

GROUP 54B

SIMPLIFIED WIRING SYSTEM (SWS)

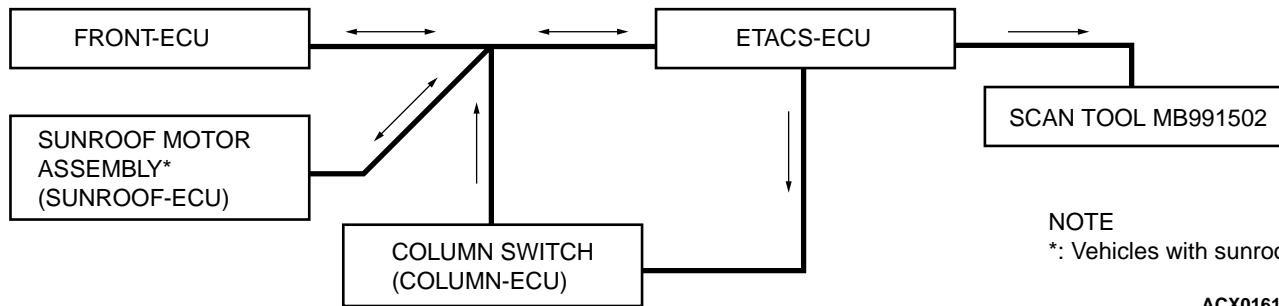
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GENERAL DESCRIPTION

COMMUNICATION METHOD

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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) and sunroof motor assembly (incorporating the sunroof-ECU) and these components communicate with each other.

OPERATION

TONE ALARM FUNCTION

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 "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

When the ignition switch is turned to the "ON" position without fastening the seat belts (seat belt switch OFF), the tone alarm will sound for approximately six seconds to warn the driver to fasten the seat belts. When the seat belts are fastened, the tone alarm will stop sounding.

CENTRAL DOOR LOCKING SYSTEM

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Central Door Locking System Operation

- When the driver's inside lock knob is locked, the lock relay inside the ETACS-ECU turns on to lock all doors. However, even if the driver's inside lock knob is unlocked, the all doors are not unlocked.
- With all the doors locked, turning the key in the driver's door lock key cylinder unlocks the door. Turning it again makes the door unlock relay close to send a signal for unlocking all doors. When the key in the front passenger's door locks key cylinder is operated, the lock or unlock relay inside the ETACS-ECU is turned on to lock or unlock 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 0.25 seconds 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 0.25 seconds.

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 driver's or front passenger's door is opened for the 30 seconds, the power windows will be immobilized at that point.

KEYLESS ENTRY SYSTEM

Keyless Entry Answerback Function

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 once and the dome light illuminates for 30 seconds. The hazard and the horn answerback functions can be cancelled by using the RKE transmitter.

Trunk Lid Opener Function

After "TRUNK" switch of the transmitter is turned "ON" twice within five seconds without ignition key in the key hole, ETACS-ECU makes trunk lid opener actuator open the trunk lid.

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 switching 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 switching relay on (high-speed), causing the wipers to operate at high-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 switching 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 seconds 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, causing the windshield wiper signal to turn on after 0.3 seconds. 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 seconds, 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 seconds, the wiper performs the same movement as normal condition from the time when 0.2 seconds 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 (approx. 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

park/neutral position switch "R" turns ON. One second later, the ETACS-ECU turns ON the rear wiper drive signal for three seconds (approx. 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 the driver turns the ignition switch to the "ON" position without wearing the seat belt, the seat belt warning light illuminates to alert the driver to wear the seat belt.

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.

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 percent intensity. When the door is closed, it dims the dome light to 65 percent 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 percent 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 percent 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 illu-

minate 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.

INTERIOR LIGHT AUTOMATIC SHUTDOWN FUNCTION

This function prevents the battery from being discharged when the door is open or the dome light remains on with the ignition switch at the "LOCK" (OFF) position. The ETACS-ECU turns on its "keep" relay to switch off the battery power supply to the interior lights when the interior light loaded signal and all door switches remain on for approximately 30 minutes with the ignition switch at positions other than ACC. Then the interior lights will be switched off. If the ignition switch is turned on again, the ETACS-ECU turns on its "keep" relay to illuminate the interior lights.

DOOR-AJAR INDICATOR LIGHT

This indicator light warns the driver that door(s) are not closed. If a door switch is on, the ETACS-ECU operates the door-ajar indicator light on the combination meter.

THEFT-ALARM SYSTEM

Theft-alarm System Operation

If a door, trunk lid 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 three minutes.

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 three minutes 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 can be adjusted by the special operation. Then 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

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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 (1) and destination (North America) meet the vehicle specifications. If they are different, replace the ETACS-ECU with a correct one.

4. ECU COMM CHECK on the SWS monitor

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.

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.

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.

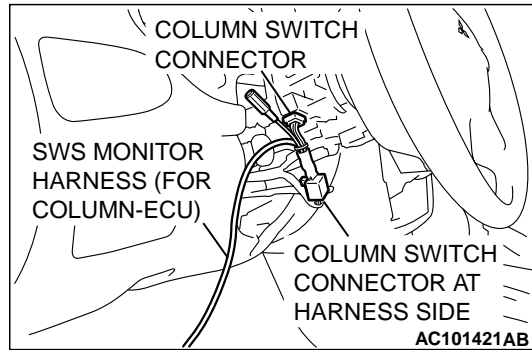
HOW TO CONNECT SWS MONITOR

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CAUTION

Always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting the SWS monitor kit and scan tool MB991502.

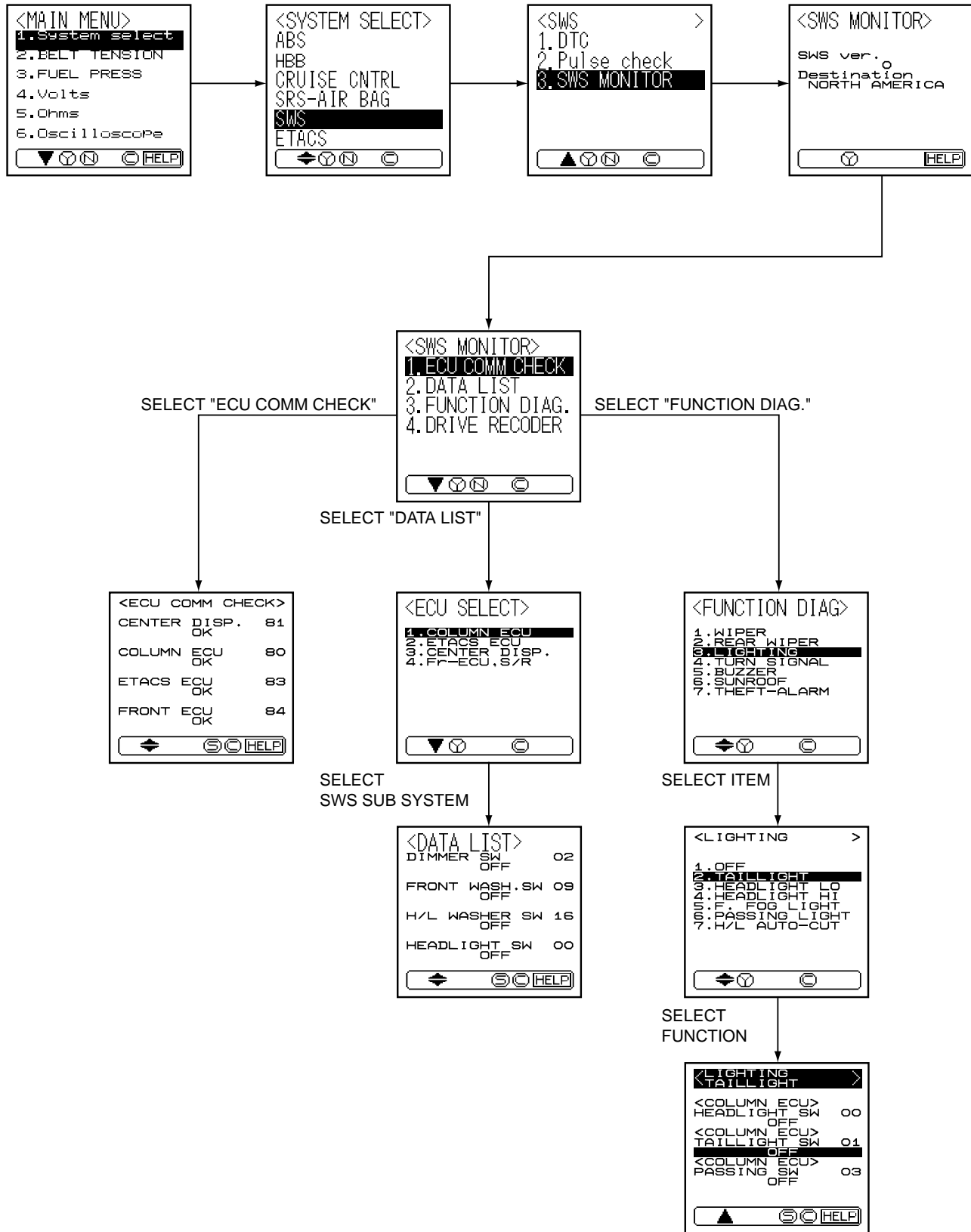
1. Remove the steering column cover.
2. Remove the steering column switch connector.



3. Connect the SWS monitor harness (for column-ECU).

HOW TO USE SWS MONITOR

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Troubleshooting with SWS monitor showing sample MUT-II screens.

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HOW TO CHECK ECUs

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1. Use the scan tool and the SWS monitor kit to check ECUs. (Refer to MUT-II Reference Manual)
2. The following ECUs can be checked by using the scan tool and the SWS monitor kit.

NOTE: The "ECU COMM CHECK" function checks a communication status of ECUs "NG" does not always mean ECU malfunction. If a malfunction is found by the "ECU COMM CHECK", proceed "Symptom Procedure" (Refer to P.54B-17).

SWS monitor kit-compatible ECUs and their conditions

ECUS TO BE CHECKED	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS	ECU CONDITIONS
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
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 (sunroof motor assembly)".

SERVICE DATA CHECK

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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-16.

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-20.)

<DATA LIST REFERENCE TABLE>

- COLUMN ECU (column switch)

CHECK ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
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

CHECK ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
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 control	EQUIP
			Vehicles without intermittent wiper control	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
Wind shield 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
Tail light 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 ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
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

CHECK ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
Front door switch	32	FRONT DOOR SW	Driver's or front passenger's door switch : ON (driver's or front passenger's door: open)	ON
			Driver's or front passenger's door switch : OFF (driver's or front passenger's door: close)	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
Park/neutral switch ("R" position)	41	PNP SW (R)	Park/Neutral position switch: R position	ON
			Park/Neutral position 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 control, and change the wiper interval	The scan tool displays intermittent wiper interval in response to the intermittent wiper control 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 displays "ON" when the light reminder tone alarm or the seatbelt theft-alarm function is triggered.

• FRONT ECU

CHECK ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
Response by the front-ECU	70	FRONT ECU ACK	Lighting switch: 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"> • Ignition switch: ON or START • Lighting switch: OFF • Wiper switch: OFF 	SLEEP ACK
			<ul style="list-style-type: none"> • Lighting switch: HEAD • Headlights: at high beam 	HI-BEAM ACK
			-	NO ACK

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

• SUNROOF ECU (sunroof motor assembly)

CHECK ITEMS	ITEM NO.	DISPLAY ON SCAN TOOL	CHECK CONDITIONS	NORMAL CONDITIONS
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
			-	NO ACK

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

<FUNCTION DIAGNOSIS>

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

• WIPER

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
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	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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
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 control positions
	70	Response by the front-ECU	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
REV. INTERLOCK	13	Rear wiper switch	REAR WIPER SW	ON
	31	Ignition switch (ACC)	IG SW (ACC)	ON
	41	Park/neutral switch ("R" position)	PNP SW (R)	ON

• LIGHTING

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
H/L AUTO-CUT	00	Headlight switch	HEADLIGHT SW	Either is on
	01	Tail light switch	TAILLIGHT SW	
	30	Ignition switch (IG1)	IG SW (IG1)	OFF
	32	Front 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	Tail light switch	TAILLIGHT SW	OFF
	03	Passing light switch	PASSING SW	OFF
	04	Automatic lighting switch	AUTO LIGHT 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
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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
TAILLIGHT	00	Headlight switch	HEADLIGHT SW	OFF
	01	Tail light 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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
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 RH SW	OFF
	30	Ignition switch (IG1)	IG SW (IG1)	ON

• BUZZER

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
KEY RMND.ALM	30	Ignition switch (IG1)	IG SW (IG1)	OFF
	32	Front door switch	FRONT DOOR SW	ON
	43	Tone alarm	BUZZER	ON
LGT MONI.ALARM	00	Headlight switch	HEADLIGHT SW	Either is on
	01	Tail light 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

ITEMS	ITEM NO.	INPUT SIGNALS	DISPLAY ON SCAN TOOL	NORMAL CONDITIONS
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

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

PULSE CHECK

M1549015100175

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. (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-6.)

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-20).

Switches and their conditions, which are applicable for Pulse Check

INPUT SIGNALS	REQUIREMENTS 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
Driver's seatbelt switch	When the driver's seatbelt is fastened
All of the door switches	A door is opened when all the doors are closed
Driver's door, front passenger's or trunk lid lock key cylinder switch	When a door is locked or unlocked by a key cylinder
Driver's, front passenger's, door lock actuator or trunk lid opener actuator	When the driver's key cylinder or inside lock knob is locked, or the driver's key cylinder is unlocked
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

SYMPTOM CHART

M1549000800305

<ECU communication system>

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Communication with the SWS monitor kit is impossible.	A-1	P.54B-22
Communication with the column switch (column-ECU) is impossible.	A-2	P.54B-28
Communication with the ETACS-ECU is Impossible.	A-3	P.54B-39
Communication with the front-ECU is impossible.	A-4	P.54B-46
Communication with the sunroof motor assembly (sunroof-ECU) is impossible.	A-5	P.54B-54

<Function system>

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Tone alarm	General description concerning the tone alarm function	-	P.54B-66
	Ignition key reminder tone alarm function does not work.	B-1	P.54B-70
	Light reminder tone alarm function does not work normally.	B-2	P.54B-73
	Seat belt tone alarm function does not work.	B-3	P.54B-76
Central door locking system	General description concerning central door locking system	-	P.54B-79
	Central door locking system does not work.	C-1	P.54B-83
	Some doors do not lock or unlock.	C-2	P.54B-93
	All the doors do not lock or unlock with just the door lock switch operation.	C-3	P.54B-103
	All the doors do not lock or unlock by rotating the door lock key cylinder.	C-4	P.54B-105
	All the doors do not lock or unlock with just the driver's inside lock knob operation.	C-5	P.54B-106
	The ignition key reminder tone alarm function does not work normally.	C-6	P.54B-108

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Power windows	General description concerning the power windows	–	P.54B-111
	Power windows do not work at all.	D-1	P.54B-115
	The power window timer function does not work normally.	D-2	P.54B-129
	Only the power window (LH) does work normally by operating the power window main switch.	D-3	P.54B-132
	Power window (RH) does not work normally by operating the passenger's power window sub-switch.	D-4	P.54B-135
	Passenger's power window does not work normally by operating the power window main switch.	D-5	P.54B-149
Keyless entry system	General description concerning the keyless entry system	–	P.54B-150
	Keyless entry system does not work.	E-1	P.54B-155
	The turn-signal light and interior light answerback function of the keyless entry system does not work normally.	E-2	P.54B-162
	Encrypted code cannot be registered.	E-3	P.54B-163
Sunroof	General description concerning the sunroof	–	P.54B-165
	Sunroof does not operate.	F-1	P.54B-167
	Any of the sunroof switch positions is defective.	F-2	P.54B-180
	Sunroof timer function does not work normally.	F-3	P.54B-181
	Safety mechanism does not function.	F-4	P.54B-183
Windshield wiper and washer	General description concerning the windshield wiper and washer	–	P.54B-184
	The windshield wipers do not work at all.	G-1	P.54B-188
	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	P.54B-198
	The windshield wipers do not work normally.	G-3	P.54B-200
	The windshield wipers do not stop at the specified park position.	G-4	P.54B-206
	The windshield intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper adjusting knob.	G-5	P.54B-214
	The intermittent wiper interval is not changed according to the vehicle speed.	G-6	P.54B-216
	The windshield washer does not work.	G-7	P.54B-219

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

54B-19

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Rear wiper and washer	General description concerning the rear wiper and washer	–	P.54B-227
	Rear wiper does not work at all.	H-1	P.54B-231
	Rear wiper does not stop at the predetermined park position.	H-2	P.54B-239
	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	P.54B-241
	Rear washer does not work.	H-4	P.54B-243
Seatbelt warning light	General description concerning the seatbelt warning	I-1	P.54B-250
	The seatbelt warning light does not illuminate.	I-1	P.54B-252
Headlight and taillight	General description concerning the headlight and taillight	–	P.54B-261
	The taillights do not illuminate.	J-1	P.54B-265
	The low-beam headlights do not illuminate.	J-2	P.54B-270
	High-beam headlights do not illuminate.	J-3	P.54B-274
	Headlights do not illuminate when the passing switch is operated.	J-4	P.54B-277
	Headlights do not illuminate when the lighting switch is at "AUTO," "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	P.54B-278
	Any of taillights, position lights, rear side marker lights or license plate light does not illuminate.	J-6	P.54B-280
	One of the headlights does not illuminate.	J-7	P.54B-324
	The high-beam indicator light does not illuminate.	J-8	P.54B-334
	Headlight automatic shutdown function does not work normally.	J-9	P.54B-340
	Headlight dimmer switch automatic reset function does not work.	J-10	P.54B-342
	Flasher timer	General description concerning the flasher timer	–
Turn-signal lights do not flash or illuminate when the turn signal light switch is operated.		K-1	P.54B-345
Hazard warning lights do not flash when the hazard warning light switch is turned on.		K-2	P.54B-352
One of the turn-signal lights do not illuminate.		K-3	P.54B-352

SYSTEM	SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Fog light	General description concerning the foglights	–	P.54B-375
	Fog lights do not illuminate when the fog light switch is turned on.	L-1	P.54B-377
	The fog lights does not go out when the headlight switch is turned off.	L-2	P.54B-385
	One of the fog lights does not illuminate.	L-3	P.54B-386
Interior light	General description concerning the interior light	–	P.54B-397
	The dome light and luggage compartment light do not illuminate or turn off normally.	M-1	P.54B-400
	The dome light or luggage compartment light do not illuminate or turn off normally.	M-2	P.54B-404
	Dome light dimming function does not work normally.	M-3	P.54B-428
	Interior light automatic shutoff function does not work normally.	M-4	P.54B-431
Theft-alarm system	General description concerning the theft-alarm system	–	P.54B-435
	Theft-alarm system is not armed (theft-alarm indicator light does not illuminate).	N-1	P.54B-439
	Horn does not sound when the theft-alarm is triggered.	N-2	P.54B-449
	Headlights (high-beam) do not flash when the theft-alarm system is triggered.	N-3	P.54B-464
	Panic alarm function does not work.	N-4	P.54B-464

DEFECTS FOUND DURING INPUT SIGNAL CHECK

M1549017700162

<SWS monitor>

If a problem is found in the Service Data inspection, observe the table below.

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive a signal from the ignition switch (ACC).	O-1	P.54B-466
ETACS-ECU does not receive a signal from the ignition switch (IG1).	O-2	P.54B-469
ETACS-ECU does not receive a signal from the fog light switch.	O-3	P.54B-472
The backup light switch signal is not sent to the ETACS-ECU. <M/T>	O-4	P.54B-476
ETACS-ECU does not receive "R" position signal from the park/neutral position switch. <A/T>	O-5	P.54B-486
ETACS-ECU does not receive a signal from the driver's or front passenger's door switch.	O-6	P.54B-502

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
Column switch	ETACS-ECU does not receive a signal from the tail light switch.	O-7	P.54B-511
	ETACS-ECU does not receive a signal from the headlight switch.		
	ETACS-ECU does not receive a signal from the passing light switch.		
	ETACS-ECU does not receive a signal from the dimmer switch.		
	ETACS-ECU does not receive a signal from the turn-signal light switch.		
	ETACS-ECU does not receive a signal from the headlight washer switch.		
	ETACS-ECU does not receive a signal from the windshield mist wiper switch.	O-8	P.54B-514
	ETACS-ECU does not receive a signal from the windshield intermittent wiper switch.		
	ETACS-ECU does not receive a signal from the windshield low-speed wiper switch.		
	ETACS-ECU does not receive a signal from the windshield high-speed wiper switch.		
	ETACS-ECU does not receive a signal from the windshield intermittent wiper control switch.	O-9	P.54B-517
	ETACS-ECU does not receive a signal from the windshield washer switch.	O-8	P.54B-514
	ETACS-ECU does not receive a signal from the rear wiper switch.		
	ETACS-ECU does not receive a signal from the rear washer switch.		
Sunroof switch	ETACS-ECU does not receive a "UP", "OPEN" or "CLOSE"/"DOWN" signals from the sunroof switch.	O-10	P.54B-520

<Scan tool or voltmeter>

If a problem is found in the Pulse Check, observe the table below.

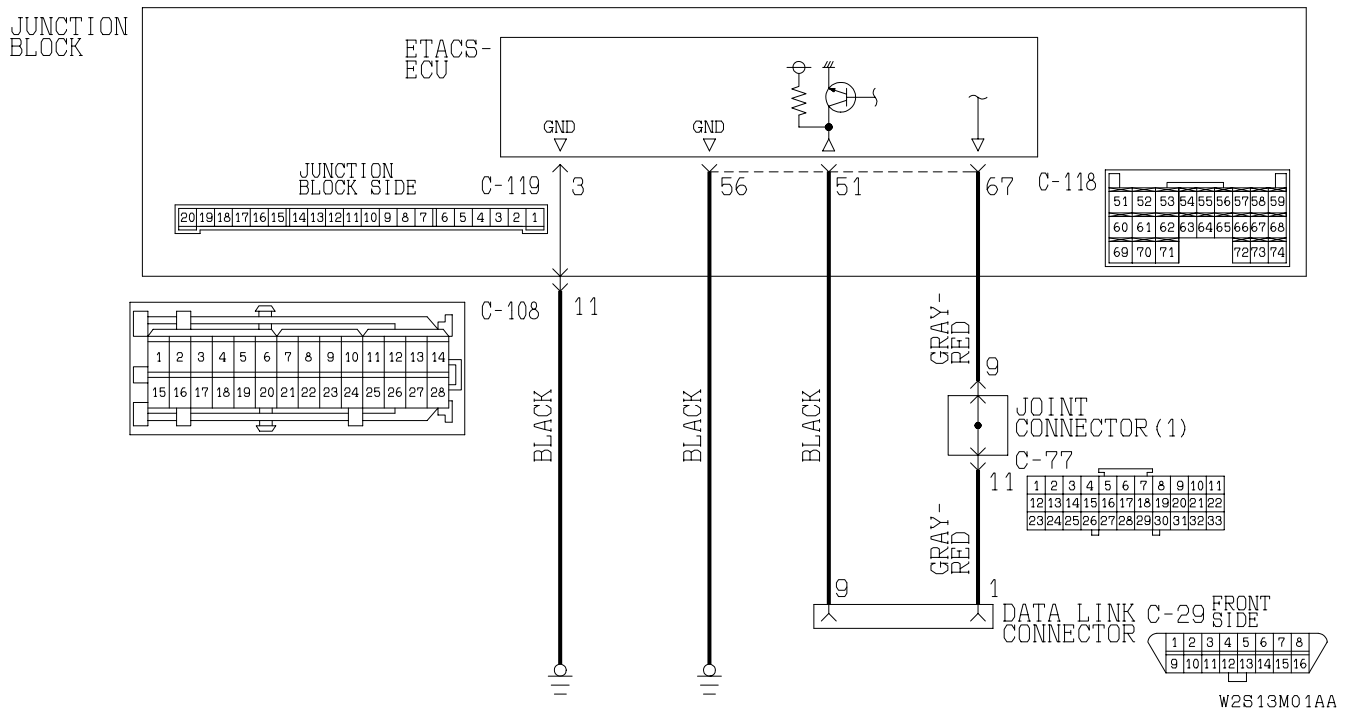
SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
	ETACS-ECU does not receive a signal from the key reminder switch.	P-1	P.54B-524
	ETACS-ECU does not receive a signal from the hazard warning light switch.	P-2	P.54B-528
	ETACS-ECU does not receive a signal from the driver's seat belt switch.	P-3	P.54B-533
	ETACS-ECU does not receive a signal from the driver's or front passenger's door lock key cylinder switch.	P-4	P.54B-539
	ETACS-ECU does not receive a signal from the driver's or front passenger's door lock actuator switch.	P-5	P.54B-549

SYMPTOM		INSPECTION PROCEDURE	REFERENCE PAGE
ETACS-ECU does not receive a signal from the door lock switch (incorporated in the power window main switch).		P-6	P.54B-559
ETACS-ECU does not receive an auto-stop signal from the rear wiper motor.		P-7	P.54B-559
ETACS-ECU does not receive a signal from the hood switch.		P-8	P.54B-575
ETACS-ECU does not receive a signal from the liftgate latch switch <ECLIPSE> or trunk lid latch switch <ECLIPSE SPYDER>.		P-9	P.54B-580
The liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> signal is not sent to the ETACS-ECU.		P-10	P.54B-591
ETACS-ECU does not receive a signal from the vehicle speed signal <M/T>.		P-11	P.54B-599
ETACS-ECU does not receive vehicle speed signal <A/T>.		P-12	P.54B-605
Transmitter	ETACS-ECU does not receive a signal from the lock, unlock, trunk or panic switch.	P-13	P.54B-609
ETACS-ECU does not Receive a Interior Light Loaded Signal.		P-14	P.54B-611

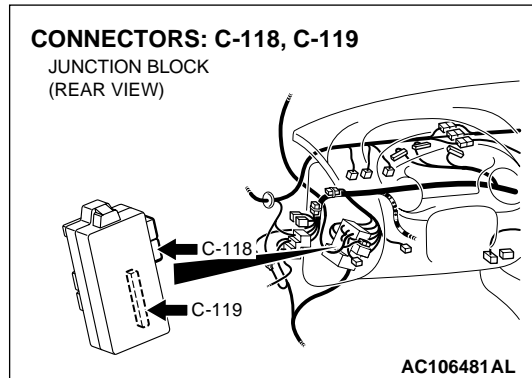
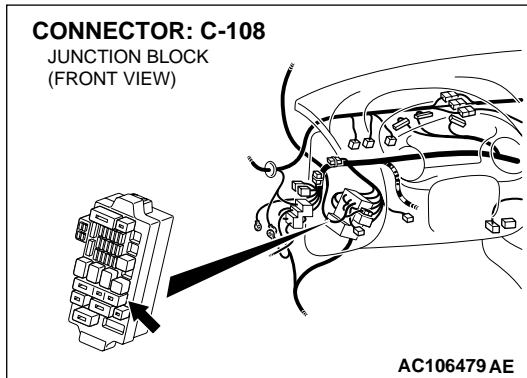
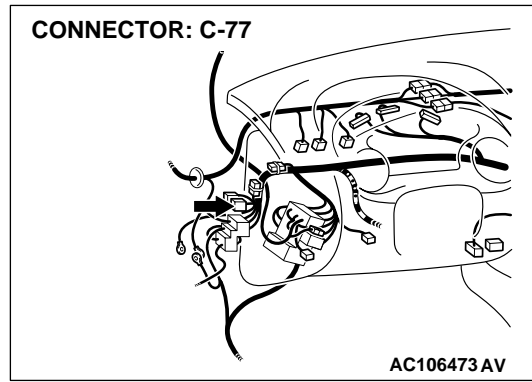
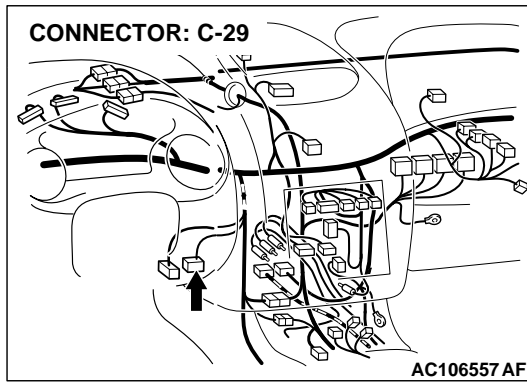
SYMPTOM PROCEDURES

INSPECTION PROCEDURE A-1: Communication with the SWS Monitor Kit is Impossible.

Scan Tool Communication and ETACS-ECU Ground Circuit



W2813M01AA



TECHNICAL DESCRIPTION (COMMENT)

The SWS monitor kit may be connected improperly.

TROUBLESHOOTING HINTS

- Malfunction of the SWS monitor body (I/F cartridge)
- Malfunction of the SWS monitor harness
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check SWS monitor kit MB991862 for proper connection.

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

YES : Go to Step 2.

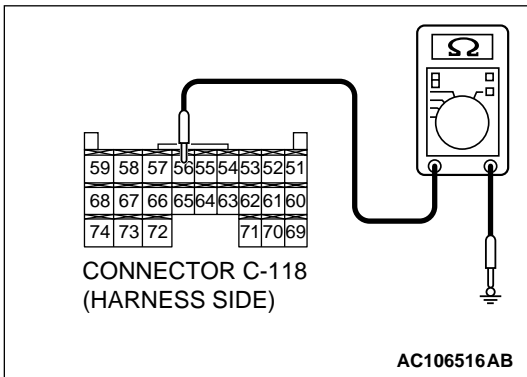
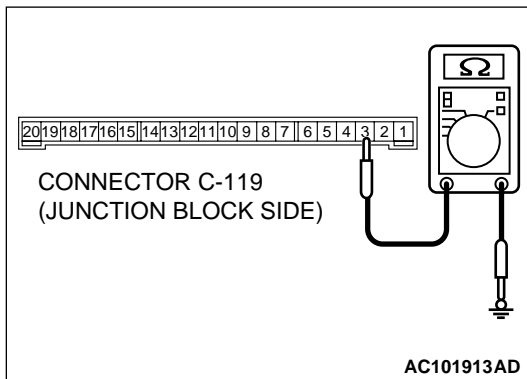
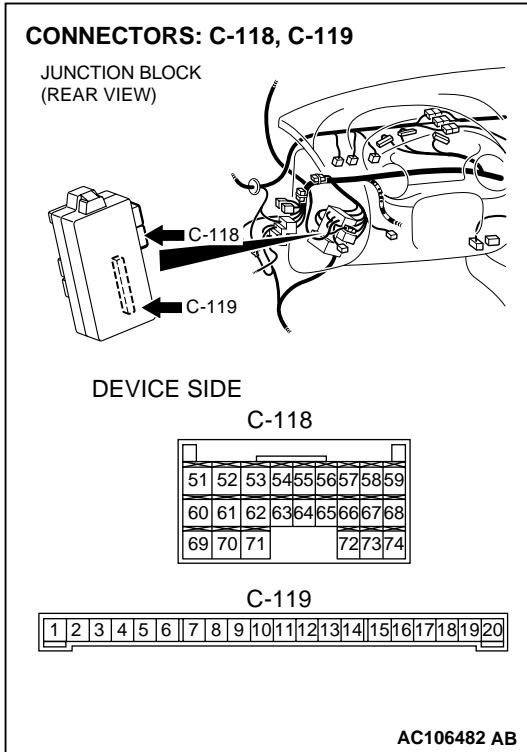
NO : Connect SWS monitor kit MB991862 to the column switch securely.

STEP 2. Check 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 impossible P.54B-39."



STEP 3. Measure at ETACS-ECU connector C-118 and C-119 in order to check the ground circuit to the ETACS-ECU.

(1) Disconnect ETACS-ECU connector C-118, C-119, and measure at the junction block side.

(2) Measure the resistance value between terminal 56, 3 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.

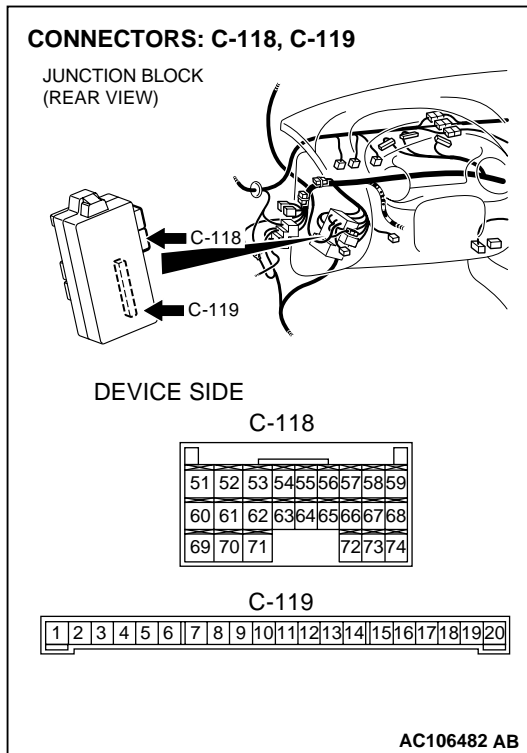
NO : Go to Step 4.

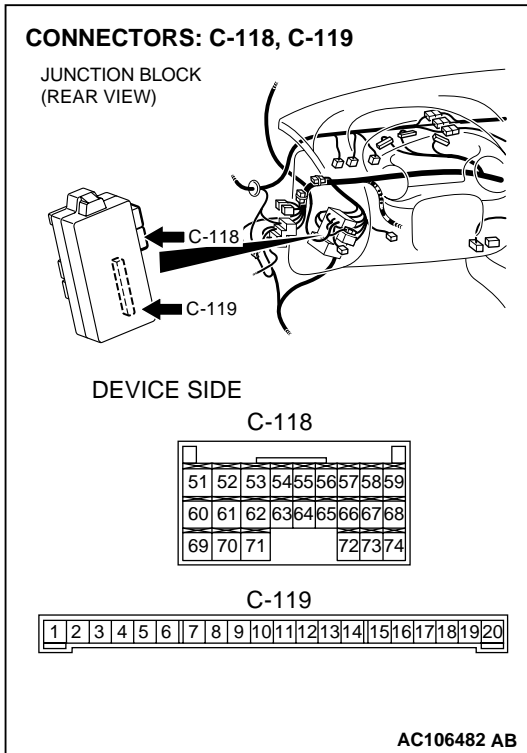
STEP 4. Check ETACS-ECU connector C-118 and C-119 for damage.

Q: Is ETACS-ECU connector C-118 and C-119 in good condition?

YES : Go to Step 5.

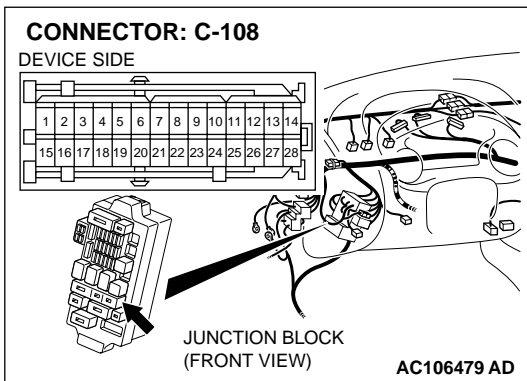
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the SWS monitor normally.





STEP 5. Check the wiring harness between ETACS-ECU connector C-119 (terminal 3) or ETACS-ECU connector C-118 (terminal 56) and the ground.

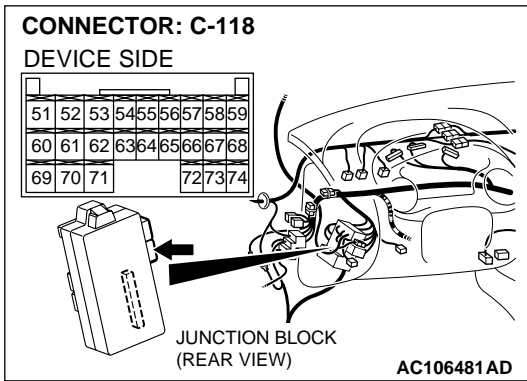
NOTE: Also check junction block connector C-108. If junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 3) or ETACS-ECU connector C-118 (terminal 56) and the ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the SWS monitor kit normally.

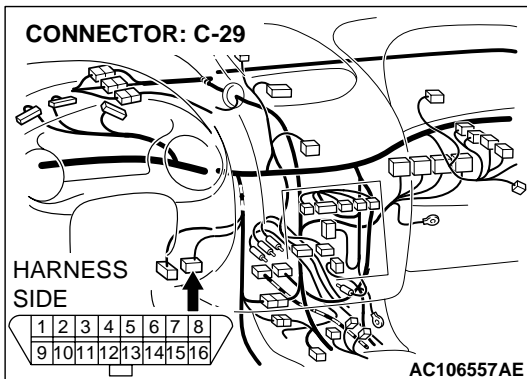


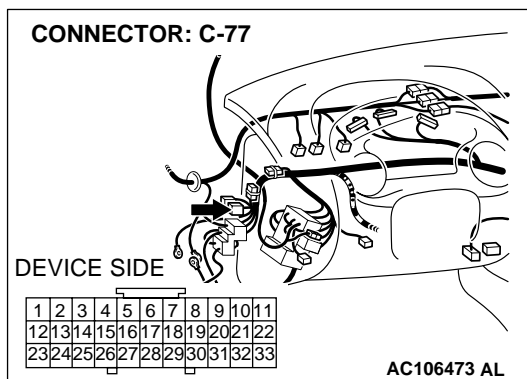
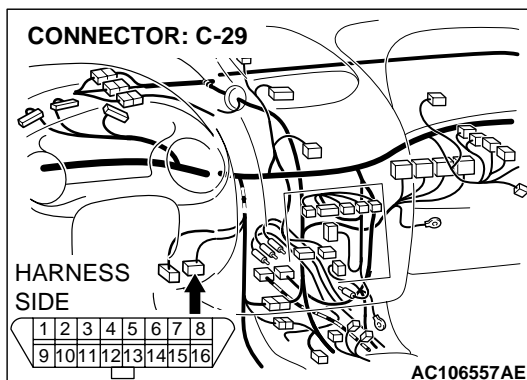
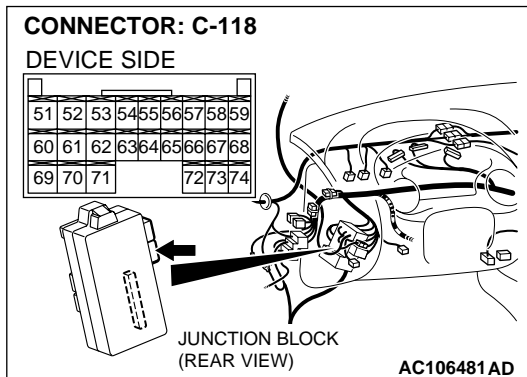
STEP 6. Check ETACS-ECU connector C-118 and data link connector C-29 for damage.

Q: Are ETACS-ECU connector C-118 and data link connector C-29 in good condition?

YES : Go to Step 7.

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





STEP 7. Check the wiring harness between ETACS-ECU connector C-118 (terminals 51 and 67) and data link connector C-29 (terminals 9 and 1).

NOTE: Also check joint connector C-77. If joint connector C-77 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

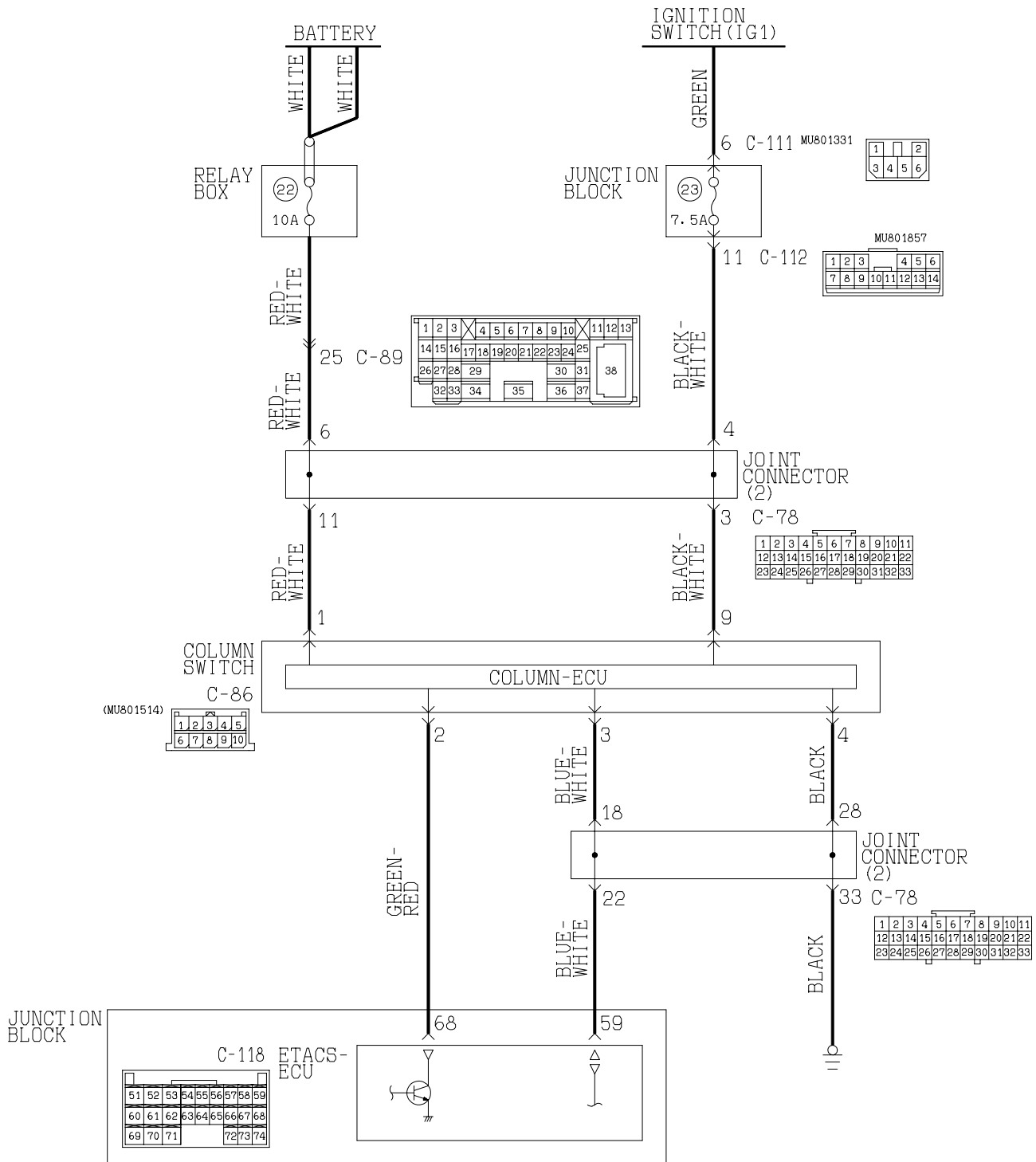
Q: Is the wiring harness between ETACS-ECU connector C-118 (terminals 51 and 67) and data link connector C-29 (terminals 9 and 1) in good condition?

- YES :** Replace the ETACS-ECU. The system should communicate with the SWS monitor kit normally.
- NO :** Repair the wiring harness. The system should communicate with the SWS monitor kit normally.

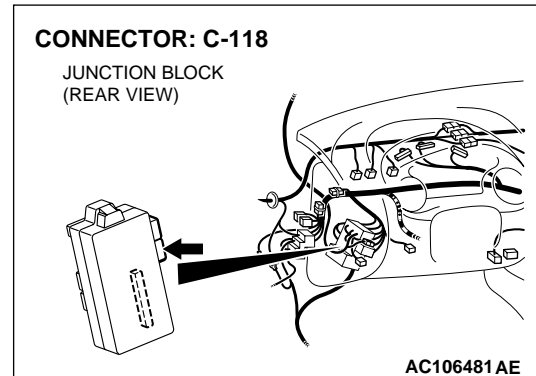
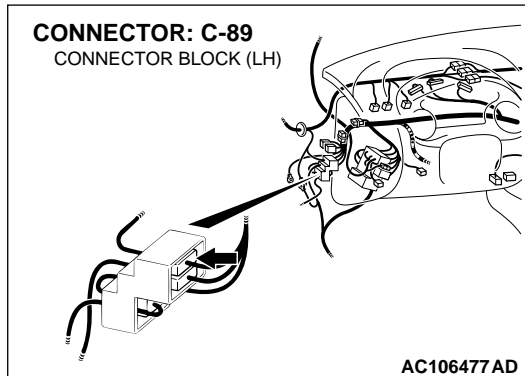
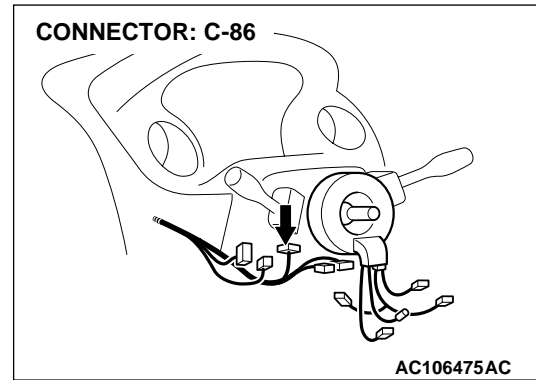
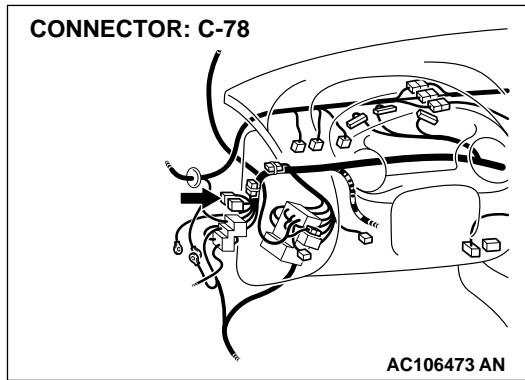
INSPECTION PROCEDURE A-2: Communication with the Column Switch (Column-ECU) is Impossible.

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

Column Switch Power Supply and SWS Communication Circuit



W3S0 1M12AA



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

- Malfunction of the ETACS-ECU
- Malfunction of the column switch
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

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

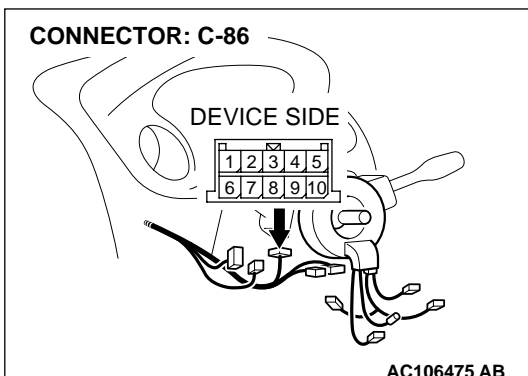
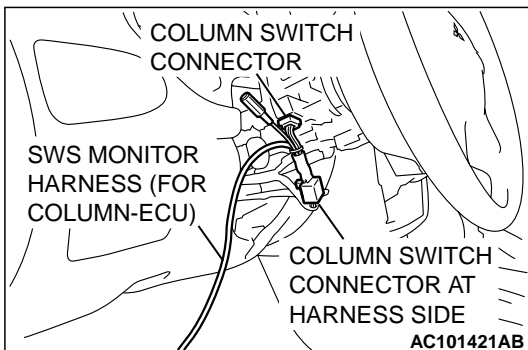
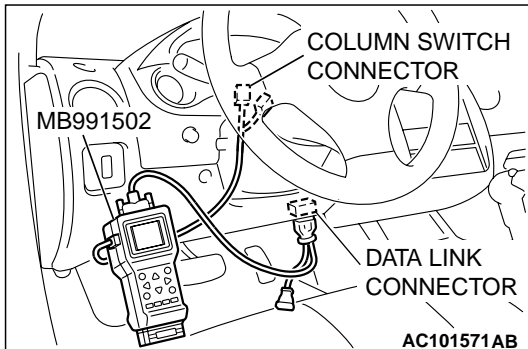
Q: Are "OK" displayed on the "ETACS ECU" and "COLUMN ECU" menus?

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."

"NG" is displayed on the "ETACS ECU" menu : "NG" is displayed on the "ETACS ECU" menu: Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."

"NG" displayed on the "ETACS ECU" and "COLUMN ECU" menu. : "NG" are displayed for all the items: Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."

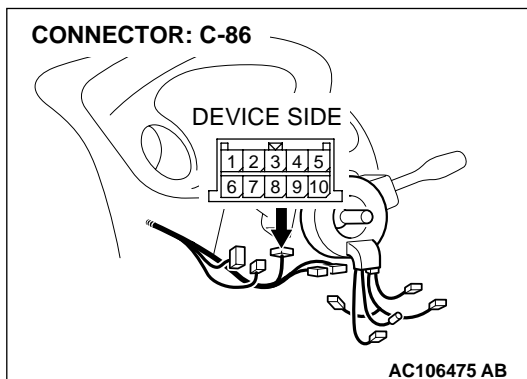
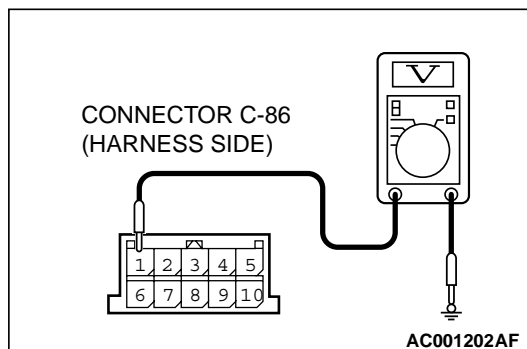
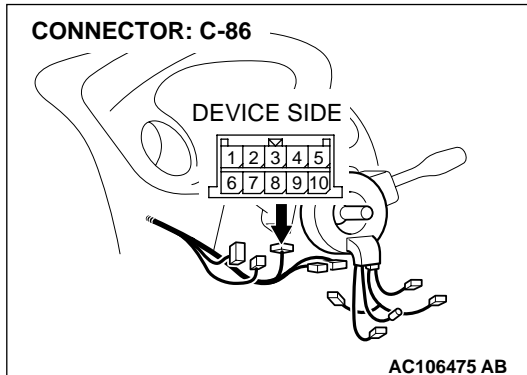


STEP 2. Check column switch connector C-86 for damage.

Q: Is column switch connector C-86 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. The system should communicate with the column switch (column-ECU) normally.



STEP 3. Check at column switch connector C-86 by backprobing in order to check the power supply circuit to the column switch (through the battery).

(1) Measure at column switch connector C-86 without disconnecting the connector.

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

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 6.

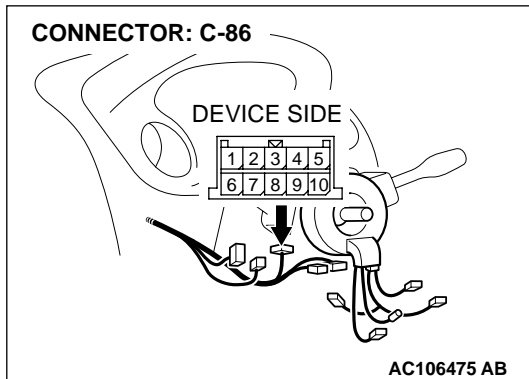
NO : Go to Step 4.

STEP 4. Check column switch connector C-86 for damage.

Q: Is column switch connector C-86 in good condition?

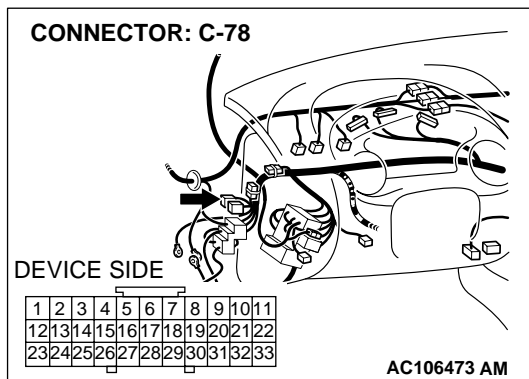
YES : Go to Step 5.

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



STEP 5. Check the wiring harness between column switch connector C-86 (terminal 1) and the battery.

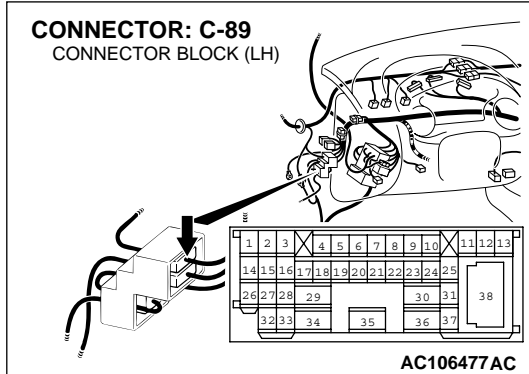
NOTE: Also check joint connector C-78 and intermediate connector C-89. If joint connector C-78 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

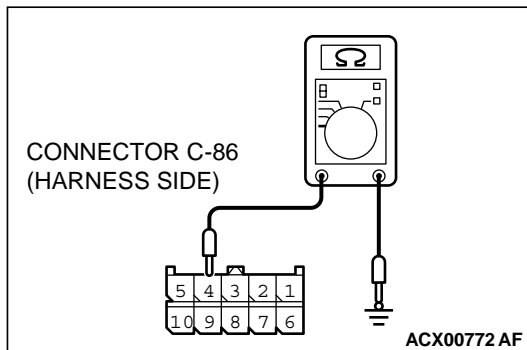
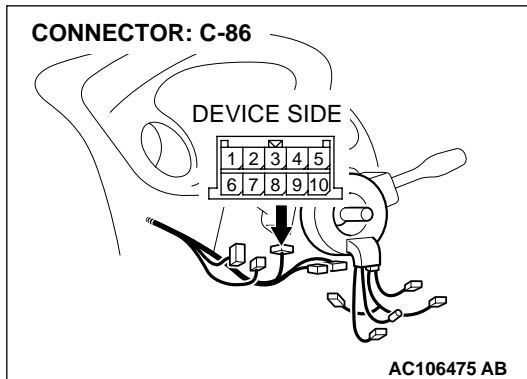


Q: Is the wiring harness between column switch connector C-86 (terminal 1) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the column switch (column-ECU) normally.





STEP 6. Measure at column switch connector C-86 in order to check the ground circuit to the column switch.

(1) Disconnect column switch connector C-86, and measure at the wiring harness side.

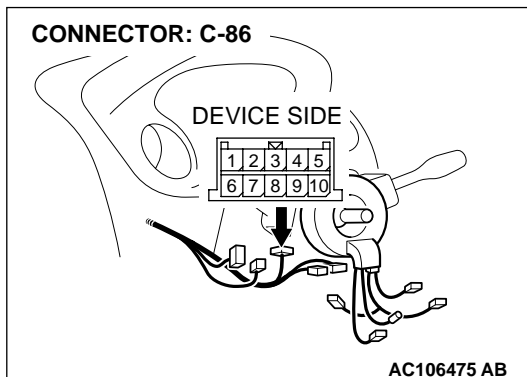
(2) Measure the resistance value between terminal 4 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 9.

NO : Go to Step 7.

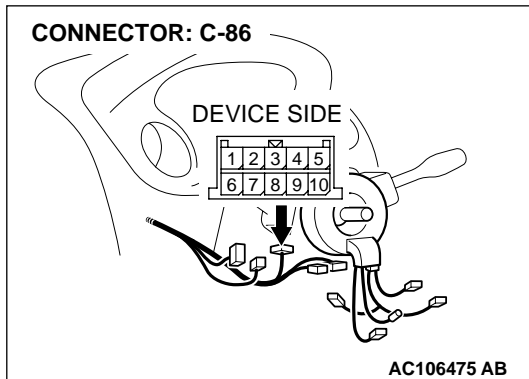


STEP 7. Check column switch connector C-86 for damage.

Q: Is column switch connector C-86 in good condition?

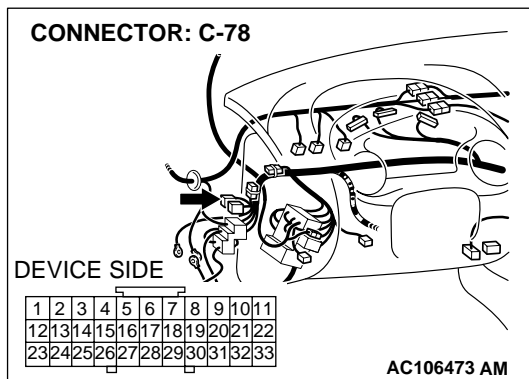
YES : Go to Step 8.

NO : Repair or replace the connector. 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 C-86 (terminal 4) and ground.

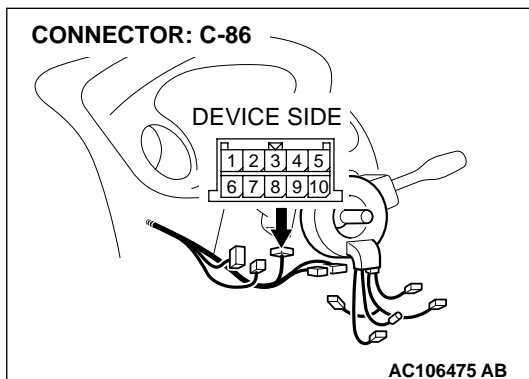
NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between column switch connector C-86 (terminal 4) and the ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the column switch (column-ECU) normally.

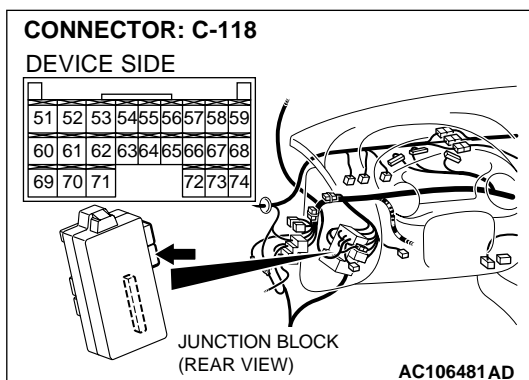


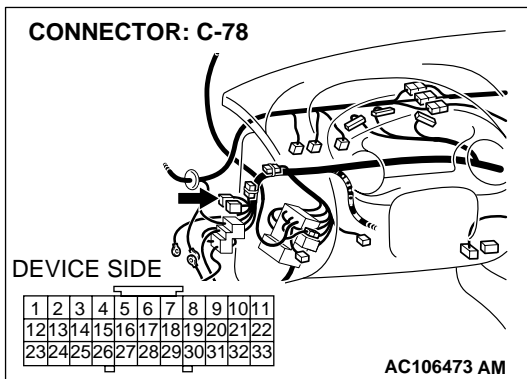
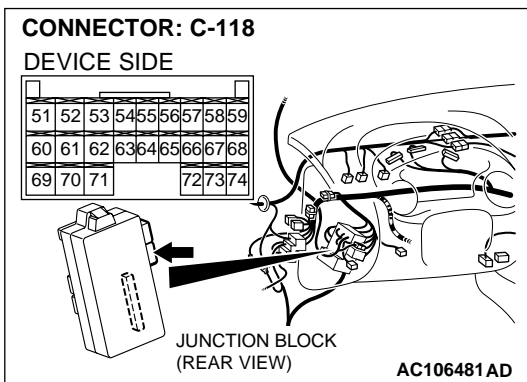
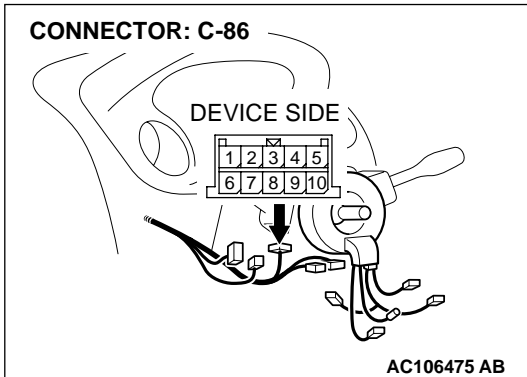
STEP 9. Check column switch connector C-86 and ETACS-ECU connector C-118 for damage.

Q: Are column switch connector C-86 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 10.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the column switch (column-ECU) normally.





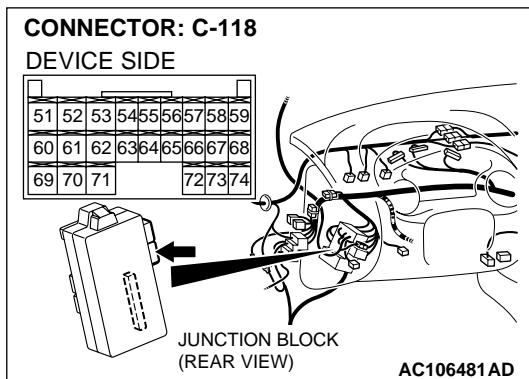
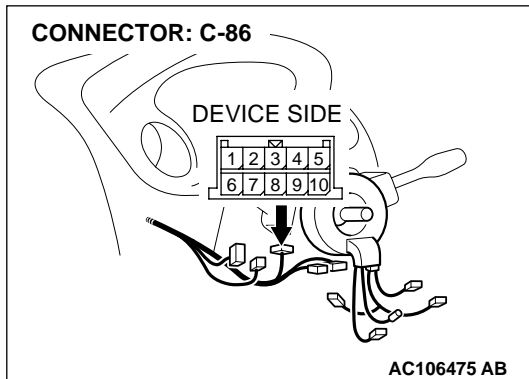
STEP 10. Check the wiring harness between column switch connector C-86 (terminal 3) and ETACS-ECU connector C-118 (terminal 59).

NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between column switch connector C-86 (terminal 3) and ETACS-ECU connector C-118 (terminal 59) in good condition?

YES : Go to Step 13.

NO : Repair the wiring harness. The system should communicate with the column switch (column-ECU) normally.

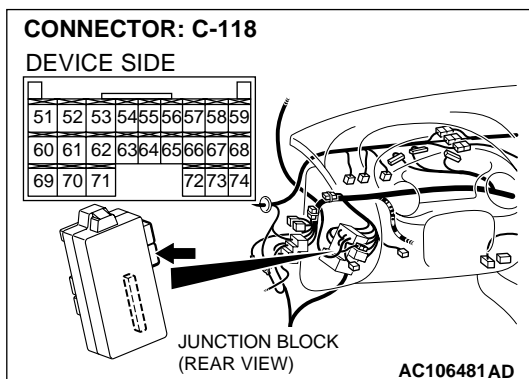
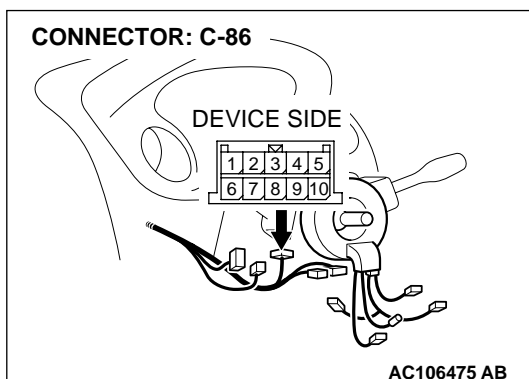


STEP 11. Check column switch connector C-86 and ETACS-ECU connector C-118 for damage.

Q: Are column switch connector C-86 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 12.

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



STEP 12. Check the wiring harness between column switch connector C-86 (terminal 2) and ETACS-ECU connector C-118 (terminal 68).

Q: Is the wiring harness between column switch connector C-86 (terminal 2) and ETACS-ECU connector C-118 (terminal 68) in good condition?

YES : Go to Step 13.

NO : Repair the wiring harness. The system should communicate with the column switch (column-ECU) normally.

STEP 13. Replace the ETACS-ECU.

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

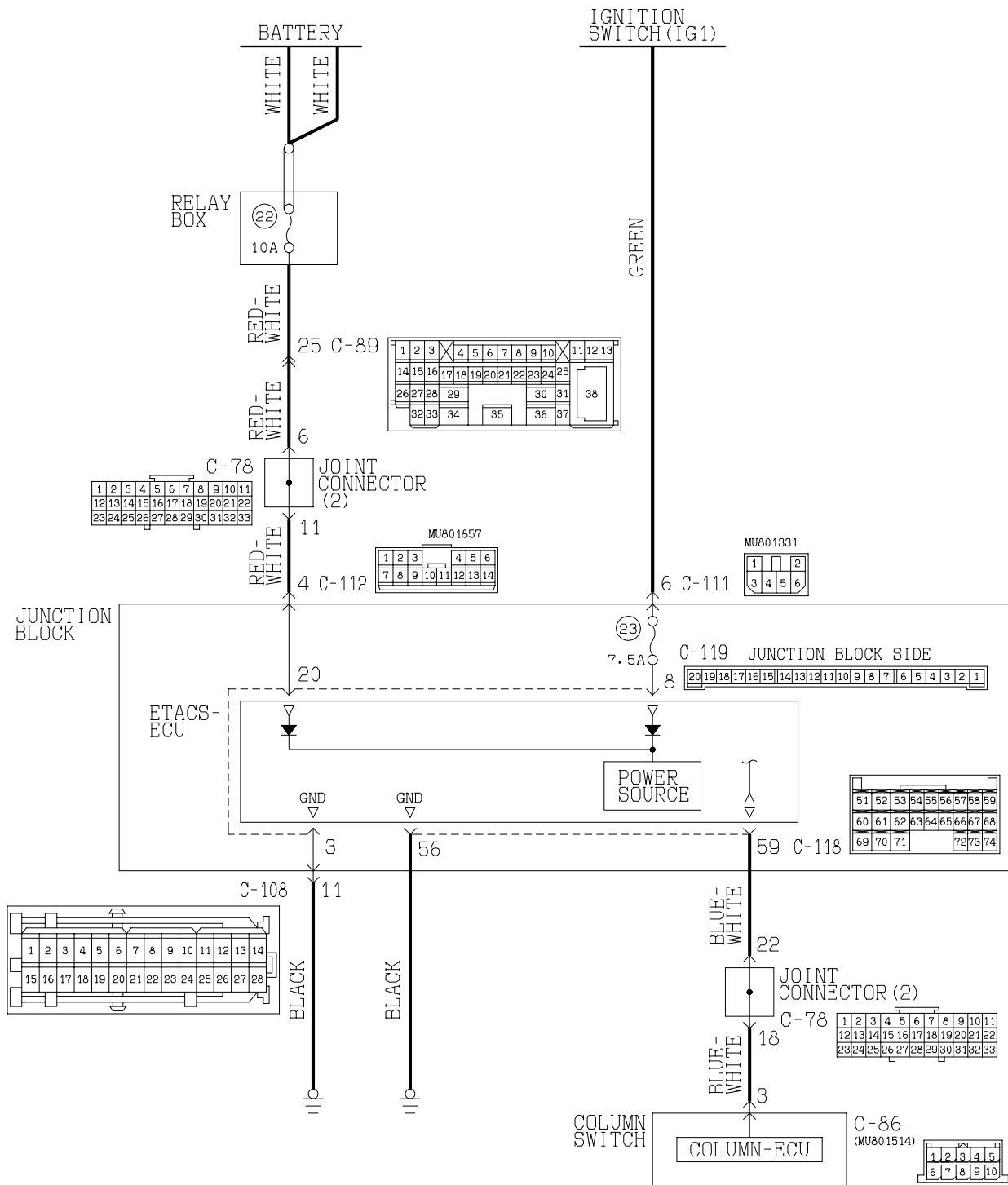
Q: Can the system communicate with the column switch (column-ECU)?

YES : No action to be taken.

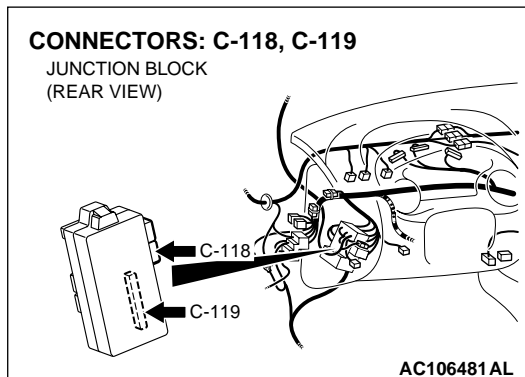
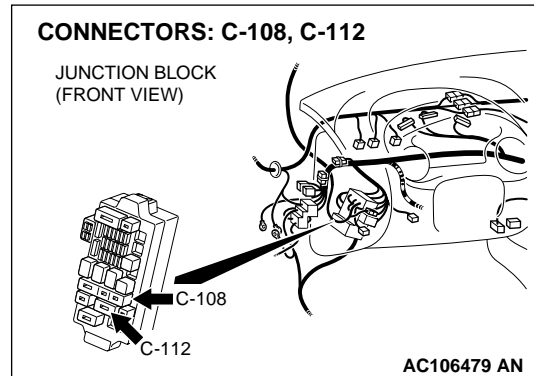
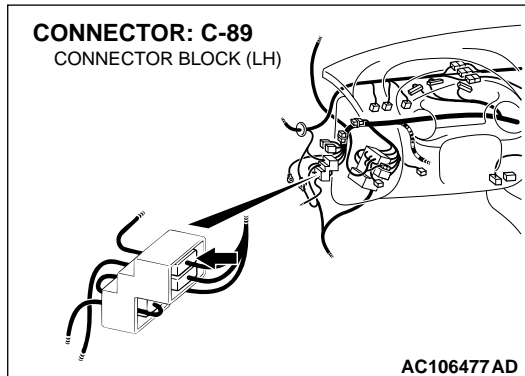
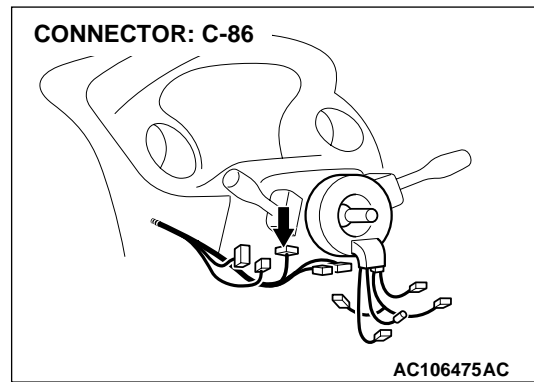
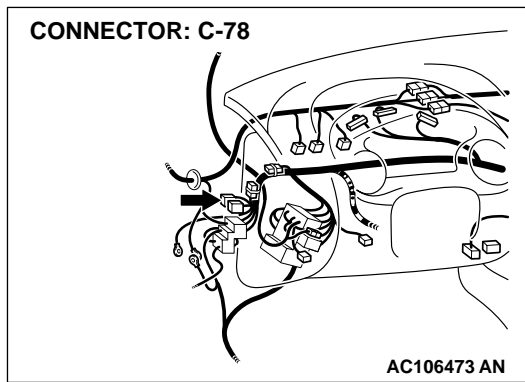
NO : Replace the ETACS-ECU. The system should communicate with the column switch (column-ECU) normally.

INSPECTION PROCEDURE A-3: Communication with the ETACS-ECU is Impossible.

ETACS-ECU Power Supply and SWS Communication Circuit



W3S01M13AA



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 20 of the ETACS-

ECU) is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal 8 of the ETACS-ECU), and repair if necessary. If the ground circuit to the ECU (terminal 3 of the ETACS-ECU) is damaged, also check the ground circuit to the sensor (terminal 56 of the ETACS-ECU), and repair if necessary.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

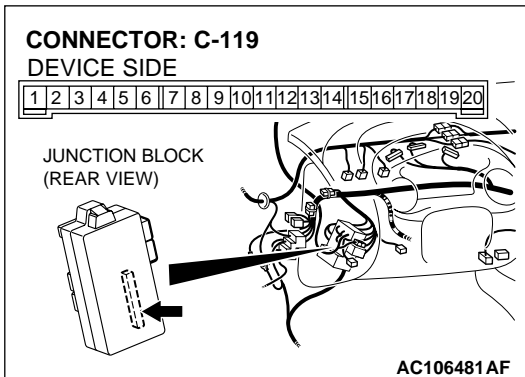
DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Measure at ETACS-ECU connector C-119 in order to check the battery power supply circuit to the ETACS-ECU.

(1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.



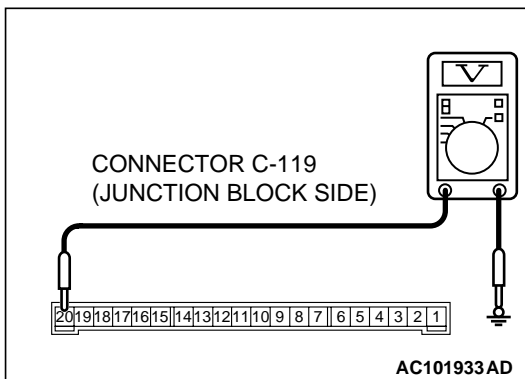
(2) Measure the voltage between terminal 20 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 4.

NO : Go to Step 2.

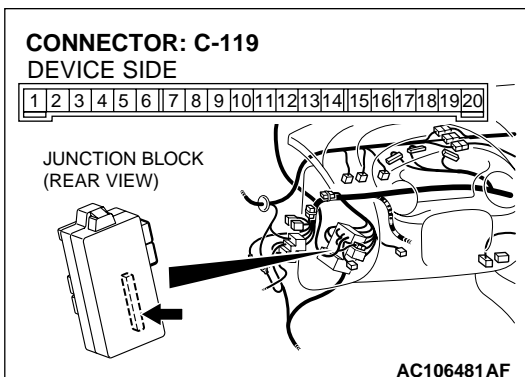


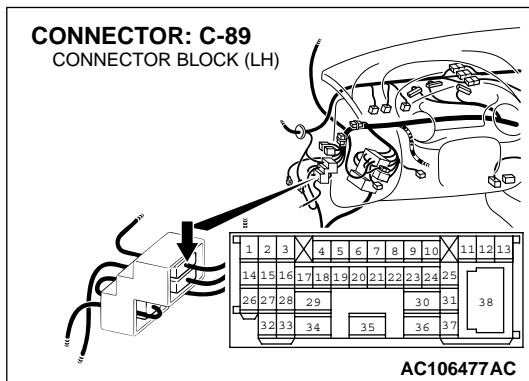
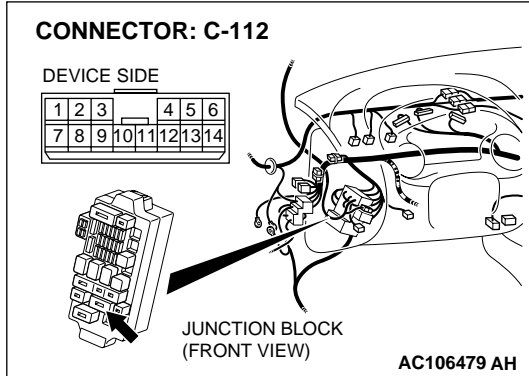
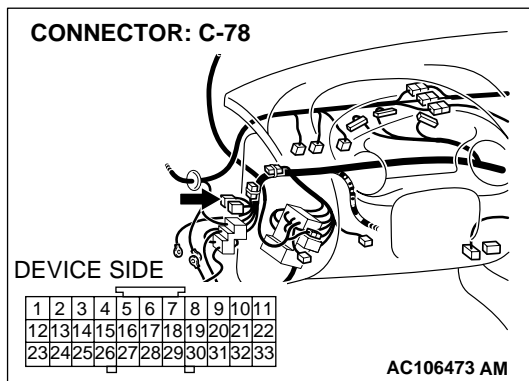
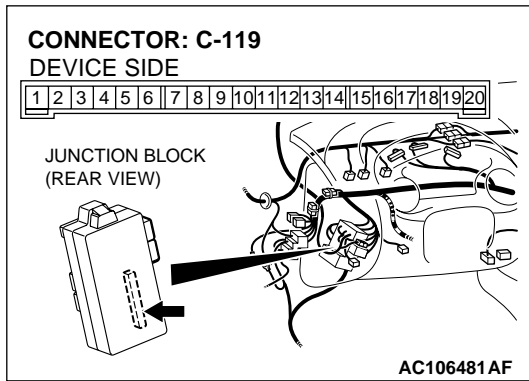
STEP 2. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The system should communicate with the ETACS-ECU normally.





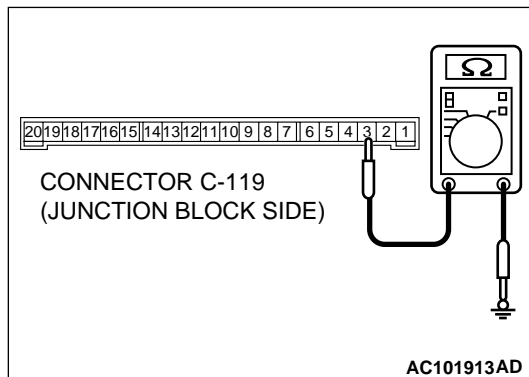
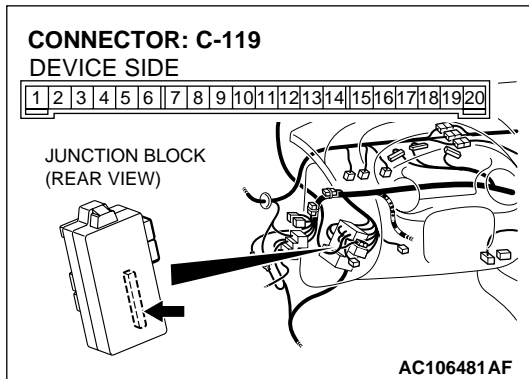
STEP 3. Check the wiring harness between ETACS-ECU connector C-119 (terminal 20) and the battery.

NOTE: Also check joint connector C-78, junction block connector C-112 and intermediate connector C-89. If joint connectors C-78, junction block connector C-112 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 20) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the ETACS-ECU normally.



STEP 4. Measure at ETACS-ECU connector C-119 in order to check the ground circuit to the ETACS-ECU.

(1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.

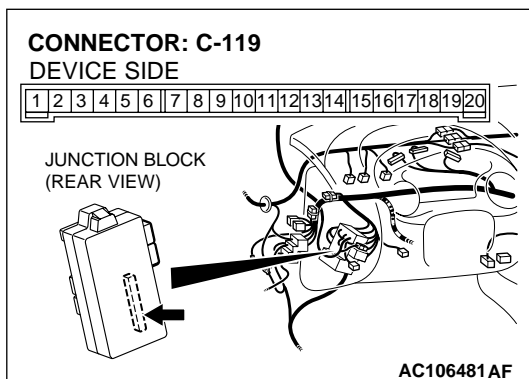
(2) Measure the resistance value between terminal 3 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

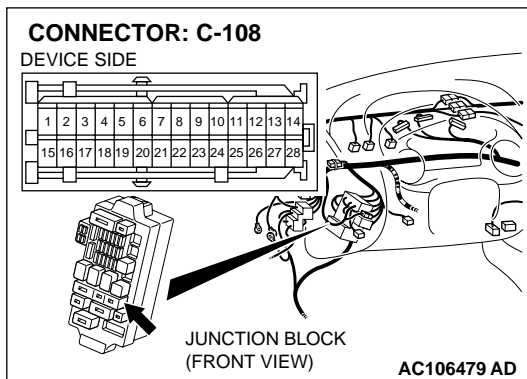
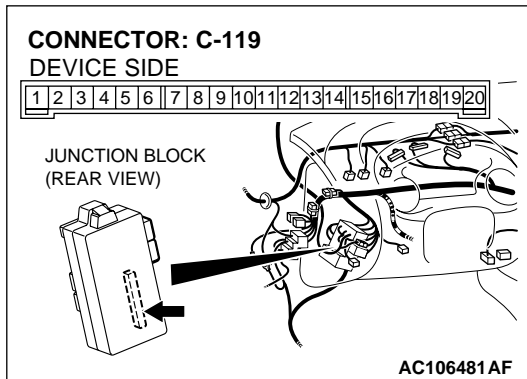


STEP 5. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 6.

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



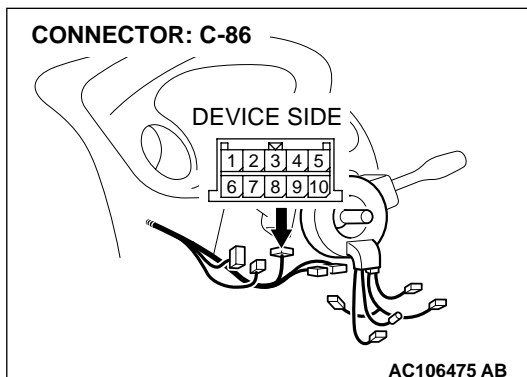
STEP 6. Check the wiring harness between ETACS-ECU connector C-119 (terminal 3) and the ground.

NOTE: Also check junction block connector C-108. If junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 3) and the ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the ETACS-ECU normally.

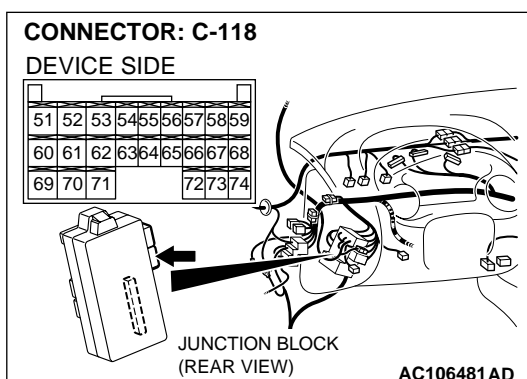


STEP 7. Check column switch connector C-86 and ETACS-ECU connector C-118 for damage.

Q: Are column switch connector C-86 and ETACS-ECU connector C-118 in good condition?

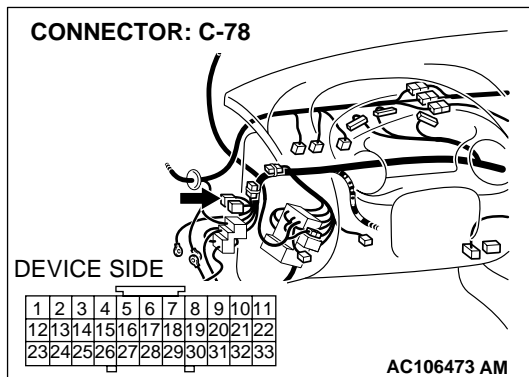
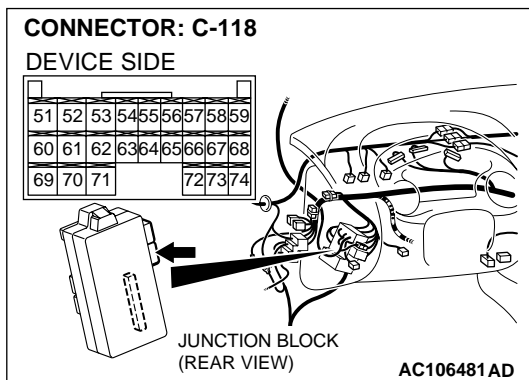
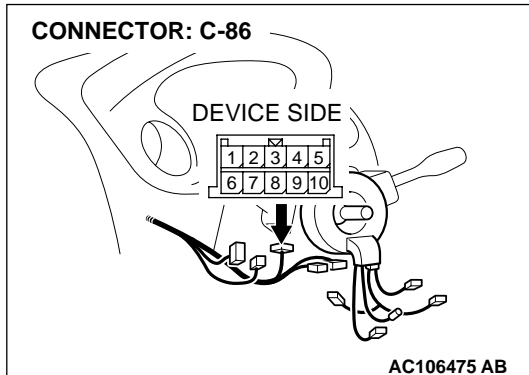
YES : Go to Step 8.

NO : Repair or replace the connector. 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 C-86 (terminal 3) and ETACS-ECU connector C-118 (terminal 59).

NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between column switch connector C-86 (terminal 3) and ETACS-ECU connector C-118 (terminal 59) in good condition?

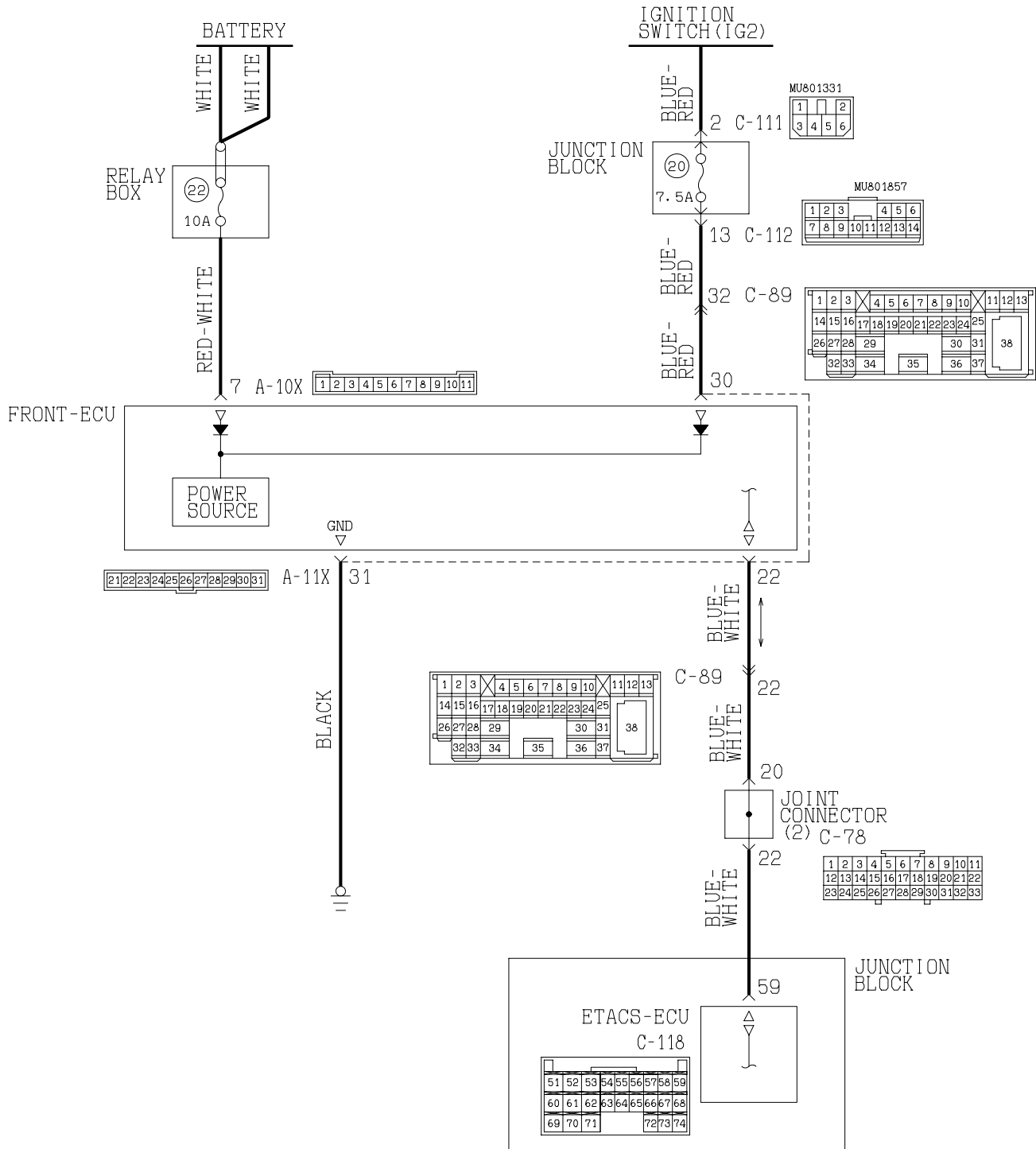
YES : Replace the ETACS-ECU. The system should communicate with the ETACS-ECU normally.

NO : Repair the wiring harness. The system should communicate with the ETACS-ECU normally.

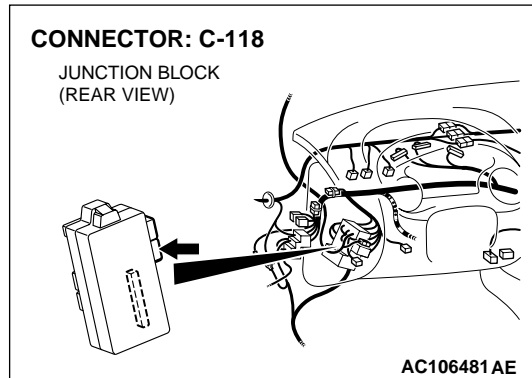
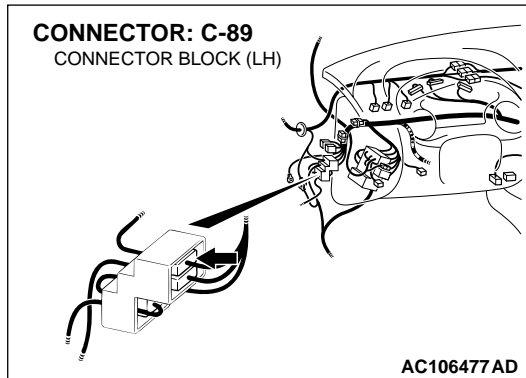
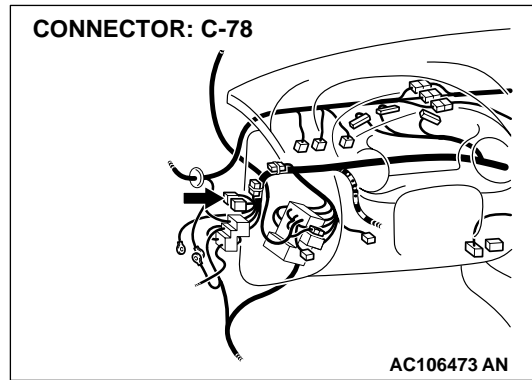
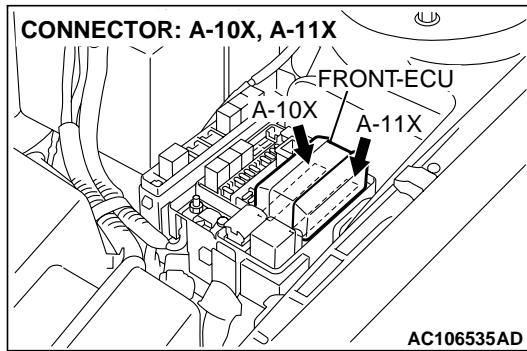
INSPECTION PROCEDURE A-4: Communication with the Front-ECU is Impossible.

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

Front-ECU Power Supply and SWS Communication Circuit



W3S01M14AA



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

- Malfunction of the ETACS-ECU
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

⚠ CAUTION

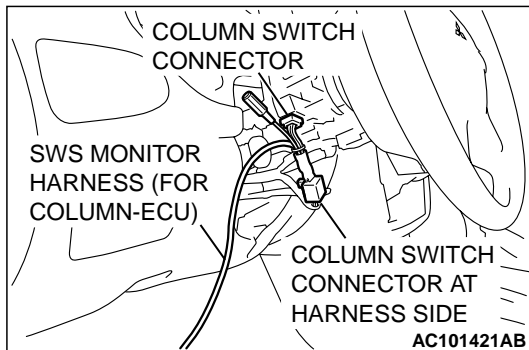
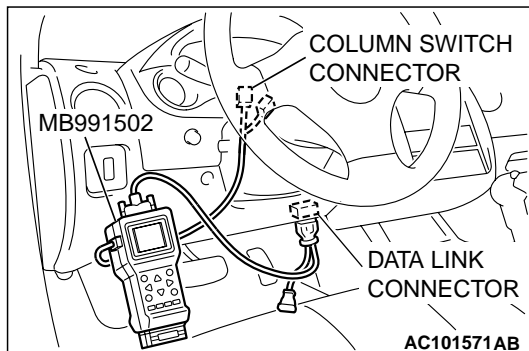
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

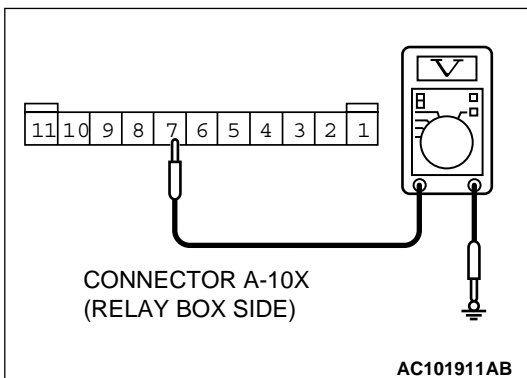
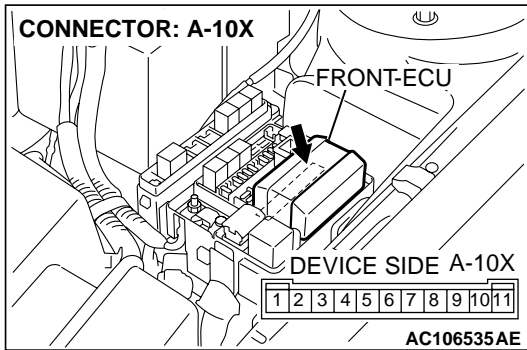
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





STEP 2. Measure at front-ECU connector A-10X in order to check the battery circuit of power supply system to the front-ECU.

(1) Disconnect front-ECU connector A-10X, and measure at the relay box side.

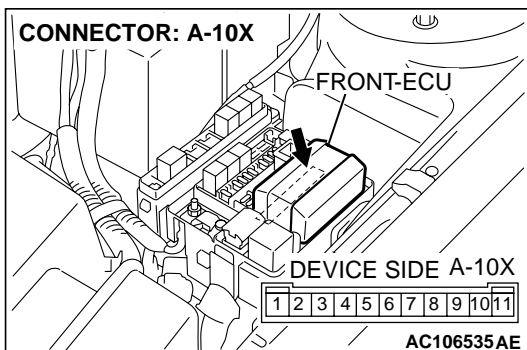
(2) Measure the voltage between terminal 7 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

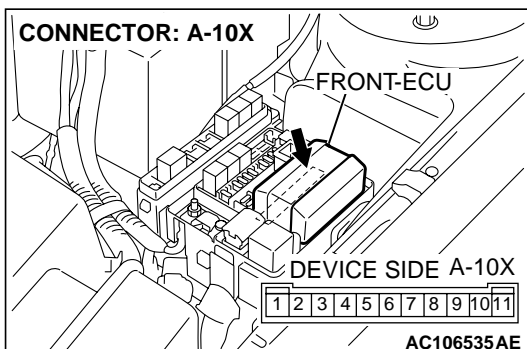


STEP 3. Check the front-ECU connector A-10X for damage.

Q: Is front-ECU connector A-10X in good condition?

YES : Go to Step 4.

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

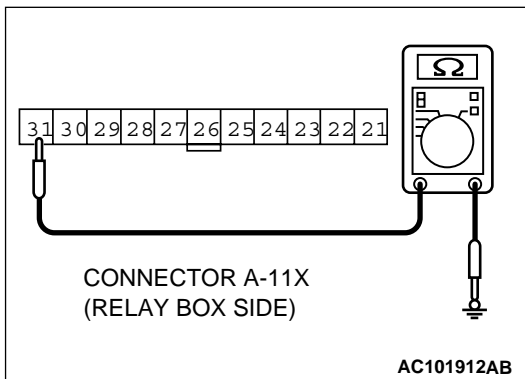
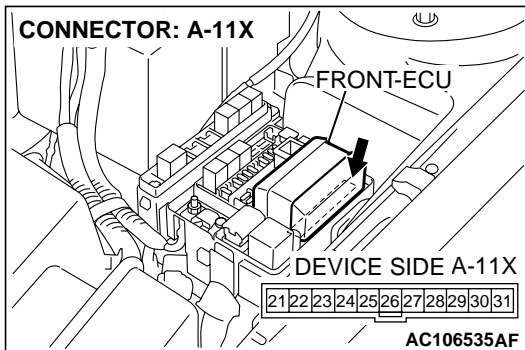


STEP 4. Check the wiring harness between front-ECU connector A-10X (terminal 7) and the battery.

Q: Is the wiring harness between front-ECU connector A-10X (terminal 7) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the front-ECU normally.



STEP 5. Measure at front-ECU connector A-11X in order to check the ground circuit to the front-ECU.

(1) Disconnect front-ECU connector A-11X, and measure at the relay box side.

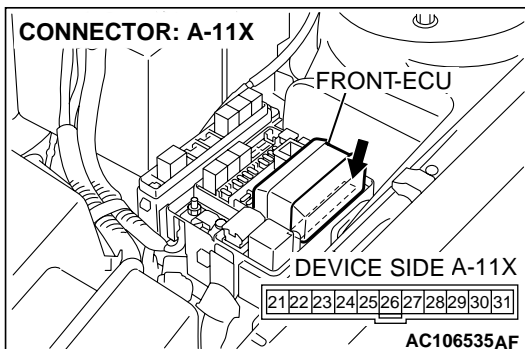
(2) Measure the resistance value between terminal 31 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

NO : Go to Step 6.

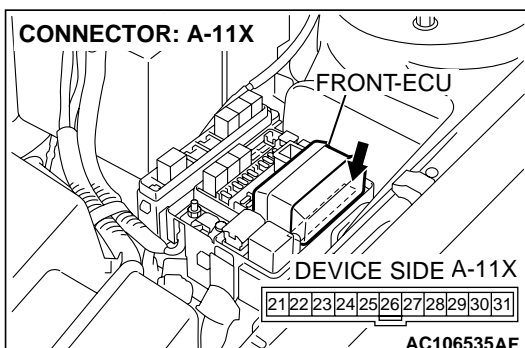


STEP 6. Check the front-ECU connector A-11X for damage.

Q: Is front-ECU connector A-11X in good condition?

YES : Go to Step 7.

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



STEP 7. Check the wiring harness between front-ECU connector A-11X (terminal 31) and the ground.

Q: Is the wiring harness between front-ECU connector A-11X (terminal 31) and ground in good condition?

YES : No action to be taken.

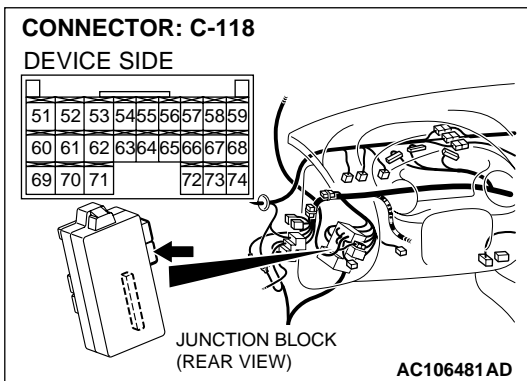
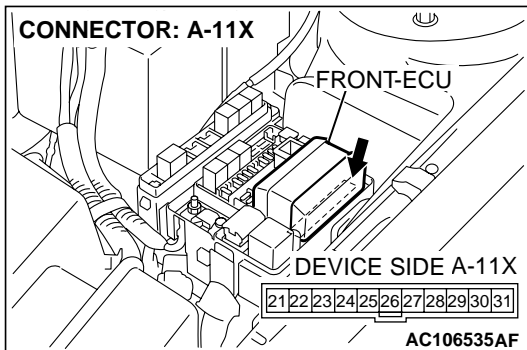
NO : Repair the wiring harness. The system should communicate with the front-ECU normally.

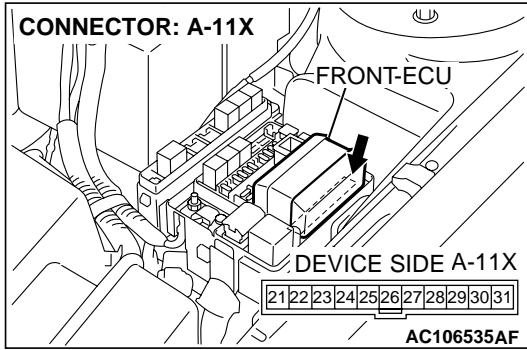
STEP 8. Check the front-ECU connector A-11X and ETACS-ECU connector C-118 for damage.

Q: Are front-ECU connector A-11X and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 9.

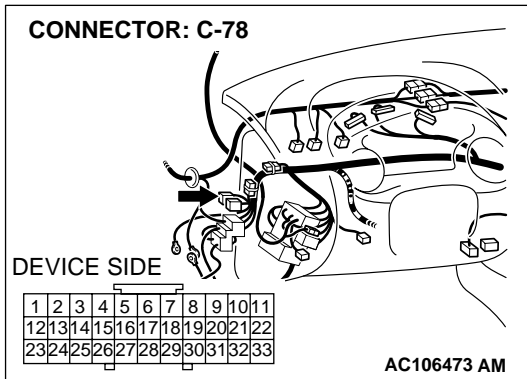
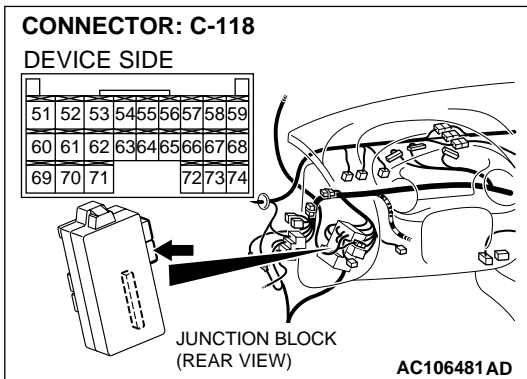
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The system should communicate with the front-ECU normally.





STEP 9. Check the wiring harness between front-ECU connector A-11X (terminal 22) and ETACS-ECU connector C-118 (terminal 59).

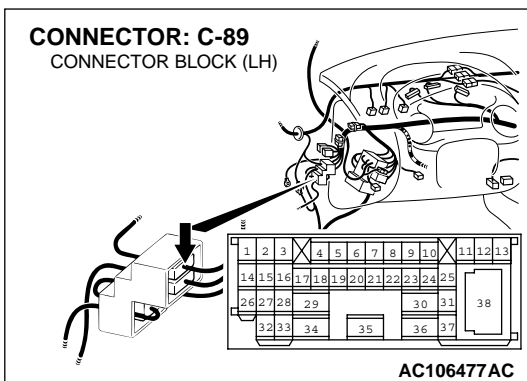
NOTE: Also check joint connector C-78 and intermediate connector C-89. If joint connector C-78 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between front-ECU connector A-11X (terminal 22) and ETACS-ECU connector C-118 (terminal 59) in good condition?

YES : Go to Step 10.

NO : Repair the wiring harness. The system should communicate with the front-ECU normally.



STEP 10. Replace the ETACS-ECU.

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

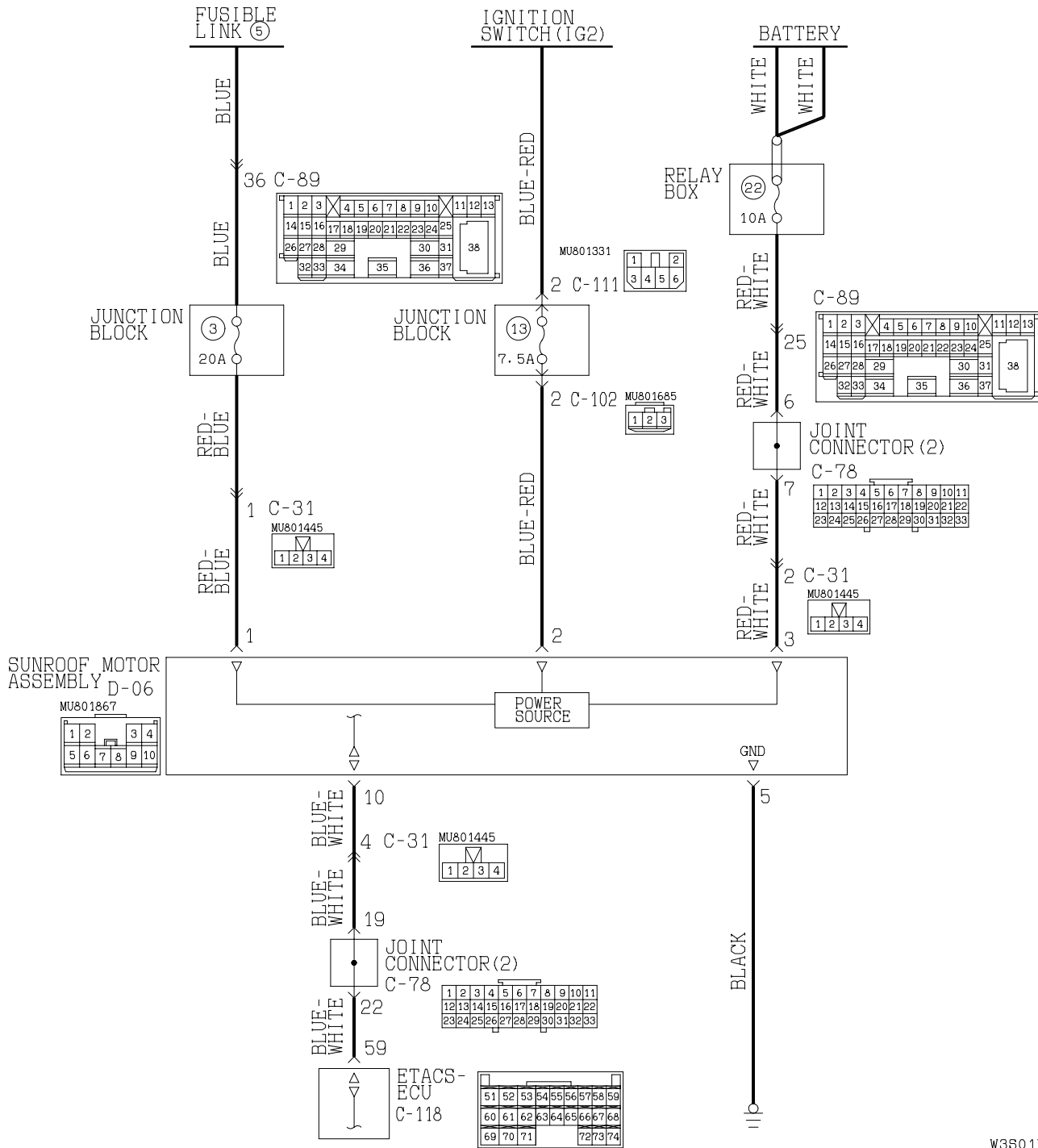
Q: Can the system communicate with the front-ECU?

YES : No action to be taken.

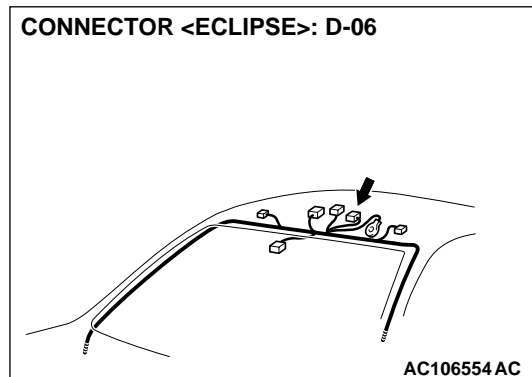
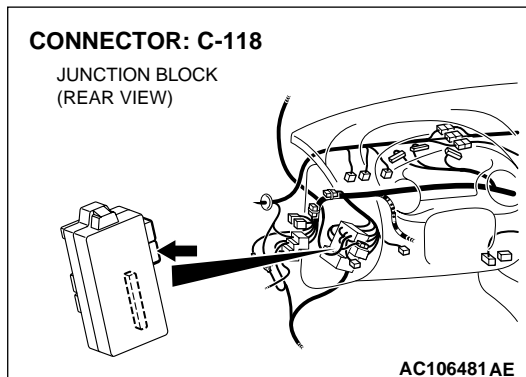
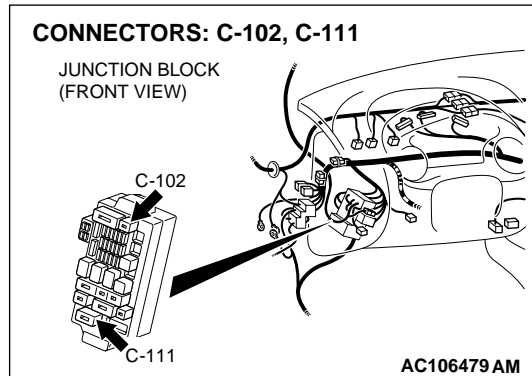
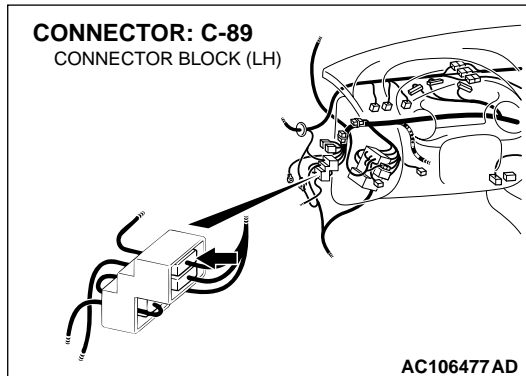
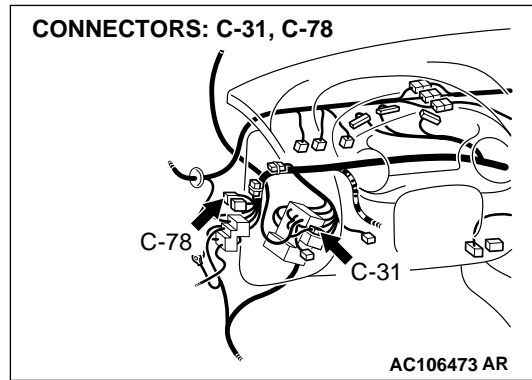
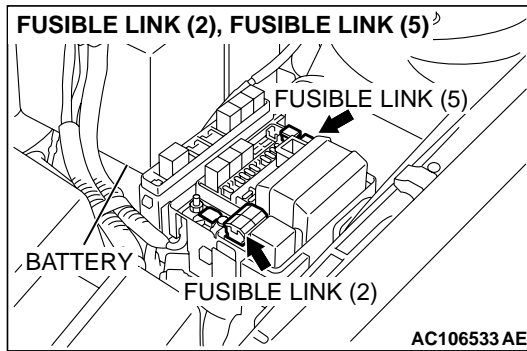
NO : Replace the ETACS-ECU. The system should communicate with the front-ECU normally.

INSPECTION PROCEDURE A-5: Communication with the Sunroof Motor Assembly (Sunroof-ECU) is Impossible.

Sunroof Motor Assembly (Sunroof-ECU) Power Supply and SWS Communication Circuit



W3S01M15AA



CIRCUIT OPERATION

- Power to the sunroof motor assembly is supplied through battery and fusible link (5).
- 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

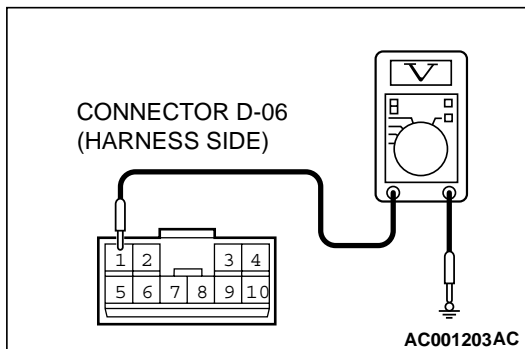
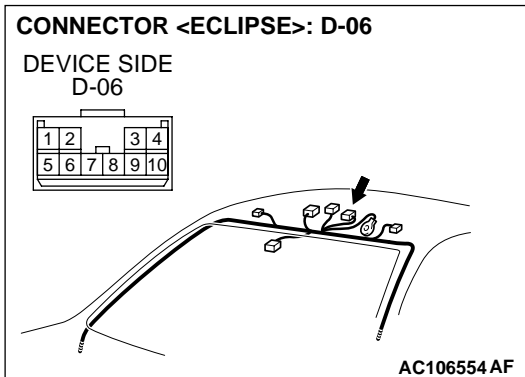
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tool:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check sunroof motor assembly connector D-06 by backprobing in order to the fusible link (5) line of the power supply circuit to the sunroof motor assembly.

(1) Measure at sunroof motor assembly connector D-06 without disconnecting it.



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

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 4.

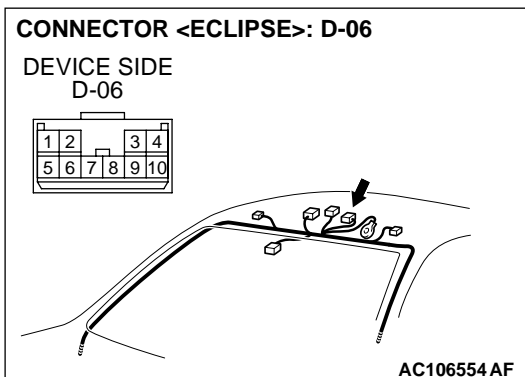
NO : Go to Step 2.

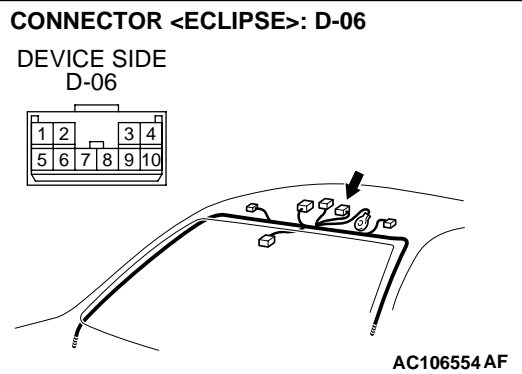
STEP 2. Check sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

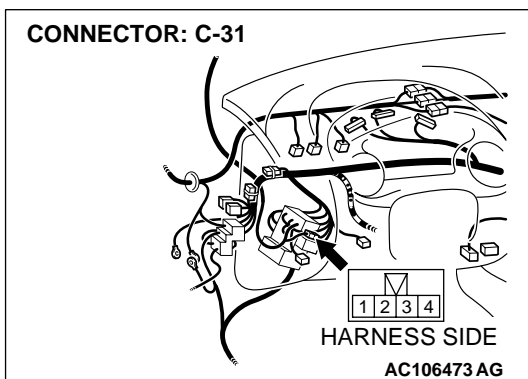
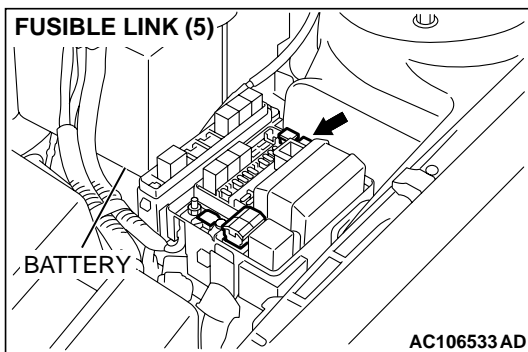
YES : Go to Step 3.

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





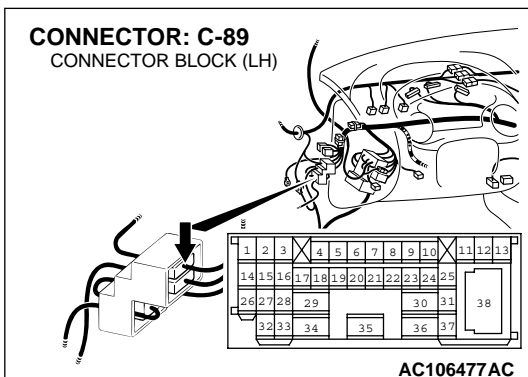
STEP 3. Check the wiring harness between sunroof motor assembly connector D-06 (terminal 1) and fusible link (5).
NOTE: Also check intermediate connectors C-31 and C-89. If intermediate connector C-31 or C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

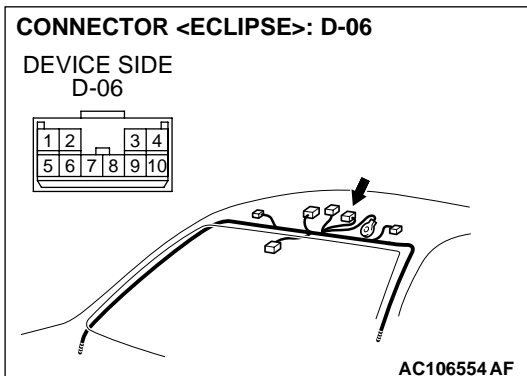
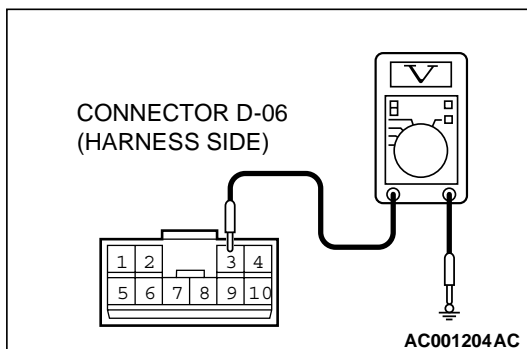
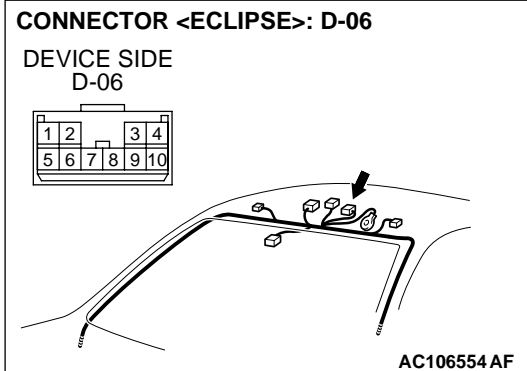


Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 1) and fusible link (5) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.





STEP 4. Check sunroof motor assembly connector D-06 by backprobing in order to the battery line of the power supply circuit to the sunroof motor assembly.

(1) Measure at sunroof motor assembly connector D-06 without disconnecting it.

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

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

STEP 5. Check sunroof motor assembly connector D-06 for damage.

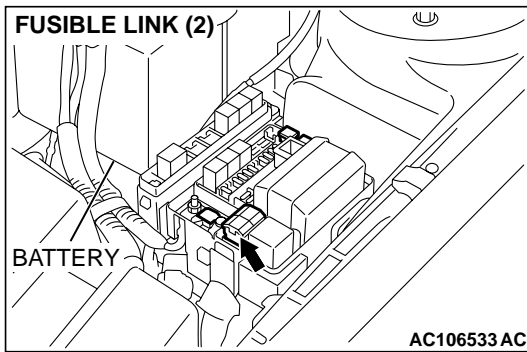
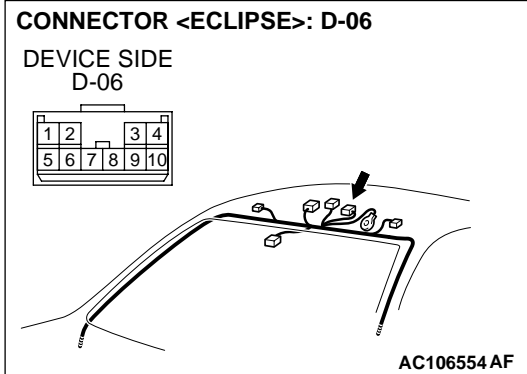
Q: Is sunroof motor assembly connector D-06 in good condition?

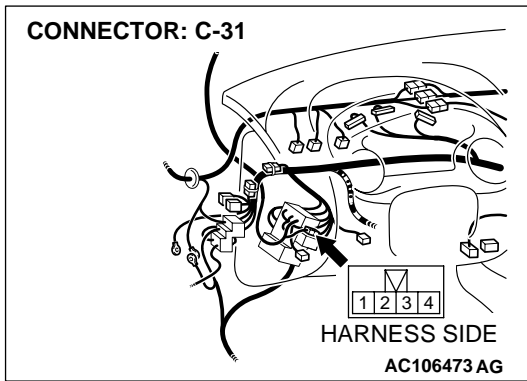
YES : Go to Step 6.

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

STEP 6. Check the wiring harness between sunroof motor assembly connector D-06 (terminal 3) and fusible link (2).

NOTE: Also check intermediate connectors C-31, C-89 and joint connector C-78. If intermediate connector C-31, C-89 and joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

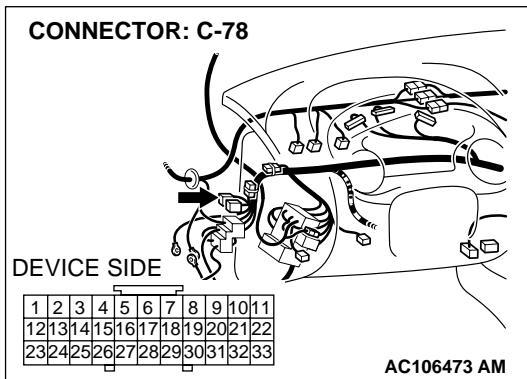
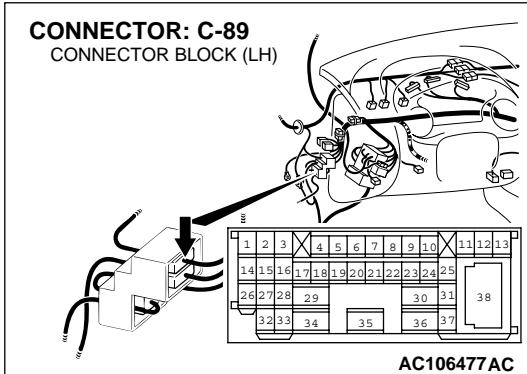


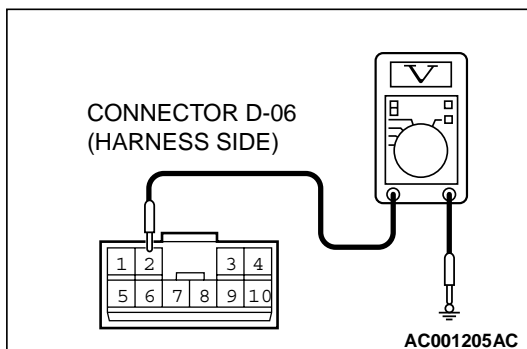
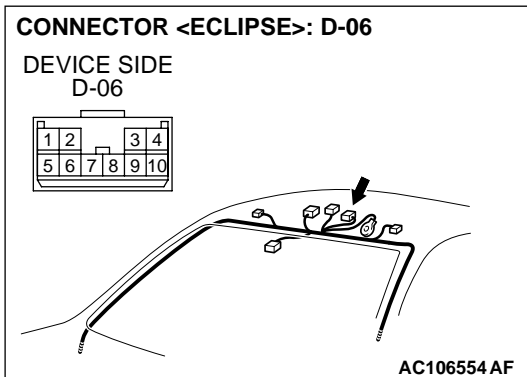


Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 3) and fusible link (2) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.





STEP 7. Check sunroof motor assembly connector D-06 by backprobing in order to the ignition switch (IG2) line of the power supply circuit to the sunroof motor assembly.

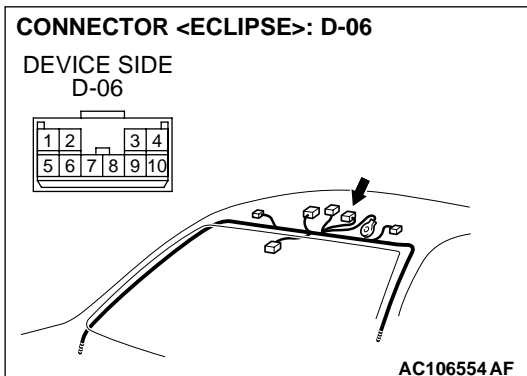
- (1) Measure at sunroof motor assembly connector D-06 without disconnecting it.
- (2) Turn the ignition switch to the "ON" position.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 10.

NO : Go to Step 8.

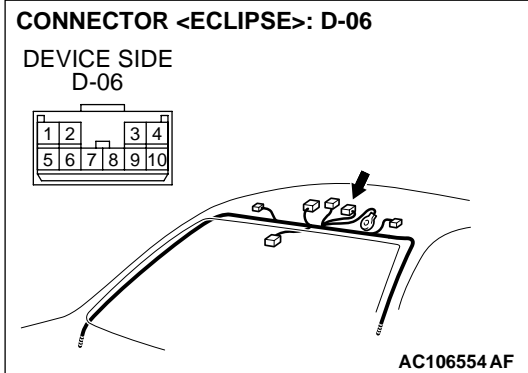


STEP 8. Check sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

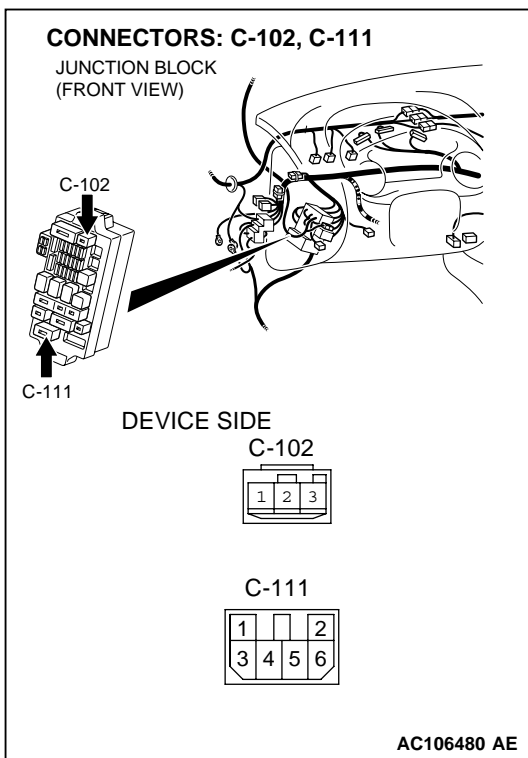
YES : Go to Step 9.

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



STEP 9. Check the wiring harness between sunroof motor assembly connector D-06 (terminal 2) and ignition switch (IG2).

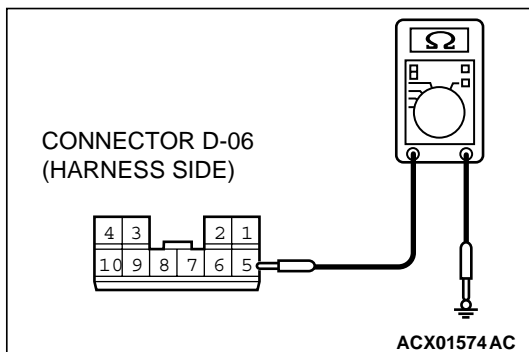
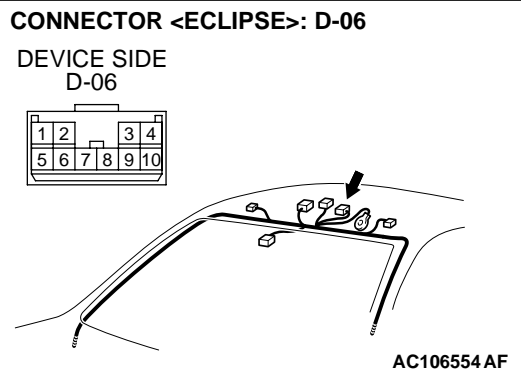
NOTE: Also check junction block connectors C-102 and C-111. If junction block connector C-102 or C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 2) and the ignition switch (IG2) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.



STEP 10. Measure at sunroof motor assembly connector D-06 in order to check the ground circuit to the sunroof motor assembly.

(1) Disconnect sunroof motor connector D-06, and measure at the wiring harness side.

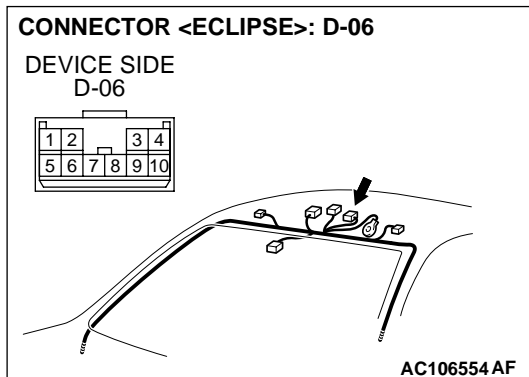
(2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 13.

NO : Go to Step 11.



STEP 11. Check sunroof motor assembly connector D-06 for damage.

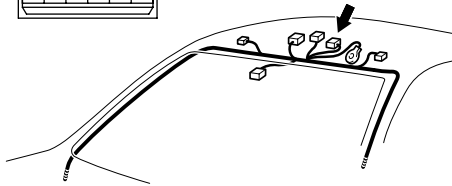
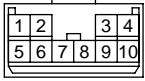
Q: Is sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 12.

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

CONNECTOR <ECLIPSE>: D-06

DEVICE SIDE
D-06



AC106554 AF

STEP 12. Check the wiring harness between sunroof motor connector D-06 (terminal 5) and ground.

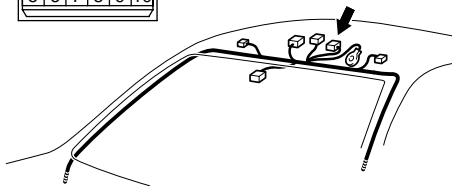
Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 5) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

CONNECTOR <ECLIPSE>: D-06

DEVICE SIDE
D-06



AC106554 AF

STEP 13. Check sunroof motor assembly connector D-06 and ETACS-ECU connector C-118 for damage.

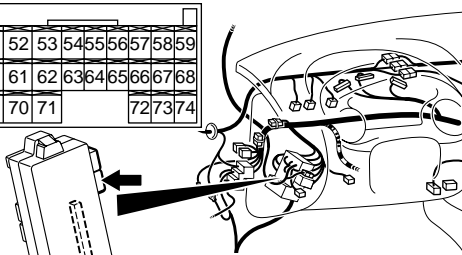
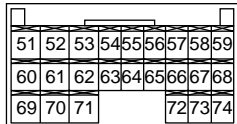
Q: Are sunroof motor assembly connector D-06 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 14.

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

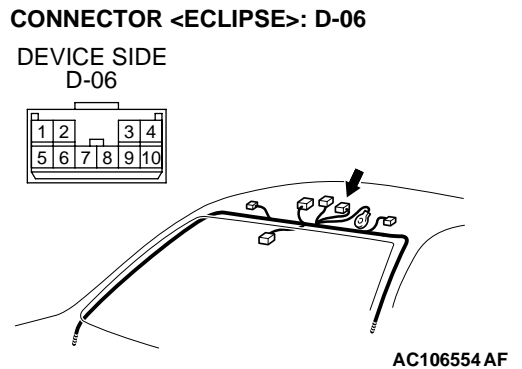
CONNECTOR: C-118

DEVICE SIDE



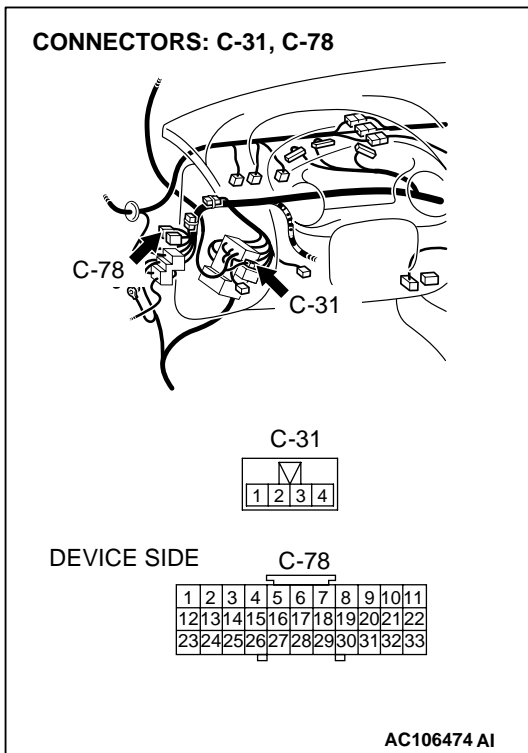
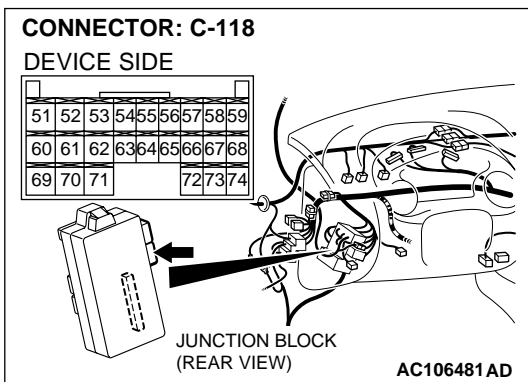
JUNCTION BLOCK
(REAR VIEW)

AC106481 AD



STEP 14. Check the wiring harness between sunroof motor assembly connector D-06 (terminal 10) and ETACS-ECU connector C-118 (terminal 59).

NOTE: Also check intermediate connector C-31 and joint connector C-78. If intermediate connector C-31 or joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 10) and ETACS-ECU connector C-118 (terminal 59) in good condition?

YES : Go to Step 15.

NO : Repair the wiring harness. The system should communicate with the sunroof motor assembly (sunroof-ECU) normally.

STEP 15. Replace the sunroof motor assembly.

- (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 to be taken.

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

TONE ALARM

GENERAL DESCRIPTION CONCERNING TONE ALARM

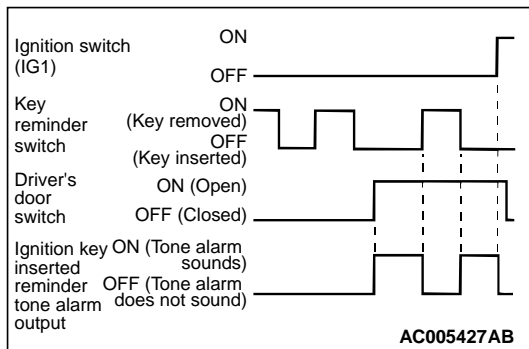
M1549021000025

The tone alarm functions are as follows. These functions are controlled by relevant ECUs.

Functions	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

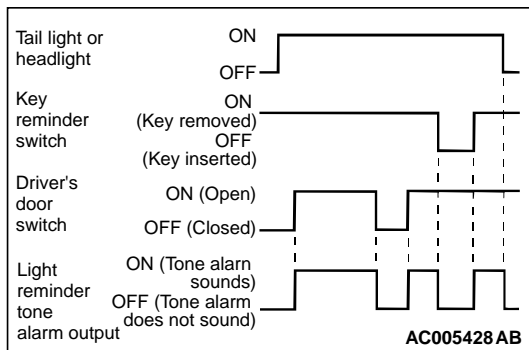
IGNITION KEY REMINDER TONE ALARM FUNCTION

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.



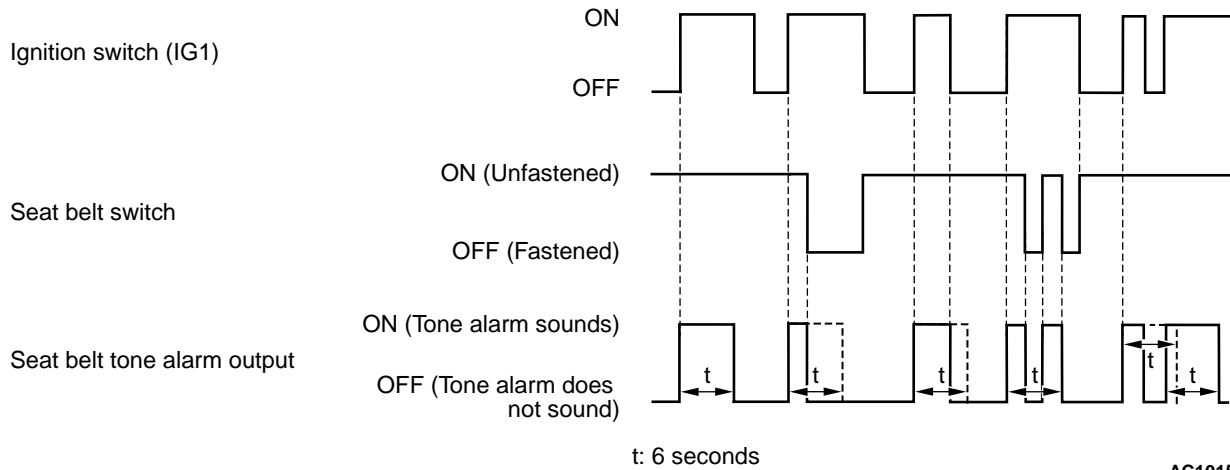
LIGHT REMINDER TONE ALARM FUNCTION

When the tail light 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 tail light or headlight has been turned off by the headlight automatic-shutdown function, the tone alarm will not sound.



SEAT BELT TONE ALARM FUNCTION

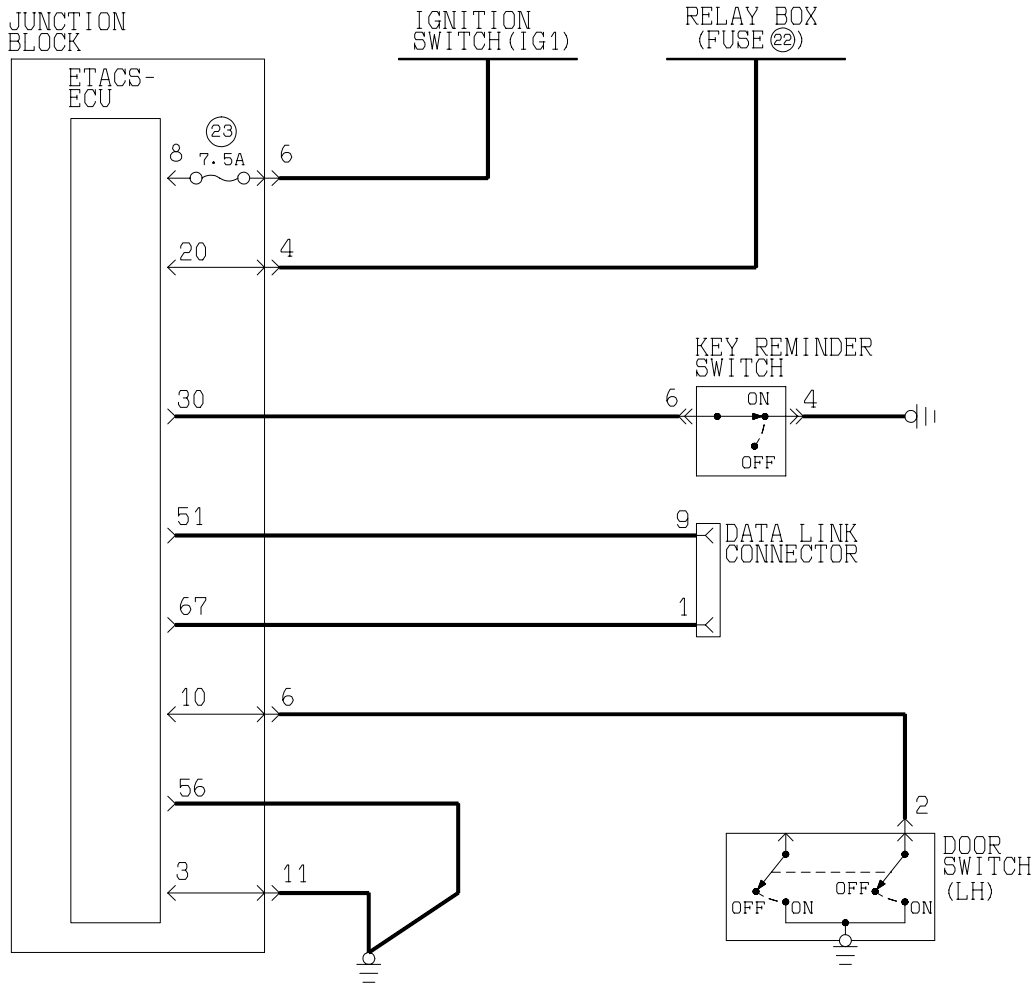
When the ignition switch is turned to ON position without fastening the driver's seat belt (driver's seat belt switch off), the tone alarm will sound for approximately six seconds to warn the driver to fasten the seat belt. When the driver's seat belt are fastened or ignition switch is turned to OFF position, the tone alarm will stop sounding.



t: 6 seconds

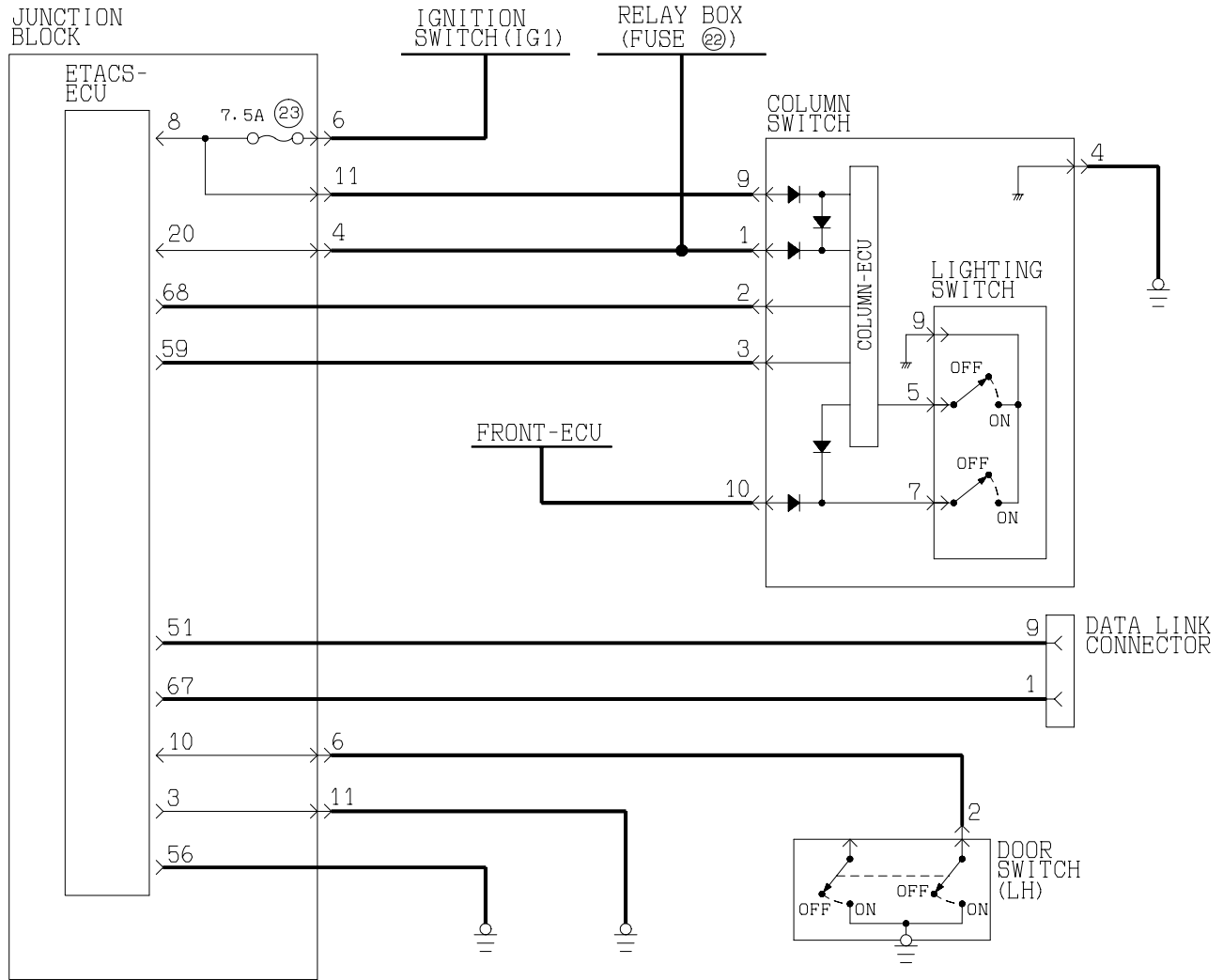
AC101569AB

General Circuit Diagram for Ignition Key Reminder Tone Alarm Function



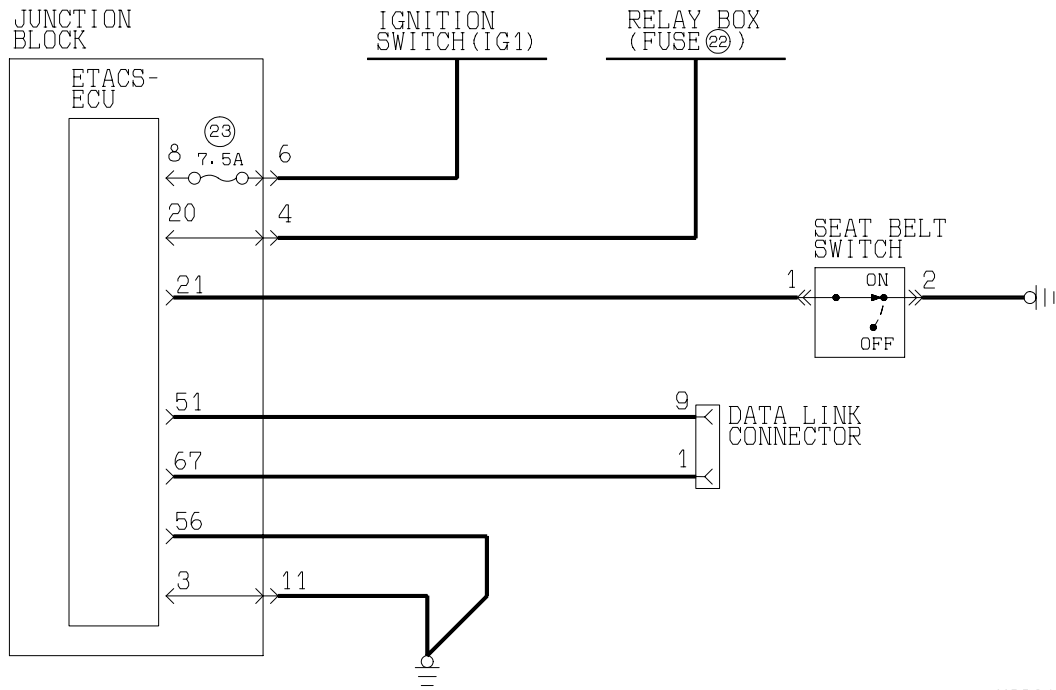
W3S01M10AA

General Circuit Diagram for Light Reminder Tone Alarm Function



W3S0 1M06AA

General Circuit Diagram for Seat Belt Tone Alarm Function

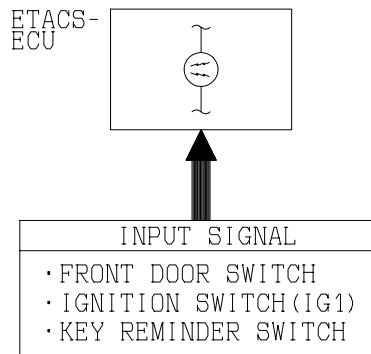


W3S01M11AA

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

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

Ignition Key Reminder Tone Alarm Function



W1Q15M06AA

CIRCUIT OPERATION

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

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

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of front door switches
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

⚠ CAUTION

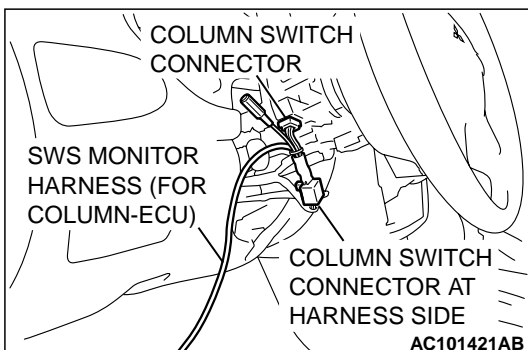
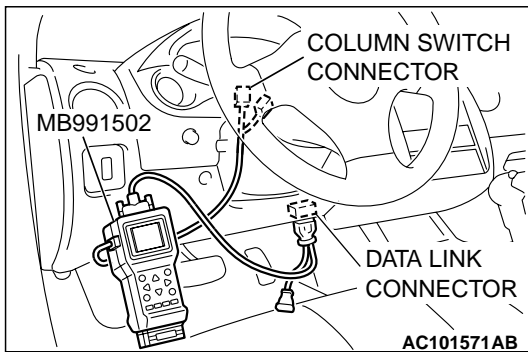
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

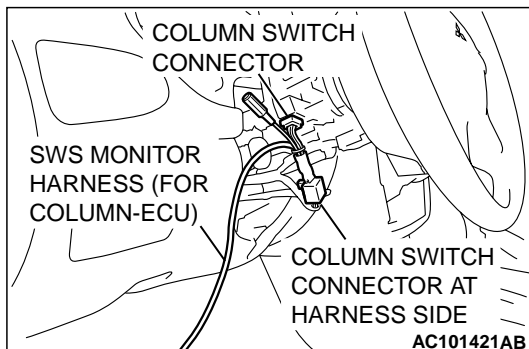
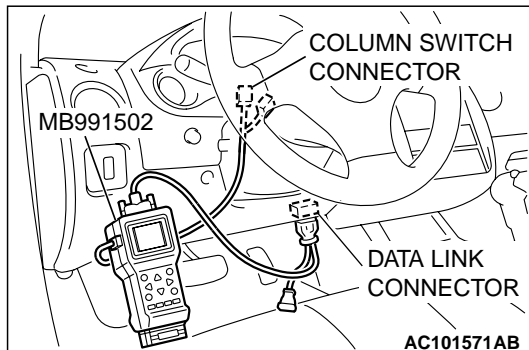
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





STEP 2. Check the input signal by using "FUNCTION DIAG." 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 the MUT-II 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.

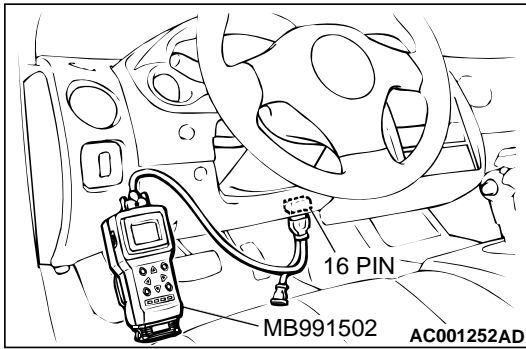
NOTE: The scan tool display changes when the driver's or the front passenger's door is opened. If any of the doors is open, the system can not be checked correctly.

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

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

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

- NO :**
- 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 a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - The scan tool does not show the respective normal condition for item "FRONT DOOR SW." Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"
 - 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).

Check the input signals from the key reminder switch.

- Check whether scan tool MB991502 sounds or not when the ignition key is removed.

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Q: Does scan tool MB991502 sound when the ignition key is removed?

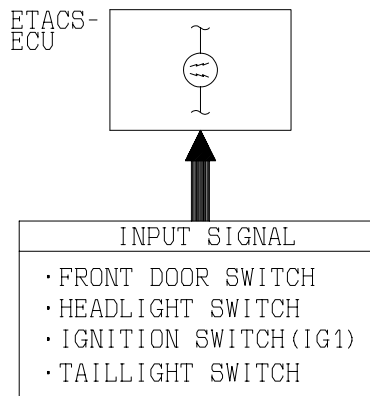
YES : Replace the ETACS-ECU. The ignition key reminder tone alarm function should work normally.

NO : Refer to Inspection Procedure P-1 "ETACS-ECU does not receive a signal from the key reminder switch P.54B-524."

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

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

Light Reminder Tone Alarm Function



W1Q15M07AA

CIRCUIT OPERATION

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

- Ignition switch (IG1): OFF
- Ignition key reminder switch: ON
- Driver's door switch: ON
- Taillight switch: ON
- Headlight switch: ON

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

- Ignition switch: "LOCK" (OFF) position
- Ignition key: Removed from the ignition key cylinder
- Driver's door: open
- Taillight or headlight: Illuminating

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

- Malfunction of front door switches
- Malfunction of column switch (turn-signal light and lighting switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- ETACS-ECU
- Column

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

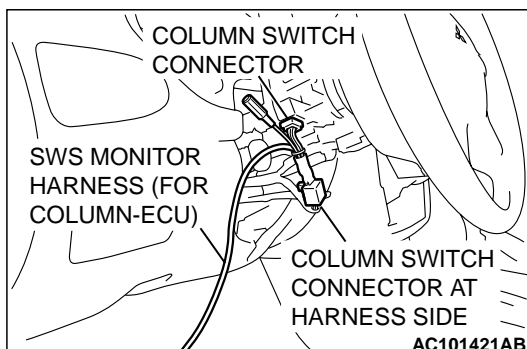
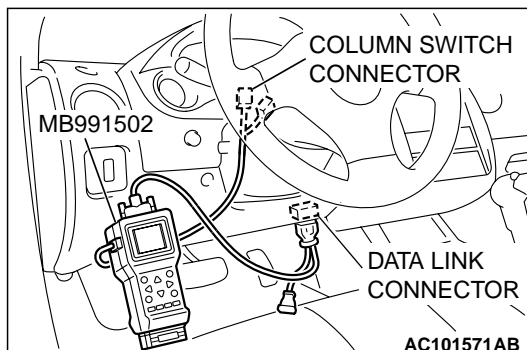
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

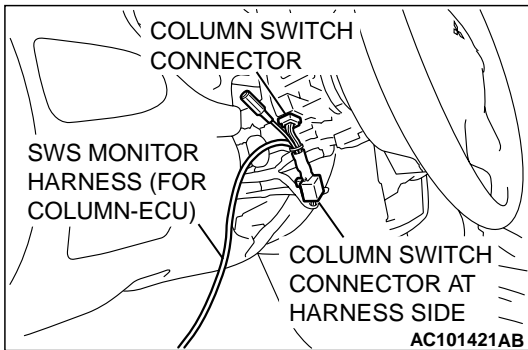
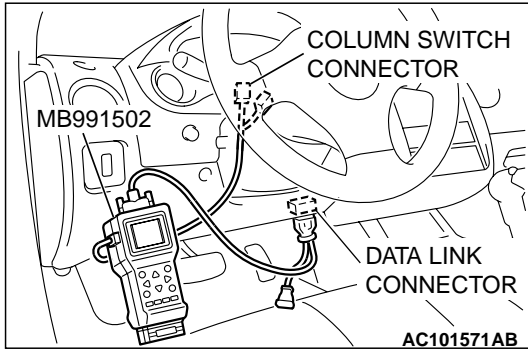
Q: Are "OK" displayed on the "ETACS ECU" and "COLUMN ECU" menus?

"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 impossible P.54B-39."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-54."





STEP 2. Check the input signal by using "FUNCTION DIAG." 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 the MUT-II 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.

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

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

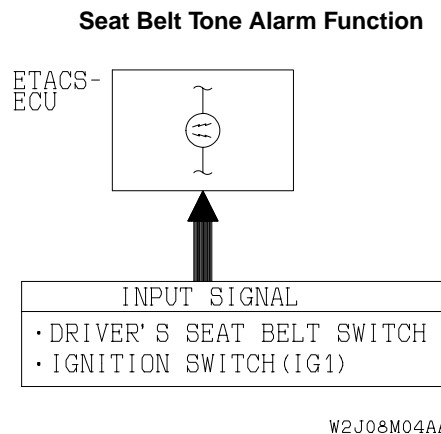
YES : Replace the ETACS-ECU. The light reminder tone alarm function should work normally.

- NO :**
- The scan tool does not show the respective normal condition for item "HEADLIGHT SW." Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the headlight switch P.54B-511."
 - The scan tool does not show the respective normal condition for item "TAILLIGHT SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the taillight switch P.54B-511."
 - 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 a signal from the ignition switch (IG1) P.54B-469."

- The scan tool does not show the respective normal condition for item "FRONT DOOR SW." Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch P.54B-502."
- 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-340."
- The scan tool does not show the respective normal condition for item "BUZZER." Replace the ETACS-ECU. The light reminder tone alarm function should work normally.

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

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


CIRCUIT OPERATION

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

- Ignition switch (IG1): "ON" position
- 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

- Malfunction of driver's seat belt switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

CAUTION

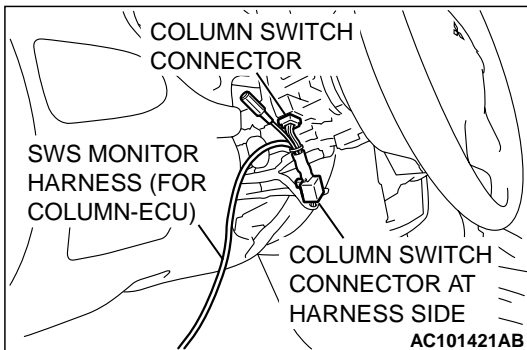
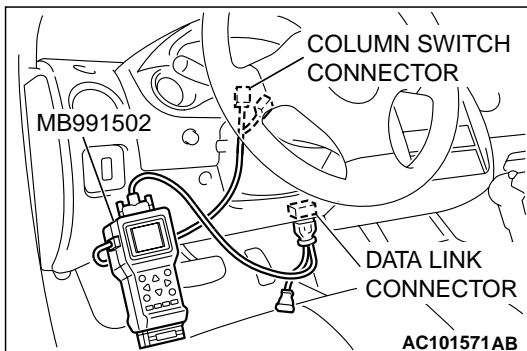
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

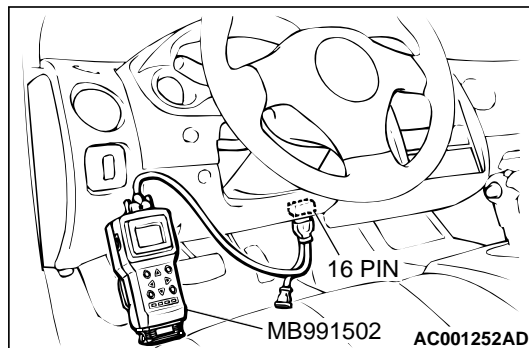
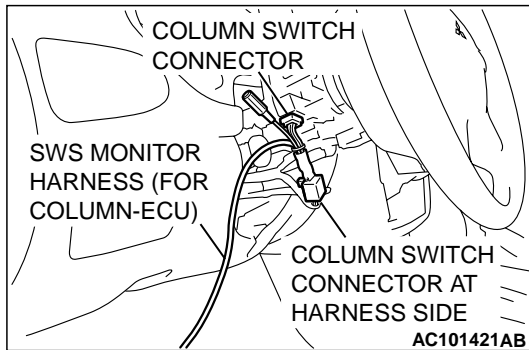
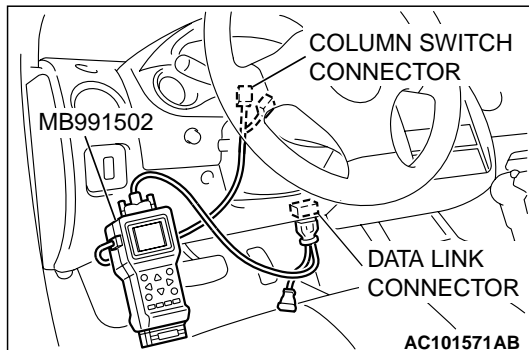
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) When the ignition switch is turned to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





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

Turn the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1). Operate the MUT-II 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 CONDITIONS
ITEM No.30	IG SW (IG1)	ON

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

YES : Go to Step 3.

NO : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54B-469.](#)"

STEP 3. Check the input signal (by using the Pulse Check).

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

- When the driver's seat belt is fastened, check if scan tool MB991502 sounds or not.

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Q: Does scan tool MB991502 sound when the driver's side seat belt is fastened?

Yes : Replace the ETACS-ECU. Check that the seat belt tone alarm function works normally.

No : Refer to Inspection Procedure P-3 "ETACS-ECU does not receive a signal from the driver's side seat belt switch [P.54B-524.](#)"

CENTRAL DOOR LOCKING SYSTEM

GENERAL DESCRIPTION CONCERNING CENTRAL DOOR LOCKING SYSTEM

M1549021100011

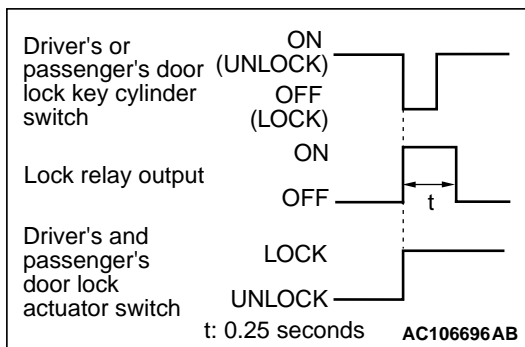
The following ECUs affect the functions and control of the central door locking system.

Functions	Control ECU
Operating the Driver's or Passenger's Door Lock Key Cylinder	ETACS-ECU
Operating the Driver's Door Lock Key Cylinder	ETACS-ECU
Operating the Passenger's Door Lock Key Cylinder	ETACS-ECU
Operating the Driver's or Passenger's Door Lock Switch	ETACS-ECU
Operating the Driver's Door Inside Lock Knob	ETACS-ECU
Forgotten Key Prevention Function	ETACS-ECU

DOOR LOCK FUNCTION

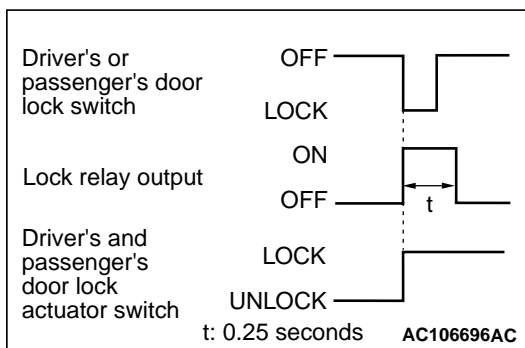
Operating the Driver's or Passenger's Door Lock Key Cylinder

When the driver's or passenger's door is locked, the ETACS-ECU activates the lock relay output for 0.25 seconds and locks all doors.



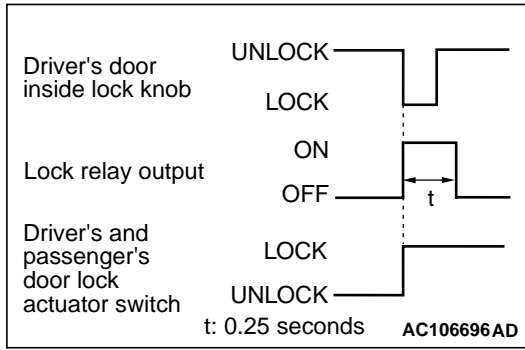
Operating the Driver's or Passenger's Door Lock Switch

When the door is locked by driver's or passenger's door lock switch, the ETACS-ECU activates the lock relay output for 0.25 seconds and locks all doors.



Operating the Driver's Door Inside Lock Knob

When the door is locked by driver's door inside lock knob, the ETACS-ECU activates the lock relay output for 0.25 seconds and locks all doors.

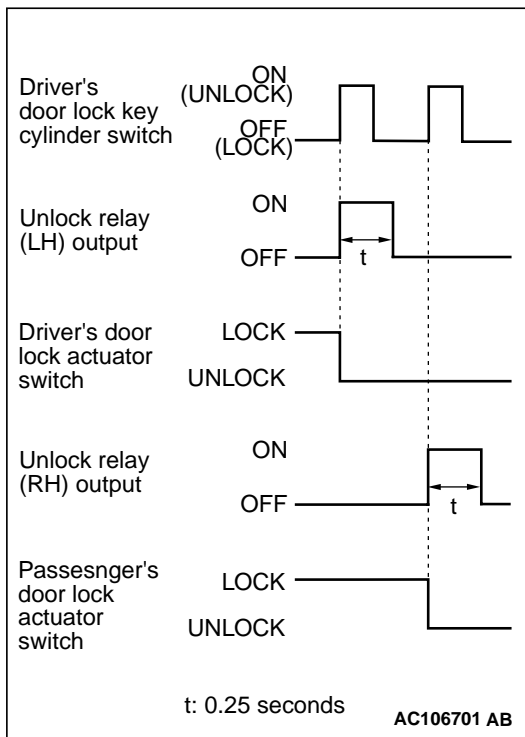


DOOR UNLOCK FUNCTION

Operating the Driver's Door Lock Key Cylinder

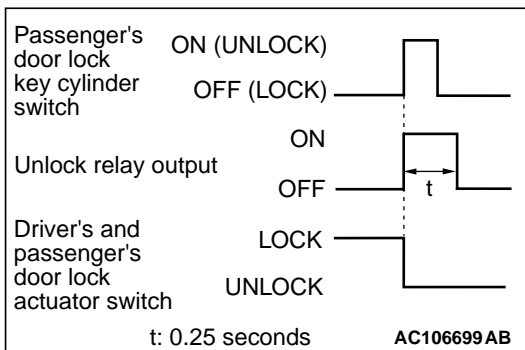
If the driver's door unlocked when the driver's door is locked, the ETACS-ECU unlocks the driver's door only.

If the driver's door is unlocked (after the lock switch in the driver's door lock actuator is turned OFF, the unlock switch is turned ON) when the driver's door is unlocking, the ETACS-ECU activates the unlock relay output for 0.25 seconds and unlocks all doors.

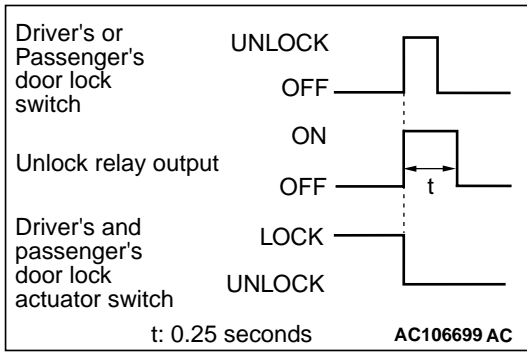


Operating the Passenger's Door Lock Key Cylinder

When the front passenger's door is unlocked (after the lock switch in the front passenger's unlock actuator is turned OFF, the unlock switch is turned ON,) the ETACS-ECU activates the unlock relay output for 0.25 seconds and unlocks all doors.



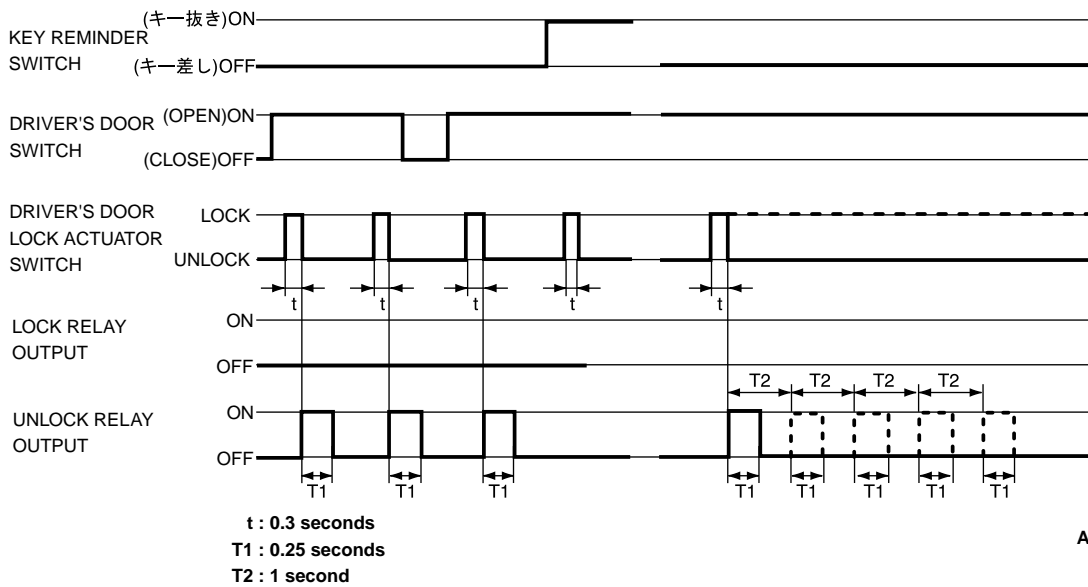
Operating the Driver's or Passenger's Door Lock Switch
When the door is unlocked by driver's or passenger's door lock switch, the ETACS-ECU activates the unlock relay output for 0.25 seconds and unlocks all doors.



Forgotten Key Prevention Function

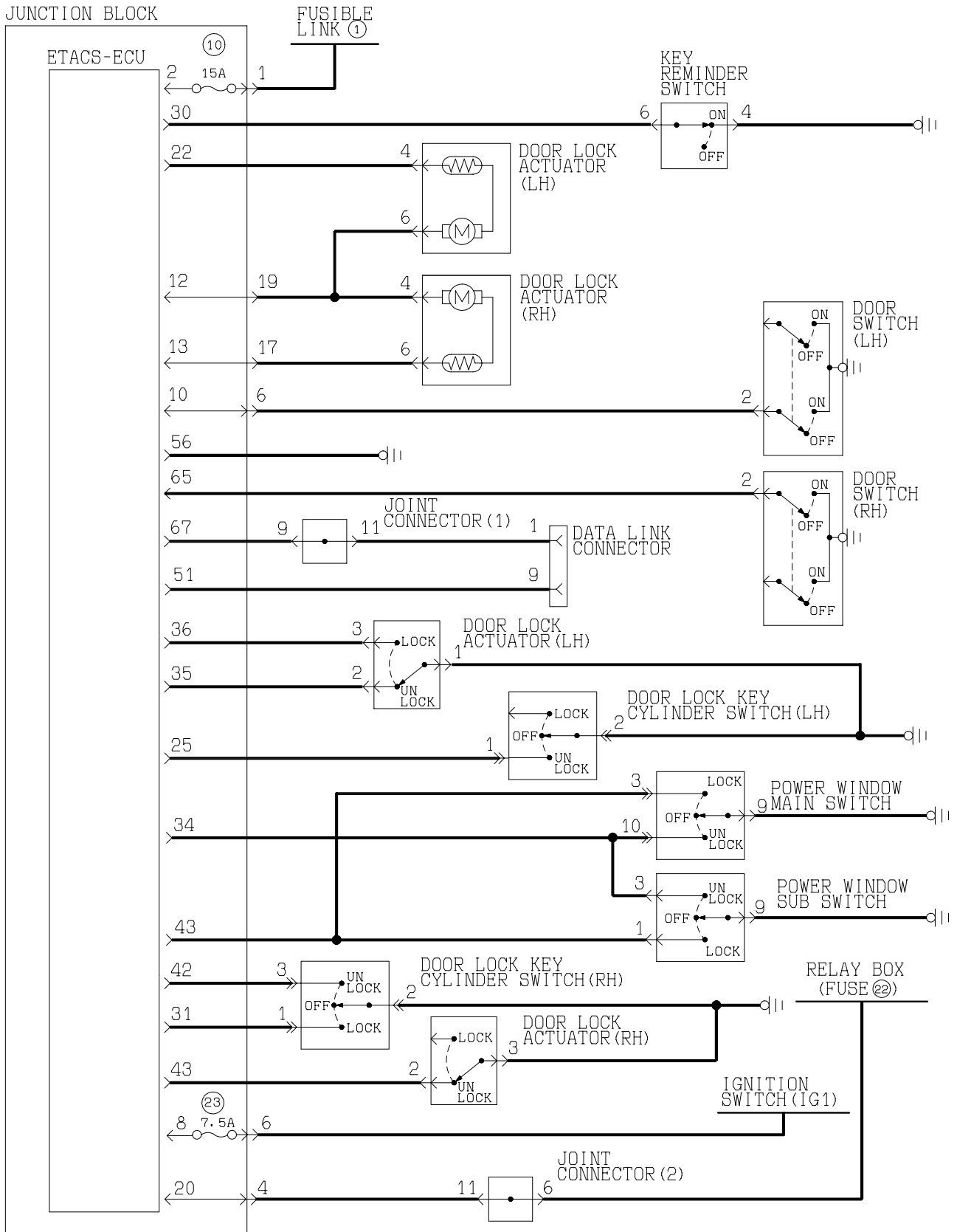
If the driver's door is opened with the ignition key inserted in the ignition key cylinder and then locked (ie, the unlock switch integrated in the driver's door lock actuator is off, and the lock switch is on), the ETACS-ECU turns on the unlock relay for 0.25 sec-

ond 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 2.25 second every one second.



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 regarding central door locking system

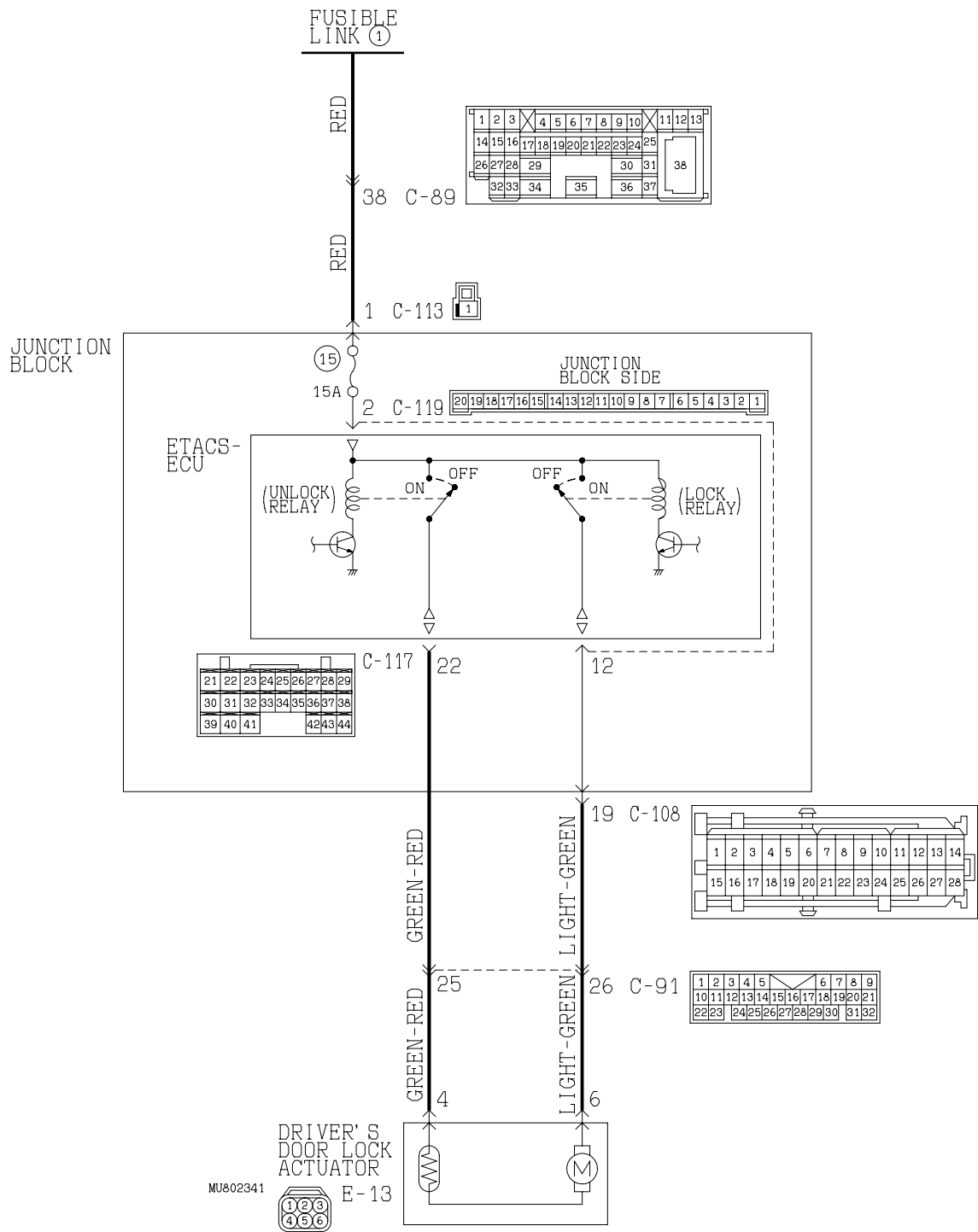


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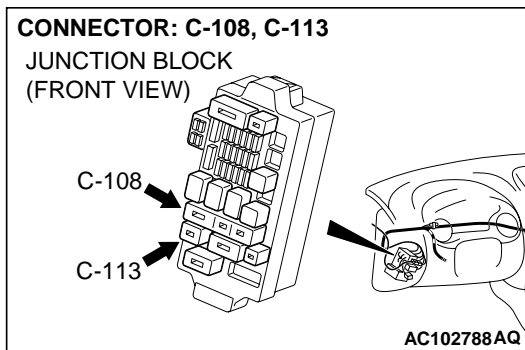
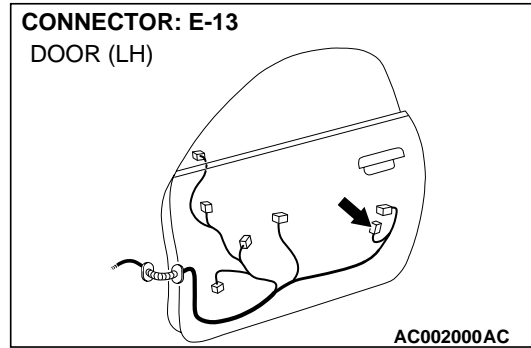
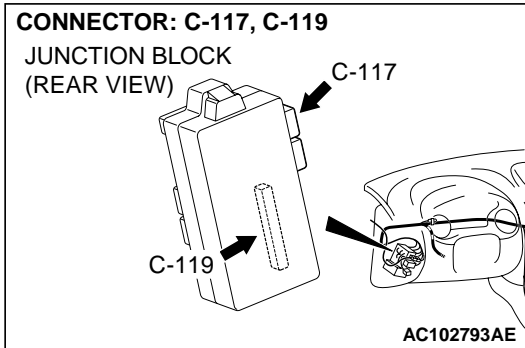
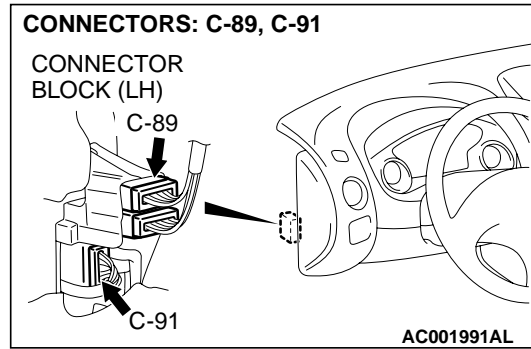
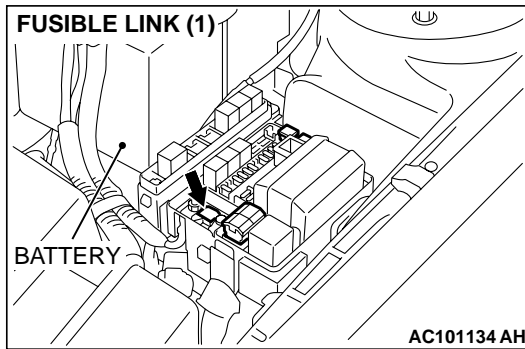
INSPECTION PROCEDURE C-1: Central Door Locking System: The Central Door Lock System does not Work at all.

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

Central Door Lock Power Supply Circuit



W2S13M05AA



CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
 - 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)
- The ETACS-ECU locks or unlocks all the doors by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ETACS-ECU.

CAUTION

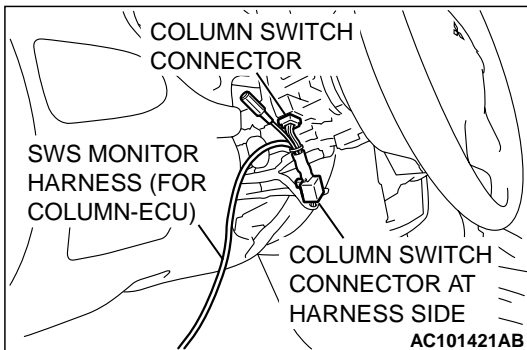
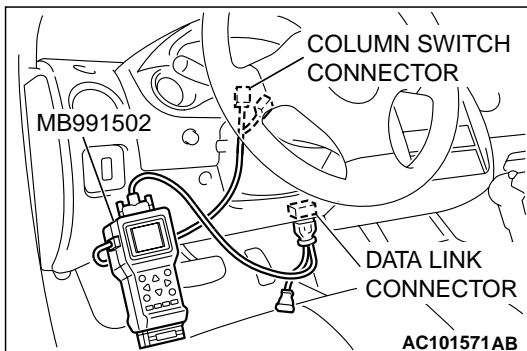
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

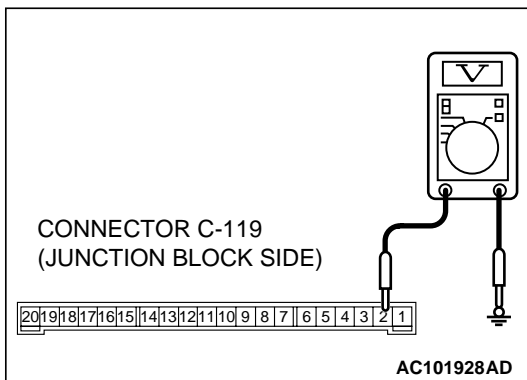
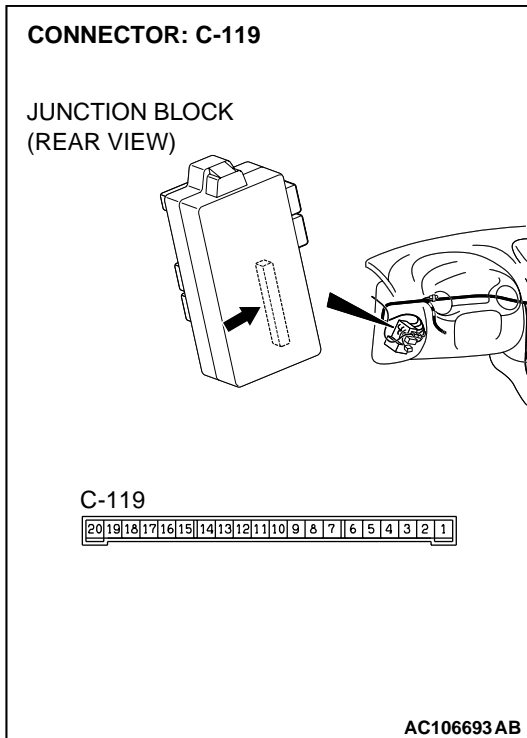
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" 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 impossible P.54B-39."





STEP 2. Measure at ETACS-ECU connector C-119 in order to check the fusible link (1) line of power supply system to ETACS-ECU.

(1) Disconnect ETACS-ECU connector C-119 , and measure at the junction block side.

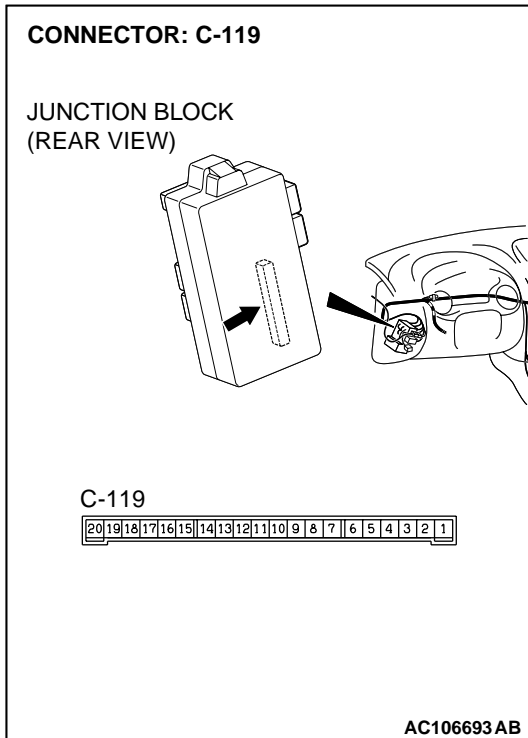
(2) Measure the voltage between terminal 2 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

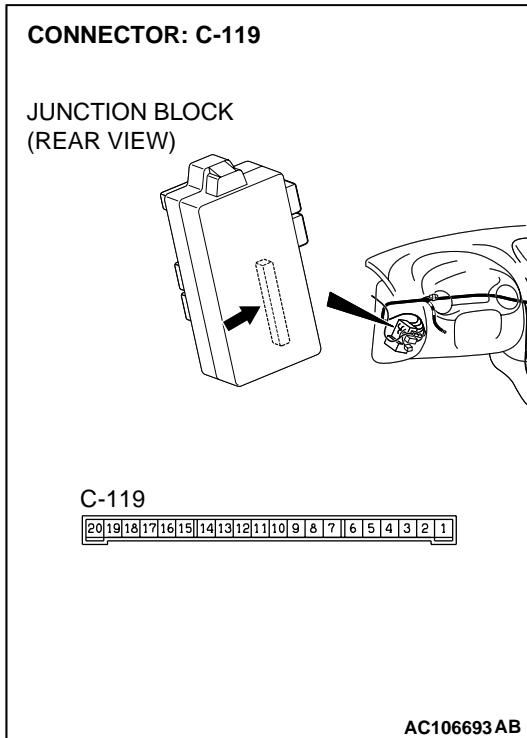


STEP 3. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

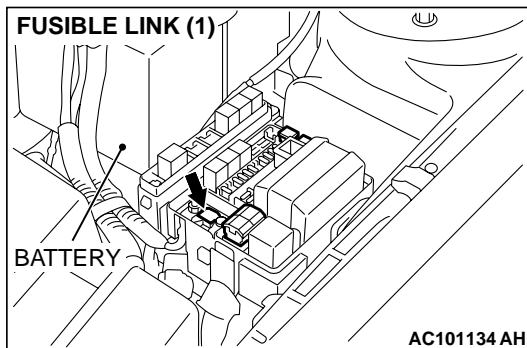
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the central door locking system works normally.



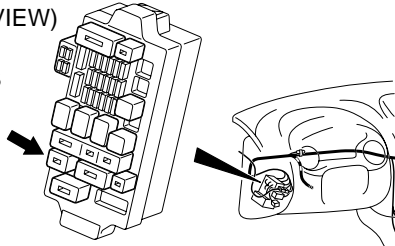
STEP 4. Check the wiring harness between ETACS-ECU connector C-119 (terminal 2) and fusible link (1).

NOTE: Also check junction block connector C-113 and intermediate connector C-89. If junction block connector C-113 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-113
JUNCTION BLOCK
(FRONT VIEW)

C-113

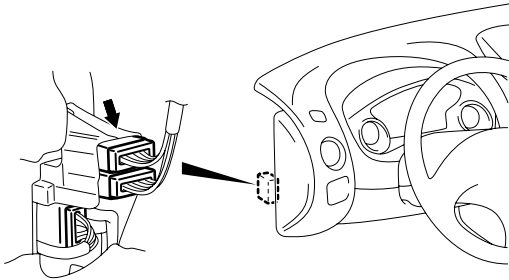
AC106692AB

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 2) and fusible link (1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the central door locking system works normally.

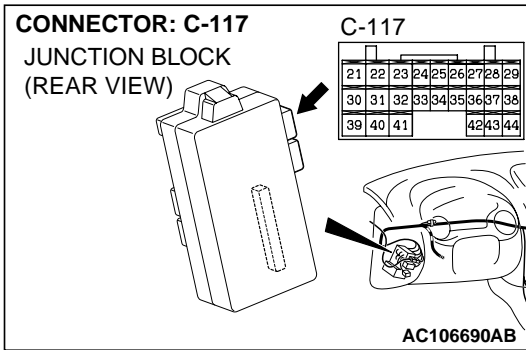
CONNECTOR: C-89
CONNECTOR
BLOCK (LH)



C-89

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		38	
32	33	34	35					36	37			

AC106688AB

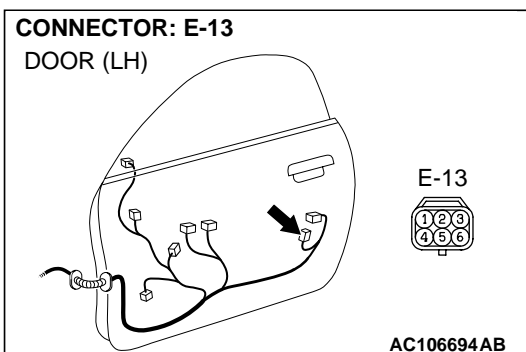
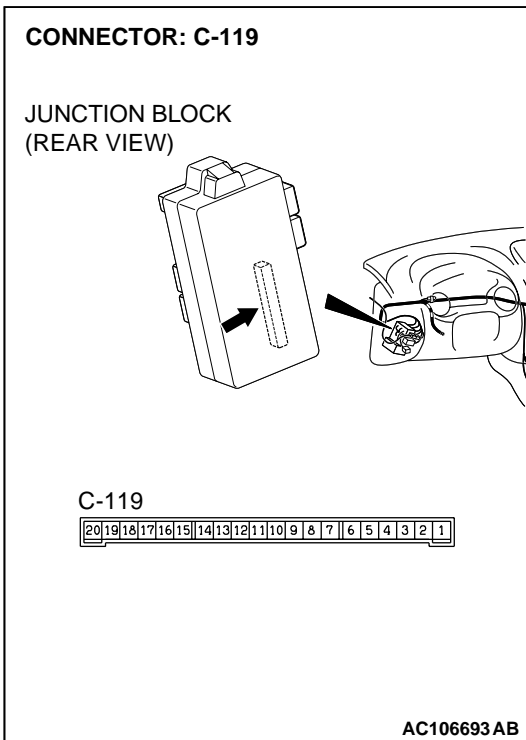


STEP 5. Check ETACS-ECU connectors C-117, C-119 and driver's door lock actuator connector E-13 for damage.

Q: Are ETACS-ECU connectors C-117, C-119 and driver's door lock actuator connector E-13 in good condition?

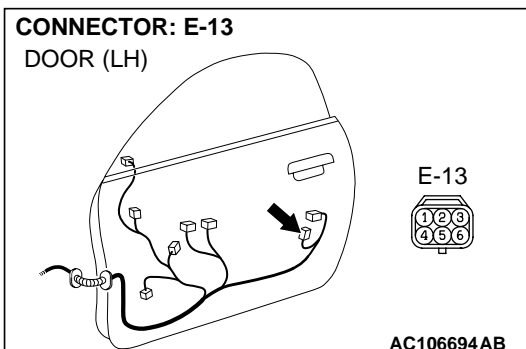
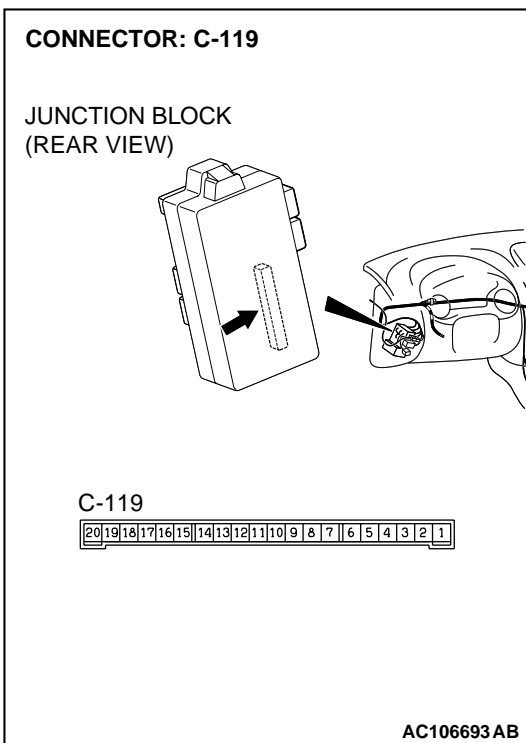
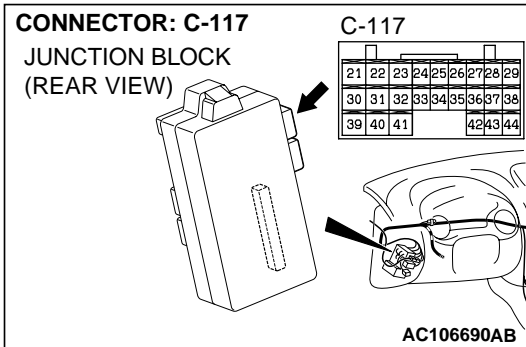
YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the central door locking system works normally.



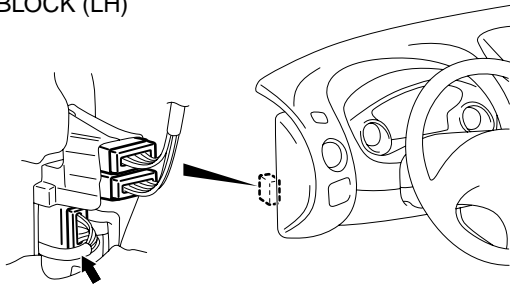
STEP 6. Check the wiring harness from ETACS-ECU connectors C-117 (terminal 22) and C-119 (terminal 12) to driver's door lock actuator connector E-13 (terminals 4 and 6).

NOTE: Also check intermediate connector C-91 and junction block connector C-108. If intermediate connector C-91 or junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-91

CONNECTOR
BLOCK (LH)



C-91

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	

AC106691AB

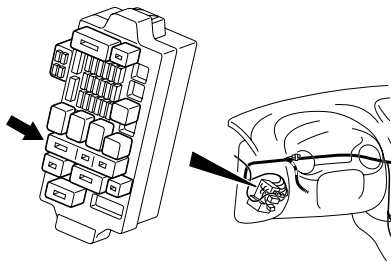
Q: Is the wiring harness from ETACS-ECU connectors C-117 (terminal 22) and C-119 (terminal 12) to driver's door lock actuator connector E-13 (terminals 4 and 6) in good condition?

YES : Replace the ETACS-ECU. Check that the central door locking system works normally.

NO : Repair the wiring harness. Check that the central door locking system works normally.

CONNECTOR: C-108

JUNCTION BLOCK
(FRONT VIEW)



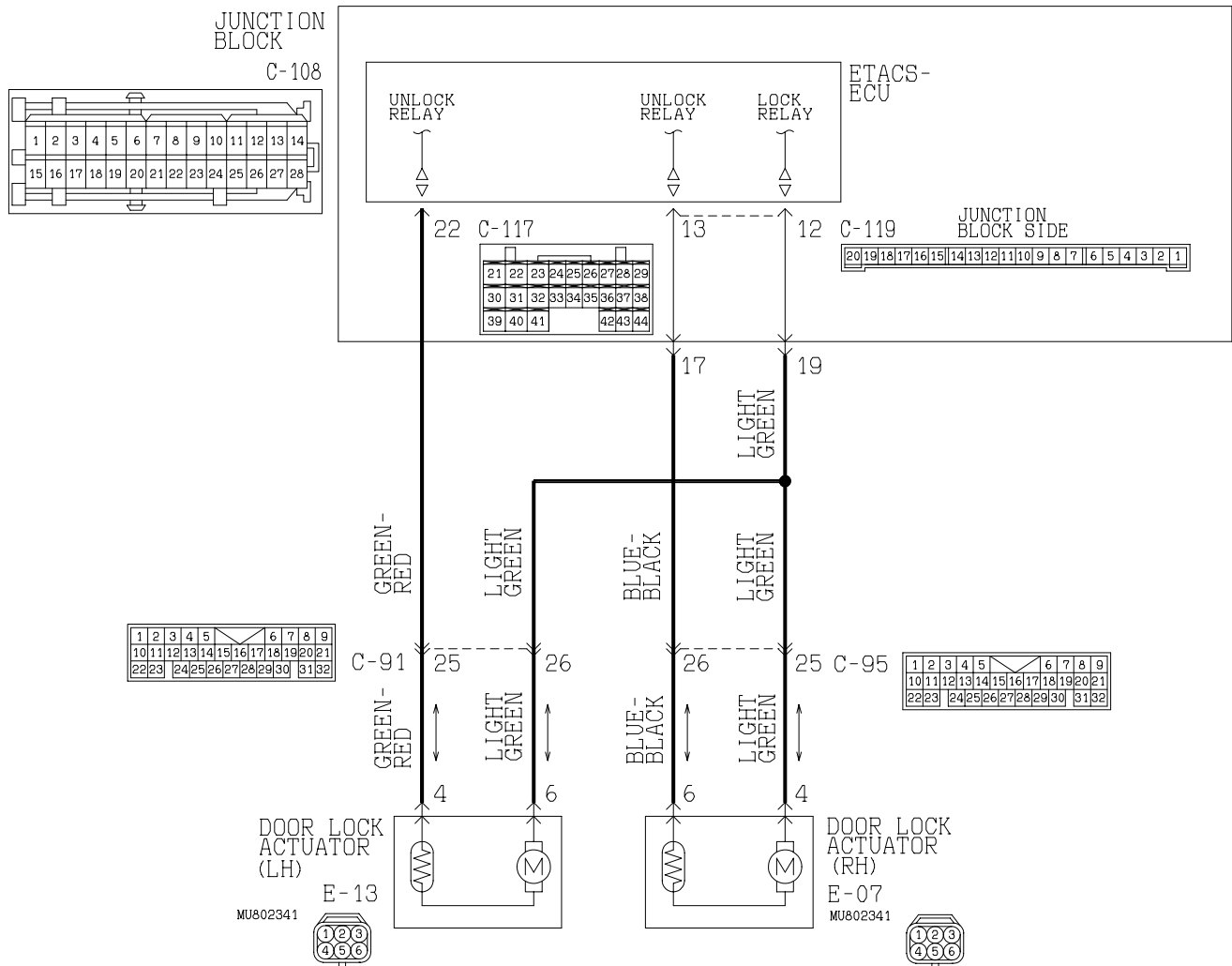
C-108

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

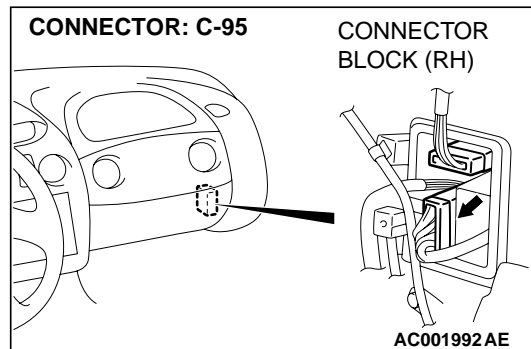
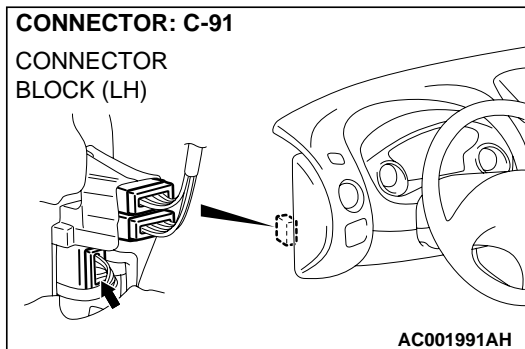
AC106689AB

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

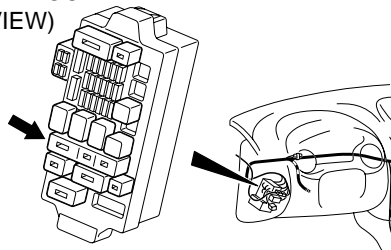
Central Door Lock Circuit



W2S13M06AA

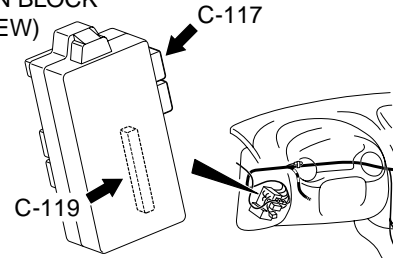


CONNECTOR: C-108
JUNCTION BLOCK
(FRONT VIEW)



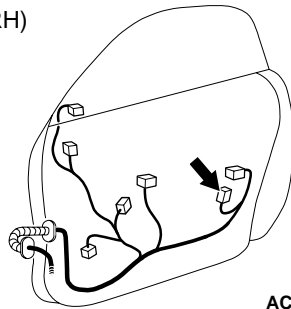
AC102788AD

CONNECTOR: C-117, C-119
JUNCTION BLOCK
(REAR VIEW)



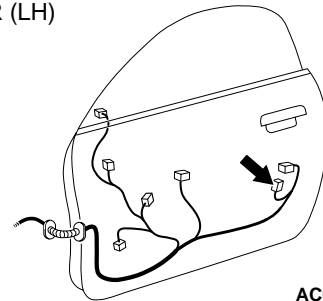
AC102793AE

CONNECTOR: E-07
DOOR (RH)



AC001999AD

CONNECTOR: E-13
DOOR (LH)



AC002000AC

CIRCUIT OPERATION

- The ETACS-ECU operates the central door lock system according to the following signals:
 - 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)
- The ETACS-ECU locks or unlocks all the doors by operating the central door lock relay (incorporated in the ECU) in response to input signals.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's or front passenger's door lock actuator
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

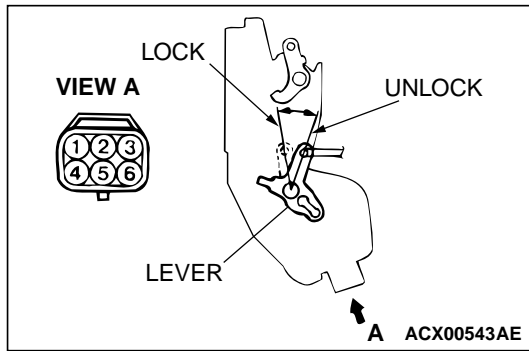
- MB991223: Test Harness Set

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 5.



STEP 2. Check the driver's door lock actuator.

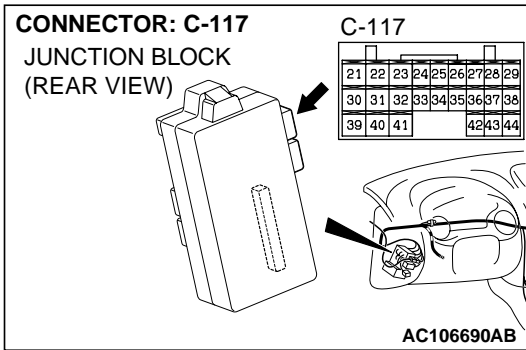
1. Remove the driver's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch P.42-62.
2. Follow the table below to check the driver's door lock actuator for correct operation.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the "LOCK" position	<ul style="list-style-type: none"> • Connect terminal 4 to the positive battery terminal • Connect terminal 6 to the negative battery terminal 	The lever moves from the "LOCK" position to the "UNLOCK" position.
At the "UNLOCK" position	<ul style="list-style-type: none"> • Connect terminal 6 to the positive battery terminal • Connect terminal 4 to the negative battery terminal 	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 3.

NO : Replace the driver's door lock actuator. Check that all the doors can be locked and unlocked normally.

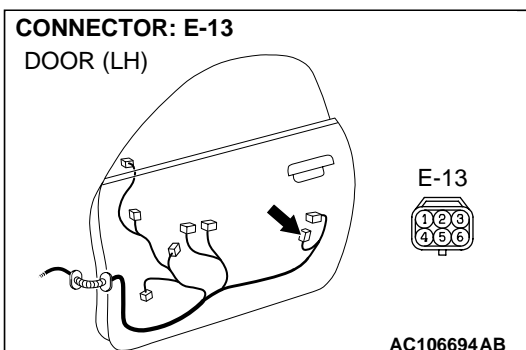
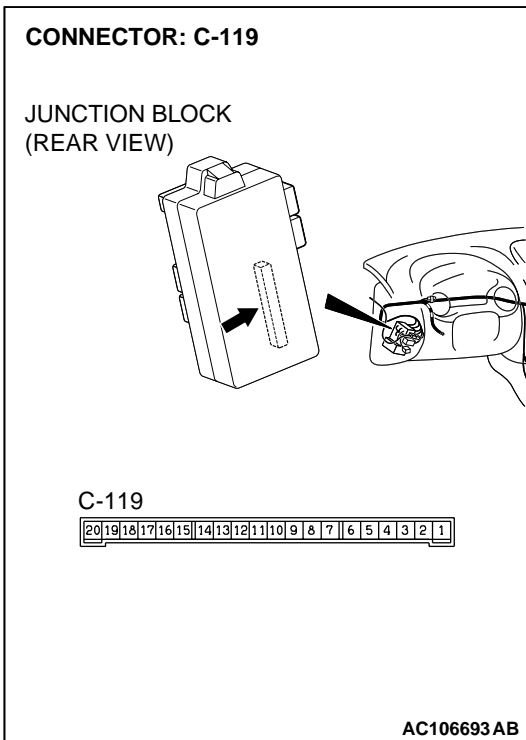


STEP 3. Check ETACS-ECU connectors C-117, C-119 and driver's door lock actuator connector E-13 for damage.

Q: Are ETACS-ECU connectors C-117, C-119 and driver's door lock actuator connector E-13 in good condition?

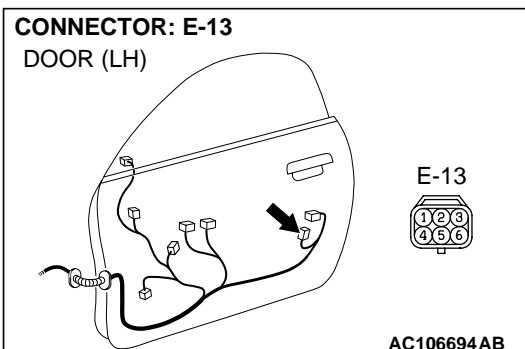
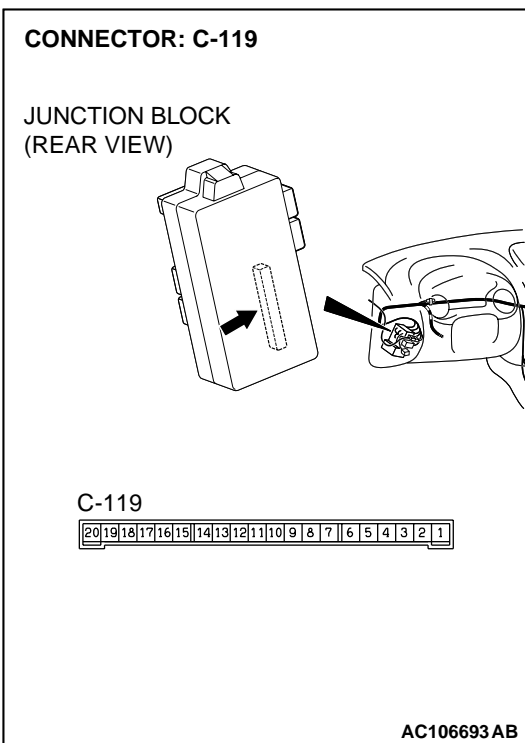
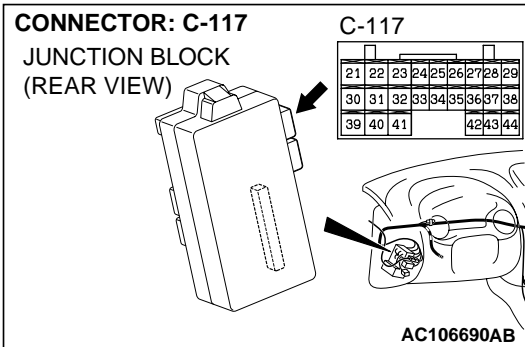
YES : Go to Step 4.

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



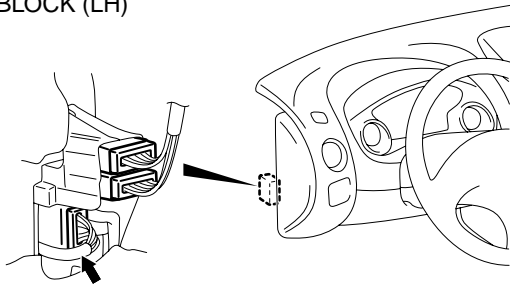
STEP 4. Check the wiring harness from ETACS-ECU connectors C-117 (terminal 22) and C-119 (terminal 12) to driver's door lock actuator connector E-13 (terminals 4 and 6).

NOTE: Also check junction block connector C-108 and intermediate connector C-91. If junction block connector C-108 or intermediate connector C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-91

CONNECTOR
BLOCK (LH)



C-91

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	

AC106691AB

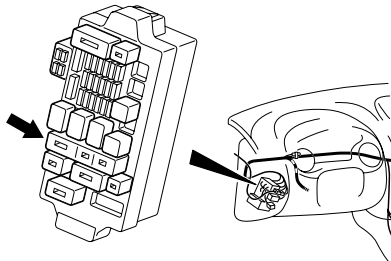
Q: Is the wiring harness from ETACS-ECU connectors C-117 (terminal 22) and C-119 (terminal 12) to driver's door lock actuator connector E-13 (terminals 4 and 6) in good condition?

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

NO : Repair the wiring harness. Check that all the doors can be locked and unlocked normally.

CONNECTOR: C-108

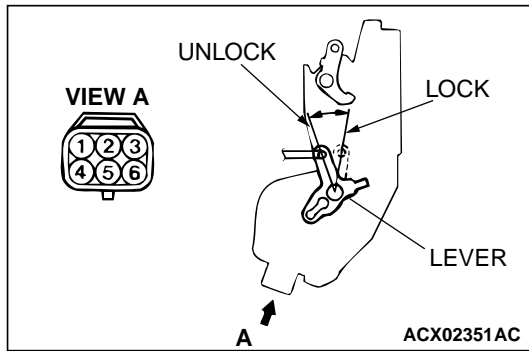
JUNCTION BLOCK
(FRONT VIEW)



C-108

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

AC106689AB



STEP 5. Check the front passenger's door lock actuator.

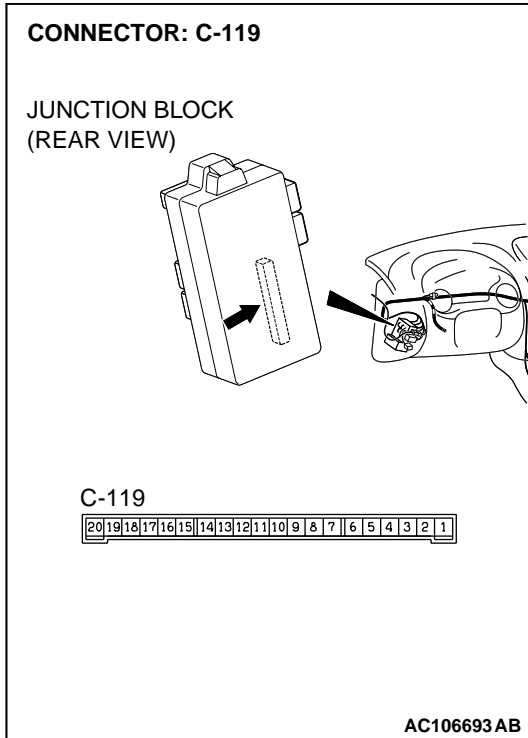
1. Remove the passenger's door lock actuator, and check it. Refer to GROUP 42 – Door Handle and Latch P.42-62.
2. Follow the table below to check the passenger's door lock actuator for correct operation.

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

Q: Is the front passenger's seat door lock actuator normal?

YES : Go to Step 6.

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

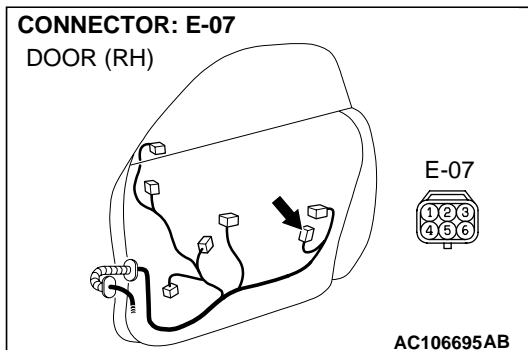


STEP 6. Check ETACS-ECU connector C-119 and front passenger’s door lock actuator connector E-07 for damage.

Q: Are ETACS-ECU connector C-119 and passenger’s seat door lock actuator connector E-07 in good condition?

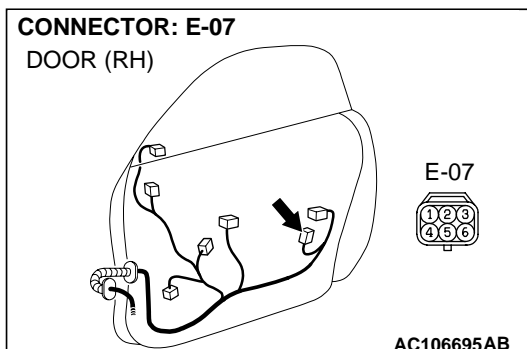
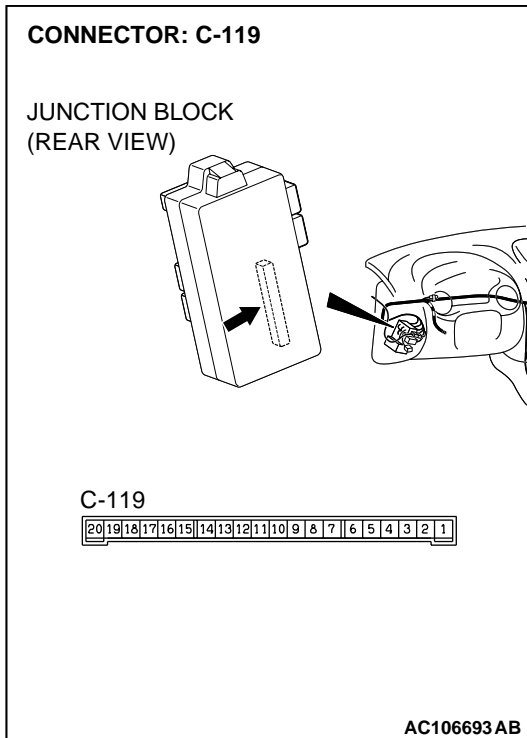
YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that all the doors can be locked and unlocked normally.

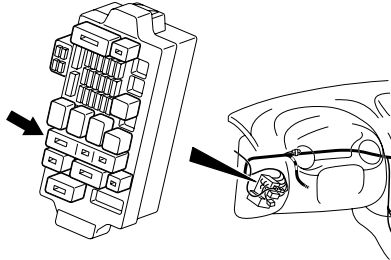


STEP 7. Check the wiring harness from ETACS-ECU connector C-119 (terminals 12 and 13) to front passenger's door lock actuator connector E-07 (terminals 4 and 6).

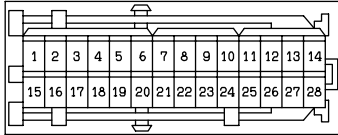
NOTE: Also check junction block connector C-108 and intermediate connector C-95. If junction block connector C-108 or intermediate connector C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-108
JUNCTION BLOCK
(FRONT VIEW)



C-108



AC106689AB

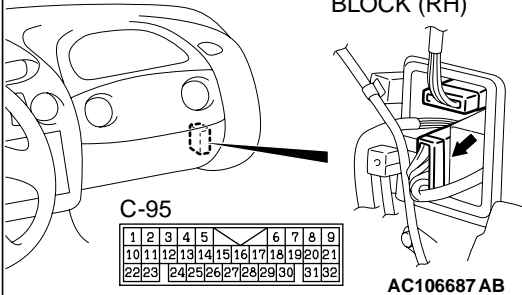
Q: Is the wiring harness from ETACS-ECU connector C-119 (terminals 12 and 13) to front passenger's door lock actuator connector E-07 (terminals 4 and 6) in good condition?

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

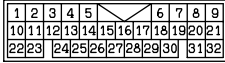
NO : Repair the wiring harness. Check that all the doors can be locked and unlocked normally.

CONNECTOR: C-95

CONNECTOR
BLOCK (RH)



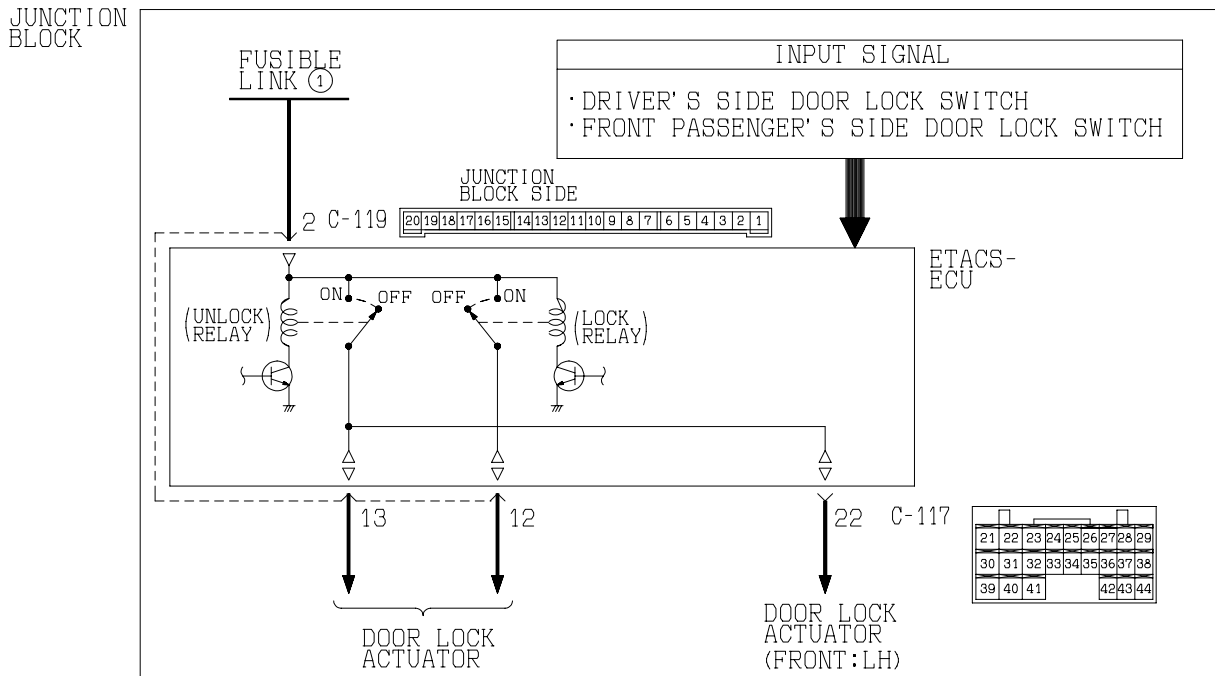
C-95



AC106687AB

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



W2S13M07AA

TECHNICAL DESCRIPTION (COMMENT)

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

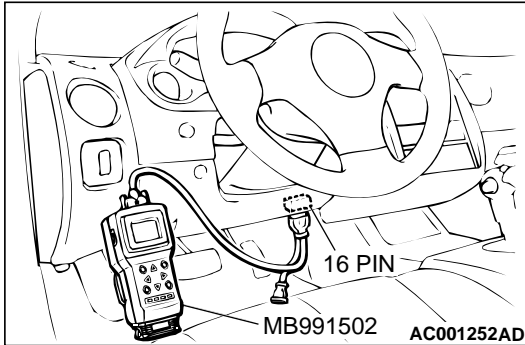
TROUBLESHOOTING HINTS

- Malfunction of the power window switch (door lock switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

**Check the input signal (by using the Pulse check).**

Check the input signals from the door lock switch:

⚠ CAUTION

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

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II 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 the scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's or the front passenger's door lock switch is moved from "LOCK" to "UNLOCK" or vice versa?

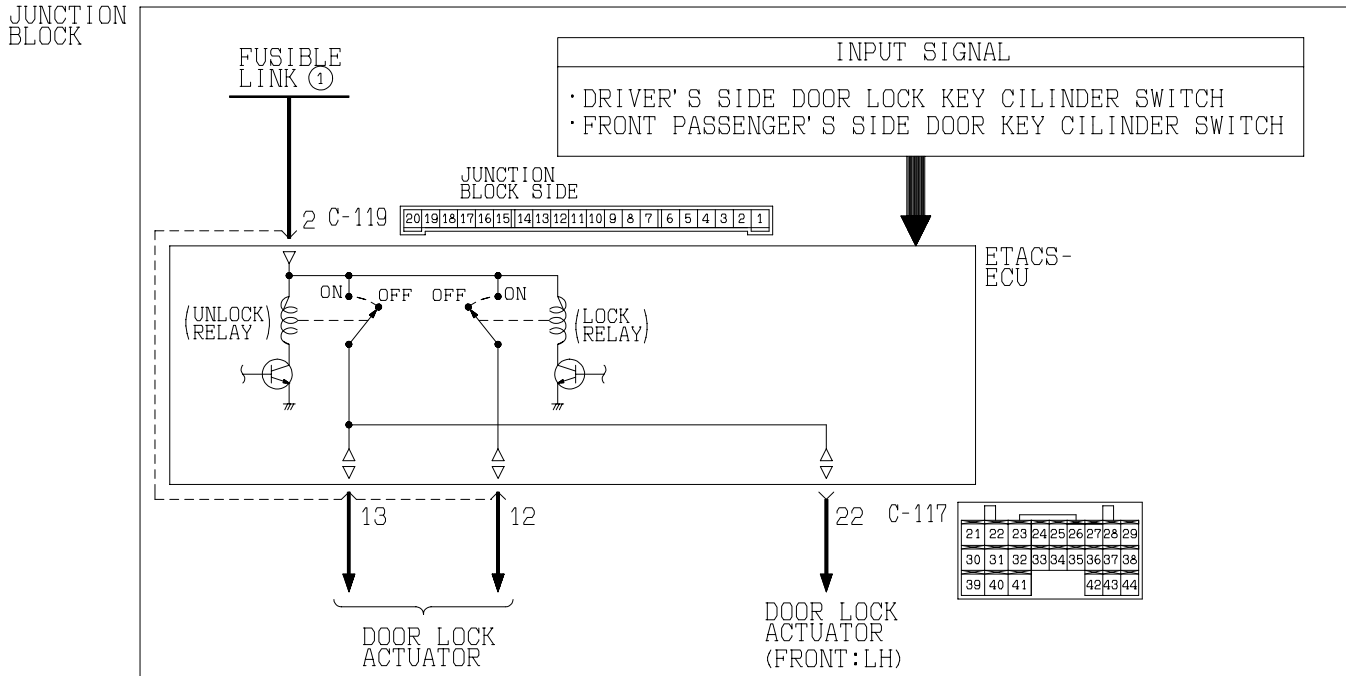
YES : Replace the ETACS-ECU. All the doors should be locked and unlocked by the door lock switch.

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

[P.54B-39.](#)

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



W2S13M08AA

TECHNICAL DESCRIPTION (COMMENT)

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

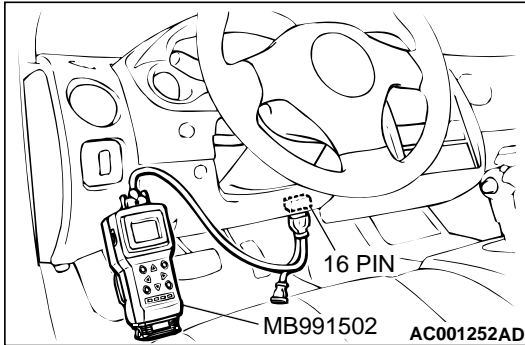
TROUBLESHOOTING HINTS

- Malfunction of the power window switch (door lock switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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



Check the input signal (by using the Pulse check).

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

⚠ CAUTION

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

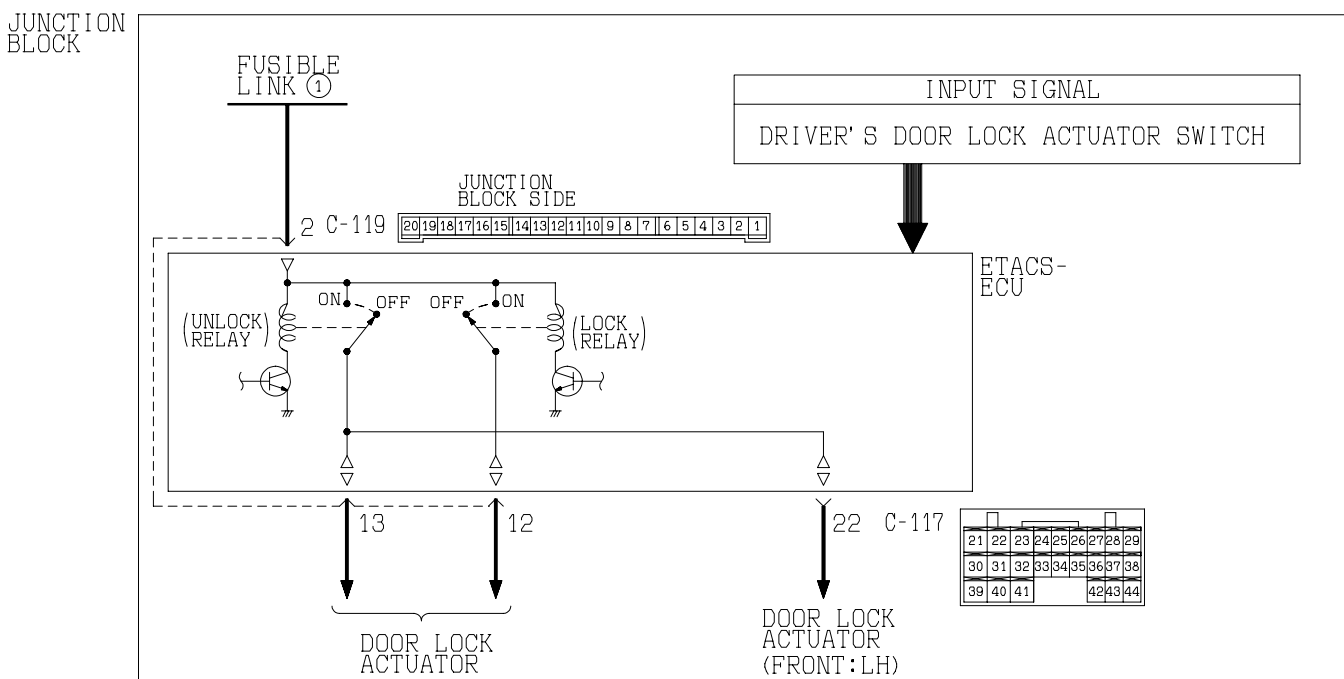
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Use the driver's or passenger's door lock key cylinder to lock and unlock the doors.
- (4) Check that scan tool MB991502 sounds.

Q: When the doors are locked and unlocked by using the driver's or front passenger's door lock key cylinder, does scan tool MB991502 sound?

- YES :** Replace the ETACS-ECU. All the doors should be locked and unlocked by using each door lock key cylinder switch.
- NO :** Refer to Inspection Procedure P-5 "ETACS-ECU does not receive a signal from the driver's door, front passenger's door lock key cylinder switch P.54B-39."

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

Central Door Lock (Door Lock Actuator) Circuit



W2S13M09AA

TECHNICAL DESCRIPTION

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's or front passenger's door lock actuator switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

Check the input signal (by using the Pulse check).

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

CAUTION

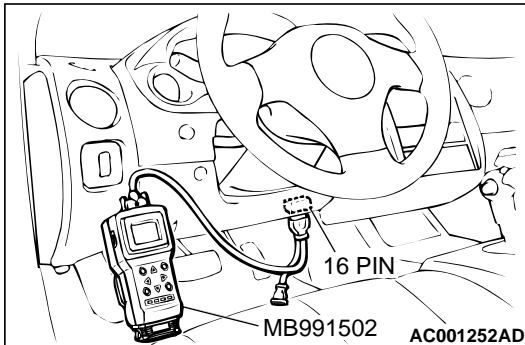
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II 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 the scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's or the front passenger's inside lock knob is moved from "LOCK" to "UNLOCK" or vice versa?

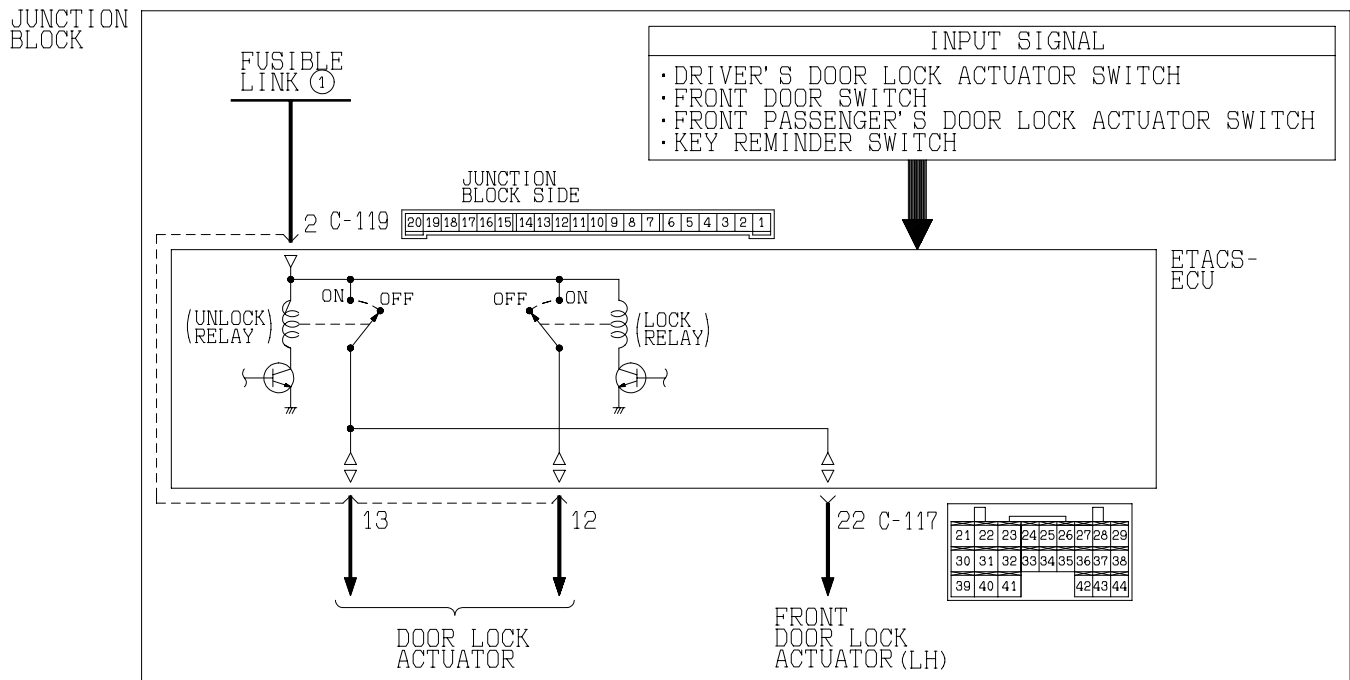
YES : Replace the ETACS-ECU. Check that all the doors can be locked or unlocked by operating the driver's inside lock knob.

NO : Refer to Inspection Procedure P-5 "ETACS-ECU does not receive a signal from the driver's or front passenger's door lock actuator switch [P.54B-39](#)."



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

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

Forgotten Key Prevention Function Circuit

W2S13M10AA

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 or front passenger's door lock actuator switch: being turned on

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of the driver's or front passenger's door switch
- Malfunction of the driver's or front passenger's door lock actuator switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

CAUTION

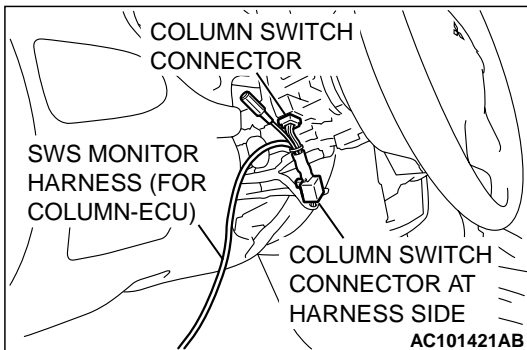
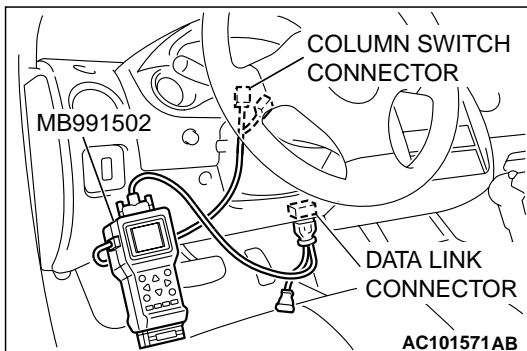
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

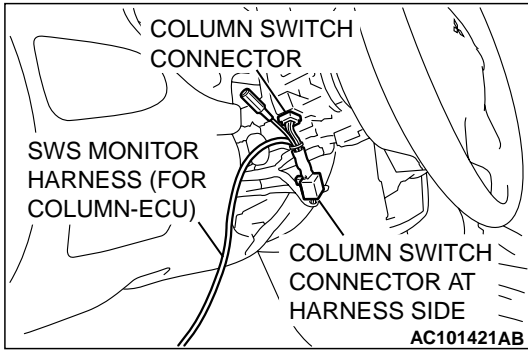
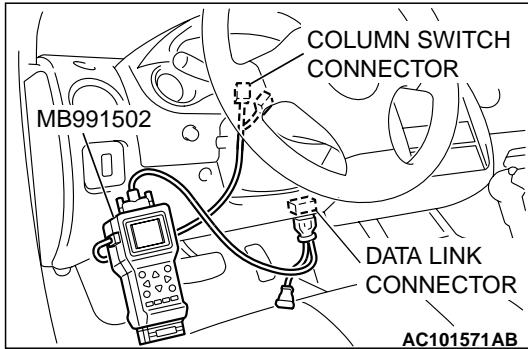
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Check the scan tool MB991502 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 impossible P.54B-39."





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

Check the input signals from the following switches:

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

- (1) Operate the MUT-II as follows:
1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "ETACS ECU."

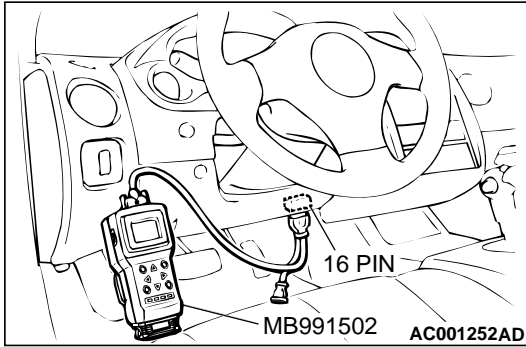
(2) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.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-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"



STEP 3. Check the input signal (by using the Pulse check).

Check the input signals from the following switches:

- Key reminder switch
 - Driver's or front passenger's door lock actuator switch
- (1) Operate the MUT-II 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, check if scan tool MB991502 sounds or not.

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

Q: Does scan tool MB991502 sound whenever the key reminder switch, the driver's and front passenger's door lock actuator switches are operated?

YES : Replace the ETACS-ECU. The forgotten key prevention function should work normally.

- NO :**
- Scan tool MB991502 does not sound when the key reminder switch is operated: Refer to Inspection Procedure P-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54B-524.](#)"
 - Scan tool MB991502 does not sound when the driver's or the front passenger's door lock actuator switch is operated Refer to Inspection Procedure P-5 "ETACS-ECU does not receive a signal from the driver's or front passenger's door lock actuator switch [P.54B-549.](#)"

POWER WINDOWS

GENERAL DESCRIPTION CONCERNING POWER WINDOWS

M1549021900017

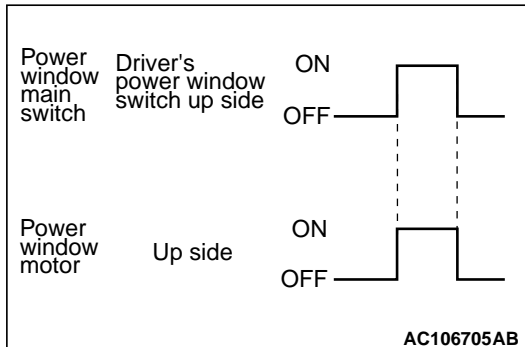
The following ECUs affect the functions and control of the power windows.

Functions	Control ECU
Operating the driver's power window up function	Power window main switch
Operating the driver's power window down function	Power window main switch
Operating the driver's power window auto down function	Power window main switch
Operating the passenger's power window up function	Power window main switch
Operating the passenger's power window down function	Power window main switch
Operating the passenger's power window up function	Power window sub switch
Operating the passenger's power window down function	Power window sub switch
Power window timer function	ETACS-ECU

POWER WINDOW MAIN SWITCH FUNCTION

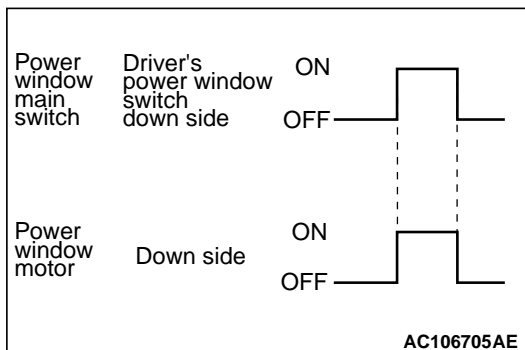
Operating the driver's power window up function

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



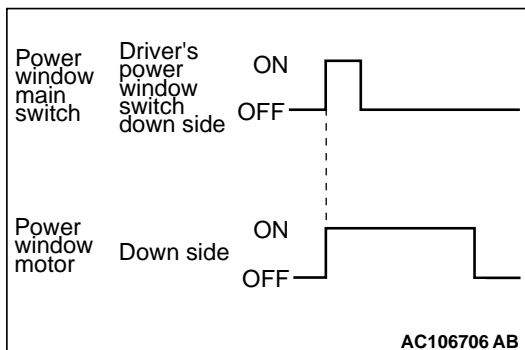
Operating the driver's power window down function

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



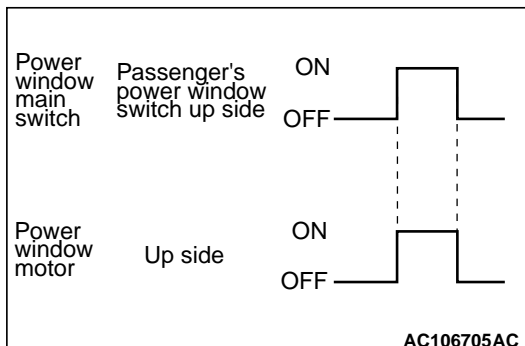
Operating the driver's power window auto down function

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



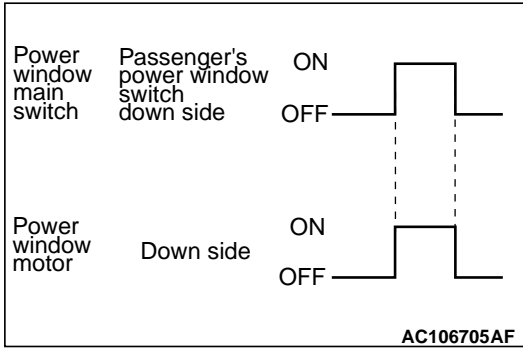
Operating the passenger's power window up function

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



Operating the passenger's power window down function

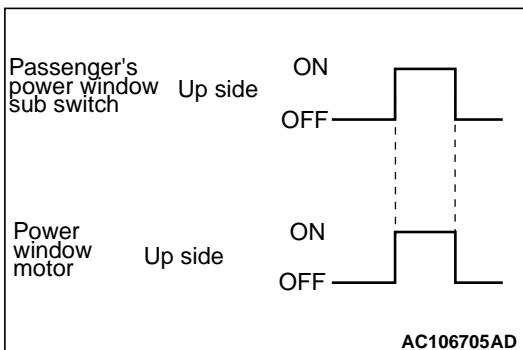
When the passenger's power window switch on the power window main switch is pushed down, the system energizes its respective power window motor, and then passenger's window glass lowers.



POWER WINDOW SUB SWITCH FUNCTION

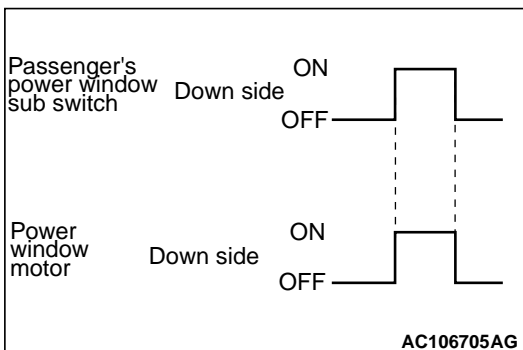
Operating the passenger's power window up function

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



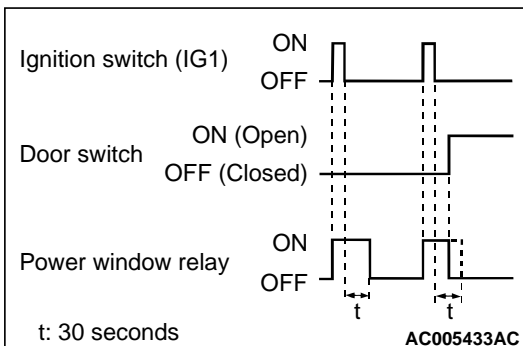
Operating the passenger's power window down function

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

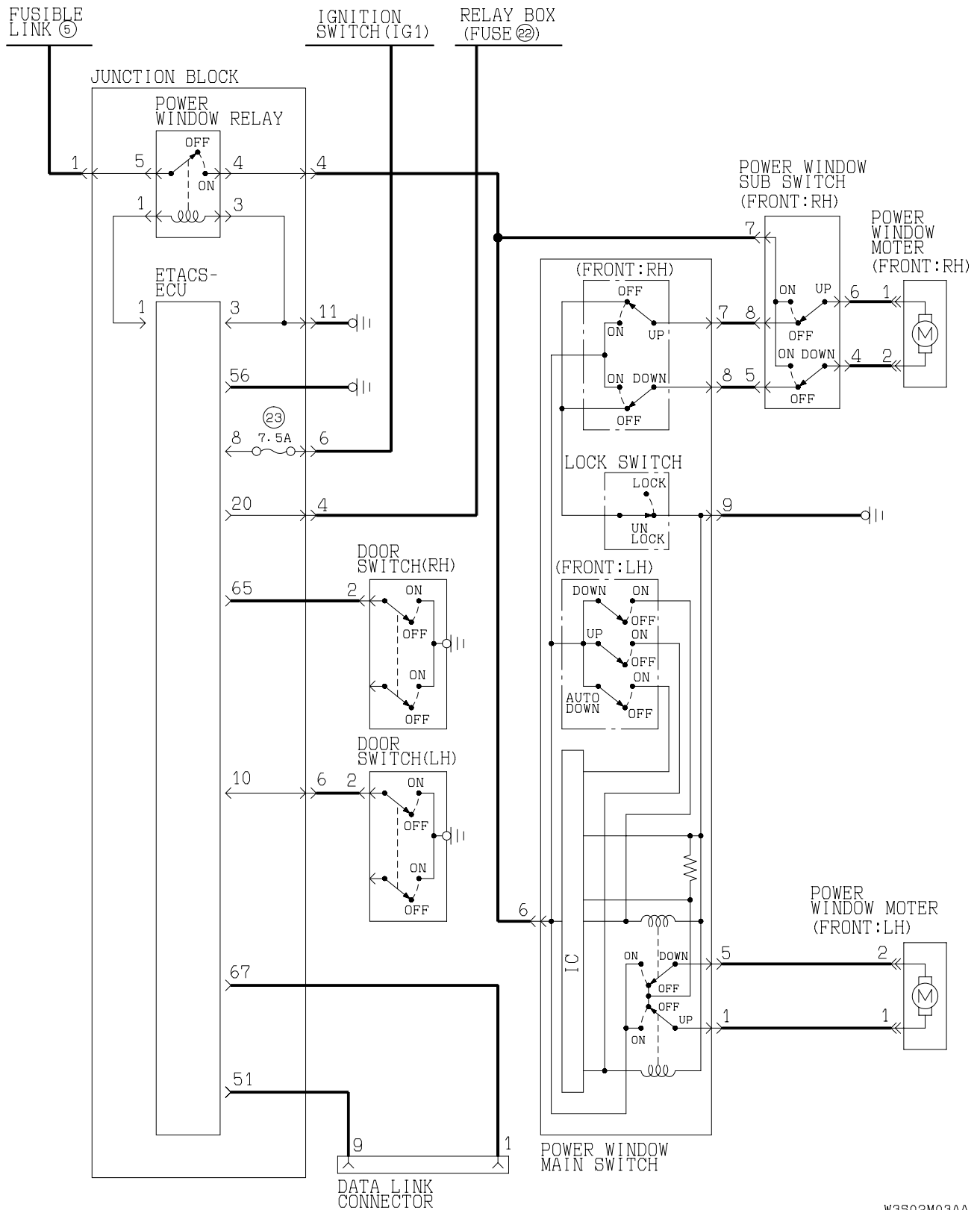


POWER WINDOW TIMER FUNCTION

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



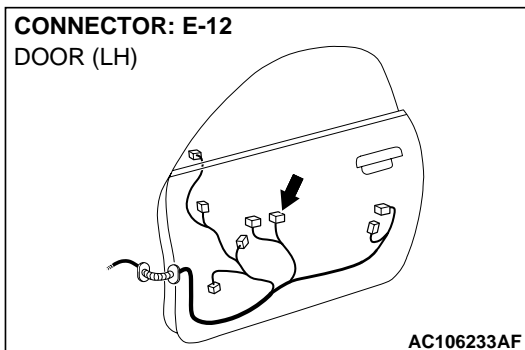
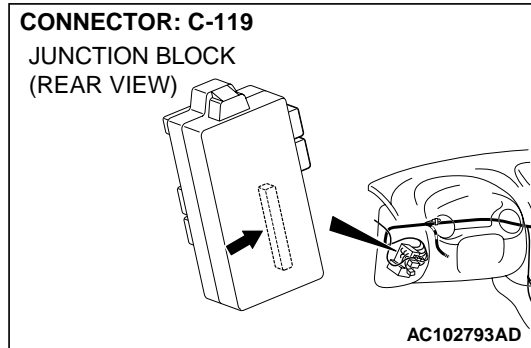
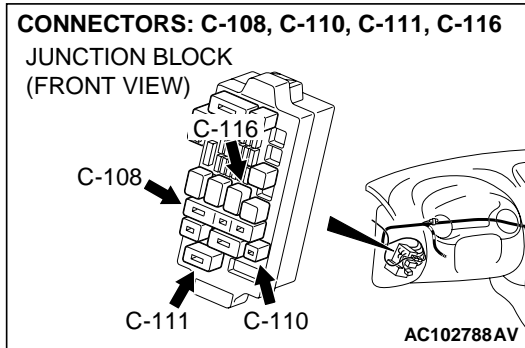
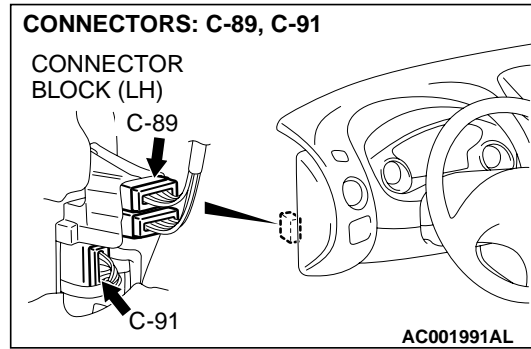
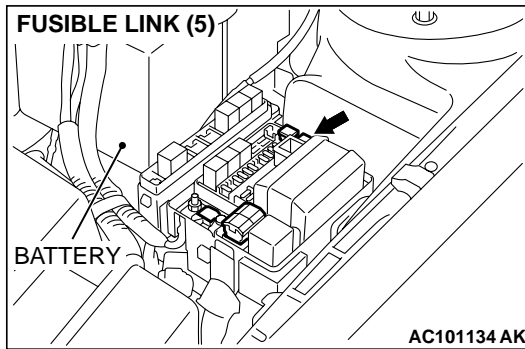
General circuit diagram for the power windows



W3802M03AA

INSPECTION PROCEDURE D-1: Power Window: Power Windows do not Work at all.

NOTE: This troubleshooting requires use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor [P.54B-8](#)."



CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

- Malfunction of power window relay
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

⚠ CAUTION

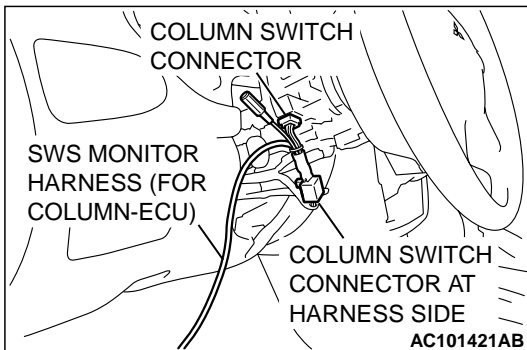
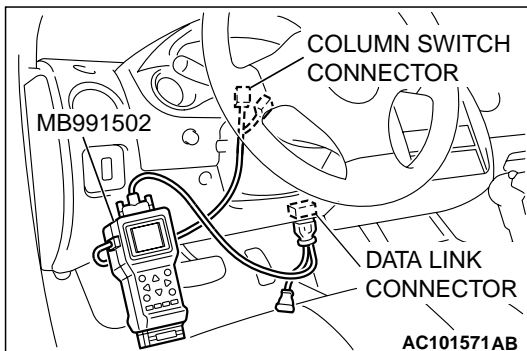
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

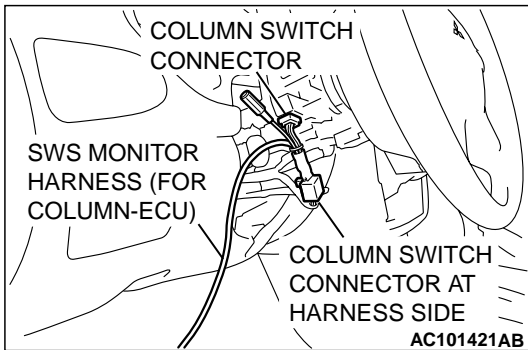
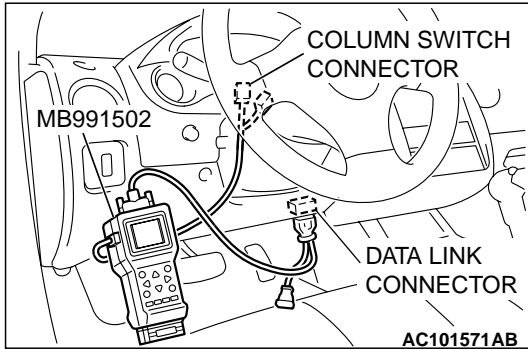
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





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

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

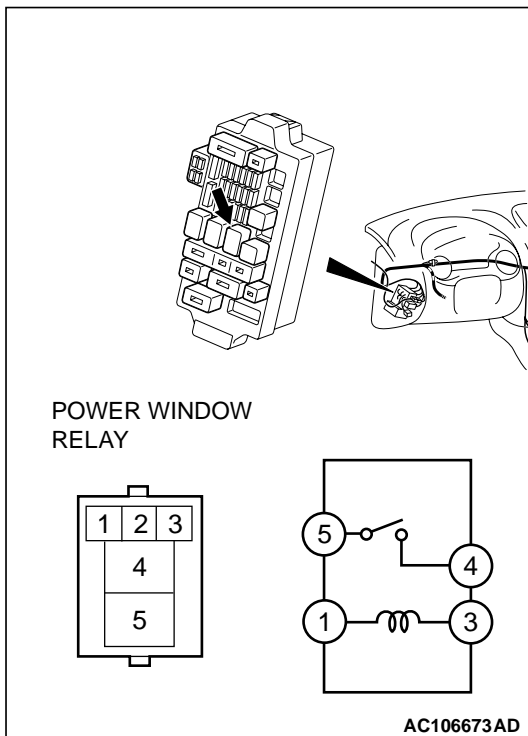
ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	ON

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

YES : Go to Step 3.

NO : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) P.54B-469."

STEP 3. Check the power window relay.

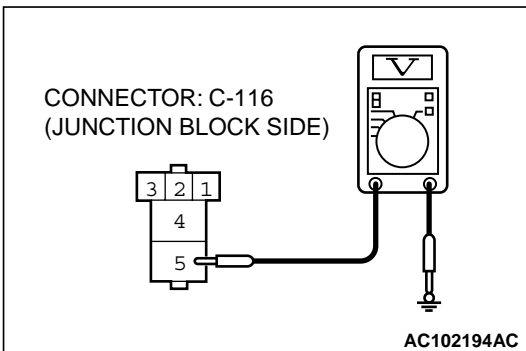
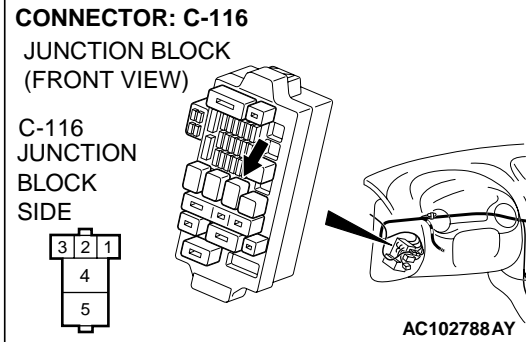


BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
<ul style="list-style-type: none"> • Connect terminal 3 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	4 – 5	Less than 2 ohm

Q: Is the power window relay in good condition?

YES : Go to Step 4.

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



STEP 4. Measure at power window relay connector C-116 in order to check the fusible link (5) line of power supply system to power window relay.

(1) Disconnect power window relay connector C-116, and measure at the junction block side.

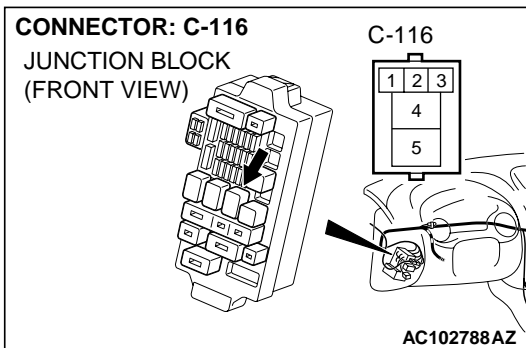
(2) Measure the voltage between terminal 5 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.



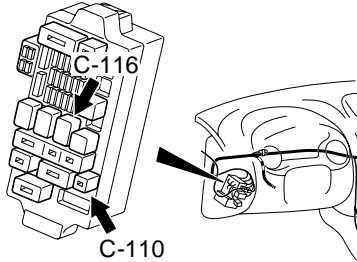
STEP 5. Check power window relay connector C-116 for damage.

Q: Is power window relay connector C-116 in good condition?

YES : Go to Step 6.

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

CONNECTORS: C-110, C-116
JUNCTION BLOCK
(FRONT VIEW)



C-110



C-116
JUNCTION BLOCK
SIDE

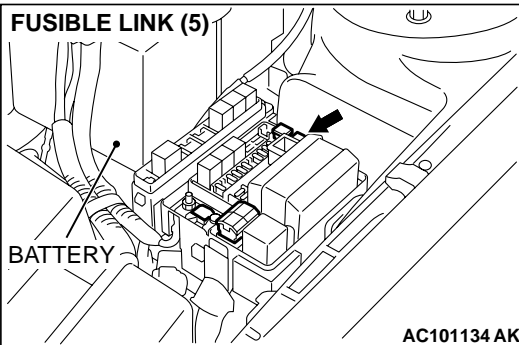


AC106673 AE

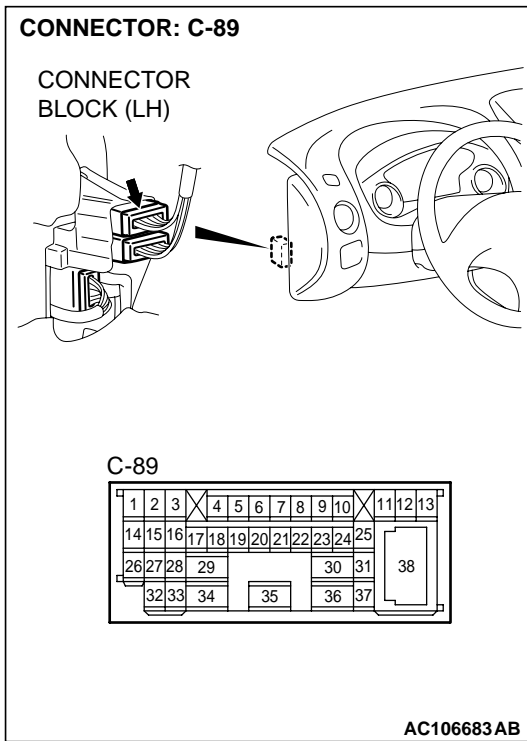
STEP 6. Check the wiring harness between power window relay connector C-116 (terminal 5) and fusible link (5).

NOTE: Also check junction block connector C-110 and intermediate connector C-89. If junction block connector C-110 and intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

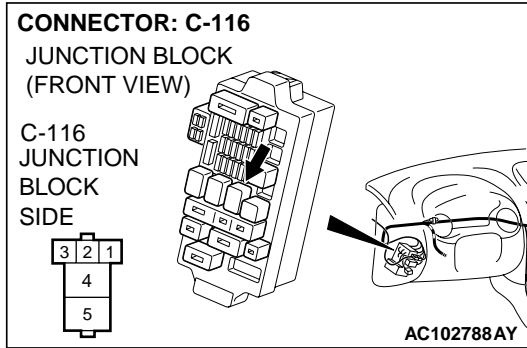
FUSIBLE LINK (5)



AC101134 AK

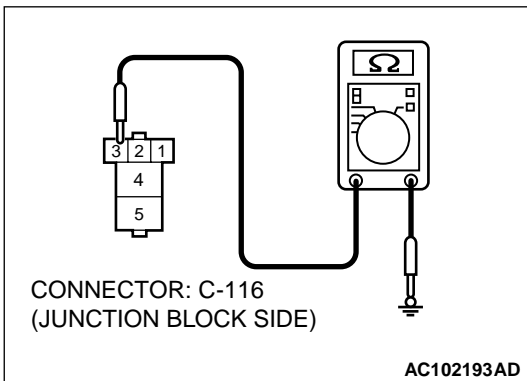


Q: Is the wiring harness between power window relay connector C-116 (terminal 5) and fusible link (5) in good condition?
YES : No action to be taken.
NO : Repair the wiring harness. Check that the power windows work normally.



STEP 7. Measure at power window relay connector C-116 in order to check the ground system to the power window relay.

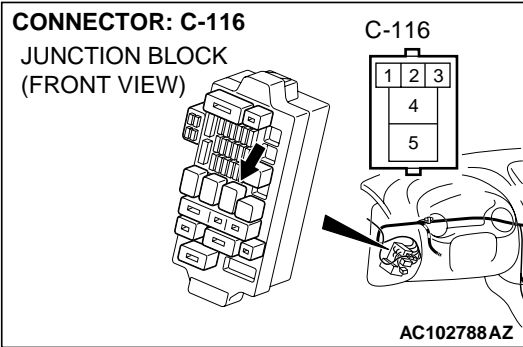
(1) Disconnect power window relay connector C-116, and measure at the junction block side.



(2) Measure the resistance value between terminal 3 and ground.
 • The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 10.
NO : Go to Step 8.

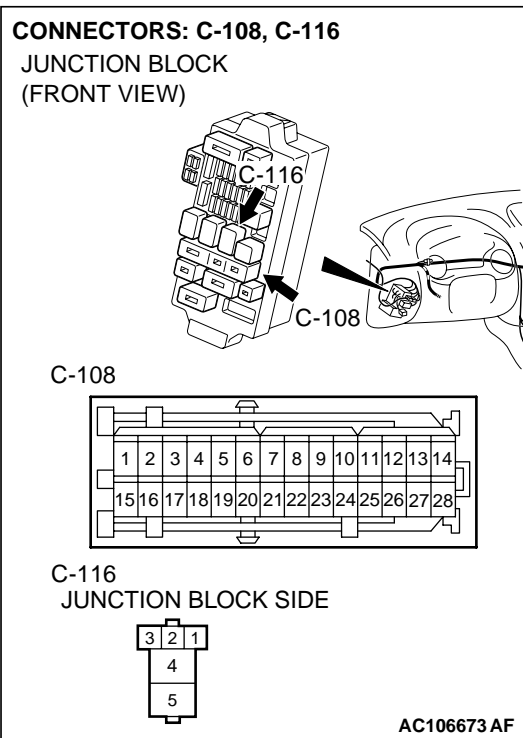


STEP 8. Check power window relay connector C-116 for damage.

Q: Is power window relay connector C-116 in good condition?

YES : Go to Step 9.

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



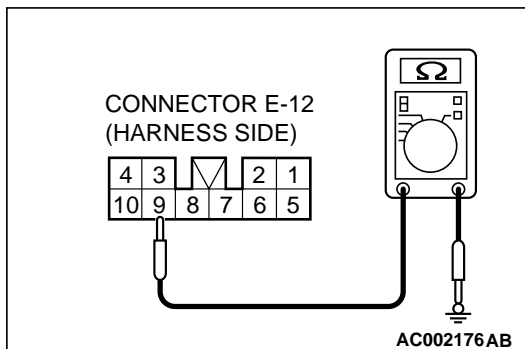
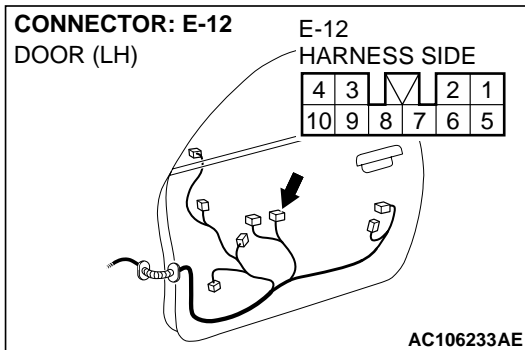
STEP 9. Check the wiring harness between power window relay connector C-116 (terminal 3) and ground.

NOTE: Also check junction block connector C-108. If junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between power window relay connector C-116 (terminal 3) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the power windows work normally.



STEP 10. Check at power window main switch connector E-12 in order to check the power window main switch ground circuit.

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

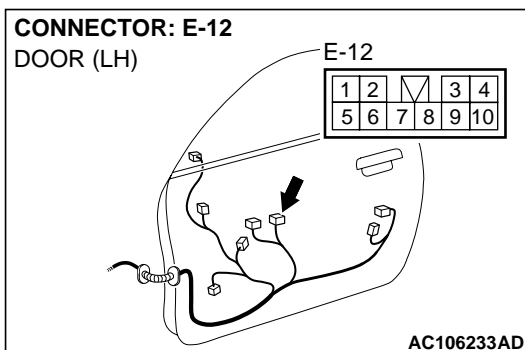
(2) Measure the resistance value between terminal 9 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 13.

NO : Go to Step 11.

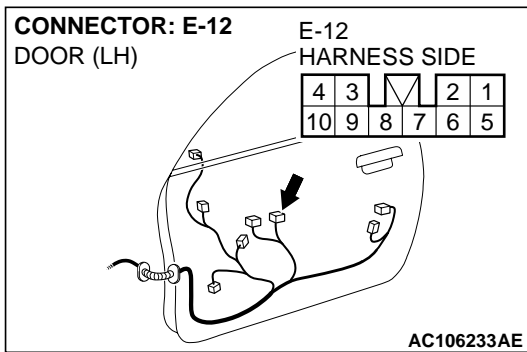


STEP 11. Check power window main switch connector E-12 for damage.

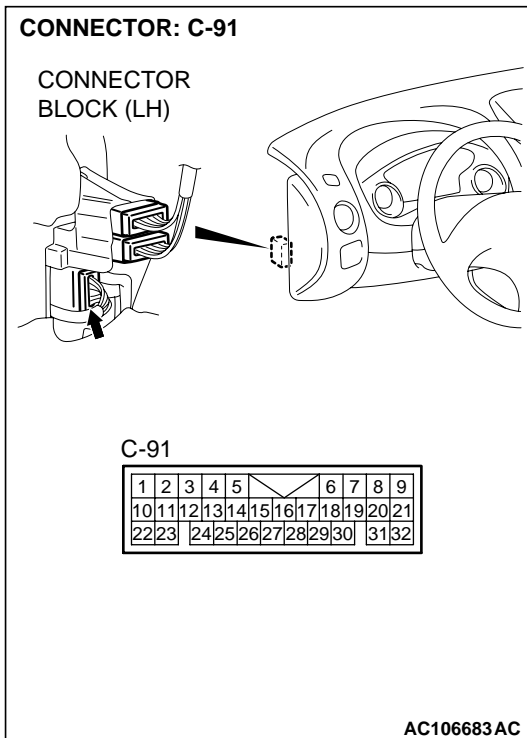
Q: Is power window main switch connector E-12 in good condition?

YES : Go to Step 12.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the power windows work normally.



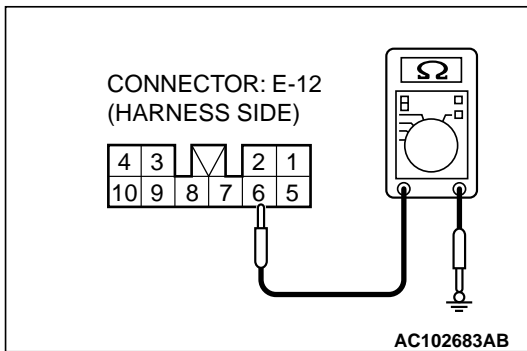
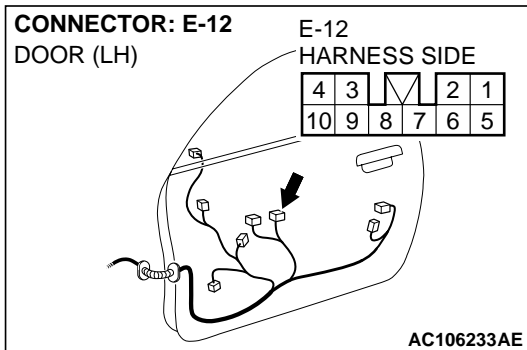
STEP 12. Check the wiring harness between power window main switch E-12 (terminal 9) and ground.
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between power window main switch connector E-12 (terminal 9) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the power windows work normally.



STEP 13. Check at power window main switch connector E-12 in order to check the power window relay circuit of the power supply to the power window main switch.

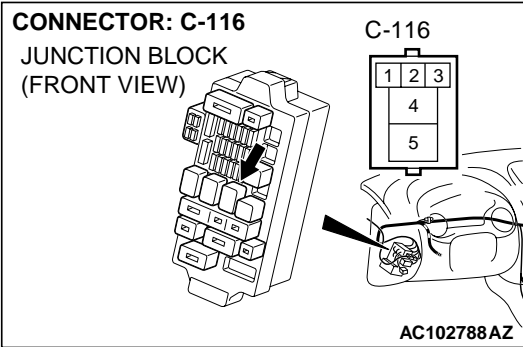
- (1) Disconnect power window main switch connector E-12, and measure at the harness side.
- (2) Turn the ignition switch to "ON" position.

- (3) Measure the voltage between terminal 6 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Replace the power window main switch. Check that the power windows work normally.

NO : Go to Step 14.

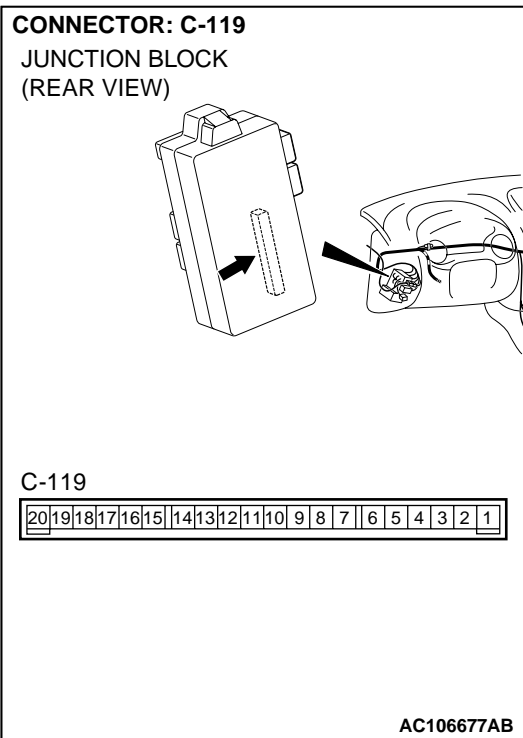


STEP 14. Check power window relay connector C-116 and ETACS-ECU connector C-119 for damage.

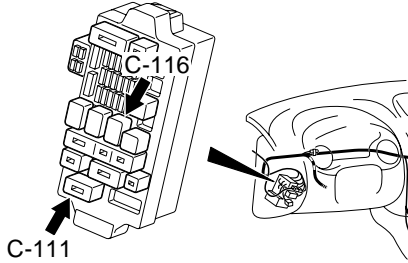
Q: Are power window relay connector C-116 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 15.

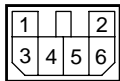
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the power windows work normally.



CONNECTORS: C-111, C-116
JUNCTION BLOCK
(FRONT VIEW)



C-111



C-116
JUNCTION BLOCK
SIDE

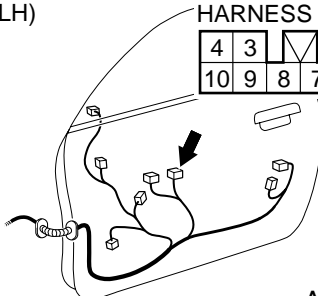


AC106673 AG

STEP 15. Check the wiring harness between power window relay connector C-116 (terminal 4) and power window main switch connector E-12 (terminal 6).

NOTE: Also check junction block connector C-111 and intermediate connector C-91. If junction block connector C-111 or intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

CONNECTOR: E-12
DOOR (LH)



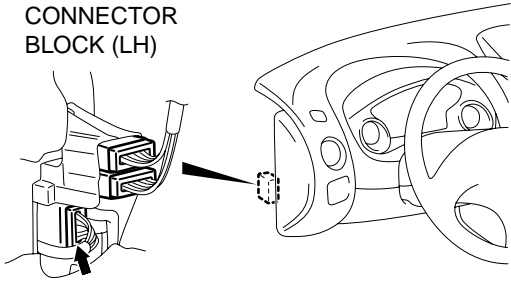
E-12
HARNESS SIDE



AC106233AE

CONNECTOR: C-91

CONNECTOR BLOCK (LH)



C-91

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	

AC106683AC

Q: Is the wiring harness between power window relay connector C-116 (terminal 4) and power window main switch connector E-12 (terminal 6) in good condition?

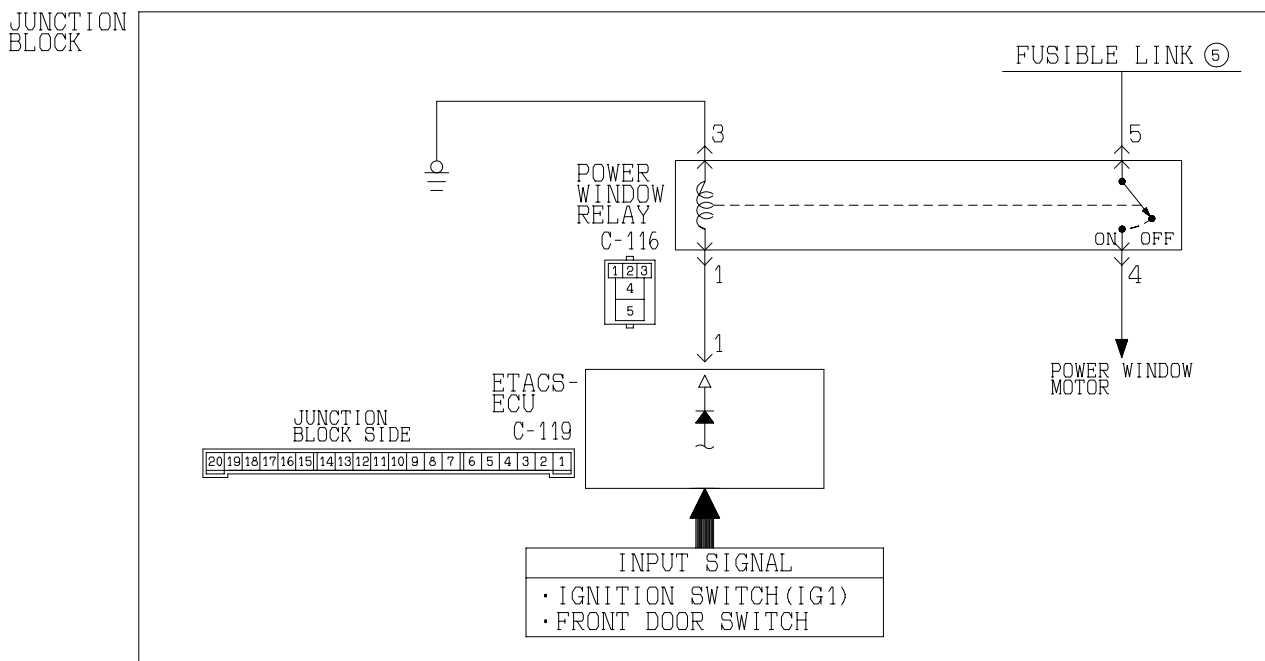
YES : Replace the ETACS-ECU. Check that the power windows work normally.

NO : Repair the wiring harness. Check that the power windows work normally.

INSPECTION PROCEDURE D-2: Power Window: The Power Window Timer does not Work Normally.

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

Power Window Timer Function Circuit



W2S13M12AA

CIRCUIT OPERATION

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

- Ignition switch (IG1)
- Front door switch

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of front door switches
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

⚠ CAUTION

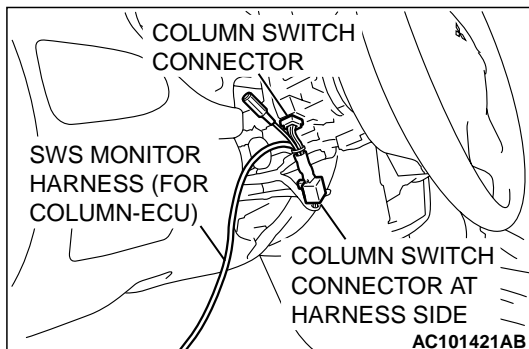
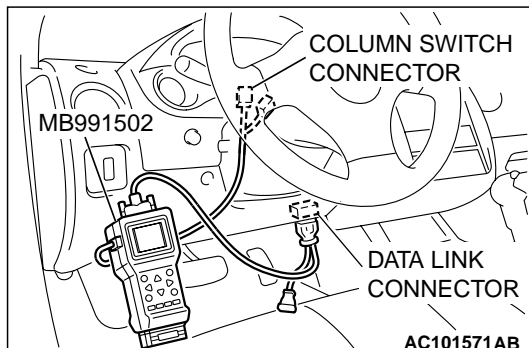
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

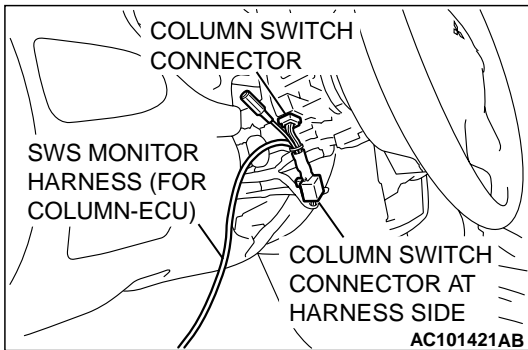
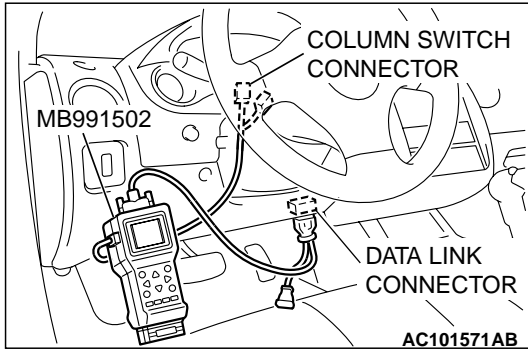
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





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

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

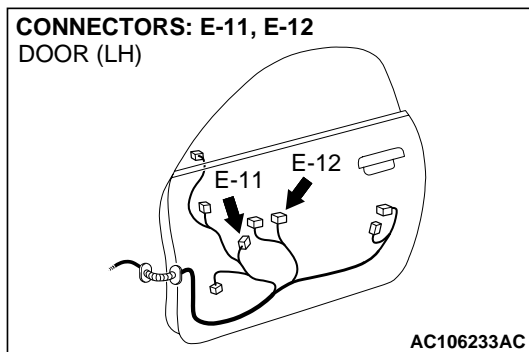
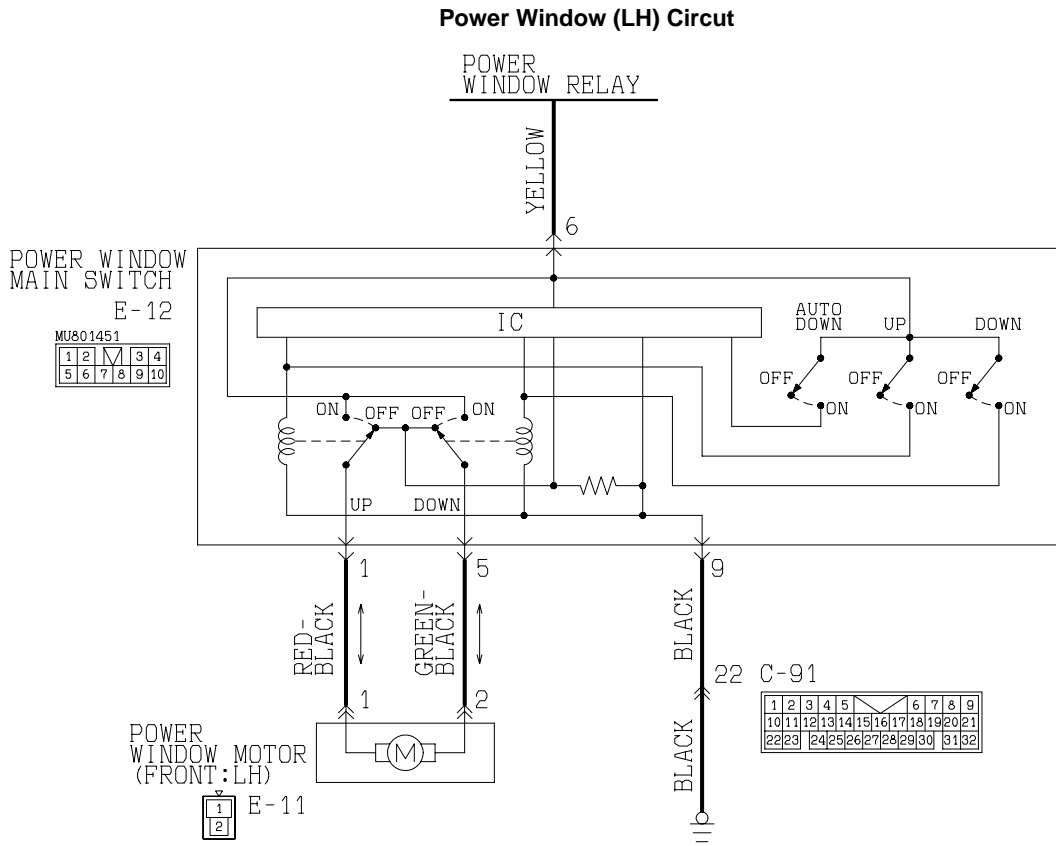
ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	OFF
ITEM No.32	FRONT DOOR SW	OFF

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

YES : Replace the ETACS-ECU. Check that the power window timer works normally.

- NO :**
- 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 a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - The scan tool does not show the respective normal condition for item "FRONT DOOR SW." Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"

INSPECTION PROCEDURE D-3: Power Window: Only Door Window (LH) does not Work by Operating Power Window Main Switch.



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of power window main switch
- Malfunction of front power window motor (LH)
- Damaged harness wires or connectors

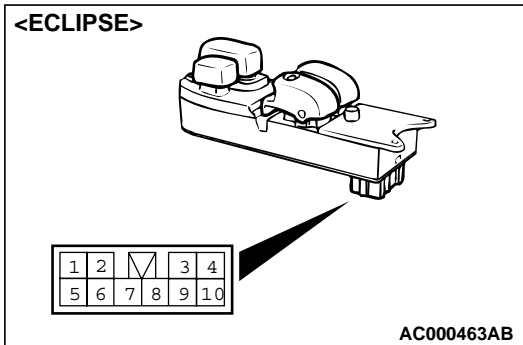
DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check the power window main switch.

- (1) Remove the power window main switch. Refer to GROUP 42, Door – Door Trim and Waterproof Film P.42-54.
- (2) Check continuity while power window main switch is moved to "UP" and "DOWN" position.

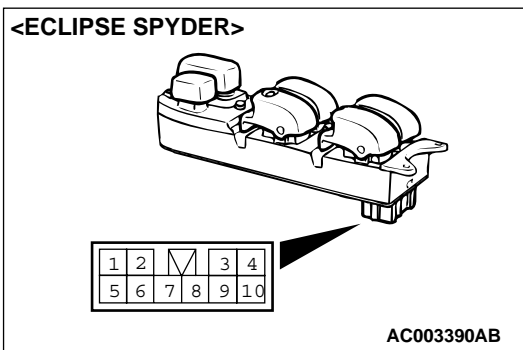


FRONT (LH) SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UP	1 – 6, 5 – 9	Less than 2 ohm
OFF	1 – 5 – 9	Less than 2 ohm
DOWN	1 – 9, 5 – 6	Less than 2 ohm

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

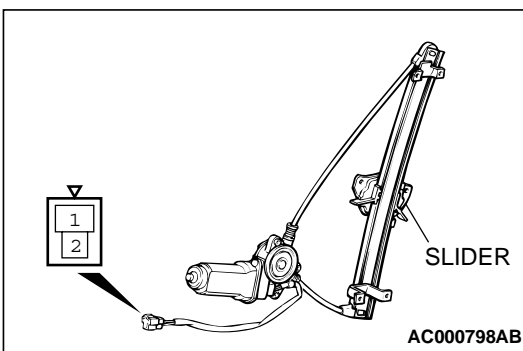
YES : Go to Step 2.

NO : Replace the power window main switch. When the power window main switch is operated, the front power window (LH) should open and close normally.



STEP 2. Check the front power window motor (LH).

- (1) Remove the front power window motor (LH). Refer to GROUP 42, Door – Door Glass and Regulator P.42-57.
- (2) Follow the table below to check the front power window motor (LH) for correct operation.

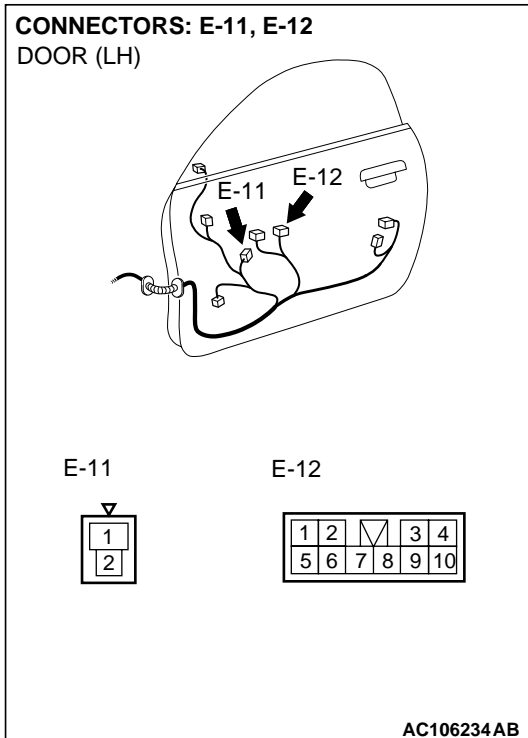


TESTER CONNECTION	SLIDER POSITION
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The slider moves up
<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal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

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

YES : Go to Step 3.

NO : Replace the front power window motor (LH). When the power window main switch is operated, the front power window (LH) should open and close normally.

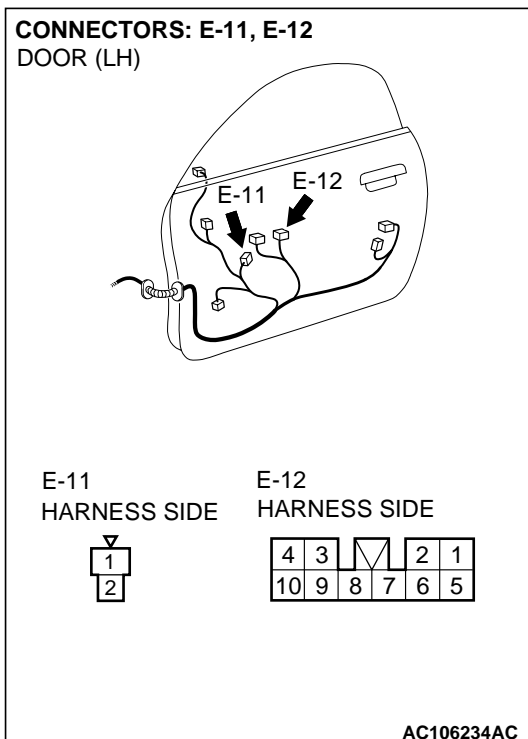


STEP 3. Check power window main switch connector E-12 and front power window motor (LH) connector E-11 for damage.

Q: Are power window main switch connector E-12 and front power window motor (LH) connector E-11 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the power window main switch is operated, the front power window (LH) should open and close normally.



STEP 4. Check the wiring harness between power window main switch connector E-12 (terminals 1 and 5) and front power window motor (LH) connector E-11 (terminals 1 and 2).

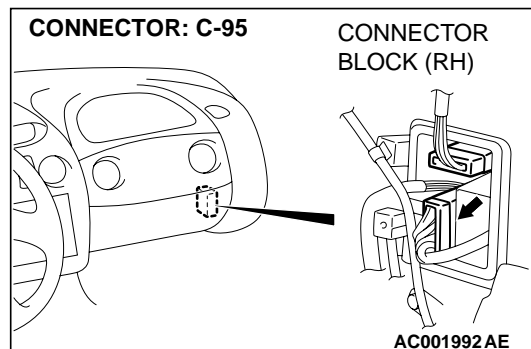
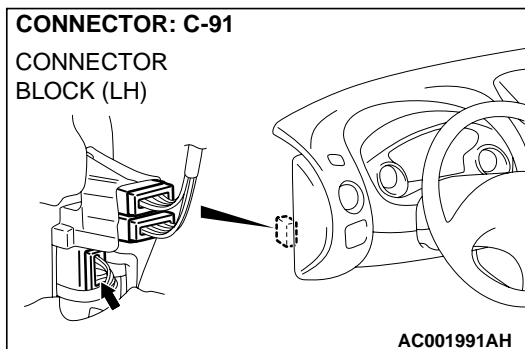
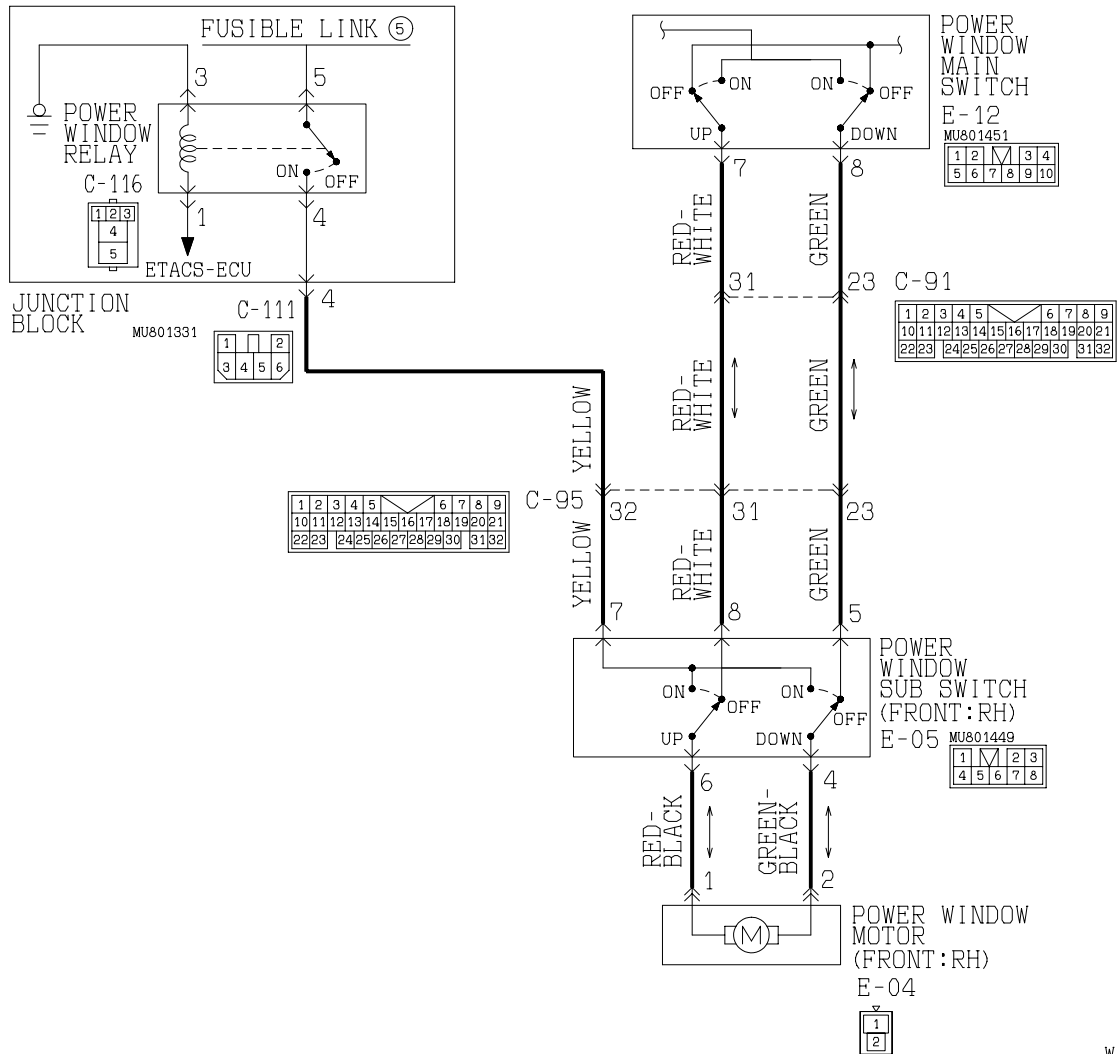
Q: Is the wiring harness between power window main switch connector E-12 (terminals 1 and 5) and front power window motor (LH) connector E-11 (terminals 1 and 2) in good condition?

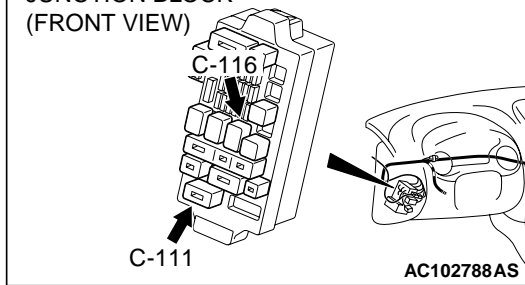
YES : No action to be taken.

NO : Repair the wiring harness. When the power window main switch is operated, the front power window (LH) should open and close normally.

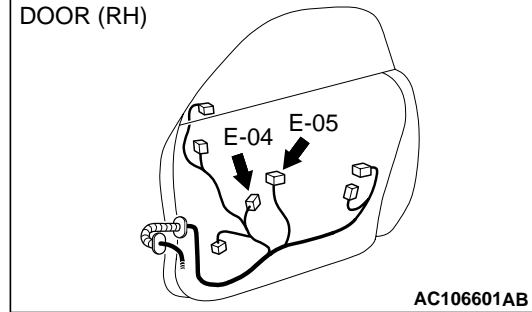
INSPECTION PROCEDURE D-4: Power Window: Only Power Window (RH) does not Work by Operating Power Window Sub-switch.

Power Window Sub Switch Circuit

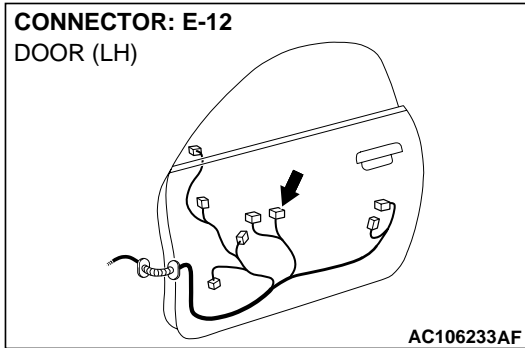


CONNECTORS: C-111, C-116JUNCTION BLOCK
(FRONT VIEW)**CONNECTORS: E-04, E-05**

DOOR (RH)

**CONNECTOR: E-12**

DOOR (LH)

**CIRCUIT OPERATION**

Power window motors open or close the door windows when the power window sub-switch is moved to "UP" or "DOWN" position.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of power window main switch
- Malfunction of power window sub-switch
- Malfunction of power window motor (RH)
- Damaged harness wires or connectors

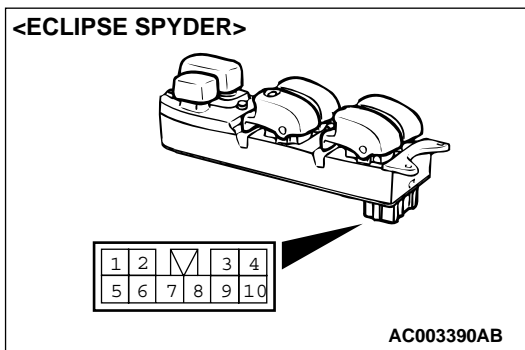
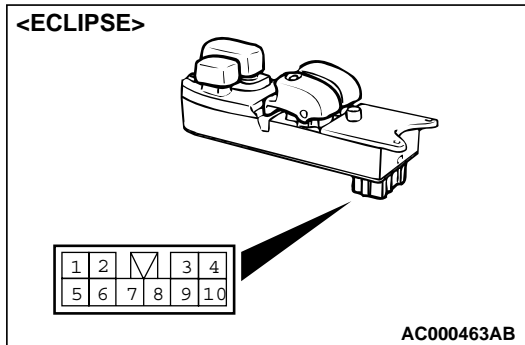
DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set

STEP 1. Check the continuity of the power window main switch.

- (1) Remove the power window main switch. Refer to P.42-54.
- (2) Check continuity when the switch on the power window main switch is operated to "UP" or "DOWN" position.



SWITCHES TO BE CHECKED	SWITCH POSITION		TESTER CONNECTION	SPECIFIED CONDITION
	POWER WINDOW LOCK SWITCH	POWER WINDOW SWITCHES TO BE CHECKED		
Power window (RH)	Lock	UP	7 – 6	Less than 2 ohm
		OFF	7 – 8	Less than 2 ohm
		DOWN	6 – 8	Less than 2 ohm
	Unlock	UP	7 – 6, 8 – 9	Less than 2 ohm
		OFF	7 – 8 – 9	Less than 2 ohm
		DOWN	7 – 9, 6 – 8	Less than 2 ohm

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

YES : Go to Step 2.

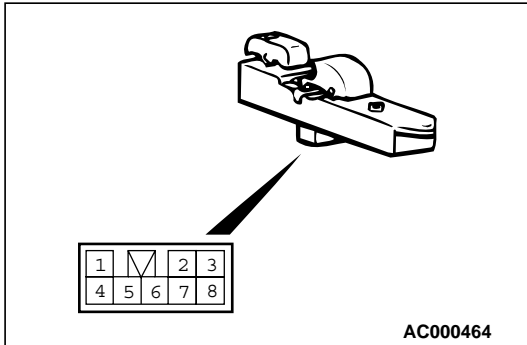
NO : Replace the power window main switch. When the power window sub-switch is operated, the power window (RH) should open or close normally.

STEP 2. Check the power window lock switch.

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

YES : Go to Step 3.

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



STEP 3. Check the continuity of the power window sub-switch.

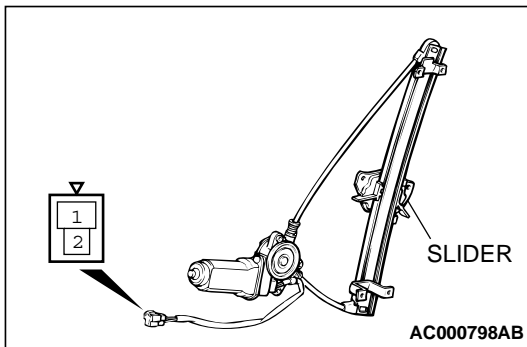
- (1) Remove the power window sub-switch. Refer to GROUP 42, Door – Door Trim and Waterproof Film P.42-54.
- (2) Check continuity when the power window sub-switch is operated to "UP" or "DOWN" position.

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

Q: Is the power window sub-switch in good condition?

YES : Go to Step 4.

NO : Replace the power window sub switch. When the power window sub-switch is operated, the power window (RH) should open or close normally.



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

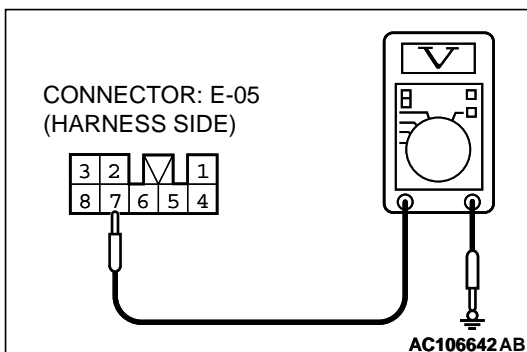
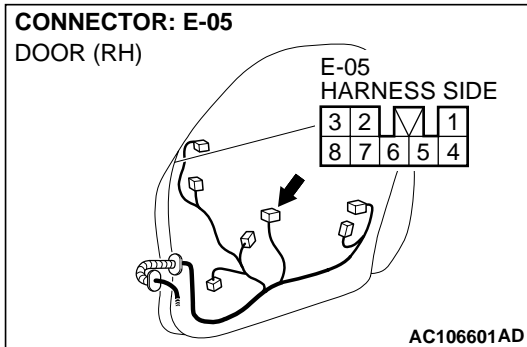
- (1) Remove the front power regulator assembly (RH). Refer to GROUP 42, Door – Door Glass and Regulator P.42-57.
- (2) Follow the table below to check the front power window motor (RH) for correct operation.

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

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

YES : Go to Step 5.

NO : Replace the front power regulator assembly (RH). When the power window sub-switch is operated, the power window (RH) should open or close normally.



STEP 5. Check at front power window sub-switch connector E-05 in order to check the power window relay circuit of the power supply to the power window sub-switch.

(1) Disconnect power window sub-switch connector E-05, and measure at the harness side.

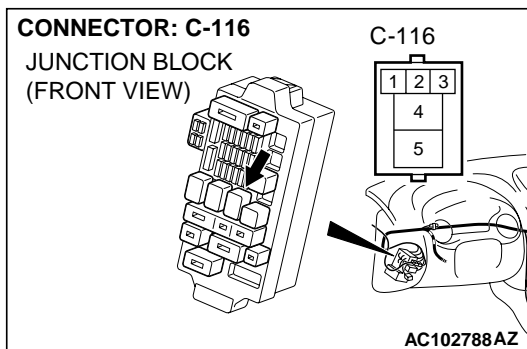
(2) Measure the voltage between terminal 7 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 8.

NO : Go to Step 6.

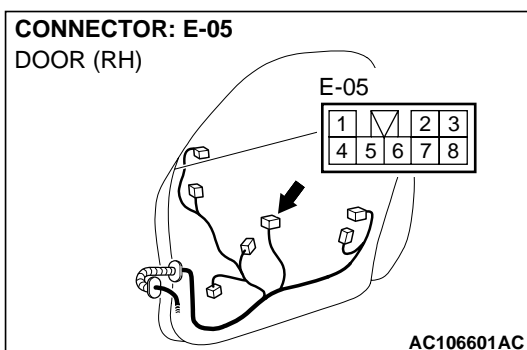


STEP 6. Check power window relay connector C-116 and front power window sub-switch connector E-05 for damage.

Q: Are power window relay connector C-116 and power window sub-switch connector E-05 in good condition?

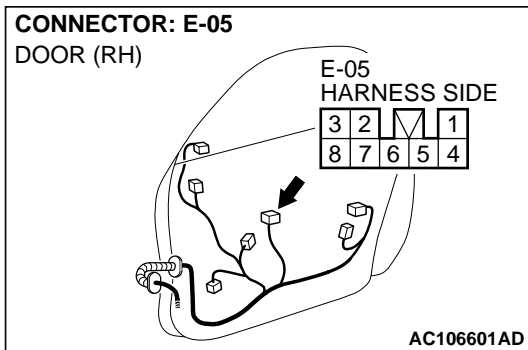
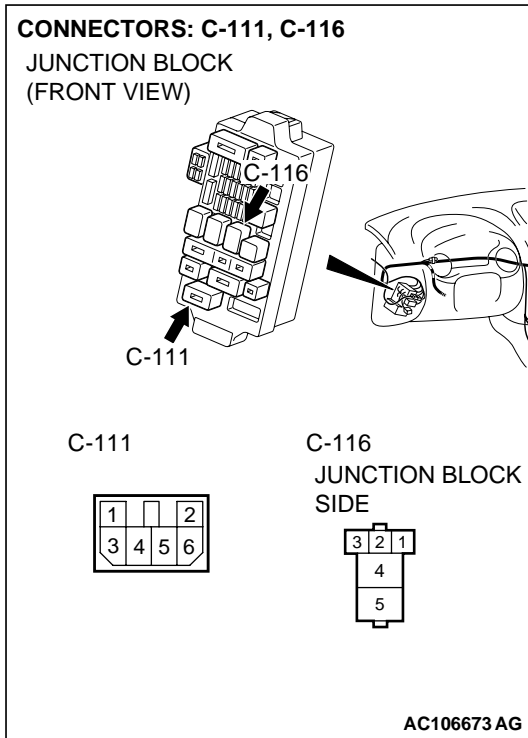
YES : Go to Step 7.

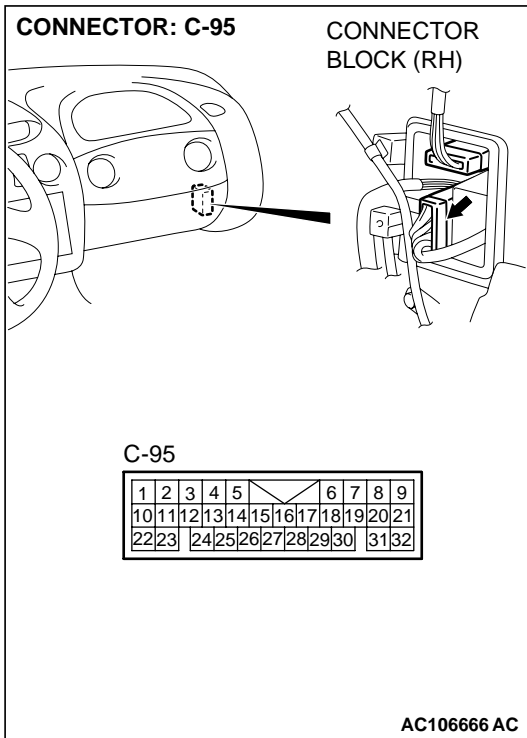
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). When the power window sub-switch is operated, the power window (RH) should open or close normally.



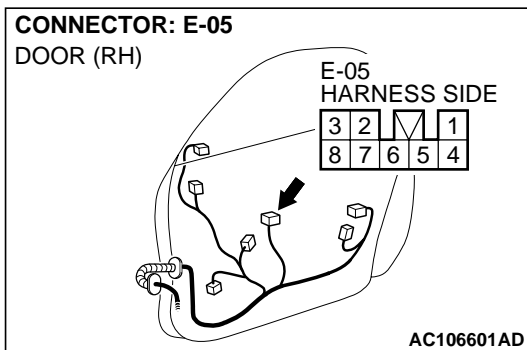
STEP 7. Check the wiring harness between power window relay connector C-116 (terminal 4) and power window sub switch connector E-05 (terminal 7).

NOTE: Also check junction block connector C-111 and intermediate connector C-95. If junction block connector C-111 or intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



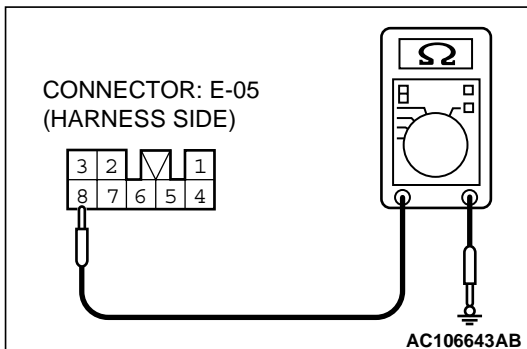


- Q: Is the wiring harness between power window relay connector C-116 (terminal 4) and power window sub switch connector E-05 (terminal 7) in good condition?**
- YES :** No action to be taken.
- NO :** Repair the wiring harness. When the power window sub-switch is operated, the power window (RH) should open or close normally.



STEP 8. Measure at power window sub switch connector E-05 in order to check the ground circuit to the power window sub switch.

- (1) Disconnect power window sub-switch connector E-05, and measure at the harness side.

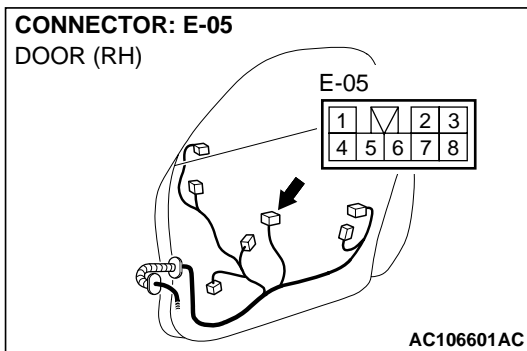
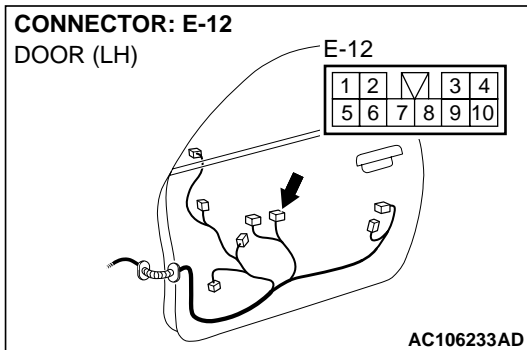


- (2) Measure the resistance value between terminal 8 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

- YES :** Go to Step 11.
- NO :** Go to Step 9.



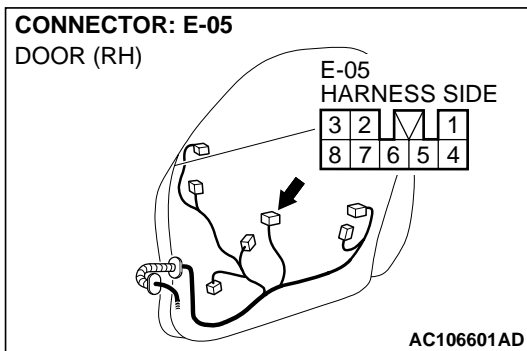
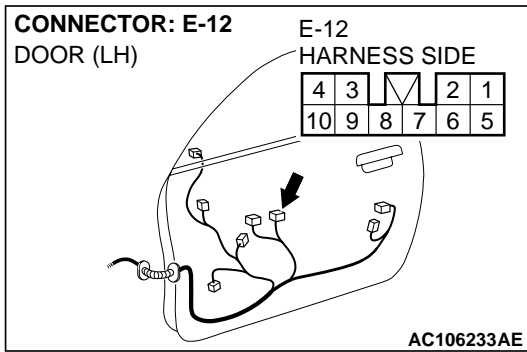
STEP 9. Check power window main switch connector E-12 and front power window sub-switch (RH) connector E-05 for damage.

Q: Are power window main switch connector E-12 and power window sub-switch connector E-05 in good condition?

YES : Go to Step 10.

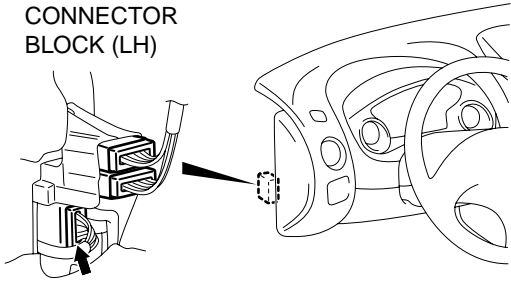
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). When the power window sub-switch is operated, the power window (RH) should open or close normally.

STEP 10. Check the wiring harness between power window main switch connector E-12 (terminal 7) and power window sub-switch connector E-05 (terminal 8).
NOTE: Also check intermediate connectors C-91 and C-95. If intermediate connectors C-91 or C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-91

CONNECTOR
BLOCK (LH)



C-91

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				

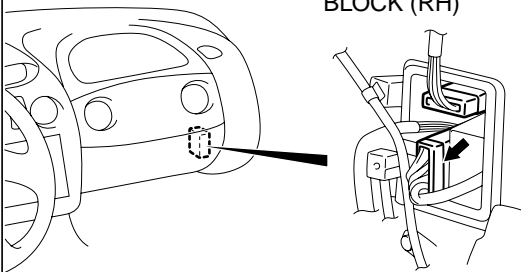
AC106683 AC

Q: Is the wiring harness between power window main switch connector E-12 (terminal 7) and power sub-switch connector E-05 (terminal 8) in good condition?

- YES :** Replace the power window main switch. When the power window sub-switch is operated, the power window (RH) should open or close normally.
- NO :** Repair the wiring harness. When the power window sub-switch is operated, the power window (RH) should open or close normally.

CONNECTOR: C-95

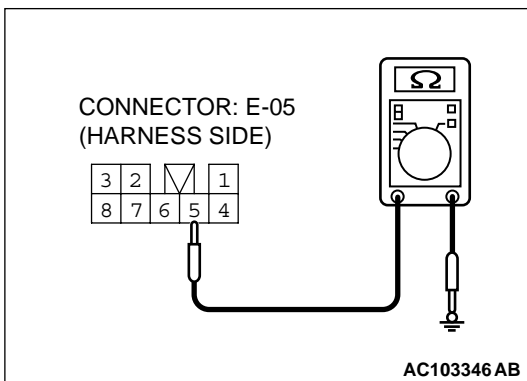
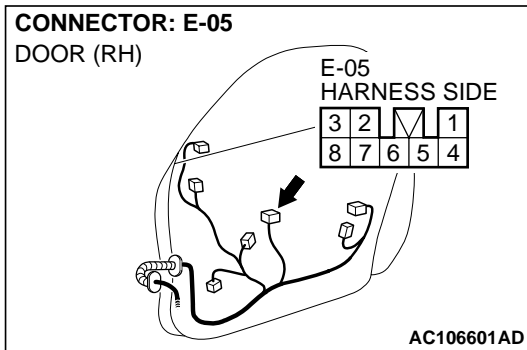
CONNECTOR
BLOCK (RH)



C-95

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				

AC106666 AC



STEP 11. Measure at power window sub switch connector E-05 in order to check the ground circuit to the power window sub switch.

(1) Disconnect power window sub-switch connector E-05, and measure at the harness side.

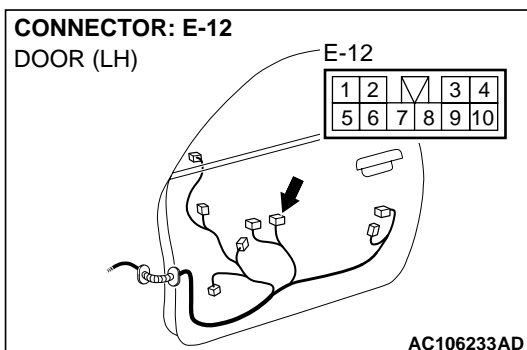
(2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 14.

NO : Go to Step 12.

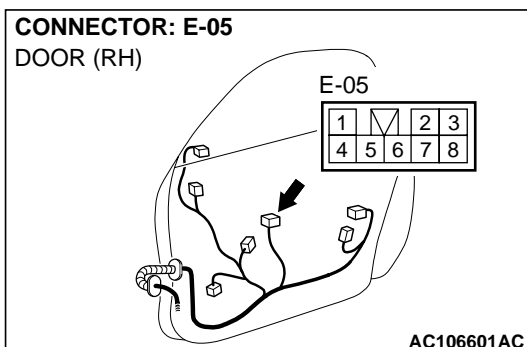


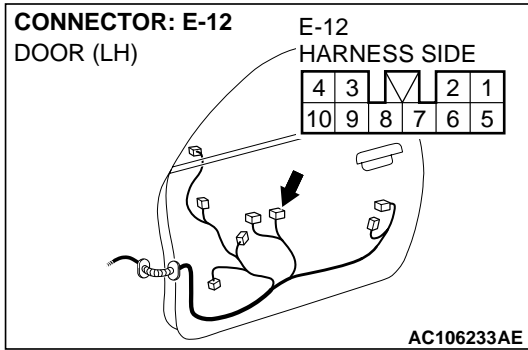
STEP 12. Check power window main switch connector E-12 and front power window sub-switch (RH) connector E-05 for damage.

Q: Are power window main switch connector E-12 and power window sub-switch connector E-05 in good condition?

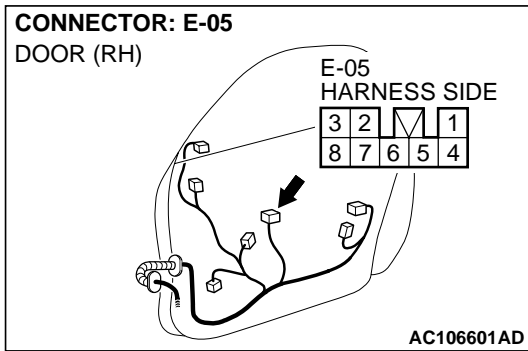
YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the power window sub-switch is operated, the power window (RH) should open or close normally.



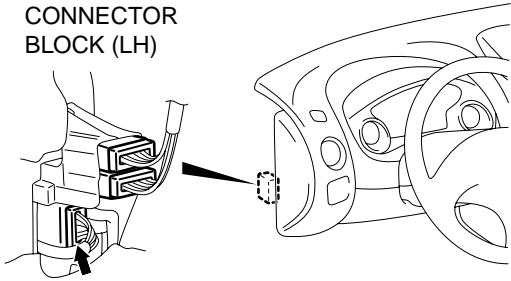


STEP 13. Check the wiring harness between power window main switch connector E-12 (terminal 8) and power window sub-switch connector E-05 (terminal 5).
NOTE: Also check intermediate connectors C-91 and C-95. If intermediate connectors C-91 or C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-91

CONNECTOR
BLOCK (LH)



C-91

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	

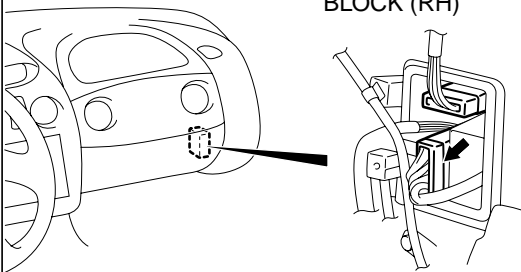
AC106683 AC

Q: Is the wiring harness between power window main switch connector E-12 (terminal 8) and power sub-switch connector E-05 (terminal 5) in good condition?

- YES :** Replace the power window main switch. When the power window sub-switch is operated, the power window (RH) should open or close normally.
- NO :** Repair the wiring harness. When the power window sub-switch is operated, the power window (RH) should open or close normally.

CONNECTOR: C-95

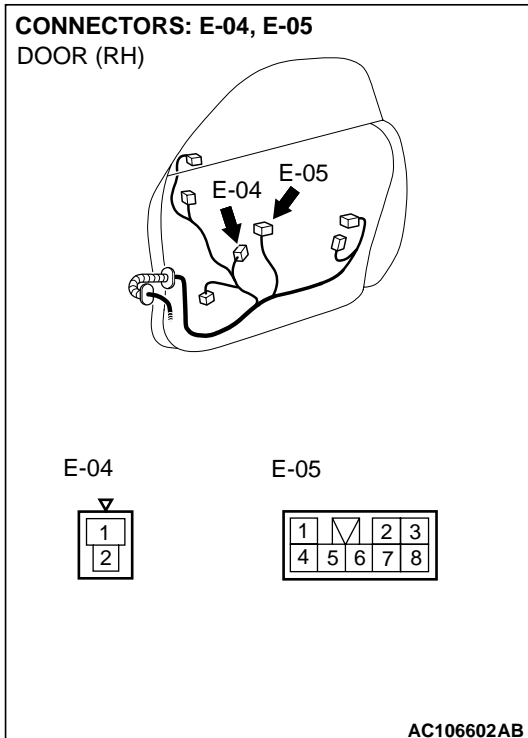
CONNECTOR
BLOCK (RH)



C-95

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	

AC106666 AC

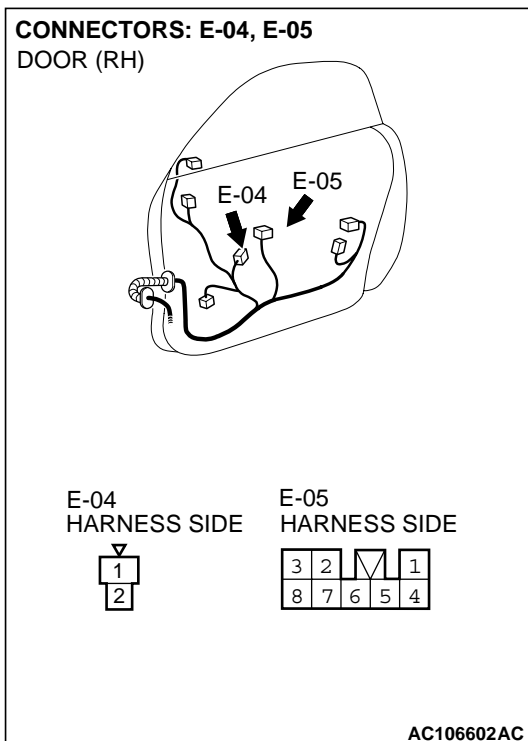


STEP 14. Check power window sub-switch connector E-05 and front power window motor (RH) connector E-04 for damage.

Q: Are power window sub-switch connector E-05 and front power window motor (RH) connector E-04 in good condition?

YES : Go to Step 15.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. When the power window sub-switch is operated, the power window (RH) should open or close normally.



STEP 15. Check the wiring harness between power window sub-switch connector E-05 (terminals 4 and 6) and front power window motor (RH) connector E-04 (terminals 2 and 1).

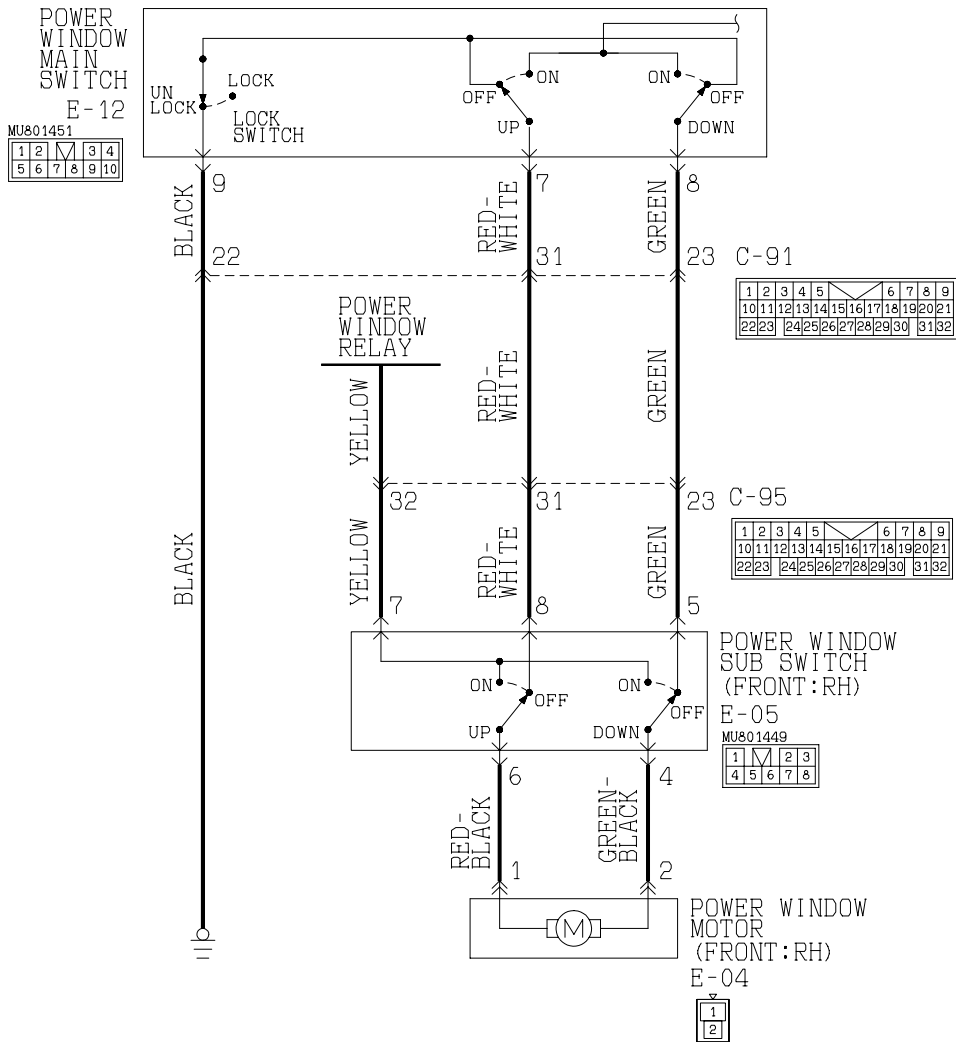
Q: Is the wiring harness between front power window main switch (RH) connector E-05 (terminals 4 and 6) and front power window motor (RH) connector E-04 (terminals 2 and 1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. When the power window sub-switch is operated, the power window (RH) should open or close normally.

INSPECTION PROCEDURE D-5: Power Window: Door Window (RH) does not Work by Operating Power Window Main Switch.

Power Window (RH) Circuit



W3S12M07AA

CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of power window main switch

DIAGNOSIS

Check that power window sub-switches operate normally.

Q: Does the power window sub-switch operate the power window (RH)?

YES : Replace the power window main switch. When the power window main switch is operated, the power window (RH) should open or close normally.

NO : Refer to Symptom Chart [P.54B-135](#) before resolving this trouble. Refer to [P.54B-135](#).

KEYLESS ENTRY SYSTEM**GENERAL DESCRIPTION CONCERNING KEYLESS ENTRY SYSTEM**

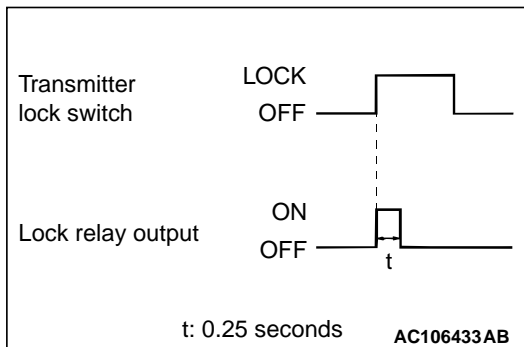
M1549022000017

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

Functions	Control ECU
Operating the Transmitter Lock Switch	ETACS-ECU
Operating the Transmitter Unlock Switch Press Once	ETACS-ECU
Operating the Transmitter Unlock Switch Press Twice	ETACS-ECU
Operating the Transmitter Trunk Switch	ETACS-ECU
Keyless Entry Hazard Answerback and Horn Answerback Function	ETACS-ECU

ALL DOOR LOCK FUNCTION**Operating the Transmitter Lock Switch**

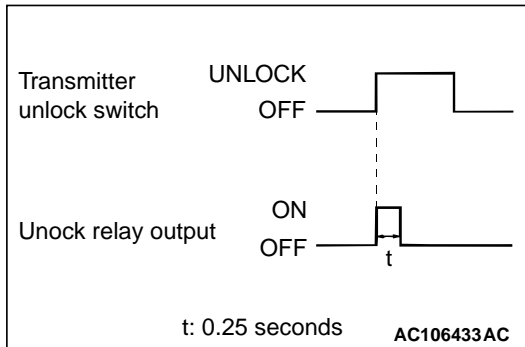
When the transmitter lock switch is pressed, the ETACS-ECU activates the lock relay output for 0.25 seconds and locks all doors.



DRIVER'S DOOR UNLOCK FUNCTION

Operating the Transmitter Unlock Switch Press Once

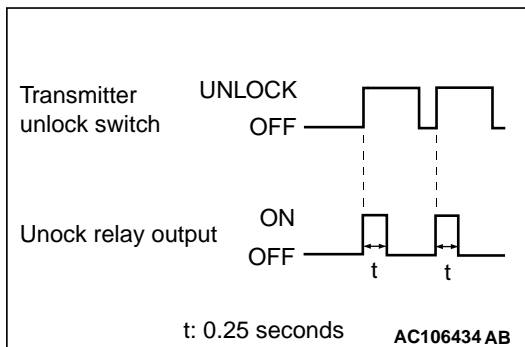
When the transmitter unlock switch is pressed once, the ETACS-ECU activates the unlock relay output for 0.25 seconds and unlocks driver's door.



ALL DOOR UNLOCK FUNCTION

Operating the Transmitter Unlock Switch Press Twice

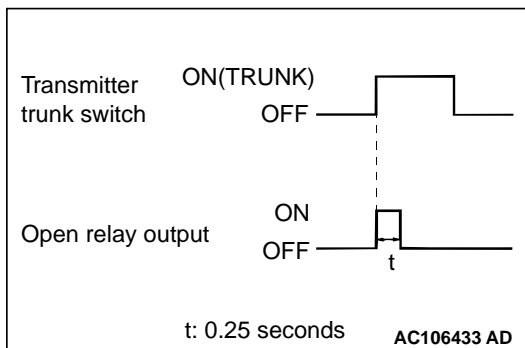
When the transmitter unlock switch is pressed twice, the ETACS-ECU activates the unlock relay output for 0.25 seconds and unlocks all doors.



TRUNK LID OPEN FUNCTION

Operating the Transmitter Trunk Switch

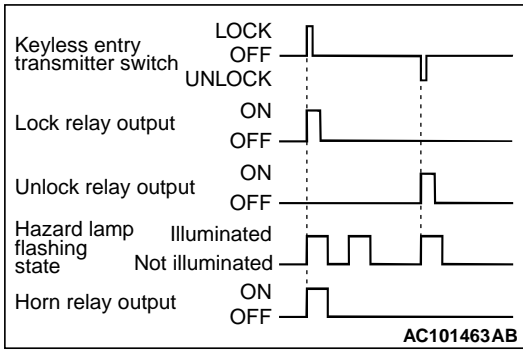
When the transmitter trunk switch is pressed, the ETACS-ECU activates the open relay output for 0.25 seconds and open trunk lid.



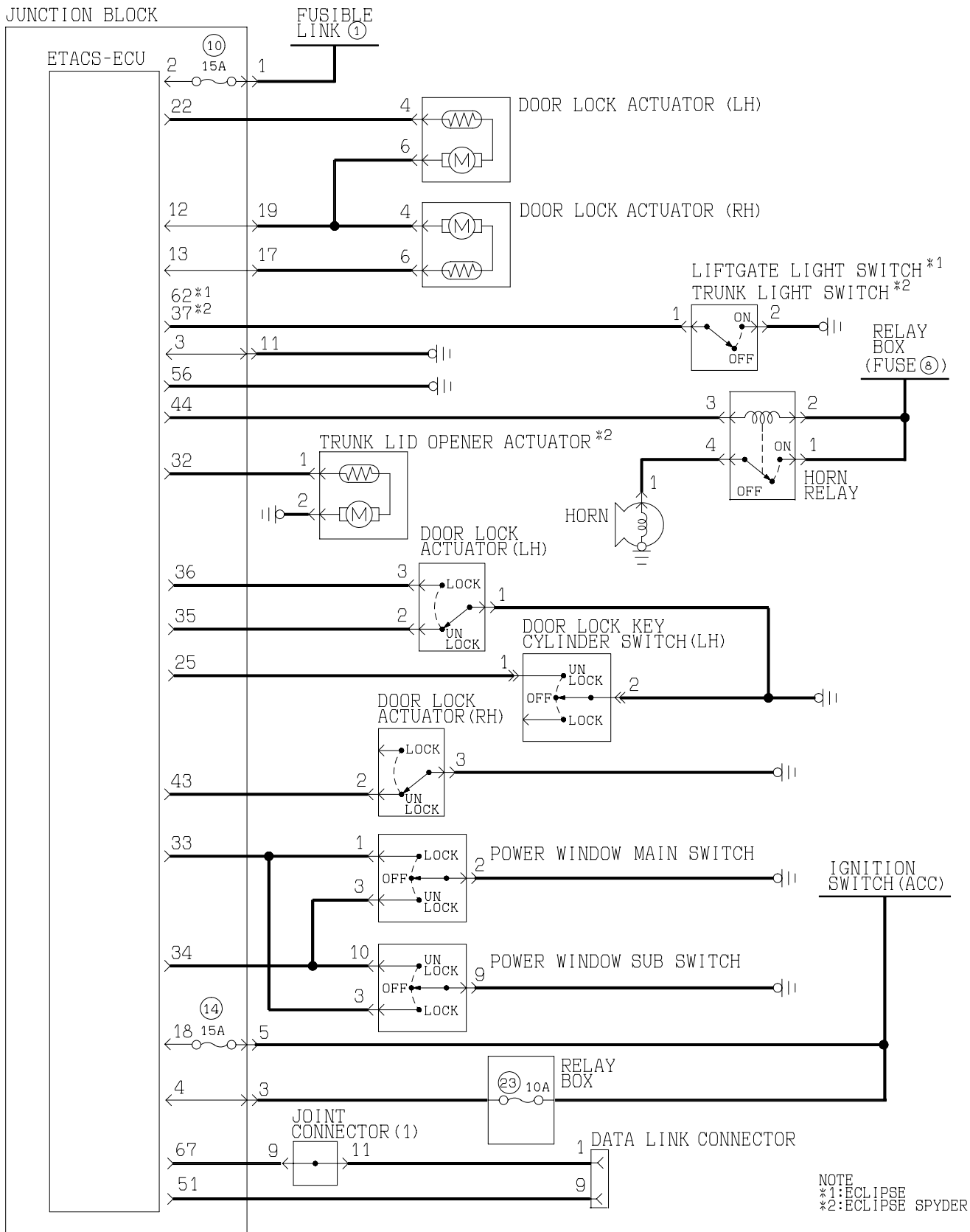
KEYLESS ENTRY HAZARD ANSWERBACK AND HORN ANSWERBACK FUNCTION

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

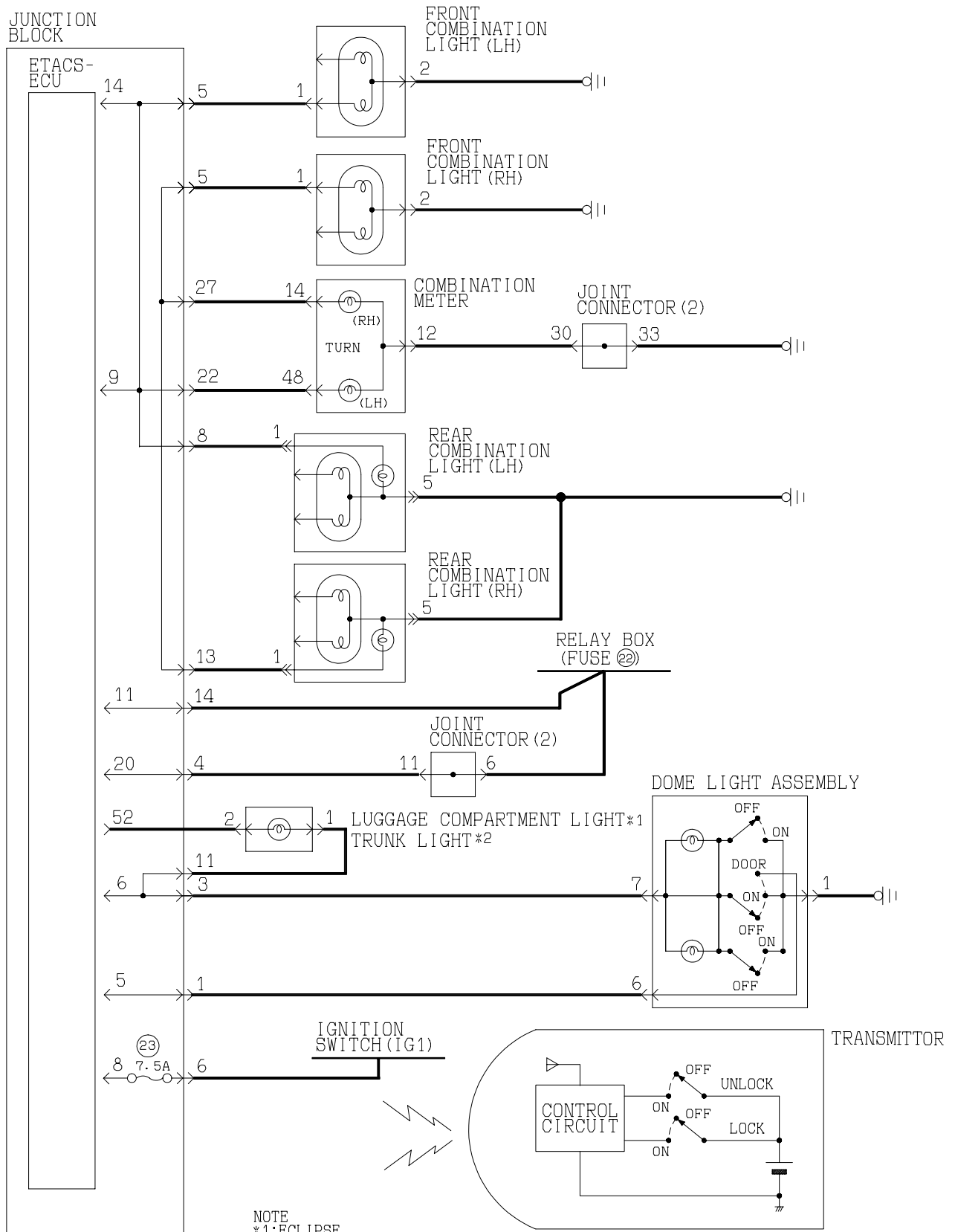
NOTE: Hazard answerback function can be disabled by the configuration function (Refer to P.54B-627.)



General circuit diagram for the keyless entry system



W3S07M02AA

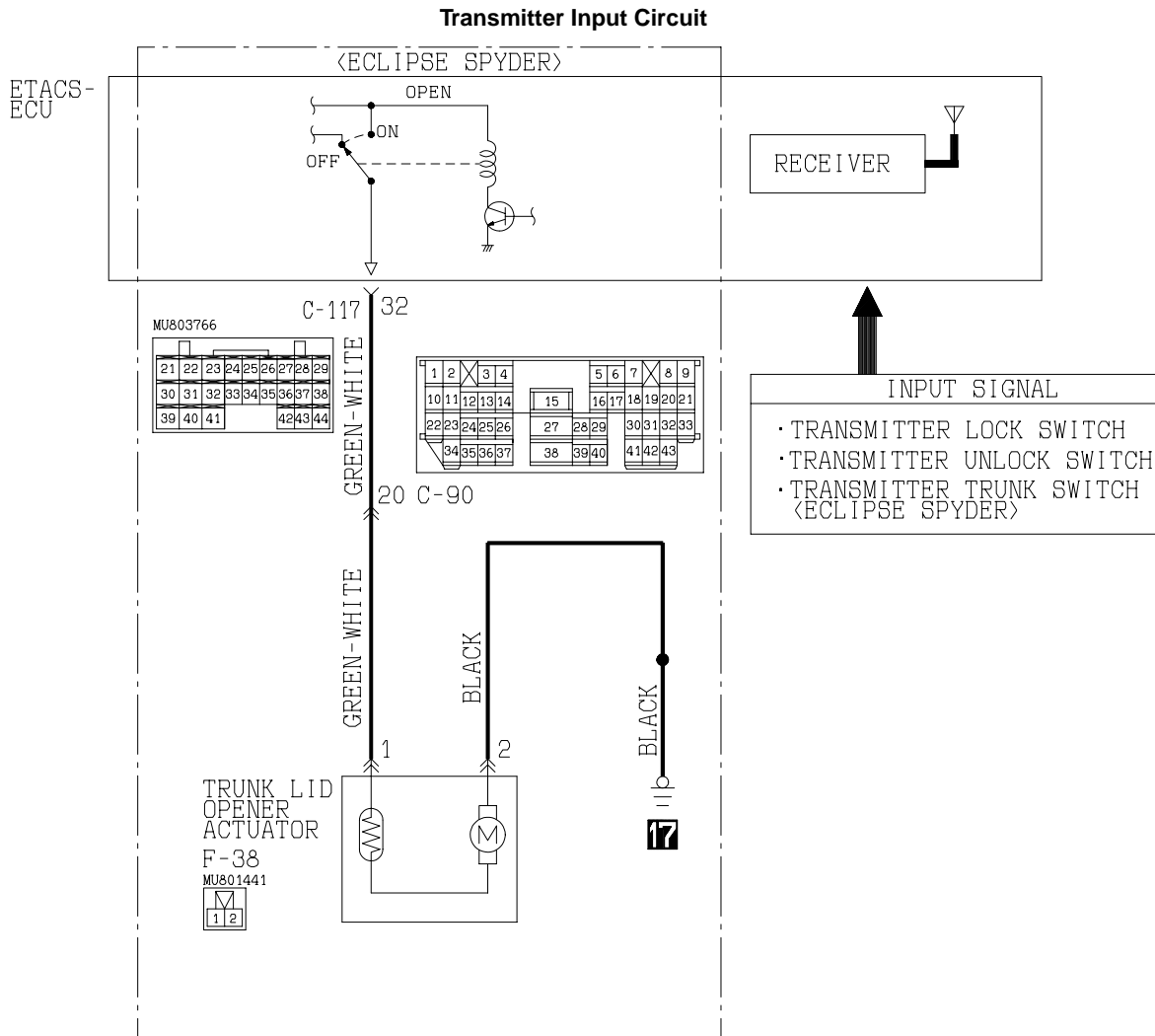


NOTE
*1: ECLIPSE
*2: ECLIPSE SPYDER

W3S07M03AA

INSPECTION PROCEDURE E-1: Keyless Entry System: Keyless Entry System does not Operate.

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



W2807M01AA

CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

- Malfunction of the transmitter
- Malfunction of the ETACS-ECU
- Malfunction of the trunk lid opener actuator assembly <ECLIPSE SPYDER>

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Model confirmation.**Q: Which model is the vehicle?**

ECLIPSE : Go to Step 3.

ECLIPSE SPYDER : Go to Step 2.

STEP 2. Confirm which transmitter switch fails.**Q: Which transmitter switch fails to operate correctly?**

LOCK , UNLOCK and TRUNK LID OPEN : Go to Step 3.

LOCK and UNLOCK only : Go to Step 5.

TRUNK LID OPEN only : Go to Step 7.

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

Check the ETACS-ECU.

⚠ CAUTION

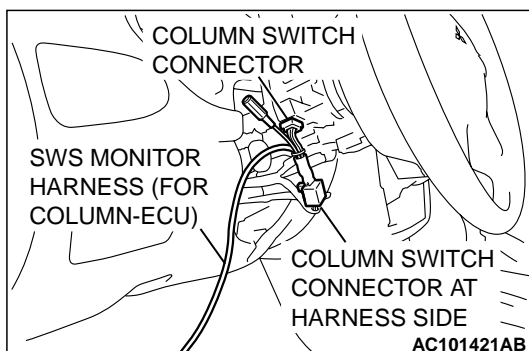
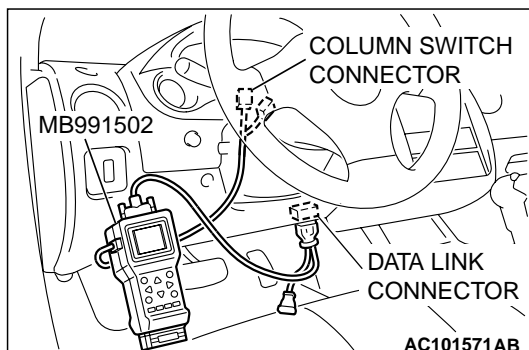
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

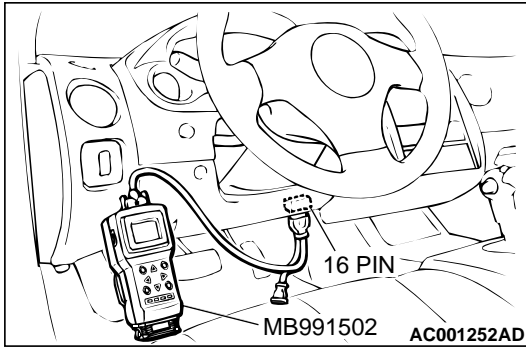
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

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

YES : Go to Step 4.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."





STEP 4. Check the input signal (by using the Pulse check).

Check the input signals from the transmitter.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Push the transmitter "LOCK" , "UNLOCK" or "TRUNK" switch.
- (4) Check that scan tool MB991502 sounds

Q: When the transmitter "LOCK" , "UNLOCK" or "TRUNK" switch is pushed, does scan tool MB991502 sound?

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

NO : Refer to Inspection Procedure P-13 "The ETACS-ECU does not receive signal from lock, unlock, panic or trunk switch [P.54B-609](#)".

STEP 5. Check the central door locking system.

Q: Does the central door locking system work normally?

YES : Go to Step 6.

NO : Refer to Inspection Procedure C-1 "Central door locking system does not work at all [P.54B-83](#)."

STEP 6. Check the input signal (by using the Pulse check).

Check the input signals from the transmitter.

⚠ CAUTION

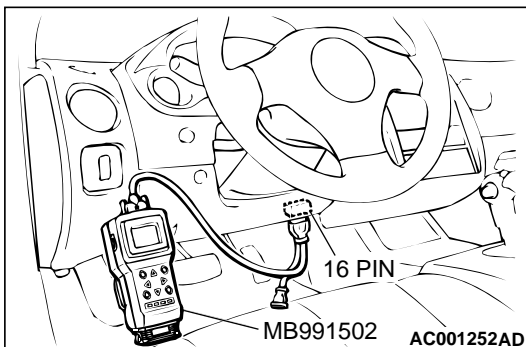
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

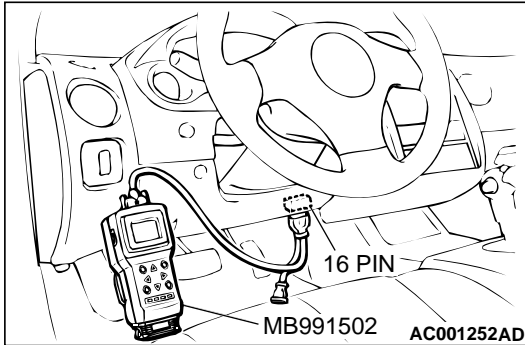
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Push the transmitter "LOCK" or "UNLOCK" switch.
- (4) Check that scan tool MB991502 sounds

Q: When the transmitter "LOCK" or "UNLOCK" switch is pushed, does scan tool MB991502 sound?

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

NO : Refer to Inspection Procedure P-13 "The ETACS-ECU does not receive signal from lock, unlock, panic or trunk switch [P.54B-609](#)".





STEP 7. Check the input signal (by using the Pulse check).
Check the input signals from the transmitter.

⚠ CAUTION

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

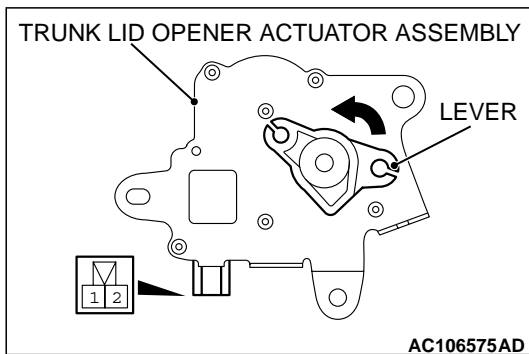
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Push the transmitter "TRUNK" switch.
- (4) Check that scan tool MB991502 sounds

Q: When the transmitter "TRUNK" switch is pushed, does scan tool MB991502 sound?

- YES :** Replace the ETACS-ECU. Trunk lid can be opened by means of the transmitter.
- NO :** Refer to Inspection Procedure P-13 "The ETACS-ECU does not receive signal from lock, unlock, panic or trunk switch P.54B-609".

STEP 8. Check the trunk lid opener actuator assembly.

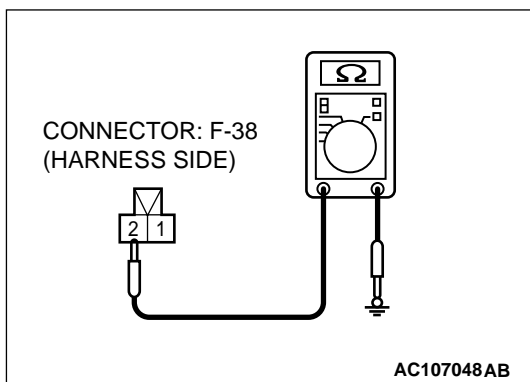
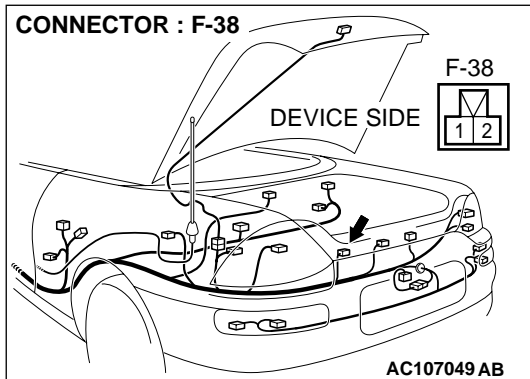
- (1) Remove the trunk lid opener actuator assembly. Refer to GROUP 42, Trunk Lid Lock Release Handle and Cable Removal and Installation P.42-78.
- (2) Check that the trunk lid opener actuator assembly lever function.



BATTERY CONNECTION	LEVER FUNCTION
<ul style="list-style-type: none"> • Connect terminal 2 to the negative battery terminal • Connect terminal 1 to the positive battery terminal 	The lever moves toward the arrow direction momentarily
Not applied	The lever does not move

Q: Is the trunk lid opener actuator assembly in good condition?

- YES :** Replace the trunk lid opener actuator assembly P.42-78. Check that the trunk lid opener actuator assembly works normally.
- NO :** Go to Step 9.



STEP 9. Measure at trunk lid opener actuator assembly connector F-38 in order check the ground system to trunk lid opener actuator assembly.

(1) Disconnect trunk lid opener actuator assembly connector F-38, and measure at the harness side.

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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 12.

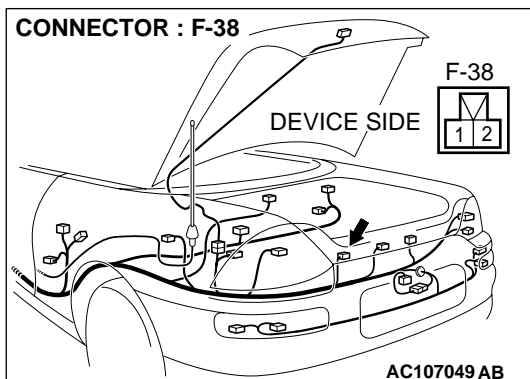
NO : Go to Step 10.

STEP 10. Check the trunk lid opener actuator connector F-38 for damage.

Q: Is the trunk lid opener actuator connector F-38 in good condition?

YES : Go to Step 11.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection. [P.54B-609](#). Check that the trunk lid opener work normally.

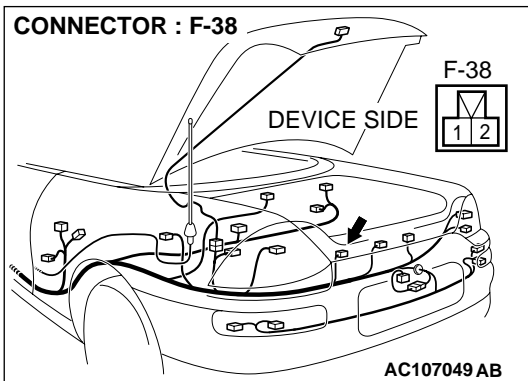


STEP 11. Check the wiring harness between trunk lid opener actuator connector F-38 (terminal 2) and ground

Q: Is the wiring harness between the trunk lid opener actuator connector F-38 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the trunk lid opener work normally.

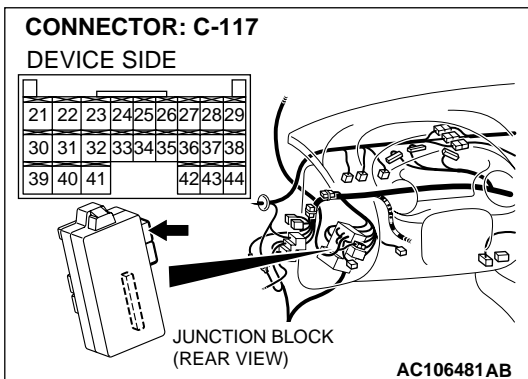


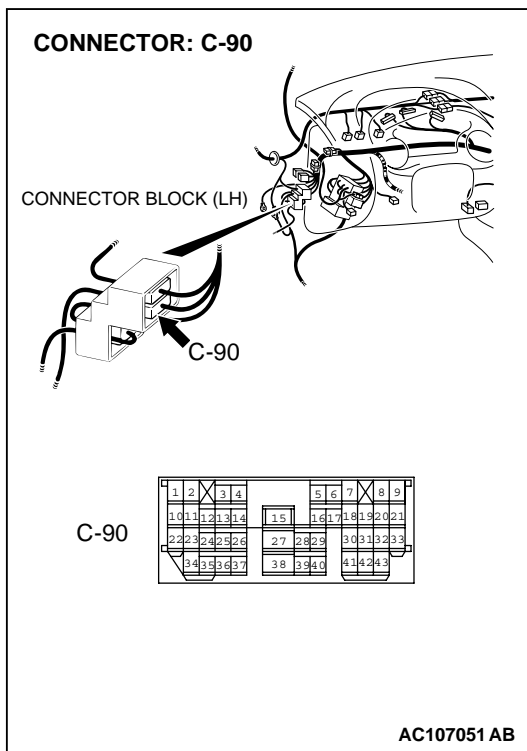
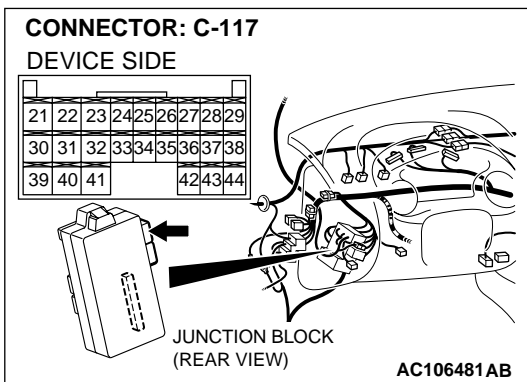
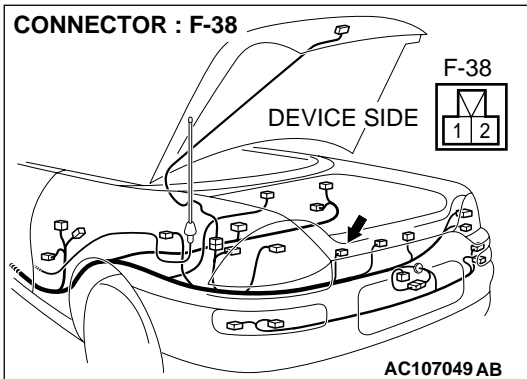
STEP 12. Check the trunk lid opener actuator connector F-38 and ETACS-ECU connector C-117 for damage.

Q: Are trunk lid opener actuator connector F-38 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection. [P.54B-609](#). Check that the trunk lid opener work normally.





STEP 13. Check the wiring harness between trunk lid opener actuator connector F-38 (terminal 1) and ETACS-ECU connector C-117 (terminal 32).

NOTE: Also check intermediate connector C-90. If intermediate connector C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the trunk lid opener actuator connector F-38 (terminal 1) and ETACS-ECU connector C-117 (terminal 32) in good condition?

YES : Replace the ETACS-ECU. Check that the Keyless entry system work normally.

NO : Repair the wiring harness. Check that the Keyless entry system work normally.

INSPECTION PROCEDURE E-2: Keyless Entry System: The Dome Light, the Turn-signal Lights and the Horn do not Operate Through the Answerback Function.**CIRCUIT OPERATION**

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

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

TECHNICAL DESCRIPTION (COMMENT)

The hazard warning lights and horn answerback functions can be disabled or enabled. (These functions can be disabled.) However, the dome light answerback function can not be disabled.

TROUBLESHOOTING HINTS

- Malfunction of the hazard warning lights
- Malfunction of the theft-alarm horn
- Malfunction of the horn
- Malfunction of the dome light
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check the keyless entry system.**Q: Does the keyless entry system work normally?**

YES : Go to Step 2.

NO : Refer to Inspection Procedure E-1 "Keyless entry system does not work normally [P.54B-155](#)."

STEP 2. Check the answerback adjustment function.

Check the answerback functions. (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Enabling/disabling the Answerback Function [P.42-82](#).)

Q: Does the answerback function work normally?

YES : No action to be taken.

NO : Go to Step 3.

STEP 3. Check trouble symptom.**Q: Which answerback function is defective?**

Only the dome light : Go to Step 4.

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

Only the horns : Go to Step 6.

None of the dome light, the turn-signal lights, and the horn : Replace the ETACS-ECU. Check that the answerback functions work normally.

STEP 4. Check the dome light.**Q: Does the dome light illuminate normally?**

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

NO : Refer to Inspection Procedure M-1 "Dome light does not illuminate [P.54B-400](#)."

STEP 5. Check the hazard warning light.

Q: Do the hazard warning lights work normally?

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

NO : Refer to Inspection Procedure K-2 "Hazard warning lights do not flash when the hazard warning light switch is turned on [P.54B-352.](#)"

STEP 6. Check the theft-alarm system (horn).

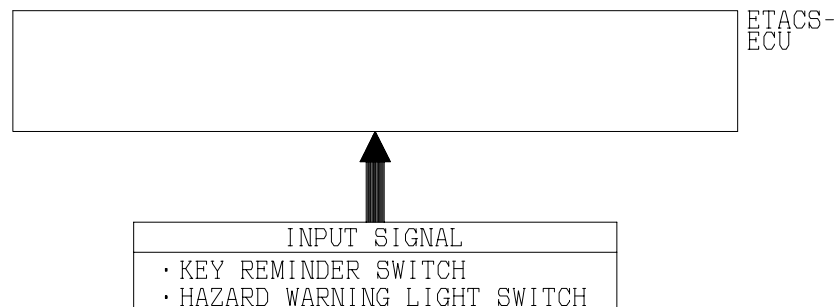
Q: Does the theft-alarm system work normally?

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

NO : Refer to Inspection Procedure N-2 "Tone alarm does not sound when the theft-alarm system is triggered [P.54B-449.](#)"

INSPECTION PROCEDURE E-3: Keyless Entry System: Encrypted Code cannot be Registered

Encrypted Transmitter Code Circuit



W2S02M19AA

CIRCUIT OPERATION

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

- Key reminder switch
- Hazard warning light switch

TECHNICAL DESCRIPTION (COMMENT)

If the encrypted code register mode can not be set, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective.

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of the hazard warning light switch
- Malfunction of the transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check trouble symptom.**Q: Can the encrypted code register mode be set?****YES :** Go to Step 3.**NO :** Go to Step 2.**STEP 2. Check the input signal (by using the Pulse check).**

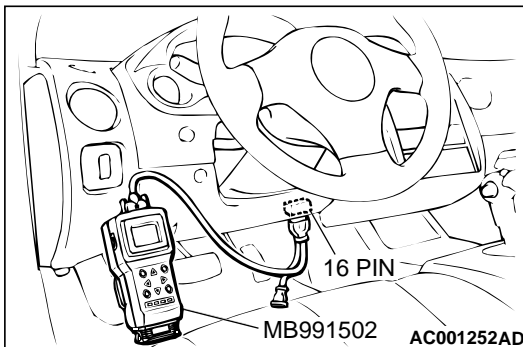
Check the input signals from the following switches:

- Key reminder switch
- Hazard warning light switch

⚠ CAUTION

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

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Check the scan tool MB991502 sounds or not.
- (4) If the switches (see table below), which are applicable for the input signal check, are operated.



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

Q: When the key reminder switch and the hazard warning light switch are operated, does scan tool MB991502 sound in each case?

YES : Replace the ETACS-ECU. Check that the encrypted code can be registered in the transmitter.

- NO :**
- Scan tool MB991502 does not sound when the ignition key is removed and reinserted: Refer to Inspection Procedure O-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54B-524.](#)"
 - Scan tool MB991502 does not sound when the hazard warning light switch is turned from "OFF" to "ON": Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the hazard warning light switch [P.54B-528.](#)"

STEP 3. Check the transmitter.

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

YES : No action to be taken.

NO : Replace the transmitter. If the encrypted code can not be registered by means of the new transmitter, replace the ETACS-ECU. Check that the encrypted code can be registered in the transmitter.

SUNROOF

GENERAL DESCRIPTION CONCERNING SUNROOF

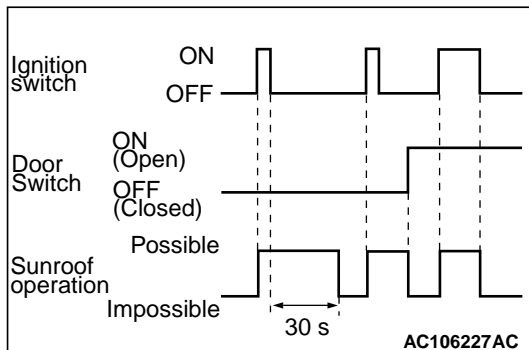
M1549021200018

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

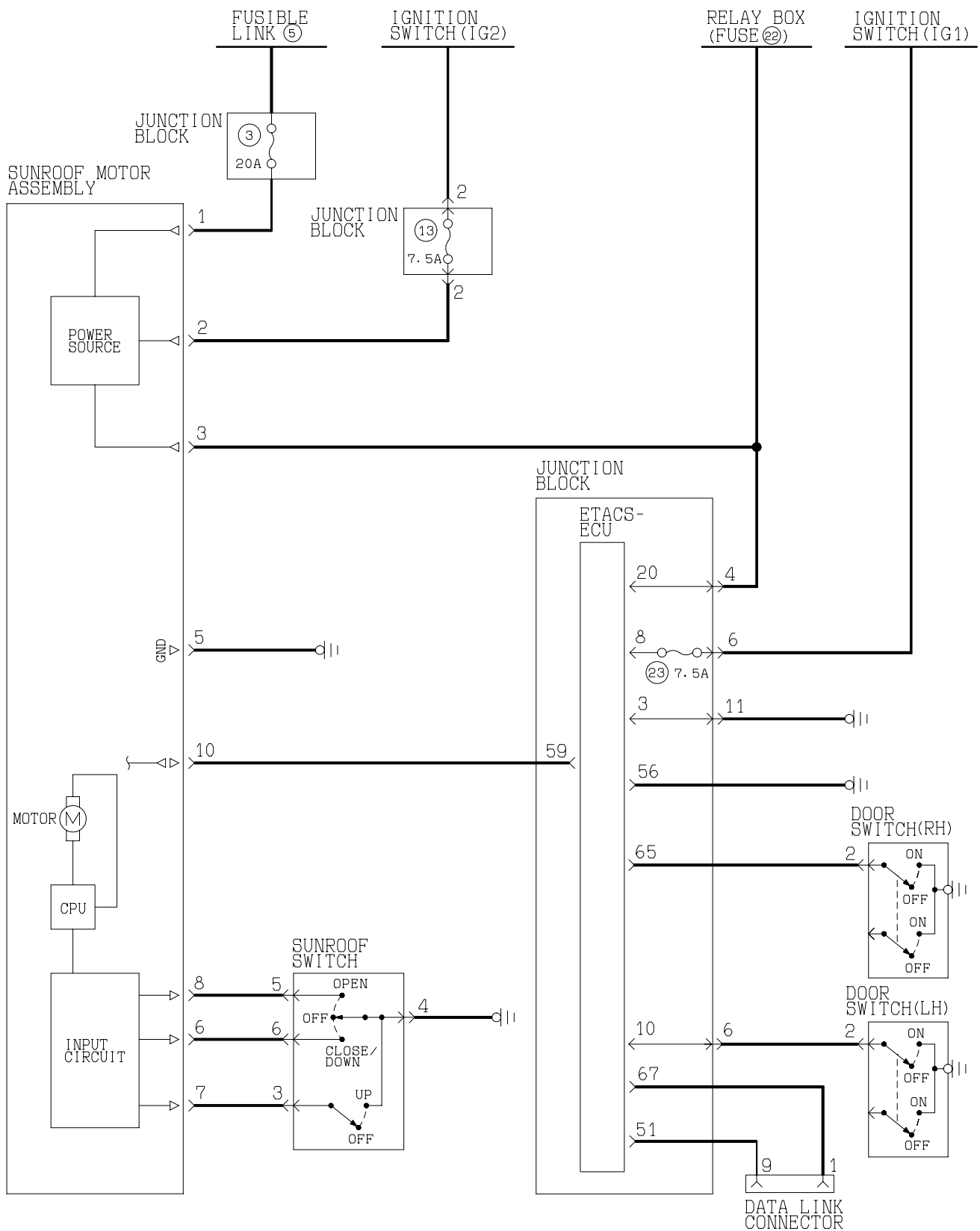
Function	Control ECU
Sunroof timer function	ETACS-ECU, sunroof motor assembly

SUNROOF TIMER FUNCTION

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



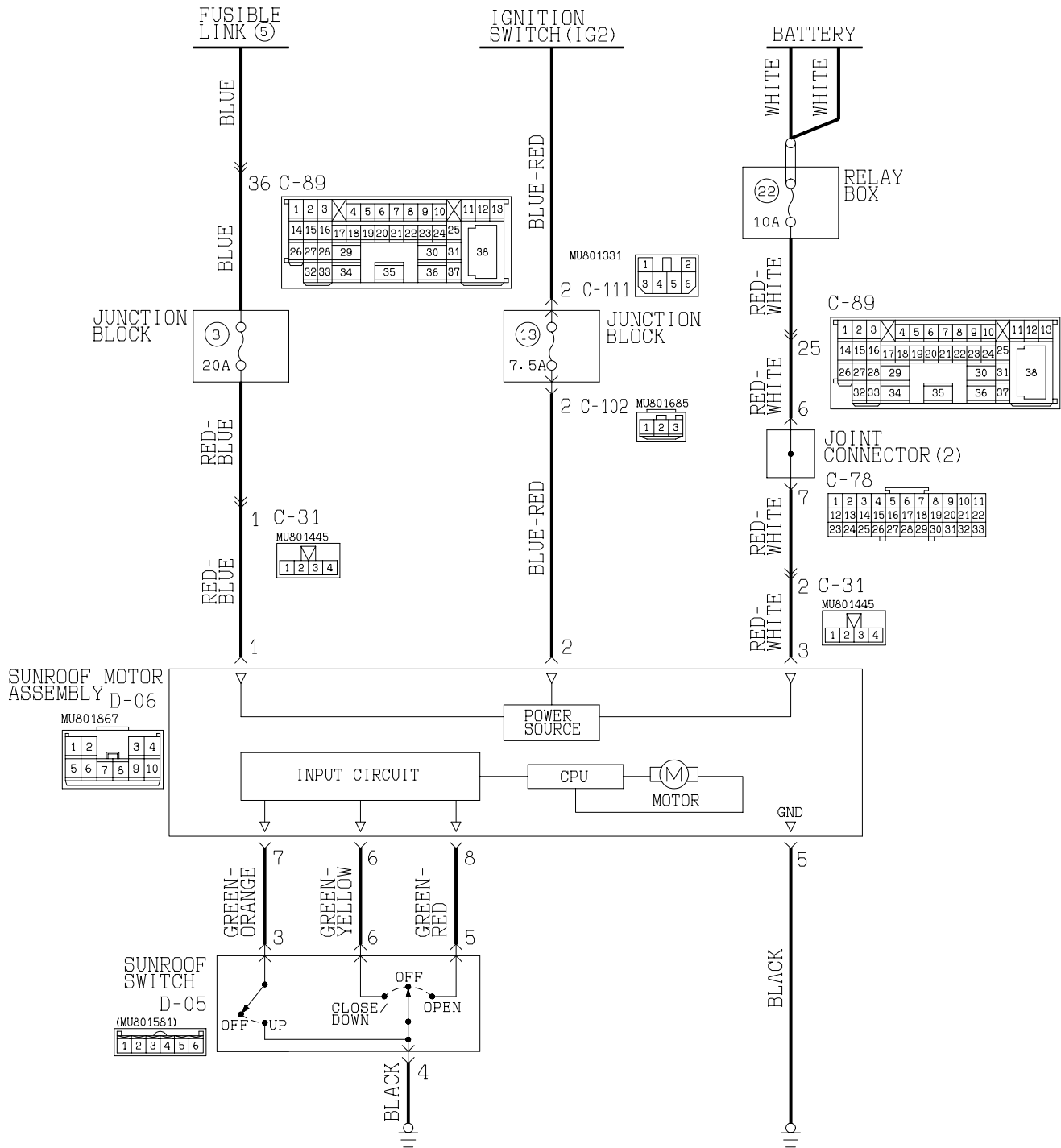
General circuit diagram regarding the sunroof



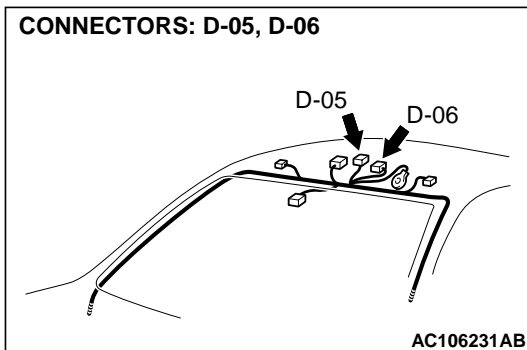
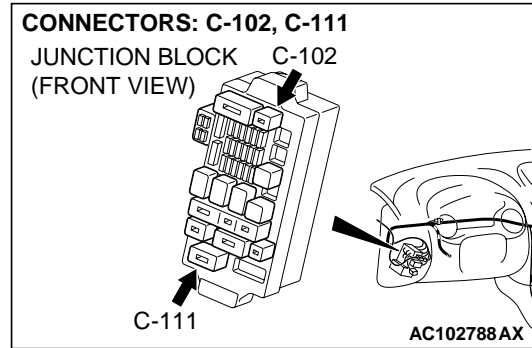
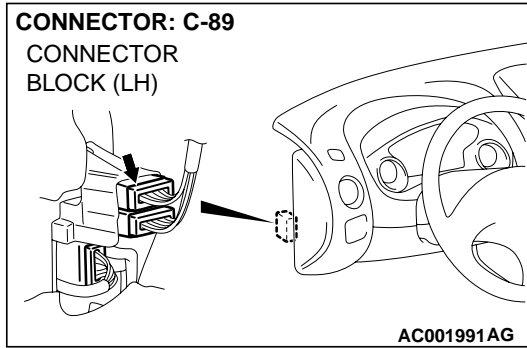
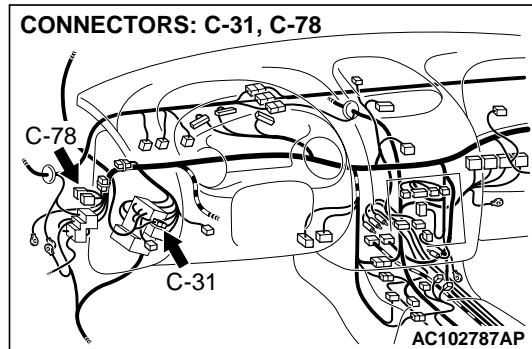
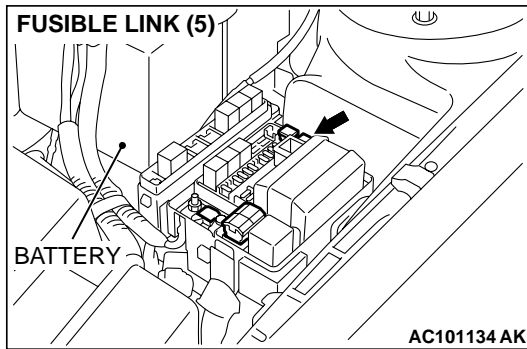
W3S02M01AA

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

Sunroof Motor Assembly Power Supply Circuit



W3S12M01AA



CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

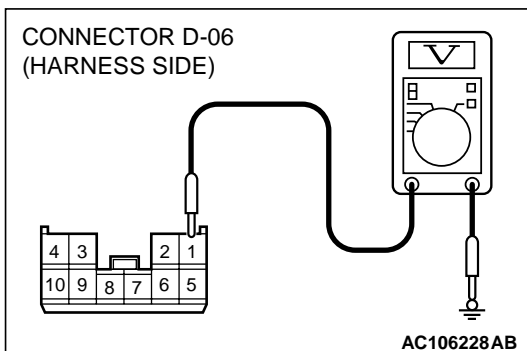
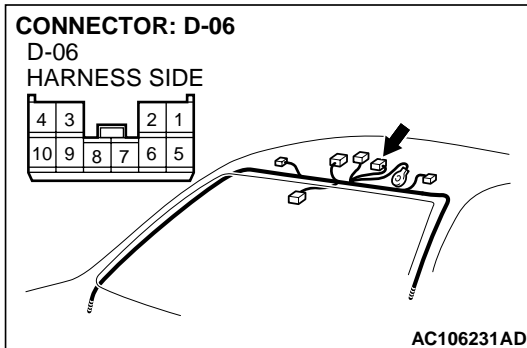
DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check the sunroof motor assembly power supply circuit [fusible link (5)] at the sunroof motor assembly connector D-06 by backprobing.

(1) Do not disconnect the sunroof motor assembly connector D-06.



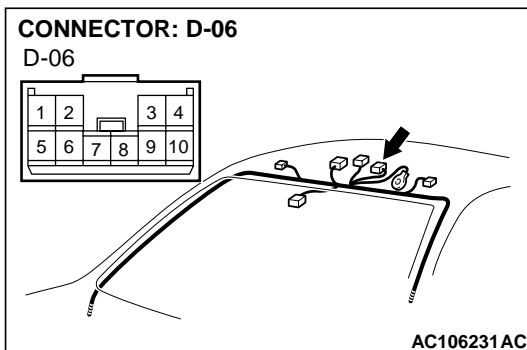
(2) Measure the voltage between terminal 1 and ground by backprobing.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 4.

NO : Go to Step 2.

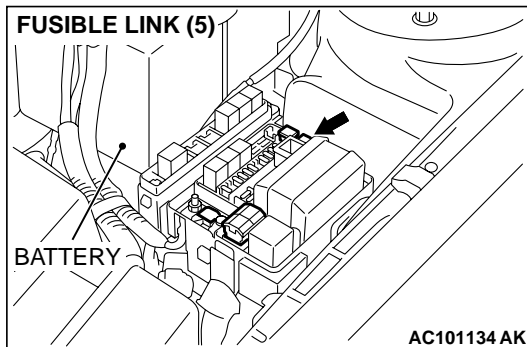
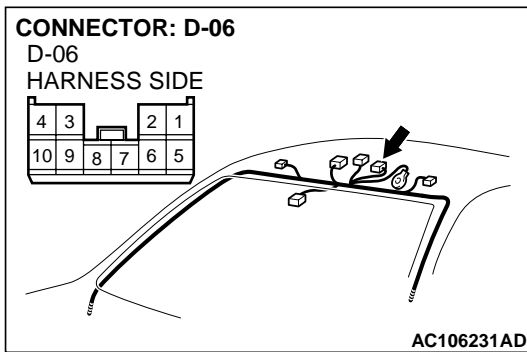


STEP 2. Check the sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

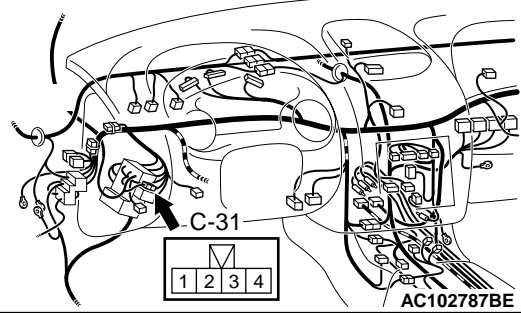
YES : Go to Step 3.

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



STEP 3. Check the harness wires between sunroof motor assembly connector D-06 (terminal 1) and fusible link (5).
NOTE: Also check intermediate connector C-31 and C-89. If intermediate connectors C-31 or C-89 is damaged, repair or replace the connectors as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

CONNECTOR: C-31



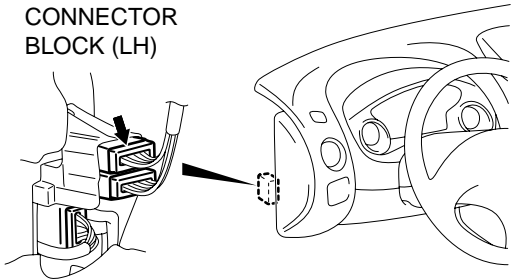
Q: Are the harness wires between sunroof motor assembly connector D-06 (terminal 1) and fusible link (5) in good condition?

YES : No action to be taken.

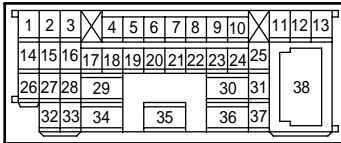
NO : Repair the wiring harness. Check that the sunroof work normally.

CONNECTOR: C-89

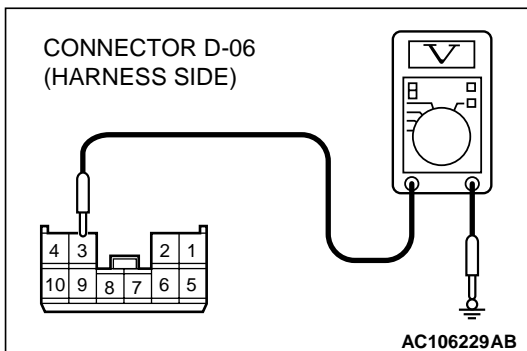
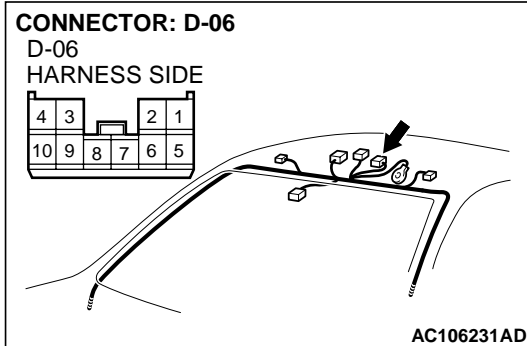
CONNECTOR
BLOCK (LH)



C-89



AC106683AB



STEP 4. Check the sunroof motor assembly power supply circuit (battery) at the sunroof motor assembly connector D-06 by backprobing.

(1) Do not disconnect the sunroof motor assembly connector D-06.

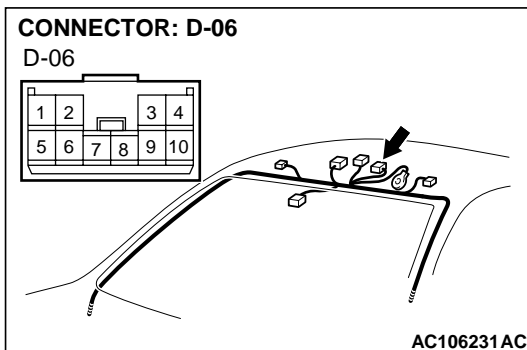
(2) Measure the voltage between terminal 3 and ground by backprobing.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

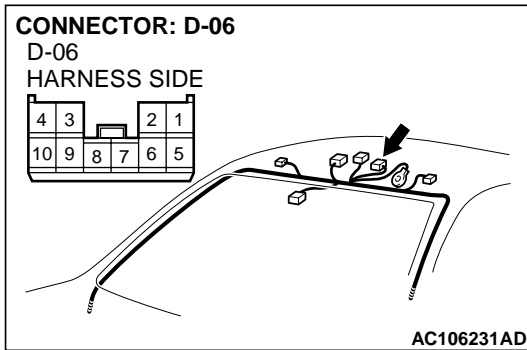


STEP 5. Check sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 6.

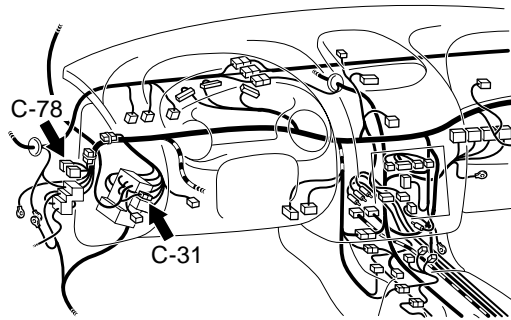
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The sunroof should work normally.



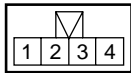
STEP 6. Check the harness wires between sunroof motor assembly connector D-06 (terminal 3) and battery.

NOTE: Also check joint connector C-78 and intermediate connector C-31 and C-89. If joint connector C-78 and intermediate connectors C-31 or C-89 is damaged, repair or replace the connectors as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

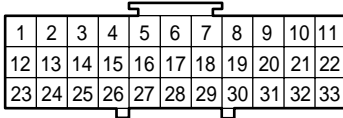
CONNECTORS: C-31, C-78



C-31



C-78



AC106684AB

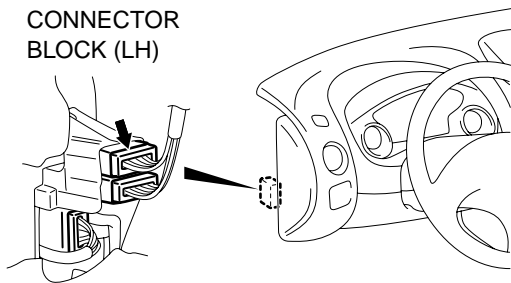
Q: Are the harness wires between sunroof motor assembly connector D-06 (terminal 3) and battery in good condition?

YES : No action to be taken.

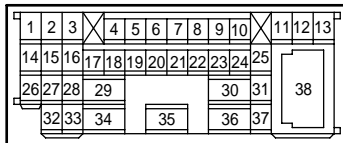
NO : Repair the wiring harness. Check that the sunroof work normally.

CONNECTOR: C-89

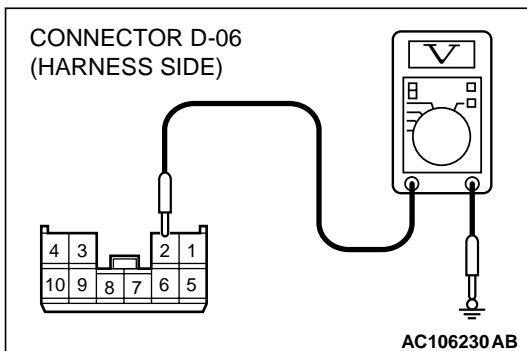
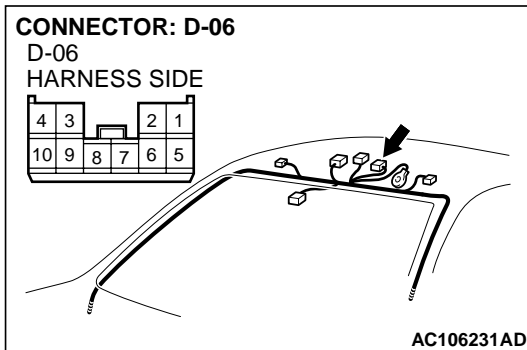
CONNECTOR
BLOCK (LH)



C-89



AC106683AB



STEP 7. Check the sunroof motor assembly power supply circuit [ignition switch (IG2)] at the sunroof motor assembly connector D-06 by backprobing.

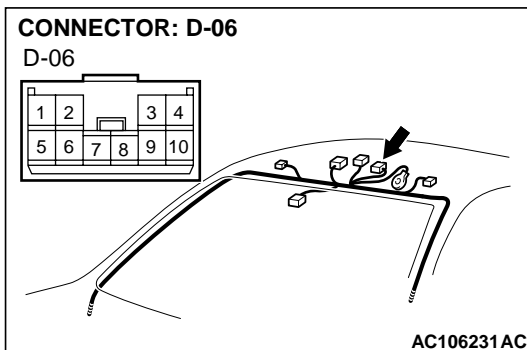
- (1) Do not disconnect the sunroof motor assembly connector D-06.
- (2) Turn the ignition switch to “ON” position.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 10.

NO : Go to Step 8.

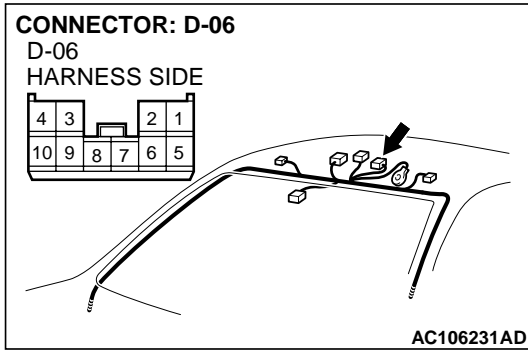


STEP 8. Check the sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

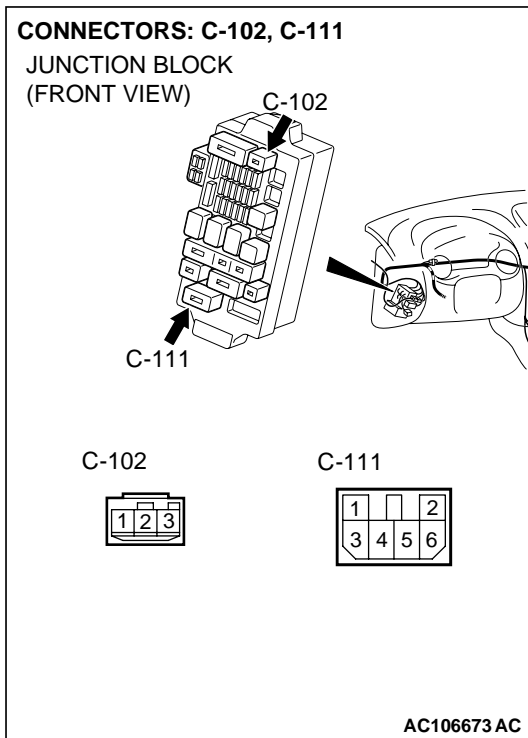
YES : Go to Step 9.

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



STEP 9. Check the harness wires between sunroof motor assembly connector D-06 (terminal 2) and ignition switch (IG2).

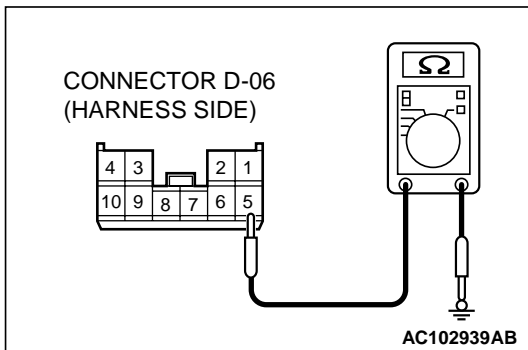
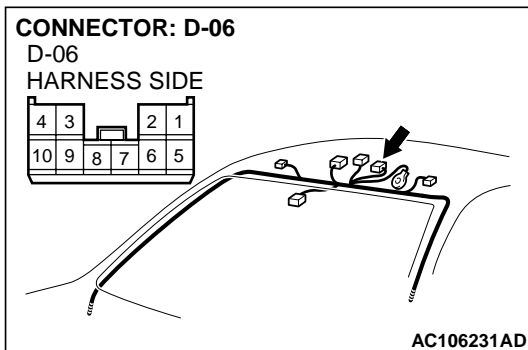
NOTE: After checking junction block connectors C-102 and C-111, check the wires. If junction block connectors C-102 or C-111 are damaged, repair or replace the connectors. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Are the harness wires between sunroof motor assembly connector C-06 (terminal 2) and ignition switch (IG2) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the sunroof work normally.



STEP 10. Check the sunroof motor assembly ground circuit at the sunroof motor assembly connector D-06.

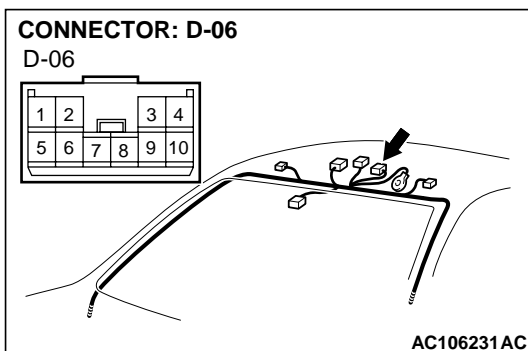
(1) Disconnect the sunroof motor assembly connector D-06 and measure at the harness side.

(2) Measure the resistance between terminal 5 and ground.
• The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 13.

NO : Go to Step 11.

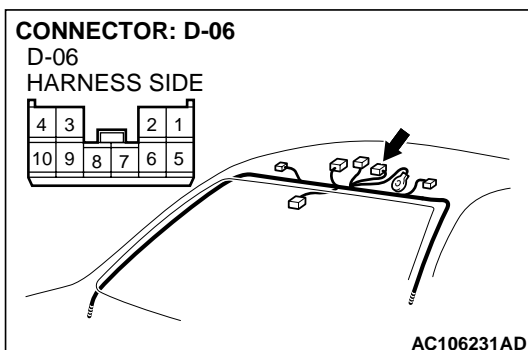


STEP 11. Check the sunroof motor assembly connector D-06 for damage.

Q: Is sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 12.

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



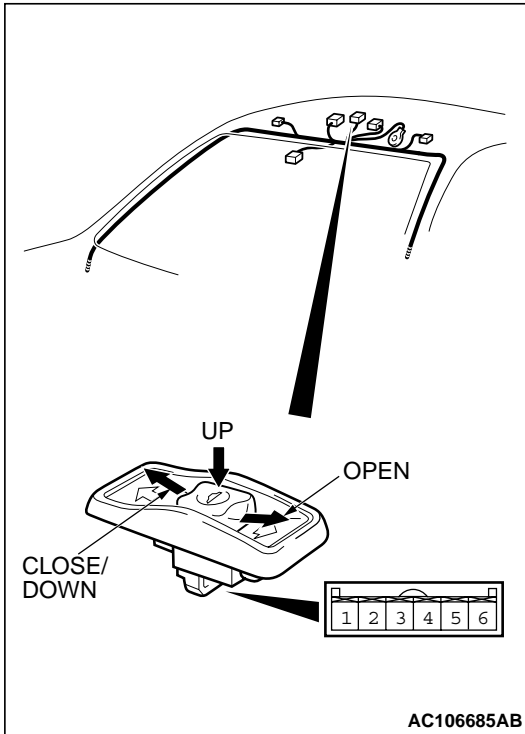
STEP 12. Check the harness wire between sunroof motor assembly connector D-06 (terminal 5) and ground.

Q: Is the harness wire between sunroof motor assembly connector D-06 (terminal 5) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the sunroof work normally.

STEP 13. Check the sunroof switch.



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

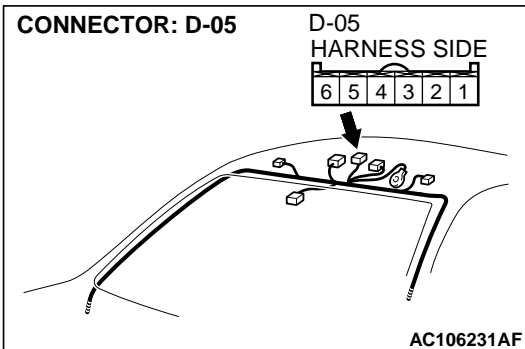
Q: Does the check above meet the table?

YES : Go to Step 14.

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

STEP 14. Check the sunroof switch ground circuit at the sunroof switch connector D-05.

(1) Disconnect the sunroof switch connector D-05 and measure at the harness side.

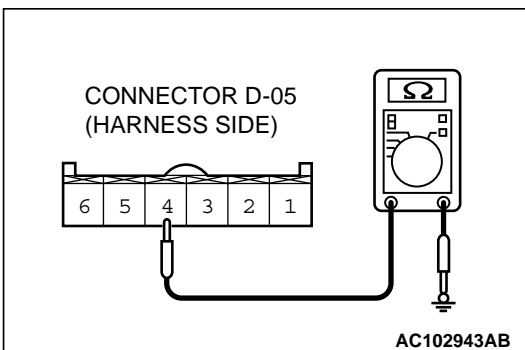


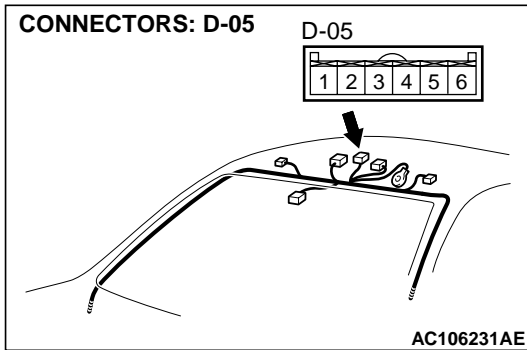
(2) Measure the resistance between terminal 4 and ground.
 • The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 17.

NO : Go to Step 15.



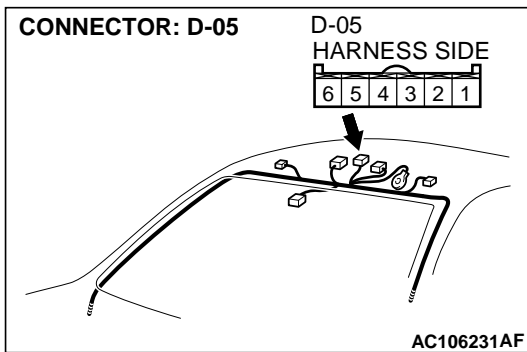


STEP 15. Check the sunroof switch connector D-05 for damage.

Q: Is sunroof switch connector D-05 in good condition?

YES : Go to Step 16.

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

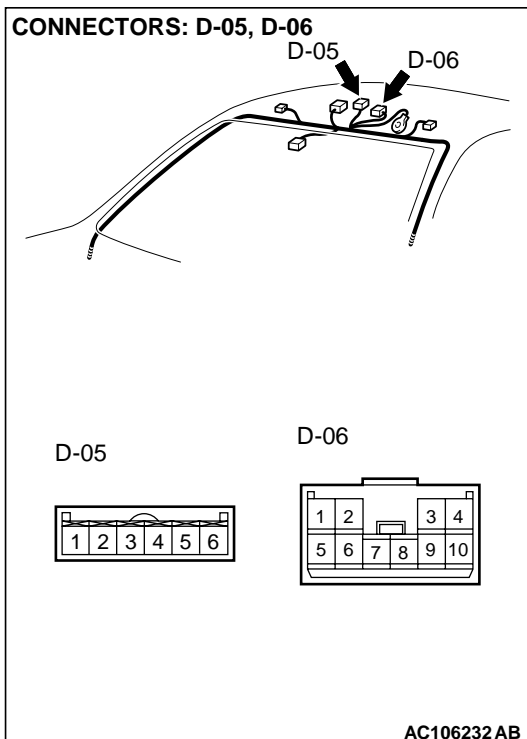


STEP 16. Check the harness wire between sunroof switch connector D-05 (terminal 4) and ground.

Q: Is the harness wire between sunroof switch connector D-05 (terminal 4) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the sunroof work normally.



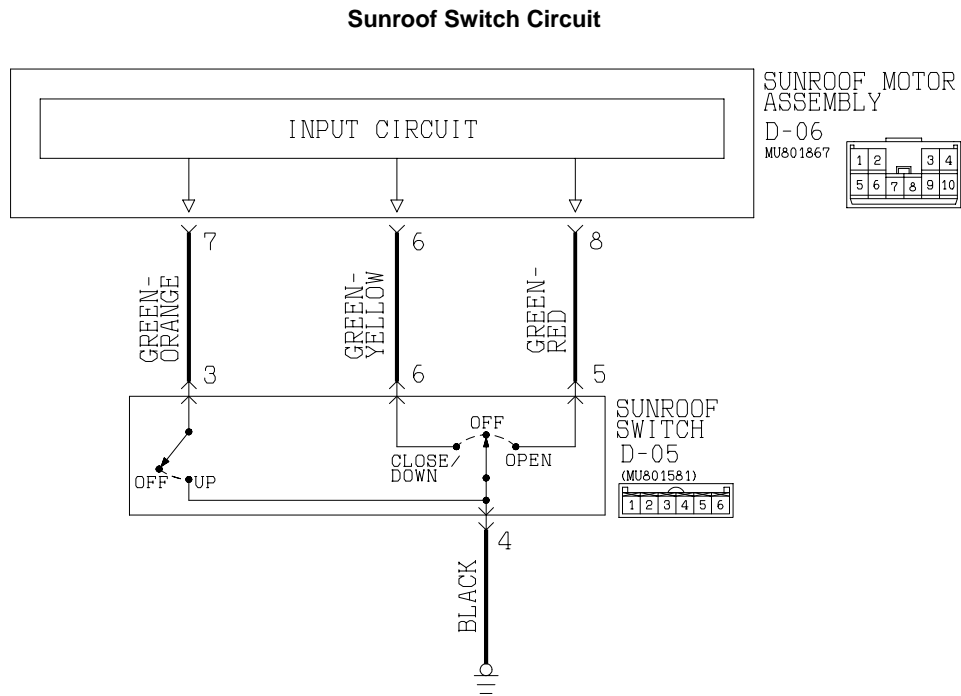
STEP 17. Check the sunroof switch connector D-05 and sunroof motor assembly connector D-06 for damage.

Q: Are sunroof switch connector D-05 and sunroof motor assembly connector D-06 in good condition?

YES : Replace the sunroof motor assembly. Check that the sunroof works normally.

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

INSPECTION PROCEDURE F-2: Sunroof: Any of the Sunroof Switch Positions is Defective.



W3S12M09AA

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

Check the input signal (by using the Pulse check).

Check the input signals from the sunroof switch.

⚠ CAUTION

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

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II according to the procedure below to display "PULSE CHECK."

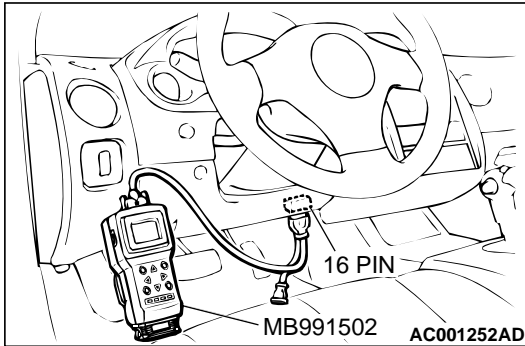
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

- (3) When each function of the sunroof switch is operated (turned on), check that scan tool MB991502 sounds.

Q: Does scan tool MB991502 sound when the sunroof switch is operated?

YES : Replace the sunroof motor assembly. Check that the sunroof works at all positions normally.

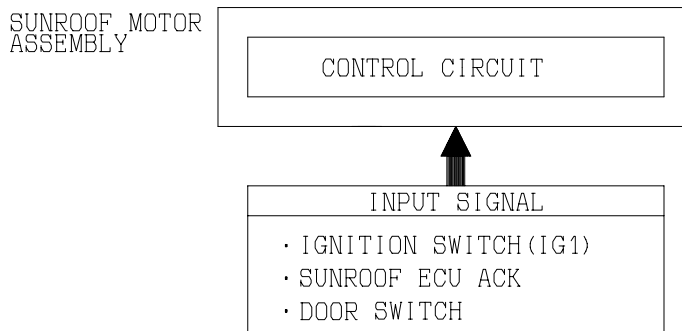
NO : Refer to Inspection Procedure O-10 "ETACS-ECU does not receive a signal from "UP", "OPEN" or "CLOSE/DOWN" switch [P.54B-511.](#)"



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

NOTE: This troubleshooting requires use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor [P.54B-8.](#)"

Sunroof Timer Function



W3S12M02AA

CIRCUIT OPERATION

- The sunroof timer function works according to the signals from the following switches:
 - Ignition switch (IG1): OFF
 - Driver's and passenger's door switch: OFF
- Vehicle condition
 - Ignition switch: LOCK position
 - Driver's and passenger's door: Closed

TSB Revision

- When a front door is opened and closed while the sunroof timer function is on, the sunroof operative duration will be changed.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's or passenger's door switch
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

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

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

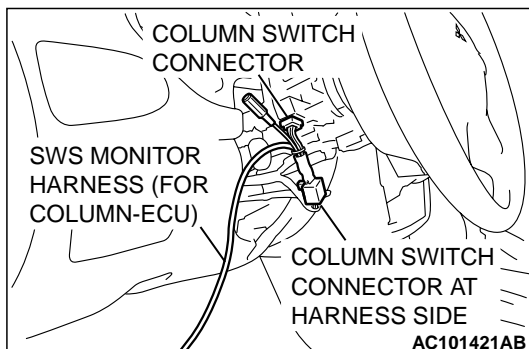
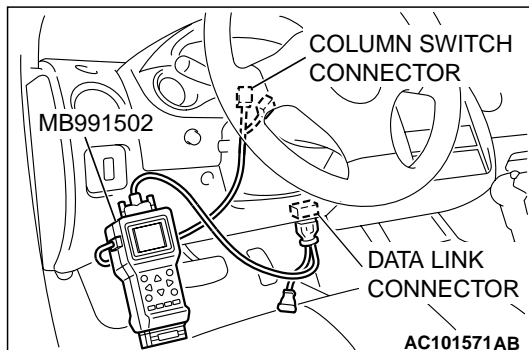
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

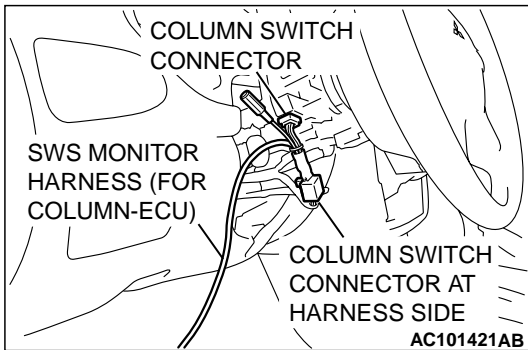
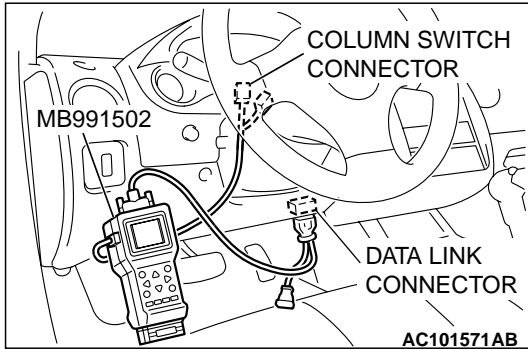
Q: Are "OK" displayed on the "ETACS ECU" and "SUNROOF ECU" menu?

"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 impossible P.54B-39."

"NG" is displayed on the "SUNROOF ECU" menu : Refer to Inspection Procedure A-6 "Communication with sunroof motor (sunroof-ECU) is impossible P.54B-54."





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

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

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

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

- YES :** Replace the sunroof motor assembly. Check that the sunroof timer function works normally.
- NO :**
- Normal condition is not displayed on the "IG SW(IG1)": Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) P.54B-469."
 - Normal condition is not displayed on the "S/R ECU ACK": Replace the sunroof motor assembly. Check that the sunroof timer function works normally.

INSPECTION PROCEDURE F-4: Sunroof: Safety Mechanism does not Function.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINT

Malfunction of the sunroof motor assembly

DIAGNOSIS

Replace the sunroof motor assembly.
The sunroof safety mechanism should work normally.

WINDSHIELD WIPER AND WASHER

GENERAL DESCRIPTION CONCERNING WINDSHIELD WIPER AND WASHER

M1549021500019

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

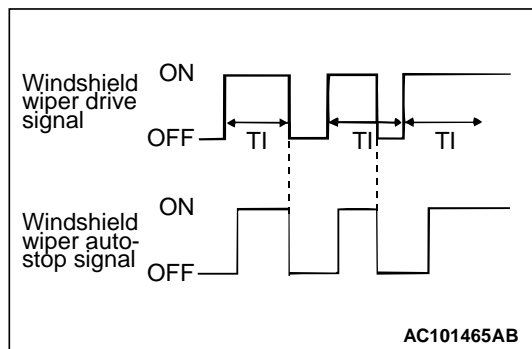
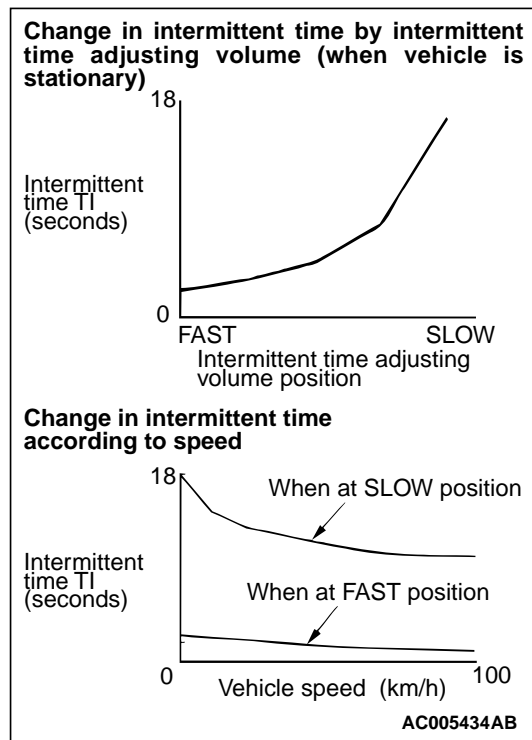
Functions	Control ECU
Intermittent control (Vehicle speed-dependent variable type)	ETACS-ECU, front ECU, column switch
Mist wiper control	ETACS-ECU, front ECU, column switch
Low speed wiper, high speed wiper control	ETACS-ECU, front ECU, column switch
Washer control	ETACS-ECU, front ECU, column switch

WINDSHIELD WIPER AND WASHER CONTROL FUNCTION

Intermittent control (Vehicle speed-dependent variable type)

The ETACS-ECU calculates the intermittent time according to the vehicle speed calculated from the windshield wiper intermittent time adjusting knob and vehicle speed signal (ECM <M/T> or PCM <A/T>,) and sends it to the front ECU as SWS data.

NOTE: The vehicle speed-dependent function can be disabled by the configuration function (Refer to P.54B-627.)

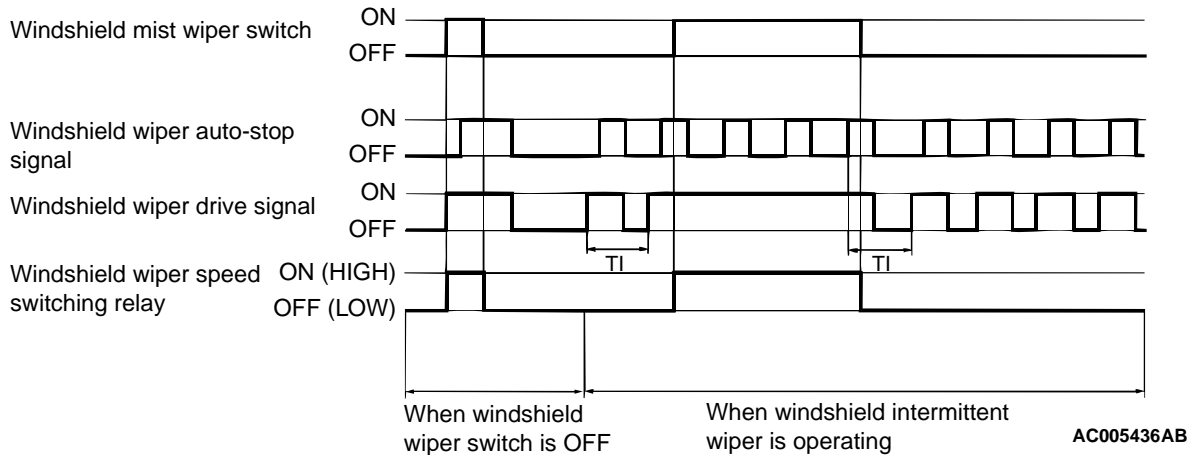


The front ECU determines the intermittent time TI from the input SWS data signal, and turns ON the windshield wiper drive signal. When the wiper is at the STOP position, the windshield wiper auto-stop signal goes OFF to turn OFF the windshield wiper drive signal. After the intermittent time TI seconds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

Mist wiper control

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

When the windshield mist switch is turned on briefly, the wiper operates at low speed once. At the point the windshield mist switch is turned ON, if the windshield wiper has been operating intermittently, the same operations as the above will be performed while the windshield mist wiper switch is ON. After the windshield mist wiper switch goes OFF, the intermittent operations will be set again TI seconds after the windshield wiper auto-stop signal is turned ON last.

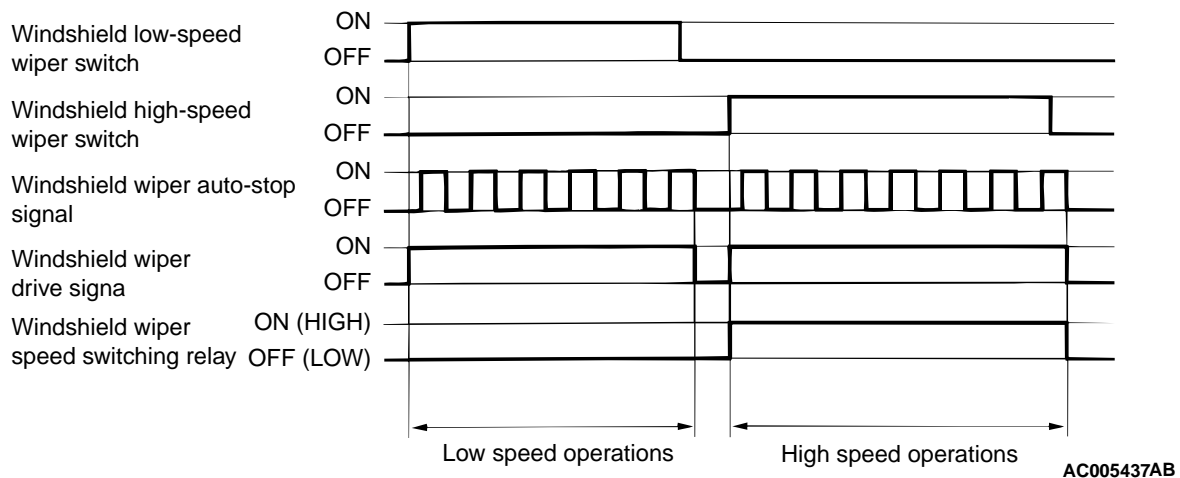


TI: Intermittent wiper intermittent time

Low speed wiper, high speed wiper control

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

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

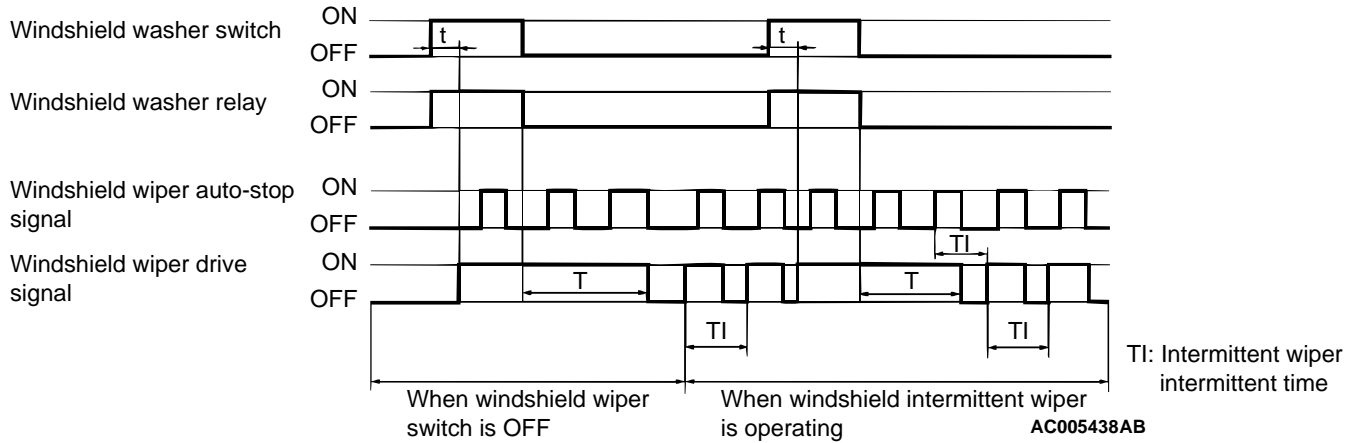


Washer control

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

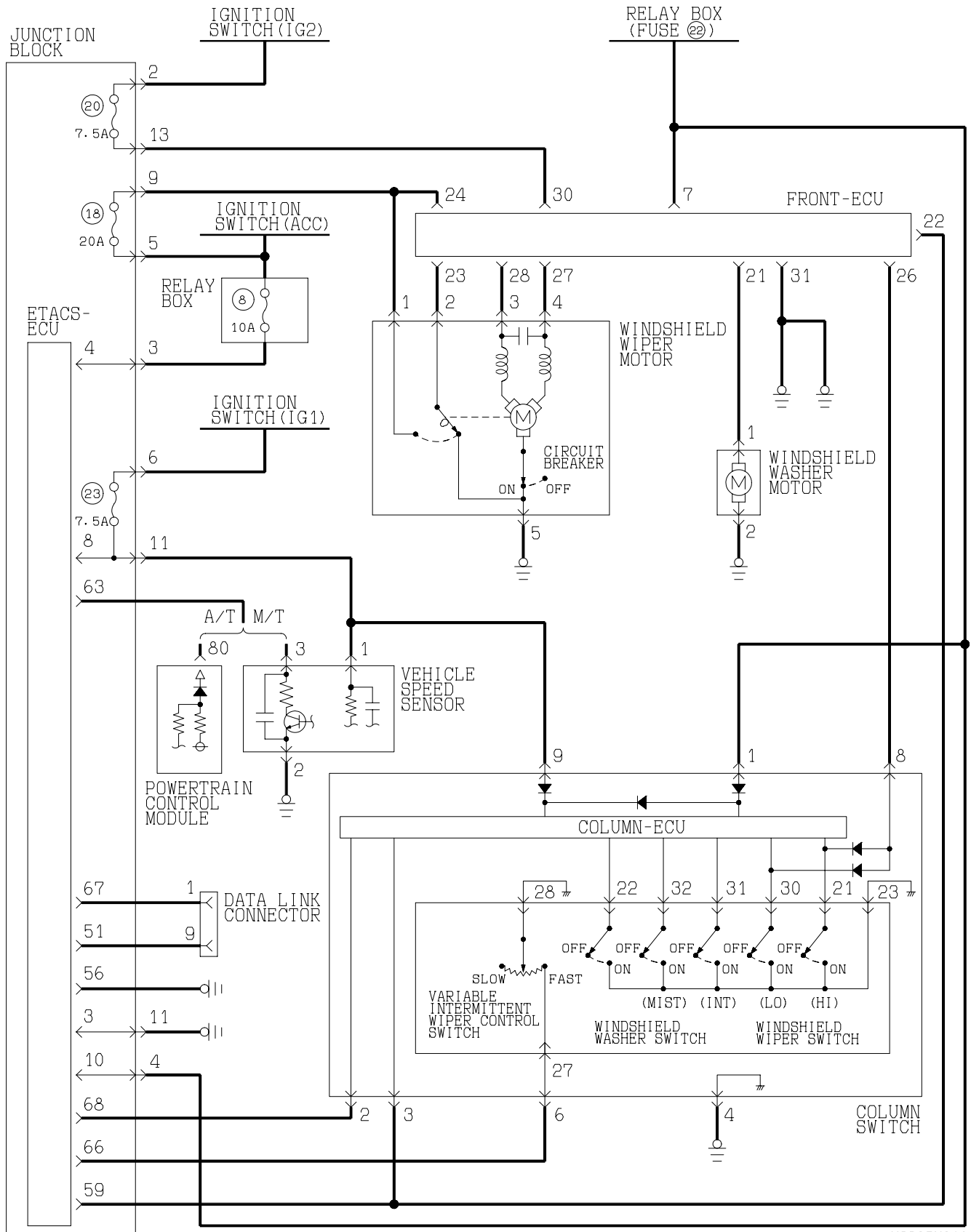
operate the windshield wiper continuously. When the windshield washer switch is turned ON, if the windshield wiper is operating intermittently, intermittent operations will be continued after continuous operations.

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



	When wiper switch is OFF				When wiper switch is INT				When wiper switch is LO or HI
	t	T	TI	TI	t	T	TI	TI	
t	0.3 seconds or less	0.3 - 0.5 seconds	0.5 - 0.7 seconds	0.7 seconds	Less than 0.2 seconds	0.3 - 0.5 seconds	0.5 - 0.7 seconds	0.7 seconds	-
T	0 second	1 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

General circuit diagram for the windshield wiper and washer

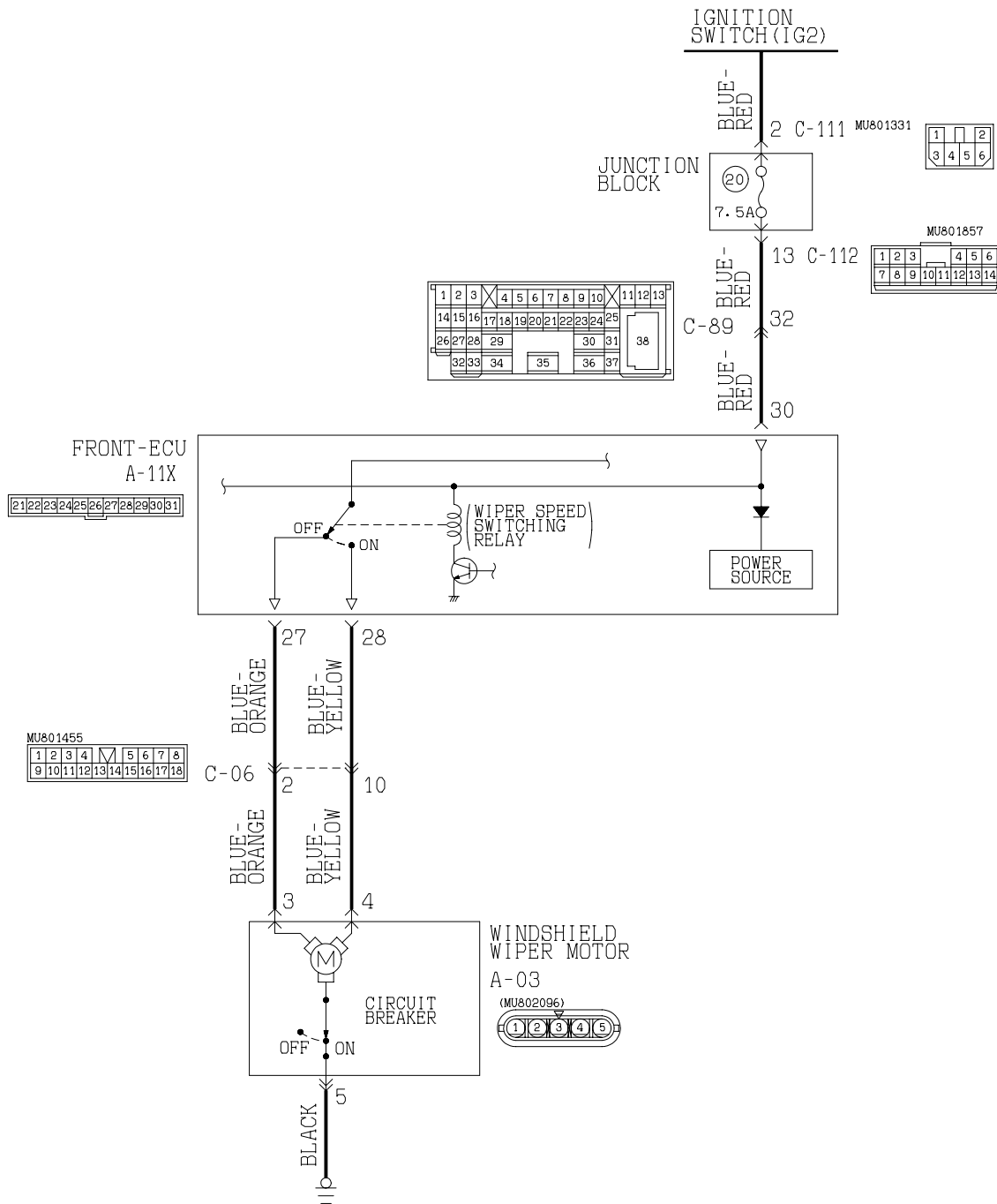


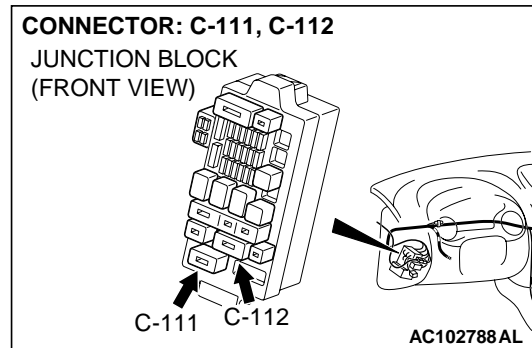
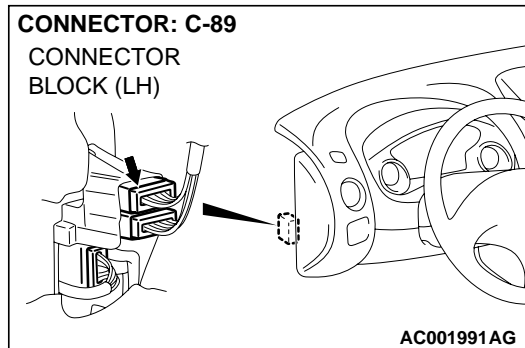
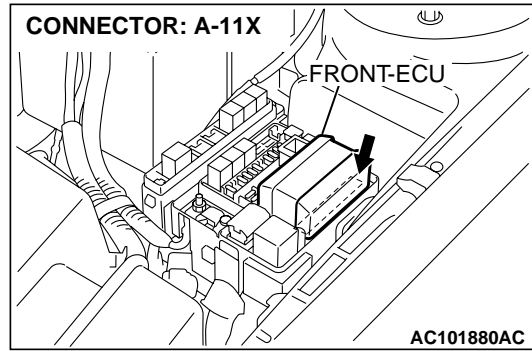
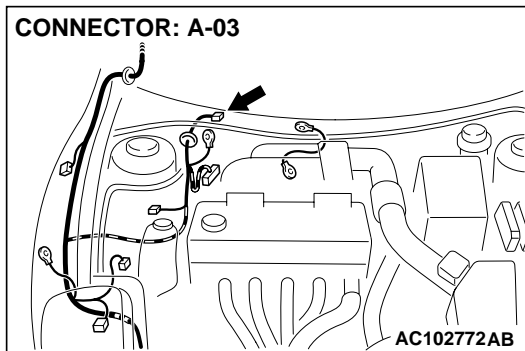
W3805M01AA

INSPECTION PROCEDURE G-1: Windshield Wiper and Washer: Windshield Wiper does not Work at All.

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

Windshield Wiper Motor Circuit





CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the wiper motor
- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

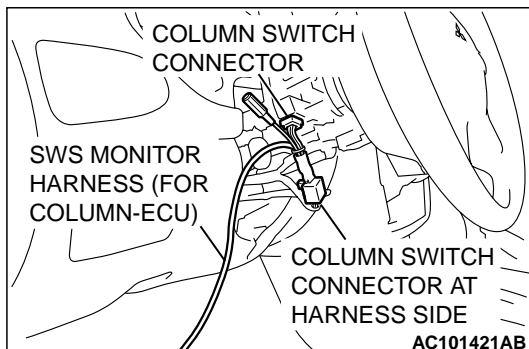
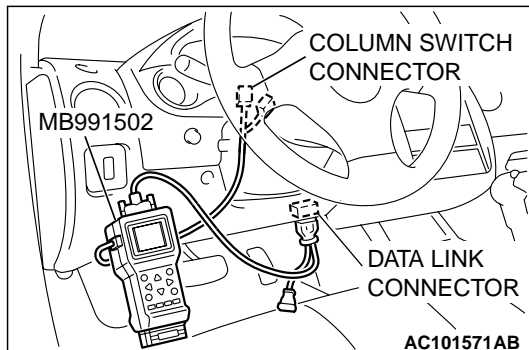
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" menu.

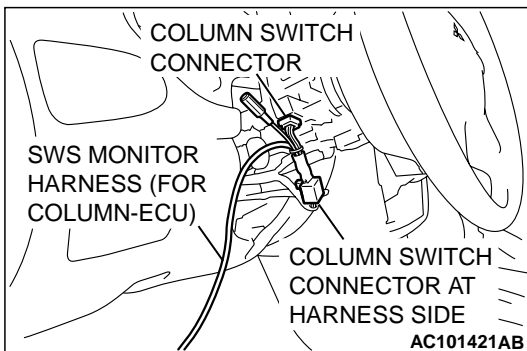
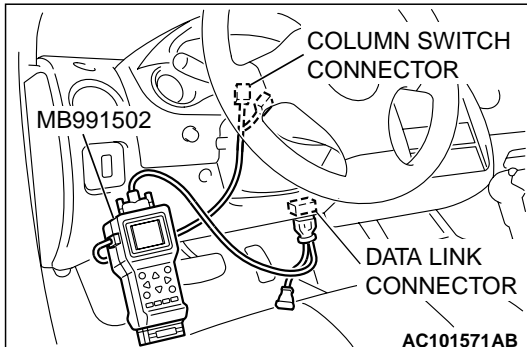
Q: Are "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

"NG" is displayed on the **"COLUMN ECU" menu** : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible [P.54B-28.](#)"

"NG" is displayed on the **"FRONT ECU" menu** : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible [P.54B-46.](#)"





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

Check the input signals from the following switches:

- Ignition switch: ACC
- Windshield wiper switch: INT

Operate the MUT-II according to the procedure below to display "F.WIPER HI."

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

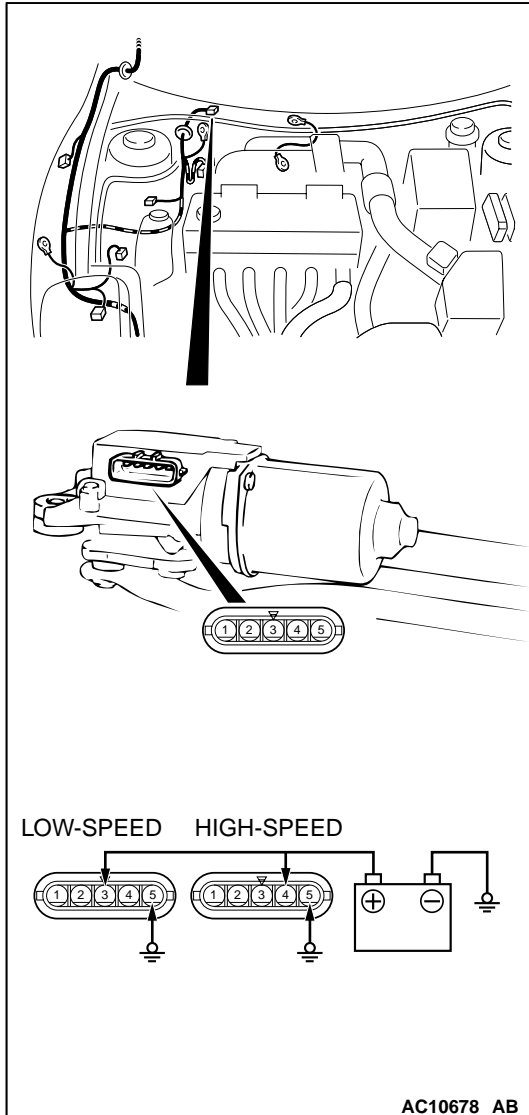
Check that normal conditions are displayed on the items described in the table below.

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

Q: Does the scan tool display the items "INT WIPER" and "FRONT ECU ACK" as normal condition?

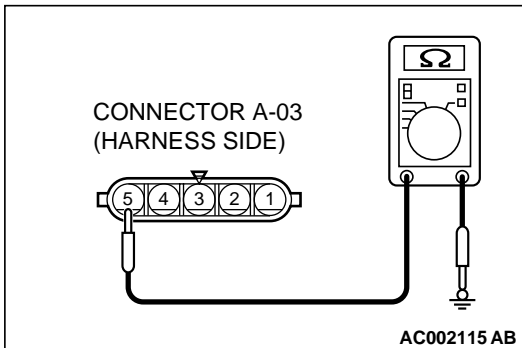
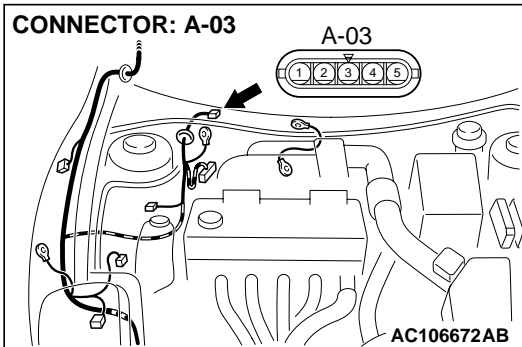
YES : Go to Step 3.

- NO :**
- The scan tool does not show the respective normal condition for item "INT WIPER SW." Replace the column switch. Check that the windshield wiper works normally.
 - The scan tool does not show the respective normal condition for item "FRONT ECU SW." Replace the front-ECU. Check that the windshield wiper works normally.

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

- (1) Disconnect windshield wiper motor connector A-03.
- (2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?**YES :** Go to Step 4.**NO :** Replace the windshield wiper motor. Check that the windshield wiper works normally.



STEP 4. Check at windshield wiper motor connector A-03 to check the windshield wiper motor ground circuit.

(1) Disconnect windshield wiper motor connector A-03, and measure at the wiring harness side.

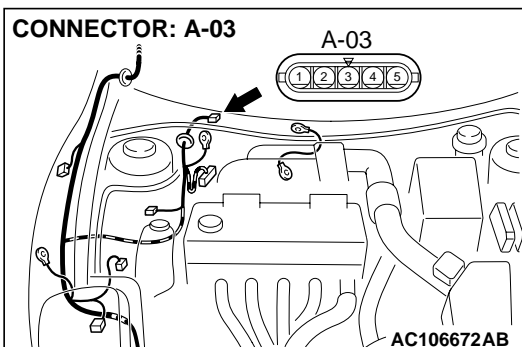
(2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

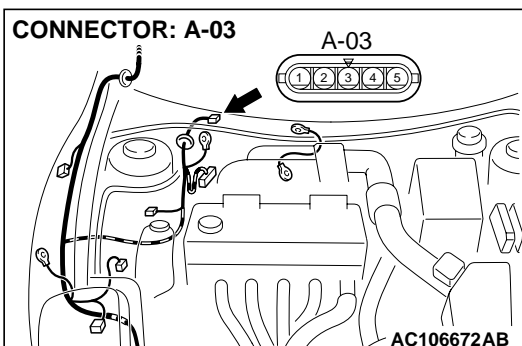


STEP 5. Check windshield wiper motor connector A-03 for damage.

Q: Is windshield wiper motor connector A-03 in good condition?

YES : Go to Step 6.

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

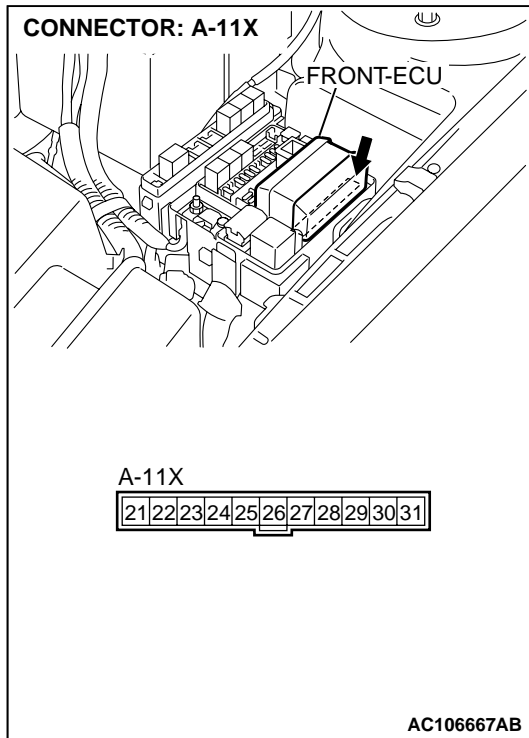


STEP 6. Check the wiring harness between windshield wiper motor connector A-03 (terminal 5) and ground.

Q: Is the wiring harness between windshield wiper motor connector A-03 (terminal 5) and ground in good condition?

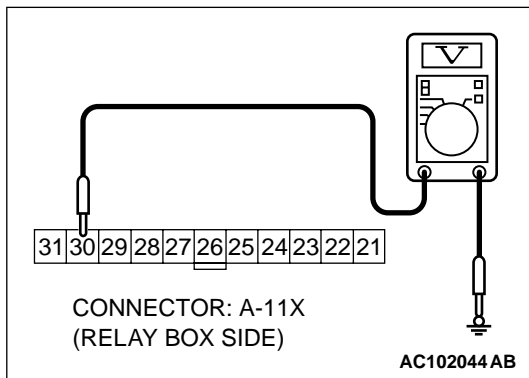
YES : No action to be taken.

NO : Repair the wiring harness. Check that the windshield wiper works normally.



STEP 7. Measure at front-ECU connector A-11X in order to check the ignition switch (IG2) line of power supply system to the front-ECU.

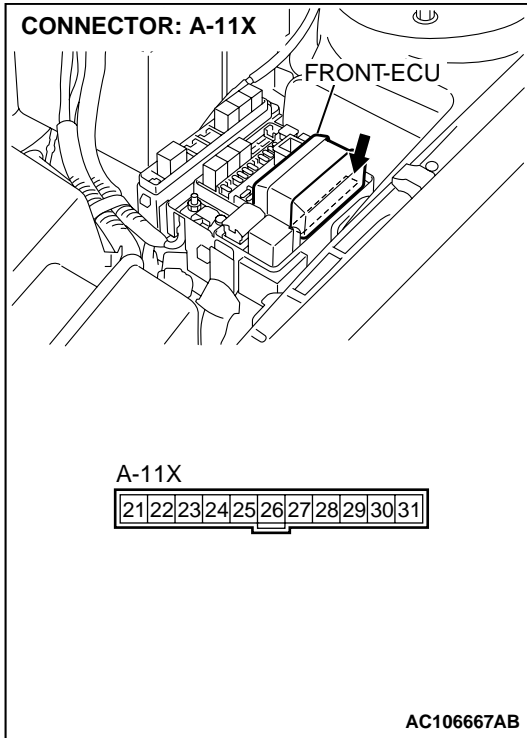
- (1) Disconnect front-ECU connector A-11X, and measure at the relay box side.
- (2) Turn the ignition switch to the "ON" position.



- (3) Measure the voltage between terminal 30 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

- YES :** Replace the front-ECU. Check that the windshield wiper works normally.
- NO :** Go to Step 8.

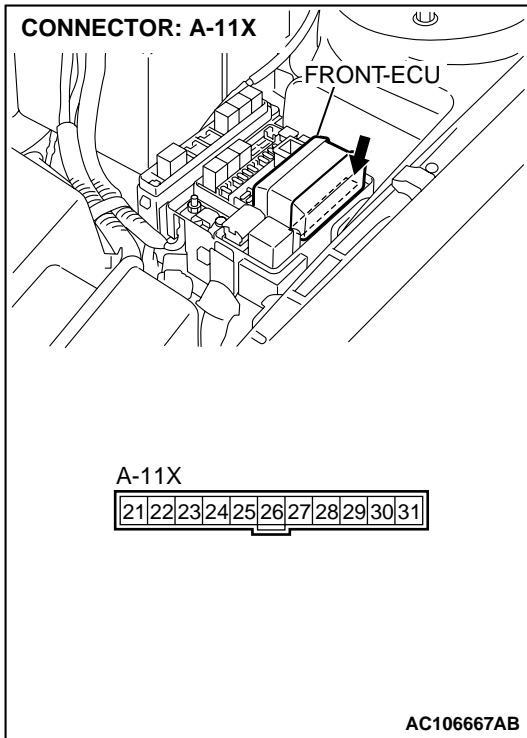


STEP 8. Check the front-ECU connector A-11X for damage.

Q: Is front-ECU connector A-11X in good condition?

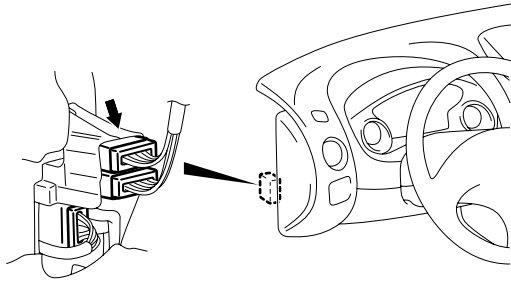
YES : Go to Step 9.

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



STEP 9. Check the wiring harness between front-ECU connector A-11X (terminal 30) and the ignition switch (IG2).
NOTE: Also check intermediate connector C-89, junction block connectors C-111 and C-112. If intermediate connectors C-89 or junction block connector C-111 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

CONNECTOR: C-89
CONNECTOR
BLOCK (LH)



C-89

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	38		
32	33	34		35				36	37			

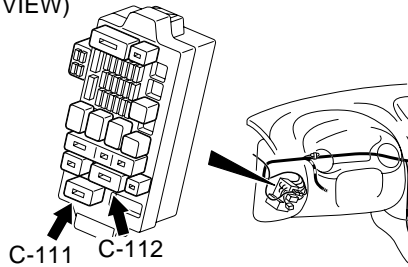
AC106688AB

Q: Is the wiring harness between front-ECU connector A-11X (terminal 30) and the ignition switch (IG2) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the windshield wiper works normally.

CONNECTOR: C-111, C-112
JUNCTION BLOCK
(FRONT VIEW)



C-111

1		2
3	4	5
6		

C-112

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

AC106674AB

INSPECTION PROCEDURE G-2: Windshield Wiper and Washer: The Windshield Wipers do not Work When the Windshield Wiper Switch is at "INT" or "MIST" Position or the Windshield Washer Switch is at "ON" Position. However, the Wipers Work at Low Speed when the Windshield Wiper Switch is at "LO" or "HI."

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

TECHNICAL DESCRIPTION (COMMENT)

The system may be at fail-safe mode as the SWS communication line is defective.

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

TROUBLESHOOTING HINTS

- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS Monitor Kit MB991862 after turning on scan tool MB991502.

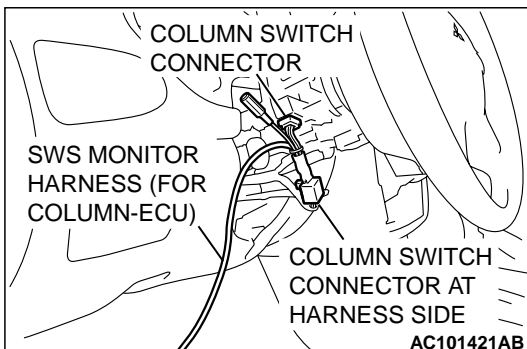
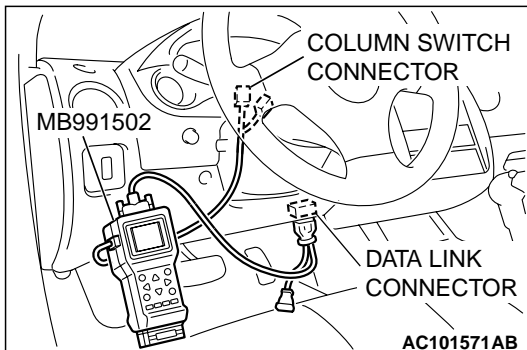
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS Monitor Kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" menu.

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

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible [P.54B-28.](#)"

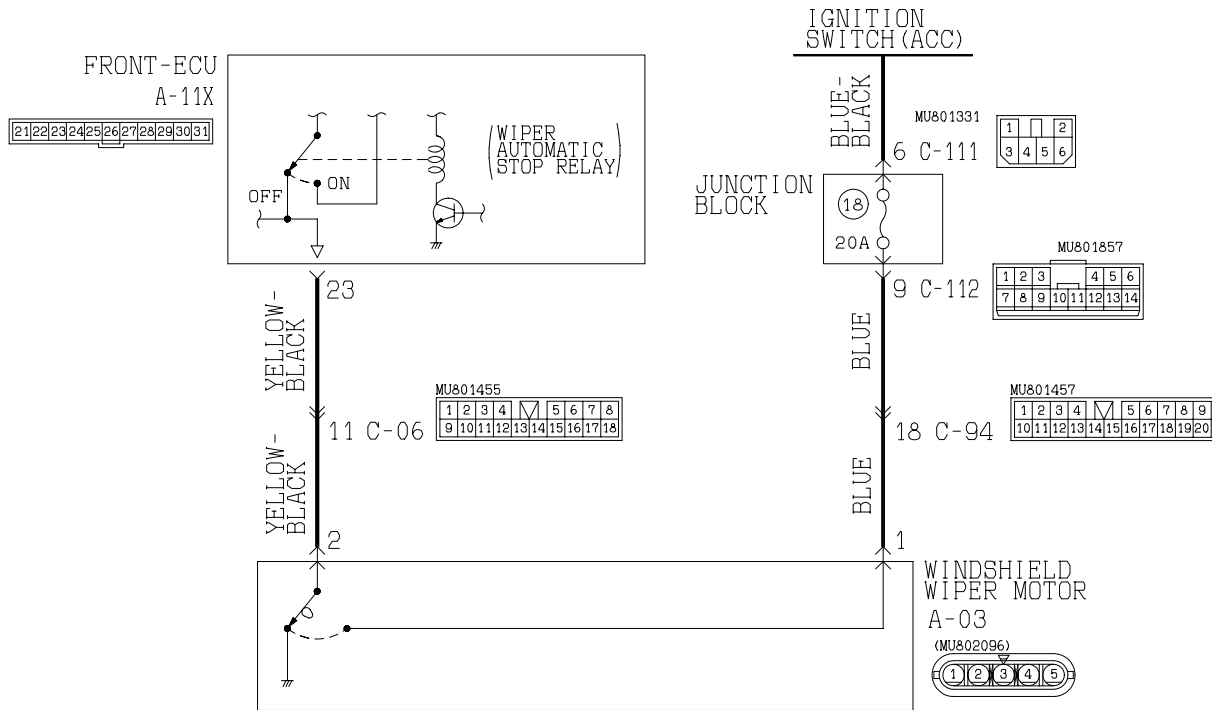
"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible [P.54B-46.](#)"



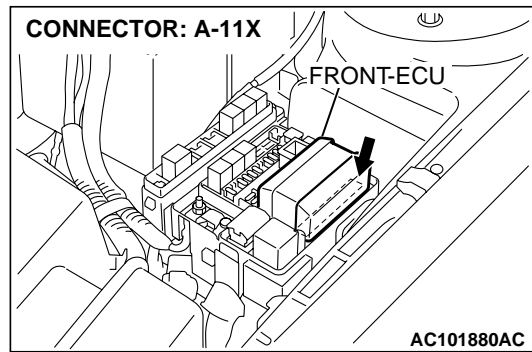
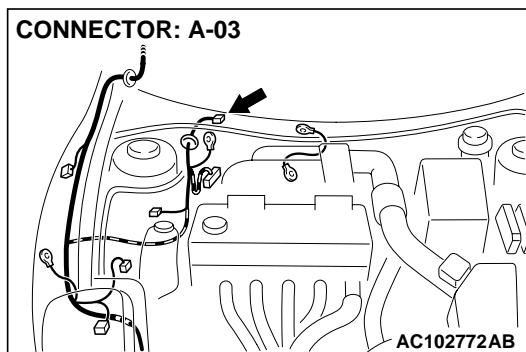
INSPECTION PROCEDURE G-3: Windshield Wiper and Washer: Any of the Windshield Wiper Switch Positions is Defective.

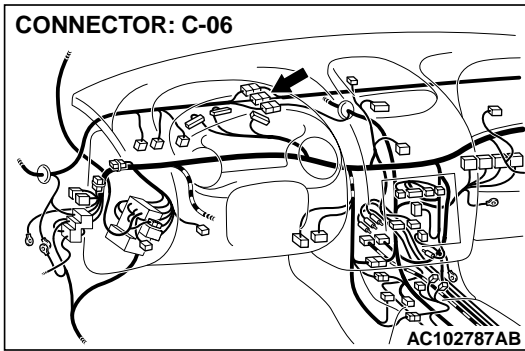
NOTE: This troubleshooting requires use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor P.54B-8."

Windshield Wiper Automatic Stop Relay Circuit



W3S02M06AA





TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the wiper motor
- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

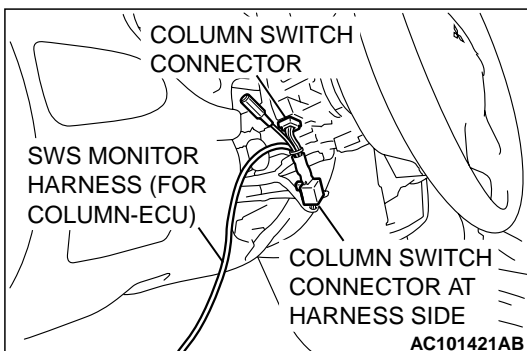
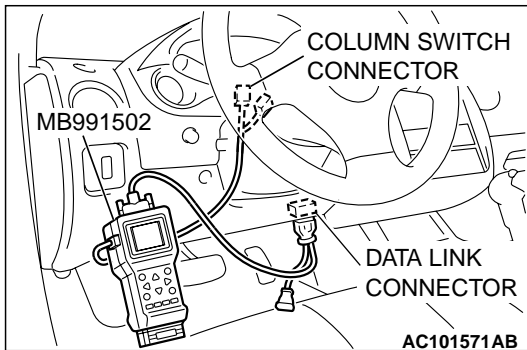
STEP 1. Check the input signal by using "DATA LIST" of the SWS monitor.

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

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "COLUMN ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "COLUMN ECU."
- (4) Check that normal conditions are displayed on the items described in the table below.



ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.05	INT WIPER SW	ON
ITEM No.06	LO WIPER SW	ON
ITEM No.07	HI WIPER SW	ON
ITEM No.08	MIST WIPER SW	ON

Q: Does the scan tool display all items "INT WIPER SW", "LO WIPER SW", "HI WIPER SW" and "MIST WIPER SW" as normal condition?

YES : Go to Step 2.

NO : Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54B-511](#)."

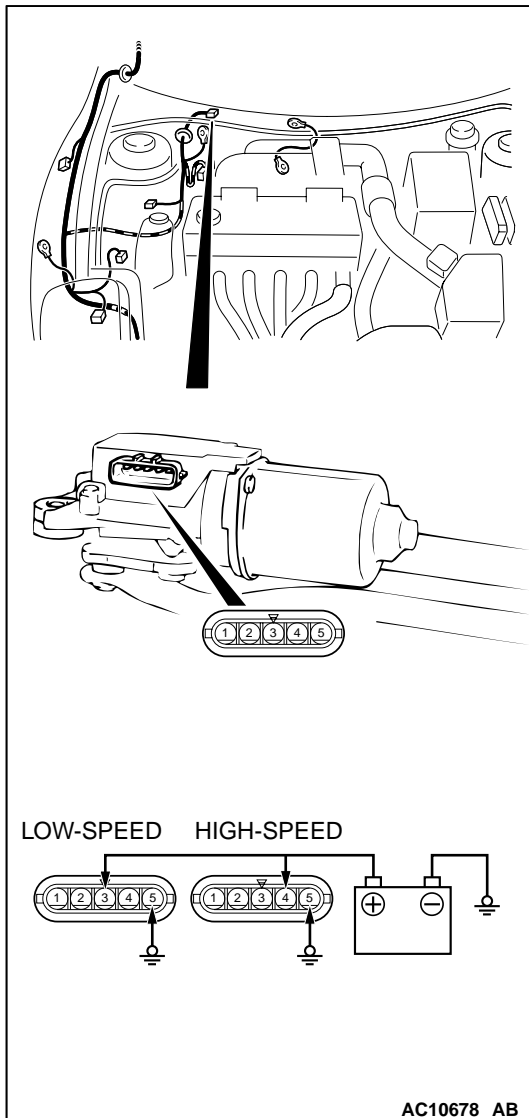
STEP 2. Check the windshield wiper motor.

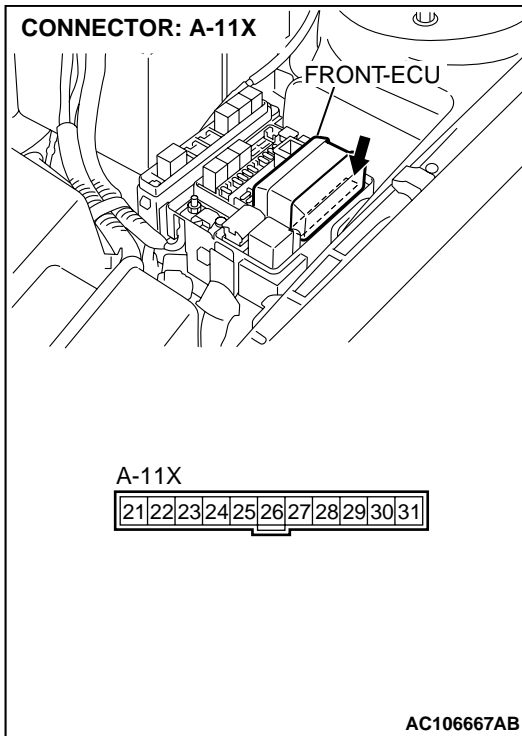
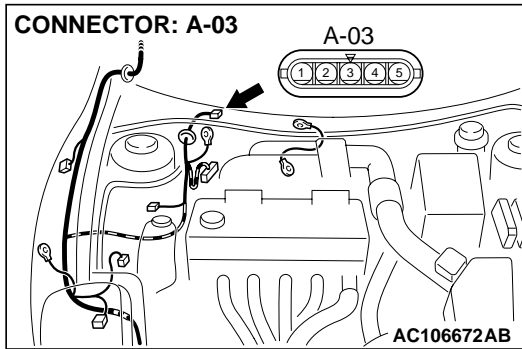
- (1) Disconnect windshield wiper motor connector A-03.
- (2) Connect a battery to the windshield wiper motor as shown. Then check the windshield wiper motor operates normally at high and low speeds.

Q: Does the windshield wiper motor operate normally?

YES : Go to Step 3.

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





STEP 3. Check windshield wiper motor connector A-03 and front-ECU connector A-11X for damage.

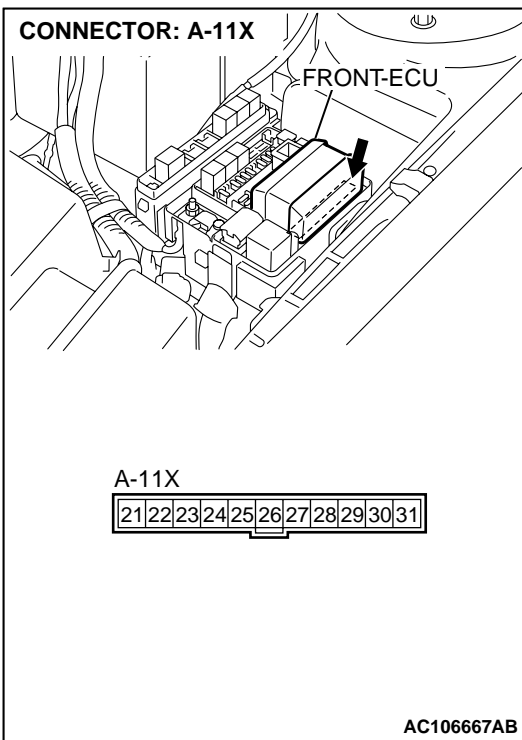
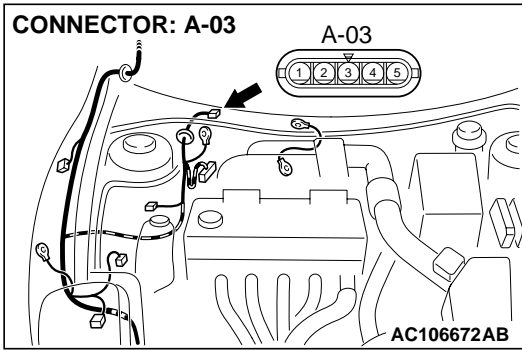
Q: Are windshield wiper motor connector A-03 and front-ECU connector A-11X in good condition?

YES : Go to Step 4.

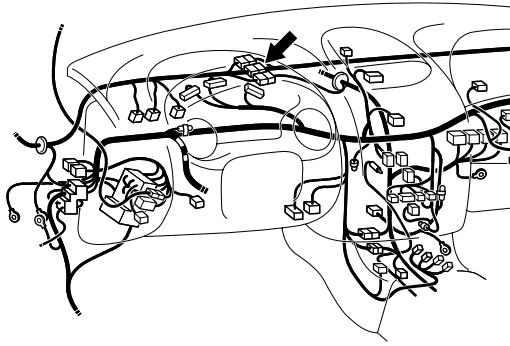
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

STEP 4. Check the wiring harness between windshield wiper motor connector A-03 (terminals 3 and 4) and front-ECU connector A-11X (terminals 27 and 28) .

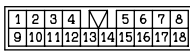
NOTE: Also check intermediate connector C-06. If intermediate connectors C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-06



C-06



AC106686AB

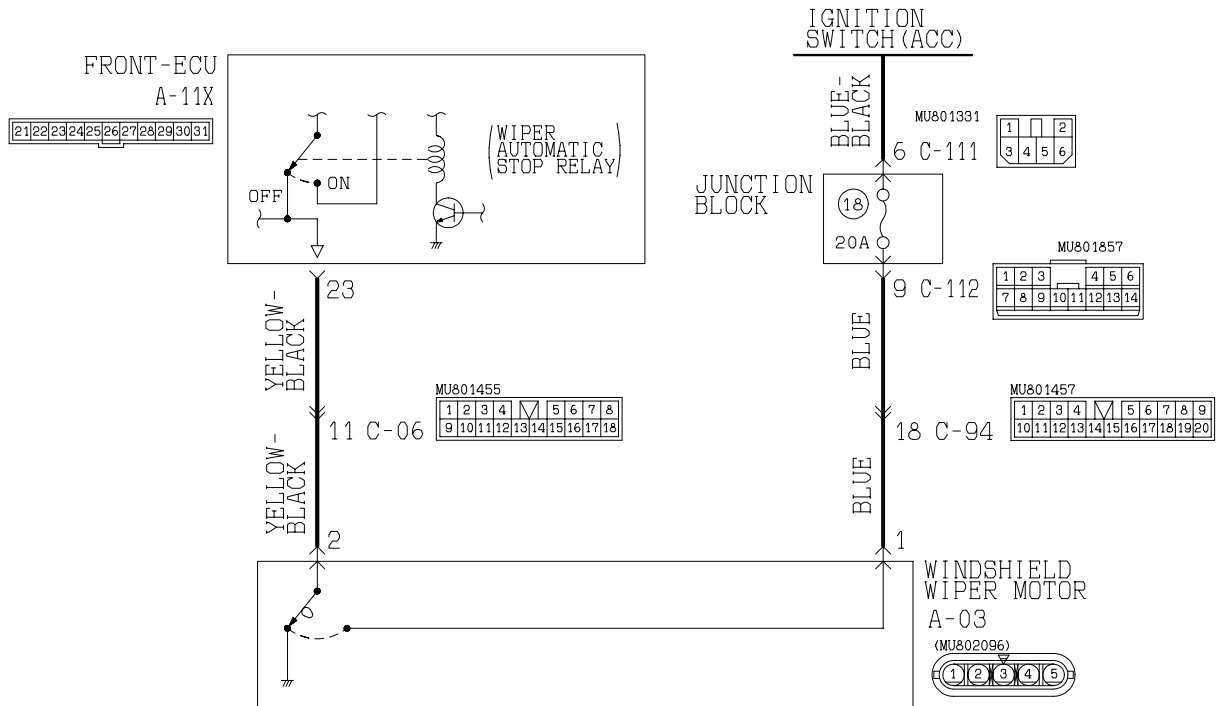
Q: Is the wiring harness between windshield wiper motor connector A-03 (terminals 3 and 4) and front-ECU connector A-11X (terminals 27 and 28) in good condition?

YES : No action to be taken.

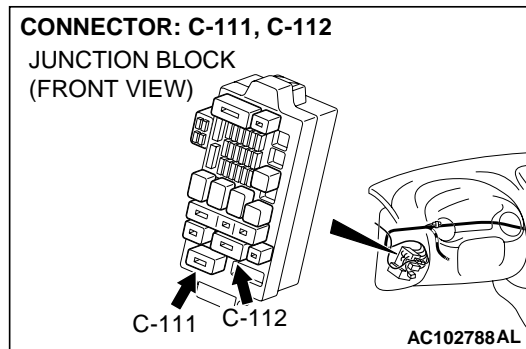
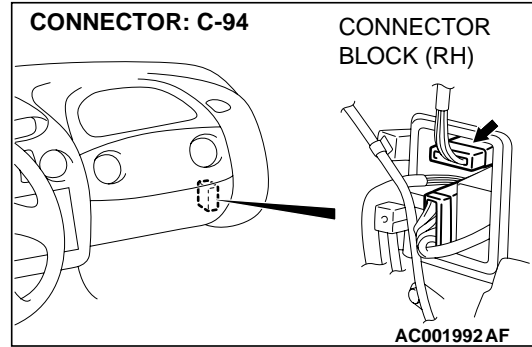
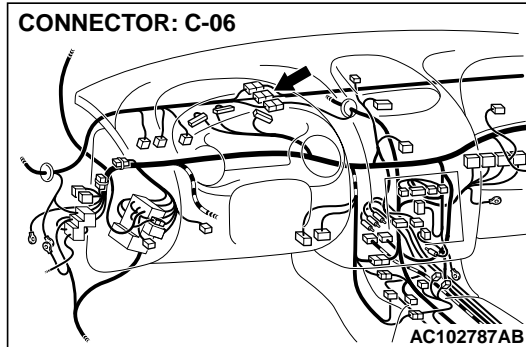
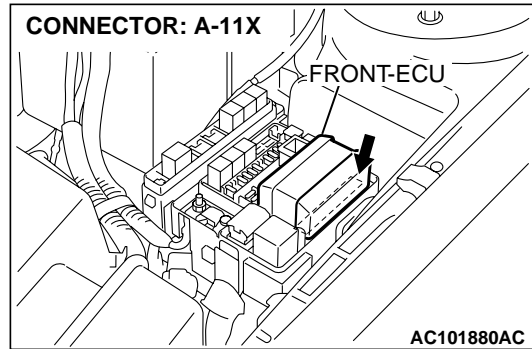
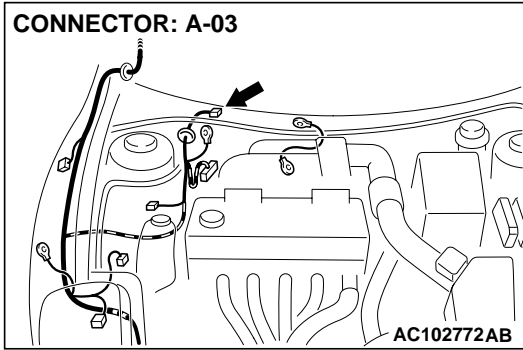
NO : Repair the wiring harness. Check that the windshield wiper operates normally when the windshield wiper switch is moved to each position.

INSPECTION PROCEDURE G-4: Windshield Wiper and Washer: Windshield Wiper does not Stop at the Predetermined Park Position.

Windshield Wiper Automatic Stop Relay Circuit



W3S02M06AA



TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

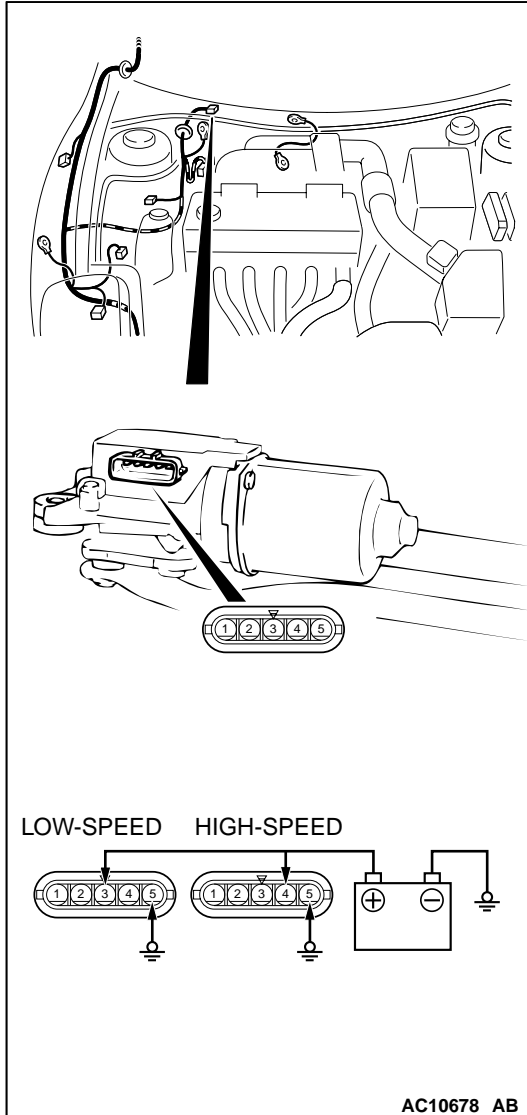
- Malfunction of the windshield wiper motor
- Malfunction of the front-ECU
- Damaged harness wires and connectors

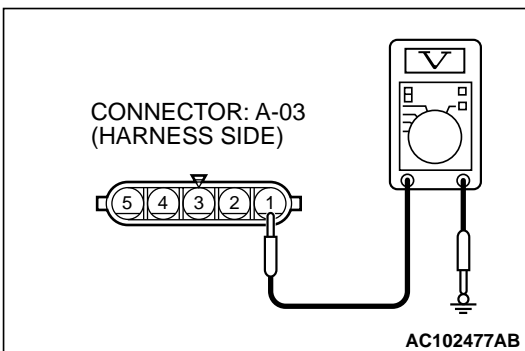
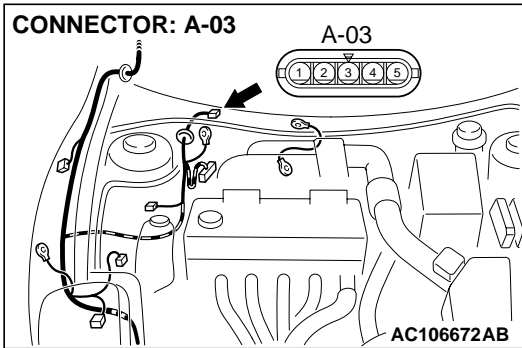
DIAGNOSIS**Required Special Tool:**

- MB991223: Test Harness Set

STEP 1. Check the windshield wiper motor.

- (1) Disconnect windshield wiper motor connector A-03.
- (2) Connect the vehicle battery to the windshield wiper motor connector as shown, and operate the windshield wiper at low speed. While the windshield wiper is working, disconnect the battery at positions other than the predetermined park position to stop the windshield wiper motor.
- (3) When the battery is connected as shown, the motor should run at low speed, and then stop at the predetermined park position.

Q: Does the windshield wiper motor operate normally?**YES :** Go to Step 2.**NO :** Replace the windshield wiper motor. The windshield wiper should stop at the predetermined park position.



STEP 2. Measure at windshield wiper motor connector A-03 to check the ignition switch (ACC) line of the power supply to the windshield wiper motor.

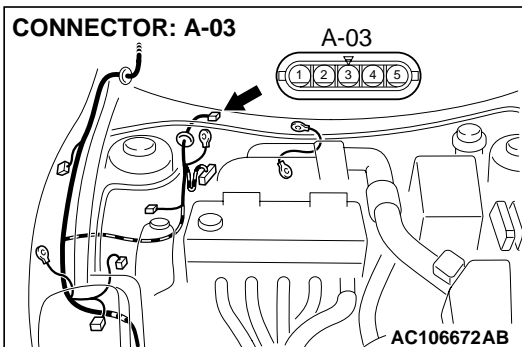
- (1) Disconnect windshield wiper motor connector A-03, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ACC" position.

- (3) Measure the voltage between terminal 1 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

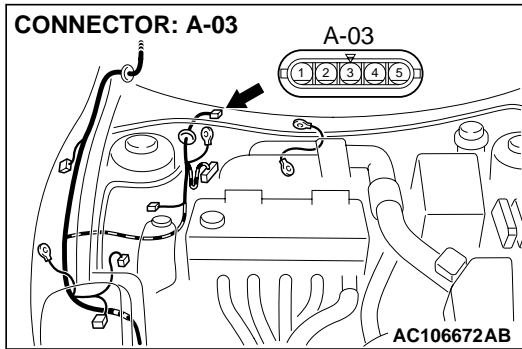


STEP 3. Check windshield wiper motor connector A-03 for damage.

Q: Is windshield wiper motor connector A-03 in good condition?

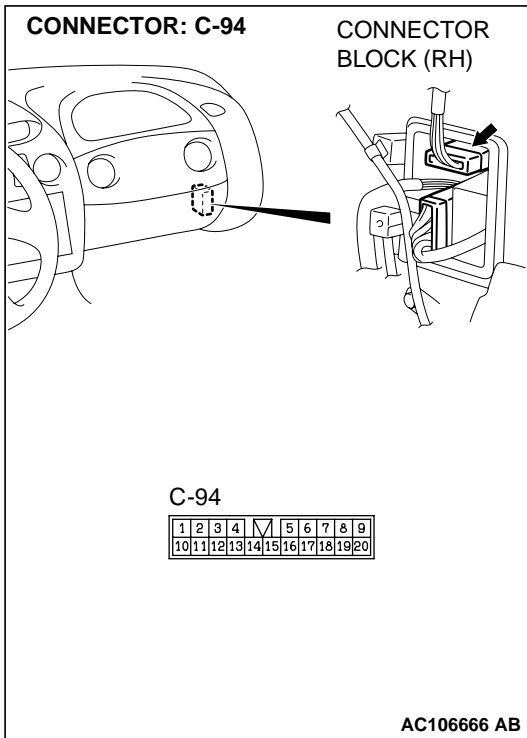
YES : Go to Step 4.

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



STEP 4. Check the wiring harness between windshield wiper motor connector A-03 and the ignition switch (ACC).

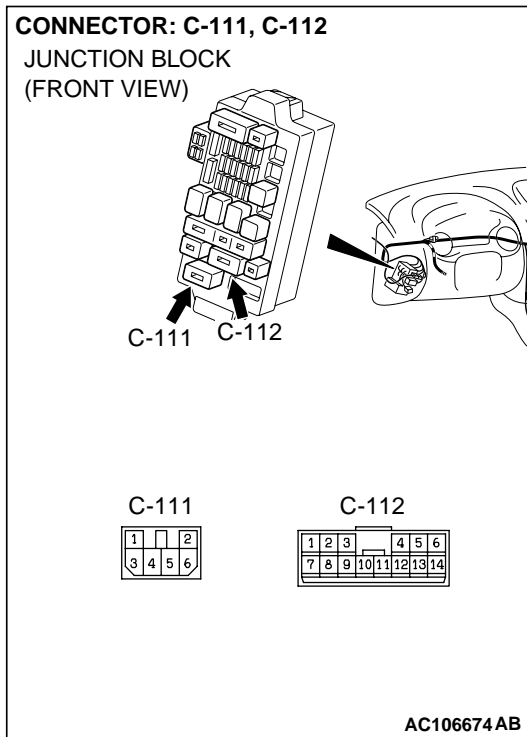
NOTE: Also check intermediate connector C-94, junction block connectors C-111 and C-112. If intermediate connectors C-94 or junction block connector C-111 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

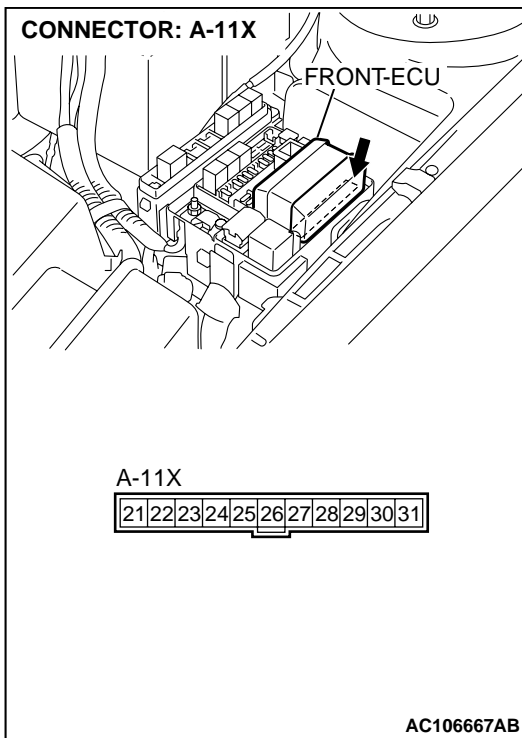
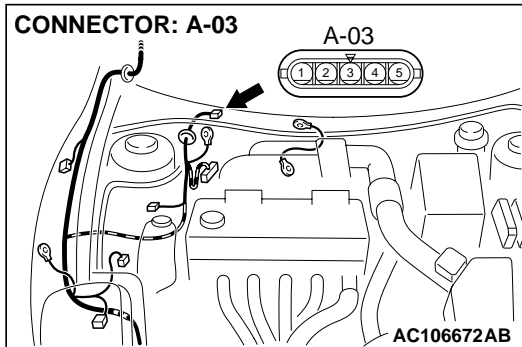


Q: Is the wiring harness between windshield wiper motor connector A-03 and the ignition switch (ACC) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The windshield wiper should stop at the predetermined park position.





STEP 5. Check windshield wiper motor connector A-03 and front-ECU connector A-11X for damage.

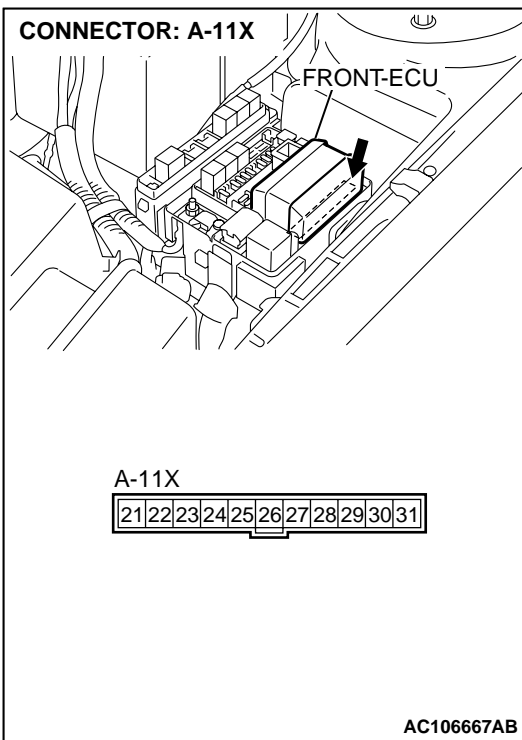
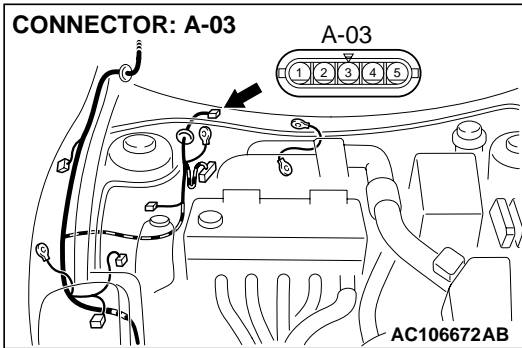
Q: Are windshield wiper motor connector A-03 and front-ECU connector A-11X in good condition?

YES : Go to Step 6.

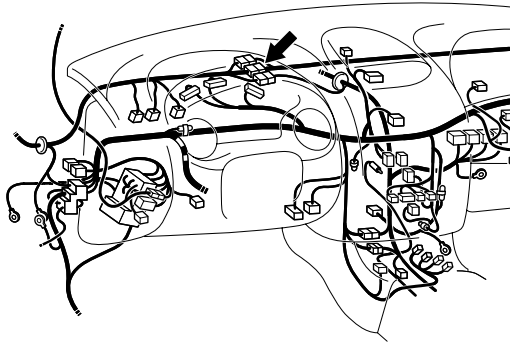
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The windshield wiper should stop at the predetermined park position.

STEP 6. Check the wiring harness between windshield wiper motor connector A-03 (terminal 2) and front-ECU connector A-11X (terminal 23) .

NOTE: Also check intermediate connector C-06. If intermediate connectors C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-06



C-06

1	2	3	4	5	6	7	8		
9	10	11	12	13	14	15	16	17	18

AC106686AB

Q: Is the wiring harness between windshield wiper motor connector A-03 (terminal 2) and front-ECU connector A-11X (terminal 23) in good condition?

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

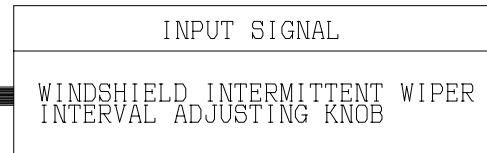
NO : Repair the wiring harness. The windshield wiper should stop at the predetermined park position.

INSPECTION PROCEDURE G-5: Windshield Wiper and Washer: Windshield Intermittent Wiper Interval can not be Adjusted by Means of Windshield Intermittent Wiper Interval Adjusting Knob.

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

Windshield Intermittent Wiper Interval Adjusting Knob Input Signal

ETACS-ECU



W2J08M54AA

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the ETACS-ECU
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the input signal by using "FUNCTION DIAG." of the SWS monitor.

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

- Ignition switch: ACC
- Windshield wiper switch: INT

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "F.WIPER INT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "WIPER."
 6. Select "F.WIPER INT."
- (4) Check that normal conditions are displayed on the items described in the table below.

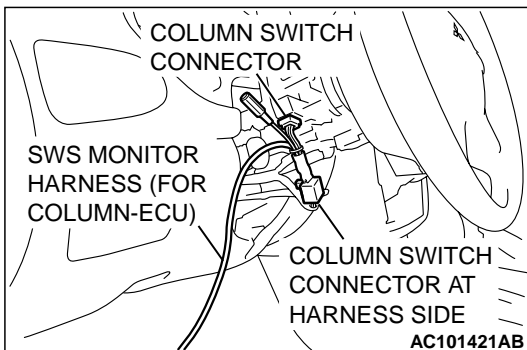
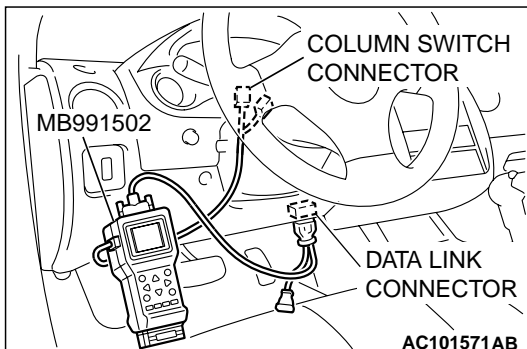
NOTE: Also check that the windshield wiper interval changes smoothly when the windshield intermittent wiper interval adjusting knob is rotated from "SLOW" to "FAST" positions.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.37	INT WIPER TIME	2.4-18.0 S

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

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

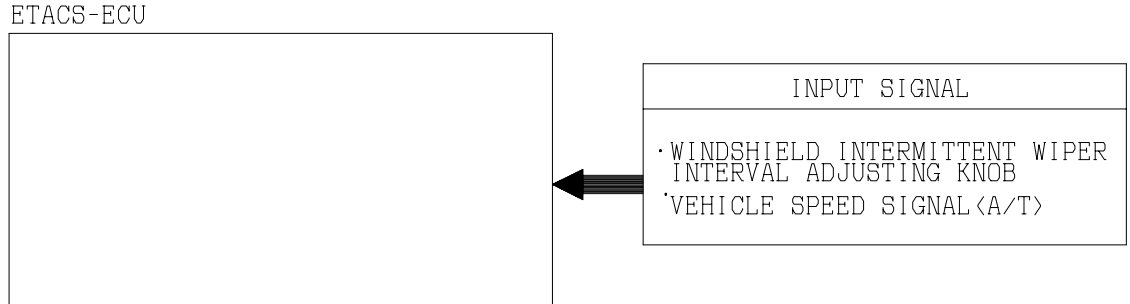
NO : Refer to Inspection Procedure O-9 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54B-511](#)."



INSPECTION PROCEDURE G-6: Windshield Wiper and Washer: The Windshield Intermittent Wiper Interval is not Changed According to the Vehicle Speed.

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

Windshield Intermittent Wiper Interval Adjusting Knob Circuit



W2B02M23AA

TECHNICAL DESCRIPTION (COMMENT)

If the windshield intermittent wiper interval is not changed according to the vehicle speed, the ETACS-ECU or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the input signal (by using the Pulse check).

Check the input of the vehicle speed signal:

⚠ CAUTION

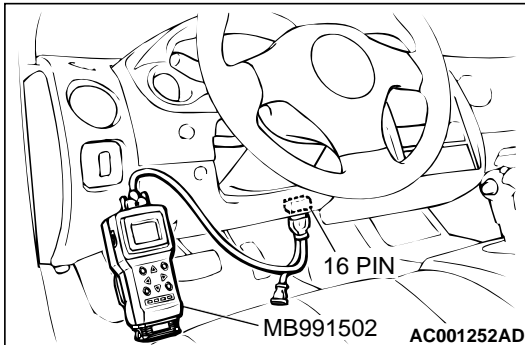
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Check that scan tool MB991502 sounds when the vehicle speed exceeds 10 km/h (6.2 mph).

Q: Does scan tool MB991502 sound when the vehicle speed exceeds 10 km/h (6.2 mph)?

YES : Go to Step 2.

NO : Refer to Inspection Procedure P-11 "vehicle speed signal is not input to ETACS-ECU <M/T>" [P.54B-599](#), or Inspection Procedure P-12 "vehicle speed signal is not input to ETACS-ECU <A/T>" [P.54B-605](#).



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

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

- Ignition switch: ACC
- Windshield wiper switch: INT
- Intermittent wiper control: slow side (mph)

⚠ CAUTION

Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect SWS monitor kit MB991862 to the column switch connector.
- (2) Operate the MUT-II according to the procedure below to display "F.WIPER INT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "WIPER."
 6. Select "F.WIPER INT."
- (3) Check that normal conditions are displayed on the items described in the table below.

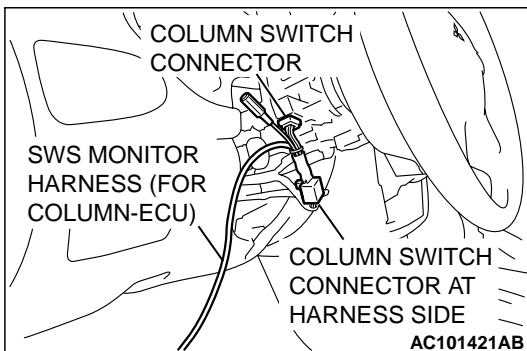
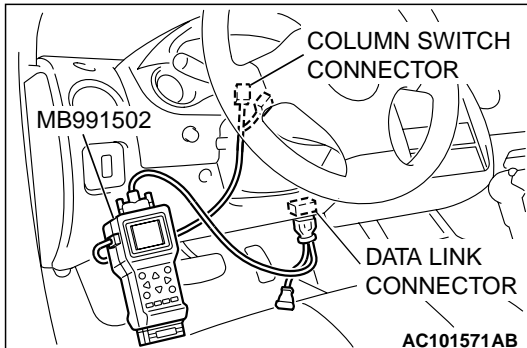
NOTE: Also check that the wiper interval changes smoothly when the vehicle is accelerated from 0 km/h (0 mph) to 25 km/h (15.5 mph).

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.37	INT WIPER TIME	18.0 – 12.0 S

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

YES : Replace the front-ECU. The windshield intermittent wiper interval should change according to the vehicle speed.

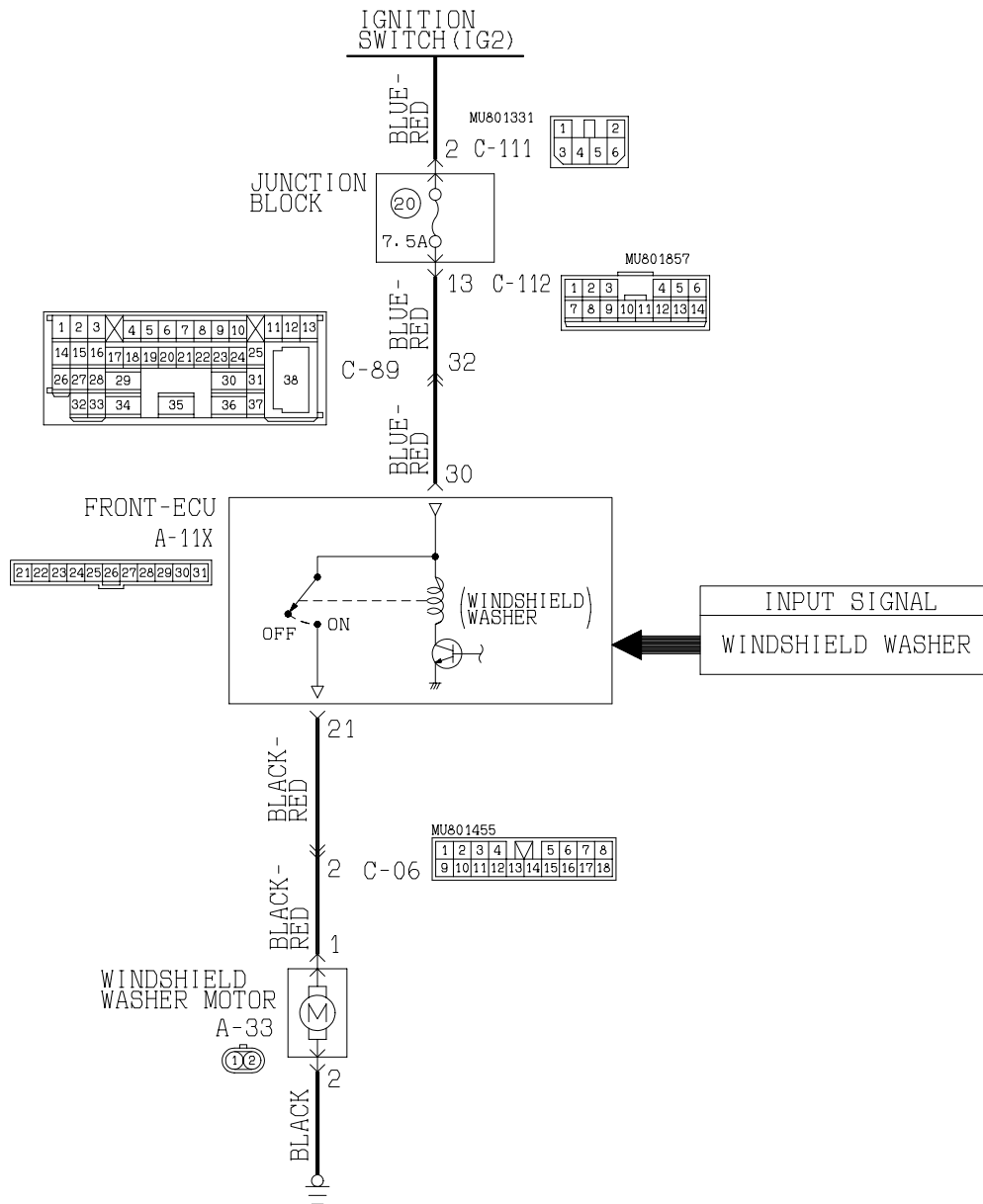
NO : Replace the ETACS-ECU. The windshield intermittent wiper interval should change according to the vehicle speed.



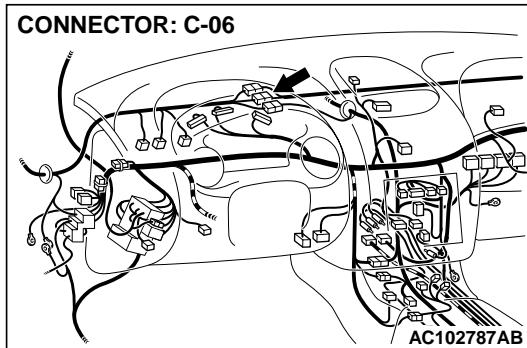
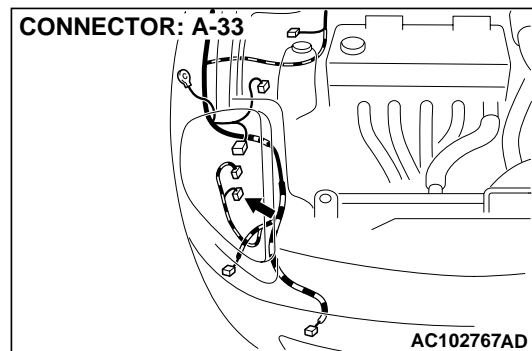
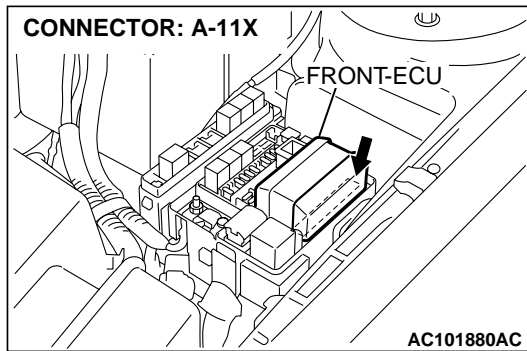
INSPECTION PROCEDURE G-7: Windshield Wiper and Washer: Windshield Washer does not Work.

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

Windshield Washer Motor Circuit



W3802M05AA



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the windshield washer motor
- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the windshield wiper.

Q: Does the windshield wiper operate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure G-1 "Windshield wiper does not work at all [P.54B-188.](#)"

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

Check the following ECUs:

- Column-ECU
- Front-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

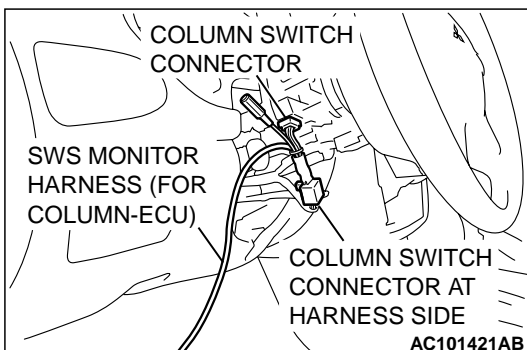
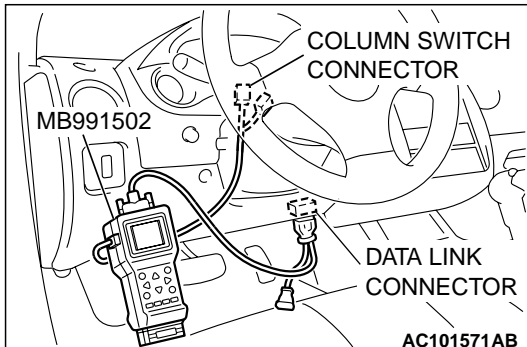
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" menu.

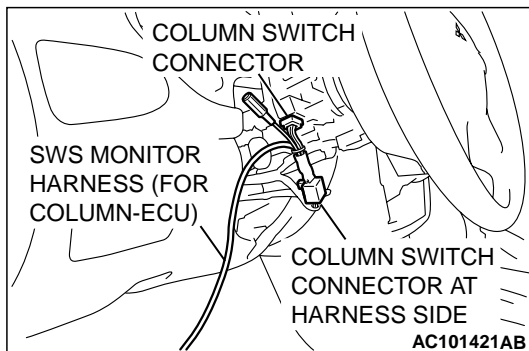
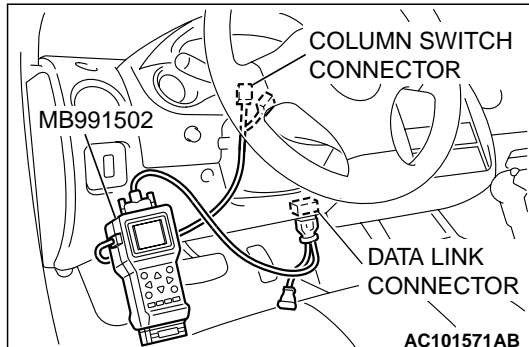
Q: Are "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible [P.54B-28.](#)"

"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible [P.54B-46.](#)"





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

Check the input signals from the following switches:

- Ignition switch: ON
- Windshield washer switch: ON

Operate the MUT-II according to the procedure below to display "F.WIPER WASH."

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

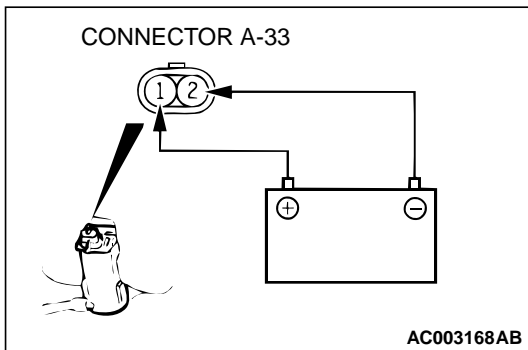
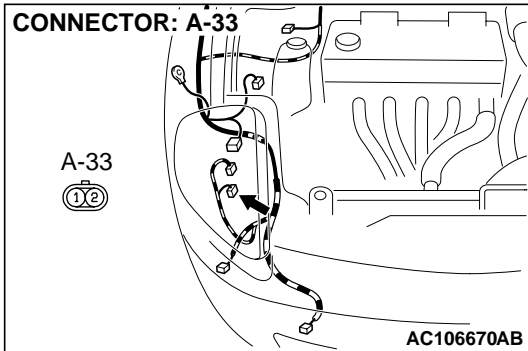
Check that normal conditions are displayed on the items described in the table below.

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

Q: Does the scan tool display the items "FRONT WASH.SW" and "FRONT ECU ACK" as normal condition?

YES : Go to Step 4.

- NO :**
- The scan tool does not show the respective normal condition for item "FRONT WASH. SW." Replace the column switch. Check that the windshield washer works normally.
 - The scan tool does not show the respective normal condition for item "FRONT ECU SW." Replace the front-ECU. Check that the windshield washer works normally.



STEP 4. Check the windshield washer motor.

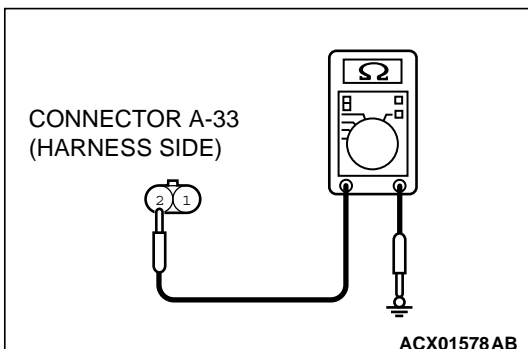
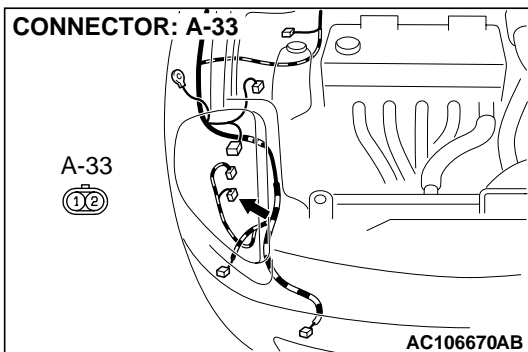
- (1) Disconnect windshield washer motor connector A-33, and check at windshield washer motor connector side.
- (2) Fill the windshield washer tank with washer fluid.

- (3) When battery voltage is applied between terminals 1 and 2, washer fluid should gush out.

Q: Does the windshield washer motor operate normally?

YES : Go to Step 5.

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



STEP 5. Check at windshield washer motor connector A-33 to check the windshield washer motor ground circuit.

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

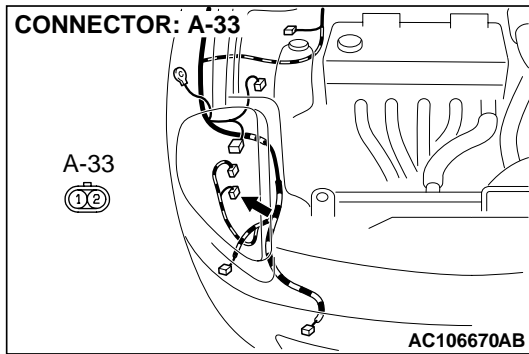
- (2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

NO : Go to Step 6.

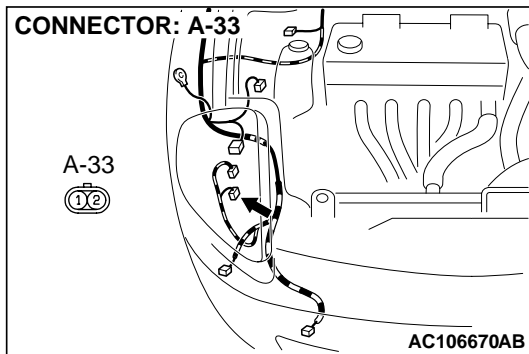


STEP 6. Check windshield washer motor connector A-33 for damage.

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

YES : Go to Step 7.

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

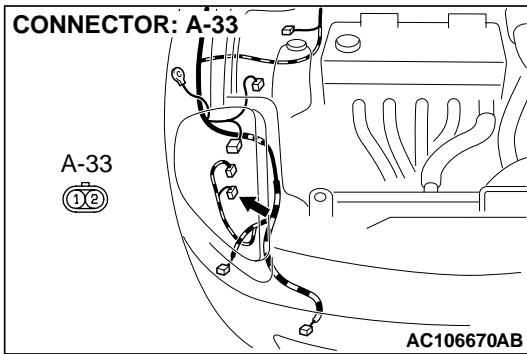


STEP 7. Check the wiring harness between windshield washer motor connector A-33 (terminal 2) and ground.

Q: Is the wiring harness between windshield washer motor connector A-33 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the windshield washer works normally.

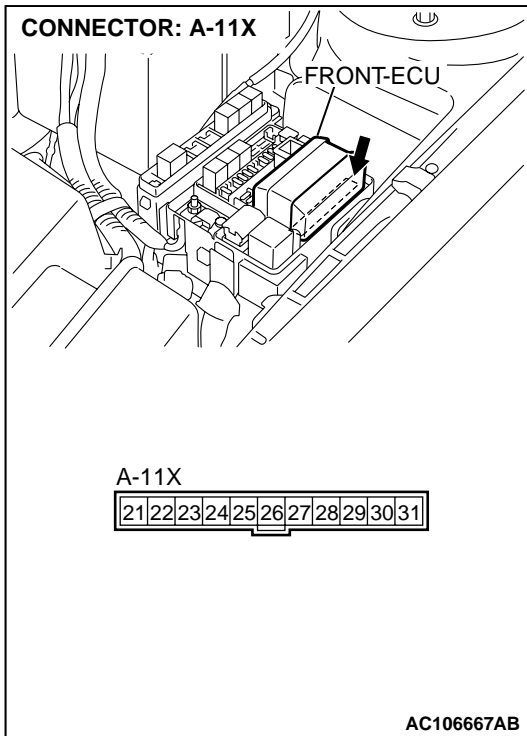


STEP 8. Check windshield washer motor connector A-33 and front-ECU connector A-11X for damage.

Q: Are windshield washer motor connector A-33 and front-ECU connector A-11X in good condition?

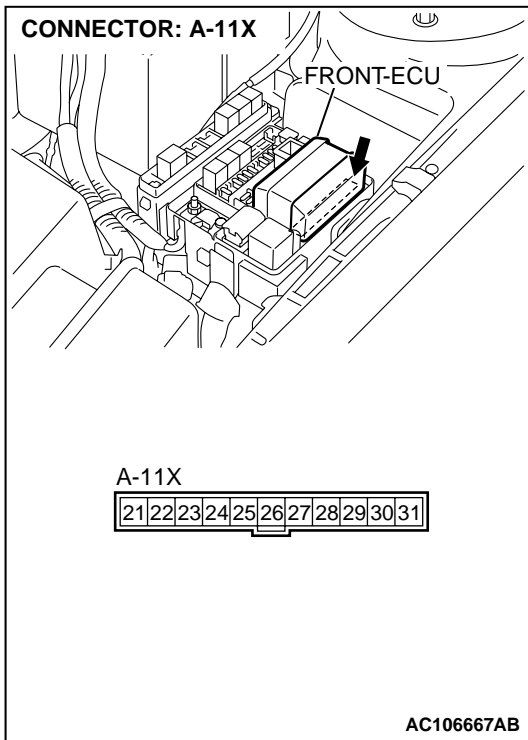
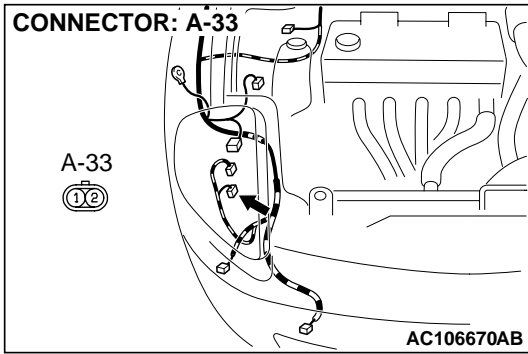
YES : Go to Step 9.

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

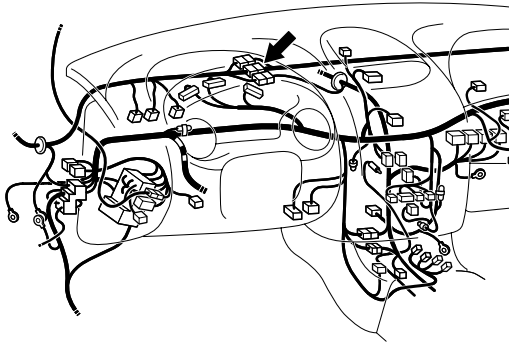


STEP 9. Check the wiring harness between windshield washer motor connector A-33 (terminal 1) and front-ECU connector A-11X (terminal 21) .

NOTE: Also check intermediate connector C-06. If intermediate connectors C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-06



C-06

1	2	3	4	5	6	7	8		
9	10	11	12	13	14	15	16	17	18

AC106686AB

Q: Is the wiring harness between windshield washer motor connector A-33 (terminal 1) and front-ECU connector A-11X (terminal 21) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the windshield washer works normally.

REAR WIPER AND WASHER

GENERAL DESCRIPTION CONCERNING REAR WIPER AND WASHER

M1549021600016

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

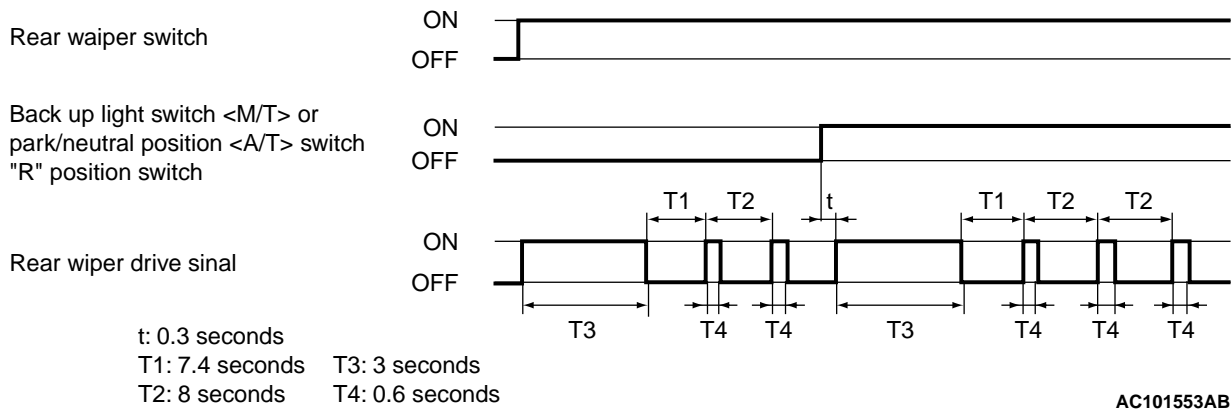
Functions	Control ECU
Rear wiper control	ETACS-ECU, column switch
Rear washer control	ETACS-ECU, column switch

REAR WIPER AND WASHER CONTROL FUNCTION

Rear wiper control

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

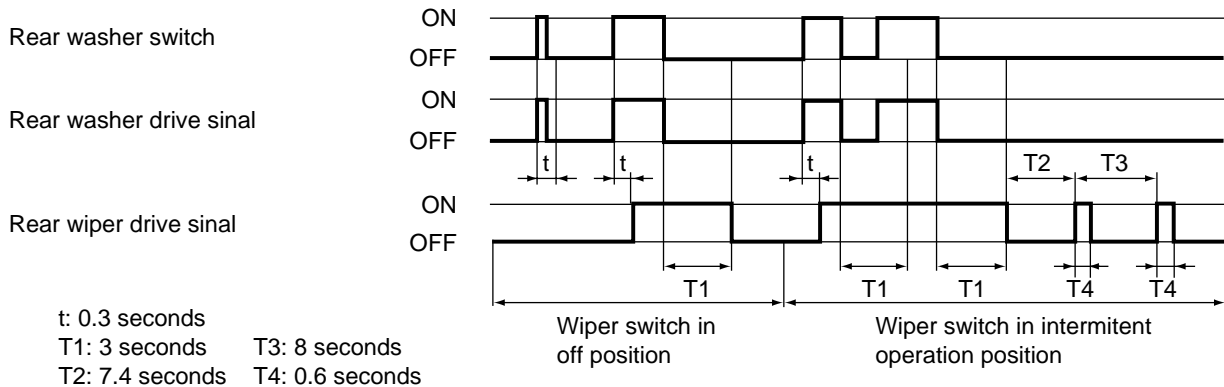
If the shift lever <M/T> or selector lever <A/T> is moved to the "R" position when the rear wiper switch of the column switch assembly is turned ON and the ignition switch is in any position other than OFF, the back up light switch <M/T> or the park/neutral position switch <A/T> "R" position switch turns ON. One second later, the ETACS-ECU turns the rear wiper drive signal ON for three seconds (approximately two operations), to clear the rear view, and then returns to intermittent operation at a 7.4 to 8-second cycle.



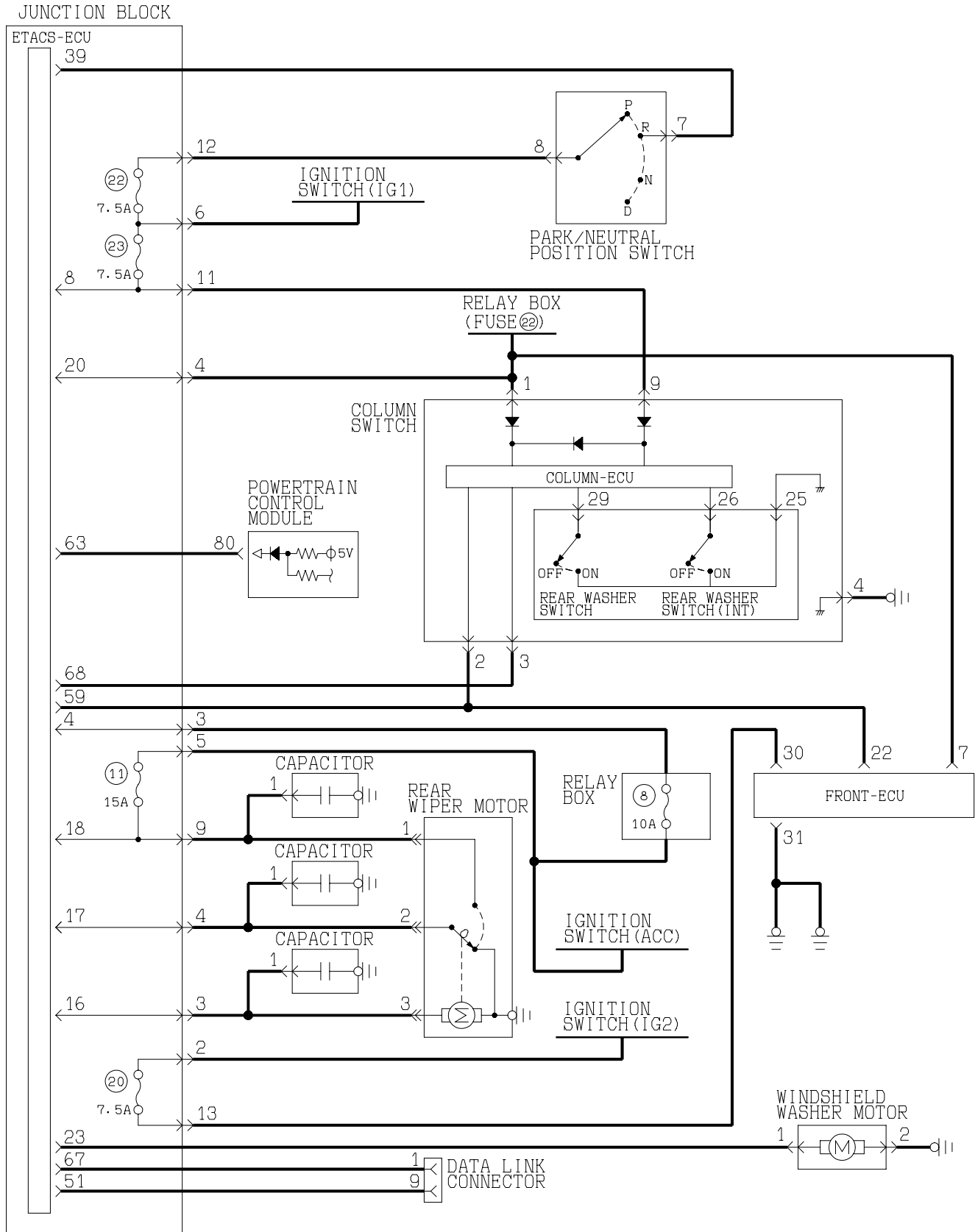
Rear washer control

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

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

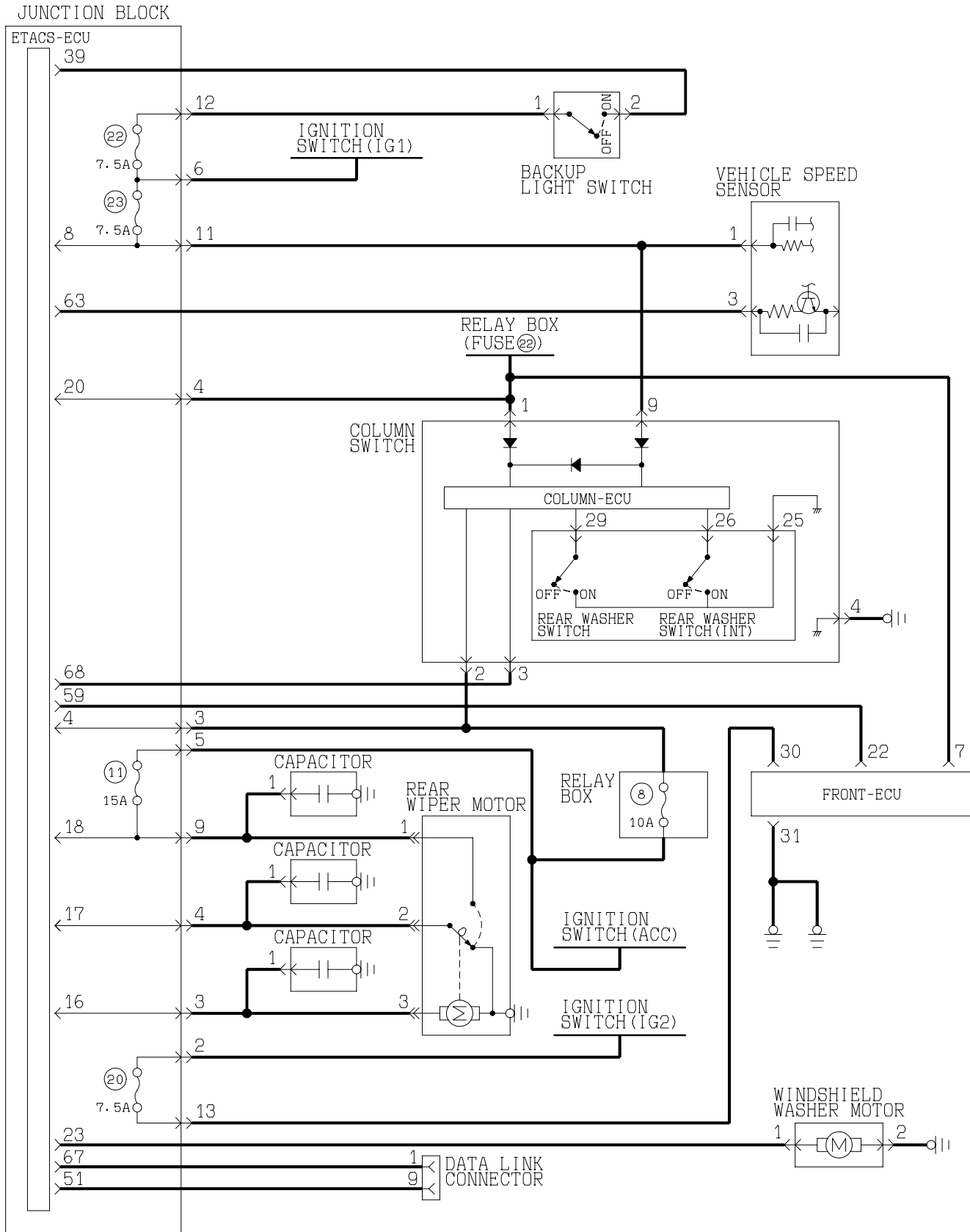


General circuit diagram for rear wiper and washer (A/T)



W3S05M02AA

General circuit diagram for rear wiper and washer (M/T)

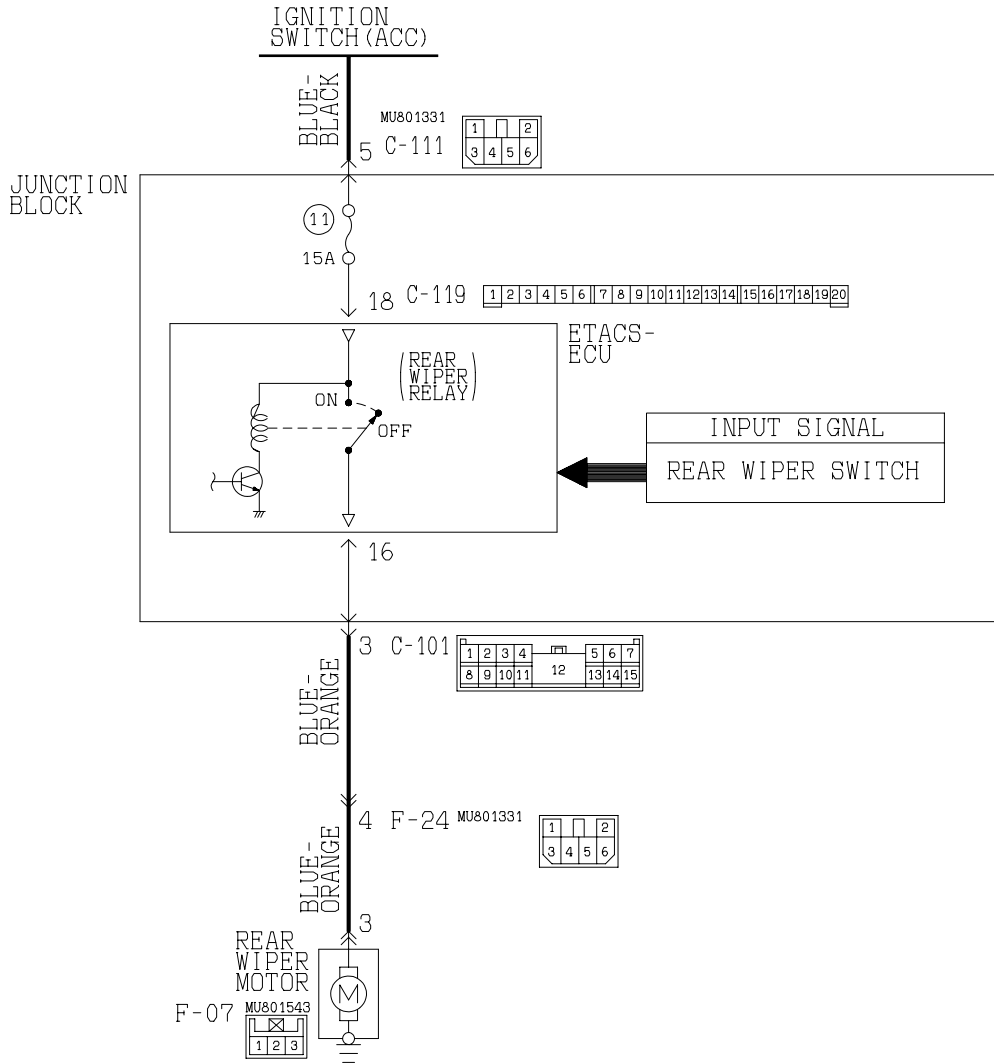


W3S05M03AA

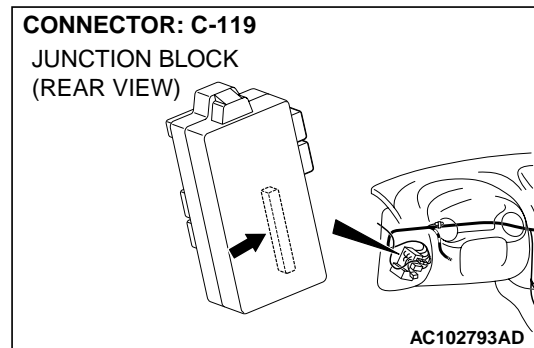
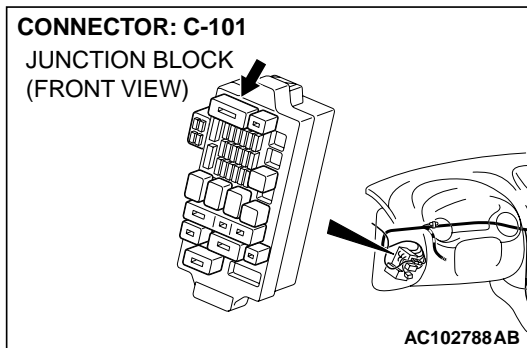
INSPECTION PROCEDURE H-1: Rear Wiper and Washer: Rear Wiper does no not Work at All.

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

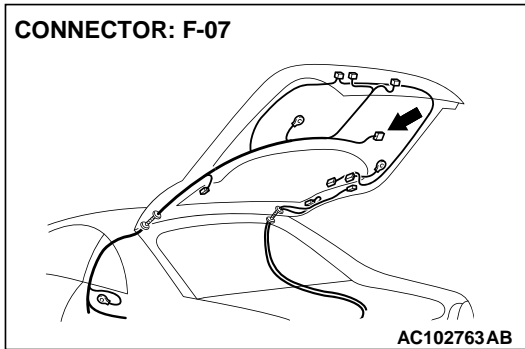
Rear Wiper Motor Power Supply Circuit



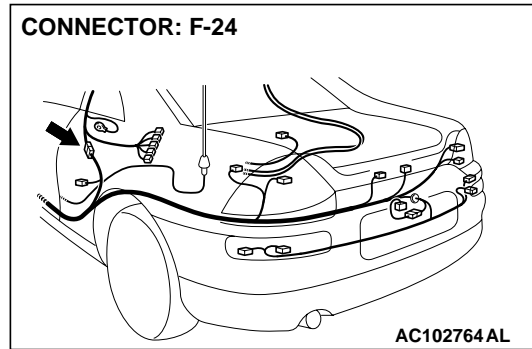
W3S02M09AA



CONNECTOR: F-07



CONNECTOR: F-24

**CIRCUIT OPERATION**

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the rear wiper motor
- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991223: Scan Tool (MUT-II)
- MB991223: SWS Monitor Kit

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

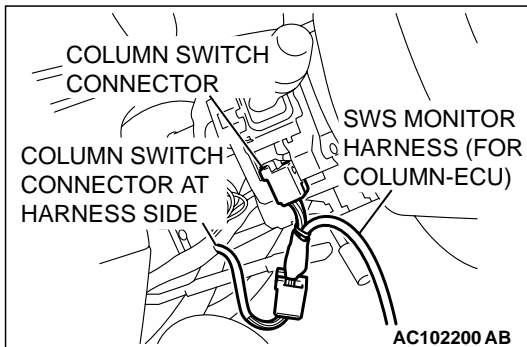
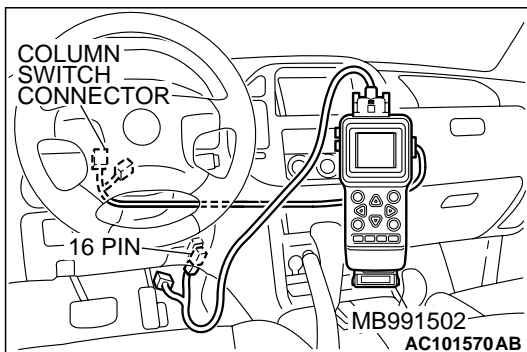
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" menu.

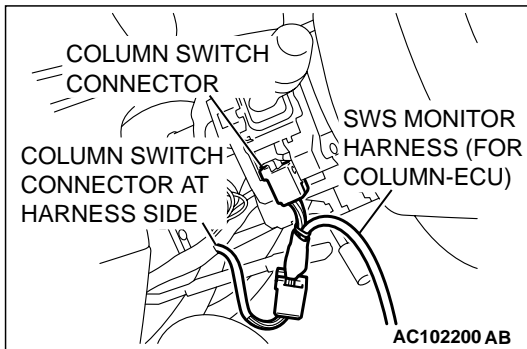
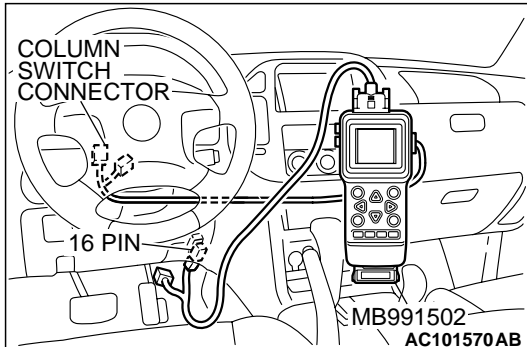
Q: Are "OK" displayed on the "ETACS ECU" and "COLUMN ECU" menu?

"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 impossible P.54B-39."

"NG" is displayed on the "COLUMN ECU" menu : Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-28."





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

Check the input signals from the following switches:

- Ignition switch: ACC
- Rear wiper switch: INT

Operate the MUT-II according to the procedure below to display "REAR WIPER."

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

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

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.13	REAR WIPER SW	ON
ITEM No.31	IG SW (ACC)	ON

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

YES : Go to Step 3.

- NO :**
- Normal condition is not displayed "REAR WIPER SW": Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the ignition switch (ACC) [P.54B-514.](#)"
 - Normal condition is not displayed for "IG SW (ACC)": Refer to Inspection Procedure O-1 "ETACS-ECU does not receive a signal from the ignition switch (ACC) [P.54B-466.](#)"

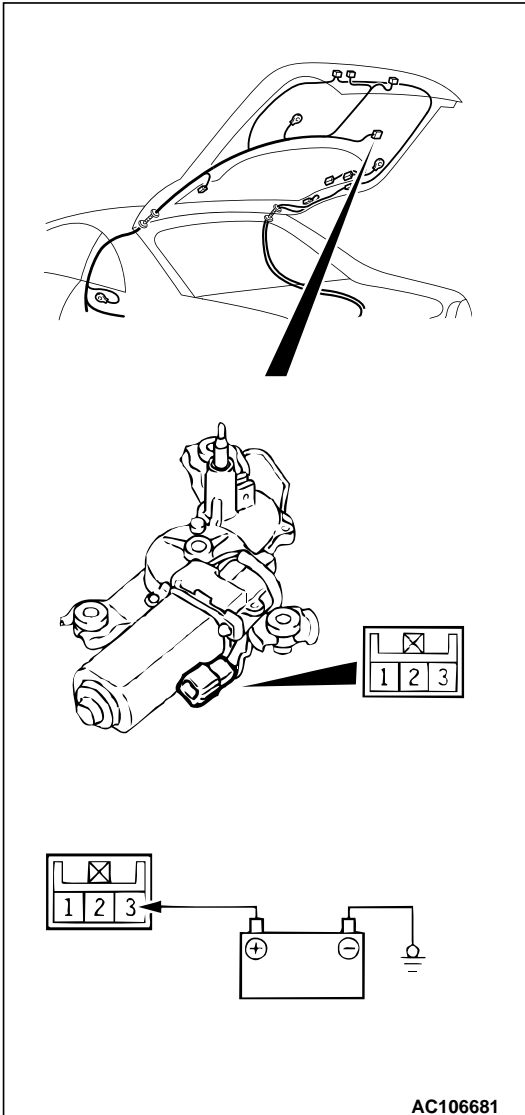
STEP 3. Check the rear wiper motor.

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

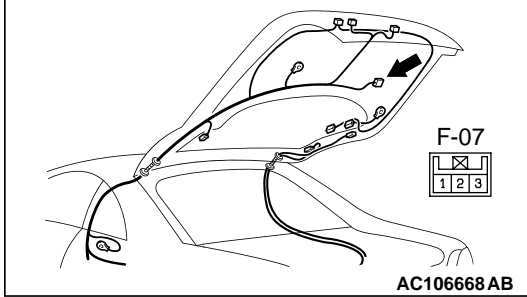
Q: Is the rear wiper motor in good condition?

YES : Go to Step 4.

NO : Replace the rear wiper motor. The rear wiper should work normally.



CONNECTOR: F-07



STEP 4. Check the rear wiper motor connector F-07 and ETACS-ECU connector C-119 for damage.

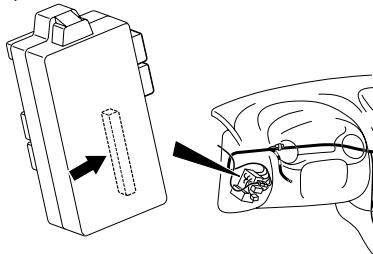
Q: Are rear wiper motor connector F-07 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 5.

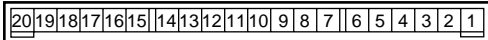
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The rear wiper should work normally.

CONNECTOR: C-119

JUNCTION BLOCK
(REAR VIEW)

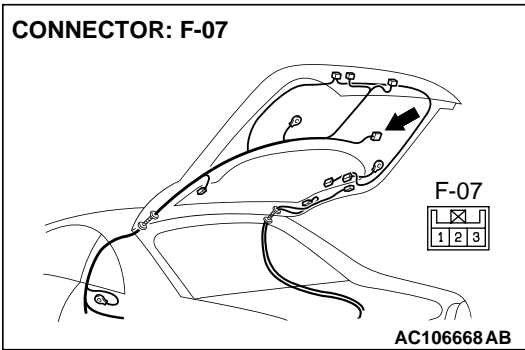


C-119



AC106677AB

CONNECTOR: F-07



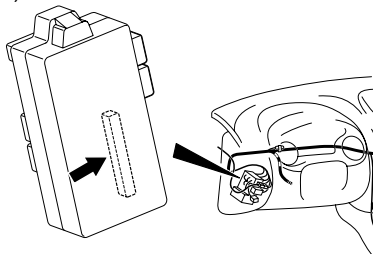
AC106668 AB

STEP 5. Check the harness wires between rear wiper motor connector F-07 (terminal 3) and ETACS-ECU connector C-119 (terminal 16) .

NOTE: After checking intermediate connector F-24 and junction block connector C-101, check the wires. If intermediate connector F-24 and junction block connector C-101 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

CONNECTOR: C-119

JUNCTION BLOCK
(REAR VIEW)



C-119

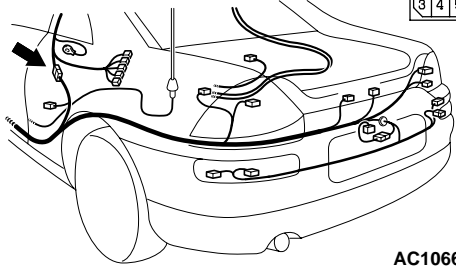
20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
----	----	----	----	----	----	----	----	----	----	----	---	---	---	---	---	---	---	---	---

AC106677 AB

CONNECTOR: F-24

F-24

1	2
3	4



AC106669AB

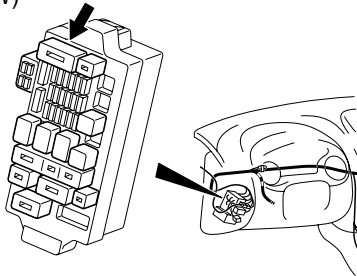
Q: Are the harness wires between rear wiper motor connector F-07 (terminal 3) and ETACS-ECU connector C-119 (terminal 16) in good condition?

YES : Replace the ETACS-ECU. The rear wiper should work normally.

NO : Repair the wiring harness. The rear wiper should work normally.

CONNECTOR: C-101

JUNCTION BLOCK
(FRONT VIEW)



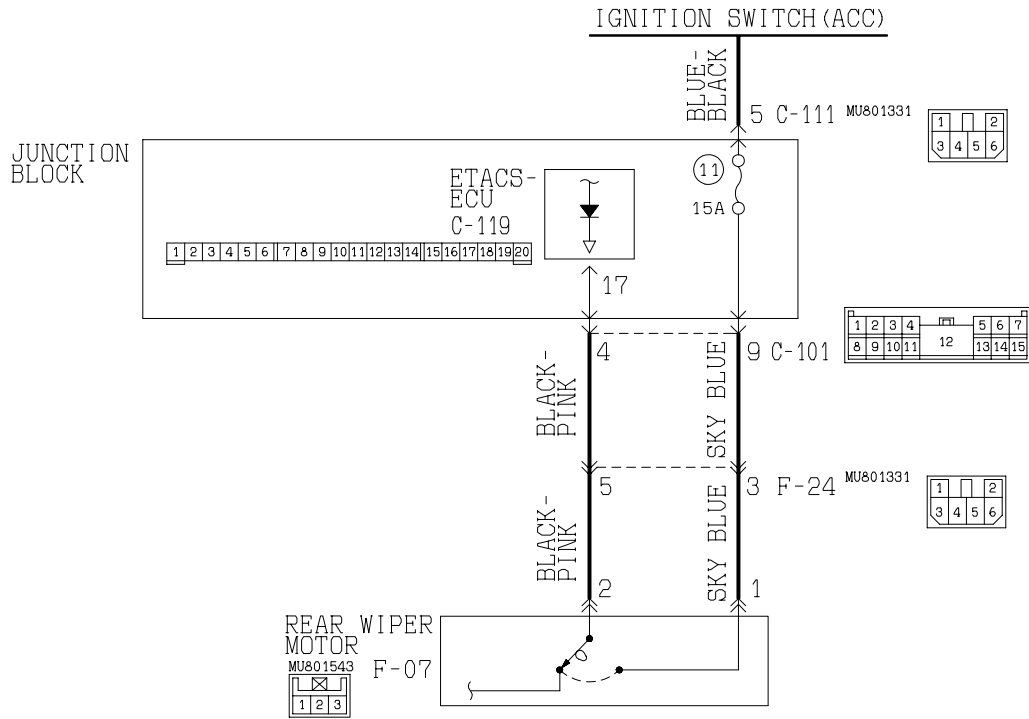
C-101

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

AC106673AB

INSPECTION PROCEDURE H-2: Rear Wiper and Wasehr: Rear Wiper does not Stop at the Predetermined Park Position.

Rear Wiper Auto Stop Circuit



W3S02M08AA

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the rear wiper motor
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

Check the input signal (by using the Pulse Check).

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

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

⚠ CAUTION

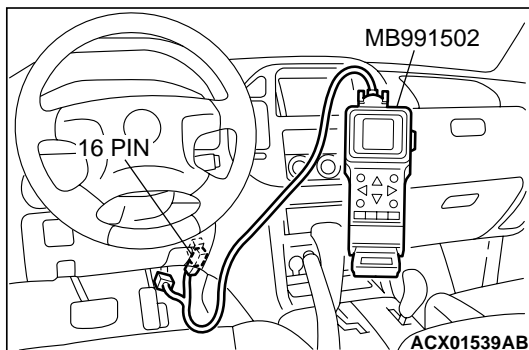
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Check that scan tool MB991502 sounds.

Q: Does scan tool MB991502 sound when the rear wiper switch is operated?

YES : Replace the ETACS-ECU. The rear wiper should stop automatically at the predetermined park position.

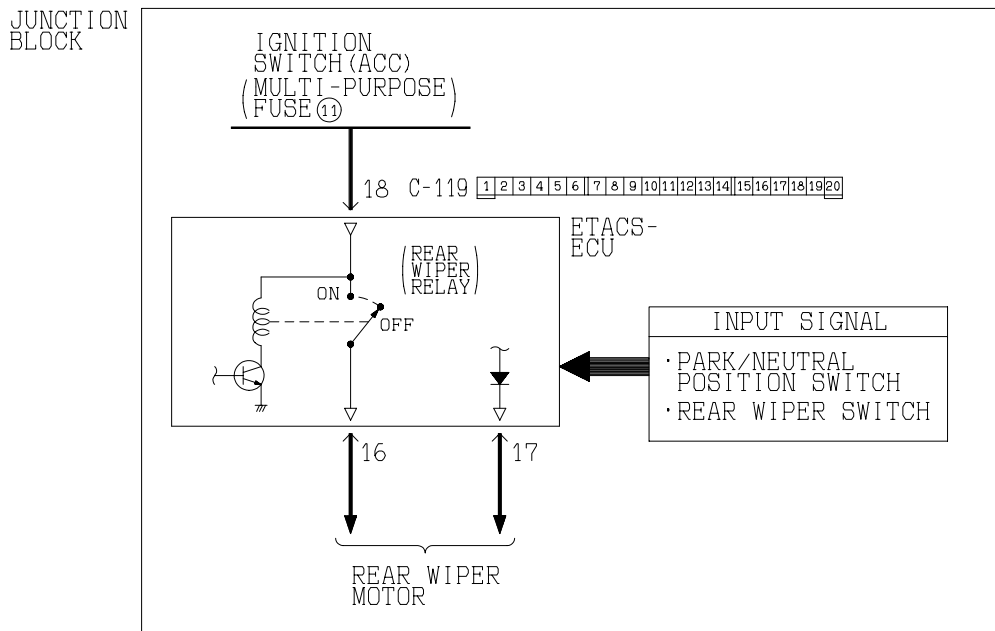
NO : Refer to Inspection Procedure P-7 "ETACS-ECU does not receive an automatic stop signal from the wiper motor [P.54B-569](#)."



INSPECTION PROCEDURE H-3: Rear Wiper and Washer: When the Selector Lever is Moved to "R" Position during the Rear Wiper Operation, the Rear Wiper does not Operate at the Continuous Mode.

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

"R" Position During Rear Wiper Operation Circuit



W3S02M04AA

CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the park/neutral position switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the rear wiper.

Q: Does the rear wiper operate?

YES : Go to Step 2.

NO : Refer to Inspection Procedure H-1 "Rear wiper does not work at all P.54B-231."

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

Set each switch to the following condition before checking input signal from the park/neutral position switch ("R" position).

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

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

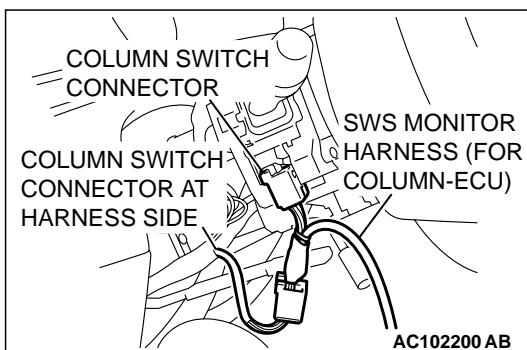
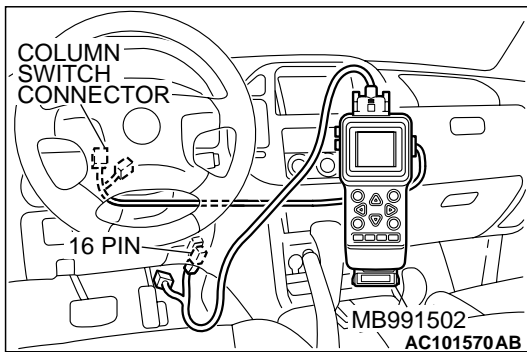
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "REV. INTERLOCK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REV. INTERLOCK."
- (4) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.41	PNP SW (R)	ON

Q: Are normal conditions displayed?

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

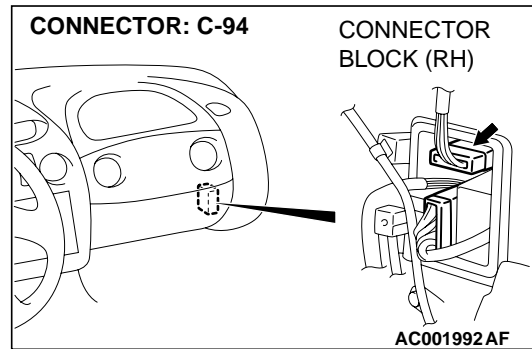
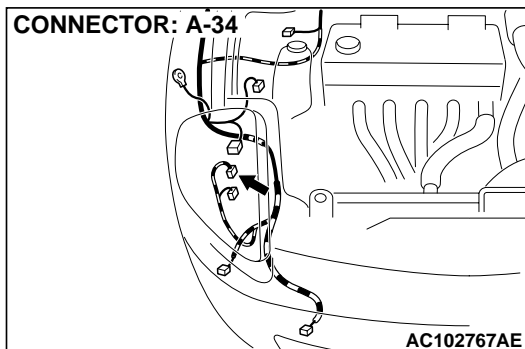
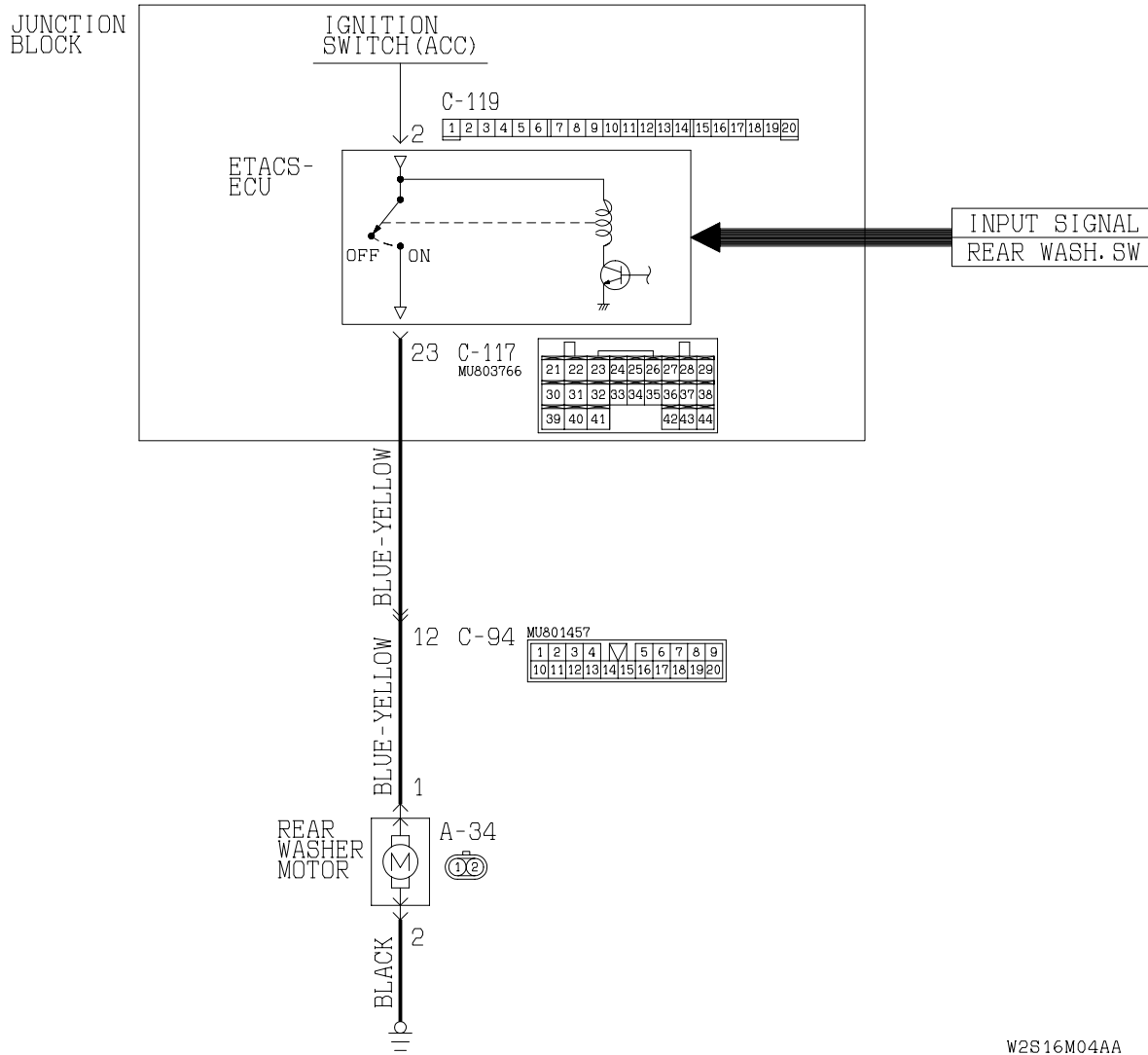
NO : Refer to Inspection Procedure O-4 "ETACS-ECU does not receive "R" position signal from the backup light switch <M/T>[P.54B-486](#) " or Inspection Procedure O-5 "ETACS-ECU does not receive "R" position signal from the park/neutral position switch <A/T>[P.54B-486](#) ."

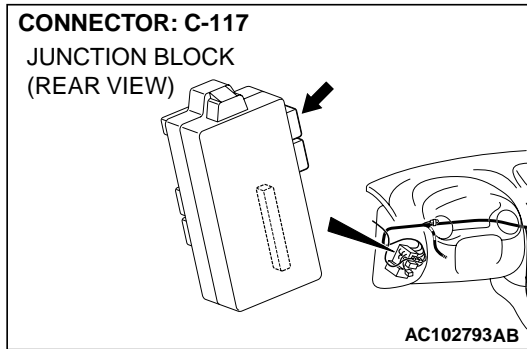


INSPECTION PROCEDURE H-4: Rear Wiper and Washer: Rear Washer does not Operate.

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

Rear Washer Motor Power Supply Circuit



**CIRCUIT OPERATION**

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the rear washer motor
- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the ETACS-ECU

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the rear wiper.**Q: Does the rear wiper operate?**

YES : Go to Step 2.

NO : Refer to Inspection Procedure H-1 "Rear wiper does not work at all [P.54B-231](#)."

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

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

- Ignition switch: ACC
- Rear washer switch: ON

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

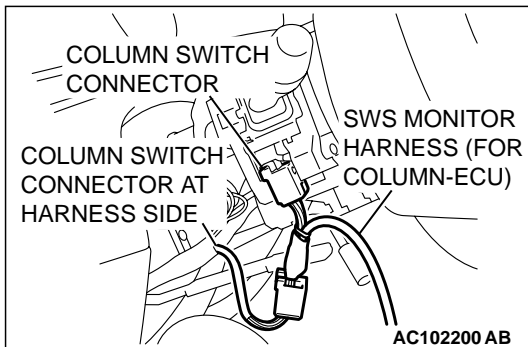
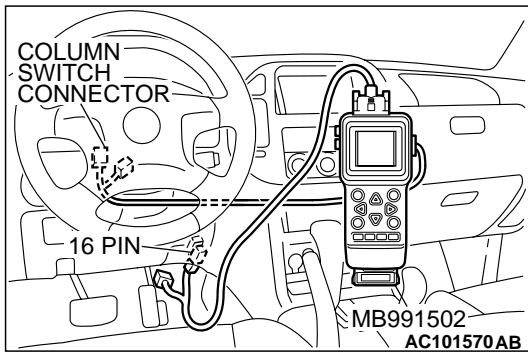
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "REAR WASHER."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "REAR WIPER."
 6. Select "REAR WASHER."
- (4) Check that normal conditions are displayed on the items described in the table below.

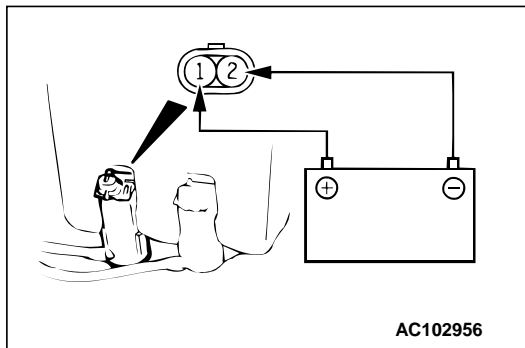
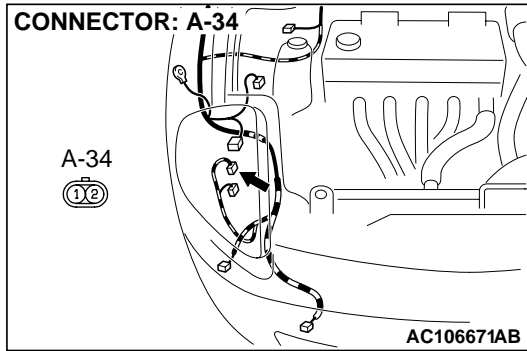
ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.14	REAR WASH.SW	ON

Q: Are normal conditions displayed?

YES : Go to Step 3.

NO : Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the rear washer switch P.54B-514."



**STEP 3. Check the rear washer motor.**

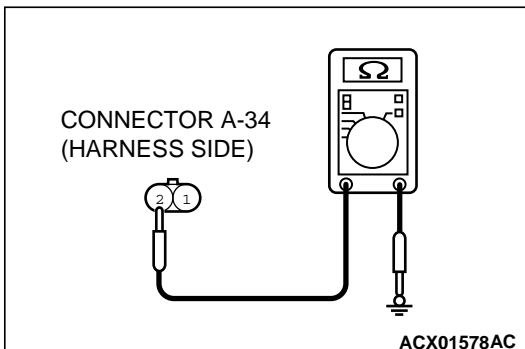
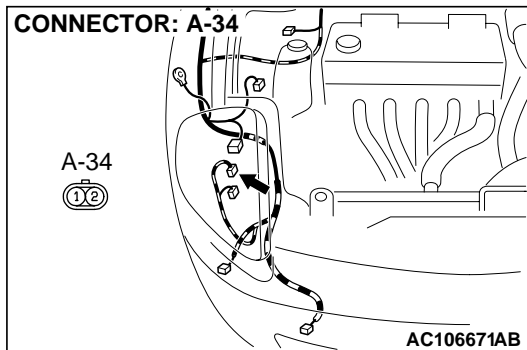
- (1) Disconnect rear washer motor connector A-34.
- (2) Fill the washer tank with washer fluid.

- (3) When battery voltage is applied between terminals 1 and 2, washer fluid should gush out.

Q: Does the rear washer motor operate normally?

YES : Go to Step 4.

NO : Replace the rear washer motor. Check that the rear washer works normally.

**STEP 4. Check at rear washer motor connector A-34 to check the rear washer motor ground circuit.**

- (1) Disconnect rear washer motor connector A-34, and measure at the wiring harness side.

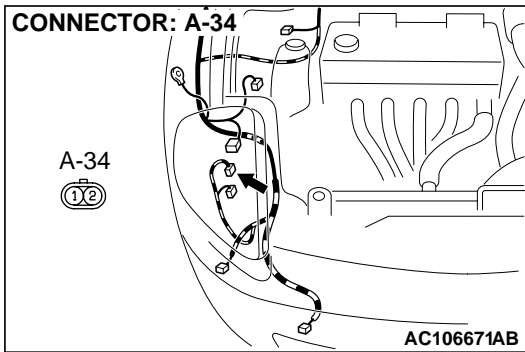
- (2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

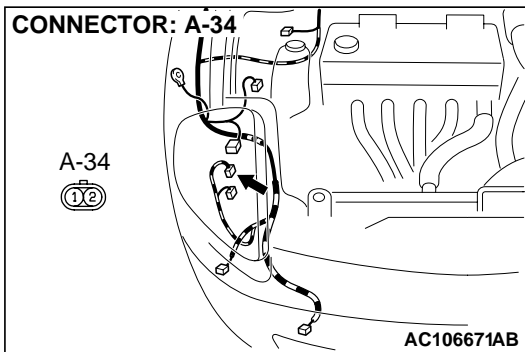


STEP 5. Check rear washer motor connector A-34 for damage.

Q: Is rear washer motor connector A-34 in good condition?

YES : Go to Step 6.

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

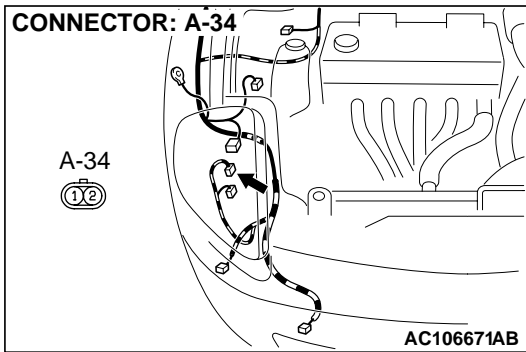


STEP 6. Check the wiring harness between rear washer motor connector A-34 (terminal 2) and ground.

Q: Is the wiring harness between rear washer motor connector A-34 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the rear washer works normally.

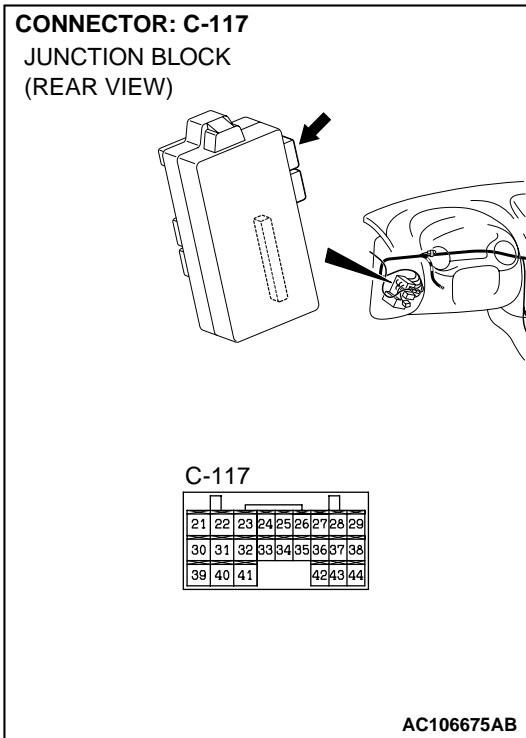


STEP 7. Check rear washer motor connector A-34 and ETACS-ECU connector C-117 for damage.

Q: Are rear washer motor connector A-34 and ETACS-ECU connector C-117 in good condition?

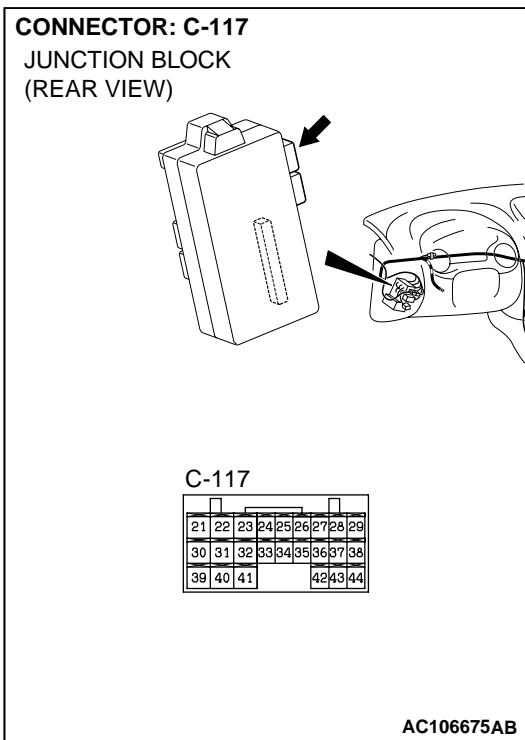
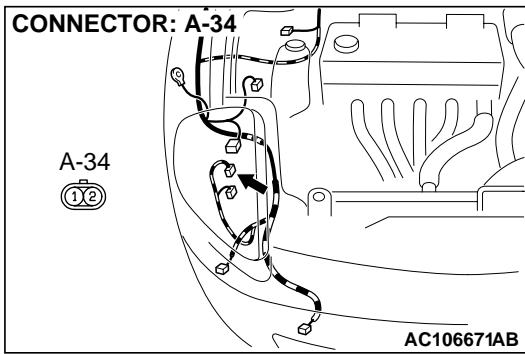
YES : Go to Step 8.

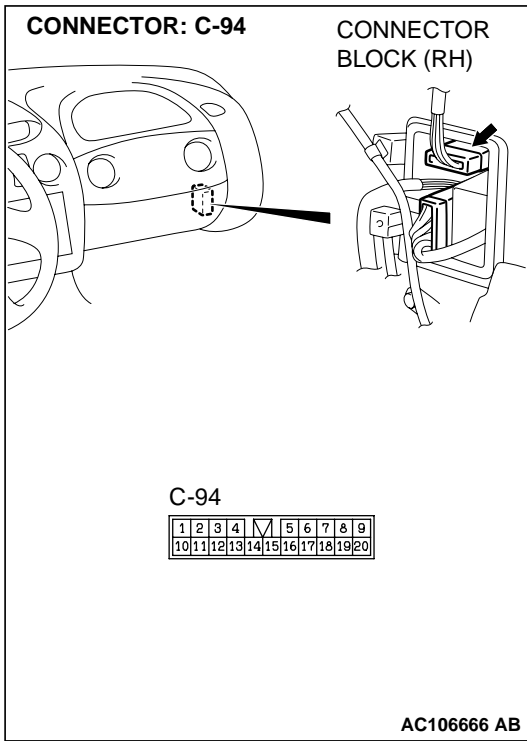
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear washer works normally.



STEP 8. Check the wiring harness between rear washer motor connector A-34 (terminal 1) and ETACS-ECU connector C-117 (terminal 23) .

NOTE: Also check intermediate connector C-94. If intermediate connector C-94 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.





Q: Is the wiring harness between rear washer motor connector A-34 (terminal 1) and ETACS-ECU connector C-117 (terminal 23) in good condition?

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

NO : Repair the wiring harness. Check that the rear washer works normally.

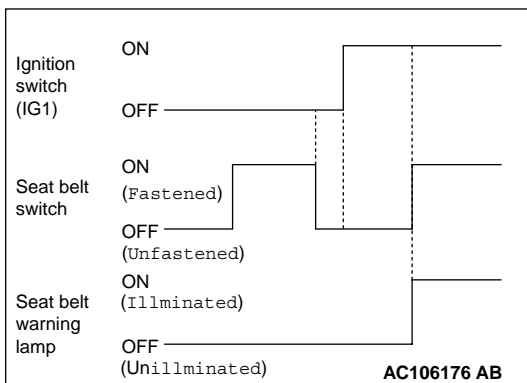
SEAT BELT WARNING LIGHT

GENERAL DESCRIPTION CONCERNING SEAT BELT WARNING LIGHT

M1549023900013

The following ECUs affects the seat belt warning light function.

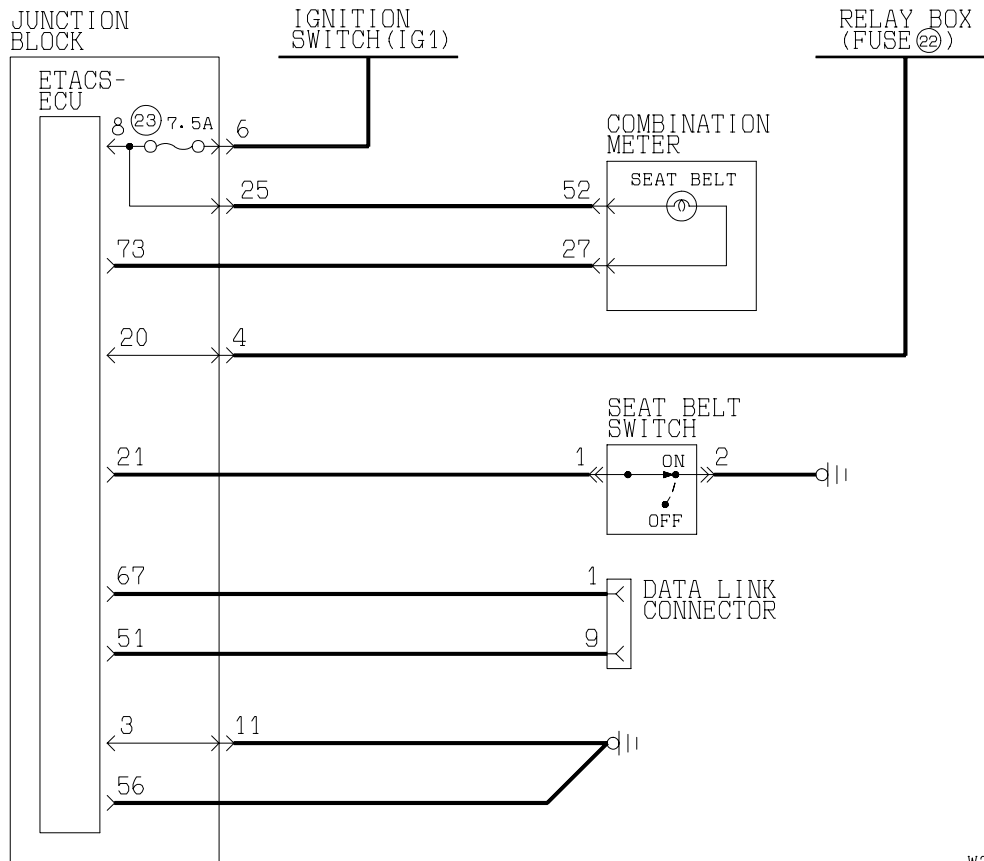
Functions	Control ECU
Seat belt warning light function	ETACS-ECU



SEAT BELT WARNING LIGHT FUNCTION

If the ignition switch is turned to the "ON" position without wearing the driver's seat belt, the seat belt warning light will illuminate to warn the driver.

General circuit diagram for the seat belt warning light function

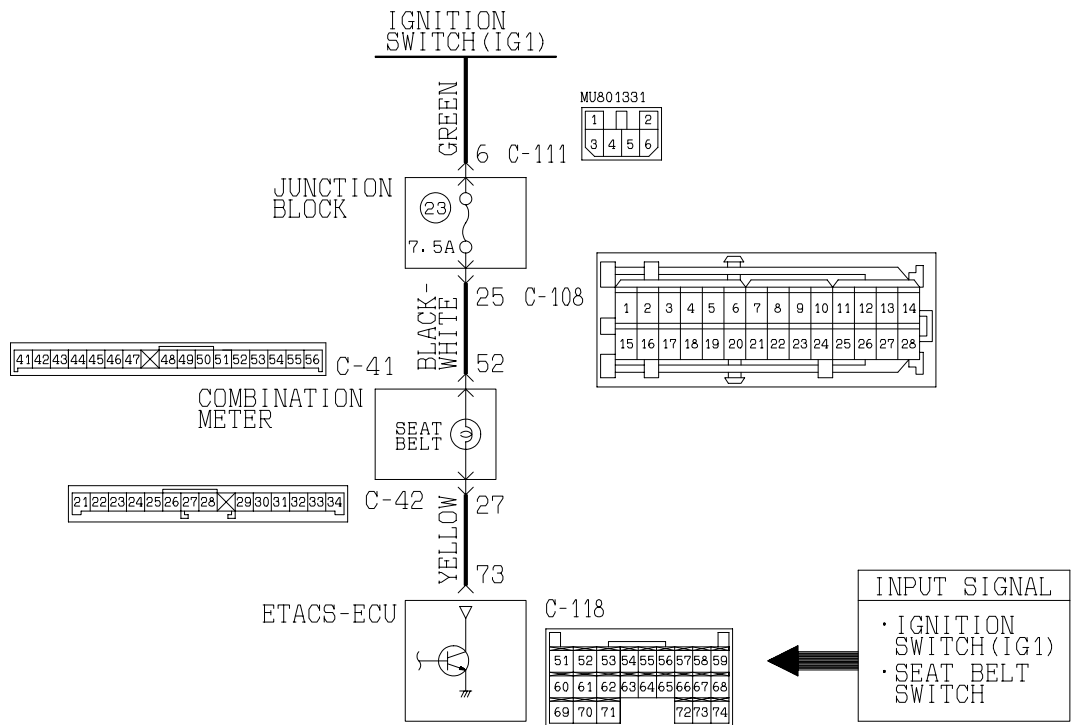


W3S01M02AA

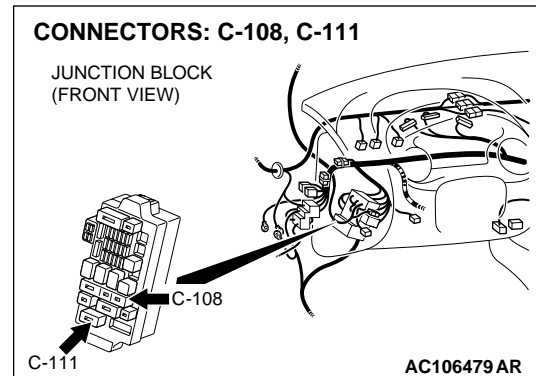
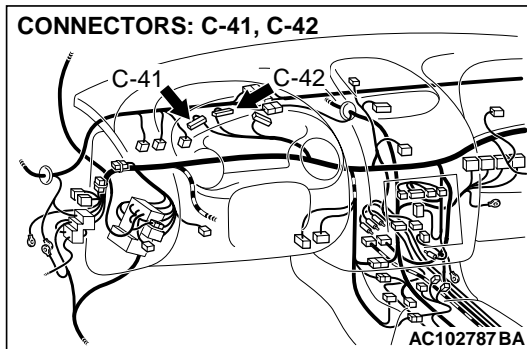
INSPECTION PROCEDURE I-1: Seat Belt Warning Light: Seat Belt Warning Light does not Work Normally.

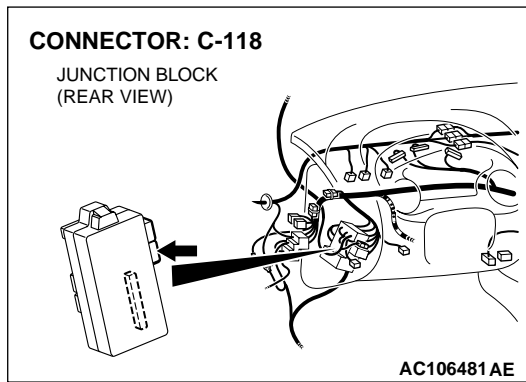
NOTE: This troubleshooting requires use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor P.54B-8."

Seat Belt Warning Light Circuit



W3S01M16AA





CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of driver's side seat belt switch
- Malfunction of combination meter (seat belt warning light bulb or printed-circuit board)
- Malfunction of the ETACS-ECU

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

⚠ CAUTION

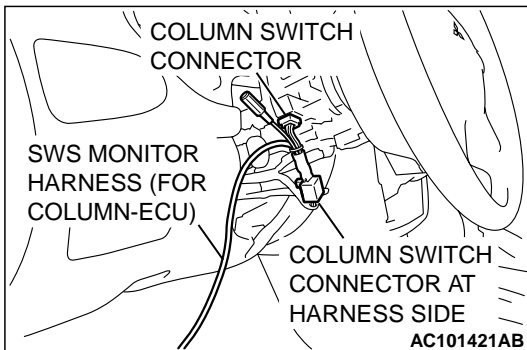
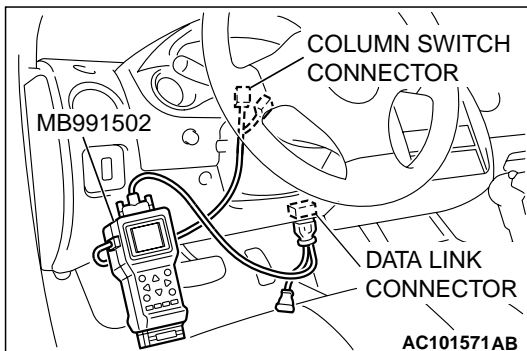
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

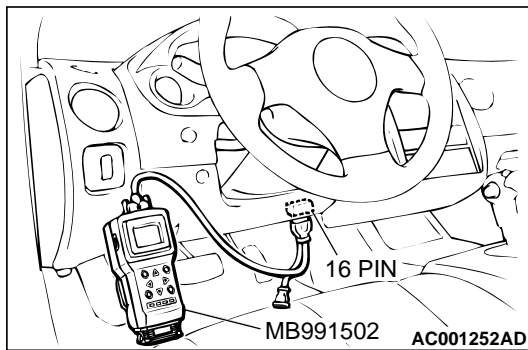
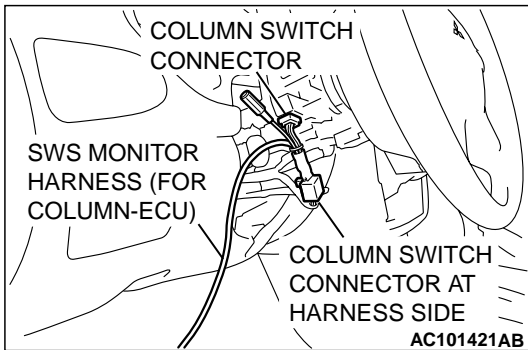
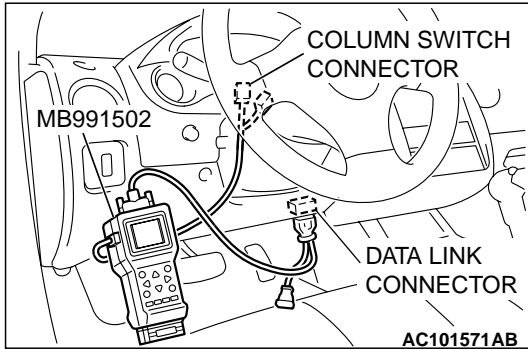
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) When the ignition switch is turned to the "ON" position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





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

Tun the ignition switch to the "ON" position before checking input signals from the ignition switch (IG1). Operate the MUT-II 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 CONDITIONS
ITEM No.30	IG SW (IG1)	ON

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

YES : Go to Step 3.

NO : Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54B-469.](#)"

STEP 3. Check the input signal (by using the Pulse Check).

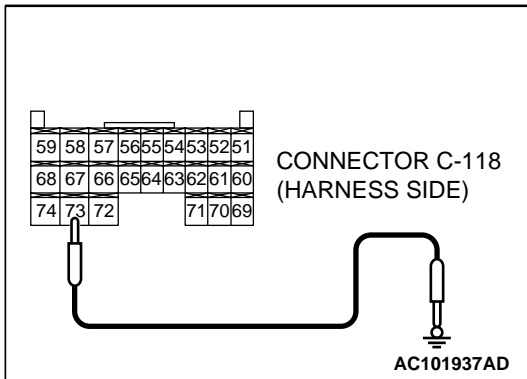
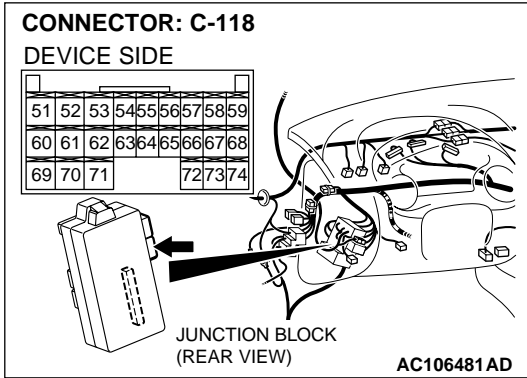
Check input signal from the driver's side seat belt switch. Operate the MUT-II according to the procedure below to display "PULSE CHECK."

1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- Check if scan tool MB991502 sounds or not.

Q: Does scan tool MB991502 sound when the driver's side seat belt is fastened?

YES : Go to Step 4.

NO : Refer to Inspection Procedure P-3 "ETACS-ECU does not receive a signal from the driver's side seat belt switch [P.54B-533.](#)"



STEP 4. Check at ETACS-ECU connector C-118 in order to check the ground circuit to the seat belt warning light.

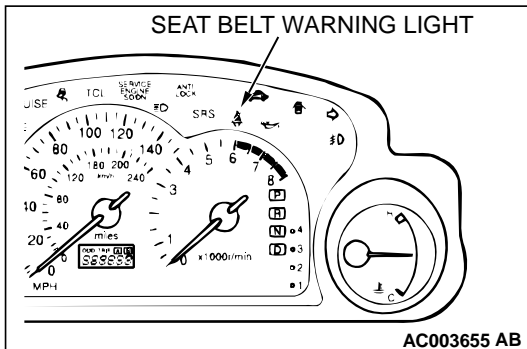
- (1) Disconnect ETACS-ECU connector C-118, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Connect terminal 73 to ground.

Q: Does the seat belt warning light illuminate?

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

NO : Go to Step 5.



STEP 5. Check the seat belt warning light bulb.

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

YES : Go to Step 6.

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

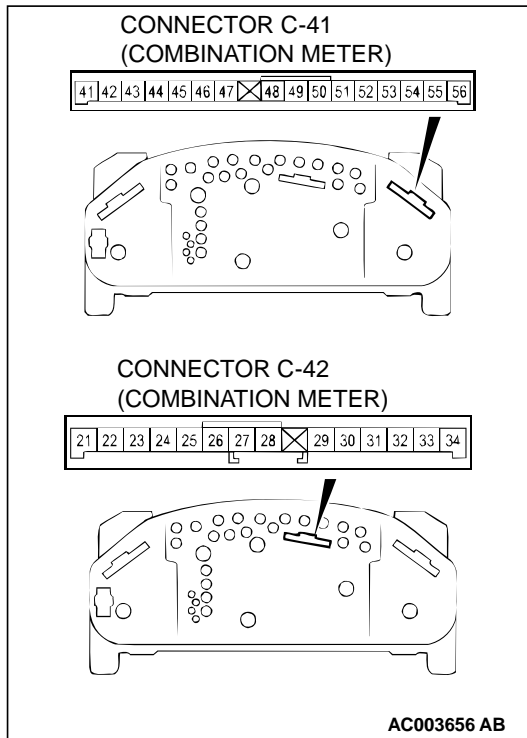
STEP 6. Check the combination meter (printed-circuit board).

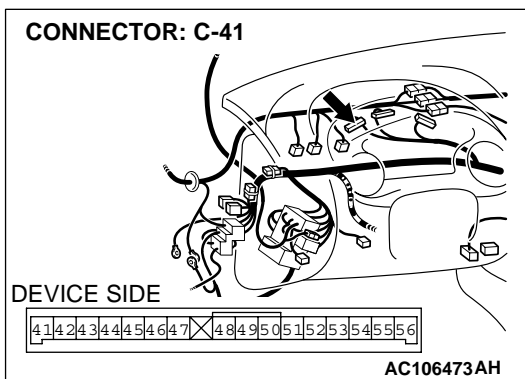
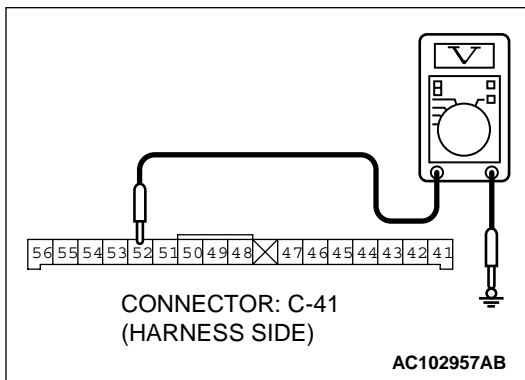
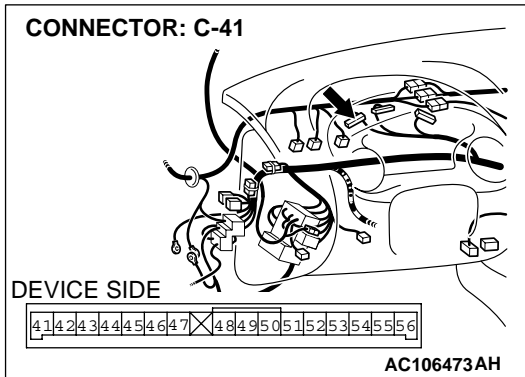
- (1) Remove the combination meter.
- (2) Remove the seat belt warning light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector C-41 terminal 52 and connector C-42 terminal 27. The measured resistance value should be roughly the same as the value measured in Step (2).

Q: Are these two resistance values extremely different?

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

NO (much the same) : Go to Step 7.





STEP 7. Measure at combination meter connector C-41 in order to check the ignition switch (IG1) line of the power supply to the combination meter.

- (1) Disconnect combination meter connector C-41, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 52 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 10.

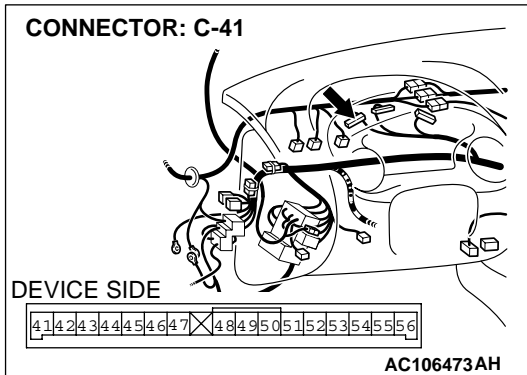
NO : Go to Step 8.

STEP 8. Check combination meter connector C-41 for damage.

Q: Is combination meter connector C-41 in good condition?

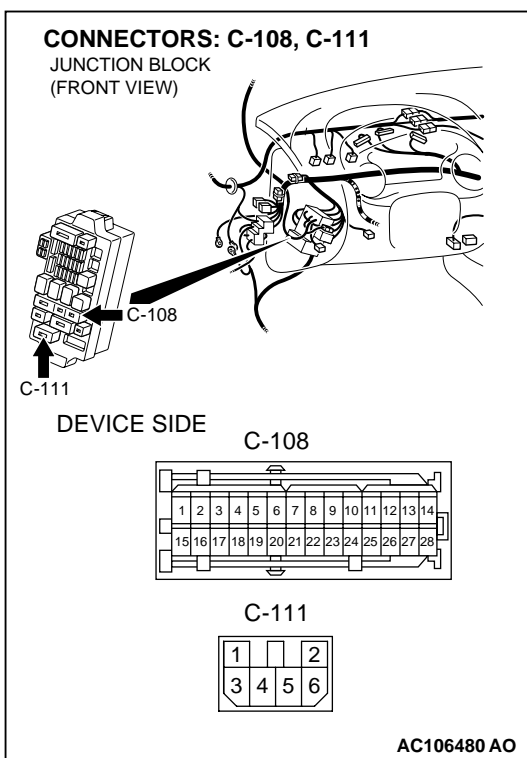
YES : Go to Step 9.

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



STEP 9. Check the wiring harness between combination meter connector C-41 (terminal 52) and the ignition switch (IG1).

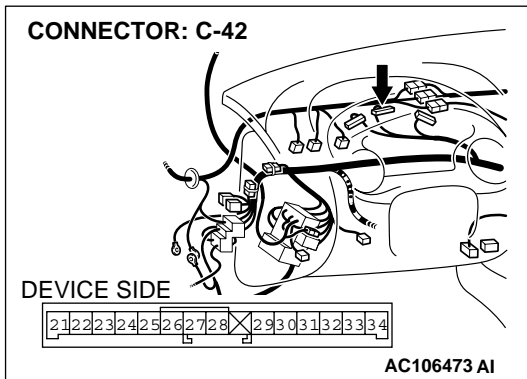
NOTE: Also check junction block connectors C-108 and C-111. If junction block connector C-108 or C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between combination meter connector C-41 (terminal 52) and the ignition switch (IG1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the seat belt warning light illuminates normally.

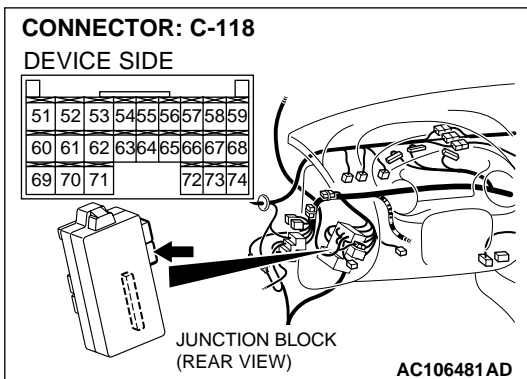


STEP 10. Check combination meter connector C-42 and ETACS-ECU connector C-118 for damage.

Q: Are combination meter connector C-42 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 11.

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

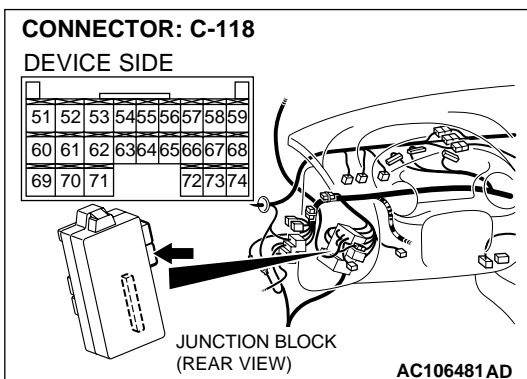
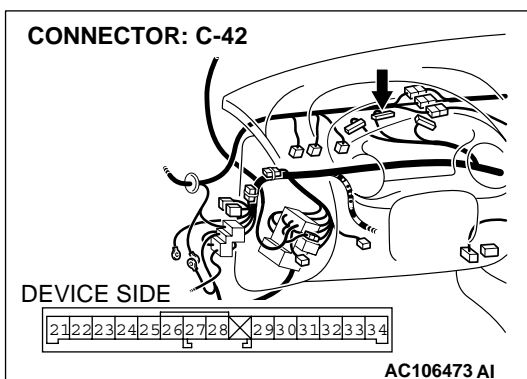


STEP 11. Check the wiring harness between combination meter connector C-42 (terminal 27) and ETACS-ECU connector C-118 (terminal 73).

Q: Is the wiring harness between combination meter connector C-42 (terminal 27) and ETACS-ECU connector C-118 (terminal 73) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the seat belt warning light illuminates normally.



HEADLIGHT AND TAILLIGHT

GENERAL DESCRIPTION CONCERNING HEADLIGHT AND TAILLIGHT

M1549021300015

The following ECUs affect the functions and control of the headlights and the taillights.

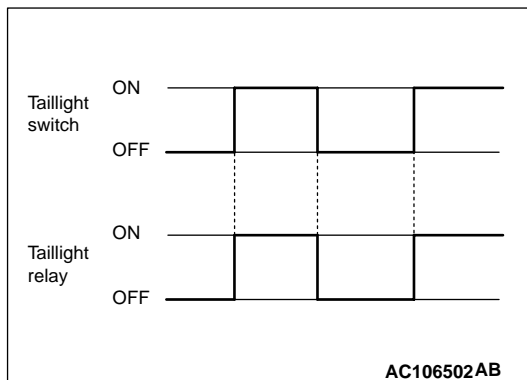
Functions	Control ECU
Taillight	Front ECU, column switch
Headlights and high-beam indicator light	ETACS-ECU, front ECU, column switch
Headlight automatic-shutdown function	ETACS-ECU, front ECU, column switch
Dimmer automatic reset function	Front ECU, column switch

Taillights and headlights illumination

Taillight

If the column switch sends a taillight switch "ON" signal to the front-ECU, the front-ECU turns on its taillight relay, causing the taillights to illuminate.

NOTE: This description covers the taillights only. In actual driving, the taillights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

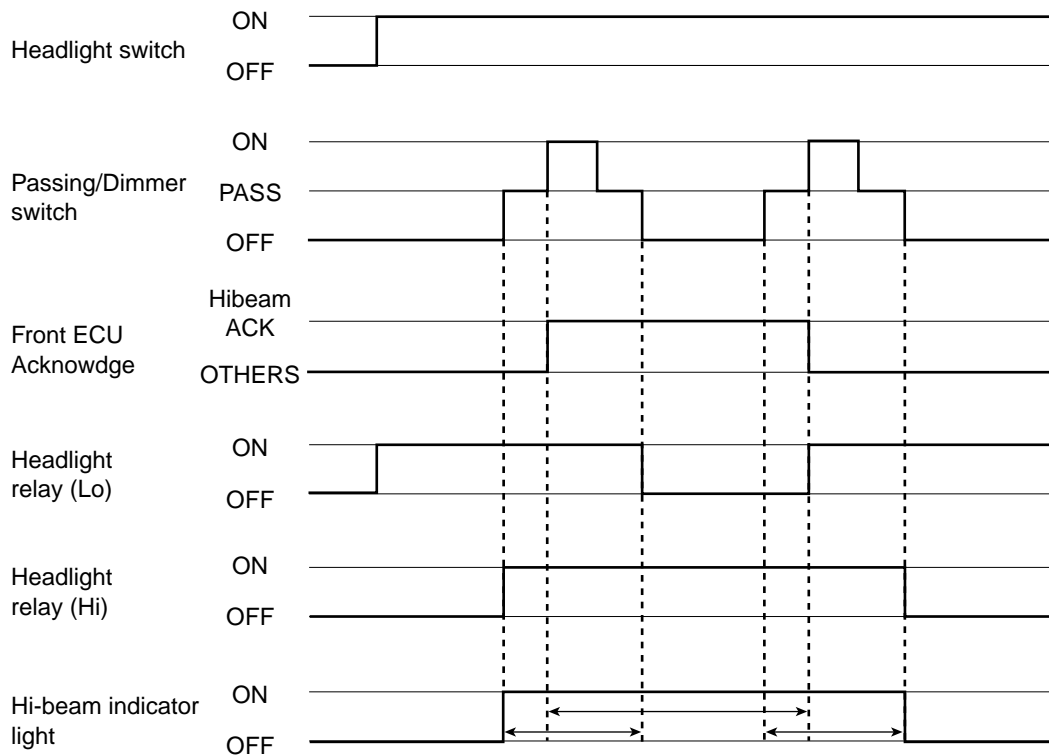


Headlights and high-beam indicator light

If the column switch sends a headlight switch "ON" signal to the front-ECU, the front-ECU turns on its headlight relay (LO), causing the low-beam headlights to illuminate. If the dimmer switch is turned on while the headlight relay (LO) is on, the front-ECU turns on the headlight relay (HI), causing the high-beam headlights to illuminate.

If the acknowledgement signal, which the front-ECU sends to the SWS communication line, turns to "HI-BEAM ACK", or the headlight switch signal, which the column switch (column-ECU) sends to the SWS communication line, turns to "PASSING", the ETACS-ECU will illuminate the high-beam indicator light.

NOTE: This description covers the headlights only. In actual driving, the headlights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.



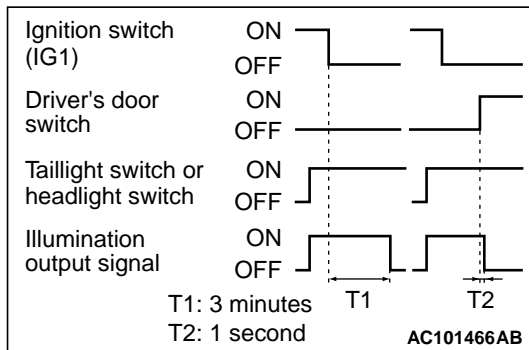
AC106816 AB

HEADLIGHT AUTOMATIC-SHUTDOWN FUNCTION

Even if the lighting switch (tail light switch or headlight switch) is ON, the head light (including the tail lights) will automatically go off in the following conditions to prevent the battery from discharging as a result of forgetting to turn off lights.

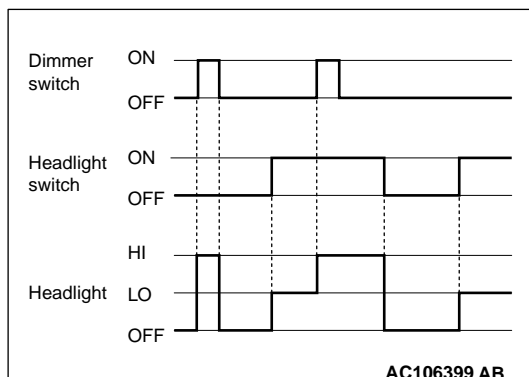
When the ignition key is turned from "ON" to "LOCK" (OFF) or "ACC" position with the lighting switch turned ON, and this state continues for three minutes, the light will automatically be turned off. If the driver's seat door is opened during these three minutes, the light will go off one second later.

NOTE: This function can be disabled by the configuration function (Refer to P.54B-627.)

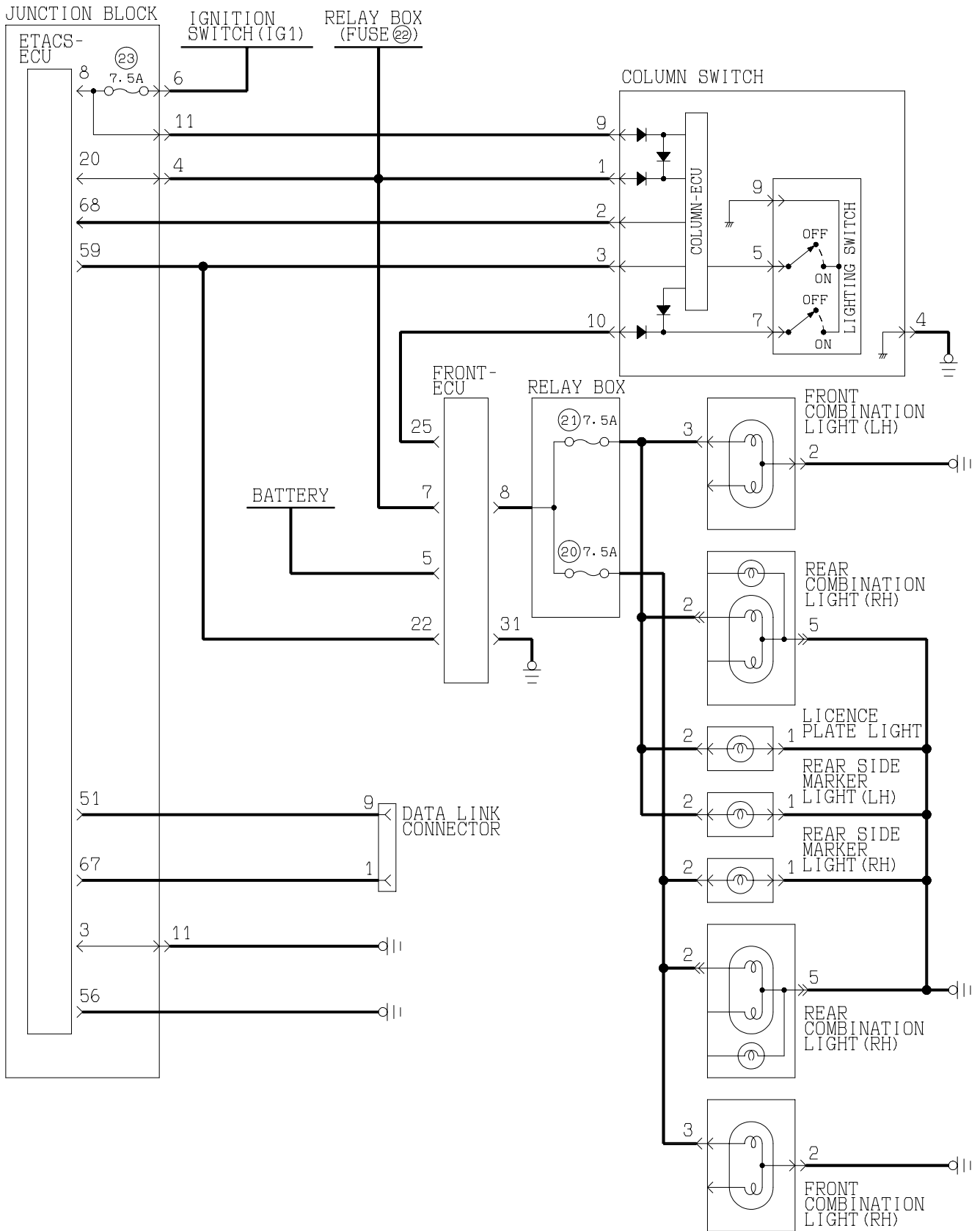


DIMMER AUTOMATIC RESET FUNCTION

If the headlight switch is turned off while the high-beam headlights are on, the dimmer switch will be reset. Because of this, the headlights will illuminate at low beam when they are turned on at next opportunity. The dimmer switch will be also reset if the dimmer switch is turned on unintentionally while the passing switch is operated.

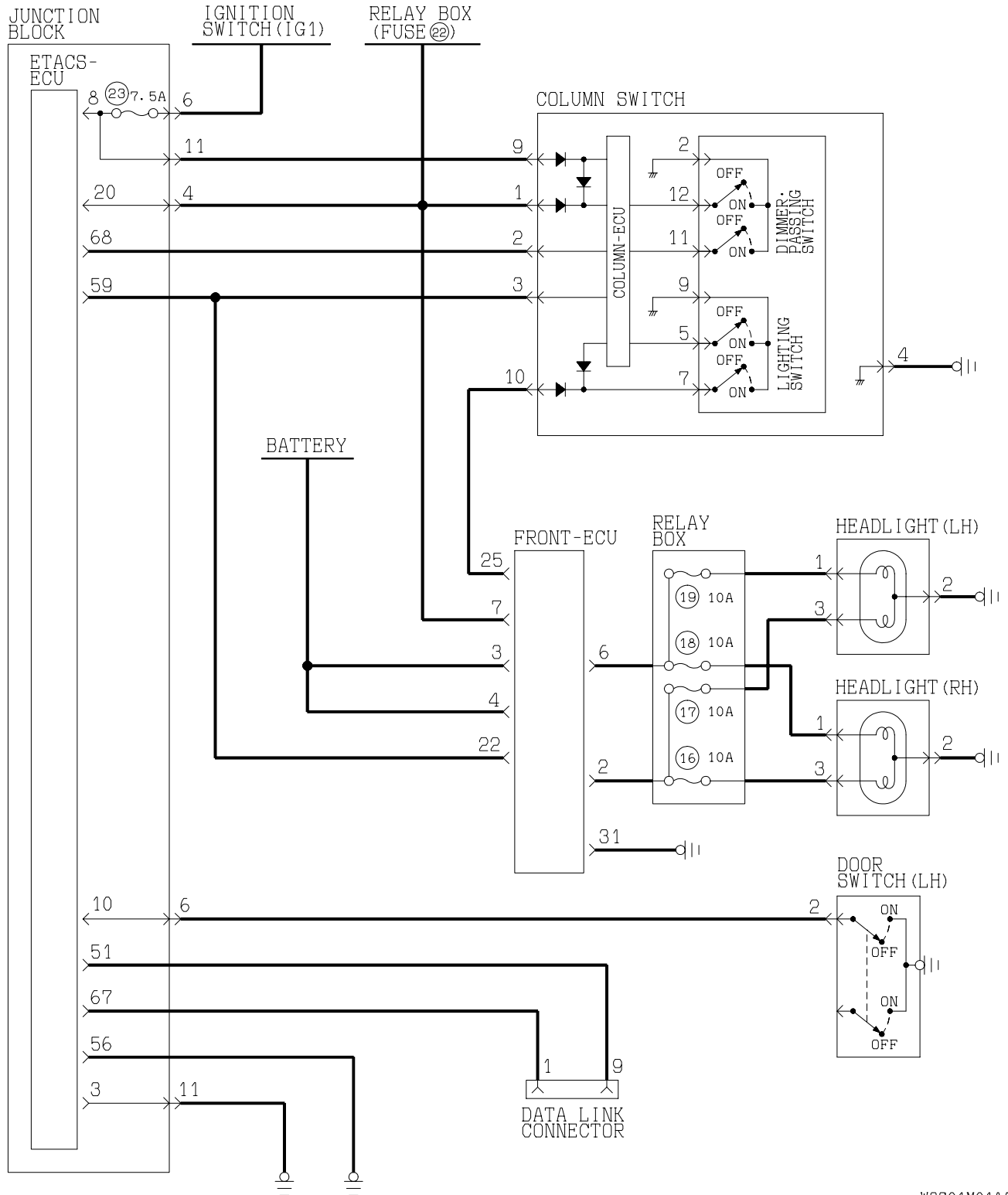


General circuit diagram for the taillights

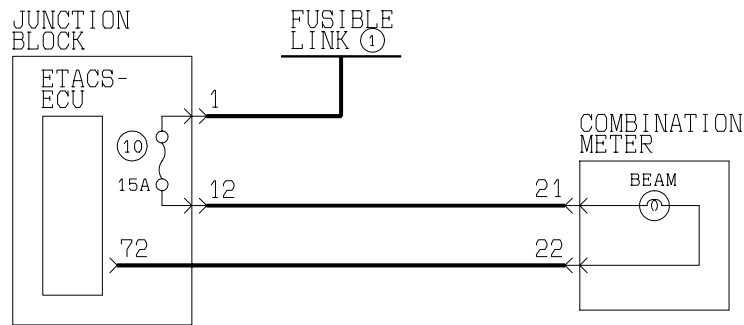


W3S01M05AA

General circuit diagram for the headlights



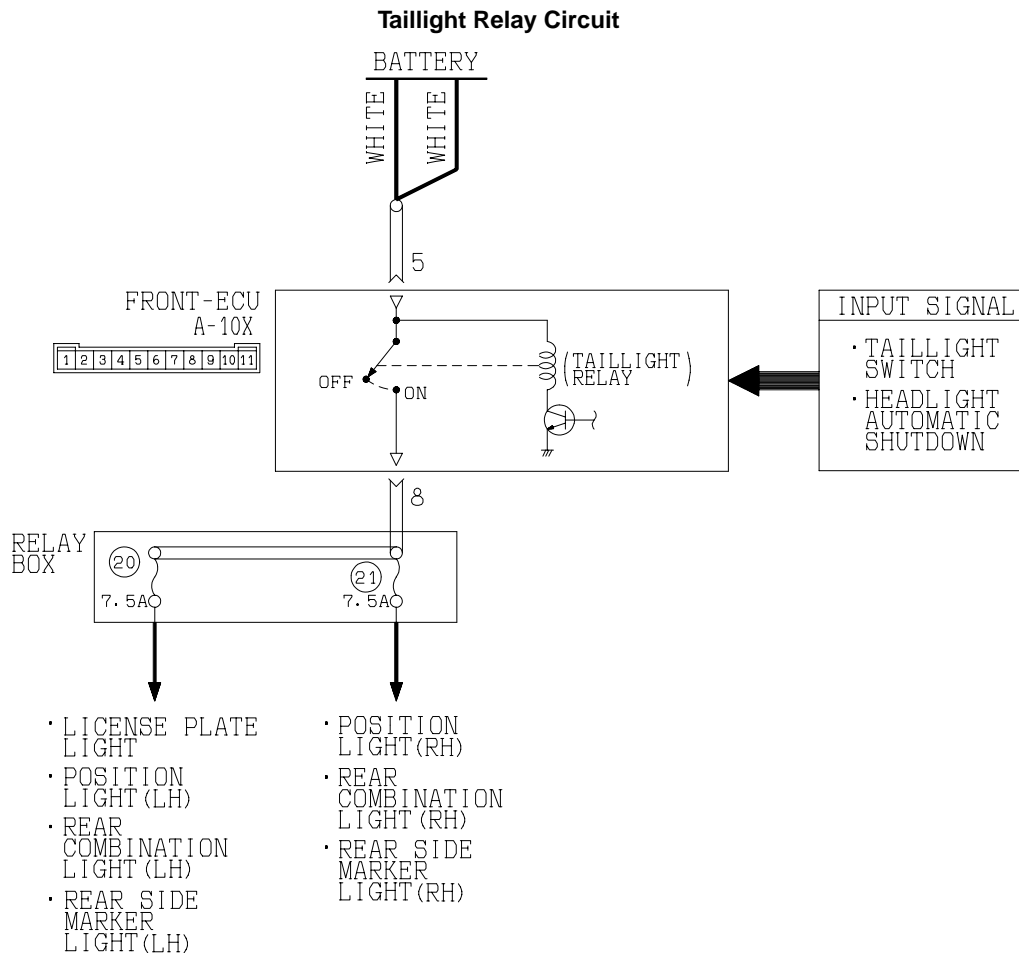
W3S01M01AA



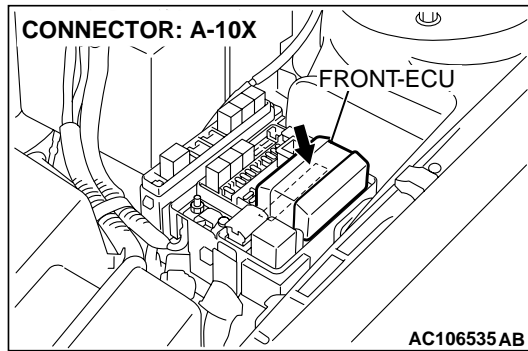
W3801M03AA

INSPECTION PROCEDURE J-1: Headlight, Tail Light : Tail Lights does not illuminate Normally.

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



W3803M07AA

**CIRCUIT OPERATION**

When the lighting switch is set to "TAIL" position, the "TAIL" signal is sent through the column-ECU (incorporated in the column switch) to the front-ECU. IF the front-ECU receives the "TAIL" signal through the column-ECU, the front-ECU turns on the tail light relay (incorporated in the front-ECU), thus causing the tail lights to illuminate.

TECHNICAL DESCRIPTION (COMMENT)

If the tail lights do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the column switch (tail light switch)
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- Column-ECU
- Front-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

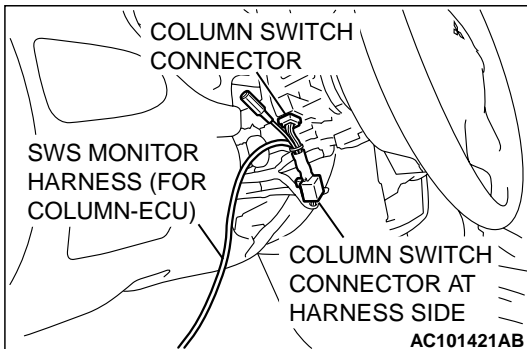
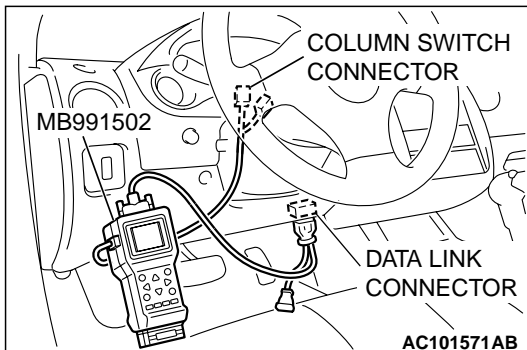
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

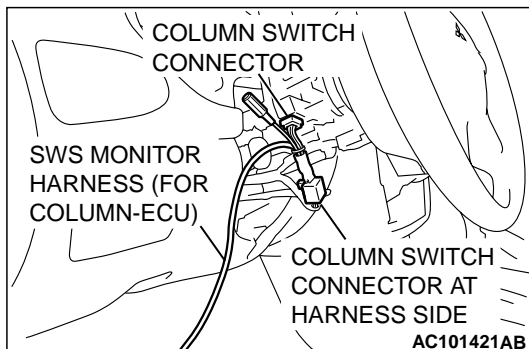
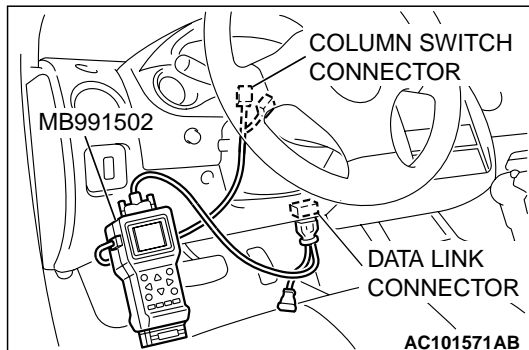
Q: Are "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-28."

"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible P.54B-46."





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

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: TAIL

NOTE: Turn the ignition switch to the "ON" position in order to disable the headlight automatic shutdown function.

Operate the MUT-II according to the procedure below to display "TAILLIGHT."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "TAILLIGHT."

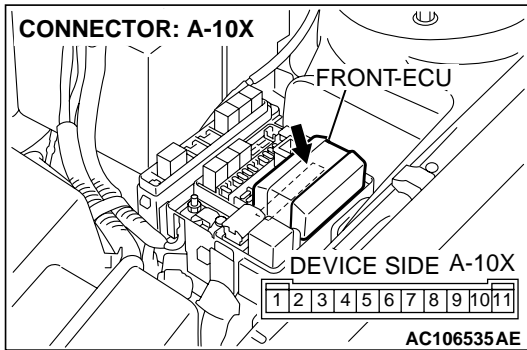
Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.01	TAILLIGHT SW	ON
ITEM No.35	H/L AUTO-CUT	OFF
ITEM No.70	FRONT ECU ACK	NORMAL ACK

Q: Does the scan tool display the items "TAILLIGHT SW", "H/L AUTO-CUT" and "FRONT ECU ACK" as normal condition?

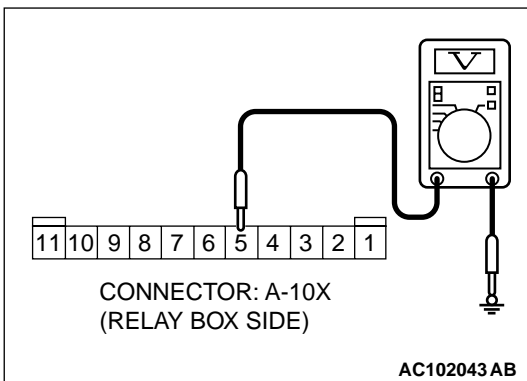
YES : Go to Step 3.

- NO :**
- The scan tool does not show the respective normal condition for item "TAILLIGHT SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the tail light switch [P.54B-511.](#)"
 - The scan tool does not show the respective normal condition for item "H/L AUTO-CUT." Refer to Inspection Procedure J-9 "The headlight automatic shutdown function does not work normally [P.54B-340.](#)"
 - The scan tool does not show the respective normal condition for item "FRONT ECU SW." Replace the front-ECU. Check that the tail lights illuminate normally.



STEP 3. Measure at front-ECU connector A-10X in order to check the battery circuit of power supply system to the front-ECU.

(1) Disconnect front-ECU connector A-10X, and measure at the relay box side.



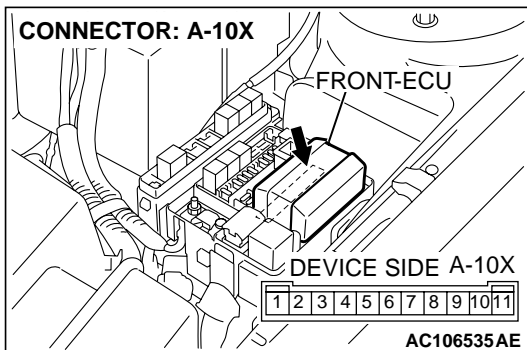
(2) Measure the voltage between terminal 5 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Replace the front-ECU. Check that the tail lights illuminate normally.

NO : Go to Step 4.

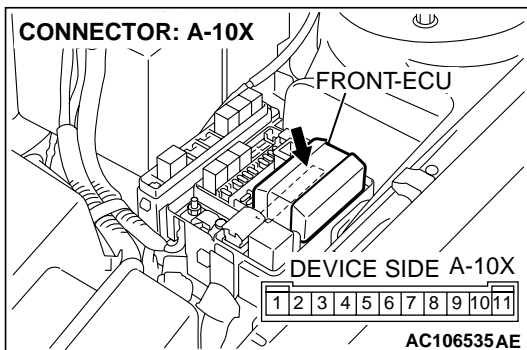


STEP 4. Check the front-ECU connector A-10X for damage.

Q: Is front-ECU connector A-10X in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the tail lights illuminate normally.



STEP 5. Check the wiring harness between front-ECU connector A-10X (terminal 5) and the battery.

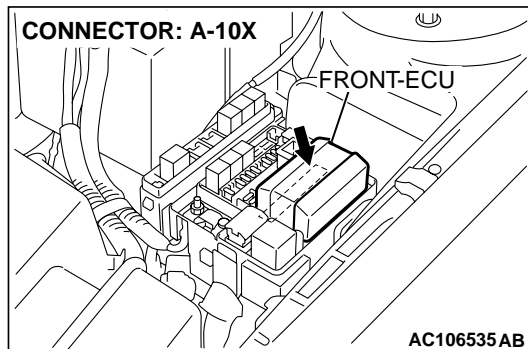
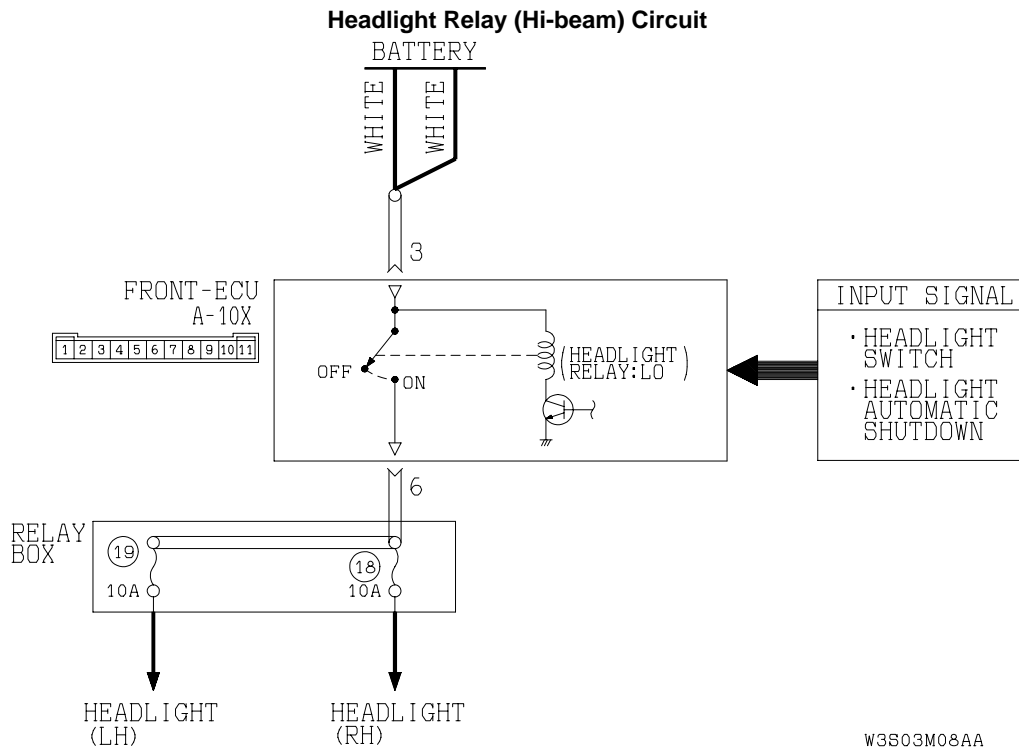
Q: Is the wiring harness between front-ECU connector A-10X (terminal 5) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the tail lights illuminate normally.

INSPECTION PROCEDURE J-2: Headlight, Tail Light: Headlights (Low-beam) do not Illuminate Normally.

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

**CIRCUIT OPERATION**

- When the lighting switch is set to "HEAD" position, the "HEAD" signal is sent through the column-ECU (incorporated in the column switch) to the front-ECU. IF the front-ECU receives the "HEAD" signal through the column-ECU, the front-ECU turns on the headlight relay (incorporated in the front-ECU), thus causing the headlights to illuminate. The headlights always illuminate at low-beam by the headlight dimmer switch automatic resetting function.

- If the SWS communication line is defective, the front-ECU operates the headlights by using the other communication lines (headlight backup circuit) instead of that line.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights (low-beam) do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of column switch (turn-signal light and lighting switch)

- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- Column-ECU
- Front-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

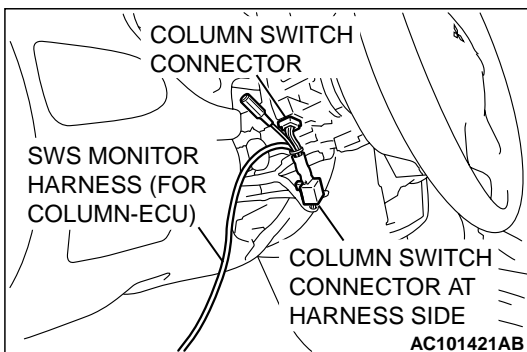
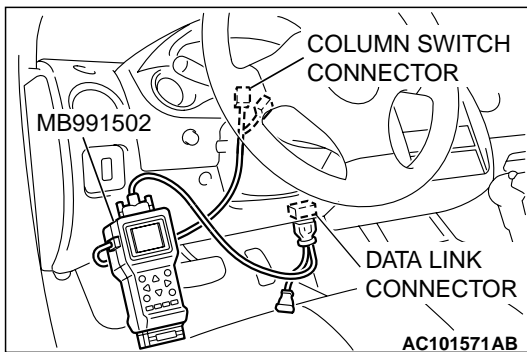
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

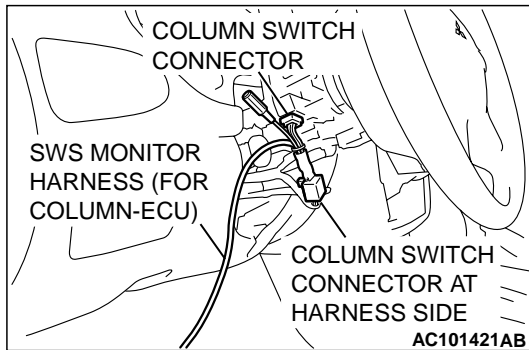
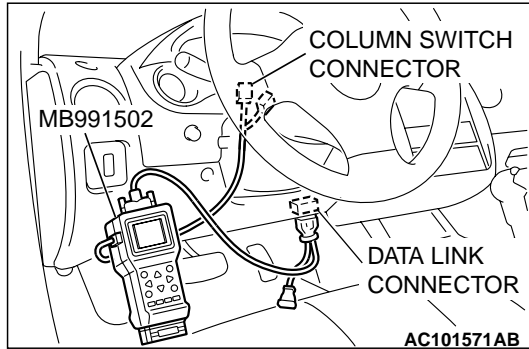
Q: Are "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-28."

"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible P.54B-46."





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

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: HEAD

Operate the MUT-II according to the procedure below to display "HEADLIGHT LO."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "HEADLIGHT LO."

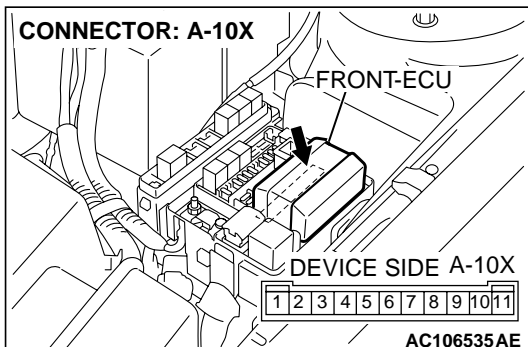
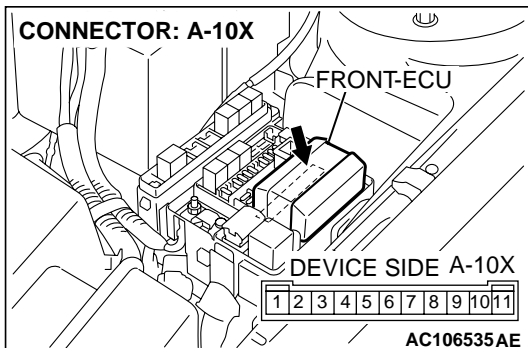
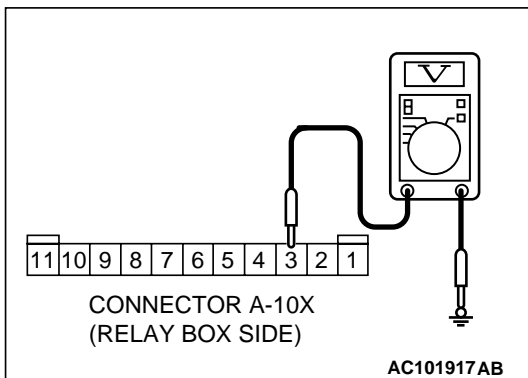
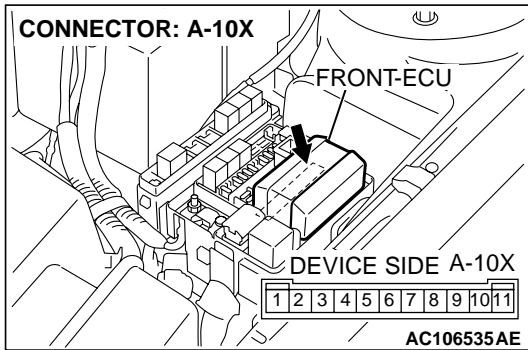
Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.00	HEADLIGHT SW	ON
ITEM No.35	H/L AUTO-CUT	OFF
ITEM No.70	FRONT ECU ACK	NORMAL ACK

Q: Does the scan tool display the items "HEADLIGHT SW", "H/L AUTO-CUT" and "FRONT ECU ACK" as normal condition?

YES : Go to Step 3.

- NO :**
- The scan tool does not show the respective normal condition for item "HEADLIGHT SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the headlight switch [P.54B-511.](#)"
 - 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-340.](#)"
 - The scan tool does not show the respective normal condition for item "FRONT ECU SW." Replace the ECU. Check that the headlights (low-beam) illuminate normally.



STEP 3. Measure at front-ECU connector A-10X in order to check the battery circuit of power supply system to the front-ECU.

(1) Disconnect front-ECU connector A-10X, and measure at the relay box side.

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

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

Q: Does the measured voltage correspond with this range?

YES : Replace the front-ECU. Check that the headlights (low-beam) illuminate normally.

NO : Go to Step 4.

STEP 4. Check the front-ECU connector A-10X for damage.

Q: Is front-ECU connector A-10X in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the headlights (low-beam) illuminate normally.

STEP 5. Check the wiring harness between front-ECU connector A-10X (terminal 3) and the battery.

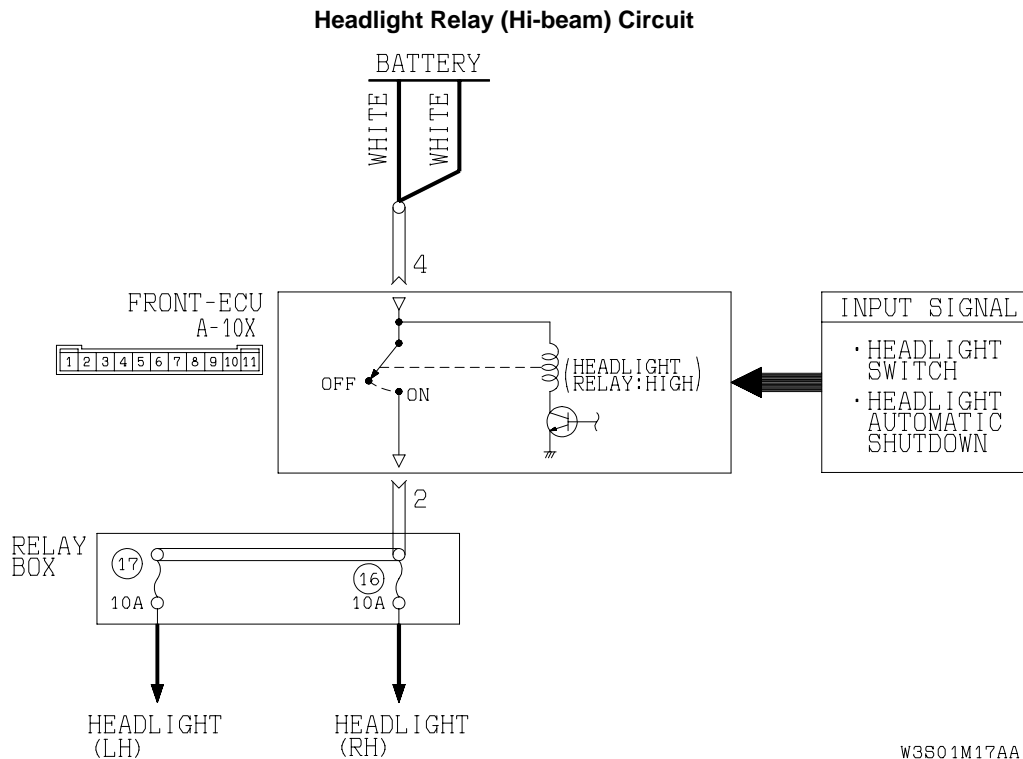
Q: Is the wiring harness between front-ECU connector A-10X (terminal 3) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights (low-beam) illuminate normally.

INSPECTION PROCEDURE J-3: Headlight, Tail Light: Headlights (High-beam) do not Illuminate Normally.

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

**CIRCUIT OPERATION**

When the dimmer switch is turned on, the column switch sends a signal to the front-ECU. Then the front-ECU switches the headlights from low-beam to high beam or vice versa.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights (high beam) do not illuminate normally, the column switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of column switch (turn-signal light and lighting switch)
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the following ECUs:

- Column-ECU
- Front-ECU

CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

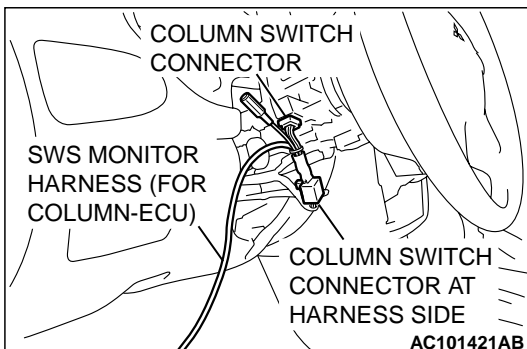
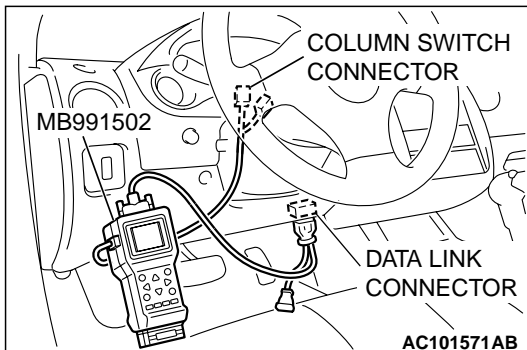
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."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

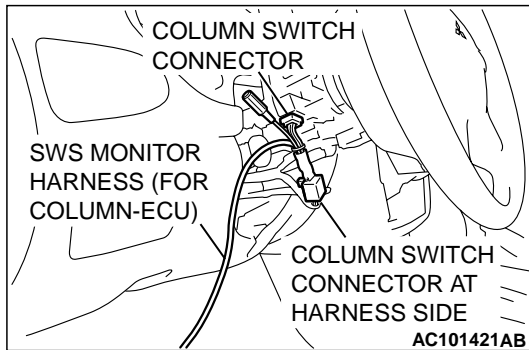
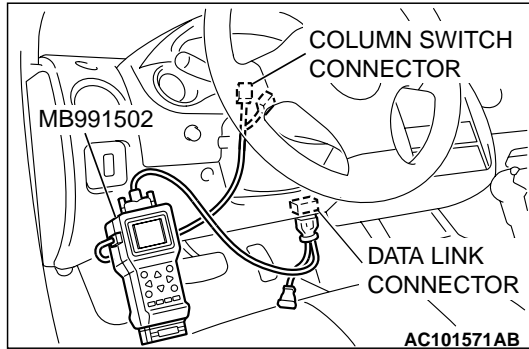
Q: Are "OK" displayed on the "COLUMN ECU" and "FRONT ECU" menu?

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

"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-28."

"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible P.54B-46."





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

Check the input signals from the following switches:

- Ignition switch: ON
- Lighting switch: HEAD
- Dimmer switch: ON

Operate the MUT-II according to the procedure below to display "HEADLIGHT HI."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "LIGHTING."
6. Select "HEADLIGHT HI."

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

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.00	HEADLIGHT SW	ON
ITEM No.02	DIMMER SW	OFF (should turn "ON" momentarily when the dimmer switch is operated)
ITEM No.35	H/L AUTO-CUT	OFF
ITEM No.70	FRONT ECU ACK	HI-BEAM ACK

Q: Does the scan tool display the items "HEADLIGHT SW", "DIMMER SW", "H/L AUTO-CUT" and "FRONT ECU ACK" as normal condition?

YES : Replace the front-ECU. Check that the headlights (high beam) illuminate normally.

- NO :**
- The scan tool does not show the respective normal condition for item "HEADLIGHT SW." Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the headlight switch [P.54B-511.](#)"
 - The scan tool does not show the respective normal condition for item "DIMMER SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the dimmer switch [P.54B-511.](#)"
 - 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-340.](#)"

- The scan tool does not show the respective normal condition for item "FRONT ECU SW."
Replace the front-ECU. Check that the headlights (high beam) illuminate normally.

INSPECTION PROCEDURE J-4: Headlight, Tail Light: When the Passing Switch is Turned "ON", the Headlights (Low-beam or High-beam) do not Illuminate.

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

TECHNICAL DESCRIPTION (COMMENT)

If both of the headlights (low-beam and high-beam) do not illuminate, the input circuit from the passing switch or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the headlights.

Q: Do the headlights (low-beam and high-beam) illuminate normally?

YES : Go to Step 2.

- NO :**
- Headlights (low-beam) do not illuminate normally:
Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate normally P.54B-270."
 - Headlights (high-beam) do not illuminate normally:
Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate normally P.54B-274."

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

Tun the passing switch to the "ON" position before checking input signals from the passing switch.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

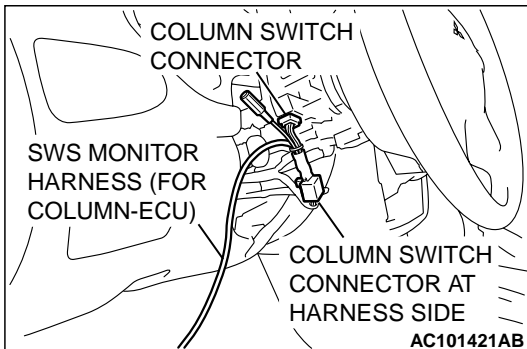
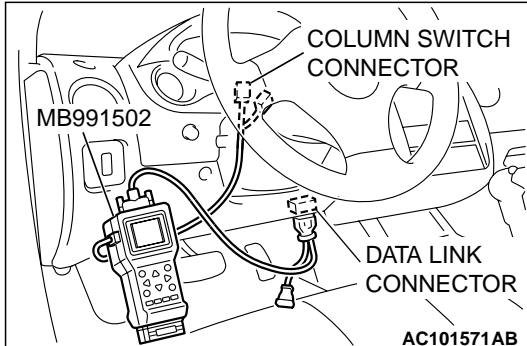
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "COLUMN ECU."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "DATA LIST."
 5. Select "COLUMN ECU."
- (4) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.03	PASSING SW	ON

Q: Does the scan tool display "PASSING SW" as normal condition?

YES : Replace the front-ECU. When the passing switch is turned "ON", the headlights (low-beam and high-beam) should illuminate normally.

NO : Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the passing switch P.54B-511."



INSPECTION PROCEDURE J-5: Headlight, Tail Light: Headlights do not illuminate When the Lighting Switch is at "AUTO," "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.

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

TECHNICAL DESCRIPTION (COMMENT)

If the headlights illuminate at low-beam regardless of the lighting switch positions, the headlight operation is in fail-safe mode.

TROUBLESHOOTING HINTS

- Malfunction of the column switch
- Malfunction of the front-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991223: Scan Tool (MUT-II)
- MB991223: SWS Monitor Kit

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

Check the following ECUs:

- ETACS-ECU
- Column-ECU
- Front-ECU

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

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

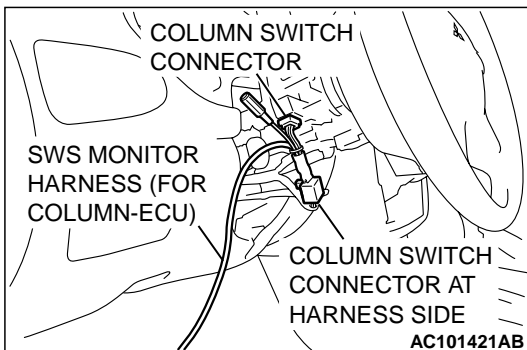
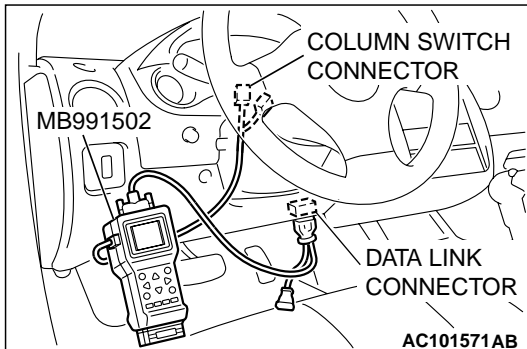
Q: Are "OK" displayed on the "ETACS ECU", "COLUMN ECU" and "FRONT ECU" menus?

"OK" are displayed for all the items : Replace the front-ECU. Check that the headlights and the tail lights illuminate normally.

"NG" is displayed on the "ETACS ECU" menu : "NG" is displayed on the "ETACS ECU" menu: Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."

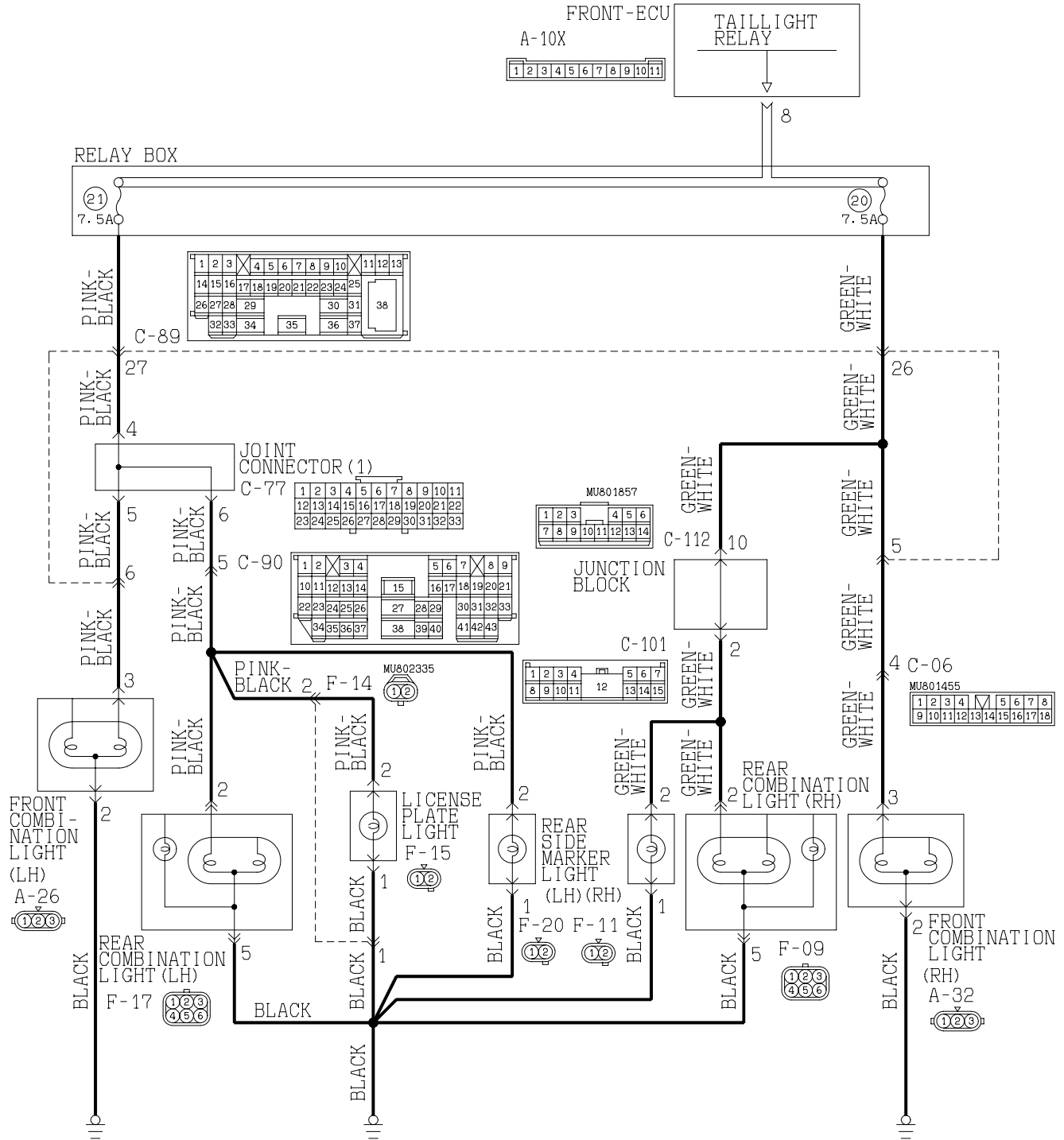
"NG" is displayed on the "COLUMN ECU" menu : "NG" is displayed on the "COLUMN ECU" menu: Refer to Inspection Procedure A-2 "Communication with column switch (column-ECU) is impossible P.54B-28."

"NG" is displayed on the "FRONT ECU" menu : "NG" is displayed on the "FRONT ECU" menu: Refer to Inspection procedure A-4 "Communication with front-ECU is impossible P.54B-46."

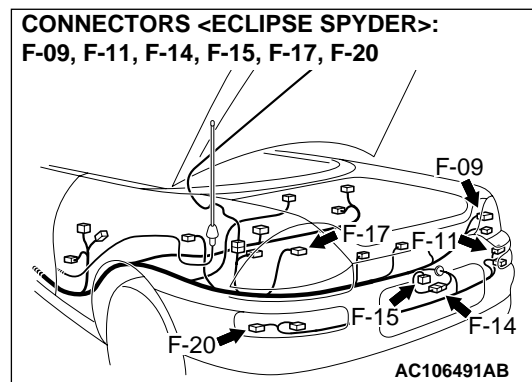
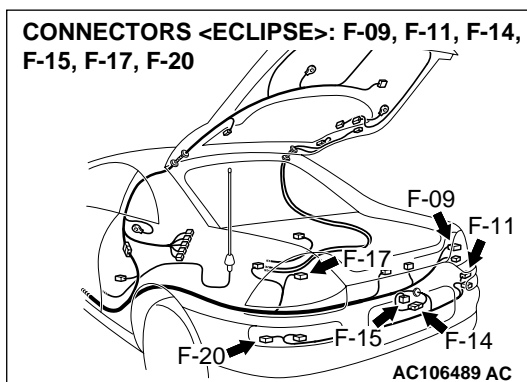
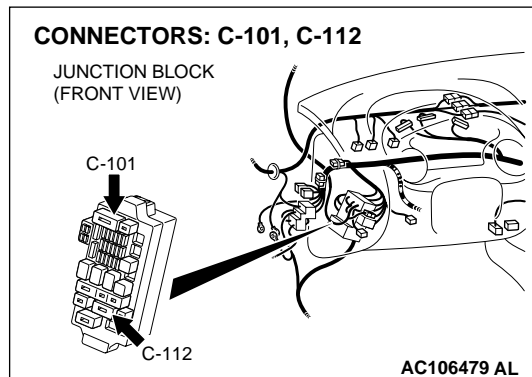
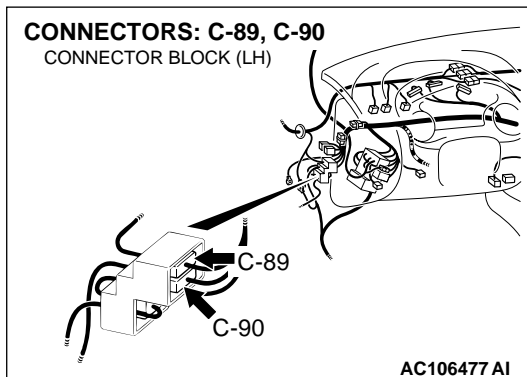
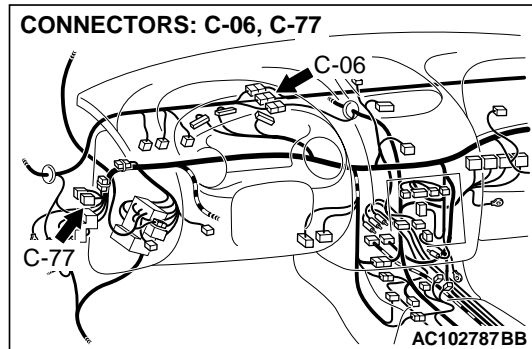
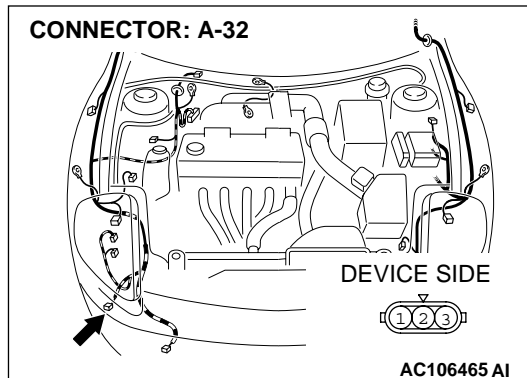
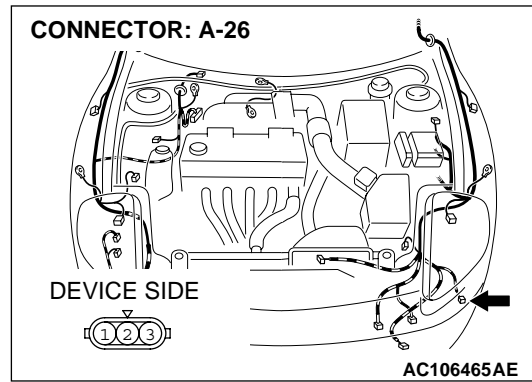
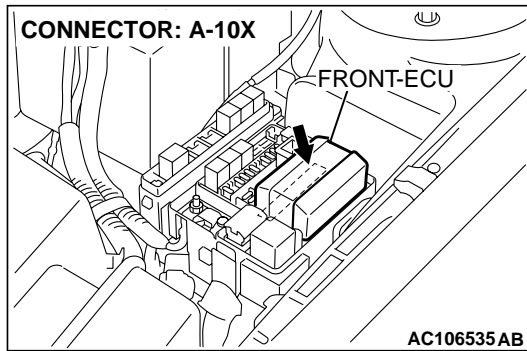


INSPECTION PROCEDURE J-6: Headlight, Tail Light: Tail Lights, the Position Lights, the Side Marker Light or the License Plate Lights do not Illuminate.

Tailights, Position Lights and License Plate Lights Circuit



W3S01M18AA



TECHNICAL DESCRIPTION (COMMENT)

If the position lights, the tail lights, the side marker lights or the license plate lights do not illuminate, their bulb may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the position light bulb
- Malfunction of the stop/tail light bulb
- Malfunction of the side marker light bulb
- Malfunction of the license plate light bulb
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set

STEP1. Check the operation of each light.**Q: Which light does not illuminate?**

position light (LH), tail lights (LH), side marker light (LH) and license plate light : Go to Step 2.

position light (RH), tail lights (RH) and side marker light (RH) : Go to Step 4.

tail lights, side marker lights and license plate light : Go to Step 6.

tail lights (LH), side marker light (LH) and license plate light : Go to Step 8.

tail lights (RH) and side marker light (RH) : Go to Step 10.

position light (LH) : Go to Step 12.

position light (RH) : Go to Step 18.

tail light (LH) : Go to Step 24.

tail light (RH) : Go to Step 30.

rear side marker light (LH) : Go to Step 36.

rear side marker light (RH) : Go to Step 42.

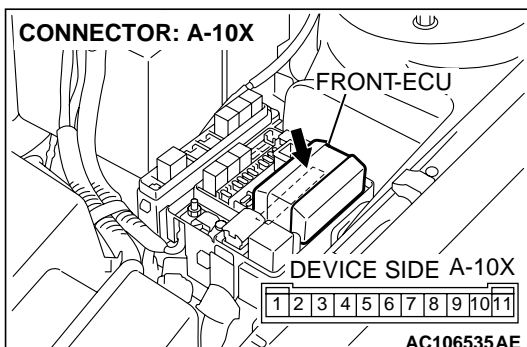
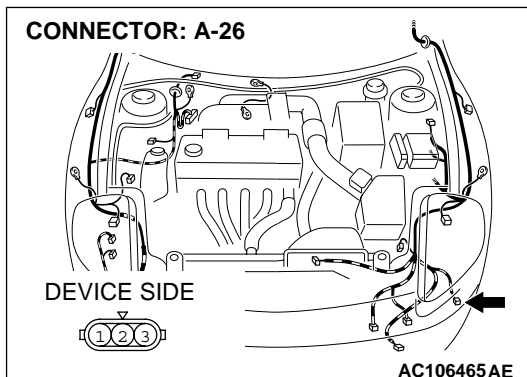
license plate light : Go to Step 48.

All lights : Refer to Inspection Procedure L-1 "Tail lights do not illuminate [P.54B-265](#)."

STEP 2. Check front combination light (LH) connector A-26 and front-ECU connector A-10X for damage.**Q: Are front combination light (LH) connector A-26 and front-ECU connector A-10X in good condition?**

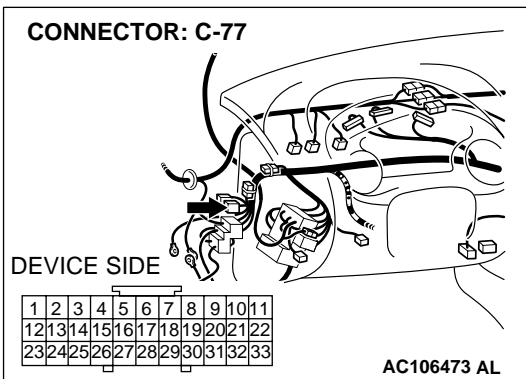
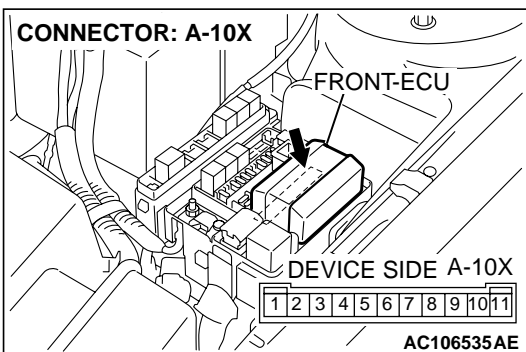
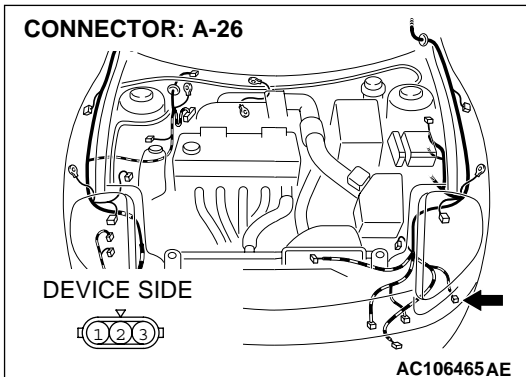
YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The position light (LH), the tail light (LH), the side marker light (LH) and the license plate lights should illuminate normally.



STEP 3. Check the wiring harness between front combination light (LH) connector A-26 (terminal 3) and front-ECU connector A-10X (terminal 8).

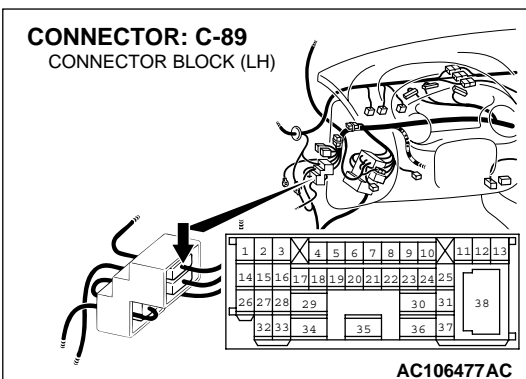
NOTE: Also check joint connector C-77 and intermediate connector C-89. If joint connector C-77 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection [P.00E-2](#).

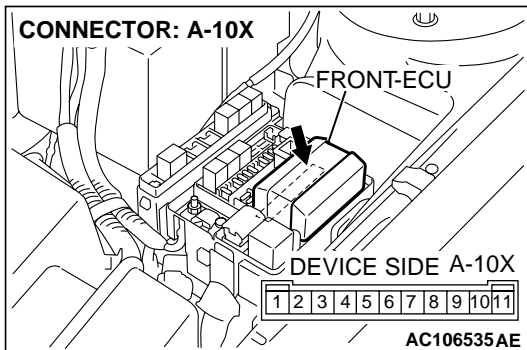
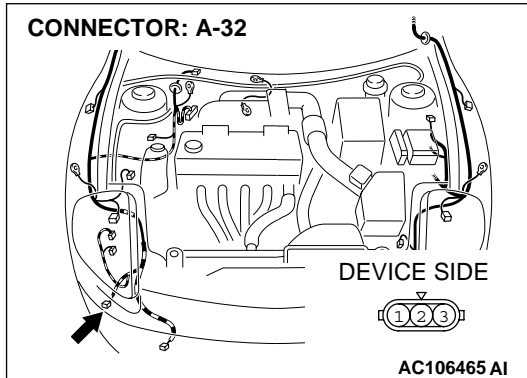


Q: Is the wiring harness between front combination light (LH) connector A-26 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The position light (LH), the tail light (LH), the side marker light (LH) and the license plate lights should illuminate normally.





STEP 4. Check position light (RH) connector A-32 and front-ECU connector A-10X for damage.

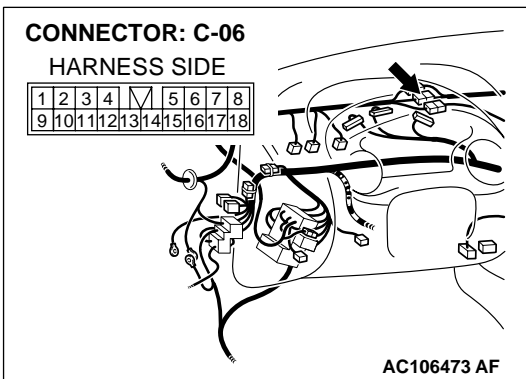
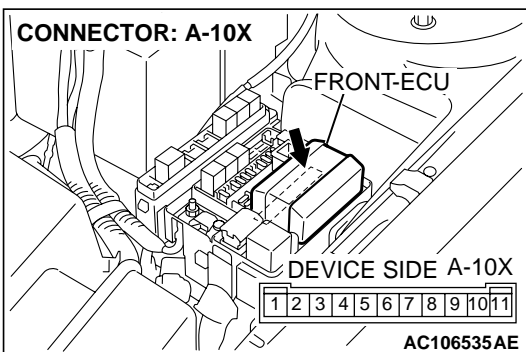
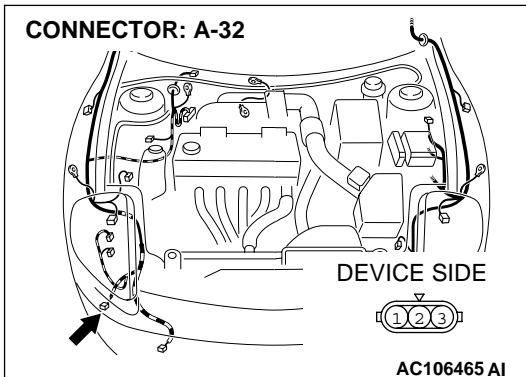
Q: Are position light (RH) connector A-32 and front-ECU connector A-10X in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The position light (RH), the tail light (RH), and the side marker light (RH) should illuminate normally.

STEP 5. Check the wiring harness between position light (RH) connector A-32 (terminal 3) and front-ECU connector A-10X (terminal 8).

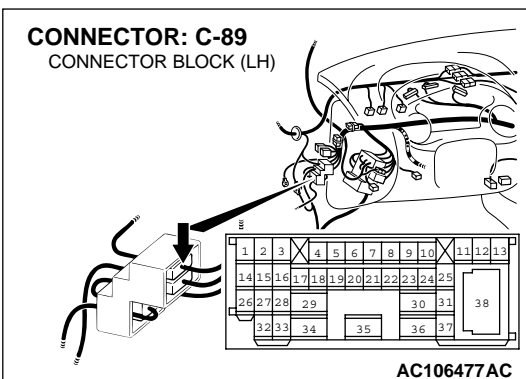
NOTE: Also check intermediate connectors C-06 and C-89. If intermediate connector C-06 or C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.

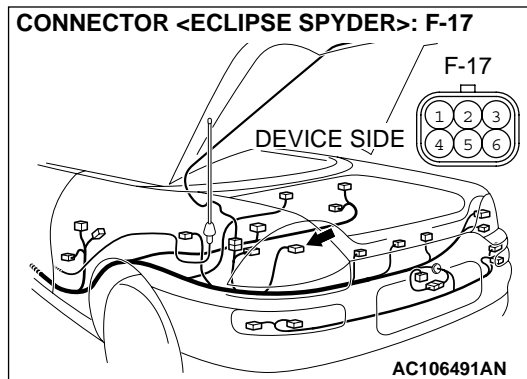
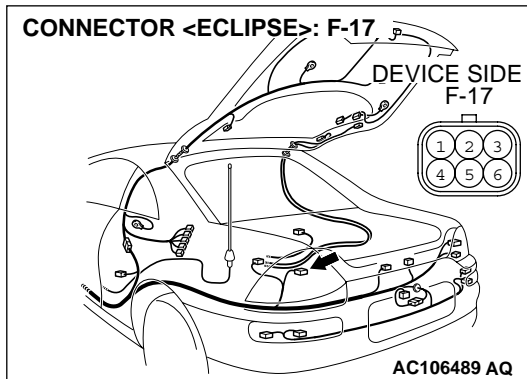


Q: Is the wiring harness between position light (RH) connector A-32 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The position light (RH), the tail light (RH), and the side marker light (RH) should illuminate normally.



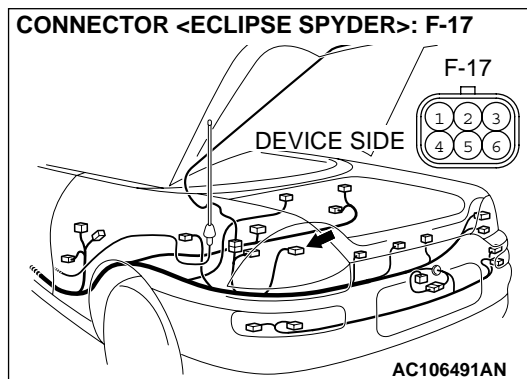
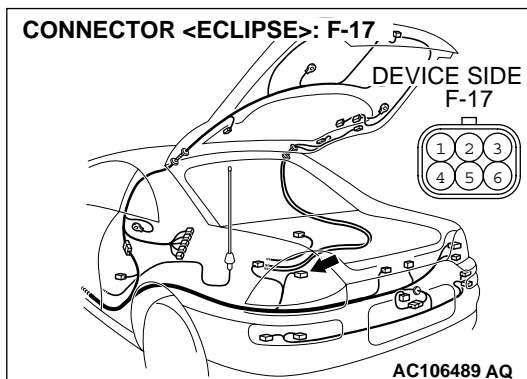


STEP 6. Check rear combination light (LH) connector F-17 for damage.

Q: Are rear combination light (LH) connector F-17 in good condition?

YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The tail light (LH), side marker light (LH) and the license plate lights should illuminate normally.



STEP 7. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground in good condition?

YES : No action to be taken.

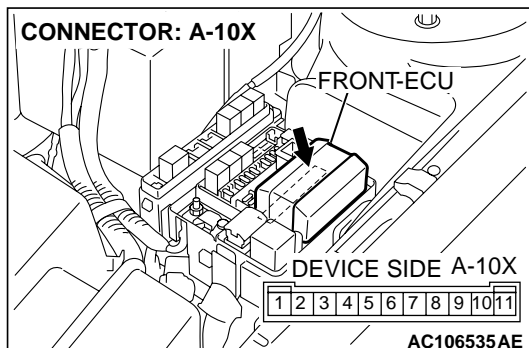
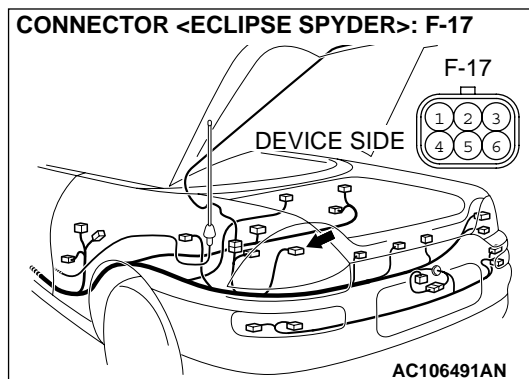
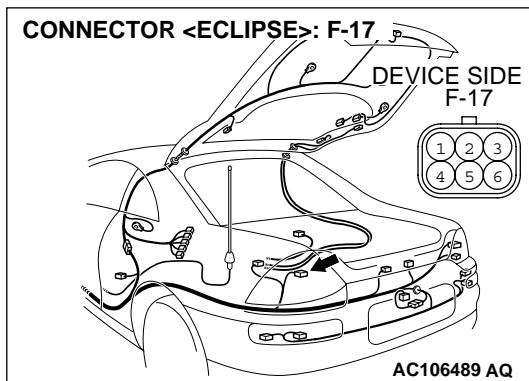
NO : Repair the wiring harness. The tail light (LH), side marker light (LH) and the license plate lights should illuminate normally.

STEP 8. Check rear combination light (LH) connector F-17 and front-ECU connector A-10X for damage.

Q: Are rear combination light (LH) connector F-17 and front-ECU connector A-10X in good condition?

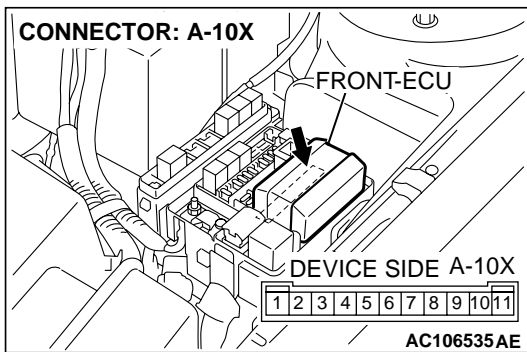
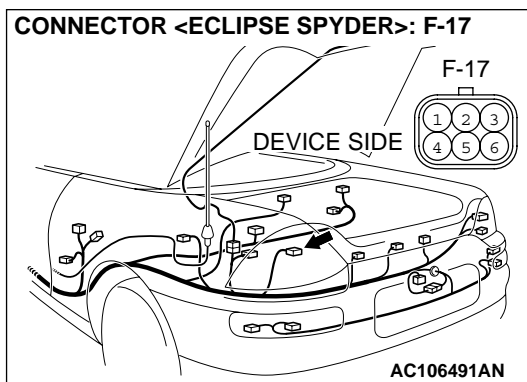
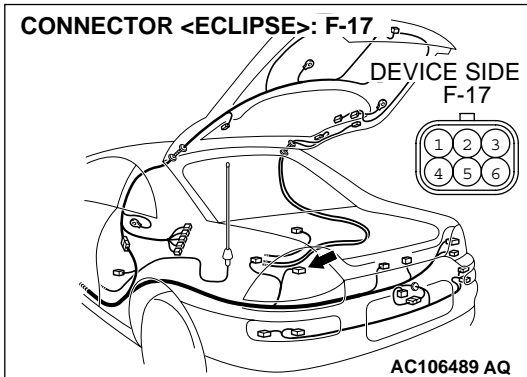
YES : Go to Step 9.

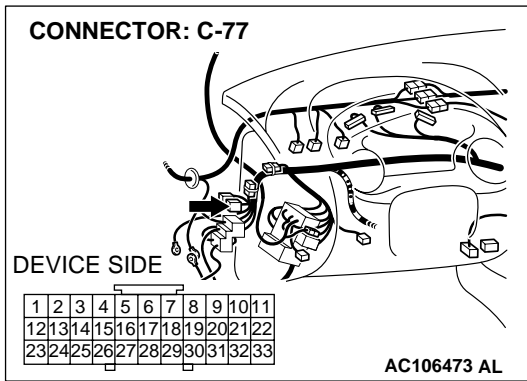
NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The tail light (LH), side marker light (LH) and the license plate lights should illuminate normally.



STEP 9. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check joint connector C-77 and intermediate connectors C-89 or C-90. If joint connector C-77 or intermediate connectors C-89 and C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.

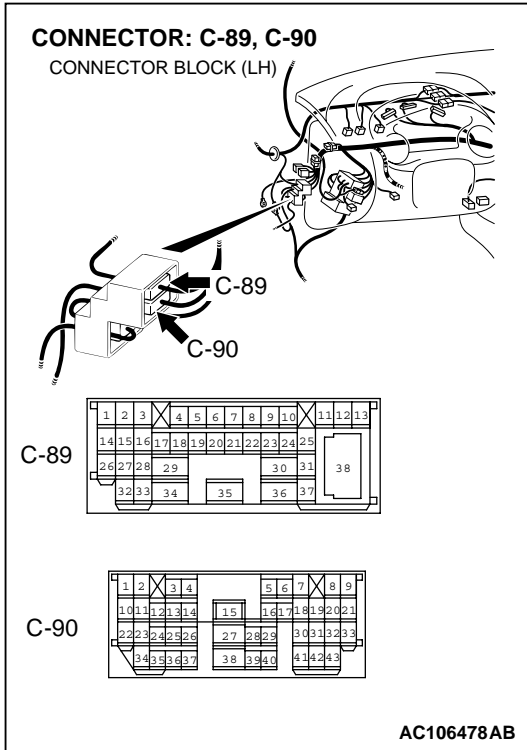


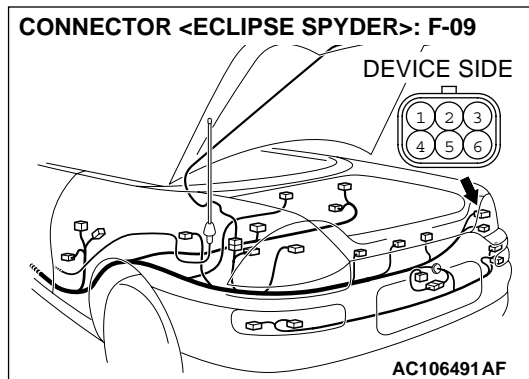
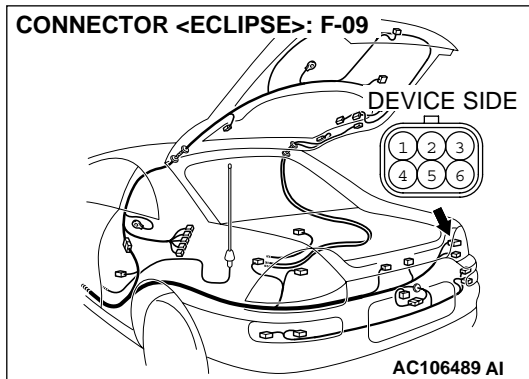


Q: Is the wiring harness between rear combination light (LH) connector F-17 and front-ECU connector A-10X in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The tail light (LH), side marker light (LH) and the license plate lights should illuminate normally.





STEP 10. Check rear combination light (RH) connector F-09 and ground for damage.

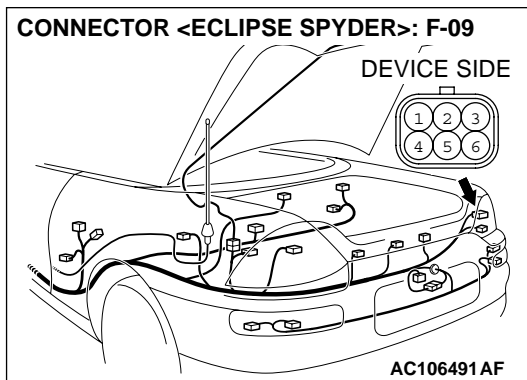
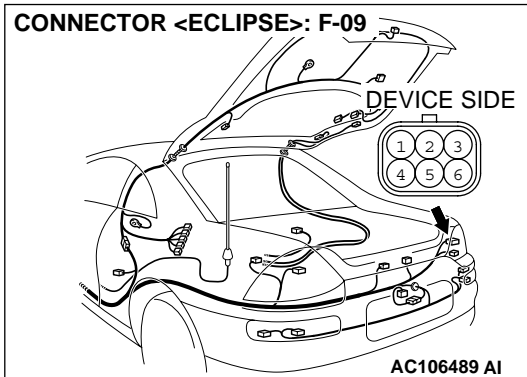
Q: Are rear combination light (RH) connector F-09 and ground in good condition?

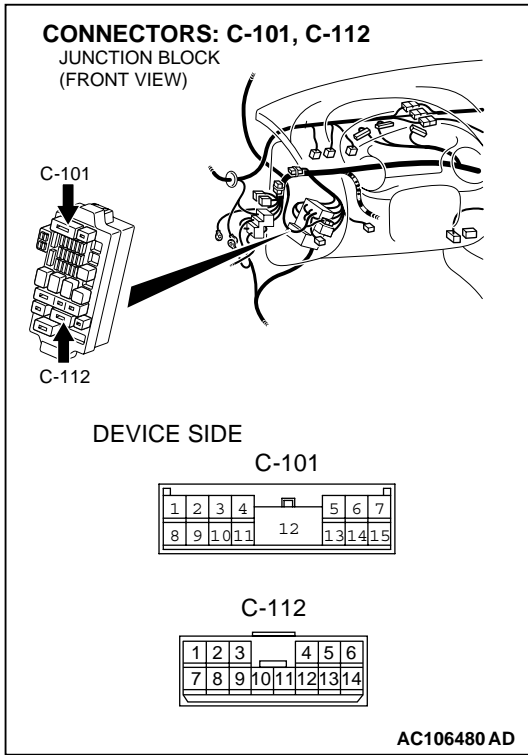
YES : Go to Step 11.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The tail light (RH) and the side marker light (RH) should illuminate normally.

STEP 11. Check the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground.

NOTE: Also check junction block connectors C-101 and C-112 and intermediate connector C-89. If junction block connectors C-101 or C-112 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection [P.00E-2](#).

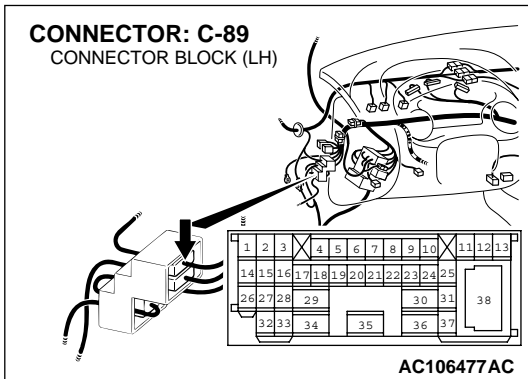




Q: Is the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The tail light (RH) and the side marker light (RH) should illuminate normally.



STEP 12. Check the position light bulb (LH).

- (1) Remove the position light bulb (LH).
- (2) Check that the position light bulb (LH) is not broken.

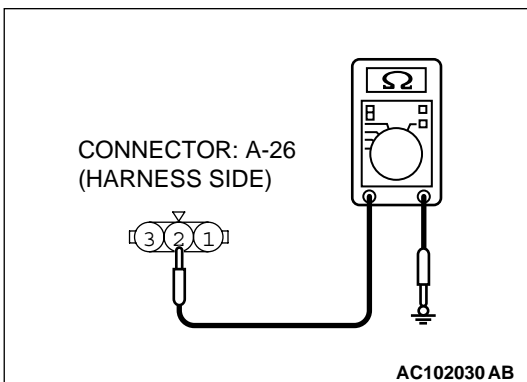
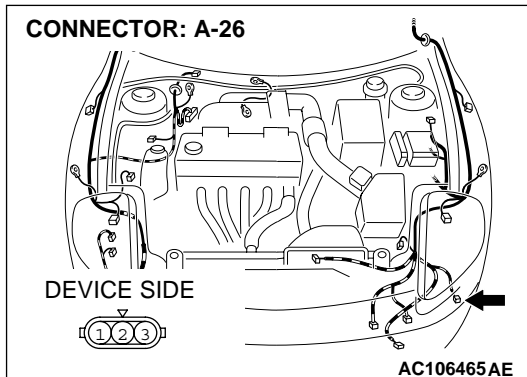
Q: Is the position light bulb (LH) in good condition?

YES : Go to Step 13.

NO : Replace the position light bulb (LH). Check that the position light (LH) illuminates normally.

STEP 13. Measure at front combination light (LH) connector A-26 in order to check the ground circuit to the position light (LH).

(1) Disconnect front combination light (LH) connector A-26, and measure at the wiring harness side.



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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 16.

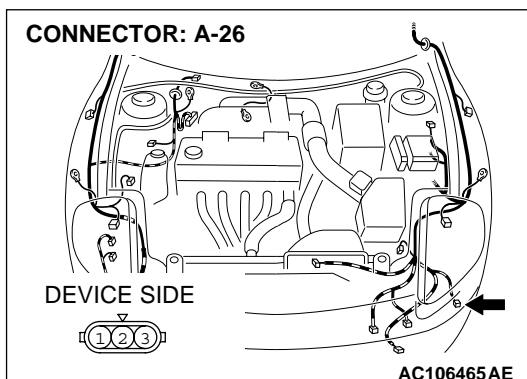
NO : Go to Step 14.

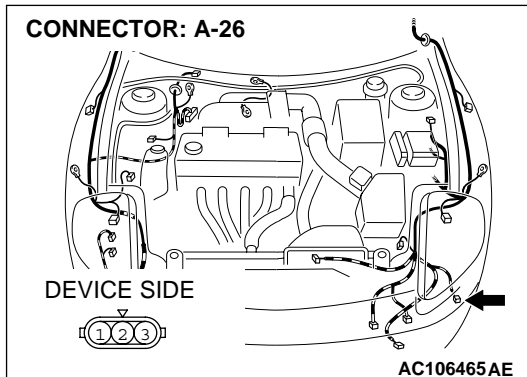
STEP 14. Check front combination light (LH) connector A-26 for damage.

Q: Is front combination light (LH) connector A-26 in good condition?

YES : Go to Step 15.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the position light (LH) illuminates normally.

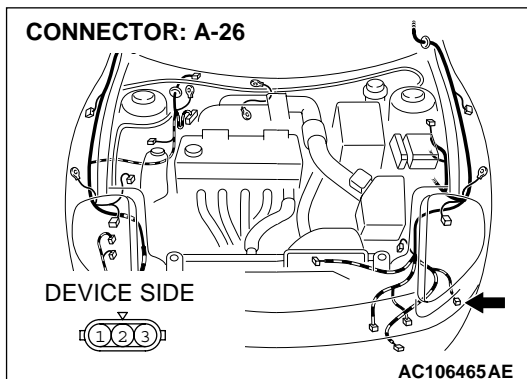




STEP 15. Check the wiring harness between front combination light (LH) connector A-26 (terminal 2) and ground.

Q: Is the wiring harness between front combination light (LH) connector A-26 (terminal 2) and ground in good condition?

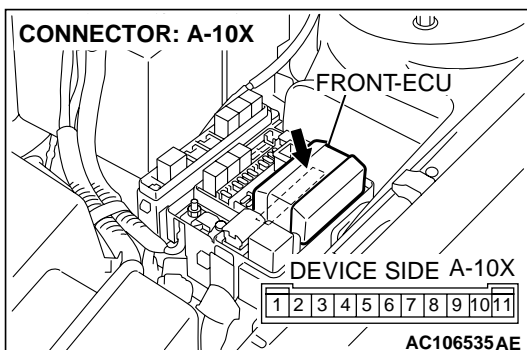
- YES :** Replace the position light socket (LH). Check that the position light (LH) illuminates normally.
- NO :** Repair the wiring harness. Check that the position light (LH) illuminates normally.



STEP 16. Check front combination light (LH) connector A-26 and front-ECU connector A-10X for damage.

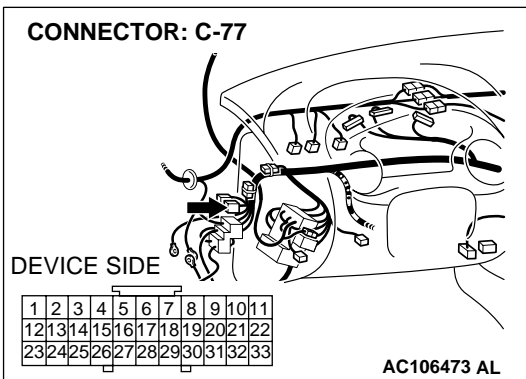
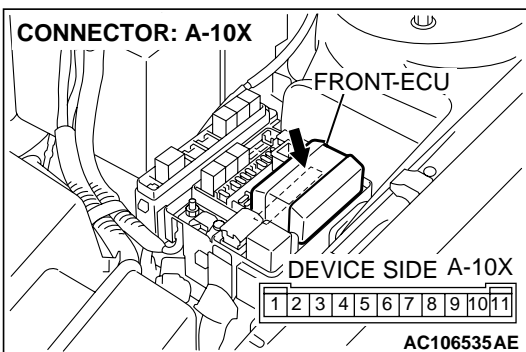
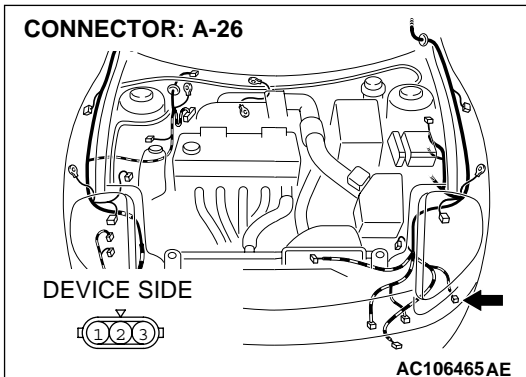
Q: Are front combination light (LH) connector A-26 and front-ECU connector A-10X in good condition?

- YES :** Go to Step 17.
- NO :** Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). The tail light (LH, incorporated in rear combination light) and the side marker light (LH) should illuminate normally. Check that the position light (LH) illuminates normally.



STEP 17. Check the wiring harness between front combination light (LH) connector A-26 (terminal 3) and front-ECU connector A-10X (terminal 8).

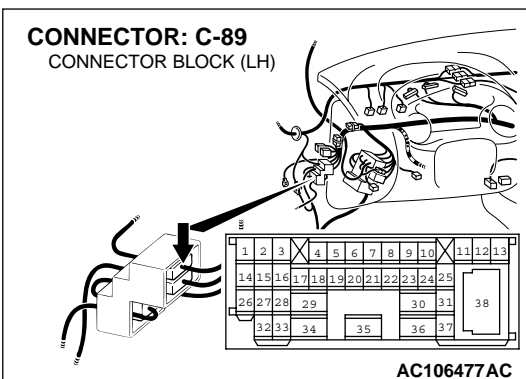
NOTE: Also check joint connector C-77 and intermediate connector C-89. If joint connector C-77 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.



Q: Is the wiring harness between front combination light (LH) connector A-26 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

YES : Replace the position light socket (LH). Check that the position light (LH) illuminates normally.

NO : Repair the wiring harness. Check that the position light (LH) illuminates normally.

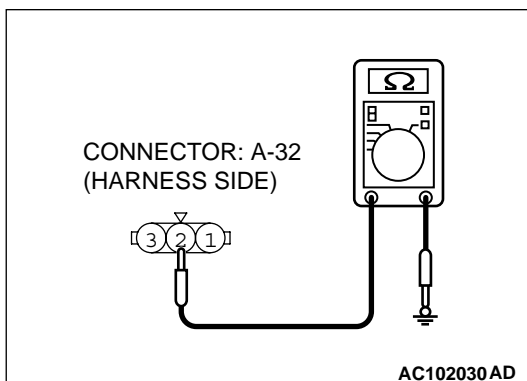
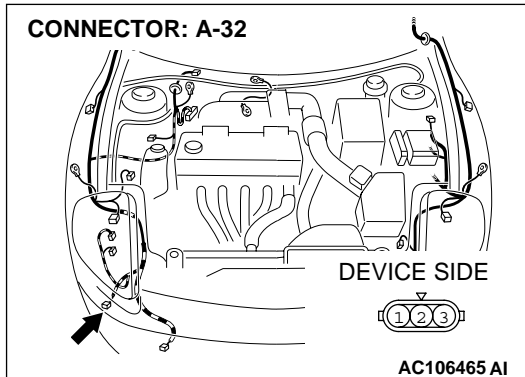


STEP 18. Check the position light bulb (RH).

- (1) Remove the position light bulb (RH).
- (2) Check that the position light bulb (RH) is not broken.

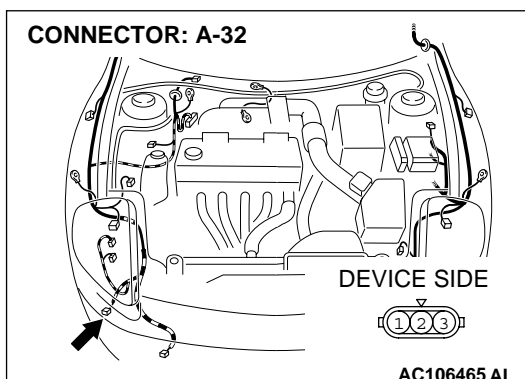
Q: Is the position light bulb (RH) in good condition?**YES** : Go to Step 19.**NO** : Replace the position light bulb (RH). Check that the position light (RH) illuminates normally.**STEP 19. Measure at position light (RH) connector A-32 in order to check the ground circuit to the position light (RH).**

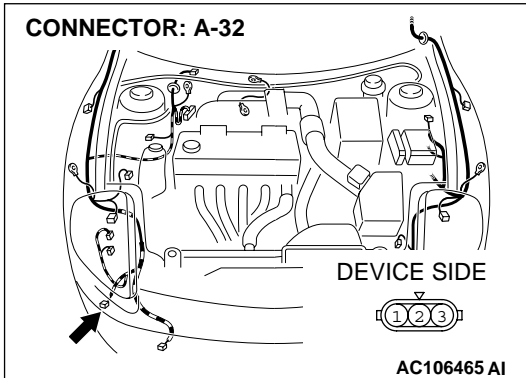
- (1) Disconnect position light (RH) connector A-32, and measure at the wiring harness side.



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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?**YES** : Go to Step 22.**NO** : Go to Step 20.**STEP 20. Check position light (RH) connector A-32 for damage.****Q: Is position light (RH) connector A-32 in good condition?****YES** : Go to Step 21.**NO** : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the position light (RH) illuminates normally.

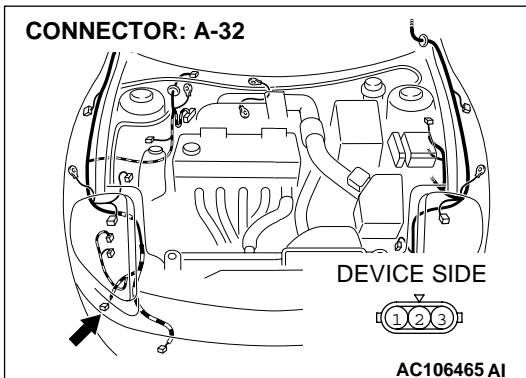


STEP 21. Check the wiring harness between position light (RH) connector A-32 (terminal 2) and ground.

Q: Is the wiring harness between position light (RH) connector A-32 (terminal 2) and ground in good condition?

YES : Replace the front combination light socket (RH). Check that the position light (RH) illuminates normally.

NO : Repair the wiring harness. Check that the position light (RH) illuminates normally.

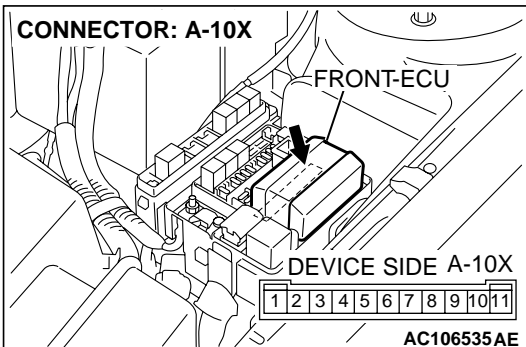


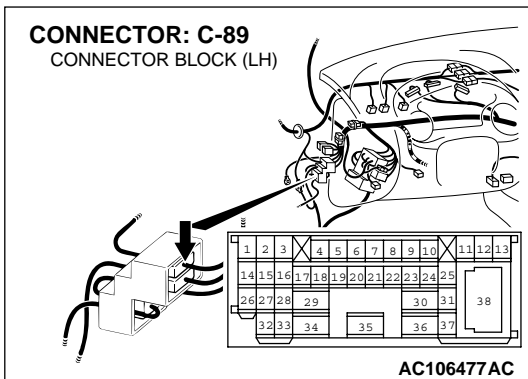
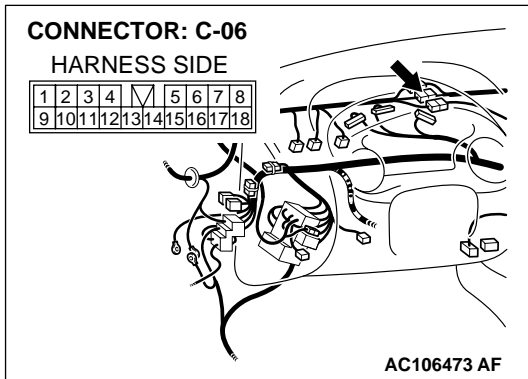
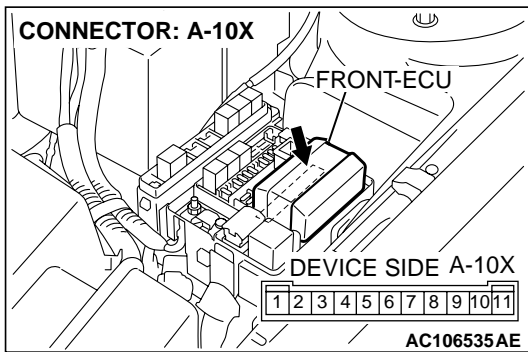
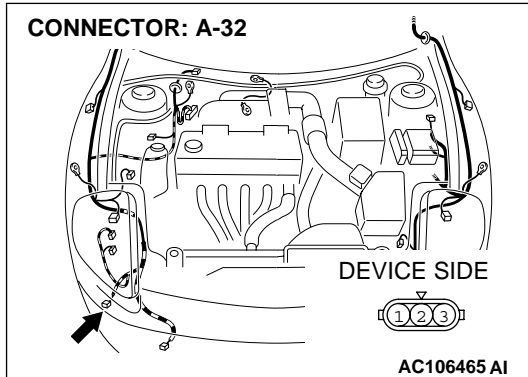
STEP 22. Check position light (RH) connector A-32 and front-ECU connector A-10X for damage.

Q: Are position light (RH) connector A-32 and front-ECU connector A-10X in good condition?

YES : Go to Step 23.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the position light (LH) illuminates normally.





STEP 23. Check the wiring harness between position light (RH) connector A-32 (terminal 3) and front-ECU connector A-10X(terminal 8).

NOTE: Also check intermediate connectors C-06 and C-89. If intermediate connector C-06 or C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.

Q: Is the wiring harness between position light (RH) connector A-32 (terminal 3) and front-ECU connector A-10X (terminal 8) in good condition?

- YES :** Replace the front combination light socket (RH).
Check that the position light (LH) illuminates normally.
- NO :** Repair the wiring harness. Check that the position light (LH) illuminates normally.

STEP 24. Check the stop/tail light bulb (LH).

- (1) Remove the stop/tail light bulb (LH).
- (2) Check that the stop/tail light bulb (LH) is not broken.

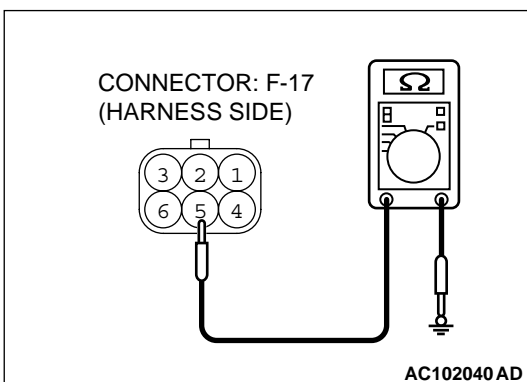
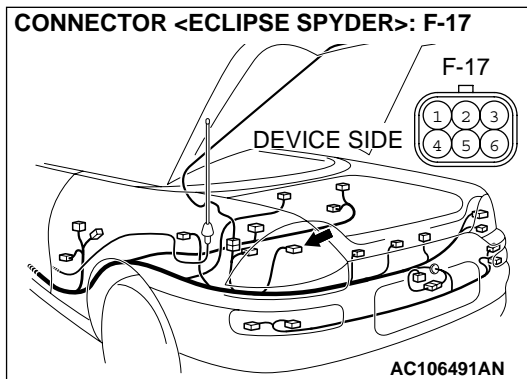
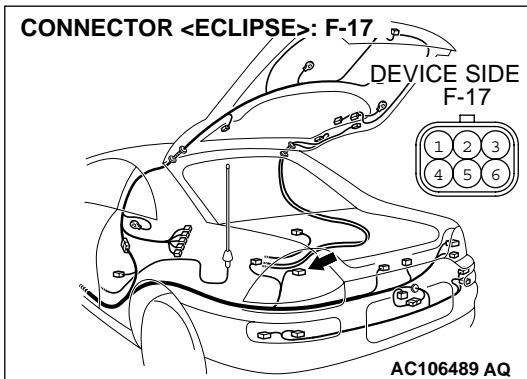
Q: Is the stop/tail light bulb (LH) in good condition?

YES : Go to Step 25.

NO : Replace the stop/tail light bulb (LH). Check that the tail light (LH) illuminates normally.

STEP 25. Measure at rear combination light (LH) connector F-17 in order to check the ground circuit to the rear combination light (LH).

- (1) Disconnect rear combination light (LH) connector F-17, and measure at the wiring harness side.



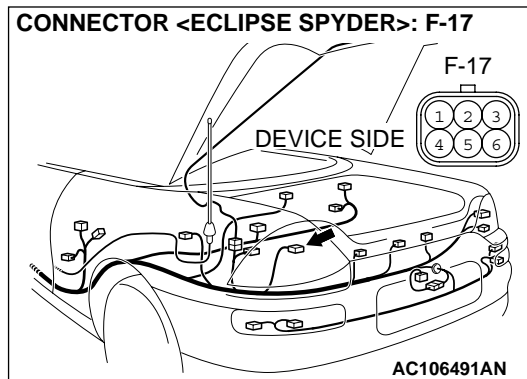
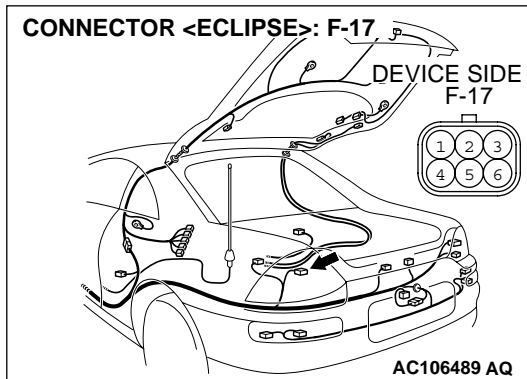
- (2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 28.

NO : Go to Step 26.

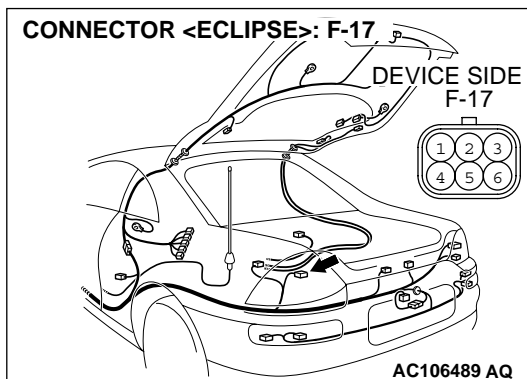


STEP 26. Check rear combination light (LH) connector F-17 for damage.

Q: Is rear combination light (LH) connector F-17 in good condition?

YES : Go to Step 27.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the tail light (LH) illuminates normally.

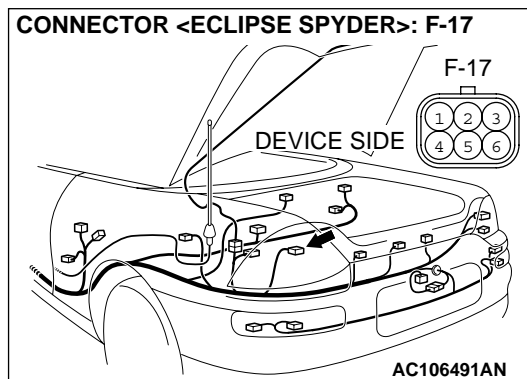


STEP 27. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground in good condition?

YES : Replace the rear combination light socket assembly (LH). Check that the tail lights (incorporated in rear combination lights) illuminate normally.

NO : Repair the wiring harness. Check that the tail light (LH) illuminates normally.

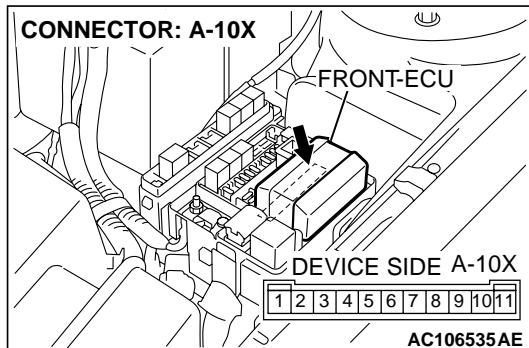
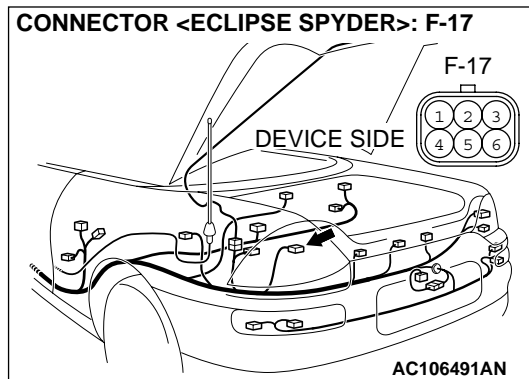
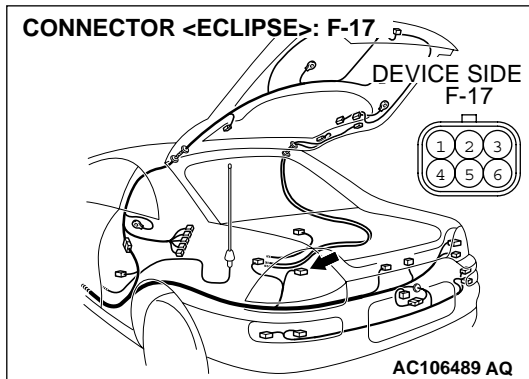


STEP 28. Check rear combination light (LH) connector F-17 and front-ECU connector A-10X for damage.

Q: Are rear combination light (LH) connector F-17 and front-ECU connector A-10X in good condition?

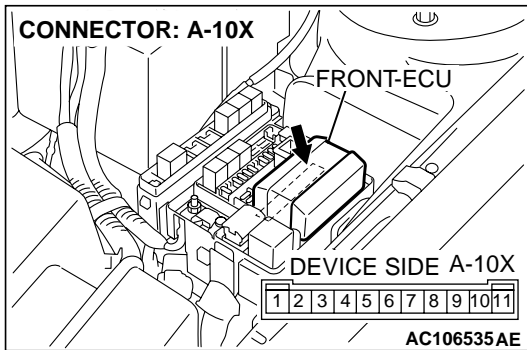
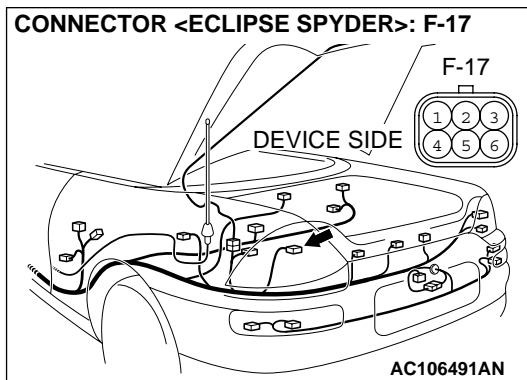
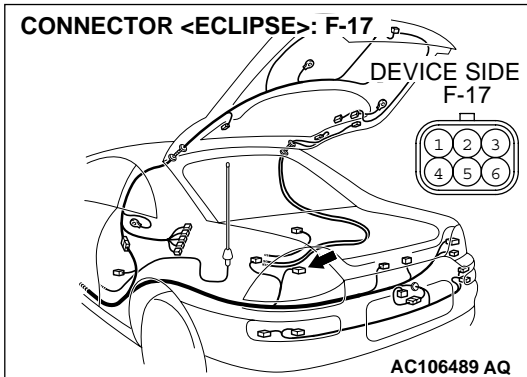
YES : Go to Step 29.

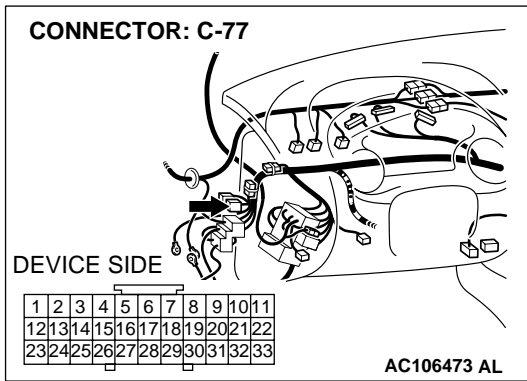
NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the tail light (LH) illuminates normally.



STEP 29. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check joint connector C-77 and intermediate connectors C-89 and C-90. If joint connector C-77 or intermediate connectors C-89 or C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.

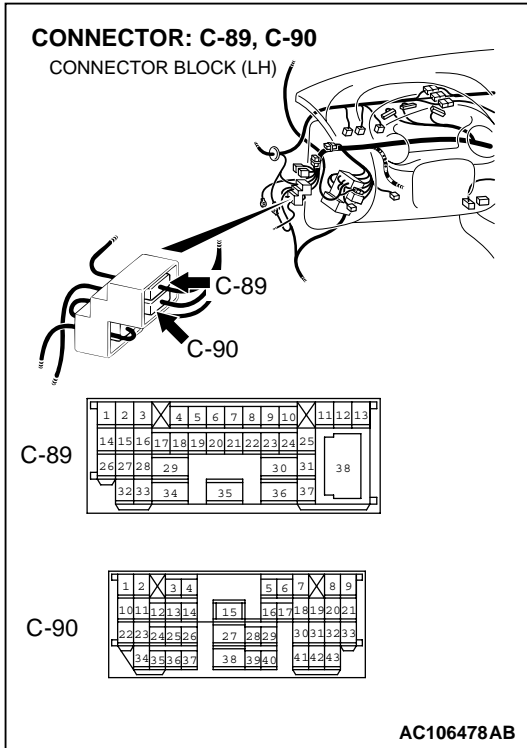




Q: Is the wiring harness between rear combination light (LH) connector F-17 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

YES : Replace the rear combination light socket assembly (LH). Check that the tail light (LH) illuminates normally.

NO : Repair the wiring harness. Check that the tail light (LH) illuminates normally.



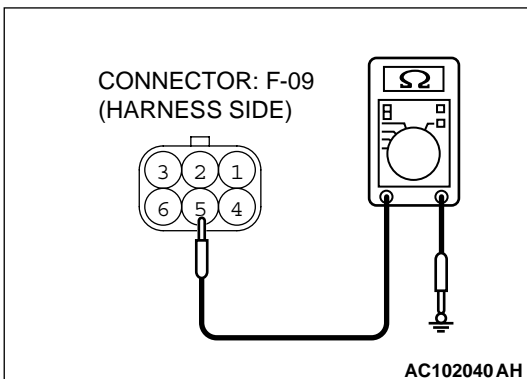
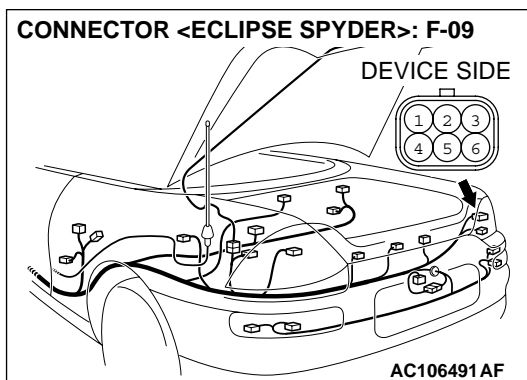
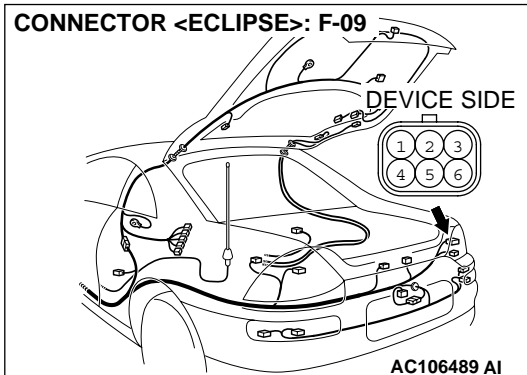
STEP 30. Check the stop/tail light bulb (RH).

- (1) Remove the stop/tail light bulb (RH).
- (2) Check that the stop/tail light bulb (RH) is not broken.

Q: Is the stop/tail light bulb (RH) in good condition?

YES : Go to Step 31.

NO : Replace the stop/tail light bulb (RH). Check that the tail light (RH) illuminates normally.



STEP 31. Measure at rear combination light (RH) connector F-09 in order to check the ground circuit to the rear combination light (RH).

- (1) Disconnect rear combination light (RH) connector F-09, and measure at the wiring harness side.

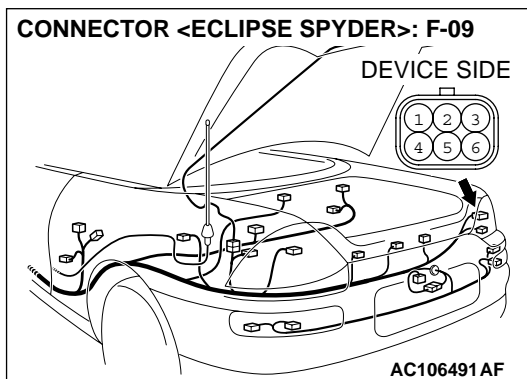
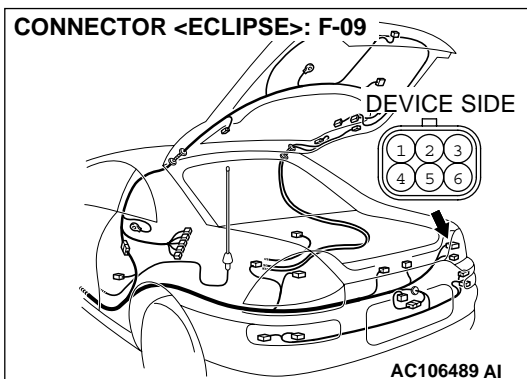
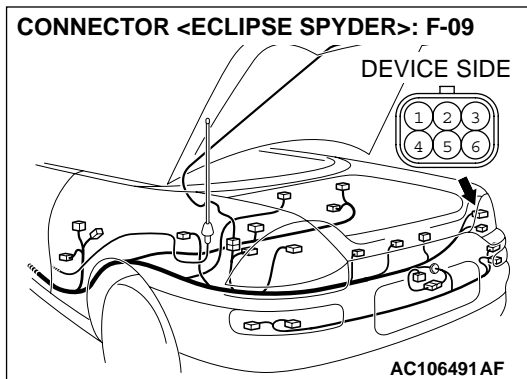
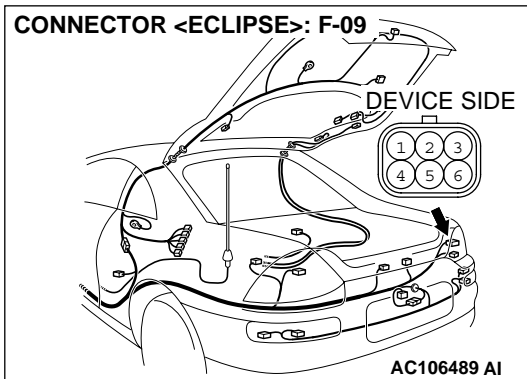
- (2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 34.

NO : Go to Step 32.



STEP 32. Check rear combination light (RH) connector F-09 for damage.

Q: Is rear combination light (RH) connector F-09 in good condition?

YES : Go to Step 33.

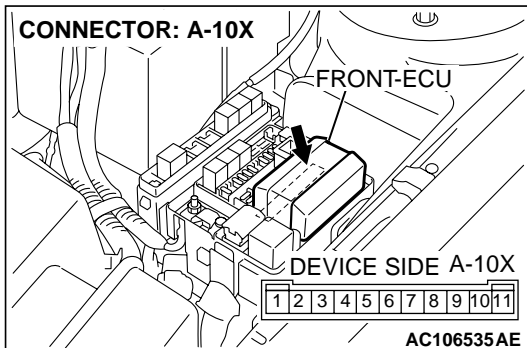
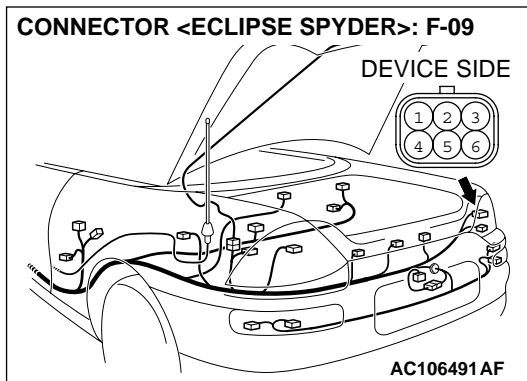
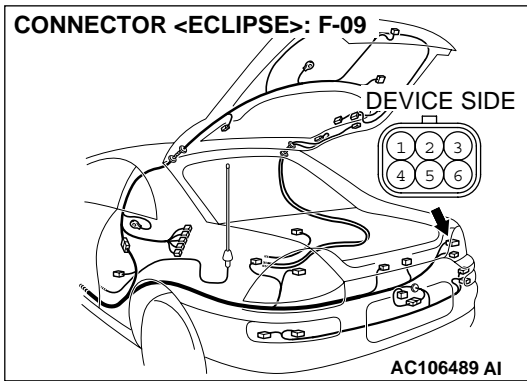
NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the tail light (RH) illuminates normally.

STEP 33. Check the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground in good condition?

YES : Replace the rear combination light socket assembly (RH). Check that the tail light (RH) illuminates normally.

NO : Repair the wiring harness. Check that the tail light (RH) illuminates normally.



STEP 34. Check rear combination light (RH) connector F-09 and front-ECU connector A-10X for damage.

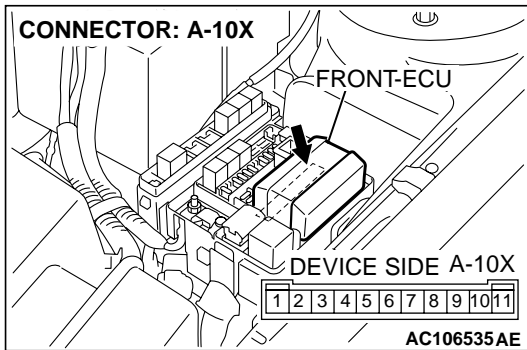
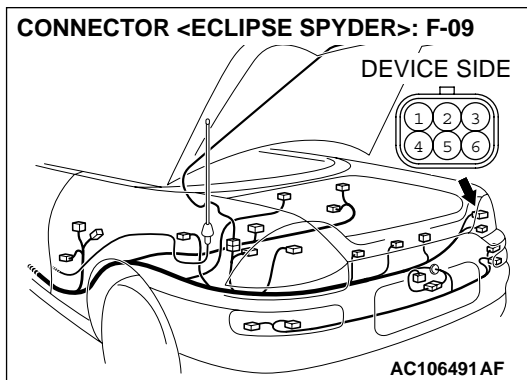
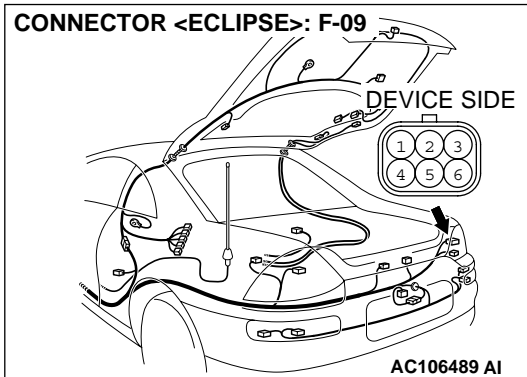
Q: Are rear combination light (RH) connector F-09 and front-ECU connector A-10X in good condition?

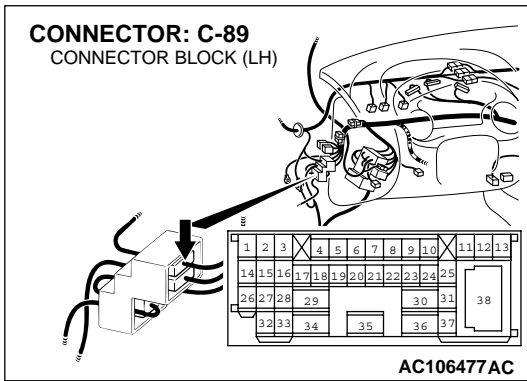
YES : Go to Step 35.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the tail light (RH) illuminates normally.

STEP 35. Check the wiring harness between rear combination light (RH) connector F-09 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connector C-89, junction block connectors C-101 and C-112. If intermediate connector C-89, junction block connector C-101 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection [P.00E-2](#).

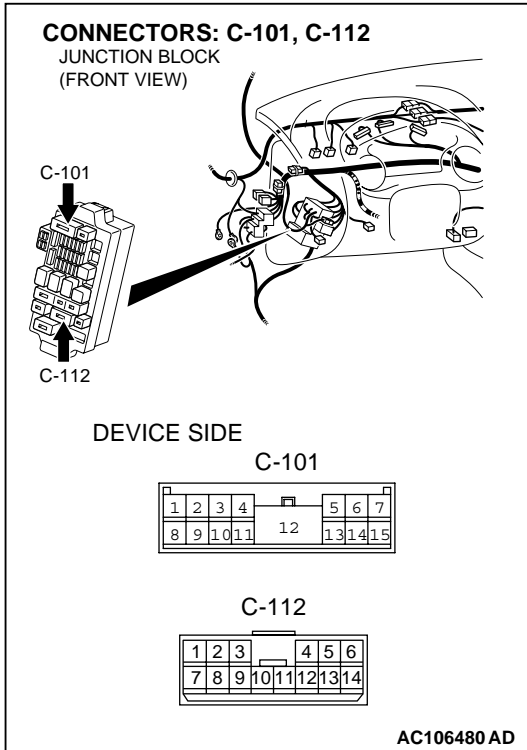




Q: Is the wiring harness between rear combination light (RH) connector F-09 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

YES : Replace the rear combination light socket assembly (RH). Check that the tail light (RH) illuminates normally.

NO : Repair the wiring harness. Check that the tail light (RH) illuminates normally.



STEP 36. Check the rear side marker light bulb (LH).

- (1) Remove the rear side marker light bulb (LH).
- (2) Check that the rear side marker light bulb (LH) is not broken.

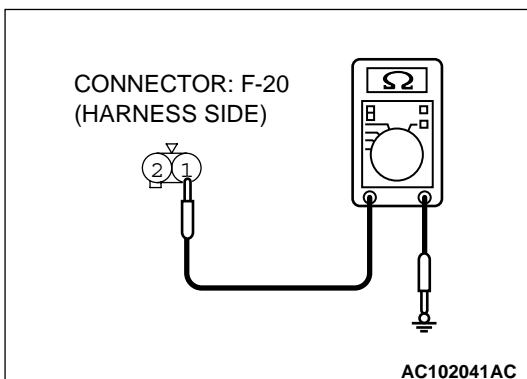
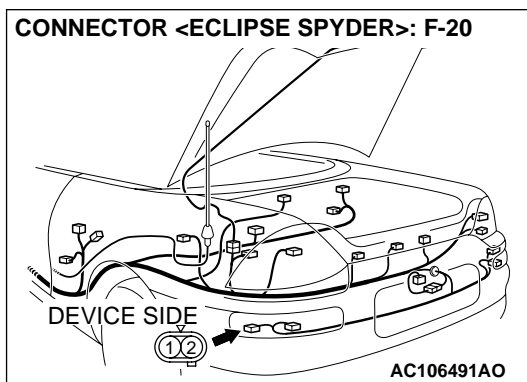
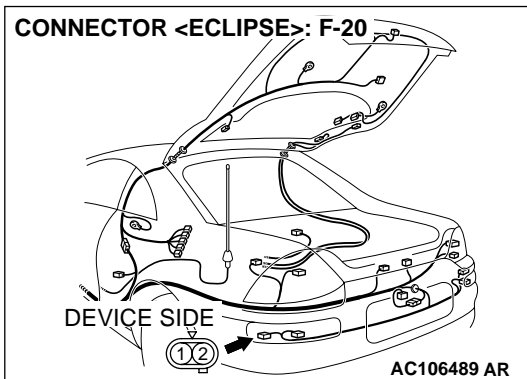
Q: Is the rear side marker light bulb (LH) in good condition?

YES : Go to Step 37.

NO : Replace the rear side marker light bulb (LH). Check that the rear side marker light (LH) illuminate normally.

STEP 37. Measure at rear side marker light (LH) connector F-20 in order to check the ground circuit to the license plate lights.

- (1) Disconnect rear side marker light (LH) connector F-20, and measure at the wiring harness side.



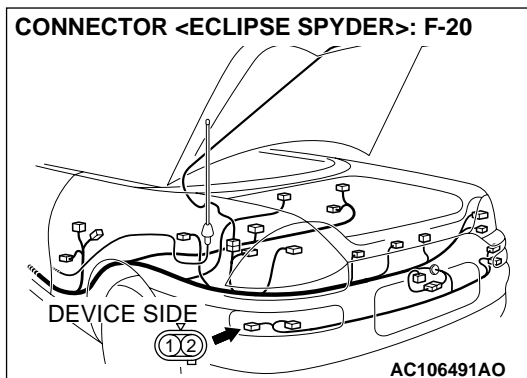
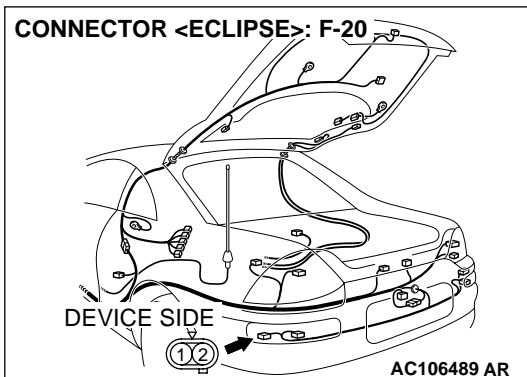
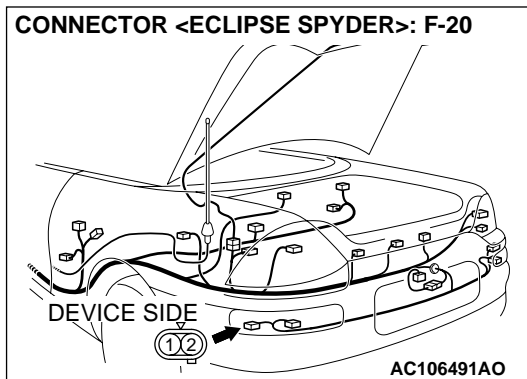
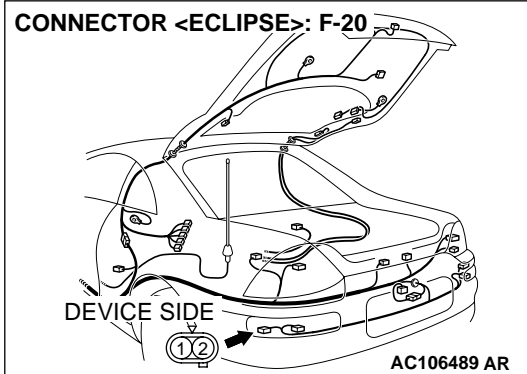
- (2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 40.

NO : Go to Step 38.



STEP 38. Check rear side marker light (LH) connector F-20 for damage.

Q: Is rear side marker light (LH) connector F-20 in good condition?

YES : Go to Step 39.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the rear side marker light (LH) illuminate normally.

STEP 39. Check the wiring harness between rear side marker light (LH) connector F-20 (terminal 1) and ground.

Q: Is the wiring harness between rear side marker light (LH) connector F-20 (terminal 1) and ground in good condition?

YES : Replace the rear side marker light socket (LH). Check that the rear side marker light (LH) illuminate normally.

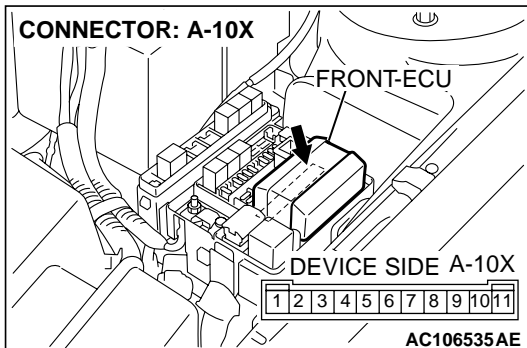
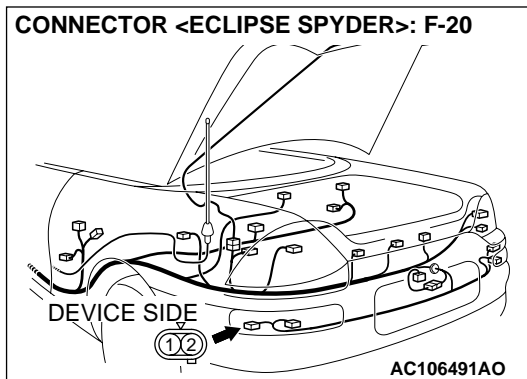
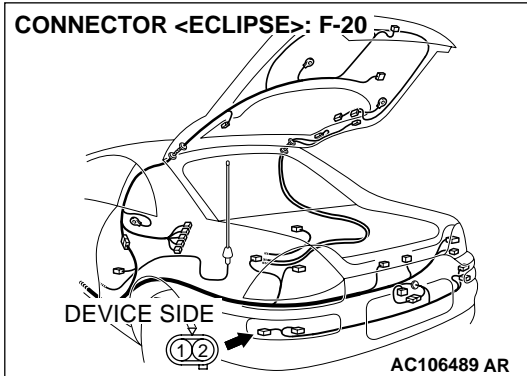
NO : Repair the wiring harness. Check that the rear side marker light (LH) illuminate normally.

STEP 40. Check rear side marker light (LH) connector F-20 and front-ECU connector A-10X for damage.

Q: Are rear side marker light (LH) connector F-20 and front-ECU connector A-10X in good condition?

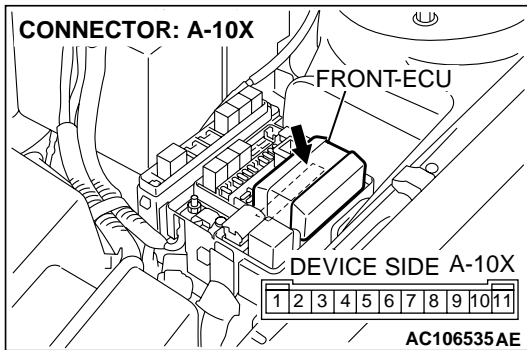
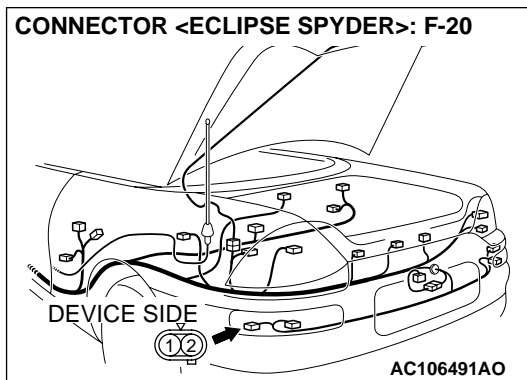
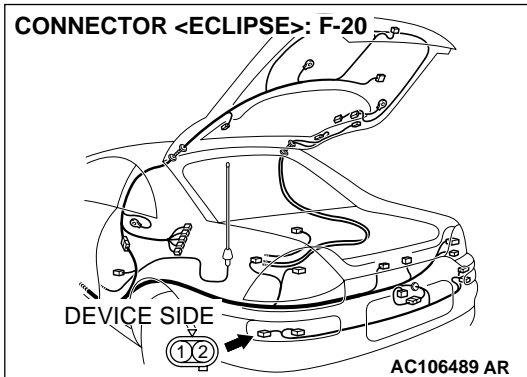
YES : Go to Step 41.

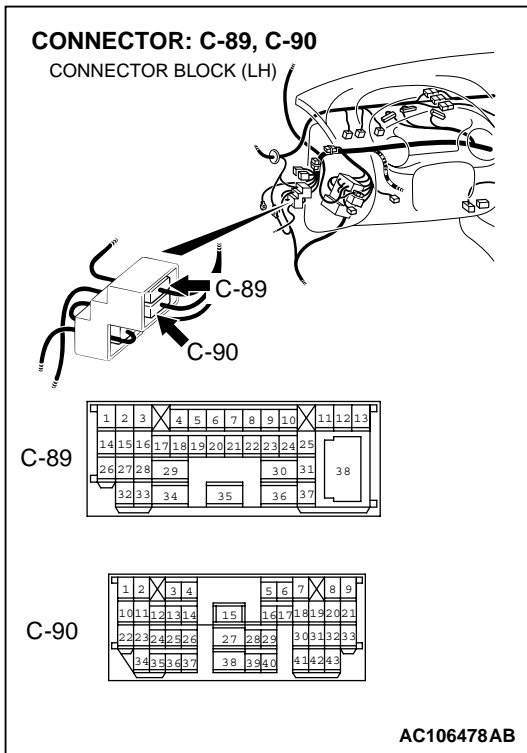
NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the rear side marker light (LH) illuminate normally.



STEP 41. Check the wiring harness between rear side marker light (LH) connector F-20 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connectors C-89 and C-90 and joint connector C-77. If intermediate connectors C-89 or C-90 or joint connector C-77 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.

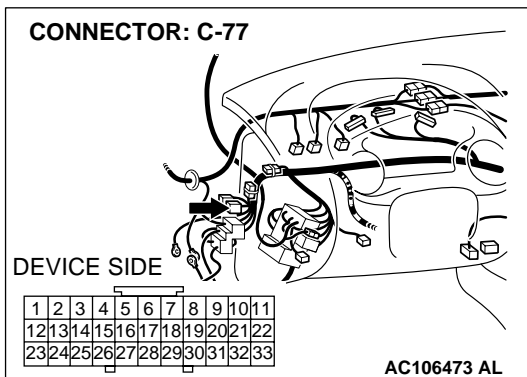




Q: Is the wiring harness between rear side marker light (LH) connector F-20 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

YES : Replace the rear side marker light socket (LH). Check that the rear side marker light (LH) illuminate normally.

NO : Repair the wiring harness. Check that the rear side marker light (LH) illuminate normally.



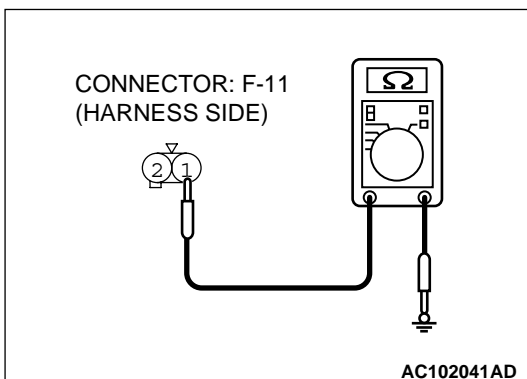
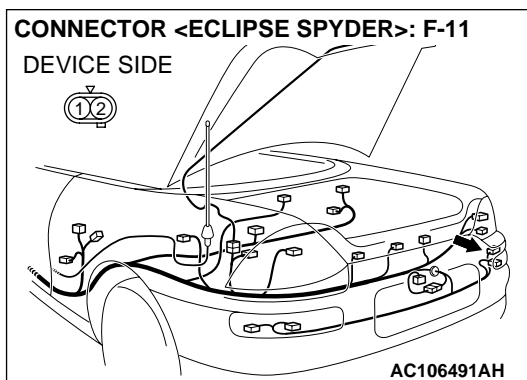
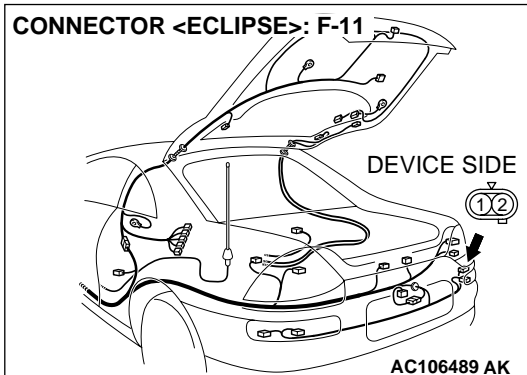
STEP 42. Check the rear side marker light bulb (RH).

- (1) Remove the rear side marker light bulb (RH).
- (2) Check that the rear side marker light bulb (RH) is not broken.

Q: Is the rear side marker light bulb (RH) in good condition?

YES : Go to Step 43.

NO : Replace the rear side marker light bulb (RH). Check that the rear side marker light (RH) illuminate normally.



STEP 43. Measure at rear side marker light (RH) connector F-11 in order to check the ground circuit to the license plate lights.

- (1) Disconnect rear side marker light (RH) connector F-11, and measure at the wiring harness side.

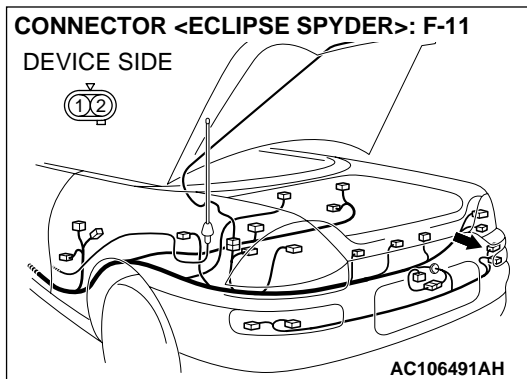
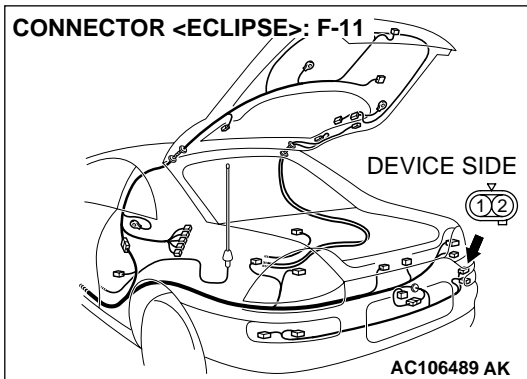
- (2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 46.

NO : Go to Step 44.

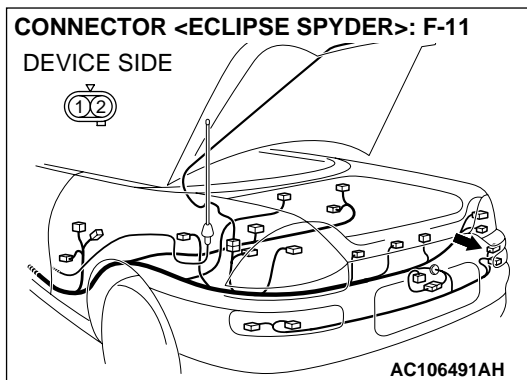
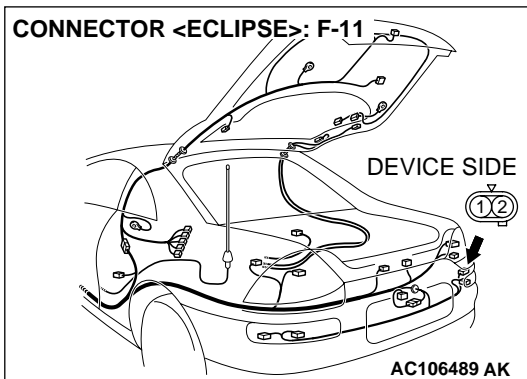


STEP 44. Check rear side marker light (RH) connector F-11 for damage.

Q: Is rear side marker light (RH) connector F-11 in good condition?

YES : Go to Step 45.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the rear side marker light (RH) illuminate normally.

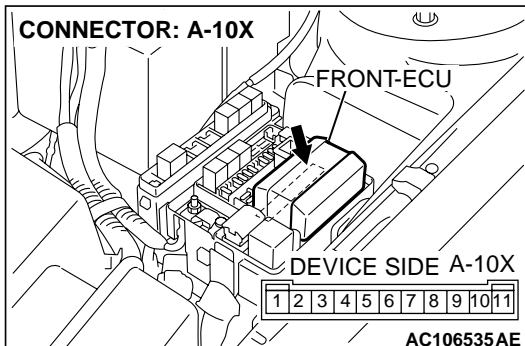
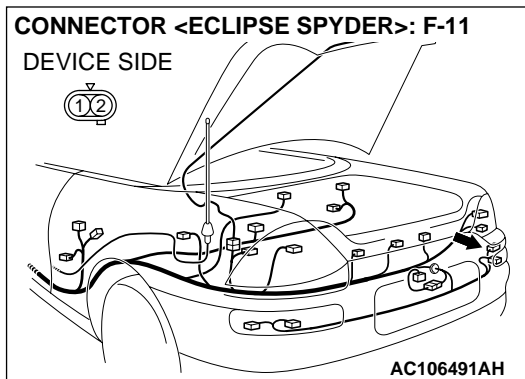
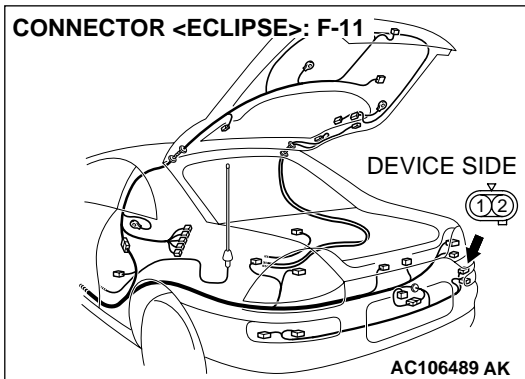


STEP 45. Check the wiring harness between rear side marker light (RH) connector F-11 (terminal 1) and ground.

Q: Is the wiring harness between rear side marker light (RH) connector F-11 (terminal 1) and ground in good condition?

YES : Replace the rear side marker light socket (RH). Check that the rear side marker light (RH) illuminate normally.

NO : Repair the wiring harness. Check that the rear side marker light (RH) illuminate normally.



STEP 46. Check rear side marker light (RH) connector F-11 and front-ECU connector A-10X for damage.

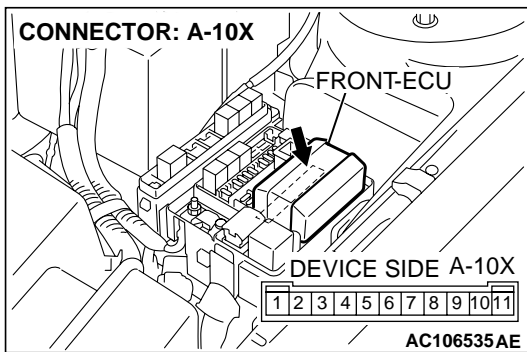
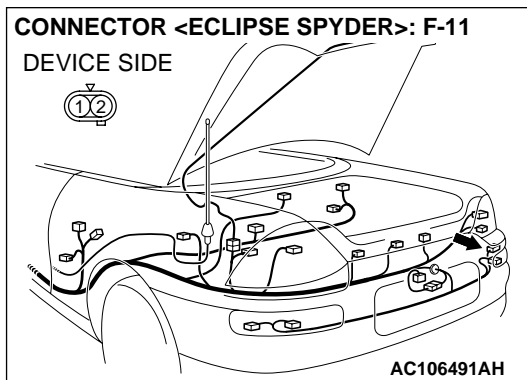
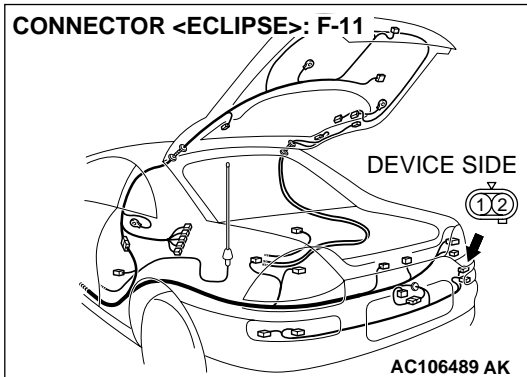
Q: Are rear side marker light (RH) connector F-11 and front-ECU connector A-10X in good condition?

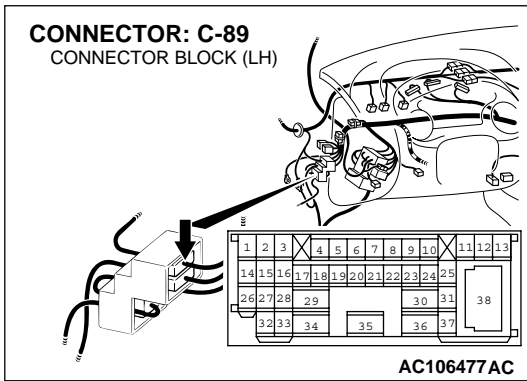
YES : Go to Step 47.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the rear side marker light (RH) illuminate normally.

STEP 47. Check the wiring harness between rear side marker light (RH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8).

NOTE: Also check intermediate connector C-89, junction block connectors C-101 and C-112. If intermediate connector C-89, junction block connector C-101 or C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection [P.00E-2](#).

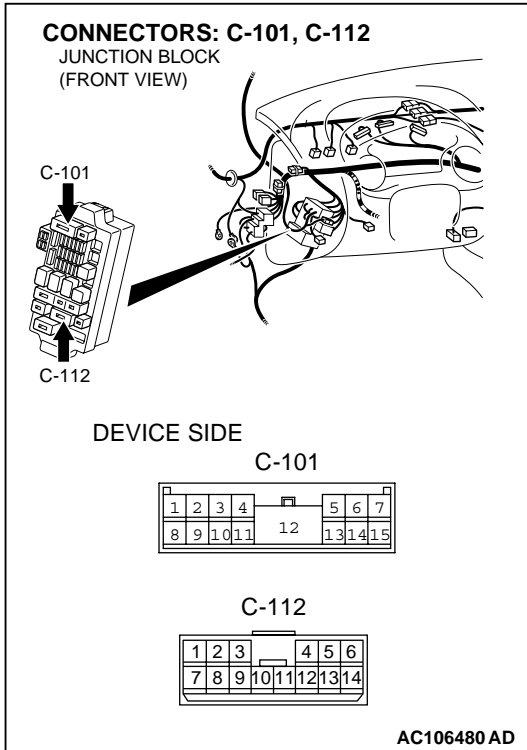




Q: Is the wiring harness between rear side marker light (RH) connector F-11 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

YES : Replace the rear side marker light socket (RH).
Check that the rear side marker light (RH) illuminate normally.

NO : Repair the wiring harness. Check that the rear side marker light (RH) illuminate normally.



STEP 48. Check the license plate light bulb.

- (1) Remove the license plate light bulb.
- (2) Check that the license plate light bulb is not broken.

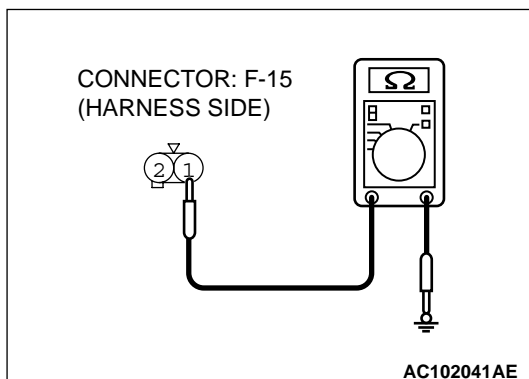
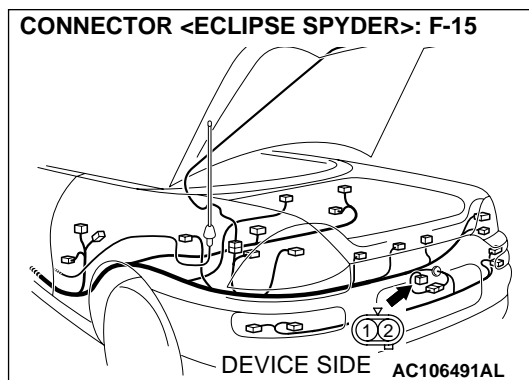
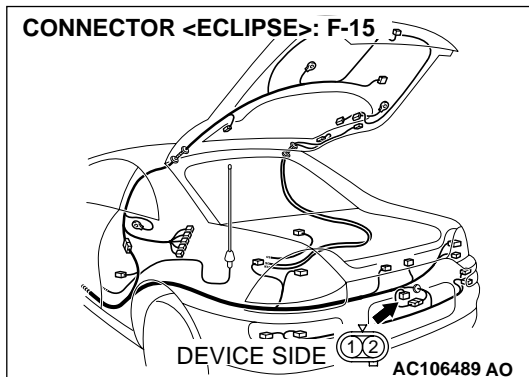
Q: Is the license plate light bulb in good condition?

YES : Go to Step 49.

NO : Replace the license plate light bulb. Check that the license plate light illuminate normally.

STEP 49. Measure at license plate light connector F-15 in order to check the ground circuit to the license plate lights.

- (1) Disconnect license plate light connector F-15, and measure at the wiring harness side.



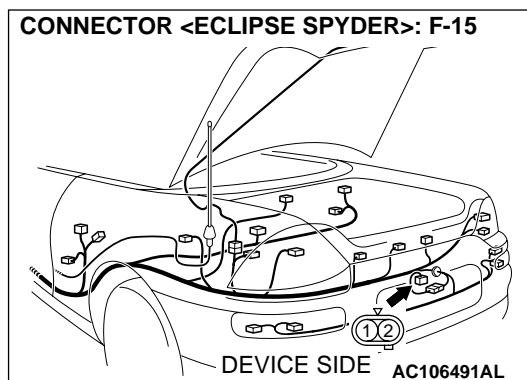
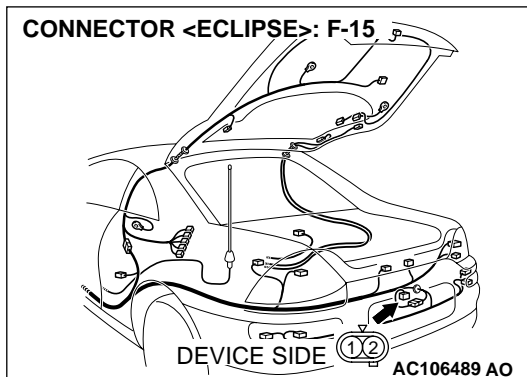
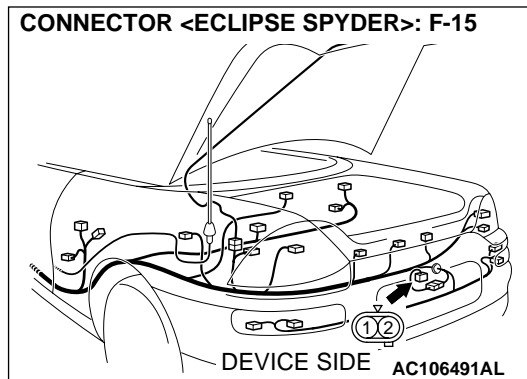
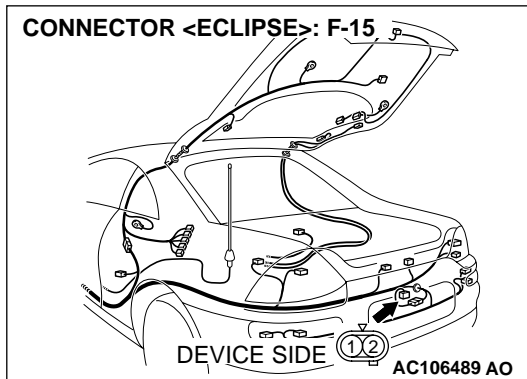
- (2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 52.

NO : Go to Step 50.



STEP 50. Check license plate light connector F-15 for damage.

Q: Is license plate light connector F-15 in good condition?

YES : Go to Step 51.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the license plate light illuminate normally.

STEP 51. Check the wiring harness between license plate light connector F-15 (terminal 1) and ground.

NOTE: Also check intermediate connector F-14. If intermediate connector F-14 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection [P.00E-2](#).

Q: Is the wiring harness between license plate light connector F-15 (terminal 1) and ground in good condition?

YES : Replace the license plate light socket. Check that the license plate light illuminate normally.

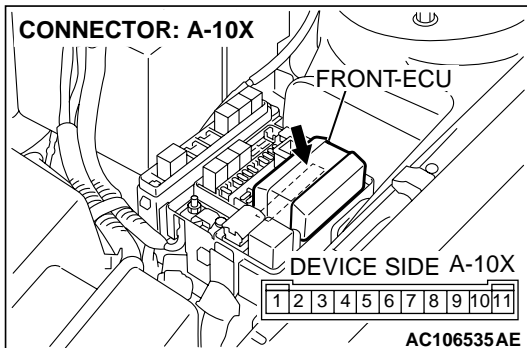
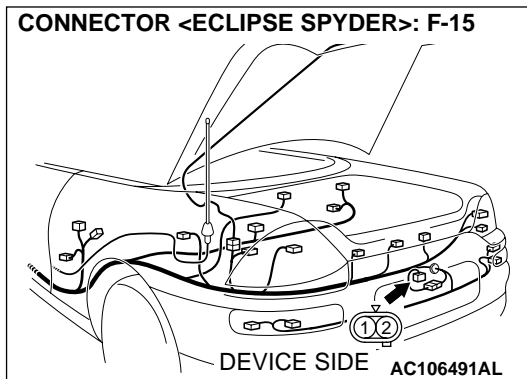
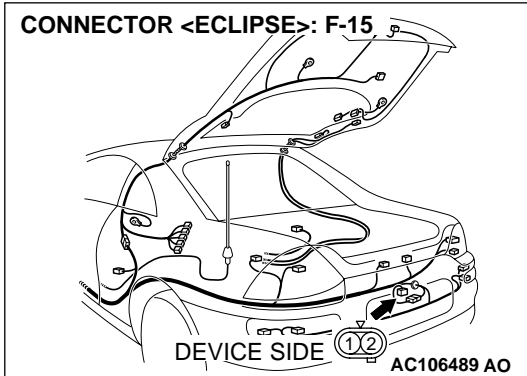
NO : Repair the wiring harness. Check that the license plate light illuminate normally.

STEP 52. Check license plate light connector F-15 and front-ECU connector A-10X for damage.

Q: Are license plate light connector F-15 and front-ECU connector A-10X in good condition?

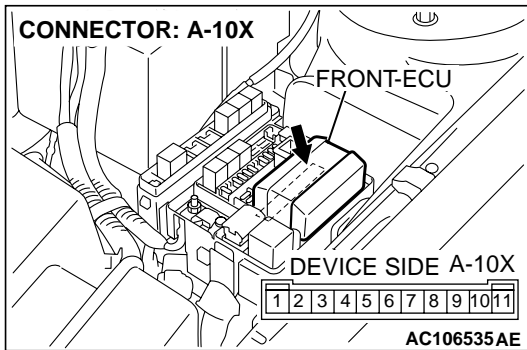
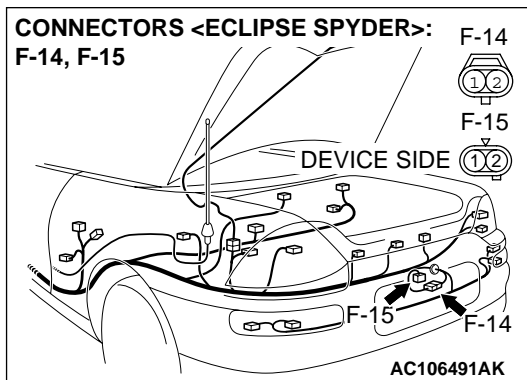
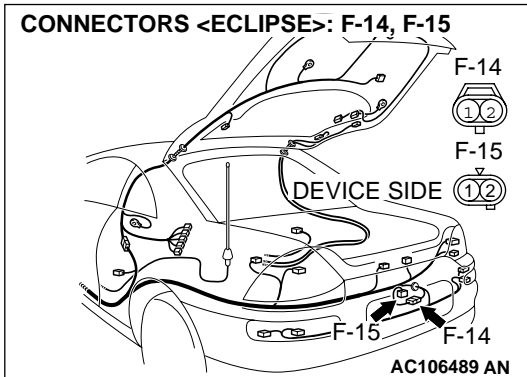
YES : Go to Step 53.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness connector Inspection [P.00E-2](#). Check that the license plate light illuminate normally.

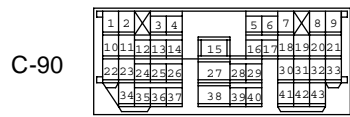
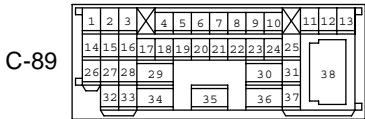
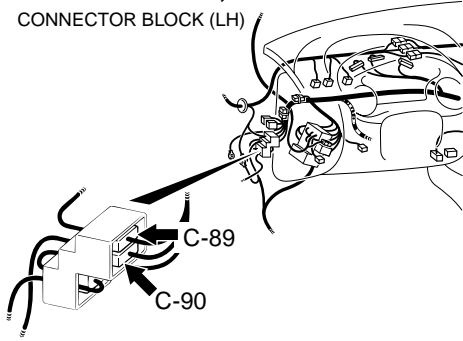


STEP 53. Check the wiring harness between license plate light connector F-15 (terminal 2) and front-ECU (terminal 8) connector A-10X.

NOTE: Also check intermediate connectors C-89 and C-90 and F-14 and joint connector C-77. If intermediate connectors C-89 or C-90 or F-14 or joint connector C-77 is damaged, repair or replace the connector as described in GROUP 00E, Harness connector Inspection P.00E-2.



CONNECTOR: C-89, C-90
CONNECTOR BLOCK (LH)



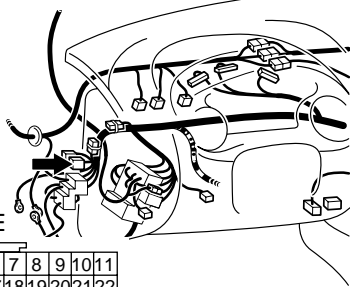
AC106478AB

Q: Is the wiring harness between license plate light connector F-15 (terminal 2) and front-ECU connector A-10X (terminal 8) in good condition?

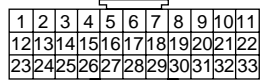
YES : Replace the license plate light socket. Check that the license plate light illuminate normally.

NO : Repair the wiring harness. Check that the license plate light illuminate normally.

CONNECTOR: C-77



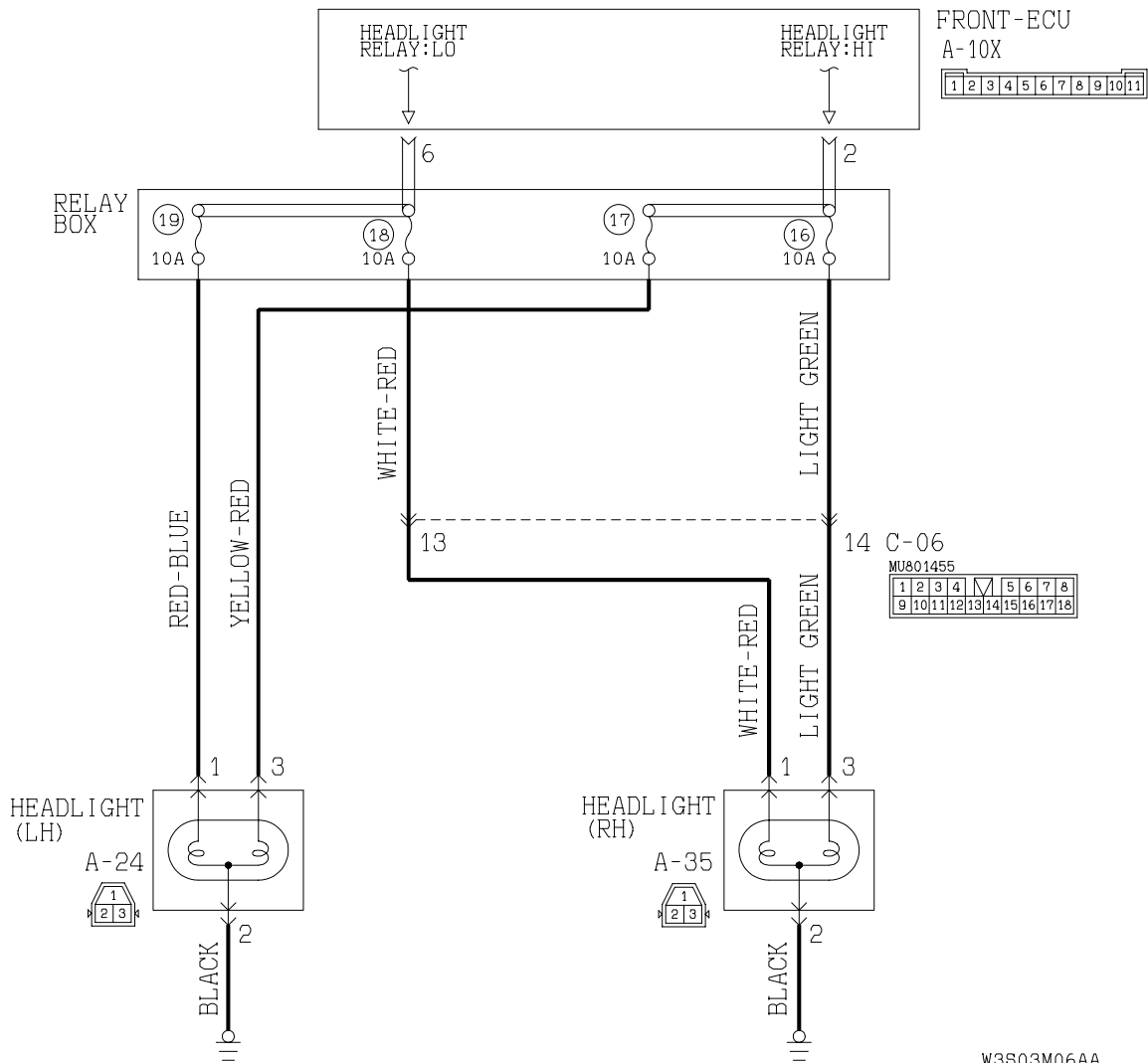
DEVICE SIDE



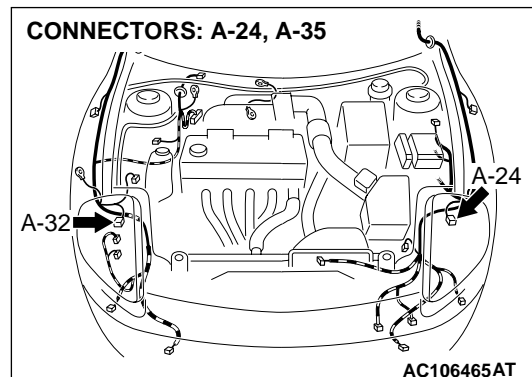
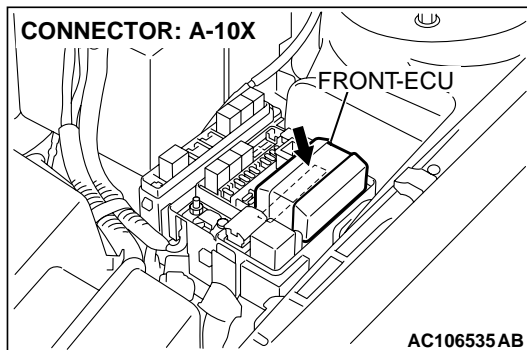
AC106473 AL

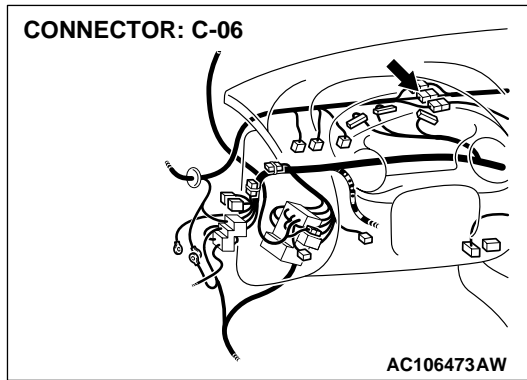
Inspection Procedure J-7: One of the headlights does not illuminate.

Headlights Circuit



W3S03M06AA





TECHNICAL DESCRIPTION (COMMENT)

If one of the headlights does not illuminate, a headlight bulb may be defective.

TROUBLESHOOTING HINTS

- Malfunction of headlight bulb
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

STEP1. Check the headlight operation.

Q: Which of the headlights does not illuminate?

LH (low and high beam) : Go to Step 2.

RH (low and high beam) : Go to Step 5.

LH (only low-beam) : Go to Step 8.

RH (only low-beam) : Go to Step 11.

LH (only high beam) : Go to Step 14.

RH (only high beam) : Go to Step 17.

Low beam only (both RH and LH) : Refer to Inspection Procedure J-2 "headlights (low-beam) do not illuminate" [P.54B-270](#)).

High beam (both RH and LH) : Refer to Inspection Procedure J-3 "headlights (high-beam) do not illuminate" [P.54B-274](#)."

Only high-beam indicator light : Refer to Inspection Procedure J-8 high-beam indicator light does not illuminate [P.54B-334](#).

STEP 2. Check headlight (LH) bulb.

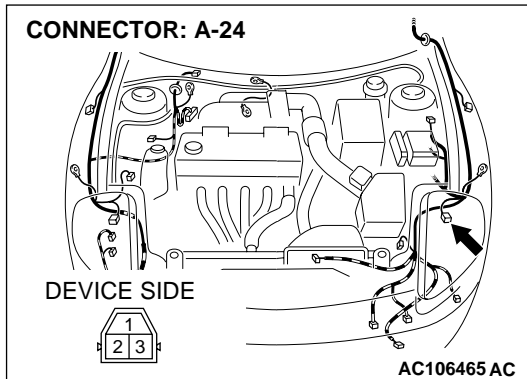
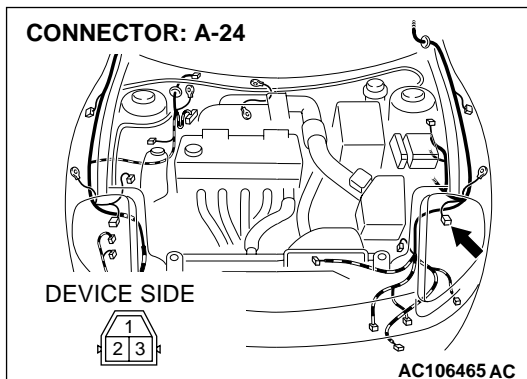
(1) Remove the headlight (LH) bulb.

(2) Check that the headlight (LH) bulb is not broken.

Q: Is headlight (LH) bulb normal?

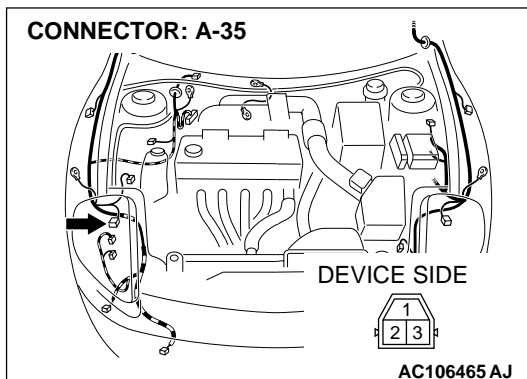
YES : Go to Step 3.

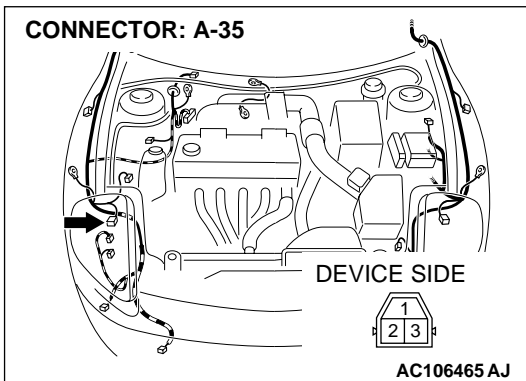
NO : Replace the headlight bulb (LH).Check that the headlights illuminate normally.

**STEP 3. Check headlight (LH) connector A-24 for damage.****Q: Is headlight (LH) connector A-24 in good condition?****YES :** Go to Step 4.**NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the headlights illuminate normally.**STEP 4. Check the wiring harness between headlight (LH) connector A-24 (terminal 2) and ground.****Q: Is the wiring harness between headlight (LH) connector A-24 (terminal 2) and ground in good condition?****YES :** No action to be taken.**NO :** Repair the wiring harness. Check that the headlights illuminate normally.**STEP 5. Check headlight (RH) bulb.**

(1) Remove the headlight (RH) bulb.

(2) Check that the headlight (RH) bulb is not broken.

Q: Is headlight (RH) bulb normal?**YES :** Go to Step 6.**NO :** Replace the headlight bulb (RH). Check that the headlights illuminate normally.**STEP 6. Check headlight (RH) connector A-35 for damage.****Q: Is headlight (RH) connector A-35 in good condition?****YES :** Go to Step 7.**NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the headlights illuminate normally.



STEP 7. Check the wiring harness between headlight (RH) connector A-35 (terminal 2) and ground.

Q: Is the wiring harness between headlight (RH) connector A-35 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights illuminate normally.

STEP 8. Check headlight (LH) bulb.

(1) Remove the headlight (LH) bulb.

(2) Check that the headlight (LH) bulb is not broken.

Q: Is headlight (LH) bulb normal?

YES : Go to Step 9.

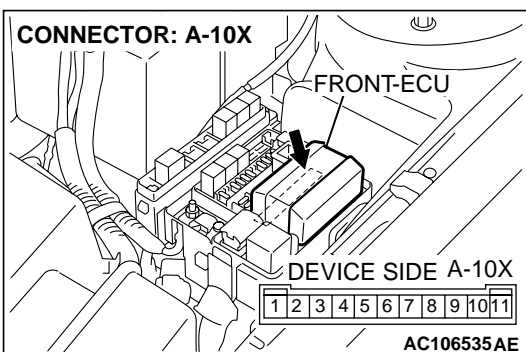
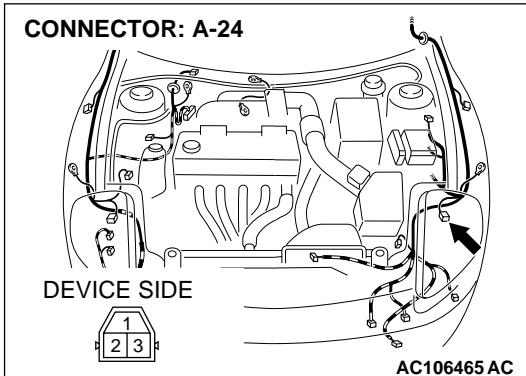
NO : Replace the headlight bulb (LH). Check that the headlights illuminate normally.

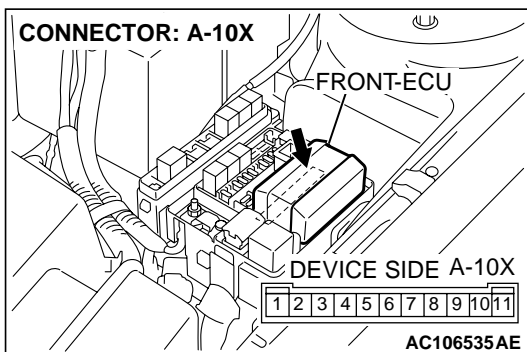
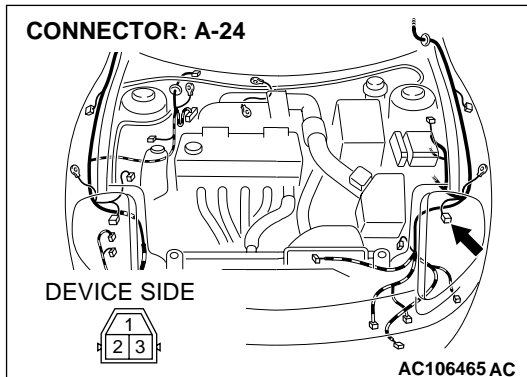
STEP 9. Check headlight (LH) connector A-24 and front-ECU connector A-10X for damage.

Q: Are headlight (LH) connector A-24 and front-ECU connector A-10X in good condition?

YES : Go to Step 10.

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





STEP 10. Check the wiring harness between headlight (LH) connector A-24 (terminal 1) and front-ECU connector A-10X (terminal 6).

Q: Is the wiring harness between headlight (LH) connector A-24 (terminal 1) and front-ECU connector A-10X (terminal 6) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights illuminate normally.

STEP 11. Check headlight (RH) bulb.

- (1) Remove the headlight (RH) bulb.
- (2) Check that the headlight (RH) bulb is not broken.

Q: Is headlight (RH) bulb normal?

YES : Go to Step 12.

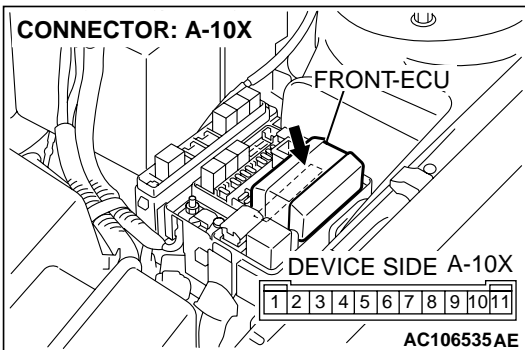
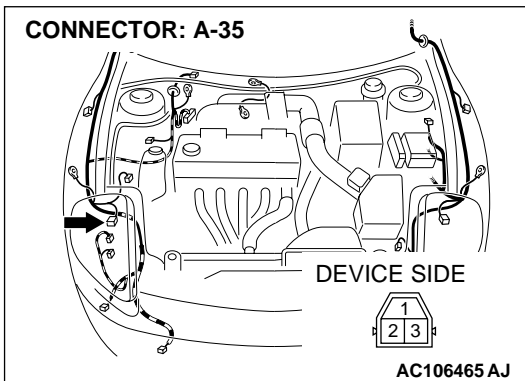
NO : Replace the headlight bulb (RH). Check that the headlights illuminate normally.

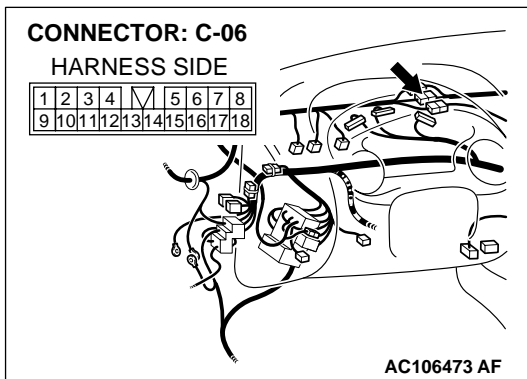
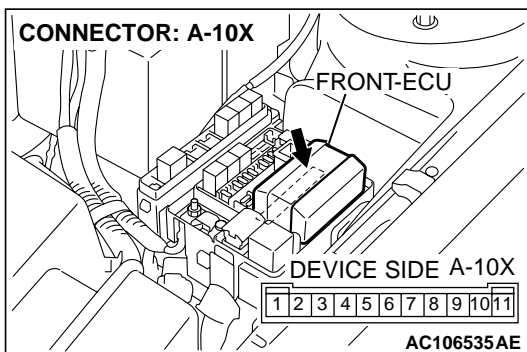
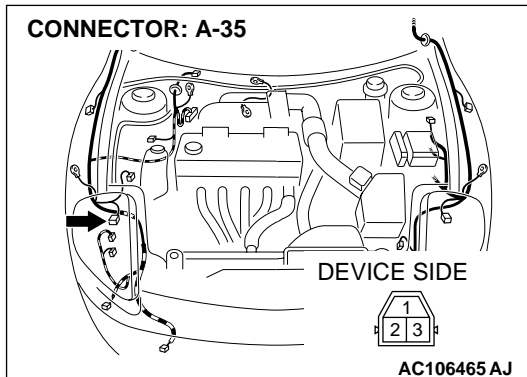
STEP 12. Check headlight (RH) connector A-35 and front-ECU connector A-10X for damage.

Q: Are headlight (RH) connector A-35 and front-ECU connector A-10X in good condition?

YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the headlights illuminate normally.





STEP 13. Check the wiring harness between headlight (RH) connector A-35 (terminal 1) and front-ECU connector A-10X (terminal 6).

NOTE: Also check intermediate connector C-06. If intermediate connector C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection

P.00E-2.

Q: Is the wiring harness between headlight (RH) connector A-35 (terminal 1) and front-ECU connector A-10X (terminal 6) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights illuminate normally.

STEP 14. Check headlight (LH) bulb.

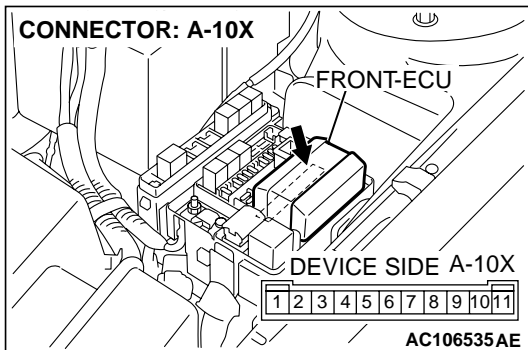
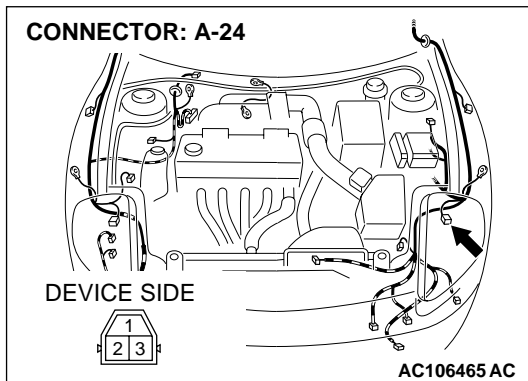
(1) Remove the headlight (LH) bulb.

(2) Check that the headlight (LH) bulb is not broken.

Q: Is headlight (LH) bulb normal?

YES : Go to Step 15.

NO : Replace the headlight bulb (LH). Check that the headlights illuminate normally.

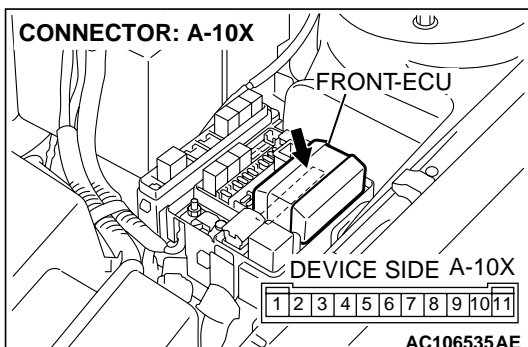
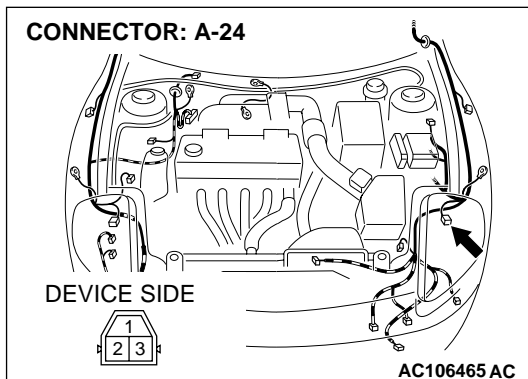


STEP 15. Check headlight (LH) connector A-24 and front-ECU connector A-10X for damage.

Q: Are headlight (LH) connector A-24 and front-ECU connector A-10X in good condition?

YES : Go to Step 16.

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



STEP 16. Check the wiring harness between headlight (LH) connector A-24 (terminal 3) and front-ECU connector A-10X (terminal 2).

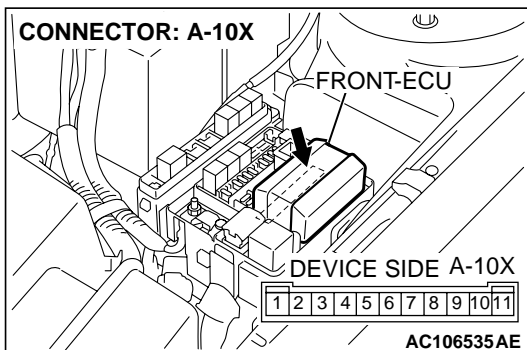
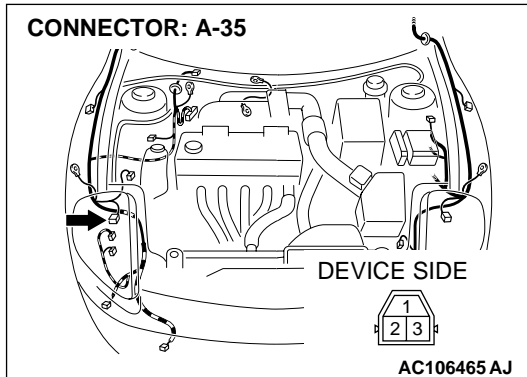
Q: Is the wiring harness between headlight (LH) connector A-24 (terminal 3) and front-ECU connector A-10X (terminal 2) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights illuminate normally.

STEP 17. Check headlight (RH) bulb.

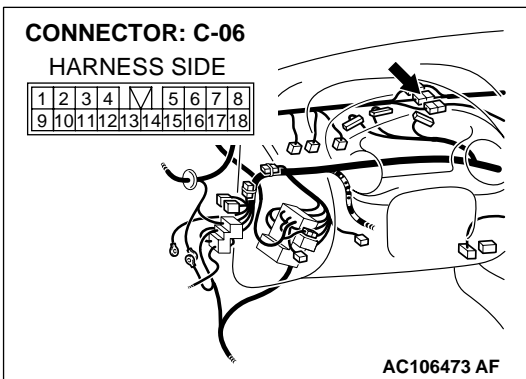
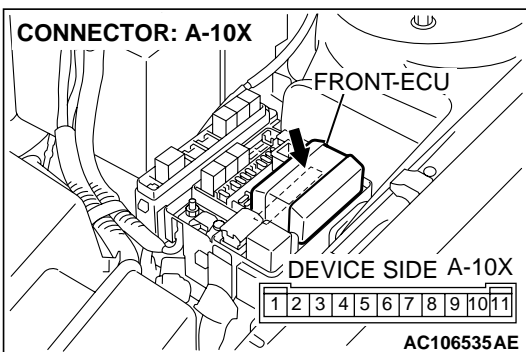
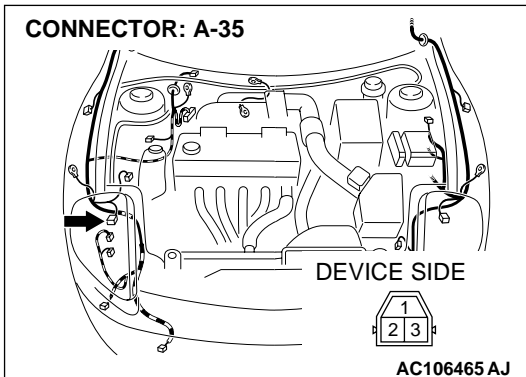
- (1) Remove the headlight (RH) bulb.
- (2) Check that the headlight (RH) bulb is not broken.

Q: Is headlight (RH) bulb normal?**YES :** Go to Step 18.**NO :** Replace the headlight bulb (RH). Check that the headlights illuminate normally.**STEP 18. Check headlight (RH) connector A-35 and front-ECU connector A-10X for damage.****Q: Are headlight (RH) connector A-35 and front-ECU connector A-10X in good condition?****YES :** Go to Step 19.**NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the headlights illuminate normally.

STEP 19. Check the wiring harness between headlight (RH) connector A-35 (terminal 3) and front-ECU connector A-10X (terminal 2).

NOTE: Also check intermediate connector C-06. If intermediate connector C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)



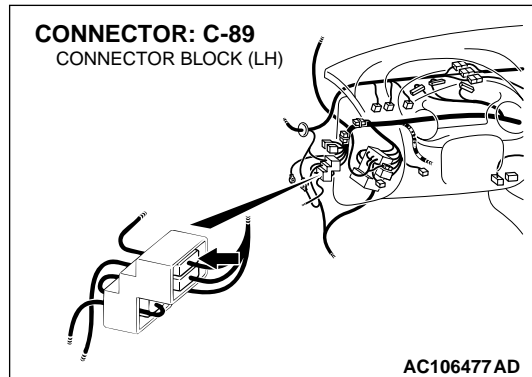
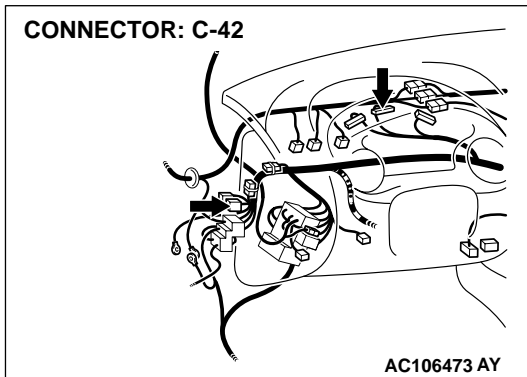
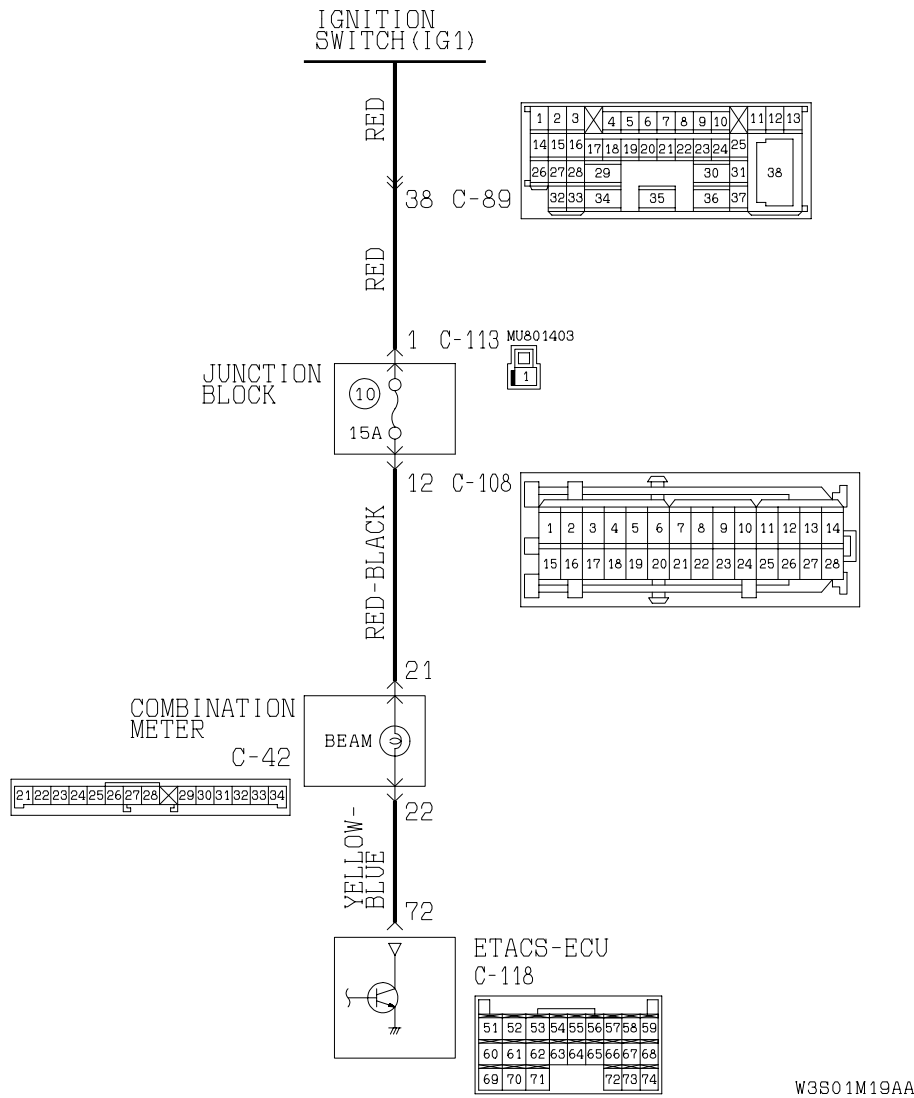
Q: Is the wiring harness between headlight (RH) connector A-35 (terminal 3) and front-ECU connector A-10X (terminal 2) in good condition?

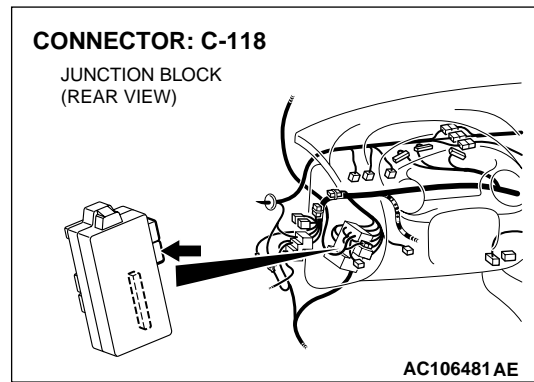
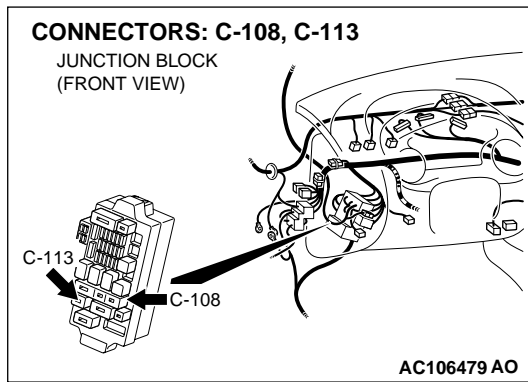
YES : No action to be taken.

NO : Repair the wiring harness. Check that the headlights illuminate normally.

Inspection Procedure J-8: The High-beam Indicator Light does not Illuminate.

Hi-beam Indicator Light Circuit





TECHNICAL DESCRIPTION (COMMENT)

If the high-beam indicator light does not illuminate, the high-beam indicator light bulb or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the high-beam indicator light bulb
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

STEP1. Check the headlight operation.

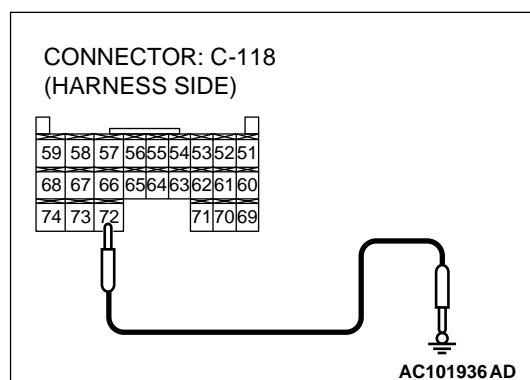
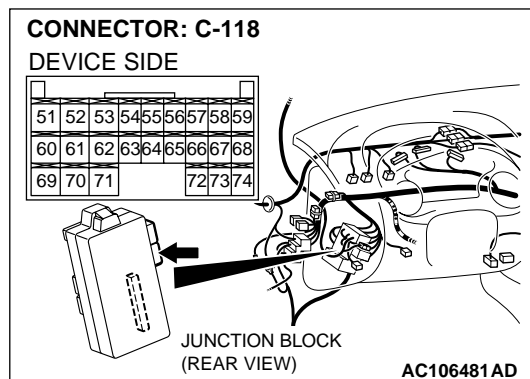
Q: Do the headlights illuminate?

YES : Go to Step 2.

NO : Repair the headlights first (Refer to [P.54B-274](#)).

STEP 2. Check at ETACS-ECU connector C-118 in order to check the high-beam indicator light circuit.

- (1) Disconnect ETACS-ECU connector C-118, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

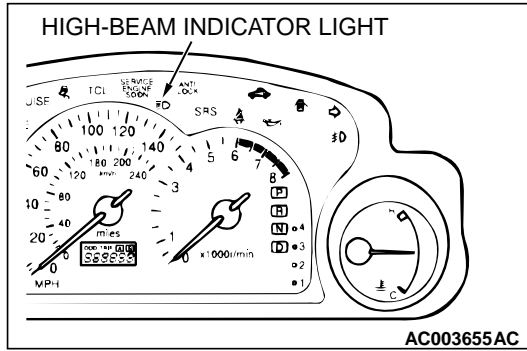


- (3) Connect terminal 72 to ground.

Q: Does the high-beam indicator light illuminate?

YES : Replace the ETACS-ECU. Check that the high-beam indicator light illuminates normally.

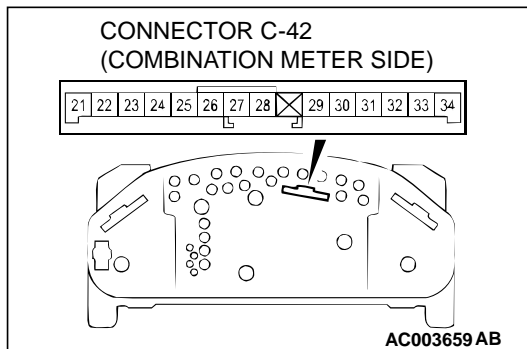
NO : Go to Step 3.

**STEP 3. Check high-beam indicator light bulb.**

Q: Is the high-beam indicator light bulb in good condition?

YES : Go to Step 4.

NO : Replace the high-beam indicator light bulb. Check that the high-beam indicator light illuminates normally.

**STEP 4. Check the combination meter (printed-circuit board).**

- (1) Remove the combination meter. Refer to GROUP 54A, Combination Meter Assembly and Vehicle Speed Sensor [P.54A-105](#).
- (2) Remove the high-beam indicator light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector C-42 terminals 21 and 22. The measured resistance value should be roughly the same as the value measured in Step (2).

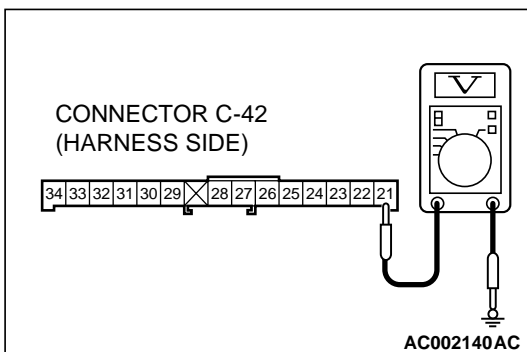
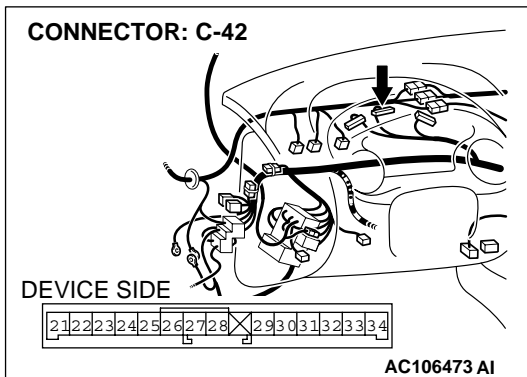
Q: Are these two resistance values extremely different?

YES : Repair or replace the combination meter (printed circuit board). Check that the headlight-beam indicator light illuminates normally.

NO (much the same) : Go to Step 5.

STEP 5. Check combination meter connector C-42 in order to check the ignition switch (IG1) line of the power supply to the high-beam indicator light.

(1) Disconnect combination meter connector C-42, and measure at the wiring harness side.



(2) Measure the voltage between terminal 21 and ground.
 • The measured value should be 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 8.

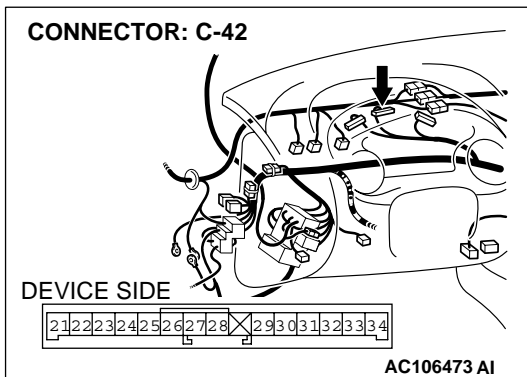
NO : Go to Step 6.

STEP 6. Check combination meter connector C-42 for damage.

Q: Is combination meter connector C-42 in good condition?

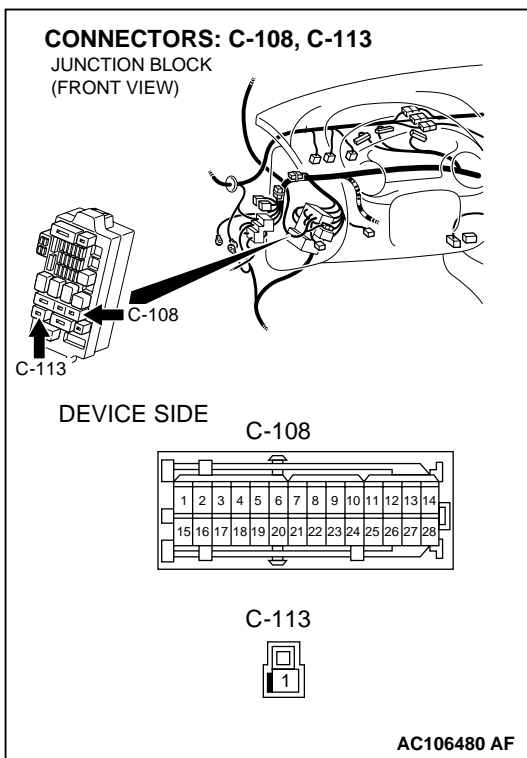
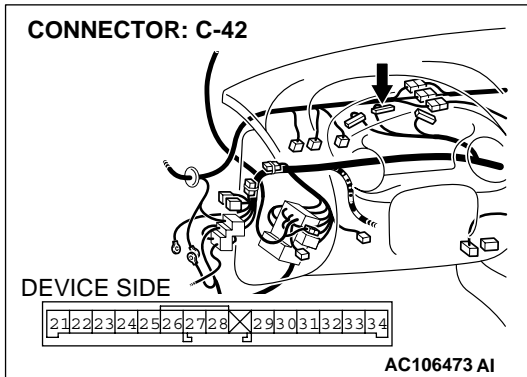
YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the high-beam indicator light illuminates normally.



STEP 7. Check the wiring harness between combination meter connector C-42 (terminal 21) and the ignition switch (IG1).

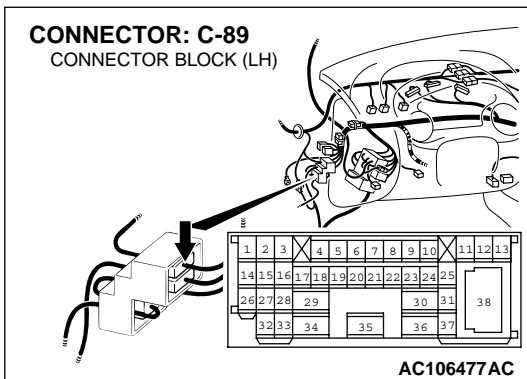
NOTE: Also check junction block connectors C-108, C-113 and intermediate connector C-89. If junction block connectors C-108, C-113 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

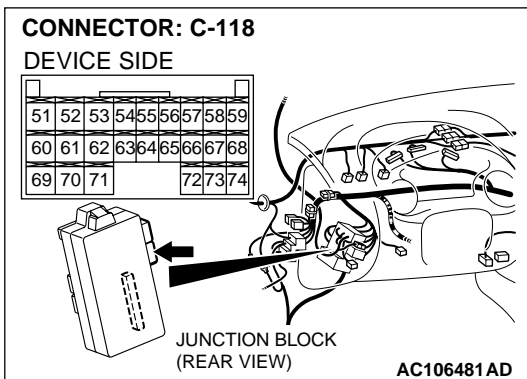
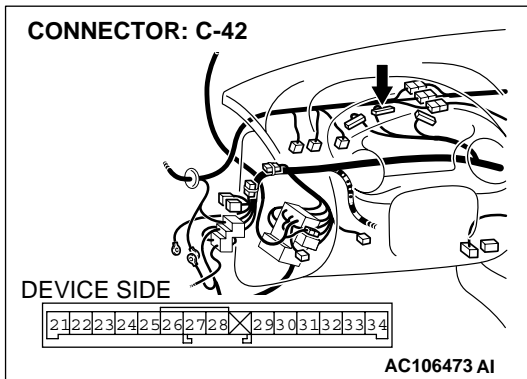


Q: Is the wiring harness between combination meter connector C-42 (terminal 21) and the ignition switch (IG1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the high-beam indicator light illuminates normally.



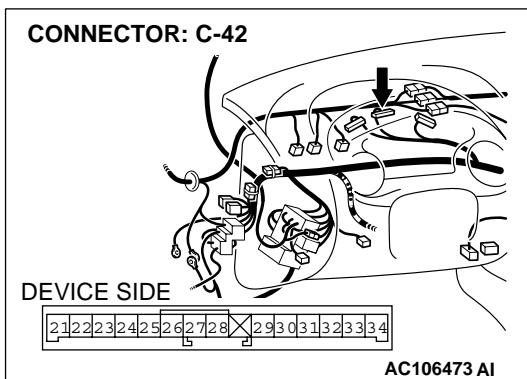


STEP 8. Check combination meter connector C-42 and ETACS-ECU connector C-118 for damage.

Q: Are combination meter connector C-42 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 9.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the high-beam indicator light illuminates normally.

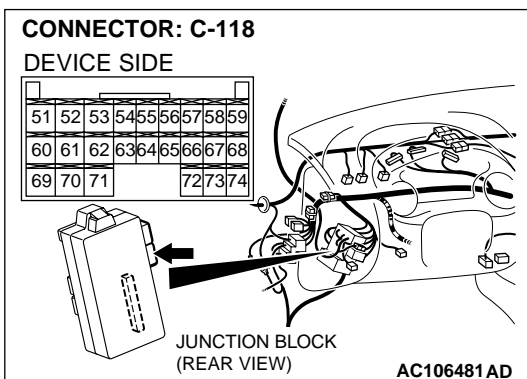


STEP 9. Check the wiring harness between combination meter connector C-42 (terminal 22) and ETACS-ECU connector C-118 (terminal 72).

Q: Is the wiring harness between combination meter connector C-42 (terminal 22) and ETACS-ECU connector C-118 (terminal 72) in good condition?

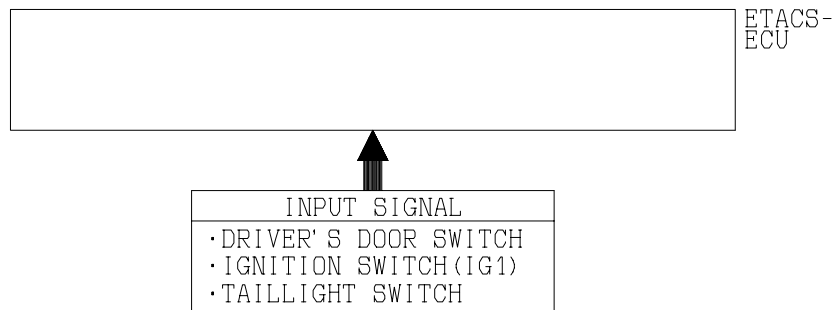
YES : No action to be taken.

NO : Repair the wiring harness. Check that the high-beam indicator light illuminates normally.



INSPECTION PROCEDURE J-9: Headlight, Tail Light: Headlight Automatic Shutdown Function does not Work Normally.

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

Headlight Automatic Shutt-down Function

W2S02M32AA

CIRCUIT OPERATION

The ETACS-ECU operates the headlight automatic shutdown function according to the following signals:

- Ignition switch (IG1): OFF
- Driver's door switch: ON
- Tail light switch: ON
- Headlight switch: ON

The ETACS-ECU operates the headlight automatic shutdown function under the following conditions:

- Ignition key: Other than "ON" position
- Driver's door: open
- Tail light or headlight: Illuminating

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's door switch
- Malfunction of the column switch (turn-signal light and lighting switch)
- Malfunction of the ETACS-ECU
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the input signals from the following switches:

- Ignition switch: "ON" to "OFF"
- Lighting switch: "TAIL" or "HEAD"
- Driver's and front passenger's door: closed

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "H/L AUTO-CUT."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "LIGHTING."
 6. Select "H/L AUTO-CUT."
- (4) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.01	TAILLIGHT SW	ON
ITEM No.30	IG SW (IG1)	OFF

- (5) When the driver's door is opened, check that normal conditions are displayed on the items described in the table below.

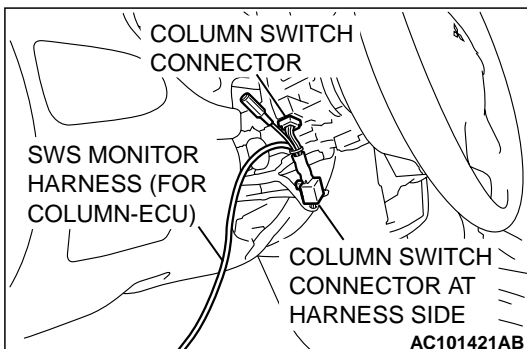
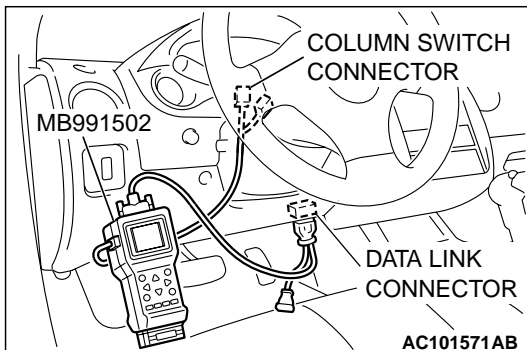
ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.32	FRONT DOOR SW	ON
ITEM No.35	H/L AUTO-CUT	ON

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

YES : Replace the front-ECU. Check that the headlight automatic shutdown function works normally.

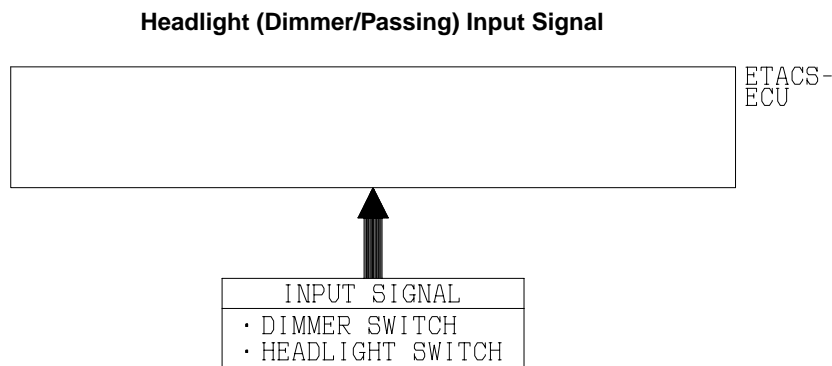
NO :

- The scan tool does not show the respective normal condition for item "TAILLIGHT SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive a signal from the tail light switch P.54B-511."



- 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 a signal from the ignition switch (IG1) P.54B-469."
- The scan tool does not show the respective normal condition for item "FRONT DOOR SW." Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch P.54B-502."
- The scan tool does not show the respective normal condition for item "H/L AUTO-CUT." Replace the front-ECU. Check that the headlight automatic shutdown function works normally.

INSPECTION PROCEDURE J-10: Headlight, Tail Light: Headlight Dimmer Switch Automatic Resetting Function does not Work Normally.



W2J08M63AA

CIRCUIT OPERATION

The headlight dimmer switch automatic resetting function is controlled by the front-ECU.

TECHNICAL DESCRIPTION (COMMENT)

If the headlight dimmer switch automatic resetting function does not work normally, the front-ECU may be defective.

TROUBLESHOOTING HINT

Malfunction of the front-ECU

DIAGNOSIS

Replace the front-ECU.
Check that the headlight dimmer switch automatic resetting function works normally.

FLASHER TIMER

GENERAL DESCRIPTION CONCERNING FLASHER TIMER

M1549023600012

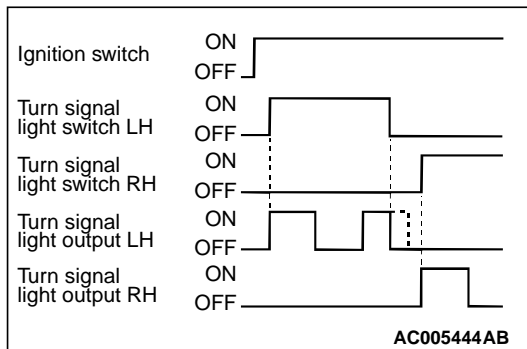
The following ECUs affect the functions and control of the flasher timer.

Functions	Control ECU
Turn signal light	ETACS-ECU, column switch
Hazard light	ETACS-ECU

FLASHER TIMER FUNCTION

Turn signal light

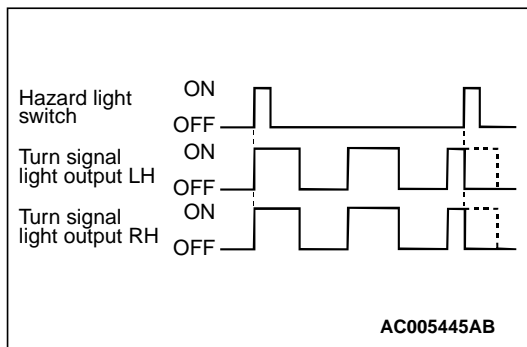
The turn signal light output (flashing signal) is turned ON when the turn signal light ignition switch is ON and the turn signal light switch is ON (LH or RH.) If the front turn signal light or rear turn signal light bulb has burned out, the flashing speed increases to indicate that the bulb has burned out.



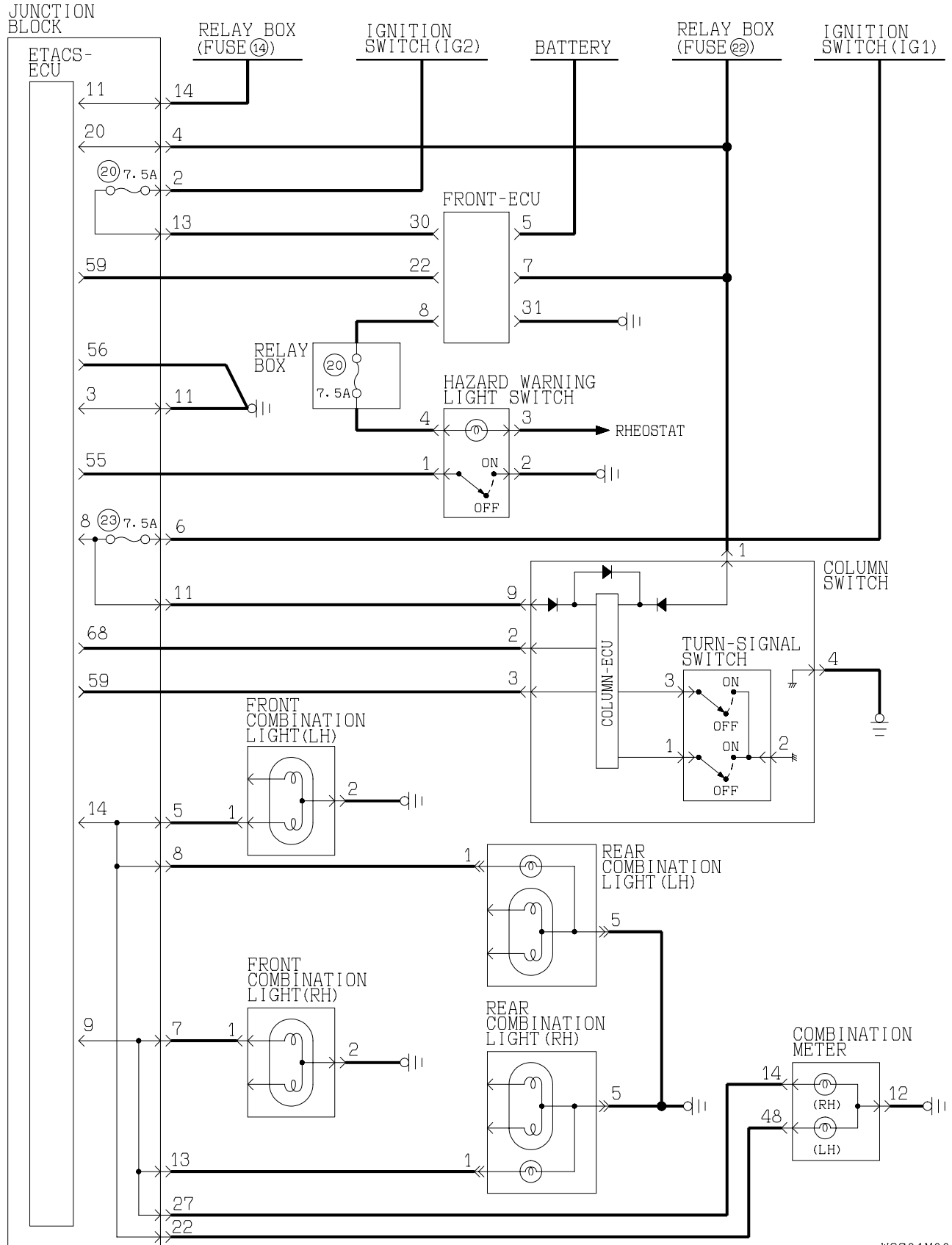
Hazard light

The hazard lights output (flashing) is turned ON when the hazard switch is turned OFF to ON. When the switch is turned ON again, the output is turned OFF.

NOTE: The hazard light switch is a push-return type toggle switch.



General circuit diagram for the turn signal light and hazard light

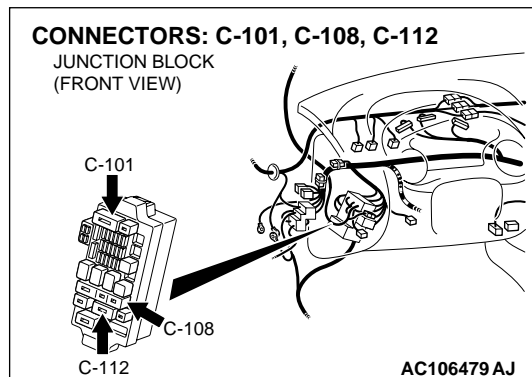
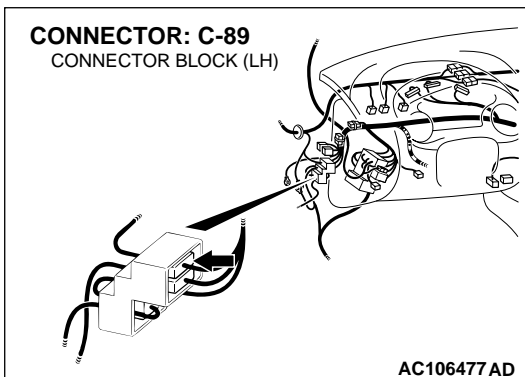
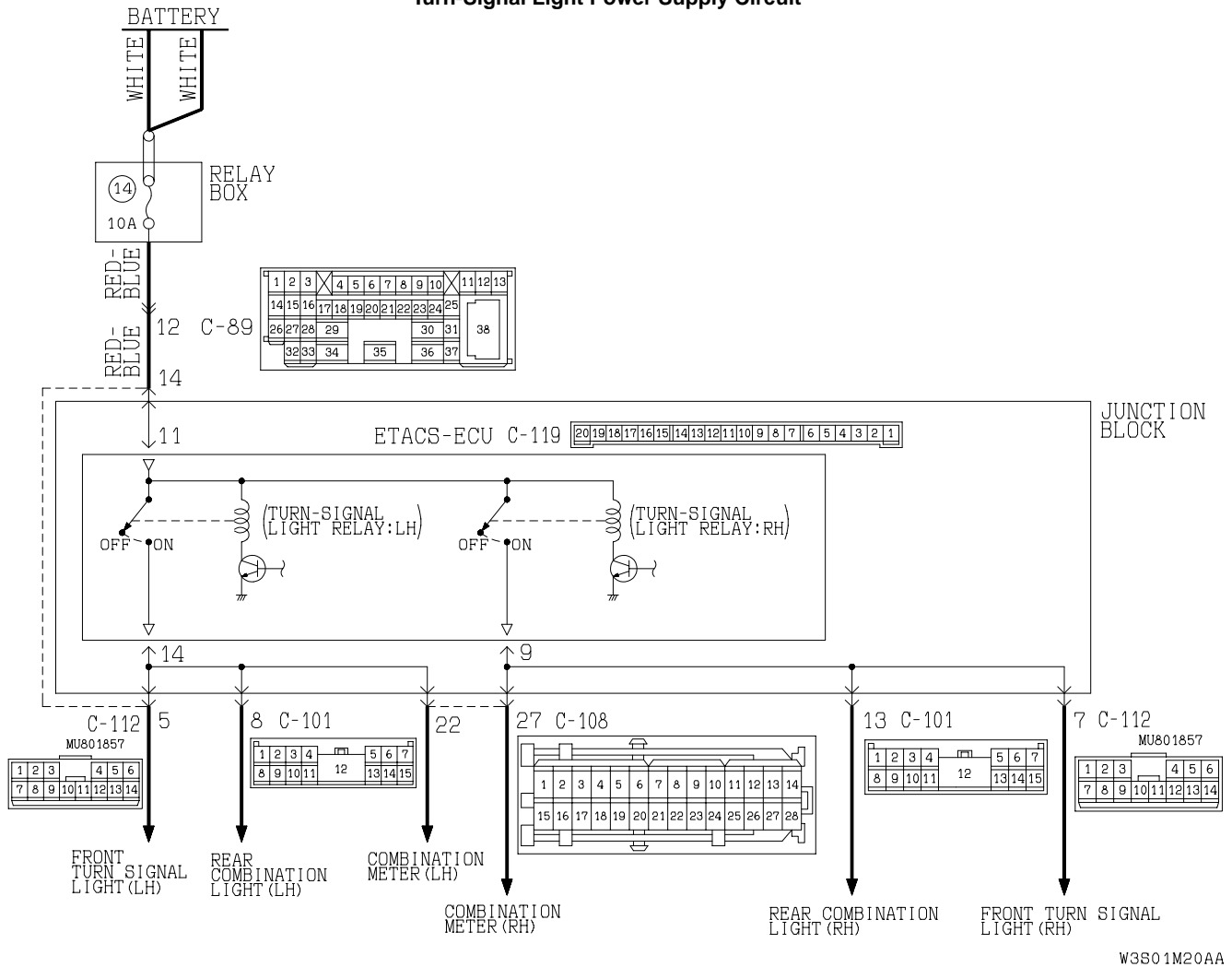


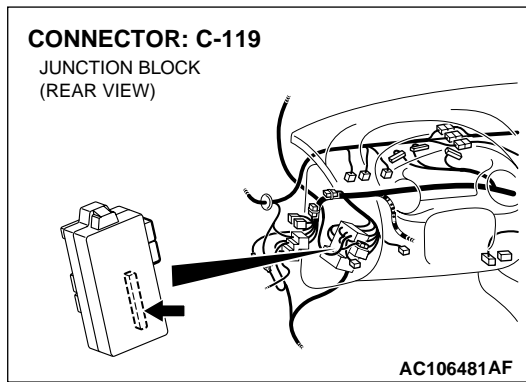
W3S01M00AA

INSPECTION PROCEDURE K-1: Flasher Timer: Turn-signal Lights does not Flash when the Turn-signal Light Switch is Turned On.

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

Turn-Signal Light Power Supply Circuit





CIRCUIT OPERATION

- The turn-signal light switch sends a signal through the column-ECU (incorporated in the column switch) to the ETACS-ECU. If the column-ECU sends a turn-signal light switch "ON" signal to the ETACS-ECU, the ETACS-ECU turns on the flasher timer (incorporated in the ETACS-ECU), thus causing the turn-signal lights to flash.
- The ETACS-ECU operates the turn-signal lights according to the following signals:
 - Ignition switch (IG1): ON
 - Turn-signal light switch: ON
- The ETACS-ECU flashes the turn-signal lights under the following conditions:
 - Ignition key: "ON" position
 - Turn-signal light switch: Left or right turn-signal position

TECHNICAL DESCRIPTION (COMMENT)

Is the turn-signal lights do not flash normally, the input circuits from the switches described in "CIRCUIT OPERATION" or the ETACS-ECU may be defective. If the hazard warning lights do not flash, the power supply line to the ETACS-ECU (dedicated to the turn-signal lights) may be defective.

TROUBLESHOOTING HINTS

- Malfunction of column switch (turn-signal light and lighting switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the hazard warning light.

Q: Do the hazard warning lights work normally?

YES : Go to Step 7.

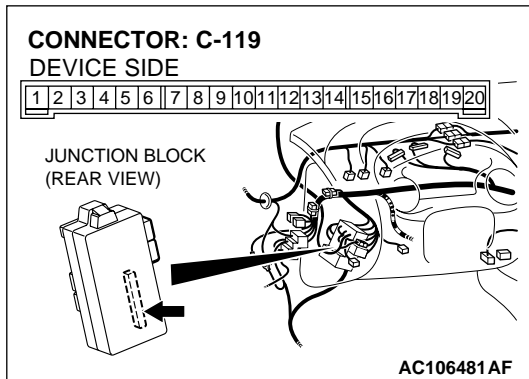
NO : Go to Step 2.

STEP 2. Check the turn-signal lights.

Q: Does either of the turn-signal lights illuminate?

YES (illuminates at only one side) : Go to Step 3.

NO (do not illuminate at all) : Go to Step 4.

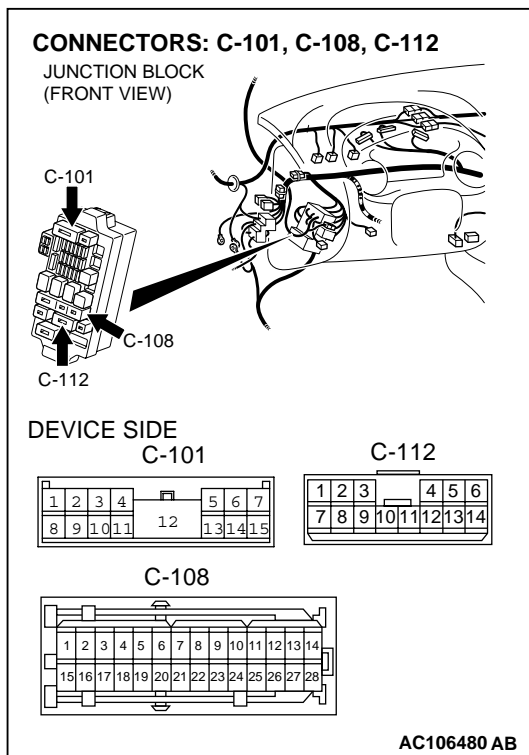


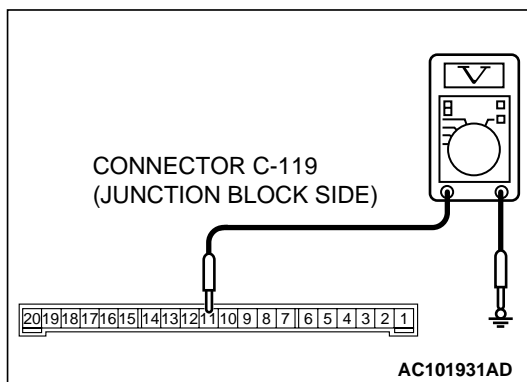
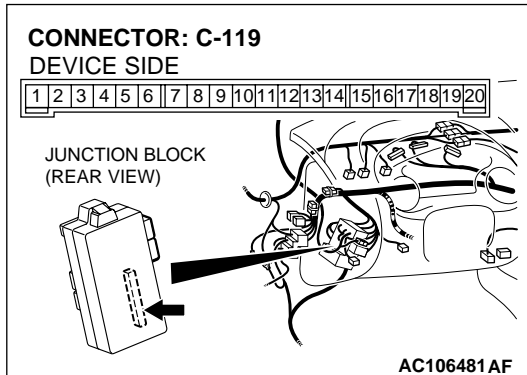
STEP 3. Check ETACS-ECU connector C-119, junction block connectors C-101, C-108 and C-112 for damage.

Q: Are ETACS-ECU connector C-119, junction block connectors C-101, C-108 and C-112 in good condition?

YES : Replace the ETACS-ECU. Check that the turn-signal lights illuminate normally.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 4. Check at ETACS-ECU connector C-119 in order to check the power supply circuit to the ETACS-ECU (battery power supply).

(1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.

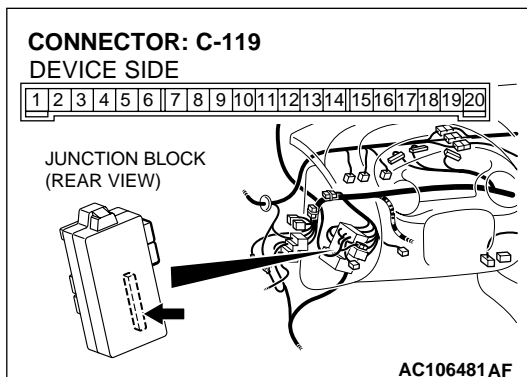
(2) Measure the voltage between terminal 11 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Replace the ETACS-ECU. Check that the turn-signal lights illuminate normally.

NO : Go to Step 5.

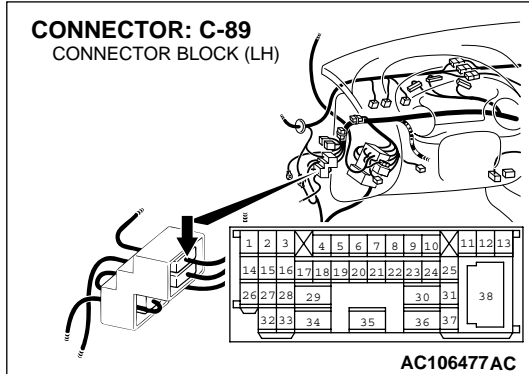
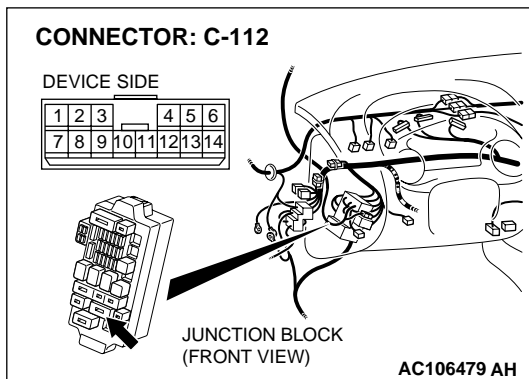
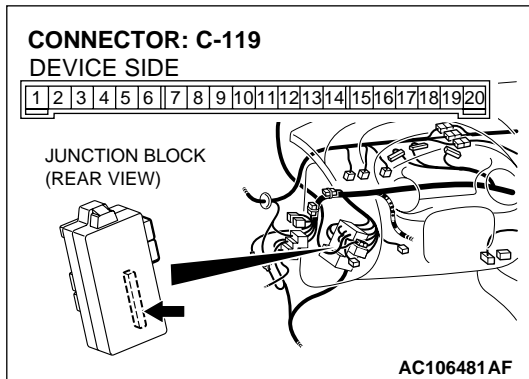


STEP 5. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.



STEP 6. Check the wiring harness between ETACS-ECU connector C-119 (terminal 11) and the battery.

NOTE: Also check junction block connector C-112 and intermediate connector C-89. If junction block connector C-112 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 11) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

STEP 7. Check the input signal by using "FUNCTION DIAG." of the SWS monitor.

Check the input signals from the following switches:

- Ignition switch: ON
- Turn-signal light switch: RH

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

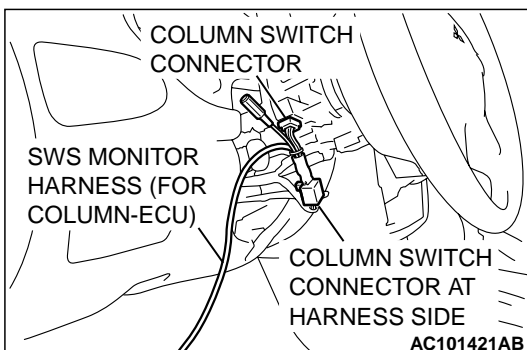
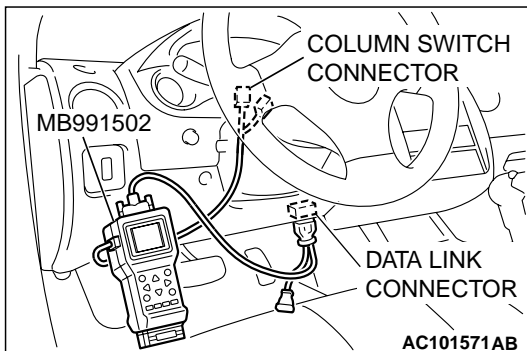
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "TURN SIG.RH."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "TURN SIGNAL."
 6. Select "TURN SIG.RH."
- (4) Check that normal conditions are displayed on the items described in the table below.

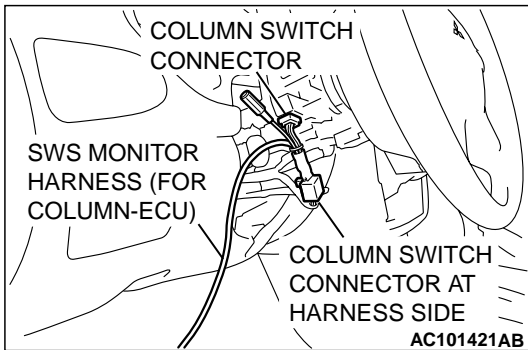
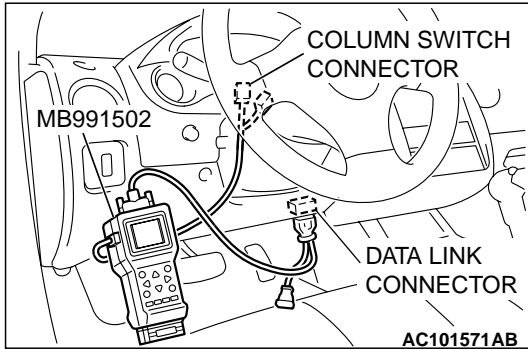
ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.10	T/S RH SW	ON
ITEM No.30	IG SW (IG1)	ON

Q: Does the scan tool display the items "T/S RH SW" and "IG SW (IG1)" as normal condition?

YES : Go to Step 8.

- NO :**
- The scan tool does not show the respective normal condition for item "T/S RH SW." Refer to Inspection Procedure O-7 "ETACS-ECU does not receive any signal from the taillight switch, the headlight switch, the passing light switch, the dimmer switch, the turn-signal light switch or switch P.54B-511."
 - 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 a signal from the ignition switch (IG1) P.54B-469."





STEP 8. Check the input signal by using "FUNCTION DIAG." of the SWS monitor.

If the Ignition switch is turned to the "ON" position and the turn-signal light switch (LH) is turned on, normal conditions should be displayed on the items described in the table below.

Operate the MUT-II according to the procedure below to display "TURN SIG.LH."

1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "SWS MONITOR."
4. Select "FUNCTION DIAG."
5. Select "TURN SIGNAL."
6. Select "TURN SIG.LH."

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.11	T/S LH SW	ON

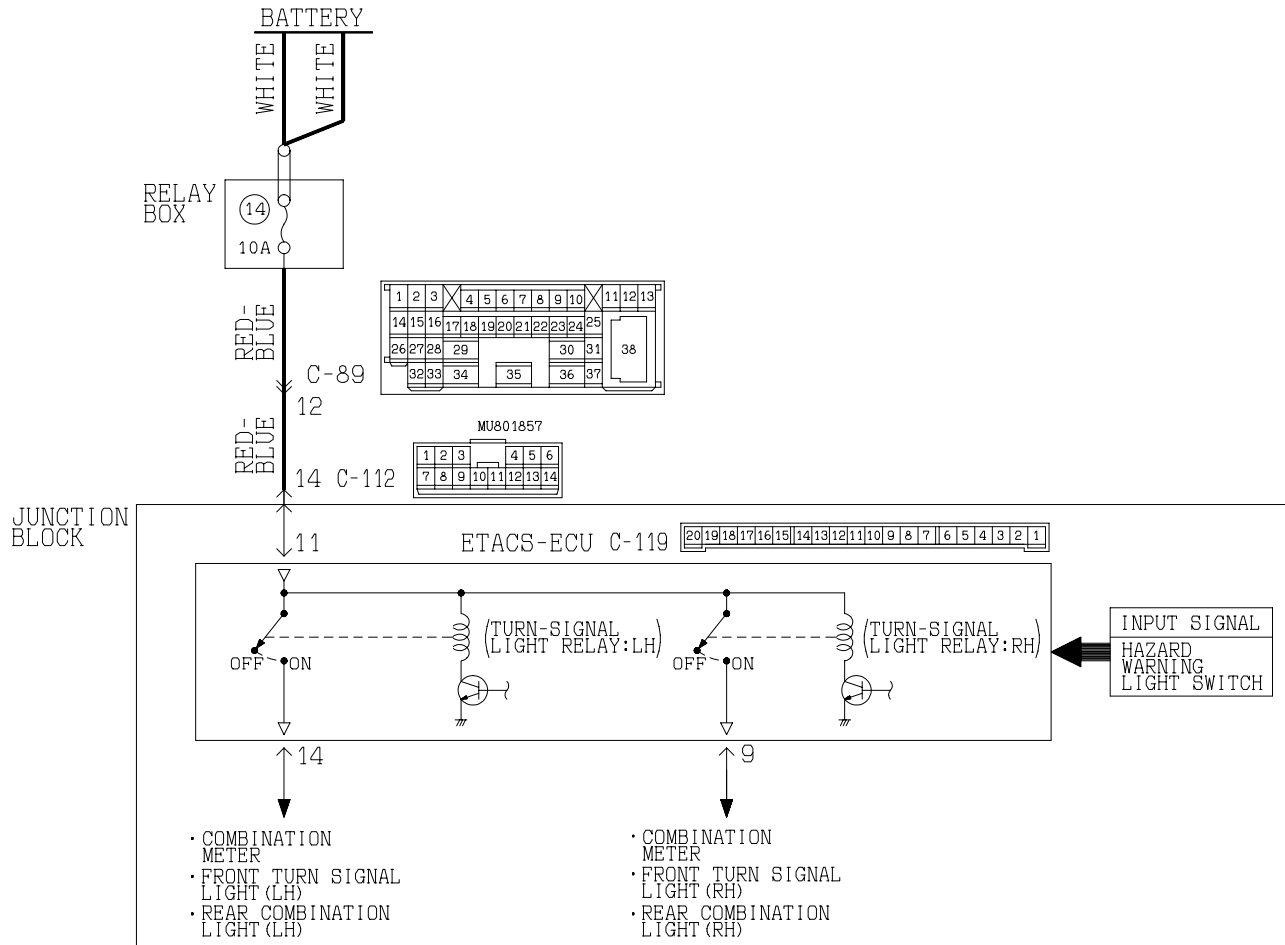
Q: Do the scan tool display the items "T/S LH SW" is normal condition?

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

NO : Refer to Inspection Procedure O-7 "ETACS-ECU does not receive any signal from the taillight switch, the headlight switch, the passing light switch, the dimmer switch, the turn-signal light switch or switch [P.54B-511.](#)"

INSPECTION PROCEDURE K-2: Flasher Timer: Hazard Warning Lights do not Illuminate.

Hazard Warning Light Circuit



W3S0 1M21AA

CIRCUIT OPERATION

If the ETACS-ECU receives "ON" signal from the hazard warning light switch, the ETACS-ECU turns on the flasher timer (incorporated in the ETACS-ECU), thus causing the turn-signal lights to flash.

TECHNICAL DESCRIPTION (COMMENT)

If the hazard warning lights do not flash, the power supply line to the ETACS-ECU (dedicated to the turn-signal lights) or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hazard warning light switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the turn-signal lights.

Q: Do the turn-signal lights illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure K-1 "Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54B-345](#)."

STEP 2. Check the input signal (by using the Pulse Check).

Check input signal from the hazard warning light switch.

CAUTION

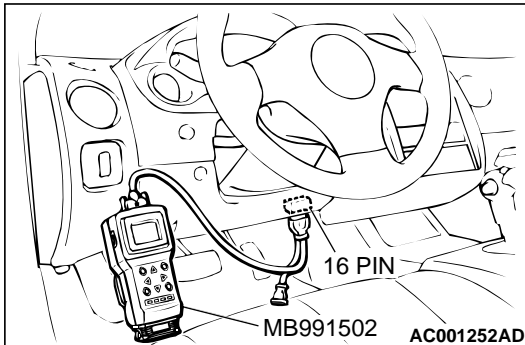
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II according to the procedure below to display "PULSE CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) Check that scan tool MB991502 sounds when the hazard warning light switch is turned from "OFF" to "ON."

Q: Does scan tool MB991502 sound when the hazard warning light switch is turned from "OFF" to "ON"?

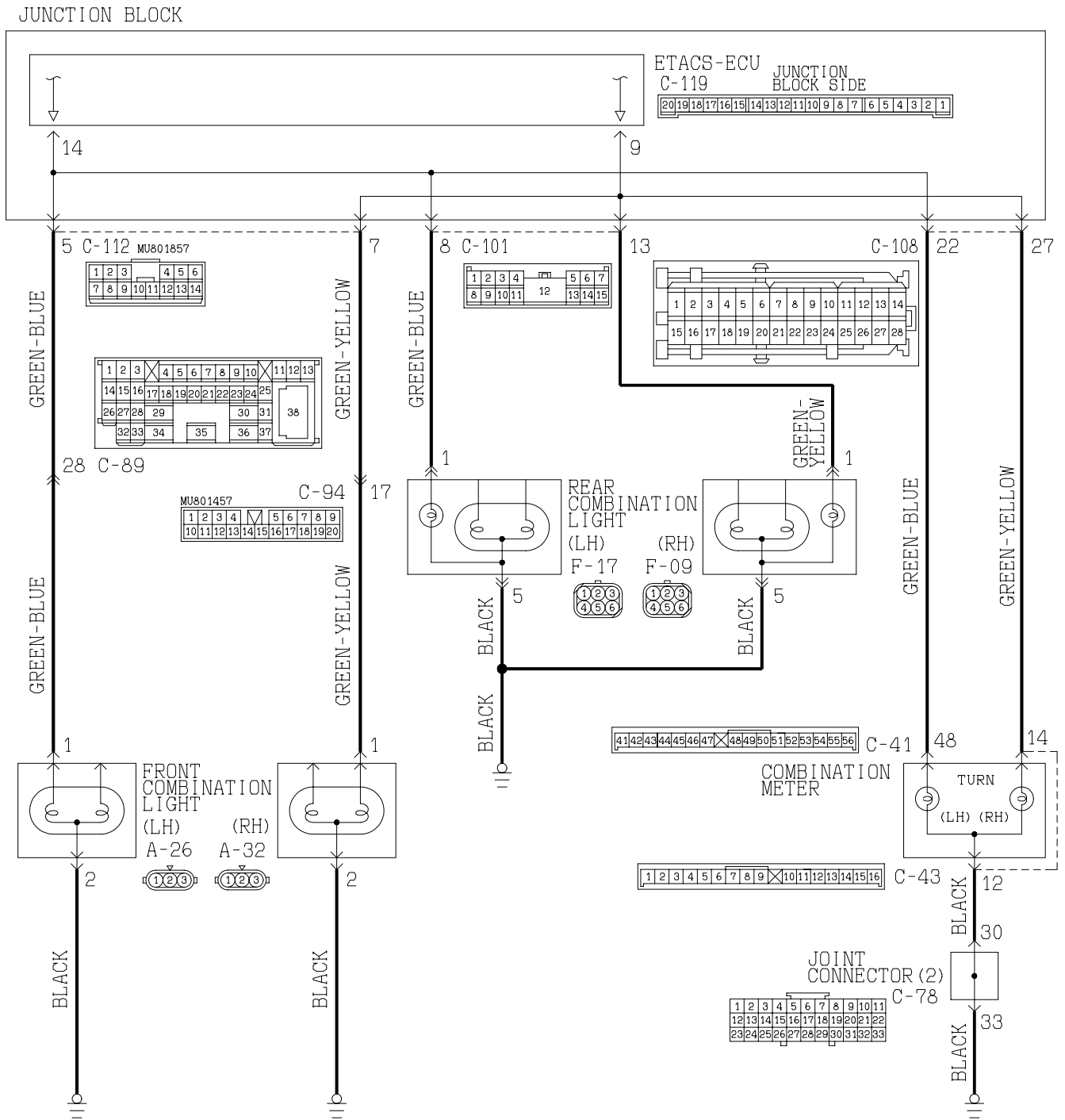
YES : Replace the ETACS-ECU. Check that the hazard warning lights illuminate normally.

NO : Refer to Inspection Procedure P-2 "ETACS-ECU does not receive a signal from the hazard warning light switch" [P.54B-528](#).

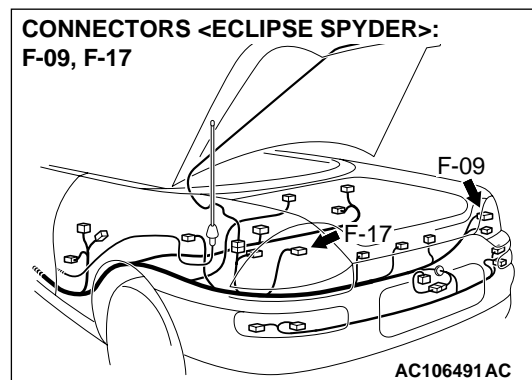
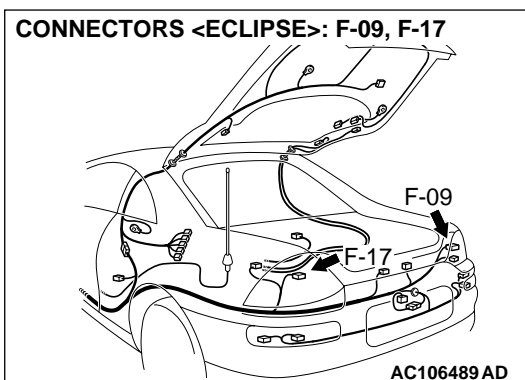
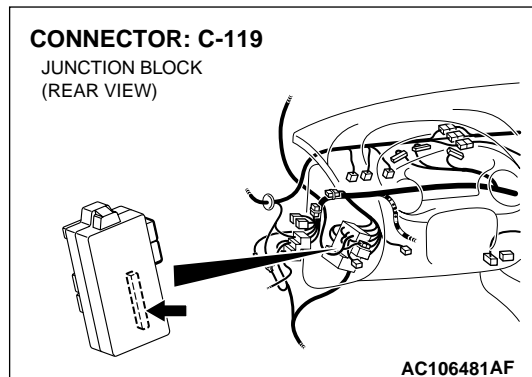
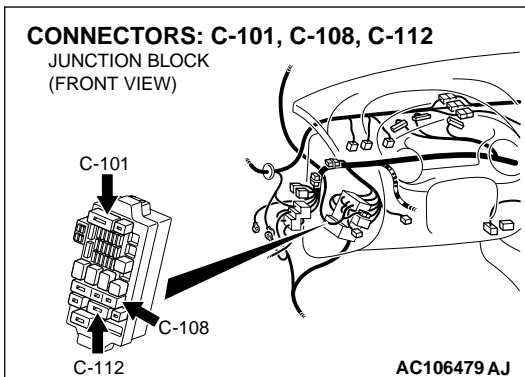
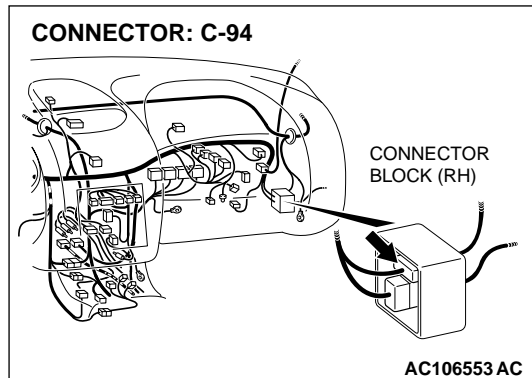
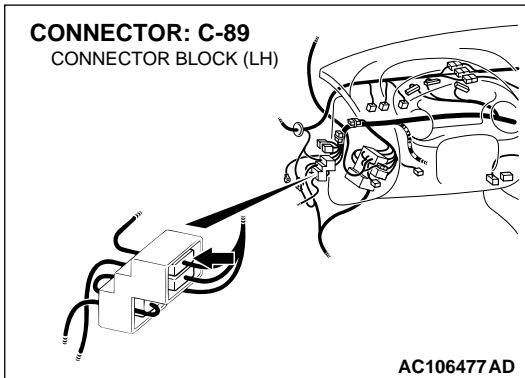
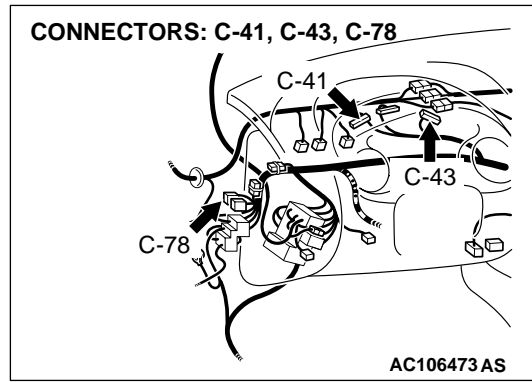
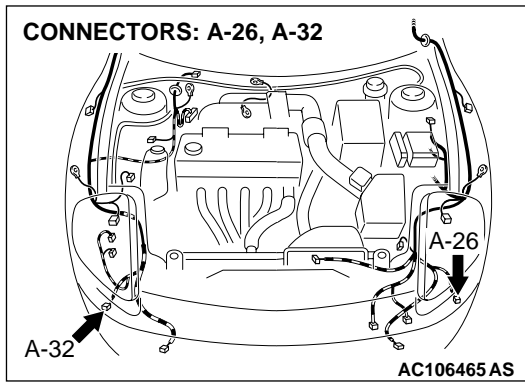


INSPECTION PROCEDURE K-3: Frasher Timer: The Right or Left Turn-signal Light does not Illuminate.

Turn-signal Light Circuit



W2S13M28AA



TECHNICAL DESCRIPTION (COMMENT)

If the right or left turn-signal light does not illuminate, their bulb may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the turn-signal light bulb
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set

STEP 1. Check the hazard warning light.**Q: Which turn-signal light does not illuminate?**

front turn-signal light (LH) : Go to Step 2.

front turn-signal light (RH) : Go to Step 8.

rear combination light (LH) : Go to Step 14.

rear combination light (RH) : Go to Step 20.

combination meter (LH) : Go to Step 26.

combination meter (RH) : Go to Step 28.

combination meter (both right and left) : Go to Step 30.

LH side only : Refer to Inspection Procedure K-1 Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54B-345](#).

RH side only : Refer to Inspection Procedure K-1 Turn-signal lights does not flash when the turn-signal light switch is turned on [P.54B-345](#).

Both LH and RH sides : Refer to Inspection Procedure K-2 Hazard warning light does not illuminate [P.54B-352](#).

STEP 2. Check the front turn-signal light bulb (LH).

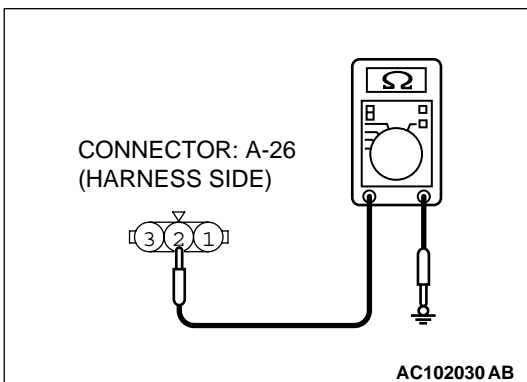
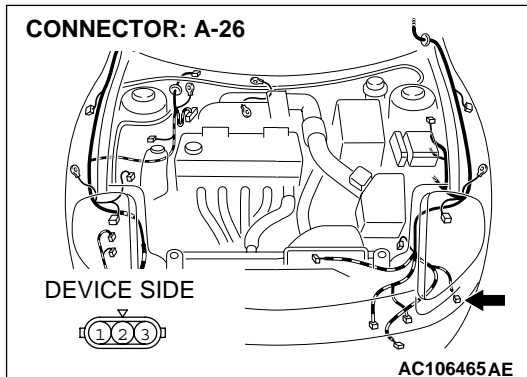
(1) Remove the front turn-signal (LH) light bulb.

(2) Check that the front turn-signal light bulb (LH) is not broken.

Q: Is the front turn-signal (LH) light bulb in good condition?

YES : Go to Step 3.

NO : Replace the front turn-signal (LH) light bulb. Check that the turn-signal lights illuminate normally.



STEP 3. Measure at front combination light (LH) connector A-26 in order to check the ground circuit to the front combination light (LH).

(1) Disconnect front combination light (LH) connector A-26, and measure at the wiring harness side.

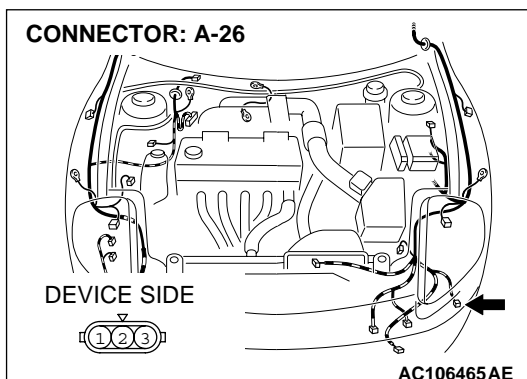
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.

NO : Go to Step 4.

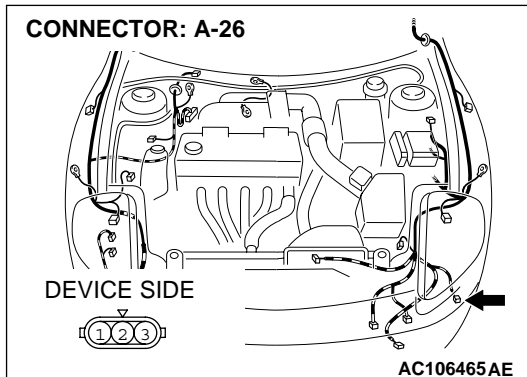


STEP 4. Check front combination light (LH) connector A-26 for damage.

Q: Is front combination light (LH) connector A-26 in good condition?

YES : Go to Step 5.

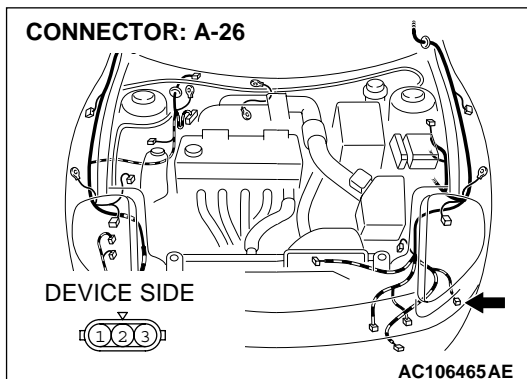
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the turn-signal lights illuminate normally.



STEP 5. Check the wiring harness between front combination light (LH) connector A-26 (terminal 2) and ground.

Q: Is the wiring harness between front combination light (LH) connector A-26 (terminal 2) and ground in good condition?

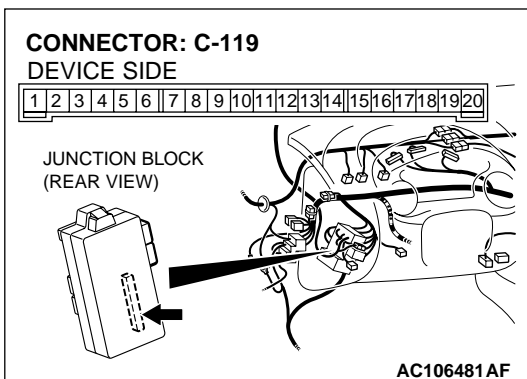
- YES :** Replace the front combination light socket (LH).
Check that the turn-signal lights illuminate normally.
- NO :** Repair the wiring harness. Check that the turn-signal lights illuminate normally.



STEP 6. Check front combination light (LH) connector A-26 and ETACS-ECU connector C-119 for damage.

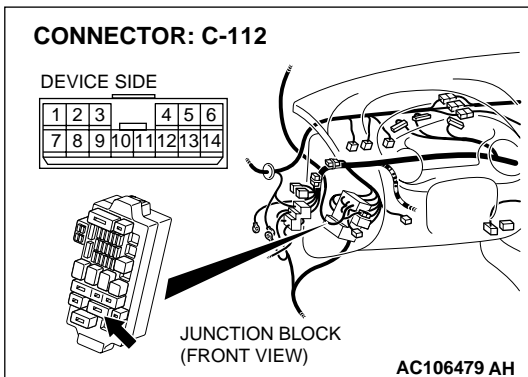
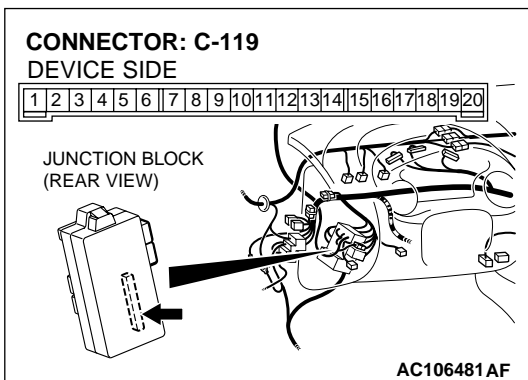
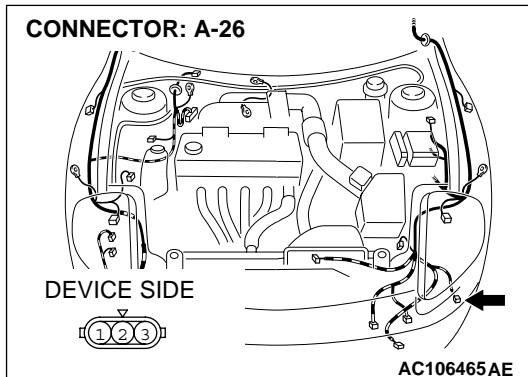
Q: Are front combination light (LH) connector A-26 and ETACS-ECU connector C-119 in good condition?

- YES :** Go to Step 7.
- NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.



STEP 7. Check the wiring harness between front combination light (LH) connector A-26 (terminal 1) and ETACS-ECU connector C-119 (terminal 14).

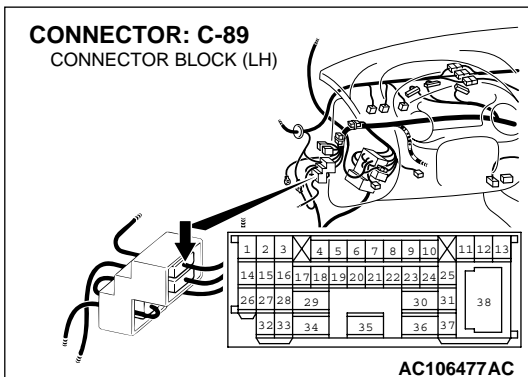
NOTE: Also check junction block connector C-112 and intermediate connector C-89. If junction block connector C-112 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between front combination light (LH) connector A-26 (terminal 1) and ETACS-ECU connector C-119 (terminal 14) in good condition?

YES : Replace the front combination light socket (LH). Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

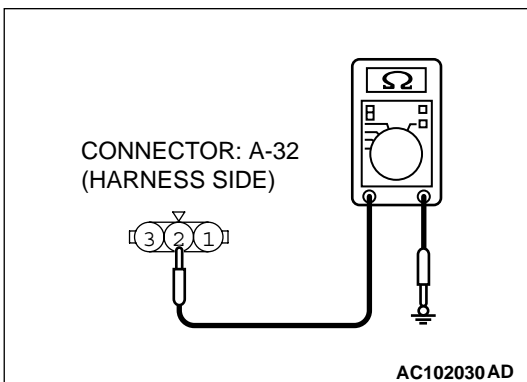
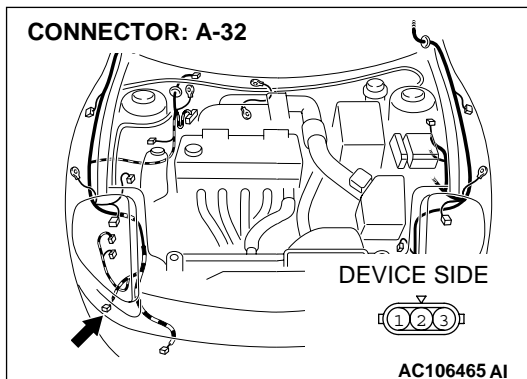


STEP 8. Check the front turn-signal light bulb (RH).

- (1) Remove the front turn-signal (RH) light bulb.
- (2) Check that the front turn-signal light bulb (RH) is not broken.

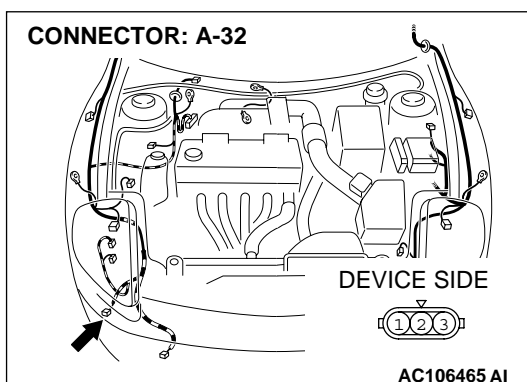
Q: Is the front turn-signal (RH) light bulb in good condition?**YES :** Go to Step 9.**NO :** Replace the front turn-signal (RH) light bulb. Check that the turn-signal lights illuminate normally.**STEP 9. Measure at front combination light (RH) connector A-32 in order to check the ground circuit to the front combination light (RH).**

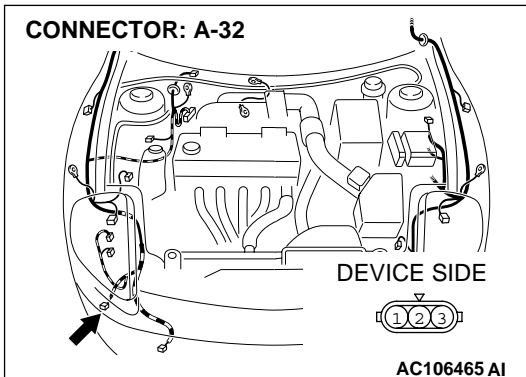
- (1) Disconnect front combination light (RH) connector A-32, and measure at the wiring harness side.



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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?**YES :** Go to Step 12.**NO :** Go to Step 10.**STEP 10. Check front combination light (RH) connector A-32 for damage.****Q: Is front combination light (RH) connector A-32 in good condition?****YES :** Go to Step 11.**NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.

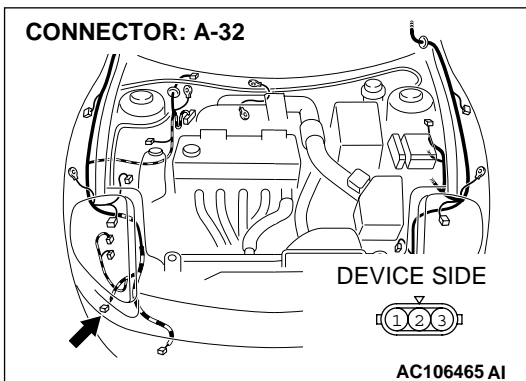


STEP 11. Check the wiring harness between front combination light (RH) connector A-32 (terminal 2) and ground.

Q: Is the wiring harness between front combination light (RH) connector A-32 (terminal 2) and ground in good condition?

YES : Replace the front combination light socket (RH). Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

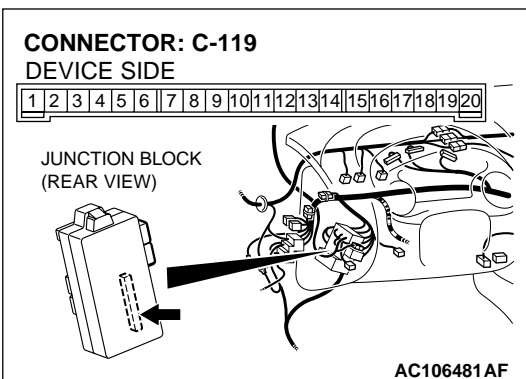


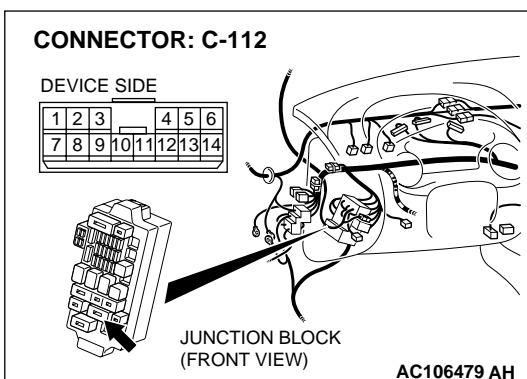
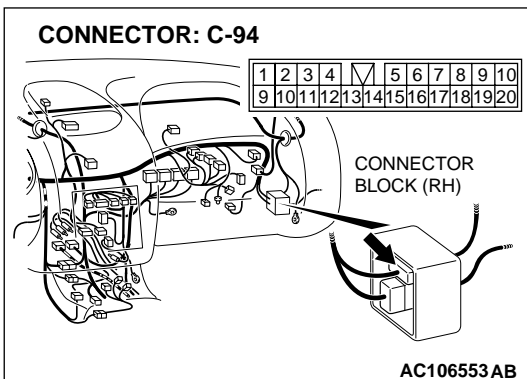
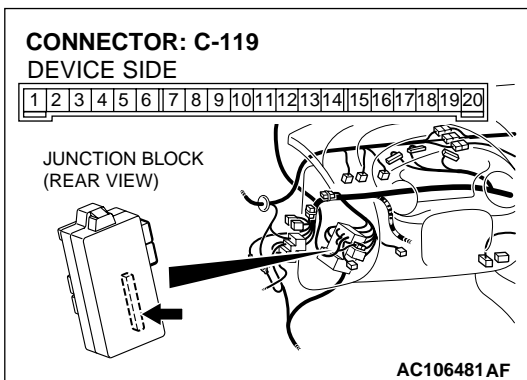
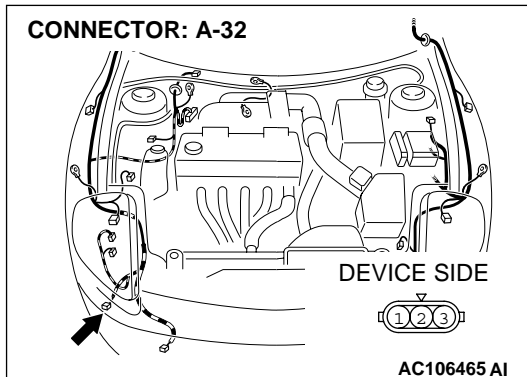
STEP 12. Check front combination light (RH) connector A-32 and ETACS-ECU connector C-119 for damage.

Q: Are front combination light (RH) connector A-32 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 13. Check the wiring harness between front combination light (RH) connector A-32 (terminal 1) and ETACS-ECU connector C-119 (terminal 9).

NOTE: Also check junction block connector C-112 and intermediate connector C-94. If junction block connector C-112 or intermediate connector C-94 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front combination light (RH) connector A-32 (terminal 1) and ETACS-ECU connector C-119 (terminal 9) in good condition?

YES : Replace the front combination light socket (RH).

Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

STEP 14. Check the rear turn-signal light bulb (LH).

- (1) Remove the rear turn-signal (LH) light bulb.
- (2) Check that the rear turn-signal light bulb (LH) is not broken.

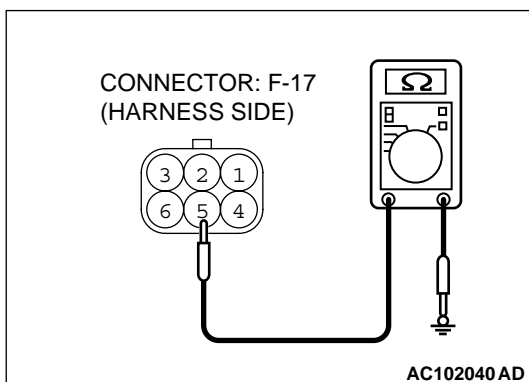
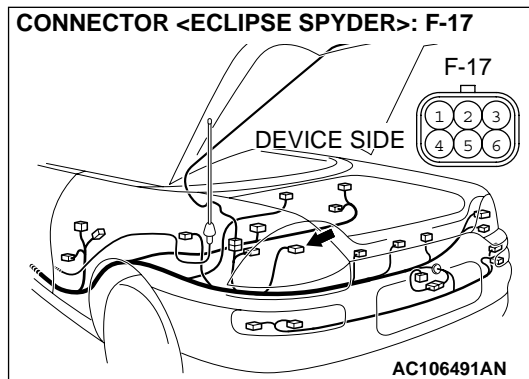
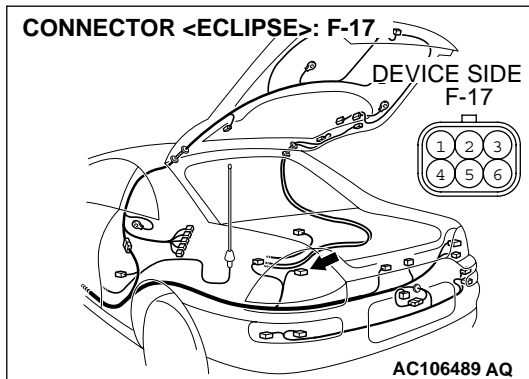
Q: Is the rear turn-signal (LH) light bulb in good condition?

YES : Go to Step 15.

NO : Replace the rear turn-signal (LH) light bulb. Check that the turn-signal lights illuminate normally.

STEP 15. Measure at rear combination light (LH) connector F-17 in order to check the ground circuit to the rear combination light (LH).

- (1) Disconnect rear combination light (LH) connector F-17, and measure at the wiring harness side.



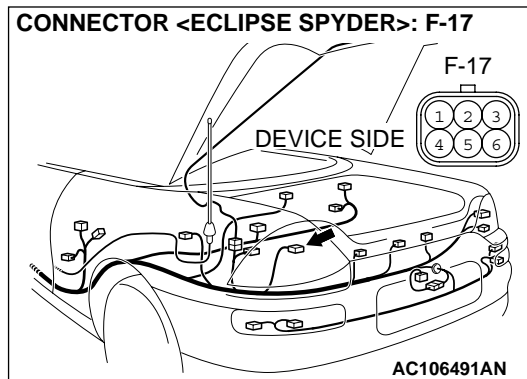
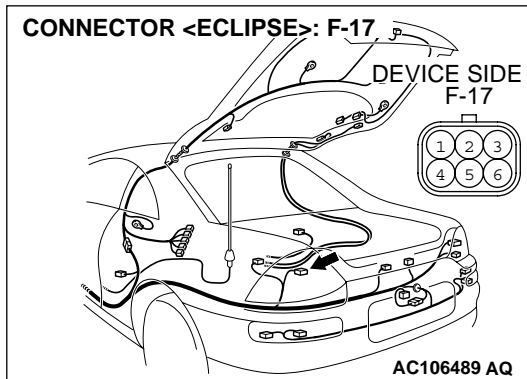
- (2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 18.

NO : Go to Step 16.

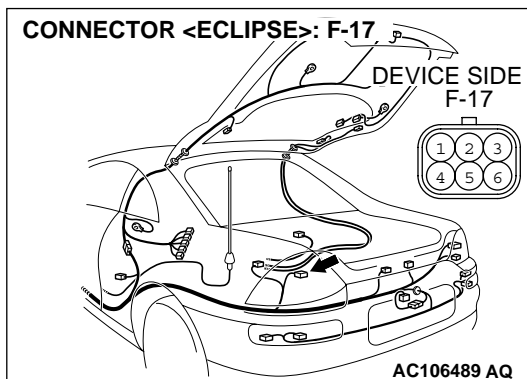


STEP 16. Check rear combination light (LH) connector F-17 for damage.

Q: Is rear combination light (LH) connector F-17 in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.

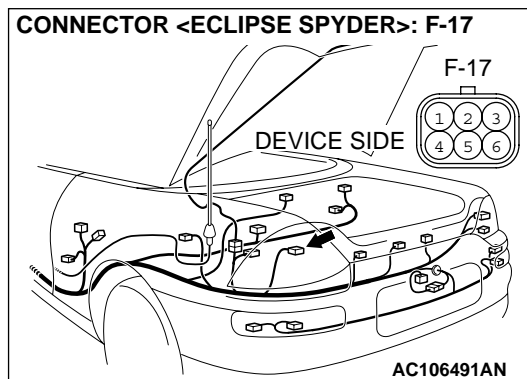


STEP 17. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (LH) connector F-17 (terminal 5) and ground in good condition?

YES : Replace the rear combination light socket assembly (LH). Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

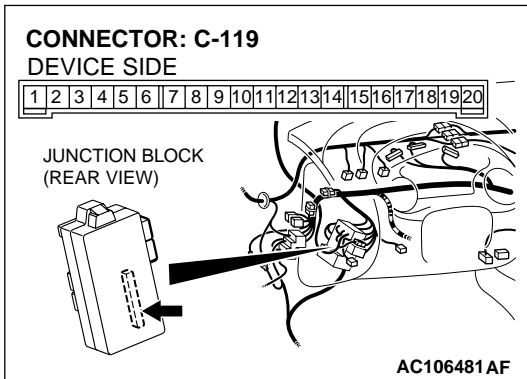
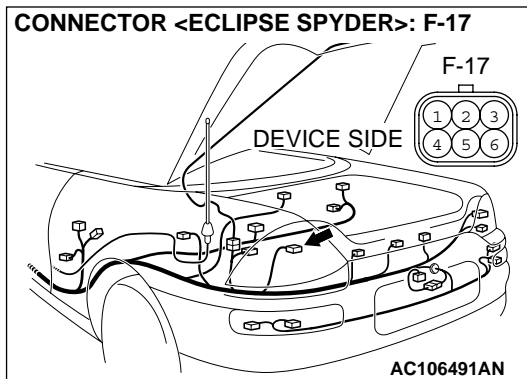
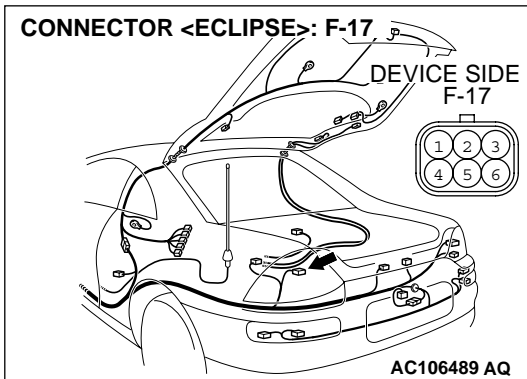


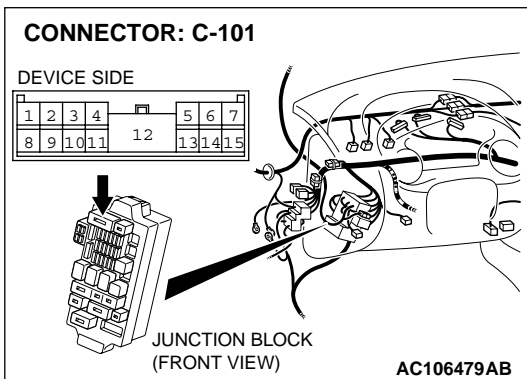
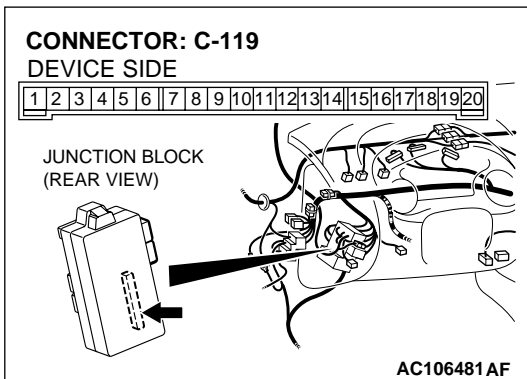
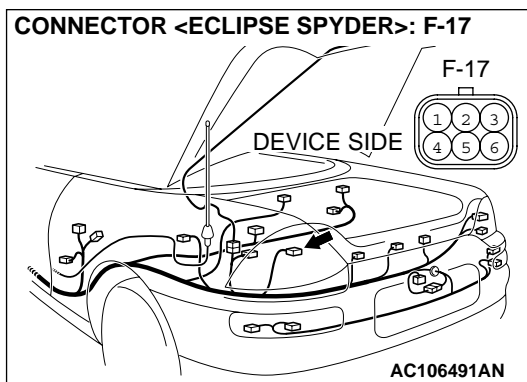
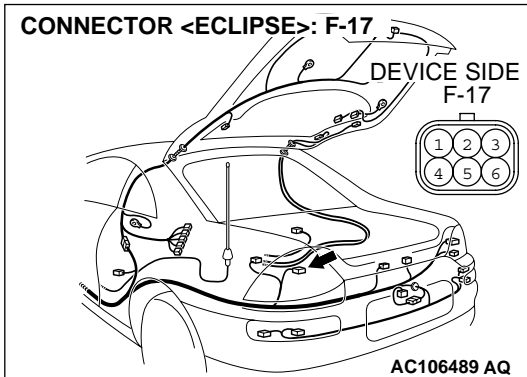
STEP 18. Check rear combination light (LH) connector F-17 and ETACS-ECU connector C-119 for damage.

Q: Are rear combination light (LH) connector F-17 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 19.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 19. Check the wiring harness between rear combination light (LH) connector F-17 (terminal 1) and ETACS-ECU connector C-119 (terminal 14).

NOTE: Also check junction block connector C-101. If junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (LH) connector F-17 (terminal 1) and ETACS-ECU connector C-119 (terminal 14) in good condition?

YES : Replace the rear combination light socket assembly (LH). Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

STEP 20. Check the rear turn-signal light bulb (RH).

- (1) Remove the rear turn-signal (RH) light bulb.
- (2) Check that the rear turn-signal light bulb (RH) is not broken.

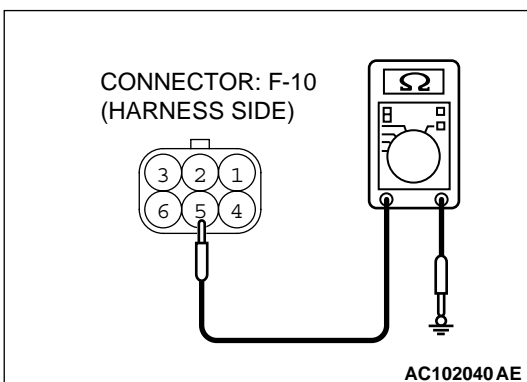
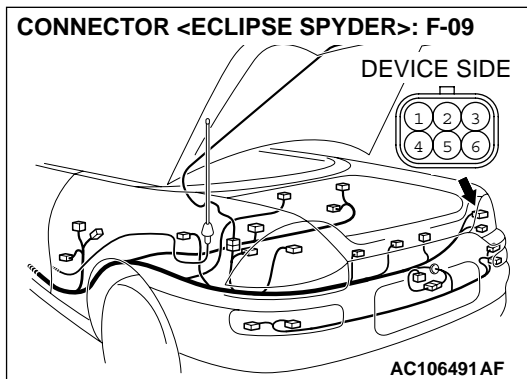
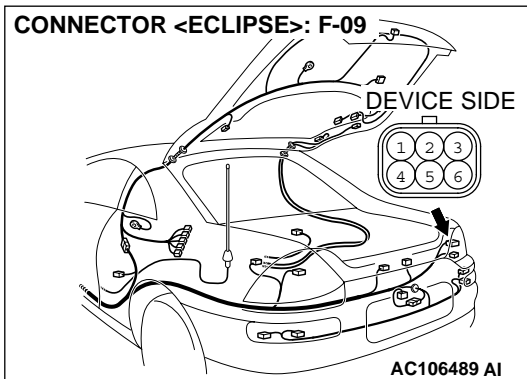
Q: Is the rear turn-signal (RH) light bulb in good condition?

YES : Go to Step 21.

NO : Replace the rear turn-signal (RH) light bulb. Check that the turn-signal lights illuminate normally.

STEP 21. Measure at rear combination light (RH) connector F-09 in order to check the ground circuit to the rear turn-signal light (RH).

- (1) Disconnect rear combination light (RH) connector F-09, and measure at the wiring harness side.



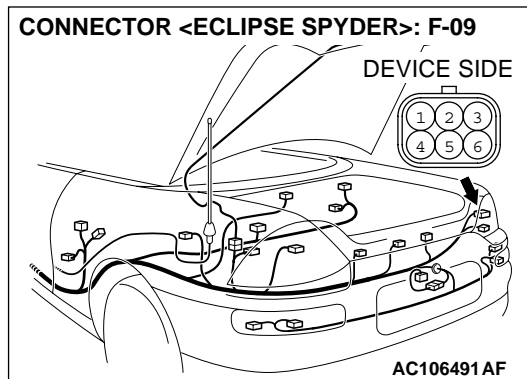
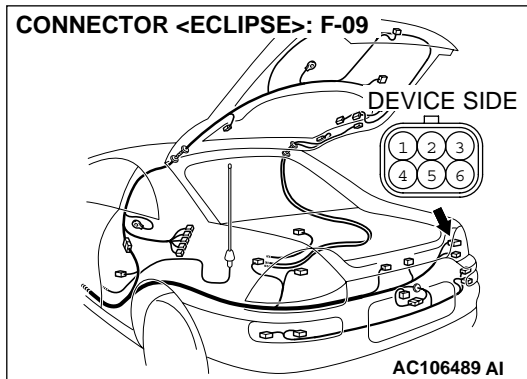
- (2) Measure the resistance value between terminal 5 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 24.

NO : Go to Step 22.

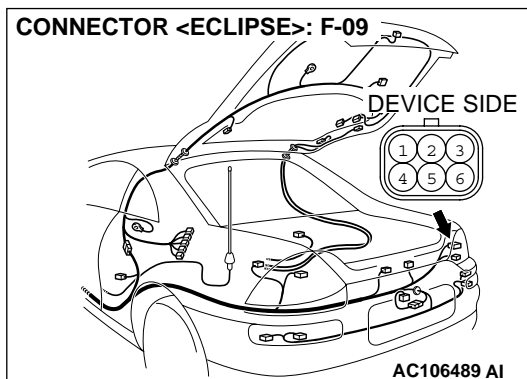


STEP 22. Check rear combination light (RH) connector F-09 for damage.

Q: Is rear combination light (RH) connector F-09 in good condition?

YES : Go to Step 23.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the turn-signal lights illuminate normally.

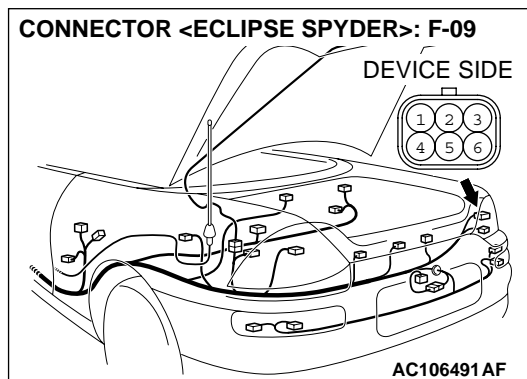


STEP 23. Check the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground.

Q: Is the wiring harness between rear combination light (RH) connector F-09 (terminal 5) and ground in good condition?

YES : Replace the rear combination light socket assembly (RH). Check that the turn-signal lights illuminate normally.

NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

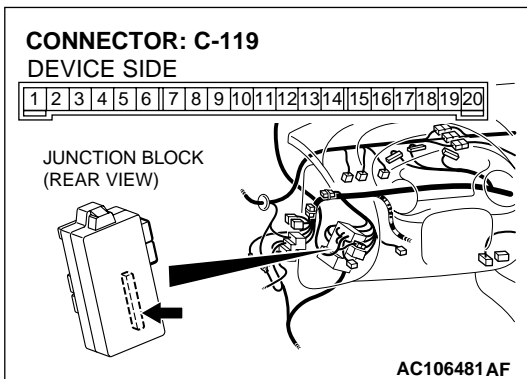
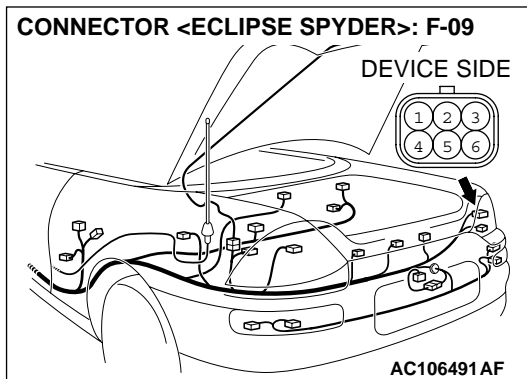
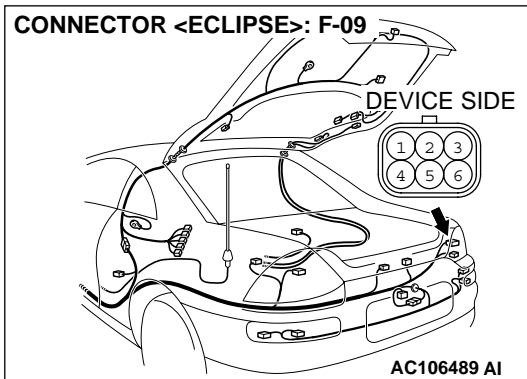


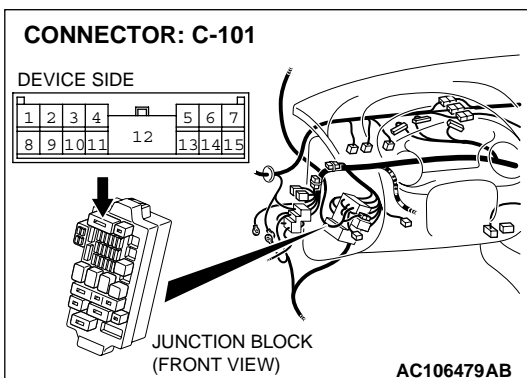
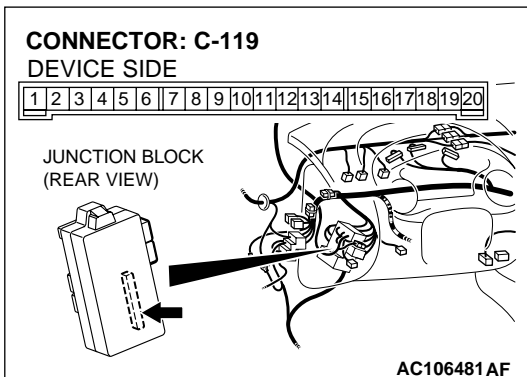
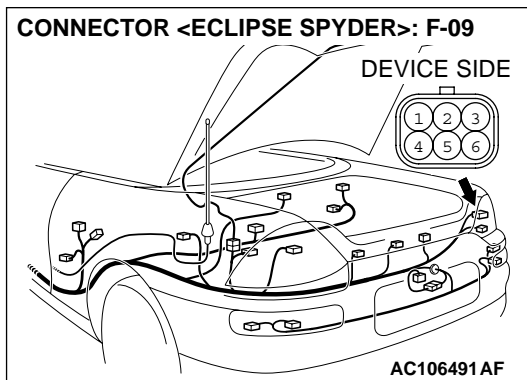
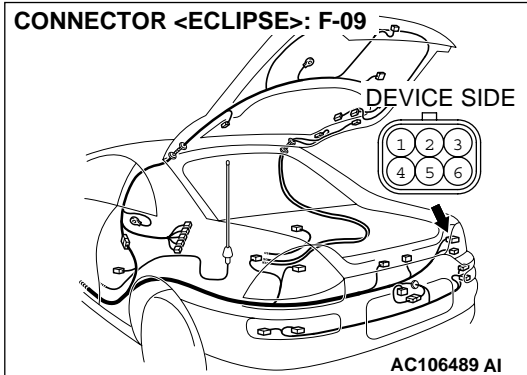
STEP 24. Check rear combination light (RH) connector F-09 and ETACS-ECU connector C-119 for damage.

Q: Are rear combination light (RH) connector F-09 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 25.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 25. Check the wiring harness between rear combination light (RH) connector F-09 (terminal 1) and ETACS-ECU connector C-119 (terminal 9).

NOTE: Also check junction block connector C-101. If junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear combination light (RH) connector F-09 (terminal 1) and ETACS-ECU connector C-119 (terminal 9) in good condition?

YES : Replace the rear combination light socket assembly (RH). Check that the turn-signal lights illuminate normally.

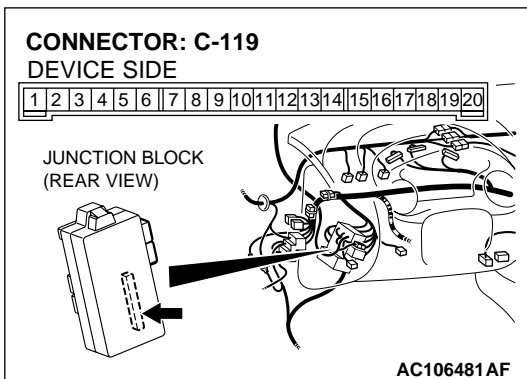
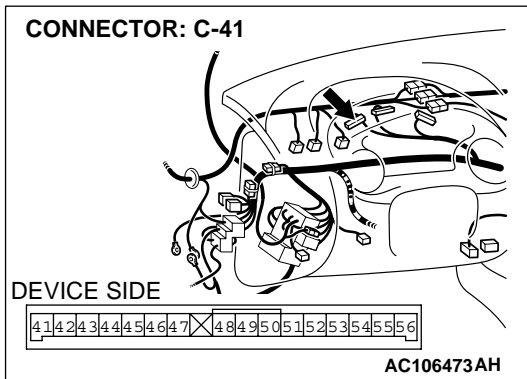
NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

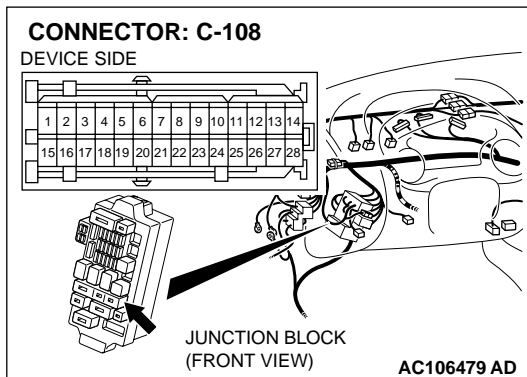
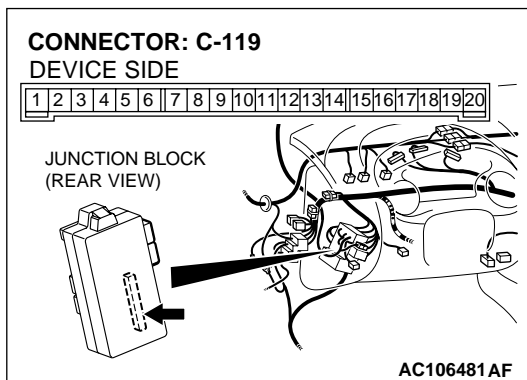
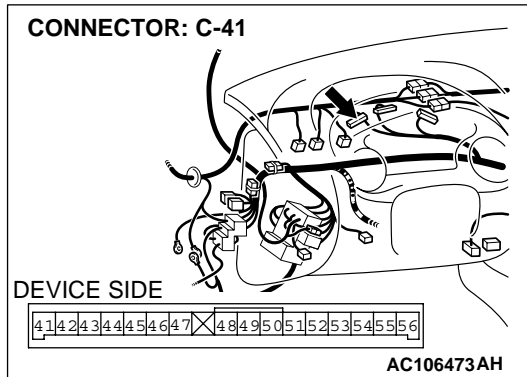
STEP 26. Check combination meter connector C-41 and ETACS-ECU connector C-119 for damage.

Q: Are combination meter connector C-41 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 27.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 27. Check the wiring harness between combination meter connector C-41 (terminal 48) and ETACS-ECU connector C-119 (terminal 14).

NOTE: Also check junction block connector C-108. If junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-41 (terminal 48) and ETACS-ECU connector C-119 (terminal 14) in good condition?

YES : Replace the combination meter. Check that the turn-signal lights illuminate normally.

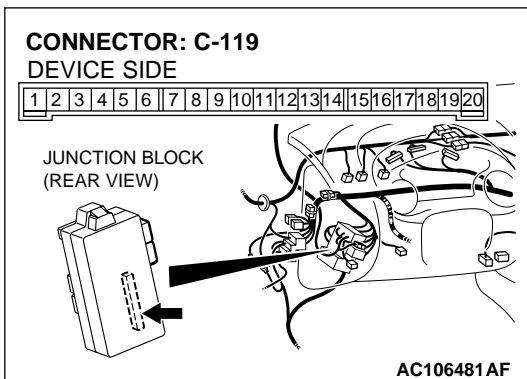
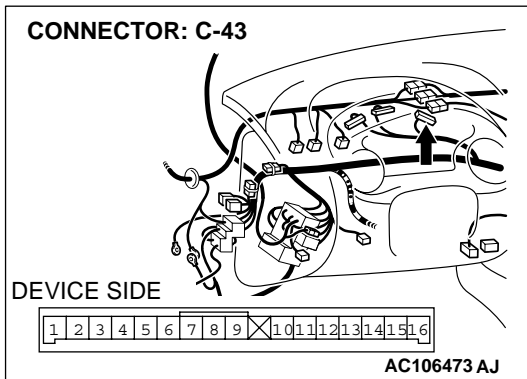
NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

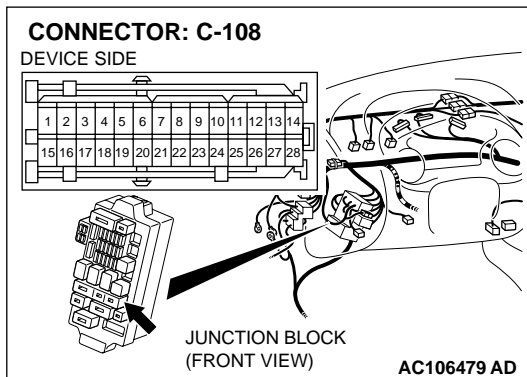
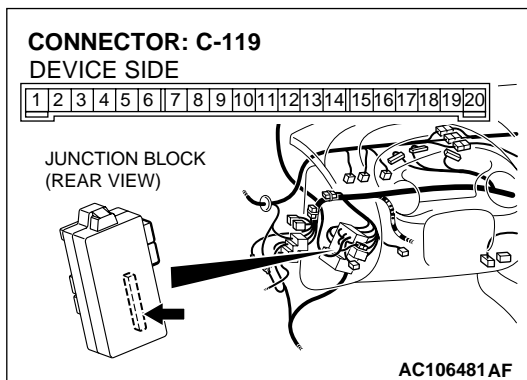
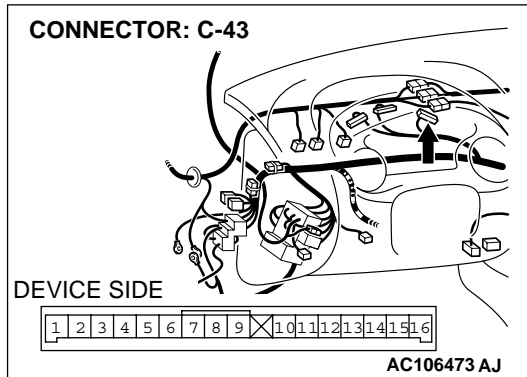
STEP 28. Check combination meter connector C-43 and ETACS-ECU connector C-119 for damage.

Q: Are combination meter connector C-43 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 29.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the turn-signal lights illuminate normally.





STEP 29. Check the wiring harness between combination meter connector C-43 (terminal 14) and ETACS-ECU connector C-119 (terminal 9).

NOTE: Also check junction block connector C-108. If junction block connector C-108 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-43 (terminal 14) and ETACS-ECU connector C-119 (terminal 9) in good condition?

YES : Replace the combination meter. Check that the turn-signal lights illuminate normally.

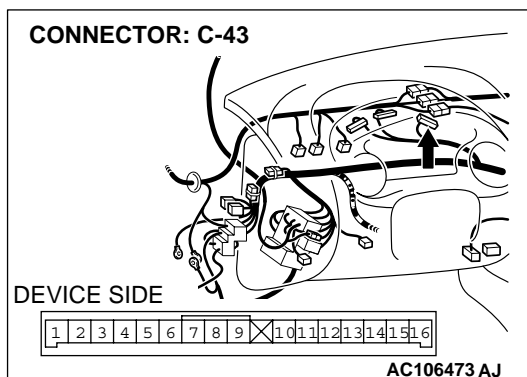
NO : Repair the wiring harness. Check that the turn-signal lights illuminate normally.

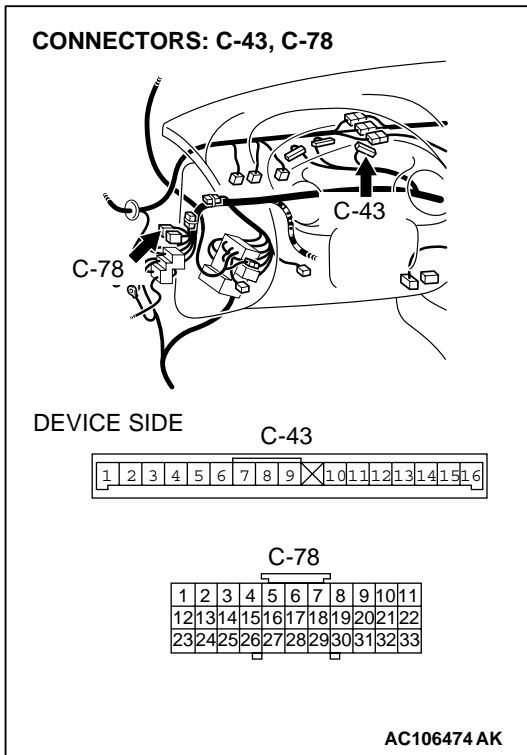
STEP 30. Check combination meter connector C-43 for damage.

Q: Is combination meter connector C-43 in good condition?

YES : Go to Step 31.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the turn-signal lights illuminate normally.





STEP 31. Check the wiring harness between combination meter connector C-43 (terminal 12) and ground.
NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- Q: Is the wiring harness between combination meter connector C-43 (terminal 12) and ground in good condition?**
- YES :** Replace the combination meter. Check that the turn-signal lights illuminate normally.
- NO :** Repair the wiring harness. Check that the turn-signal lights illuminate normally.

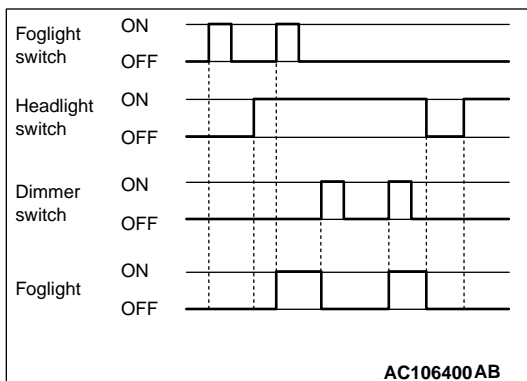
FOG LIGHT

GENERAL DESCRIPTION CONCERNING FOG LIGHT

M1549021400012

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

Functions	Control ECU
Foglight and foglight indicator light	ETACS-ECU, front-ECU, column switch



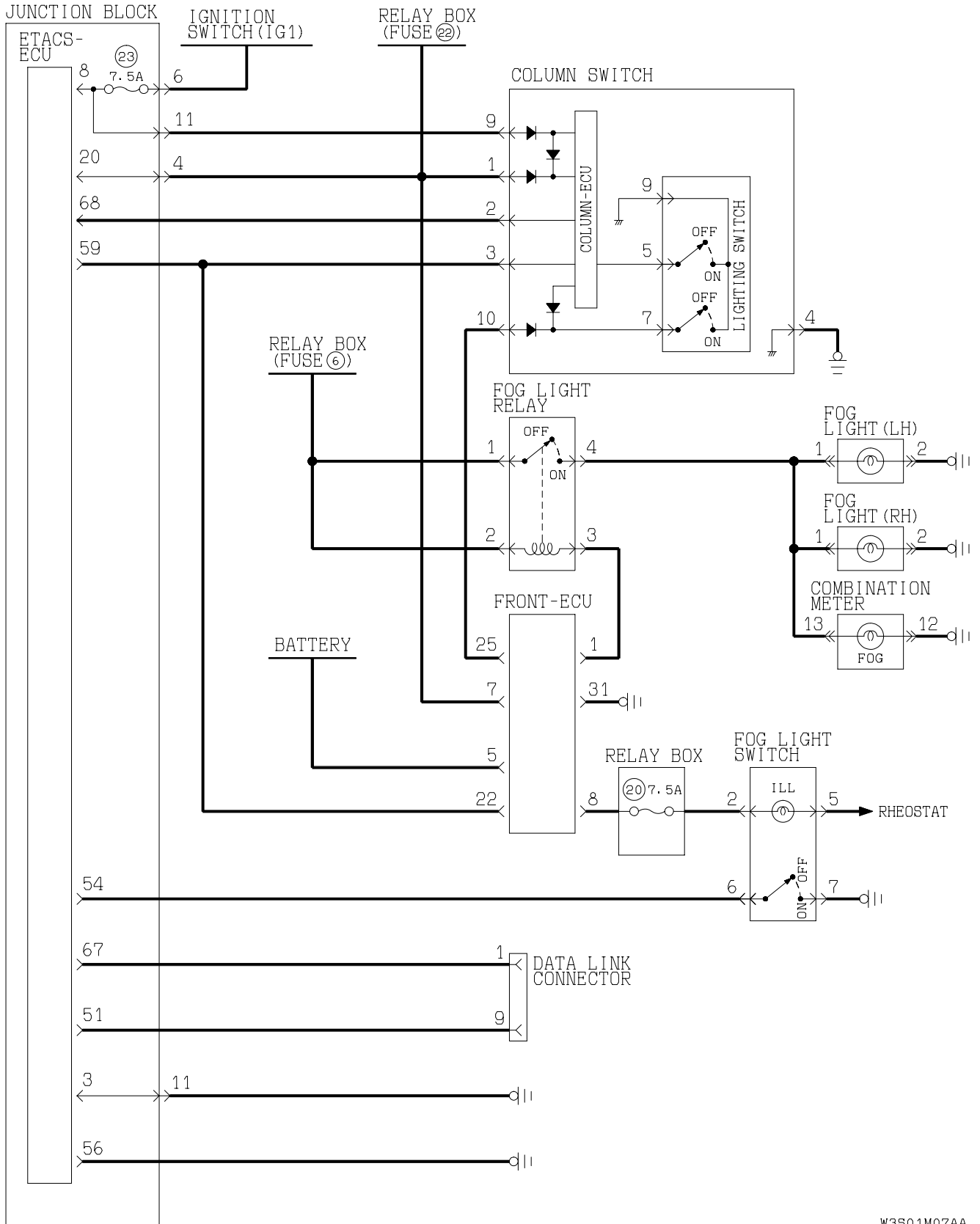
FOGLIGHT

If the ETAS-ECU sends a foglight "on" request signal to the front-ECU after the low-beam headlights are on, the foglight relay is turned on, allowing the foglights and the foglight indicator light to be illuminated. If the low-beam headlights is turned off, the foglights will also be turn off automatically. Therefore, if the headlights are turned on at next opportunity, the foglights do not illuminate.

If the high-beam headlights is turned on while the foglights are on, the fog lights will be turned off. Then, if you switch the headlights from the high-beam to the low-beam, the foglights will be turned on again.

NOTE: This description covers the foglights only. In actual driving, the foglights may be turned off due to the headlight automatic shut-down function. For the details of the headlight automatic shut-down function, refer to its Section.

General circuit diagram for the foglights

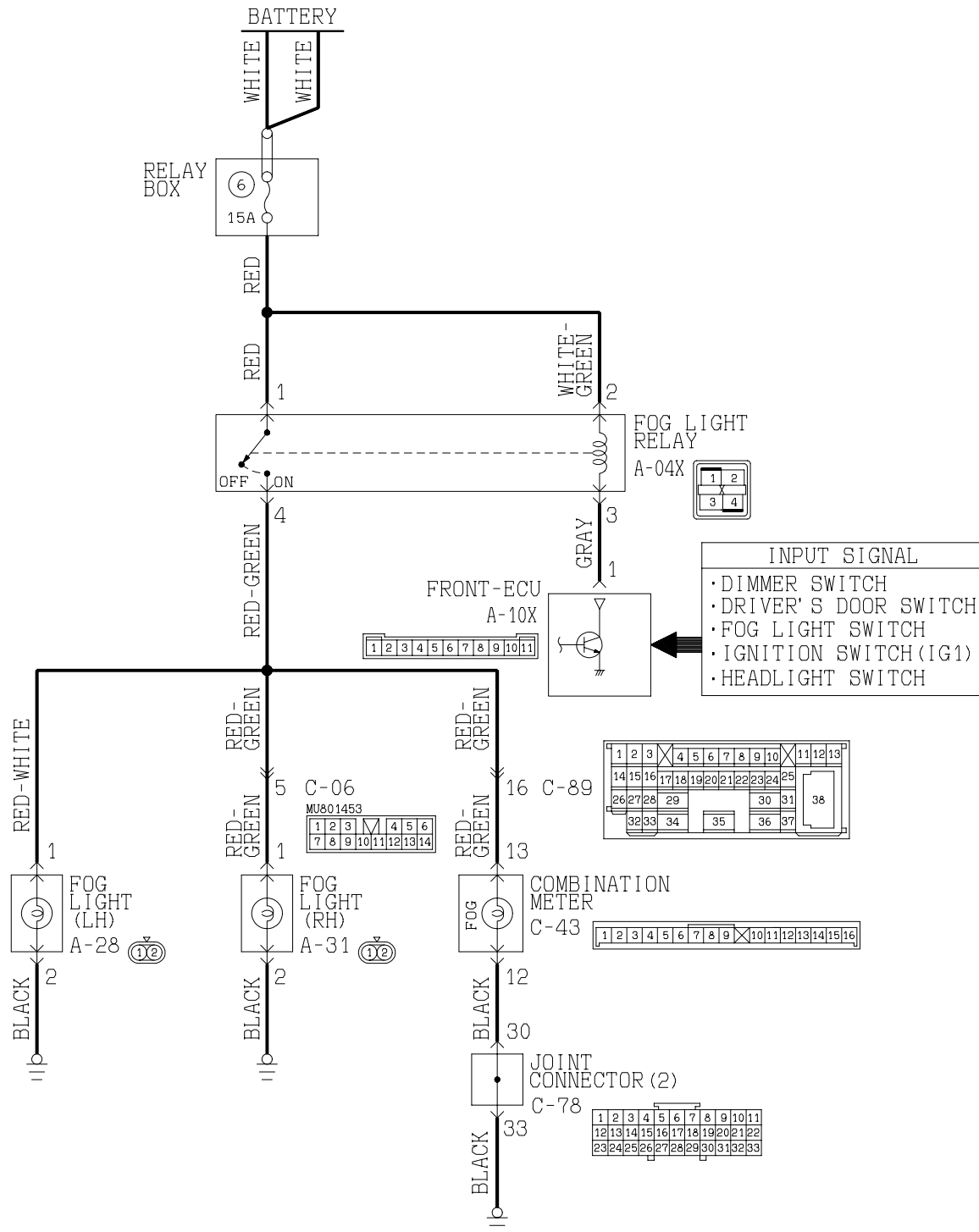


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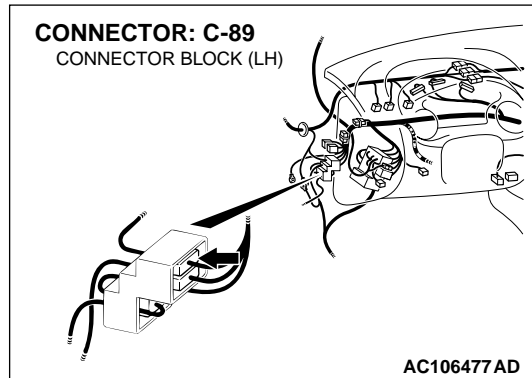
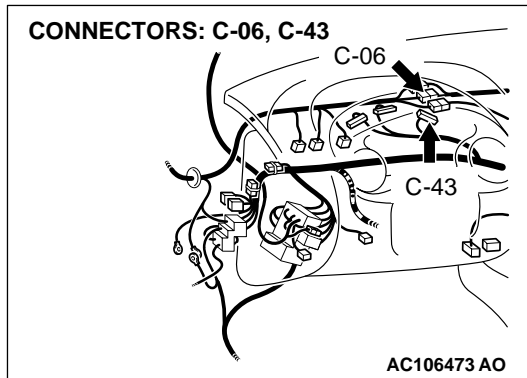
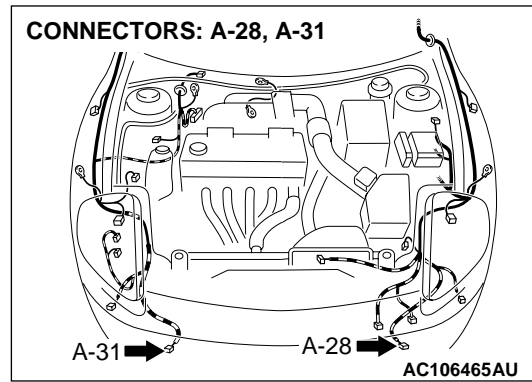
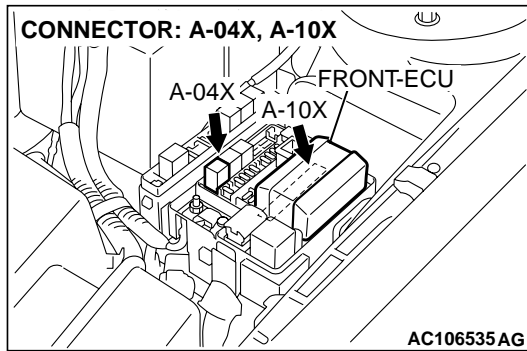
INSPECTION PROCEDURE L-1: Fog Light: Fog Lights do not illuminate when the Fog Light Switch is Turned On.

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

Fog Lights Circuit



W3S01M22AA

**CIRCUIT OPERATION**

- The ETACS-ECU sends a fog light illumination request signal ("LIGHT ON" signal) to the front-ECU when the fog light switch is turned on while the headlights are illuminating at low beam.
- Then the front-ECU switches on its relay to illuminate the fog lights.

TECHNICAL DESCRIPTION (COMMENT)

If the headlights illuminate at low beam, the fog light relay, the fog light switch, the front-ECU or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the fog light relay
- Malfunction of the fog light switch
- Malfunction of the front-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the headlight (low beam) operation.

Q: Do the headlights illuminate at low beam normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure J-2 "Headlights (low-beam) do not illuminate normally [P.54B-270.](#)"

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

Set each switch to the following condition before checking input signal from the fog light switch:

- Ignition switch: ON
- Fog light switch: ON

NOTE: Turn the ignition switch to the "ON" position in order to disable the headlight automatic shutdown function.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

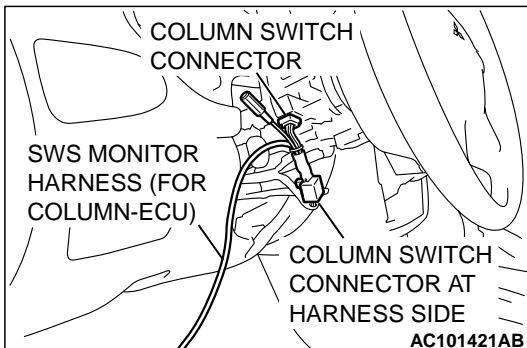
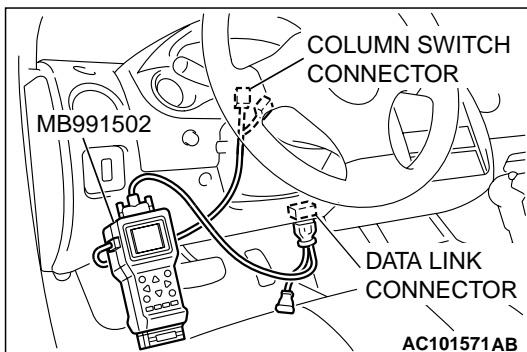
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II according to the procedure below to display "F.FOG."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "FUNCTION DIAG."
 5. Select "LIGHTING."
 6. Select "F.FOG."
- (4) Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	ON
ITEM No.36	F.FOG LIGHT	ON

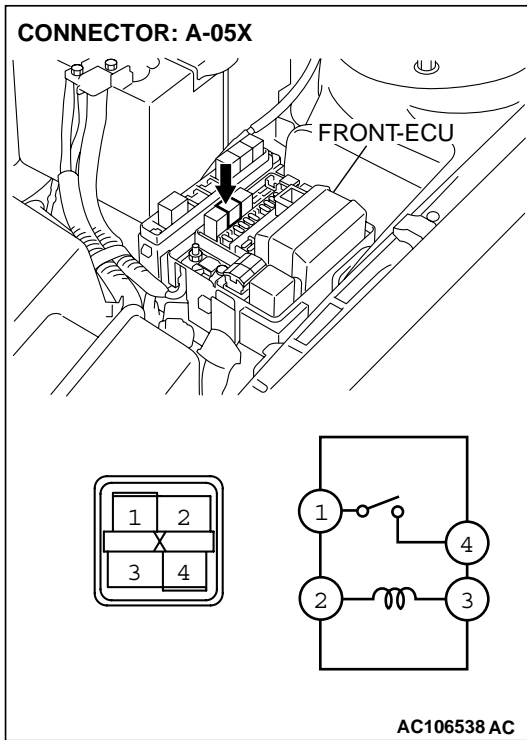
Q: Does the scan tool display the items "IG SW (IG1)" and "F.FOG LIGHT" as normal condition?

YES : Go to Step 3.

- NO :**
- 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 a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - The scan tool does not show the respective normal condition for item "F. FOG LIGHT." Refer to Inspection Procedure O-3 "ETACS-ECU does not receive a signal from the fog light switch [P.54B-472.](#)"



STEP 3. Check the fog light relay.

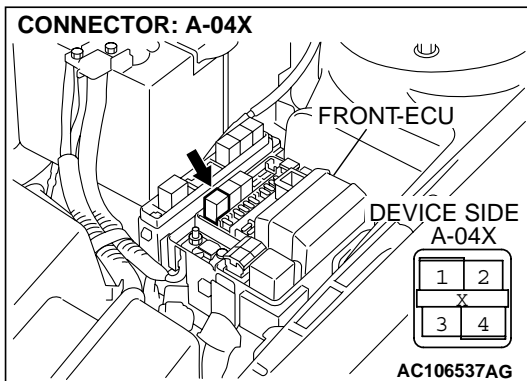


BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	1 – 4	Less than 2 ohm

Q: Is the fog light relay in good condition?

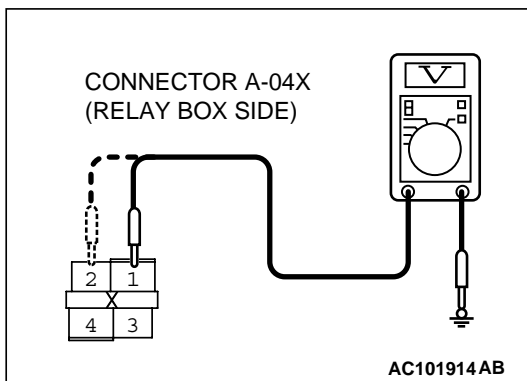
YES : Go to Step 4.

NO : Replace the fog light relay. Check that the fog lights illuminate normally.



STEP 4. Measure at fog light relay connector A-04X in order to the battery power supply to the fog light relay.

(1) Disconnect fog light relay connector A-04X, and measure at the relay box side.



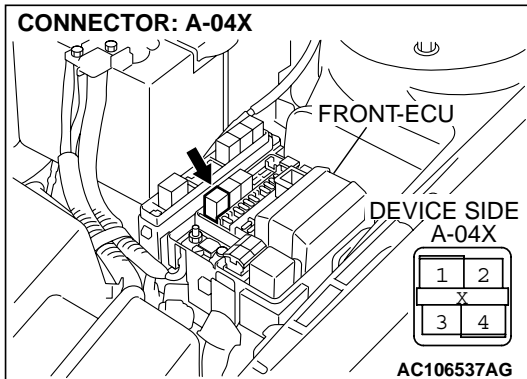
(2) Measure the voltage between terminal 1, 2 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

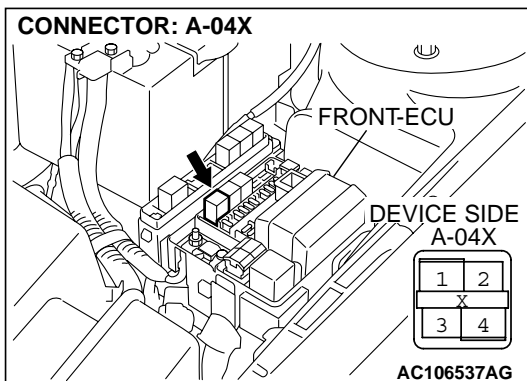


STEP 5. Check fog light relay connector A-04X for damage.

Q: Are fog light relay connector A-04X in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the fog lights illuminate normally.

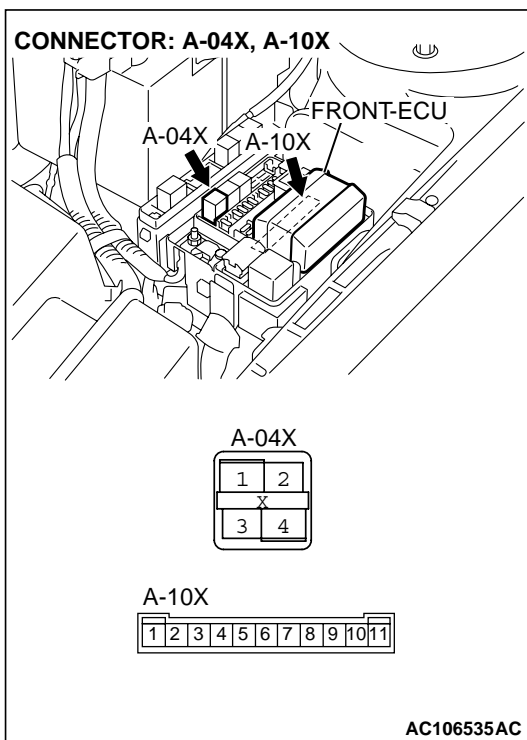


STEP 6. Check the wiring harness between fog light relay connector A-04X (terminals 1 and 2) and the battery.

Q: Is the wiring harness between fog light relay connector A-04X (terminals 1 and 2) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.

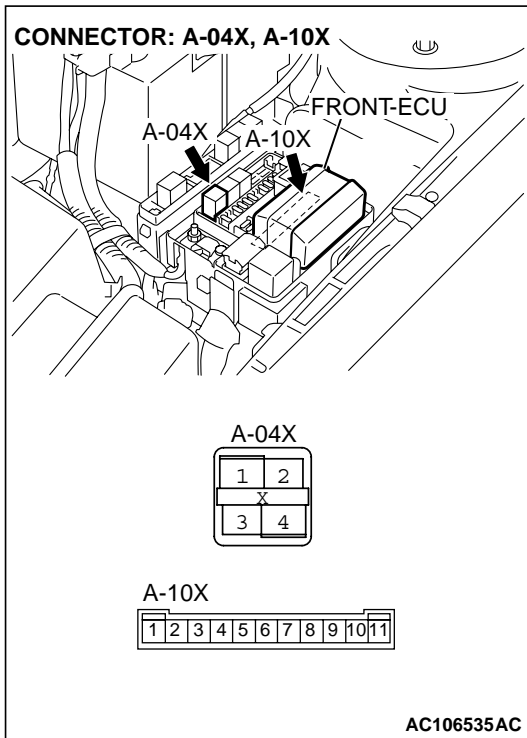


STEP 7. Check fog light relay connector A-04X and front-ECU connector A-10X for damage.

Q: Are fog light relay connector A-04X and front-ECU connector A-10X in good condition?

YES : Go to Step 8.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the fog lights illuminate normally.



STEP 8. Check the wiring harness between fog light relay connector A-04X (terminal 3) and front-ECU connector A-10X (terminal 1).

Q: Is the wiring harness between fog light relay connector A-04X (terminal 3) and front-ECU connector A-10X (terminal 1) in good condition?

YES : Go to Step 9.

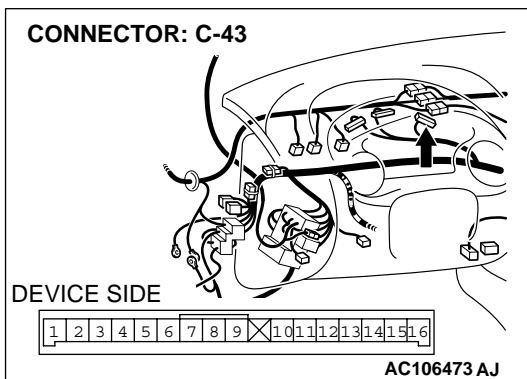
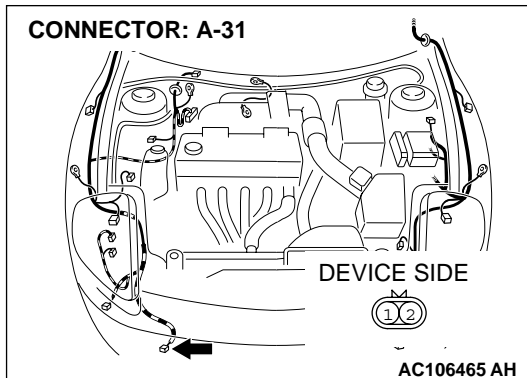
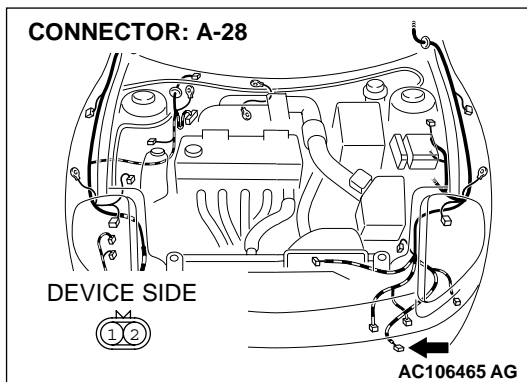
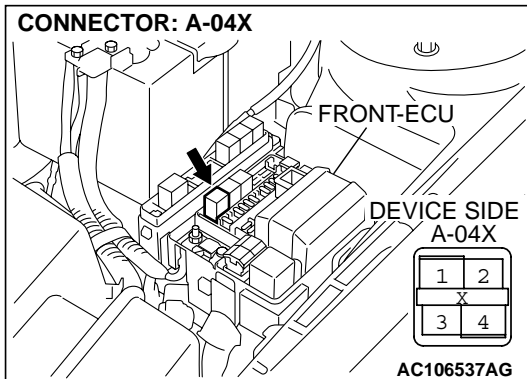
NO : Repair the wiring harness. Check that the fog lights illuminate normally.

STEP 9. Check fog light relay connector A-04X, fog light connectors A-28, A-31 and combination meter connector C-43 for damage.

Q: Are fog light relay connector A-04X, fog light connectors A-28, A-31 and combination meter connector C-43 in good condition?

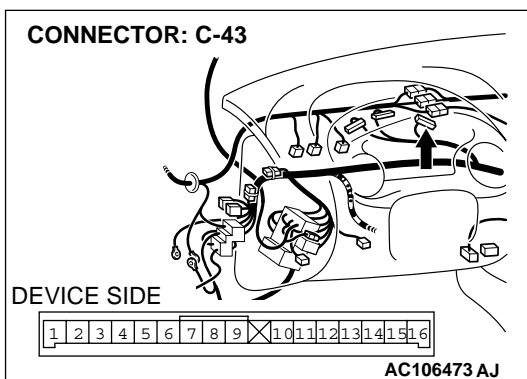
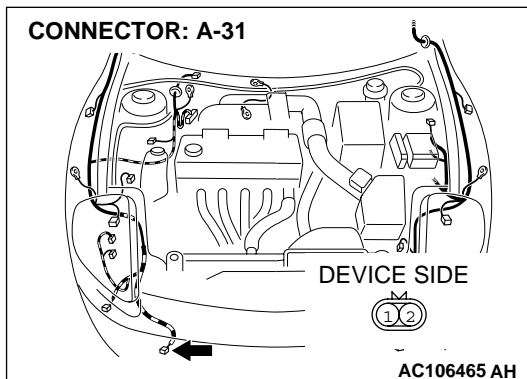
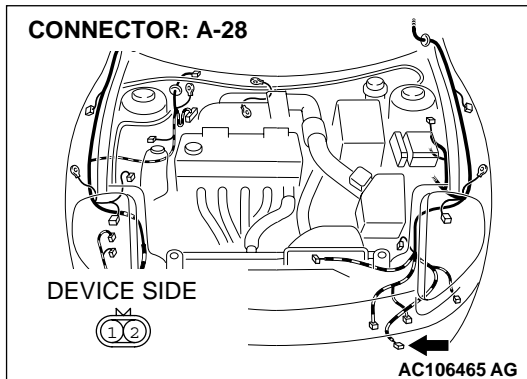
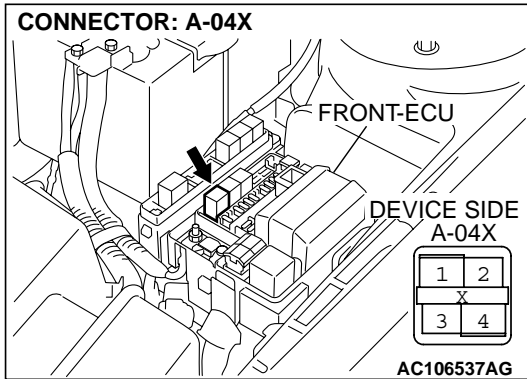
YES : Go to Step 10.

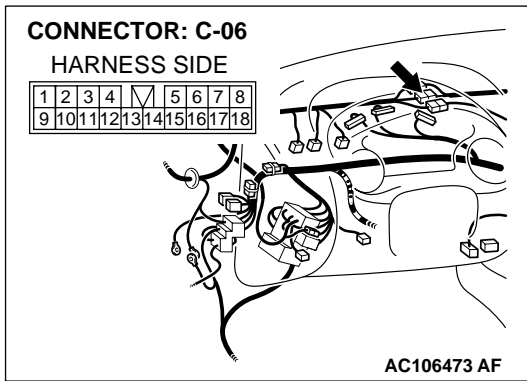
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog lights illuminate normally.



STEP 10. Check the wiring harnesses among fog light relay connector A-04X (terminal 4), fog light connectors A-28 (terminal 1), A-31 (terminal 1) and combination meter connector C-43 (terminal 13).

NOTE: Also check intermediate connectors C-06 and C-89. If intermediate connectors C-06 or C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

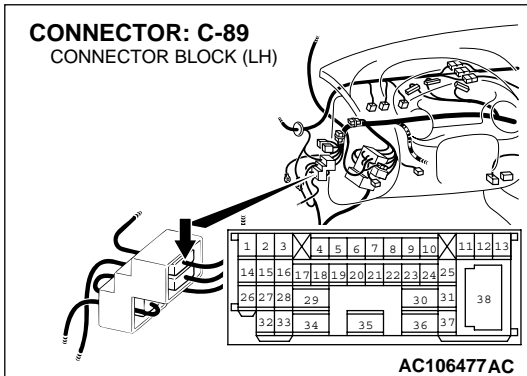




Q: Are the wiring harnesses among fog light relay connector A-04X (terminal 4), fog light connectors A-28 (terminal 1), A-31 (terminal 1) and combination meter connector C-43 (terminal 13) in good condition?

YES : Go to Step 11.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.



STEP 11. Replacement of ECU

- (1) Replace the front-ECU.
- (2) The fog lights should illuminate normally.

Q: Do the fog lights illuminate normally?

YES : There is no action to be taken.

NO : Replace the ETACS-ECU. The fog light should illuminate normally.

INSPECTION PROCEDURE L-2: Fog Light: Fog Lights do not Go Out when the Headlights (Low-beam) are Turned Off while the Fog lights are On.

TECHNICAL DESCRIPTION (COMMENT)

If the trouble above occurs, the front-ECU may be defective.

TROUBLESHOOTING HINT

Malfunction of the front-ECU

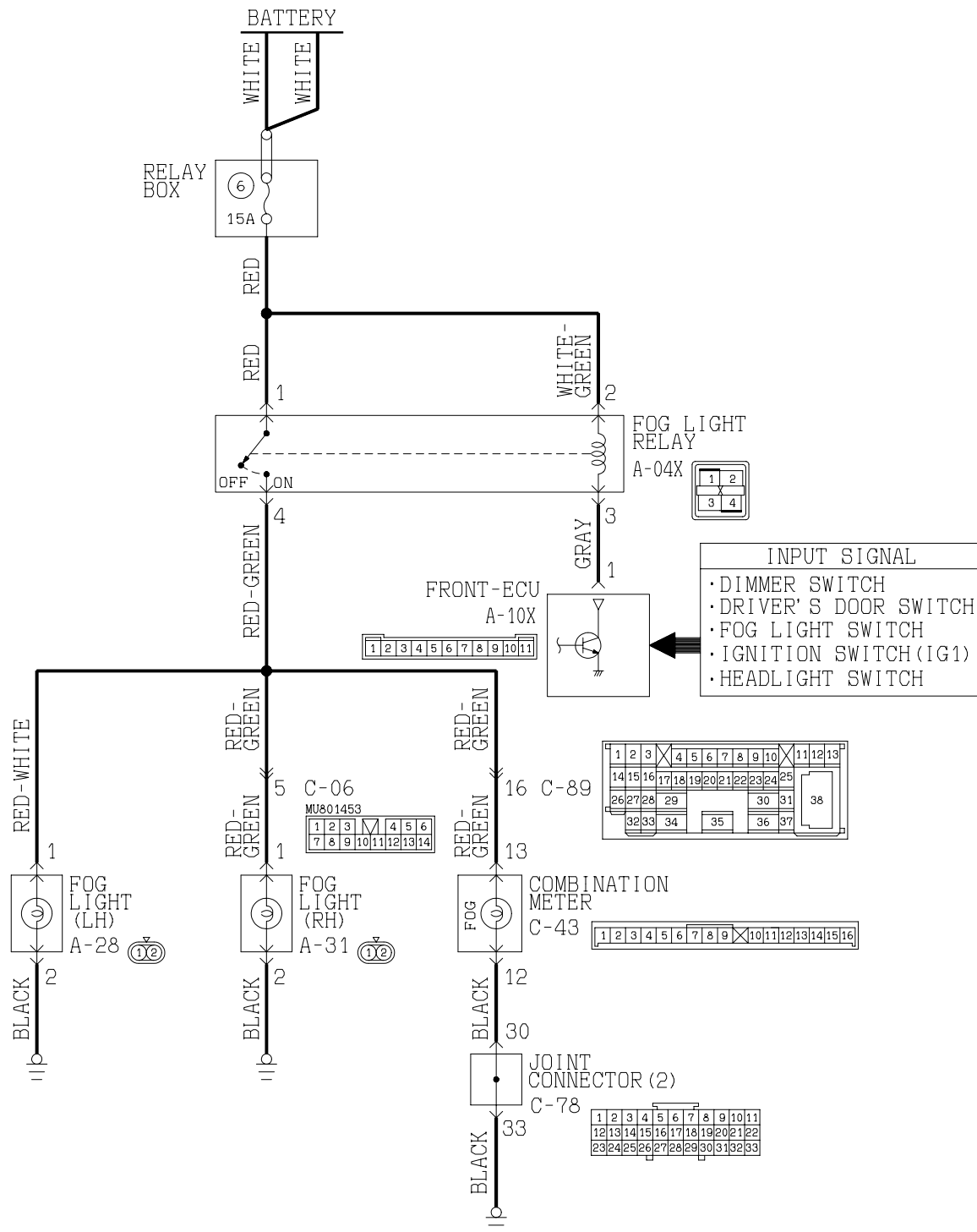
DIAGNOSIS

Replace the front-ECU.

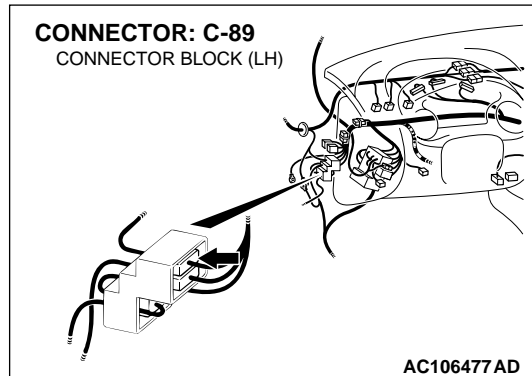
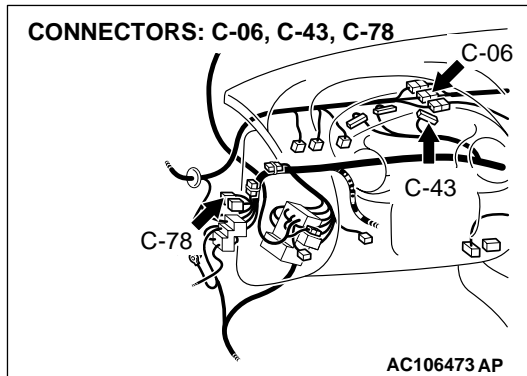
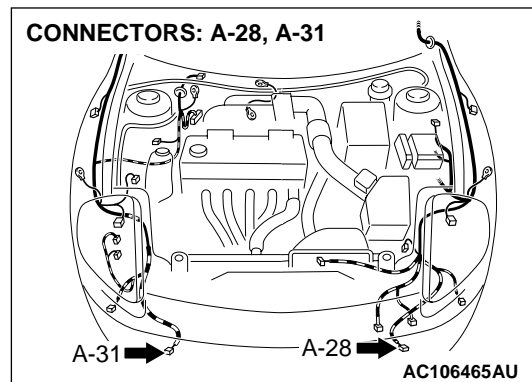
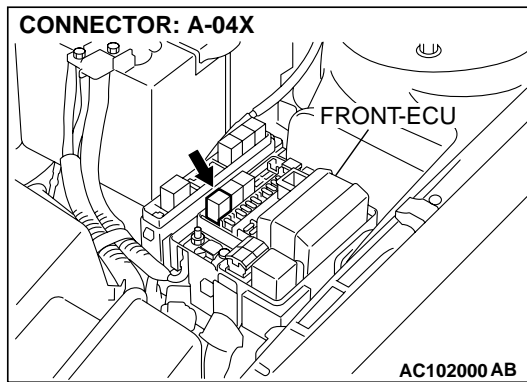
The fog lights should go out when the headlights (low-beam) are turned off while the fog lights are on.

INSPECTION PROCEDURE L-3: Fog Light: One of the Fog Lights does not illuminate.

Fog Lights Circuit



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TECHNICAL DESCRIPTION (COMMENT)

If one of the fog lights does not illuminate, the fog light relay or the fog light bulb may be defective. If the fog light indicator light does not illuminate, the combination meter may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the fog light bulb
- Malfunction of the combination meter
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set

STEP 1. Check that the fog lights and the fog light indicator light illuminate.

Q: Do the fog lights and the fog light indicator light illuminate normally?

Only the fog light (LH) does not illuminate : Go to Step 2.

Only the fog light (RH) does not illuminate : Go to Step 8.

Only the fog light indicator light does not illuminate : Go to Step 14.

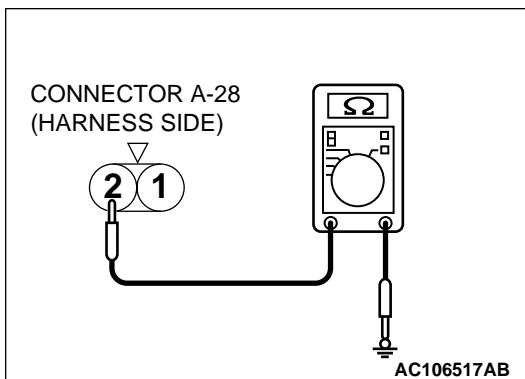
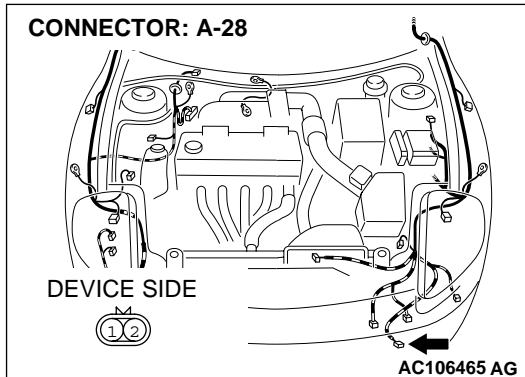
Both of the fog lights do not illuminate : Refer to Inspection procedure L-1 "Fog lights do not illuminate when the fog light switch is turned on [P.54B-377](#)".

STEP 2. Check the fog light bulb (LH).

- (1) Remove the fog light bulb (LH).
- (2) Check that the fog light bulb (LH) is not broken.

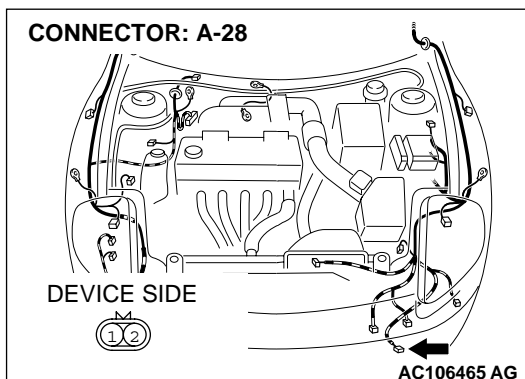
Q: Is the fog light bulb (LH) in good condition?**YES** : Go to Step 3.**NO** : Replace the fog light bulb (LH). Check that the fog lights illuminate normally.**STEP 3. Measure at fog light (LH) connector A-28 in order to check the ground circuit to the fog light (LH).**

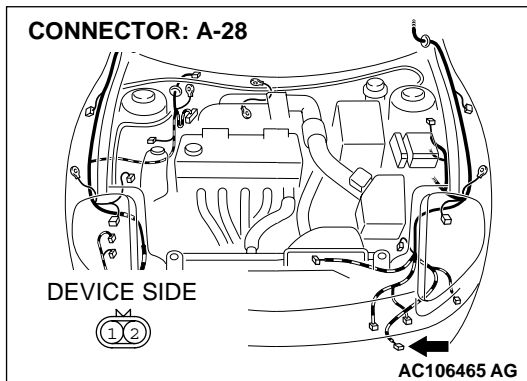
- (1) Disconnect fog light (LH) connector A-28, and measure at the wiring harness side.



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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?**YES** : Go to Step 6.**NO** : Go to Step 4.**STEP 4. Check fog light (LH) connector A-28 for damage.****Q: Is fog light (LH) connector A-28 in good condition?****YES** : Go to Step 5.**NO** : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog lights illuminate normally.

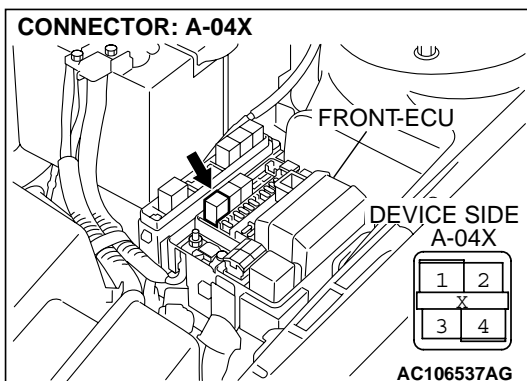


STEP 5. Check the wiring harness between fog light (LH) connector A-28 (terminal 2) and ground.

Q: Is the wiring harness between fog light (LH) connector A-28 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.

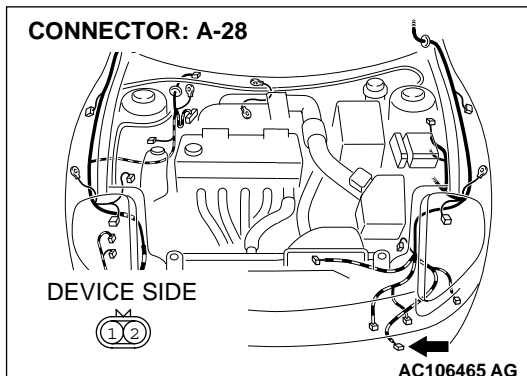


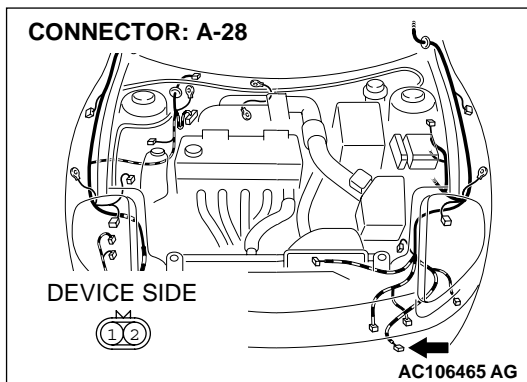
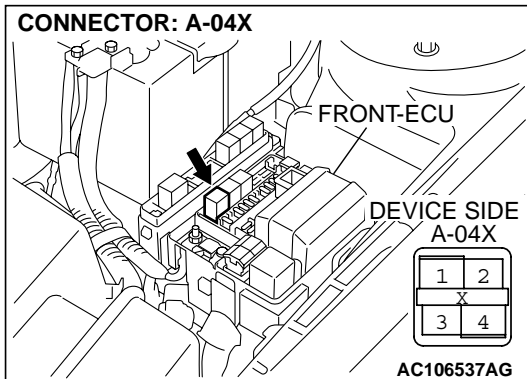
STEP 6. Check fog light relay connector A-04X and fog light (LH) connector A-28 for damage.

Q: Are fog light relay connector A-04X and fog light (LH) connector A-28 in good condition?

YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog lights illuminate normally.





STEP 7. Check the wiring harness between fog light relay connector A-04X (terminal 4) and fog light (LH) connector A-28 (terminal 1).

Q: Is the wiring harness between fog light relay connector A-04X (terminal 4) and fog light (LH) connector A-28 (terminal 1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.

STEP 8. Check the fog light bulb (RH).

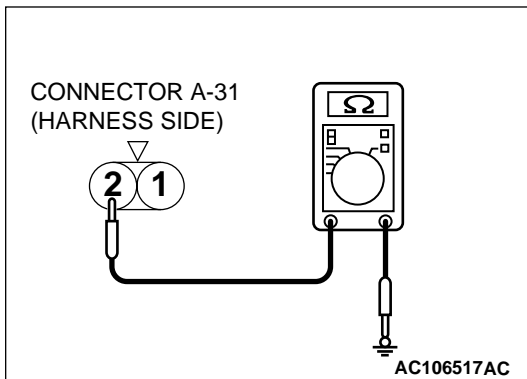
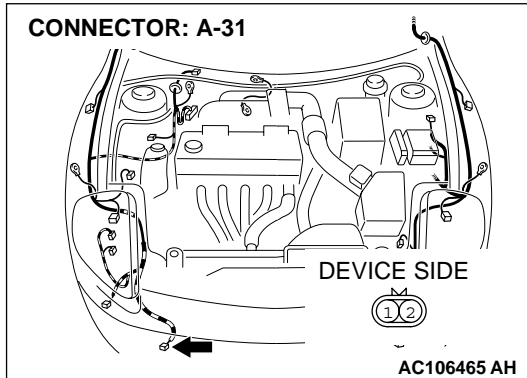
(1) Remove the fog light bulb (RH).

(2) Check that the fog light bulb (RH) is not broken.

Q: Is the fog light bulb (RH) in good condition?

YES : Go to Step 9.

NO : Replace the fog light bulb (RH). Check that the fog lights illuminate normally.



STEP 9. Measure at fog light (RH) connector A-31 in order to check the ground circuit to the fog light (RH).

(1) Disconnect fog light (RH) connector A-31, and measure at the wiring harness side.

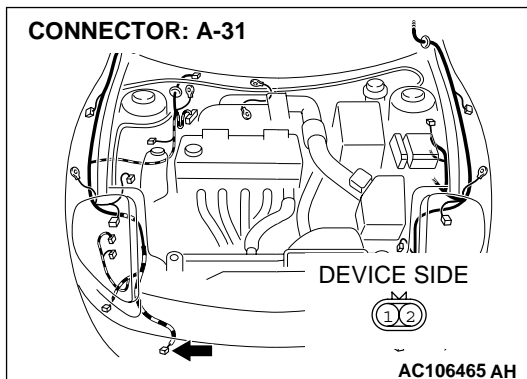
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 12.

NO : Go to Step 10.

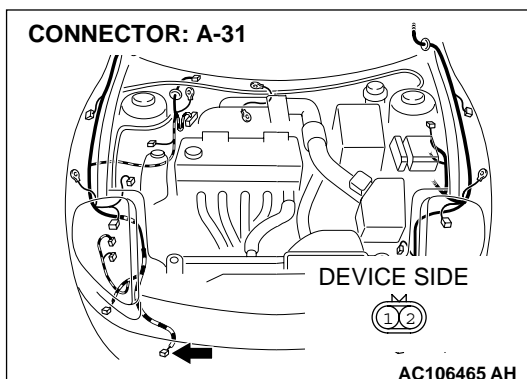


STEP 10. Check fog light (RH) connector A-31 for damage.

Q: Is fog light (RH) connector A-31 in good condition?

YES : Go to Step 11.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog lights illuminate normally.

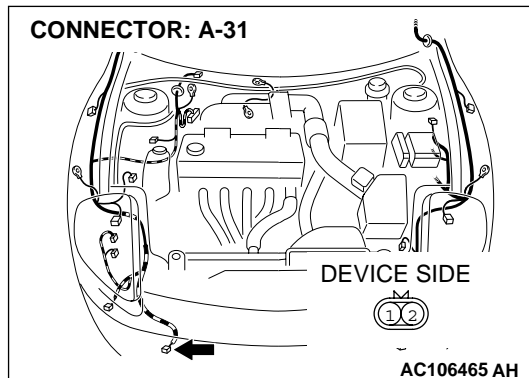
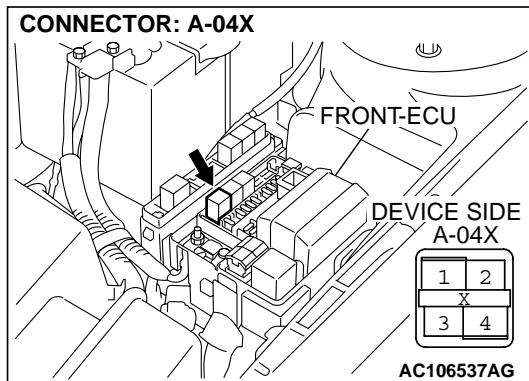


STEP 11. Check the wiring harness between fog light (RH) connector A-31 (terminal 2) and ground.

Q: Is the wiring harness between fog light (RH) connector A-31 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.

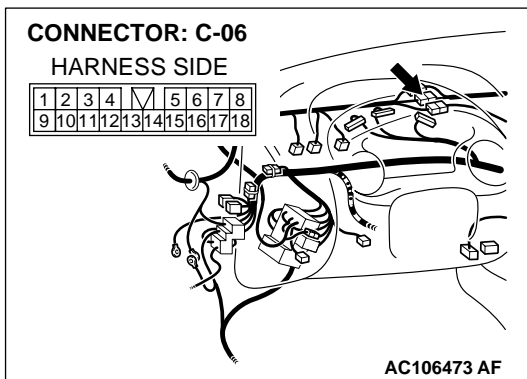
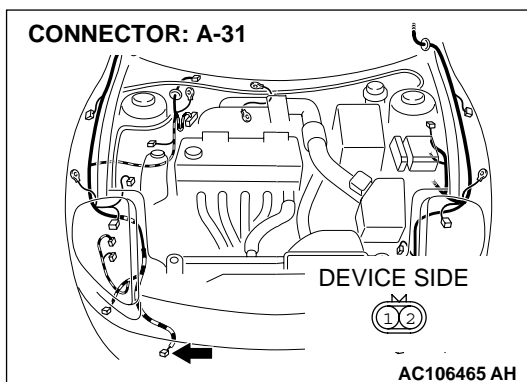
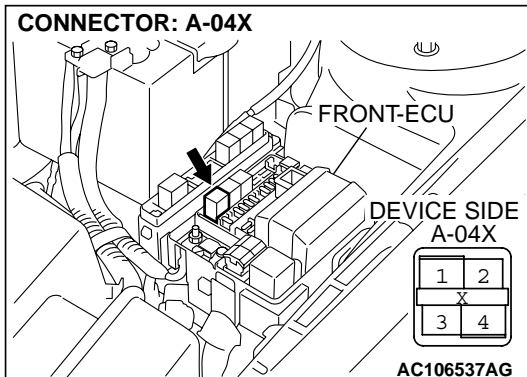


STEP 12. Check fog light relay connector A-04X and fog light (RH) connector A-31 for damage.

Q: Are fog light relay connector A-04X and fog light (RH) connector A-31 in good condition?

YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog lights illuminate normally.



STEP 13. Check the wiring harness between fog light relay connector A-04X (terminal 4) and fog light (RH) connector A-31 (terminal 1).

NOTE: Also check intermediate connector C-06. If intermediate connectors C-06 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between fog light relay connector A-04X (terminal 4) and fog light (RH) connector A-31 (terminal 1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog lights illuminate normally.

STEP 14. Check the fog light indicator light bulb.

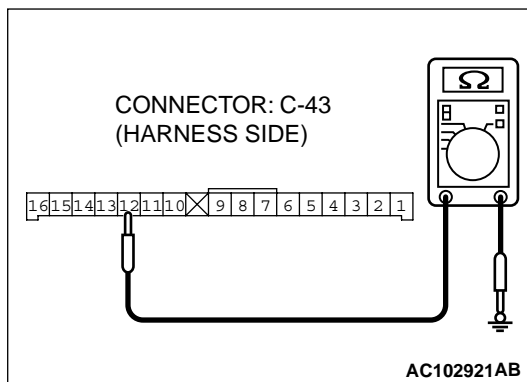
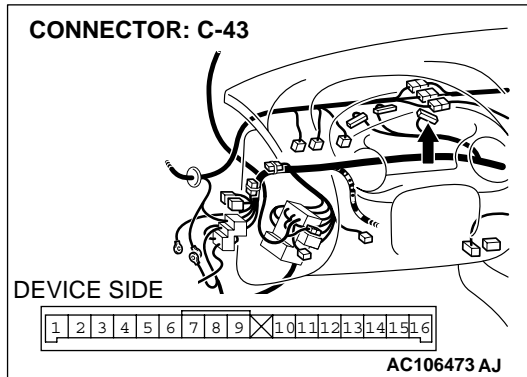
(1) Remove the fog light indicator light bulb.

(2) Check that the fog light indicator light bulb is not broken.

Q: Is the fog light indicator light bulb in good condition?

YES : Go to Step 15.

NO : Replace the fog light indicator light bulb. Check that the fog light indicator light illuminates normally.



STEP 15. Measure at combination meter connector C-43 in order to check the ground circuit to the fog light indicator light.

(1) Disconnect fog light indicator light connector C-43, and measure at the wiring harness side.

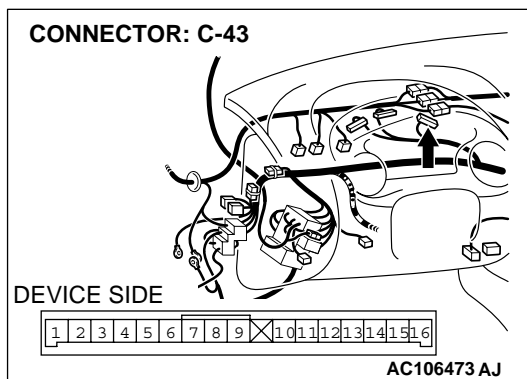
(2) Measure the resistance value between terminal 12 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 18.

NO : Go to Step 16.

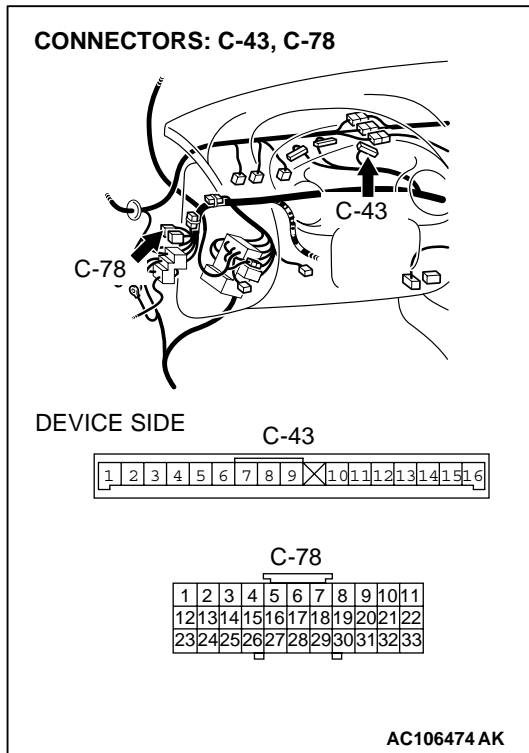


STEP 16. Check combination meter connector C-43 for damage.

Q: Is combination meter connector C-43 in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the fog light indicator light illuminates normally.

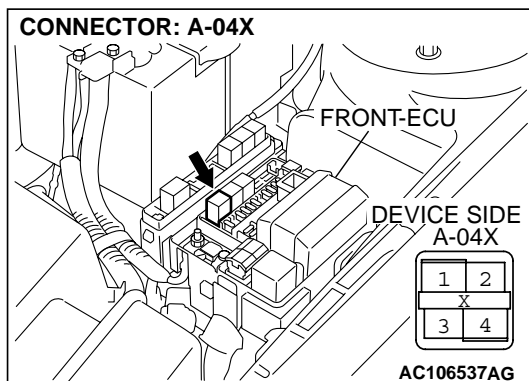


STEP 17. Check the wiring harness between combination meter connector C-43 (terminal 12) and ground.
NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-43 (terminal 12) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the fog light indicator light illuminates normally.

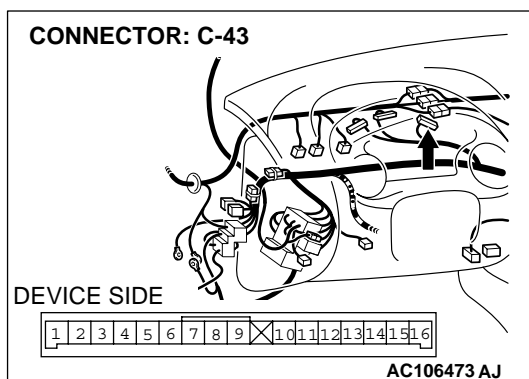


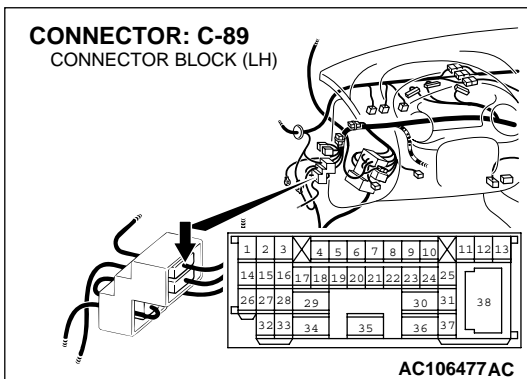
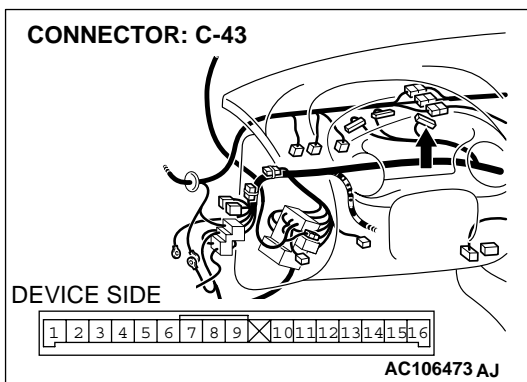
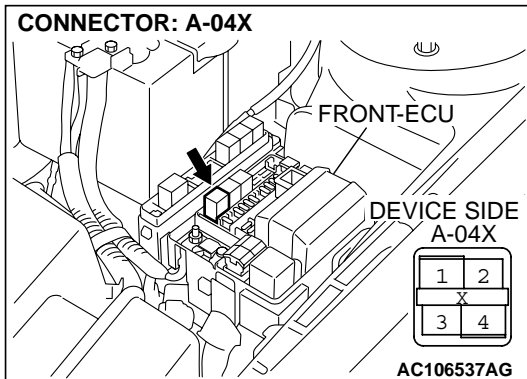
STEP 18. Check fog light relay connector A-04X and combination meter connector C-43 for damage.

Q: Are fog light relay connector A-04X and combination meter connector C-43 in good condition?

YES : Go to Step 19.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the fog light indicator light illuminates normally.





STEP 19. Check the wiring harness between fog light relay connector A-04X (terminal 4) and combination meter connector C-43 (terminal 13).

NOTE: Also check intermediate connector C-89. If intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between fog light relay connector A-04X (terminal 4) and combination meter connector C-43 (terminal 13) in good condition?

YES : Replace the combination meter. Check that the fog light indicator light illuminates normally.

NO : Repair the wiring harness. Check that the fog light indicator light illuminates normally.

INTERIOR LIGHT

GENERAL DESCRIPTION CONCERNING INTERIOR LIGHT

M1549021800010

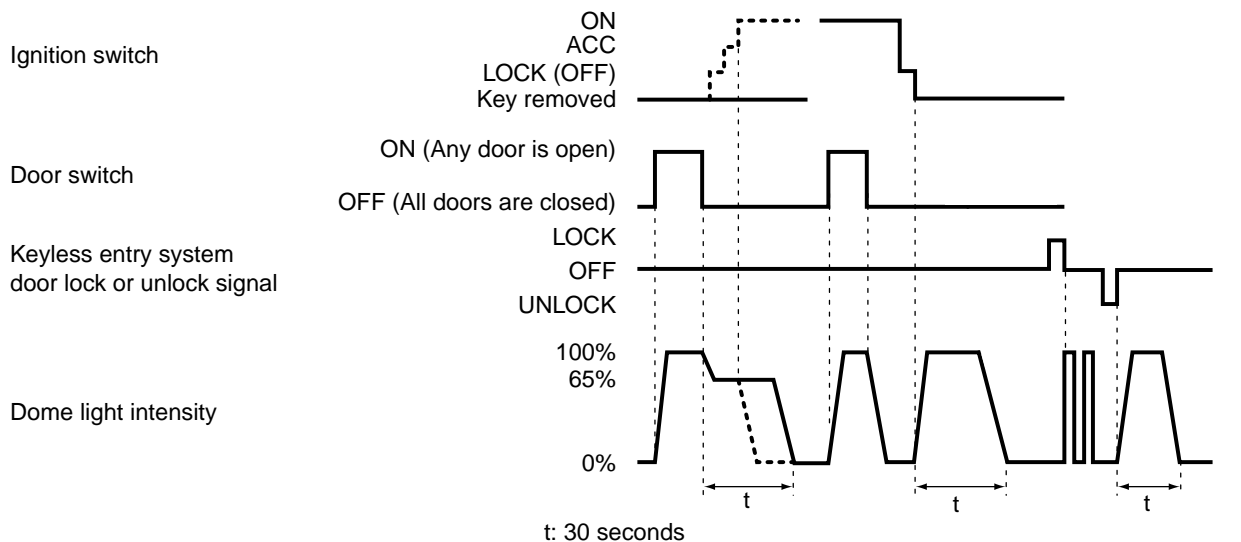
The following ECUs affect the functions and control of the interior lights.

Functions	Control ECU
Dome light control function	ETACS-ECU
Interior light automatic-shutdown function	ETACS-ECU

DOMEST LIGHT CONTROL FUNCTION

When the dome light switch is at the door position, the ETACS-ECU controls the lighting of the dome light as follows:

- When a door is opened to get on or get off the vehicle with the ignition switch off, the dome light lights up at a luminance of 100 percent. When a door is closed, the dome light dims at a luminance of 65 percent, and goes off 30 seconds later. However if the ignition switch is turned ON or if all doors are locked while they are closed, the dome light will go off at that point.
- When a door is opened with the ignition switch ON, the dome light lights up at a luminance of 100 percent. When a door is closed, the dome light goes off.
- When the ignition key is removed with all doors closed, the dome light lights up at a luminance of 100 percent, and goes off 30 seconds later. However if the ignition key is inserted again or if all doors are locked while the dome light is lighting, the dome light will go off at that point.
- The dome light is flashed twice when door is locked with keyless entry. When door is unlocked with keyless entry, the dome light lights at a luminance of 100 percent, and goes off 15 seconds later.



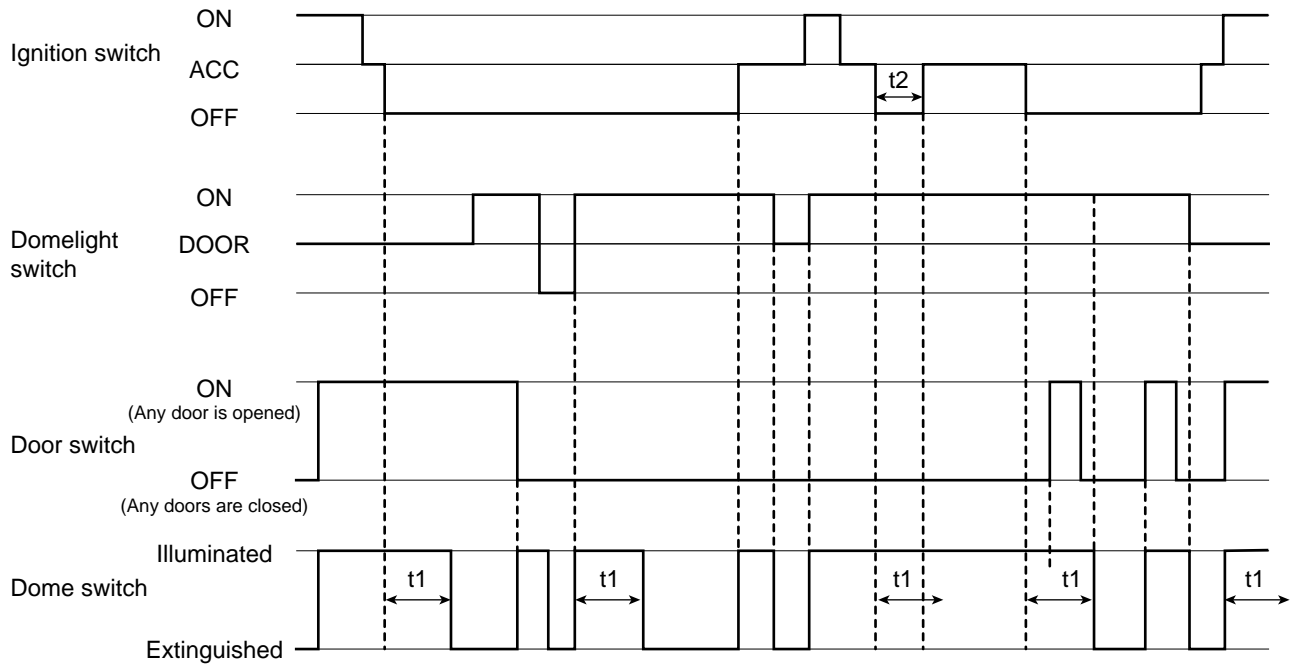
NOTE: The dotted lines indicate that lighting mode when the ignition switch is turned ON, all doors are locked during the timer illumination time.

INTERIOR LIGHT AUTOMATIC-SHUTDOWN FUNCTION

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

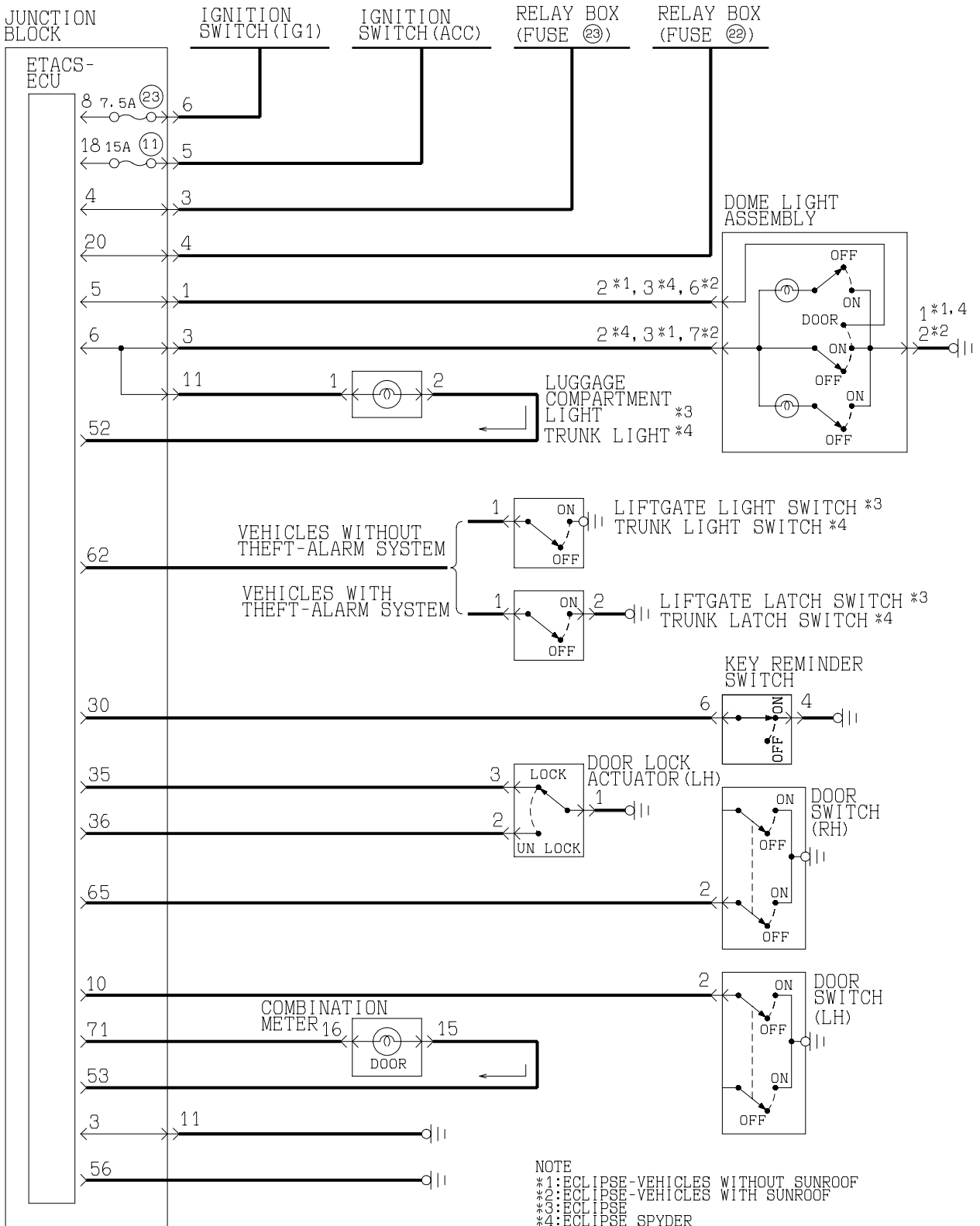
- When the ignition switch is turned off and more than 30 minutes pass by with the interior light illuminated, the interior lights will go off automatically.

- When the ignition switch is turned off and any door switch remains open for 30 minutes continuously, the interior lights will go off automatically.



AC106815AB

General circuit diagram for interior lights

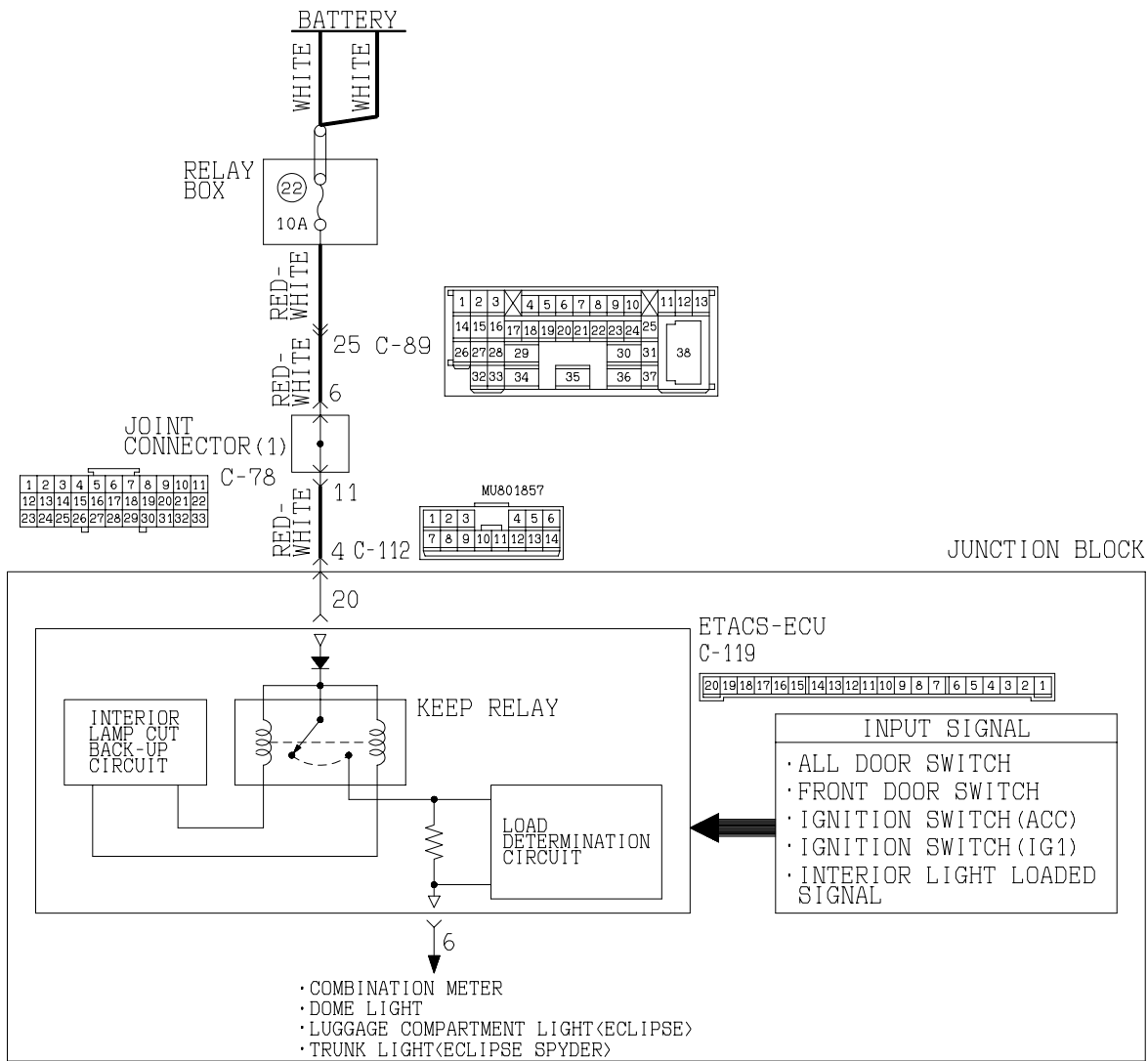


W3S01M09AA

INSPECTION PROCEDURE M-1: Interior Light: Dome Light, Luggage Compartment Light <ECLIPSE>, Trunk Light <ECLIPSE SPYDER> and Door-ajar Indicator Light does not illuminate or Turn off Normally.

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

Interior Light Automatic Shut-down Function Circuit



W3S01M23AA

CIRCUIT OPERATION

The ETACS-ECU illuminates the dome light, the luggage compartment light <ECLIPSE> and the trunk light <ECLIPSE SPYDER> according to the following signals:

- Ignition switch (IG1): ON or OFF
- Key reminder switch: ON or OFF
- Front door switch: ON or OFF
- Driver's door lock actuator switch: ON or OFF

- Liftgate latch switch (vehicles with theft-alarm system) or liftgate light switch (vehicles without theft-alarm system): ON or OFF <ECLIPSE>
- Trunk lid latch switch (vehicles with theft-alarm system) or trunk light switch (vehicles without theft-alarm system): ON or OFF <ECLIPSE SPYDER>
- Interior light loaded signal: ON

TECHNICAL DESCRIPTION (COMMENT)

If the dome light, the luggage compartment light <ECLIPSE> and trunk light <ECLIPSE SPYDER> do not illuminate normally, the dome light bulb(s) may be burned out or the input circuit system from the switches, the power supply lines to the switches or the ETACS-ECU may be defective (refer to "CIRCUIT OPERATION").

- Malfunction of the door switch
- Malfunction of the driver's door lock actuator switch
- Malfunction of the dome light
- Malfunction of the liftgate latch switch or liftgate light switch <ECLIPSE>
- Malfunction of trunk lid latch switch or trunk light switch <ECLIPSE SPYDER>
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

⚠ CAUTION

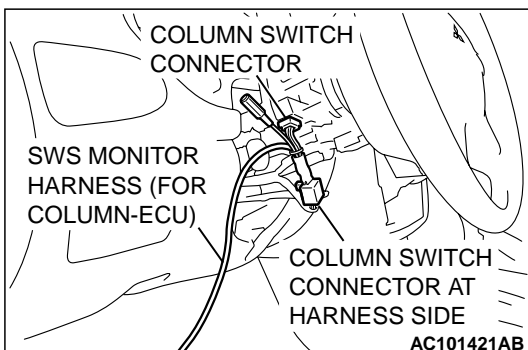
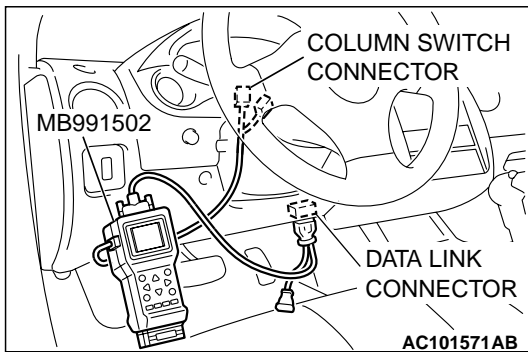
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

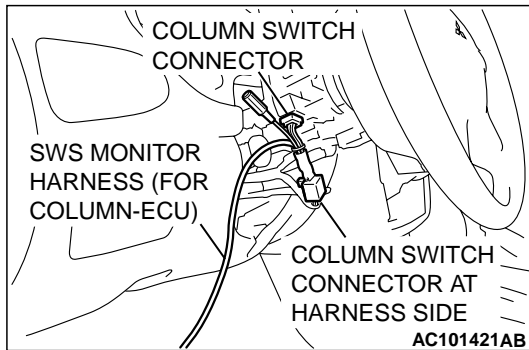
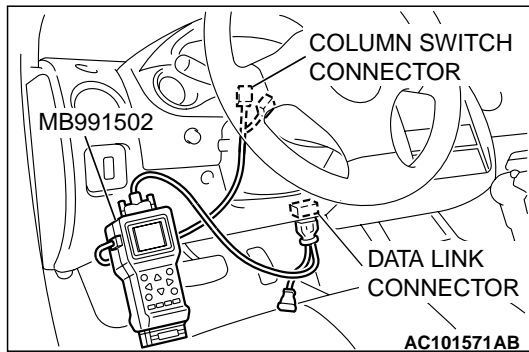
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





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

Check the input signals from the following switches:

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

Operate the MUT-II 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."

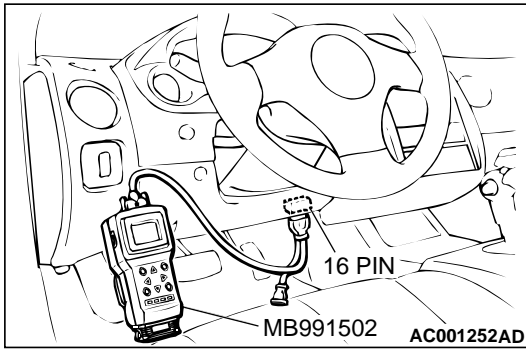
Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	ON
ITEM No.32	FRONT DOOR SW	ON

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

YES : Go to Step 3.

- NO :**
- 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 a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - The scan tool does not show the respective normal condition for item "FRONT DOOR SW." Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"



STEP 3. Check the input signal (by using the Pulse Check).

Check the following switches and input signals:

- Key reminder switch
- Liftgate latch switch or liftgate light switch <ECLIPSE>
- Trunk lid latch switch or trunk light switch <ECLIPSE SPYDER>
- interior light loaded signal

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Check if scan tool MB991502 sounds or not.

ITEM NAME	CONDITIONS
Key reminder switch	Remove and reinsert the ignition key
Liftgate latch switch or liftgate light switch <ECLIPSE>	Open and close the liftgate
Trunk lid latch switch or trunk light switch <ECLIPSE SPYDER>	Open and close the trunk lid
Interior light loaded signal	Illuminate one of the interior lights

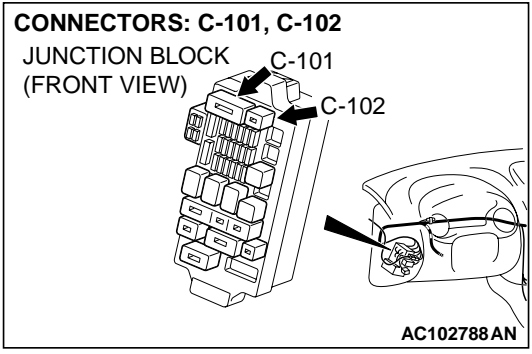
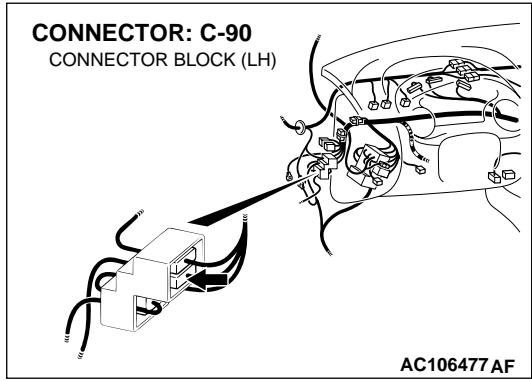
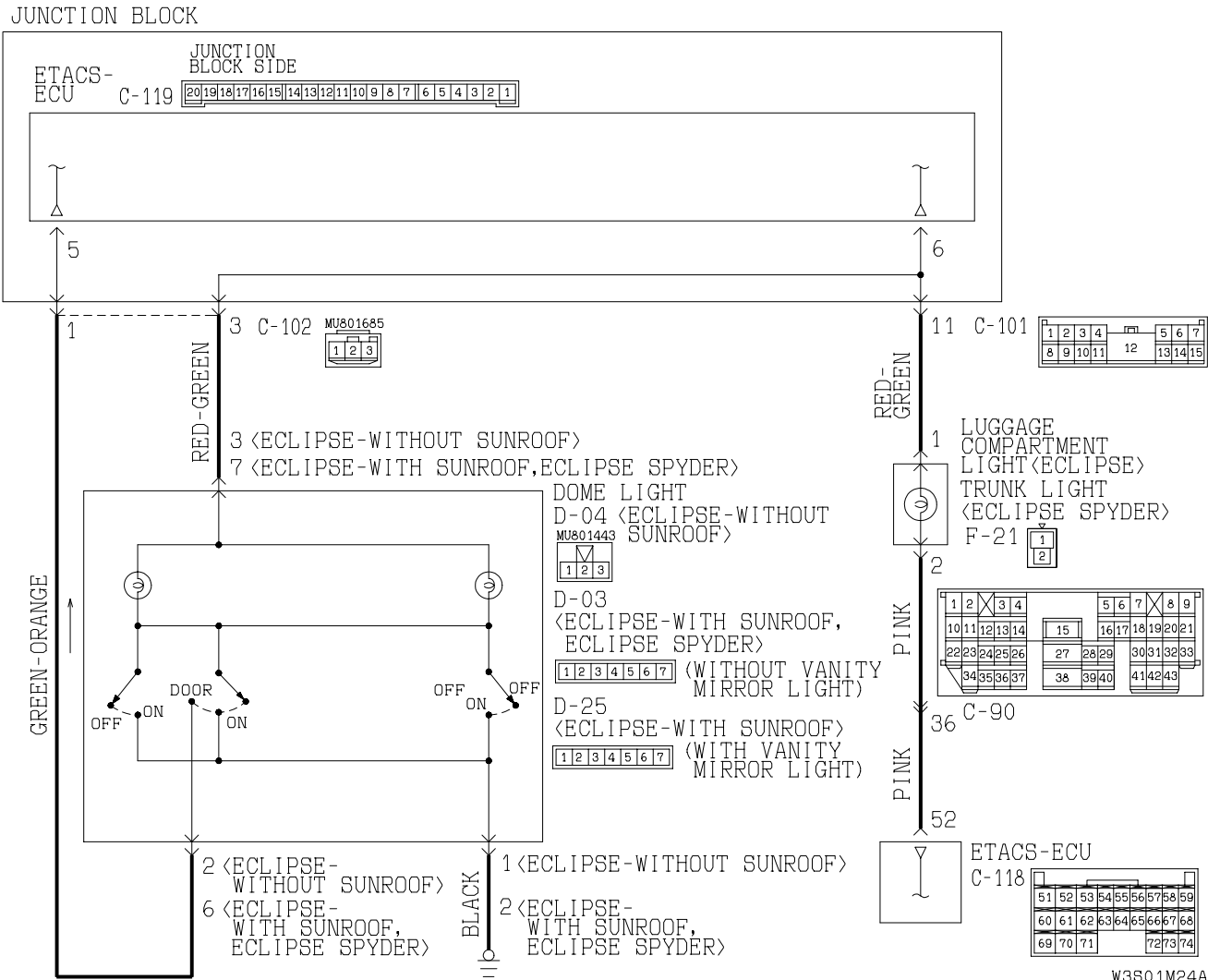
Q: When the key reminder switch, liftgate latch switch or liftgate light switch <ECLIPSE>, and the trunk lid latch switch or trunk light switch <ECLIPSE SPYDER> and the interior light loaded signal is operated, does scan tool MB991502 sound?

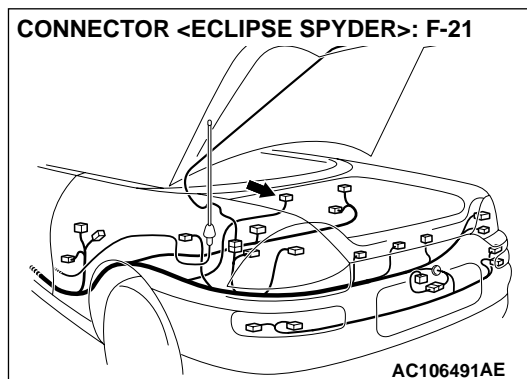
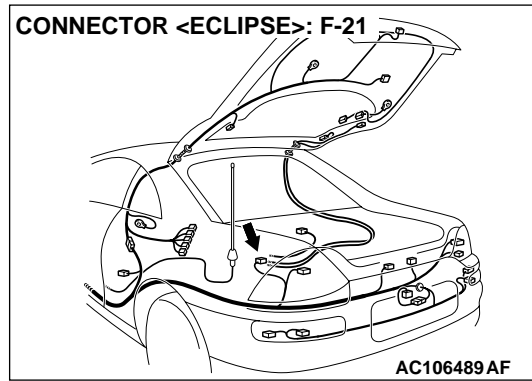
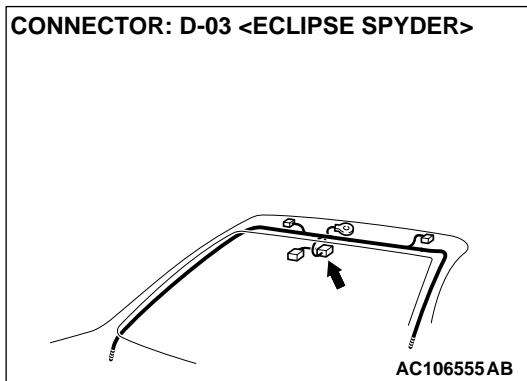
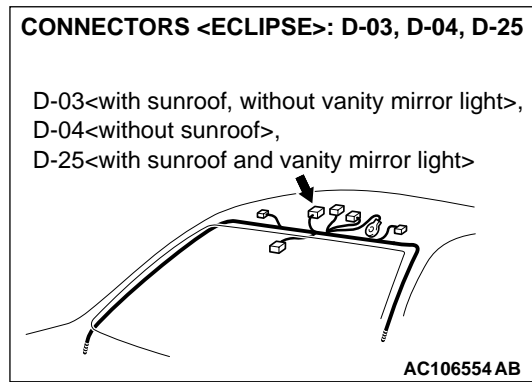
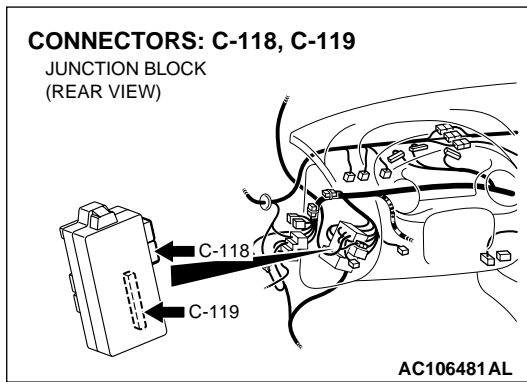
YES : Replace the ETACS-ECU. Check that the dome light illuminates normally.

- NO :**
- Scan tool MB991502 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-524.](#)"
 - When the liftgate <ECLIPSE> or trunk lid <ECLIPSE SPYDER> is opened and closed, scan tool MB991502 does not sound: Refer to Inspection Procedure P-9 "ETACS-ECU does not receive a signal from the liftgate latch switch <ECLIPSE> or trunk lid latch switch <ECLIPSE SPYDER>."
 - When one of the interior lights is illuminated, scan tool MB991502 does not sound: Refer to Inspection Procedure P-14 "ETACS-ECU does not receive any multi-purpose fuse No.17 loaded signal [P.54B-611.](#)"

INSPECTION PROCEDURE M-2: Interior Light: The Dome Light, Luggage Compartment Light <ECLIPSE> or Trunk Light <ECLIPSE SPYDER> does not Illuminate or Go Out Normally.

Interior Lights Circuit





CIRCUIT OPERATION

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of the door switch
- Malfunction of the driver's door lock actuator switch
- Malfunction of the dome light
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check which of the dome light, the luggage compartment light <ECLIPSE> or the trunk light <ECLIPSE SPYDER> does not illuminate normally.

Q: Which of the dome light, the luggage compartment light <ECLIPSE> or the trunk light <ECLIPSE SPYDER> fail to illuminate normally?

dome light does not illuminate normally : Go to Step 2.

luggage compartment light <ECLIPSE> : Go to Step 11.

trunk light <ECLIPSE SPYDER> : Go to Step 18.

STEP 2. Check the dome light bulb.

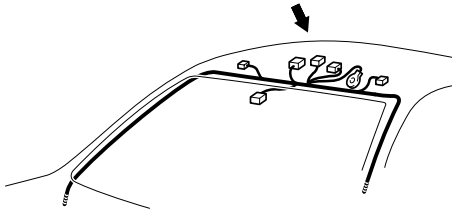
Q: Is the dome light bulb in good condition?

YES : Go to Step 3.

NO : Replace the bulb. Check that the dome light illuminates normally.

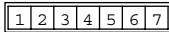
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

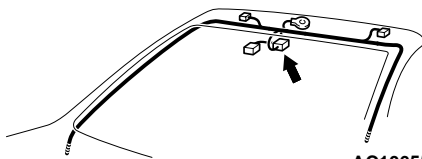
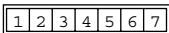


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

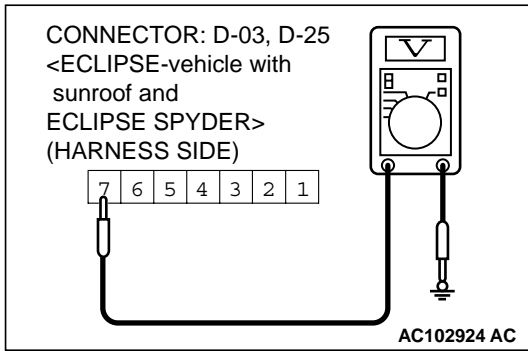
D-03



AC106555 AC

STEP 3. Measure at dome light connector D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> in order to check the ETACS-ECU line of the power supply to the dome light.

- (1) Disconnect dome light connector D-04 <ECLIPSE-vehicles without sunroof> or D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light>, and measure at the wiring harness side.

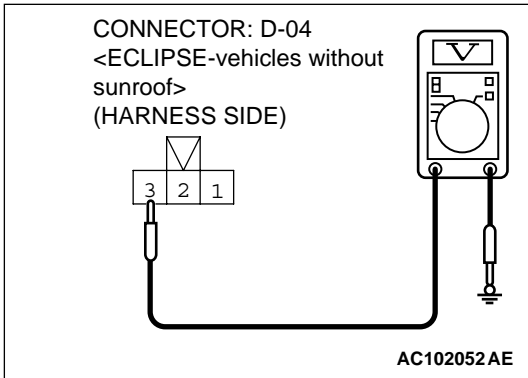


- (2) Measure the voltage between terminal 3 <ECLIPSE-vehicles without sunroof>, 7 <ECLIPSE-vehicles with sunroof and ECLIPSE SPYDER> and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

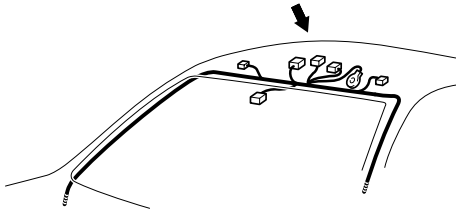
YES : Go to Step 6.

NO : Go to Step 4.



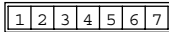
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

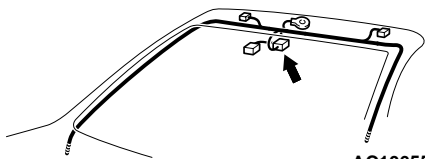
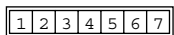


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

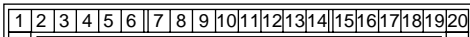
D-03



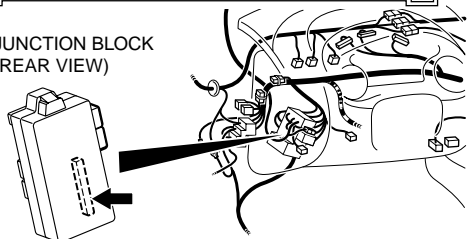
AC106555 AC

CONNECTOR: C-119

DEVICE SIDE



JUNCTION BLOCK
(REAR VIEW)



AC106481 AF

STEP 4. Check dome light connectors D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 for damage.

Q: Are dome light connector D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 5.

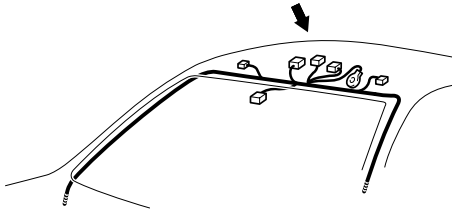
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the dome light illuminates normally.

STEP 5. Check the wiring harness between dome light connector D-04 (terminal 3) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 7) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 7) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 (terminal 6).

NOTE: Also check junction block connector C-102. If junction block connector C-102 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

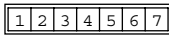
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

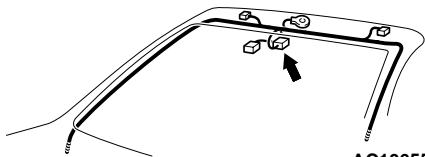
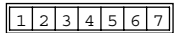


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

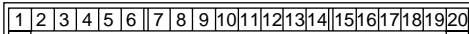
D-03



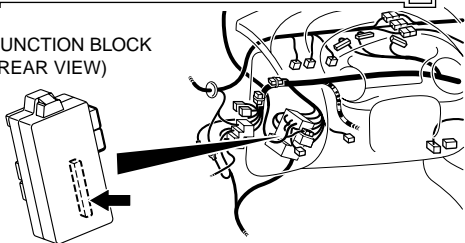
AC106555 AC

CONNECTOR: C-119

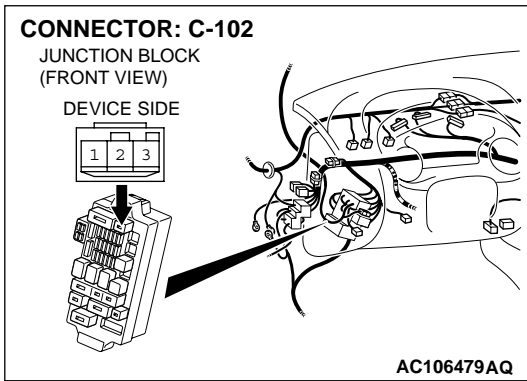
DEVICE SIDE



JUNCTION BLOCK
(REAR VIEW)



AC106481 AF



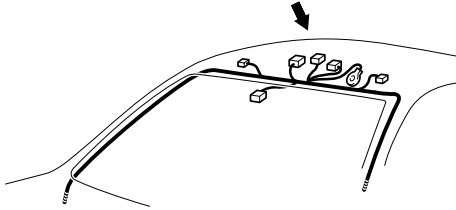
Q: Is the wiring harness between dome light connector D-04 (terminal 3) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 7) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 7) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 (terminal 6) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the dome light illuminates normally.

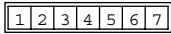
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

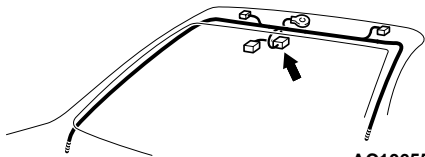
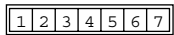


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

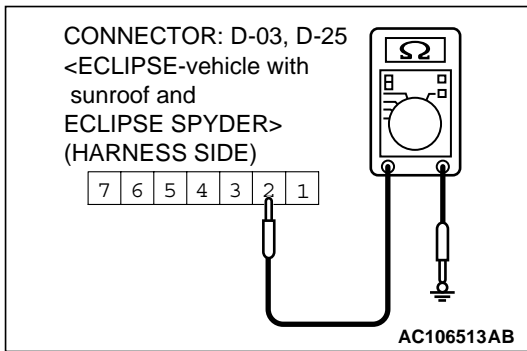
D-03



AC106555 AC

STEP 6. Measure at dome light connector D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> in order to check the ground circuit to the dome light.

- (1) Disconnect dome light connector D-04 <ECLIPSE-vehicles without sunroof> or D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light>, and measure at the wiring harness side.

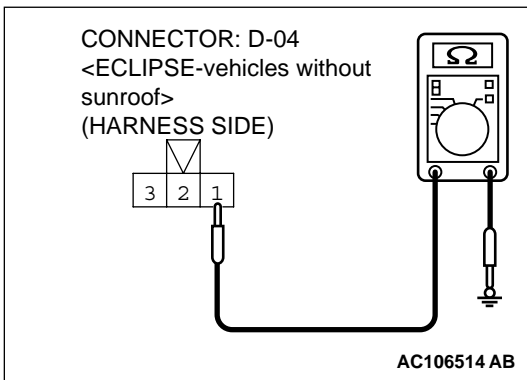


- (2) Measure the resistance value between 1 <ECLIPSE-vehicles without sunroof>, 2 <ECLIPSE-vehicles with sunroof and ECLIPSE SPYDER> and ground.
- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

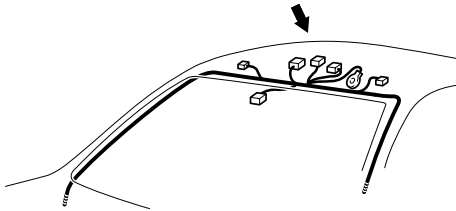
YES : Go to Step 9.

NO : Go to Step 7.



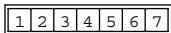
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

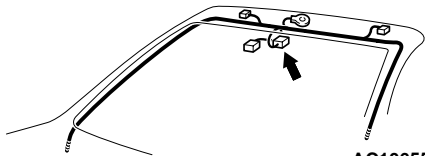
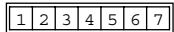


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

D-03



AC106555 AC

STEP 7. Check dome light connectors D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> for damage.

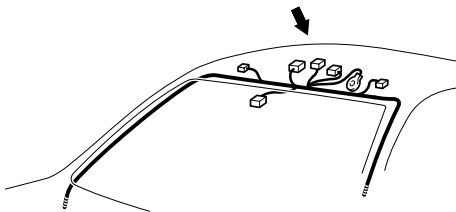
Q: Are dome light connector D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> in good condition?

YES : Go to Step 8.

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

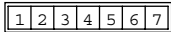
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

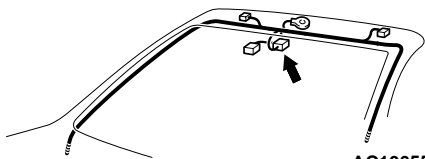
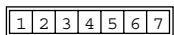


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

D-03



AC106555 AC

STEP 8. Check the wiring harness between dome light connector D-04 (terminal 3) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 7) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 7) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ground .

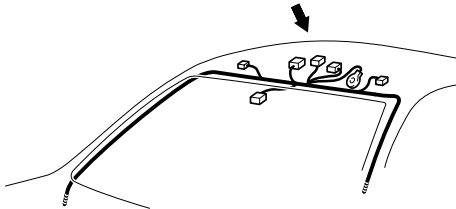
Q: Is the wiring harness between dome light connector D-04 (terminal 3) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 7) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 7) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the dome light illuminates normally.

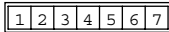
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>,
D-04<without sunroof>,
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>,
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

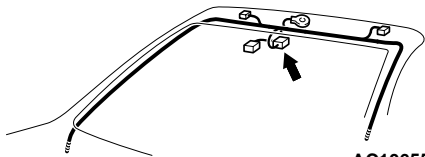
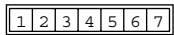


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

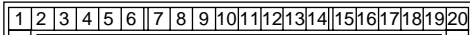
D-03



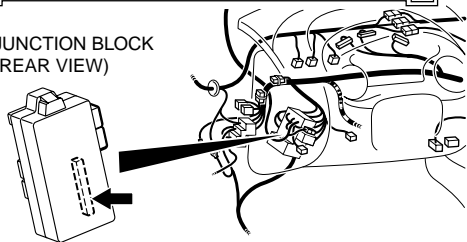
AC106555 AC

CONNECTOR: C-119

DEVICE SIDE



JUNCTION BLOCK
(REAR VIEW)



AC106481 AF

STEP 9. Check dome light connectors D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 for damage.

Q: Are dome light connector D-04 <ECLIPSE-vehicles without sunroof>, D-03 <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 10.

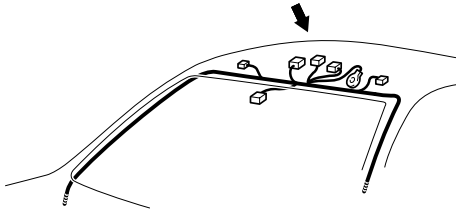
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the dome light illuminates normally.

STEP 10. Check the wiring harness between dome light connector D-04 (terminal 2) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 6) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 6) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 (terminal 5).

NOTE: Also check junction block connector C-102. If junction block connector C-102 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

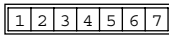
CONNECTORS <ECLIPSE>: D-03, D-04, D-25

D-03<with sunroof, without vanity mirror light>
D-04<without sunroof>
D-25<with sunroof and vanity mirror light>



DEVICE SIDE

D-03<with sunroof, without vanity mirror light>
D-25<with sunroof and vanity mirror light>



D-04<without sunroof>

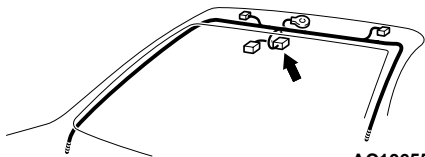
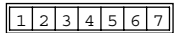


AC106559 AB

CONNECTOR: D-03 <ECLIPSE SPYDER>

DEVICE SIDE

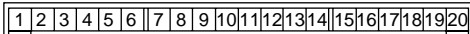
D-03



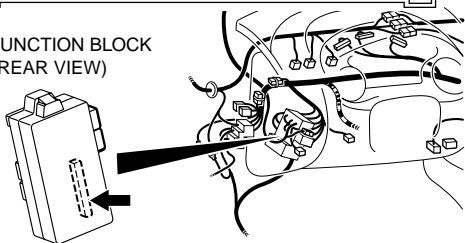
AC106555 AC

CONNECTOR: C-119

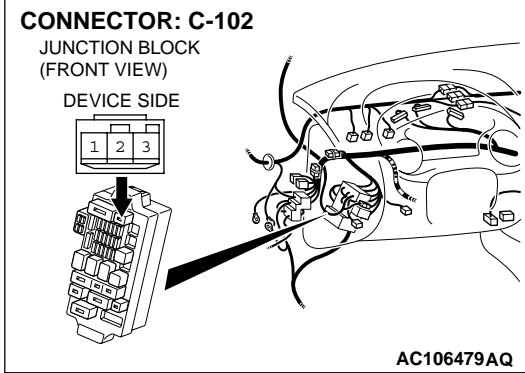
DEVICE SIDE



JUNCTION BLOCK
(REAR VIEW)



AC106481 AF



Q: Is the wiring harness between dome light connector D-04 (terminal 2) <ECLIPSE-vehicles without sunroof>, D-03 (terminal 6) <ECLIPSE-vehicles with sunroof, without vanity mirror light and ECLIPSE SPYDER> or D-25 (terminal 6) <ECLIPSE-vehicles with sunroof and vanity mirror light> and ETACS-ECU connector C-119 in good condition?

YES : Replace the ETACS-ECU. Check that the dome light illuminates normally.

NO : Repair the wiring harness. Check that the dome light illuminates normally.

STEP 11. Check the luggage compartment light bulb.

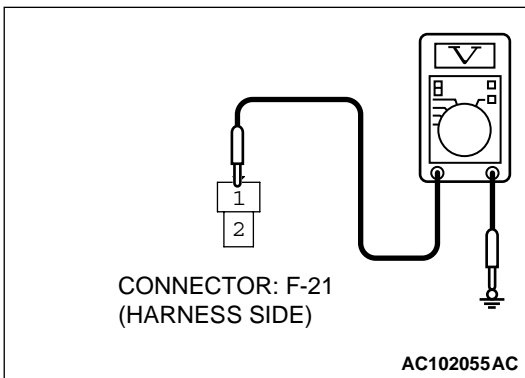
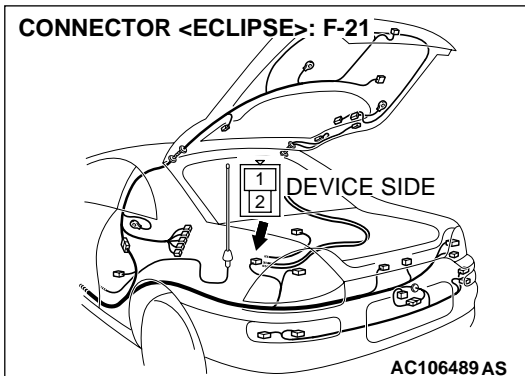
Q: Is the luggage compartment light bulb in good condition?

YES : Go to Step 12.

NO : Replace the bulb. Check that the luggage compartment lights illuminate normally.

STEP 12. Measure at luggage compartment light connector F-21 in order to check the ETACS-ECU line of the power supply to the luggage compartment light.

(1) Disconnect luggage compartment light connector F-21, and measure at the wiring harness side.



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

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 15.

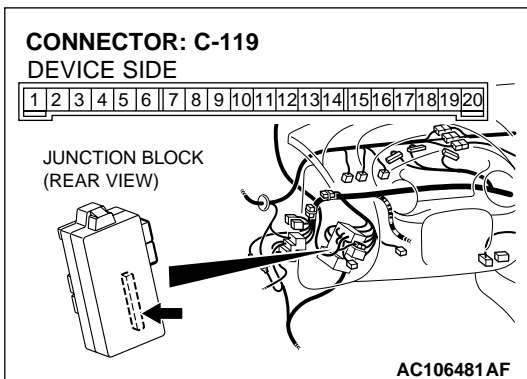
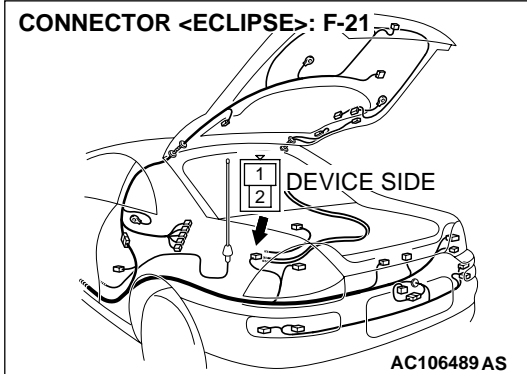
NO : Go to Step 13.

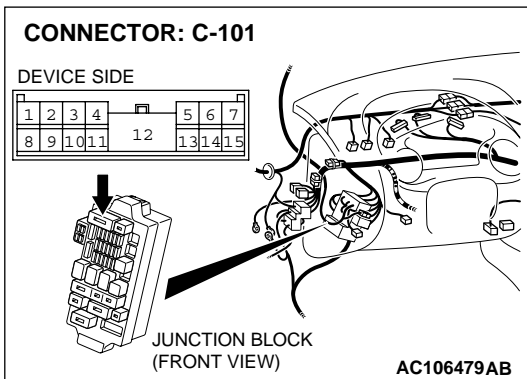
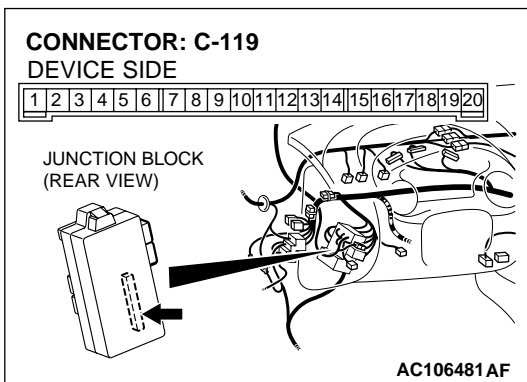
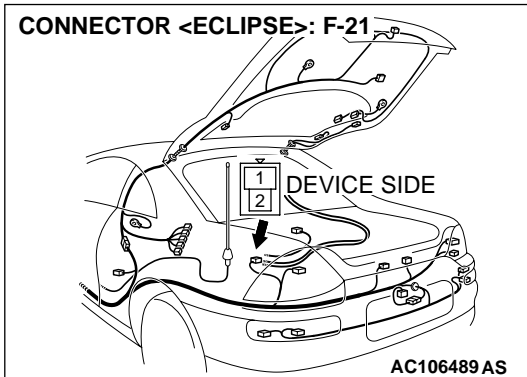
STEP 13. Check luggage compartment light connectors F-21 and ETACS-ECU connector C-119 for damage.

Q: Are luggage compartment light connector F-21 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 14.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the luggage compartment lights illuminate normally.





STEP 14. Check the wiring harness between luggage compartment light connector F-21 (terminal 1) and ETACS-ECU connector C-119 (terminal 6).

NOTE: Also check junction block connector C-101. If junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between luggage compartment light connector F-21 (terminal 1) and ETACS-ECU connector C-119 (terminal 6) in good condition?

YES : No action to be taken.

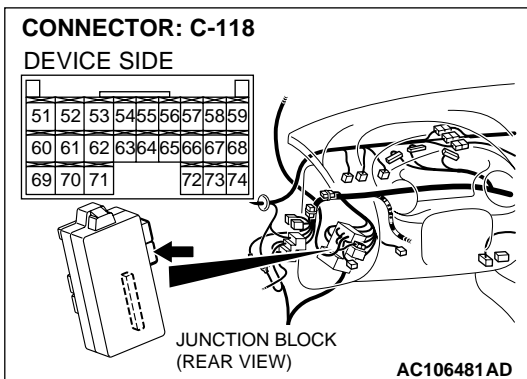
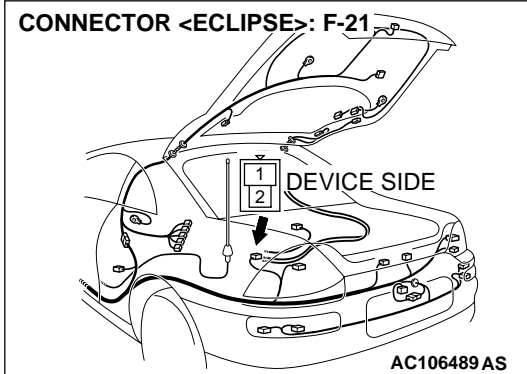
NO : Repair the wiring harness. Check that the luggage compartment lights illuminate normally.

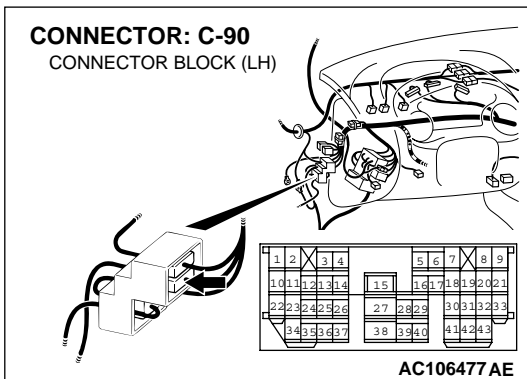
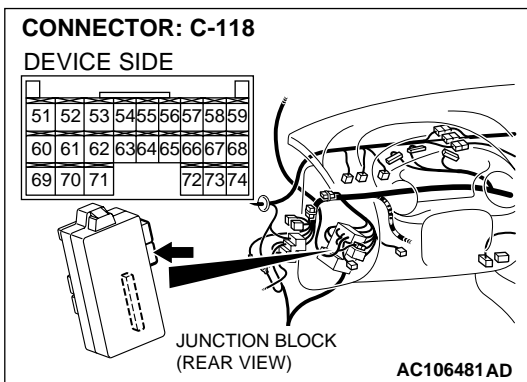
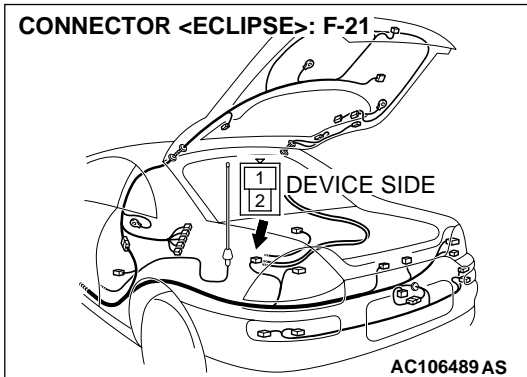
STEP 15. Check luggage compartment light connectors F-21 and ETACS-ECU connector C-118 for damage.

Q: Are luggage compartment light connector F-21 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 16.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the luggage compartment lights illuminate normally.





STEP 16. Check the wiring harness between luggage compartment light connector F-21 (terminal 2) and ETACS-ECU connector C-118 (terminal 52).

NOTE: Also check intermediate connector C-90. If intermediate connector C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between luggage compartment light connector F-21 (terminal 2) and ETACS-ECU connector C-118 (terminal 52) in good condition?

YES : Go to Step 17.

NO : Repair the wiring harness. Check that the luggage compartment lights illuminate normally.

STEP 17. Check the input signal (by using the Pulse Check).

Check the input signal of the liftgate latch switch <vehicles with theft-alarm system> or liftgate light switch <vehicles without theft-alarm system>.

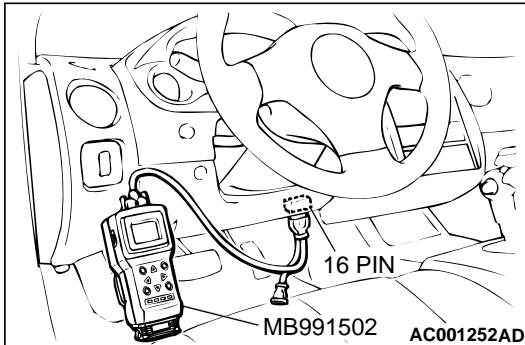
⚠ CAUTION

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

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) When the liftgate is opened and closed, check if scan tool MB991502 sounds or not.

Q: When the liftgate is opened and closed, does scan tool MB991502 sound?

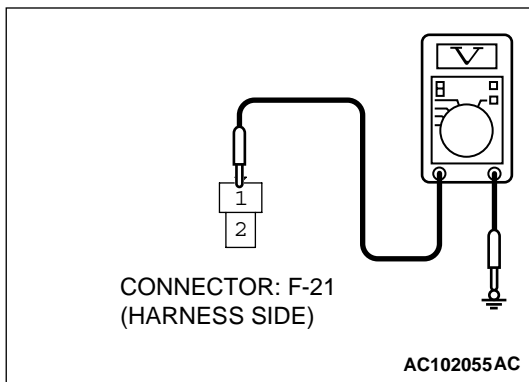
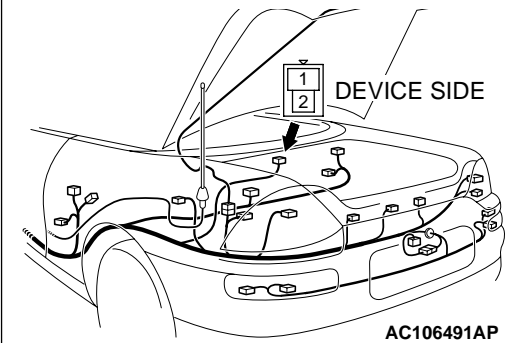
- Yes :** Replace the ETACS-ECU. Check that the luggage compartment lights illuminate normally.
- No :** Refer to Inspection Procedure P-9 "ETACS-ECU does not receive a signal from the liftgate latch switch [P.54B-580.](#)"



STEP 18. Check the trunk light bulb.

Q: Is the luggage compartment bulb in good condition?

- YES :** Go to Step 19.
- NO :** Replace the bulb. Check that the trunk lights illuminate normally.

CONNECTOR <ECLIPSE SPYDER>: F-21

STEP 19. Measure at trunk light connector F-21 in order to check the ETACS-ECU line of the power supply to the trunk light.

(1) Disconnect trunk light connector F-21, and measure at the wiring harness side.

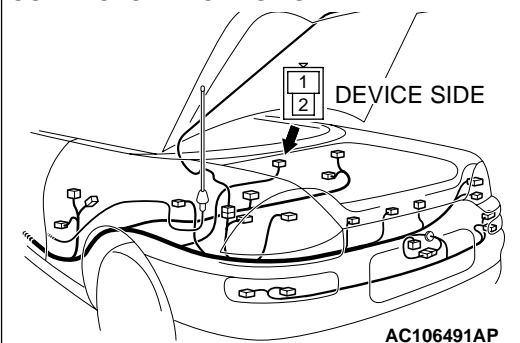
(2) Measure the voltage between terminal 1 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 22.

NO : Go to Step 20.

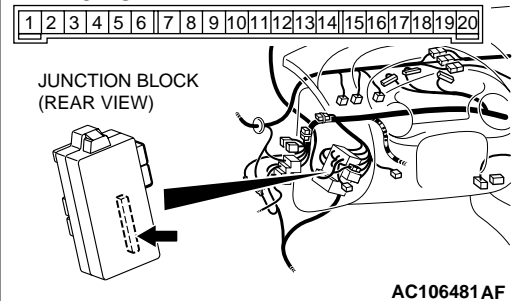
CONNECTOR <ECLIPSE SPYDER>: F-21

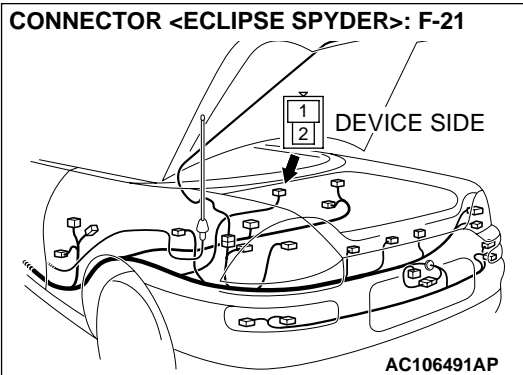
STEP 20. Check trunk light connector F-21 and ETACS-ECU connector C-119 for damage.

Q: Are trunk light connector F-21 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 21.

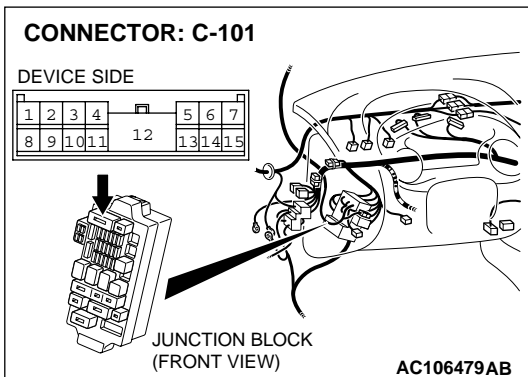
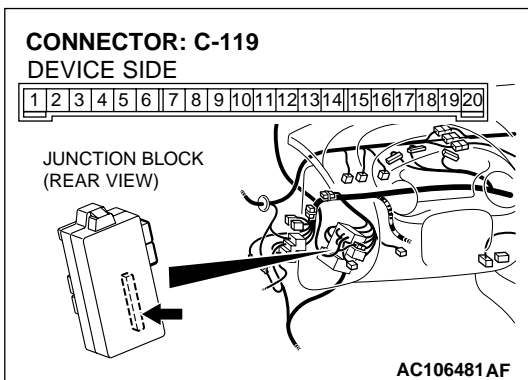
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the trunk lights illuminate normally.

CONNECTOR: C-119
DEVICE SIDE



STEP 21. Check the wiring harness between trunk light connector F-21 (terminal 1) and ETACS-ECU connector C-119 (terminal 6).

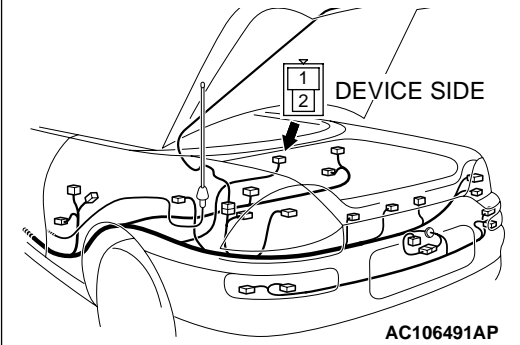
NOTE: Also check junction block connector C-101. If junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between trunk light connector F-21 (terminal 1) and ETACS-ECU connector C-119 (terminal 6) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. Check that the trunk lights illuminate normally.

CONNECTOR <ECLIPSE SPYDER>: F-21

STEP 22. Check trunk light connectors F-21 and ETACS-ECU connector C-118 for damage.

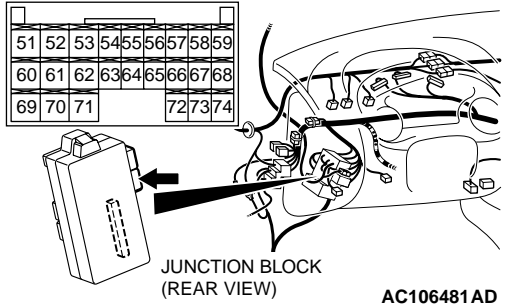
Q: Are trunk light connector F-21 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 23.

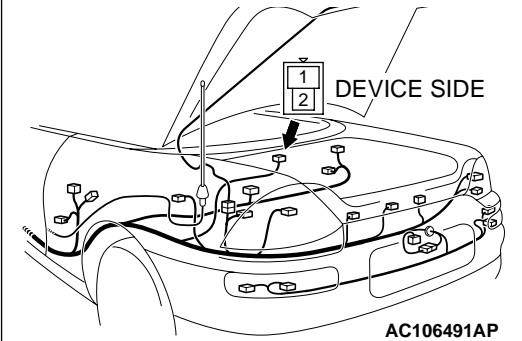
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the trunk lights illuminate normally.

CONNECTOR: C-118

DEVICE SIDE



CONNECTOR <ECLIPSE SPYDER>: F-21



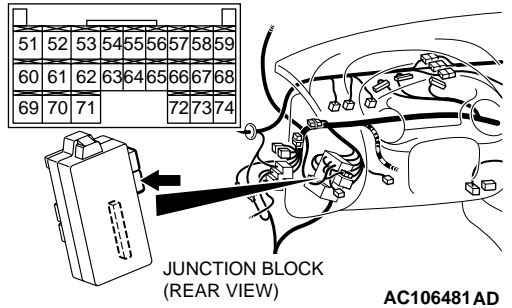
STEP 23. Check the wiring harness between trunk light connector F-21 (terminal 2) and ETACS-ECU connector C-118 (terminal 52).

NOTE: Also check intermediate connector C-90. If intermediate connector C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection

P.00E-2.

CONNECTOR: C-118

DEVICE SIDE

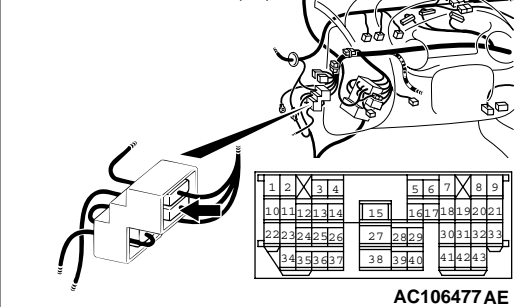


Q: Is the wiring harness between trunk light connector F-21 (terminal 2) and ETACS-ECU connector C-118 (terminal 52) in good condition?

YES : Go to Step 24.

NO : Repair the wiring harness. Check that the trunk lights illuminate normally.

CONNECTOR: C-90
CONNECTOR BLOCK (LH)



STEP 24. Check the input signal (by using the Pulse Check).

Check the input signal of the trunk lid latch switch <vehicles with theft-alarm system> or trunk light switch <vehicles without theft-alarm system>.

⚠ CAUTION

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

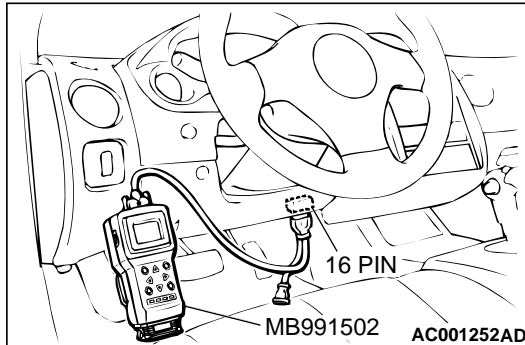
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Operate the MUT-II as follows:
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "PULSE CHECK."
- (3) When the trunk lid is opened and closed, check if scan tool MB991502 sounds or not.

Q: When the trunk lid is opened and closed, does scan tool MB991502 sound?

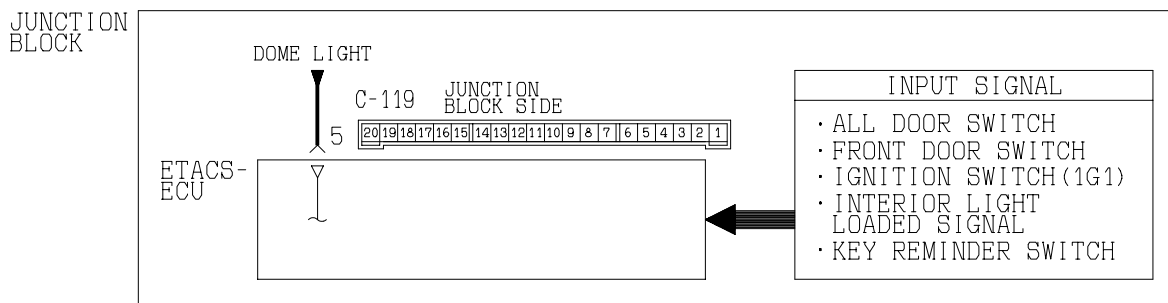
Yes : Replace the ETACS-ECU. Check that the trunk lights illuminate normally.

No : Refer to Inspection Procedure P-9 "ETACS-ECU does not receive a signal from the trunk lid latch switch

[P.54B-580.](#)"

**INSPECTION PROCEDURE M-3: Dome light: Dome Light Dimming Function does not Work Normally.**

NOTE: This troubleshooting requires use of scan tool MB991502 and SWS monitor kit MB991862. For details of how to use the SWS monitor, refer to "How to use SWS monitor [P.54B-8.](#)"

Interior Light Dimming Function

W2S13M31AA

CIRCUIT OPERATION

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

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

- Driver's door lock actuator switch: LOCK or UNLOCK

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the driver's door lock actuator switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the dome light.

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

Q: Does the dome light illuminate normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-1 "Dome light does not illuminate or go out normally P.54B-400."

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

Check the ETACS-ECU.

CAUTION

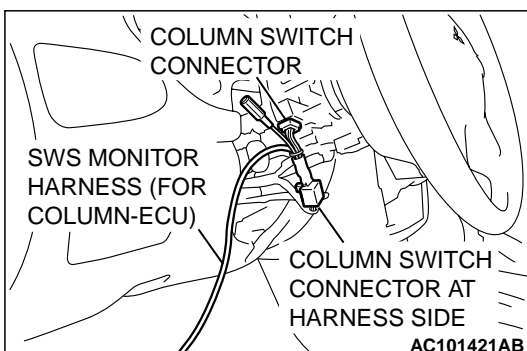
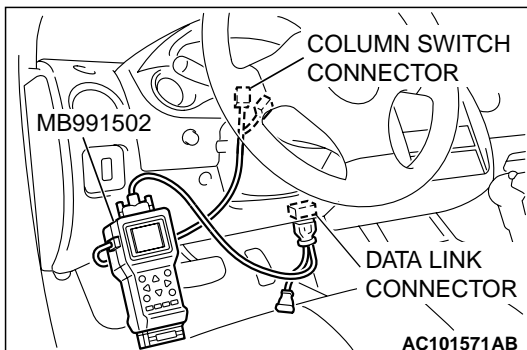
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

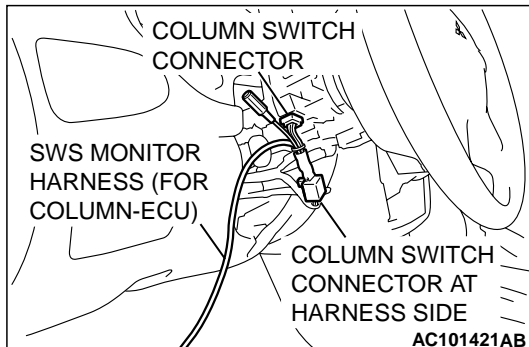
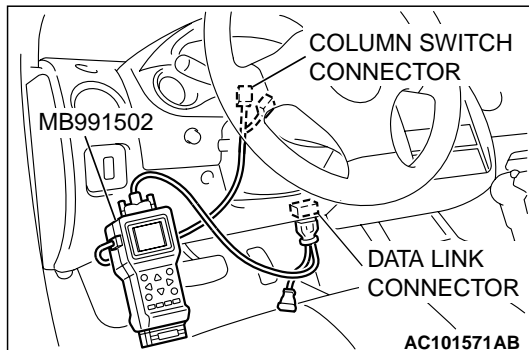
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ETACS ECU" menu.

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

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."





STEP 3. Check the input signal by using "DATA LIST" of the SWS monitor.

Check the input signals from the following switches:

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

Operate the MUT-II 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."

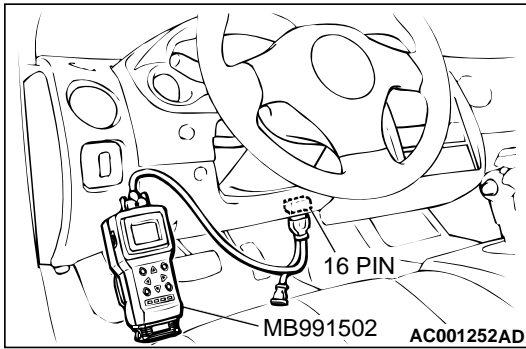
Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	OFF
ITEM No.32	FRONT DOOR SW	ON

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

YES : Go to Step 4.

- NO :**
- Normal condition is not displayed for "IG SW (IG1)": Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - Normal condition is not displayed for "FRONT DOOR SW": Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"



STEP 4. Check the input signal (by using the Pulse Check).

Check the input signals from the following switches:

- key reminder switch

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Check if scan tool MB991502 sounds or not.

ITEM NAME	CONDITIONS
Key reminder switch	Remove and reinsert the ignition key

Q: Does scan tool MB991502 sound when the key reminder switch is operated?

YES : Replace the ETACS-ECU. Check that the dome light dimming function works normally.

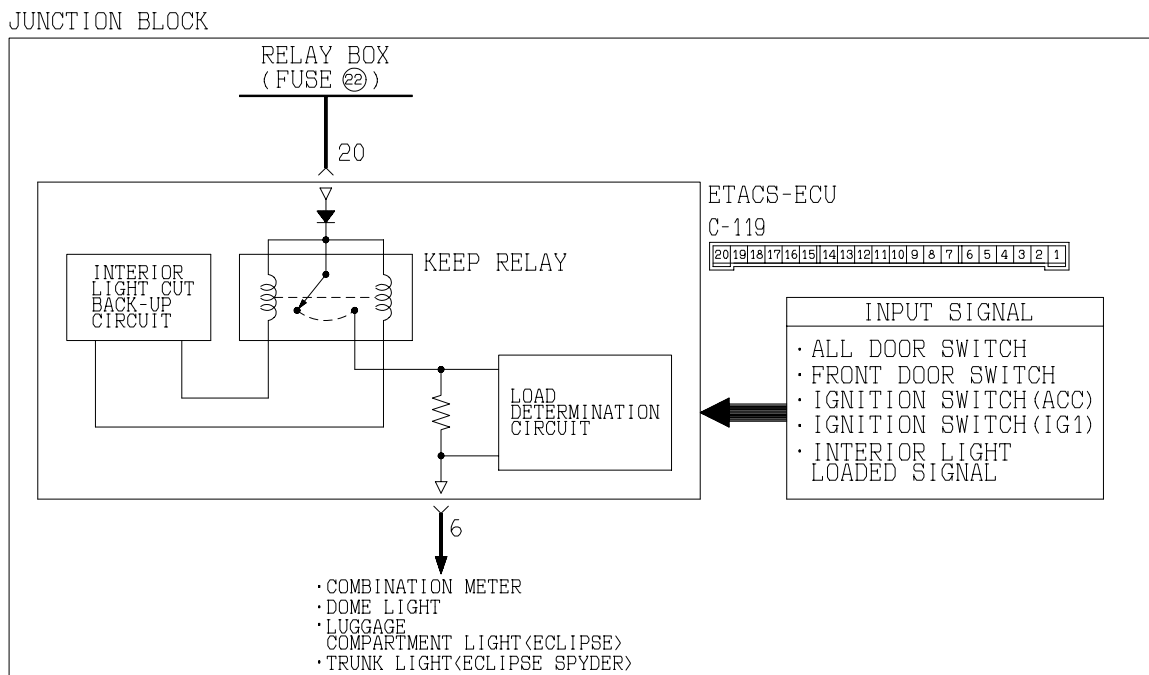
NO : Refer to Inspection Procedure P-1 "ETACS-ECU does not receive a signal from the key reminder switch

[P.54B-524.](#)"

INSPECTION PROCEDURE M-4: Interior Light: The Interior Light Automatic shut down Function does not Operate Correctly.

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

Interior Light Automatic Shut-down Function Circuit



W3S01M25AA

CIRCUIT OPERATION

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

- Ignition switch (ACC)
- Ignition switch (IG1)
- Front door switch
- interior light loaded signal

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the front dome light and the rear dome light.

If the front dome light switch and the rear dome light switch are moved to the "door interlock position", the front dome light and the rear dome light should illuminate when either door is opened.

Q: Do the front dome light and the rear dome light illuminate normally?

YES : Go to Step 2.

- NO :**
- Neither the front dome light nor the rear dome light illuminates normally: Refer to Inspection Procedure M-1 "Dome light, luggage compartment light <ECLIPSE> and trunk light <ECLIPSE SPYDER> do not illuminate or go out normally [P.54B-400.](#)"
 - Either the front dome light or the rear dome light illuminates normally: Refer to Inspection Procedure M-2 "Dome light, luggage compartment light <ECLIPSE> and trunk light <ECLIPSE SPYDER> do not illuminates or goes out normally [P.54B-404.](#)"

STEP 2. Use scan tool MB991502 to select "ECU COMM CHECK" on the SWS monitor display.

Check the ETACS-ECU.

⚠ CAUTION

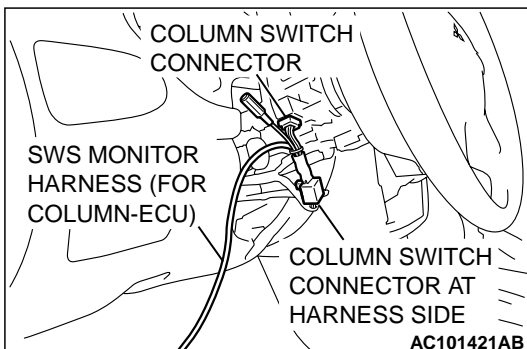
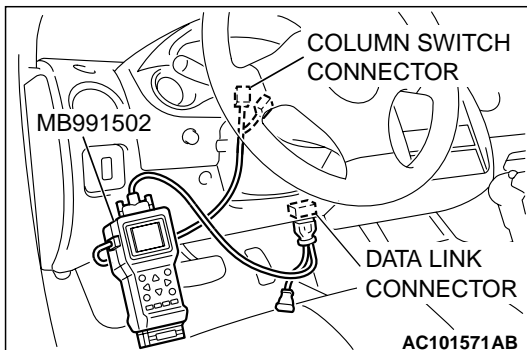
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

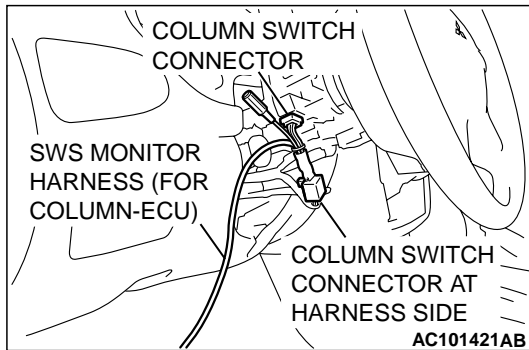
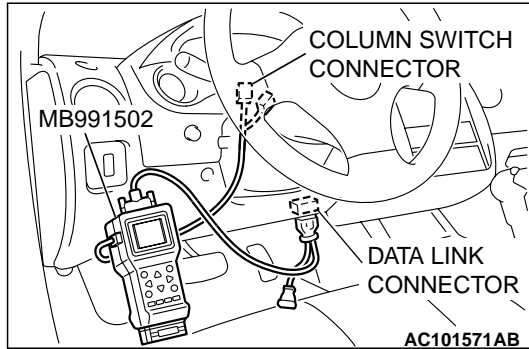
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ETACS ECU" menu.

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

YES : Go to STEP 3.

NO : Refer to Inspection Procedure A-3 "Communication with ETACS-ECU is impossible P.54B-39."





STEP 3. Check the input signal by using "DATA LIST" of the SWS monitor.

Check the input signals from the following switches:

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

Operate the MUT-II 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."

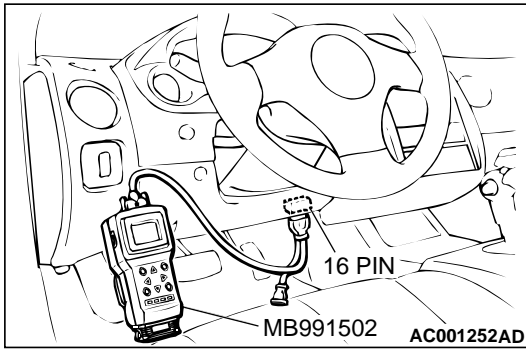
Check that normal conditions are displayed on the items described in the table below.

ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.30	IG SW (IG1)	OFF
ITEM No.31	IG SW (ACC)	OFF
ITEM No.32	FRONT DOOR SW	ON

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

YES : Go to Step 4.

- NO :**
- Normal condition is not displayed for "IG SW (IG1)": Refer to Inspection Procedure O-2 "ETACS-ECU does not receive a signal from the ignition switch (IG1) [P.54B-469.](#)"
 - Normal condition is not displayed for "IG SW (ACC)": Refer to Inspection Procedure O-1 "ETACS-ECU does not receive a signal from the ignition switch (ACC) [P.54B-466.](#)"
 - Normal condition is not displayed for "FRONT DOOR SW": Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or the front passenger's door switch [P.54B-502.](#)"



STEP 4. Check the input signal (by using the Pulse Check).

Check the following switches and input signals:

- Interior light loaded signal

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Check if scan tool MB991502 sounds or not.

ITEM NAME	CONDITIONS
Interior light loaded signal	Illuminate one of the interior lights

Q: Does scan tool MB991502 sound when the interior light loaded signal is operated?

YES : Replace the ETACS-ECU. Check that the dome light illuminates normally.

NO : Refer to Inspection Procedure P-14 "ETACS-ECU does not receive a interior light loaded signal [P.54B-611.](#)"

THEFT-ALARM SYSTEM

GENERAL DESCRIPTION CONCERNING THEFT-ALARM SYSTEM

M1549022100014

The following ECUs affect the functions and control of the theft-alarm function.

Functions	Control ECU
Theft-alarm system	ETACS-ECU, front-ECU

THEFT-ALARM SYSTEM

ARMING THE SYSTEM

After the following procedures have been completed, the theft-alarm indicator light illuminates for about 20seconds. When the light goes off, the system is armed.

1. Pull out the ignition key from the key cylinder.
2. Lock all doors with the key or the RKE transmitter.

NOTE: The system is set regardless of whether the hood trunk or liftgate is open or closed, and is armed as soon as the light goes off.

DISARMING THE SYSTEM

The system is disarmed if any of the following conditions is satisfied.

- Unlock the doors by using the door lock key cylinder.
- Unlock the liftgate lock key cylinder <ECLIPSE> or the trunk lid lock key cylinder <ECLIPSE SPYDER>.
- Unlock the doors by using the RKE transmitter.

ACTIVATING THE ALARM

1. If any door, trunk lid <ECLIPSE>, liftgate <ECLIPSE SPYDER> or hood is opened without key or RKE transmitter, while the system is armed, the horn (theft-alarm horn and horn) will sound intermittently and the headlights (high-beam) will flash on and off for approximately three minutes.
2. If any door, the trunk lid <ECLIPSE> or the liftgate <ECLIPSE SPYDER> or the hood is opened without disarming the alarm by using the key or the RKE transmitter, the alarm will be activated again. Note that the alarm will not be deactivated by disconnecting the battery.

DEACTIVATING THE ALARM

To deactivate the alarm, insert the key into the door's key cylinder and turn the key or operate the RKE transmitter (except "PANIC" button).

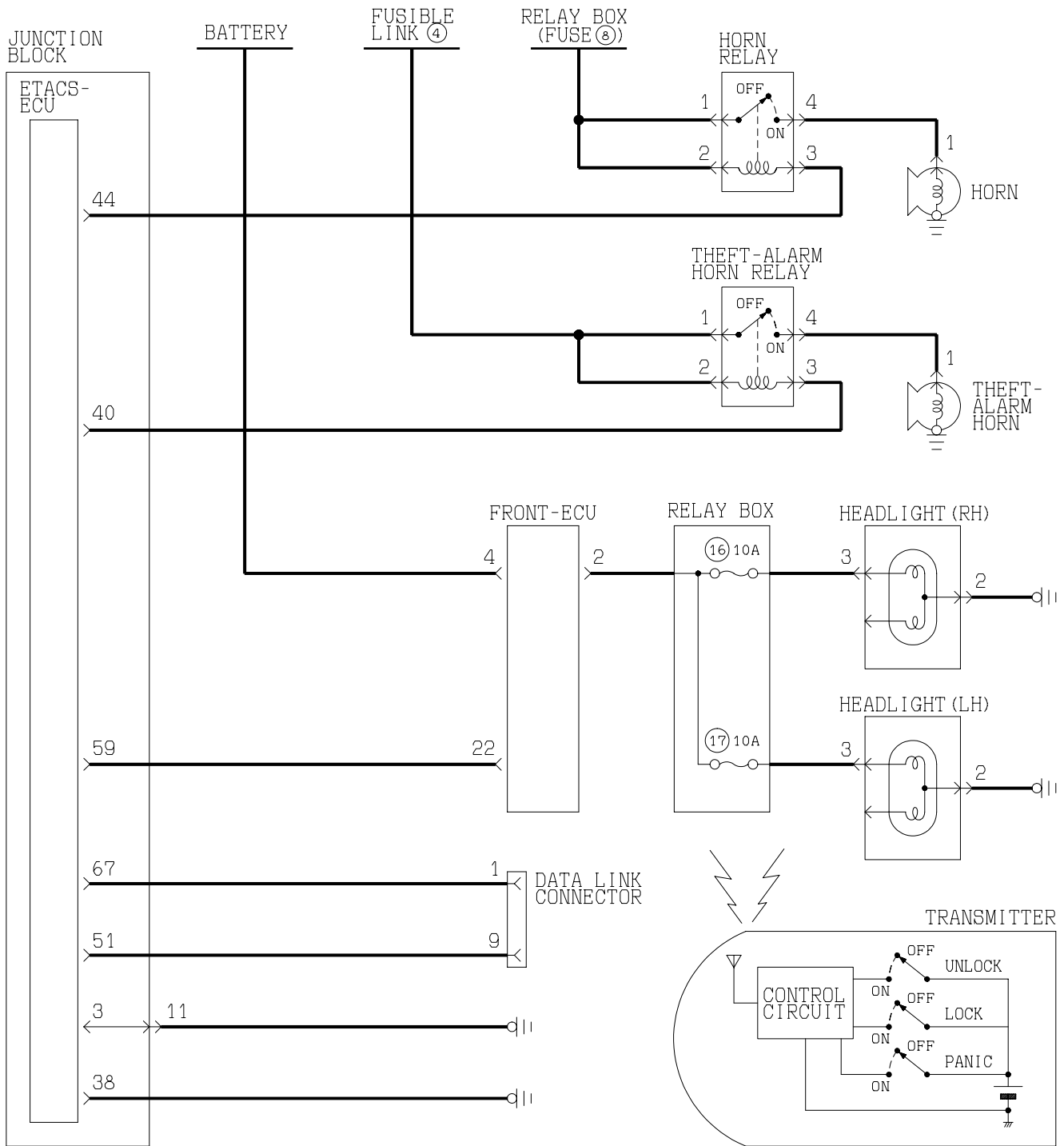
CHECKING THE SYSTEM OPERATION

The activation/operation of the system can be checked by following steps below.

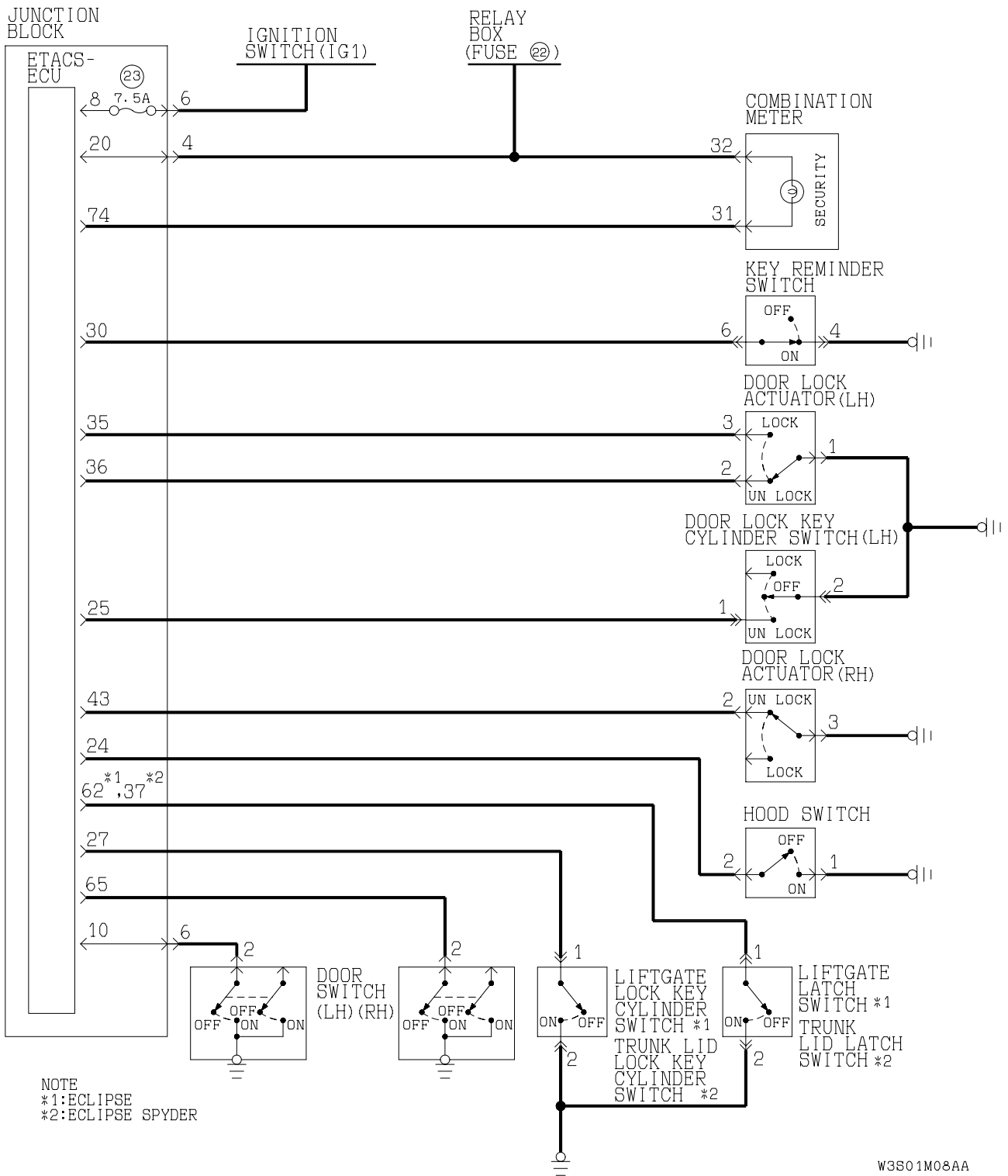
1. Turn the ignition key to the "ON" position and to fully open the window on the driver's side with the power window switch.
2. Turn the ignition key to the "LOCK" (OFF) position and then remove the key from the ignition.
3. Close all doors.
4. Lock all doors with the key or RKE transmitter.
5. The theft-alarm indicator light will illuminate; check to be sure that the light goes off in about 20 second.
6. After the theft-alarm indicator light goes off, unlock with the driver's door lock knob, and open the driver's door.
7. Check to be sure that, when the door is opened, the horn starts sounding and the headlights flash on and off.
8. To stop the alarm, insert the key into the door key cylinder and turn the key or press RKE transmitter switch.

NOTE: To check the alarm for the opening of the hood, open the hood by using the hood release lever, located on the driver's side either before the alarm is activated by the opening of a door, or after the finish of the first three-minute alarm.

General circuit diagram for the theft-alarm



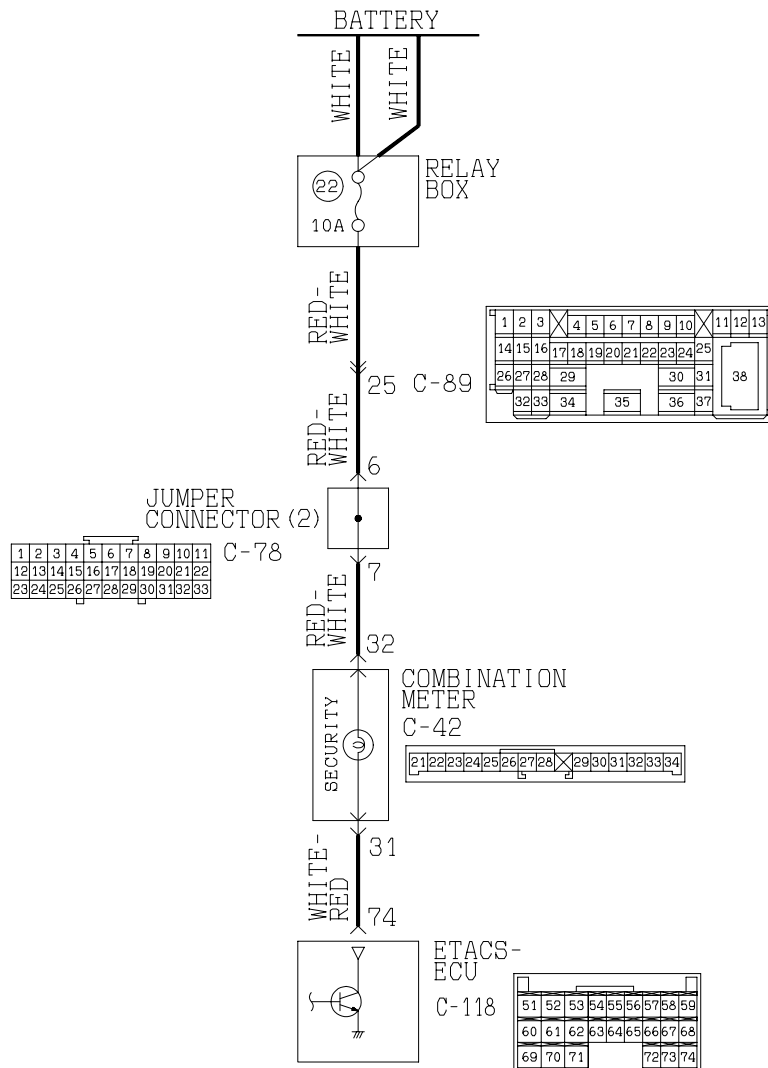
W3S01M04AA



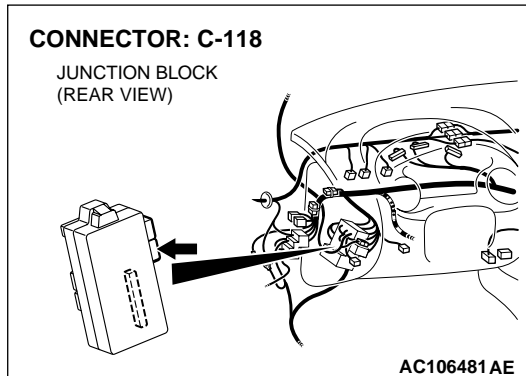
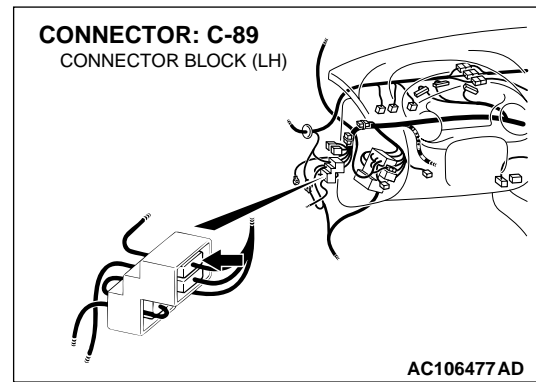
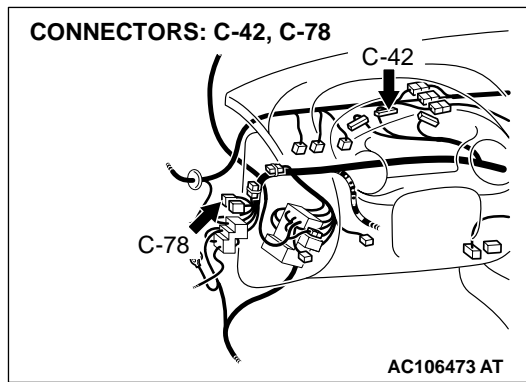
INSPECTION PROCEDURE N-1: Theft-alarm System: Theft-alarm System is not Armed (Theft-alarm Indicator Light does not illuminate).

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

Theft-alarm Indicator Light Circuit



W3S03M05AA



CIRCUIT OPERATION

- When the ETACS-ECU receives a "LOCK" signal from the door lock actuator switch, it illuminates the security indicator light for approximately 18 seconds, and then set the theft-alarm system.
- The ETACS-ECU sets the theft-alarm system according to the input signals from the following signals:
 - Ignition key reminder switch: ON
 - Driver's and front passenger's door switch: OFF
 - Driver's and front passenger's door lock key cylinder switch: OFF
 - Driver's and front passenger's doors actuator switch: LOCK
 - Liftgate latch switch: OFF <ECLIPSE>
 - Liftgate lock key cylinder switch: OFF <ECLIPSE>
 - Trunk lid latch switch: OFF <ECLIPSE SPYDER>
 - Trunk lid lock key cylinder switch: OFF <ECLIPSE SPYDER>
 - Hood switch: OFF
 - Transmitter switch: LOCK
- Vehicle condition:
 - Ignition key: Removed from the ignition key cylinder
 - All doors: Closed
 - Driver's and front passenger's door lock key cylinder: Not being operated

- Liftgate: Opened <ECLIPSE>
- Liftgate lock key cylinder: Not operating <ECLIPSE>
- Trunk lid: Closed <ECLIPSE SPYDER>
- Trunk lid lock key cylinder: Not operating <ECLIPSE SPYDER>
- Hood: Closed
- Transmitter: Turn to the "LOCK" position

TECHNICAL DESCRIPTION (COMMENT)

If the theft-alarm system is set normally, the input signal circuit, the "SECURITY" indicator light or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the theft-alarm indicator light
- Malfunction of the ignition key reminder switch
- Malfunction of the driver's or front passenger's door switch
- Malfunction of the driver's or front passenger's door lock key cylinder switch
- Malfunction of the driver's and front passenger's door lock actuator switch
- Malfunction of the liftgate latch switch <ECLIPSE>
- Malfunction of the liftgate lock key cylinder switch signal <ECLIPSE>
- Malfunction of the trunk lid latch switch <ECLIPSE SPYDER>

- Malfunction of the trunk lid lock key cylinder switch signal <ECLIPSE>
- Malfunction of the hood switch
- Malfunction of the transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the ETACS-ECU.

CAUTION

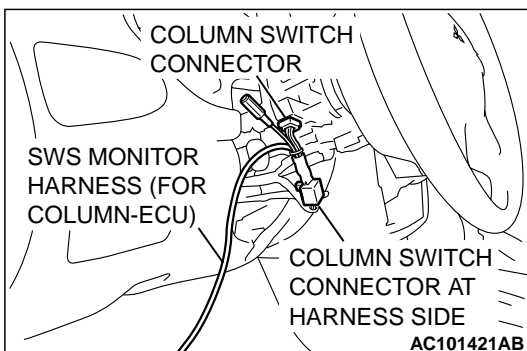
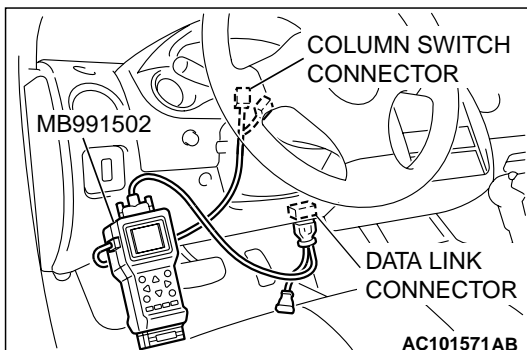
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

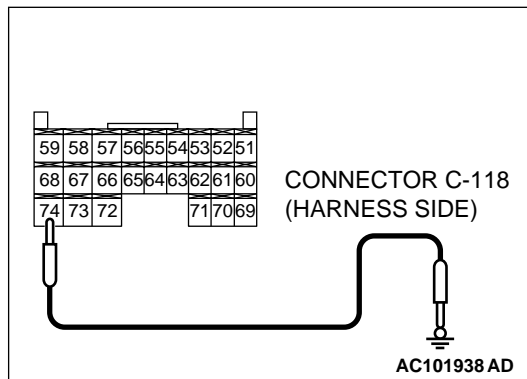
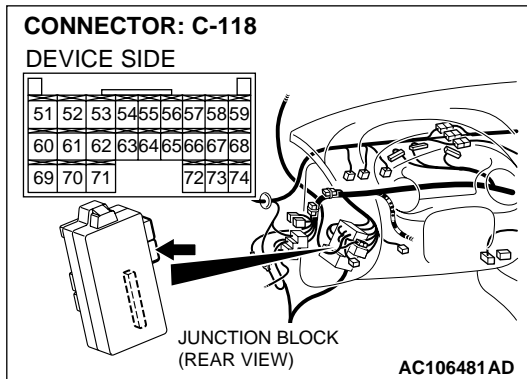
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 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 impossible P.54B-39."





STEP 2. Check at ETACS-ECU connector C-118 in order to check the theft-alarm indicator light circuit.

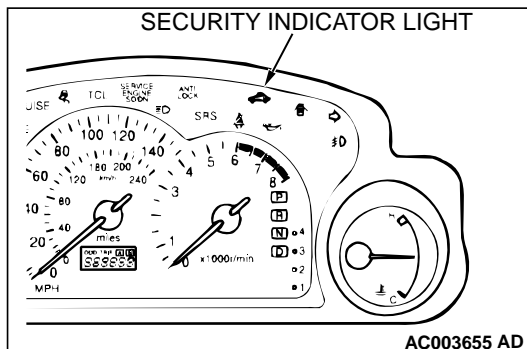
(1) Disconnect ETACS-ECU connector C-118, and measure at the wiring harness side.

(2) The theft-alarm indicator light should illuminate when terminal 74 is grounded.

Q: Does the theft-alarm indicator light illuminate?

YES : Go to Step 10.

NO : Go to Step 3.

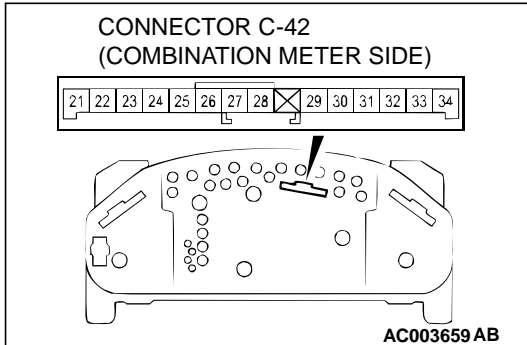


STEP 3. Check the theft-alarm indicator light.

Q: Is the theft-alarm indicator light bulb in good condition?

YES : Go to Step 4.

NO : Replace the bulb. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.



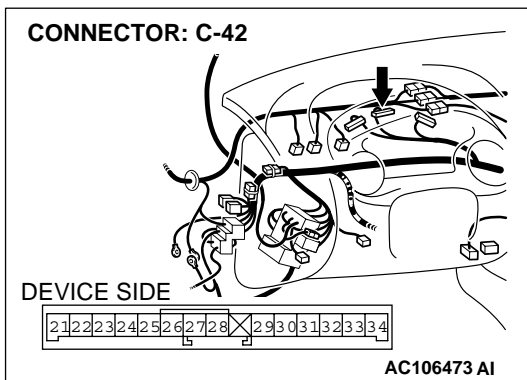
STEP 4. Check the combination meter (printed-circuit board).

- (1) Remove the combination meter.
- (2) Remove the theft-alarm indicator light bulb. Then measure the resistance value between the bulb terminals.
- (3) Install the bulb to the combination meter, and then measure the resistance value between connector C-42 terminals 31 and 32. The measured resistance value should be roughly the same as the value measured in Step (2).

Q: Are these two resistance values extremely different?

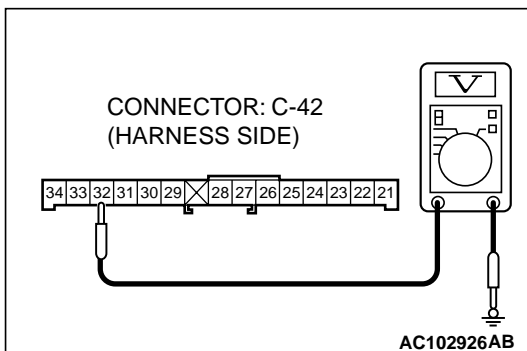
YES : Repair or replace the combination meter (printed circuit board). Check that the seat belt warning light illuminates normally.

NO (much the same) : Go to Step 5.



STEP 5. Check at combination meter connector C-42 in order to check the battery power supply line to the theft-alarm indicator light circuit.

- (1) Disconnect combination meter connector C-42, and check at the wiring harness side.

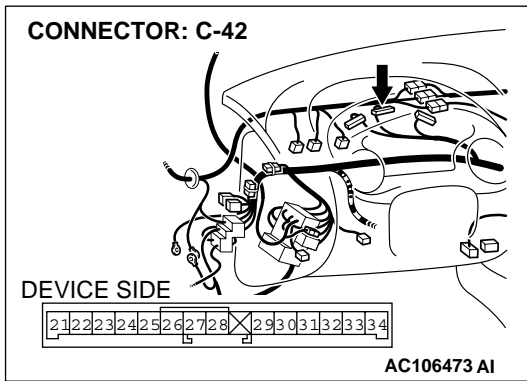


- (2) Measure the voltage between terminal 32 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 8.

NO : Go to Step 6.

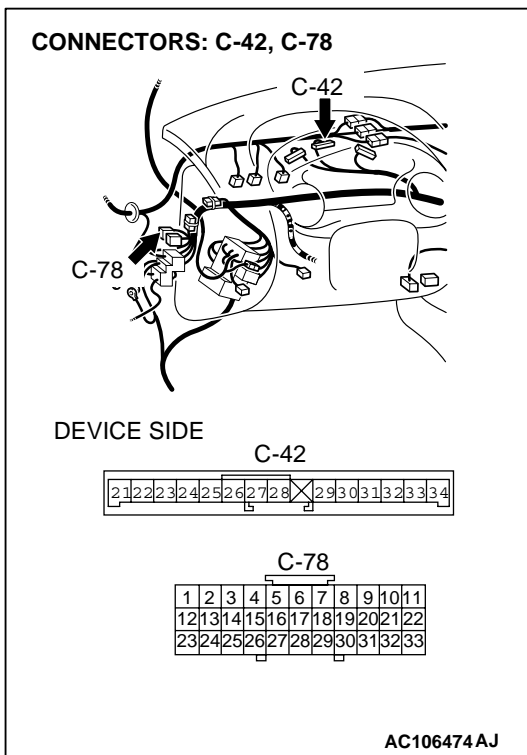


STEP 6. Check combination meter connector C-42 for damage.

Q: Is combination meter connector C-42 in good condition?

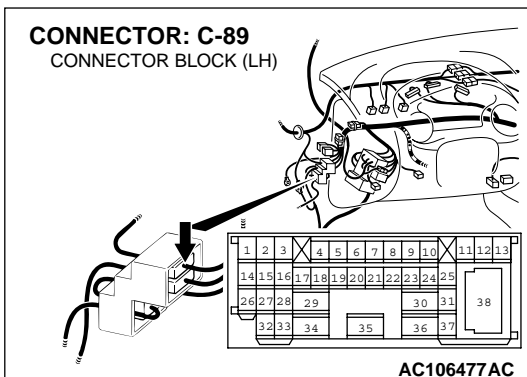
YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.



STEP 7. Check the wiring harness between combination meter connector C-42 (terminal 32) and the battery.

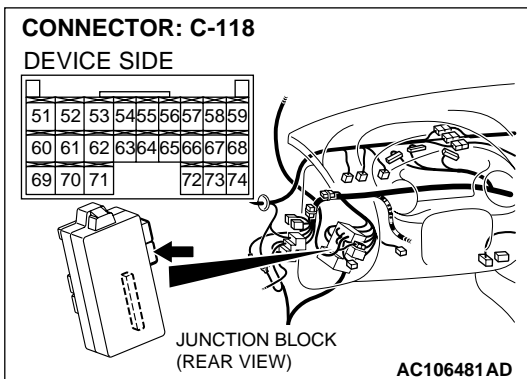
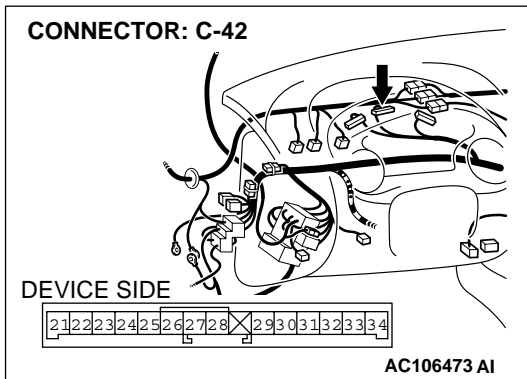
NOTE: Also check joint connector C-78 and intermediate connector C-89. If joint connector C-78 or intermediate connectors C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between combination meter connector C-42 (terminal 32) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.

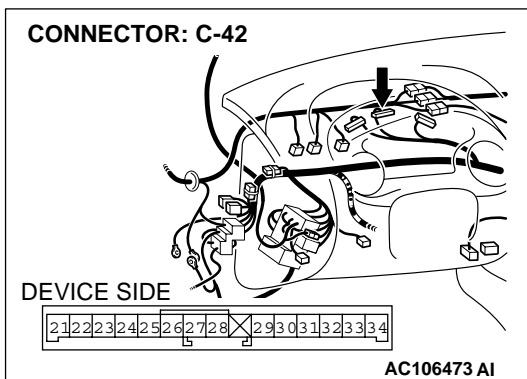


STEP 8. Check combination meter connector C-42 and ETACS-ECU connector C-118 for damage.

Q: Are combination meter connector C-42 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 9.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.

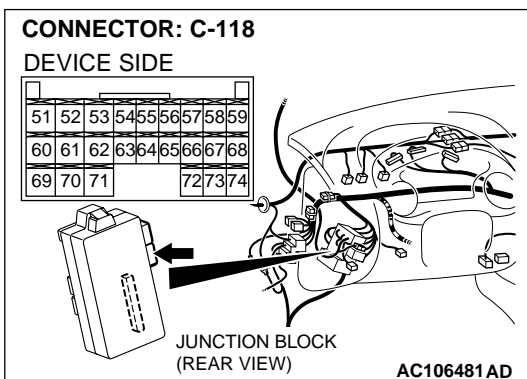


STEP 9. Check the wiring harness between combination meter connector C-42 (terminal 31) and ETACS-ECU connector C-118 (terminal 74).

Q: Is the wiring harness between combination meter connector C-42 (terminal 31) and ETACS-ECU connector C-118 (terminal 74) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.



STEP 10. Check the input signal by using "DATA LIST" of the SWS monitor.

Satisfy the following conditions to check the driver's and front passenger's door switches.

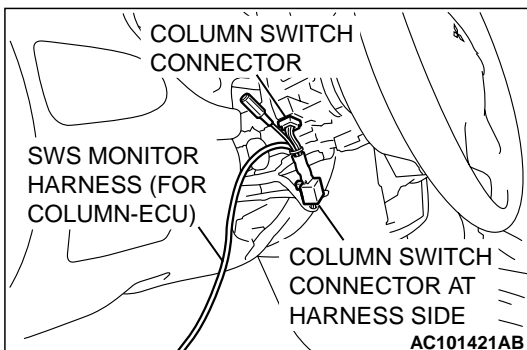
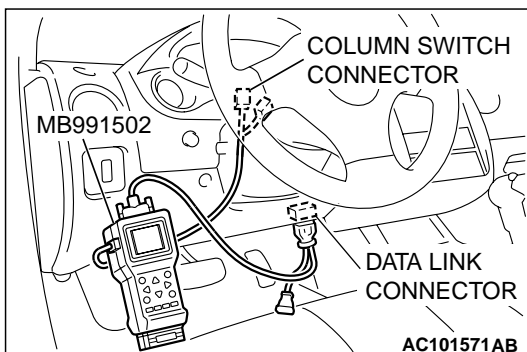
- Driver's door: Open (driver's door switch is on)
However, the door should be closed when checking the front passenger's door switch.
- Front passenger's door: Open (front passenger's door switch is on)
However, the door should be closed when checking the driver's door switch.

⚠ CAUTION

To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Operate the MUT-II 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."
- (4) The scan tool should show the following values when each switch is operated.

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.

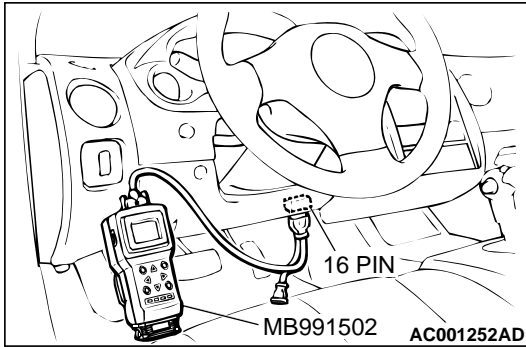


ITEM No.	ITEM NAME	NORMAL CONDITIONS
ITEM No.32	FRONT DOOR SW	ON

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

YES : Go to Step 11.

NO : Refer to Inspection Procedure O-6 "ETACS-ECU does not receive a signal from the driver's or front passenger's door switch [P.54B-502.](#)"



STEP 11. Check the input signal (by using the Pulse Check).

Check the input signals from the following switches:

- Key reminder switch
- Driver's and front passenger's door lock actuator switch
- Driver's and front passenger's door lock key cylinder switch
- Hood switch
- Liftgate latch switch <ECLIPSE>
- Liftgate lock key cylinder switch <ECLIPSE>
- Trunk lid latch switch <ECLIPSE SPYDER>
- Trunk lid lock key cylinder switch <ECLIPSE SPYDER>

Operate the MUT-II according to the procedure below to display "PULSE CHECK."

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

Check if scan tool MB991502 sounds or not.

ITEM NAME	CONDITIONS
Key reminder switch	Remove and reinsert the ignition key
Driver's and front passenger's door lock actuator switches	Lock or unlock each door
Driver's and front passenger's door lock key cylinder switches	Operate the door lock key cylinder at each door
Hood switch	Open and close the hood
Liftgate latch switch <ECLIPSE>	Open and close the liftgate
Liftgate lock key cylinder switch <ECLIPSE>	Operate the liftgate lock key cylinder
Trunk lid latch switch <ECLIPSE SPYDER>	Open and close the trunk lid
Trunk lid lock key cylinder switch <ECLIPSE SPYDER>	Operate the trunk lid lock key cylinder

Q: When the key reminder switch, driver's and front passenger's door lock actuator switches, driver's and front passenger's door lock key cylinder switches, hood switch, liftgate latch switch <ECLIPSE>, liftgate lock key cylinder <ECLIPSE>, trunk lid latch switch <ECLIPSE SPYDER> and trunk lid lock key cylinder switch <ECLIPSE SPYDER> are operated, does scan tool MB991502 sound in all cases?

YES : Replace the ETACS-ECU. The theft-alarm indicator light should illuminate, and the theft-alarm system should be set normally.

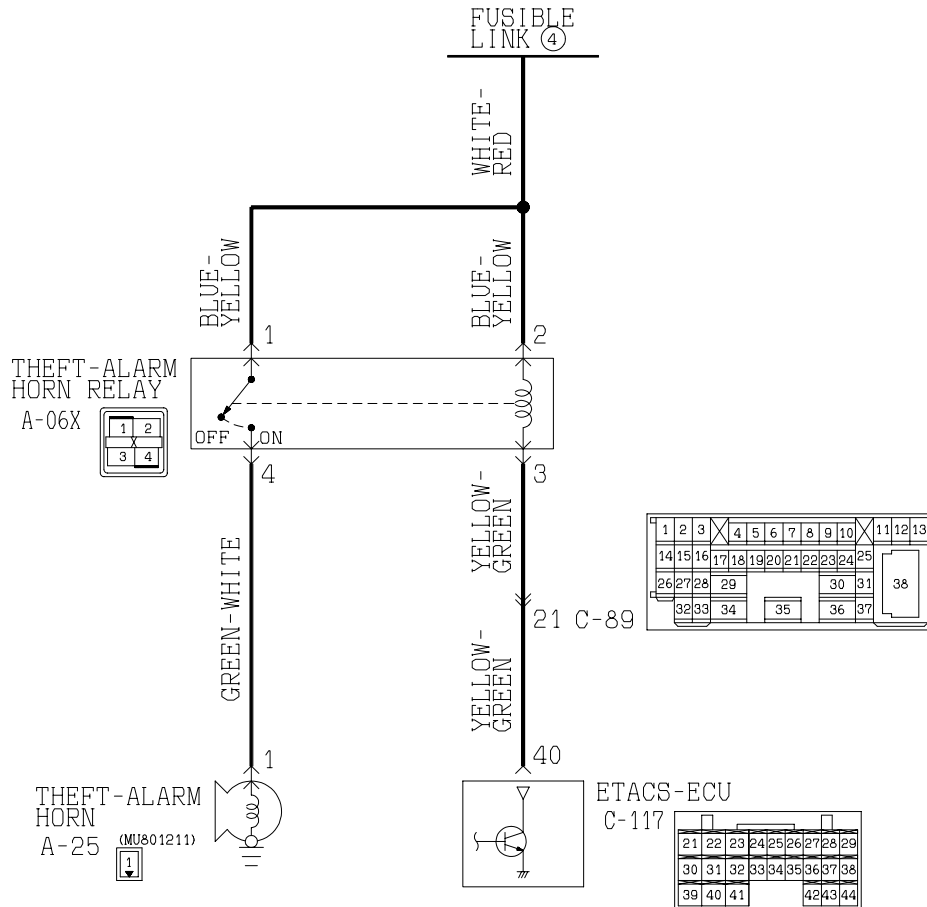
NO : • Scan tool MB991502 does not sound when the key reminder switch is operated: Refer to

Inspection Procedure P-1 "ETACS-ECU does not receive a signal from the key reminder switch [P.54B-524](#)."

- Scan tool MB991502 does not sound when the driver's and the front passenger's door lock actuator switches are operated: Refer to Inspection Procedure P-5 "ETACS-ECU does not receive signals from the driver's or the front passenger's door lock actuator switches [P.54B-549](#)."
- Scan tool MB991502 does not sound when the driver's and the front passenger's door lock actuator switches are operated: Refer to Inspection Procedure P-4 "ETACS-ECU does not receive signals from the driver's and the front passenger's door lock key cylinder switches [P.54B-539](#)."
- Scan tool MB991502 does not sound when the hood switch is operated: Refer to Inspection Procedure P-8 "ETACS-ECU does not receive a signal from the hood switch [P.54B-575](#)."
- When the liftgate latch switch <ECLIPSE> or trunk lid latch switch <ECLIPSE SPYDER> is operated, scan tool MB991502 does not sound: Refer to Inspection Procedure P-9 "ETACS-ECU does not receive a signal from the liftgate latch switch <ECLIPSE> or trunk lid latch switch <ECLIPSE SPYDER>."
- When the liftgate lock key cylinder switch <ECLIPSE> or trunk lid lock key cylinder switch <ECLIPSE SPYDER> is operated, scan tool MB991502 does not sound: Refer to Inspection Procedure P-10 "ETACS-ECU does not receive a signal from the liftgate lock key cylinder switch <ECLIPSE> or trunk lid lock key cylinder switch <ECLIPSE SPYDER>."

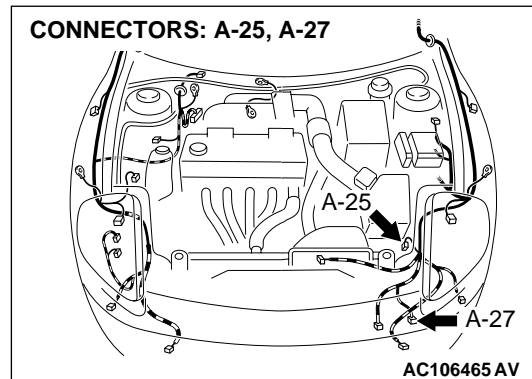
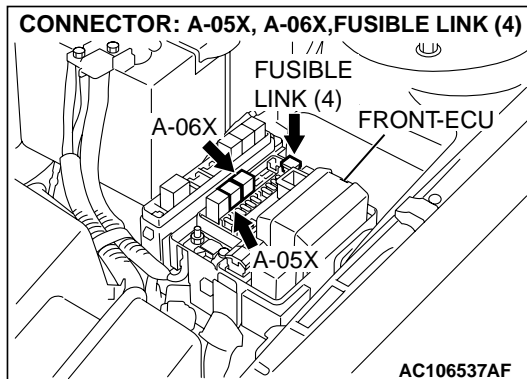
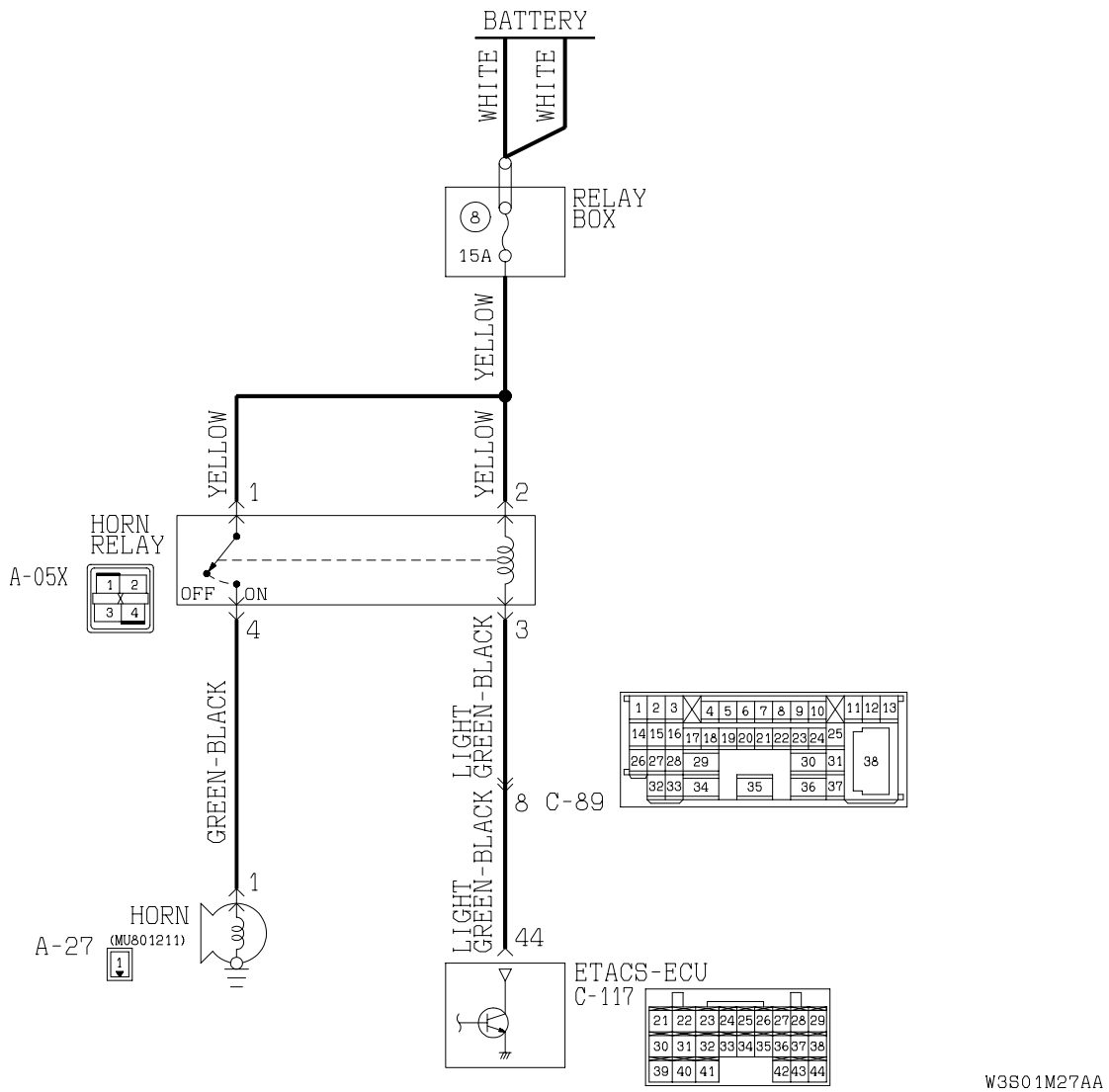
INSPECTION PROCEDURE N-2: Theft-alarm System: Horn does not Sound when the Theft-alarm is Triggered.

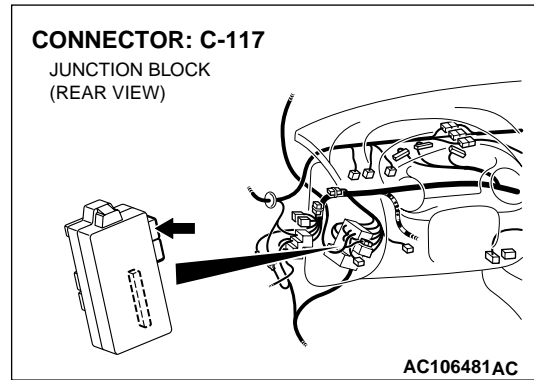
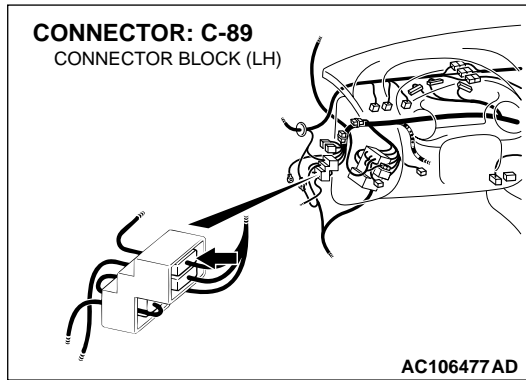
Theft-alarm Horn Drive Circuit



W3S0 1M26AA

Horn Drive Circuit





CIRCUIT OPERATION

When the theft-alarm system is triggered, the ETACS-ECU sounds the theft-alarm horn and all the vehicle horns.

TECHNICAL DESCRIPTION (COMMENT)

If the theft-alarm horn and the vehicle horns do not sound when the theft-alarm system is triggered, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the theft-alarm horn
- Malfunction of the horn
- Malfunction of the theft-alarm horn relay
- Malfunction of the horn relay
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check which horn is defective.

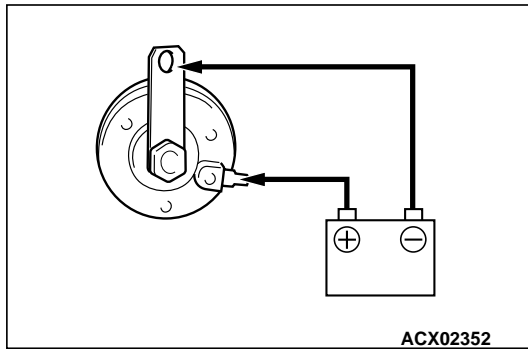
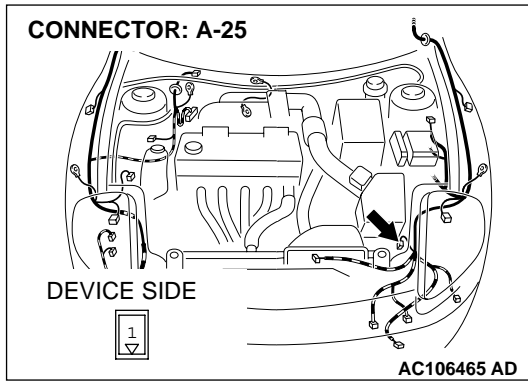
Check which horn does not sound when the theft-alarm system is triggered.

Q: Which horn does not sound?

theft-alarm horn : Go to Step 2.

horn : Go to Step 12.

theft-alarm horn and all vehicle horns : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 2. Check the theft-alarm horn.

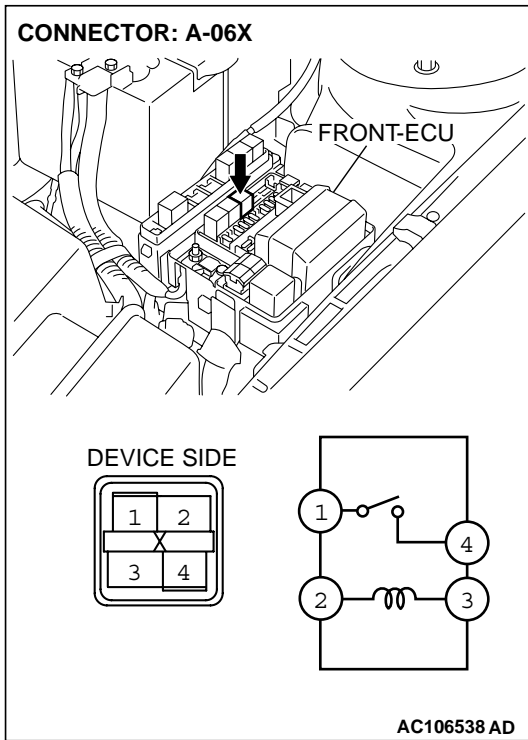
(1) Remove the horn.

(2) Connect the battery as shown, and check that the theft-alarm horn sounds.

Q: Does the theft-alarm horn sound?

YES : Go to Step 3.

NO : Replace the theft-alarm horn. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



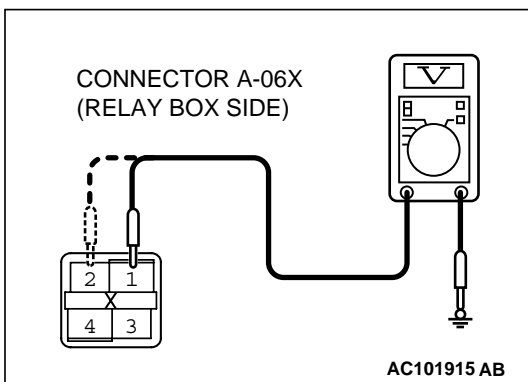
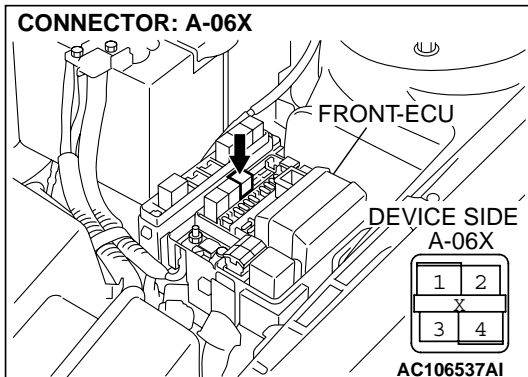
STEP 3. Check the theft-alarm horn relay.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	1 – 4	Less than 2 ohm

Q: Is the theft-alarm horn relay normal?

YES : Go to Step 4.

NO : Replace the theft-alarm horn relay. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 4. Measure at theft-alarm horn relay connector A-06X in order to check the fusible link (4) line of the power supply system to the theft-alarm horn relay.

(1) Disconnect theft-alarm horn relay connector A-06X, and measure at the relay box side.

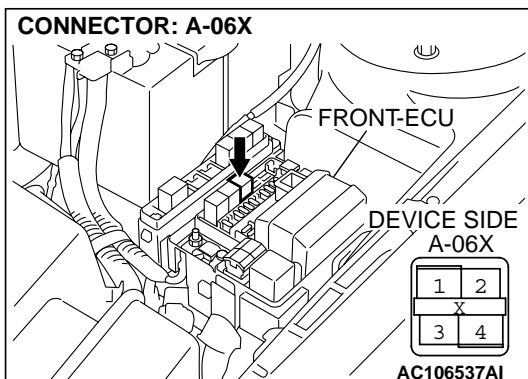
(2) Measure the voltage between terminal 1, 2 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

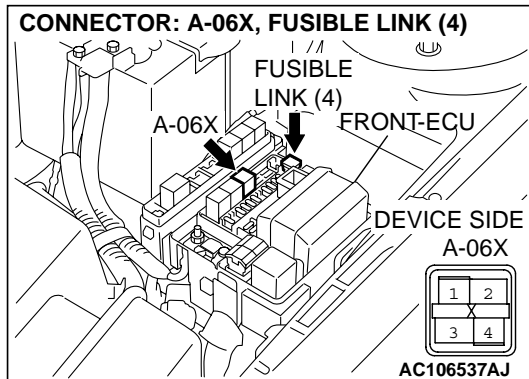


STEP 5. Check theft-alarm horn relay connector A-06X for damage.

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

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

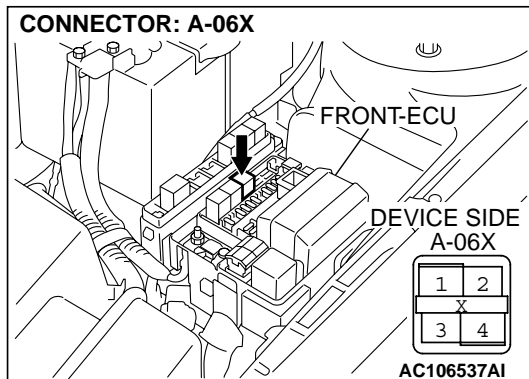


STEP 6. Check the wiring harness between theft-alarm horn relay connector A-06X (terminals 1 and 2) and fusible link (4).

Q: Is the wiring harness between theft-alarm horn relay connector A-06X (terminals 1 and 2) and fusible link (4) in good condition?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 7. Check theft-alarm horn relay connector A-06X and theft-alarm horn connector A-25 for damage.

Q: Are theft-alarm horn relay connector A-06X and theft-alarm horn connector A-25 in good condition?

YES : Go to Step 8.

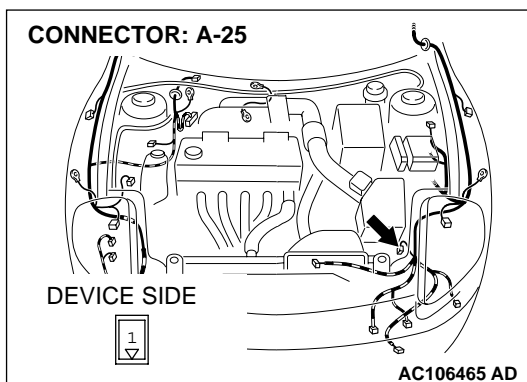
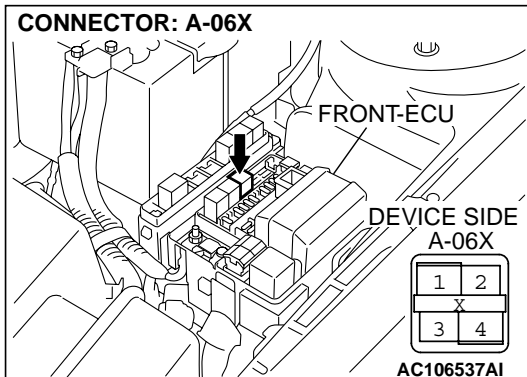
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 8. Check the wiring harness between theft-alarm horn relay connector A-06X (terminal 4) and theft-alarm horn connector A-25 (terminal 1).

Q: Is the wiring harness between horn relay connector A-06X (terminal 4) and theft-alarm horn connector A-25 (terminal 1) in good condition?

YES : Go to Step 9.

NO : Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

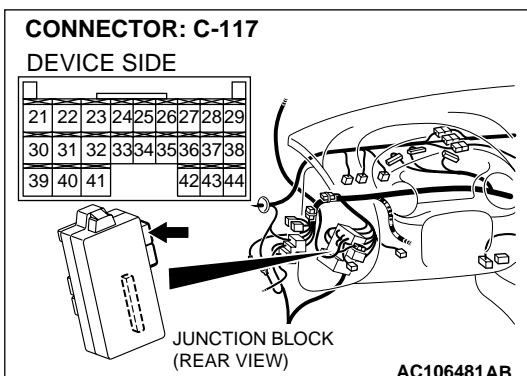
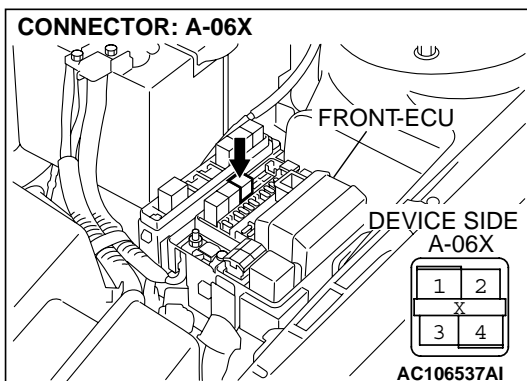


STEP 9. Check theft-alarm horn relay connector A-06X and ETACS-ECU connector C-117 for damage.

Q: Are theft-alarm horn relay connector A-06X and ETACS-ECU connector C-117 in good condition?

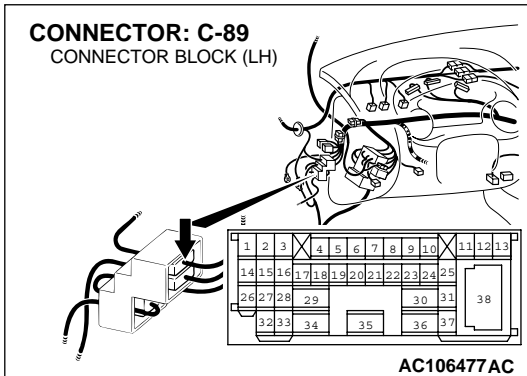
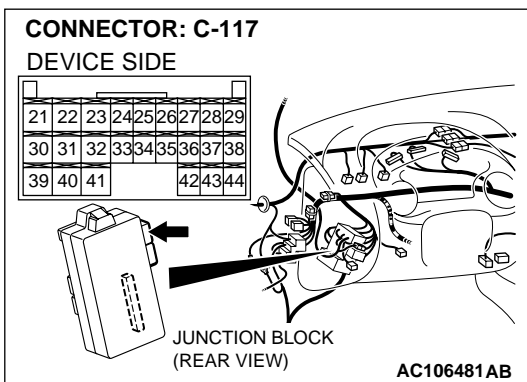
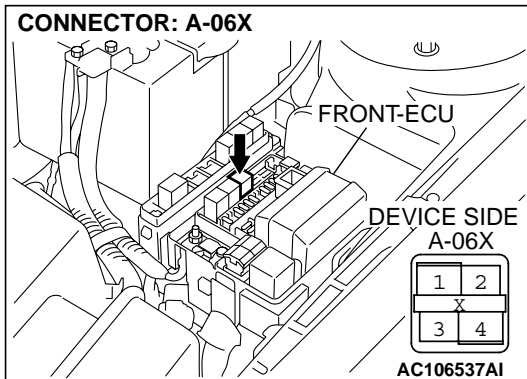
YES : Go to Step 10.

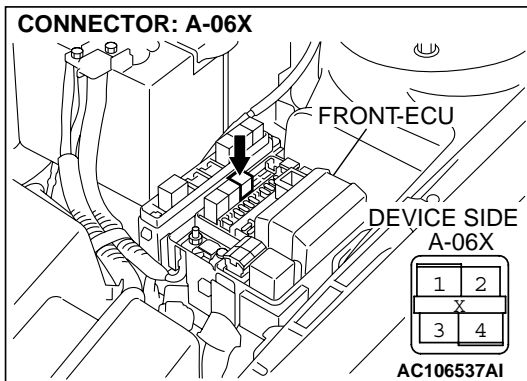
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 10. Check the wiring harness between theft-alarm horn relay connector A-06X (terminal 3) and ETACS-ECU connector C-117 (terminal 40).

NOTE: Also check intermediate connector C-89. If intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

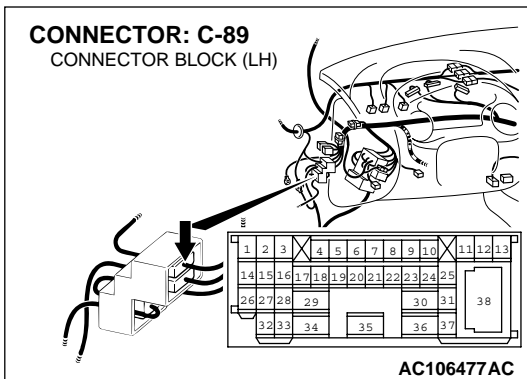
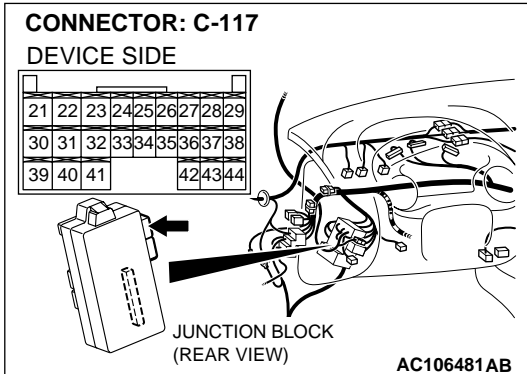




Q: Is the wiring harness between theft-alarm horn relay connector A-06X (terminal 3) and ETACS-ECU connector C-117 (terminal 40) in good condition?

YES : Go to Step 11.

NO : Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 11. Check the fit of the theft-alarm horn.

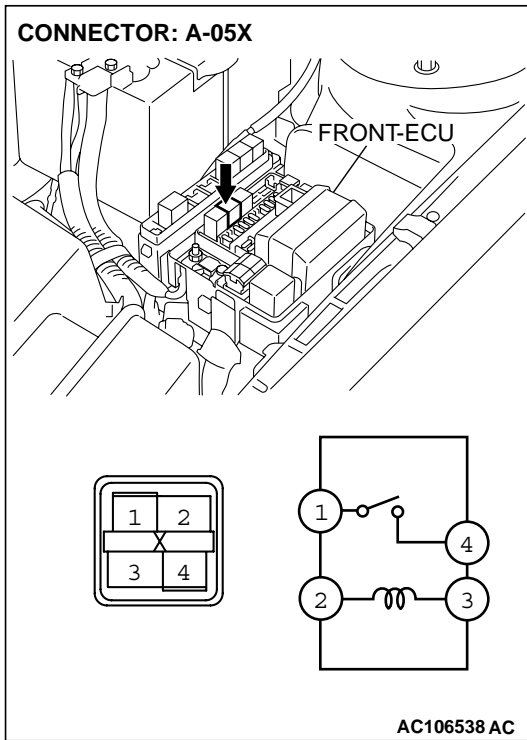
NOTE: The theft-alarm horn is grounded to the vehicle body via its mounting bolt.

Q: Is the theft-alarm horn installed correctly?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Install the theft-alarm horn correctly. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 12. Check the horn relay.



BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	1 – 4	Less than 2 ohm

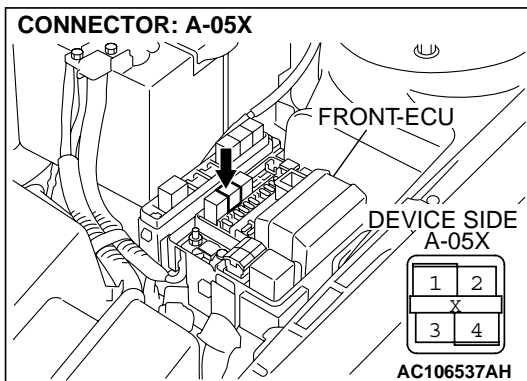
Q: Is the horn relay normal?

YES : Go to Step 13.

NO : Replace the horn relay. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 13. Measure at horn relay connector A-05X in order to check the battery power supply system to the horn relay.

(1) Disconnect horn relay connector A-05X, and measure at the relay box side.



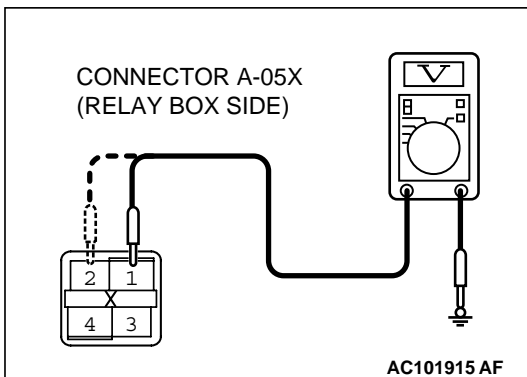
(2) Measure the voltage between terminal 1, 2 and ground.

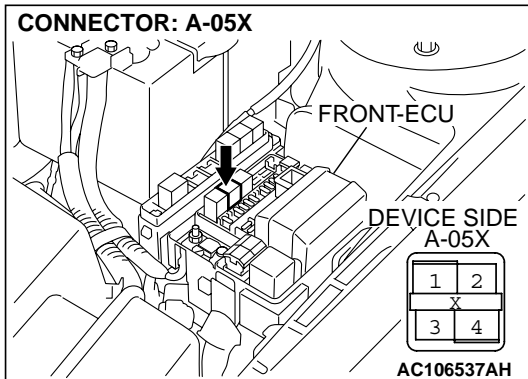
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 16.

NO : Go to Step 14.



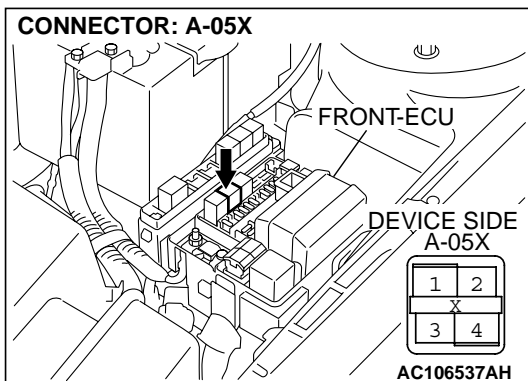


STEP 14. Check horn relay connector A-05X for damage.

Q: Is horn relay connector A-05X in good condition?

YES : Go to Step 15.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

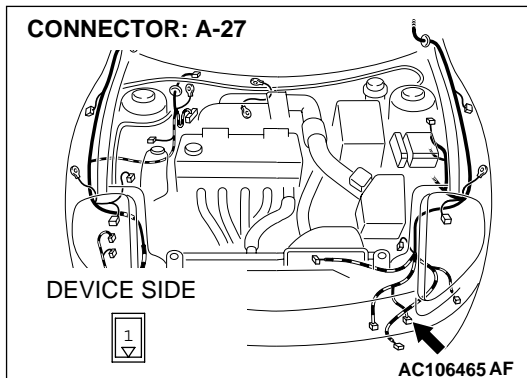
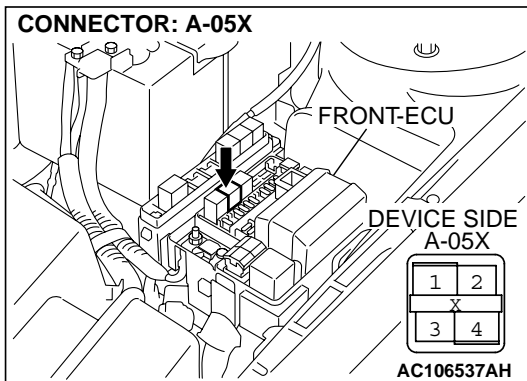


STEP 15. Check the wiring harness between horn relay connector A-05X (terminals 1 and 2) and the battery.

Q: Is the wiring harness between horn relay connector A-05X (terminals 1 and 2) and the battery in good condition?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

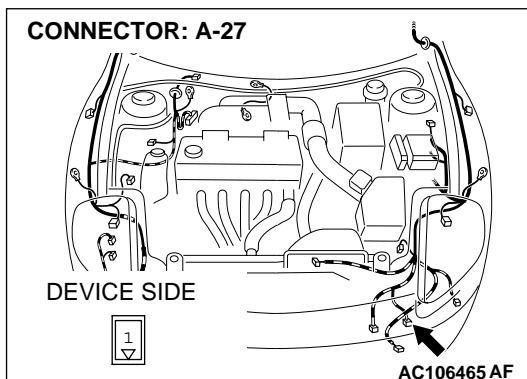
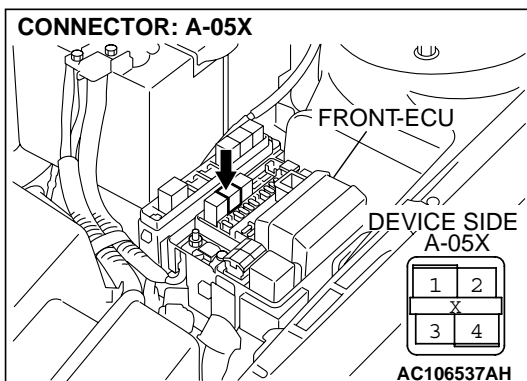


STEP 16. Check horn relay connector A-05X and horn connector A-27 for damage.

Q: Are horn relay connector A-05X and horn connector A-27 in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 17. Check the wiring harness between horn relay connector A-05X (terminal 4) and horn connector A-27 (terminal 1).

Q: Is the wiring harness between horn relay connector A-05X (terminal 4) and horn connector A-27 (terminal 1) in good condition?

YES : Go to Step 18.

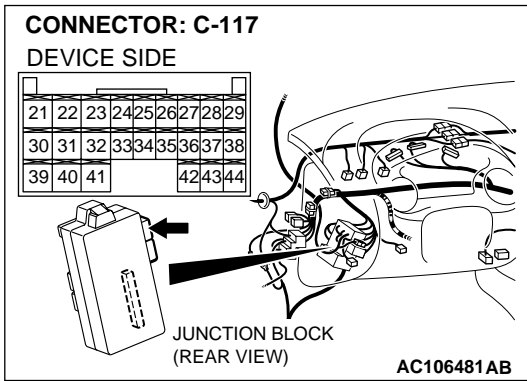
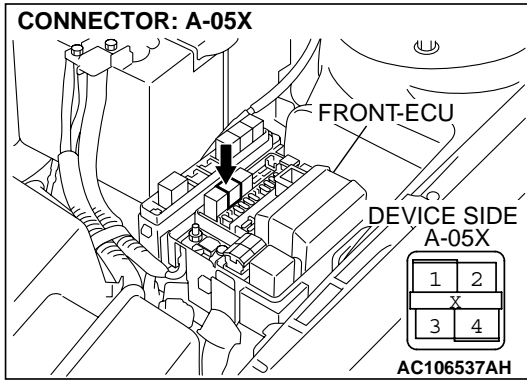
NO : Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

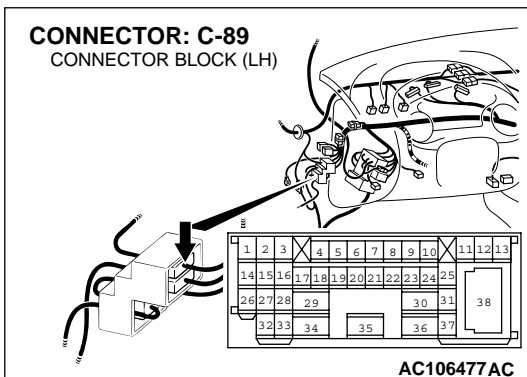
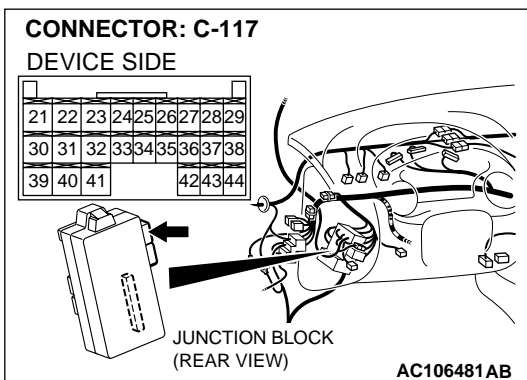
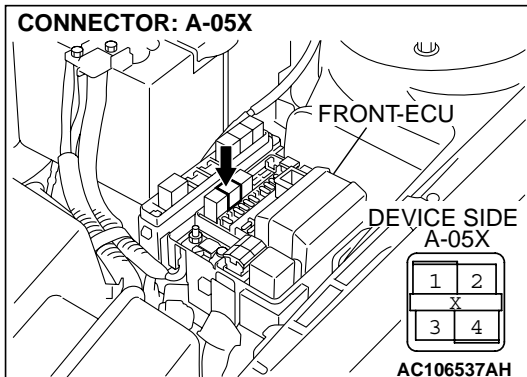
STEP 18. Check rear horn relay connector A-05X and ETACS-ECU connector C-117 for damage.

Q: Are horn relay connector A-05X and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 19.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.





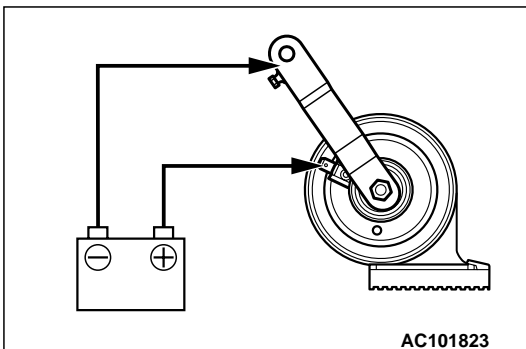
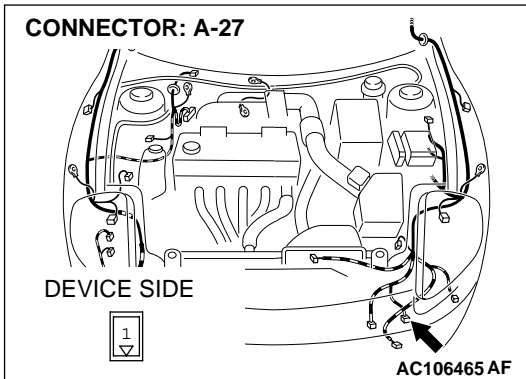
STEP 19. Check the wiring harness between horn relay connector A-05X (terminal 3) and ETACS-ECU connector C-117 (terminal 44).

NOTE: Also check intermediate connector C-89. If intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

Q: Is the wiring harness between horn relay connector A-05X (terminal 3) and ETACS-ECU connector C-117 (terminal 44) in good condition?

- YES :** Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.
- NO :** Repair the wiring harness. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.



STEP 20. Check the horn.

(1) Remove the horn.

(2) Connect the battery as shown, and check that the horn sounds.

Q: Is the horn normal?

YES : Go to Step 21.

NO : Replace the horn. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

STEP 21. Check the fit of the horn.

Check that the horn is installed correctly.

NOTE: The horn is grounded to the vehicle body via its mounting bolt.

Q: Is the horn installed correctly?

YES : Replace the ETACS-ECU. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

NO : Install the horn correctly. All the vehicle horn (including the theft-alarm horn) should sound when the theft-alarm system is triggered.

INSPECTION PROCEDURE N-3: Theft-alarm System: Headlights (High-beam) do not Flash when the Theft-alarm System is Triggered.**TECHNICAL DESCRIPTION (COMMENT)**

If the headlights (high beam) illuminate normally, the front-ECU or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the front-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**STEP 1. Check the headlight (high beam) operation.****Q: Do the headlights illuminate at high beam normally?**

YES : Go to Step 2.

NO : Refer to Inspection Procedure J-3 "Headlights (high-beam) do not illuminate normally [P.54B-274](#)."

STEP 2. Replace the ECU.

(1) Replace the ETACS-ECU.

(2) The headlights should flash at high beam when the theft-alarm system is triggered.

Q: Do the headlights flash at high beam when the theft-alarm system is triggered?

YES : No action to be taken.

NO : Replace the front-ECU. The headlights should flash at high beam when the theft-alarm system is triggered.

INSPECTION PROCEDURE N-4: Theft-alarm System: Panic Alarm Function does not Work.**TECHNICAL DESCRIPTION (COMMENT)**

If the keyless entry system is normal, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check the keyless entry system.**Q: Does the keyless entry system work normally?**

YES : Go to Step 2.

NO : Refer to Inspection Procedure E-1 "Keyless entry system does not operate [P.54B-155](#)."

STEP 2. Check the input signal (by using the Pulse check).

Check the input signals from the transmitter "PANIC" switch:

⚠ CAUTION

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

(1) Connect scan tool MB991502 to the data link connector.
(2) Operate the MUT-II according to the procedure below to display "PULSE CHECK."

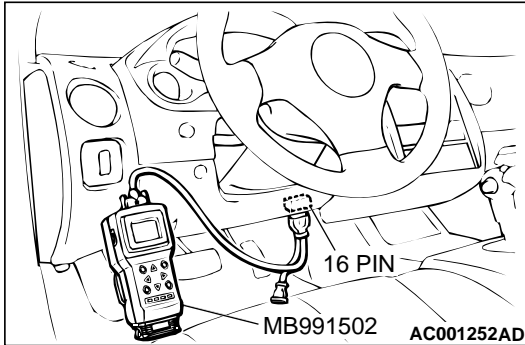
1. Select "SYSTEM SELECT."
2. Select "SWS."
3. Select "PULSE CHECK."

(3) Check that scan tool MB991502 sounds.

Q: Does scan tool MB991502 sound when the transmitter "PANIC" switch is operated?

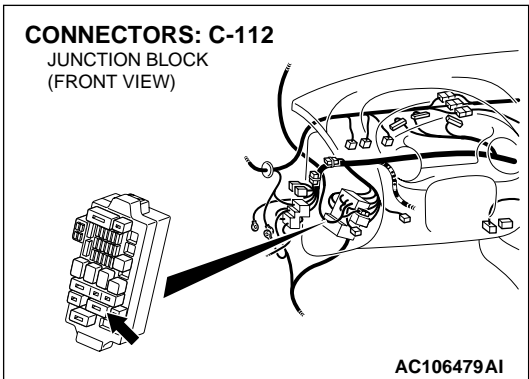
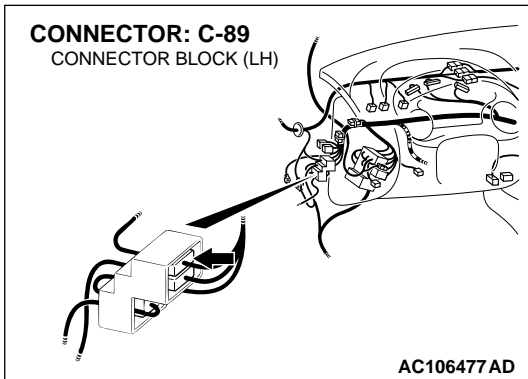
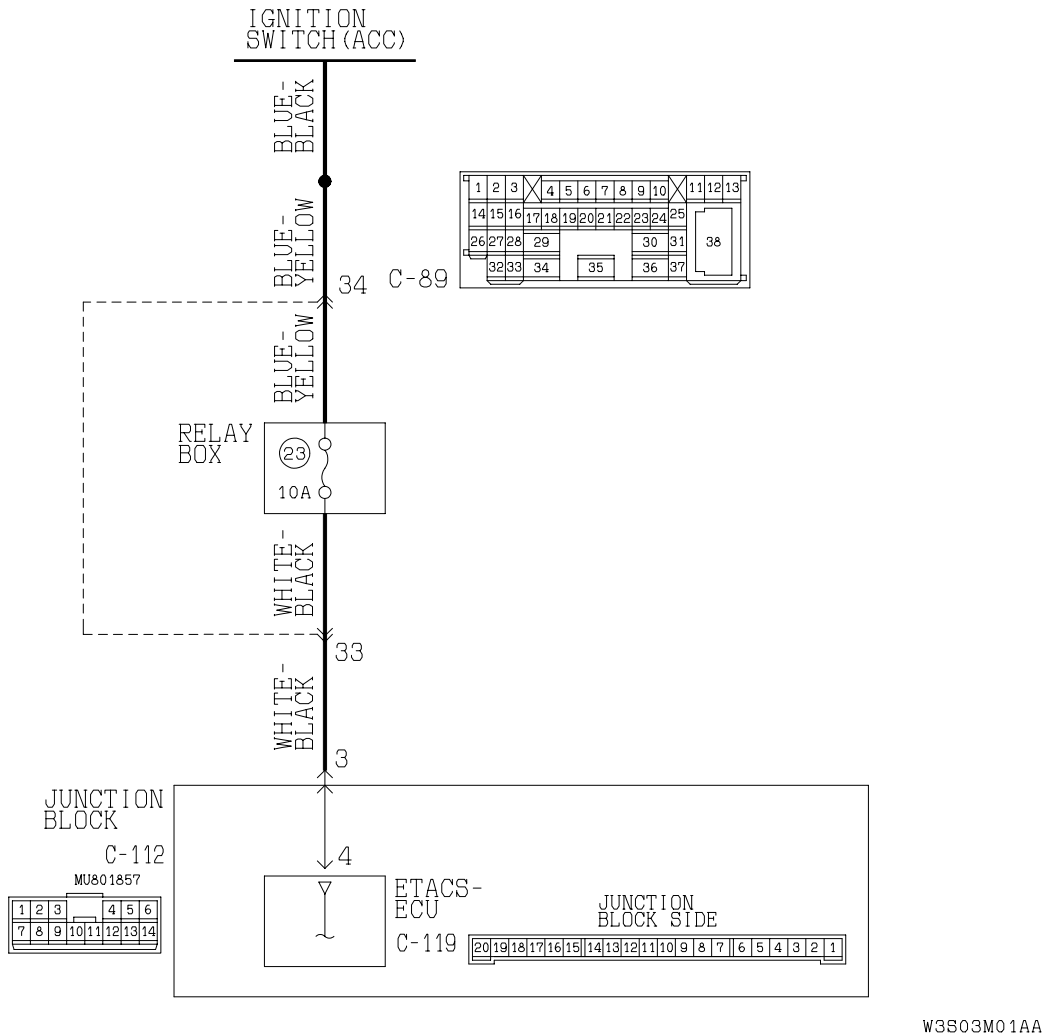
YES : Replace the ETACS-ECU. Check that the panic alarm works normally.

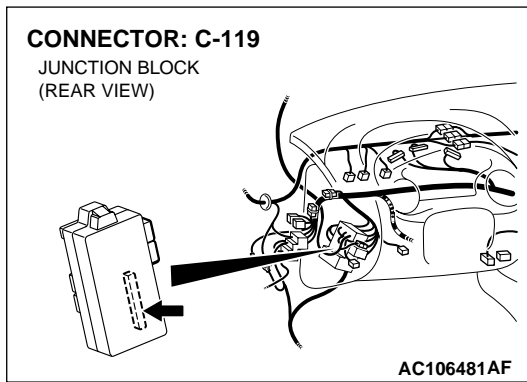
NO : Refer to Inspection Procedure P-13 "The ETACS-ECU does not receive signal from lock, unlock, trunk or panic switch [P.54B-609](#)."



INSPECTION PROCEDURE O-1: The ETACS-ECU does not Receive Any Signal from the Ignition Switch (ACC).

Ignition Switch (ACC) Input Circuit





CIRCUIT OPERATION

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

- Windshield wiper and washer
- Interior light automatic-shutdown function

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

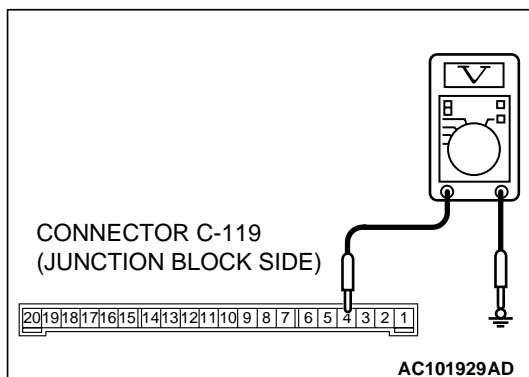
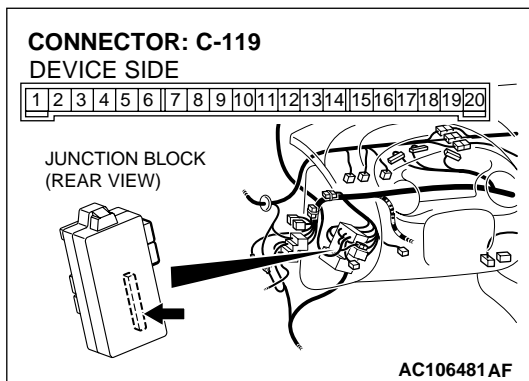
DIAGNOSIS

Required Special Tools:

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

STEP 1. Measure at ETACS-ECU connector C-119 in order to check the line from the ignition switch (ACC).

- (1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.
- (2) Turn the ignition switch to the "ACC" position.

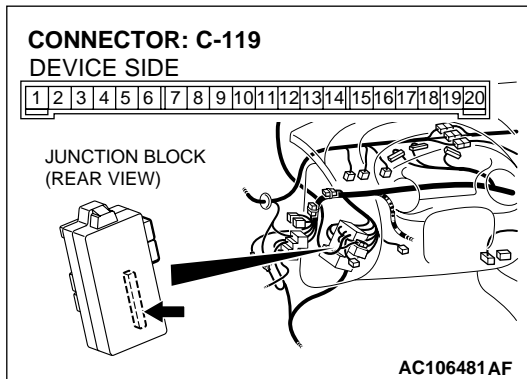


- (3) Measure the voltage between terminal 4 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

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

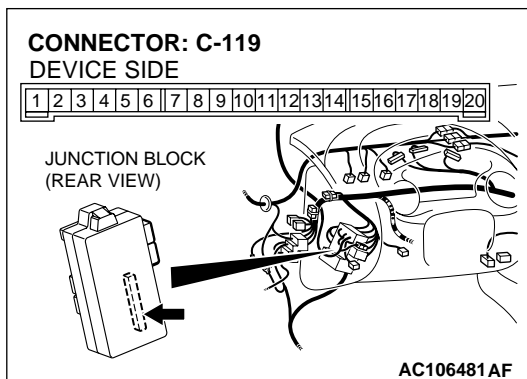
NO : Go to Step 2.



STEP 2. Check ETACS-ECU connector C-119 for damage.
Q: Is ETACS-ECU connector C-119 in good condition?

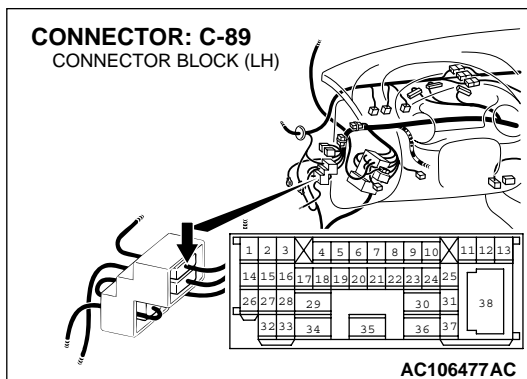
YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.



STEP 3. Check the wiring harness between ETACS-ECU connector C-119 (terminal 4) and the ignition switch (ACC).

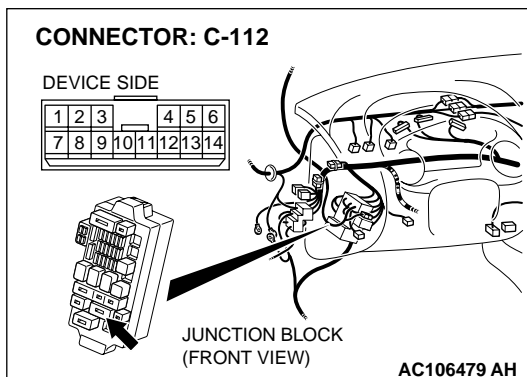
NOTE: Also check intermediate connector C-89 and junction block connector C-112. If intermediate connector C-89 or junction block connector C-112 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 4) and ignition switch (ACC) in good condition?

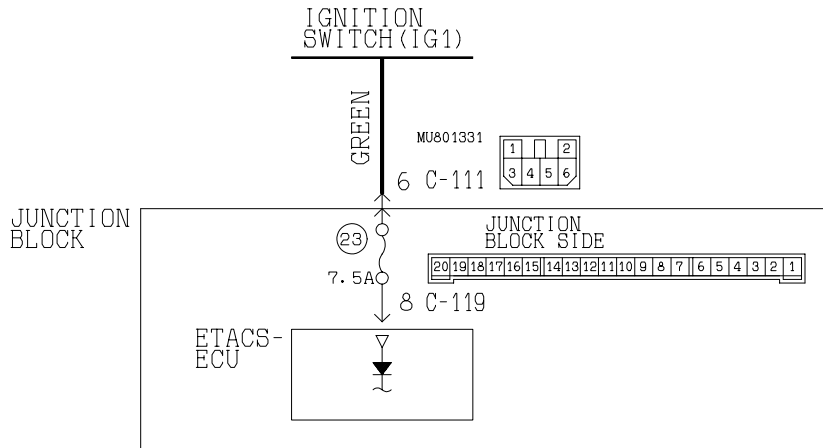
YES : No action to be taken.

NO : Repair the wiring harness. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (ACC) should be normal.

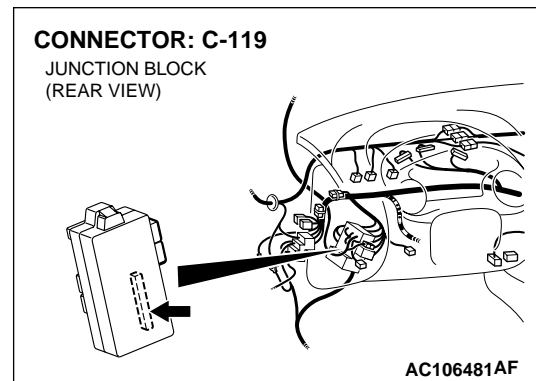
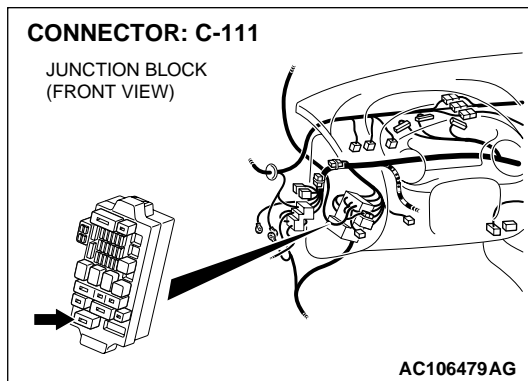


INSPECTION PROCEDURE O-2: The ETACS-ECU does not Receive Any Signal from the Ignition Switch (IG1).

Ignition Switch (IG1) Input Circuit



W3S03M02AA



CIRCUIT OPERATION

- The ETACS-ECU operates the following equipment or functions according to signal from the ignition switch (IG1):
 - Ignition key reminder tone alarm function
 - Light reminder tone alarm function
 - Seat belt tone alarm function
 - Power window timer function
 - Seat belt warning light
 - Headlight automatic shutdown function
 - Turn-signal light
 - Dome light dimming function

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

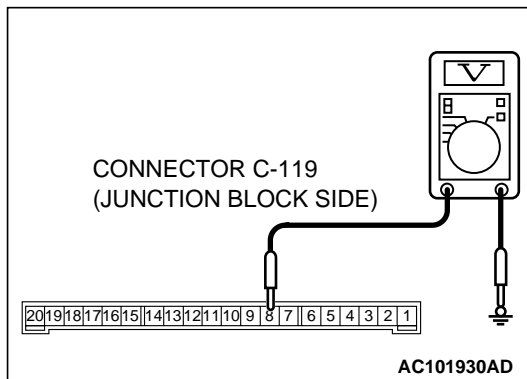
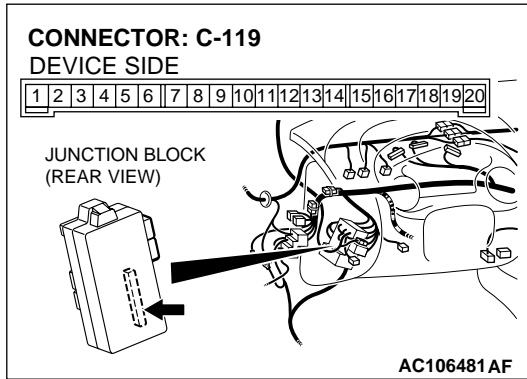
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Measure at ETACS-ECU connector C-119 in order to check the line from the ignition switch (IG1) to the ETACS-ECU.

- (1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.
- (2) Turn the ignition switch to the "ON" position.



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

Q: Does the measured voltage correspond with this range?

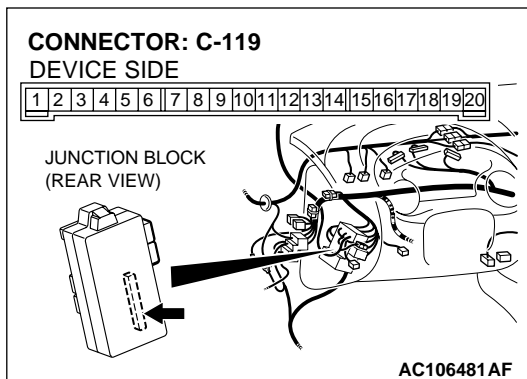
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

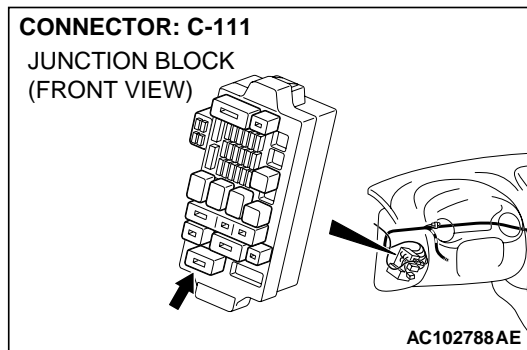
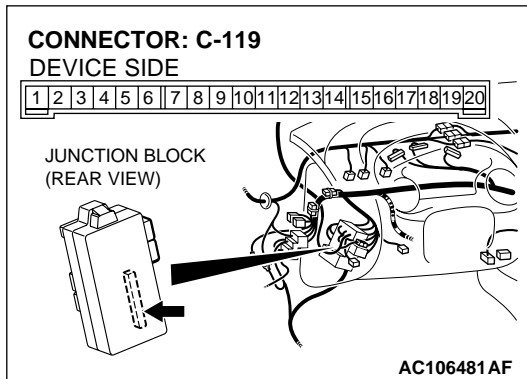
NO : Go to Step 2.

STEP 2. Check ETACS-ECU connector C-119 for damage.**Q: Is ETACS-ECU connector C-119 in good condition?**

YES : Go to Step 3.

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





STEP 3. Check the wiring harness between ETACS-ECU connector C-119 (terminal 8) and the ignition switch (IG1).
NOTE: Also check junction block connector C-111. If junction block connector C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

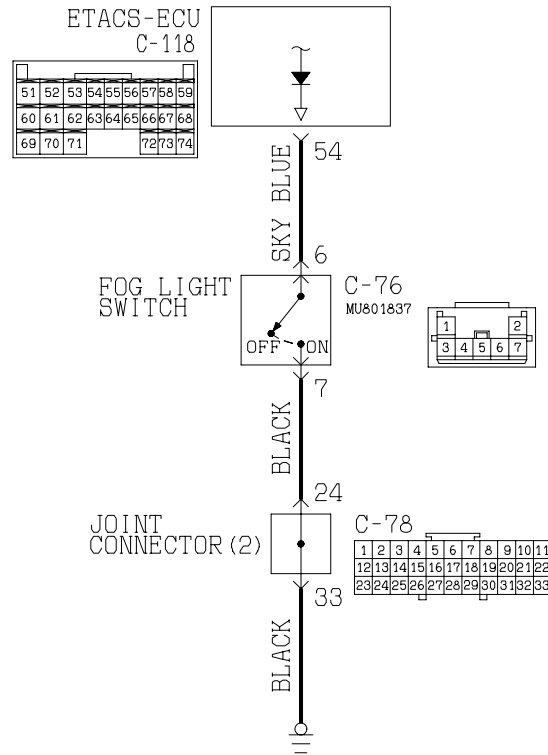
Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 8) and ignition switch (IG1) in good condition?

YES : No action to be taken.

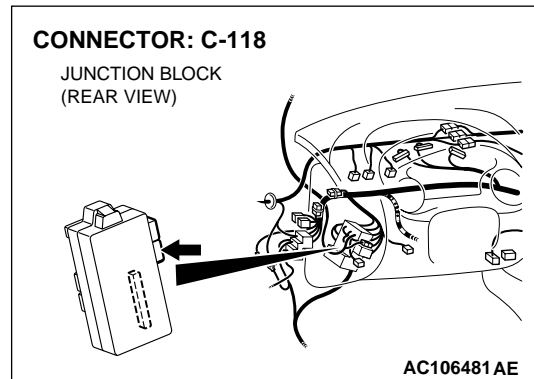
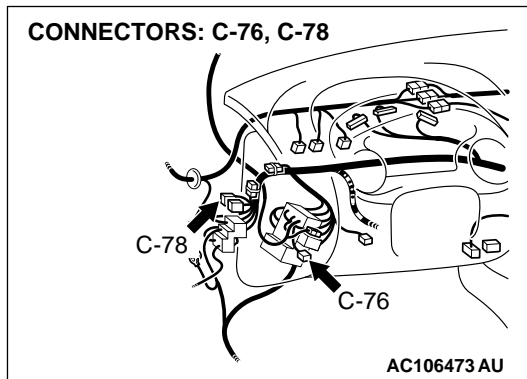
NO : Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the ignition switch (IG1) should be normal.

INSPECTION PROCEDURE O-3: The ETACS-ECU does not Receive Any Signal from the Fog Light Switch.

Fog Light Switch Input Circuit



W2S13M38AA



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the fog light switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the fog light switch.

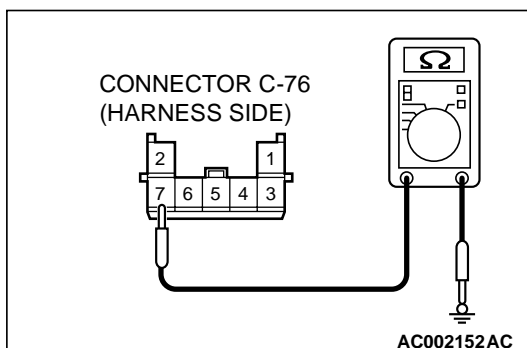
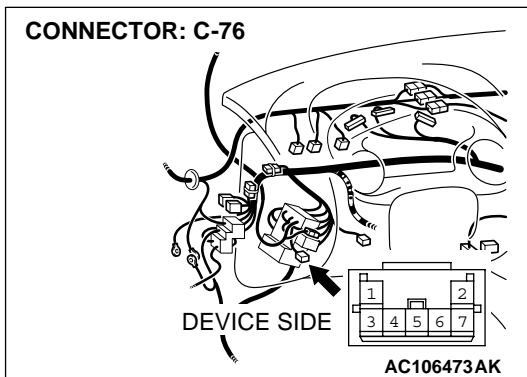
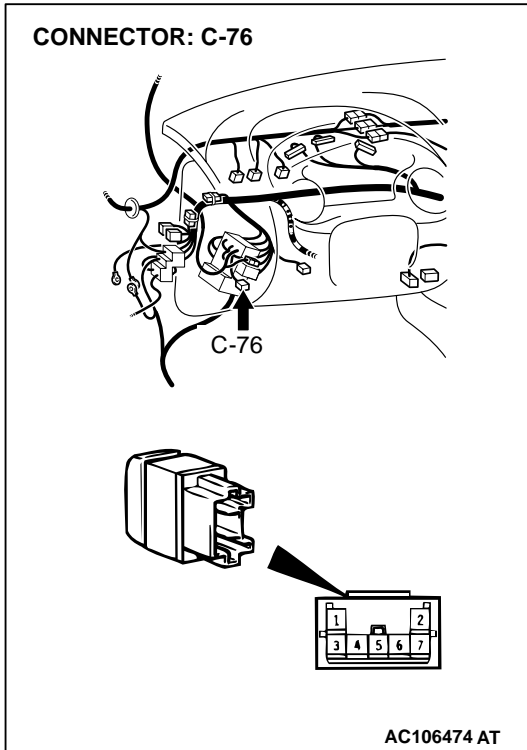
Remove the fog light switch. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	6 – 7	Open circuit
Pressed	6 – 7	Less than 2 ohm

Q: Is the fog light switch in good condition?

YES : Go to Step 2.

NO : Repair the fog light switch. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.



STEP 2. Measure at fog light switch connector C-76 in order to check the ground circuit to the fog light switch.

(1) Disconnect fog light switch connector C-76, and measure at the wiring harness side.

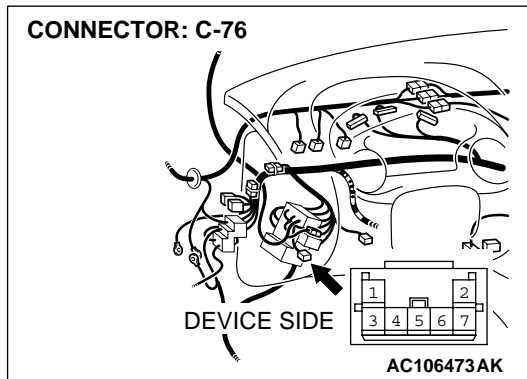
(2) Measure the resistance value between terminal 7 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

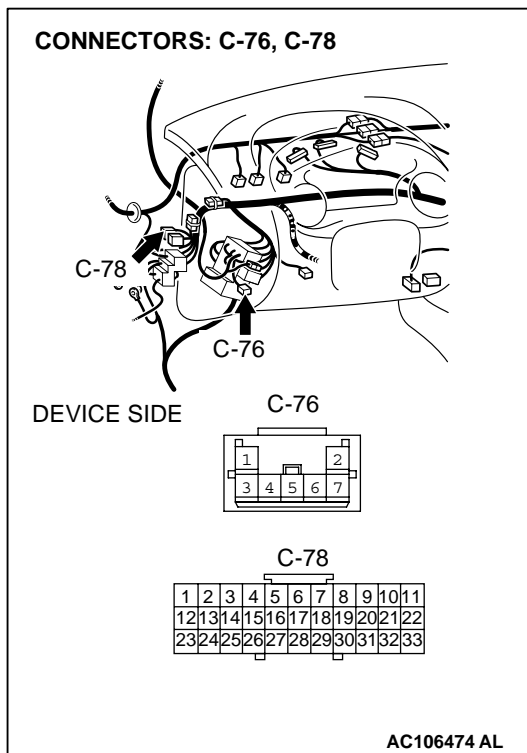


STEP 3. Check fog light switch connector C-76 for damage.

Q: Is fog light switch connector C-76 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Repair the fog light switch. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.



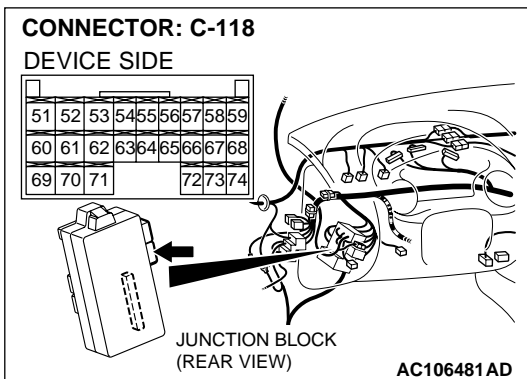
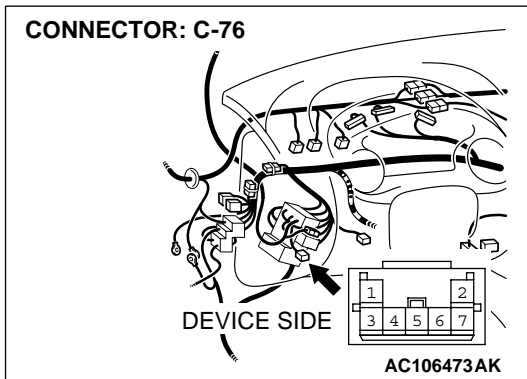
STEP 4. Check the wiring harness between fog light switch connector C-76 (terminal 7) and ground.

NOTE: Also check joint connector C-78. If joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between fog light switch connector C-76 (terminal 7) and the ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

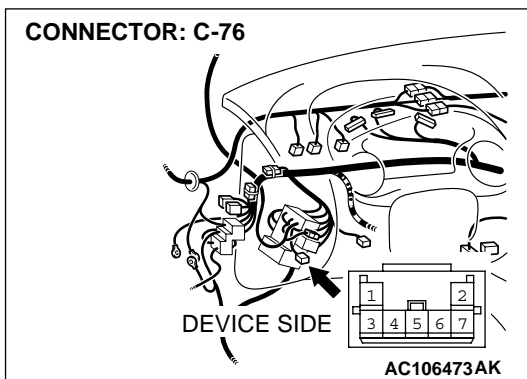


STEP 5. Check fog light switch connector C-76 and ETACS-ECU connector C-118 for damage.

Q: Are fog light switch connector C-76 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

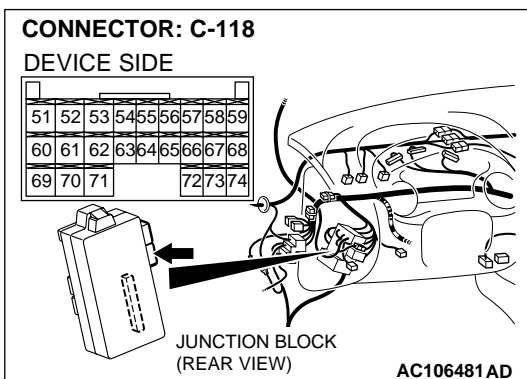


STEP 6. Check the wiring harness between fog light switch connector C-76 (terminal 6) and ETACS-ECU connector C-118.

Q: Is the wiring harness between fog light switch connector C-76 (terminal 6) and ETACS-ECU connector C-118 (terminal 54) in good condition?

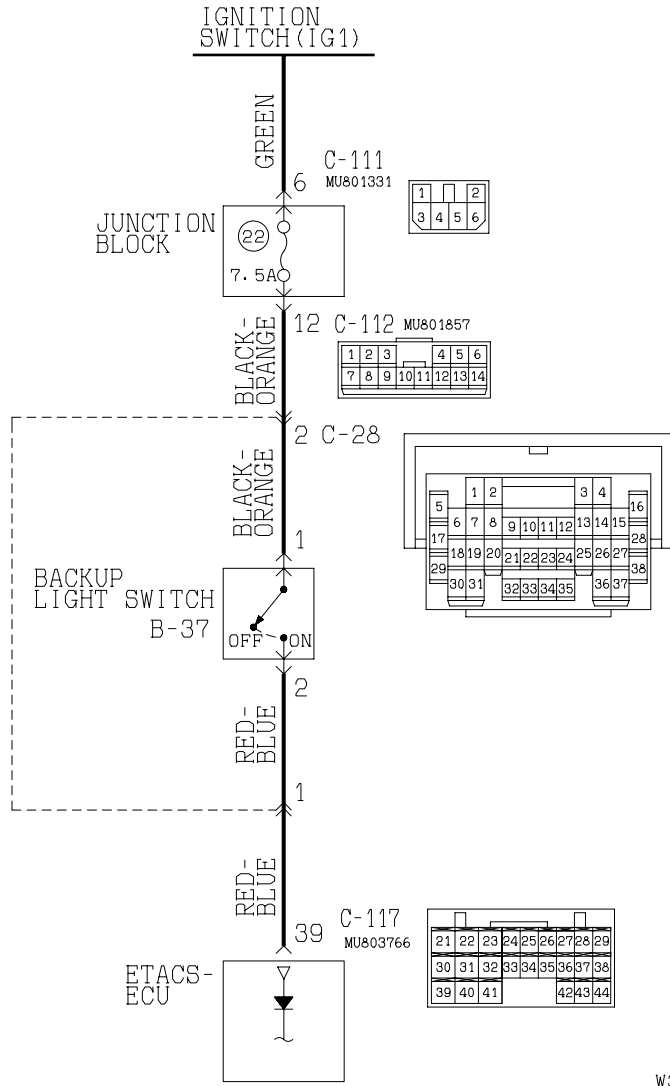
YES : Replace the ETACS-ECU. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

NO : Repair the wiring harness. If the fog light switch operates normally, it indicates that a correct signal is sent from the fog light switch.

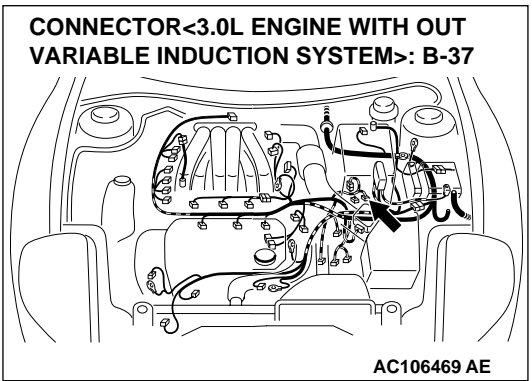
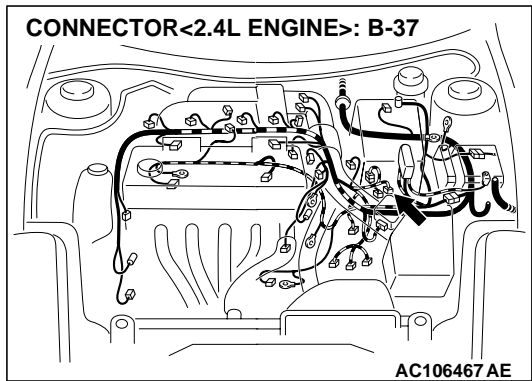


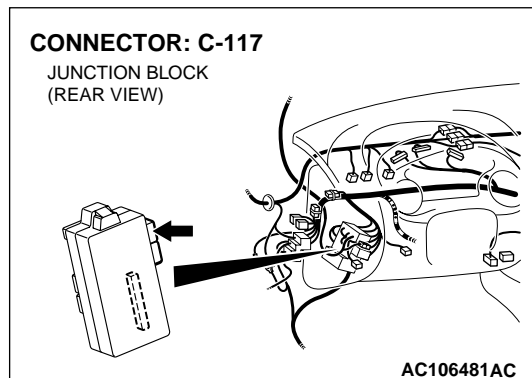
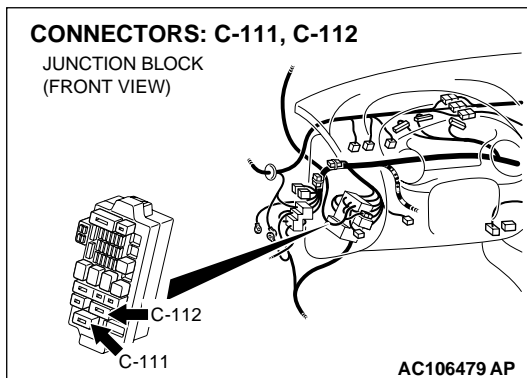
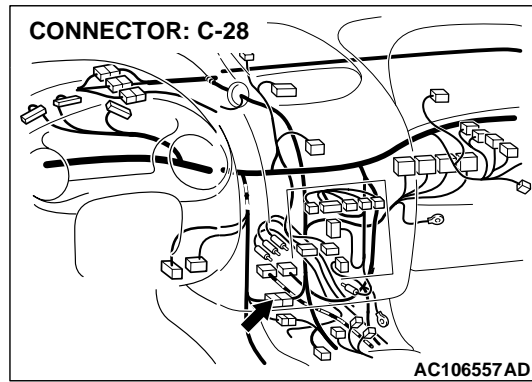
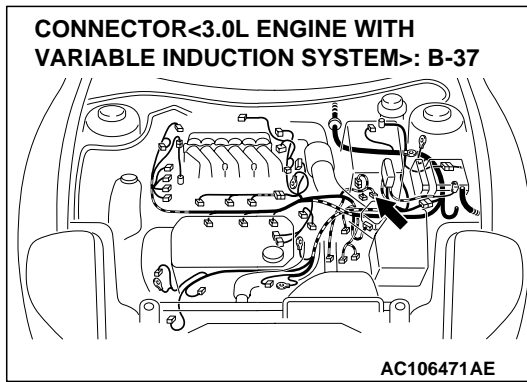
INSPECTION PROCEDURE O-4: ETACS-ECU does not Receive "R" Position Signal from the Backup Light Switch <M/T>.

Backup Light Switch Input Circuit



W3S03M03AA





CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to signal from the backup light switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the rear wiper does not operate consecutively twice when the shift lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the backup light switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the backup light switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the backup light switch.

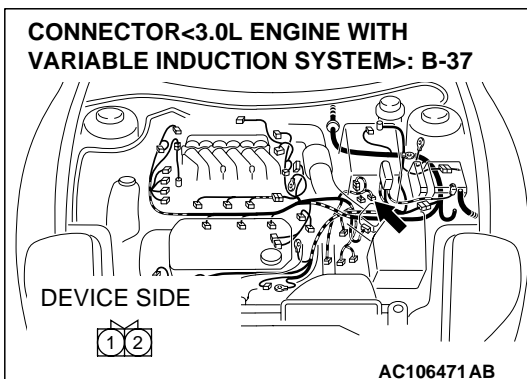
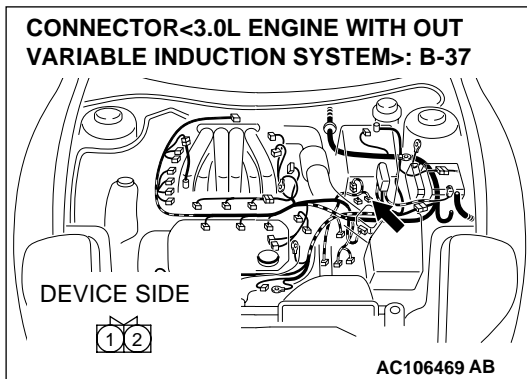
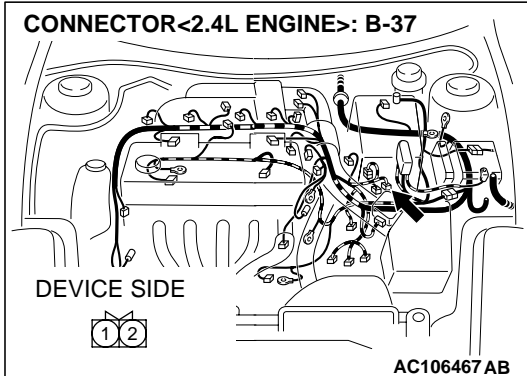
Disconnect backup light switch connector B-37. Then check continuity between the switch terminals.

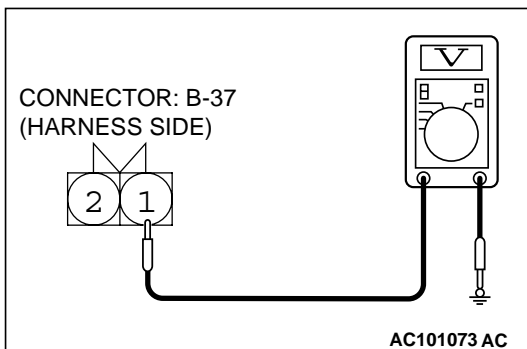
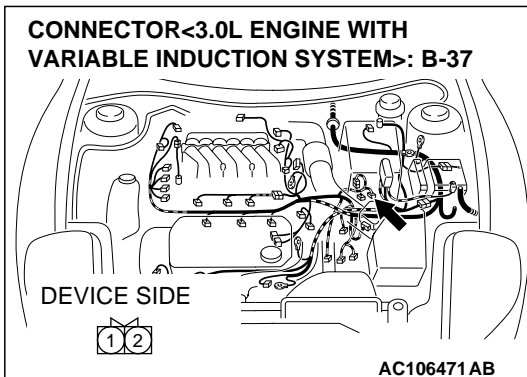
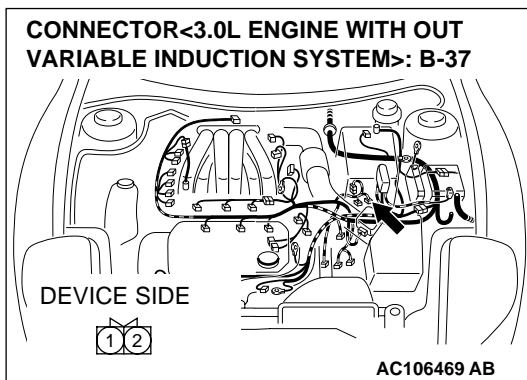
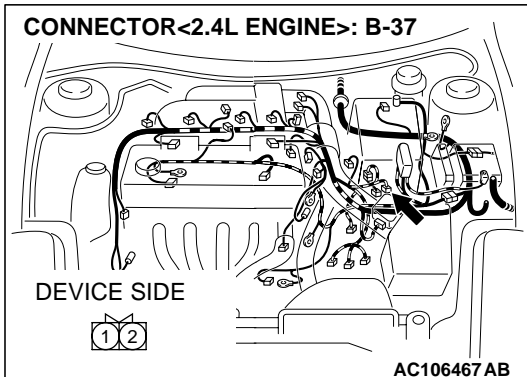
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Other than "R"	1 – 2	Open circuit
R	1 – 2	Less than 2 ohm

Q: Is the backup light switch in good condition?

YES : Go to Step 2.

NO : Replace the backup light switch. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.





STEP 2. Check at backup light switch connector B-37 in order to check the ignition switch (IG1) line of the power supply to the backup light switch.

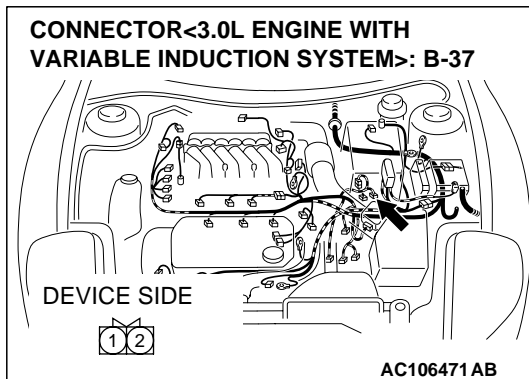
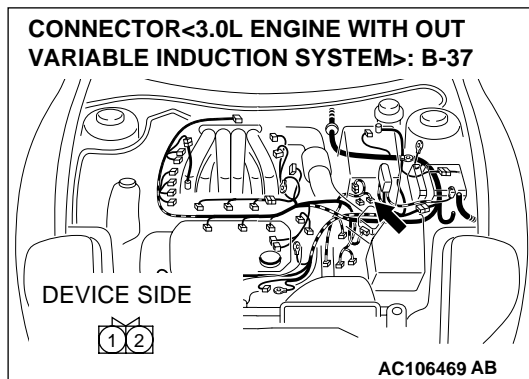
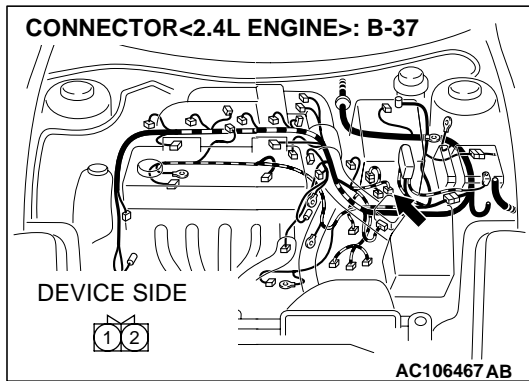
- (1) Disconnect backup light switch connector B-37, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

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

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

Q: Does the measured voltage correspond with this range?

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



STEP 3. Check backup light switch connector B-37 for damage.

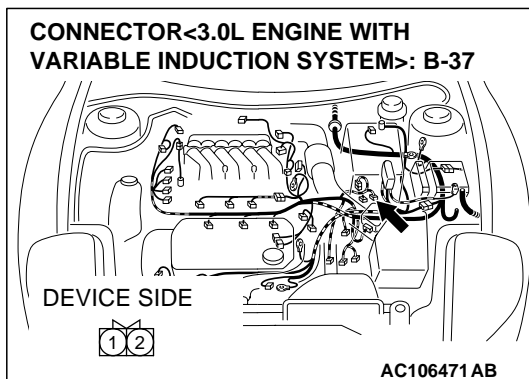
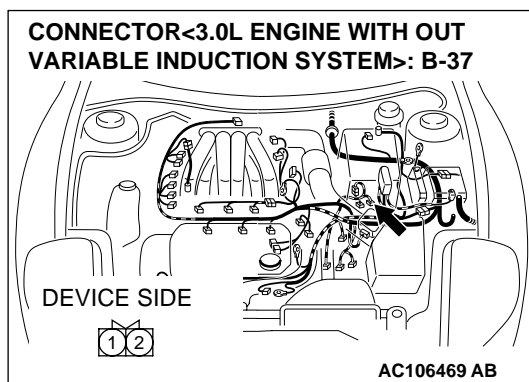
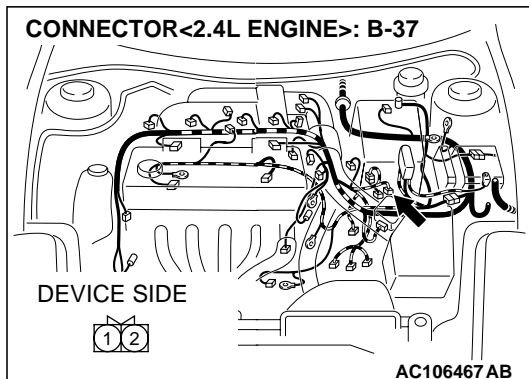
Q: Is the backup light switch connector B-37 in good condition?

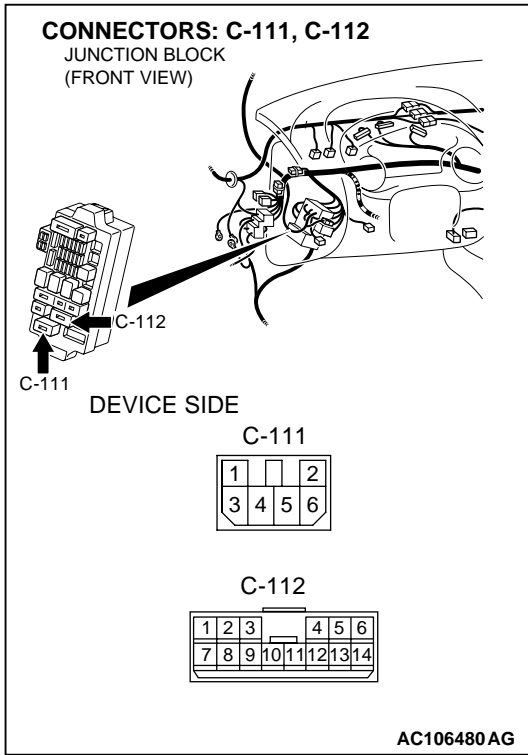
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

STEP 4. Check the wiring harness between backup light switch connector B-37 (terminal 1) and the ignition switch (IG1).

NOTE: Also check junction block connectors C-111, C-112 and intermediate connector C-28. If junction block connectors C-111, C-112 or intermediate connectors C-28 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

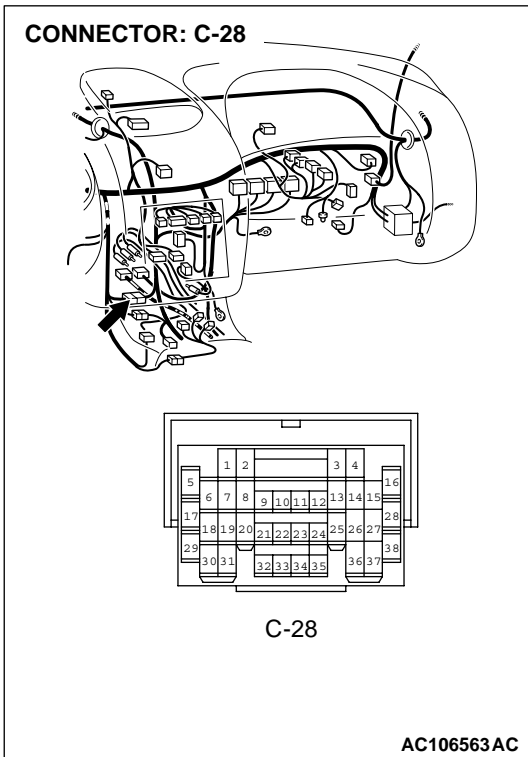


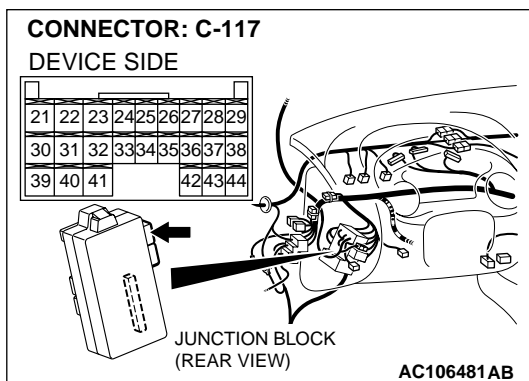
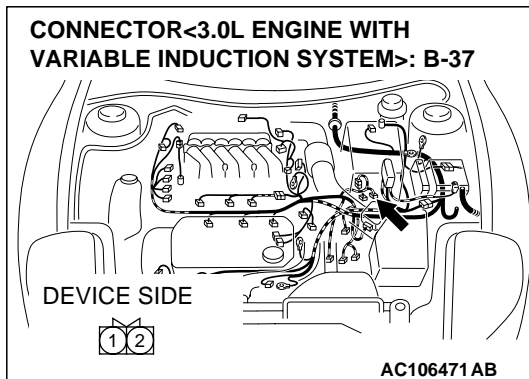
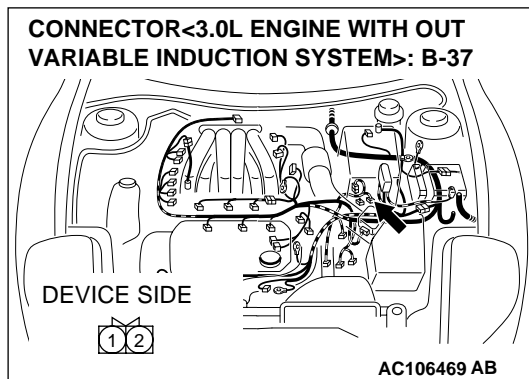
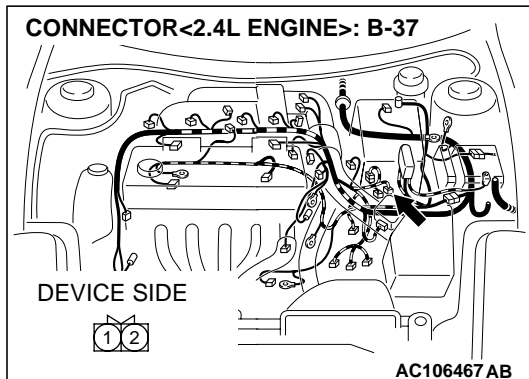


Q: Is the wiring harness between backup light switch connector B-37 (terminal 1) and the ignition switch (IG1) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.





STEP 5. Check backup light switch connector B-37 and ETACS-ECU connector C-117 for damage.

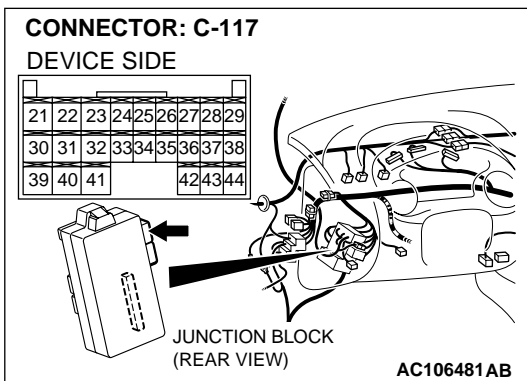
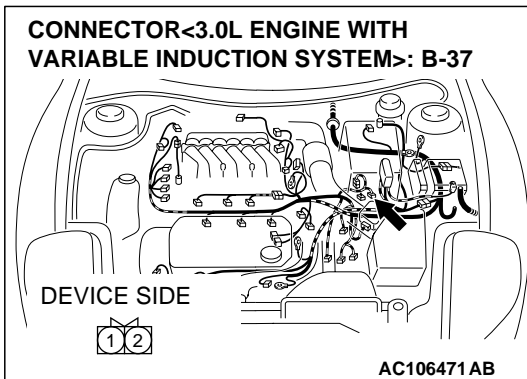
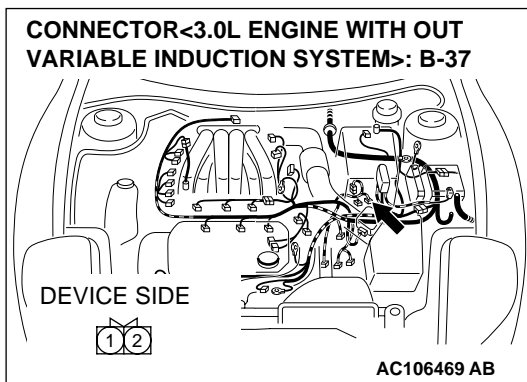
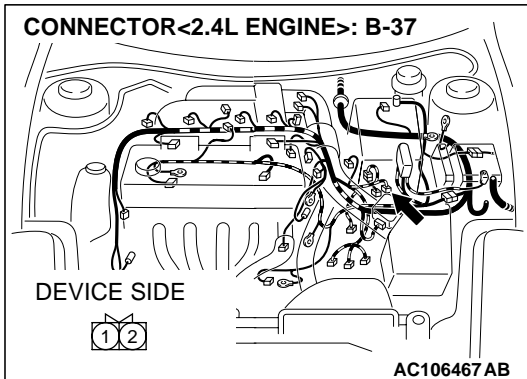
Q: Are backup light switch connector B-37 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 6.

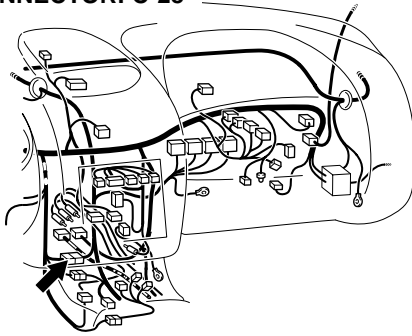
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

STEP 6. Check the wiring harness between backup light switch connector B-37 (terminal 2) and ETACS-ECU connector C-117 (terminal 39).

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



CONNECTOR: C-28



C-28

AC106563 AC

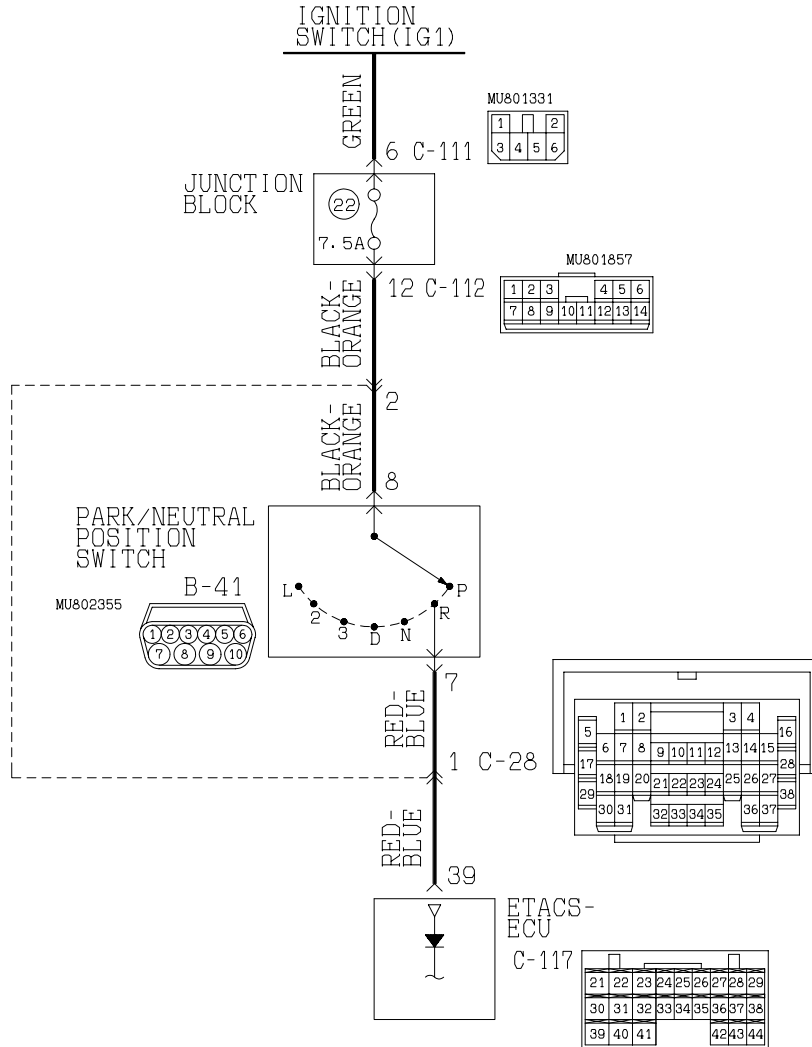
Q: Is the wiring harness between backup light switch connector B-37 (terminal 2) and ETACS-ECU connector C-117 (terminal 39) in good condition?

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

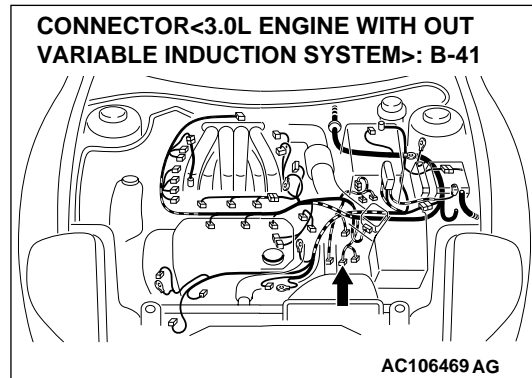
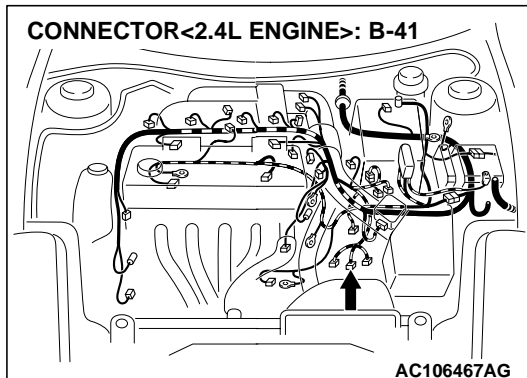
NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the backup light switch.

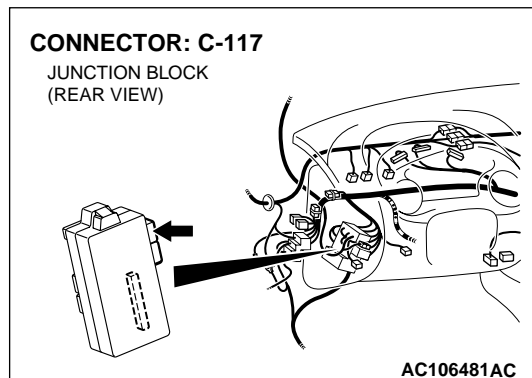
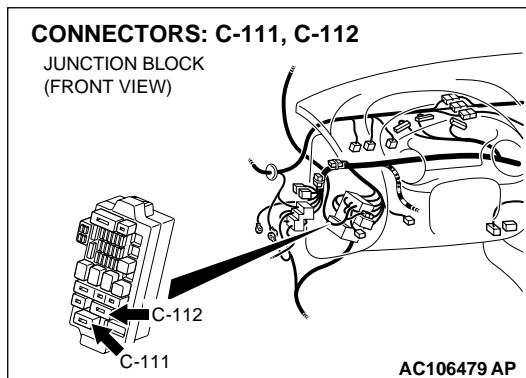
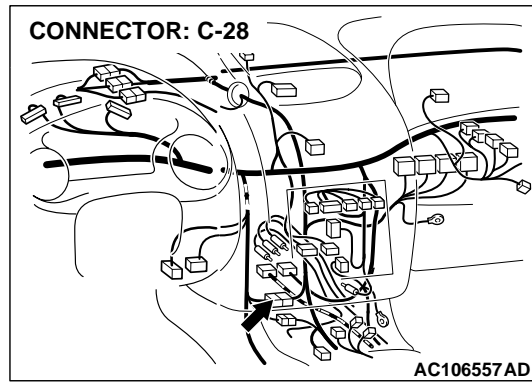
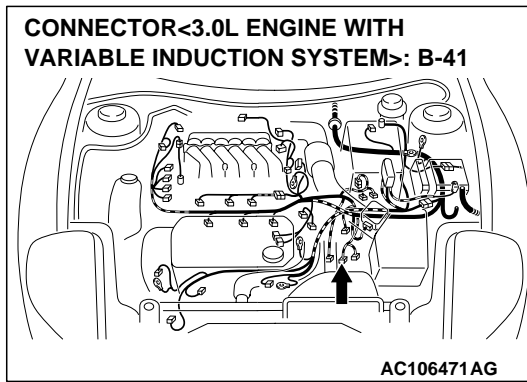
INSPECTION PROCEDURE O-5: ETACS-ECU does not Receive "R" Position Signal from the Park/Neutral Position Switch <A/T>.

Park/neutral Position Switch Input Circuit



W3S03M04AA





CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to signal from the park/neutral position switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the rear wiper does not operate consecutively twice when the selector lever is moved to the "R" position with the rear wiper on. If the signal is not normal, the park/neutral position switch or the ETACS-ECU may be defective.

NOTE: The park/neutral position switch is shared with the automatic transmission control system. If this problem is not solved, carry out the troubleshooting regarding the automatic transmission control system. Refer to GROUP 23A, A/T Diagnosis P.23A-14.

TROUBLESHOOTING HINTS

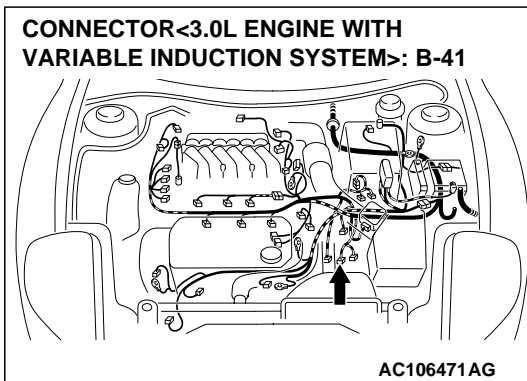
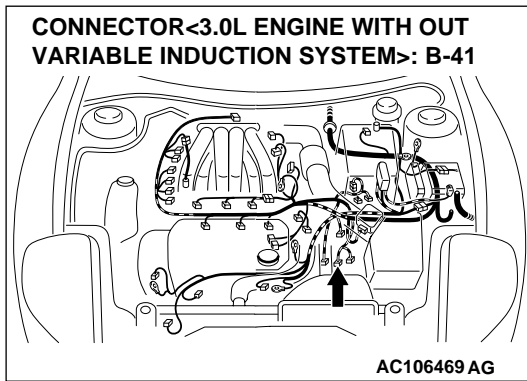
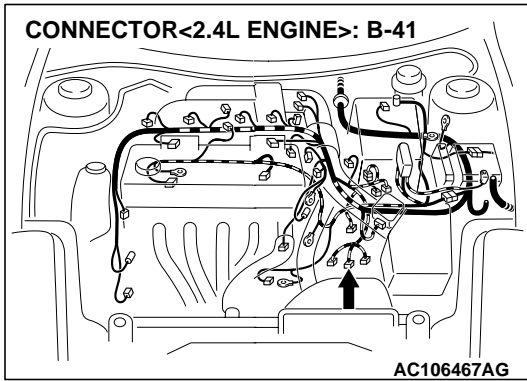
- Malfunction of the park/neutral position switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

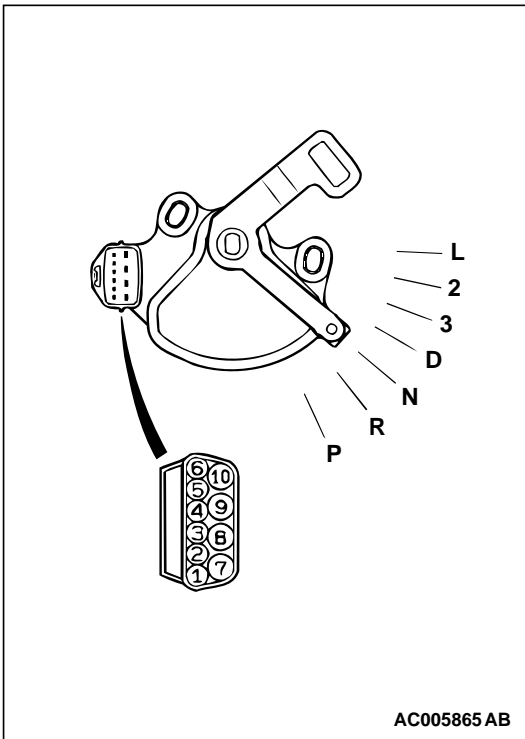
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the park/neutral position switch.





AC005865 AB

Disconnect park/neutral position switch connector B-41. Then check continuity between the switch terminals.

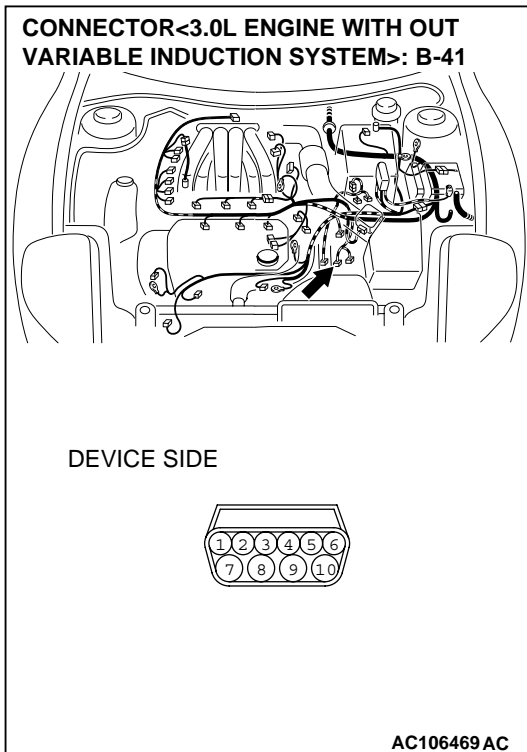
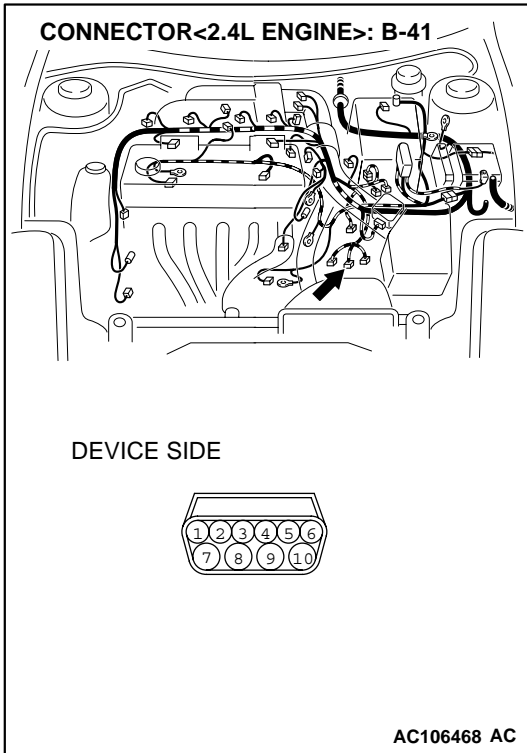
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
P, N, D	7 – 8	Open circuit
R	7 – 8	Less than 2 ohm

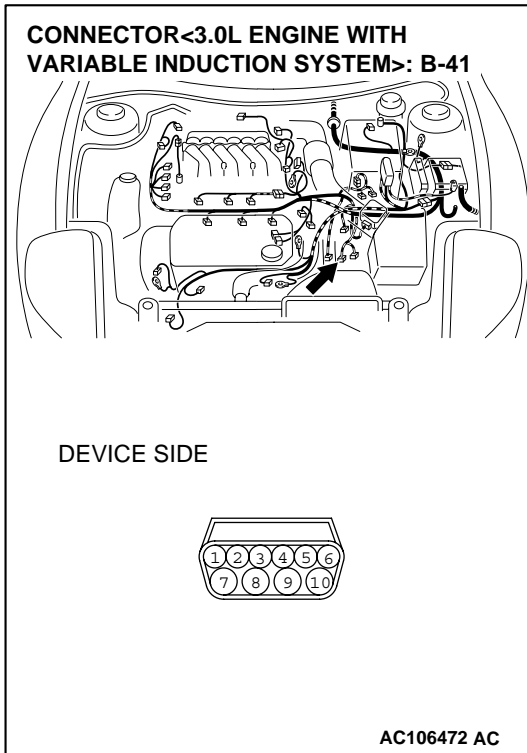
Q: Is the park/neutral position switch in good condition?

YES : Go to Step 2.

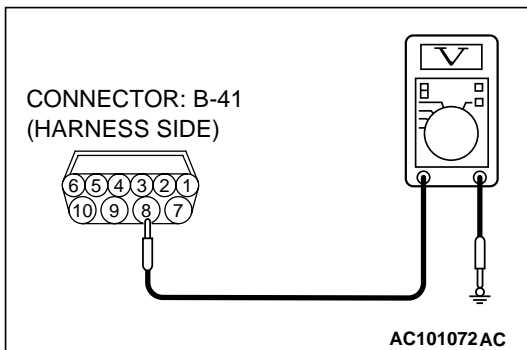
NO : Replace the park/neutral position switch. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

STEP 2. Check at park/neutral switch connector B-41 in order to check the ignition switch (IG1) line of the power supply to the park/neutral switch.





- (1) Disconnect park/neutral position switch connector B-41, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.



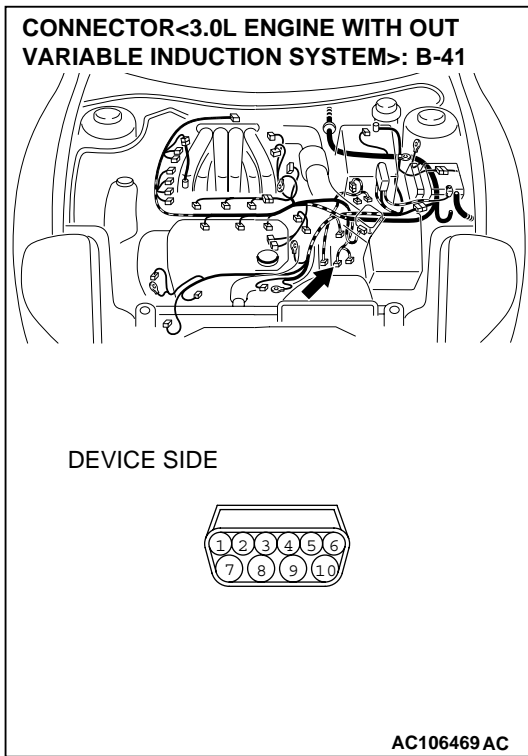
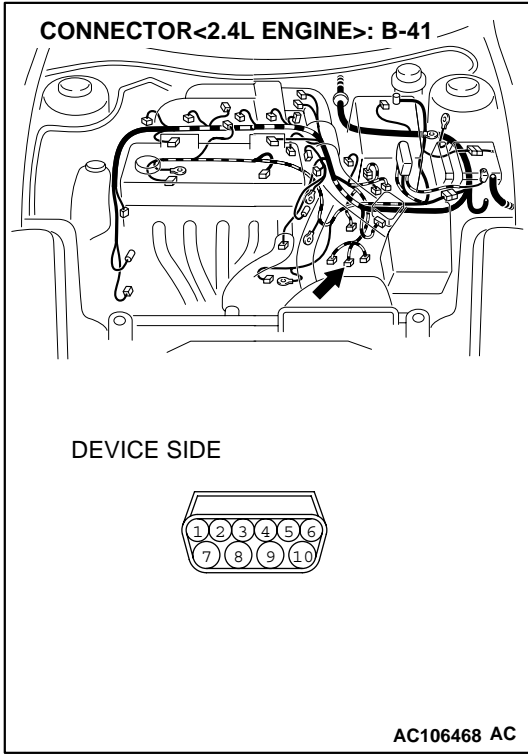
- (3) Measure the voltage between terminal 8 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

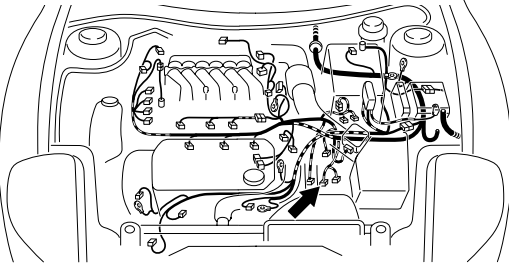
YES : Go to Step 5.

NO : Go to Step 3.

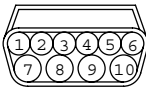
STEP 3. Check park/neutral position switch connector B-41 for damage.



CONNECTOR<3.0L ENGINE WITH
VARIABLE INDUCTION SYSTEM>: B-41



DEVICE SIDE



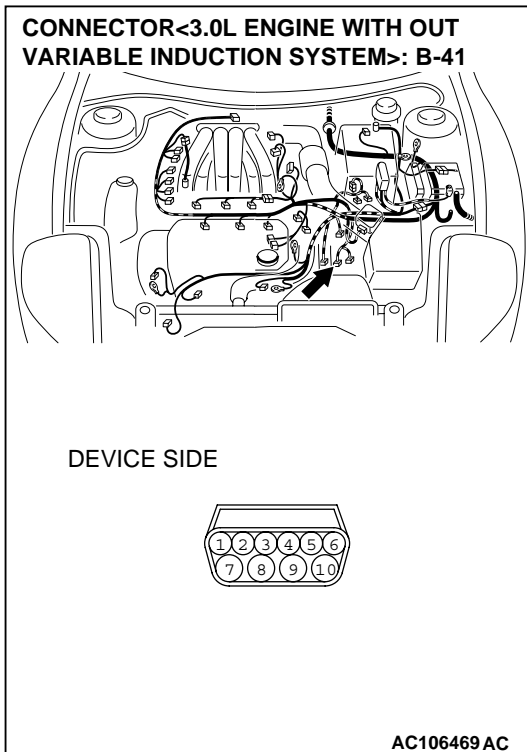
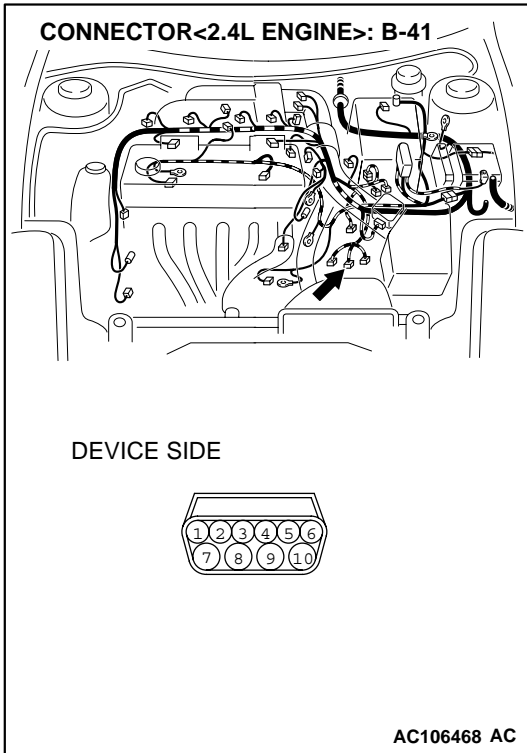
AC106472 AC

Q: Is park/neutral position switch connector B-41 in good condition?

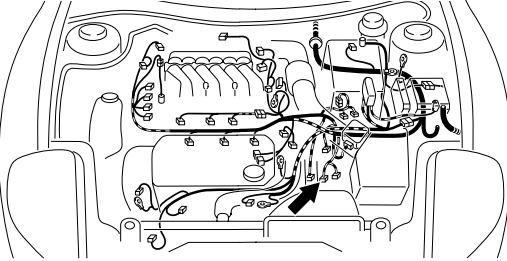
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

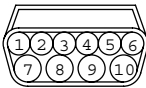
STEP 4. Check the wiring harness between park/neutral position switch connector B-41 (terminal 8) and the ignition switch (IG1).



**CONNECTOR<3.0L ENGINE WITH
VARIABLE INDUCTION SYSTEM>: B-41**

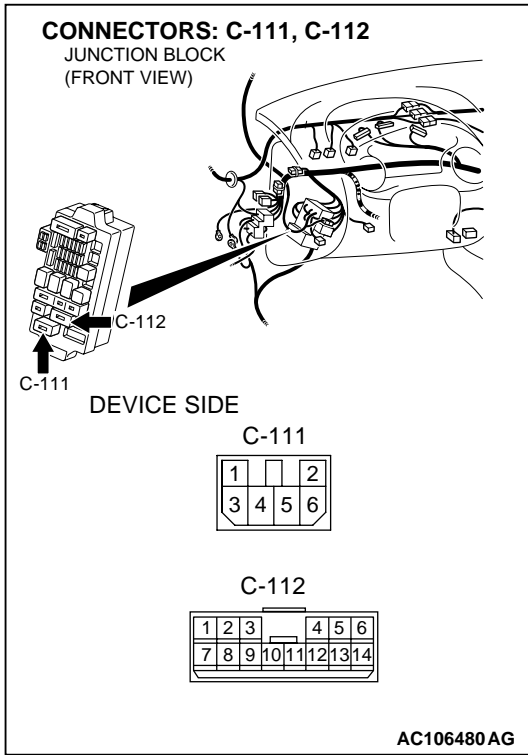


DEVICE SIDE



AC106472 AC

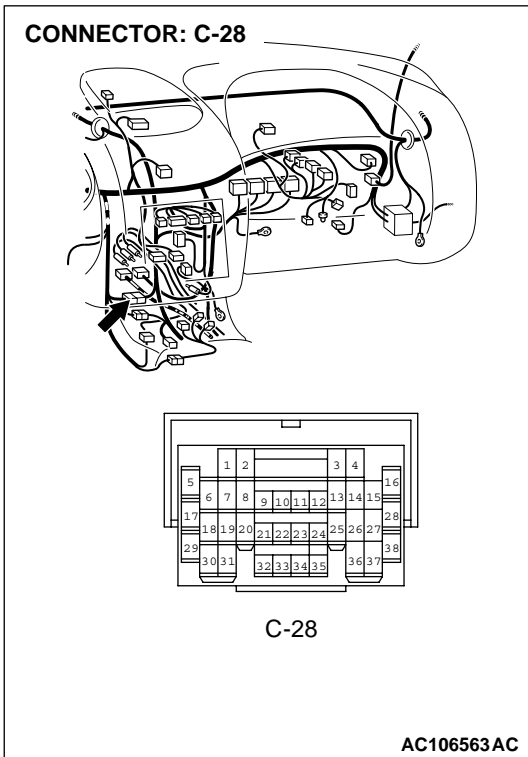
NOTE: Also check junction block connectors C-111, C-112 and intermediate connector C-28. If junction block connectors C-111, C-112 or intermediate connectors C-28 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



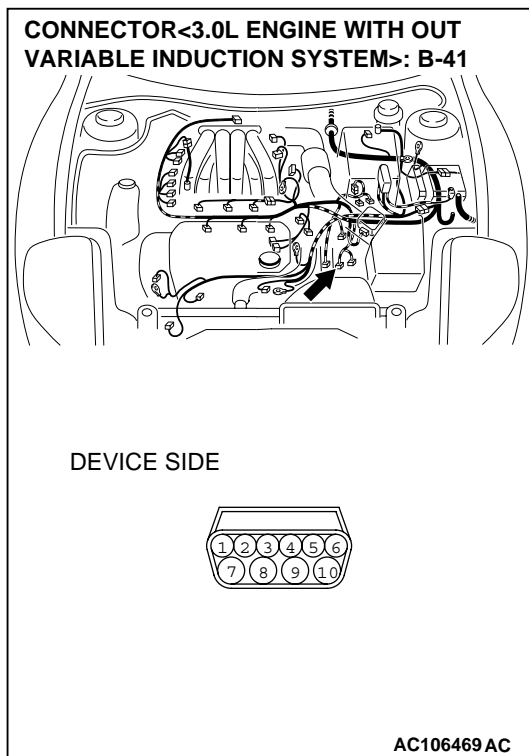
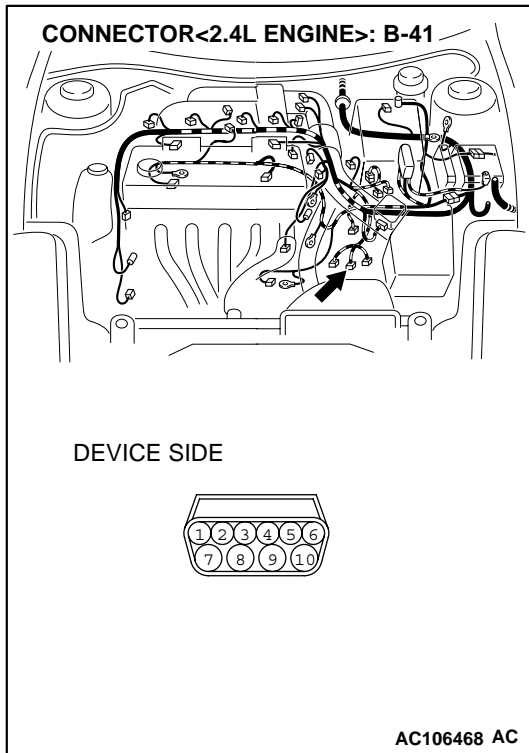
Q: Is the wiring harness between park/neutral position switch connector B-41 (terminal 8) and the ignition switch (IG1) in good condition?

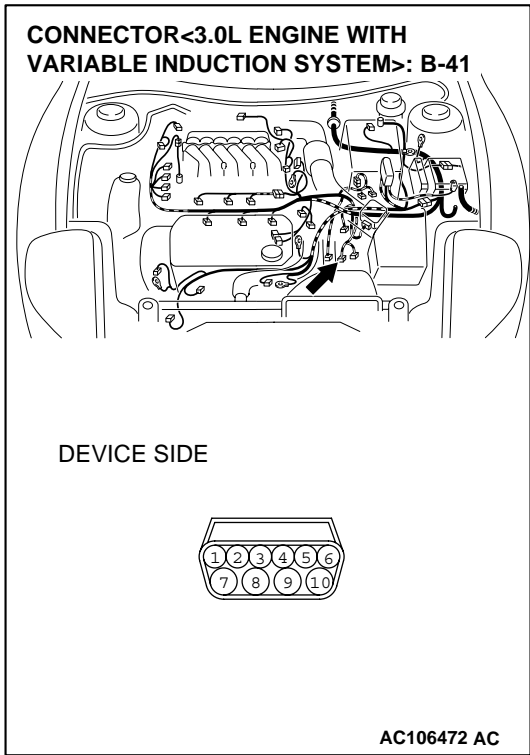
YES : No action to be taken.

NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

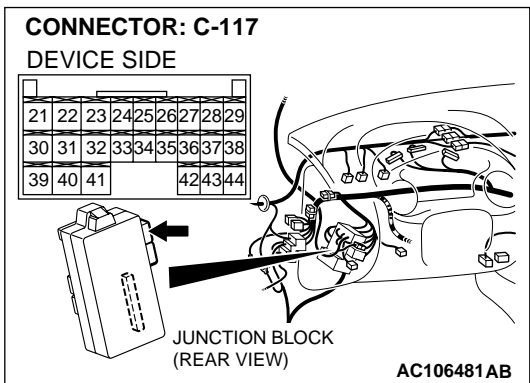


STEP 5. Check park/neutral position switch connector B-41 and ETACS-ECU connector C-117 for damage.

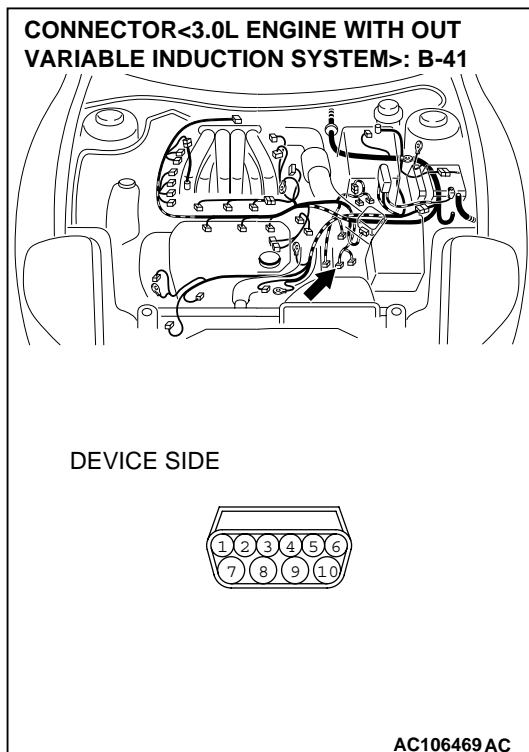
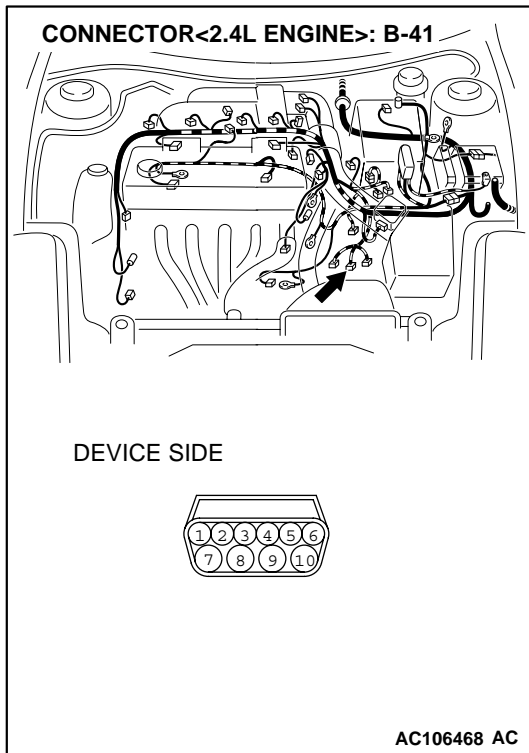


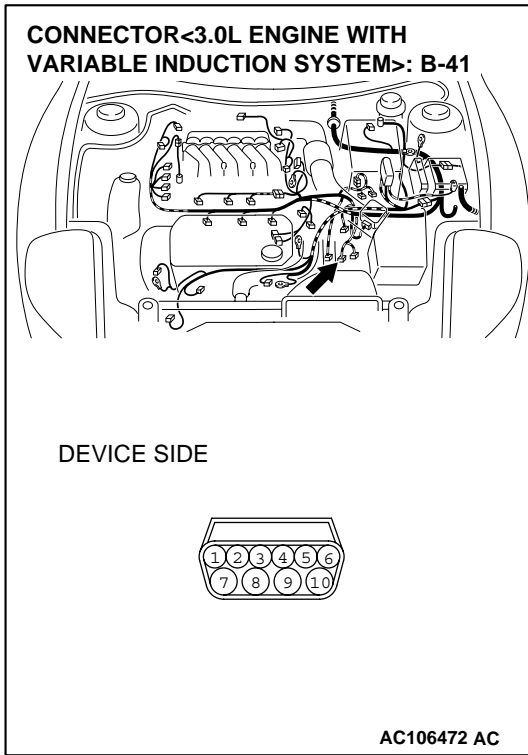


Q: Are park/neutral position switch connector B-41 and ETACS-ECU connector C-117 in good condition?
YES : Go to Step 6.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

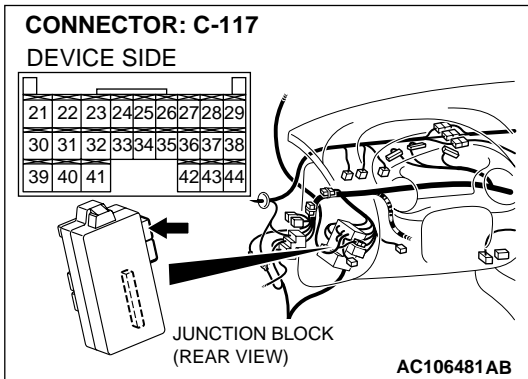


STEP 6. Check the wiring harness between park/neutral position switch connector B-41 (terminal 7) and ETACS-ECU connector C-117 (terminal 39).

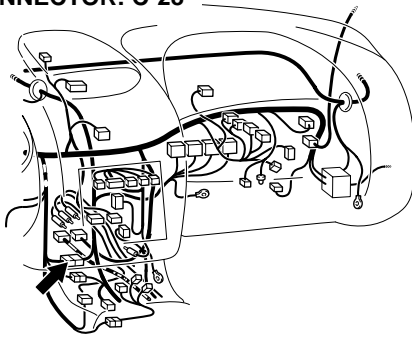




NOTE: Also check intermediate connector C-28. If intermediate connectors C-28 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-28



C-28

AC106563 AC

Q: Is the wiring harness between park/neutral position switch connector B-41 (terminal 7) and ETACS-ECU connector C-117 (terminal 39) in good condition?

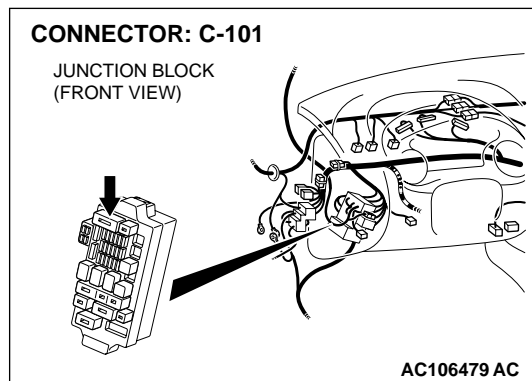
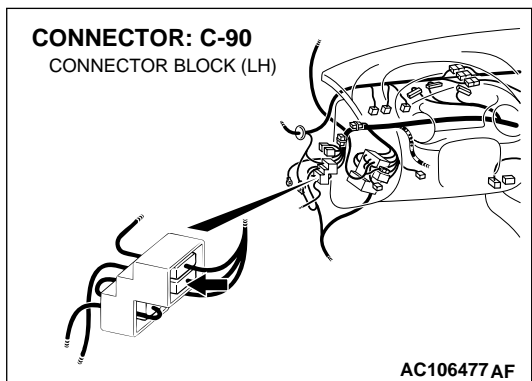
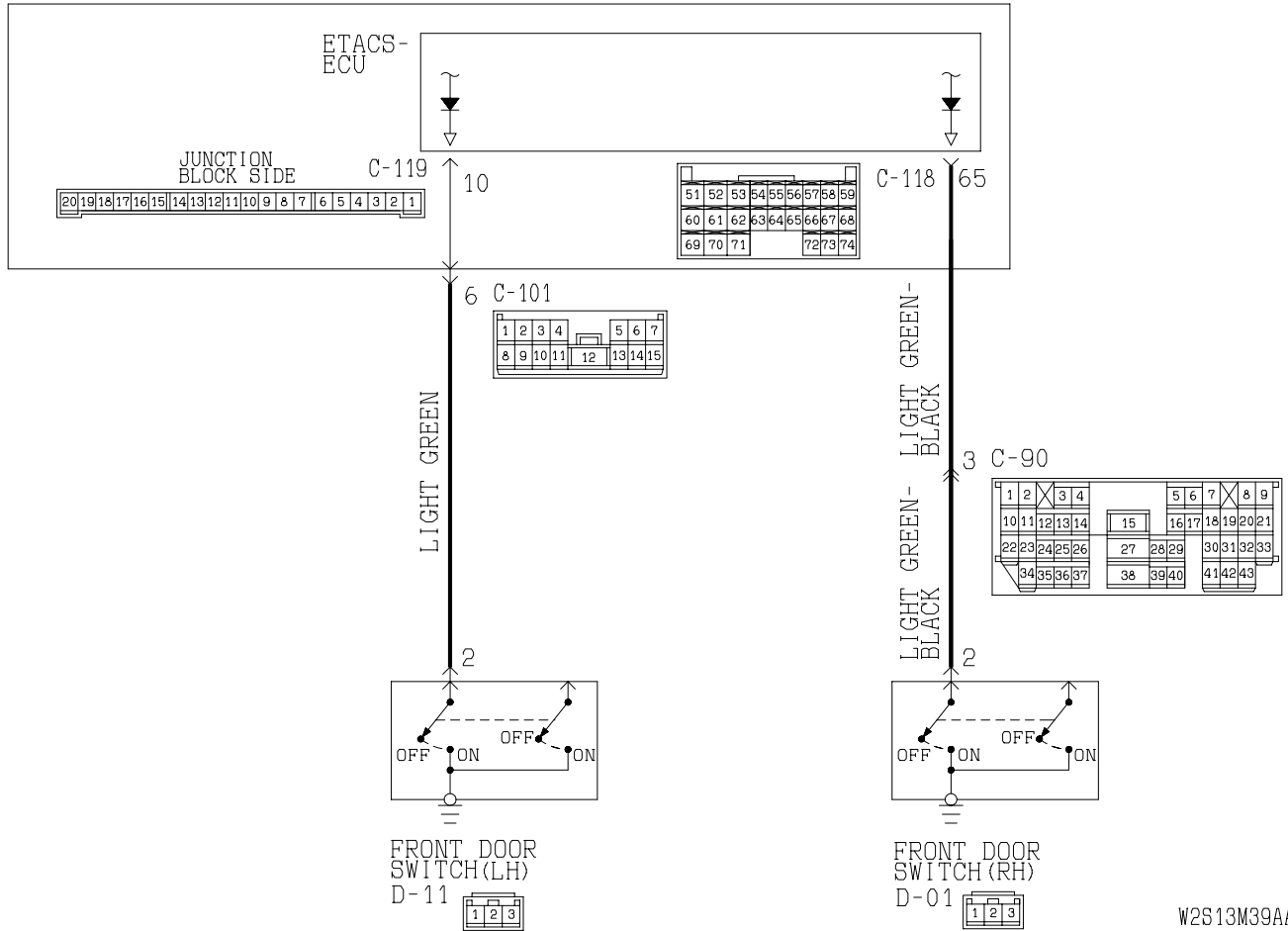
YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

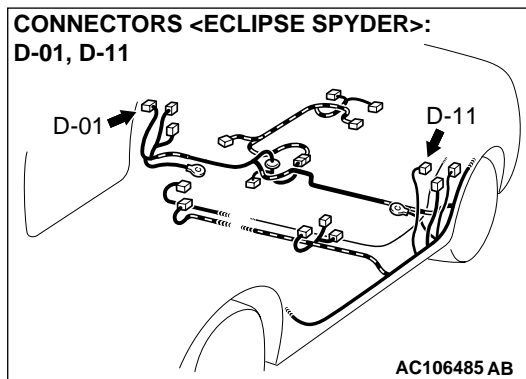
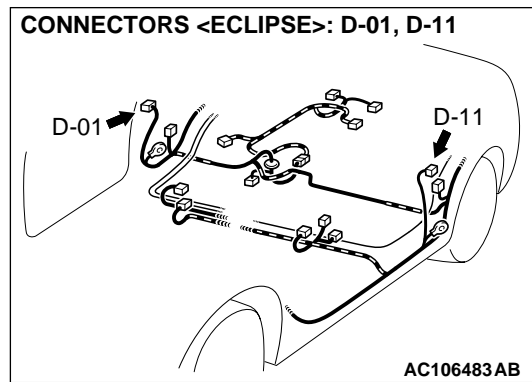
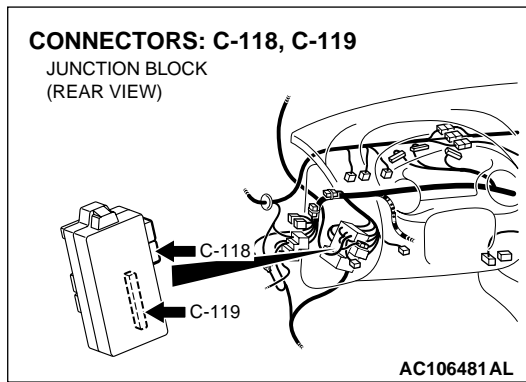
NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct "R" position signal is sent from the park/neutral position switch.

INSPECTION PROCEDURE O-6: The ETACS-ECU does not Receive Any Signal from the Driver's or the Front Passenger's Door Switch.

Front Door Switches Input Circuit

JUNCTION BLOCK





CIRCUIT OPERATION

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

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Power window timer function
- Headlight automatic shutdown function
- Dome light
- Interior automatic-shutdown function

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the functions or systems, which are described in "CIRCUIT OPERATION", do not work normally. If the signal is not normal, the driver's or front passenger's door switch or the ETACS-ECU may be defective.

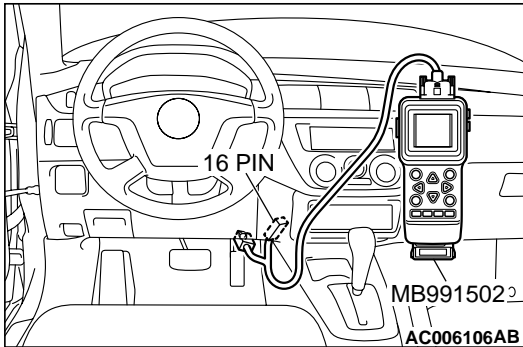
TROUBLESHOOTING HINTS

- Malfunction of the driver's or front passenger's door switches
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

**STEP 1. Check the input signal (by using the Pulse check).**

Check the input signals from the front door switches.

⚠ CAUTION

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

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

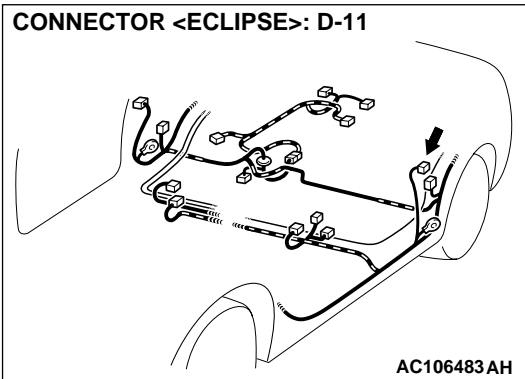
Q: Does scan tool MB991502 sound when each front door is opened and closed?

When the driver's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 2.

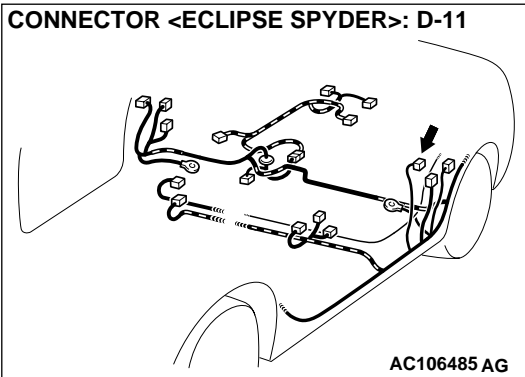
When the front passenger's door is opened and closed, scan tool MB991502 does not sound. : Go to Step 6.

when each front door is opened and closed, scan tool MB991502 sounds. : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's or the front passenger's door switch should be normal.

CONNECTOR <ECLIPSE>: D-11



CONNECTOR <ECLIPSE SPYDER>: D-11



STEP 2. Check the driver's door switch.

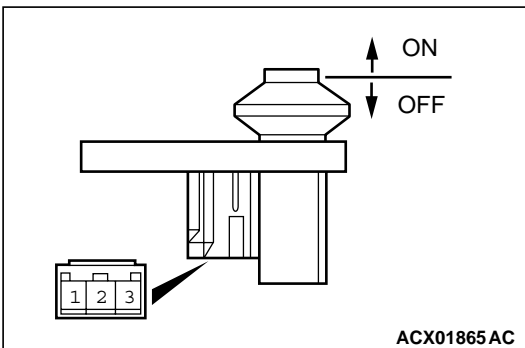
Remove the driver's door switch. Then check the continuity between the switch terminal and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 - 2	Less than 2 ohm
Pressed	1 - 2	Open circuit

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

YES : Go to Step 3.

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



STEP 3. Measure at the lower metal part of the driver's door switch in order to check the ground circuit to the driver's door switch.

NOTE: Check that the driver's door switch is grounded to the vehicle body by means of its mounting screw.

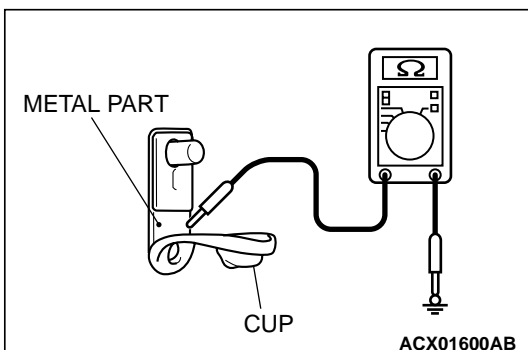
Remove the cap, and measure the resistance value between the lower metal part and the ground.

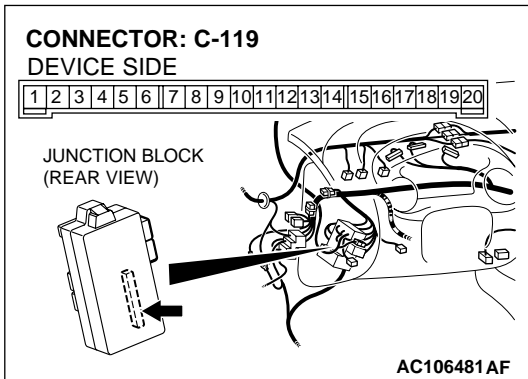
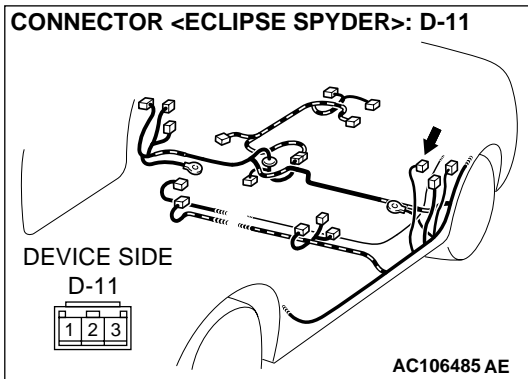
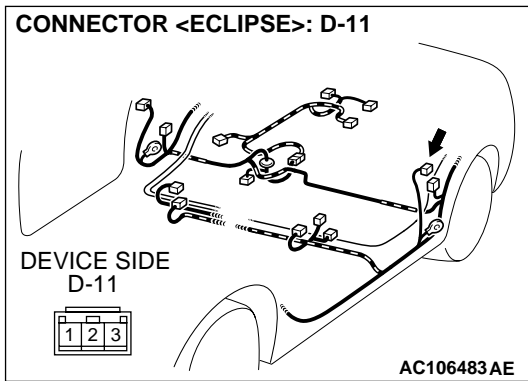
- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door switch should be normal.





STEP 4. Check driver's door switch connector D-11 and ETACS-ECU connector C-119 for damage.

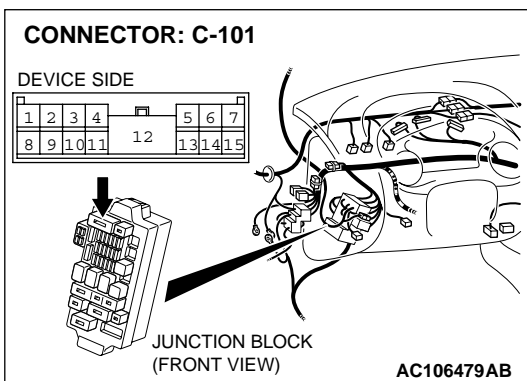
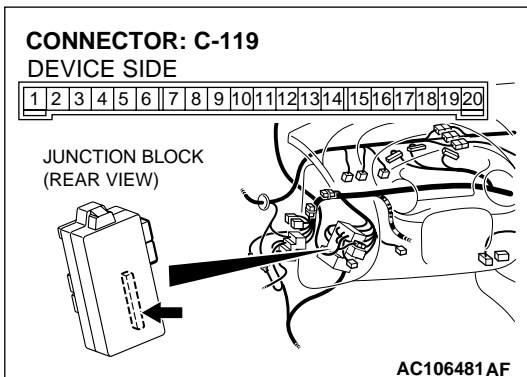
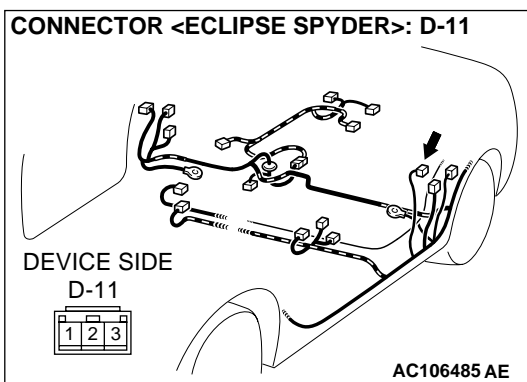
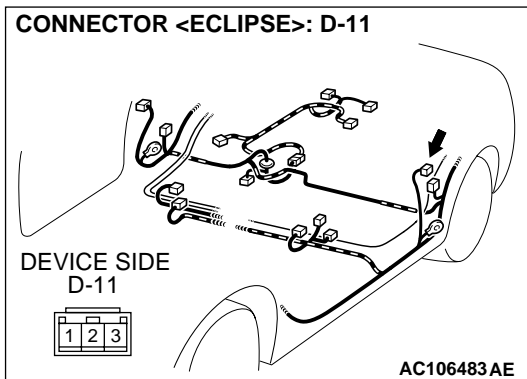
Q: Are driver's door switch connector D-11 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between driver's door switch connector D-11 (terminal 2) and ETACS-ECU connector C-119 (terminal 10).

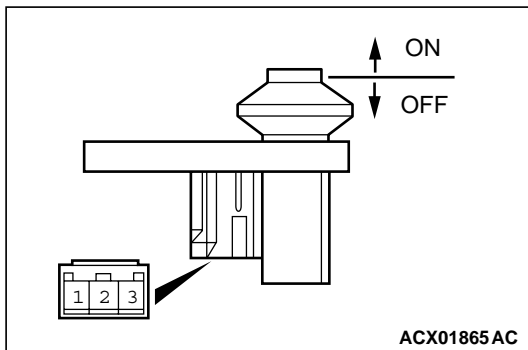
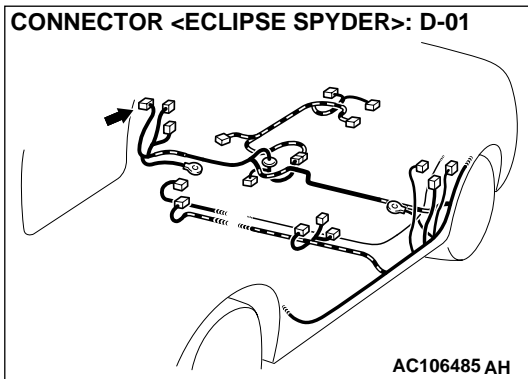
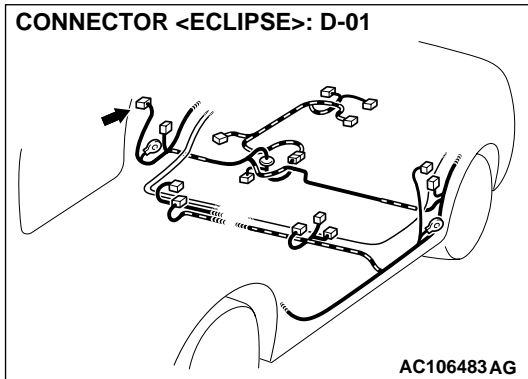
NOTE: Also check junction block connector C-101. If junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between driver's door switch connector D-11 (terminal 2) and ETACS-ECU connector C-119 (terminal 10) in good condition?

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

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



STEP 6. Check the passenger's door switch.

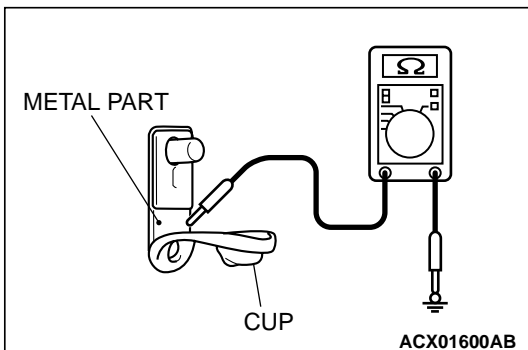
Remove the passenger's door switch. Then check the continuity between the switch terminal and the switch body.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 - 2	Less than 2 ohm
Pressed	1 - 2	Open circuit

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

YES : Go to Step 7.

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



STEP 7. Measure at the lower metal part of the passenger's door switch in order to check the ground circuit to the passenger's door switch.

NOTE: Check that the passenger's door switch is grounded to the vehicle body by means of its mounting screw.

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

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

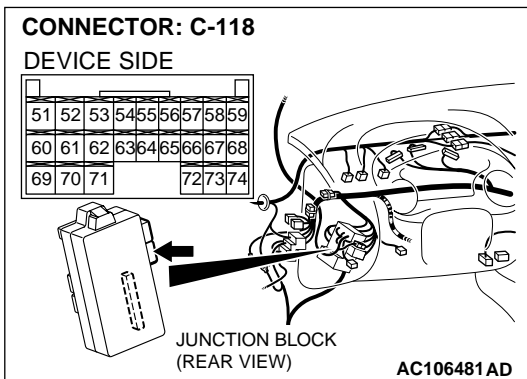
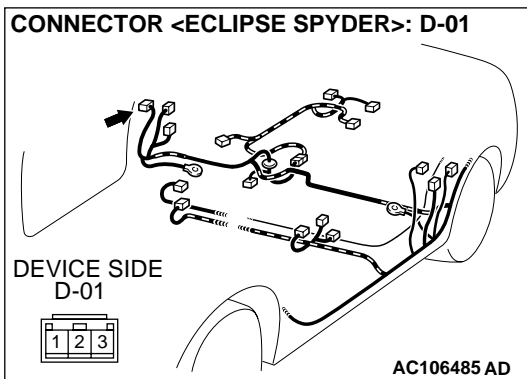
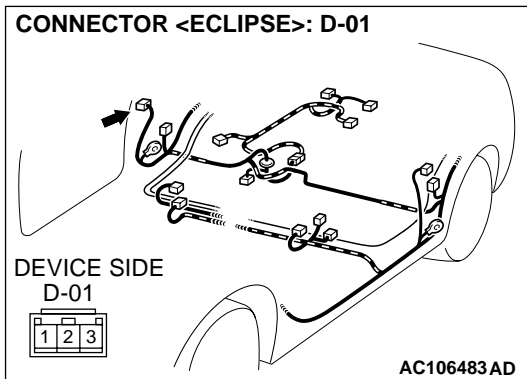
NO : Check the fit of the switch, and repair if necessary. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

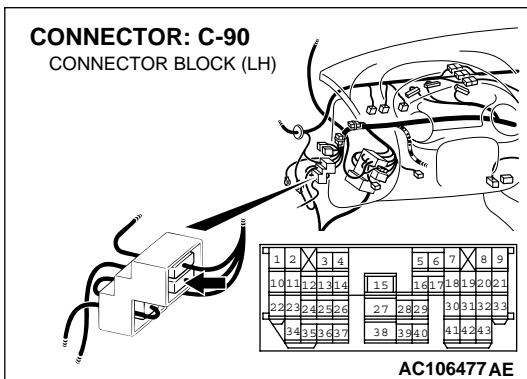
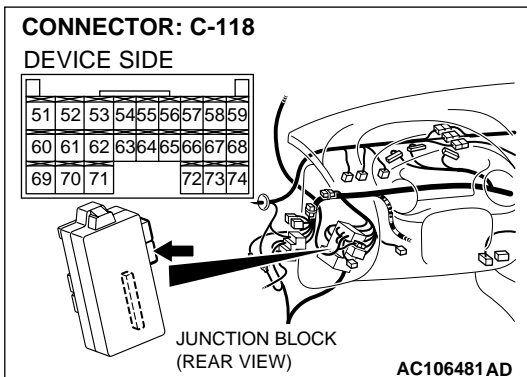
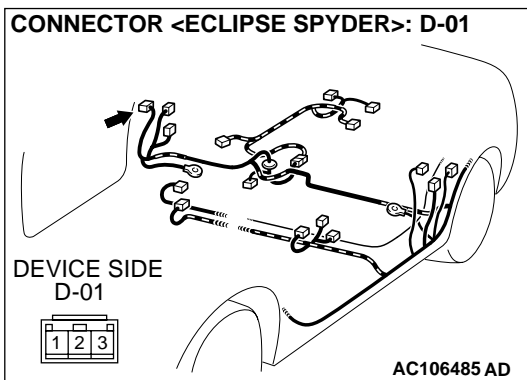
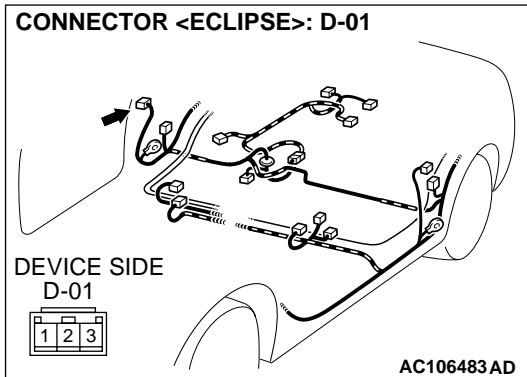
STEP 8. Check passenger's door switch connector D-01 and ETACS-ECU connector C-118 for damage.

Q: Are passenger's door switch connector D-01 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 9.

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





STEP 9. Check the wiring harness between passenger's door switch connector D-01 (terminal 2) and ETACS-ECU connector C-118 (terminal 65).

NOTE: Also check intermediate connector C-90. If intermediate connectors C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between passenger's door switch connector D-01 (terminal 2) and ETACS-ECU connector C-118 (terminal 65) in good condition?

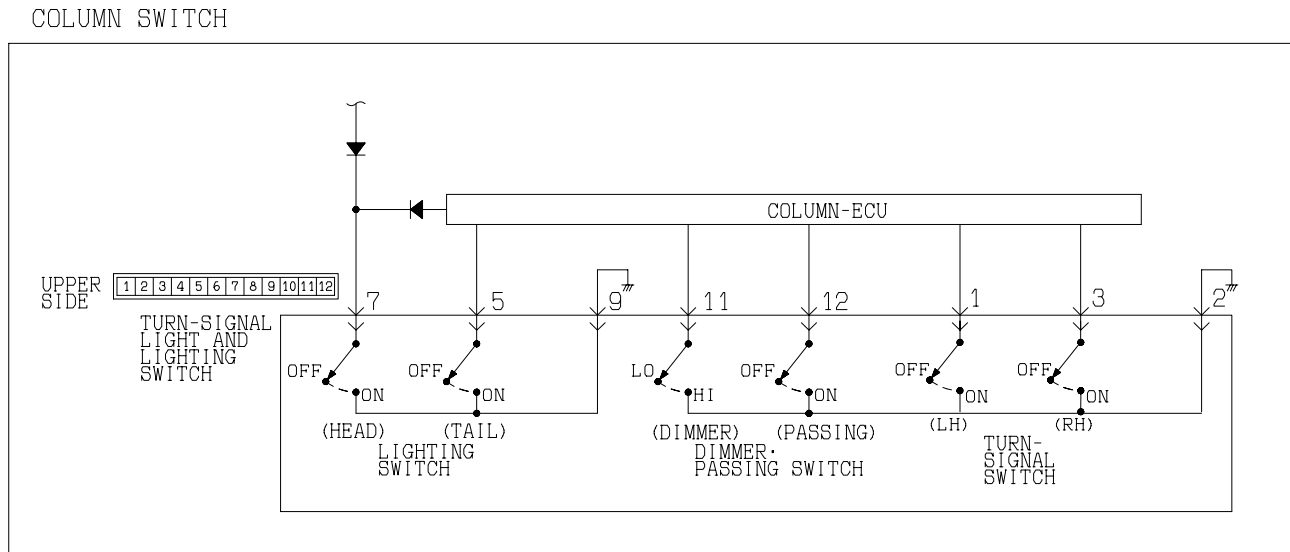
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the passenger's door switch should be normal.

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

INSPECTION PROCEDURE O-7: Column Switch: ETACS-ECU does not Receive Any Signal from the Taillight Switch, the Headlight Switch, the Passing Light Switch, the Dimmer Switch, the Turn-signal Light Switch or Switch.

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

Turn-signal Light and Lighting Switch Input Circuit



W1809M35AA
AC004262

CIRCUIT OPERATION

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

- Light reminder tone alarm function
- Headlight
- Turn-signal light

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of column switch (turn-signal light and lighting switch)
- Malfunction of the ETACS-ECU
- Damaged harness wipes or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the column-ECU.

⚠ CAUTION

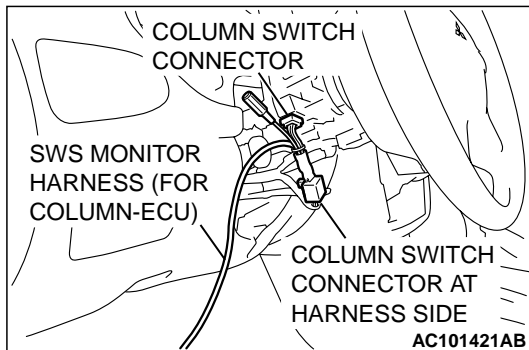
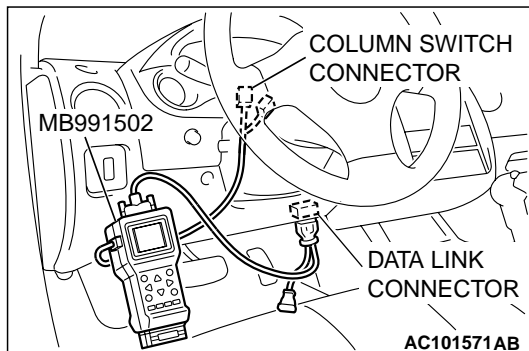
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

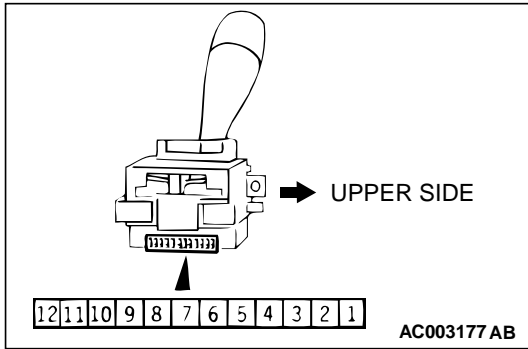
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" 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-28."





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

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

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 – 11 – 12	Open circuit
Taillight switch	5 – 9	Less than 2 ohm
Headlight switch	5 – 7 – 9	Less than 2 ohm
Passing switch	2 – 12	Less than 2 ohm
Dimmer switch	2 – 11 – 12	Less than 2 ohm
Turn-signal light switch (LH)	1 – 2	Less than 2 ohm
Turn-signal light switch (RH)	2 – 3	Less than 2 ohm

Q: Is the turn-signal light and lighting switch in good condition?

YES : Go to Step 3.

NO : Replace it. The input signal from the column switch (turn-signal light and lighting switch) should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 3. Replacement of ECU

(1) Replace the column switch.

(2) The input signal from the column switch (turn-signal light and lighting switch) should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

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

YES : There is no action to be taken.

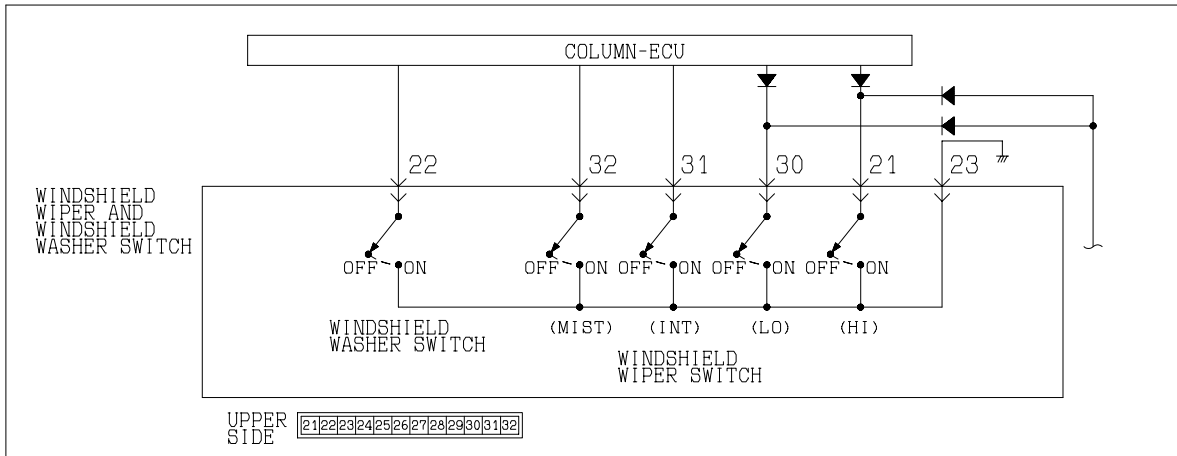
NO : Replace the ETACS-ECU. The input signal from the column switch (turn-signal light and lighting switch) should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

INSPECTION PROCEDURE O-8: Column switch: ETACS-ECU does not Receive any Signal from Windshield Mist Wiper Switch, Windshield Intermittent Wiper Switch, Windshield Low-speed Wiper Switch, Windshield High-speed Wiper Switch or Windshield Washer Switch.

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

Windshield Wiper and Windshield Washer Switch Input Circuit

COLUMN SWITCH

W1S09M36AA
AC004263**CIRCUIT OPERATION**

The ETACS-ECU operates the following equipment or functions according to signal from the column switch (windshield wiper and washer switch):

- Windshield wiper and washer
- Rear wiper and washer

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the equipment, which is described in "CIRCUIT OPERATION", does not work normally.

TROUBLESHOOTING HINTS

- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

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

Check the column-ECU.

⚠ CAUTION

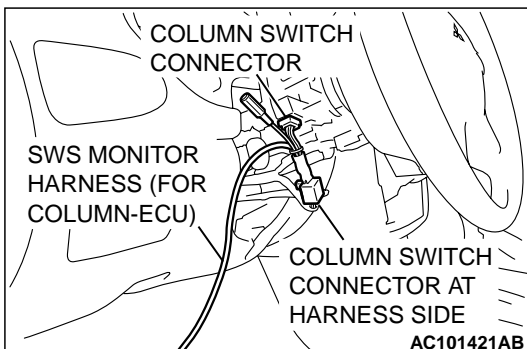
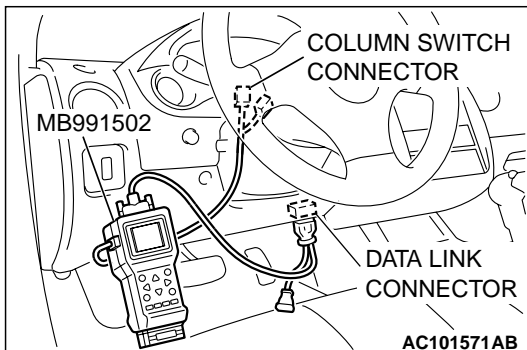
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502. Also connect SWS monitor kit MB991862 after turning on scan tool MB991502.

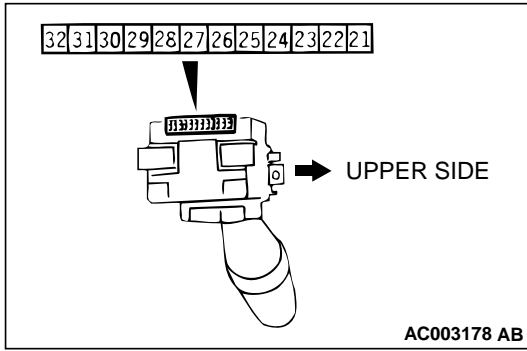
- (1) Connect scan tool MB991502 to the data link connector.
- (2) Connect SWS monitor kit MB991862 to the column switch connector.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.
- (4) Operate the MUT-II according to the procedure below to display "ECU COMM CHECK."
 1. Select "SYSTEM SELECT."
 2. Select "SWS."
 3. Select "SWS MONITOR."
 4. Select "ECU COMM CHECK."
- (5) Scan tool MB991502 should show "OK" on the "ECU COMM CHECK" 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-28."





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

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	21 – 22 – 23 – 24 – 25 – 26 – 27 – 28 – 29 – 30 – 31 – 32	Open circuit
Windshield mist wiper switch	23 – 32	Less than 2 ohm
Windshield intermittent wiper switch	23 – 31	Less than 2 ohm
Windshield low-speed wiper switch	23 – 30	Less than 2 ohm
Windshield high-speed wiper switch	21 – 23	Less than 2 ohm
Windshield washer switch	22 – 23	Less than 2 ohm

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

YES : Go to Step 3.

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

STEP 3. Replace the ECU.

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

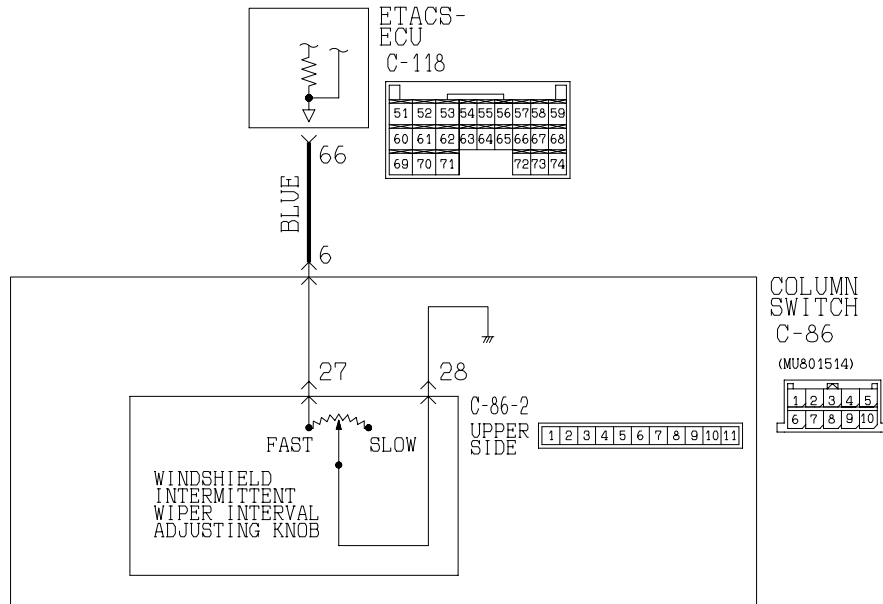
Q: Does the column switch (windshield wiper and washer switch) send a normal signal to the ECU?

YES : No action to be taken.

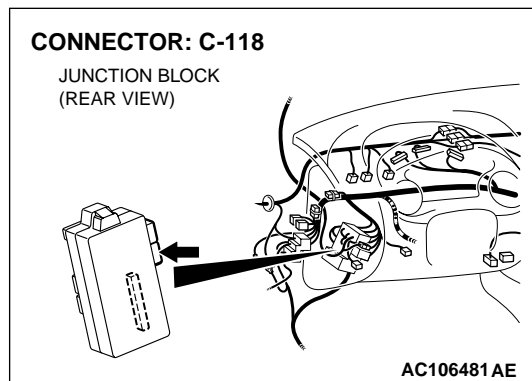
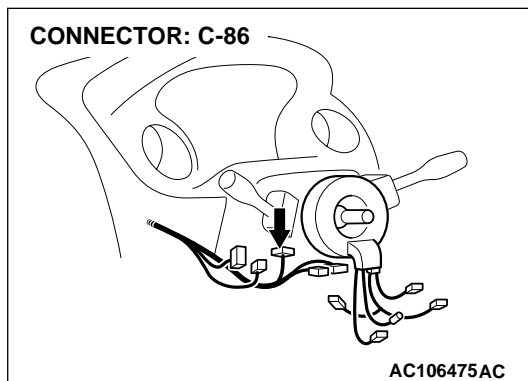
NO : Replace the ETACS-ECU. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the column switch (windshield wiper and washer switch) should be normal.

INSPECTION PROCEDURE O-9: Column Switch: ETACS-ECU does not receive Any Signal from the Windshield Intermittent Wiper Interval Adjusting Knob.

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



W2S13M40AA



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the column switch (windshield wiper and washer switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

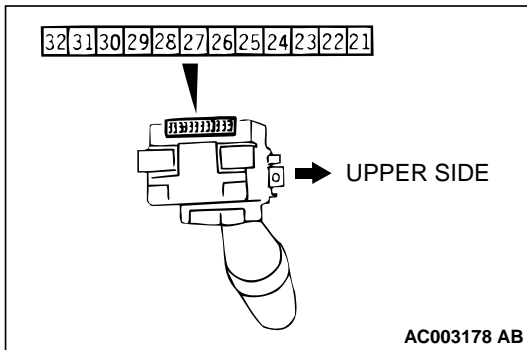
STEP 1. Check the windshield intermittent wiper interval adjusting knob.

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

Q: Is the windshield intermittent wiper interval adjusting knob in good condition?

YES : Go to Step 2.

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

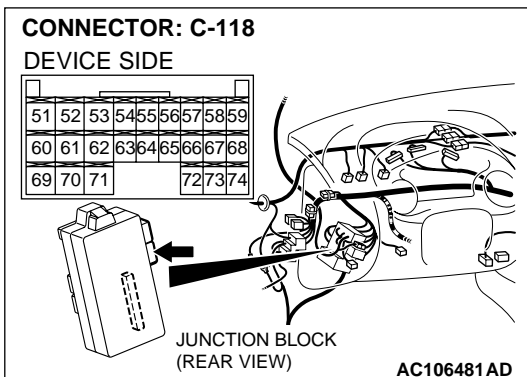
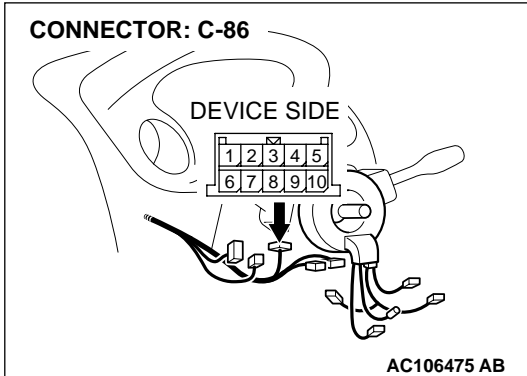


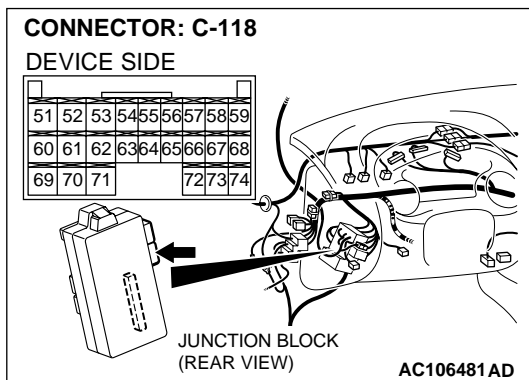
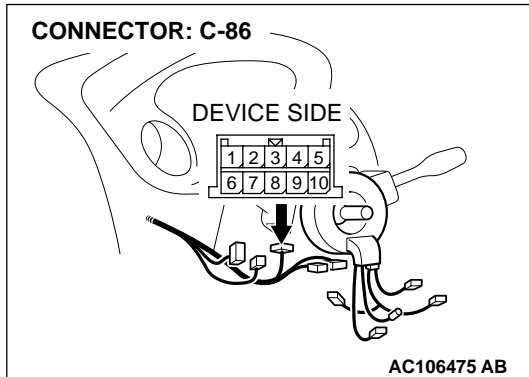
STEP 2. Check column switch connector C-86 and ETACS-ECU connector C-118 for damage.

Q: Are column switch connector C-86 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.





STEP 3. Check the wiring harness between column switch connector C-86 (terminal 6) and ETACS-ECU connector C-118 (terminal 66).

Q: Is the wiring harness between column switch connector C-86 (terminal 6) and ETACS-ECU connector C-118 (terminal 66) in good condition?

YES : Go to 4.

NO : Repair the wiring harness. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

STEP 4. Replace the ECU.

(1) Replace the ETACS-ECU.

(2) If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

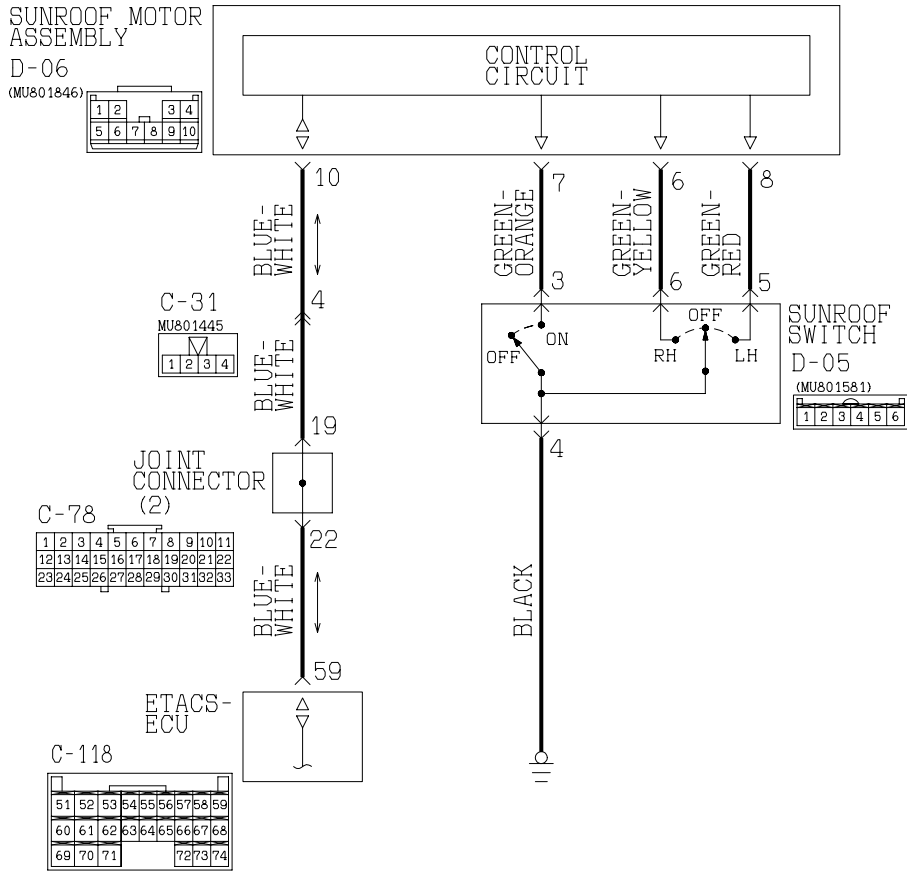
Q: Can input signal be confirmed when the windshield intermittent wiper interval adjusting knob is operated?

YES : No action to be taken.

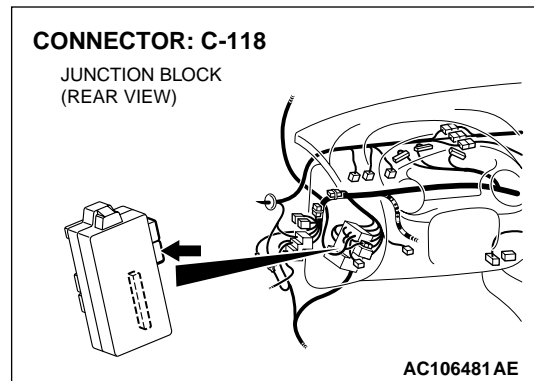
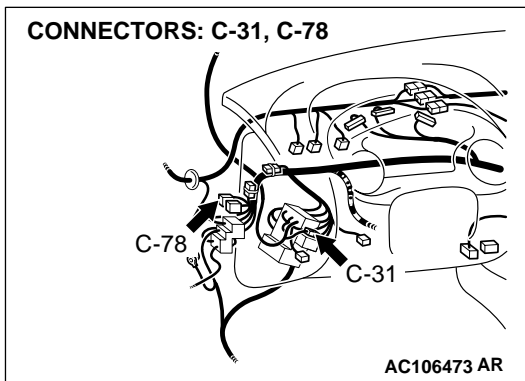
NO : Replace the column switch (windshield wiper and washer switch). If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

INSPECTION PROCEDURE O-10: Sunroof Switch: The ETACS-ECU does not Receive Any Signal from the Up, Open or Close/down Switch.

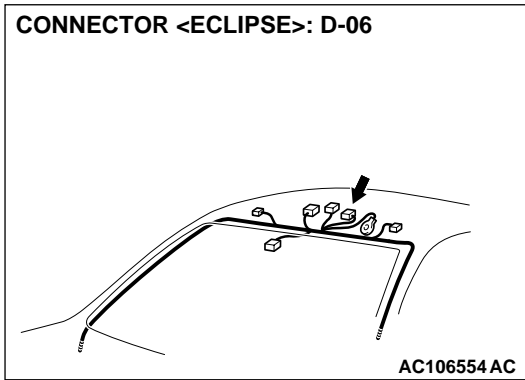
Sunroof Switch Input Circuit



W2S16M09AA



CONNECTOR <ECLIPSE>: D-06



CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991862: SWS Monitor Kit

STEP 1. Check the sunroof operation.

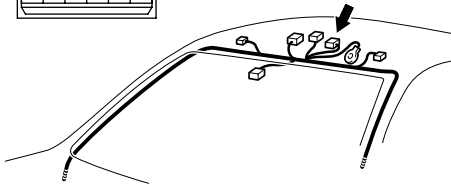
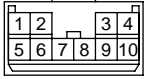
Q: Does the sunroof work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure F-1 "Sunroof does not operate [P.54B-167](#)."

CONNECTOR <ECLIPSE>: D-06

DEVICE SIDE
D-06



AC106554 AF

STEP 2. Check sunroof motor assembly connector D-06 and ETACS-ECU connector C-118 for damage.

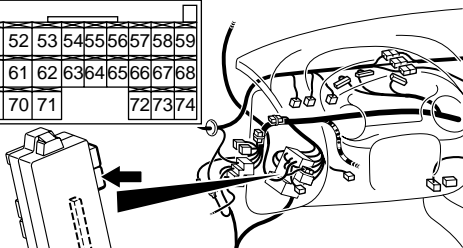
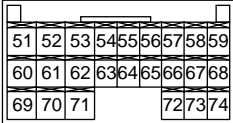
Q: Are sunroof motor assembly connector D-06 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 3.

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

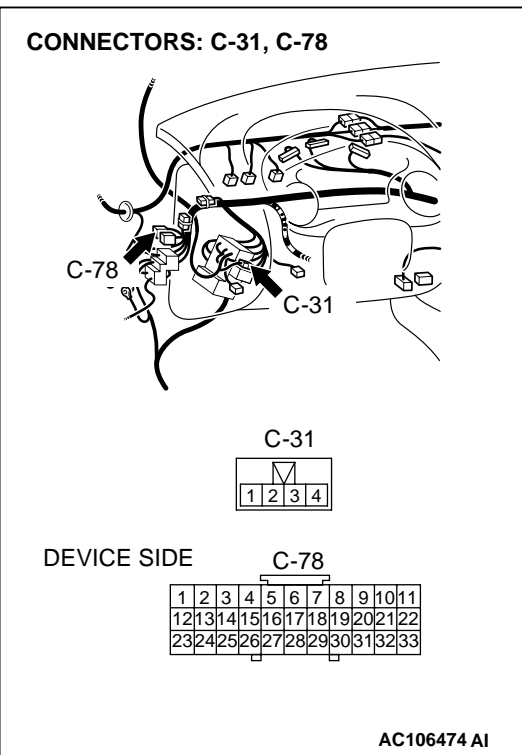
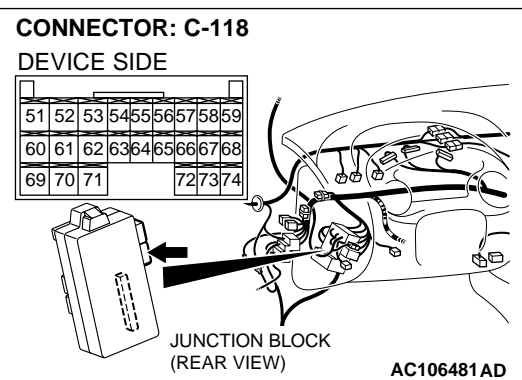
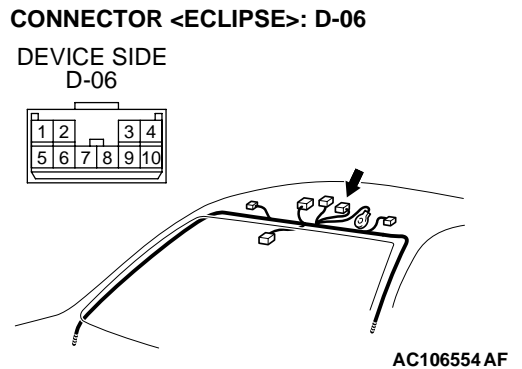
CONNECTOR: C-118

DEVICE SIDE



JUNCTION BLOCK
(REAR VIEW)

AC106481 AD



STEP 3. Check the wiring harness between sunroof motor assembly connector D-06 (terminal 10) and ETACS-ECU connector C-118 (terminal 59).

NOTE: Also check intermediate connectors C-31 and joint connector C-78. If intermediate connector C-31 or joint connector C-78 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

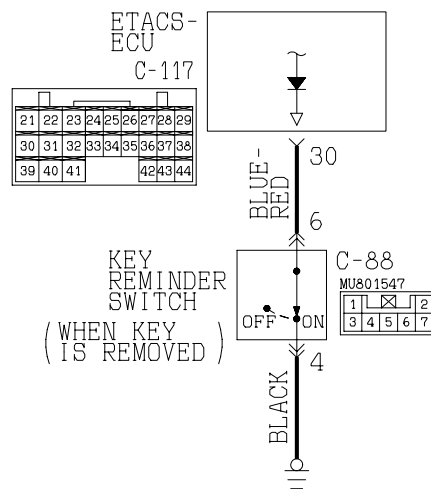
Q: Is the wiring harness between sunroof motor assembly connector D-06 (terminal 10) and ETACS-ECU connector C-118 (terminal 59) in good condition?

YES : Go to Step 4.

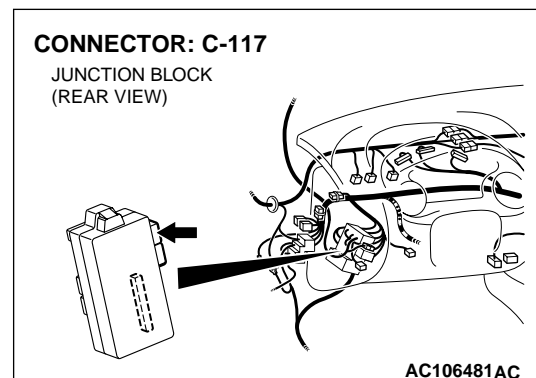
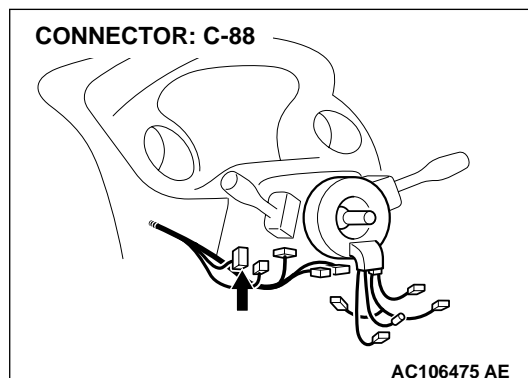
NO : Repair the wiring harness. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.

STEP 4. Replace the ECU.

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

Q: Does the ETACS-ECU receive correct signals from the sunroof switch?**YES :** No action to be taken.**NO :** Replace the ETACS-ECU. If the sunroof operates normally, it indicates that a correct signal is sent from the sunroof switch.**INSPECTION PROCEDURE P-1: ETACS-ECU does not Receive a Signal from the Key Reminder Switch.****Key Reminder Switch Input Circuit**

W2S13M41AA

**CIRCUIT OPERATION**

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

- Ignition key reminder tone alarm function
- Keyless entry system

- Dome light dimming function

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the key reminder switch

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

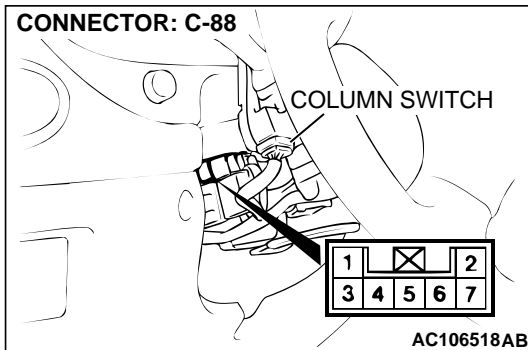
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the key reminder switch.

Disconnect key reminder switch connector C-88. Then check continuity between terminals.



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

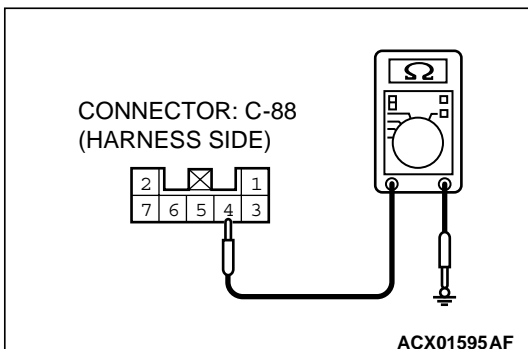
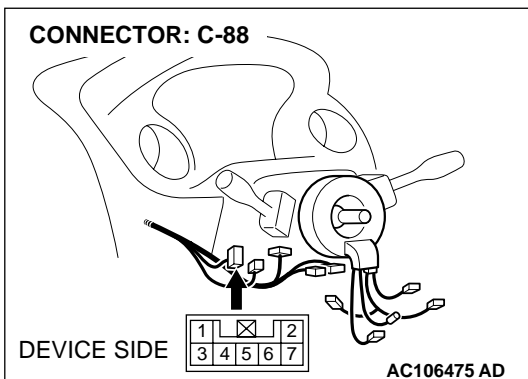
Q: Is the key reminder switch in good condition?

YES : Go to Step 2.

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

STEP 2. Measure at key reminder switch connector C-88 in order to the ground circuit to the key reminder switch.

(1) Disconnect key reminder switch connector C-88, and measure at the wiring harness side.



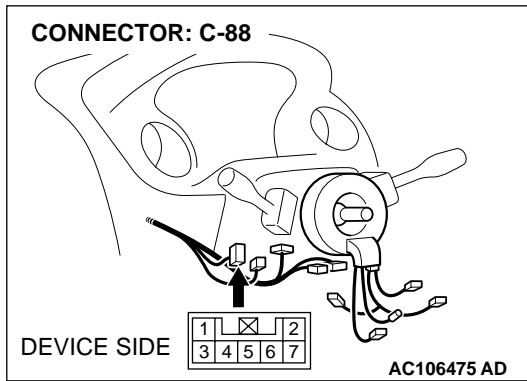
(2) Measure the resistance value between terminal 4 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

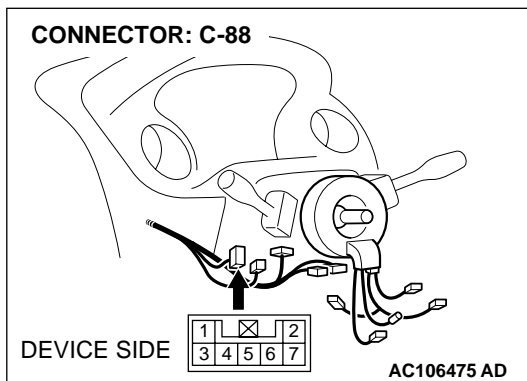


STEP 3. Check key reminder switch connector C-88 for damage.

Q: Is key reminder switch connector C-88 in good condition?

YES : Go to Step 4.

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

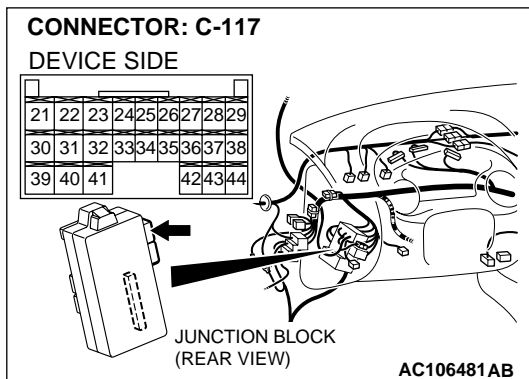
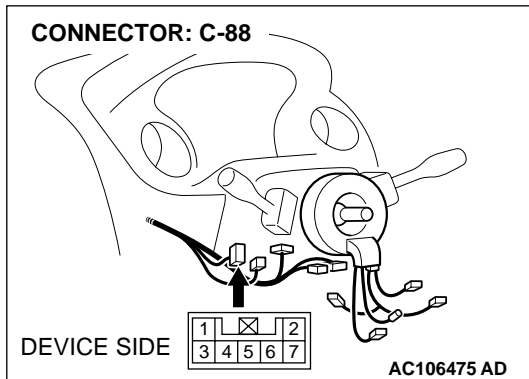


STEP 4. Check the wiring harness between key reminder switch connector C-88 (terminal 4) and ground.

Q: Is the wiring harness between key reminder switch connector C-88 (terminal 4) and ground in good condition?

YES : No action to be taken.

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

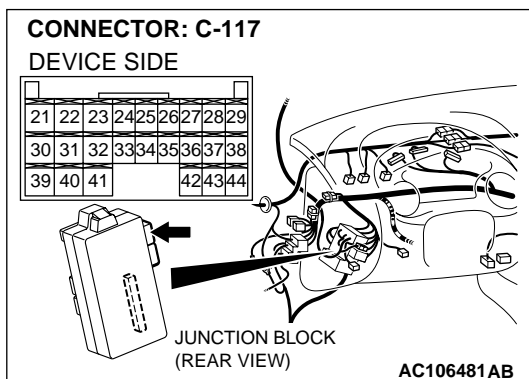
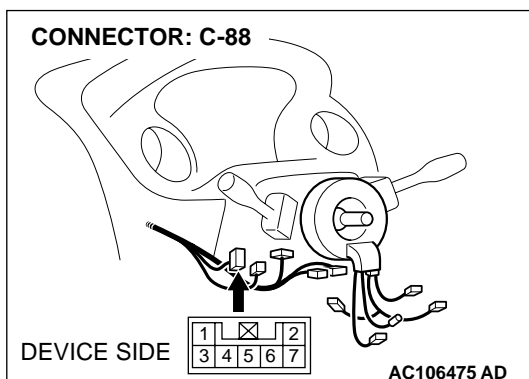


STEP 5. Check key reminder switch connector C-88 and ETACS-ECU connector C-117 for damage.

Q: Are key reminder switch connector C-88 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

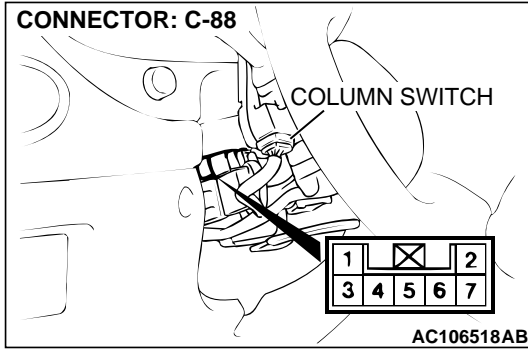


STEP 6. Check the wiring harness between key reminder switch connector C-88 (terminal 6) and ETACS-ECU connector C-117 (terminal 30) .

Q: Is the wiring harness between key reminder switch connector C-88 (terminal 6) and ETACS-ECU connector C-117 (terminal 30) in good condition?

YES : Go to Step 7.

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



STEP 7. Check continuity between every two terminals other than key reminder switch connector C-88 terminals 4 and 6.

- (1) Measure at key reminder switch connector C-88 without disconnecting the connector.
- (2) No continuity should be present between key reminder switch terminal 4 and each terminal other than terminal 6, and between key reminder switch terminal 6 and each terminal other than terminal 4.

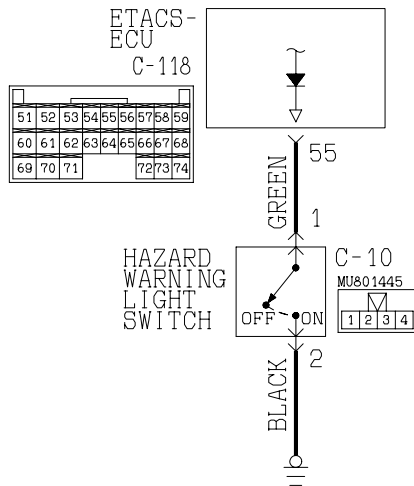
Q: Is continuity present between any two terminals?

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

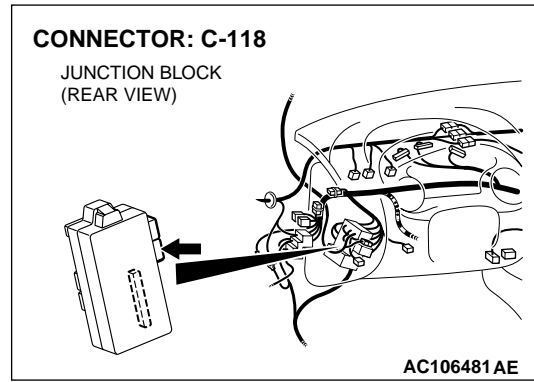
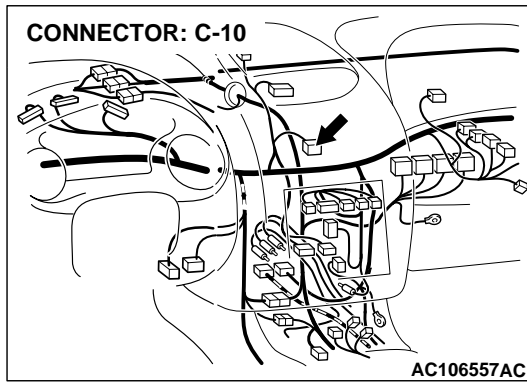
NO : Replace the key reminder switch. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the key reminder switch should be normal.

INSPECTION PROCEDURE P-2: The ETACS-ECU does not Receive Any Signal from the Hazard Warning Light Switch.

Hazard Warning Switch Input Circuit



W2S13M42AA



CIRCUIT OPERATION

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

- Hazard warning light
- Keyless entry system (registering the encrypted code)

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the hazard warning light switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

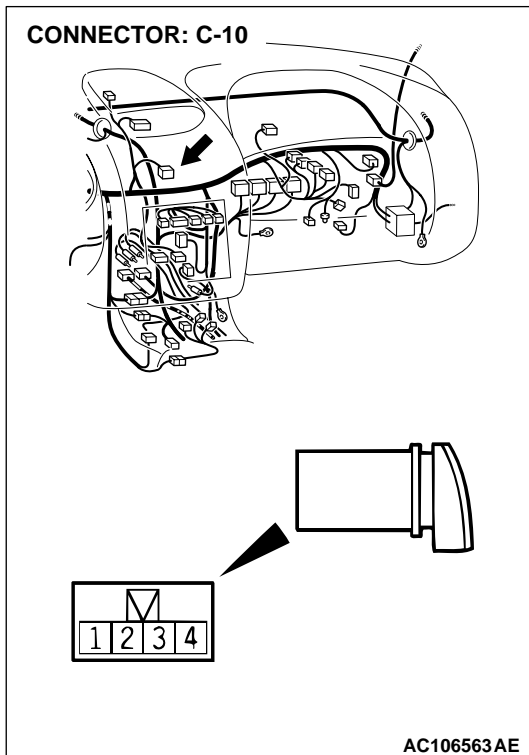
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the hazard warning light switch.

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

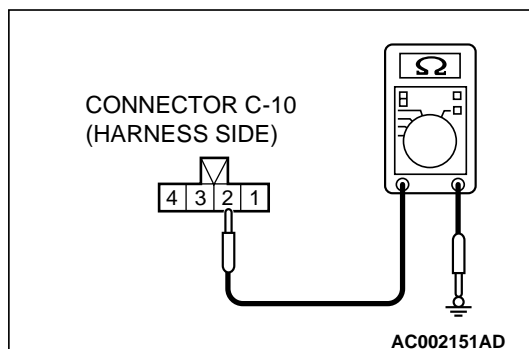
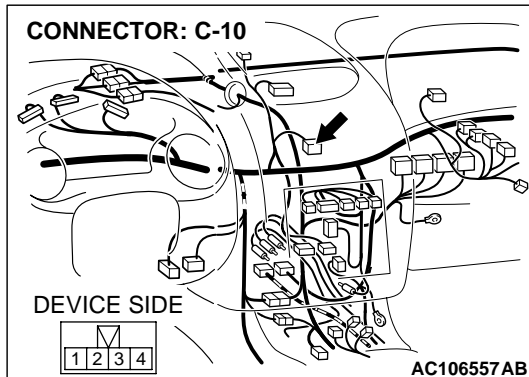


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Open circuit
Pressed	1 – 2	Less than 2 ohm

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

YES : Go to Step 2.

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



STEP 2. Measure at hazard warning light switch connector C-10 in order to check the ground circuit to the hazard warning light switch.

(1) Disconnect hazard warning light switch connector C-10, and measure at the wiring harness side.

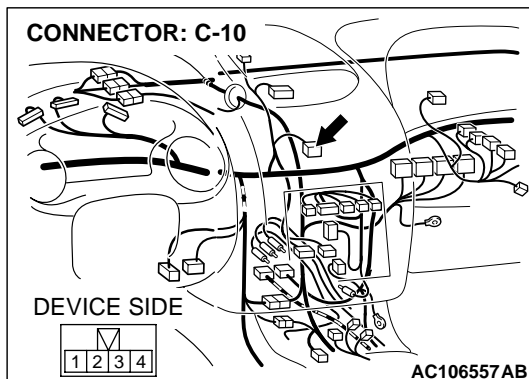
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

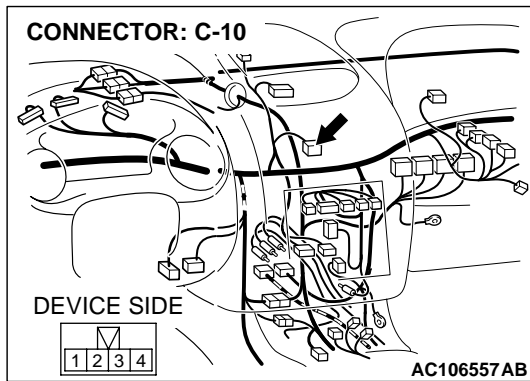


STEP 3. Check hazard warning light switch connector C-10 for damage.

Q: Is hazard warning light switch connector C-10 in good condition?

YES : Go to Step 4.

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

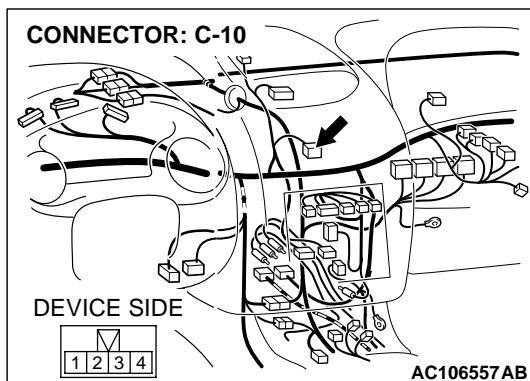


STEP 4. Check the wiring harness between hazard warning light switch connector C-10 (terminal 2) and ground.

Q: Is the wiring harness between hazard warning light switch connector C-10 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

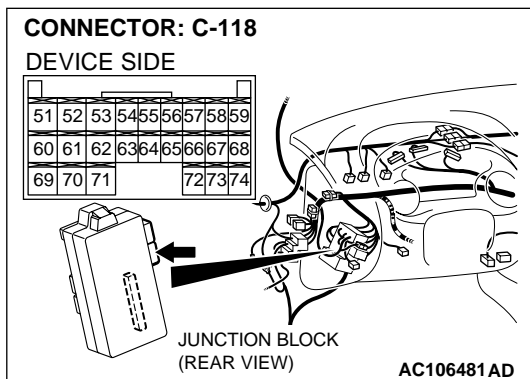


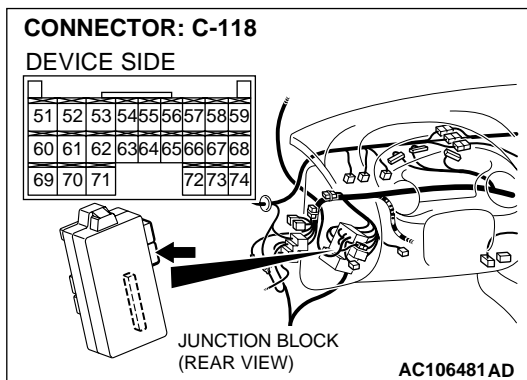
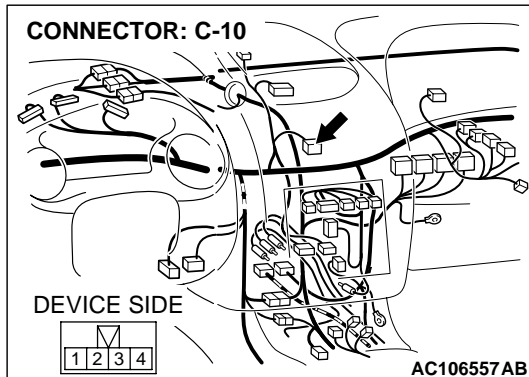
STEP 5. Check hazard warning light switch connector C-10 and ETACS-ECU connector C-118 for damage.

Q: Are hazard warning light switch connector C-10 and ETACS-ECU connector C-118 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.





STEP 6. Check the wiring harness between hazard warning light switch connector C-10 (terminal 1) and ETACS-ECU connector C-118 (terminal 55).

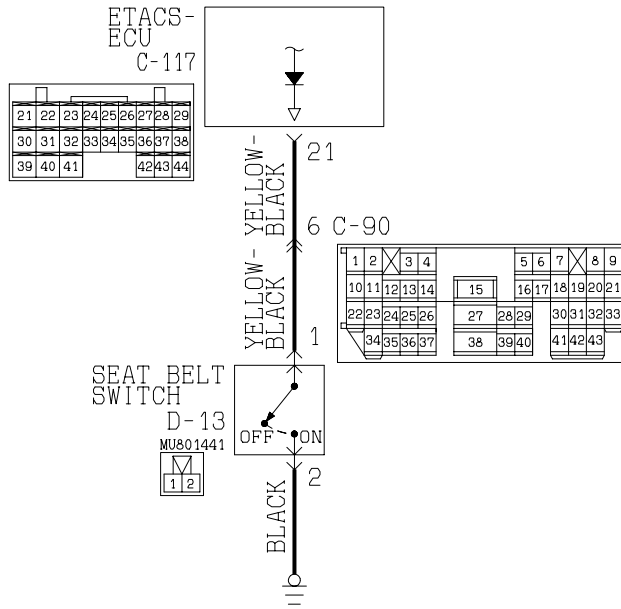
Q: Is the wiring harness between hazard warning light switch connector C-10 (terminal 1) and ETACS-ECU connector C-118 (terminal 55) in good condition?

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

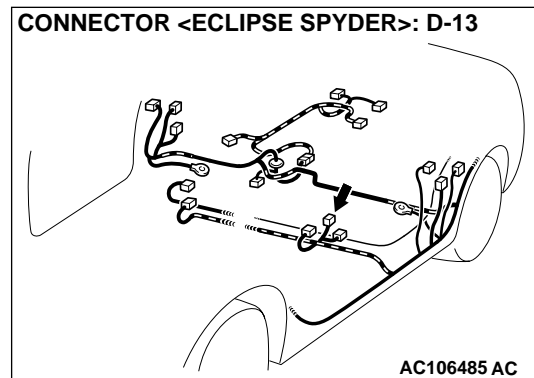
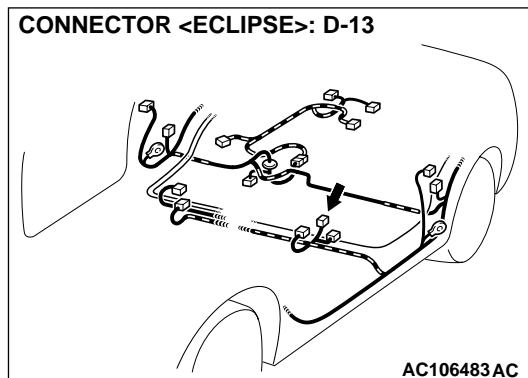
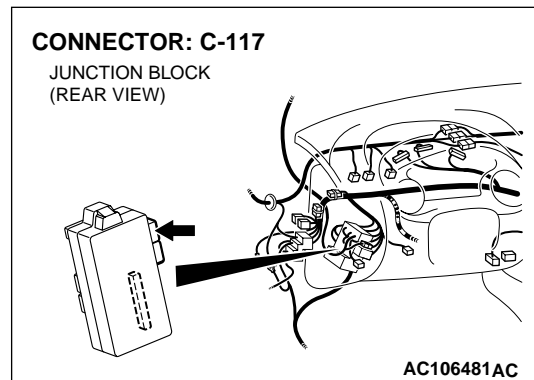
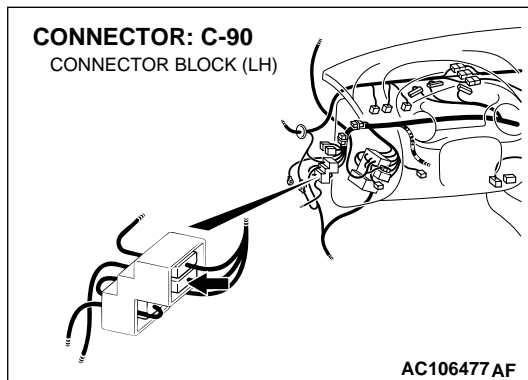
NO : Repair the wiring harness. If the equipment, which are described in "CIRCUIT OPERATION", work normally, the input signal from the hazard warning light switch should be normal.

INSPECTION PROCEDURE P-3: The ETACS-ECU does not Receive Any Signal from the Driver's Seat Belt Switch.

Seat Belt Switch Input Circuit



W2S13M43AA



CIRCUIT OPERATION

The ETACS-ECU operates the following functions and equipment according to signal from the driver's seat belt switch:

- Seat belt tone alarm function
- Seat belt warning light

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's inner seat belt (driver's seat belt switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

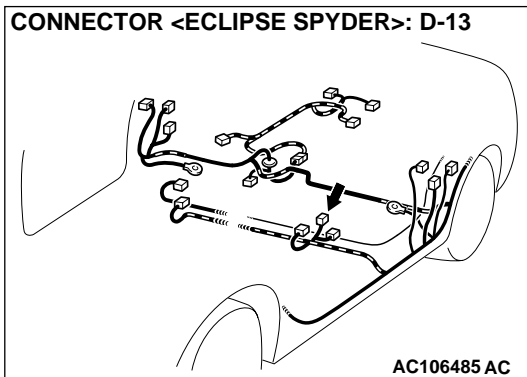
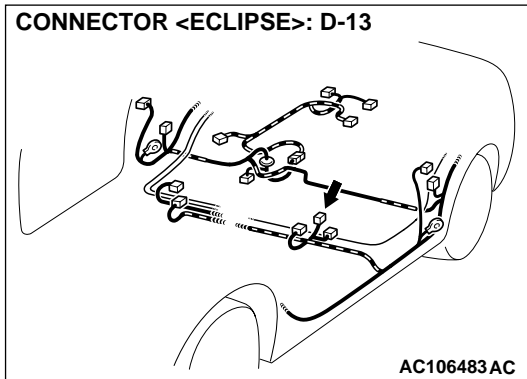
DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the driver's seat belt switch.

Disconnect driver's seat belt switch connector D-13. Then check continuity between the switch terminals.

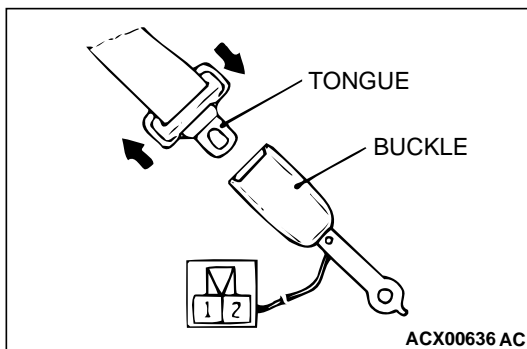


ITEM	TESTER CONNECTION	SPECIFIED CONDITION
Fastened seat belt	1 – 2	Open circuit
Unfastened seat belt	1 – 2	Less than 2 ohm

Q: Is the driver's seat belt switch in good condition?

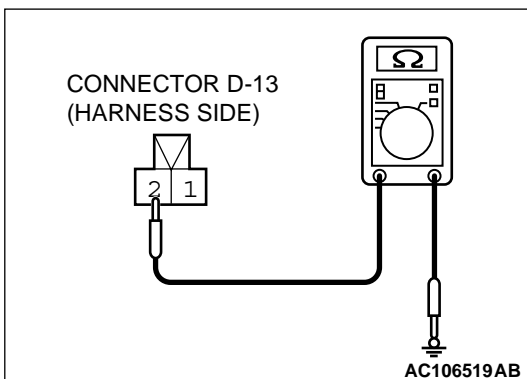
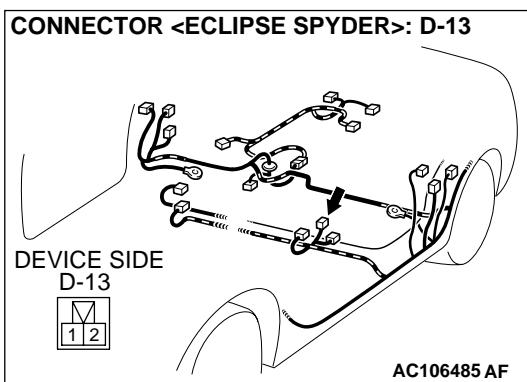
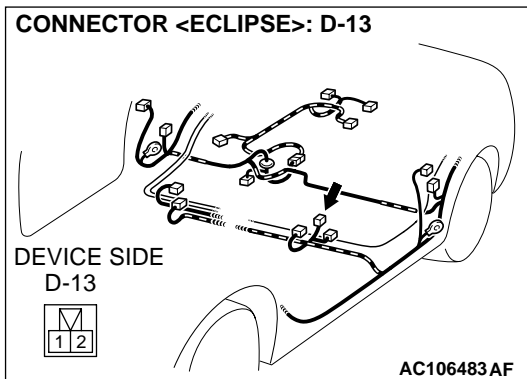
YES : Go to Step 2.

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



STEP 2. Measure at driver's seat belt switch connector D-13 in order to check the ground circuit to the driver's seat belt switch.

- (1) Disconnect driver's seat belt switch connector D-13, and measure at the harness side.



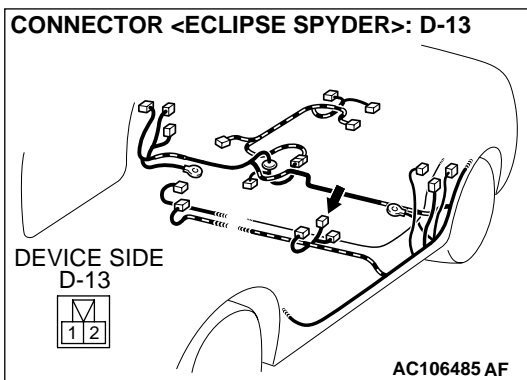
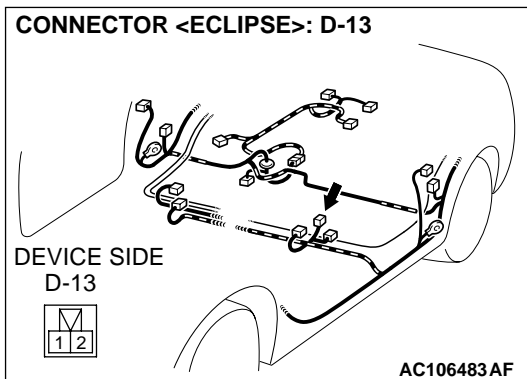
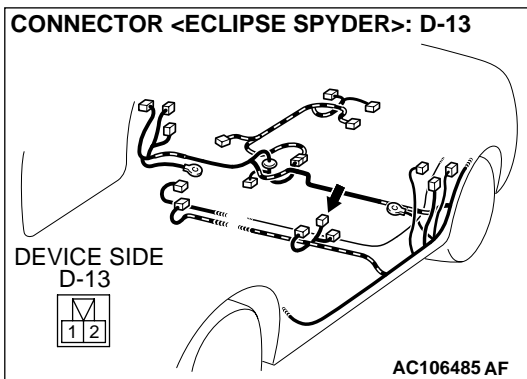
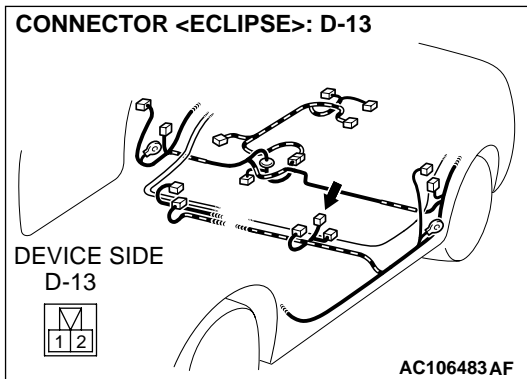
- (2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.



STEP 3. Check driver's seat belt switch connector D-13 for damage.

Q: Is the driver's seat belt switch connector D-13 in good condition?

YES : Go to Step 4.

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

STEP 4. Check the wiring harness between driver's seat belt switch connector D-13 (terminal 2) and ground.

Q: Is the wiring harness between driver's seat belt switch connector D-13 (terminal 2) and ground in good condition?

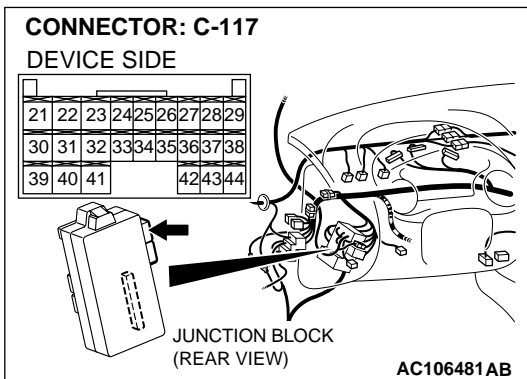
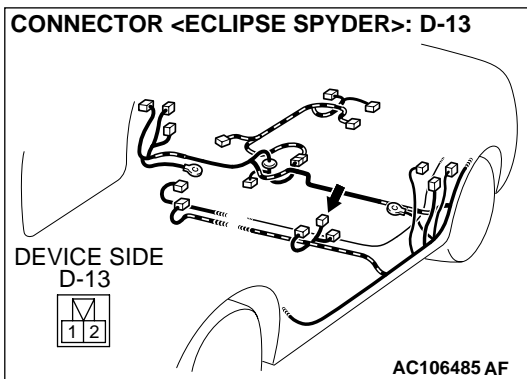
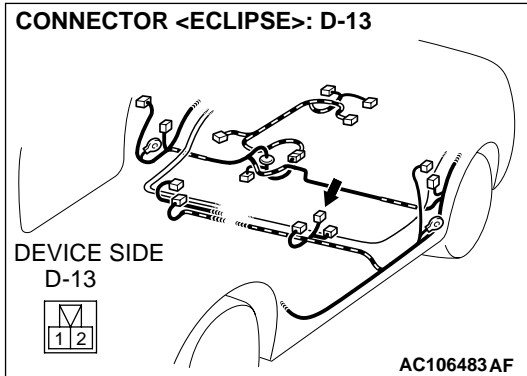
YES : No action to be taken.

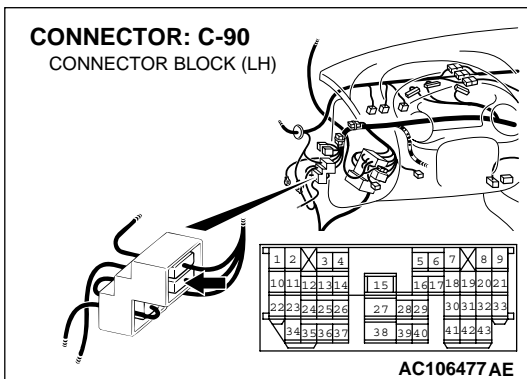
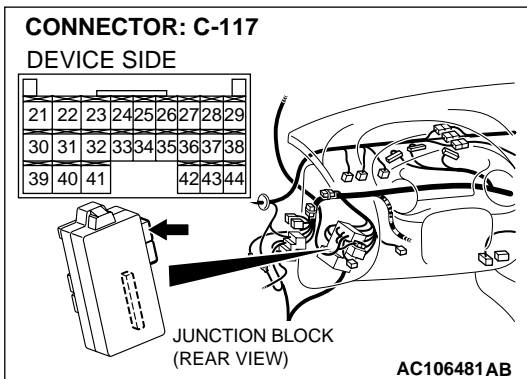
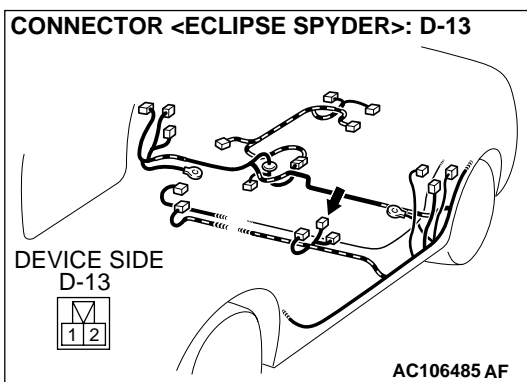
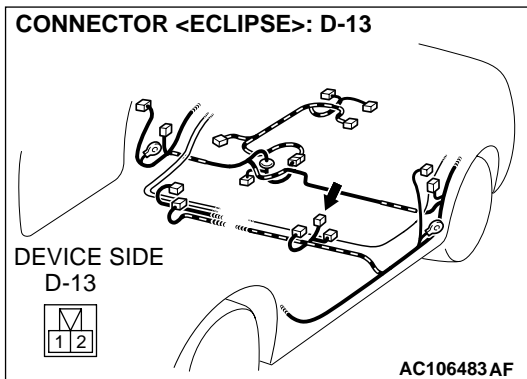
NO : Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

STEP 5. Check driver's seat belt switch connector D-13 and ETACS-ECU connector C-117 for damage.
Q: Are driver's seat belt switch connector D-13 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 6.

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





STEP 6. Check the wiring harness between driver's seat belt switch connector D-13 (terminal 1) and ETACS-ECU connector C-117 (terminal 21).

NOTE: Also check intermediate connector C-90. If intermediate connectors C-90 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

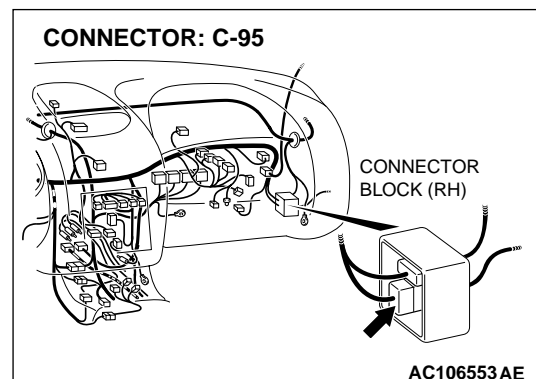
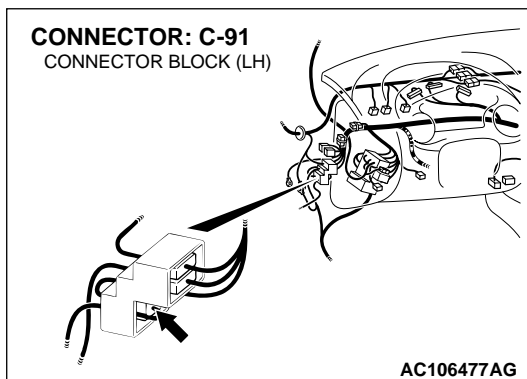
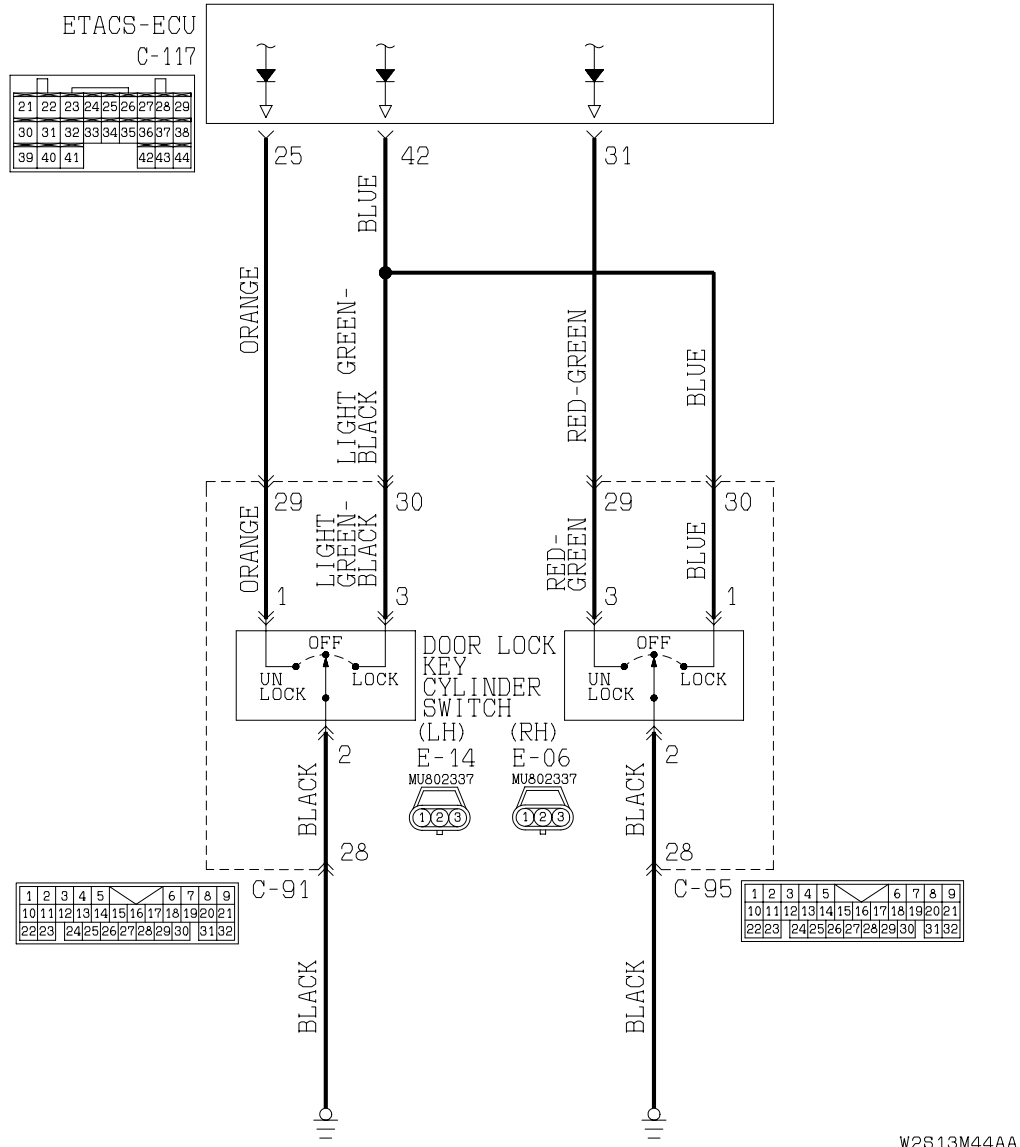
Q: Is the wiring harness between driver's seat belt switch connector D-13 (terminal 1) and ETACS-ECU connector C-117 (terminal 21) in good condition?

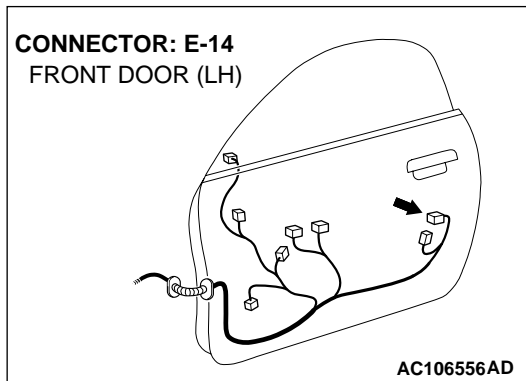
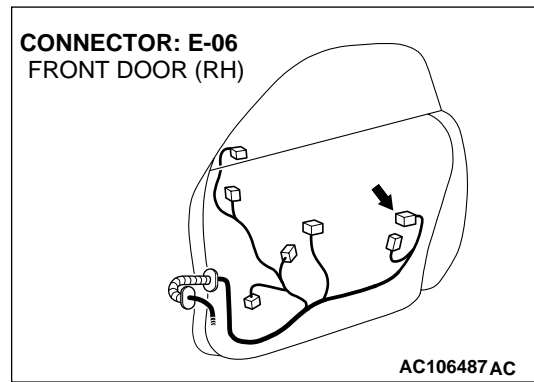
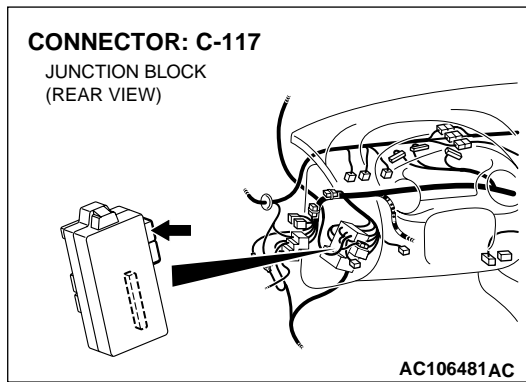
YES : Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

NO : Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's seat belt switch should be normal.

INSPECTION PROCEDURE P-4: The ETACS-ECU does not Recieve Any Signal from the Driver's or Front Passenger's Door Lock Key Cylinder Switch.

Door Lock Key Cylinder Switch Input Circuit



**CIRCUIT OPERATION**

The ETACS-ECU operates the central door locking system according to signal from the driver's or front passenger's door lock key cylinder switch.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's or front passenger's door lock key cylinder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

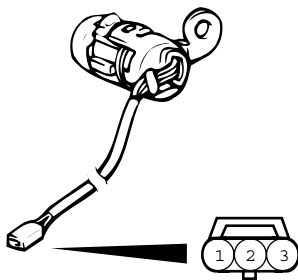
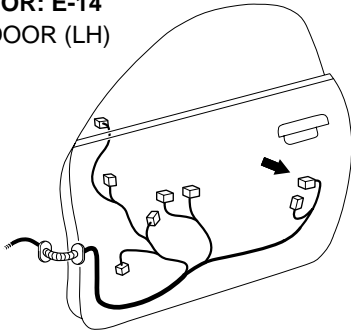
STEP 1. Check which door lock key cylinder switch is defective.

Q: Which door lock key cylinder switch does not send a signal to the ECU?

Driver's door lock key cylinder : Go to Step 2.

Front passenger's door lock key cylinder <Without keyless entry system> : Go to Step 8.

CONNECTOR: E-14
FRONT DOOR (LH)



AC106561AB

STEP 2. Malfunction of the driver's door lock key cylinder switch

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

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

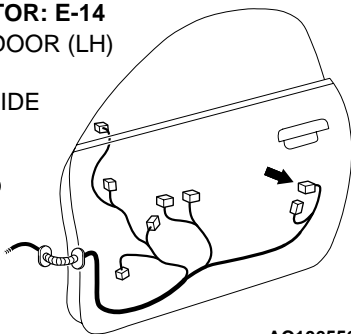
Q: Is the driver's door lock key cylinder switch in good condition?

YES : Go to Step 3.

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

CONNECTOR: E-14
FRONT DOOR (LH)

DEVICE SIDE
E-14

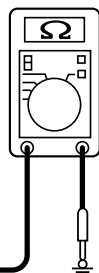


AC106556AG

STEP 3. Measure at driver's door lock key cylinder switch connector E-14 in order to check the ground circuit to the driver's door lock key cylinder switch.

(1) Disconnect driver's door lock key cylinder switch connector E-14, and measure at the harness side.

CONNECTOR E-14
(HARNESS SIDE)



AC002175AD

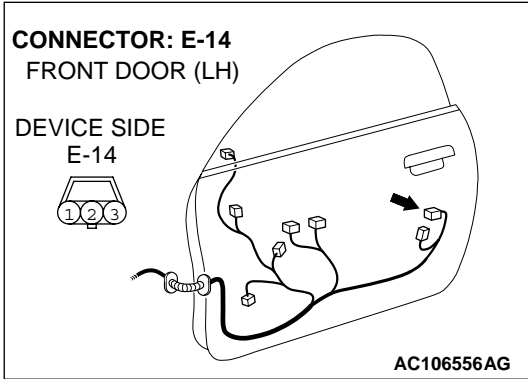
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.

NO : Go to Step 4.

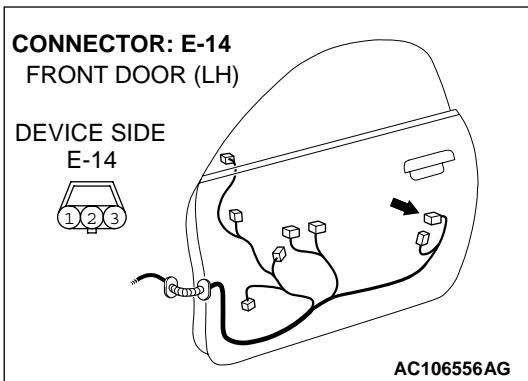


STEP 4. Check driver's door lock key cylinder switch connector E-14 for damage.

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

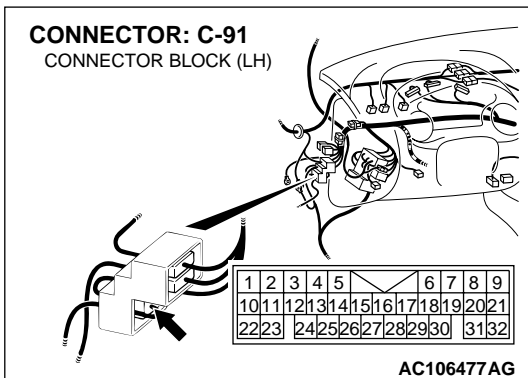
YES : Go to Step 5.

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



STEP 5. Check the wiring harness between driver's door lock key cylinder switch connector E-14 (terminal 2) and ground.

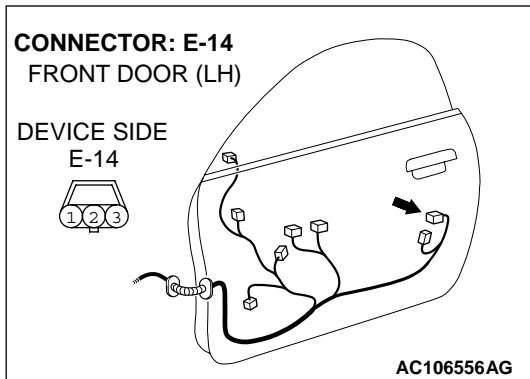
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



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

YES : No action to be taken.

NO : Repair the wiring harness. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.

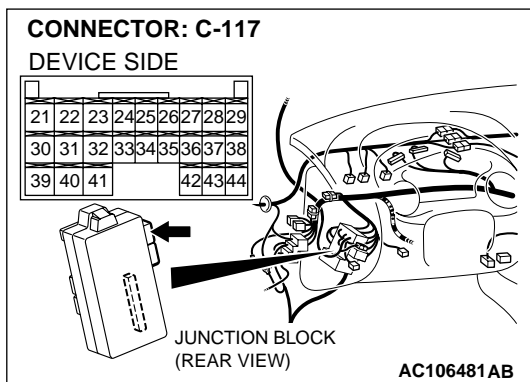


STEP 6. Check driver's door lock key cylinder switch connector E-14 and ETACS-ECU connector C-117 for damage.

Q: Are driver's door lock key cylinder switch connector E-14 and ETACS-ECU connector C-117 in good condition?

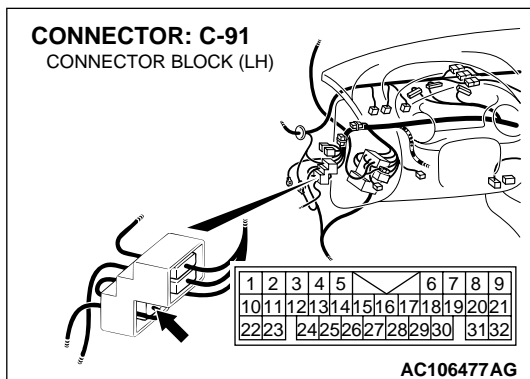
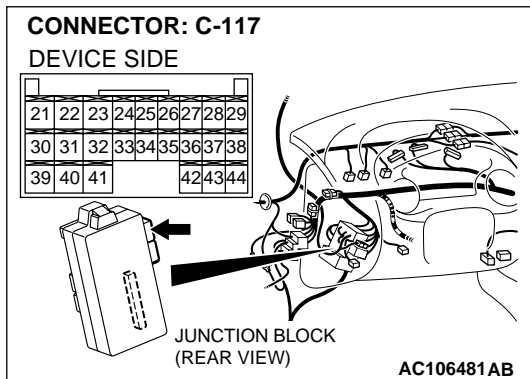
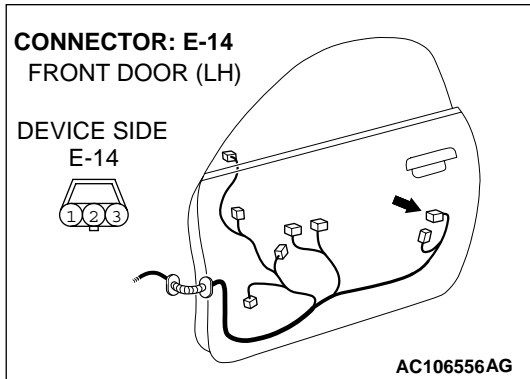
YES : Go to Step 7.

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



STEP 7. Check the wiring harness between driver's door lock key cylinder switch connector E-14 and ETACS-ECU (terminals 1 and 3) connector C-117 (terminals 25 and 42 <Without keyless entry system>).

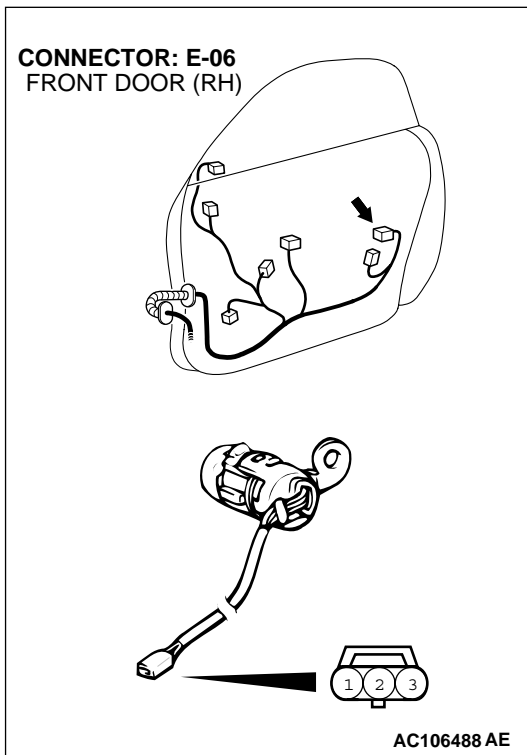
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Is the wiring harness between driver's door lock key cylinder switch connector E-14 (terminals 1 and 3) and ETACS-ECU connector C-117 (terminals 25 and 42) in good condition?

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

NO : Repair the wiring harness. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock key cylinder switch should be normal.



STEP 8. Check the front passenger's door lock key cylinder switch.

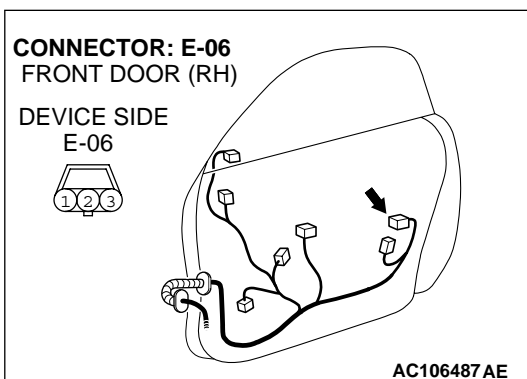
Disconnect front passenger's door lock key cylinder switch connector E-06. Then check continuity between the switch terminals.

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

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

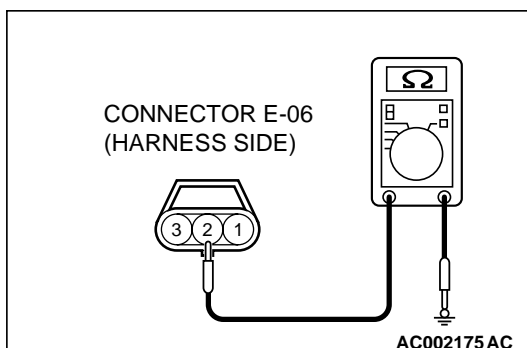
YES : Go to Step 9.

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



STEP 9. Measure at front passenger's door lock key cylinder switch connector E-06 in order to check the ground circuit to the front passenger's door lock key cylinder switch.

(1) Disconnect front passenger's door lock key cylinder switch connector E-06, and measure at the harness side.



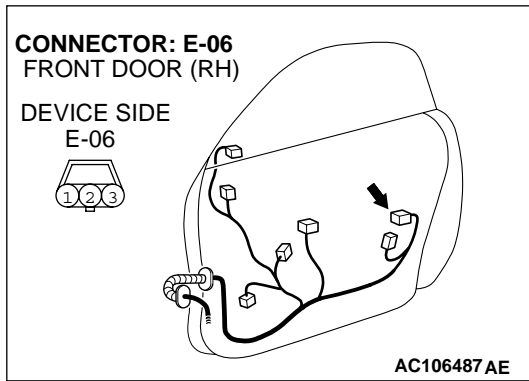
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 12.

NO : Go to Step 10.

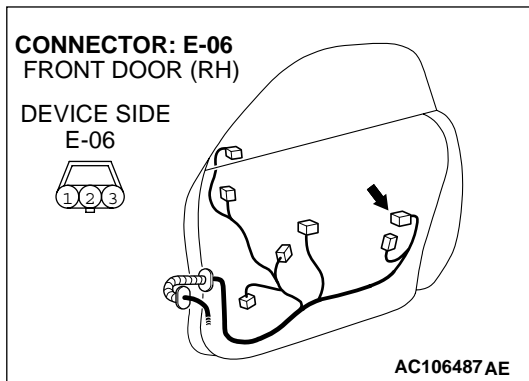


STEP 10. Check front passenger's door lock key cylinder switch connector E-06 for damage.

Q: Is front passenger's door lock key cylinder switch connector E-06 in good condition?

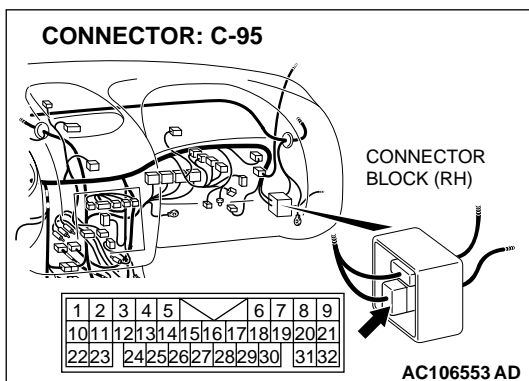
YES : Go to Step 11.

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



STEP 11. Check the wiring harness between front passenger's door lock key cylinder switch connector E-06 (terminal 2) and ground.

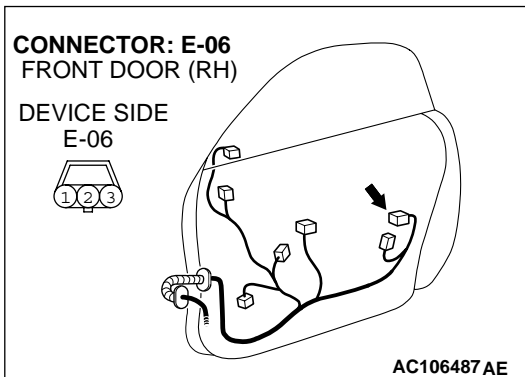
NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between front passenger's door lock key cylinder switch connector E-06 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

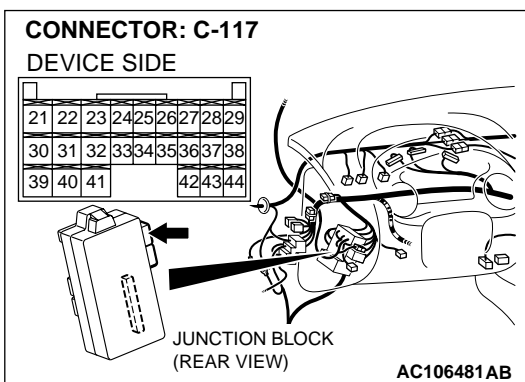


STEP 12. Check front passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-117 for damage.

Q: Are front passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-117 in good condition?

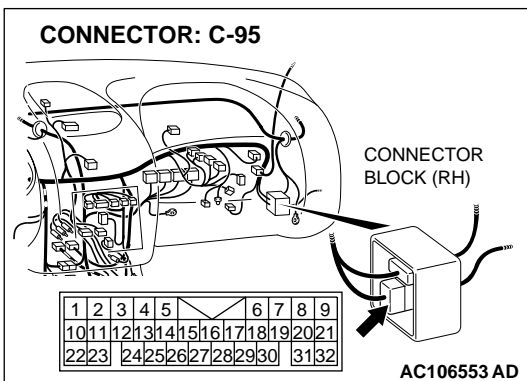
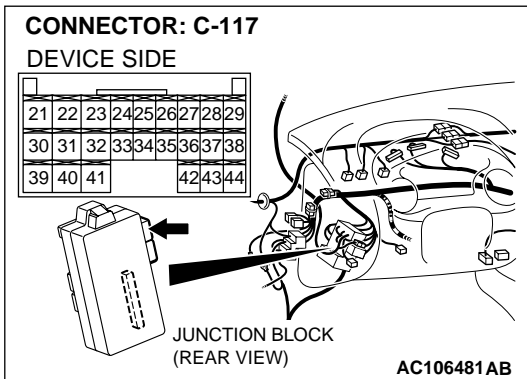
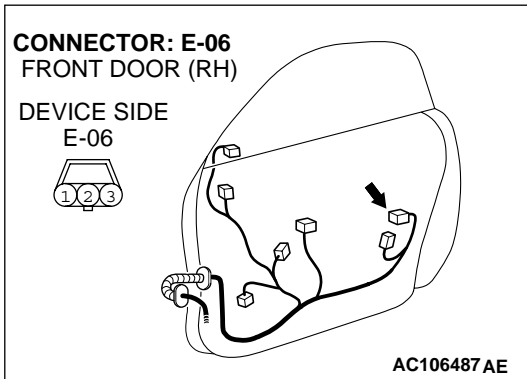
YES : Go to Step 13.

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



STEP 13. Check the wiring harness between front passenger's door lock key cylinder switch connector E-06 (terminals 1 and 3) and ETACS-ECU connector C-117 (terminals 42 and 31).

NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



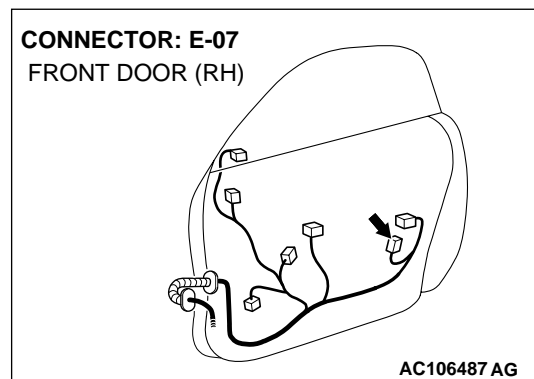
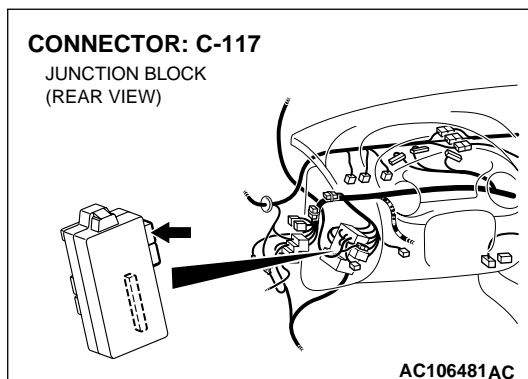
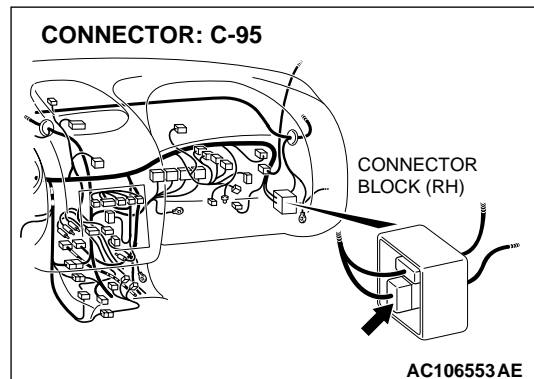
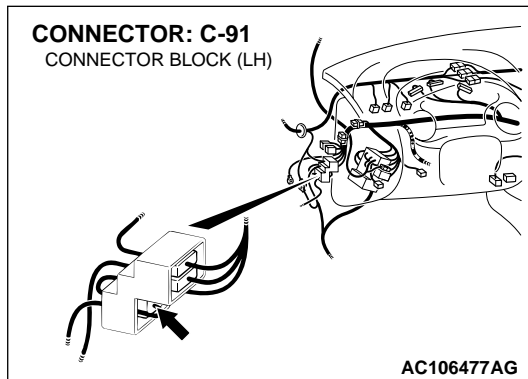
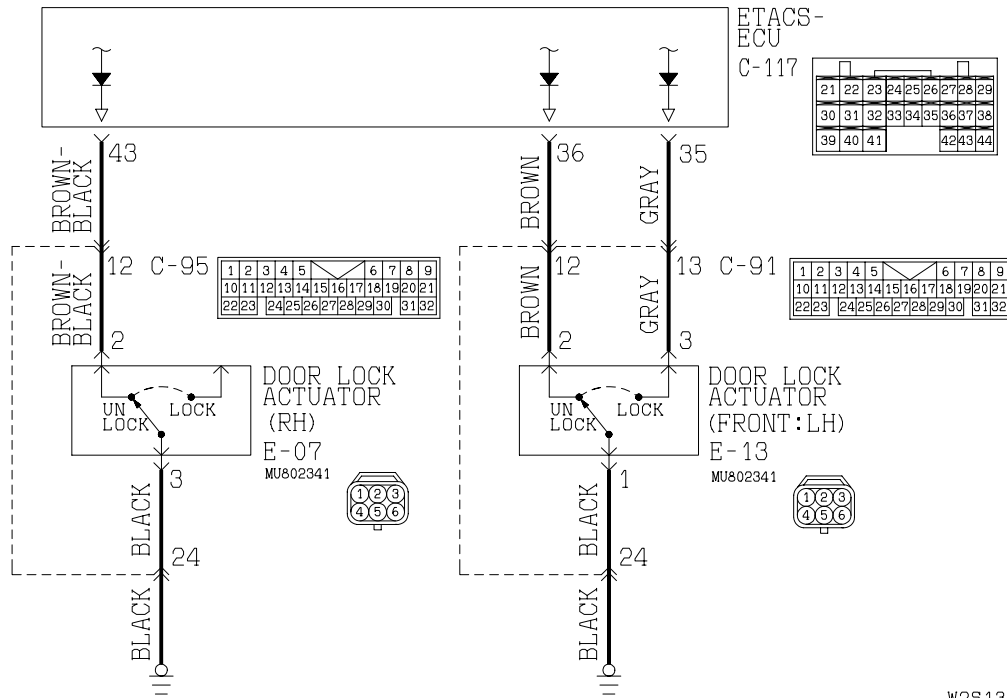
Q: Is the wiring harness between front passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-117 in good condition?

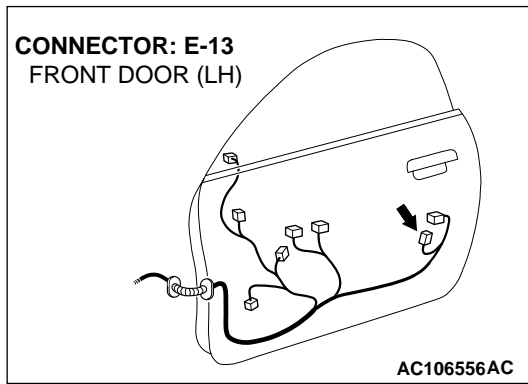
YES : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

NO : Repair the wiring harness. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock key cylinder switch should be normal.

INSPECTION PROCEDURE P-5: The ETACS-ECU does not Receive Any Signal from the Driver's or Passenger's Door Lock Actuator Switch.

Door Lock Actuator Switch Input Circuit



**CIRCUIT OPERATION**

The ETACS-ECU operates the following functions or systems according to signal from the driver's or front passenger's door lock actuator switches:

- Central door locking system
- Keyless entry system
- Dome light dimming function

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's or front passenger's door latch assembly
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

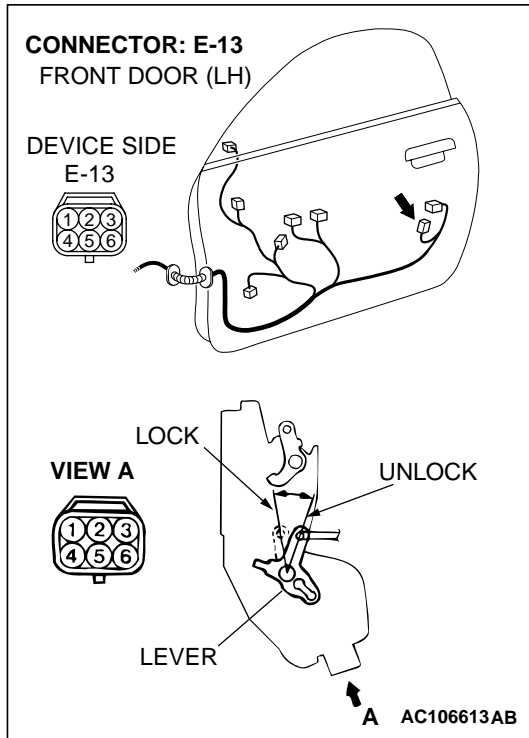
- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)

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

Q: Which door lock actuator switch signal is not entered?

Driver's door : Go to Step 2.

Front passenger's door : Go to Step 8.



STEP 2. Check the driver's door lock actuator switch.

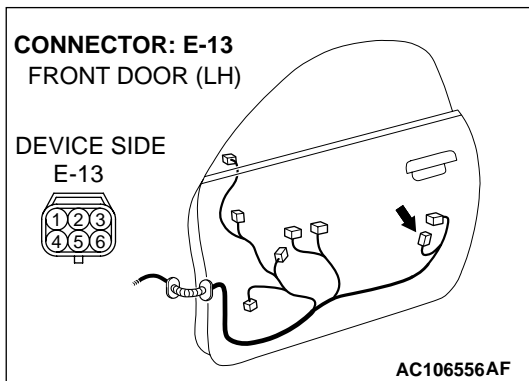
Disconnect driver's door lock actuator switch connector E-13. Then check continuity between the switch terminals.

LEVER POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 3	Less than 2 ohm
UNLOCK	1 – 2	Less than 2 ohm

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

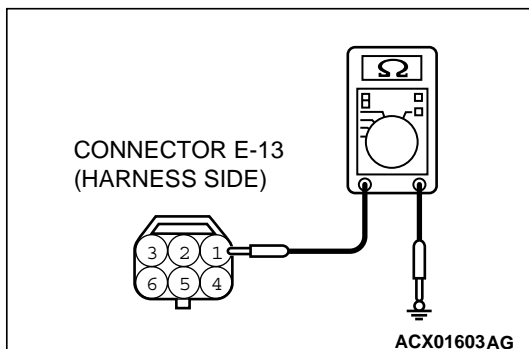
YES : Go to Step 3.

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



STEP 3. Measure at driver's door lock actuator switch connector E-13 in order to check the ground circuit to the driver's door lock actuator switch.

(1) Disconnect driver's door lock actuator switch connector E-13, and measure at the harness side.



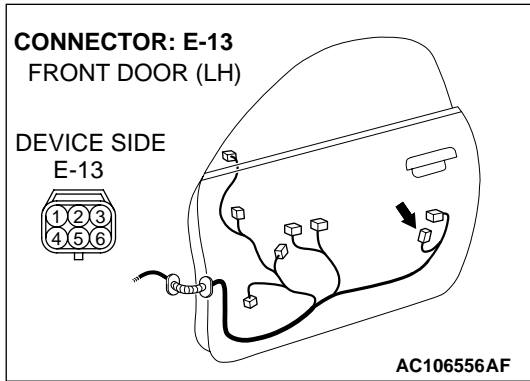
(2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.

NO : Go to Step 4.

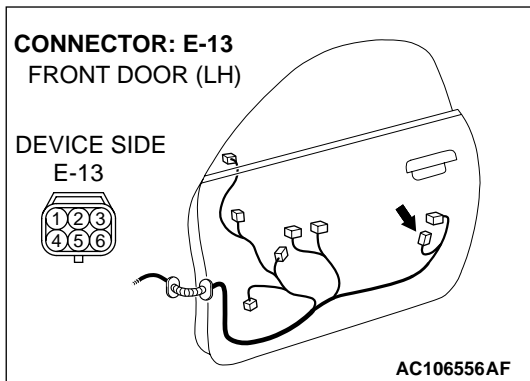


STEP 4. Check driver's door lock actuator switch connector E-13 for damage.

Q: Is driver's door lock actuator switch connector E-13 in good condition?

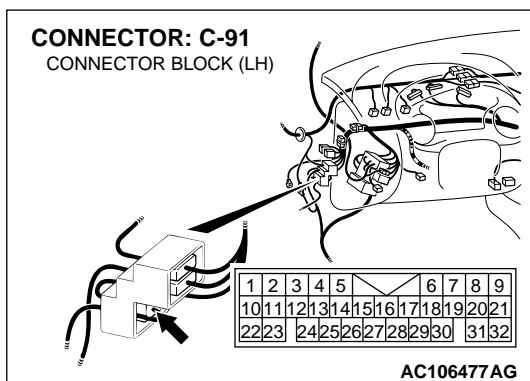
YES : Go to Step 5.

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



STEP 5. Check the wiring harness between driver's door lock actuator switch connector E-13 (terminal 1) and ground.

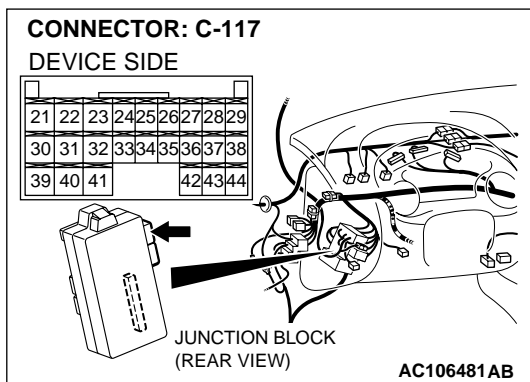
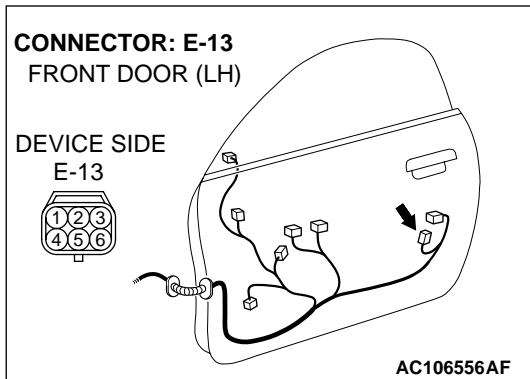
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between driver's door lock actuator switch connector E-13 (terminal 1) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.

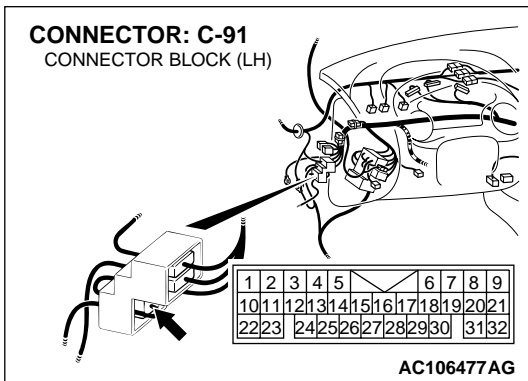
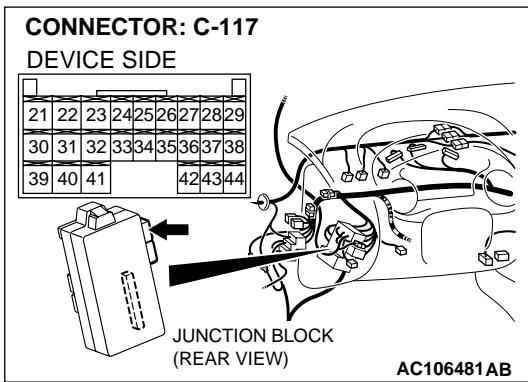
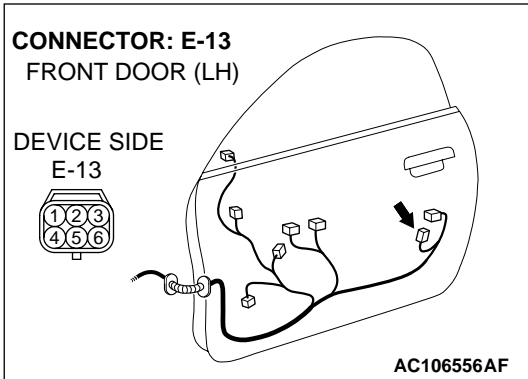


STEP 6. Check driver's door lock actuator switch connector E-13 and ETACS-ECU connector C-117 for damage.

Q: Are driver's door lock actuator switch connector E-13 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 7.

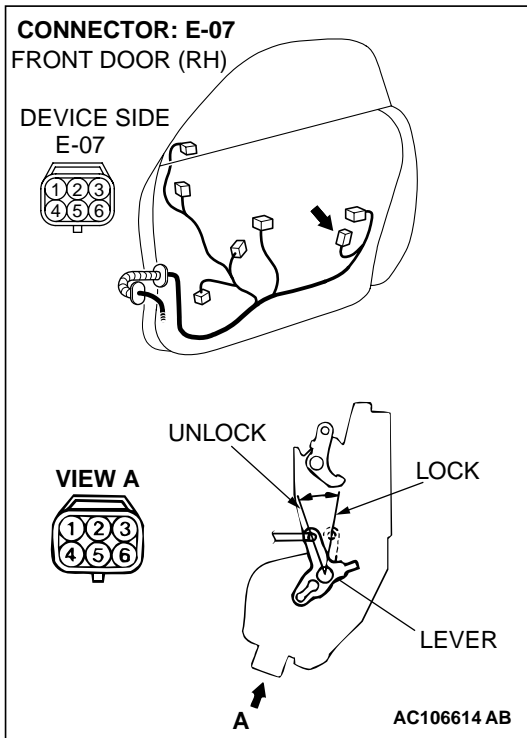
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



STEP 7. Check the wiring harness between driver's door lock actuator switch connector E-13 (terminals 2 and 3) and ETACS-ECU connector C-117 (terminals 36 and 35).
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between driver's door lock actuator switch connector E-13 (terminals 2 and 3) and ETACS-ECU connector C-117 (terminals 36 and 35) in good condition?

- YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.
- NO :** Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the driver's door lock actuator switch should be normal.



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

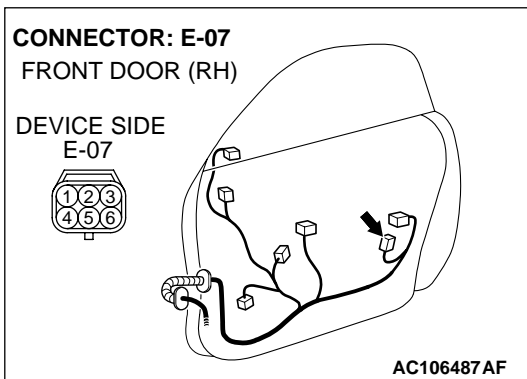
Disconnect front passenger's door lock actuator switch connector E-07. Then check continuity between the switch terminals.

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

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

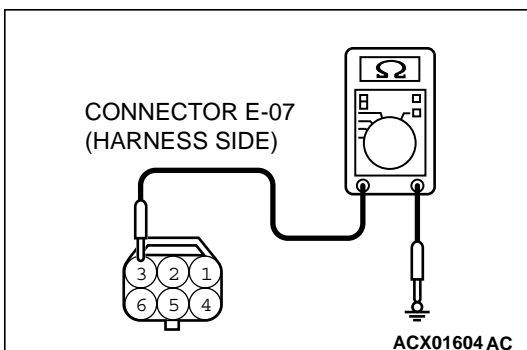
YES : Go to Step 9.

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



STEP 9. Measure at front passenger's door lock actuator switch connector E-07 in order to check the ground circuit to the front passenger's door lock actuator switch.

(1) Disconnect front passenger's door lock actuator switch connector E-07, and measure at the harness side.



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

- The measured value should be 2 ohm or less.

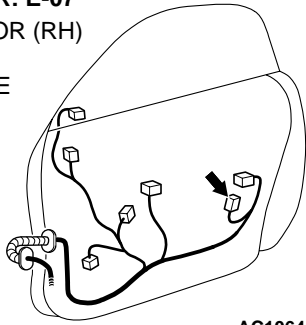
Q: Does the measured resistance value correspond with this range?

YES : Go to Step 12.

NO : Go to Step 10.

CONNECTOR: E-07
FRONT DOOR (RH)

DEVICE SIDE
E-07



AC106487AF

STEP 10. Check front passenger's door lock actuator switch connector E-07 for damage.

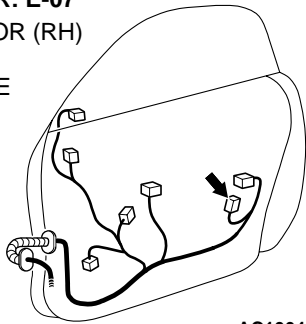
Q: Is front passenger's door lock actuator switch connector E-07 in good condition?

YES : Go to Step 11.

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

CONNECTOR: E-07
FRONT DOOR (RH)

DEVICE SIDE
E-07

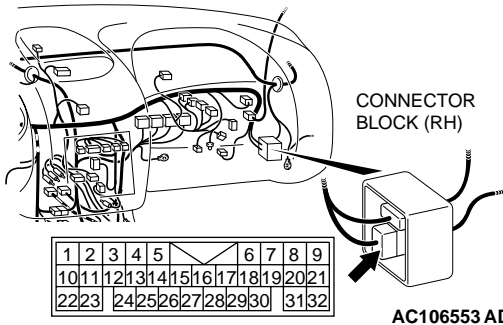


AC106487AF

STEP 11. Check the wiring harness between front passenger's door lock actuator switch connector E-07 (terminal 3) and ground.

NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

CONNECTOR: C-95



AC106553 AD

Q: Is the wiring harness between front passenger's door lock actuator switch connector E-07 (terminal 3) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

STEP 12. Check front passenger's door lock actuator switch connector E-07 and ETACS-ECU connector C-117 for damage.

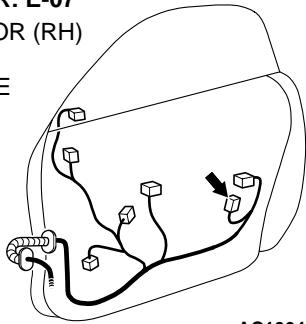
Q: Are front passenger's door lock actuator switch connector E-07 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 13.

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

CONNECTOR: E-07
FRONT DOOR (RH)

DEVICE SIDE
E-07

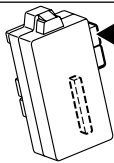


AC106487AF

CONNECTOR: C-117

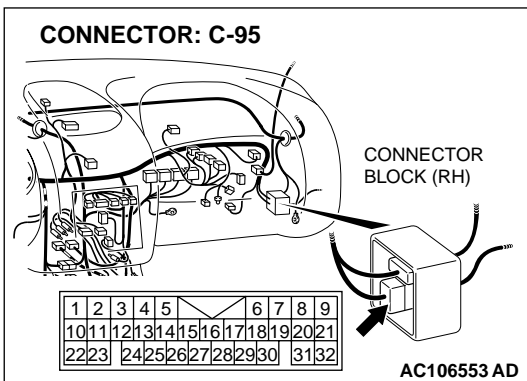
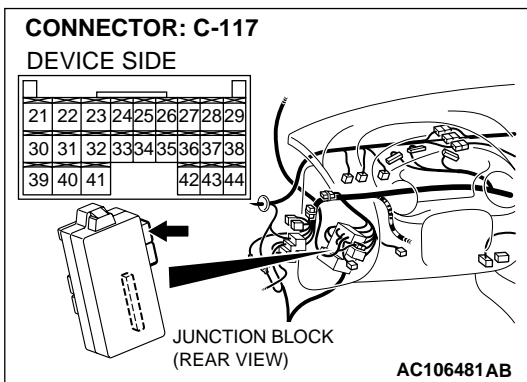
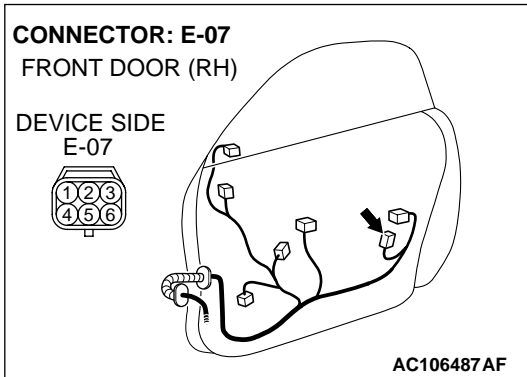
DEVICE SIDE

21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38
39	40	41		42	43	44		



JUNCTION BLOCK
(REAR VIEW)

AC106481AB



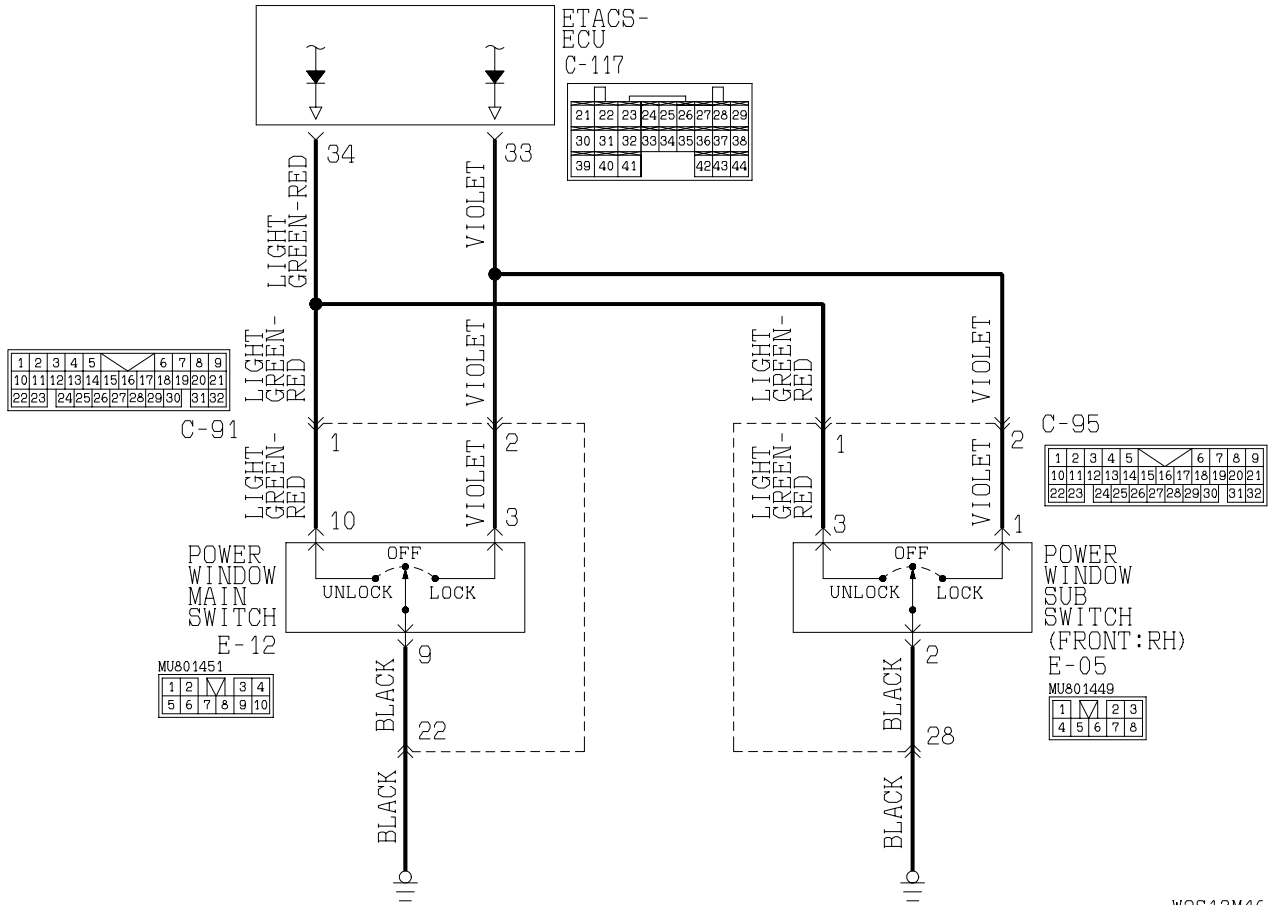
STEP 13. Check the wiring harness between front passenger's door lock actuator switch connector E-07 (terminal 2) and ETACS-ECU connector C-117 (terminal 43). *NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

Q: Is the wiring harness between front passenger's door lock actuator switch connector E-07 (terminal 2) and ETACS-ECU connector C-117 (terminal 43) in good condition?

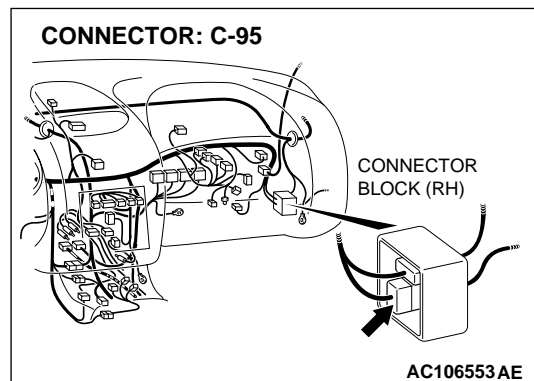
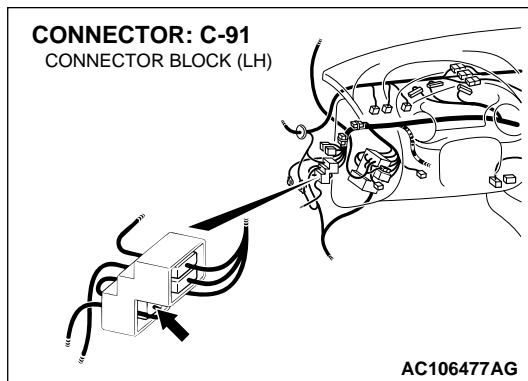
- YES :** Replace the ETACS-ECU. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.
- NO :** Repair the wiring harness. If the functions, which are described in "CIRCUIT OPERATION", work normally, the input signal from the front passenger's door lock actuator switch should be normal.

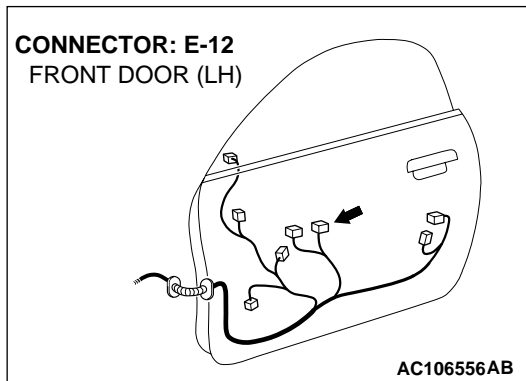
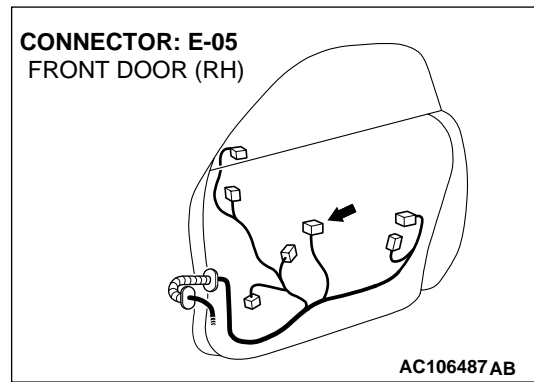
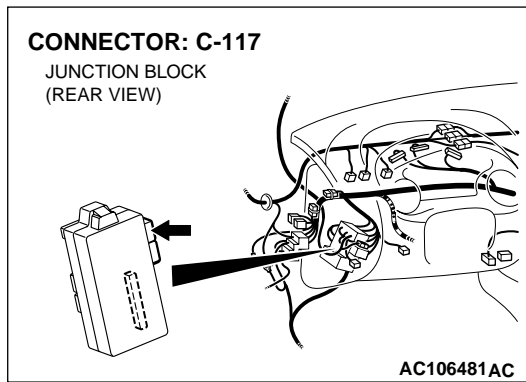
INSPECTION PROCEDURE P-6: The ETACS-ECU does not Receive Any Signal from the Door Lock Switch (Incorporated in Power Window Main Switch and Power Window Sub Switch) .

Door Lock Switch Input Circuit



W2813M46AA



**CIRCUIT OPERATION**

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

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the doors is not locked or unlocked. If the signal is not normal, the power window main switch, power window sub switch or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the power window main switch or power window sub switch (door lock switch)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

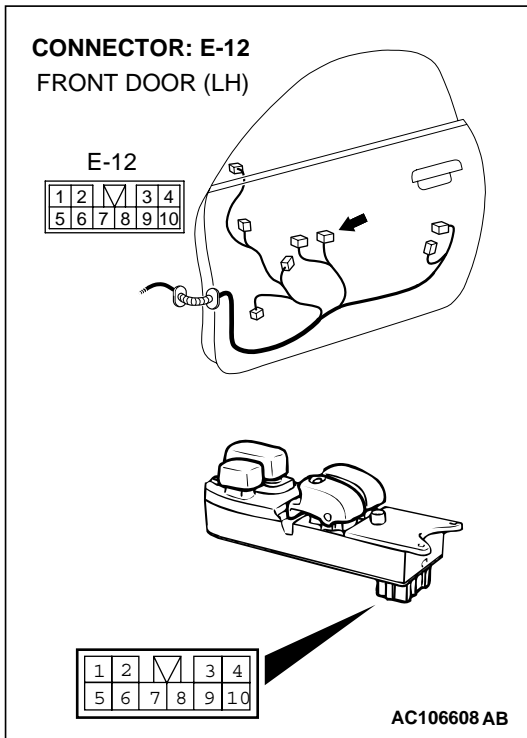
- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Check which door lock switch is defective.

Q: Which door switch signal is not entered?

Power window main switch (Driver's door) : Go to Step 2.

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



STEP 2. Check the door lock switch (power window main switch).

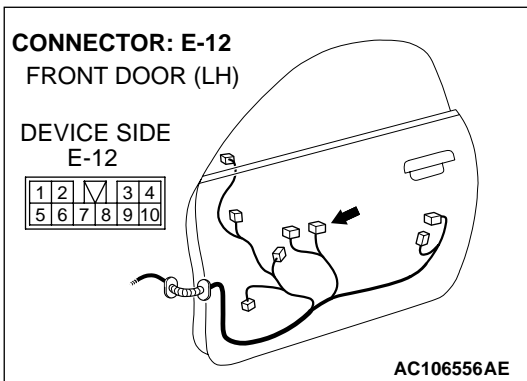
Remove the power window main switch. Refer to GROUP 42, Door – Door Trim and Waterproof Film P.42-54. Then check continuity between the switch terminals.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	3 – 9	Less than 2 ohm
OFF	3 – 9 – 10	Open circuit
UNLOCK	9 – 10	Less than 2 ohm

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

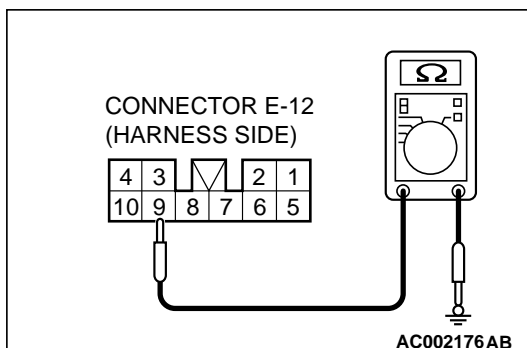
YES : Go to Step 3.

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



STEP 3. Check at power window main switch connector E-12 in order to check the power window main switch ground circuit.

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



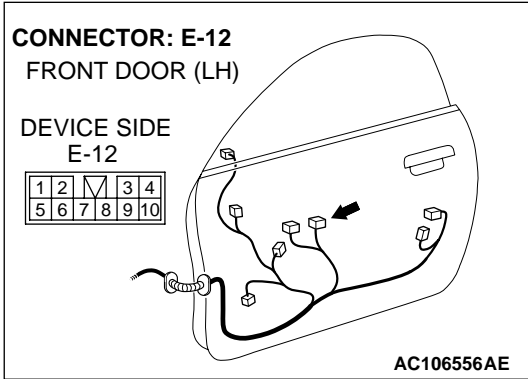
(2) Measure the resistance value between terminal 9 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 6.

NO : Go to Step 4.

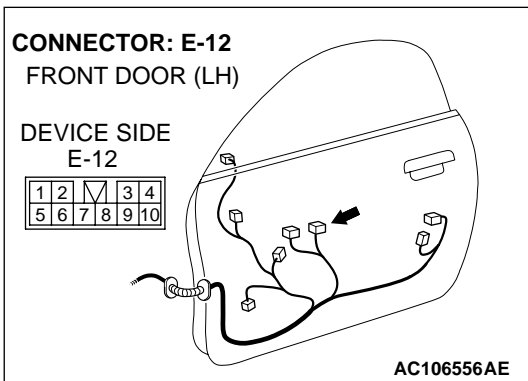


STEP 4. Check power window main switch connector E-12 for damage.

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

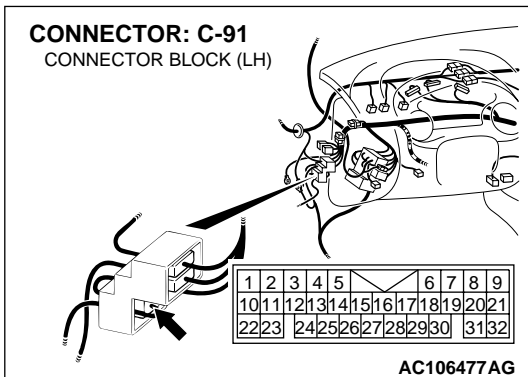
YES : Go to Step 5.

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



STEP 5. Check the wiring harness between power window main switch E-12 (terminal 9) and ground.

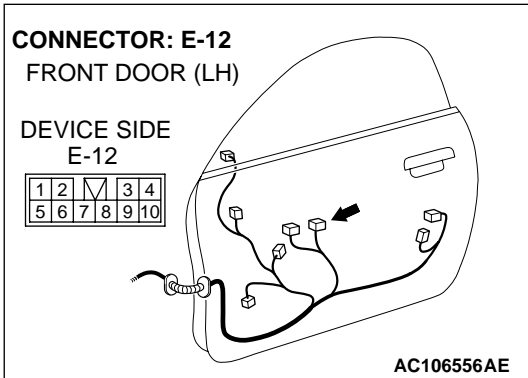
NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between power window main switch connector E-12 (terminal 9) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the central door locking system works normally, input signal from the door lock switch should be normal.

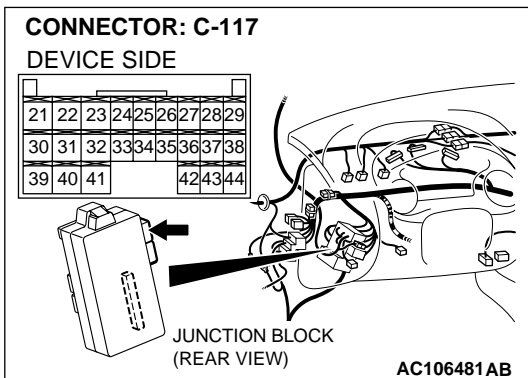


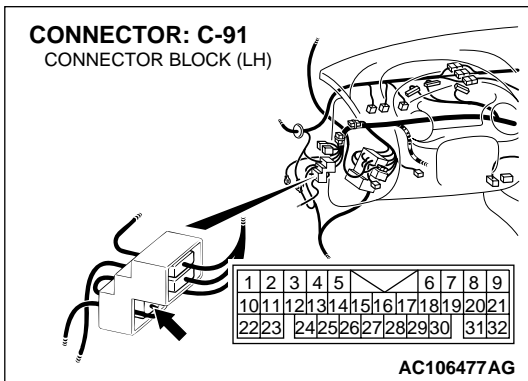
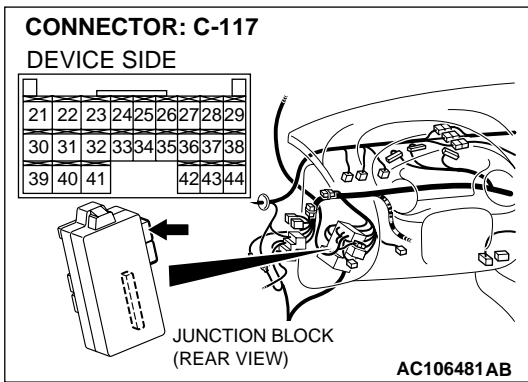
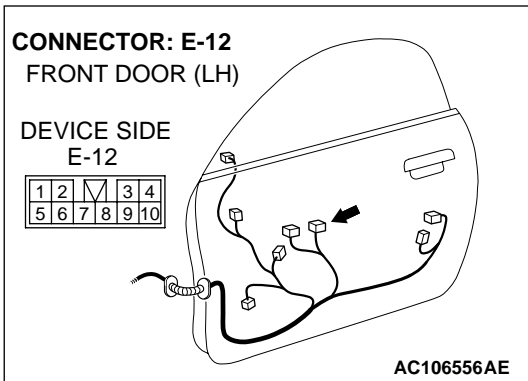
STEP 6. Check power window main switch connector E-12 and ETACS-ECU connector C-117 for damage.

Q: Are power window main switch connector E-12 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 7.

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





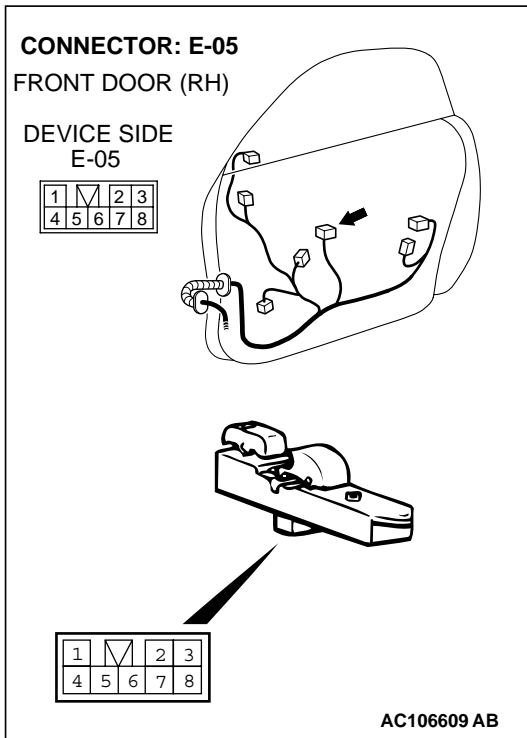
STEP 7. Check the wiring harness between power window main switch connector E-12 (terminals 3 and 10) and ETACS-ECU connector C-117 (terminals 33 and 34).

NOTE: Also check intermediate connector C-91. If intermediate connectors C-91 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between power window main switch connector E-12 (terminals 3 and 10) and ETACS-ECU connector C-117 (terminals 33 and 34) in good condition?

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

NO : Repair the wiring harness. If the central door locking system works normally, input signal from the door lock switch should be normal.



STEP 8. Check the door lock switch (power window sub switch).

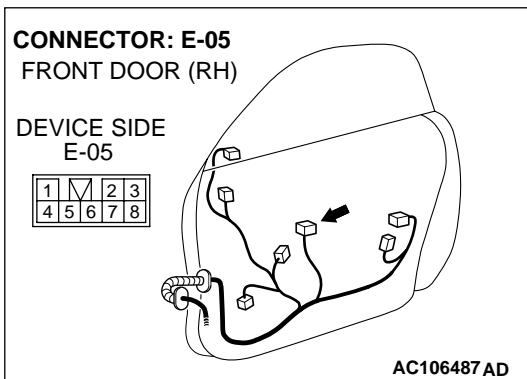
Remove the power window sub switch. Refer to GROUP 42, Door – Door Trim and Waterproof Film P.42-54. Then check continuity between the switch terminals.

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

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

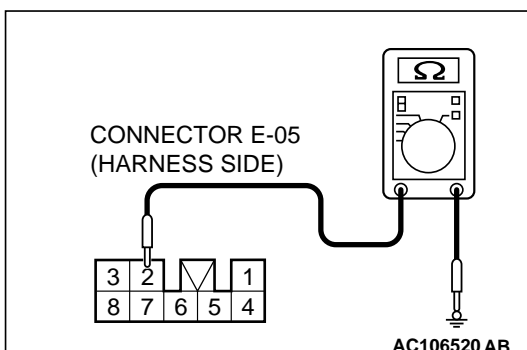
YES : Go to Step 9.

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



STEP 9. Measure at power window sub switch connector E-05 in order to check the ground circuit to the power window sub switch.

(1) Disconnect power window sub switch connector E-05, and measure at the harness side.



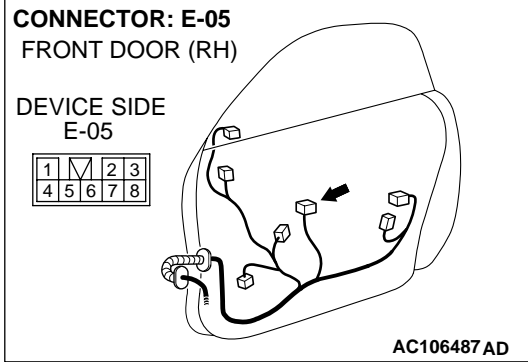
(2) Measure the resistance value between terminal 2 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 12.

NO : Go to Step 10.

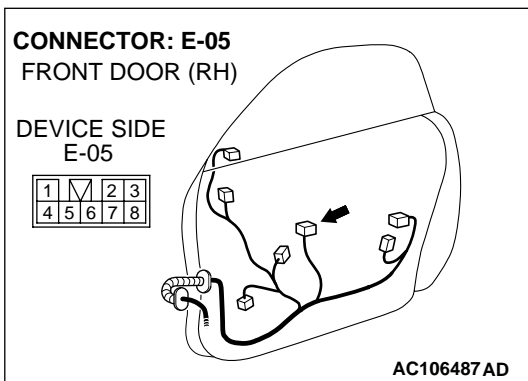


STEP 10. Check power window sub switch connector E-05 for damage.

Q: Is power window sub switch connector E-05 in good condition?

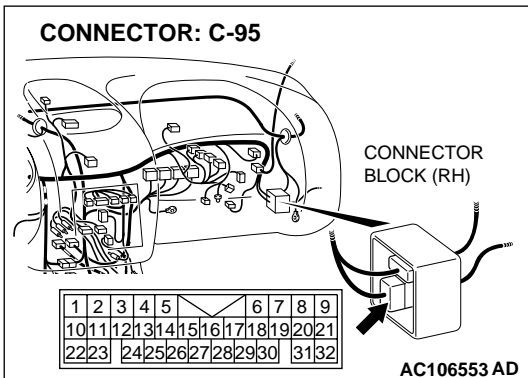
YES : Go to Step 11.

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



STEP 11. Check the wiring harness between power window sub switch E-05 (terminal 2) and ground.

NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



Q: Is the wiring harness between power window sub switch connector E-05 (terminal 2) and ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the central door locking system works normally, input signal from the door lock switch should be normal.

STEP 12. Check power window sub switch connector E-05 and ETACS-ECU connector C-117 for damage.

Q: Are power window sub switch connector E-05 and ETACS-ECU connector C-117 in good condition?

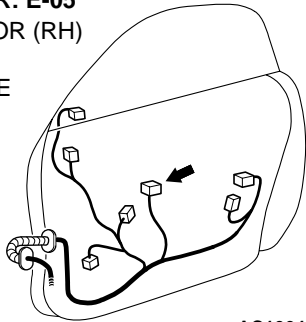
YES : Go to Step 13.

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

CONNECTOR: E-05
FRONT DOOR (RH)

DEVICE SIDE
E-05

1	2	3
4	5	6
7	8	

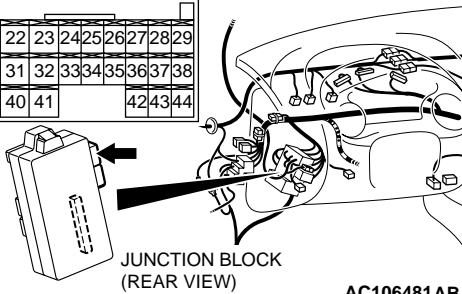


AC106487AD

CONNECTOR: C-117

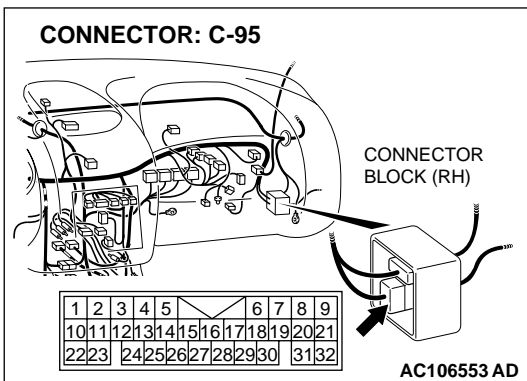
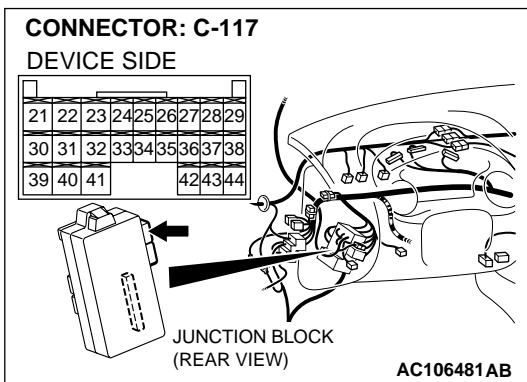
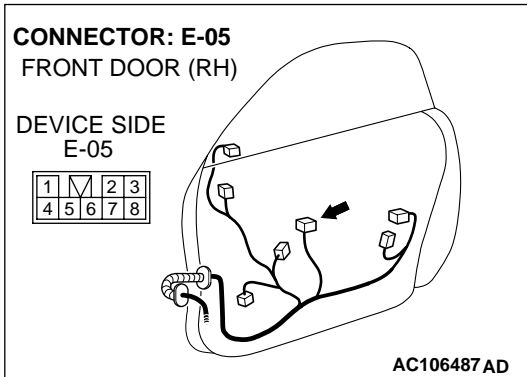
DEVICE SIDE

21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38
39	40	41	42	43	44			



JUNCTION BLOCK
(REAR VIEW)

AC106481AB



STEP 13. Check the wiring harness between power window sub switch connector E-05 (terminals 1 and 3) and ETACS-ECU connector C-117 (terminals 33 and 34).

NOTE: Also check intermediate connector C-95. If intermediate connectors C-95 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

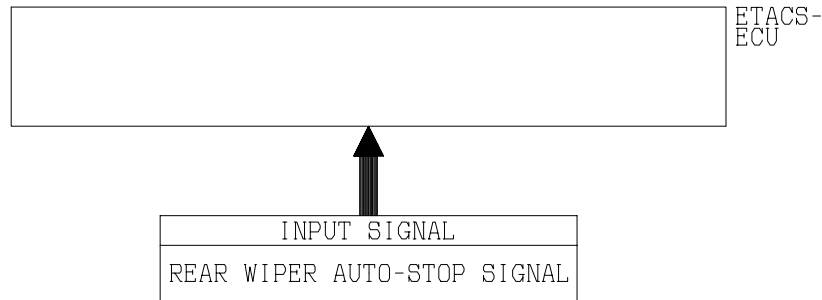
Q: Is the wiring harness between power window sub switch connector E-05 (terminals 1 and 3) and ETACS-ECU connector C-117 (terminals 33 and 34) in good condition?

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

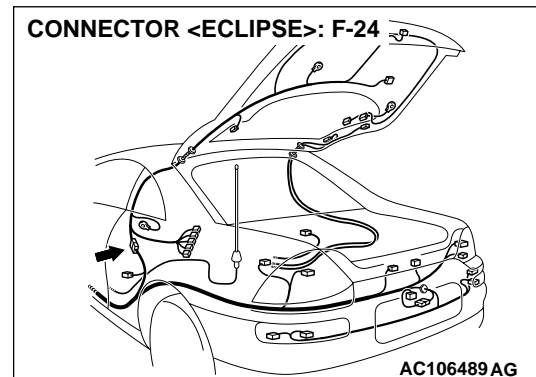
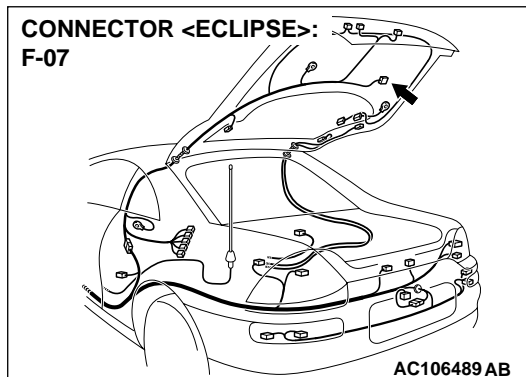
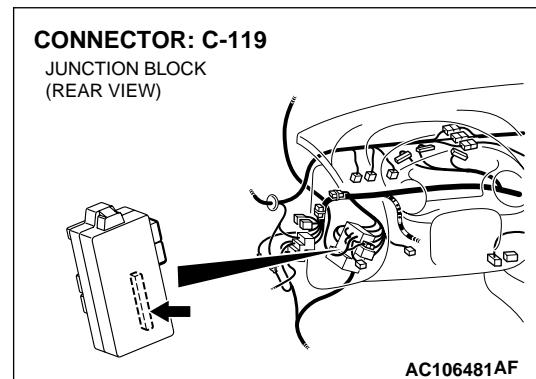
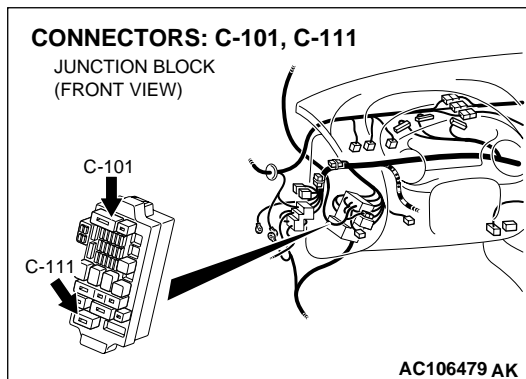
NO : Repair the wiring harness. If the central door locking system works normally, input signal from the door lock switch should be normal.

INSPECTION PROCEDURE P-7: ETACS-ECU does not Receive an Auto-stop Signal from the Rear Wiper Motor.

Rear Wiper Auto-stop Signal Input



W2002M16AA



CIRCUIT OPERATION

The ETACS-ECU makes the rear wiper stop at the predetermined park position according to the auto-stop signal from the rear wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

If this signal is not normal, the rear wiper does not stop at the predetermined park position.

TROUBLESHOOTING HINTS

- Malfunction of the rear wiper motor
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Check the rear wiper.

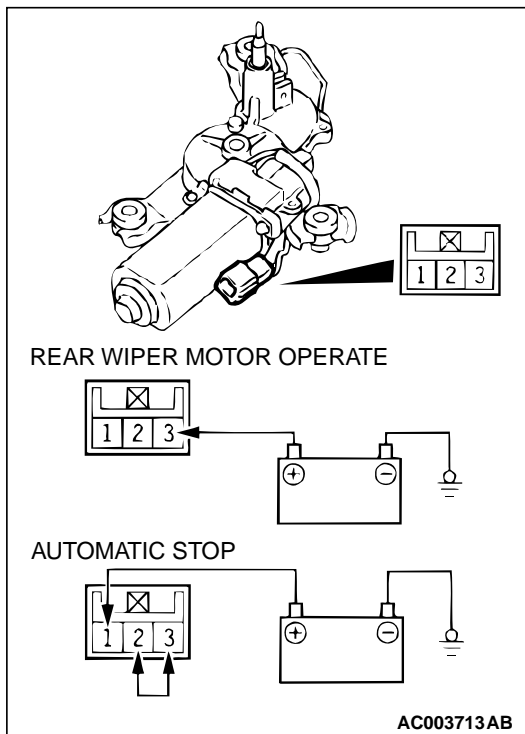
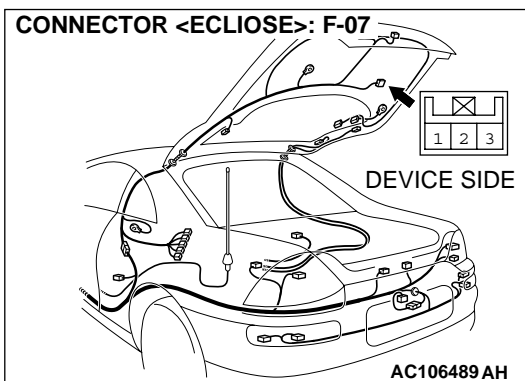
Q: Does the rear wiper motor operate (however, the rear wiper does not stop at the predetermined park position)?

YES : Go to Step 2.

NO : Refer to Inspection Procedure H-1 "Rear wiper dose not work at all [P.54B-231.](#)"

STEP 2. Check the rear wiper motor.

(1) Disconnect rear wiper motor connector F-07.



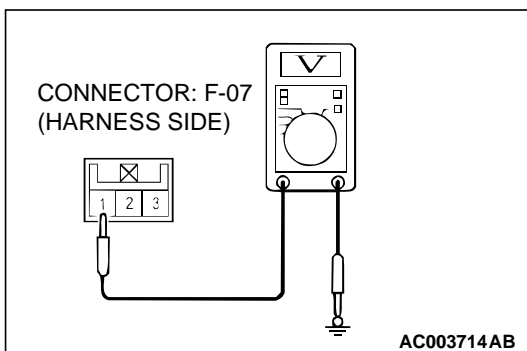
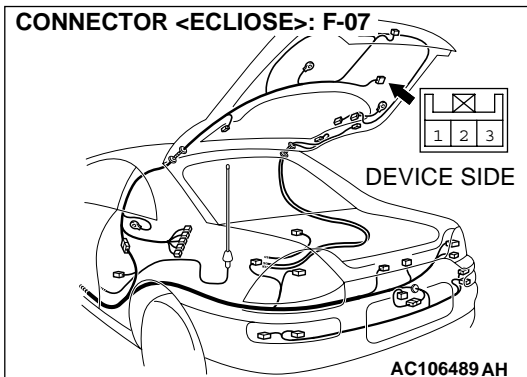
(2) While the rear wiper motor is running, disconnect the battery to stop the motor.

(3) When the battery is connected as shown, the motor should run again and stop at the predetermined park position.

Q: Does the rear wiper motor operate normally?

YES : Go to Step 3.

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



STEP 3. Measure at rear wiper motor connector F-07 by backprobing to check the ignition switch (ACC) line of the power supply to the rear wiper motor.

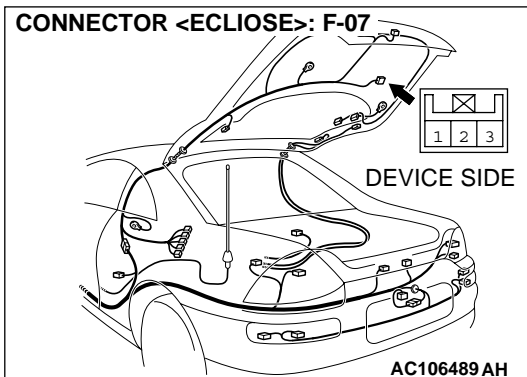
- (1) Do not disconnect rear wiper motor connector F-07.
- (2) Turn the ignition switch to the "ACC" position.

- (3) Measure the voltage between terminal 1 and ground by backprobing.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 6.

NO : Go to Step 4.

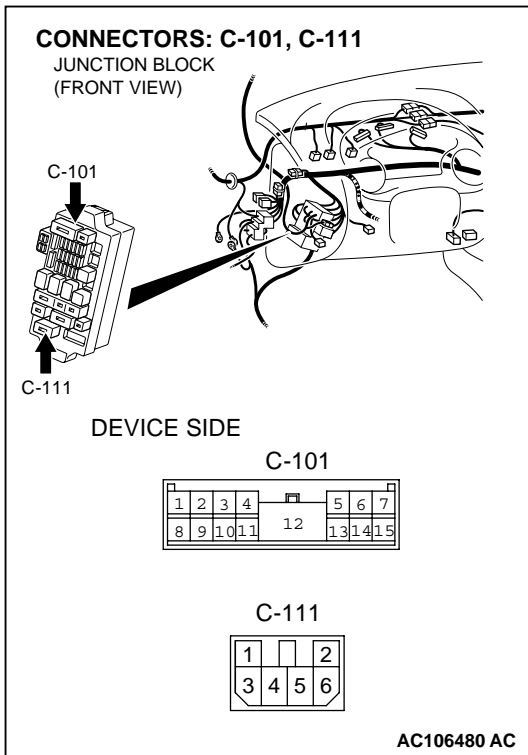
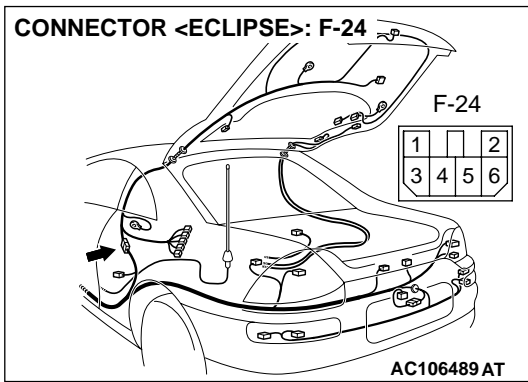
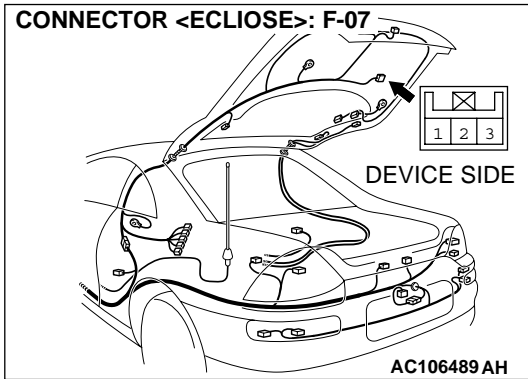


STEP 4. Check rear wiper motor connector F-07 for damage.

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

YES : Go to Step 5.

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



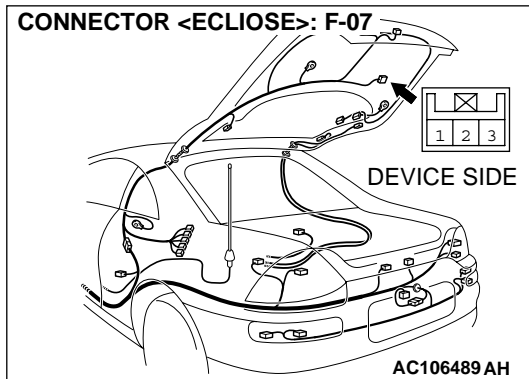
STEP 5. Check the wiring harness between rear wiper motor connector F-07 (terminal 1) and the ignition switch (ACC).

NOTE: Also check intermediate connector F-24 and junction block connectors C-101 and C-111. If intermediate connector F-24 or junction block connector C-101 or C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear wiper motor connector F-07 (terminal 1) and the ignition switch (ACC) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

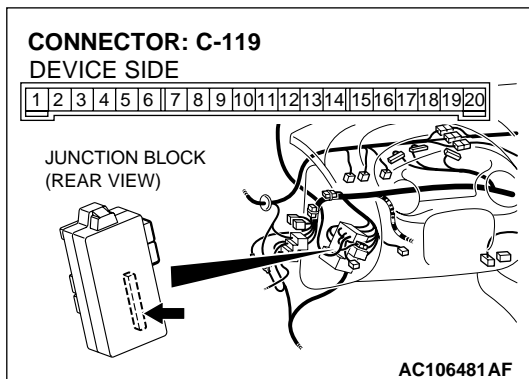


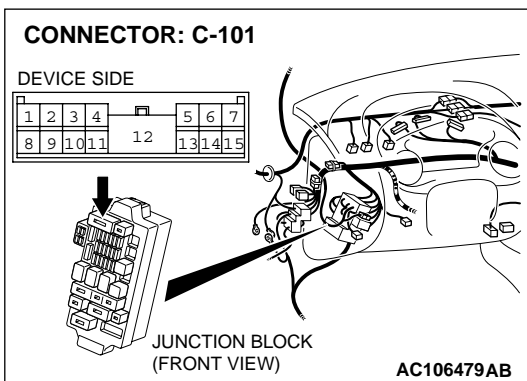
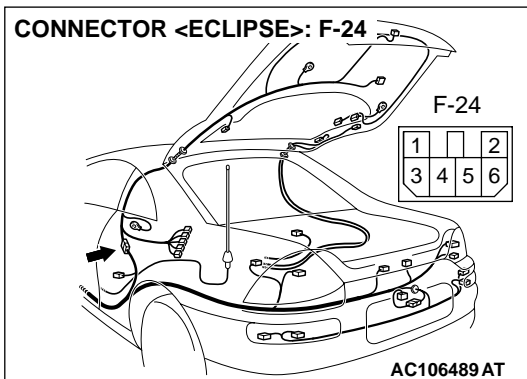
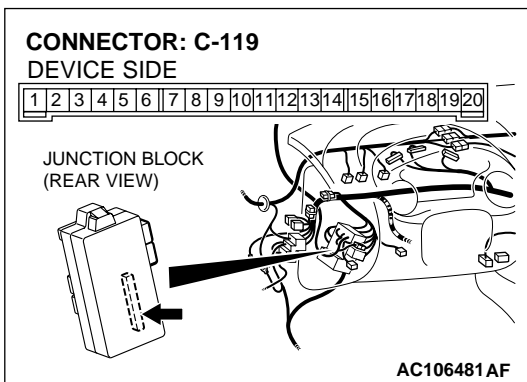
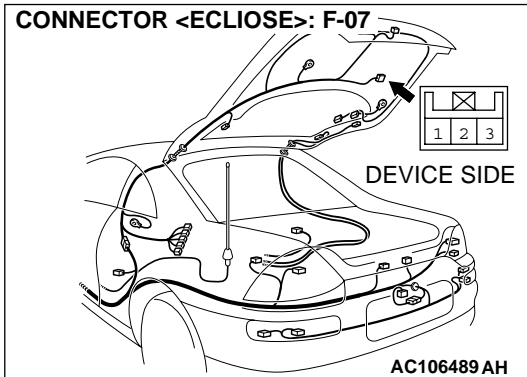
STEP 6. Check rear wiper motor connector F-07 and ETACS-ECU connector C-119 for damage.

Q: Are rear wiper motor connector F-07 and ETACS-ECU connector C-119 in good condition?

YES : Go to Step 7.

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





STEP 7. Check the wiring harness between rear wiper motor connector F-07 (terminal 2) and ETACS-ECU connector C-119 (terminal 17).

NOTE: Also check intermediate connector F-24 and junction block connector C-101. If intermediate connector F-24 or junction block connector C-101 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

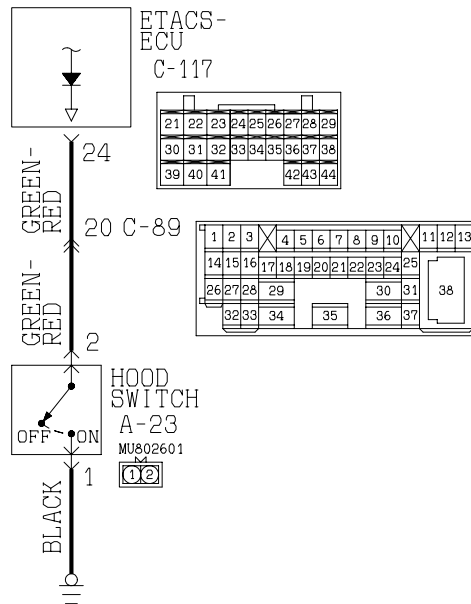
Q: Is the wiring harness between rear wiper motor connector F-07 (terminal 2) and ETACS-ECU connector C-119 (terminal 17) in good condition?

YES : Replace the ETACS-ECU. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

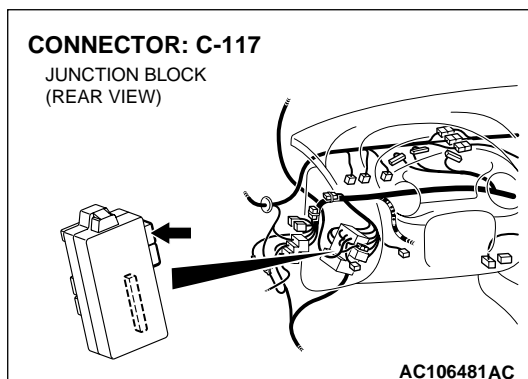
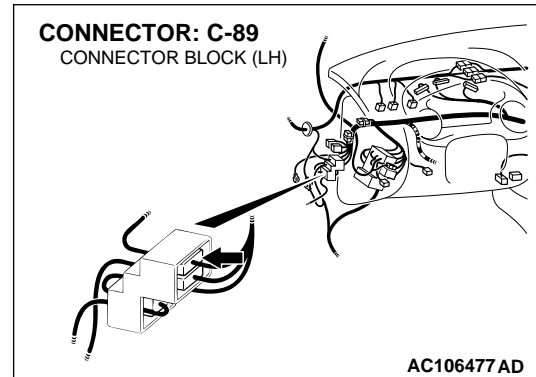
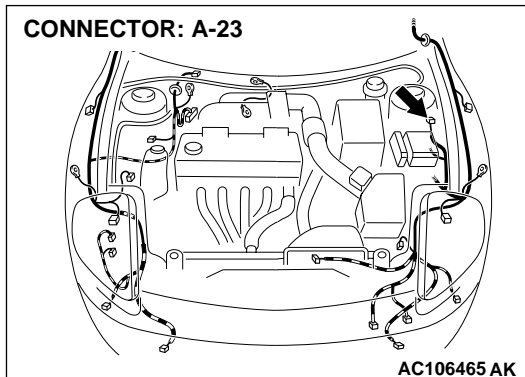
NO : Repair the wiring harness. If the rear wiper operates normally, it indicates that a correct auto-stop signal is sent from the rear wiper motor.

INSPECTION PROCEDURE P-8: The ETACS-ECU does not Receive Any Signal from Hood Switch.

Hood Switch Input Circuit



W2S13M47AA



CIRCUIT OPERATION

The ETACS-ECU operates the theft-alarm system according to signal from the hood switch.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the theft-alarm system does not work normally.

TROUBLESHOOTING HINTS

- Malfunction of the hood switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the hood switch.

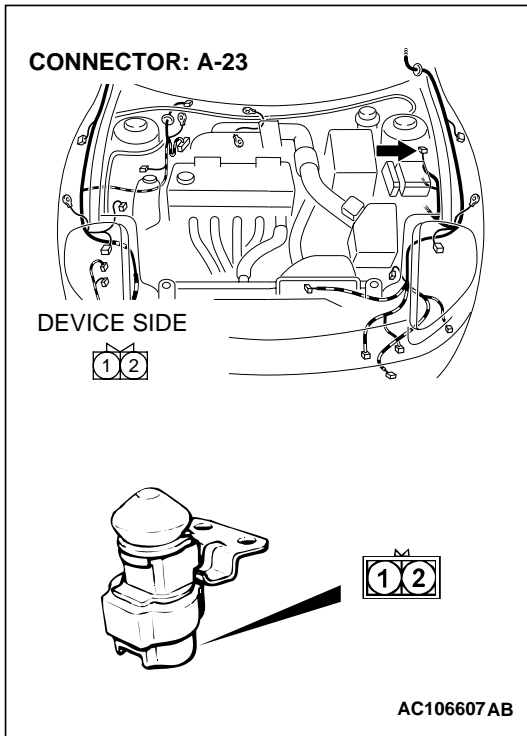
Remove the hood switch. Refer to GROUP 42, Hood P.42-7. Then check continuity between the switch terminals.

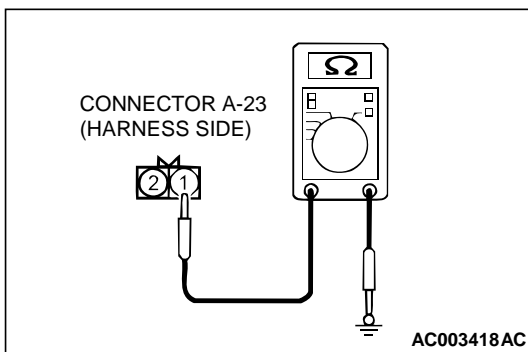
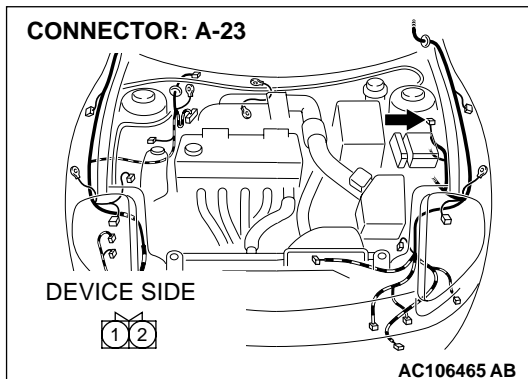
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Less than 2 ohm
Pressed	1 – 2	Open circuit

Q: Is the hood switch in good condition?

YES : Go to Step 2.

NO : Replace the hood switch. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.





STEP 2. Measure at hood switch connector A-23 in order to check the ground circuit to the hood switch.

(1) Disconnect hood switch connector A-23, and measure at the wiring harness side.

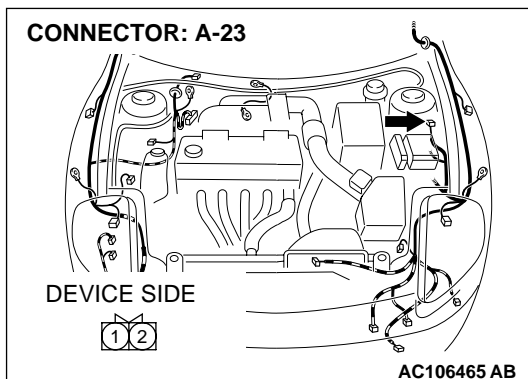
(2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohm or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

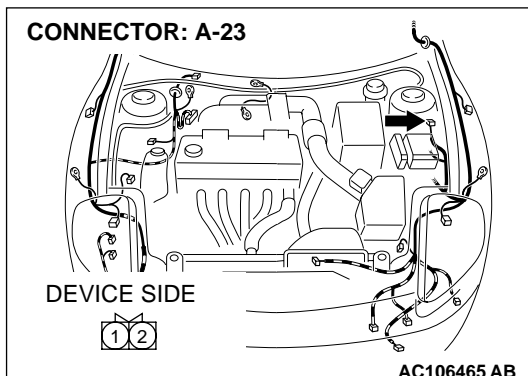


STEP 3. Check hood switch connector A-23 for damage.

Q: Is hood switch connector A-23 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

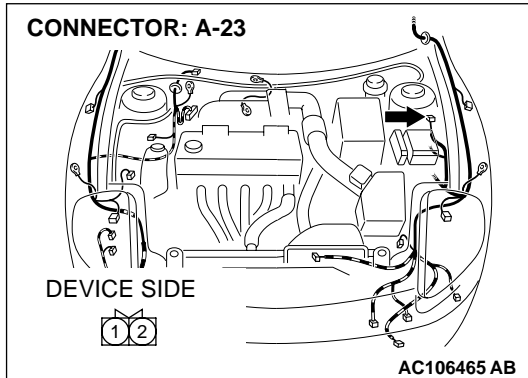


STEP 4. Check the wiring harness between hood switch connector A-23 (terminal 1) and ground.

Q: Is the wiring harness between hood switch connector A-23 (terminal 1) and the ground in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

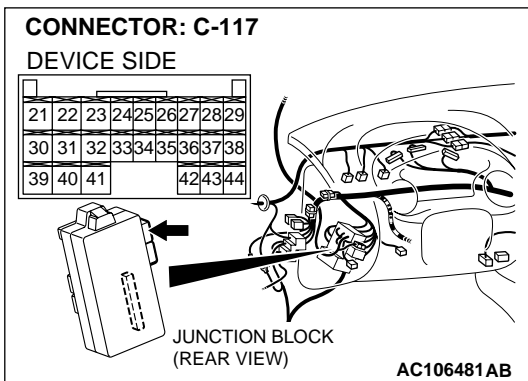


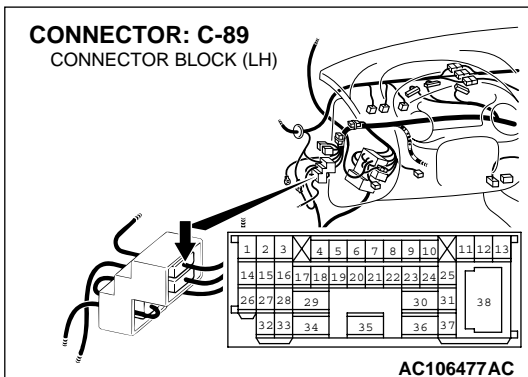
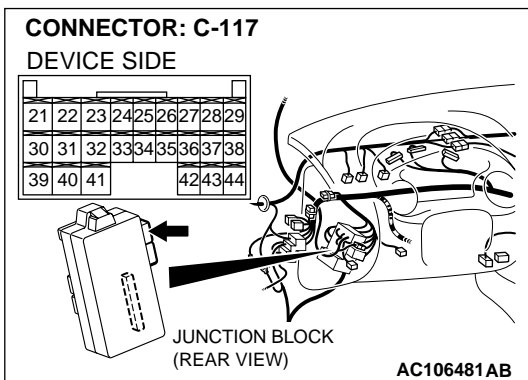
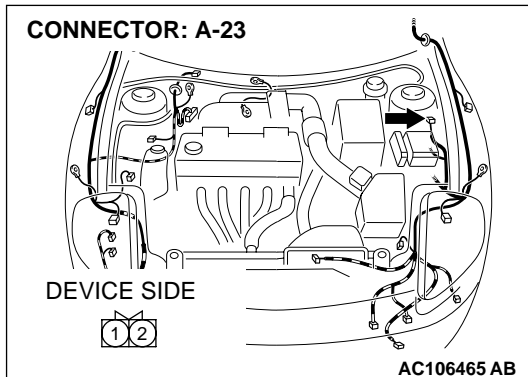
STEP 5. Check hood switch connector A-23 and ETACS-ECU connector C-117 for damage.

Q: Are hood switch connector A-23 and ETACS-ECU connector C-117 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.





STEP 6. Check the wiring harness between hood switch connector A-23 (terminal 2) and ETACS-ECU connector C-117 (terminal 24).

NOTE: Also check intermediate connector C-89. If intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

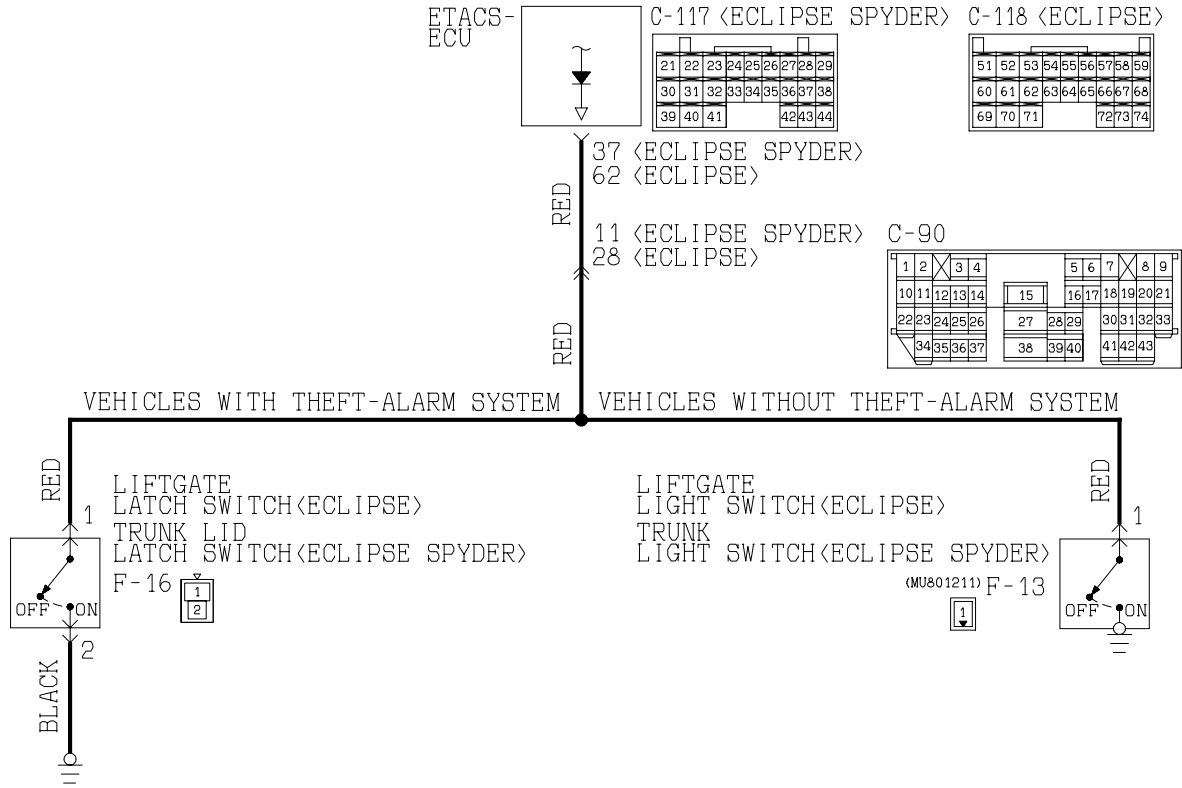
Q: Is the wiring harness between hood switch connector A-23 (terminal 2) and ETACS-ECU connector C-117 (terminal 24) in good condition?

YES : Replace the ETACS-ECU. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

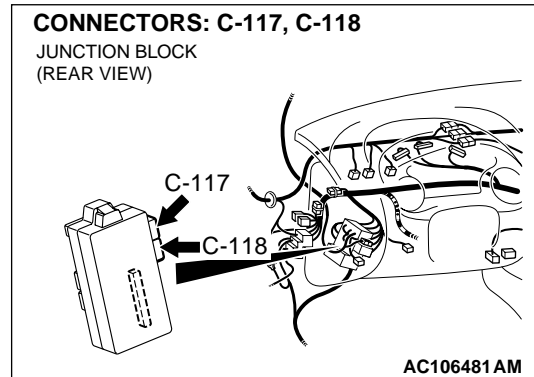
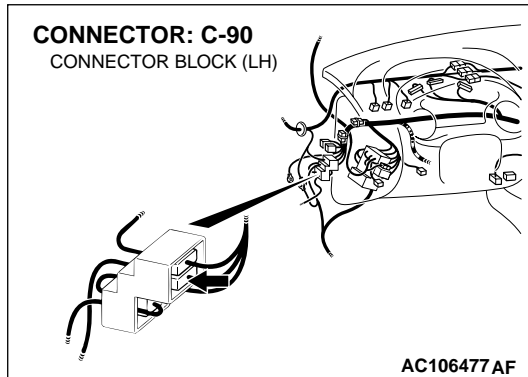
NO : Repair the wiring harness. If the theft-alarm system operates normally, it indicates that a correct signal is sent from the hood switch.

INSPECTION PROCEDURE P-9: The Liftgate Latch Switch <ECLIPSE> or the Trunk Lid Latch Switch <ECLIPSE SPYDER> Signal is not sent to the ETACS-ECU.

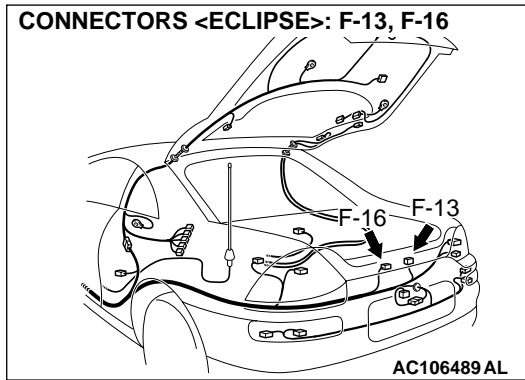
Liftgate Latch Switch <ECLIPSE> or Trunk Lid Latch Switch <ECLIPSE SPYDER> Input Circuit



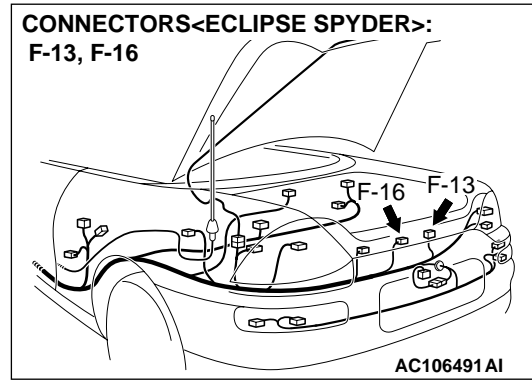
W2S13M48AA



CONNECTORS <ECLIPSE>: F-13, F-16



CONNECTORS<ECLIPSE SPYDER>:
F-13, F-16



CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> to operate the following functions.

TECHNICAL DESCRIPTION (COMMENT)

The liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> input signal is used to operate the theft-alarm system, luggage compartment light <ECLIPSE> and trunk light <ECLIPSE SPYDER>. If the signal fails, these functions will not work normally.

TROUBLESHOOTING HINTS

- Malfunction of the liftgate latch <ECLIPSE>
- Malfunction of the trunk lid latch <ECLIPSE SPYDER>
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

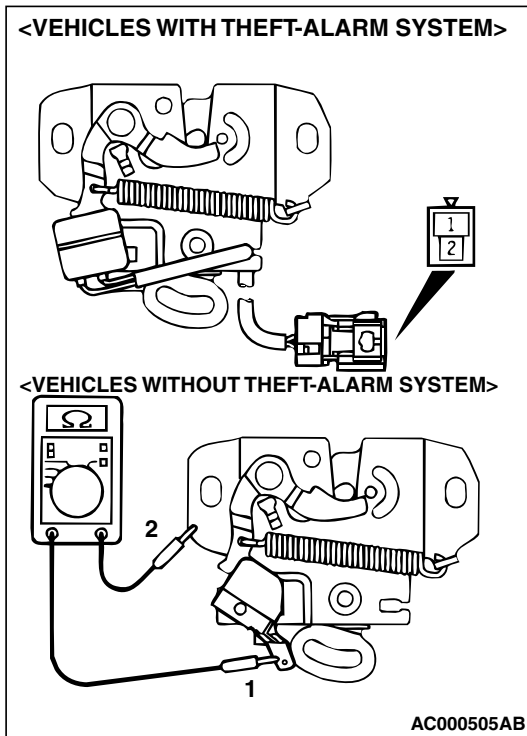
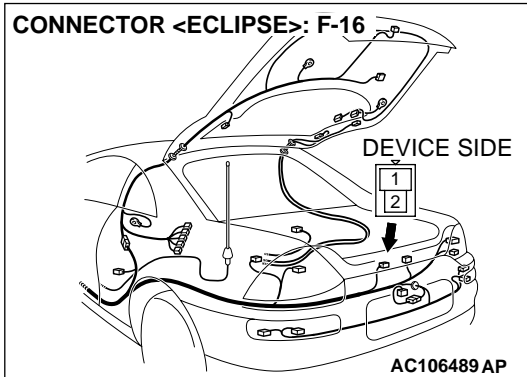
Required Special Tools:

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

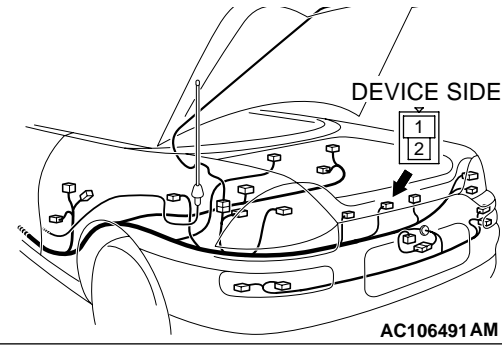
STEP 1. Check the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER>.

<LIFTGATE LATCH SWITCH (ECLIPSE)>

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON	1 – 2	Less than 2 ohm
OFF	1 – 2	Open circuit



CONNECTOR <ECLIPSE SPYDER>: F-16



<TRUNK LID LATCH SWITCH (ECLIPSE SPYDER)>

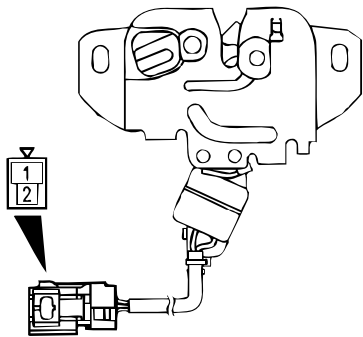
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
ON	1 – 2	Less than 2 ohm
OFF	1 – 2	Open circuit

Q: Is the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> in good condition?

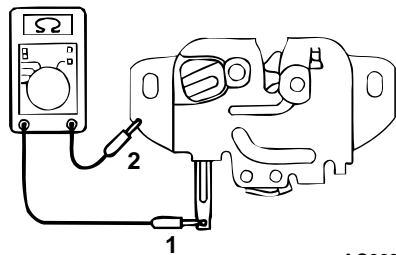
- YES :**
- Vehicles with theft-alarm system: Go to Step 2 .
 - Vehicles without theft-alarm system: Go to Step 5.

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

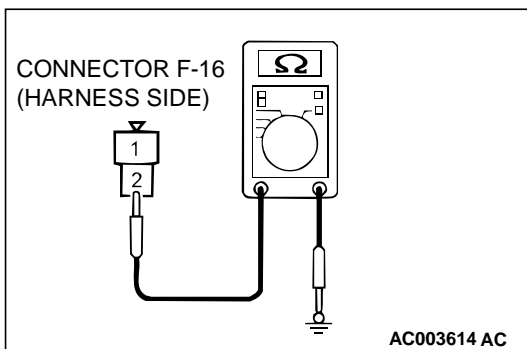
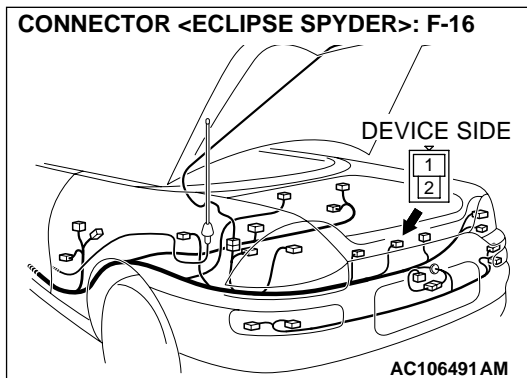
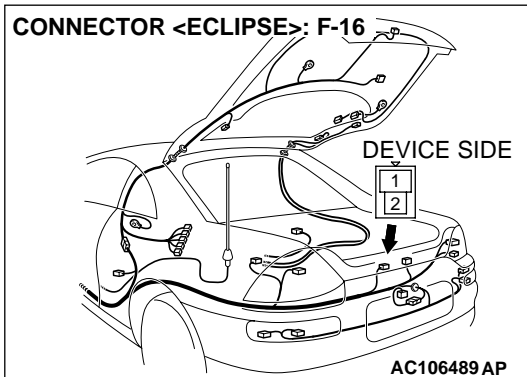
<VEHICLES WITH THEFT-ALARM SYSTEM>



<VEHICLES WITHOUT THEFT-ALARM SYSTEM>



AC003339AB



STEP 2. Check the trunk lid latch switch ground circuit at liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system> or the trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system>.

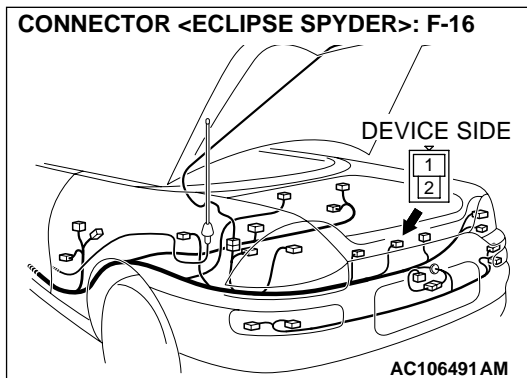
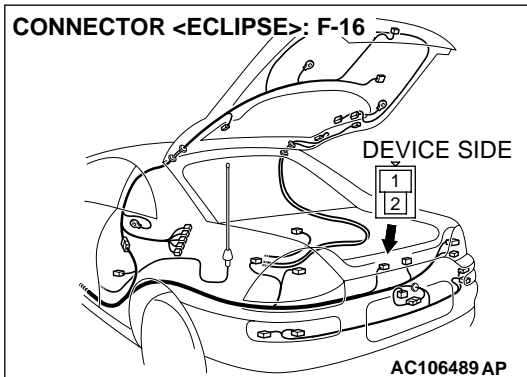
- (1) Disconnect liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system> or trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system> and measure at the harness side.

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

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

NO : Go to Step 3.

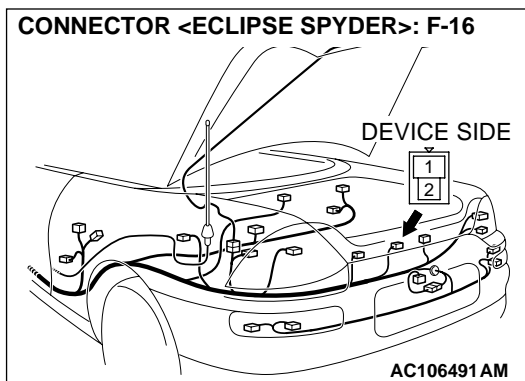
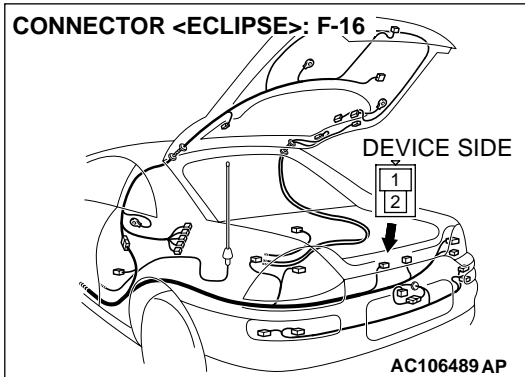


STEP 3. Check liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system> or trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system> for damage.

Q: Is liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system> or trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system> in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



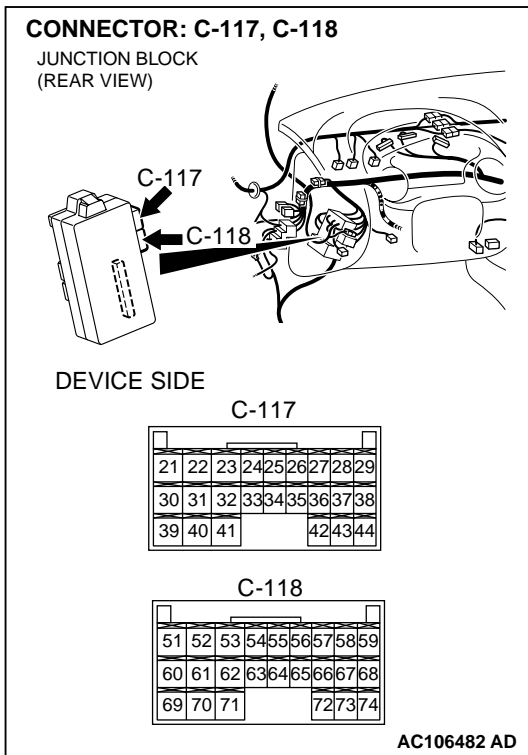
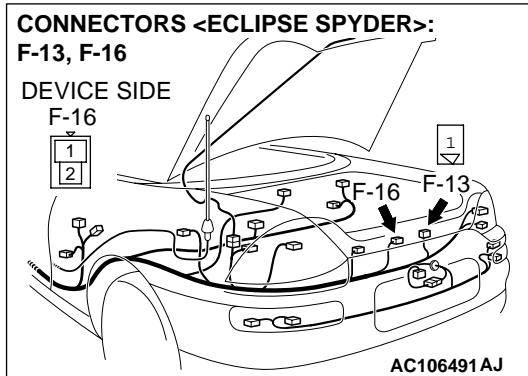
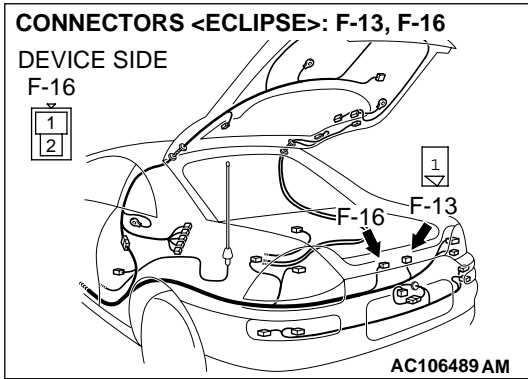
STEP 4. Check the harness wire between liftgate latch switch connector F-16 (terminal 2) <ECLIPSE-Vehicle with theft-alarm system> or trunk lid latch switch connector F-16 (terminal 2) <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ground.

Q: Is the harness wire between liftgate latch switch connector F-16 (terminal 2) <ECLIPSE-Vehicle with theft-alarm system> or trunk lid latch switch connector F-16 (terminal 2) <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 5. Check liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system>, liftgate light switch connector F-13 <ECLIPSE-Vehicle without theft-alarm system>, trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system> or trunk light switch connector F-13 <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ETACS-ECU connector C-118 or C-117 for damage.



Q: Are liftgate latch switch connector F-16 <ECLIPSE-Vehicle with theft-alarm system>, liftgate light switch connector F-13 <ECLIPSE-Vehicle without theft-alarm system>, trunk lid latch switch connector F-16 <ECLIPSE SPYDER-Vehicle with theft-alarm system> or trunk light switch connector F-13 <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ETACS-ECU connector C-118 or C-117 in good condition?

YES : Go to Step 6.

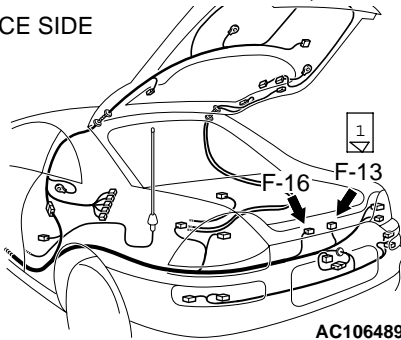
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 6. Check the harness wires between liftgate latch switch connector F-16 (terminal 1) <ECLIPSE-Vehicle with theft-alarm system>, liftgate light switch connector F-13 (terminal 1) <ECLIPSE-Vehicle without theft-alarm system>, trunk lid latch switch connector F-16 (terminal 1) <ECLIPSE SPYDER-Vehicle with theft-alarm system> or trunk light switch connector F-13 (terminal 1) <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ETACS-ECU connector C-118 (terminal 62) <ECLIPSE> or C-117 (terminal 37) <ECLIPSE SPYDER>.

CONNECTORS <ECLIPSE>: F-13, F-16

DEVICE SIDE

F-16



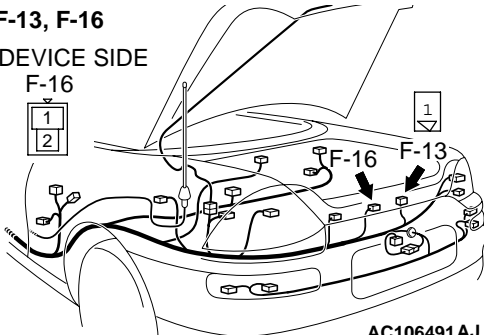
AC106489 AM

NOTE: After checking intermediate connector C-90, check the wires. If intermediate connector C-90 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

CONNECTORS <ECLIPSE SPYDER>: F-13, F-16

DEVICE SIDE

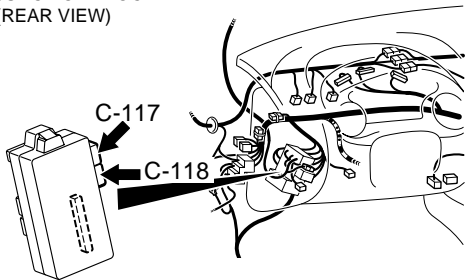
F-16



AC106491 AJ

CONNECTOR: C-117, C-118

JUNCTION BLOCK
(REAR VIEW)



DEVICE SIDE

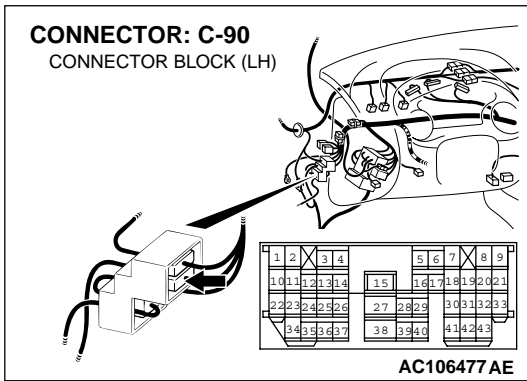
C-117

21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38
39	40	41			42	43	44	

C-118

51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68
69	70	71			72	73	74	

AC106482 AD



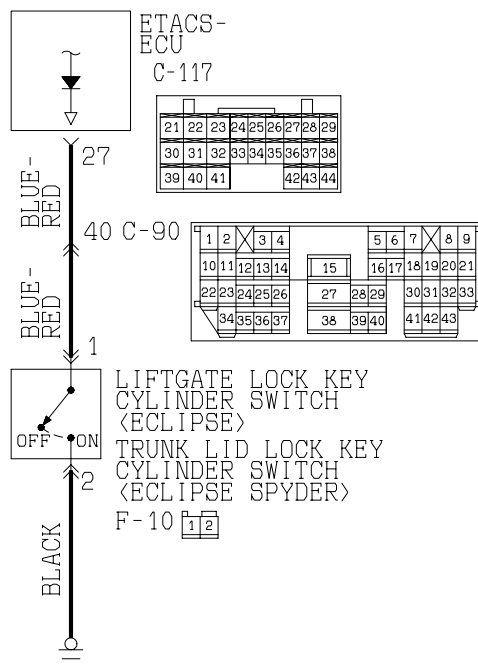
Q: Are the harness wires between liftgate latch switch connector F-16 (terminal 1) <ECLIPSE-Vehicle with theft-alarm system>, liftgate light switch connector F-13 (terminal 1) <ECLIPSE-Vehicle without theft-alarm system>, trunk lid latch switch connector F-16 (terminal 1) <ECLIPSE SPYDER-Vehicle with theft-alarm system> or trunk light switch connector F-13 (terminal 1) <ECLIPSE SPYDER-Vehicle with theft-alarm system> and ETACS-ECU connector C-118 (terminal 1) <ECLIPSE> or C-117 (terminal 1) <ECLIPSE SPYDER> in good condition?

YES : Replace the ETACS-ECU. The input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

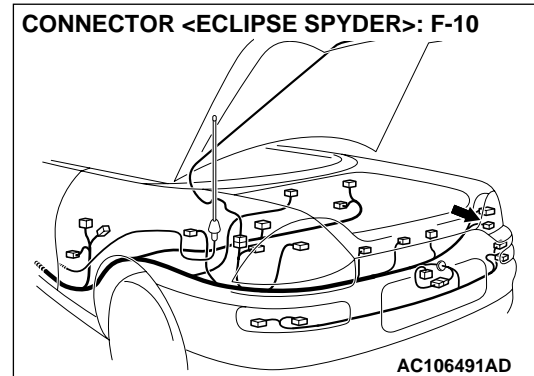
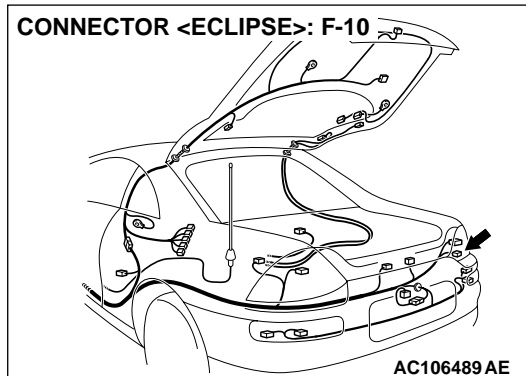
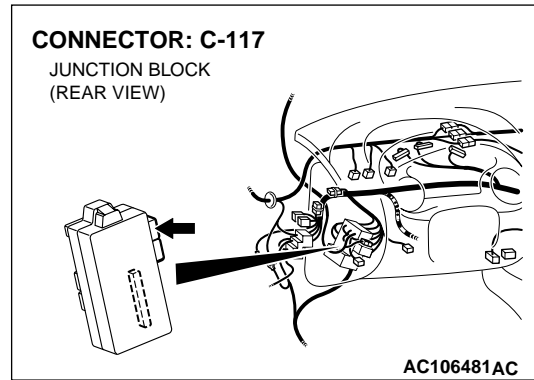
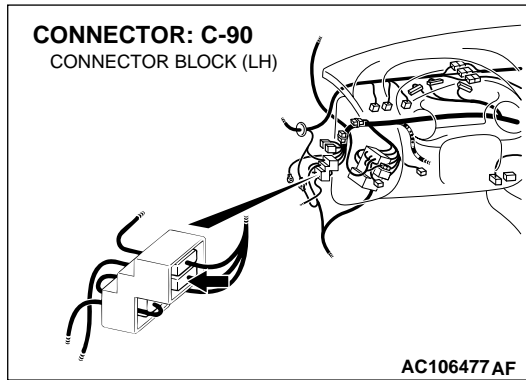
NO : Repair them. The input signal from the liftgate latch switch <ECLIPSE> or the trunk lid latch switch <ECLIPSE SPYDER> should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

INSPECTION PROCEDURE P-10: The Liftgate Lock Key Cylinder Switch <ECLIPSE> or the Trunk Lid Lock Key Cylinder Switch <ECLIPSE SPYDER> Signal is not Sent to the ETACS-ECU.

Liftgate Lock Key Cylinder Switch <ECLIPSE> or Trunk Lid Lock Key Cylinder Switch <ECLIPSE SPYDER> Input Circuit



W2S13M49AA

**CIRCUIT OPERATION**

The ETACS-ECU uses the input signal from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> to arm the theft-alarm system.

TECHNICAL DESCRIPTION (COMMENT)

The liftgate lock key cylinder switch <ECLIPSE> or The Trunk Lid Lock Key Cylinder Switch <ECLIPSE SPYDER> input signal is used to arm the theft-alarm system. If the input signal is an error, the theft-alarm system will not be armed normally.

TROUBLESHOOTING HINTS

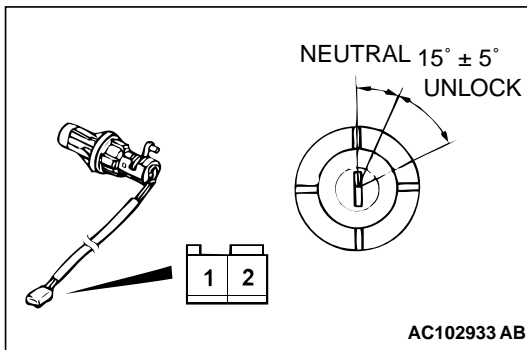
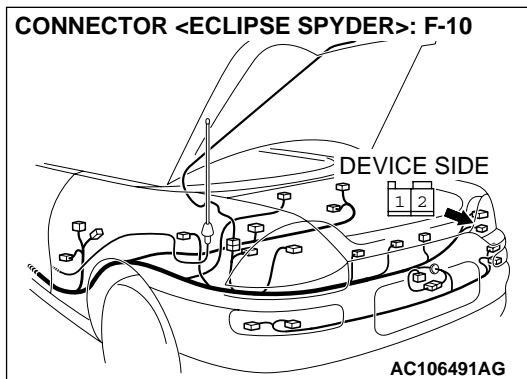
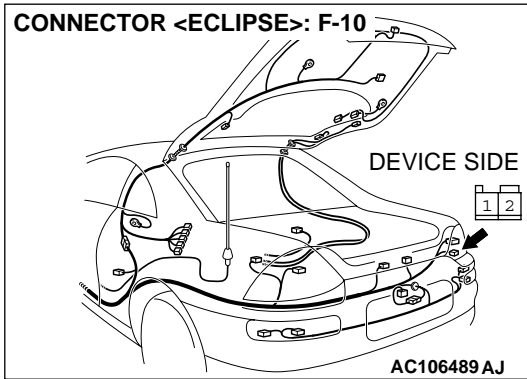
- Malfunction of the liftgate lock key cylinder switch <ECLIPSE>
- Malfunction of the trunk lid lock key cylinder switch <ECLIPSE SPYDER>
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.

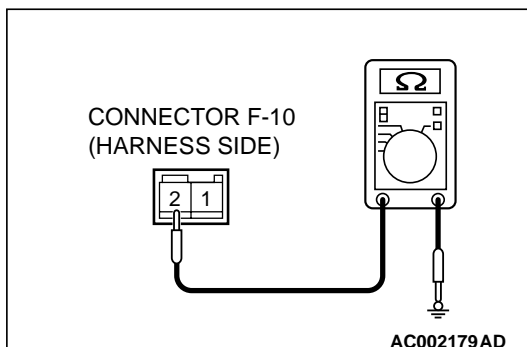
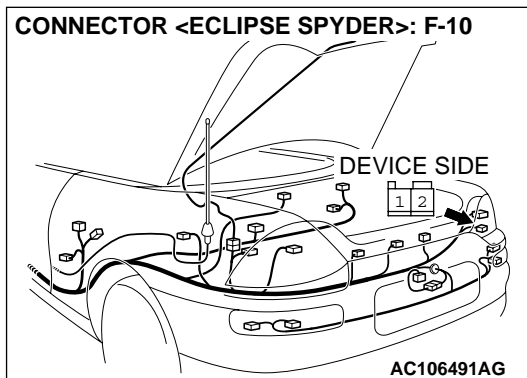
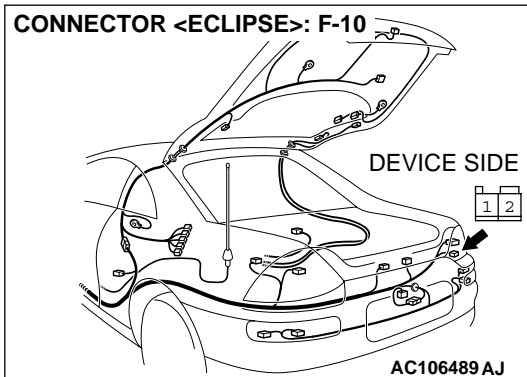


SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	1 – 2	Less than 2 ohm
Neutral (OFF)	1 – 2	Open circuit

Q: Is the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> in good condition?

YES : Go to Step 2.

NO : Replace the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>. When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.



STEP 2. Check the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> ground circuit at trunk lid lock key cylinder switch connector F-10.

- (1) Disconnect liftgate lock key cylinder switch <ECLIPSE> or trunk lid lock key cylinder switch <ECLIPSE SPYDER> connector F-10 and measure at the harness side.

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

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 5.

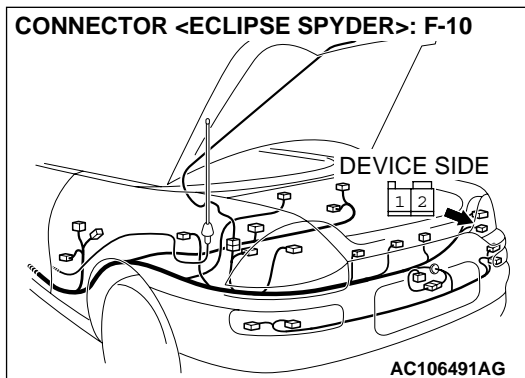
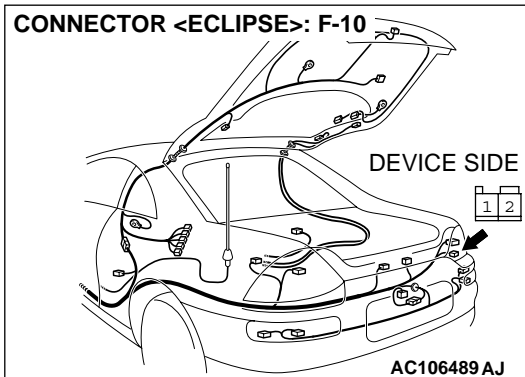
NO : Go to Step 3.

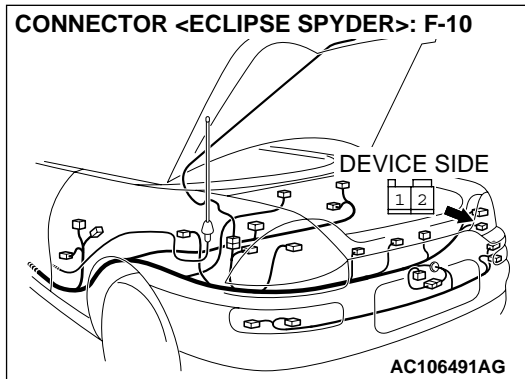
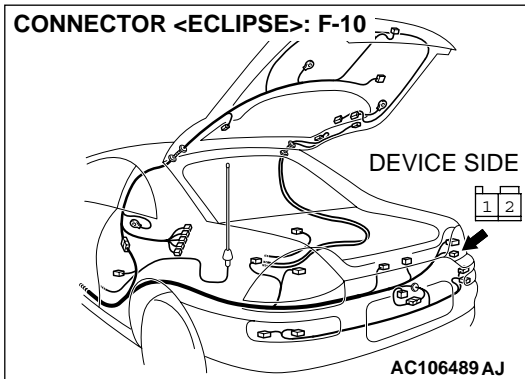
STEP 3. Check the liftgate lock key cylinder switch connector F-10 <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 <ECLIPSE SPYDER> for damage.

Q: Is the liftgate lock key cylinder switch connector F-10 <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 <ECLIPSE SPYDER> in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.





STEP 4. Check the harness wire between the liftgate lock key cylinder switch connector F-10 (terminal 2) <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 (terminal 2) <ECLIPSE SPYDER> and ground.

Q: Is the harness wire between the liftgate lock key cylinder switch F-10 (terminal 2) <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> connector F-10 (terminal 2) and ground in good condition?

YES : There is no action to be taken.

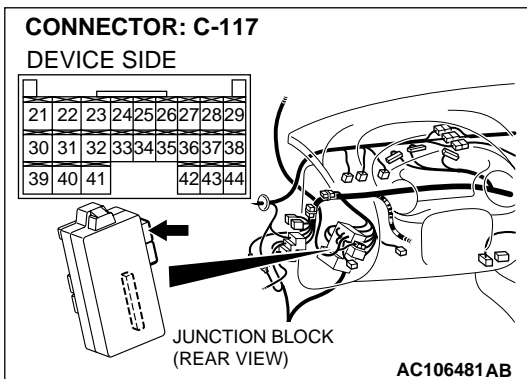
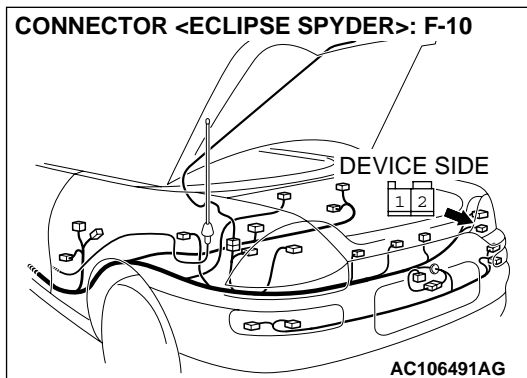
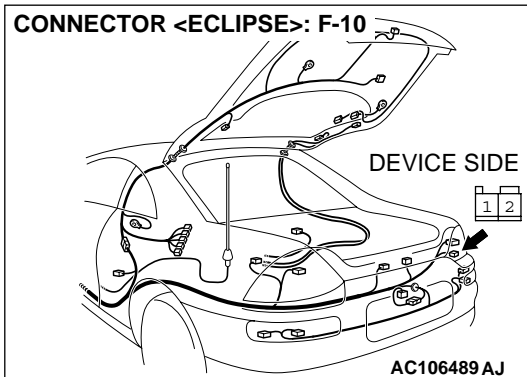
NO : Repair it. When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.

STEP 5. Check the liftgate lock key cylinder switch connector F-10 <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 <ECLIPSE SPYDER> and ETACS-ECU connector C-117 for damage.

Q: Are the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER> connector F-10 and ETACS-ECU connector C-117 in good condition?

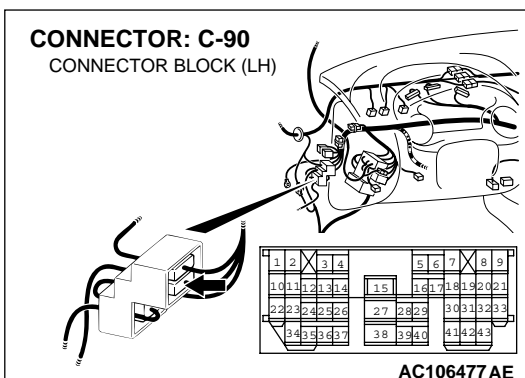
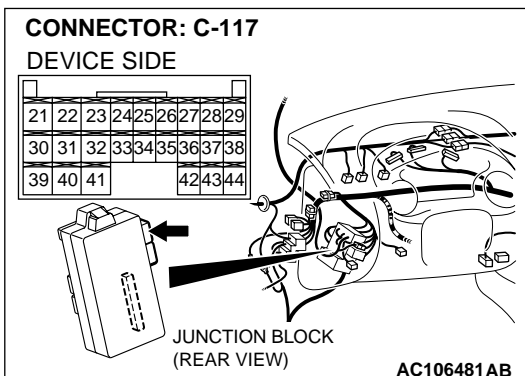
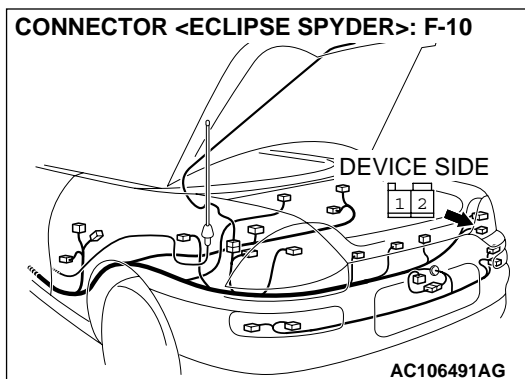
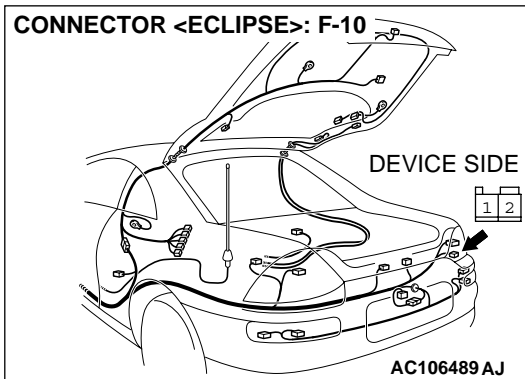
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.



STEP 6. Check the harness wires between the liftgate lock key cylinder switch connector F-10 (terminal 1) <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 (terminal 1) <ECLIPSE SPYDER> and ETACS-ECU connector C-117 (terminal 27).

NOTE: After checking intermediate connector C-90, check the wires. If intermediate connector C-90 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Are the harness wires between the liftgate lock key cylinder switch connector F-10 (terminal 1) <ECLIPSE> or the trunk lid lock key cylinder switch connector F-10 (terminal 1) <ECLIPSE SPYDER> and ETACS-ECU connector C-117 (terminal 27) in good condition?

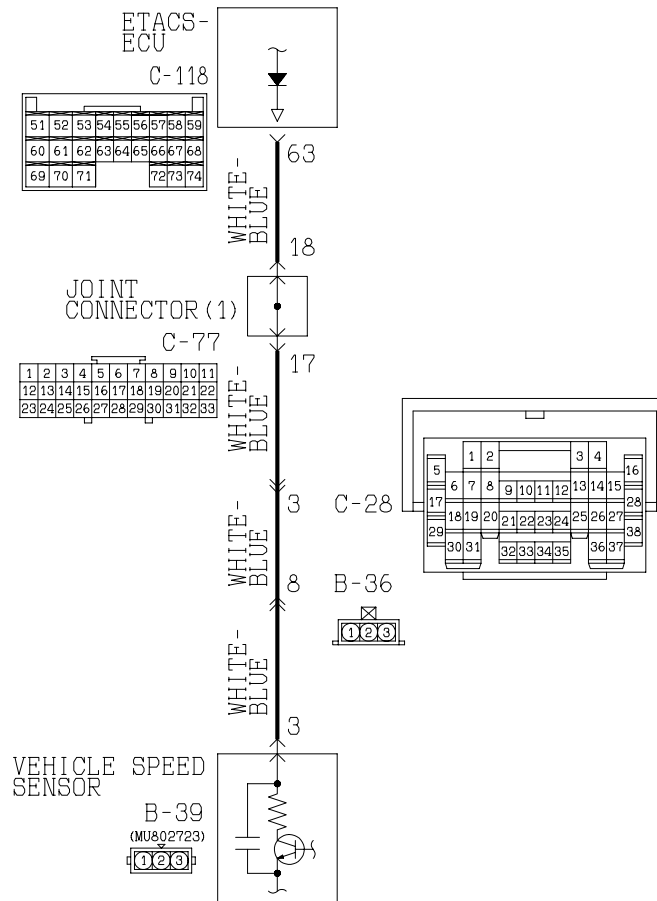
YES : Replace the ETACS-ECU. When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the trunk lid lock key cylinder switch <ECLIPSE SPYDER>.

NO : Repair them. When the theft-alarm system operates normally, check that the signal is input normally from the liftgate lock key cylinder switch <ECLIPSE> or the

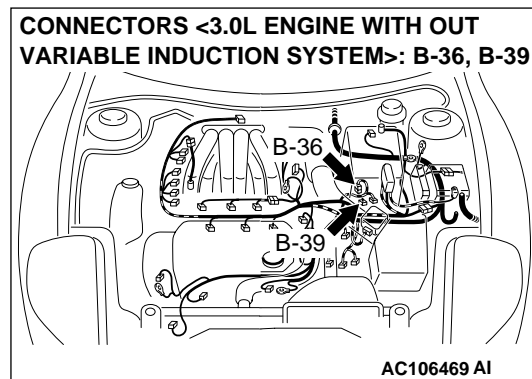
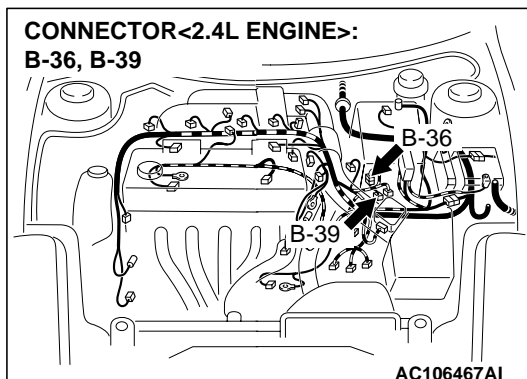
trunk lid lock key cylinder switch <ECLIPSE
SPYDER>.

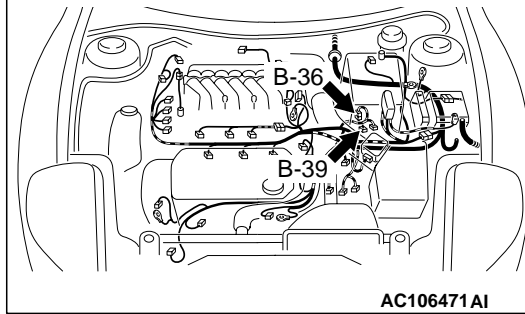
INSPECTION PROCEDURE P-11: ETACS-ECU does not Receive a Signal from the Vehicle Speed Sensor. <M/T>

Vehicle Speed Sensor Input Circuit



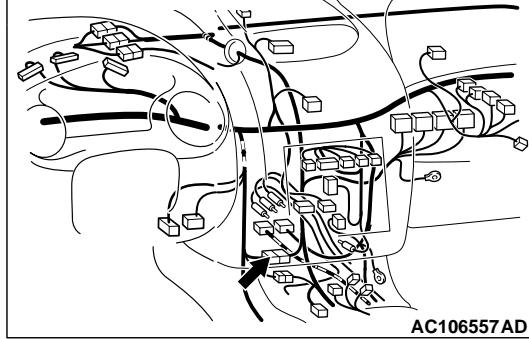
W2S13M50AA



CONNECTORS <3.0L ENGINE WITH
VARIABLE INDUCTION SYSTEM>: B-36, B-39

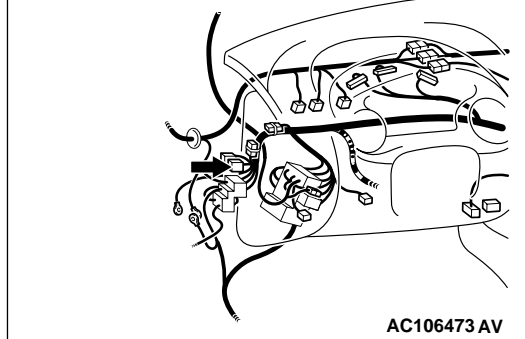
AC106471 AI

CONNECTOR: C-28



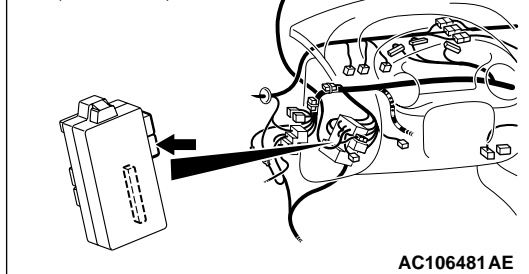
AC106557 AD

CONNECTOR: C-77



AC106473 AV

CONNECTOR: C-118

JUNCTION BLOCK
(REAR VIEW)

AC106481 AE

CIRCUIT OPERATION

The ETACS-ECU controls the windshield intermittent wiper interval according to the vehicle speed sensor signal.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the wiper interval, which is described in "CIRCUIT OPERATION", will not be changed correctly. If the signal is not normal, the vehicle speed sensor or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the vehicle speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS**Required Special Tools:**

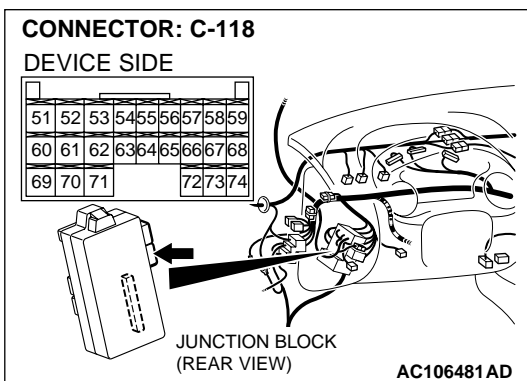
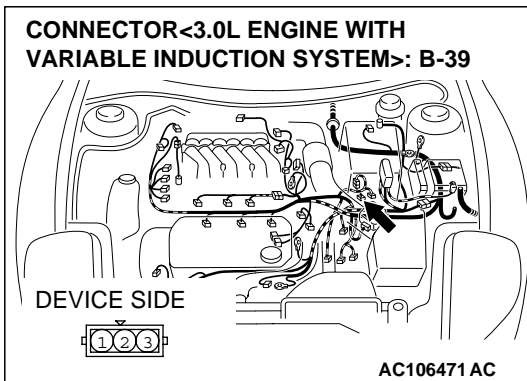
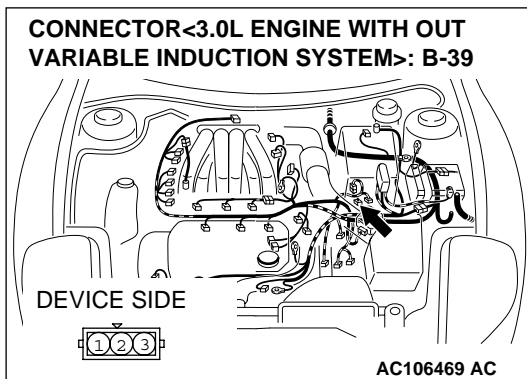
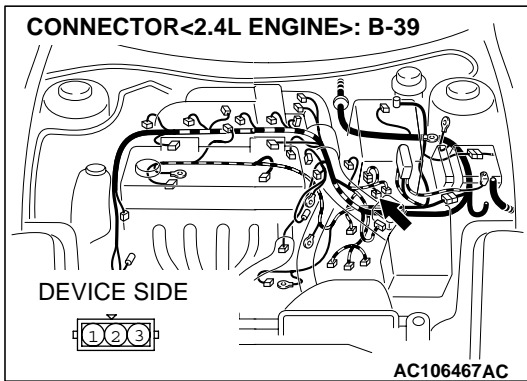
- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Check that the combination meter (speedometer) works normally.

Q: Does the combination meter (speedometer) work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54B-511.](#)"



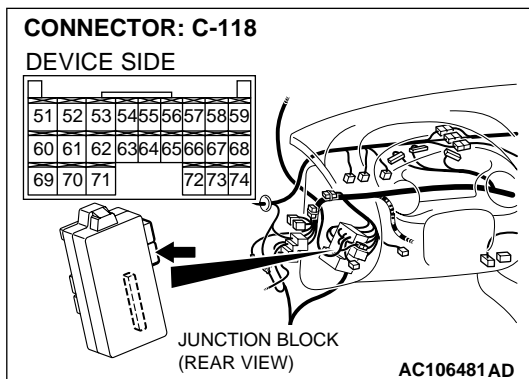
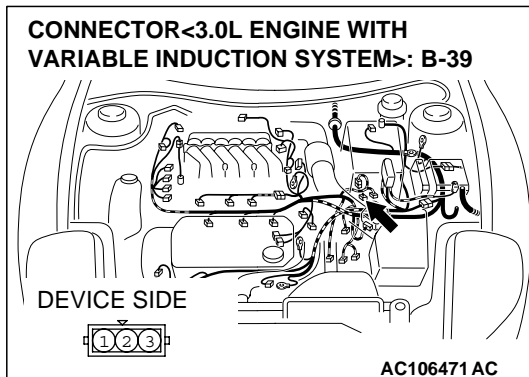
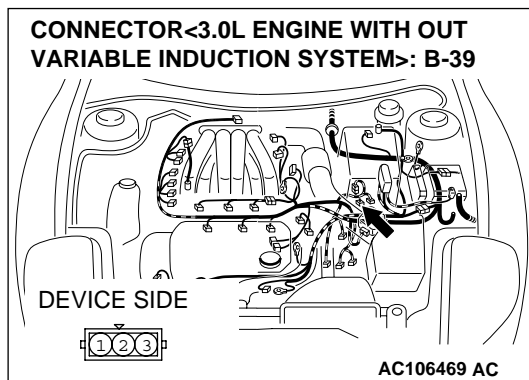
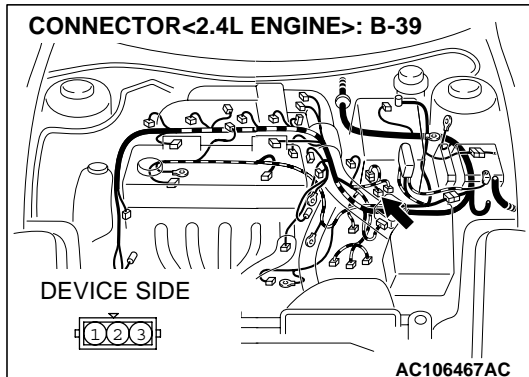
STEP 2. Check ETACS-ECU connector C-118 and vehicle speed sensor connector B-39 for damage.

Q: Are ETACS-ECU connector C-118 and vehicles speed sensor connector B-39 in good condition?

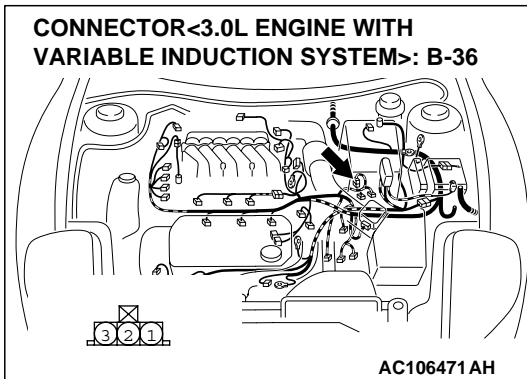
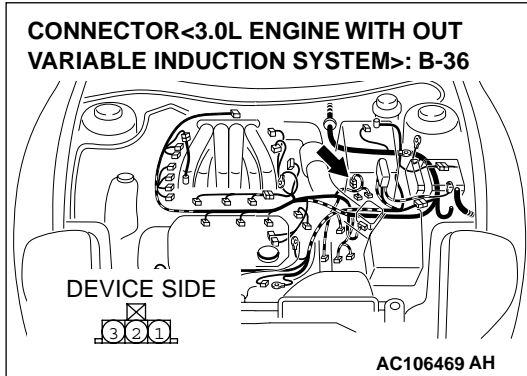
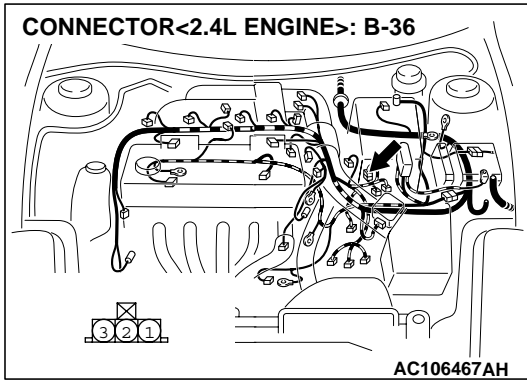
YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

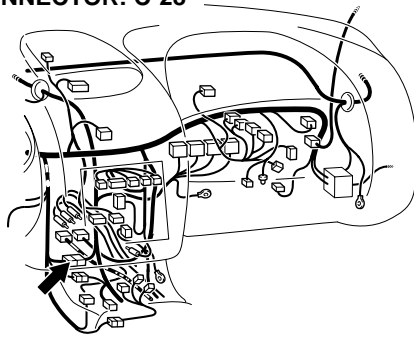
STEP 3. Check the wiring harness between ETACS-ECU connector C-118 (terminal 63) and vehicle speed sensor connector B-39 (terminal 3).



NOTE: Also check intermediate connectors B-36 and C-28 and joint connector C-77. If intermediate connectors B-36 and C-28 or joint connector C-77 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).



CONNECTOR: C-28



C-28

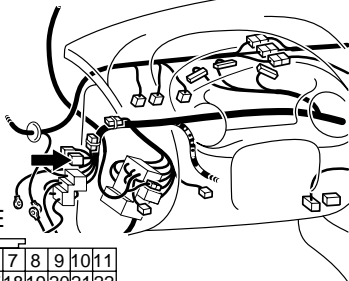
AC106563 AC

Q: Is the wiring harness between ETACS-ECU connector C-118 (terminal 63) and vehicle speed sensor connector B-39 (terminal 3) in good condition?

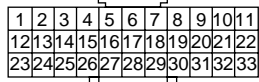
YES : Replace the ETACS-ECU. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

NO : Repair the wiring harness. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

CONNECTOR: C-77



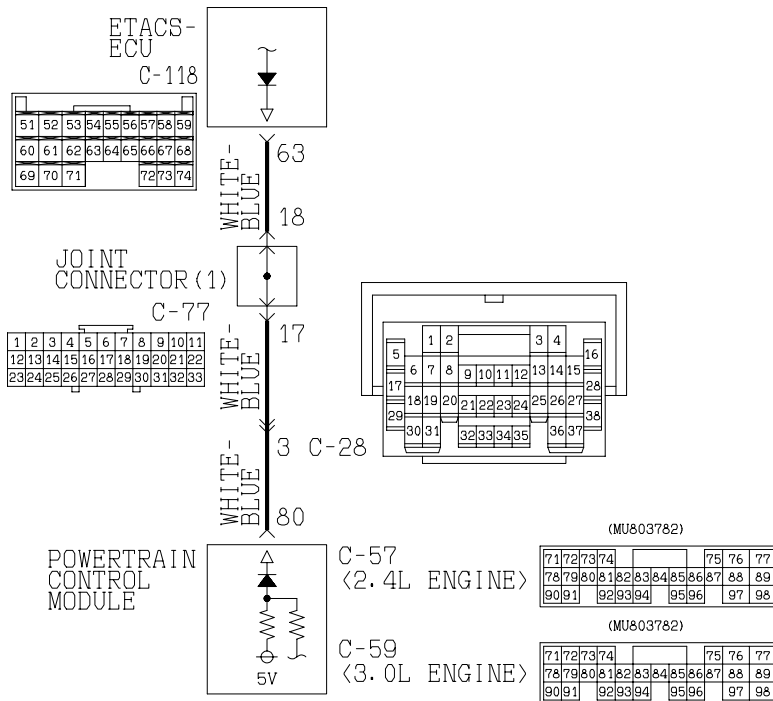
DEVICE SIDE



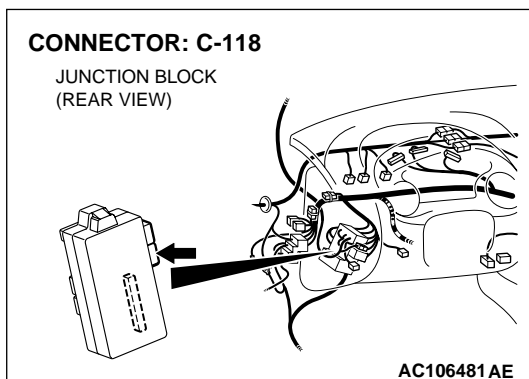
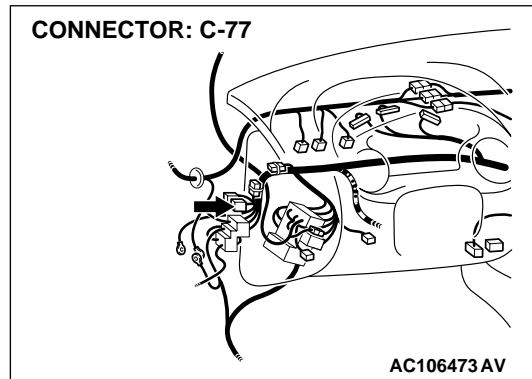
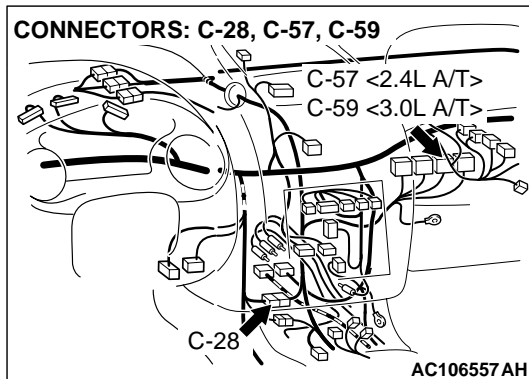
AC106473 AL

INSPECTION PROCEDURE P-12: ETACS-ECU does not Receive Vehicle Speed Signal. <A/T>

Vehicles Speed Signal Input Circuit



W2S13M51AA



CIRCUIT OPERATION

The ETACS-ECU controls the windshield intermittent wiper interval according to the vehicle speed signal, which the powertrain control module sends.

TECHNICAL DESCRIPTION (COMMENT)

If the signal is not normal, the wiper interval, which is described in "CIRCUIT OPERATION", will not be changed correctly. If the signal is not normal, the powertrain control module or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the powertrain control module
- Malfunction of the ETACS-ECU
- Damaged harness wipes or connectors

DIAGNOSIS**Required Special Tools:**

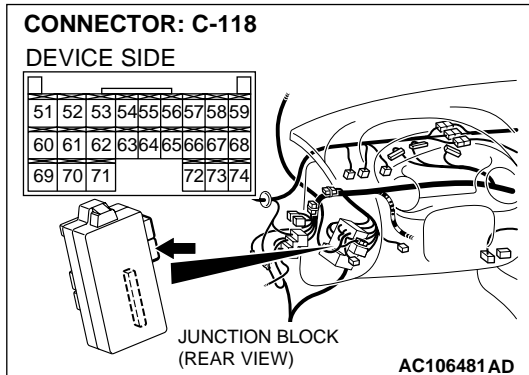
- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)

STEP 1. Check that the combination meter (speedometer) works normally.

Q: Does the combination meter (speedometer) work normally?

YES : Go to Step 2.

NO : Refer to Inspection Procedure O-8 "ETACS-ECU does not receive a signal from the windshield mist switch [P.54B-514](#)."

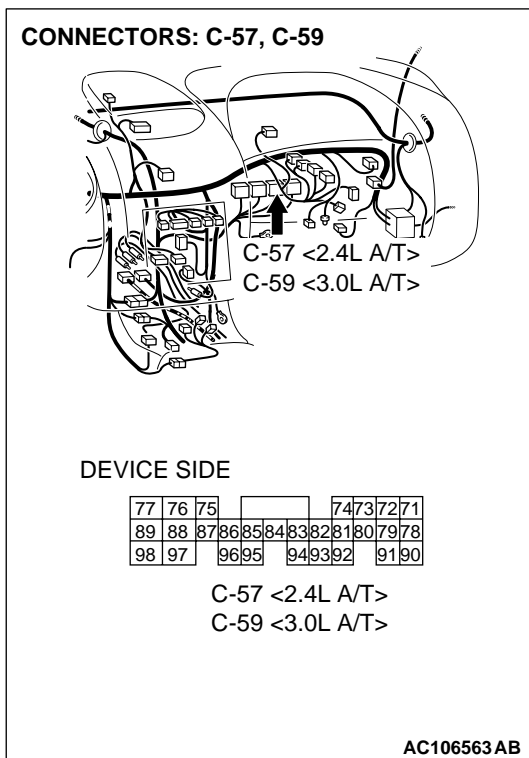


STEP 2. Check ETACS-ECU connector C-118 and powertrain control module connector C-57 <2.4 L ENGINE> or C-59 <3.0 L ENGINE> for damage.

Q: Are ETACS-ECU connector C-118 and powertrain control module connector C-57 <2.4 L ENGINE> or C-59 <3.0 L ENGINE> in good condition?

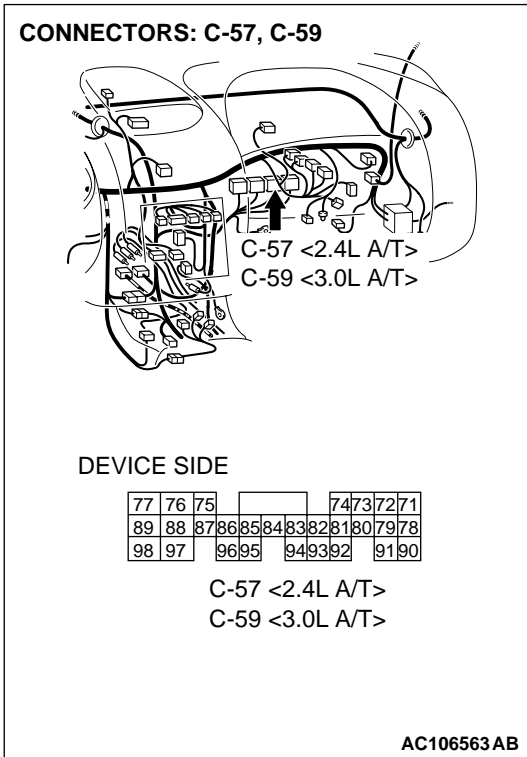
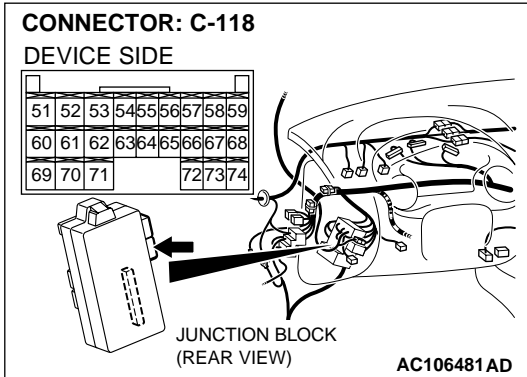
YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

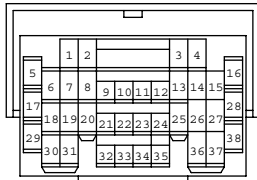
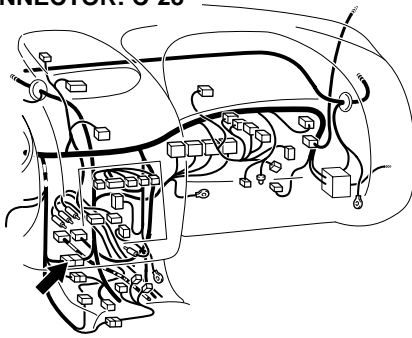


STEP 3. Check the wiring harness between ETACS-ECU connector C-118 (terminal 63) and powertrain control module connector C-57 (terminal 80) <2.4 L ENGINE> or C-59 (terminal 80) <3.0 L ENGINE>.

NOTE: Also check intermediate connector C-28 and joint connector C-77. If intermediate connector C-28 or joint connector C-77 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-28



C-28

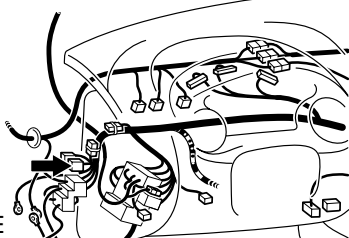
AC106563 AC

Q: Is the wiring harness between ETACS-ECU connector C-118 (terminal 63) and powertrain control module connector C-57 (terminal 80) <2.4 L ENGINE> or C-59 (terminal 80) <3.0 L ENGINE> in good condition?

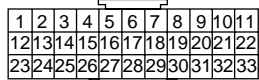
YES : Replace the ETACS-ECU. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

NO : Repair the wiring harness. If the wiper interval can be adjusted normally, it indicates that the windshield intermittent wiper interval adjusting knob should send a signal to the ECU.

CONNECTOR: C-77



DEVICE SIDE

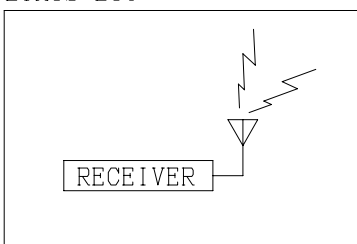


AC106473 AL

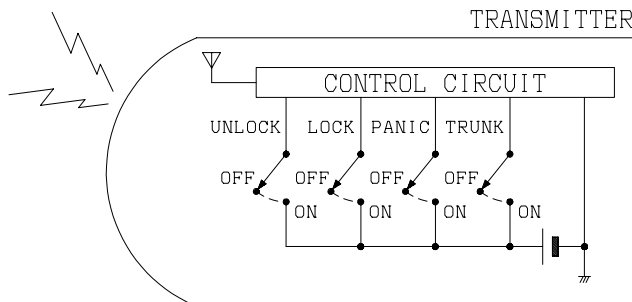
INSPECTION PROCEDURE P-13: Transmitter: The ETACS-ECU does not Receive Any Signal from the Lock, Unlock, Trunk or Panic Switch.

Receiver and Transmitter Communication Circuit

ETACS-ECU



TRANSMITTER



AC002099 AB

CIRCUIT OPERATION

The ETACS-ECU receives signal through its receiver from the transmitter, and operates the keyless entry system according to the signal.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the transmitter
- Malfunction of the ETACS-ECU

DIAGNOSIS**Required Special Tools:**

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

STEP 1. Register the transmitter.

Replace the transmitter. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How To Secret Registration Method [P.42-84](#).

Q: Can the transmitter be registered correctly?

YES : If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

NO : Go to Step 2.

STEP 2. Check the transmitter battery.

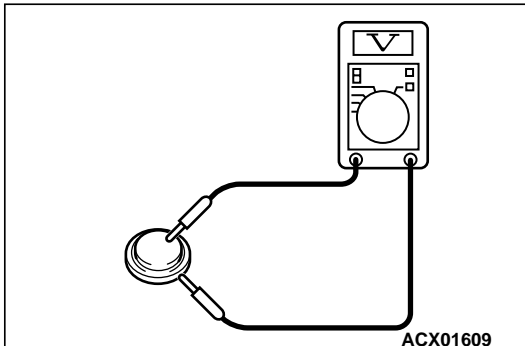
Measure the voltage of the transmitter battery.

- The value should be approximately 2.5 - 3.2 volts.

Q: Does the measured voltage correspond with this range?

YES : Go to Step 3.

NO : Replace the battery. If the transmitter can be registered normally, and the systems, which are described in "CIRCUIT OPERATION", operate normally, it indicates that the transmitter is sending normal signal to the ECU.

**STEP 3. Check the transmitter.**

Substantial other transmitter in order to register encrypted code. Refer to GROUP 42, Keyless Entry System, On-vehicle Service, How To Secret Registration Method [P.42-84](#).

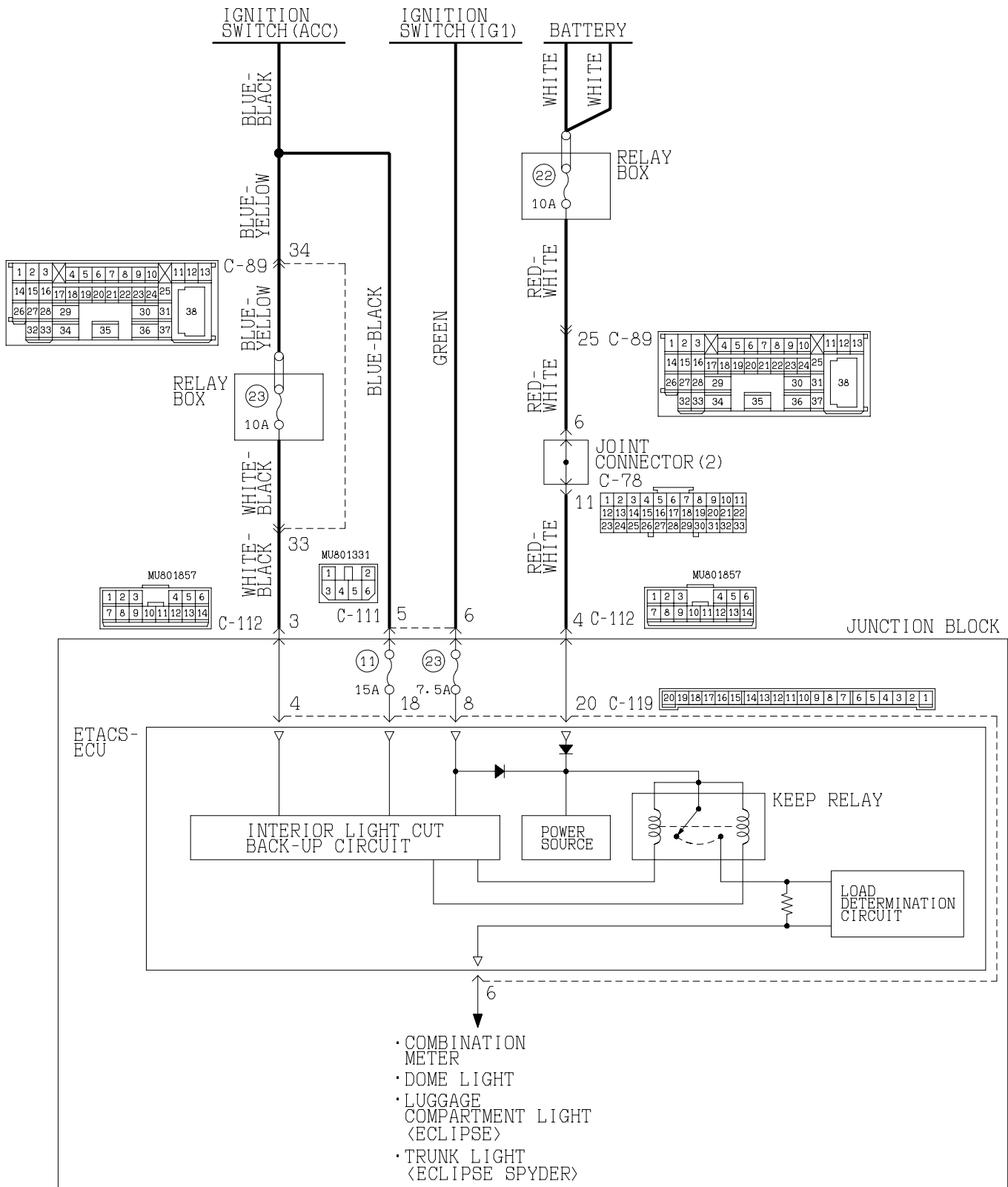
Q: Can the transmitter be registered correctly?

YES : If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

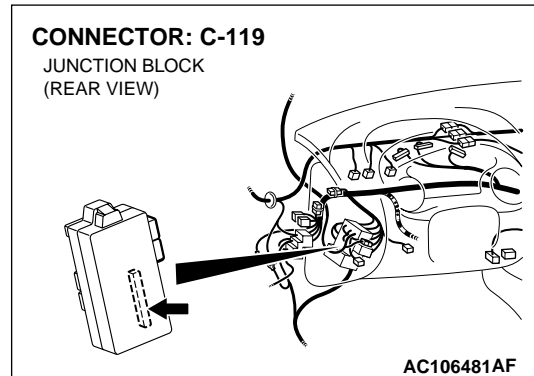
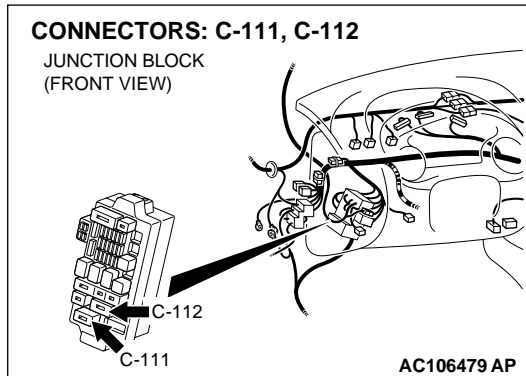
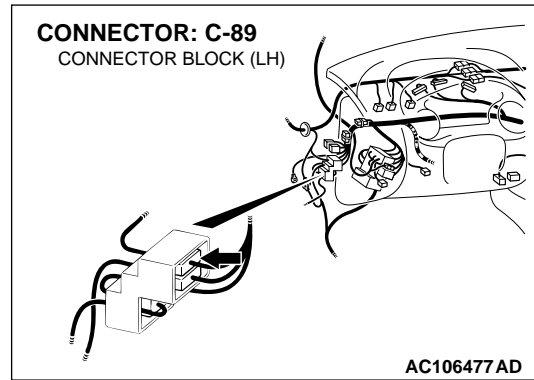
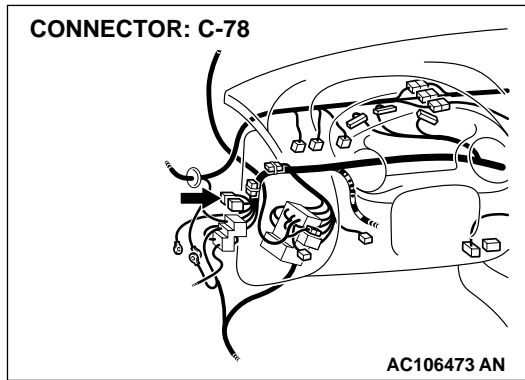
NO : Replace the ETACS-ECU. If the systems, which are described in "CIRCUIT OPERATION", work normally, the input signal from the transmitter should be normal.

INSPECTION PROCEDURE P-14: ETACS-ECU does not Receive a Interior Light Loaded Signal.

Interior Light Loaded Signal Input Circuit



W3S13M06AA

**CIRCUIT OPERATION**

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

- Interior light automatic shutoff function
- Front dome light, rear dome light and luggage compartment light
- Door-ajar indicator light

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

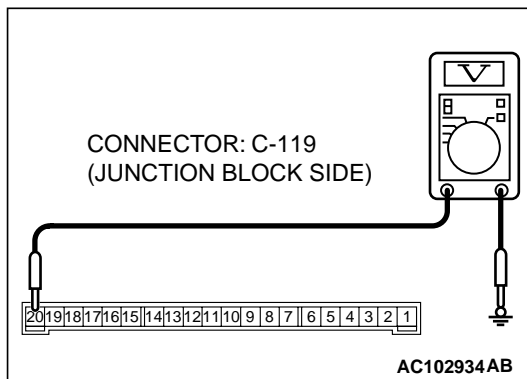
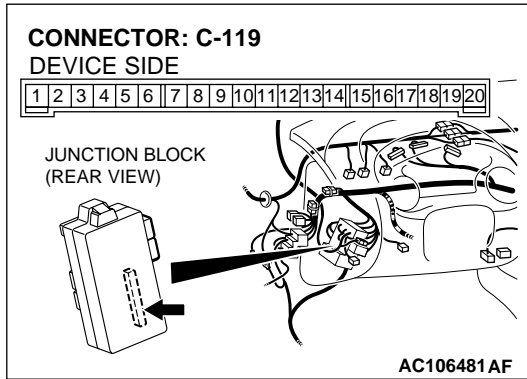
DIAGNOSIS

Required Special Tools:

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

STEP 1. Measure at ETACS-ECU connector C-119 in order to check the battery line of power supply system to ETACS-ECU.

(1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.



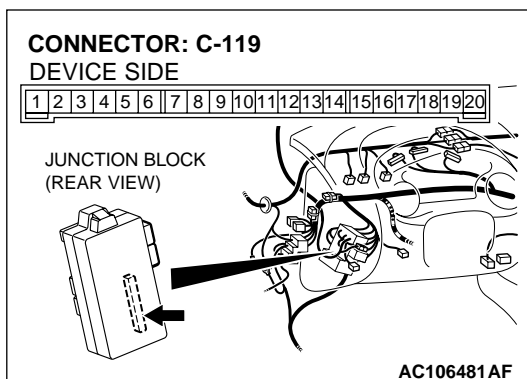
(2) Measure the voltage between terminal 20 and ground.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 4.

NO : Go to Step 2.

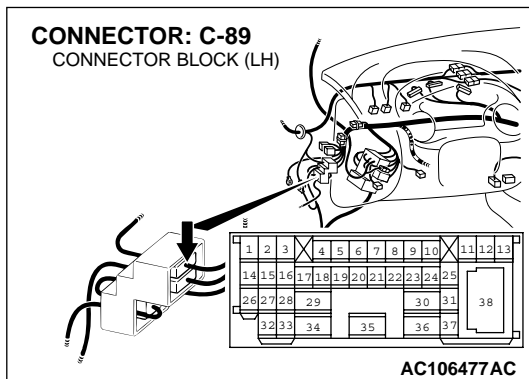
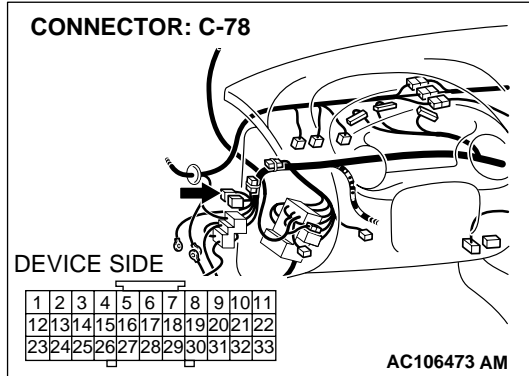
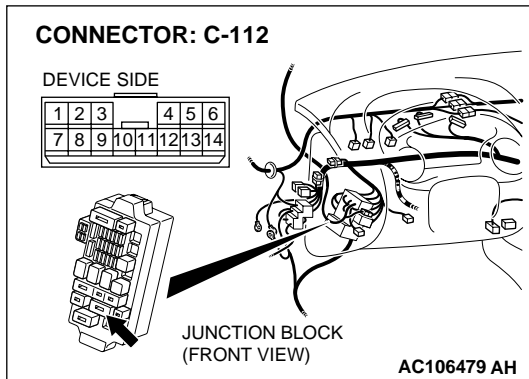
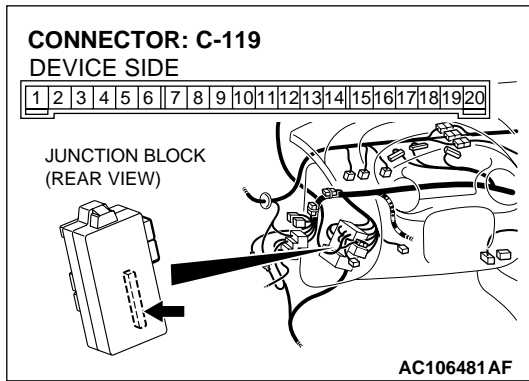


STEP 2. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



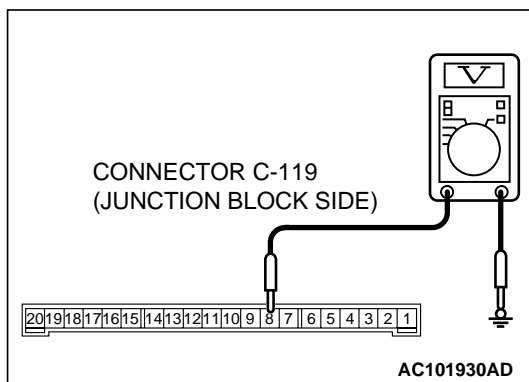
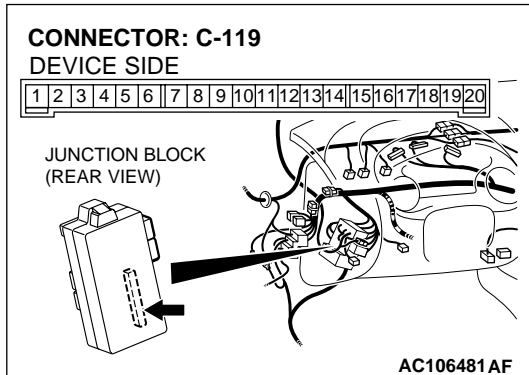
STEP 3. Check the wiring harness between ETACS-ECU connector C-119 (terminal 20) and the battery.

NOTE: Also check junction block connector C-112 and joint connector C-78 and intermediate connector C-89. If junction block connector C-112 or joint connector C-78 or intermediate connector C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 20) and the battery in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



STEP 4. Measure at ETACS-ECU connector C-119 in order to check the ignition switch (IG1) line of the power supply to the ETACS-ECU.

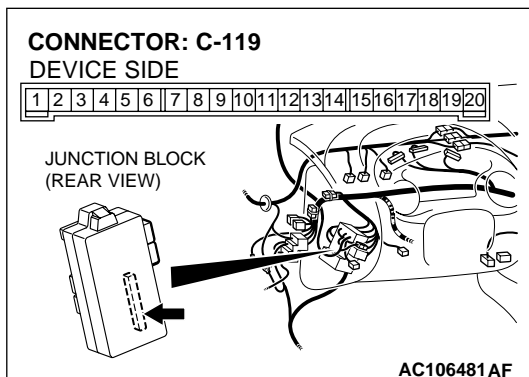
- (1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.
- (2) Turn the ignition switch to the "ON" position.

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

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.

NO : Go to Step 5.

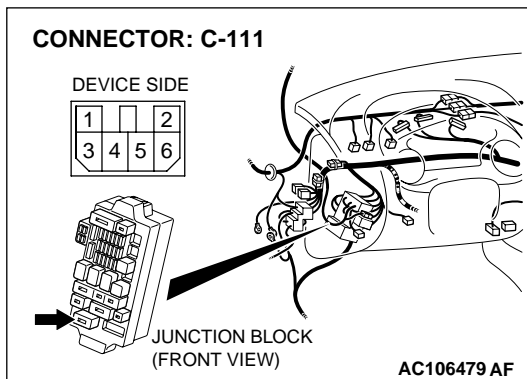
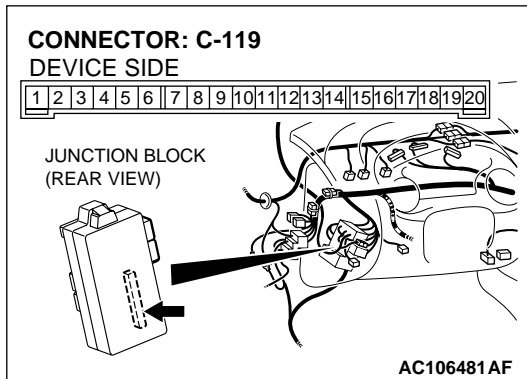


STEP 5. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.

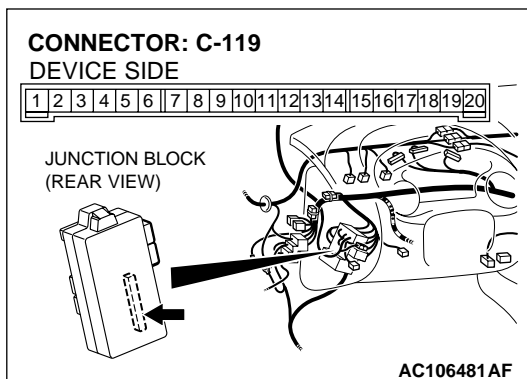


STEP 6. Check the wiring harness between ETACS-ECU connector C-119 (terminal 8) and the ignition switch (IG1).
NOTE: Also check junction block connector C-111. If junction block connector C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 8) and the ignition switch (IG1) in good condition?

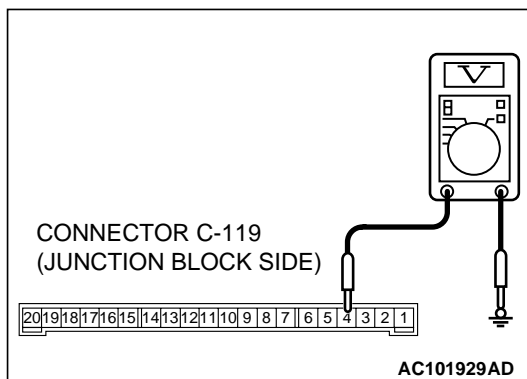
YES : No action to be taken.

NO : Repair the wiring harness. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



STEP 7. Measure at ETACS-ECU connector C-119 in order to check the ignition switch (ACC) line of the power supply to the ETACS-ECU.

- (1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.
- (2) Turn the ignition switch to the "ACC" position.

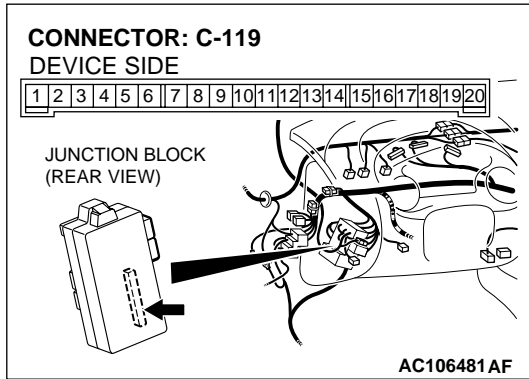


- (3) Measure the voltage between terminal 4 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 10.

NO : Go to Step 8.

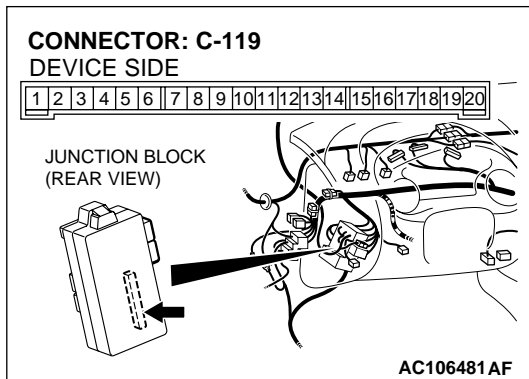


STEP 8. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

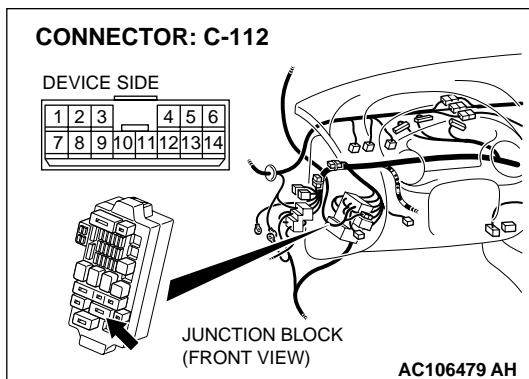
YES : Go to Step 9.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



STEP 9. Check the wiring harness between ETACS-ECU connector C-119 (terminal 4) and the ignition switch (ACC).

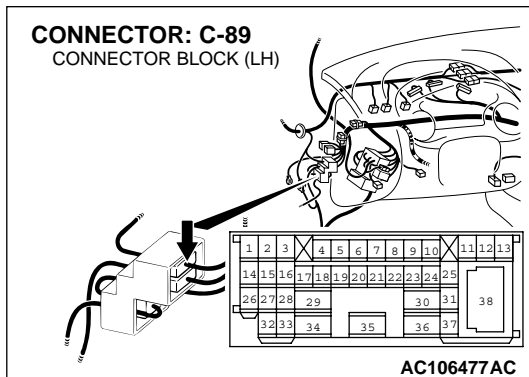
NOTE: Also check junction block connector C-112 and intermediate connector C-89. If junction block connector C-112 or intermediate C-89 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

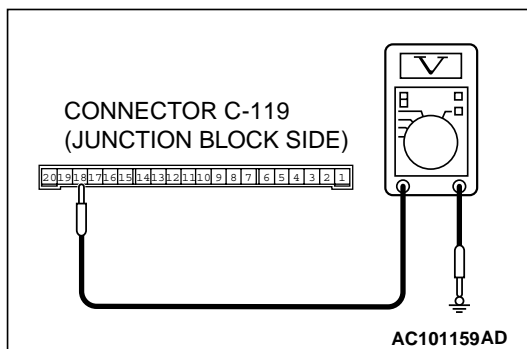
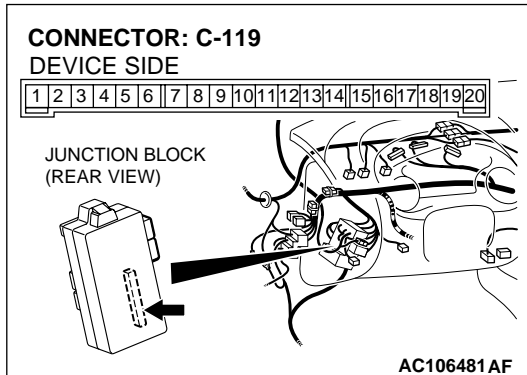


Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 4) and ignition switch (ACC) in good condition?

YES : No action to be taken.

NO : Repair the wiring harness. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.





STEP 10. Measure at ETACS-ECU connector C-119 in order to check the ignition switch (ACC) line of the power supply to the ETACS-ECU.

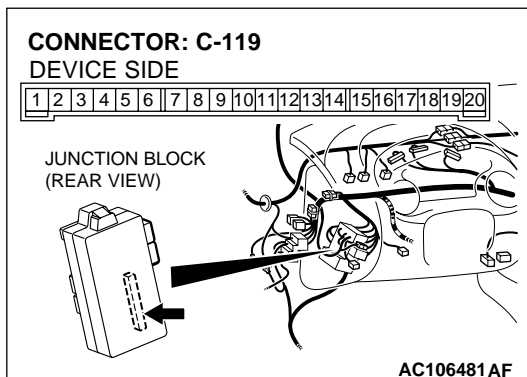
- (1) Disconnect ETACS-ECU connector C-119, and measure at the junction block side.
- (2) Turn the ignition switch to the "ACC" position.

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

Q: Does the measured voltage correspond with this range?

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

NO : Go to Step 11.

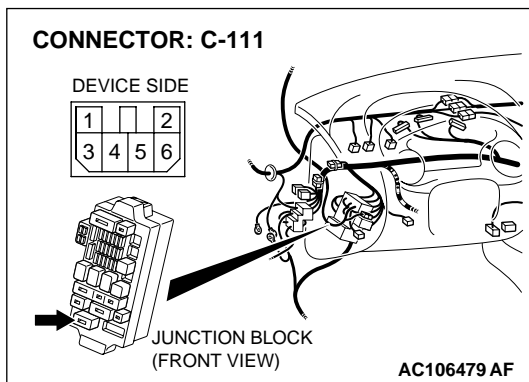
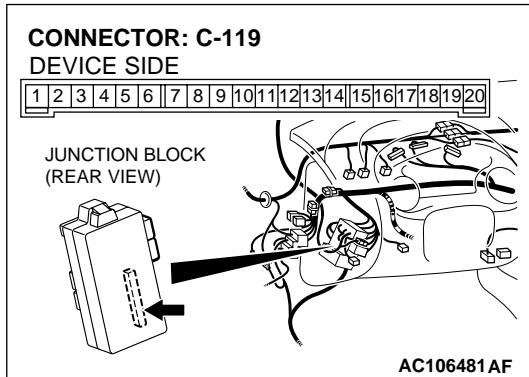


STEP 11. Check ETACS-ECU connector C-119 for damage.

Q: Is ETACS-ECU connector C-119 in good condition?

YES : Go to Step 12.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.



STEP 12. Check the wiring harness between ETACS-ECU connector C-119 (terminal 18) and the ignition switch (ACC).

NOTE: Also check junction block connector C-111. If junction block connector C-111 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-119 (terminal 18) and ignition switch (ACC) in good condition?

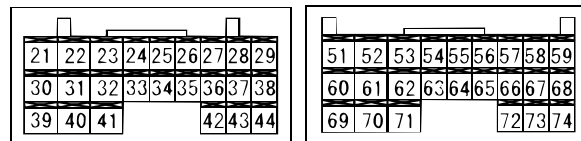
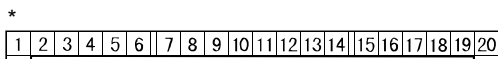
YES : No action to be taken.

NO : Repair the wiring harness. If the functions or equipment, which are described in "CIRCUIT OPERATION", work normally, the interior light loaded signal should be normal.

CHECK AT ECU TERMINAL

M1549001200265

1. ETACS-ECU



AC101265

*NOTE: *: The terminal 1 to 20 connectors can not be measured as the ETACS-ECU is installed directly on the junction block. Therefore, this information is only for reference.*

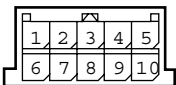
TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Output to power window relay	When the power windows can work	Battery positive voltage
2	Battery positive voltage (for central door lock)	Always	Battery positive voltage
3	Ground (for ECU)	Always	0 V
4	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
5	Output to dome light	When dome light is on	2V or less
6	Interior light (dome light and luggage compartment light <ECLIPSE> and trunk light <ECLIPSE SPYDER>) power supply	Always (when interior light shutoff function is not operating)	Battery positive voltage
7	–	–	–
8	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
9	Output to turn-signal light (RH)	When turn-signal light (RH) is on	Battery positive voltage
10	Input from driver's door switch	Driver's door switch: ON (driver's door open)	0 V
11	Battery power supply for turn-signal light	Always	Battery positive voltage
12	Output to door lock	When door lock actuator is operating (doors locked)	Battery positive voltage
13	Output to door unlock (excluding driver's door)	When door lock actuator is operating (doors unlocked)	Battery positive voltage
14	Output to turn-signal light (LH)	When turn-signal light (LH) is on	Battery positive voltage
16	Rear wiper output	When rear wiper is operating	Battery positive voltage
17	Input of rear wiper automatic stop signal	When rear wiper is operating	Battery positive voltage
18	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
19	–	–	–
20	Battery power supply (for ECU)	Always	Battery positive voltage
21	Input of driver's seat belt switch signal	Driver's seat belt switch: ON (seat belts unfastened)	0 V
22	Output to door unlock (for driver's door)	When driver's door lock actuator is operating (doors unlocked)	Battery positive voltage
23	Rear washer output	When rear washer is operating	0 V
24	Input signal from the hood switch	Hood switch: ON	0 V
25	Input of driver's door lock key cylinder switch (UNLOCK) signal	Driver's door lock key cylinder switch: UNLOCK	0 V
27	Input of liftgate lock key cylinder switch signal <ECLIPSE>	liftgate lock key cylinder switch: ON	0 V
	Input of trunk lid lock key cylinder switch signal <ECLIPSE>	trunk lid lock key cylinder switch: ON	0 V
29	–	–	–
30	Input of key reminder switch signal	Key reminder switch: ON (when ignition key is removed)	0 V

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
31	Input of front passenger's door lock key cylinder switch (UNLOCK) signal	Front passenger's door lock key cylinder switch: UNLOCK	0 V
32	–	–	–
33	Input of door lock switch signal (LOCK)	Door lock switch (incorporated in power window switch): LOCK	0 V
34	Input of door lock switch signal (UNLOCK)	Door lock switch (incorporated in power window switch): UNLOCK	0 V
35	Input of driver's door lock actuator switch (LOCK) signal	Driver's door lock actuator switch: LOCK	0 V
36	Input of driver's door lock actuator switch (LOCK) signal	Driver's door lock actuator switch: UNLOCK	0 V
37	Input of trunk lid latch switch signal <ECLIPSE SPYDER-vehicles with theft-alarm system>	Trunk lid latch switch: ON	0 V
	Input of trunk light switch signal <ECLIPSE SPYDER-vehicles without theft-alarm system>	Trunk light switch: ON	0 V
38	Ground (for sensor)	Always	0 V
39	Input of the backup light switch	backup light switch: ON	Battery positive voltage
	Input of "R" position signal from park/neutral position switch	Ignition switch: "ON," Selector lever: "R"	Battery positive voltage
40	Output to the theft-alarm horn relay	When the theft-alarm horn is enabled	Battery positive voltage
42	Input of door lock key cylinder switch (LOCK) signal	door lock key cylinder switch: LOCK	0 V
43	Input of front passenger's door lock actuator switch (UNLOCK) signal	front passenger's door lock actuator switch: UNLOCK	0 V
44	Output to horn relay	When a horn sounds by the keyless entry horn answerback function or the theft-alarm system	2V or less
51	Output to data link connector	When DTC sets	0 – 12 V (pulse signal)
		When input check signal is output	0 – 12 V (when input pulse signal is fluctuating)
52	Output to luggage compartment light <ECLIPSE>	When the luggage compartment light is illuminating	2V or less
	Output to trunk light <ECLIPSE SPYDER>	When the trunk light is on	2V or less
53	Output to door-ajar indicator light	When the door-ajar indicator light is on	2V or less
54	Input of fog light switch signal	Fog light switch: ON	0 V

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
55	Input of hazard warning light switch signal	Hazard warning light switch: ON (When the switch is depressed)	0 V
56	Ground (for sensor)	Always	0 V
59	SWS communication line	Always	0 – 12 V (pulse signal)
62	Input of liftgate latch switch signal <ECLIPSE-vehicles with theft-alarm system>	liftgate latch switch: ON	0 V
	Input of liftgate light switch signal <ECLIPSE-vehicles without theft-alarm system>	liftgate light switch: ON	0 V
63	Input of vehicle speed signal	When the vehicle is being driven	0 – 12 V (pulse signal)
65	Input of front passengers's door switch signal	Front passenger's door switch: ON (front passenger's door open)	0 V
66	Input of signal from windshield intermittent wiper interval adjusting knob	Ignition switch: "ACC," Windshield intermittent wiper interval adjusting knob: "FAST" → "SLOW"	0 → 2.5 V
67	Input of diagnosis indication selection	When scan tool is connected	0 V
68	Output of data request signal	Always	0 – 12 V (pulse signal)
69	–	–	–
71	Interior light (door-ajar indicator light) power supply	Always (when interior light shutoff function is not operating)	Battery positive voltage
72	Output to hi-beam indicator light	When the hi-beam indicator light is illuminating	2V or less
73	Output to seat belt warning light	When seat belt warning light is on	2V or less
74	Output to the theft-alarm indicator light	When the theft-alarm indicator light is on	2V or less

2. COLUMN SWITCH

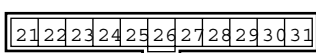
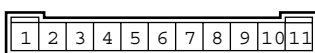


ACX01512

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Battery power supply	Always	Battery positive voltage
2	Input of data request signal	Always	0 – 12 V (pulse signal)
3	SWS communication line	Always	0 – 12 V (pulse signal)
4	Ground	Always	0 V

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
6	Output of signal from windshield intermittent wiper interval adjusting knob	Igniting switch: "ACC," Windshield intermittent wipe interval adjusting knob: "FAST" → "SLOW"	0 → 2.5 V
8	Output of backup signal from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply to ignition switch (IG1)	Ignition switch: "ON"	Battery positive voltage
10	Output of backup signal from headlight switch	Ignition switch: "ON," Headlight switch: ON	0 V

3. FRONT-ECU



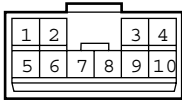
ACX01513

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

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Output to the fog light relay	When the fog light is able to operate	Battery positive voltage
2	Output to headlight (high-beam)	When headlights (high-beam) are on	Battery positive voltage
3, 4	Battery power supply (for headlight)	Always	Battery positive voltage
5	Battery power supply (for taillight)	Always	Battery positive voltage
6	Output to headlight (low-beam)	When headlights (low-beam) are on	Battery positive voltage
7	Battery power supply (for ECU)	Always	Battery positive voltage
8	Output to taillights	When taillights are on	Battery positive voltage
21	Output to windshield washer	When windshield washer is on	Battery positive voltage
22	SWS communication line	Always	0 – 12 V (pulse signal)
23	Input of automatic stop signal to windshield wiper	When windshield wiper is on	Battery positive voltage
24	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	Battery positive voltage
25	Input of backup signal from headlight switch	Headlight switch: ON	0 V
26	Input of backup signal to windshield wiper	Windshield low-speed wiper switch or windshield high-speed wipe switch: ON	0 V
27	Output to windshield wiper (low-speed)	When windshield wiper is on (at low speed)	Battery positive voltage

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
28	Output to windshield wiper (high-speed)	When windshield wiper is on (at high speed)	Battery positive voltage
30	Power supply to ignition switch (IG2)	Ignition switch: "ON"	Battery positive voltage
31	Ground	Always	0 V

4. SUNROOF MOTOR ASSEMBLY

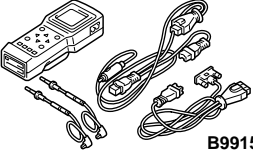
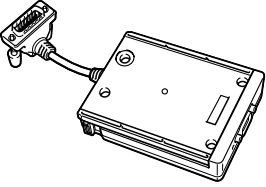
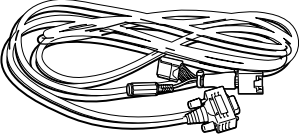
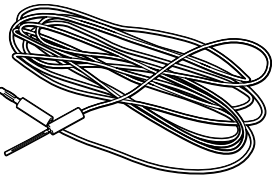
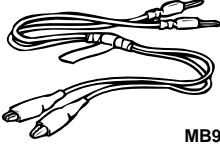


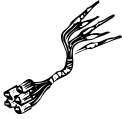
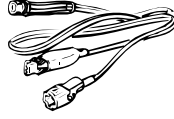
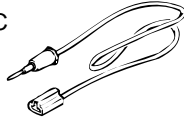

ACX01514

TERMINAL	INSPECTION ITEMS	INSPECTION CONDITION	NORMAL VALUE
1	Battery power supply (for motor)	Always	Battery positive voltage
2	Power supply to ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
3	Battery power supply (for ECU)	Always	Battery positive voltage
5	Ground	Always	0 V
6	Input signal ("CLOSE/DOWN") from the sunroof switch	Sunroof switch: "CLOSE/DOWN"	0 V
7	Input signal ("UP") from the sunroof switch	Sunroof switch: "UP"	0 V
8	Input signal ("OPEN") from the sunroof switch	Sunroof switch: "OPEN"	0 V
10	SWS communication line	Always	0 – 12 V (pulse signal)

SPECIAL TOOLS

M1549000300311

TOOL	TOOL NUMBER AND NAME	SUPERSESION	APPLICATION
 <p>B991502</p>	<p>MB991502 Scan tool (MUT-II)</p>	<p>MB991496-OD</p>	<p>Checking the diagnostic trouble code and input signal</p>
<p>A</p>  <p>B</p>  <p>C</p>  <p>B991862</p>	<p>MB991862 A: MB991806 B: MB991812 C: MB991822</p>	<p>SWS monitor kit A: SWS monitor cartridge B: SWS monitor harness (for column-ECU) C: Probe harness</p>	<p>SWS communication line check (ECU check and service data)</p>
 <p>MB991529</p>	<p>MB991529 Diagnostic trouble code check harness</p>	<p>Tool not necessary if the scan tool (MUT-II) is available</p>	<p>Checking input signal when using a voltmeter</p>

TOOL	TOOL NUMBER AND NAME	SUPERSESSON	APPLICATION
<p>A</p>  <p>B</p>  <p>C</p>  <p>D</p>  <p>MB991223AD</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222</p> <p>Harness set A: test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>MB991223</p>	<p>Making voltage and resistance measurement during troubleshooting A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>

ON-VEHICLE SERVICE

ADJUSTMENT PROCEDURES OF SWS FUNCTION

M1549002500236

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Toll (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

The following functions can be enabled or disabled by operating input switches in a special manner. This set mode is stored after the battery is disconnected.

- Keyless entry hazard answerback function
- Headlight automatic shutdown function
- Initialization of above mentioned functions

NOTE: The keyless entry hazard answerback can be also adjusted by operating the RKE transmitter. (however, this adjustment can be done more easily by operating the transmitter.) Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Enabling/disabling the Answerback Function P.42-82.

Entry conditions for adjustment mode

1. Set switches to the following conditions:
 - Hazard warning light switch: OFF
 - Diagnosis control: ON (Connect scan tool MB991502 to the data link connector, or connect the data link connector terminal 1 to ground.)
 - Key reminder switch: OFF (insert the ignition key)
 - Ignition switch: "LOCK" (OFF)
 - Driver's door switch: OFF (driver's door?)
2. If the windshield washer switch remains on for 10 seconds or more, the tone alarm incorporated in the ETACS-ECU sounds once, and then enter the adjustment mode.

Release conditions for the adjustment mode

The adjustment mode will be released under one of the following conditions:

- Diagnosis control: OFF (Disconnect scan tool MB991502 from the data link connector, or disconnect the data link connector terminal 1 from ground.)
- Key reminder switch: ON (ignition key removed)
- Ignition switch: Turn to the positions other than "LOCK" (OFF).
- Driver's door switch: ON (driver's door open)
- After three minutes while the adjustment is not made (If any adjustment has been made within the three-minute period, cancel or complete the operation, and then release the adjustment mode within three minutes).
- When any other warning tone alarms sound

Configuration of Functions

ITEMS	ADJUSTMENT PROCEDURES
Keyless entry hazard answerback	<p>If the transmitter "LOCK" switch is turned on twice within two seconds, the lock answerback function is enabled or disabled.</p> <ul style="list-style-type: none"> • If the function is enabled, the tone alarm sounds once. (initial status) • If the function is disabled, the tone alarm sounds twice. <p>If the transmitter "UNLOCK" switch is turned on twice within two seconds, the unlock answerback function is enabled or disabled.</p> <ul style="list-style-type: none"> • If the function is enabled, the tone alarm sounds once. (initial status) • If the function is disabled, the tone alarm sounds twice.
Vehicle speed-dependent wiper function	<p>The vehicle speed-dependent wiper function is enabled or disabled by turning on the windshield wiper mist switch for two seconds or more.</p> <ul style="list-style-type: none"> • Enabled: the tone alarm sounds once. (initial status) • Disabled: the tone alarm sounds twice.
Headlight automatic shutdown function	<p>If the passing switch is turned ON for more than two seconds with the headlight switch turned to ON and the turn signal light switch (RH) turned ON, the headlight automatic shutdown function is switched in the following order: (Next to "c", the function returns to "a" and repeats the sequence from "a".)</p> <ol style="list-style-type: none"> a. With the ignition switch in "LOCK" (OFF) position, the automatic shutdown function is enabled when the lighting switch is turned ON and the tone alarm sounds once. b. If the function is disabled, the tone alarm sounds twice. c. When the function is enabled (While the ignition switch is at "LOCK" (OFF) position, the automatic shutdown function is enabled when the lighting switch is turned ON.), the tone alarm sounds three times. (initial status)
The delay-off time of the dome light	<p>When the turn-signal light switch is moved in the order of RH → LH → RH → LH within three seconds, the dome light delay-off time will be changed as follows. (Next to "e", the function returns to "a" and repeats the sequence from "a".)</p> <ol style="list-style-type: none"> a. 30 seconds: the tone alarm sounds once. b. 10 seconds: the tone alarm sounds twice. c. 0 second (no delay-off time): the tone alarm sounds three times. d. 15 seconds: the tone alarm sounds four times. (initial status) e. 7.5 seconds: the tone alarm sounds five times.
Interior light automatic shutoff function	<p>The interior light automatic shutdown function is disabled or enabled by turning the hazard warning light switch for two seconds or more.</p> <ul style="list-style-type: none"> • Enabled: the tone alarm sounds once. (initial status) • Disabled: the tone alarm sounds twice.
Initialization of above mentioned functions	<p>If the windshield washer switch is turned ON for more than 20 seconds, the tone alarm sounds twice and all functions are initialized. (The configuration mode entry tone alarm sounds after 10 seconds, but the switch must kept ON for 20 seconds to achieve initialization.)</p> <p>If the windshield washer switch is kept ON for more than 20 seconds without prior entry of the configuration mode, the configuration mode is entered after 10 seconds and initialization does not take place.</p>