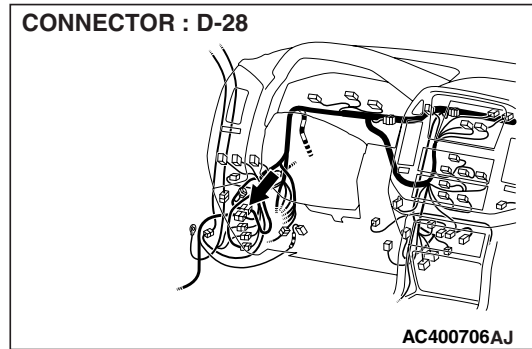
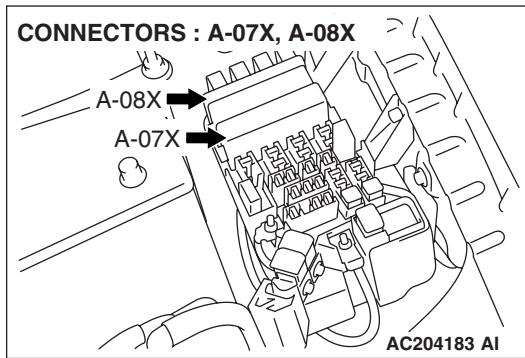
**INSPECTION PROCEDURE A-4: Communication with the front-ECU is not possible.**

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

**Front-ECU Power Supply and SWS Communication Circuit**







### CIRCUIT OPERATION

- The power supply to the front-ECU is provided by the battery and the ignition switch (IG2).
- If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG2).

### TECHNICAL DESCRIPTION (COMMENT)

It is suspected that the power supply circuit to the front-ECU is defective, or the wiring harness between the SWS monitor kit and the front-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal 7 of the front-ECU) is damaged, also check the power supply circuit from the ignition switch (IG2) (terminal 30 of the front-ECU), and repair if necessary.

### TROUBLESHOOTING HINTS

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the ETACS-ECU.

**⚠ CAUTION**

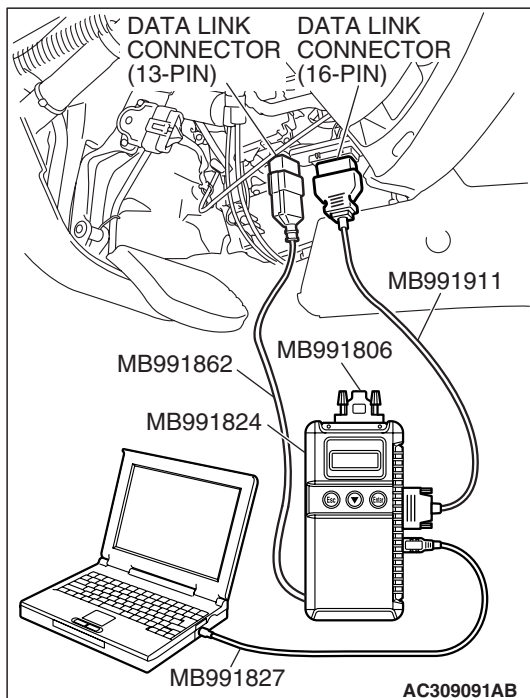
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

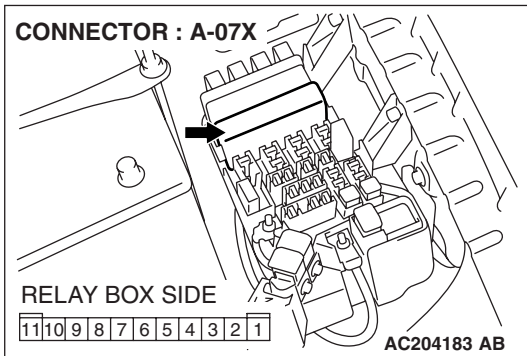
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) Turn the ignition switch to the "LOCK" (OFF) position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "SWS MONITOR."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

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

**YES :** Go to Step 2.

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



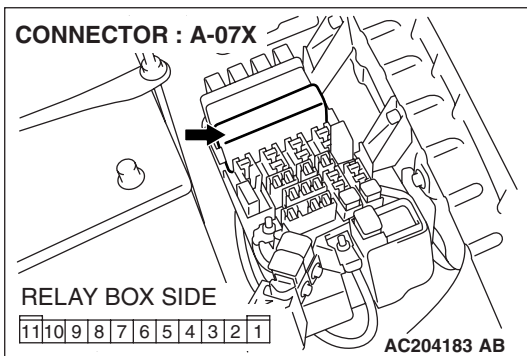


**STEP 2. Check the front-ECU connector A-07X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is the front-ECU connector A-07X in good condition?**

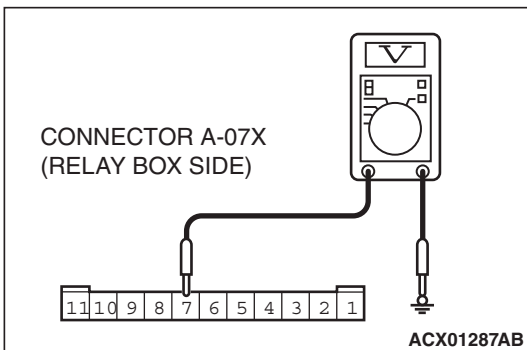
**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the front-ECU normally.



**STEP 3. Check the battery power supply circuit to the front-ECU. Test at front-ECU connector A-07X.**

(1) Disconnect front-ECU connector A-07X and measure the voltage available at the relay box side of the connector.



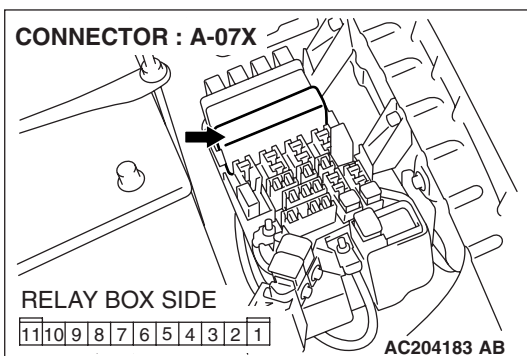
(2) Measure the voltage between terminal 7 and ground.

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

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

**YES :** Go to Step 5.

**NO :** Go to Step 4.

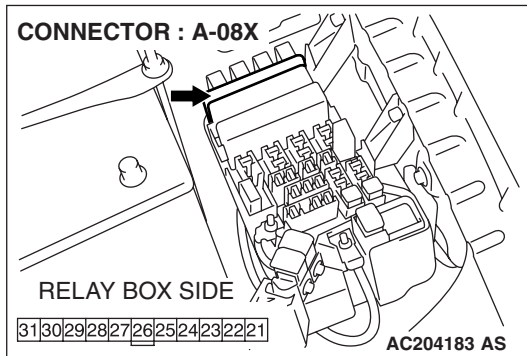


**STEP 4. Check the wiring harness between front-ECU connector A-07X (terminal 7) and the battery.**

**Q: Is the wiring harness between front-ECU connector A-07X (terminal 7) and the battery in good condition?**

**YES :** No action is necessary and testing is complete.

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

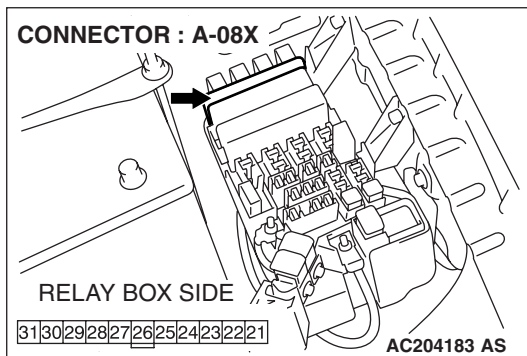


**STEP 5. Check the front-ECU connector A-08X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

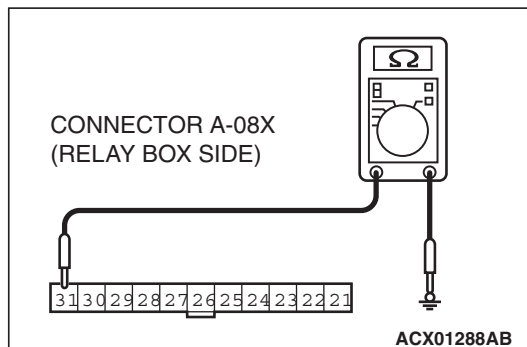
**YES :** Go to Step 6.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the front-ECU normally.



**STEP 6. Check the ground circuit to the front-ECU. Test at front-ECU connector A-08X.**

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



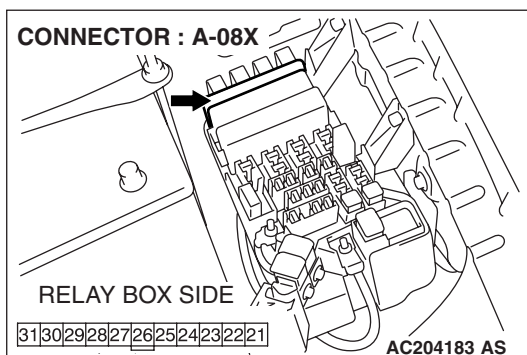
(2) Measure the resistance value between terminal 31 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 8.

**NO :** Go to Step 7.

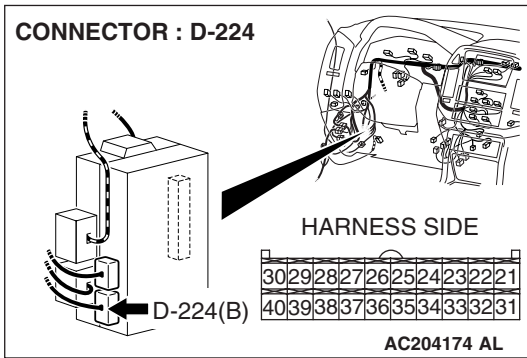


**STEP 7. Check the wiring harness between front-ECU connector A-08X (terminal 31) and the ground.**

**Q: Is the wiring harness between front-ECU connector A-08X (terminal 31) and ground in good condition?**

**YES :** No action is necessary and testing is complete.

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

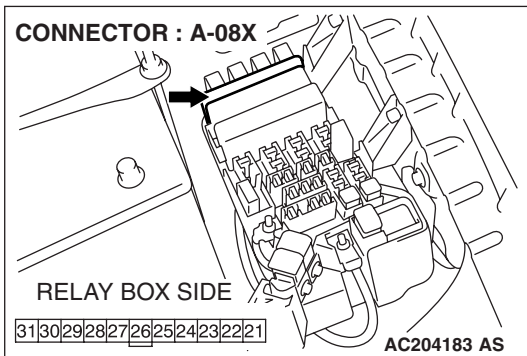


**STEP 8.** Check the ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

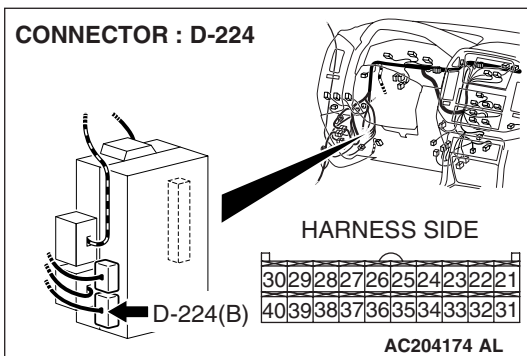
**Q:** Is ETACS-ECU connector D-224 in good condition?

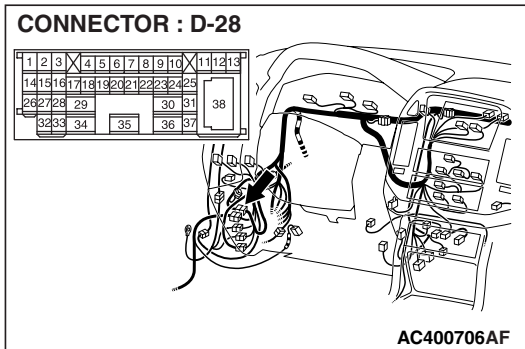
**YES :** Go to Step 9.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the front-ECU normally.



**STEP 9.** Check the wiring harness between front-ECU connector A-08X (terminal 22) and ETACS-ECU connector D-224 (terminal 21).





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

**Q: Is the wiring harness between front-ECU connector A-08X (terminal 22) and ETACS-ECU connector D-224 (terminal 21) in good condition?**

**YES :** Go to Step 10.

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

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**STEP 10. Replace the ECU.**

- (1) Replace the front-ECU.
- (2) The system should communicate with the front-ECU normally.

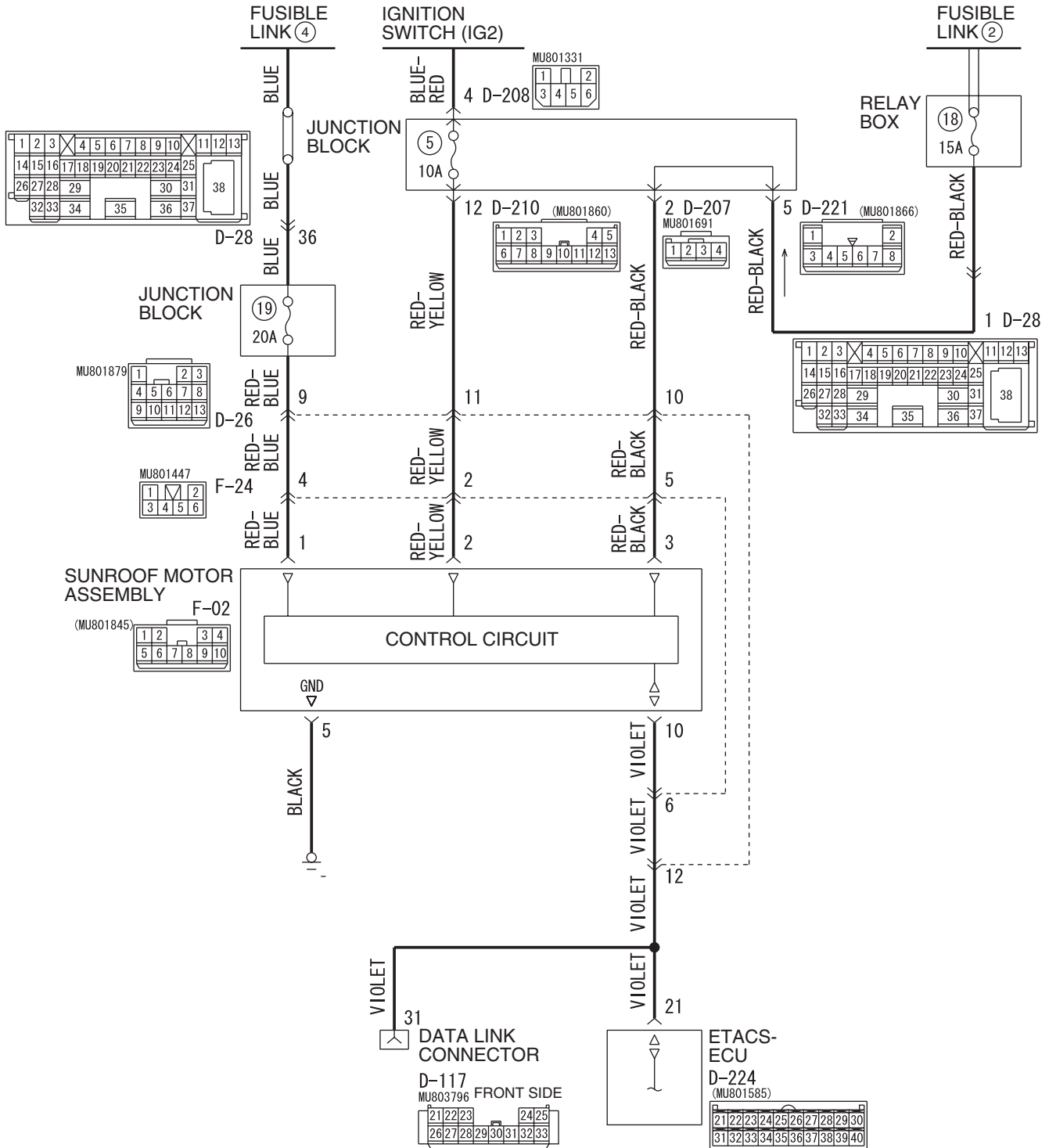
**Q: Can the system communicate with the front-ECU?**

**YES :** No action is necessary and testing is complete.

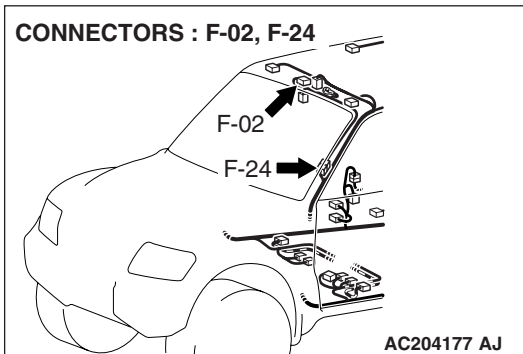
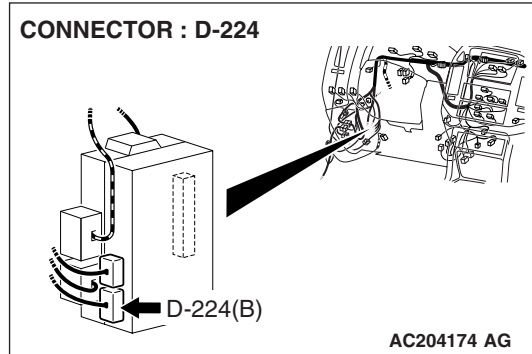
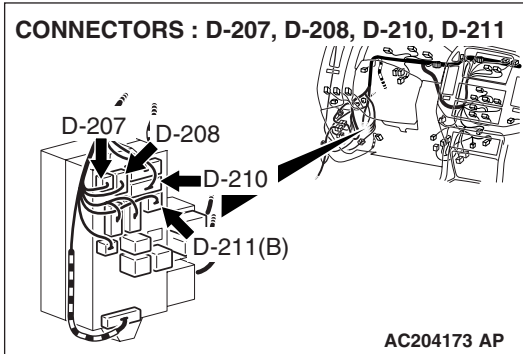
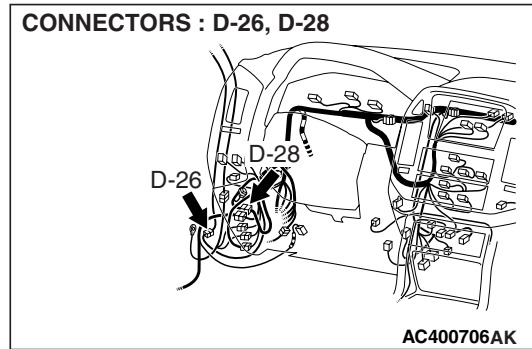
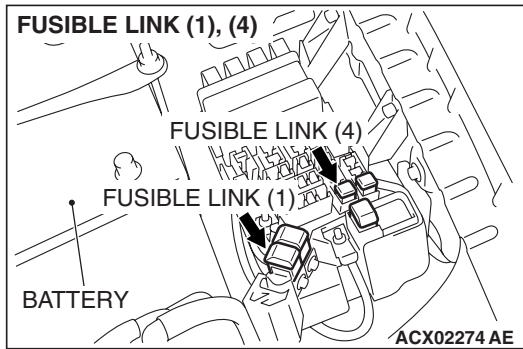
**NO :** Replace the ETACS-ECU. The system should communicate with the front-ECU normally.

**INSPECTION PROCEDURE A-5: Communication with the sunroof motor assembly (sunroof-ECU) is not possible.**

**Sunroof Motor Assembly (Sunroof-ECU) and SWS Communication Circuit**



W5Q54M006A



### CIRCUIT OPERATION

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

### TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit or the communication circuit to the sunroof motor assembly or the sunroof motor assembly may be defective.

### TROUBLESHOOTING HINTS

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



## DIAGNOSIS

### Required Special Tools:

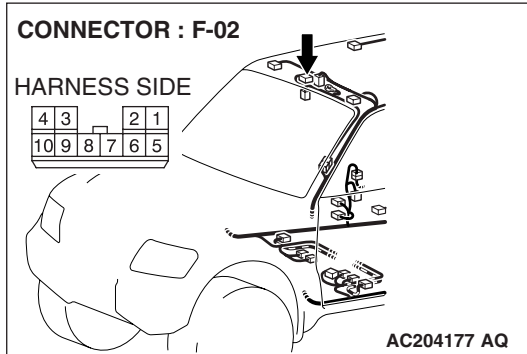
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991911: MUT-III Main Harness B

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

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

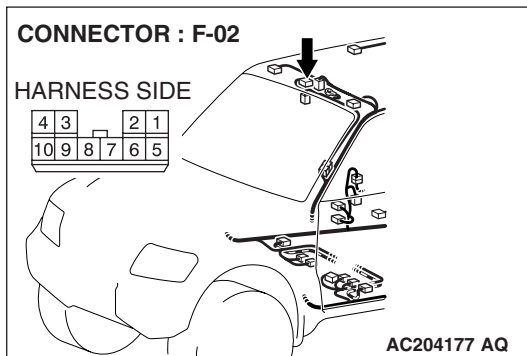
**YES :** Go to Step 2.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.



**STEP 2. Check the fusible link (1) line of power supply circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.**

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



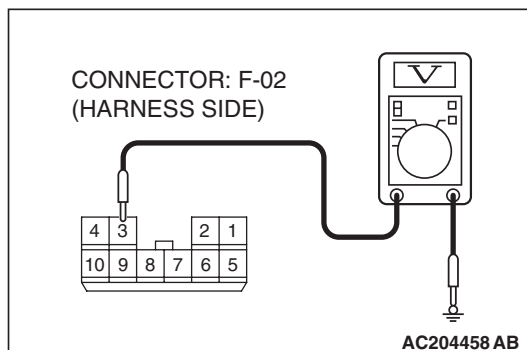
(2) Measure the voltage between terminal 3 and ground.

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

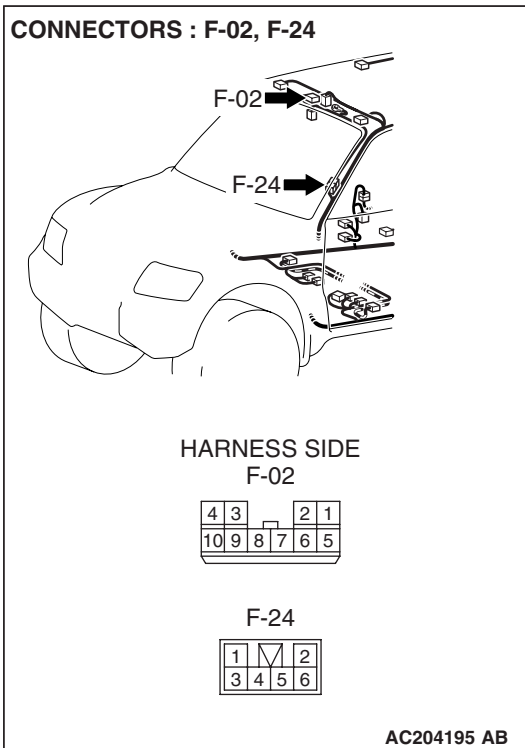
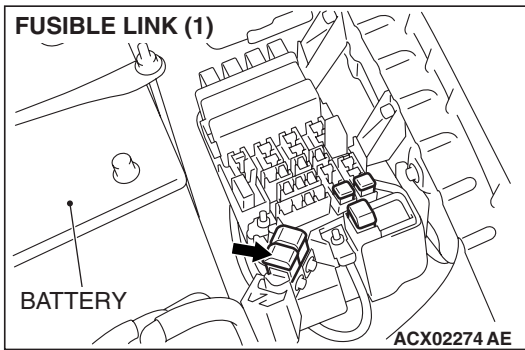
**Q: Is the measured voltage approximately 12 volts (battery positive voltage)?**

**YES :** Go to Step 4.

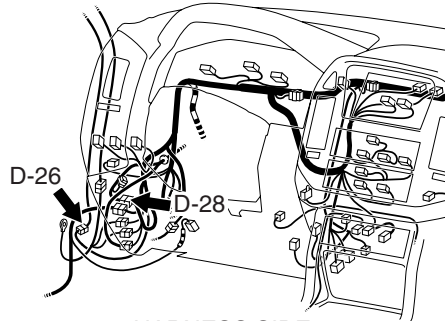
**NO :** Go to Step 3.



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

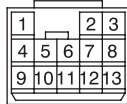


CONNECTORS : D-26, D-28

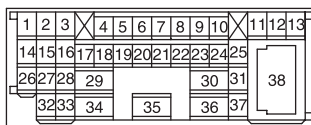


HARNESS SIDE

D-26



D-28



AC400707AN

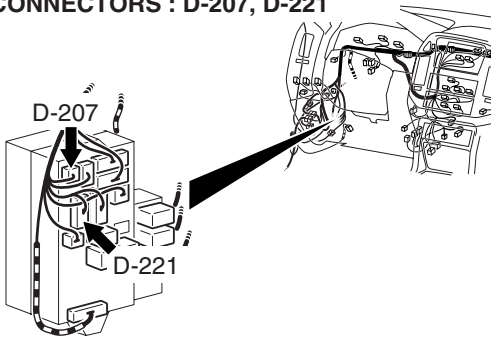
*NOTE: Also check junction block connectors D-207, D-221, intermediate connectors D-26, D-28 and F-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connectors D-207, D-221, intermediate connectors D-26, D-28 or F-24 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between sunroof motor assembly connector F-02 (terminal 3) and fusible link (1) in good condition?**

**YES :** No action is necessary and testing is complete.

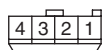
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

CONNECTORS : D-207, D-221

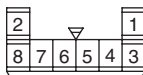


HARNESS SIDE

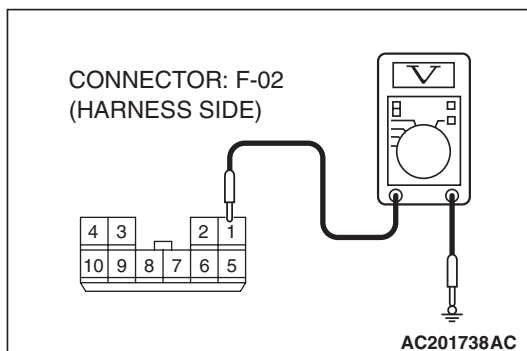
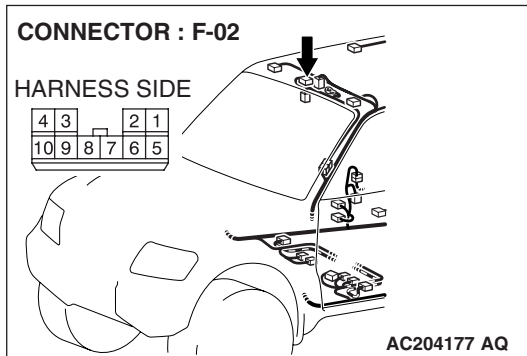
D-207



D-221



AC204191 BK



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

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

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

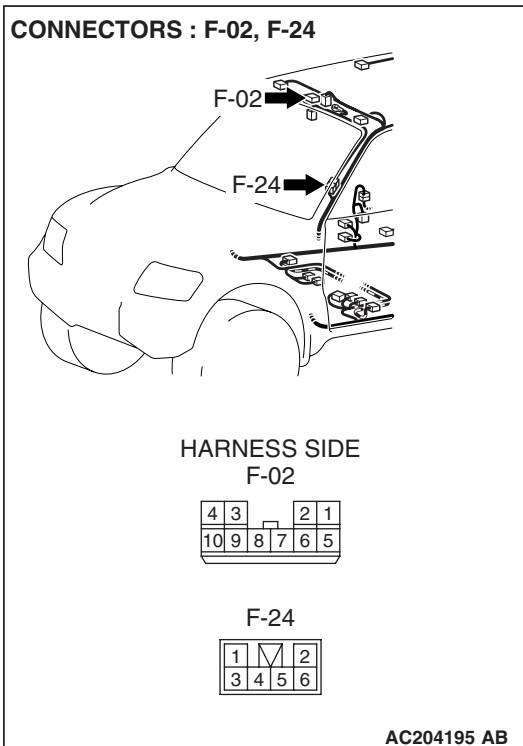
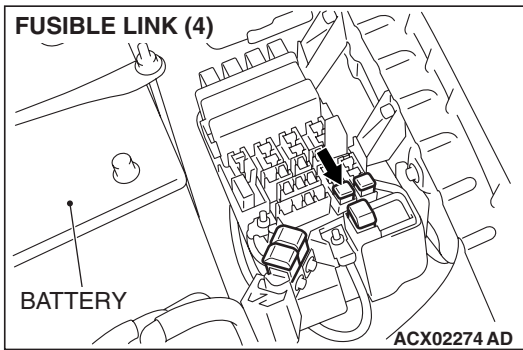
- The voltage should be approximately 12 volts (battery positive voltage).

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

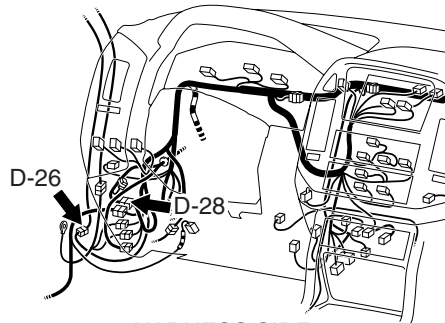
**YES :** Go to Step 6.

**NO :** Go to Step 5.

**STEP 5. Check the wiring harness between sunroof motor assembly connector F-02 (terminal 1) and fusible link (4).**

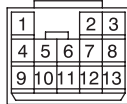


CONNECTORS : D-26, D-28

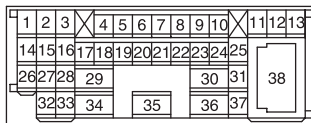


HARNESS SIDE

D-26



D-28



AC400707AN

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

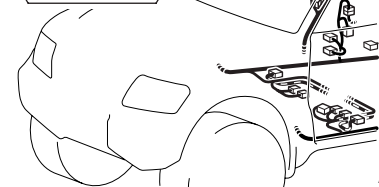
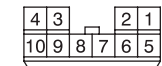
**Q: Is the wiring harness between sunroof motor assembly connector F-02 (terminal 1) and fusible link (4) in good condition?**

**YES :** No action is necessary and testing is complete.

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

CONNECTOR : F-02

HARNESS SIDE



AC204177 AQ

**STEP 6. Check the ignition switch (IG2) circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.**

- (1) Disconnect sunroof motor assembly connector F-02 and measure the voltage available at the wiring harness side of the connector.
- (2) Turn the ignition switch to the "ON" position.

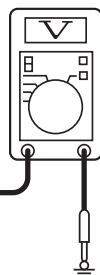
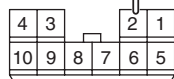
- (3) Measure the voltage between terminal 2 and ground.
  - The voltage should be approximately 12 volts (battery positive voltage).

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

**YES :** Go to Step 8.

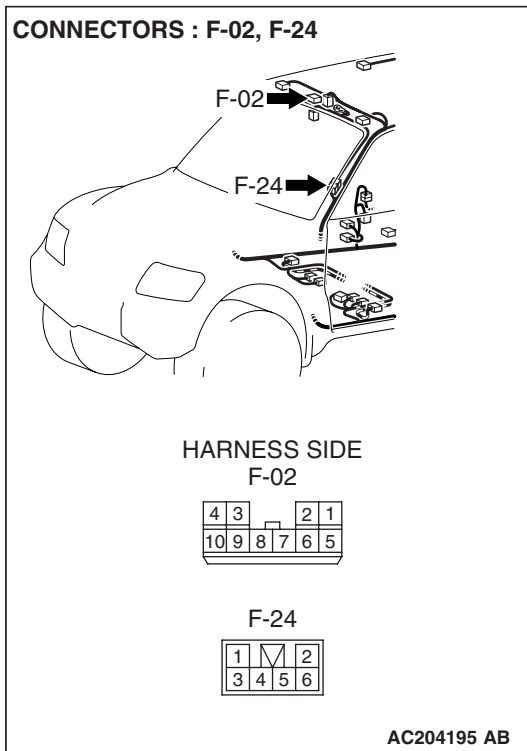
**NO :** Go to Step 7.

CONNECTOR: F-02  
(HARNESS SIDE)

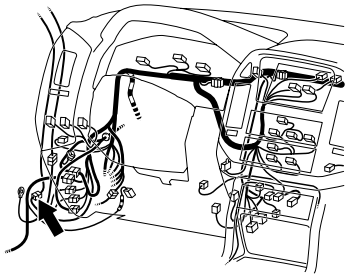
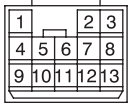


AC201740AC

**STEP 7. Check the wiring harness between sunroof motor assembly connector F-02 (terminal 2) and ignition switch (IG2).**



CONNECTOR : D-26



AC400706AL

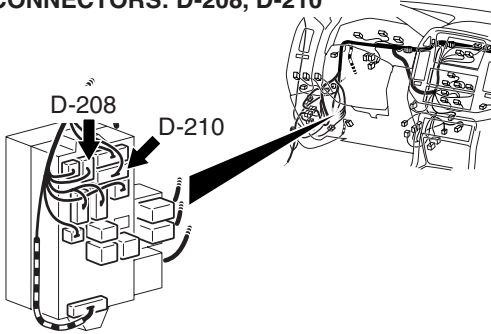
*NOTE: Also check junction block connectors D-208, D-210, intermediate connectors D-26 and F-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-208, D-210, intermediate connectors D-26 or F-24 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between sunroof motor assembly connector F-02 (terminal 2) and the ignition switch (IG2) in good condition?**

**YES :** No action is necessary and testing is complete.

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

CONNECTORS: D-208, D-210

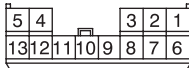


HARNESS SIDE

D-208

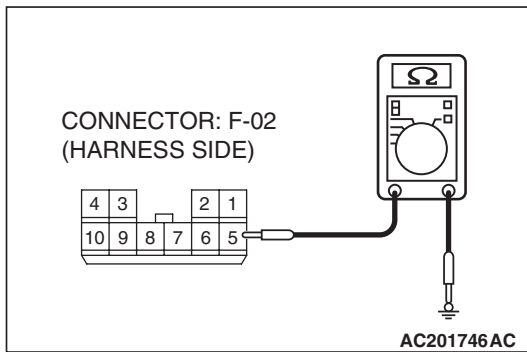
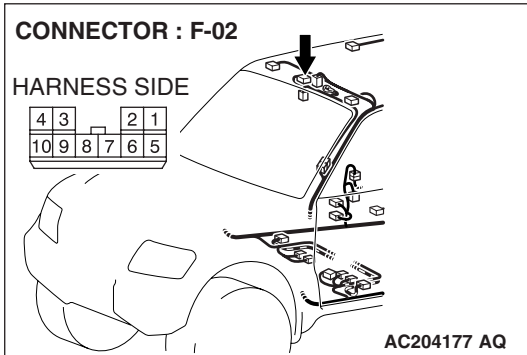


D-210



AC204191 BJ





**STEP 8. Check the ground circuit to the sunroof motor assembly. Test at sunroof motor assembly connector F-02.**

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

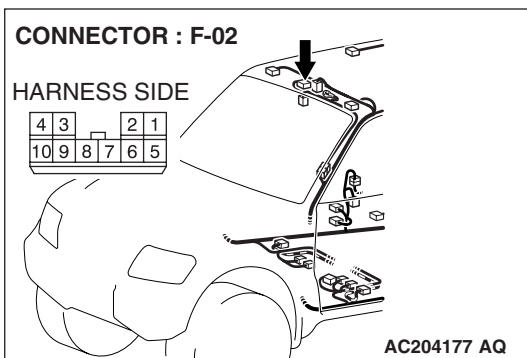
(2) Measure the resistance value between terminal 5 and ground.

- The resistance should equal 2 ohms or less.

**Q: Is the measured resistance 2 ohms or less?**

**YES :** Go to Step 10.

**NO :** Go to Step 9.

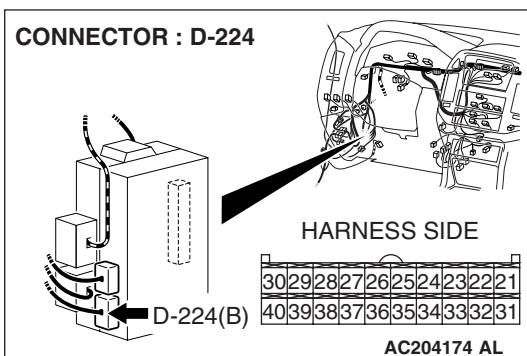


**STEP 9. Check the wiring harness between sunroof motor assembly connector F-02 (terminal 5) and ground.**

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

**YES :** No action is necessary and testing is complete.

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



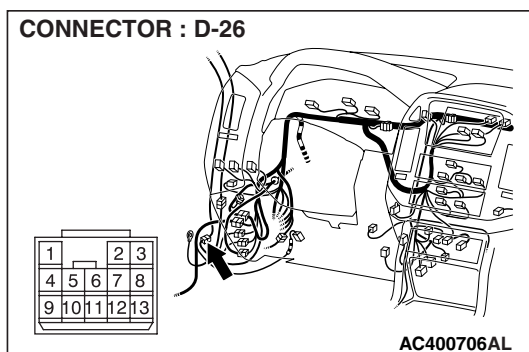
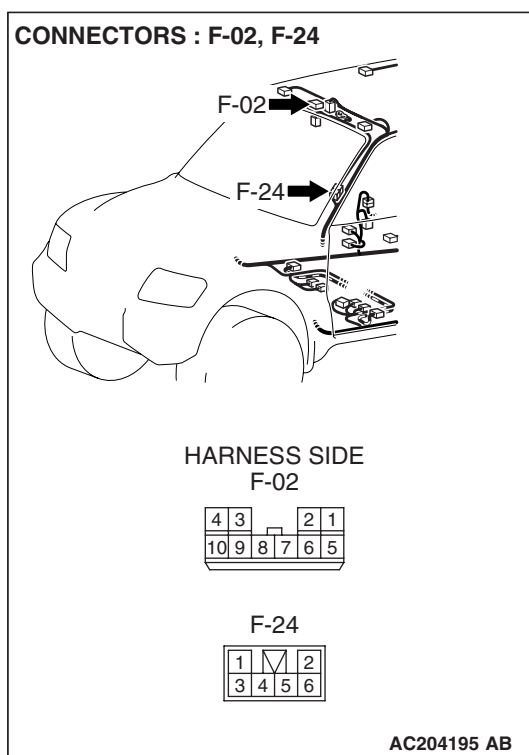
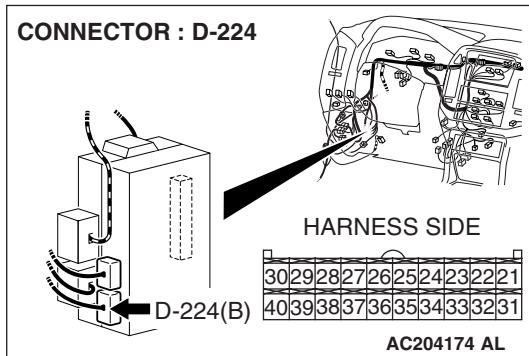
**STEP 10. Check ETACS-ECU connector D-224 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

**YES :** Go to Step 11.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

**STEP 11.** Check the wiring harness between sunroof motor assembly connector F-02 (terminal 10) and ETACS-ECU connector D-224 (terminal 21).



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

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

**YES :** Go to Step 12.

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

**STEP 12. Replace the ECU.**

- (1) Replace the sunroof motor assembly.
- (2) The system should communicate with the sunroof motor assembly normally.

**Q: Can the system communicate with the sunroof motor assembly?**

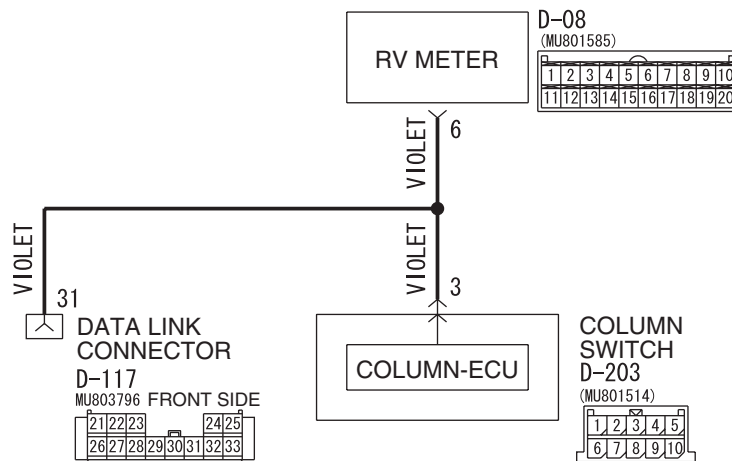
**YES :** No action is necessary and testing is complete.

**NO :** Replace the ETACS-ECU. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

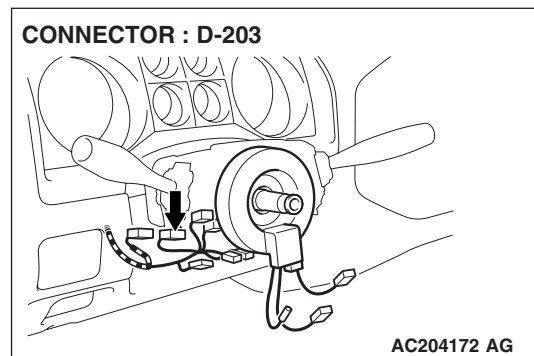
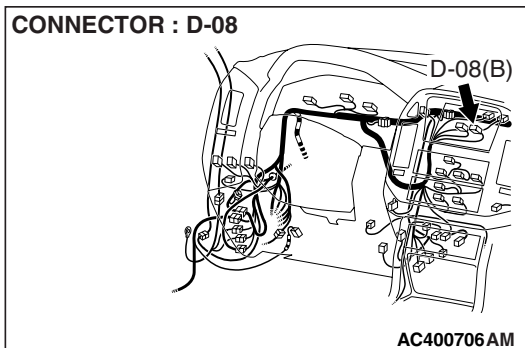
**INSPECTION PROCEDURE A-6: Communication with the RV meter is not possible.**

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

RV Meter and and SWS Communication Circuit



W5Q54M007A



**TECHNICAL DESCRIPTION (COMMENT)**

The RV meter or its power supply circuit or communication circuit may be defective.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the column-ECU.

**⚠ CAUTION**

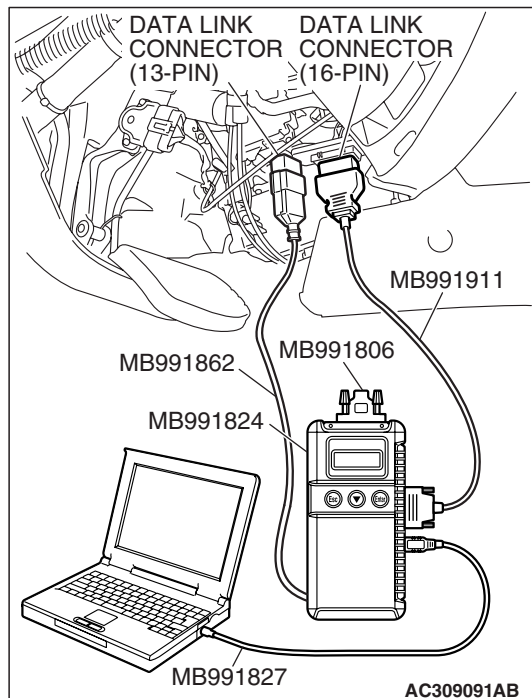
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

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

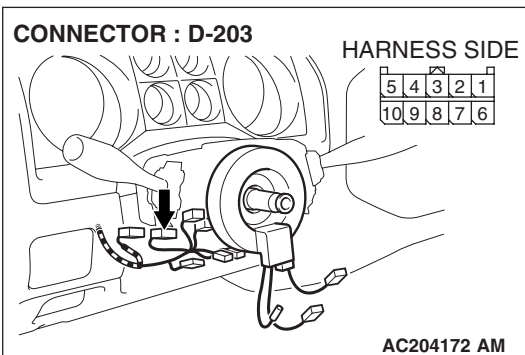
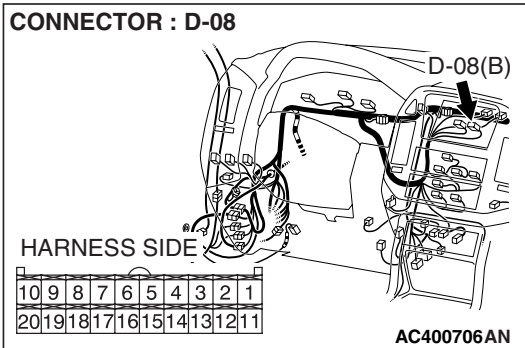
**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-34."

**STEP 2. Check the RV meter.****Q: Does the RV meter work normally?**

**YES** : Go to Step 3.

**NO** : Carry out troubleshooting for the RV meter first. Refer to GROUP 54A, RV meter P.54A-236.

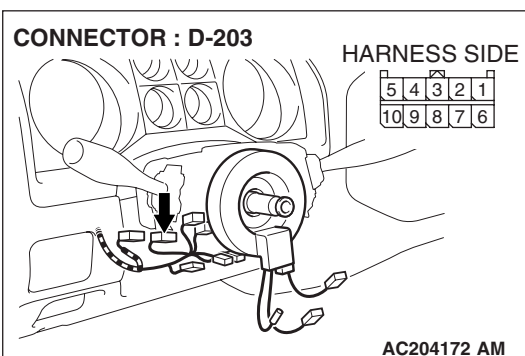
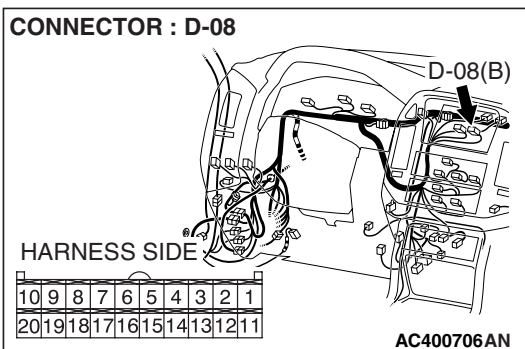


**STEP 3. Check RV meter connector D-08 and column switch connector D-203 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are RV meter connector D-08 and column switch connector D-203 in good condition?**

**YES :** Go to Step 4.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the RV meter normally.



**STEP 4. Check the wiring harness between RV meter connector D-08 (terminal 6) and column switch connector D-203 (terminal 3).**

**Q: Is the wiring harness between RV meter connector D-08 (terminal 6) and column switch connector D-203 (terminal 3) in good condition?**

**YES :** Replace the RV meter. The system should communicate with the RV meter normally.

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

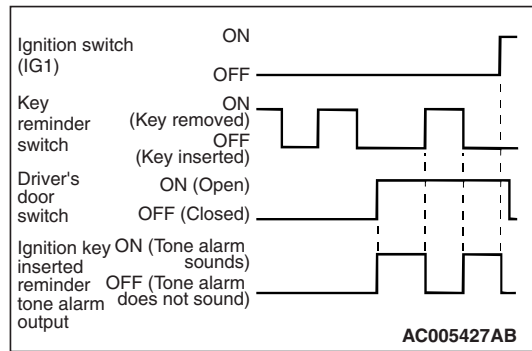
## TONE ALARM

### GENERAL DESCRIPTION CONCERNING TONE ALARM

M1549021000285

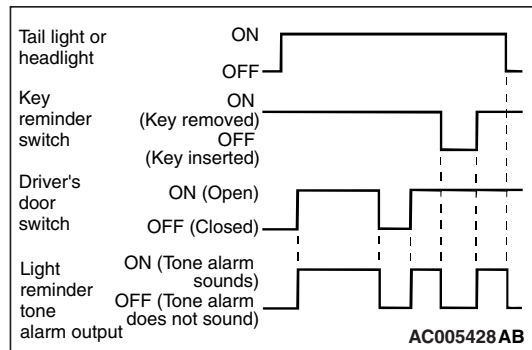
The ECU related to the alarm function types and various control functions are as follows.

FUNCTION	CONTROL ECU
Ignition key reminder tone alarm function	ETACS-ECU
Light reminder tone alarm function	ETACS-ECU, column switch
Seat belt tone alarm function	ETACS-ECU
RV meter operating sound function	ETACS-ECU, RV meter



#### Ignition key reminder tone alarm function

When the driver's door is opened with the ignition key inserted in the ignition key cylinder (ignition switch is in the OFF position) the tone alarm sounds intermittently (horning sound) to indicate that the ignition key has not been removed.



#### Light reminder tone alarm function

When the taillight or headlight is ON, if the ignition key is removed and the driver's door is opened, a tone alarm will sound continuously to warn that the light is illuminated. However, if the taillight or headlight has been turned off by the headlight automatic-shutdown function, the tone alarm will not sound.

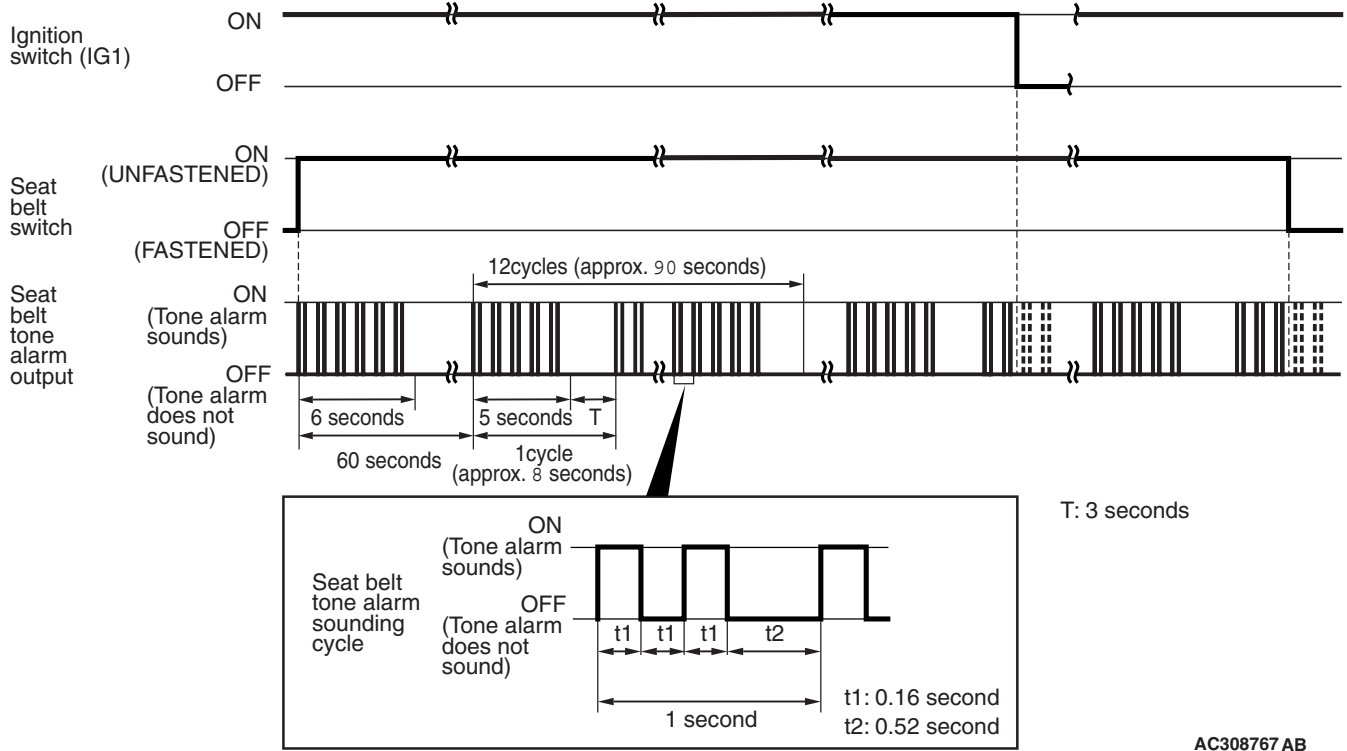
#### Seat belt tone alarm function

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

- The ETACS-ECU sounds the tone alarm for six seconds if the ignition switch is turned "ON" while the seat belt switch is on (the driver's seat belt is not fastened).

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

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

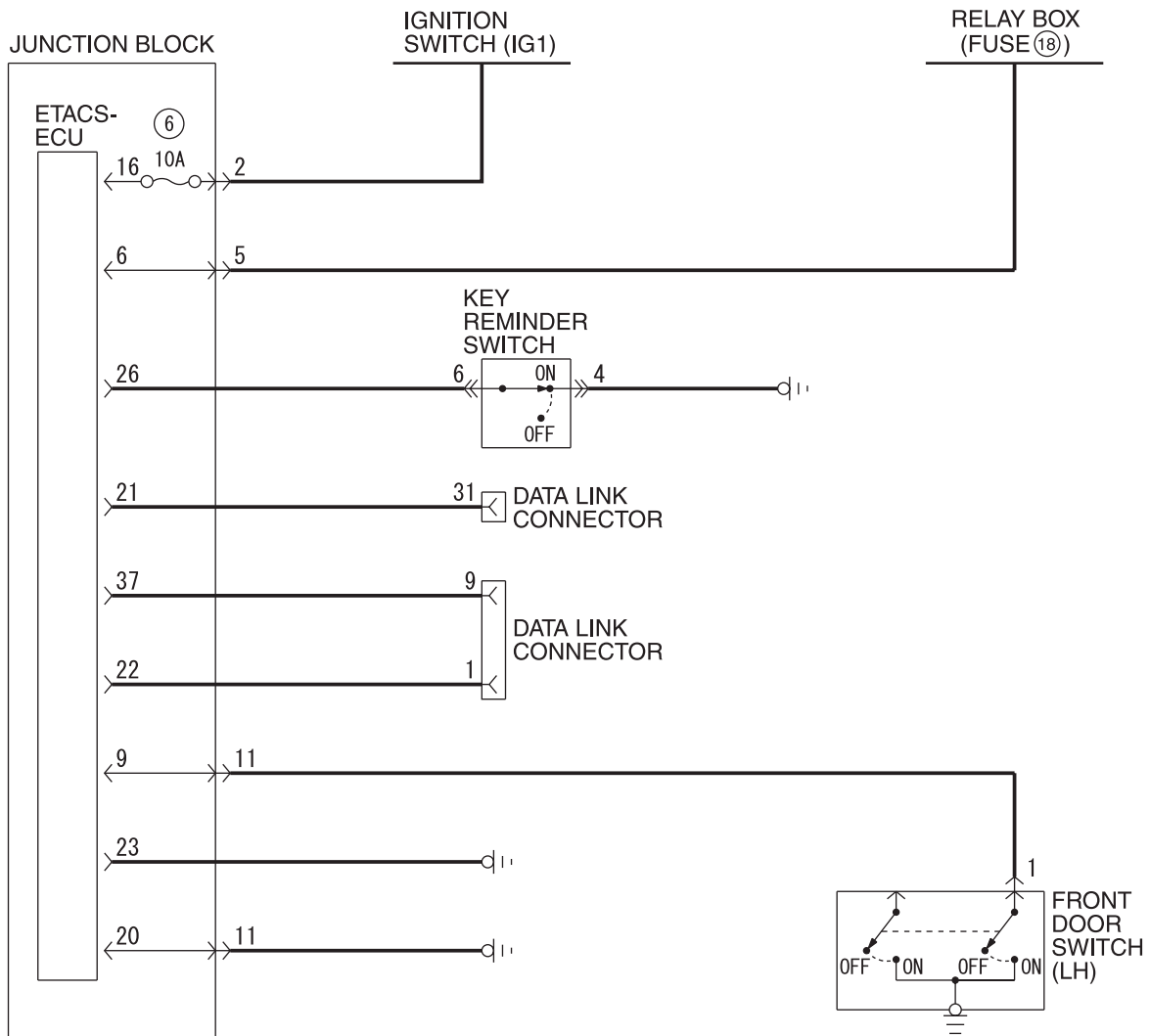


AC308767 AB

**RV meter operating sound function**

When tone alarm sounding is requested from the RV meter, the ETACS-ECU activates the built-in tone alarm. The RV meter will "beep" when adjusting the brightness level, only with the ignition key in the "ACC" position.

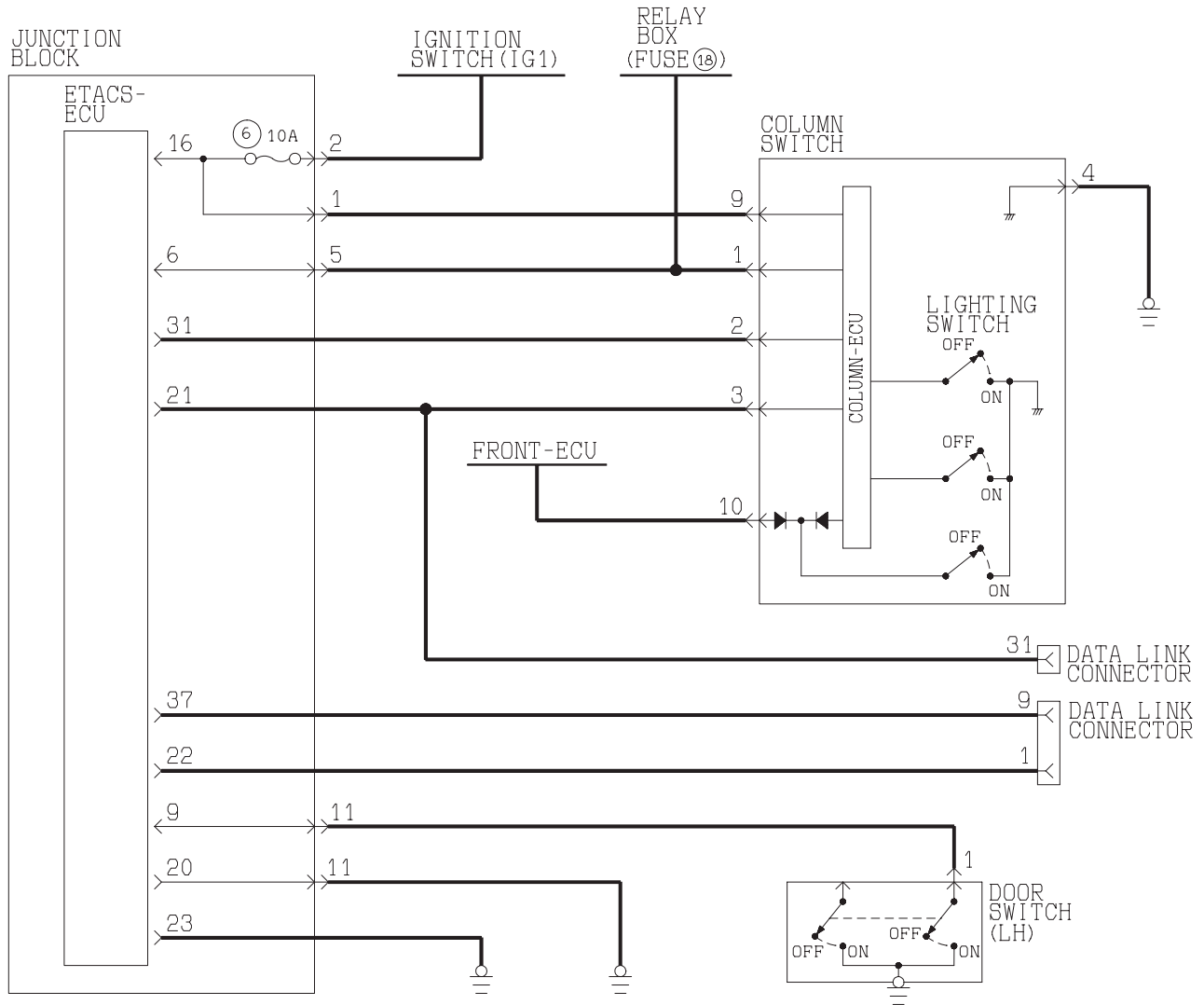
General circuit diagram for Ignition key reminder tone alarm function



W3Q04M15AA

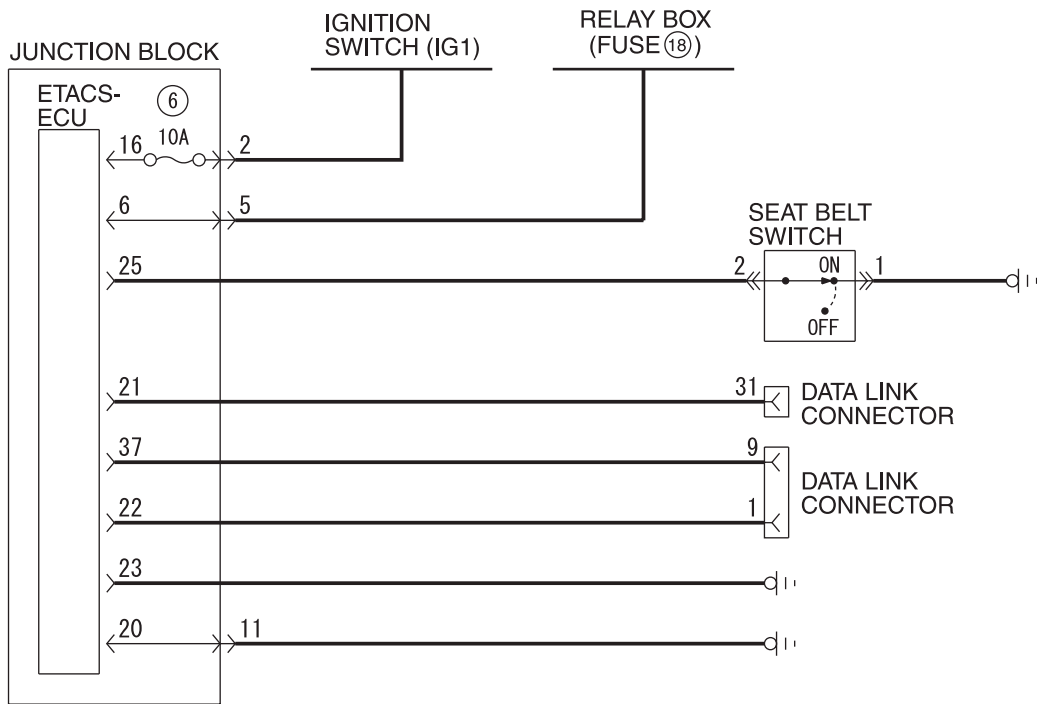


**General circuit diagram for light reminder tone alarm function**



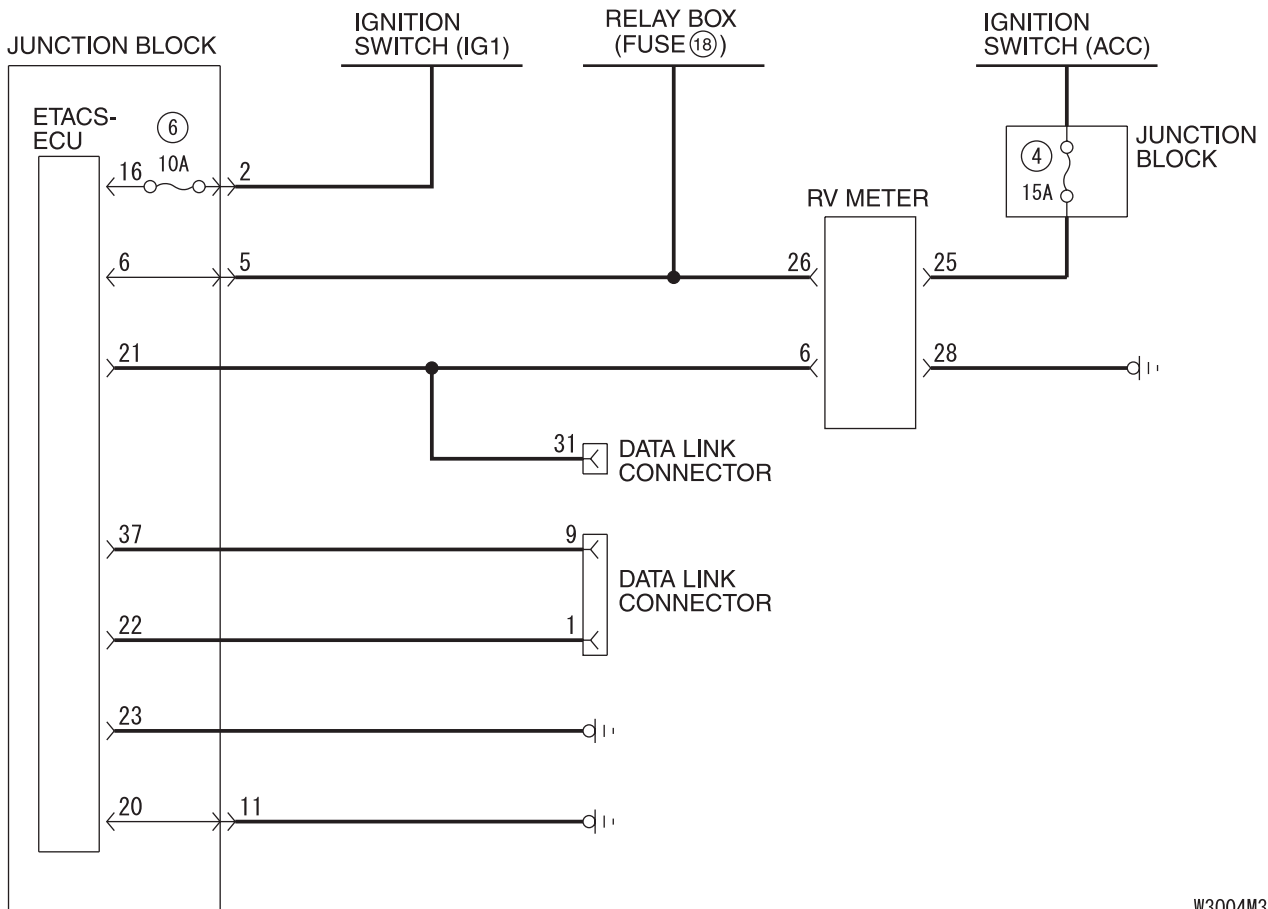
W3Q04M16AA

General circuit diagram for seat belt tone alarm function



W3Q04M17AA

General circuit diagram for RV meter operating sound function

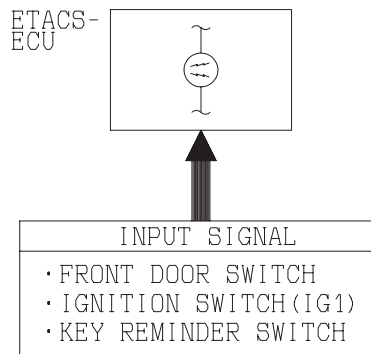


W3Q04M34AA

**INSPECTION PROCEDURE B-1: Tone Alarm: Ignition key reminder tone alarm function does not work normally.**

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

**Ignition Key Reminder Tone Alarm Function**



W1Q15M06AA

**CIRCUIT OPERATION**

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

- Ignition switch (IG1): OFF
- Key reminder switch: OFF
- Driver's door switch: ON

The ETACS-ECU operates the ignition key reminder tone alarm function (sounds the tone alarm intermittently) if any of the following conditions are satisfied:

- Ignition switch: LOCK position (key inserted)
- Driver's door: OPEN

**TECHNICAL DESCRIPTION (COMMENT)**

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

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the ETACS-ECU.

**⚠ CAUTION**

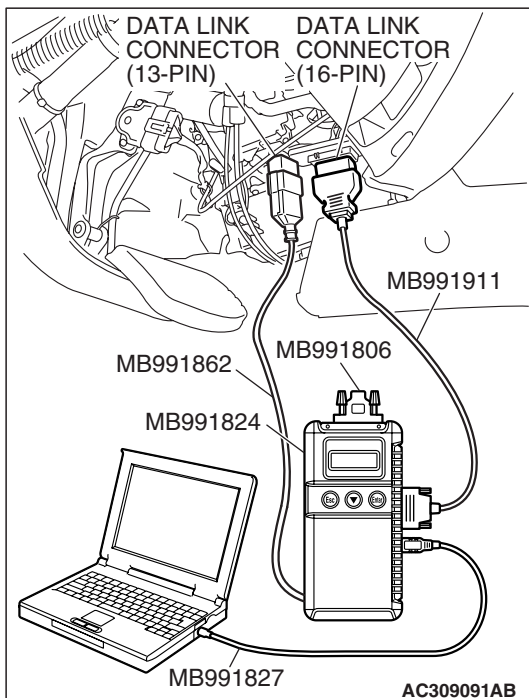
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

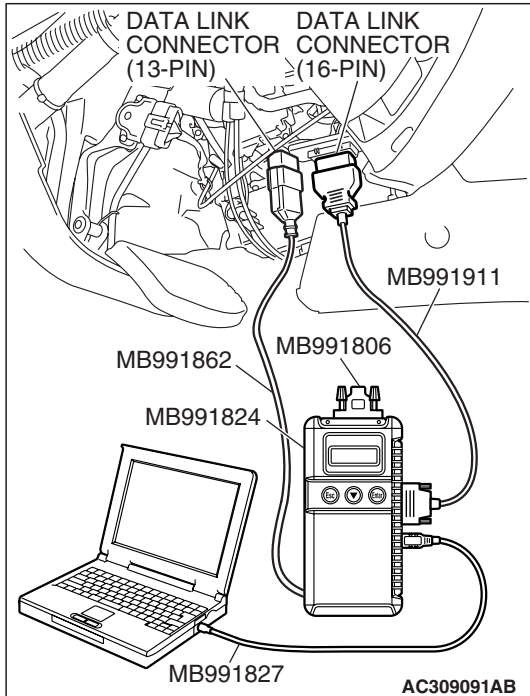
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM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

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

**YES** : Go to Step 2.

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





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

Check the input signals from the following switches:

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

Operate scan tool MB991958 according to the procedure below to display "KEY RMND. ALM."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "BUZZER."
6. Select "KEY RMND. ALM."

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

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

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

**Q: Are normal conditions displayed on the "IG SW (IG1)", "FRONT DOOR SW" and "BUZZER"?**

**Normal conditions are displayed for all the items :**

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

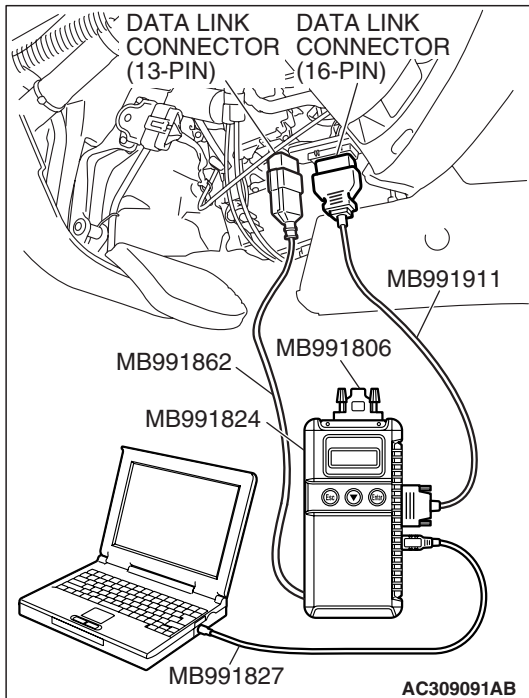
**The scan tool does not show the respective normal condition for item "IG SW (IG1)." :** Refer to Inspection

Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) [P.54B-496.](#)"

**The scan tool does not show the respective normal condition for item "FRONT DOOR SW." :** Refer to

Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509.](#)"

**The scan tool does not show the respective normal condition for item "BUZZER." :** Go to Step 3.



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

Check the input signals from the key reminder switch.

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

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."
  - Check whether scan tool MB991958 sounds or not when the ignition key is removed and reinserted.

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

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

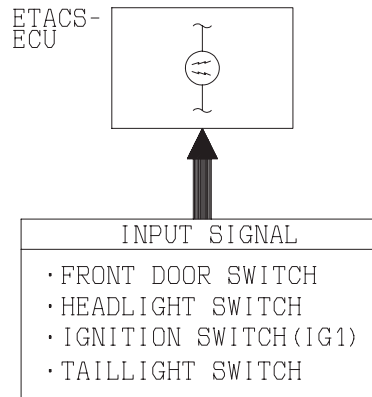
**NO :** Refer to Inspection Procedure P-1 "ETACS-ECU does not receive any signal from the key reminder switch

[P.54B-532.](#)"

**INSPECTION PROCEDURE B-2: Tone Alarm: Light reminder tone alarm function does not work normally.**

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

**Light Reminder Tone Alarm Function**



W1Q15M07AA

**CIRCUIT OPERATION**

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

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

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

- Ignition switch: LOCK position (key removed)
- Driver's door: OPEN
- Lighting Switch: Tail or Head position

**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**

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU

**⚠ CAUTION**

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

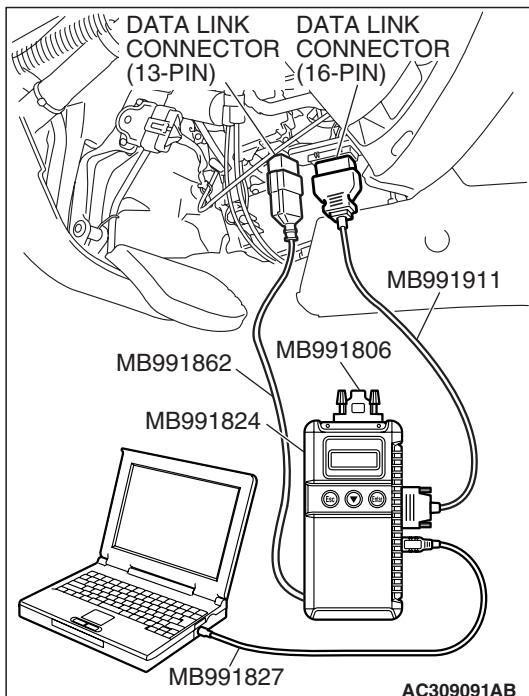
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM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

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

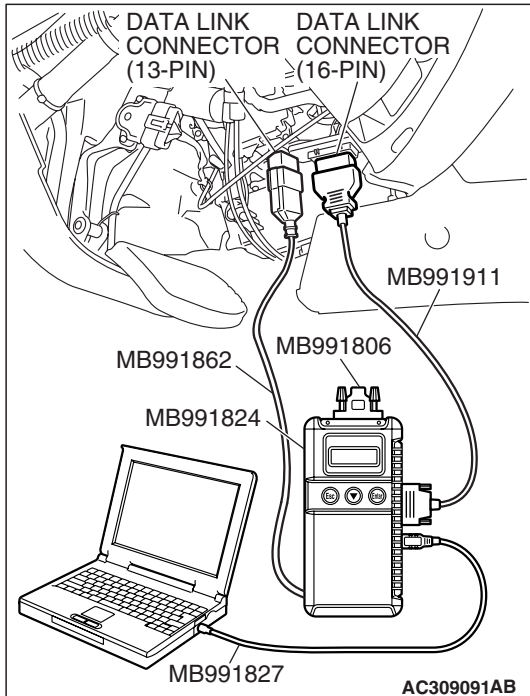
**"OK" are displayed for all the items :** Go to Step 2.

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

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







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

Check the input signals from the following switches:

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

Operate scan tool MB991958 according to the procedure below to display "LGT MONI. ALRM."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "BUZZER."
6. Select "LGT MONI. ALRM."

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

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

**Q: Are normal conditions displayed for "HEADLIGHT SW", "TAILLIGHT SW", "IG SW IG1", "FRONT DOOR SW", "H/L AUTO-CUT" and "BUZZER"?**

**Normal conditions are displayed for all the items :**

Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

**The scan tool does not show the respective normal condition for item "HEADLIGHT SW" :** Refer to

Inspection Procedure O-6 "ETACS-ECU does not receive any signal from the headlight switch P.54B-516."

**The scan tool does not show the respective normal condition for item "TAILLIGHT SW" :** Refer to Inspection

Procedure O-6 "ETACS-ECU does not receive any signal from the taillight switch P.54B-516."

**The scan tool does not show the respective normal condition for item "IG SW (IG1)" :** Refer to Inspection

Procedure O-2 "ETACS-ECU does not receive any signal from the ignition switch (IG1) P.54B-496."

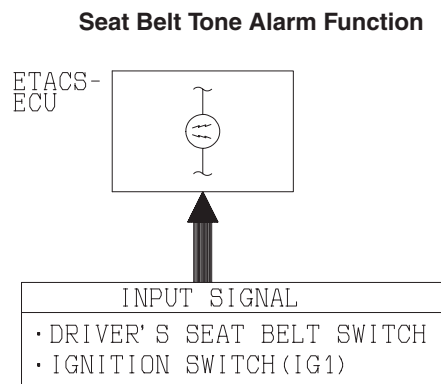
**The scan tool does not show the respective normal condition for item "FRONT DOOR SW" :** Refer to Inspection Procedure O-5 "ETACS-ECU does not receive any signal from the driver's or the front passenger's door switch [P.54B-509](#)."

**The scan tool does not show the respective normal condition for item "H/L AUTO-CUT" :** Refer to Inspection Procedure J-9 "Headlight automatic shutdown function does not work normally [P.54B-354](#)."

**The scan tool does not show the respective normal condition for item "BUZZER" :** Replace the ETACS-ECU. The light reminder tone alarm function should now work normally.

### INSPECTION PROCEDURE B-3: Tone Alarm: Seat belt tone alarm function does not work normally.

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



W2J08M04AA

#### CIRCUIT OPERATION

The ETACS-ECU operates the seat belt tone alarm function intermittently according to signals from the following switches:

- Ignition switch (IG1): ON
- Driver's seat belt switch: ON

The ETACS-ECU operates the seat belt tone alarm function intermittently under the following conditions:

- Ignition switch: ON or START
- Driver's seat belt: UNFASTENED

#### 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

- The driver's seat belt switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

## DIAGNOSIS

### Required Special Tools:

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

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

Check the ETACS-ECU.

#### **CAUTION**

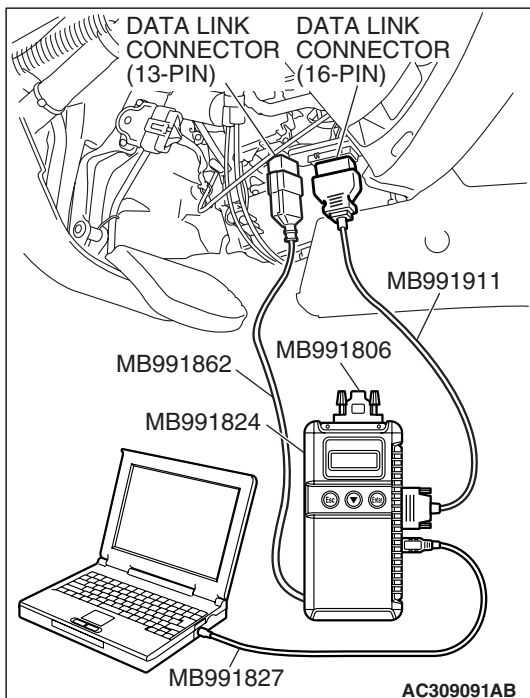
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

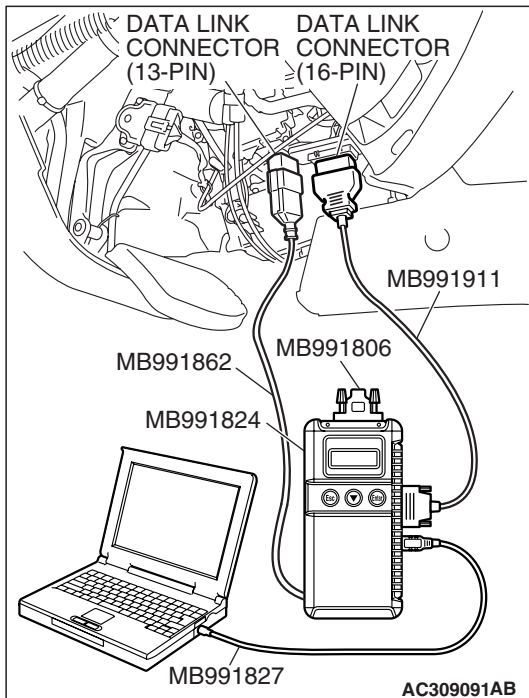
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7.
- (2) When the ignition switch is turned to the "ON" position.
- (3) Operate scan tool MB991958 according to the procedure below to display "ECU COMM CHK."
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "SWS MONITOR."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

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

**YES** : Go to Step 2.

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





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

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

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

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

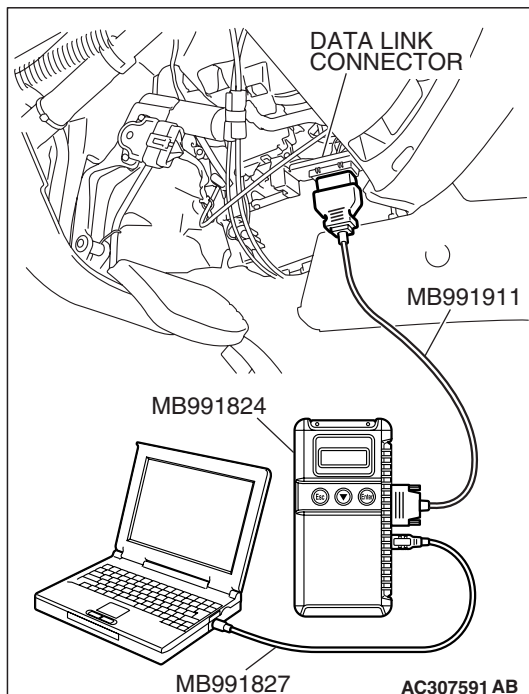
Check that normal conditions are displayed on the items described in the table below.

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

**Q: Is normal condition displayed on the "IG SW (IG1)"?**

**YES :** Go to Step 3.

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



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

Check input signal from the driver's side seat belt switch.

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

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

- When the driver's seat belt is unfastened, check if scan tool MB991958 sounds or not.

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

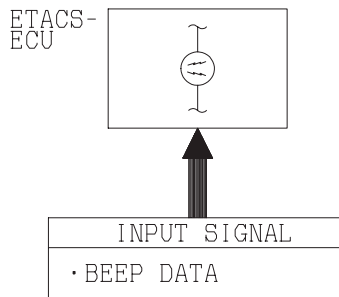
**YES :** Replace the ETACS-ECU. Verify that the seat belt tone alarm function now works normally.

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

**INSPECTION PROCEDURE B-4: Tone Alarm: RV meter operating sound function does not work normally.**

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

**RV Meter Annunciation Function**



W2Q02M04AA

**CIRCUIT OPERATION**

The ETACS-ECU sounds a tone alarm when the RV meter sends a sound request signal to the ECU.

**TECHNICAL DESCRIPTION (COMMENT)**

If this function does not work normally, the RV meter, the ETACS-ECU or their communication circuit may be defective.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS**

**Required Special Tools:**

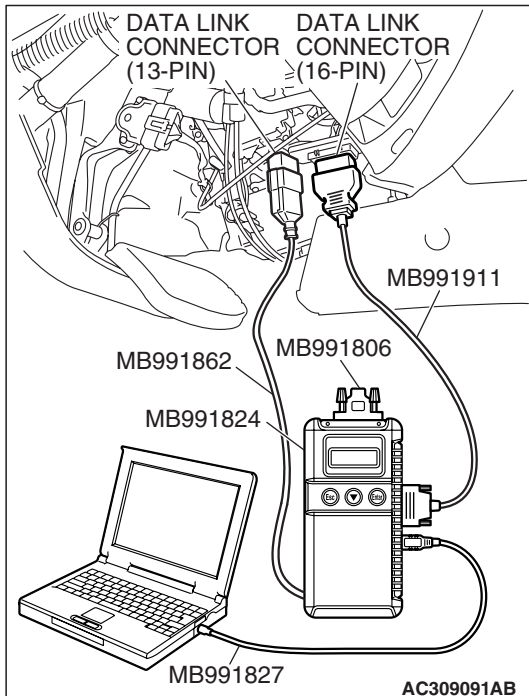
- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991911: MUT-III Main Harness B
- MB991813: SWS Monitor Kit
  - MB991806: SWS Monitor Cartridge
  - MB991812: SWS Monitor Harness (For Column-ECU)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

**STEP 1. Check the RV meter.**

**Q: Does the RV meter work normally?**

**YES :** Go to Step 2.

**NO :** Check the RV meter. Refer to GROUP 54A, RV meter P.54A-247.



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

Check the following ECUs:

- ETACS-ECU
- RV meter

**⚠ CAUTION**

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

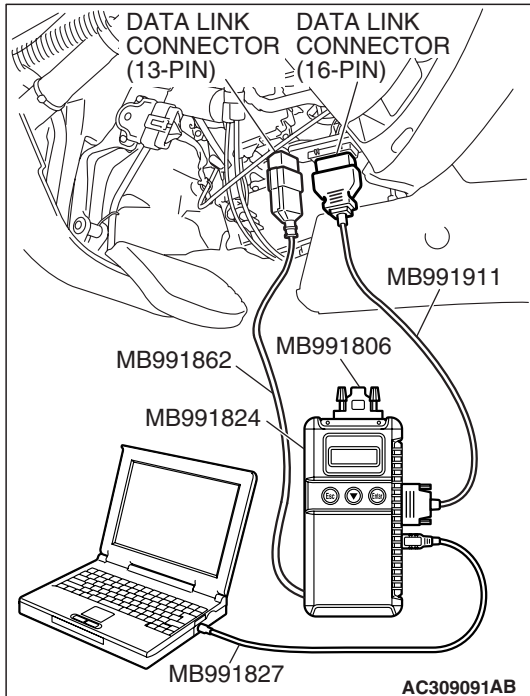
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991958 according to the procedure below to display "ECU COMM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

**Q: Is "OK" displayed on both the "ETACS ECU" and "CENTER DISP." menu?**

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

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

**"NG" is displayed on the "CENTER DISP." menu :** Refer to Inspection procedure A-6 "Communication with RV meter is not possible P.54B-67."



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

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

Operate scan tool MB991958 according to the procedure below to display "CENTR. DIS. ALM."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "BUZZER."
6. Select "CENTR. DIS. ALM."

When the RV meter display switch is operated, check that normal conditions are displayed on the items described in the table below.

ITEM NO.	ITEM NAME	NORMAL CONDITION
ITEM 43	BUZZER	ON
ITEM 60	beep data	ON (2 kHz)

**Q: Are normal conditions displayed on the "BUZZER" and "beep data"?**

**Normal conditions are displayed for all the items :**

Replace the ETACS-ECU. Verify that the RV meter operating sound function works normally.

**The scan tool does not show the respective normal condition for item "BUZZER." :** Replace the ETACS-ECU.

Verify that the RV meter operating sound function works normally.

**The scan tool does not show the respective normal condition for item "beep data." :** Refer to Inspection

Procedure O-10 "ETACS-ECU does not receive signal from any control switches P.54B-529."

## CENTRAL DOOR LOCKING SYSTEM

### GENERAL DESCRIPTION CONCERNING THE CENTRAL DOOR LOCKING SYSTEM

M1549021100345

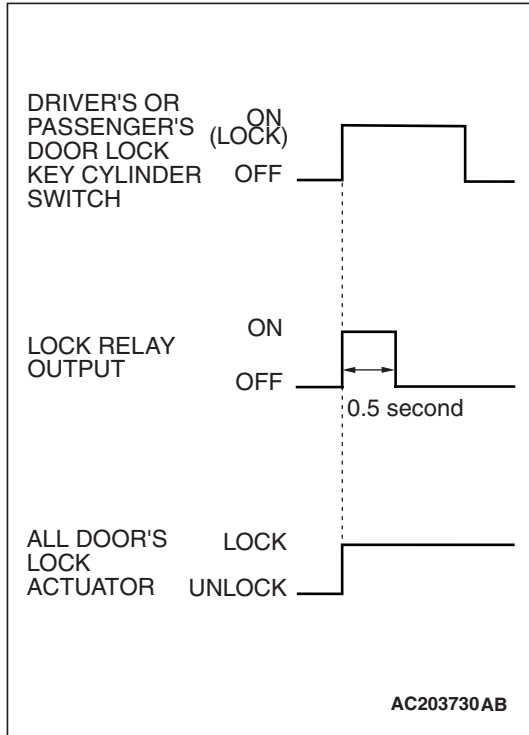
The following ECUs affect the functions and control of the central door locking system.

FUNCTION		CONTROL ECU
Door lock function	Operating the driver's or front passenger's door lock key cylinder	ETACS-ECU
	Operating the driver's or front passenger's door lock switch	
	Operating the driver's door inside lock knob	
Door unlock function	Operating the driver's door lock key cylinder	
	Operating the front passenger's door lock key cylinder	
	Operating the driver's or front passenger's door lock switch	
Forgotten key prevention function		

**DOOR LOCK FUNCTION**

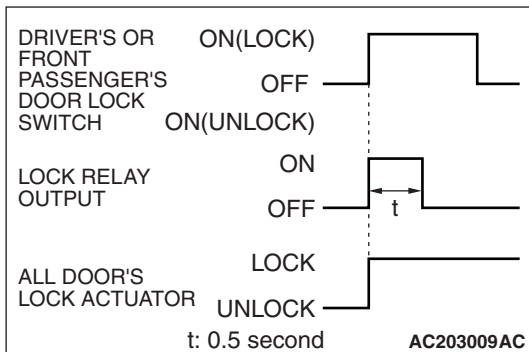
**OPERATING THE DRIVER'S OR FRONT PASSENGER'S DOOR LOCK KEY CYLINDER**

When you insert the ignition key to the driver's or front passenger's door lock key cylinder and turn the key clockwise to lock the door, the ETACS-ECU energizes its door lock relay for 0.5 second to activate all the door lock actuators. Then all the doors will be locked.



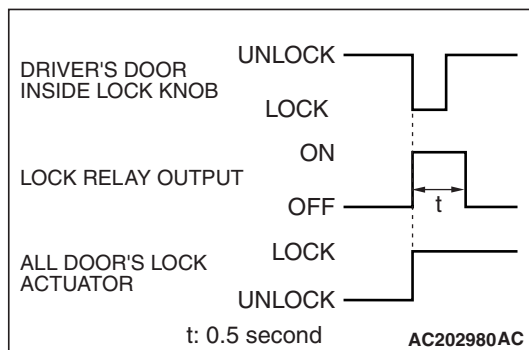
**OPERATING THE DRIVER'S OR FRONT PASSENGER'S DOOR LOCK SWITCH**

When the door is locked by driver's or front passenger's door lock switch, the ETACS-ECU energizes its door lock relay for 0.5 second to activate all the door lock actuators. Then all the doors will be locked.



**OPERATING THE DRIVER'S DOOR INSIDE LOCK KNOB**

When the door is locked by driver's door inside lock knob, the ETACS-ECU energizes its door lock relay for 0.5 second to activate all the door lock actuators. Then all the doors will be locked.



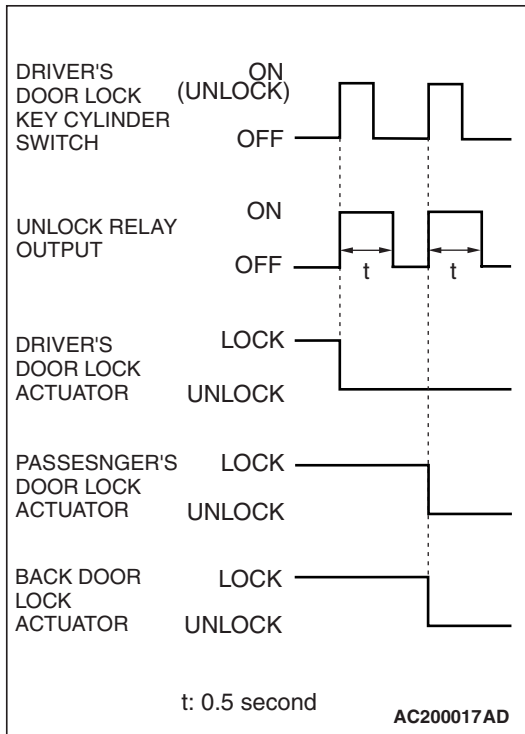


## DOOR UNLOCK FUNCTION

### OPERATING THE DRIVER'S DOOR LOCK KEY CYLINDER

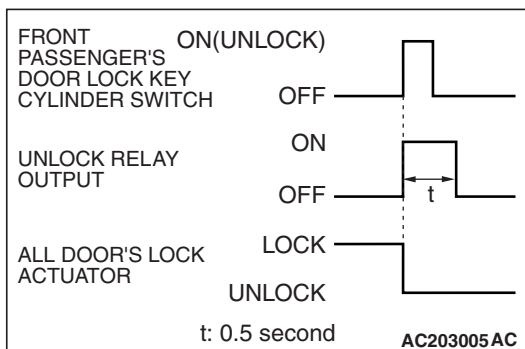
When you insert the ignition key to the driver's door lock key cylinder and turn the key counterclockwise to unlock the door, the ETACS-ECU energizes its door unlock relay for 0.5 second to activate only the driver's door lock actuator. Then only the driver's door will be unlocked.

When you turn the key counterclockwise again, the ETACS-ECU energizes its door unlock relay for 0.5 second to activate all the door lock actuator. Then all the doors will be unlocked.



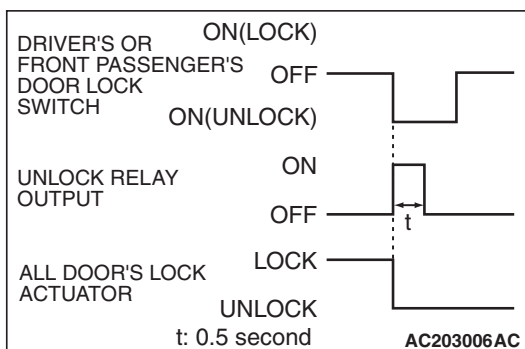
### OPERATING THE FRONT PASSENGER'S DOOR LOCK KEY CYLINDER

When you insert the ignition key to the front passenger's door lock key cylinder and turn the key counterclockwise to unlock the door, the ETACS-ECU energizes its door unlock relay for 0.5 second to activate all the door lock actuators. Then all the doors will be unlocked.



### OPERATING THE DRIVER'S OR FRONT PASSENGER'S DOOR LOCK SWITCH

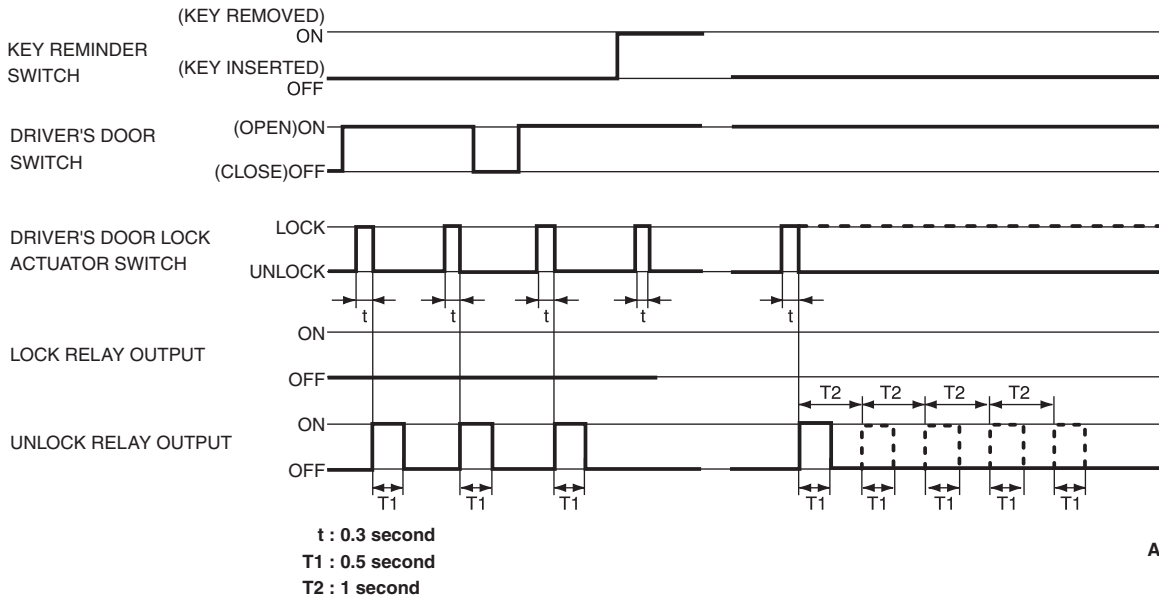
When the door is unlocked by driver's or front passenger's door lock switch, the ETACS-ECU energizes its door unlock relay for 0.5 second to activate all the door lock actuators. Then all the doors will be unlocked.



**FORGOTTEN KEY PREVENTION FUNCTION**

If the driver's door is opened with the ignition key inserted in the ignition key cylinder and then locked (i.e., the unlock switch integrated in the driver's door lock actuator is off, and the lock switch is on), the ETACS-ECU turns on the unlock relay for 0.5 second

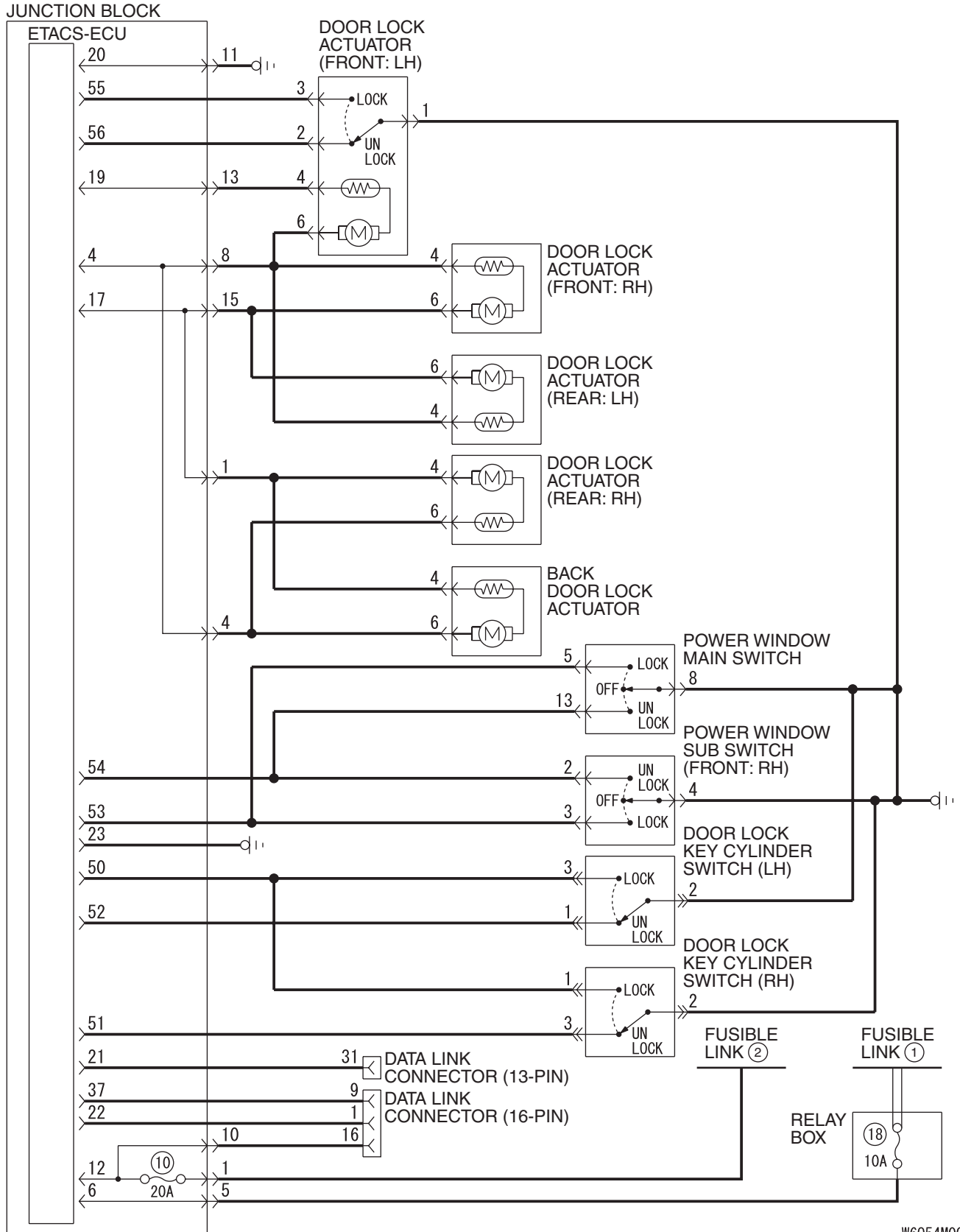
after approximately 0.3 second. This prevents the door from being locked unintentionally. If the system fails to unlock the door, the ETACS-ECU try to turn on the unlock relay five times in maximum for 0.5 second every one second.



AC101499 AE

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

GENERAL CIRCUIT DIAGRAM FOR THE CENTRAL DOOR LOCKING SYSTEM

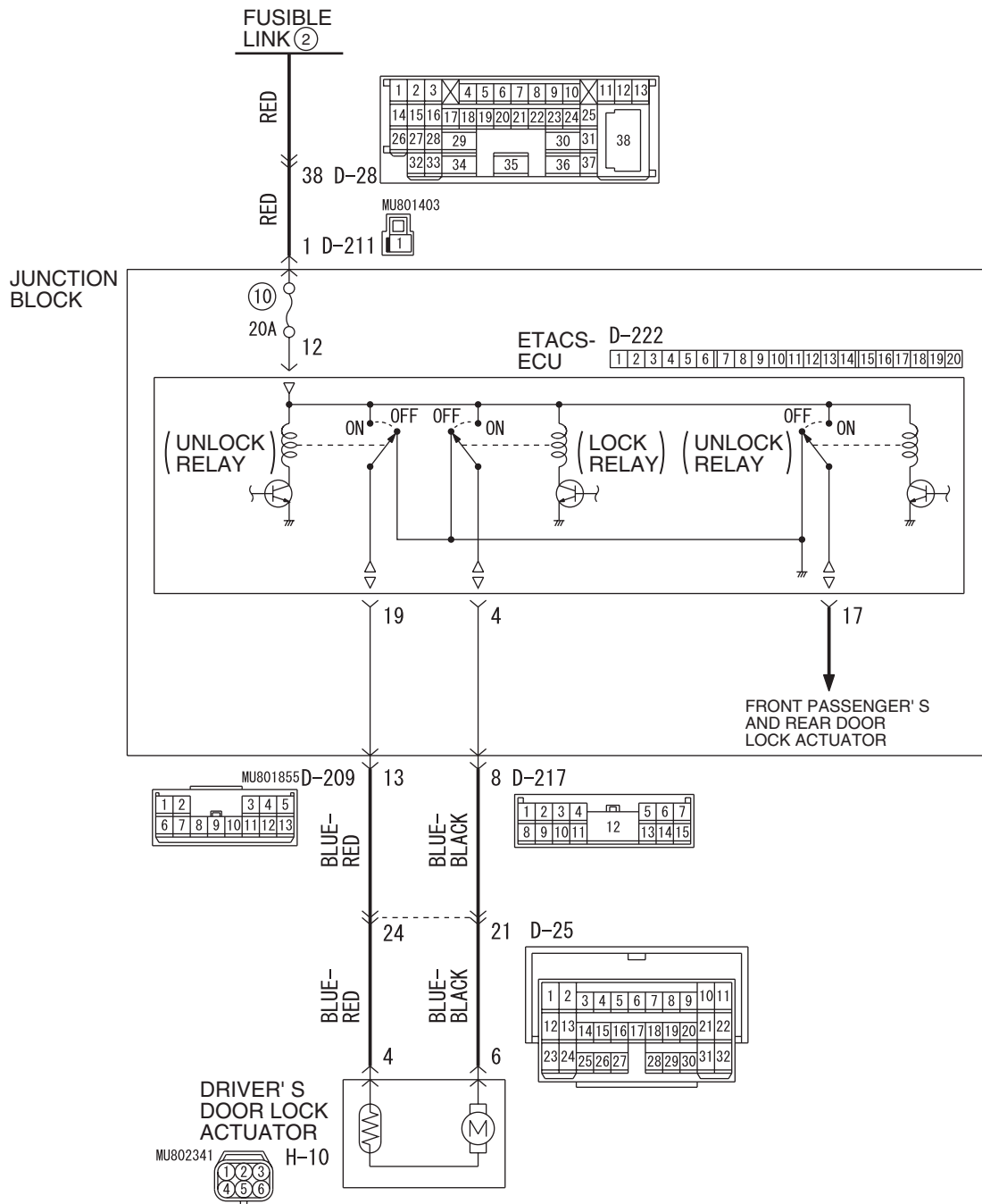


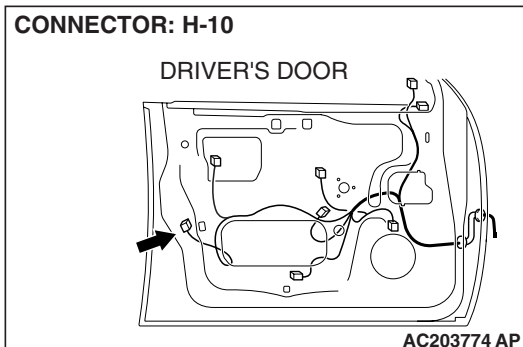
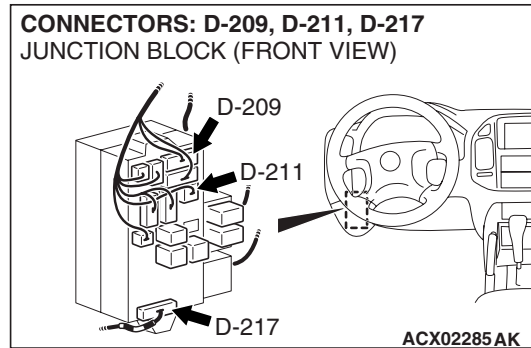
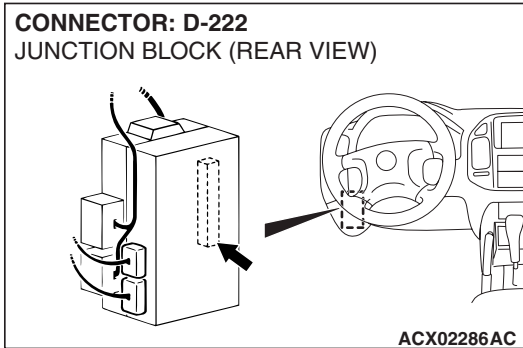
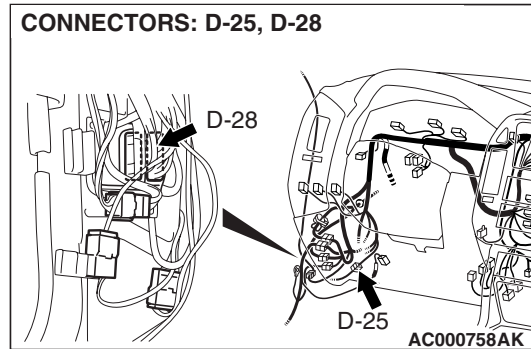
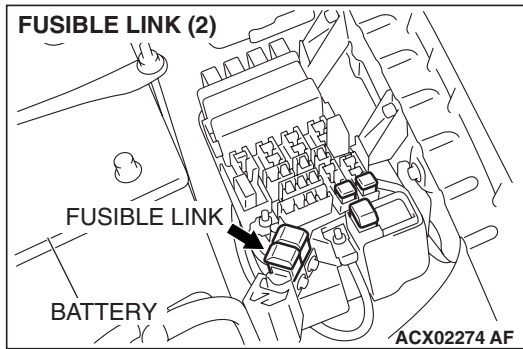
W6Q54M000A

**INSPECTION PROCEDURE C-1: Central Door Locking System: Central door lock system does not work at all.**

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

**Central Door Lock Power Supply Circuit**





**CIRCUIT OPERATION**

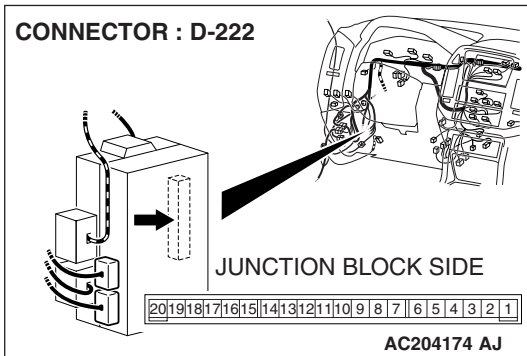
- The ETACS-ECU controls the central door lock system, locking or unlocking all the doors by activating the central door lock relay (built into the ETACS-ECU). The ETACS-ECU uses inputs from the following components:
  - Driver's or passenger's door lock actuator switch
  - Driver's or passenger's door lock key cylinder switch

- Door lock switch, which is incorporated in the power window main switch or power window sub switch (front RH)

**TROUBLESHOOTING HINTS**

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



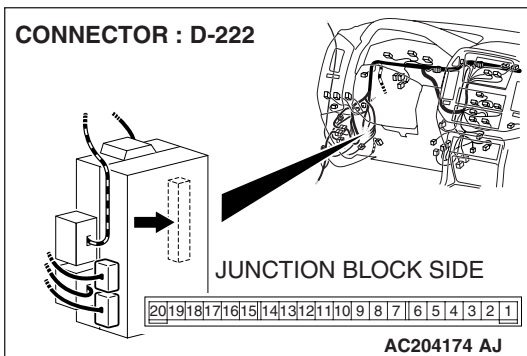


**STEP 2. Check the ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

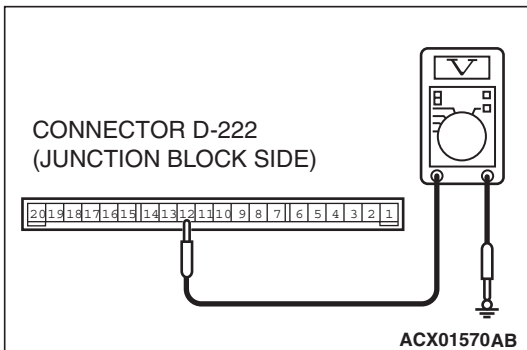
**YES :** Go to Step 3.

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



**STEP 3. Check the battery power supply circuit to the ETACS-ECU. Test at ETACS-ECU connector D-222.**

(1) Disconnect ETACS-ECU connector D-222, and measure at the junction block side.



(2) Measure the voltage between terminal 12 and ground.

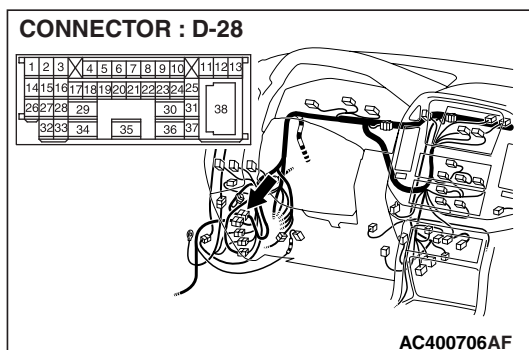
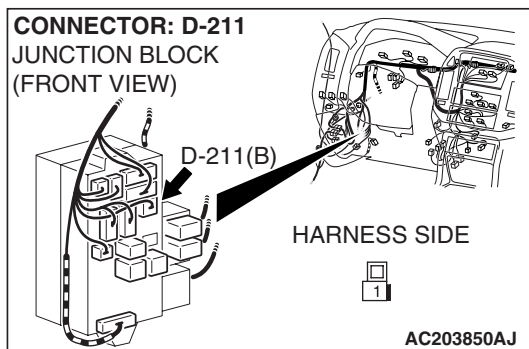
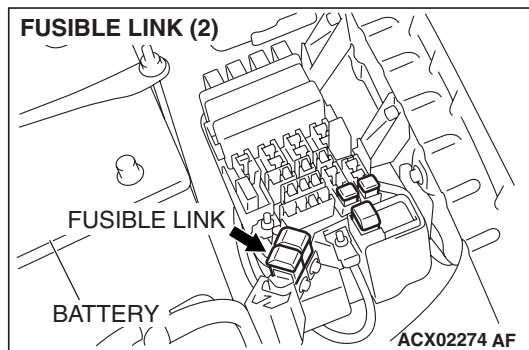
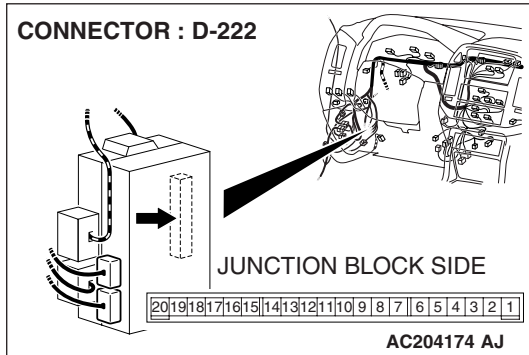
- The measured value should be approximately 12 volts (battery positive voltage).

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

**YES :** Go to Step 5.

**NO :** Go to Step 4.

**STEP 4. Check the wiring harness between the ETACS-ECU connector D-222 (terminal 12) and fusible link (2).**



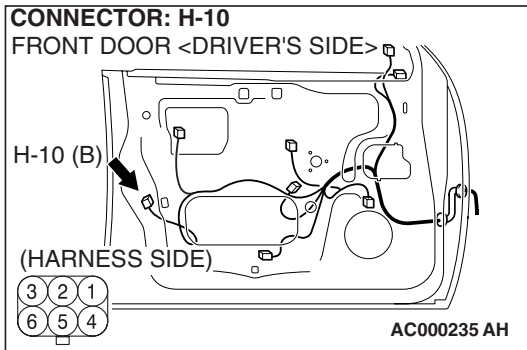
*NOTE: Also check junction block connector D-211 and intermediate connector D-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-211 or intermediate connector D-28 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between ETACS-ECU connector D-222 (terminal 12) and fusible link (2) in good condition?**

**YES :** No action is necessary and testing is complete.

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



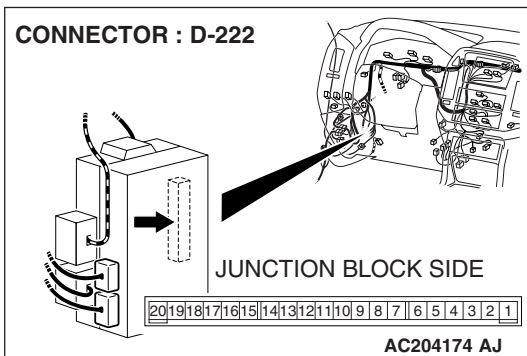


**STEP 5. Check driver's door lock actuator connector H-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

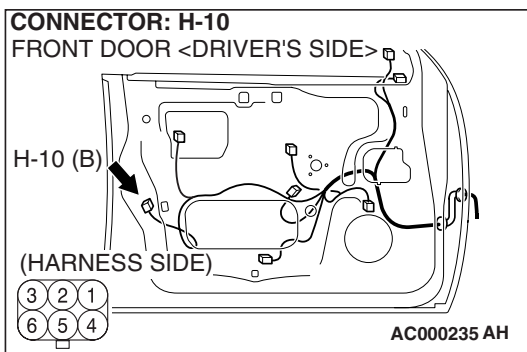
**Q: Is driver's door lock actuator connector H-10 in good condition?**

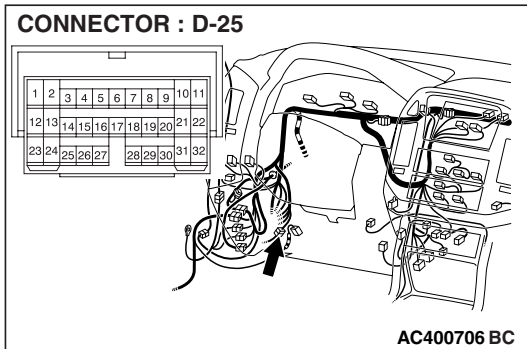
**YES :** Go to Step 6.

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



**STEP 6. Check the wiring harness from the ETACS-ECU connector D-222 (terminal 4) to driver's door lock actuator connector H-10 (terminal 6).**



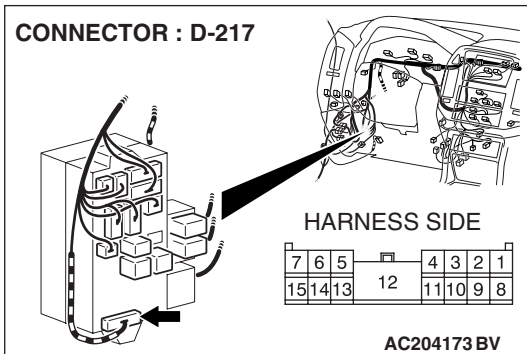


*NOTE: Also check intermediate connector D-25 and junction block connector D-217 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 or junction block connector D-217 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

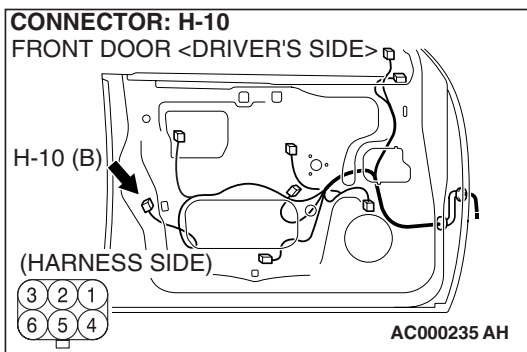
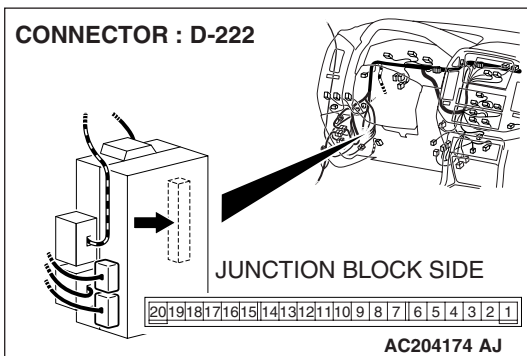
**Q: Is the wiring harness from the ETACS-ECU connector D-222 (terminal 4) to driver's door lock actuator connector H-10 (terminal 6) in good condition?**

**YES :** Go to Step 7.

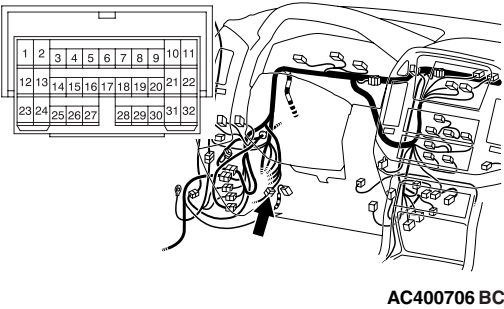
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that the central door locking system should now works normally.



**STEP 7. Check the wiring harness from the ETACS-ECU connector D-222 (terminal 19) to driver's door lock actuator connector H-10 (terminal 4).**



**CONNECTOR : D-25**



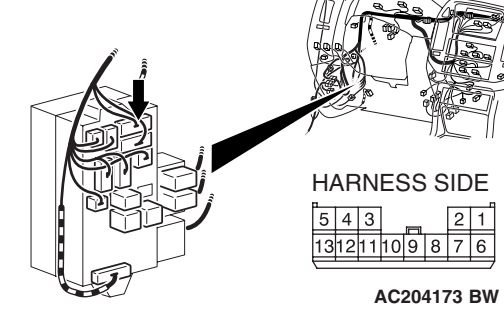
*NOTE: Also check intermediate connector D-25 and junction block connector D-209 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-25 or junction block connector D-209 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness from the ETACS-ECU connector D-222 (terminal 19) to driver's door lock actuator connector H-10 (terminal 4) in good condition?**

**YES :** Replace the ETACS-ECU. Verify that the central door locking system should now works normally.

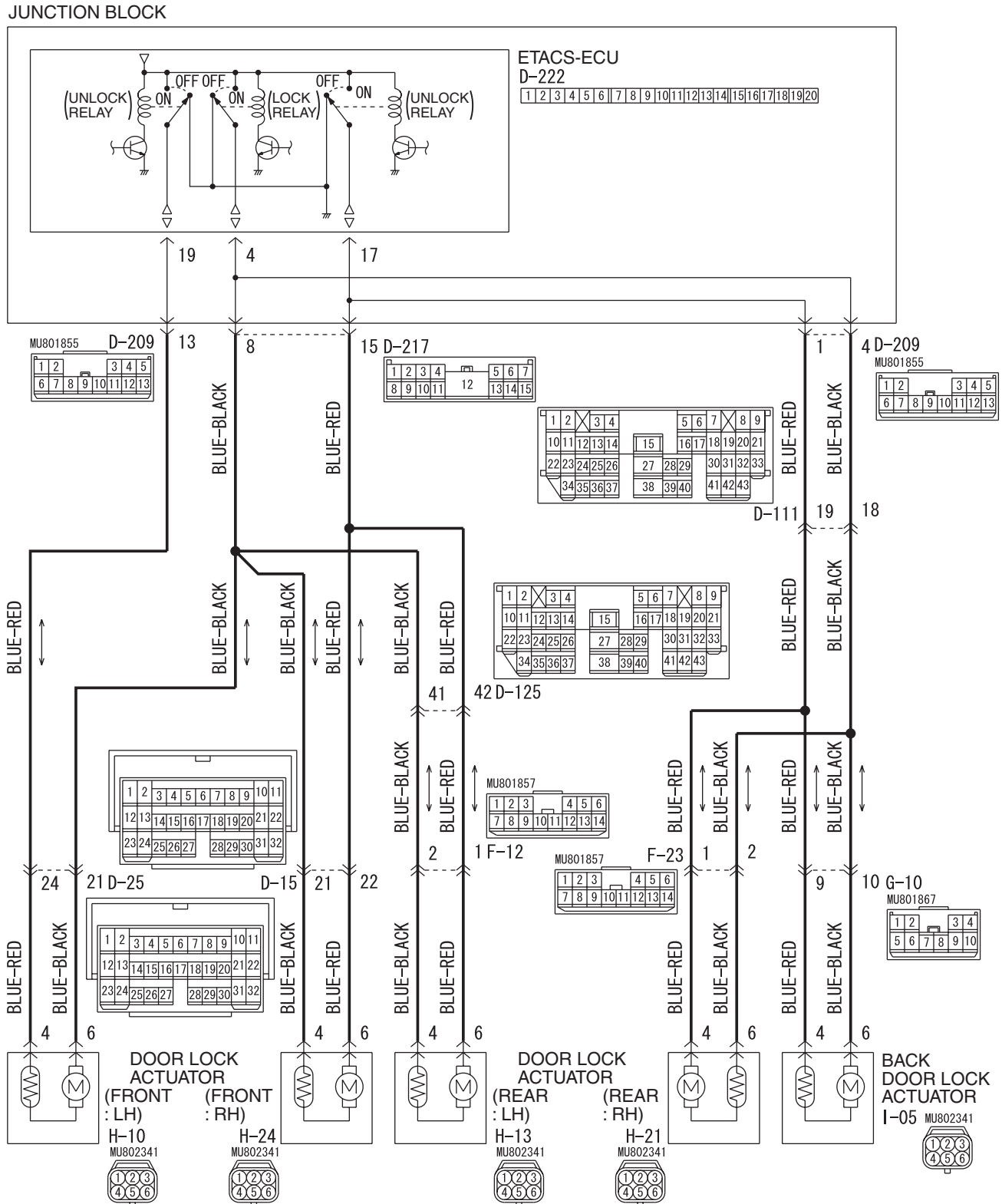
**NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair or replace the damaged component(s). Verify that the central door locking system should now works normally.

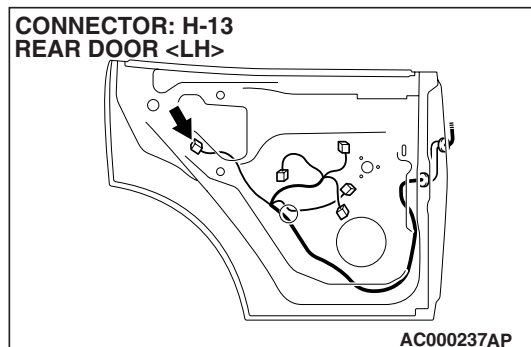
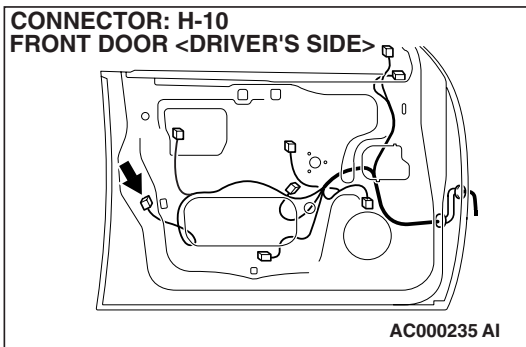
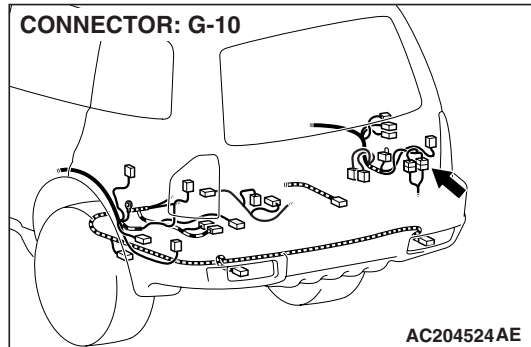
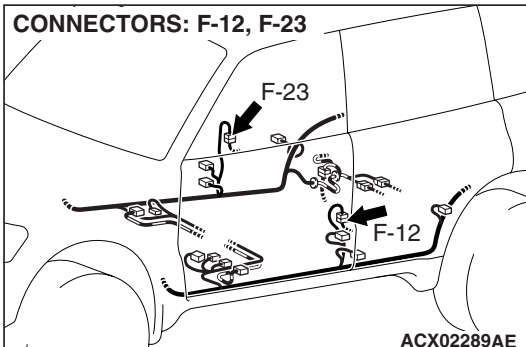
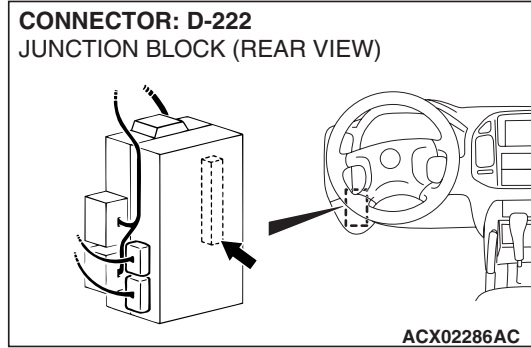
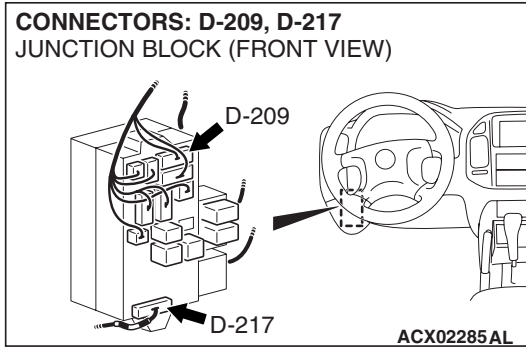
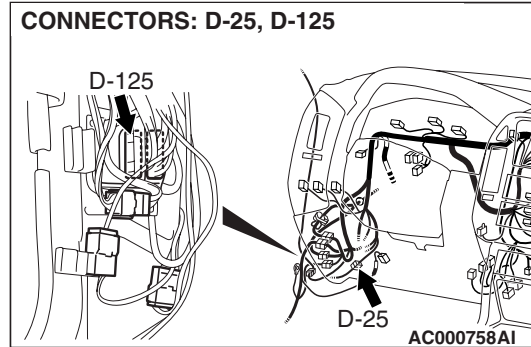
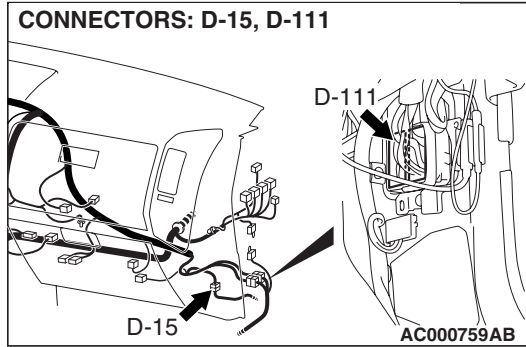
**CONNECTOR : D-209**

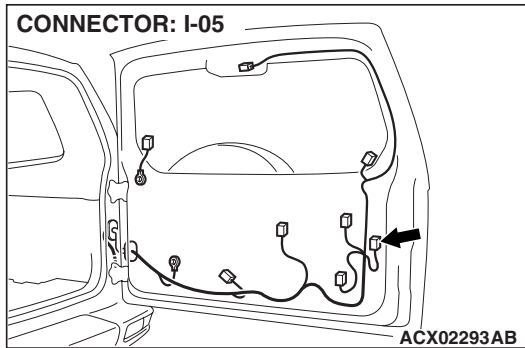
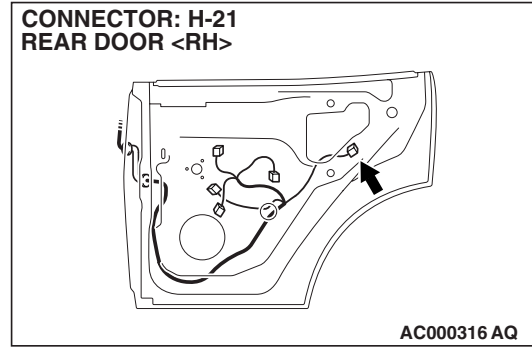
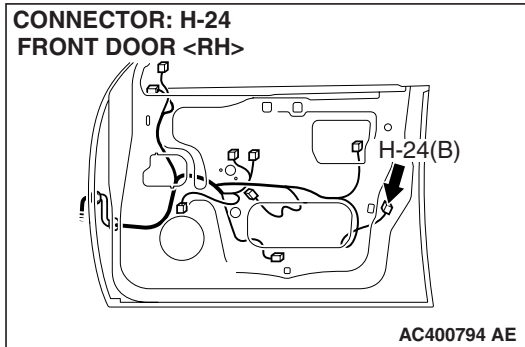


INSPECTION PROCEDURE C-2: Central Door Locking System: Some doors do not lock or unlock.

Central Door Lock Circuit







### CIRCUIT OPERATION

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

### TECHNICAL DESCRIPTION (COMMENT)

If only some doors do not lock or unlock, the harness wiring between the door lock actuator or the ETACS-ECU and the door lock actuator may be defective.

### TROUBLESHOOTING HINTS

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

### DIAGNOSIS

#### Required Special Tool:

- MB991223: Harness Set

#### STEP 1. Check which door lock is defective.

#### Q: Which of the door locks is defective?

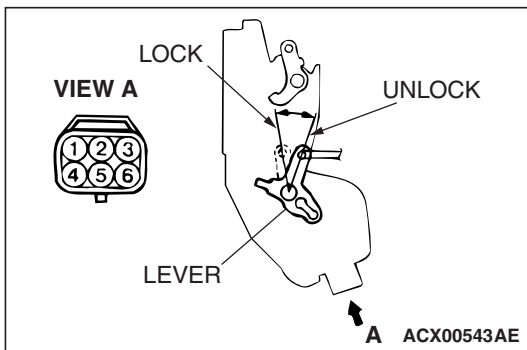
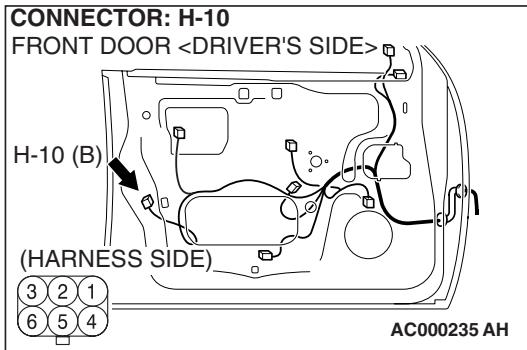
**Driver's door :** Go to Step 2.

**Front passenger's door :** Go to Step 7.

**Rear passenger's door (LH) :** Go to Step 12.

**Rear passenger's door (RH) :** Go to Step 17.

**Back door :** Go to Step 22.



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

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

**YES :** Go to Step 3.

**NO :** Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). After repairs have been made, verify that all the doors can now be locked and unlocked normally.

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

1. Remove the driver's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch [P.42-41](#).
2. Follow the table below to check the driver's door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 4 to the positive battery terminal</li> <li>• Connect terminal 6 to the negative battery terminal</li> </ul>	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 6 to the positive battery terminal</li> <li>• Connect terminal 4 to the negative battery terminal</li> </ul>	The lever moves from the "UNLOCK" position to the "LOCK" position.

**Q: Does the driver's door lock actuator work normally?**

**YES :** Go to Step 4.

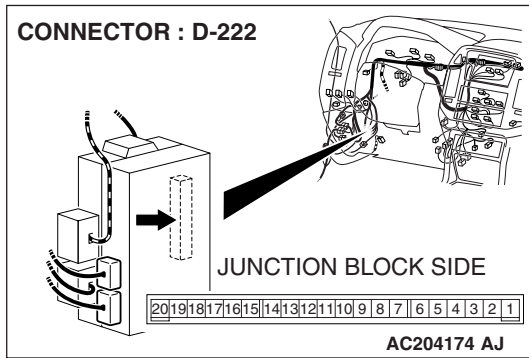
**NO :** Replace the driver's door lock actuator. Verify that all the doors can be locked and unlocked function should now work normally.

**STEP 4. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

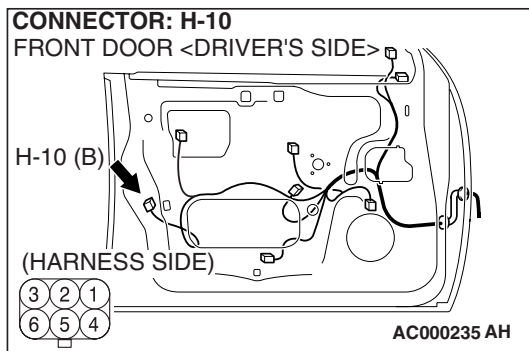
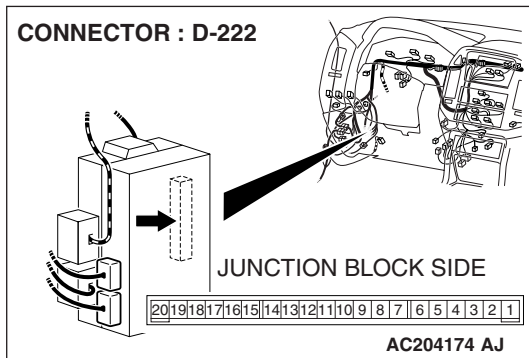
**Q: Is ETACS-ECU connector D-222 in good condition?**

**YES :** Go to Step 5.

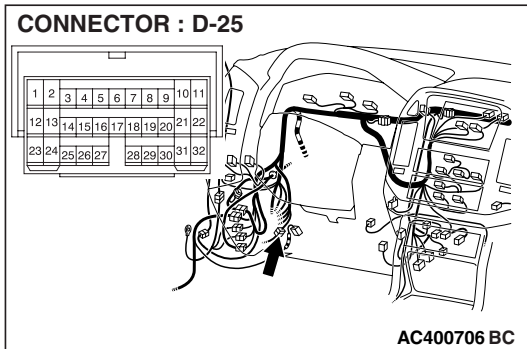
**NO :** Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 5. Check the harness wiring from ETACS-ECU connector D-222 (terminal 19) to driver's door lock actuator connector H-10 (terminal 4).**





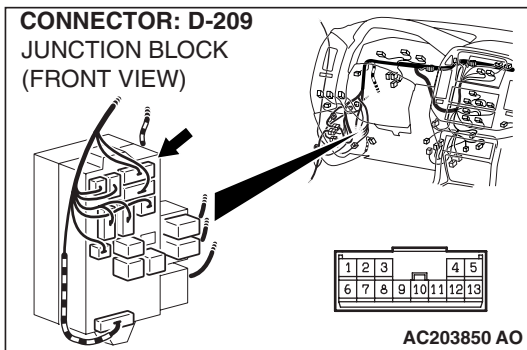


*NOTE: Also check junction block connector D-209 and intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

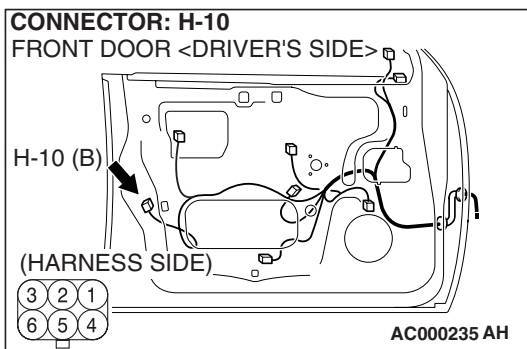
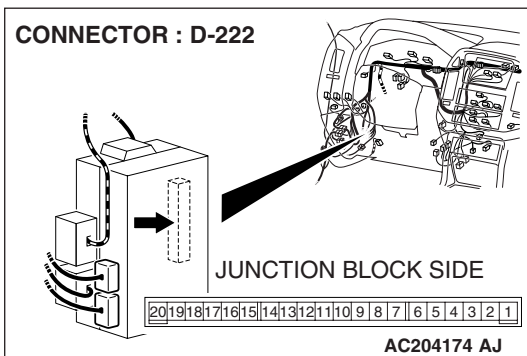
**Q: Is the harness wiring from ETACS-ECU connectors D-222 (terminal 19) to driver's door lock actuator connector H-10 (terminal 4) in good condition?**

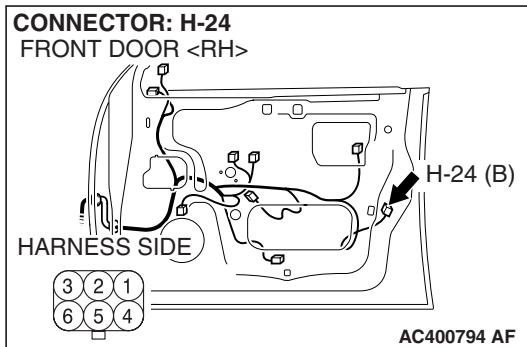
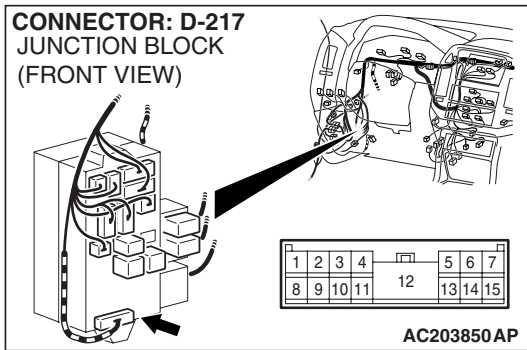
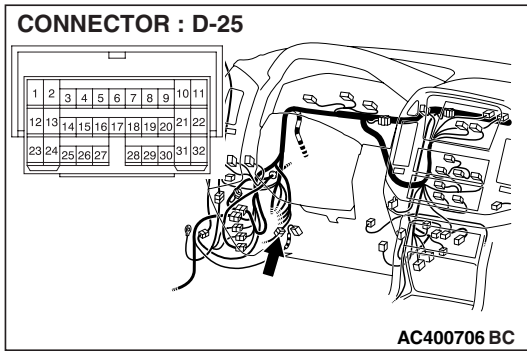
**YES :** Go to Step 6.

**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 6. Check the harness wiring from ETACS-ECU connector D-222 (terminal 4) to driver's door lock actuator connector H-10 (terminal 6).**





*NOTE: Also check junction block connector D-217 and intermediate connector D-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-25 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the harness wiring from ETACS-ECU connectors D-222 (terminal 4) to driver's door lock actuator connector H-10 (terminal 6) in good condition?**

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

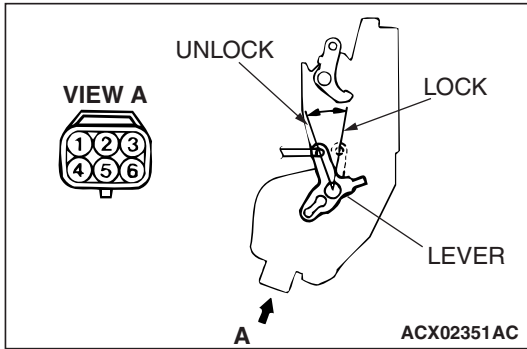
**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

**STEP 7. Check front passenger's door lock actuator connector H-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is passenger's seat door lock actuator connector H-24 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. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 8. Check the front passenger's door lock actuator.**

1. Remove the passenger's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch P.42-41.
2. Follow the table below to check the passenger's door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 6 to the positive battery terminal</li> <li>• Connect terminal 4 to the negative battery terminal</li> </ul>	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 4 to the positive battery terminal</li> <li>• Connect terminal 6 to the negative battery terminal</li> </ul>	The lever moves from the "UNLOCK" position to the "LOCK" position.

**Q: Does the front passenger's door lock actuator work normally?**

**YES :** Go to Step 9.

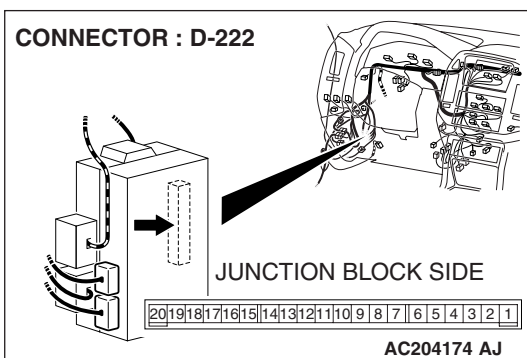
**NO :** Replace the front passenger's door lock actuator. Verify that all the doors can be locked and unlocked normally.

**STEP 9. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

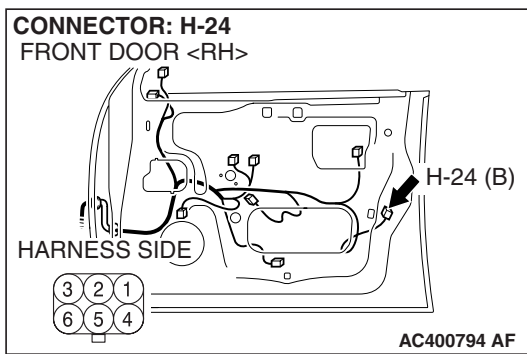
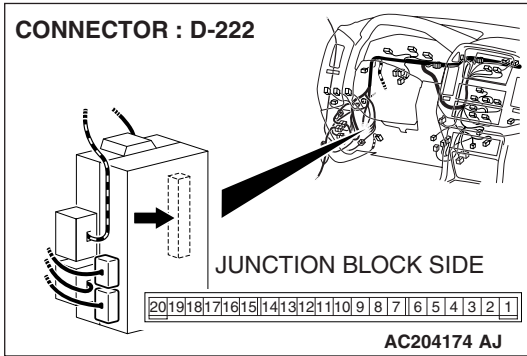
**Q: Is ETACS-ECU connector D-222 in good condition?**

**YES :** Go to Step 10.

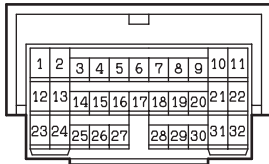
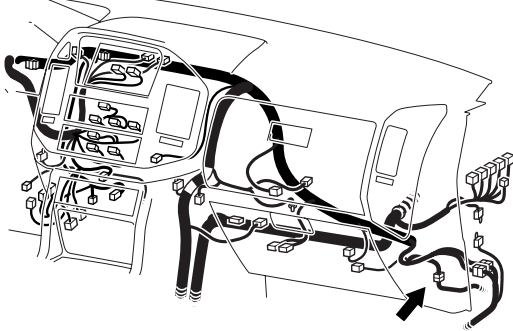
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 10.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 4) to front passenger's door lock actuator connector H-24 (terminal 4).



**CONNECTOR: D-15**



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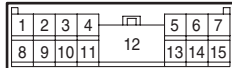
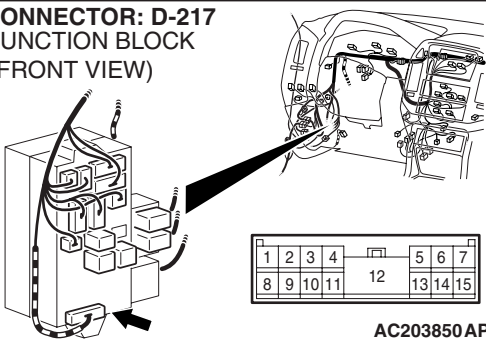
*NOTE: Also check junction block connector D-217 and intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-15 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 4) to front passenger's door lock actuator connector H-24 (terminal 4) in good condition?**

**YES :** Go to Step 11.

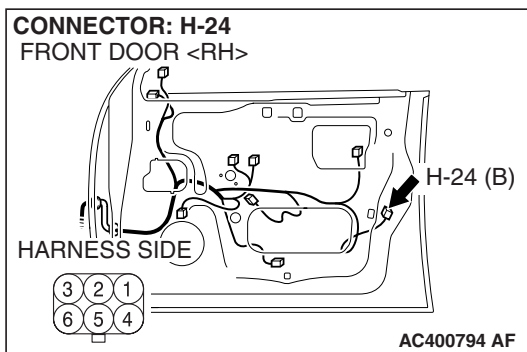
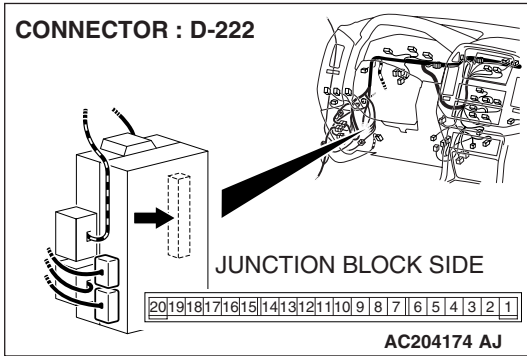
**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

**CONNECTOR: D-217  
JUNCTION BLOCK  
(FRONT VIEW)**

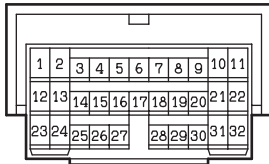
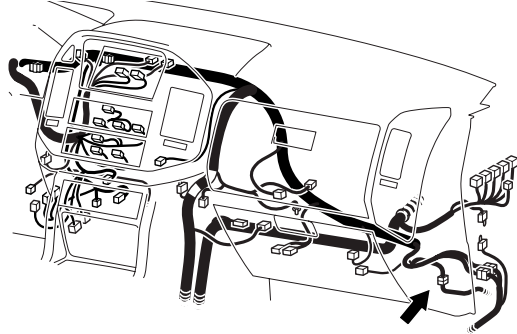


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**STEP 11.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 17) to front passenger's door lock actuator connector H-24 (terminal 6).



**CONNECTOR: D-15**



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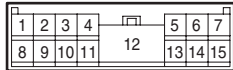
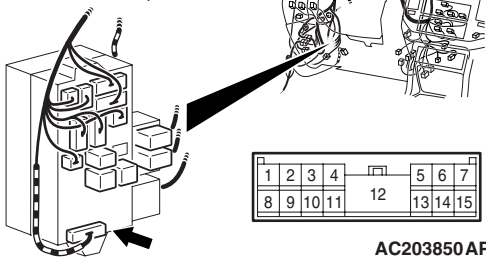
*NOTE: Also check junction block connector D-217 and intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-15 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 17) to front passenger's door lock actuator connector H-24 (terminal 6) in good condition?**

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

**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

**CONNECTOR: D-217  
JUNCTION BLOCK  
(FRONT VIEW)**



AC203850 AP

**STEP 12. Check rear passenger's door lock actuator (LH) connector H-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

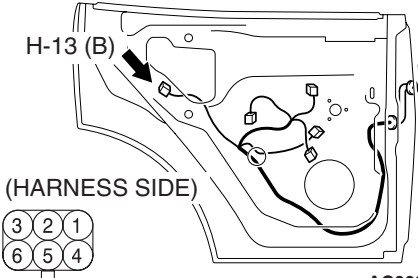
**Q: Is rear passenger's door lock actuator (LH) connector H-13 in good condition?**

**YES :** Go to Step 13.

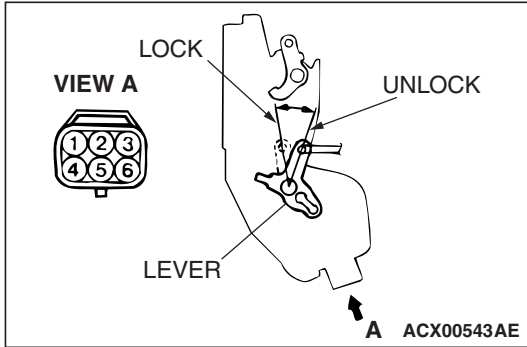
**NO :** Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

**CONNECTOR: H-13**

REAR DOOR <LH>



AC000237AQ



**STEP 13. Check the rear passenger's door lock actuator (LH).**

1. Remove the rear passenger's door lock actuator (LH), and check it. Refer to GROUP 42 – Door Handle and Latch P.42-41.
2. Follow the table below to check the rear passenger's door lock actuator (LH) for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 2 to the positive battery terminal</li> <li>• Connect terminal 3 to the negative battery terminal</li> </ul>	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 3 to the positive battery terminal</li> <li>• Connect terminal 2 to the negative battery terminal</li> </ul>	The lever moves from the "UNLOCK" position to the "LOCK" position.

**Q: Does the rear passenger's door lock actuator (LH) work normally?**

**YES :** Go to Step 14.

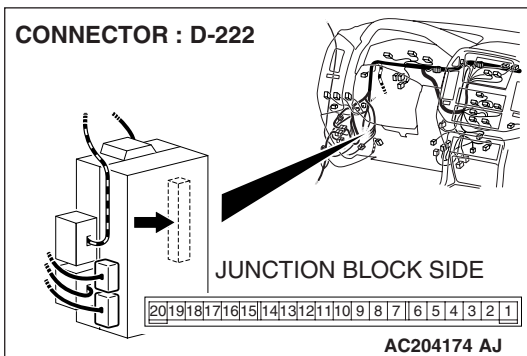
**NO :** Replace the rear passenger's door lock actuator (LH). Verify that all the doors can be locked and unlocked normally.

**STEP 14. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

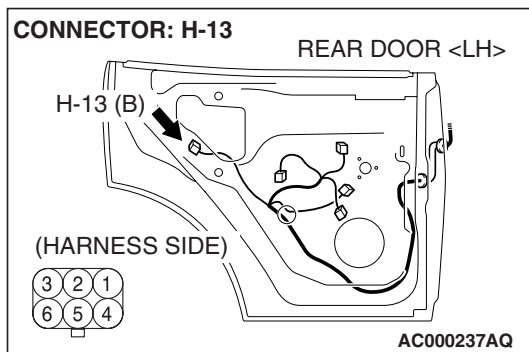
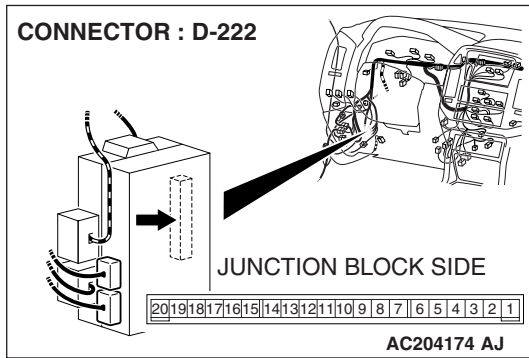
**YES :** Go to Step 15.

**NO :** Repair or check the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



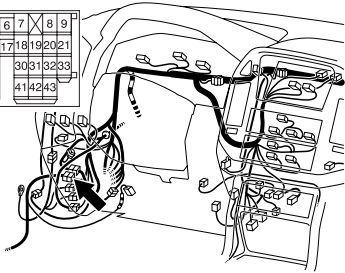


**STEP 15.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 4) to rear passenger's door lock actuator (LH) connector H-13 (terminal 4).



## CONNECTOR : D-125

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



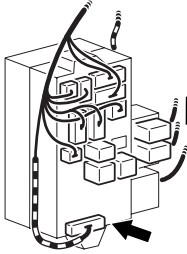
AC400706BA

*NOTE: Also check junction block connector D-217 and intermediate connector D-125 and F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217, intermediate connector D-125 or F-12 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the harness wiring from ETACS-ECU connectors D-222 (terminal 4) to rear passenger's door lock actuator (LH) connector H-13 (terminal 4) in good condition?**

**YES :** Go to Step 16.

**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

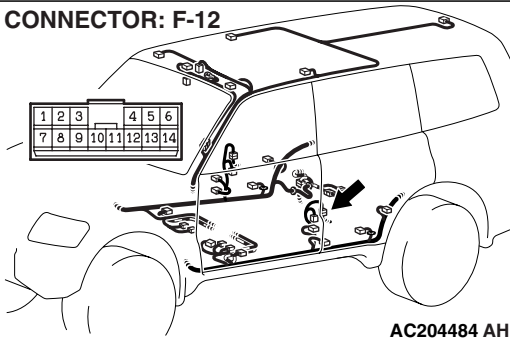
CONNECTOR: D-217  
JUNCTION BLOCK  
(FRONT VIEW)

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

AC203850AP

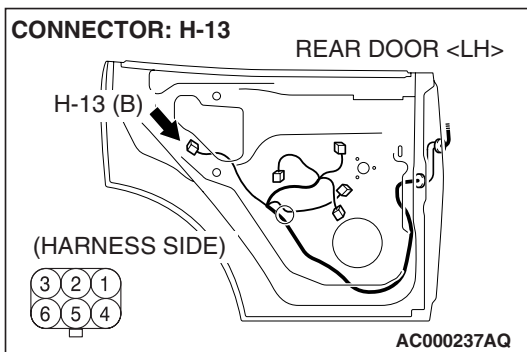
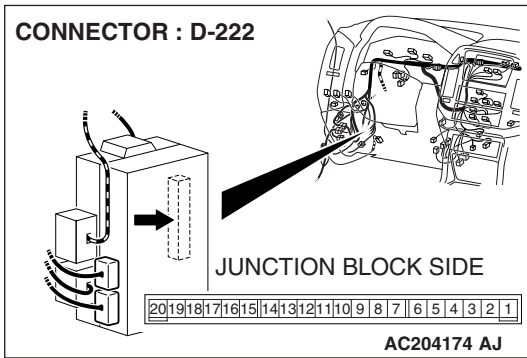
## CONNECTOR: F-12

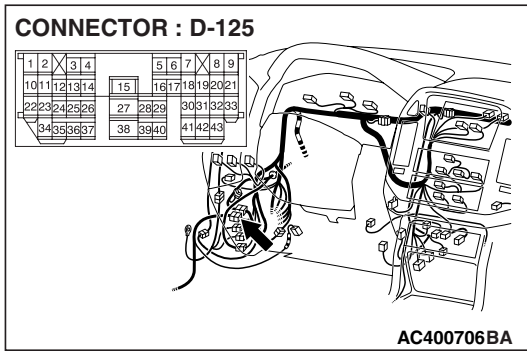
1	2	3	4	5	6		
7	8	9	10	11	12	13	14



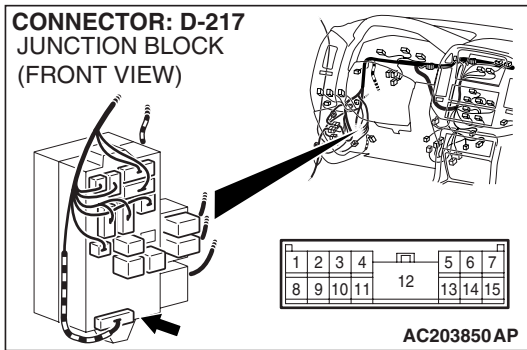
AC204484 AH

**STEP 16. Check the harness wiring from ETACS-ECU connector D-222 (terminal 17) to rear passenger's door lock actuator (LH) connector H-13 (terminal 6).**





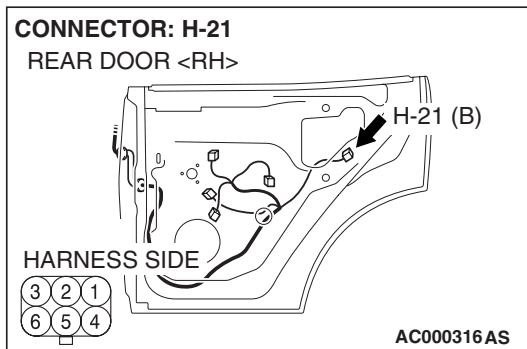
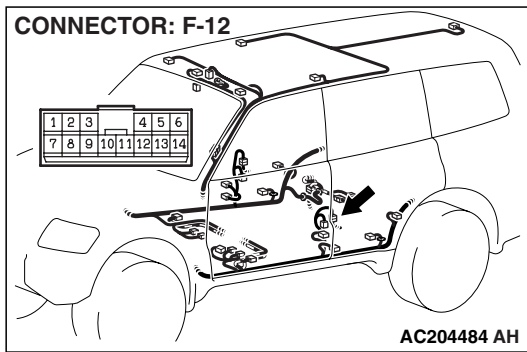
*NOTE: Also check junction block connector D-217 and intermediate connectors D-125 and F-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-217 or intermediate connector D-125 or F-12 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



**Q: Is the harness wiring from ETACS-ECU connectors D-222 (terminal 17) to rear passenger's door lock actuator (LH) connector H-13 (terminal 6) in good condition?**

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

**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

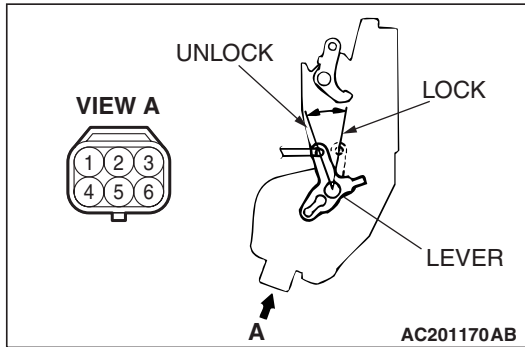


**STEP 17. Check rear passenger's door lock actuator (RH) connector H-21 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is rear passenger's seat door lock actuator (RH) connector H-21 in good condition?**

**YES :** Go to Step 18.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 18. Check the rear passenger's door lock actuator (RH).**

1. Remove the rear passenger's door lock actuator (RH), and check it. Refer to GROUP 42 – Door Handle and Latch P.42-41.
2. Follow the table below to check the rear passenger's door lock actuator (RH) for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 3 to the positive battery terminal</li> <li>• Connect terminal 2 to the negative battery terminal</li> </ul>	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 2 to the positive battery terminal</li> <li>• Connect terminal 3 to the negative battery terminal</li> </ul>	The lever moves from the "UNLOCK" position to the "LOCK" position.

**Q: Is the rear passenger's seat door lock actuator (RH) normal?**

**YES :** Go to Step 19.

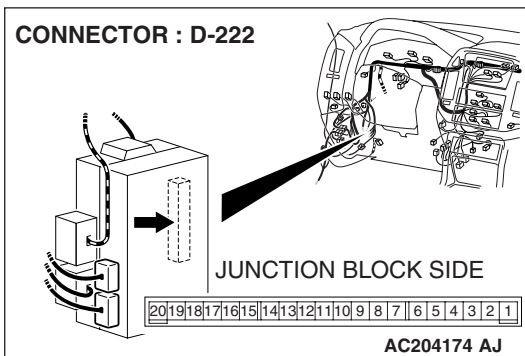
**NO :** Replace the rear passenger's seat door lock actuator (RH). Verify that all the doors can be locked and unlocked normally.

**STEP 19. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

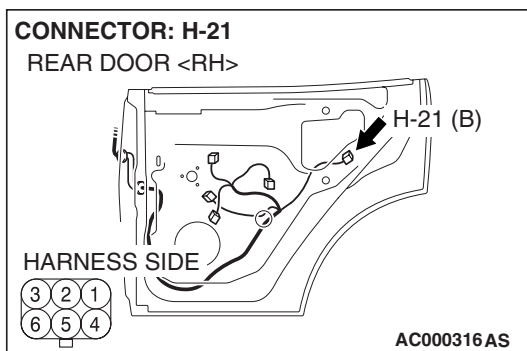
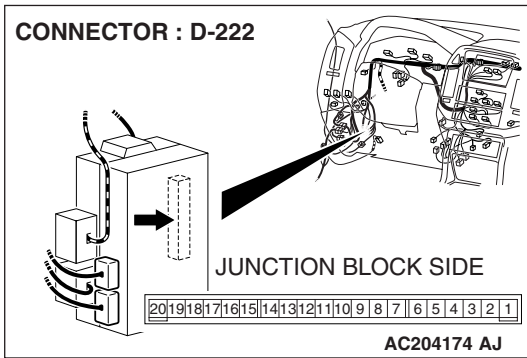
**Q: Is ETACS-ECU connector D-222 in good condition?**

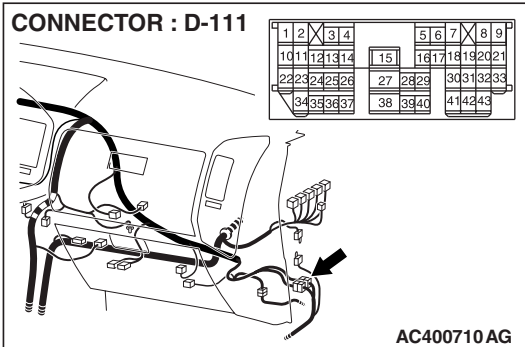
**YES :** Go to Step 20.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



**STEP 20.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 4) to rear passenger's door lock actuator (RH) connector H-21 (terminal 6).



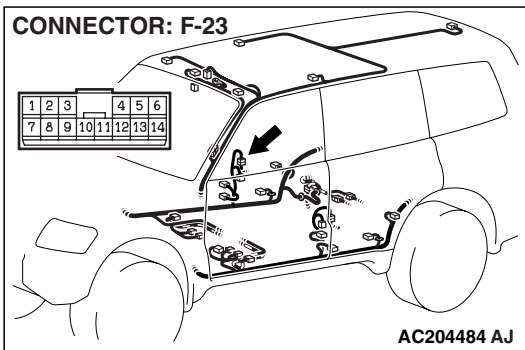
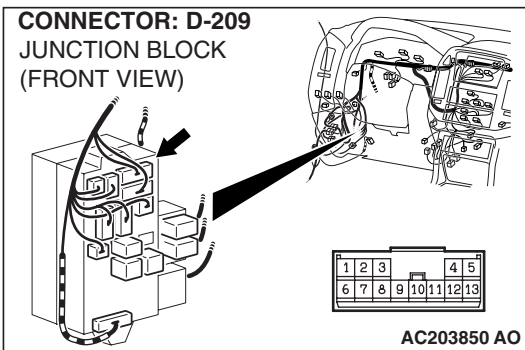


*NOTE: Also check junction block connector D-209 and intermediate connector D-111 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 or F-23 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

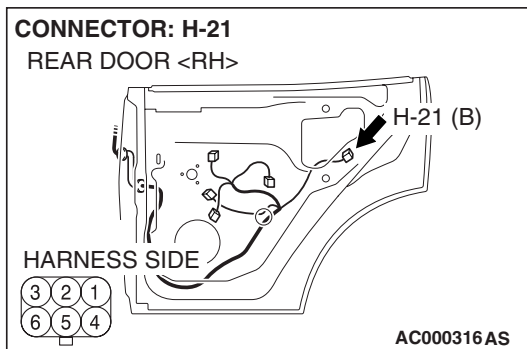
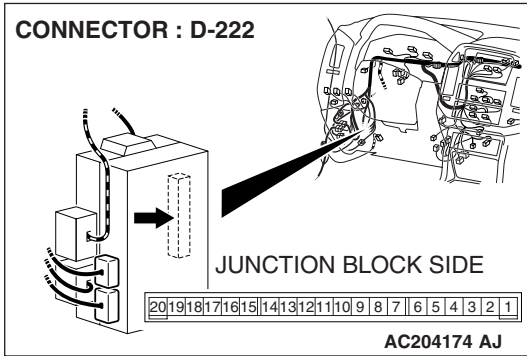
**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 4) to rear passenger's door lock actuator (RH) connector H-21 (terminal 6) in good condition?**

**YES :** Go to Step 21.

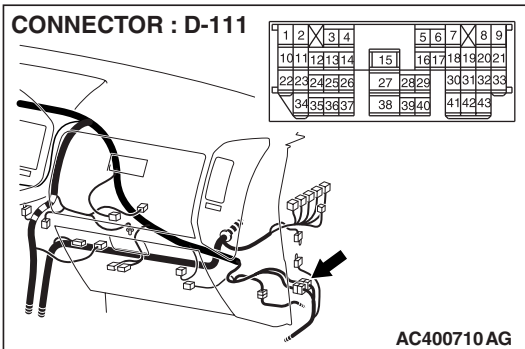
**NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.



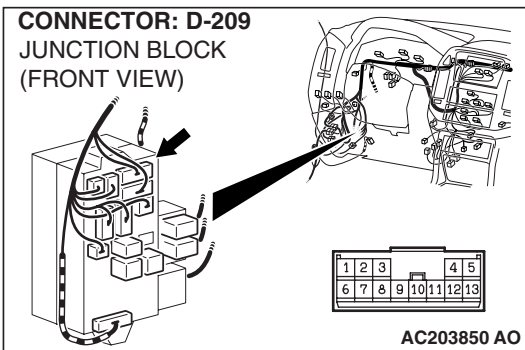
**STEP 21.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 17) to rear passenger's door lock actuator (RH) connector H-21 (terminal 4).





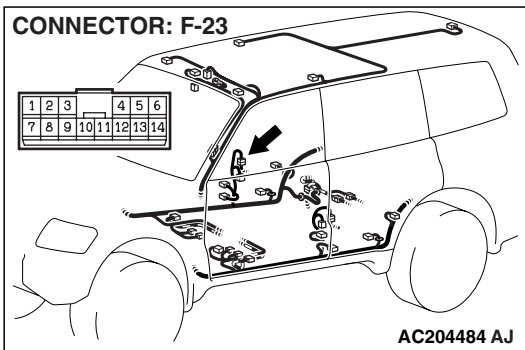


*NOTE: Also check junction block connector D-209 and intermediate connector D-111 and F-23 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 or F-23 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 17) to rear passenger's door lock actuator (RH) connector H-21 (terminal 4) in good condition?**

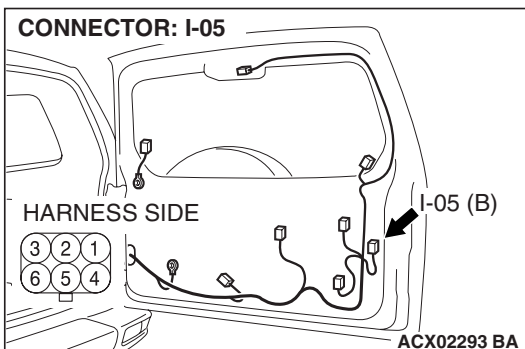
- YES :** Replace the ETACS-ECU. Verify that all the doors can be locked and unlocked normally.
- NO :** The harness wiring may be damaged or the connectors may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the harness wiring as necessary. After repairs have been made, verify that all the doors can now be locked and unlocked normally.

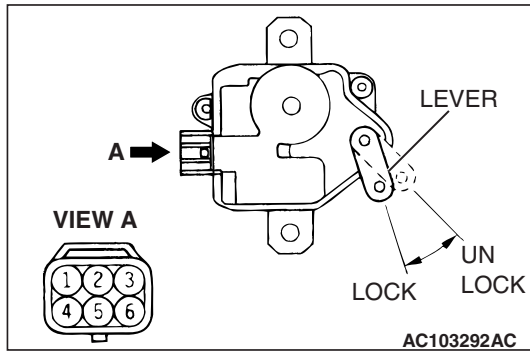


**STEP 22. Check back door lock actuator connector I-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

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

- YES :** Go to Step 23.
- NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Verify that all the doors (including the back door) can be locked and unlocked normally.





**STEP 23. Check the back door lock actuator.**

1. Remove the back door lock actuator, and check it. Refer to GROUP 42 – Back door Handle and Latch P.42-54.
2. Follow the table below to check the back door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 3 to the positive battery terminal</li> <li>• Connect terminal 2 to the negative battery terminal</li> </ul>	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> <li>• Connect terminal 2 to the positive battery terminal</li> <li>• Connect terminal 3 to the negative battery terminal</li> </ul>	The lever moves from the "UNLOCK" position to the "LOCK" position.

**Q: Is the back door lock actuator normal?**

**YES :** Go to Step 24.

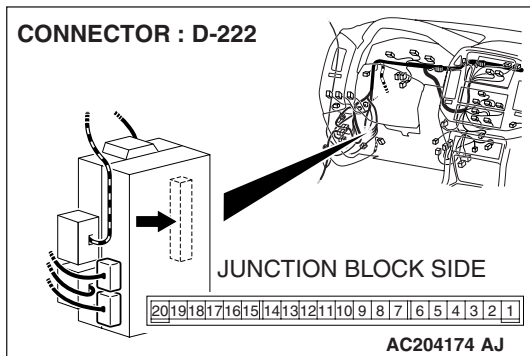
**NO :** Replace the back door lock actuator. Verify that all the doors (including the back door) can be locked and unlocked normally.

**STEP 24. Check ETACS-ECU connector D-222 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

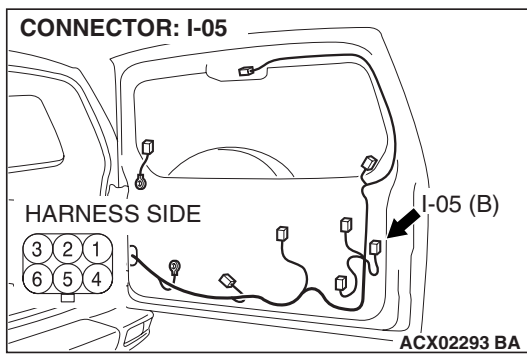
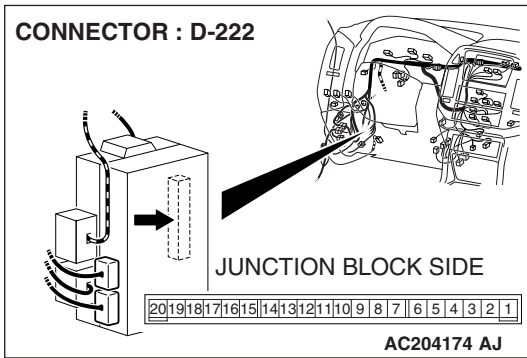
**Q: Is ETACS-ECU connector D-222 in good condition?**

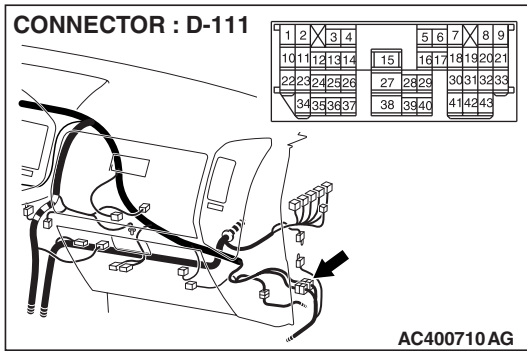
**YES :** Go to Step 25.

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



**STEP 25.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 17) to back door lock actuator connector I-05 (terminal 4).



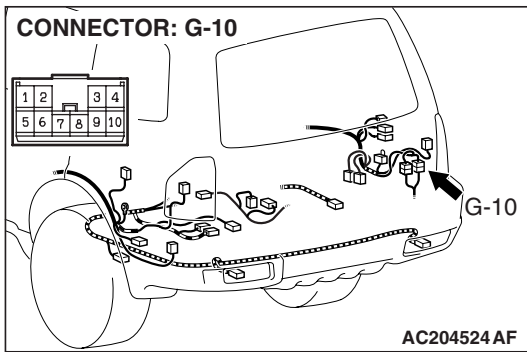
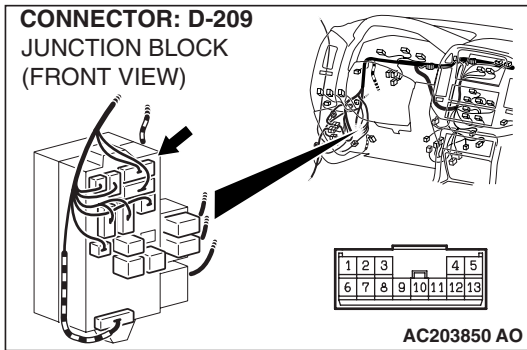


*NOTE: Also check junction block connector D-209 and intermediate connector D-111 and G-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 or G-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

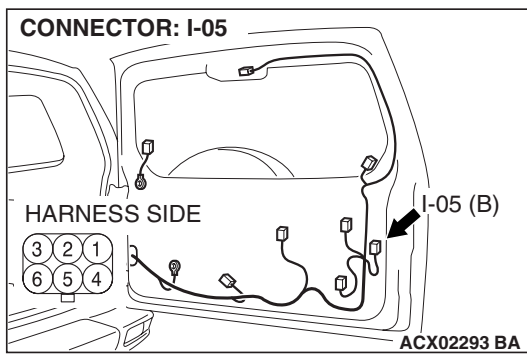
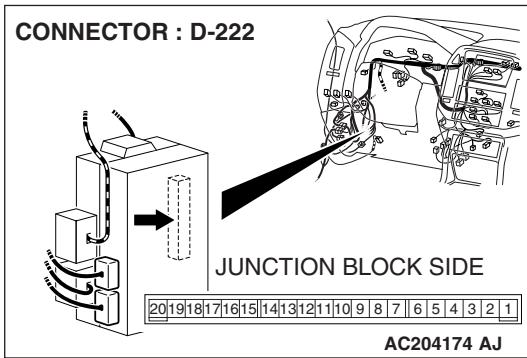
**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 17) to back door lock actuator connector I-05 (terminal 4) in good condition?**

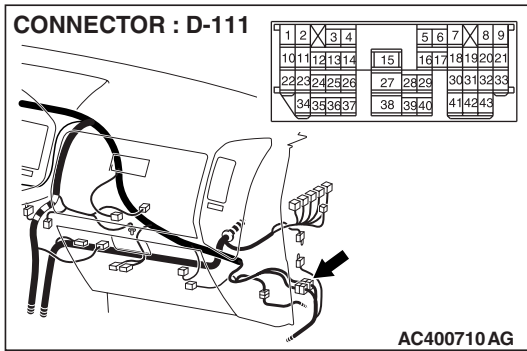
**YES :** Go to Step 26.

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

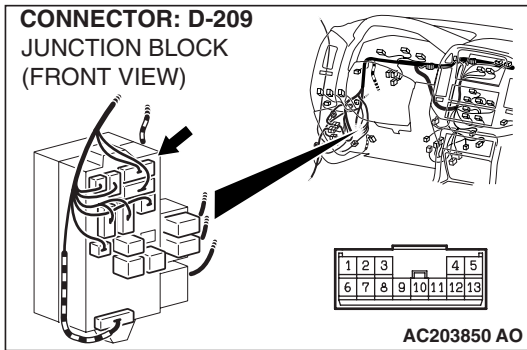


**STEP 26.** Check the harness wiring from ETACS-ECU connector D-222 (terminal 4) to back door lock actuator connector I-05 (terminal 6).





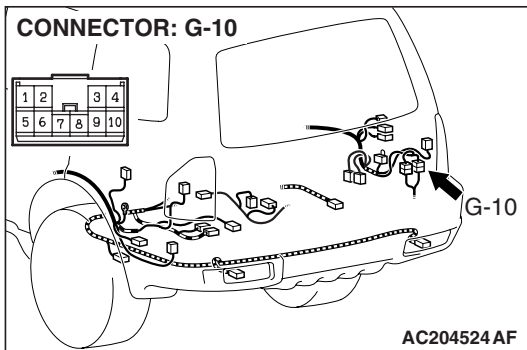
*NOTE: Also check junction block connector D-209 and intermediate connector D-111 and G-10 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector D-209 or intermediate connector D-111 or G-10 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.*



**Q: Is the harness wiring from ETACS-ECU connector D-222 (terminal 4) to back door lock actuator connector I-05 (terminal 6) in good condition?**

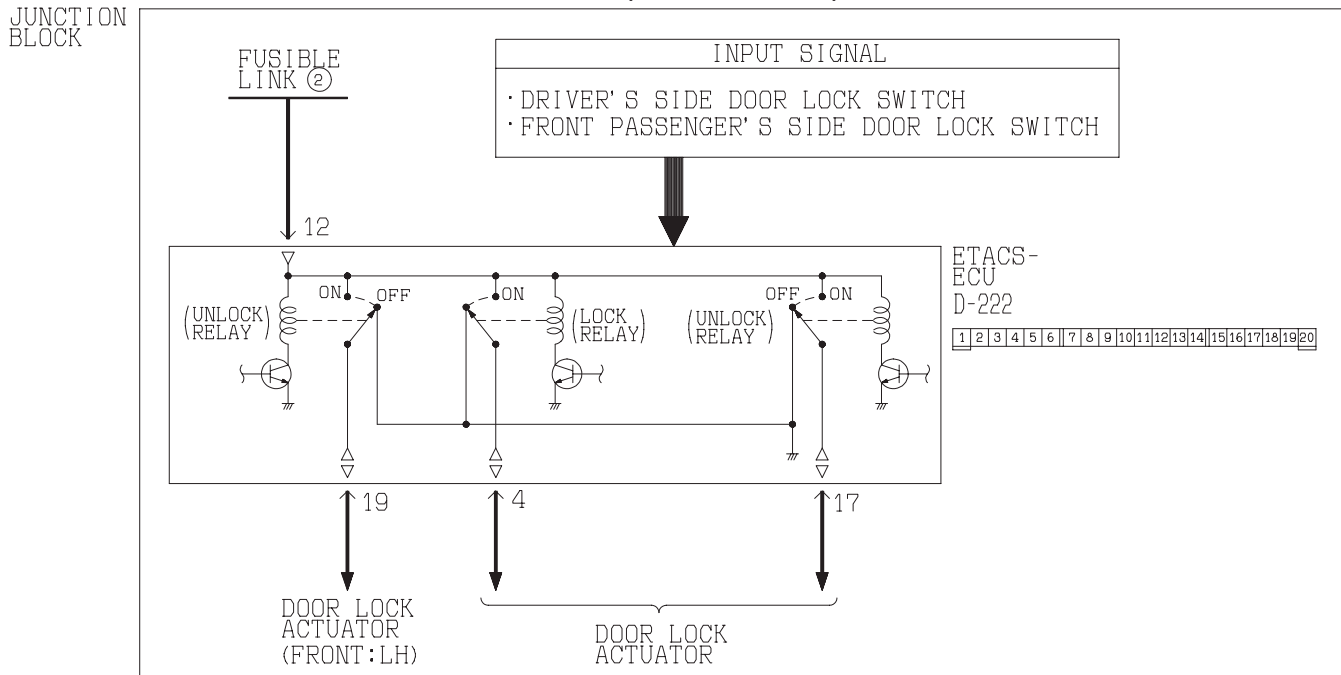
**YES :** Replace the ETACS-ECU. Verify that all the doors (including the back door) can be locked and unlocked normally.

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



**INSPECTION PROCEDURE C-3: Central Door Locking System: All the doors do not lock or unlock with just the door lock switch operation.**

**Central Door Lock (Door Lock Switch) Circuit**



W3Q21M03AA

**TECHNICAL DESCRIPTION (COMMENT)**

The door lock switch (built into the power window switch) or the ETACS-ECU may be defective.

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

**TROUBLESHOOTING HINTS**

- The power window switch (door lock switch) may be defective

**DIAGNOSIS****Required Special Tools:**

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

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

Check the input signals from the door lock switch:

**⚠ CAUTION**

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

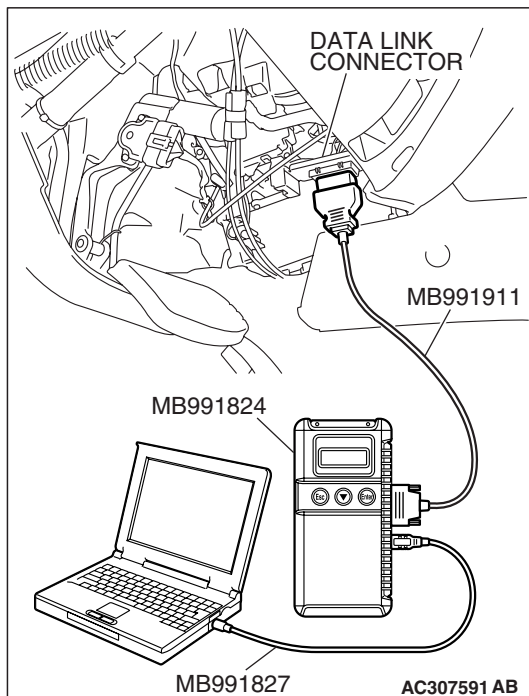
- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 as follows:
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "PULSE CHECK."
- (3) Move the driver's or the front passenger's door lock switch from "LOCK" to "UNLOCK" or vice versa.
- (4) Check scan tool MB991958 sounds or not.

**Q: Does scan tool MB991958 sound when operating the door lock switches as described?**

**YES :** Replace the ETACS-ECU. Verify that all the doors can now be locked and unlocked by the door lock switch.

**NO :** Refer to Inspection Procedure P-7 "ETACS-ECU does not receive any signal from the door lock switch (incorporated in the power window main switch)

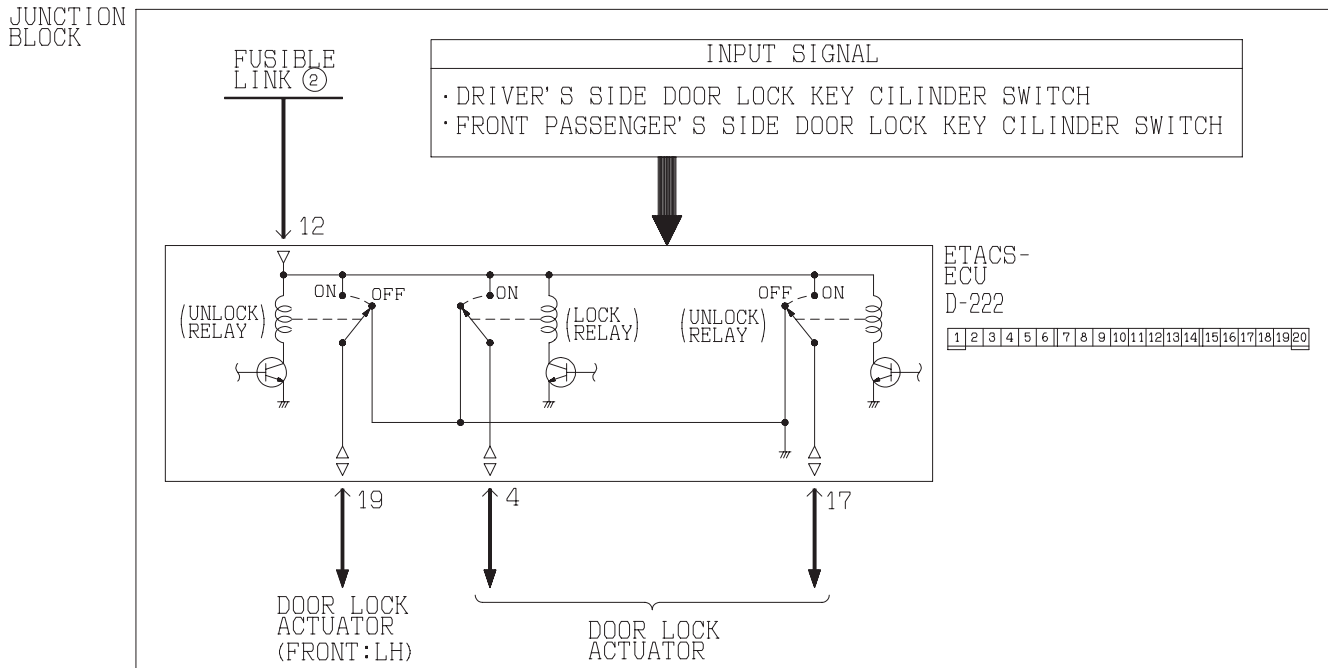
[P.54B-589.](#)





**INSPECTION PROCEDURE C-4: Central Door Locking System: All the doors do not lock or unlock with just the door lock key cylinder key operation.**

Central Door Lock (Door Lock Key Cylinder Switch) Circuit



W3Q21M04AA

**TECHNICAL DESCRIPTION (COMMENT)**

The door lock switch (built into the power window switch) or the ETACS-ECU may be defective.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

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

**⚠ CAUTION**

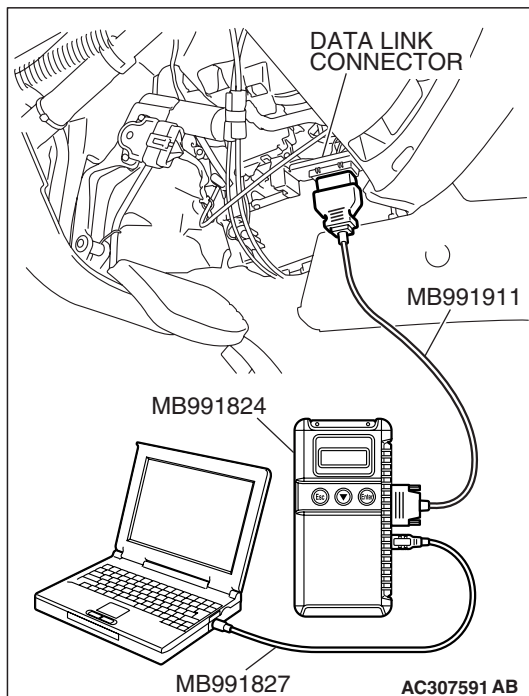
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 as follows:
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "PULSE CHECK."
- (3) Use the driver's or passenger's door lock key cylinder to lock and unlock the doors.
- (4) Check that scan tool MB991958 sounds.

**Q: Does scan tool MB991958 sound when operating the door locks as described?**

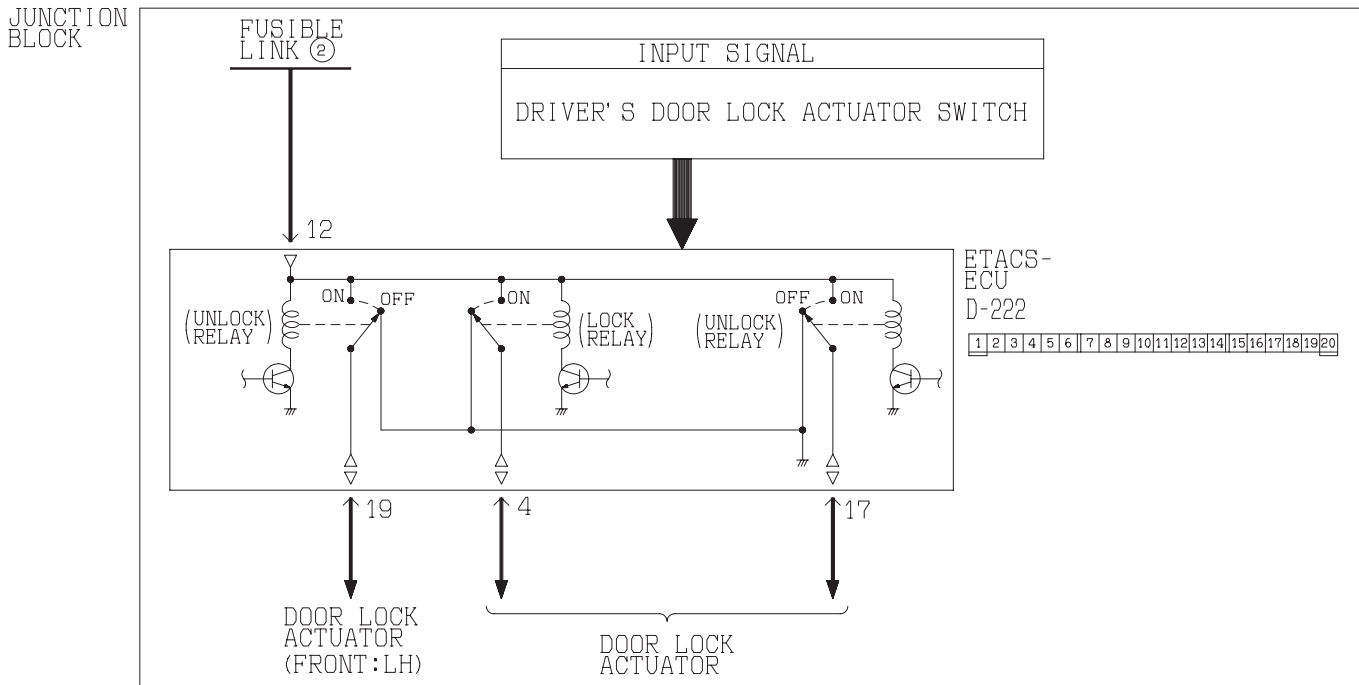
**YES :** Replace the ETACS-ECU. Verify that all the doors can now be locked and unlocked by using each door lock key cylinder switch.

**NO :** Refer to Inspection Procedure P-5 "ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock key cylinder switch [P.54B-557.](#)"



**INSPECTION PROCEDURE C-5: Central Door Locking System: All the doors do not lock with just the driver's inside lock knob operation.**

**Central Door Lock (Door Lock Actuator Switch) Circuit**



W3Q21M05AA

**TECHNICAL DESCRIPTION**

The driver's door lock actuator switch or the ETACS-ECU may be defective.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the input signals from the driver's door lock actuator switch.

**⚠ CAUTION**

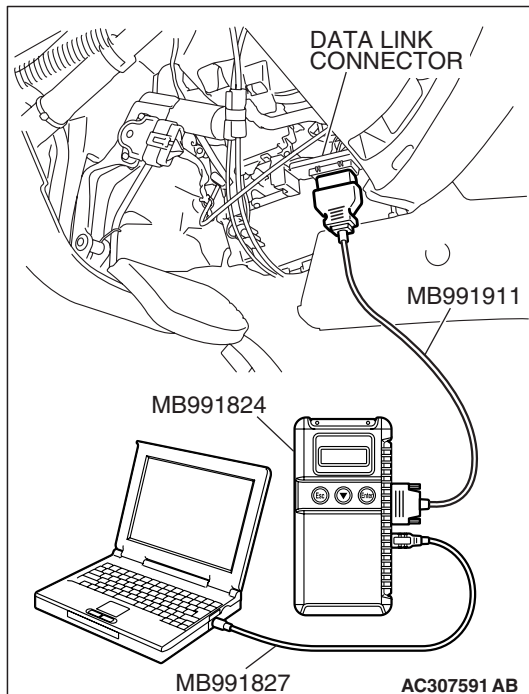
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991502 to the data link connector (16-pin).
- (2) Operate scan tool MB991958 as follows:
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "PULSE CHECK."
- (3) Lock or unlock the driver's inside lock knob.
- (4) Check scan tool MB991958 sounds or not.

**Q: Does scan tool MB991958 sound when the driver's inside lock knob is locked or unlocked, or the passenger's side lock knob is moved from the lock to the unlock position?**

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

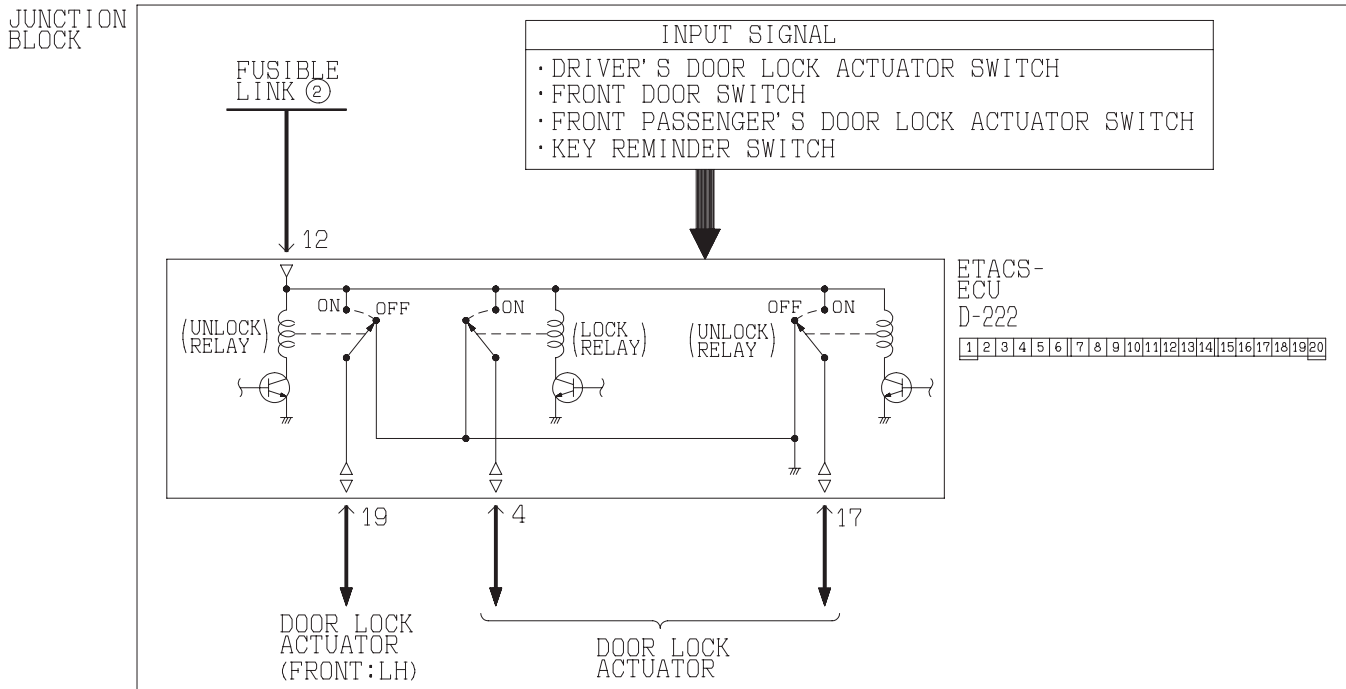
**NO :** Refer to Inspection Procedure P-6 "ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock actuator switch [P.54B-574.](#)"



**INSPECTION PROCEDURE C-6: Central Door Locking System: Forgotten key prevention function does not work normally.**

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

**Forgotten Key Prevention Circuit**



W3Q21M12AA

**CIRCUIT OPERATION**

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

- Key reminder switch: OFF
- Driver's or front passenger's door switch: ON
- Driver's door lock actuator switch: being turned ON

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

- Ignition key: inserted into the ignition key cylinder
- Driver's or front passenger's door: open
- Driver's or front passenger's door lock: being locked electrically
- Driver's door lock: being locked manually

**TECHNICAL DESCRIPTION (COMMENT)**

If the forgotten key prevention function does not work normally, the input circuit from the switches or the ETACS-ECU may be defective.

**TROUBLESHOOTING HINTS**

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

**DIAGNOSIS****Required Special Tools:**

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

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

Check the ETACS-ECU.

**⚠ CAUTION**

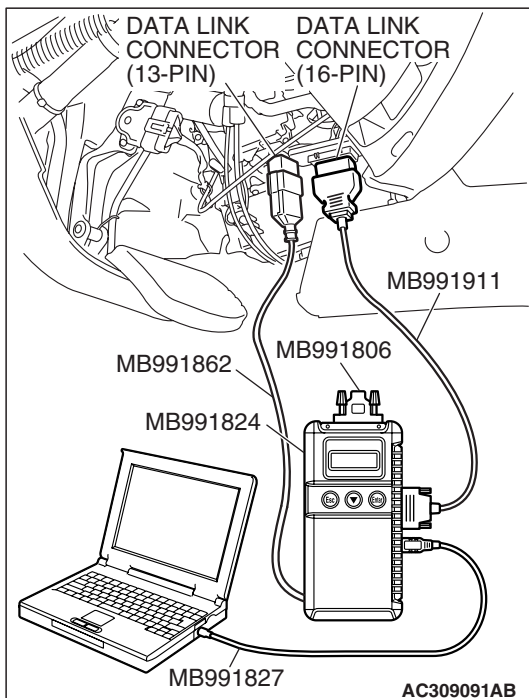
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

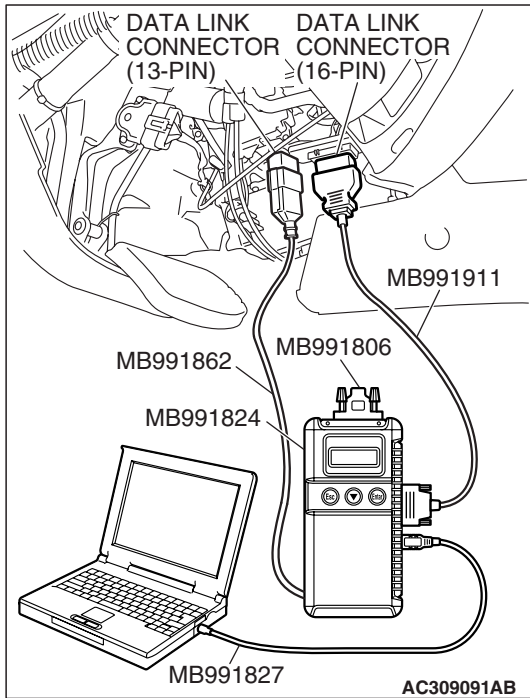
- (1) Connect the special tool. Refer to "How to connect SWS monitor P.54B-7"
- (2) Connect the SWS monitor kit MB991862 to the data link connector (13-pin).
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate scan tool MB991958 as follows:
  1. Select "SYSTEM SELECT."
  2. Select "SWS."
  3. Select "SWS MONITOR."
  4. Select "ECU COMM CHK".
- (5) Check scan tool MB991958 should show "OK" on the "ETACS ECU" menu.

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

**YES** : Go to Step 2.

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





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

Check the input signals from the following switches:

- Driver's door: open
- Front passenger's door: close

(1) Operate scan tool MB991958 as follows:

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

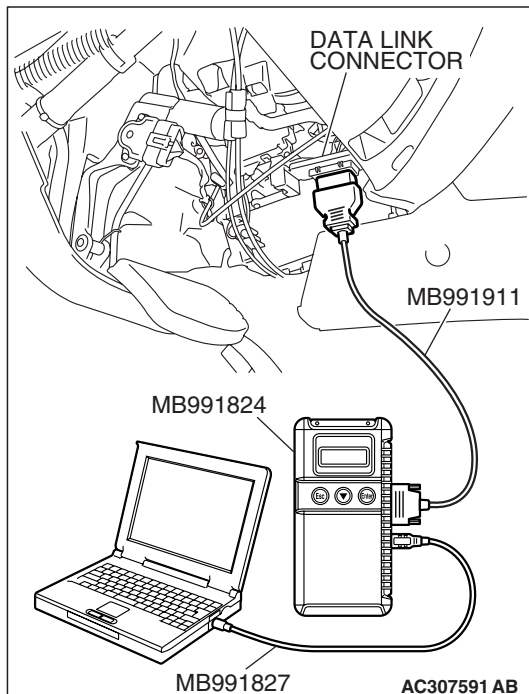
(2) Check that normal conditions are displayed on the items described in the table below.

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

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

**YES :** Go to Step 3.

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



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

Check the input signals from the following switches:

- Key reminder switch
- Driver's door lock actuator switch

(1) Operate scan tool MB991958 as follows:

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

(2) If the switches (see table below), which are applicable for the input signal check, are operated, verify if scan tool MB991958 sounds or not.

ITEM NAME	CHECK CONDITIONS
Key reminder switch	Remove
Driver's door lock actuator switch	Turn on and off the driver's door lock actuator switch.

**Q: Does scan tool MB991958 sound whenever the key reminder switch and the driver's door lock actuator switch are operated?**

**Buzzer of scan tool MB991958 sounds normally :**

Replace the ETACS-ECU. Verify that the forgotten key prevention function works normally.

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

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

**Scan tool MB991958 does not sound when the driver's door lock actuator switch is operated :** Refer to

Inspection Procedure P-6 "ETACS-ECU does not receive any signal from the driver's, front passenger's or back door lock actuator switch [P.54B-574.](#)"

**NEXT>>**