GROUP 54B

SIMPLIFIED WIRING SYSTEM (SWS)

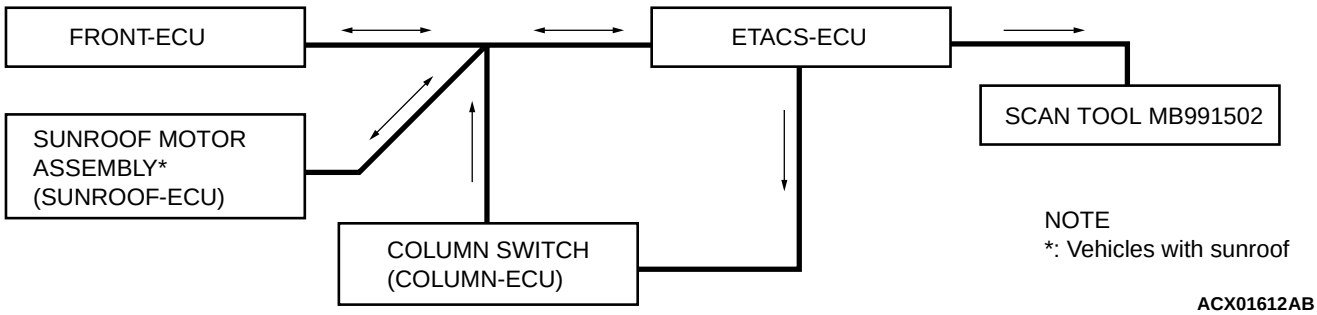
CONTENTS

GENERAL DESCRIPTION

COMMUNICATION METHOD

M1549013000042

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

M1549013100049

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 "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.

Low Fuel Level Tone Alarm Function

If seven seconds have passed after ignition switch has been set to the position "ON," and then, low fuel level signal (low fuel level alarm light) from ECM or PCM, is turned "ON," ETACS-ECU makes buzzer sound.Buzzer sounds just once after setting ignition switch to the position "ON."

CENTRAL DOOR LOCKING SYSTEM

Central Door Locking System Operation

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

Forgotten Key Prevention Function

- If the driver's door is open (door switch turned ON), when the key is inserted in the ignition switch (key reminder switch turned OFF), the ETACS-ECU activates the door unlock relay for 0.5 second to prevent the door from being locked.

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

POWER WINDOW RELAY CONTROL

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

Power Window Timer Function
When the ignition switch is turned from the "ON" position to "LOCK" (OFF) or "ACC" position, the power windows can be operated for thirty seconds. If any door is opened for the thirty 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 interior lights 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 interior lights flashes twice when the doors are locked. Meanwhile, when the doors are unlocked, the hazard warning lights flash and the interior lights illuminates for thirty seconds. The hazard and the horn answerback functions can be cancelled by using the transmitter.

SUNROOF

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

Sunroof Timer Function
When the ignition switch is turned from "ON" position to "LOCK" (OFF) or "ACC" position, the sunroof can be operated for thirty seconds. If any door is opened for the thirty 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 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 and vehicle speed. 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 ON position with the ignition switch at "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 wiper auto stop signal turns on after the windshield mist wiper switch is 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 0.6 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, the windshield washer works for that period when the windshield washer switch remains on. Then the wipers return to the intermittent mode.

REAR WIPER AND WASHER

Rear Wiper Operation

If the rear wiper switch is turned to ON position with the ignition switch at "ACC" or "ON" position, the ETACS-ECU cause the rear wiper to operate continuously two times then intermittently at eight-second intervals.
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 at "ACC" or "ON" position, inhibitor switch "R" turns ON. One second later, the ETACS-ECU causes the rear wiper to operate two times continuously to ensure good rearward visibility. The ETACS-ECU then causes the rear wiper to again operate intermittently at eight-second intervals.

Rear Washer Operation

If the rear washer switch is turned to ON position with the ignition switch at "ACC" or "ON" position, the rear washer ON signal is sent to the ETACS-ECU, causing the rear wiper signal to turn on after 0.9 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 ON position while the rear wiper is at 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.

IGNITION KEY HOLE ILLUMINATION LIGHT

When the ignition switch is turned to the "LOCK" (OFF) or "ACC" position with the driver's door opened, the ignition key hole illumination light is illuminated. If the door is closed in that state, the light goes out after 30 seconds or it illuminates for 30 seconds after the ignition key is removed. In either case the light does out when the ignition switch is turned to the "ON" position.

Door Ajar Warning Light

If any of the doors or the trunk lid are open, ETACS-ECU illuminates door ajar warning light.

HEADLIGHT

Headlight Automatic Shutdown Function

- If ignition switch is set to the position "OFF" with lighting switch (taillight switch and headlight switch) "ON," illumination is automatically turned off after 10 minutes to prevent battery's running out.If lighting switch is set to the position "OFF" 45 seconds or more after ignition switch is set to the position "OFF," illumination is immediately turned off.Next time the lighting switch is set to the position "ON," illumination won't be automatically turned off.
- If headlight switch and taillight switch are set to the position "OFF" within 45 seconds after headlight switch is set to the position "ON" and ignition switch to the position "OFF," ETACS-ECU illuminates only the headlight for the following 60 seconds.If the lighting switch is, again, set to the position "ON" and then to the position "OFF" within the 60 seconds, illumination is immediately turned off.

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" position, the ETACS-ECU controls the dome light operation as follows:

NOTE: Interior lights and rear personal light are controlled, only when switch position is set to the position "door controlled operation"

- 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 the 100% intensity. When the door is closed, it dims out the dome light to 65% intensity and approximately 30 seconds later, turns out the light completely. During this period (timer controlled period), the dome light goes out if the ignition switch is turned "ON" or the doors are locked.
- When a door is opened or closed with the ignition switch in the The dome light illuminates at 100% intensity when a door is opened and turned out when it is closed.
- When no door is opened and the ignition key is removed:
  When the ignition key is removed with all the doors closed, the dome light is illuminated at an intensity of 100% and turned out 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 ascertain the result of the door locking/unlocking control action by the use of the keyless entry system, the ETACS-ECU causes the dome light to blink twice when the doors are locked through the system and to illuminate for approximately 15 seconds when the doors are locked
  The dome light's answerback operation in response to a keyless entry system control action is accompanied by operation of the hazard warning lights.

THEFT-ALARM SYSTEM

Theft-alarm System Operation
When the theft-alarm system has been armed if a door, liftgate or hood is opened, the horn will sound and headlights flash (high-beam) intermittently for a period of 180 seconds.

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

SWS DIAGNOSIS

INTRODUCTION TO SWS DIAGNOSIS

M1549001900059

The SWS reduces the number of wires by sending multiple signals along a single wire. This reduces vehicle weight and simplifies construction by reducing wiring harness complexity weight. The ETACS-ECU, front-ECU, column switch (incorporated in column-ECU) and sunroof motor assembly (incorporated in sunroof-ECU) have multiplex signal circuits that enable them to transmit and/or receive multiple signals and communicate with other control unit.

SWS DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1549000500069

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a SWS fault.

1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists.
3. Check the vehicle for any SWS DTC.
4. If you cannot verify the condition and there are no SWS DTCs, the malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/ Inspection Service Points – How to Cope with Intermittent Malfunctions P.00E-5.
5. If you can verify the condition but there are no SWS DTCs, or the system cannot communicate with the scan tool, refer to Symptom Chart.
6. If there is a SWS DTC, perform the diagnostic procedures for the DTC. Refer to Diagnostic Trouble Chart.

SWS TROUBLE CODE DIAGNOSIS

M1549000600055

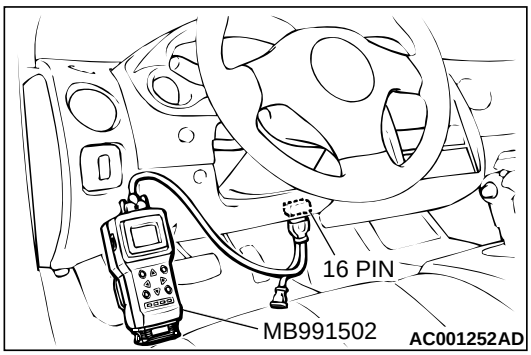
Retrieving SWS Diagnostic Trouble Codes

Required Special Tool:

- MB991502: Scan Tool (MUT-II)

⚠ 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. Use scan tool MB991502 to check for SWS diagnostic trouble codes.
3. Turn the ignition switch to the "LOCK" (OFF) position.
4. Disconnect scan tool MB991502.

Input Signal Check Function

This mode checks the switch input signals to each ECU incorporated in the SWS. If a defect is found at this check, carry out the troubleshooting by referring to Symptom Chart.

<When using scan tool MB991502>

Required Special Tool:

- MB991502: Scan Tool (MUT-II)

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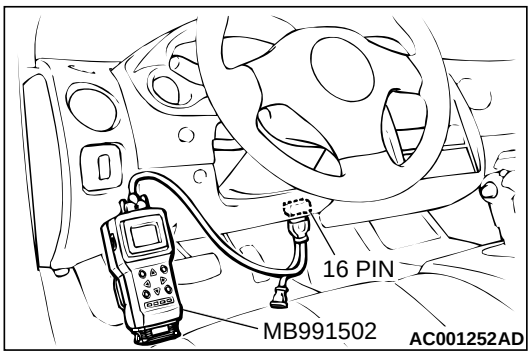
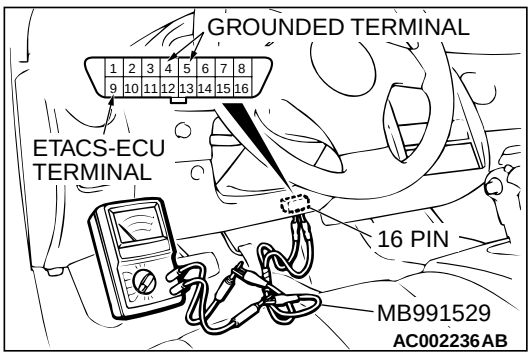


⚠ CAUTION

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. If input signal is sent to the data link connector, tone alarm of scan tool MB991502 will sound.
3. Turn the ignition switch to the "LOCK" (OFF) position.
4. Disconnect scan tool MB991502.



<When using a voltmeter>

Required Special Tool

- MB991529: Diagnostic Trouble Code Check Harness

1. Connect special tool MB991529 to connect a voltmeter between grounded terminal 4 or 5 and ETACS-ECU terminal 9 of the 16 pin data link connector.
2. If input signal is sent to the data link connector, the voltmeter needle will fluctuate once.
3. Disconnect special tool MB991529.

Requirements for which switches send input signals

SWITCHES WHICH SEND INPUT SIGNAL	REQUIRED
Ignition switch (ACC)	Turn from "LOCK" (OFF) to "ACC"
Ignition switch (IG1)	Turn from "ACC" to "ON"
Key reminder switch	Remove the ignition key from ignition key cylinder (from inserted position)
Hazard warning light switch	Turn from OFF to ON
Fog light switch <Vehicles with fog light>	
Backup light switch <M/T, vehicles with rear wiper and washer>	When actual washer fluid level gets lower than the float position of washer fluid level switch
Park/neutral position switch "R" position <A/T, vehicles with rear wiper and washer>	When actual washer fluid level gets lower than the float position of washer fluid level switch
Rear wiper motor auto-stop signal <Vehicles with rear wiper and washer>	When actual washer fluid level gets lower than the float position of washer fluid level switch
Driver's seat belt switch	Remove the seat belt tongue from the seat belt buckle with the ignition key "ON" position
Driver's or passenger's door switch	Open the door
Driver's or passenger's door lock key cylinder switch	Turn the key to the lock or unlock position

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SWITCHES WHICH SEND INPUT SIGNAL		REQUIRED
Driver's or passenger's door lock actuator switch		Move the door lock knob from lock position to unlock position or vice versa
Door lock switch (incorporated in power window main switch and power window sub switch)		Press "LOCK" or "UNLOCK" side
Hood switch <Vehicles with theft-alarm system>		Open the trunk lid
Liftgate latch switch <Vehicles with theft-alarm system>		Open the liftgate
Liftgate lock key cylinder switch <Vehicles with theft-alarm system>		Turn the key to the unlock position
Column switch	Taillight switch	Turn the lighting switch from "OFF" to "TAILLIGHT" position
	Headlight switch	Turn the lighting switch from "TAILLIGHT" to "HEADLIGHT" position
	Passing light switch	Turn the dimmer/passing switch from "OFF" to "PASSING" position
	Dimmer switch	Turn the dimmer/passing switch from "PASSING" to "DIMMER" position
	Turn-signal light switch	Turn from OFF to ON
	Windshield mist wiper switch	
	Windshield intermittent wiper switch	
	Windshield low-speed wiper switch	
	Windshield high-speed wiper switch	
	Windshield intermittent wiper interval adjusting knob	Rotate the windshield intermittent wiper interval adjusting knob from "FAST" to "SLOW" when the ignition switch is at "ON" position (The ETACS-ECU sends a signal around the medium knob position)
	Windshield washer switch	Turn from OFF to ON
	Rear wiper switch <Vehicles with rear wiper and washer>	
	Rear washer switch <Vehicles with rear wiper and washer>	
Sunroof switch <Vehicles with sunroof>	"CLOSE/TILT-DOWN" position	Turn from OFF to ON
	"TILT-UP" position	
	"OPEN" position	
Transmitter <Vehicles with keyless entry system>	"LOCK" switch	
	"UNLOCK" switch	
	"PANIC" switch <Vehicles with theft-alarm system>	

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DIAGNOSTIC TROUBLE CODE CHART

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Refer to the relevant page according to the diagnostic troubles codes.

DIAGNOSTIC TROUBLE CODE NO.	DESCRIPTION	REFERENCE PAGE
11	ETACS-ECU fault	P.54B-13
12	Column switch fault or improper connection to the ETACS-ECU	P.54B-14
13	Front-ECU fault	P.54B-20
21	Short circuit in communication line	P.54B-26

SYMPTOM CHART

M1549000800059

SYSTEMS	SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Scan tool MB991502 communication is not possible.		A-1	P.54B-31
Tone alarm	Ignition key reminder tone alarm function does not work normally.	B-1	P.54B-35
	Light reminder tone alarm function does not work normally.	B-2	P.54B-37
	Seat belt tone alarm function does not work normally.	B-5	P.54B-38
Central door locking system	Central door locking system does not operate.	C-1	P.54B-40
	Some doors do not lock or unlock.	C-2	P.54B-46
	All the doors do not lock or unlock with just the door lock switch operation.	C-3	P.54B-51
	All the doors do not lock or unlock with just the door lock key cylinder key operation.	C-4	P.54B-52
	All the doors do not lock with just the driver's inside lock knob lock operation.	C-5	P.54B-38
	Forgotten key prevention function does not work.	C-6	P.54B-54
Power window relay	Power windows do not work at all.	D-1	P.54B-56
	Power window timer function does not work normally.	D-2	P.54B-60
Keyless entry system	Keyless entry system does not operate.	E-1	P.54B-62
	The interior lights, the hazard warning lights and the horn do not operate through the answerback function.	E-2	P.54B-64
	The encrypted code cannot be registered.	E-4	P.54B-67

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SYSTEMS	SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Sunroof	Sunroof does not operate.	F-1	P.54B-69
	Any of the sunroof switch positions is defective.	F-2	P.54B-77
	Safety mechanism does not function.	F-3	P.54B-79
	The sunroof timer function dose not work normally.	F-4	P.54B-78
Windshield wiper and washer	Windshield wiper does not operate.	G-1	P.54B-81
	Any of the windshield wiper switch positions is defective.	G-2	P.54B-86
	Windshield wiper does not stop at the predetermined park position.	G-3	P.54B-89
	Windshield intermittent wiper interval cannot be adjusted.	G-4	P.54B-93
	Windshield washer does not work.	G-5	P.54B-96
Rear wiper and washer	Rear wiper does not work at all.	H-1	P.54B-81
	Rear wiper does not stop at the predetermined park position.	H-2	P.54B-86
	When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.	H-3	P.54B-89
	Rear washer does not work.	H-4	P.54B-93
Seat belt warning light	The seat belt warning light does not work normally.	I-1	P.54B-115
Headlight, taillight	Taillights do not illuminate.	J-1	P.54B-120
	Headlights (low-beam) do not illuminate.	J-2	P.54B-125
	Headlights (high-beam) do not illuminate.	J-3	P.54B-131
	Headlights do not illuminate when the passing switch is operated.	J-4	P.54B-136
	The high-beam indicator light does not illuminate.	J-5	P.54B-144
	The headlight automatic shutdown function does not work normally.	J-6	P.54B-146
	Headlight dimmer switch automatic resetting function does not work normally.	J-7	P.54B-138
Flasher timer	Turn-signal lights do not flash when the turn-signal light switch is turned on.	K-1	P.54B-147
	Hazard warning lights do not flash when the hazard warning light switch is turned on.	K-2	P.54B-152

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SYSTEMS	SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
Fog light	Fog lights do not illuminate when the fog light switch is turned on.	L-1	P.54B-154
	Fog lights do not go out when the headlights (low-beam) are turned off while the fog lights are on.	L-2	P.54B-160
Dome light	The dome light does not illuminate.	M-1	P.54B-161
	The dome light dimming function does not work normally.	M-2	P.54B-166
Theft-alarm system	Theft-alarm system is not armed (Security indicator light does not illuminate)	N-1	P.54B-169
	The horn does not sound when the theft-alarm system is triggered.	N-2	P.54B-176
	The headlights (high-beam) do not flash when the theft-alarm system is triggered.	N-3	P.54B-184
	The panic alarm function does not work.	N-4	P.54B-184

DEFECTS FOUND BY INPUT SIGNAL CHECK

If the input signal check finds a defect, follow the table below to check.

SYMPTOMS	INSPECTION PROCEDURE	REFERENCE PAGE
The ignition switch (ACC) signal is not sent to the ETACS-ECU.	O-1	P.54B-186
The ignition switch (IG1) signal is not sent to the ETACS-ECU.	O-2	P.54B-188
The key reminder switch signal is not sent to the ETACS-ECU.	O-3	P.54B-190
The hazard warning light switch signal is not sent to the ETACS-ECU.	O-4	P.54B-193
The fog light switch signal is not sent to the ETACS-ECU.	O-5	P.54B-197
The backup light switch signal is not sent to the ETACS-ECU. <M/T>	O-6	P.54B-201
The park/neutral position switch "R" position signal is not sent to the ETACS-ECU. <A/T>	O-7	P.54B-207
The rear wiper motor auto-stop signal is not sent to the ETACS-ECU.	O-8	P.54B-212
The driver's seat belt switch signal is not sent to the ETACS-ECU.	O-9	P.54B-219
The driver's or passenger's door switch signal is not sent to the ETACS-ECU.	O-10	P.54B-224
The driver's or passenger's door lock key cylinder switch signal is not sent to the ETACS-ECU.	O-11	P.54B-231
The driver's or passenger's door lock actuator switch signal is not sent to the ETACS-ECU.	O-12	P.54B-239
The door lock switch (incorporated in power window main switch and power window sub switch) signal is not sent to the ETACS-ECU.	O-13	P.54B-247
The hood switch signal is not sent to the ETACS-ECU.	O-14	P.54B-256
The liftgate latch switch signal is not sent to the ETACS-ECU.	O-15	P.54B-260

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SYMPTOMS		INSPECTION PROCEDURE	REFERENCE PAGE
The liftgate lock key cylinder switch signal is not sent to the ETACS-ECU.		O-16	P.54B-266
Column switch	The taillight switch signal is not sent to the ETACS-ECU.	O-17	P.54B-272
	The headlight switch signal is not sent to the ETACS-ECU.		
	The passing light switch signal is not sent to the ETACS-ECU.		
	The dimmer switch signal is not sent to the ETACS-ECU.		
	The turn-signal light switch signal is not sent to the ETACS-ECU.		
	The windshield mist wiper switch signal is not sent to the ETACS-ECU.	O-18	P.54B-274
	The windshield intermittent wiper switch signal is not sent to the ETACS-ECU.		
	The windshield low-speed wiper switch signal is not sent to the ETACS-ECU.		
	The windshield high-speed wiper switch signal is not sent to the ETACS-ECU.		
	The windshield intermittent wiper intervals adjusting knob signal is not sent to the ETACS-ECU.	O-19	P.54B-276
	The windshield washer switch signal is not sent to the ETACS-ECU.	O-18	P.54B-274
	The rear wiper switch signal is not sent to the ETACS-ECU.		P.54B-274
	The rear washer switch signal is not sent to the ETACS-ECU.		P.54B-274
Sunroof switch	The "CLOSE/TILT-DOWN" switch signal is not sent to the ETACS-ECU.	O-20	P.54B-279
	The "TILT-UP" switch signal is not sent to the ETACS-ECU.		P.54B-279
	The "OPEN" switch signal is not sent to the ETACS-ECU.		P.54B-279
Transmitter	The "LOCK" switch signal is not sent to the ETACS-ECU.	O-21	P.54B-282
	The "UNLOCK" switch signal is not sent to the ETACS-ECU.		P.54B-282
	The "PANIC" switch signal is not sent to the ETACS-ECU.		P.54B-282

TSB Revision

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC 11: ETACS-ECU fault

DTC SET CONDITION

DTC 11 is displayed when the ETACS-ECU detects an error is its own data. This fault is limited to the ETACS-ECU.

TROUBLESHOOTING HINT

Malfunction of the ETACS-ECU

DIAGNOSIS

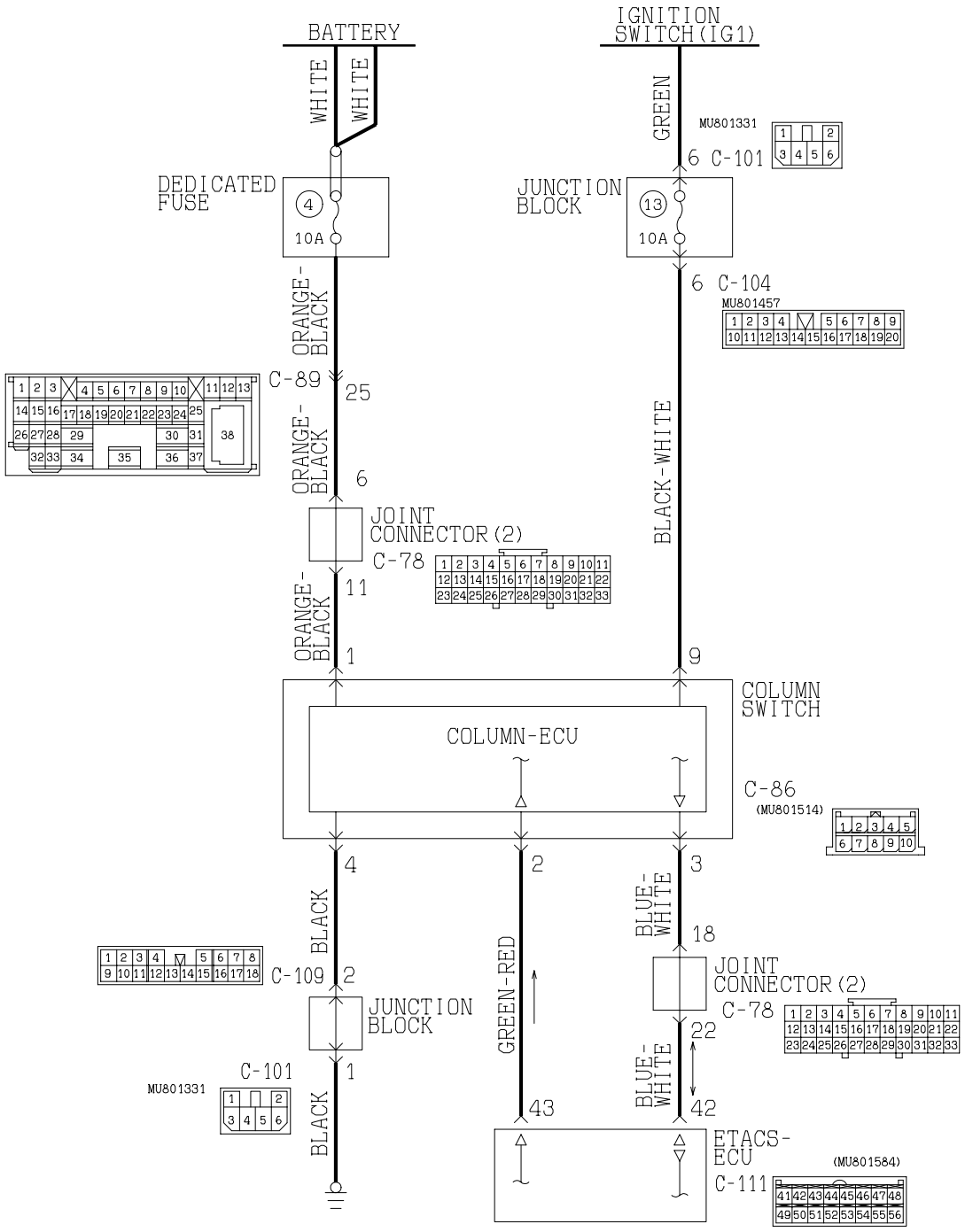
Required Special Tool:

- MB991502: Scan Tool (MUT-II)

Replace the ETACS-ECU.
Confirm that DTC 11 is not displayed.

DTC 12: Column switch fault or improper connection to the ETACS-ECU

Column Switch Power Supply and SWS Communication Circuit



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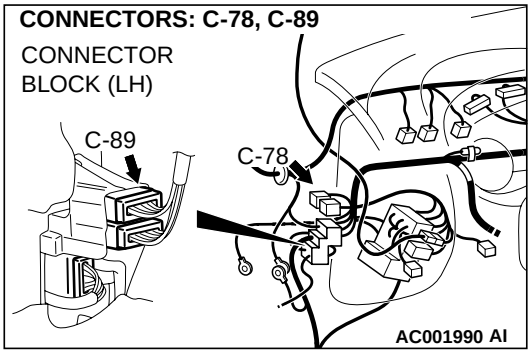
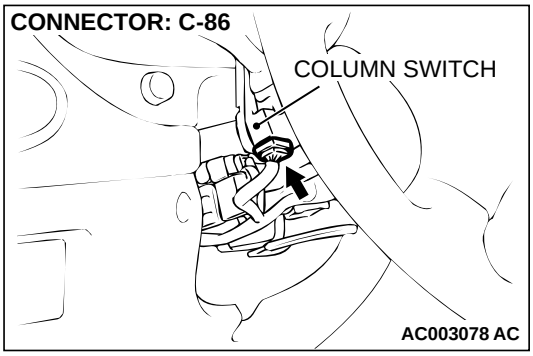
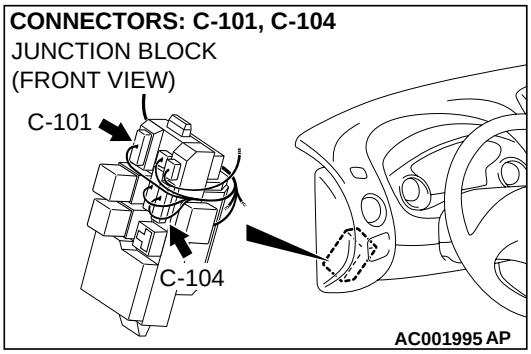
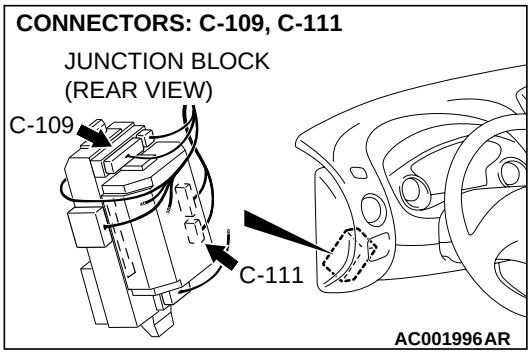
TSB Revision









CIRCUIT OPERATION

- The column switch (incorporated in ECU) is energized by the battery and the ignition switch (IG1). If one of the harness wires has an open circuit, power will be supplied by the other active harness wire.
- If the column switch (incorporated in ECU) receives a request signal from the ETACS-ECU, the column switch will inform the SWS communication line of various switch conditions.

DTC SET CONDITION

DTC 12 is displayed when the column switch (incorporated in ECU) sends an abnormal signal to the ETACS-ECU.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

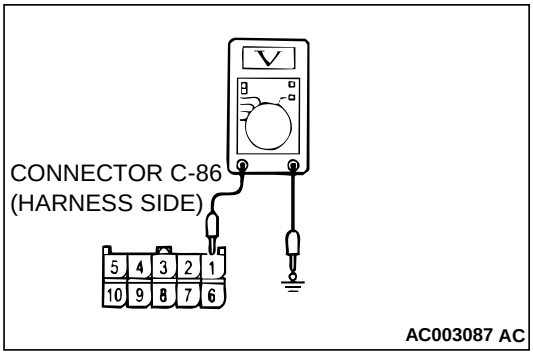
- MB991223: Harness Set

STEP 1. Check the ignition switch position.

Q: Does DTC 11 set with the ignition switch at "ON" position?

YES : Go to Step 5.
NO : Go to Step 2.

TSB Revision

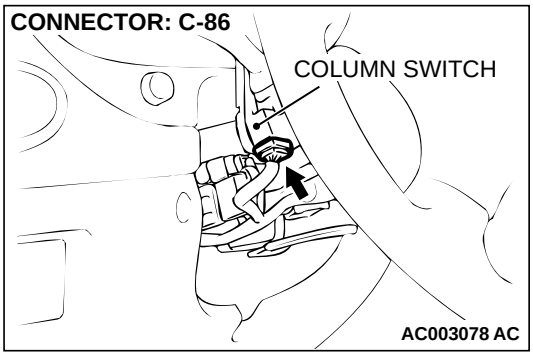


STEP 2. Check the column switch power supply circuit (battery circuit) at the column switch connector C-86 by back probing.

(1) Disconnect the column switch connector C-86 and measure at the harness side.
(2) Voltage between terminal 1 and ground.

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

YES : Go to Step 8.
NO : Go to Step 3.

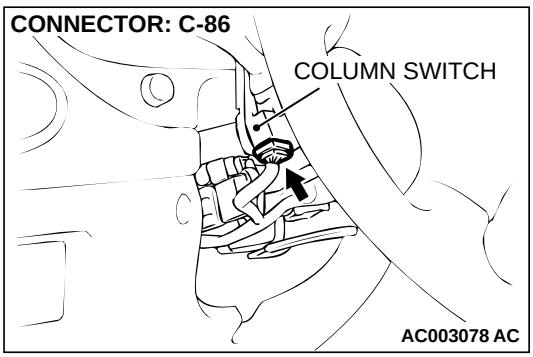


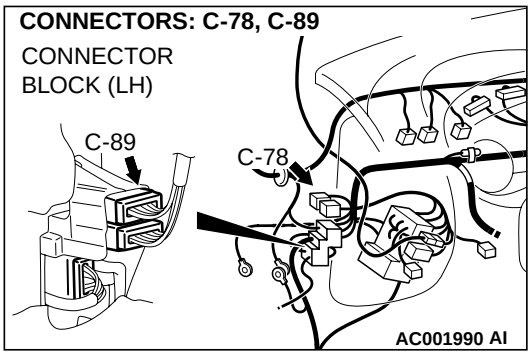
STEP 3. Check the column switch connector C-86 for damage.

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

YES : Go to Step 4.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 12 is not displayed.

TSB Revision





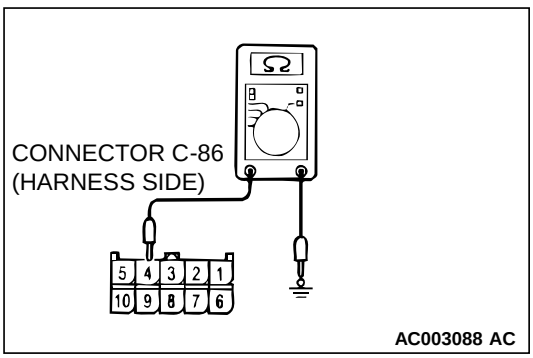
STEP 4. Check the harness wires between column switch connector C-86 and battery.

NOTE: After checking joint connectors C-78 and intermediate connector C-89, check the wires. If intermediate connector C-78 and joint connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between column switch connector C-86 and battery in good condition?

YES : There is no action to be taken.

NO : Repair them. Confirm the DTC 12 is not displayed.



STEP 5. Check the column switch ground circuit at the column switch connector C-86.

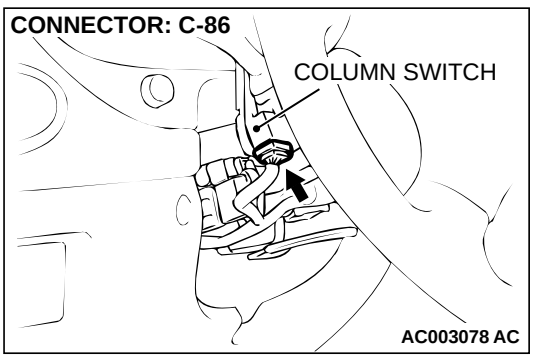
(1) Disconnect the column switch connector C-86 and measure at the harness side.

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

Q: Is the resistance less than 2 ohms?

YES : Go to Step 8.

NO : Go to Step 6.



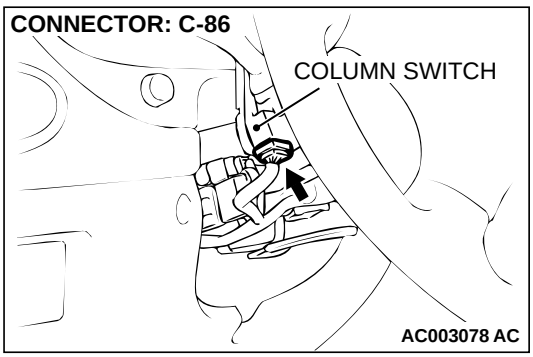
STEP 6. Check column switch connector C-86 for damage.

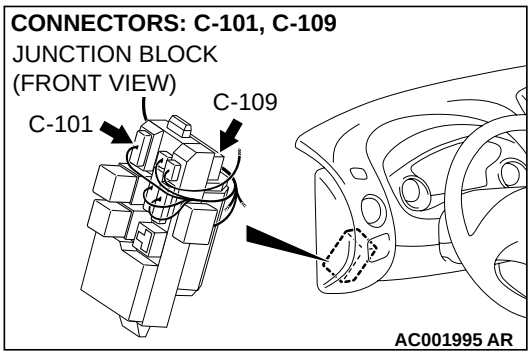
Q: Is column switch connector C-86 in good condition?

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 12 is not displayed.

TSB Revision





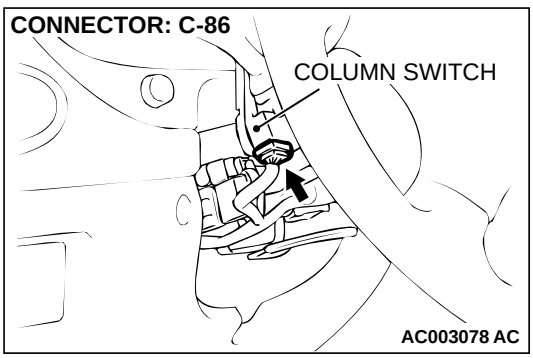
STEP 7. Check the harness wires between column switch connector C-86 and ground.

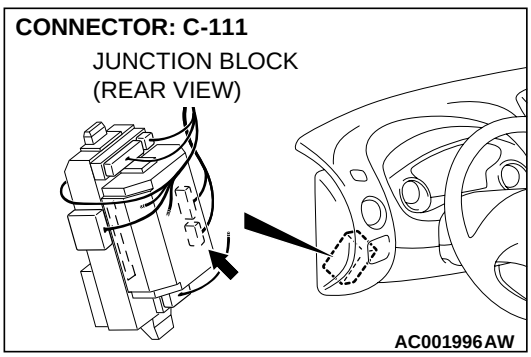
NOTE: After checking junction block connectors C-101 and C-109, check the wires. If junction block connectors C-101 and C-109 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between column switch connector C-86 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. Confirm the DTC 12 is not displayed.





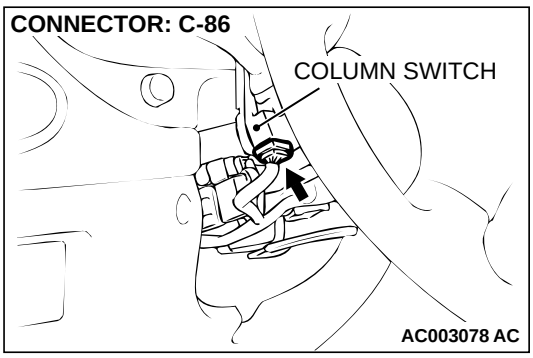
STEP 8. Check the column switch connector C-86 and ETACS-ECU connector C-111 for damage.

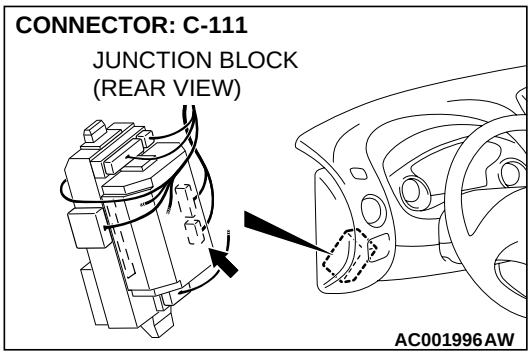
Q: Are column switch connector C-86 and ETACS-ECU connector C-111 in good condition?

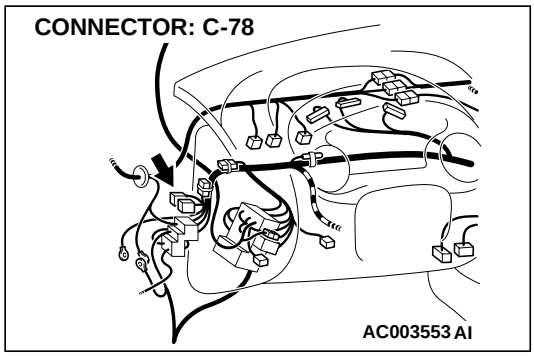
YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 12 is not displayed.

TSB Revision







STEP 9. Check the harness wires between column switch connector C-86 and ETACS-ECU connector C-111.

NOTE: After checking joint connector C-78, check the wires. If joint connector C-78 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between column switch connector C-86 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 10.

NO : Repair them. Confirm the DTC 12 is not displayed.

STEP 10. Replacement of ECU.

(1) Replace the column switch.

(2) Confirm the DTC 12 is not displayed.

Q: Does DTC 12 set?

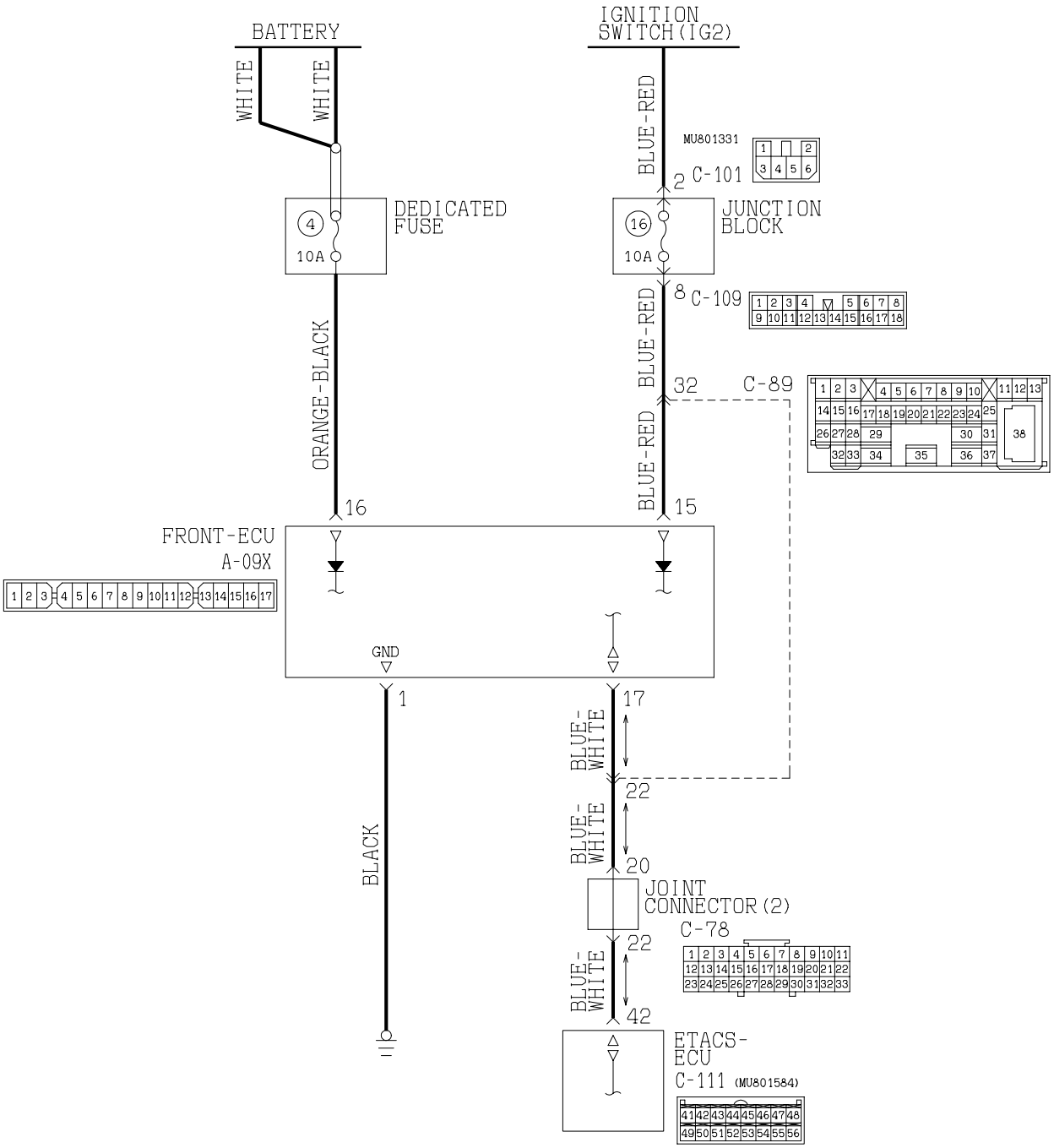
YES : Replace the ETACS-ECU. Confirm the DTC 12 is not displayed.

NO : There is no action to taken.

TSB Revision

DTC 13: Front-ECU fault

Front-ECU Power Supply and SWS Communication Circuit



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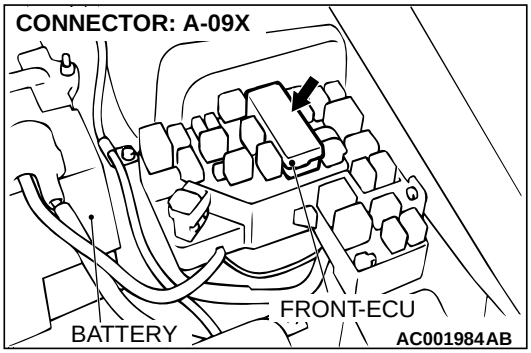
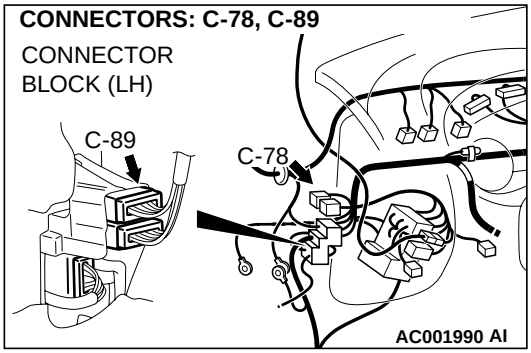
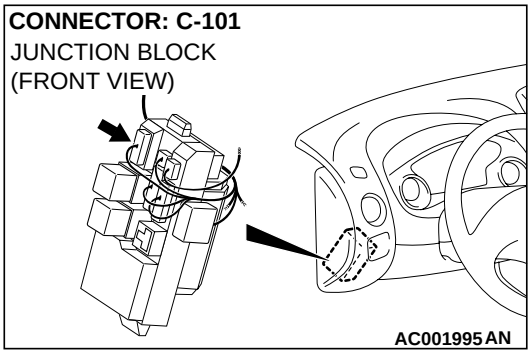
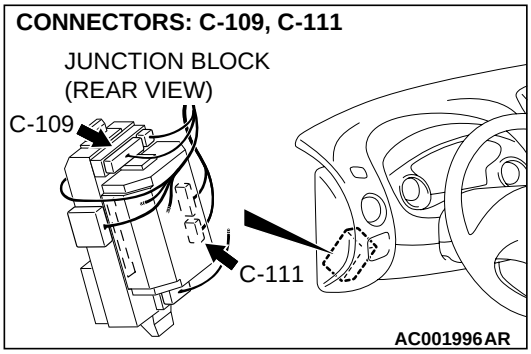
TSB Revision









CIRCUIT OPERATION

- The front-ECU is energized by the battery and the ignition switch (IG2). If one of the harness wires has an open circuit, power will be supplied by the other active harness wire.
- The front-ECU communicates with other ECUs and performs control functions through the SWS communication line.

DTC SET CONDITION

This DTC is displayed when the front-ECU sends an abnormal signal to the ETACS-ECU.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

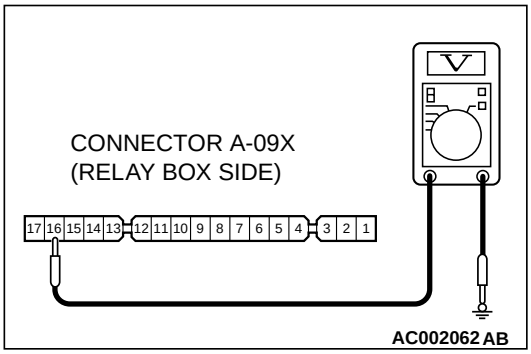
- MB991223: Harness Set

STEP 1. Check the ignition switch position.

Q: Does DTC 13 set with the ignition switch at "ON" position?

YES : Go to Step 5.
NO : Go to Step 2.

TSB Revision

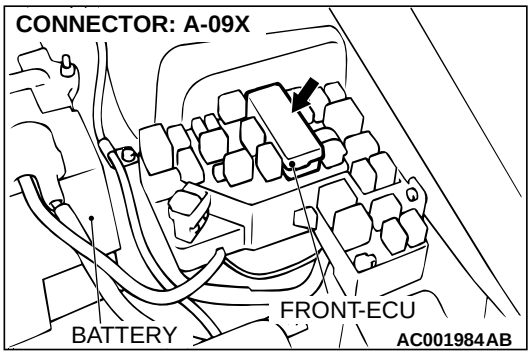


STEP 2. Check the front-ECU power supply circuit (battery circuit) at the front-ECU connector A-09X.

(1) Disconnect the front-ECU connector A-09X and measure at the relay box side.
(2) Measure the voltage between terminal 16 and ground.

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

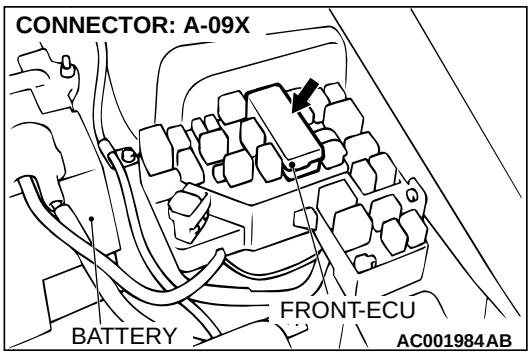
YES : Replace the front-ECU. Confirm the DTC 13 is not displayed.
NO : Go to Step 3.



STEP 3. Check the front-ECU connector A-09X for damage.

Q: Is front-ECU connector A-09X in good condition?

YES : Go to Step 4.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 13 is not displayed.



STEP 4. Check the harness wire between front-ECU connector A-09X and battery.

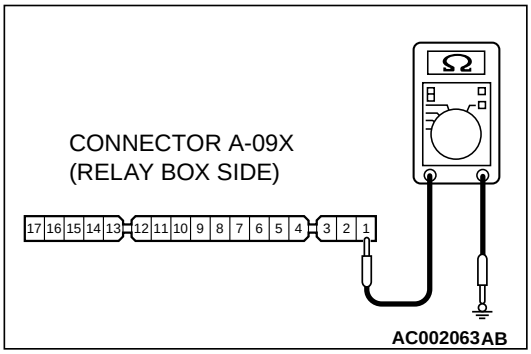
Q: Is the harness wire between front-ECU connector A-09X and battery in good condition?

YES : There is no action to be taken.
NO : Repair it. Confirm the DTC 13 is not displayed.

TSB Revision

STEP 5. Check the front-ECU ground circuit at the front-ECU connector A-09X.

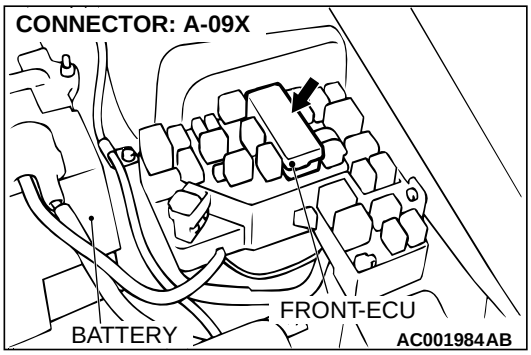
(1) Disconnect the front-ECU connector A-09X and measure at the relay box side.
(2) Measure the resistance between terminal 1 and ground.



Q: Is the resistance less than 2 ohms?

YES : Go to Step 8.
NO : Go to Step 6.

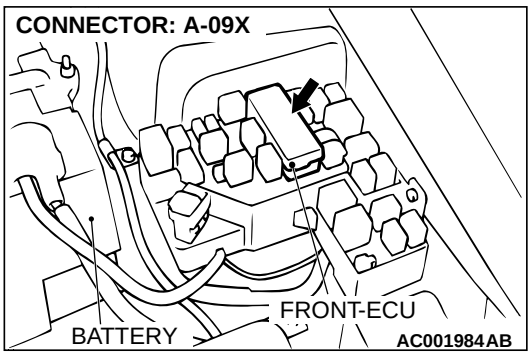
STEP 6. Check the front-ECU connector A-09X for damage.



Q: Is front-ECU connector A-09X in good condition?

YES : Go to Step 7.
NO : Repair or replace it. Refer to GROUP 8W1, Harness Connector Inspection P.00E-2. Confirm the DTC 13 is not displayed.

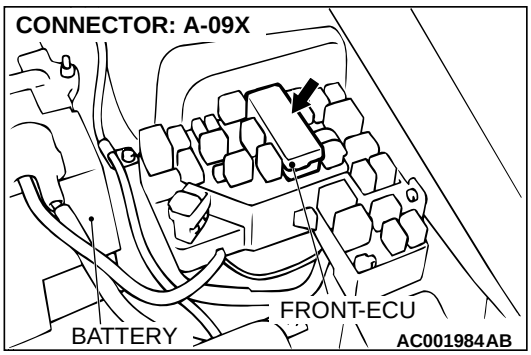
STEP 7. Check the harness wire between front-ECU connector A-09X and ground.

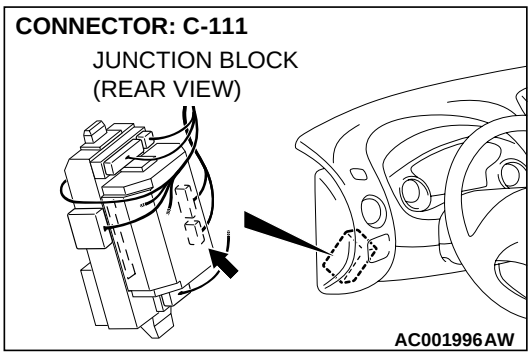


Q: Is the harness wire between front-ECU connector A-09X and ground in good condition?

YES : There is no action to be taken.
NO : Repair it. Confirm the DTC 13 is not displayed.

TSB Revision



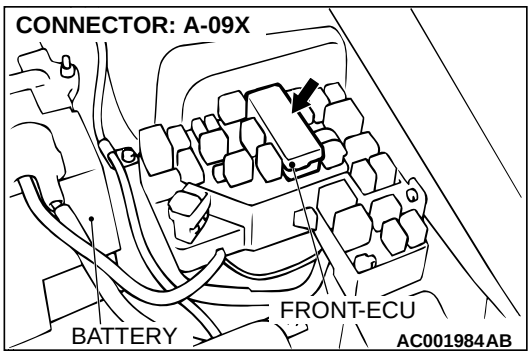


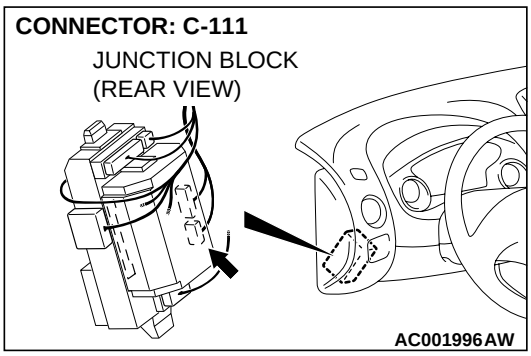
STEP 8. Check front-ECU connector A-09X and ETACS-ECU connector C-111 for damage.

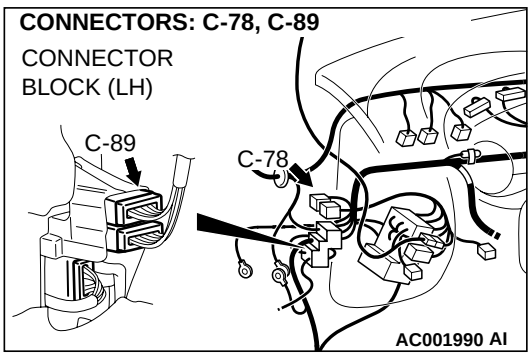
Q: Are front-ECU connector A-09X and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 13 is not displayed.







STEP 9. Check the harness wires between front-ECU connector A-09X and ETACS-ECU connector C-111.

NOTE: After checking intermediate connector C-89 and joint connector C-78, check the wires. If intermediate connector C-89 and joint connector C-78 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between front-ECU connector A-09X and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 10.
NO : Repair them. Confirm the DTC 13 is not displayed.

STEP 10. Replacement of ECU.

(1) Replace the front-ECU.
(2) Confirm the DTC 13 is not displayed.

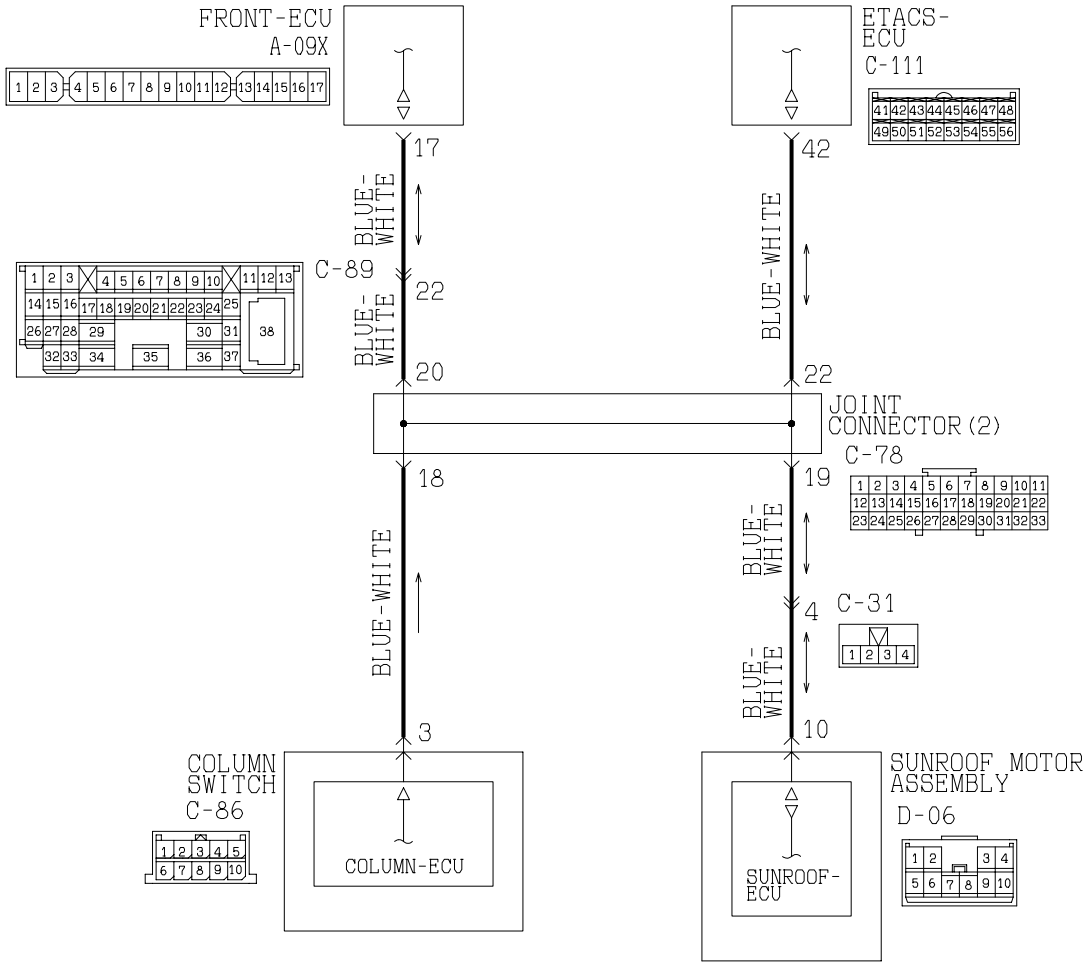
Q: Does DTC 13 set?

YES : Replace the ETACS-ECU. Confirm the DTC 13 is not displayed.
NO : There is no action to taken.

TSB Revision

DTC 21: Short circuit communication line

SWS Communication Circuit



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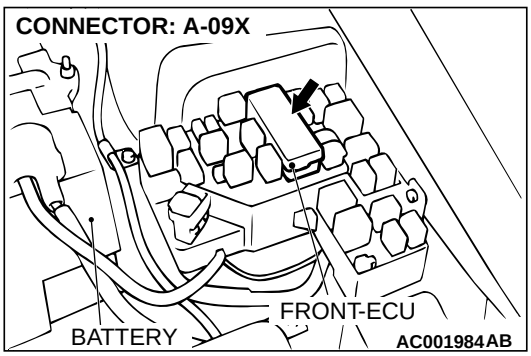
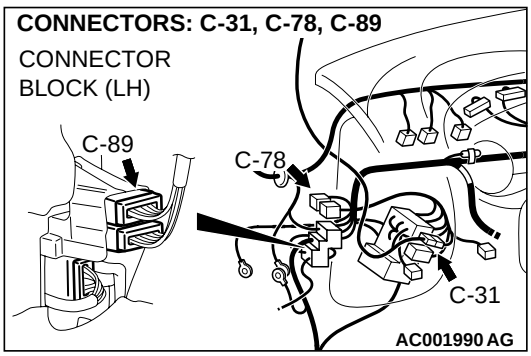


AC001984 AB



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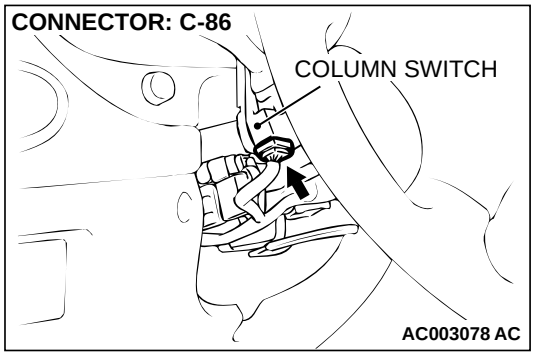
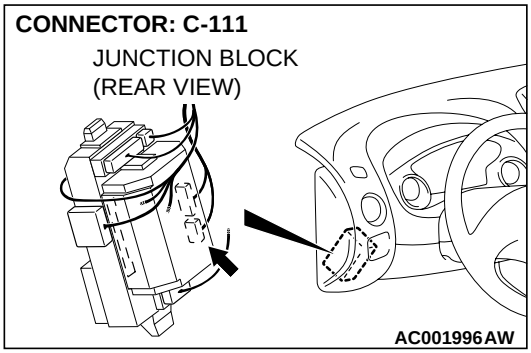
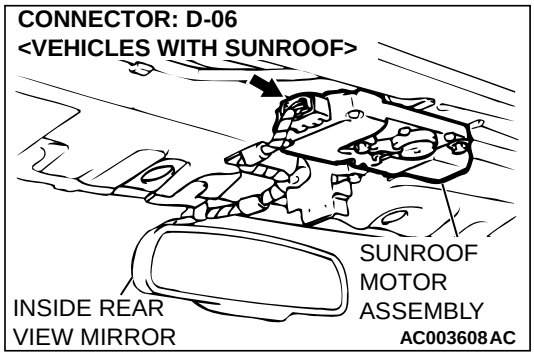






CIRCUIT OPERATION

ETACS-ECU, column switch (incorporated in ECU), front-ECU and sunroof motor assembly (incorporated in ECU) communicate with each other through the SWS communication line.

DTC SET CONDITION

This DTC is displayed when the SWS communication line remains at low level for 0.3 seconds. No other DTC is displayed if DTC 21 is displayed.

TROUBLESHOOTING HINTS

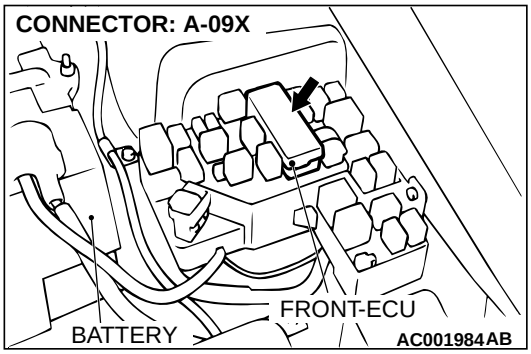
- Malfunction of the ETACS-ECU
- Malfunction of the column switch
- Malfunction of the front-ECU
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

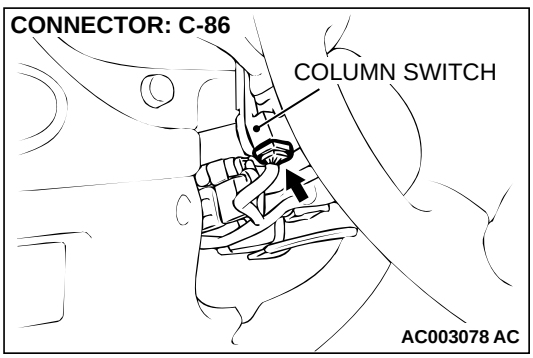
DIAGNOSIS

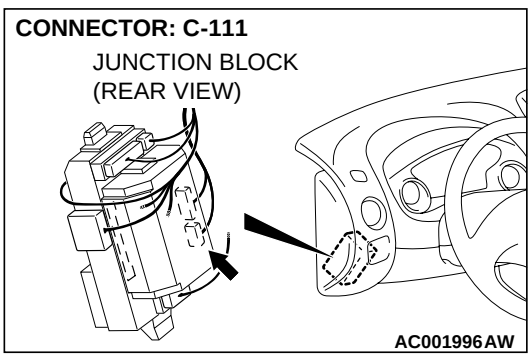
Required Special Tools:

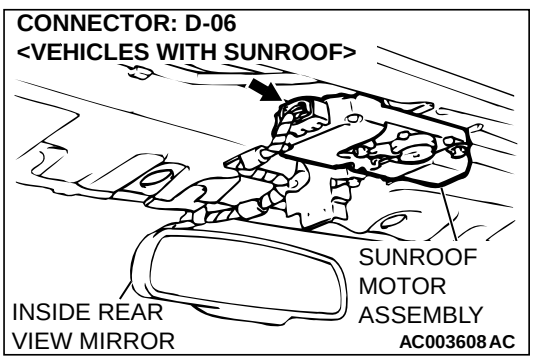
- MB991223: Harness Set

TSB Revision









STEP 1. Check the ETACS-ECU connector C-111, column switch connector C-86, front-ECU connector A-09X and sunroof motor assembly connector D-06 for damage.

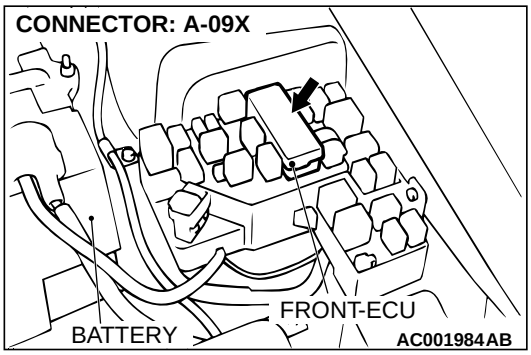
Q: Are ETACS-ECU connector C-111, column switch connector C-86, front-ECU connector A-09X and sunroof motor assembly connector D-06 in good condition?

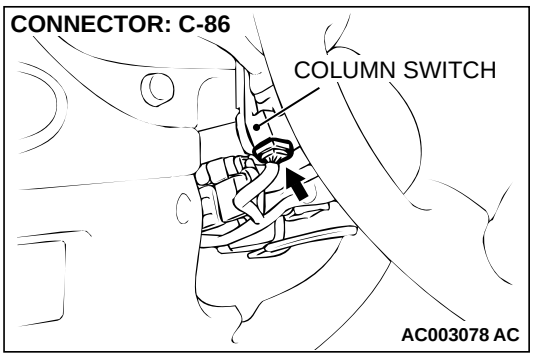
YES : Go to Step 2.

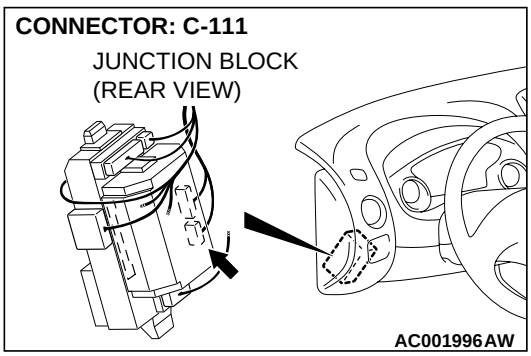
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Confirm the DTC 21 is not displayed.

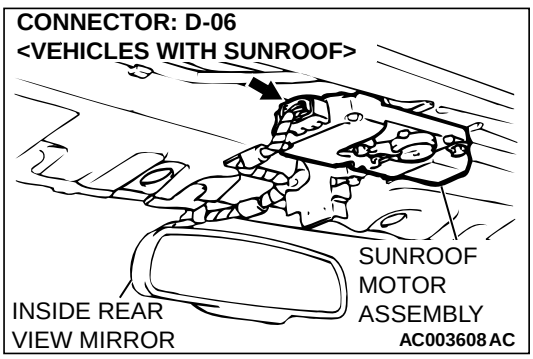
TSB Revision

STEP 2. Check the harness wires from ETACS-ECU connector C-111 to column switch connector C-86, front-ECU connector A-09X and sunroof motor assembly connector D-06.









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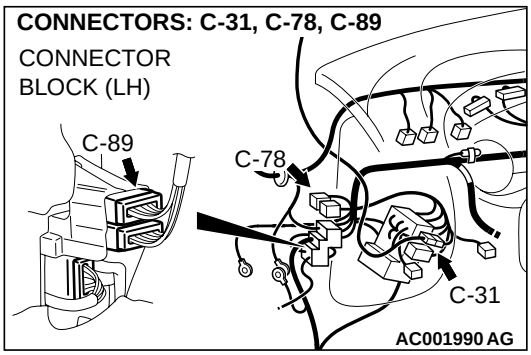
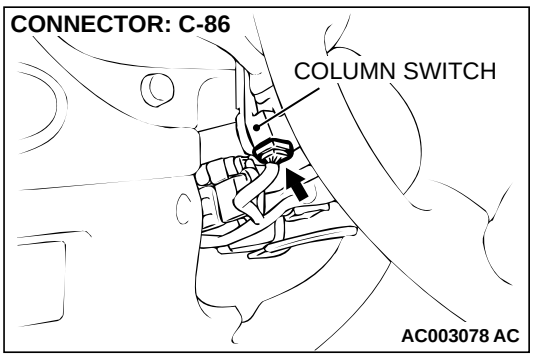


NOTE: After inspecting intermediate connectors C-31 and C-89 and joint connector C-78, check the wires. If intermediate connectors C-31 and C-89 and joint connector C-78 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires from ETACS-ECU connector C-111 to column switch connector C-86, front-ECU connector A-09X and sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 3.

NO : Replace them. Confirm the DTC 21 is not displayed.



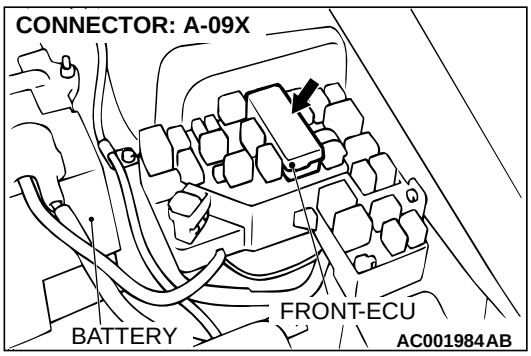
STEP 3. Check the column switch.

Disconnect column switch connector C-86.

Q: Does DTC 21 set?

YES : Go to Step 4.

NO (DTC 12 sets) : Replace the column switch. Confirm the DTCs 12 and 21 are not displayed.



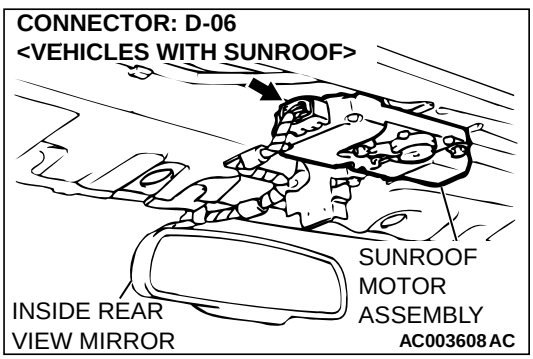
STEP 4. Check the front-ECU.

Disconnect front-ECU connector A-09X.

Q: Does DTC 21 set?

YES : Go to Step 5.

NO (DTC 13 sets) : Replace the front-ECU. Confirm the DTCs 13 and 21 are not displayed.



STEP 5. Check the sunroof motor assembly.

Disconnect sunroof motor assembly connector D-06.

Q: Does DTC 21 set?

YES : Replace the ETACS-ECU. Confirm the DTC 21 is not displayed.

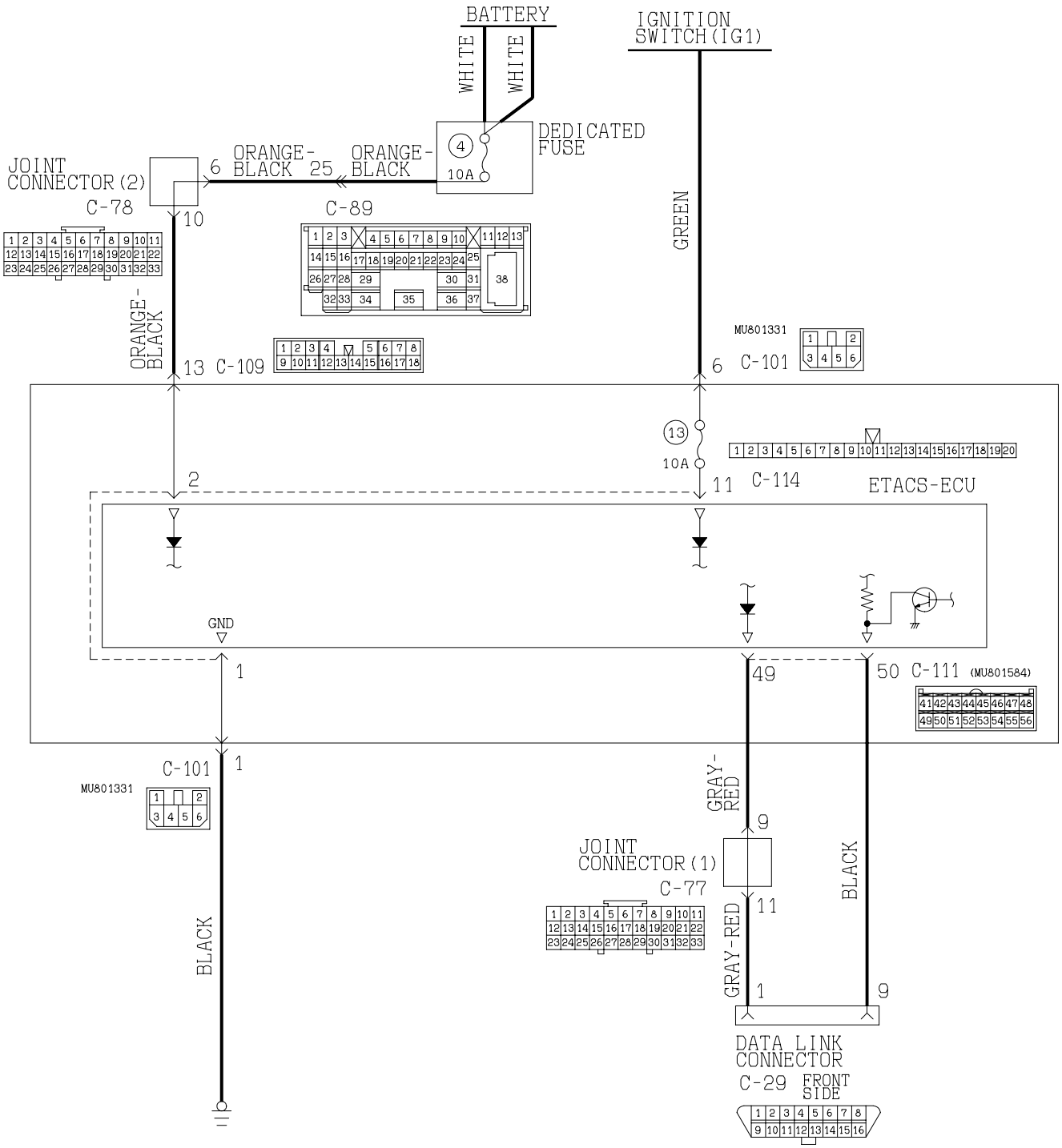
NO : Replace the sunroof motor assembly. Confirm the DTC 21 is not displayed.

TSB Revision

SYMPTOM PROCEDURES

Inspection Procedure A-1: Scan tool MB991502 communication is not possible.

ETACS-ECU Power Supply and Scan Tool Communication Circuit



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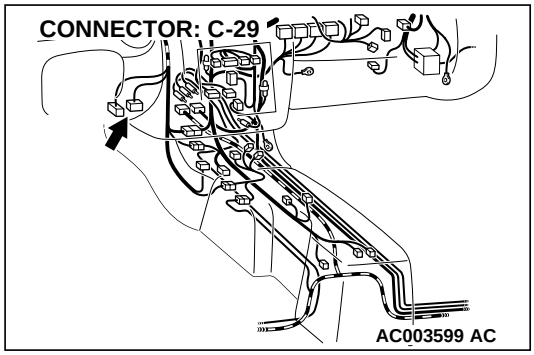

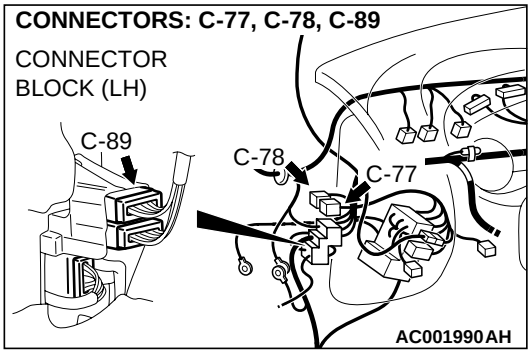

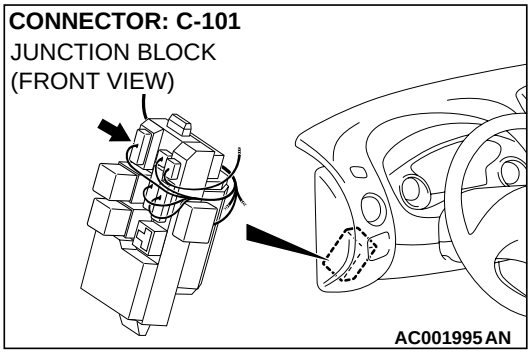

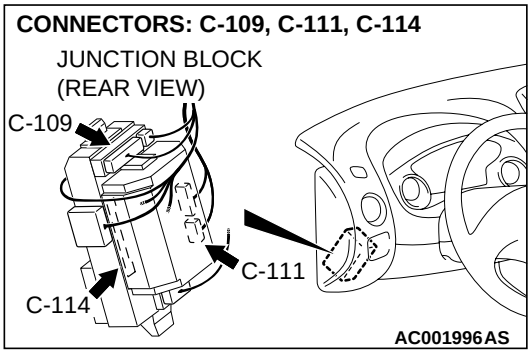

CIRCUIT OPERATION

The ETACS-ECU receives a diagnostic trouble code and switch signals from the data link connector.

TECHNICAL DESCRIPTION (COMMENT)

The harness wires between the ETACS-ECU power supply line or the ETACS-ECU and the data link connector may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set

STEP 1. Check the communication with other systems.

Q: Can the scan tool communicate with no systems?

YES : Refer to GROUP 13A, Diagnosis P.13A-211 or refer to GROUP 13B, Diagnosis P.13B-279.

NO (can not communicate with SWS only) : Go to Step 2.

STEP 2. Check the ignition switch positions.

Q: Can scan tool MB991502 communicate with the ETACS-ECU with the ignition switch at any position other than "ON"?

YES : Go to Step 3.

NO : Check the ETACS-ECU battery circuits. Refer to Inspection Procedure P-1 P.54B-283.

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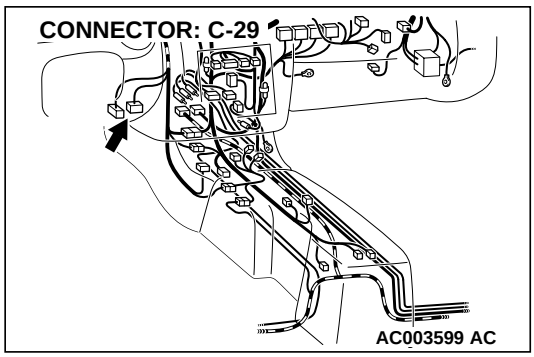
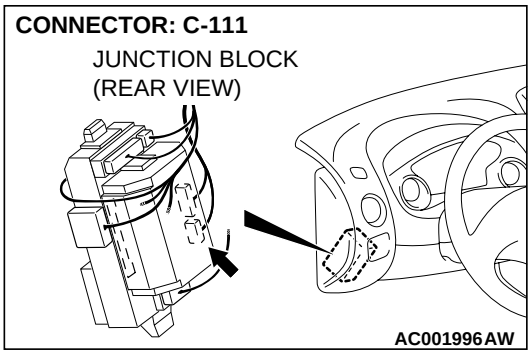


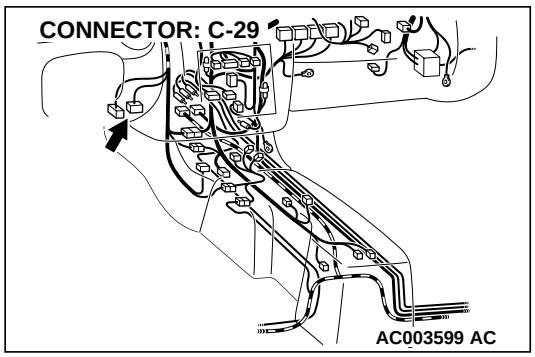


STEP 3. Check data link connector C-29 and ETACS-ECU connector C-111 for damage.

Q: Are data link connector C-29 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 4.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Scan tool MB991502 should communicate with the SWS.



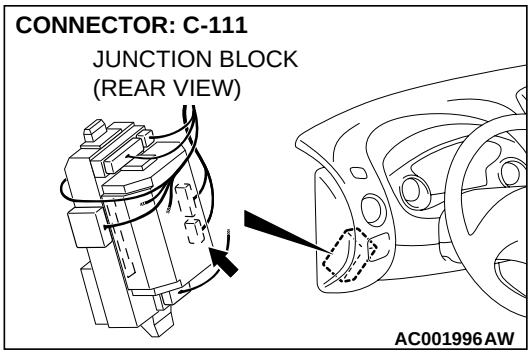
STEP 4. Check the harness wires between data link connector C-29 and ETACS-ECU connector C-111.

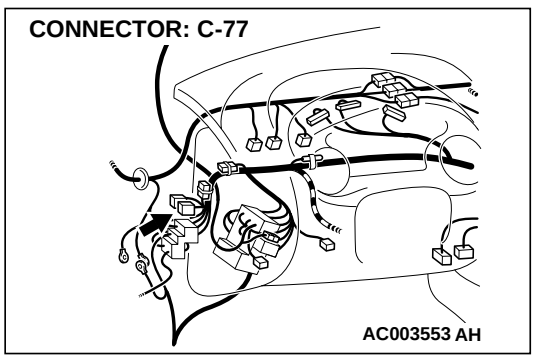
NOTE: After checking joint connector C-77, check the wires. If joint connector C-77 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between data link connector C-29 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 5.

NO : Repair them. Scan tool MB991502 should communicate with the SWS.





STEP 5. Check the ETACS-ECU ground circuit at the ETACS-ECU connector C-114.

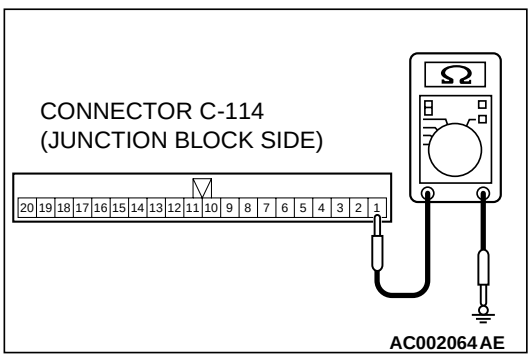
(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.

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

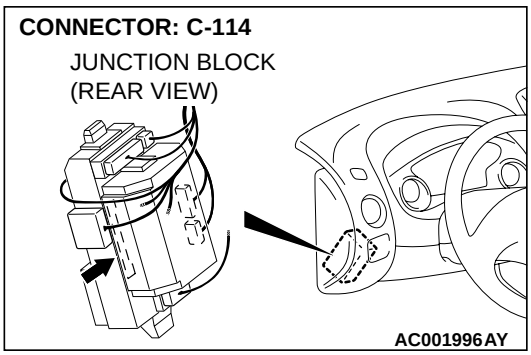
Q: Is the resistance less than 2 ohms?

YES : Replace the ETACS-ECU. Scan tool MB991502 should communicate with the SWS.

NO : Go to Step 6.



TSB Revision

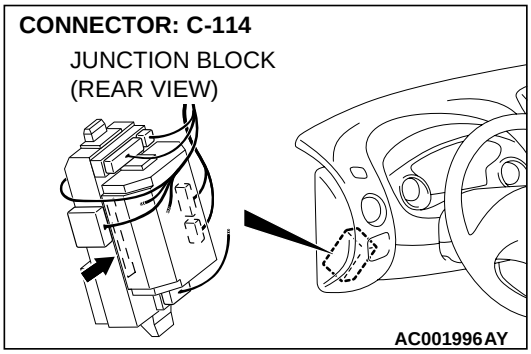


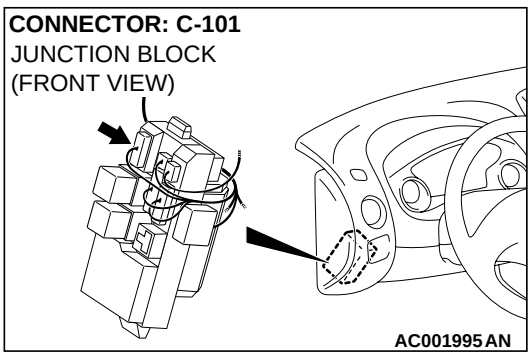
STEP 6. Check the ETACS-ECU connector C-114 for damage.

Q: Is ETACS-ECU connector C-114 in good condition?

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Scan tool MB991502 should communicate with the SWS.





STEP 7. Check the harness wires between ETACS-ECU connector C-114 and ground.

NOTE: After checking junction block connector C-101, check the wires. If junction block connector C-101 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. Scan tool MB991502 should communicate with the SWS.

Inspection Procedure B-1: Tone alarm: Ignition key reminder tone alarm function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

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

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

If the function does not work normally, a defect on the relevant circuit or the ETACS-ECU may be suspected.

TROUBLESHOOTING HINTS

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

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the ETACS-ECU power supply circuit.
If the ignition switch is at "LOCK" (OFF) position, do all of the following functions operate?
- Light reminder tone alarm function
- Central door locking system
- Hazard warning light
- Interior light dimming function
- Theft-alarm system

Q: Does any function described above operate?

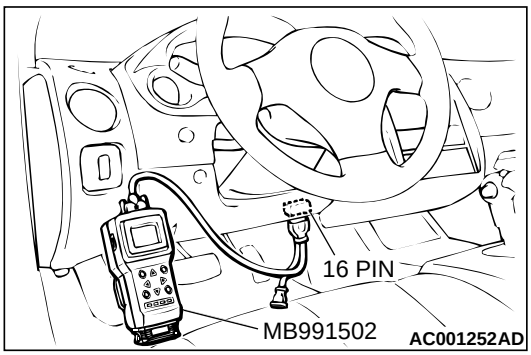
YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Check the ETACS-ECU battery circuit. Refer to Inspection Procedure P-1 P.54B-283.

STEP 2. Check the input signal (by using scan tool MB991502).
Check the input signals from the following switches:
- Ignition switch (IG1)
- Key reminder switch
- 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.

(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

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

NO : Check the relevant input circuit. Refer to P.54B-9.

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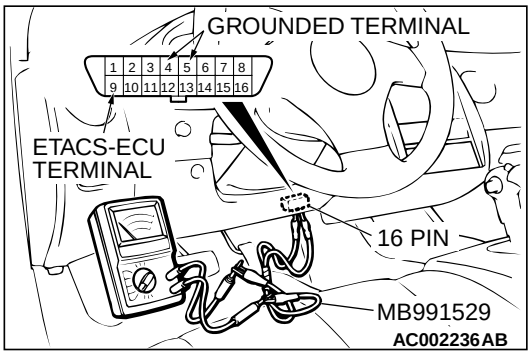


STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

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

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

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

NO : Check the relevant input circuit. Refer to P.54B-9.

Inspection Procedure B-2: Tone alarm: Light reminder tone alarm function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the light reminder tone alarm function, based on input signals from the following switches and the front-ECU:

- Ignition switch (IG1)
- Driver's door switch
- Taillight switch
- Headlight switch

If the function does not work normally, a defect on the relevant circuit or the ETACS-ECU may be suspected.

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
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the ETACS-ECU power supply circuit.

If the ignition switch is at "LOCK" (OFF) position, do all of the following functions operate?

- Ignition key reminder tone alarm function
- Central door locking system
- Hazard warning light
- Interior light dimming function
- Theft-alarm system

Q: Do any functions described above operate?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Check the ETACS-ECU battery circuit. Refer to Inspection Procedure O-1 P.54B-283.

TSB Revision

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's door switch
- Taillight switch
- Headlight switch

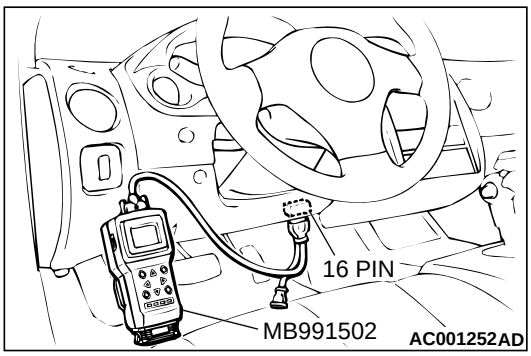
⚠ CAUTION

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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters

YES : Replace the ETACS-ECU. The light reminder tone alarm function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.



STEP 3. Check the input signal (by using a voltmeter).

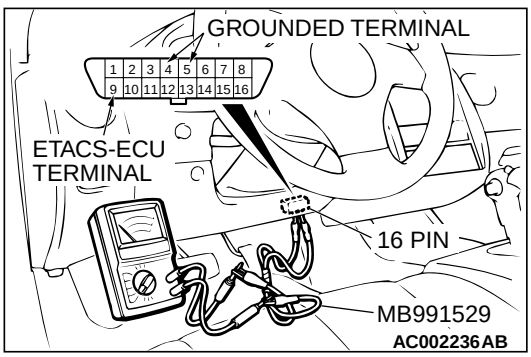
Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's door switch
- Taillight switch
- Headlight switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The light reminder tone alarm function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.



Inspection Procedure B-5: Tone alarm: Seat belt tone alarm function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the seat belt tone alarm function, based on input signals from the following switches:

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

If the function does not work normally, a defect on the relevant circuit or the ETACS-ECU may be suspected.

TROUBLESHOOTING HINTS

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

TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

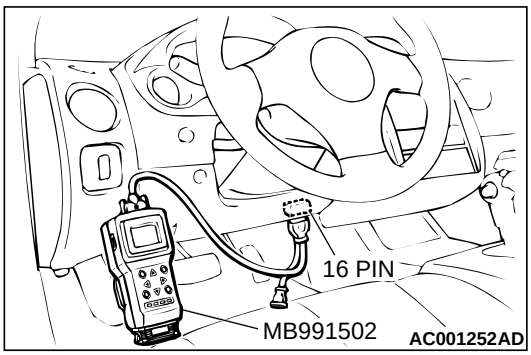
Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's seat belt 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters.

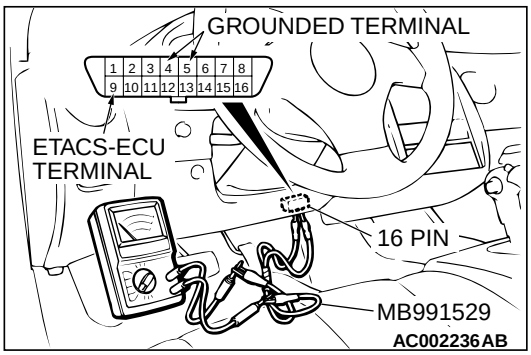
YES : Replace the ETACS-ECU. The seat belt tone alarm function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

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

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



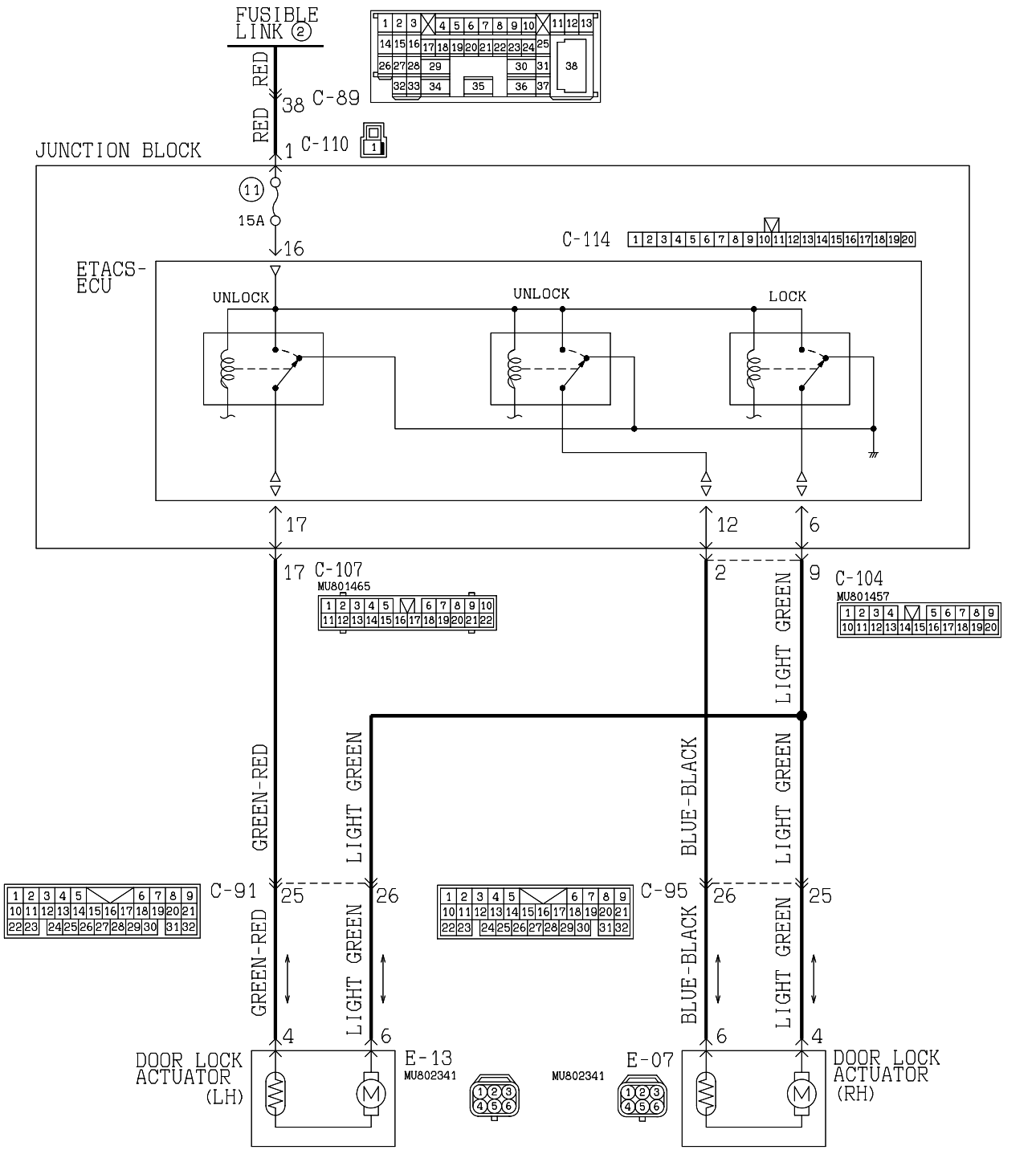
Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The seat belt tone alarm function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.

TSB Revision

Inspection Procedure C-1: Central door locking system: Central door locking system does not operate.

Door Lock Actuator Circuit



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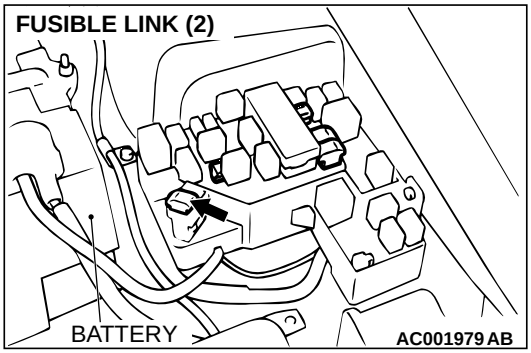
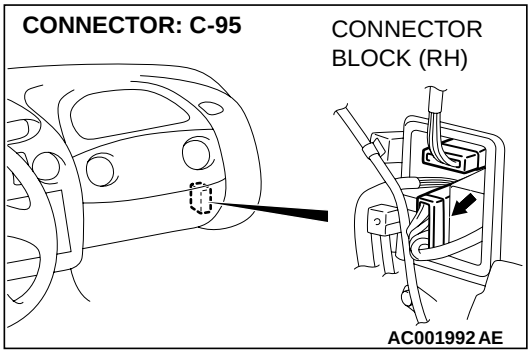
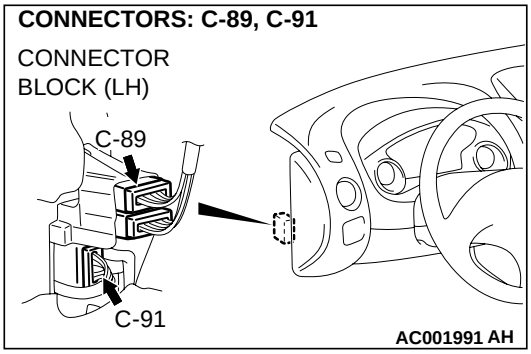
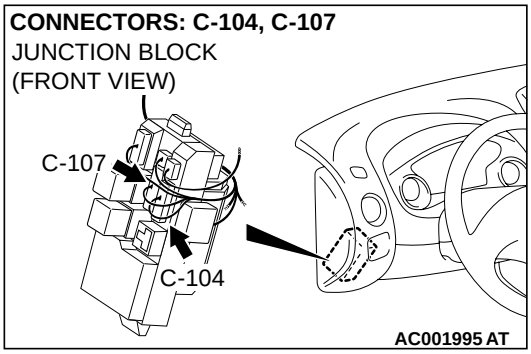
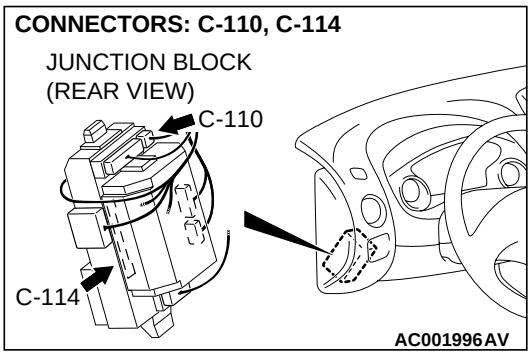
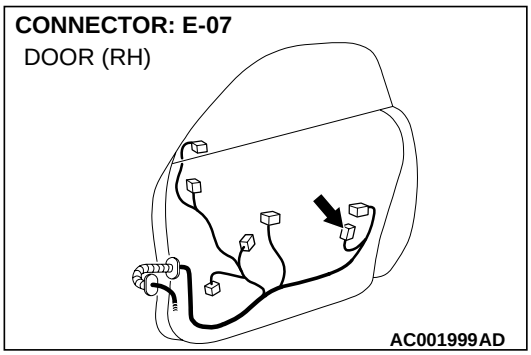


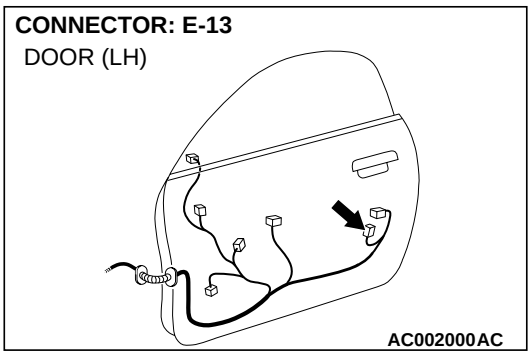












CIRCUIT OPERATION

- The ETACS-ECU operates the door lock actuators through its dedicated relay (integrated in the ETACS-ECU).
- The ETACS-ECU drives the relay to lock or unlock the door if the requirements are satisfied.

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit, the circuit shared by door lock actuators, or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

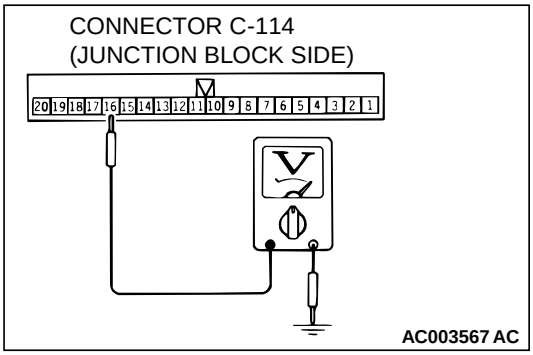
TSB Revision

DIAGNOSIS

Required Special Tool:
- MB991223: Harness Set

STEP 1. Check the ETACS-ECU power supply circuit [fusible link (2)] at the ETACS- ECU connector C-114.

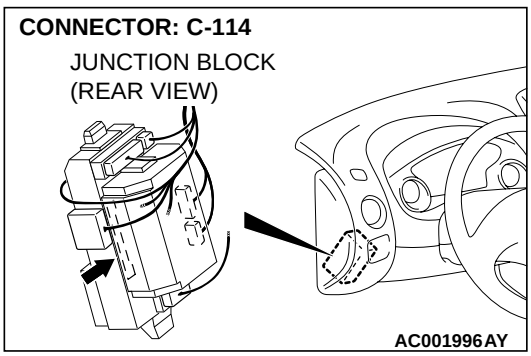
(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.
(2) Measure the voltage between terminal 16 and ground.



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

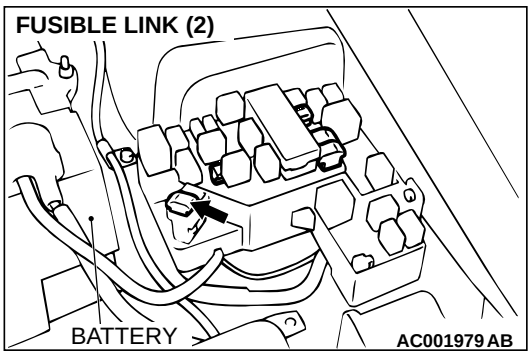
YES : Go to Step 4.
NO : Go to Step 2.

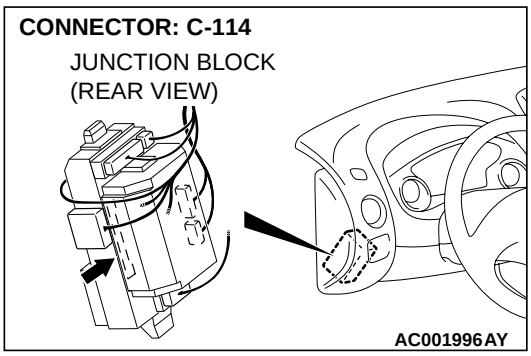
STEP 2. Check the junction block connector C-114 for damage.

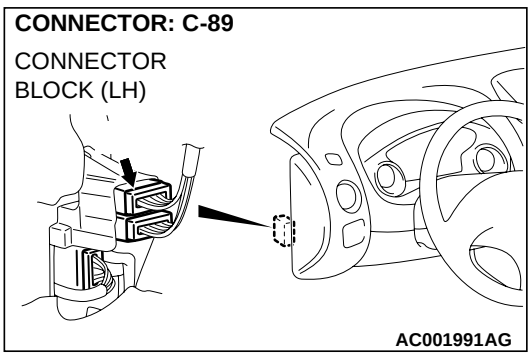


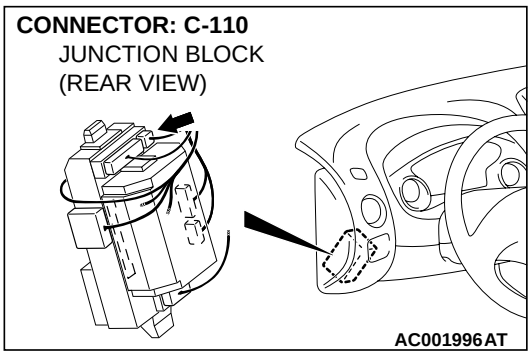
Q: Is junction block connector C-114 in good condition?

YES : Go to Step 3.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The central door locking system should work normally.









STEP 3. Check the harness wires between ETACS-ECU connector C-114 and fusible link (2).

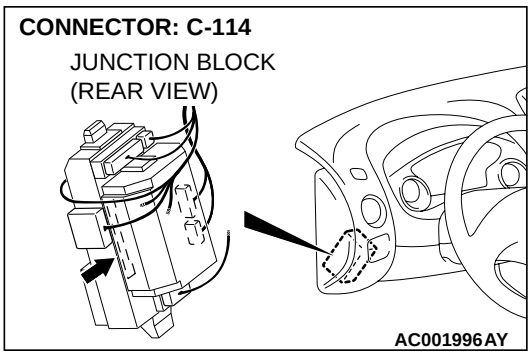
NOTE: After checking junction block connector C-110 and intermediate connector C-89, check the wires. If junction block connector C-110 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and fusible link (2) in good condition?

YES : There is no action to be taken.

NO : Repair them. The central door locking system should work normally.

TSB Revision



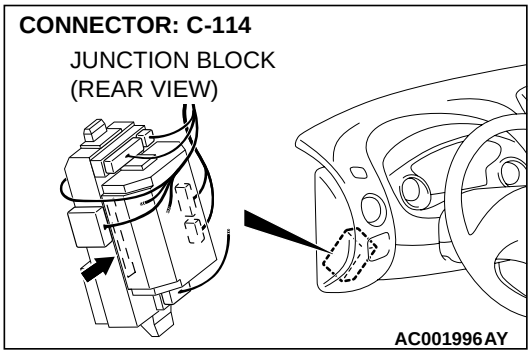
STEP 4. Check the junction block connector C-114 for damage.

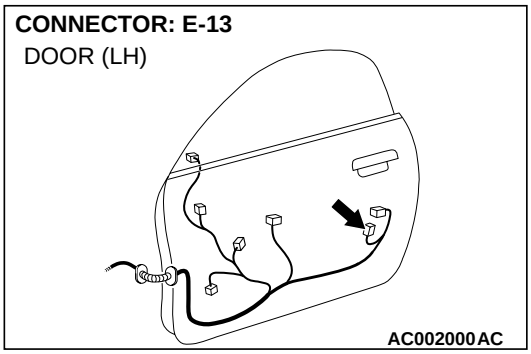
Q: Is junction block connector C-114 in good condition?

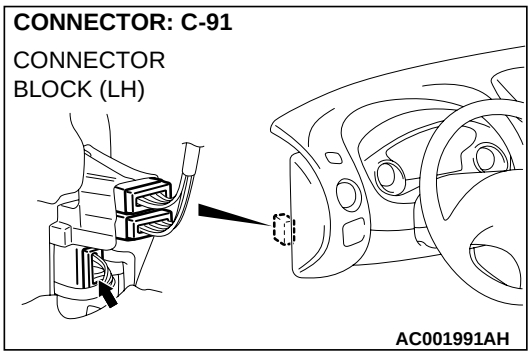
YES : Go to Step 5.

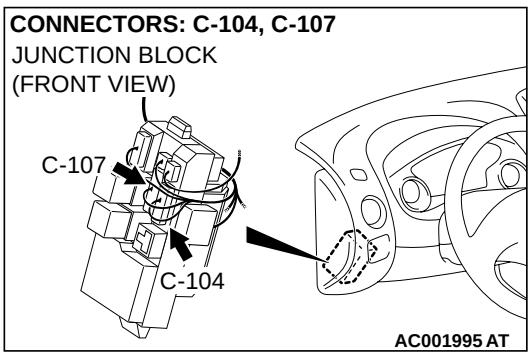
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The central door locking system should work normally.

STEP 5. Check the harness wires between ETACS-ECU connector C-114 and driver's door lock actuator connector E-13.









NOTE: After checking intermediate connector C-91 and junction block connector C-104 and C-107, check the wires. If intermediate connector C-91 and junction block connector C-104 and C-107 are damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and intermediate connector C-91 in good condition?

YES : Replace the ETACS-ECU. The central door locking system should work normally.

NO : Repair them. The central door locking system should work normally.

TSB Revision

Inspection Procedure C-2: Central door locking system: Some doors do not lock or unlock.

Door Lock Actuator Circuit

- Refer to Inspection Procedure C-1 (P.54B-40).

CIRCUIT OPERATION

- The ETACS-ECU operates the door lock actuators through its dedicated relay (integrated in the ETACS-ECU).
- The ETACS-ECU drives the relay to lock or unlock the door if the requirements are satisfied.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

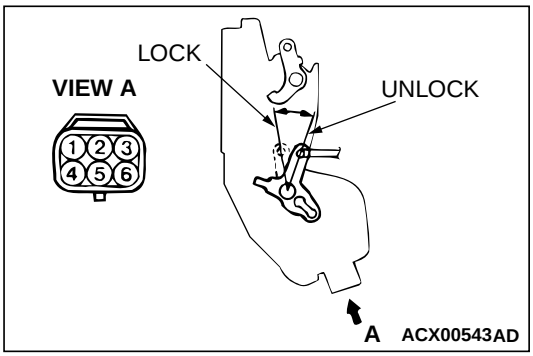
STEP 1. Check the location of malfunction.

Q: Which door lock does not function?

Driver's door : Go to Step 2.
Passenger's door : Go to Step 5.

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

Remove the driver's door lock actuator to check. (Refer to GROUP 42, Door – Door Handle and Latch P.42-79.)

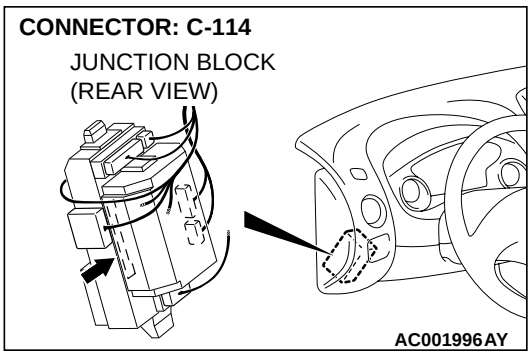


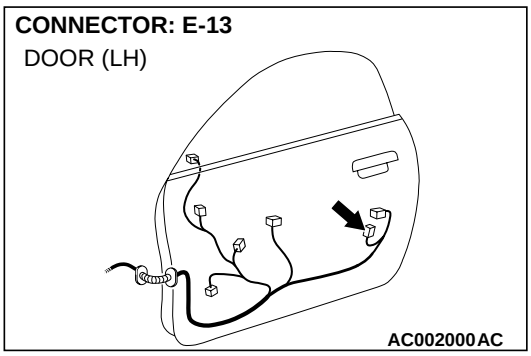
ROD POSITION	BATTERY CONNECTION	ROD OPERATION
LOCK	4 – Battery (+) terminal 6 – Battery (–) terminal	LOCK position → UNLOCK position
UNLOCK	4 – Battery (–) terminal 6 – Battery (+) terminal	UNLOCK position → LOCK position

Q: Is the driver's door lock actuator in good condition?

YES : Go to Step 3.
NO : Replace the driver's door lock actuator. All doors should be locked or unlocked.

TSB Revision



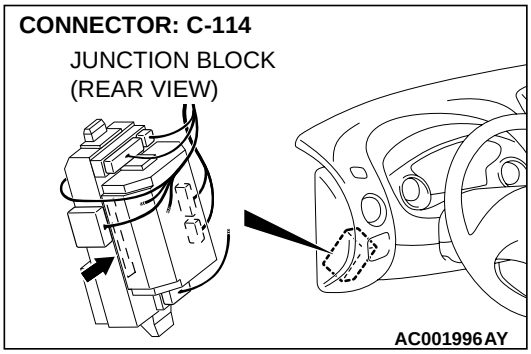


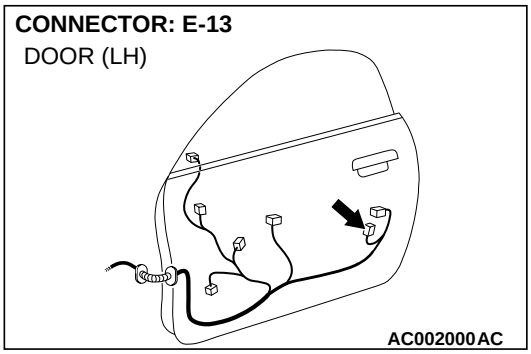
STEP 3. Check the ETACS-ECU connector C-114 and driver's door lock actuator connector E-13 for damage.

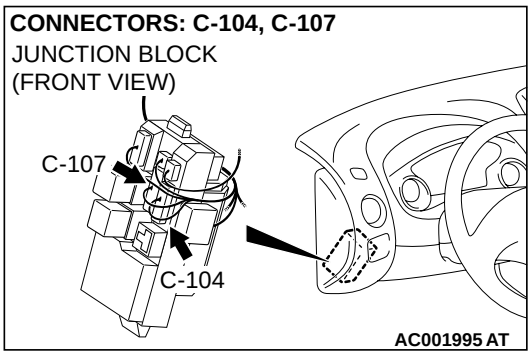
Q: Are ETACS-ECU connector C-114 and driver's door lock actuator connector E-13 in good condition?

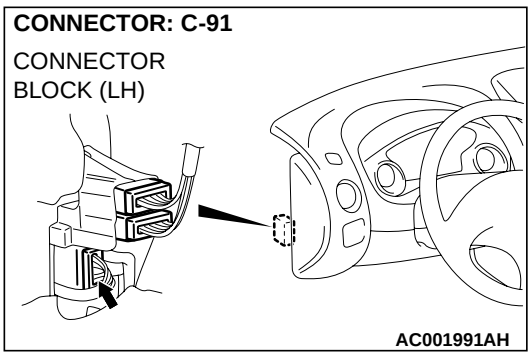
YES : Go to Step 4.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. All doors should be locked or unlocked.









STEP 4. Check the harness wires between ETACS-ECU connector C-114 and driver's door lock actuator connector E-13.

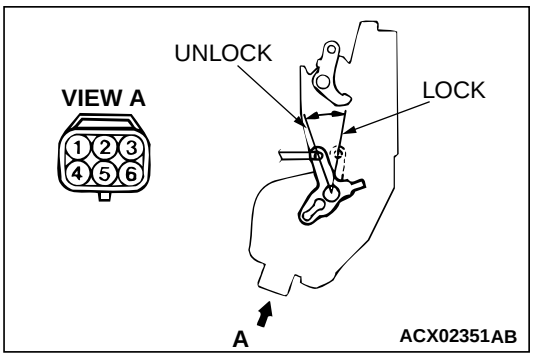
NOTE: After checking junction block connectors C-104 and C-107 and intermediate connector C-91, check the wires. If junction block connectors C-104 and C-107 and intermediate connector C-91 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and driver's door lock actuator connector E-13 in good condition?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked.

NO : Repair them. All doors should be locked or unlocked.

TSB Revision



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

Remove the passenger's door lock actuator to check. (Refer to GROUP 42, Door – Door Handle and Latch P.42-79.)

ROD POSITION	BATTERY CONNECTION	ROD OPERATION
LOCK	4 – Battery (–) terminal 6 – Battery (+) terminal	LOCK position → UNLOCK position
UNLOCK	4 – Battery (+) terminal 6 – Battery (–) terminal	UNLOCK position → LOCK position

Q: Is the passenger's door lock actuator in good condition?

YES : Go to Step 6.

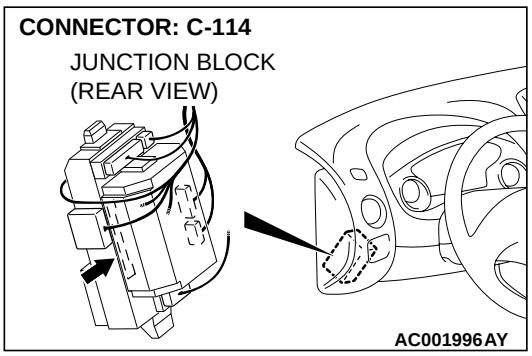
NO : Replace the passenger's door lock actuator. All doors should be locked or unlocked.

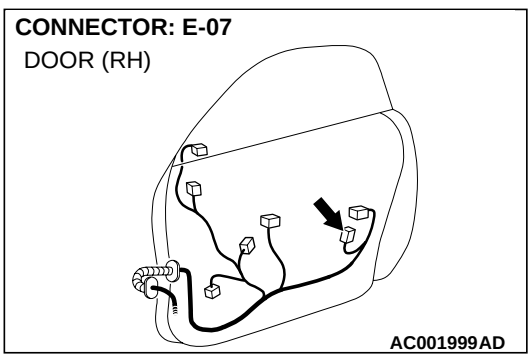
STEP 6. Check the ETACS-ECU connector C-114 and passenger's door lock actuator connector E-07 for damage.

Q: Are ETACS-ECU connector C-114 and passenger's door lock actuator connector E-07 in good condition?

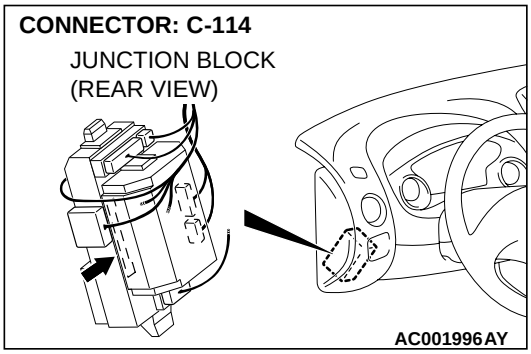
YES : Go to Step 7.

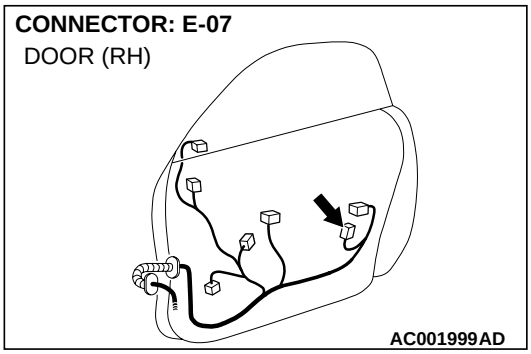
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. All doors should be locked or unlocked.

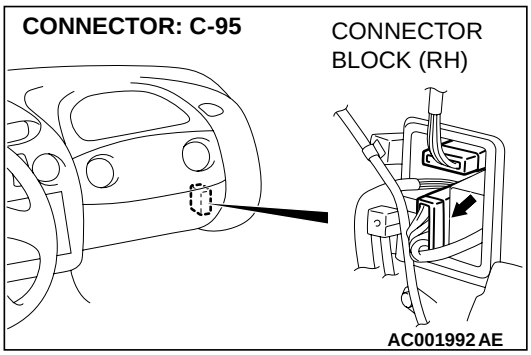


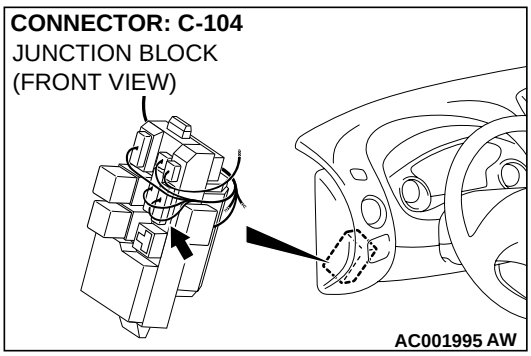


TSB Revision









STEP 7. Check the harness wires between ETACS-ECU connector C-114 and passenger's door lock actuator connector E-07.

NOTE: After checking junction block connector C-104 and intermediate connector C-95, check the wires. If junction block connector C-104 and intermediate connector C-95 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and passenger's door lock actuator connector E-07 in good condition?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked.

NO : Repair them. All doors should be locked or unlocked.

TSB Revision

Inspection Procedure C-3: Central door locking system: All the doors do not lock or unlock with just the door lock switch operation.

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)
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

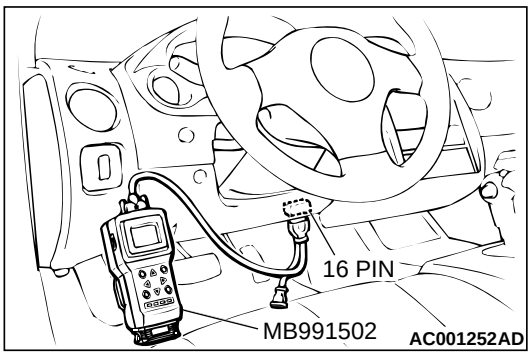
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the defective 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



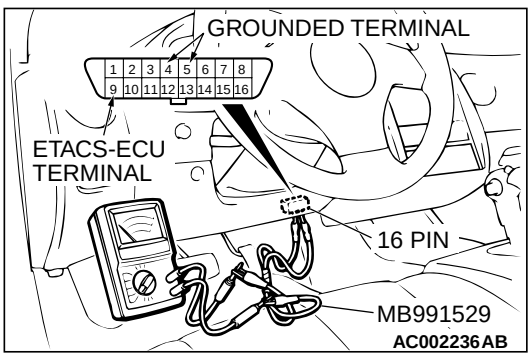
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked by using the door lock switch.
NO : Check the defective door lock switch input circuit. Refer to Inspection Procedure O-13 (P.54B-247).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the defective door lock switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked by using the door lock switch.
NO : Check the defective door lock switch input circuit. Refer to Inspection Procedure O-13 (P.54B-247).

TSB Revision

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.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Malfunction of the door lock key cylinder switch
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

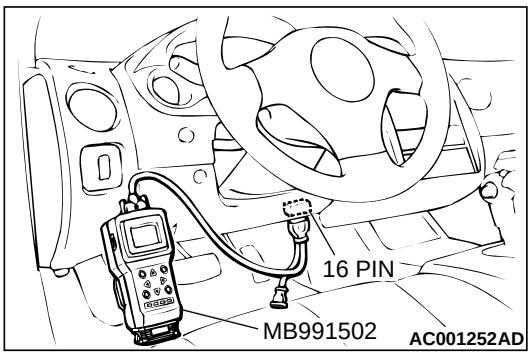
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signal from the defective 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



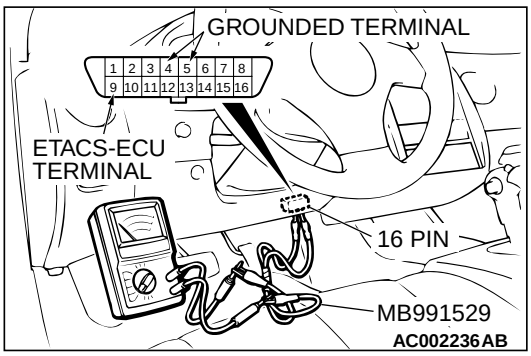
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked by using the door lock key cylinder switch.
NO : Check the door lock key cylinder switch input circuit. Refer to Inspection Procedure O-11 (P.54B-231).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the defective door lock key cylinder switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. All doors should be locked or unlocked by using the door lock key cylinder switch.
NO : Check the door lock key cylinder switch input circuit. Refer to Inspection Procedure O-11 (P.54B-231).

TSB Revision

Inspection Procedure C-5: Central door locking system: All the doors do not lock with just the driver's inside lock knob lock operation.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

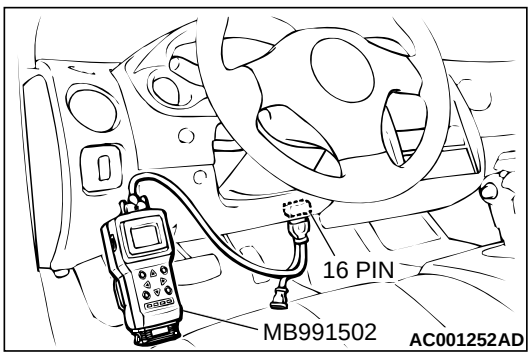
STEP 2. Check the input signal (by using scan tool MB991502).

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

⚠ CAUTION

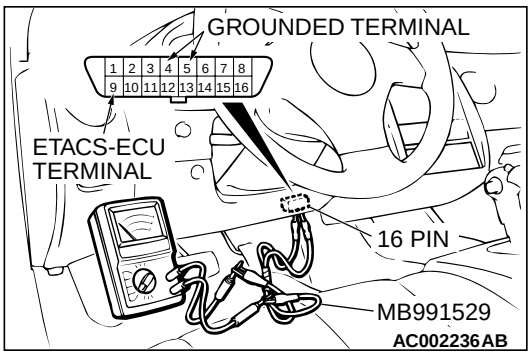
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. All doors should be locked by using the driver's inside lock knob.
NO : Check the driver's door lock actuator switch input circuit. Refer to Inspection Procedure O-10 (P.54B-239).



STEP 3. Check the input signal (by using a voltmeter).

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

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. All doors should be locked by using the driver's inside lock knob.

NO : Check the driver's door lock actuator switch input circuit. Refer to Inspection Procedure O-10 (P.54B-239).

Inspection Procedure C-6: Central door locking system: Forgotten key prevention function does not operate.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the forgotten key prevention function, based on the input signals from the following switches:

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

If the function does not work normally, a defect on the relevant circuit or the ETACS-ECU may be suspected.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.

Voltmeter : Go to Step 3.

TSB Revision

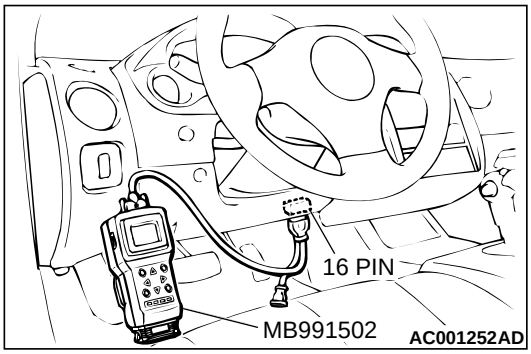
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

- Key reminder switch
- Driver's and passenger's door switch
- Driver's and 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

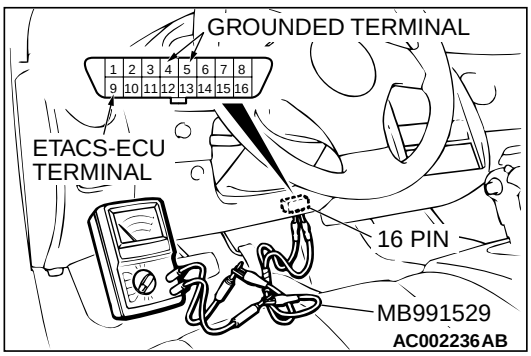
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The forgotten key prevention function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.

STEP 3. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

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



(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

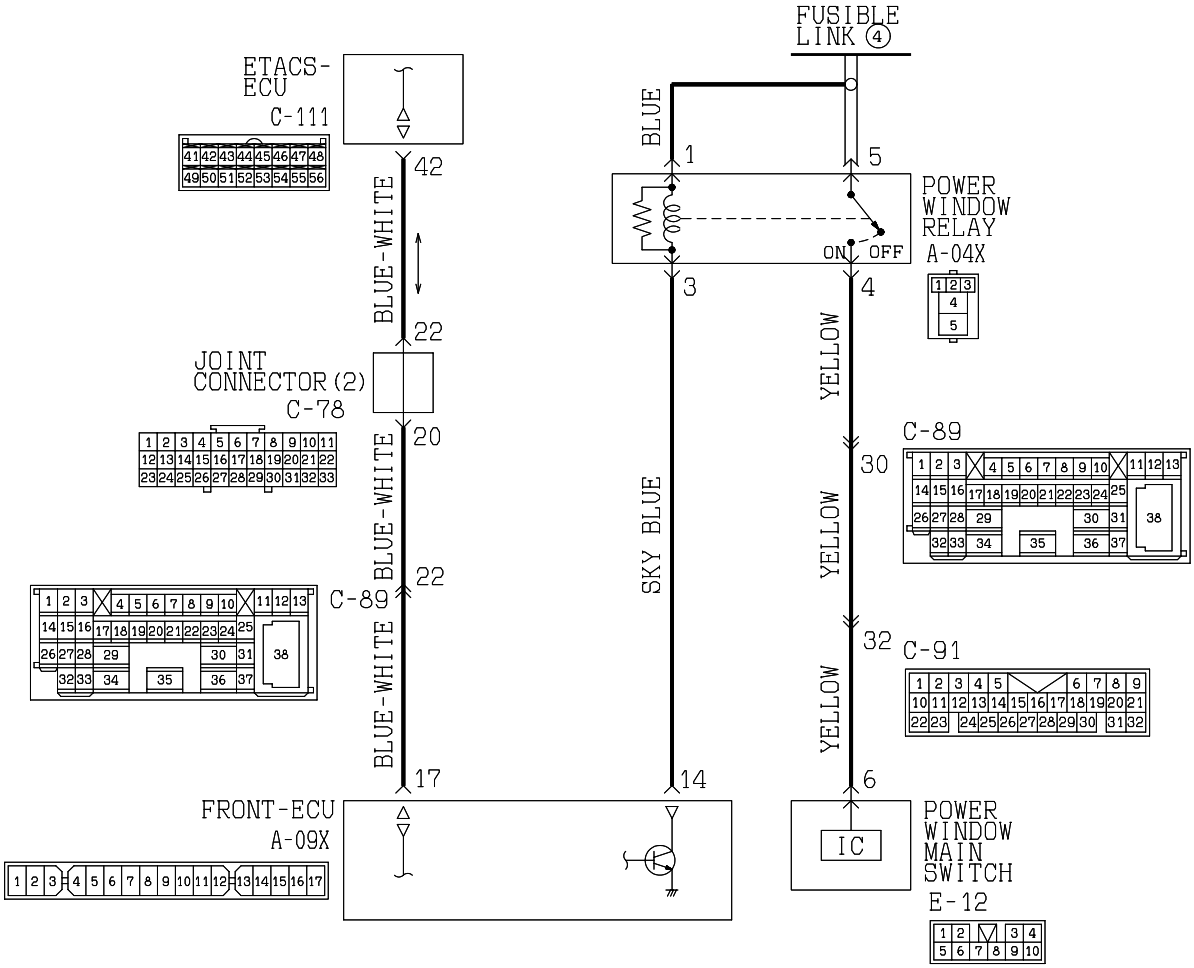
Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The forgotten key prevention function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.

TSB Revision

Inspection Procedure D-1: Power window relay: Power windows do not work at all.

Power Window Relay Circuit



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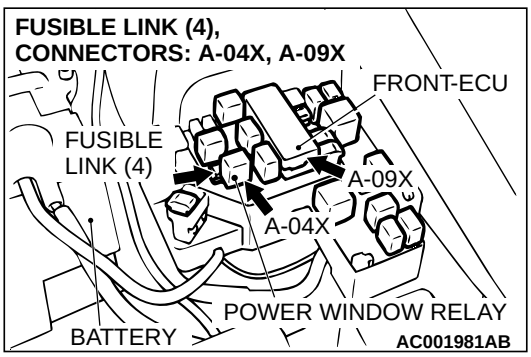
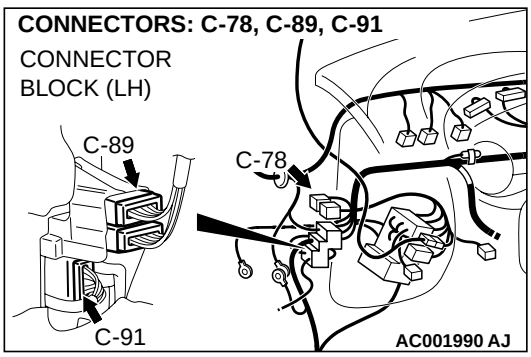
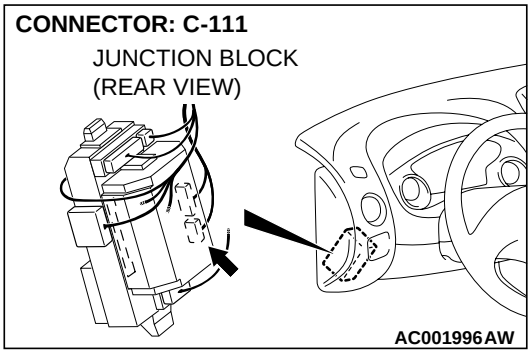
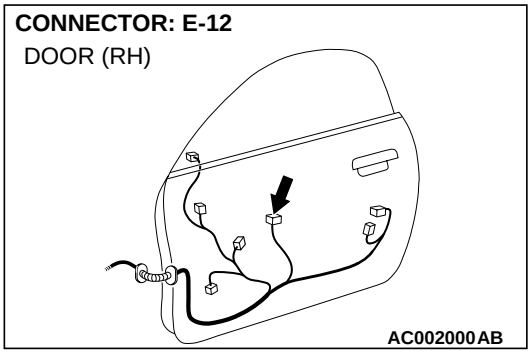




TSB Revision





CIRCUIT OPERATION

- The power window relay is controlled by the front-ECU and the ETACS-ECU
- The front-ECU operates the power window relay if the front-ECU receives request signal from the ETACS-ECU, or ignition switch (IG1) signal from the front-ECU itself.

TECHNICAL DESCRIPTION (COMMENT)

The power window relay or the front-ECU may be defective.

TROUBLESHOOTING HINTS

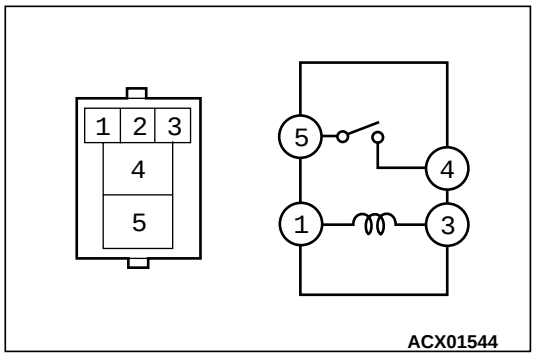
- Malfunction of the power window relay
- Malfunction of the front-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check the power window relay.



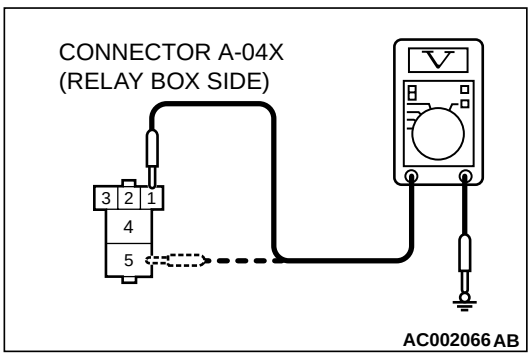
BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (+) terminal 3 – Battery (–) terminal	4 – 5	Continuity

Q: Is the power window relay in good condition?

YES : Go to Step 2.
NO : Replace it. The power windows should work normally.

STEP 2. Check the power window relay power supply circuit at the power window relay connector A-04X.

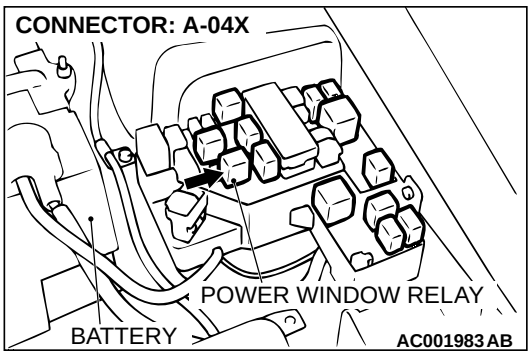
(1) Disconnect the power window relay connector A-04X and measure at the relay box side.
(2) Measure the voltages between terminal 1, 5 and ground.



Q: Are the voltages approximately 12 volts (battery positive voltage)?

YES : Go to Step 5.
NO : Go to Step 3.

TSB Revision

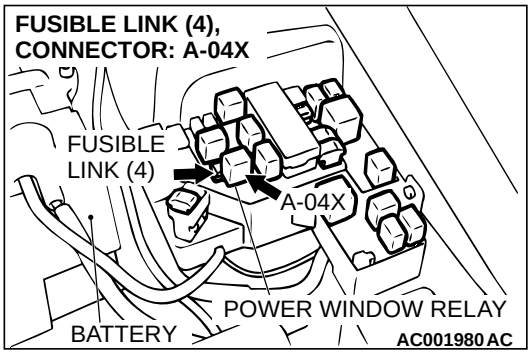


STEP 3. Check the power window connector A-04X for damage.

Q: Is power window connector A-04X in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The power windows should work normally.

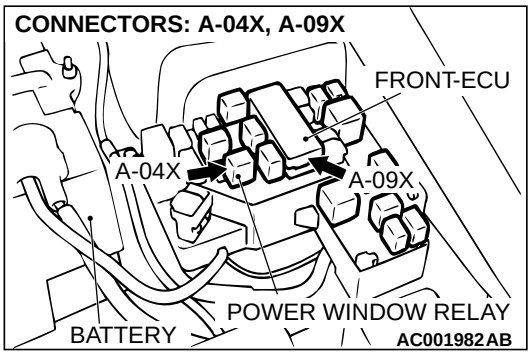


STEP 4. Check the harness wire between power window relay connector A-04X and fusible link (4).

Q: Is the harness wire between power window relay connector A-04X and fusible link (4) in good condition?

YES : There is no action to be taken.

NO : Repair it. The power windows should work normally.



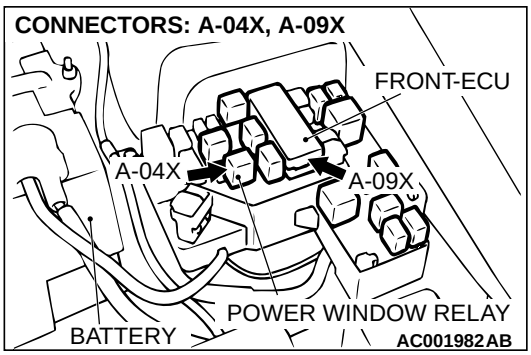
STEP 5. Check the power window relay connector A-04X and front-ECU connector A-09X for damage.

Q: Are power window relay connector A-09X and front-ECU connector A-09X in good condition?

YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The power windows should work normally.

TSB Revision

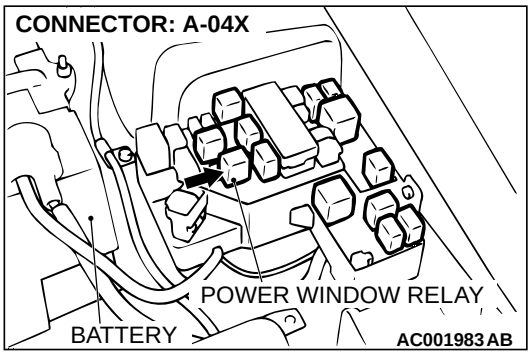


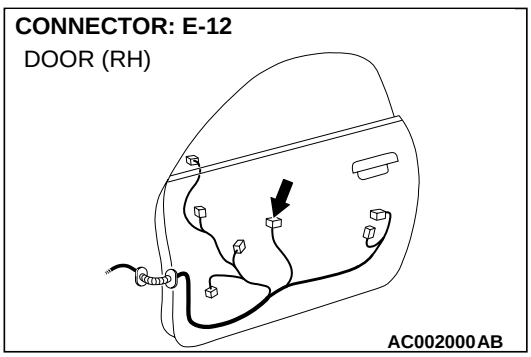
STEP 6. Check the harness wire between power window relay connector A-04X and front-ECU connector A-09X.

Q: Is the harness wire between power window relay connector A-04X and front-ECU connector A-09X in good condition?

YES : Go to Step 7.

NO : Repair it. The power windows should work normally.



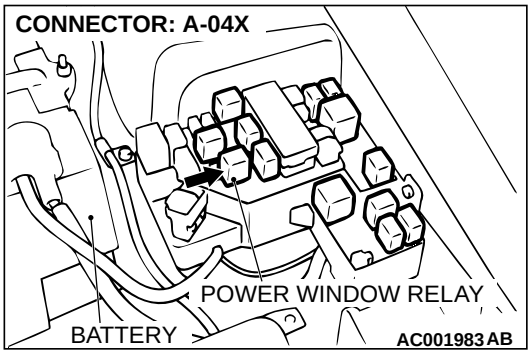


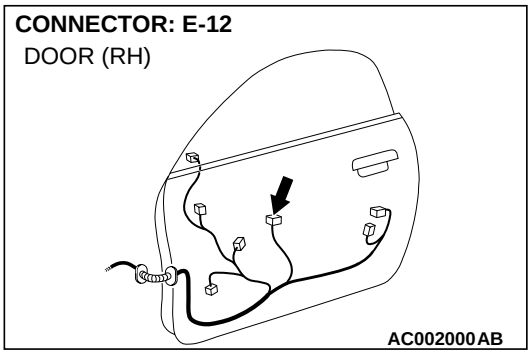
STEP 7. Check the power window relay connector A-04X and power window main switch connector E-12 for damage.

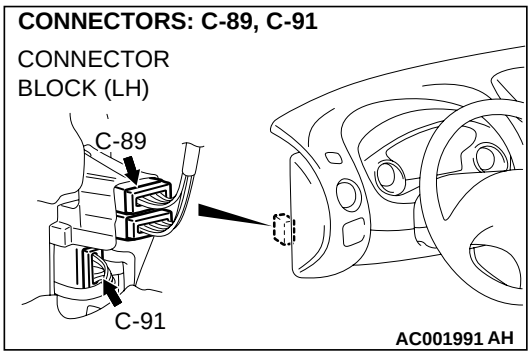
Q: Are power window relay connector A-04X and power window main switch connector E-12 in good condition?

YES : Go to Step 8.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The power windows should work normally.







STEP 11. Check the harness wires between power window relay connector A-04X and power window main switch connector E-12.

NOTE: After checking intermediate connectors C-89 and C-91, check the wires. If intermediate connectors C-89 and C-91 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between power window relay connector A-04X and power window main switch connector E-12 in good condition?

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

NO : Repair them. The power windows should work normally.

Inspection Procedure D-2: Power window relay: Power window timer function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the power window timer function, based on input signals from the following switches:

- Ignition switch (IG1)
- Driver's or passenger's door switch

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

TROUBLESHOOTING HINTS

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

TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

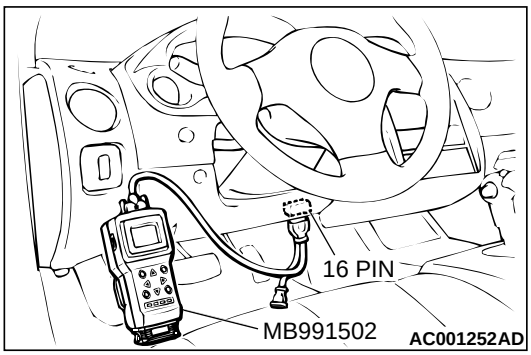
Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's and passenger'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.

(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

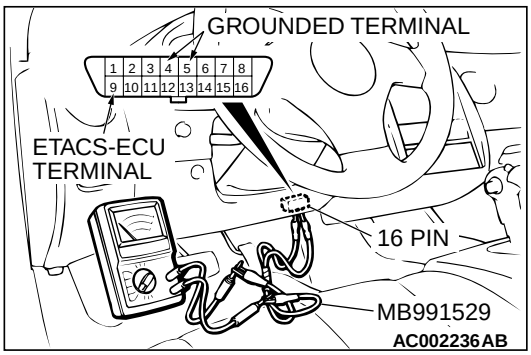
YES : Go to Step 4.
NO : Check the relevant input circuit. Refer to P.54B-9.

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's and passenger's door switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the relevant input circuit. Refer to P.54B-9.

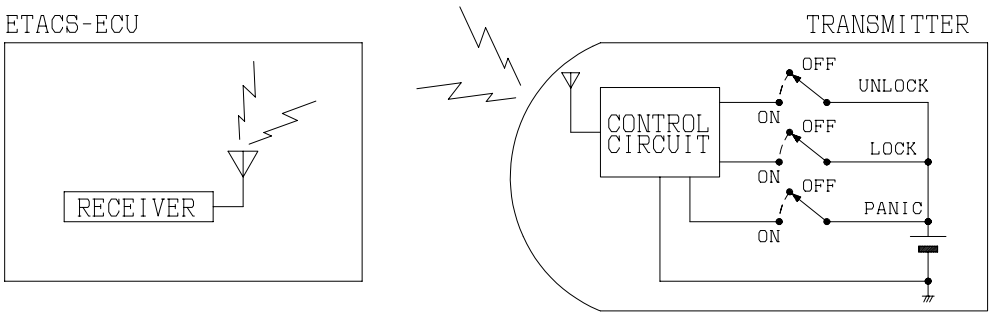
TSB Revision

STEP 4. Replacement of ECU.
(1) Replace the front-ECU.
(2) The power window timer function should work normally.

Q: Is the power window timer function working normally?
YES : Replace the ETACS-ECU. The power window timer function should work normally.
NO : There is no action to taken.

Inspection Procedure E-1: Keyless entry system: Keyless entry system does not operate.

Receiver and transmitter Communication System



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CIRCUIT OPERATION
Receiver within the ETACS-ECU receives the lock/unlock signal from the transmitter.

TECHNICAL DESCRIPTION (COMMENT)
The cause may be a malfunction of the receiver and transmitter communication system.

TROUBLESHOOTING HINTS
- Malfunction of the ETACS-ECU
- Malfunction of the transmitter

DIAGNOSIS

Required Special Tools:
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the central door locking system operation.

Q: Does the central door locking system work normally?
YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.
NO : Solve the problem first. Refer to P.54B-9.

TSB Revision

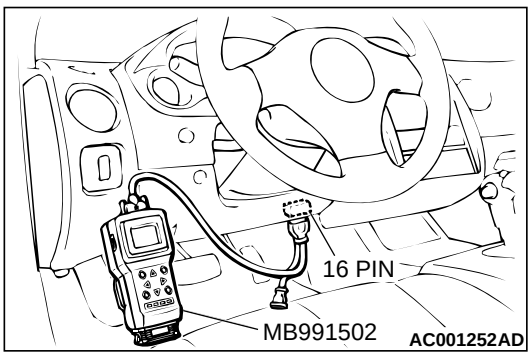
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the transmitter 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



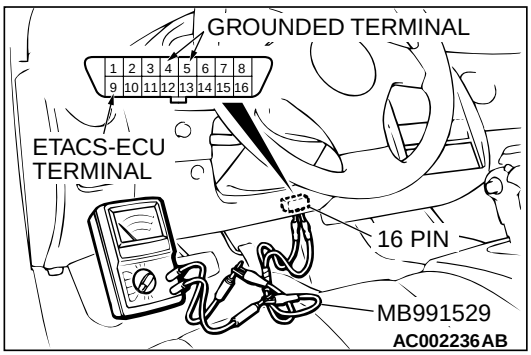
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. All the doors should be locked or unlocked by using the transmitter.
NO : Check the transmitter input circuit. Refer to Inspection Procedure O-18 (P.54B-282).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the transmitter switches.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

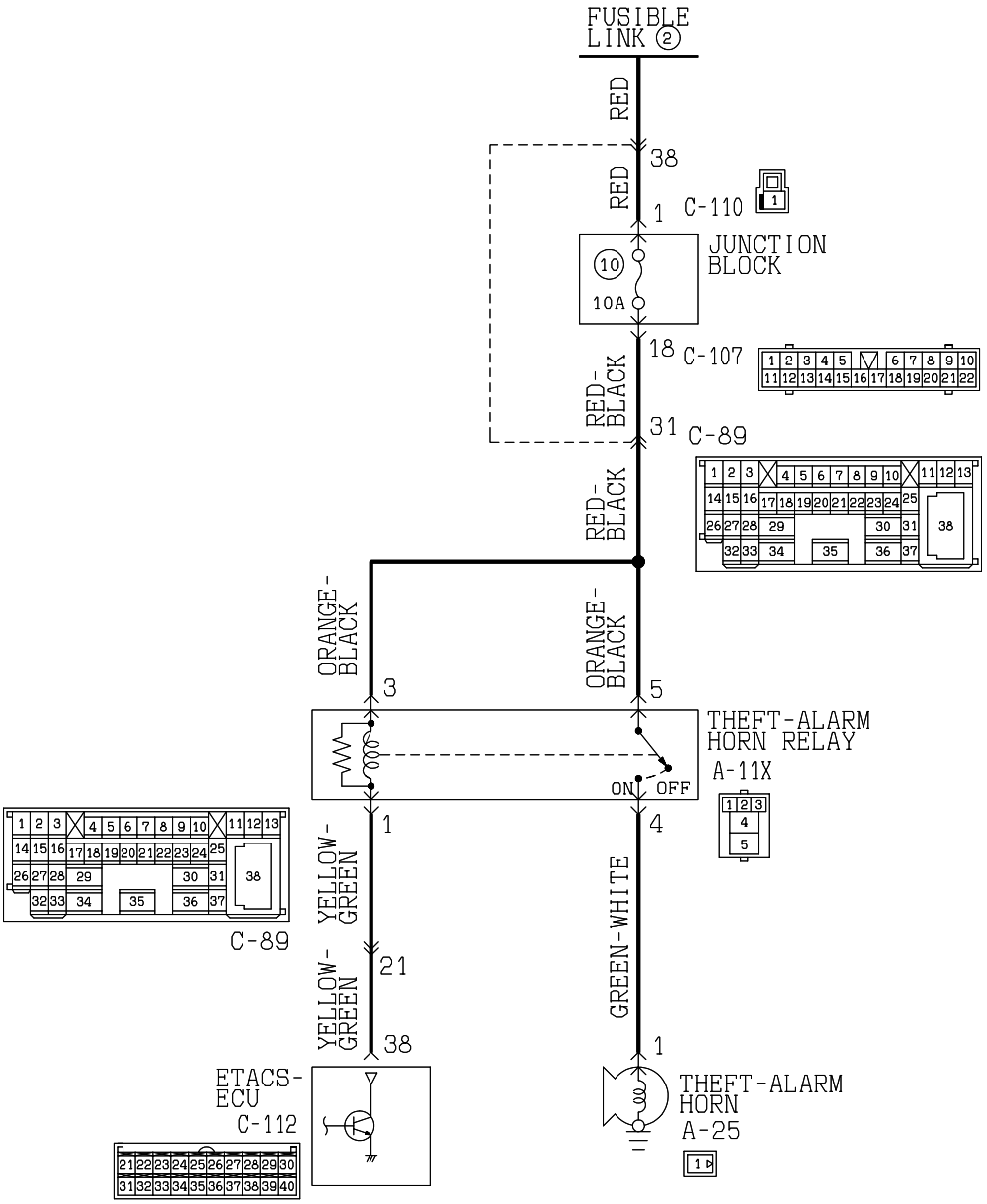


Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. All the doors should be locked or unlocked by using the transmitter.
NO : Check the transmitter input circuit. Refer to Inspection Procedure O-21 (P.54B-282).

Inspection Procedure E-2: Keyless entry system: The dome light, the hazard warning lights and the horn do not operate through the answerback function.

Theft-alarm Horn Circuit



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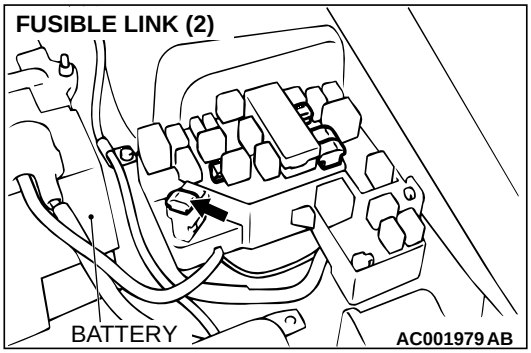
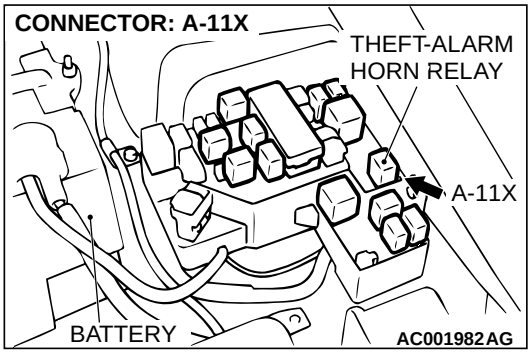
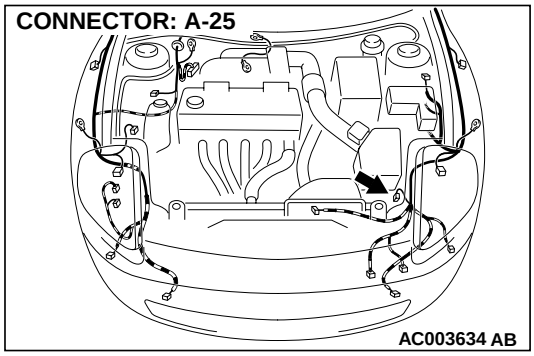
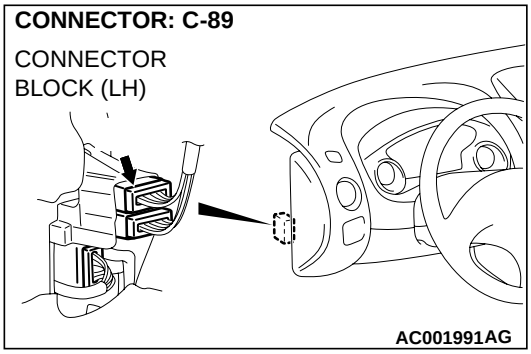
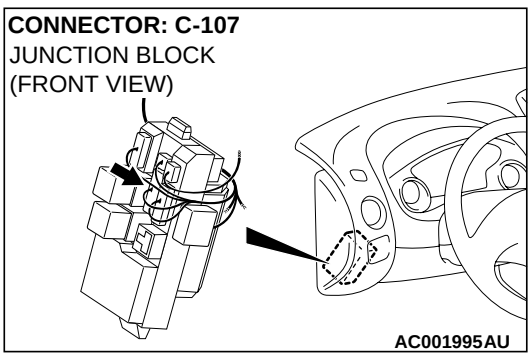
TSB Revision

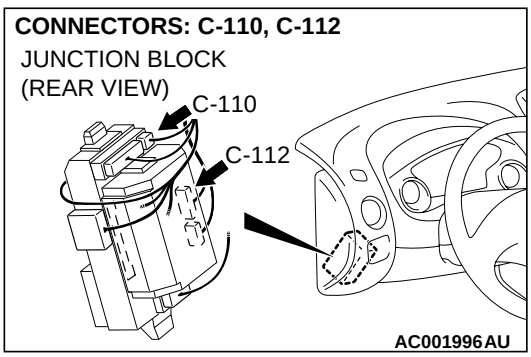












CIRCUIT OPERATION

The ETACS-ECU operates the horns through the keyless entry system answerback or the theft-alarm system if the requirements for the horns are satisfied.

TECHNICAL DESCRIPTION (COMMENT)

The turn-signal light and the horn answerback functions can be selected by the driver's desire (can be deactivated). However, the interior lights answerback function can not be deactivated. If all of these devices do not operate through the answerback function, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the turn-signal light
- 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

TSB Revision

STEP 1. Check the answerback set condition.
Activate the answerback functions. (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Enabling/disabling the Answerback Function P.42-101.)

Q: Does the answerback function work normally?

YES : There is no action to be taken.
NO : Go to Step 2.

STEP 2. Check trouble symptom.

Q: Which component(s) does not operate through the answerback?

Only the interior lights : Go to Step 3.
Only the hazard warning lights : Go to Step 4.
Only the horn : Go to Step 5.
None of the interior lights, the turn-signal lights, and the horn : Replace the ETACS-ECU. The answerback function should work normally.

STEP 3. Check the dome light operation.

Q: Does the dome light dimming function work normally?

YES : Replace the ETACS-ECU. The answerback function should work normally.
NO : Solve the problem first. Refer to Inspection Refer to P.54B-166.

STEP 4. Check the hazard warning light operation.

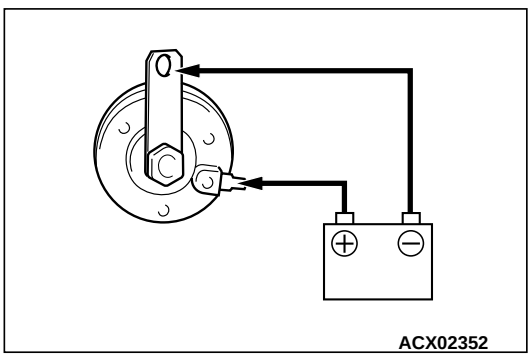
Q: Do the hazard warning lights operate normally?

YES : Replace the ETACS-ECU. The answerback function should work normally.
NO : Solve the problem first. Refer to Inspection Procedure K-2 (P.54B-152).

STEP 5. Check the working of the horn by the theft-alarm system.

Q: Does the horn work normally by the theft-alarm system?

YES : Replace the ETACS-ECU. The answerback function should work normally.
NO : Solve the problem first. Refer to Inspection Procedure N-2 (P.54B-176).



TSB Revision

Inspection Procedure E-4: Keyless entry system: Encrypted code cannot be registe

TECHNICAL DESCRIPTION (COMMENT)

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

- Key reminder switch
- Hazard warning light switch

If the encrypted code register mode is not set, the relevant input signal circuit or the ETACS-ECU may be defective.

If a transmitter can not be registered although the encrypted code register mode is set, 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:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the trouble symptom.

Q: Is the encrypted code register mode set?

YES : Go to Step 4.

NO : Go to Step 2 <when using scan tool MB991502> or 3 <when using a volt meter>.

STEP 2. Check the input signal (by using scan tool MB991502).

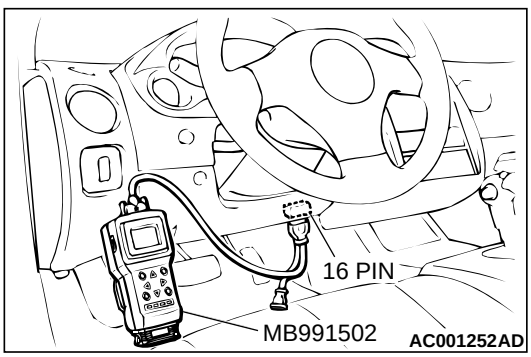
Check the input signals from the following switches:

- 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

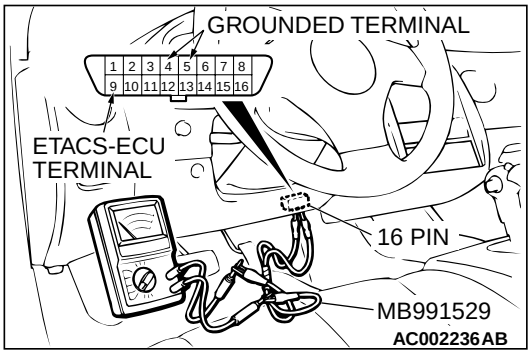


Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

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

NO : Check the relevant input circuit. Refer to P.54B-9.

TSB Revision



STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Key reminder switch
- Hazard warning light switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

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

NO : Check the relevant input circuit. Refer to P.54B-9.

STEP 4. Check the transmitter.

Q: Can the encrypted code be registered when the transmitter battery has been renewed?

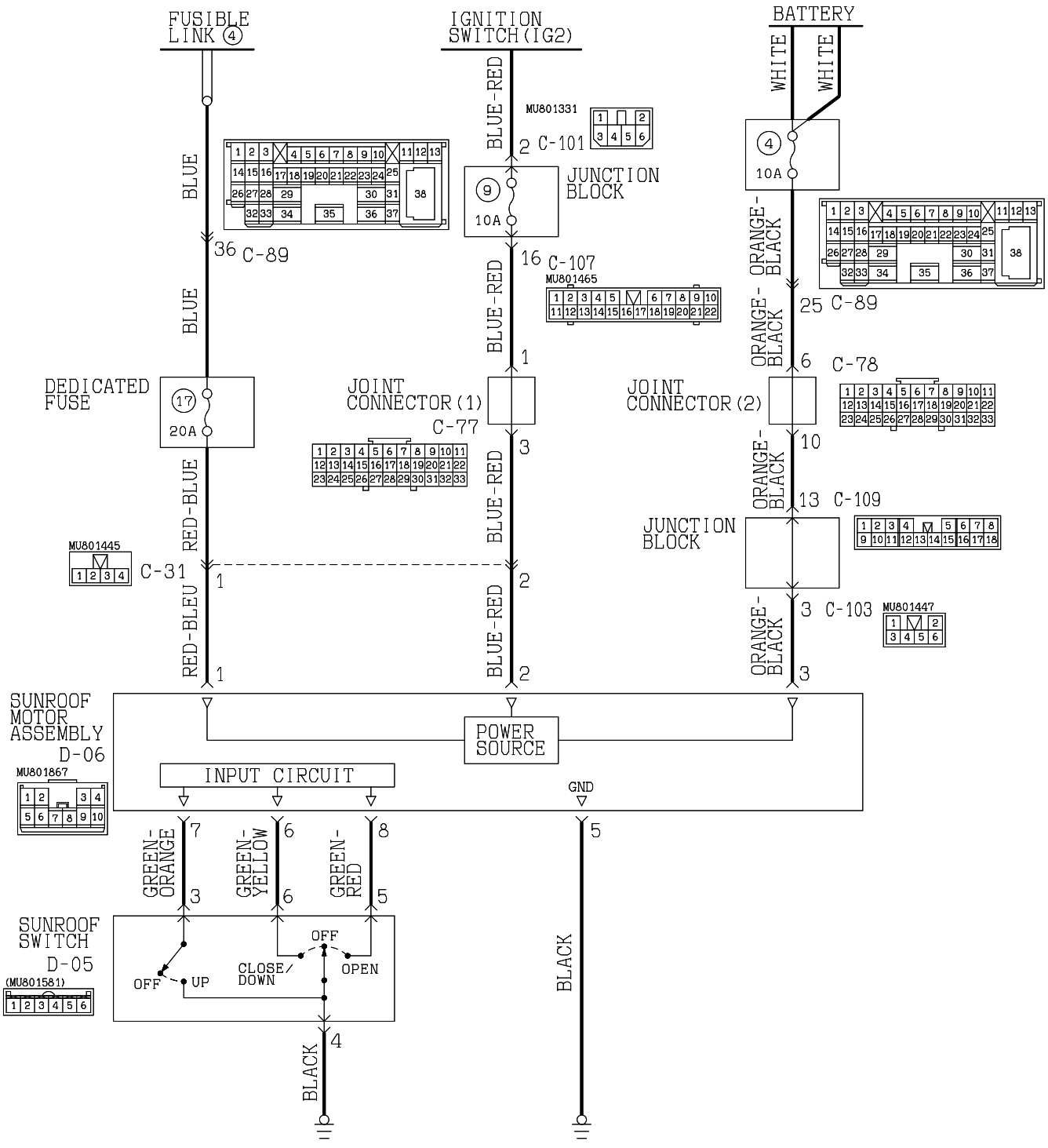
YES : There is no action to be taken.

NO : Replace the transmitter. If the transmitter can not be registered even if the transmitter has been replaced, replace the ETACS-ECU. Check that the transmitter can be registered.

TSB Revision

Inspection Procedure F-1: Sunroof: Sunroof does not operate.

Sunroof Motor Assembly Power Supply Circuit



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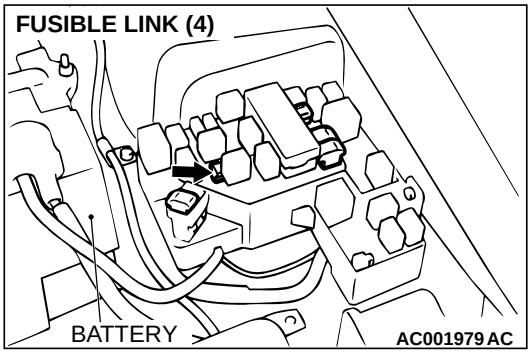
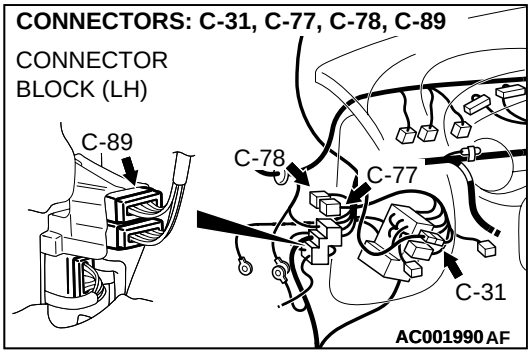
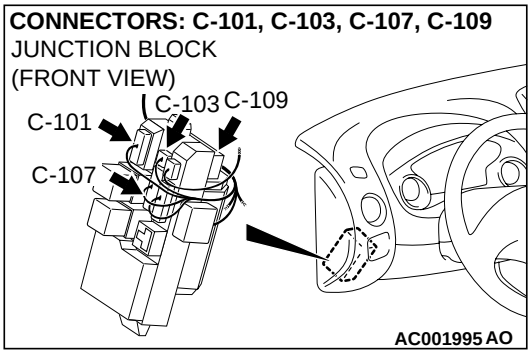
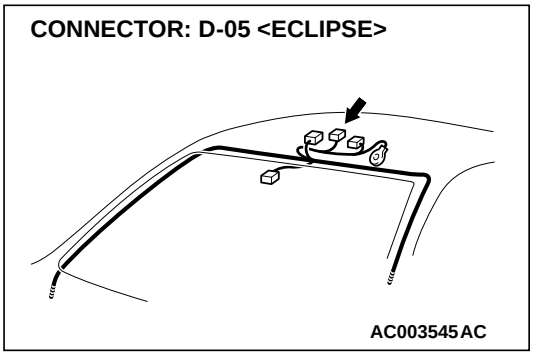
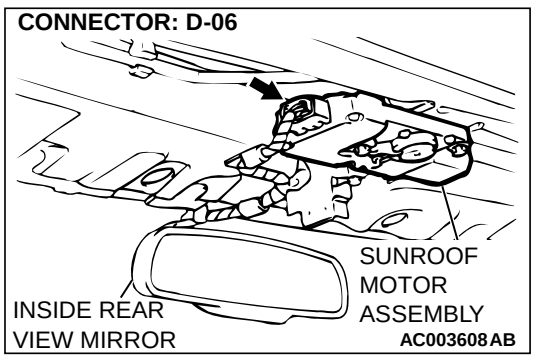
TSB Revision











CIRCUIT OPERATION

- The sunroof motor assembly is energized by the battery through fusible link (4) and battery.
- If the ignition switch (IG2) sends a signal, the sunroof motor assembly operates.

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit of the sunroof motor assembly, the sunroof switch ground circuit, or the sunroof motor assembly may be defective.

TROUBLESHOOTING HINTS

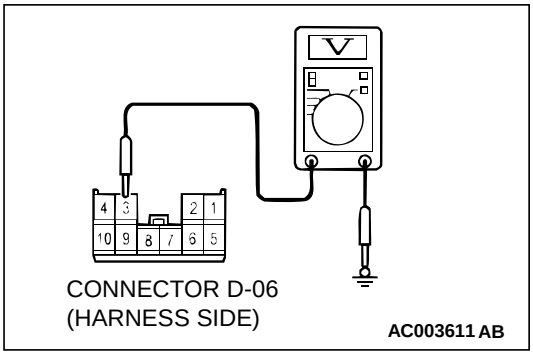
- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

TSB Revision

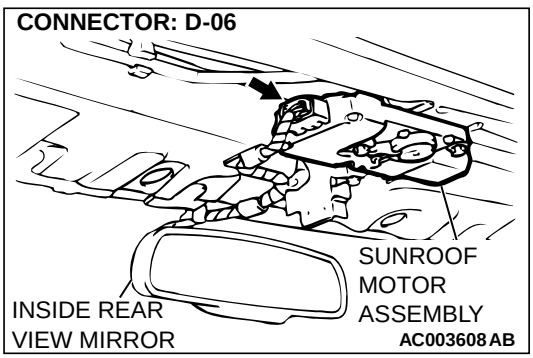


STEP 1. Check the sunroof motor assembly power supply circuit (battery) at the sunroof motor assembly connector D-06 by back probing.

(1) Do not disconnect the sunroof motor assembly connector D-06.
(2) Measure the voltage between terminal 3 and ground by back probing.

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

YES : Go to Step 4.
NO : Go to Step 2.

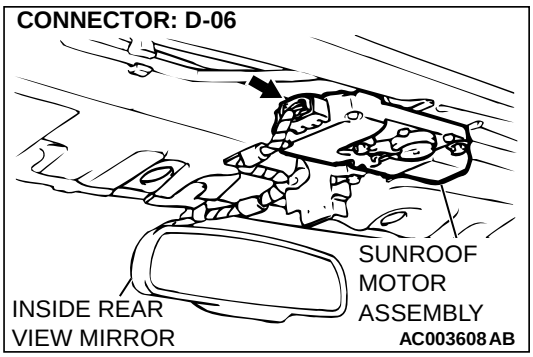


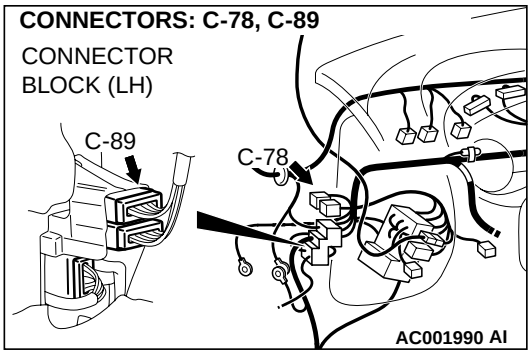
STEP 2. Check sunroof motor assembly connector D-06 for damage.

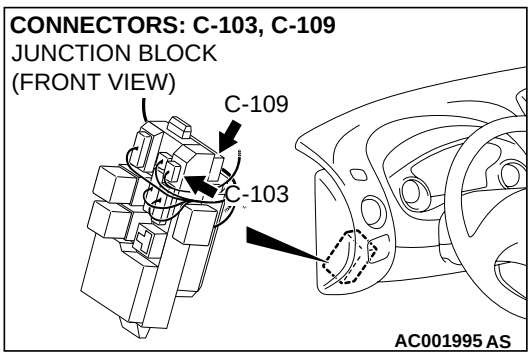
Q: Is sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 3.
NO : Repair or replace it. Refer to GROUP 8W1, Harness Connector Inspection P.00E-2. The sunroof should work normally.

TSB Revision







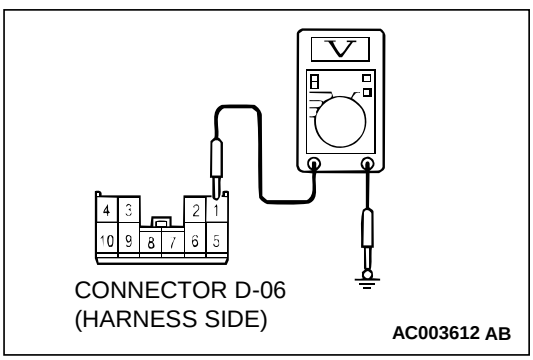
STEP 3. Check the harness wires between sunroof motor assembly connector D-06 and battery.

NOTE: After checking intermediate connector C-89 joint connector C-78, junction block connector C-103 and C-109, check the wires. If intermediate connector C-89, joint connector C-78, junction block connector C-103 and C-109 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

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

YES : There is no action to be taken.

NO : Repair or replace them. The sunroof should work normally.



STEP 4. Check the sunroof motor assembly power supply circuit [fusible link (4)] at the sunroof motor assembly connector D-06 by back probing.

(1) Do not disconnect the sunroof motor assembly connector D-08.

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

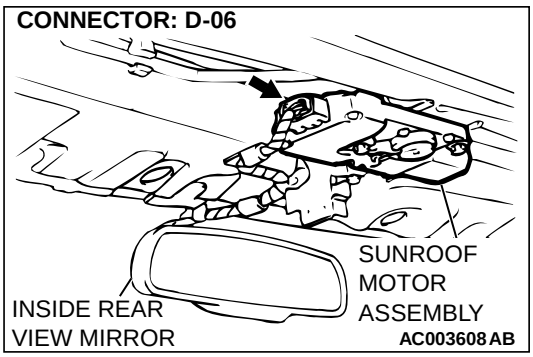
Q: Is the voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.

NO : Go to Step 5.

TSB Revision

CONNECTOR: D-06



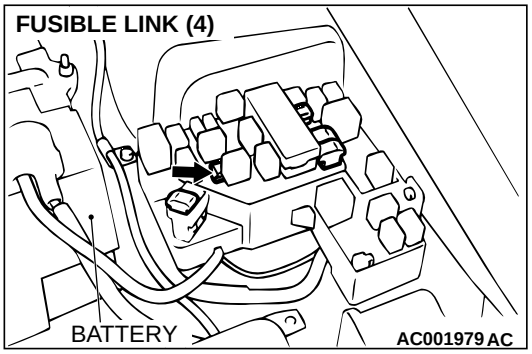
STEP 5. Check the sunroof motor assembly connector D-08 for damage.

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

YES : Go to Step 6.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The sunroof should work normally.

FUSIBLE LINK (4)



STEP 6. Check the harness wires between sunroof motor assembly connector D-06 and fusible link (4).

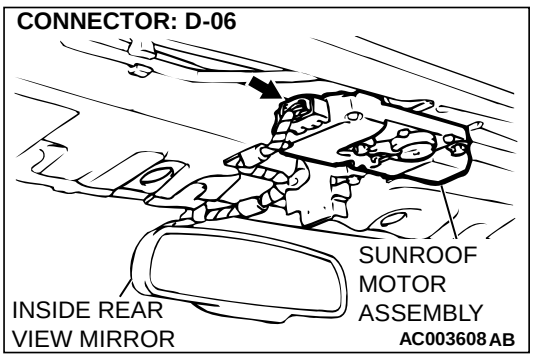
NOTE: After checking intermediate connectors C-31 and C-89, check the wires. If intermediate connectors C-31 and C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between sunroof motor assembly connector D-06 and fusible link (4) in good condition?

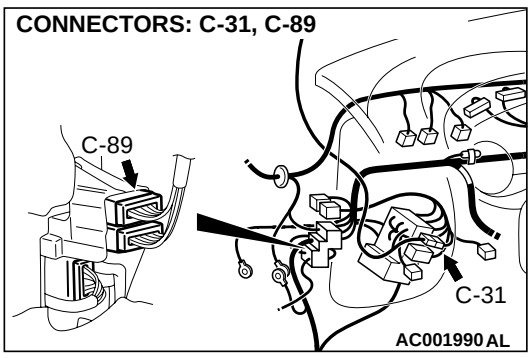
YES : There is no action to be taken.

NO : Repair or replace them. The sunroof should work normally.

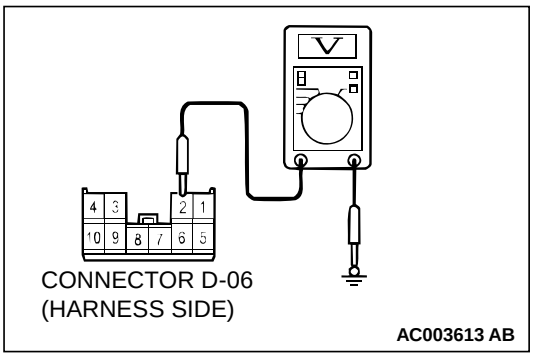
CONNECTOR: D-06



CONNECTORS: C-31, C-89



TSB Revision

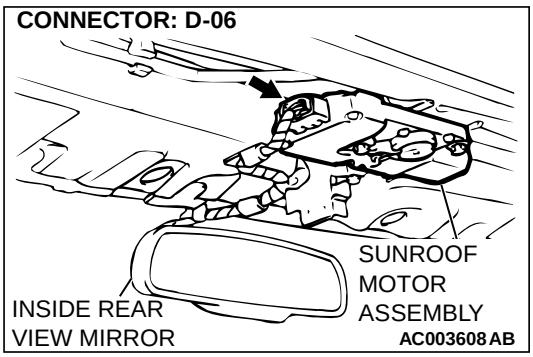


STEP 7. Check the sunroof motor assembly power supply circuit [ignition switch (IG2)] at the sunroof motor assembly connector D-06 by back probing.

(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 back probing.

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

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

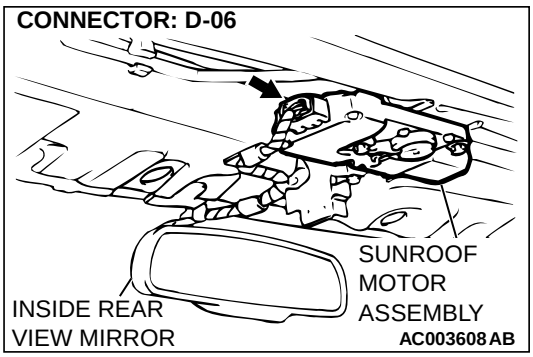


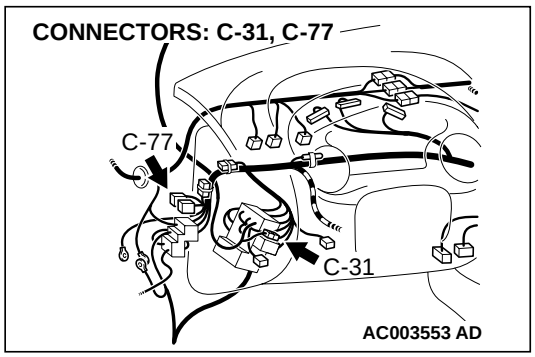
STEP 8. Check the sunroof motor assembly connector D-06 for damage.

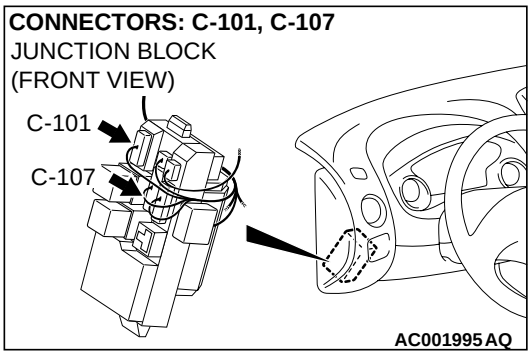
Q: Is sunroof motor assembly connector D-06 in good condition?

YES : Go to Step 9.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The sunroof should work normally.

TSB Revision







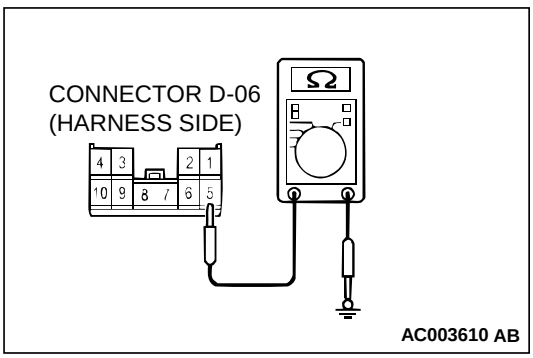
STEP 9. Check the harness wires between sunroof motor assembly connector D-06 and ignition switch (IG2).

NOTE: After checking intermediate connector C-31 joint connector C-77, junction block connector C-101 and C-107, check the wires. If intermediate connector C-31, joint connector C-77, junction block connector C-101 and C-107 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

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

YES : There is no action to be taken.

NO : Repair or replace them. The sunroof should 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.

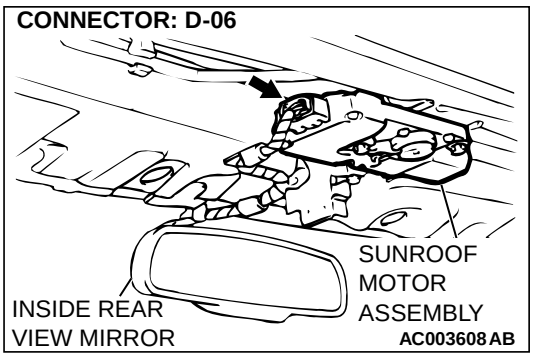
(2) Measure the resistance between terminal 5 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 13.

NO : Go to Step 11.

TSB Revision

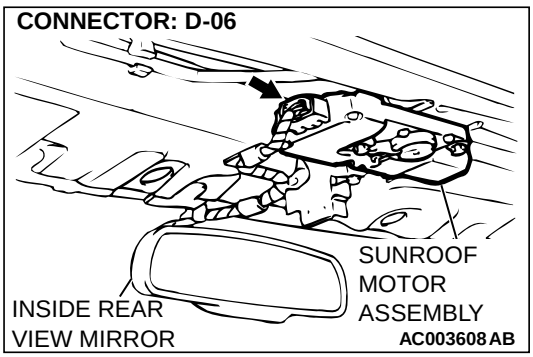


STEP 11. Check the sunroof motor assembly connector D-06 for damage.

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

YES : Go to Step 12.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The sunroof should work normally.

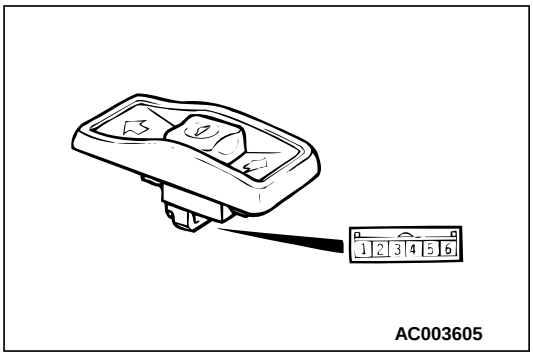


STEP 12. Check the harness wire between sunroof motor assembly connector D-06 and ground.

Q: Is the harness wire between sunroof motor assembly connotes D-06 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The sunroof should work normally.



STEP 13. Check the sunroof switch.

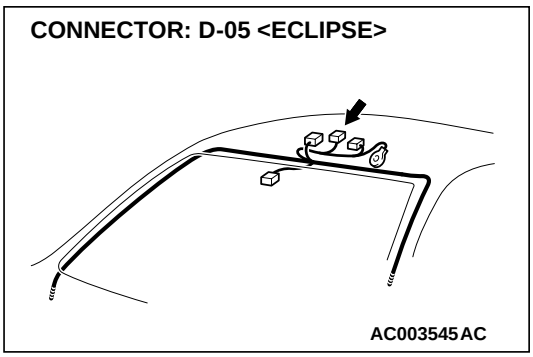
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	–	No continuity
OPEN	4 – 5	Continuity
TILT UP	3 – 4	Continuity
CLOSE/TILT DOWN	4 – 6	Continuity

Q: Does the check above meet the table?

YES : Go to Step 14.

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

TSB Revision

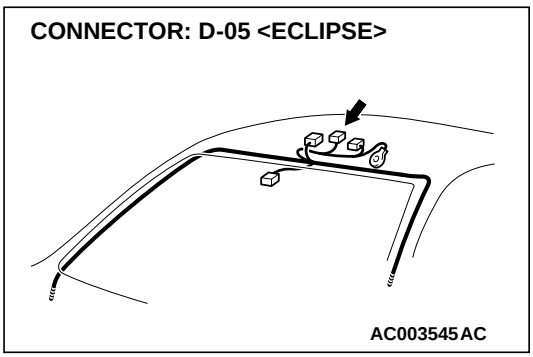


STEP 14. Check the sunroof switch connector D-05 for damage.

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

YES : Go to Step 15.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The sunroof should work normally.



STEP 15. Check the harness wire between sunroof switch connector D-05 and ground.

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

YES : There is no action to be taken.

NO : Repair it. The sunroof should work normally.

Inspection Procedure F-2: Any of the sunroof switch positions is defective.

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:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.

Voltmeter : Go to Step 3.

TSB Revision

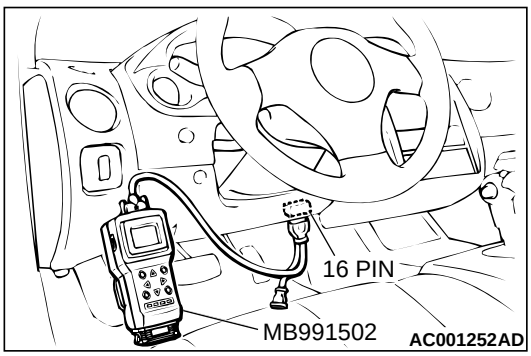
STEP 2. Check the input signal (using scan tool MB991502).

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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



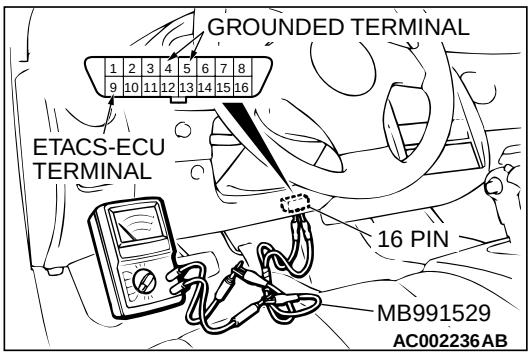
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the sunroof motor assembly. The sunroof should work normally in all of the switch positions.
NO : Check the sunroof switch input circuit. Refer to Inspection Procedure O-20 (P.54B-279).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the sunroof switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Replace the sunroof motor assembly. The sunroof should work normally in all of the switch positions.
NO : Check the sunroof switch input circuit. Refer to Inspection Procedure O-20 (P.54B-279).

Inspection Procedure F-3: 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.

TSB Revision

Inspection Procedure F-4: Sunroof: Sunroof timer function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The sunroof motor assembly deactivates the sunroof timer if the SWS communication line is open circuited. In addition, when the doors are opened if the door switch circuit is defective and the timer is on, the sunroof timer should not operate normally.

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:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

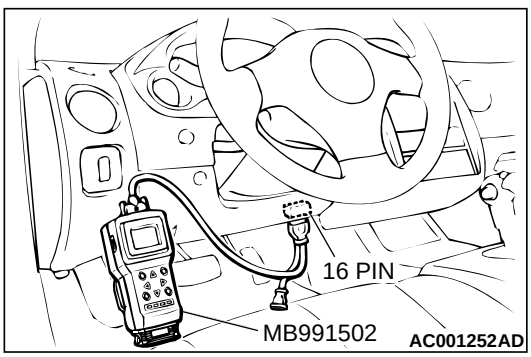
- Driver's and passenger's door switch
- Sunroof switch

NOTE: If can be determined whether the harness wires between the sunroof motor assembly and the ETACS-ECU is defective or not by checking the SWS communication line.

⚠ 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.

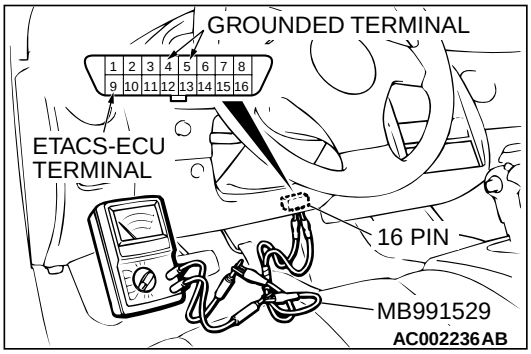
(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the sunroof motor assembly. The sunroof timer function should work normally.
NO : Check the relevant input circuit. Refer to P.54B-9.

TSB Revision



STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's and front passenger's door switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

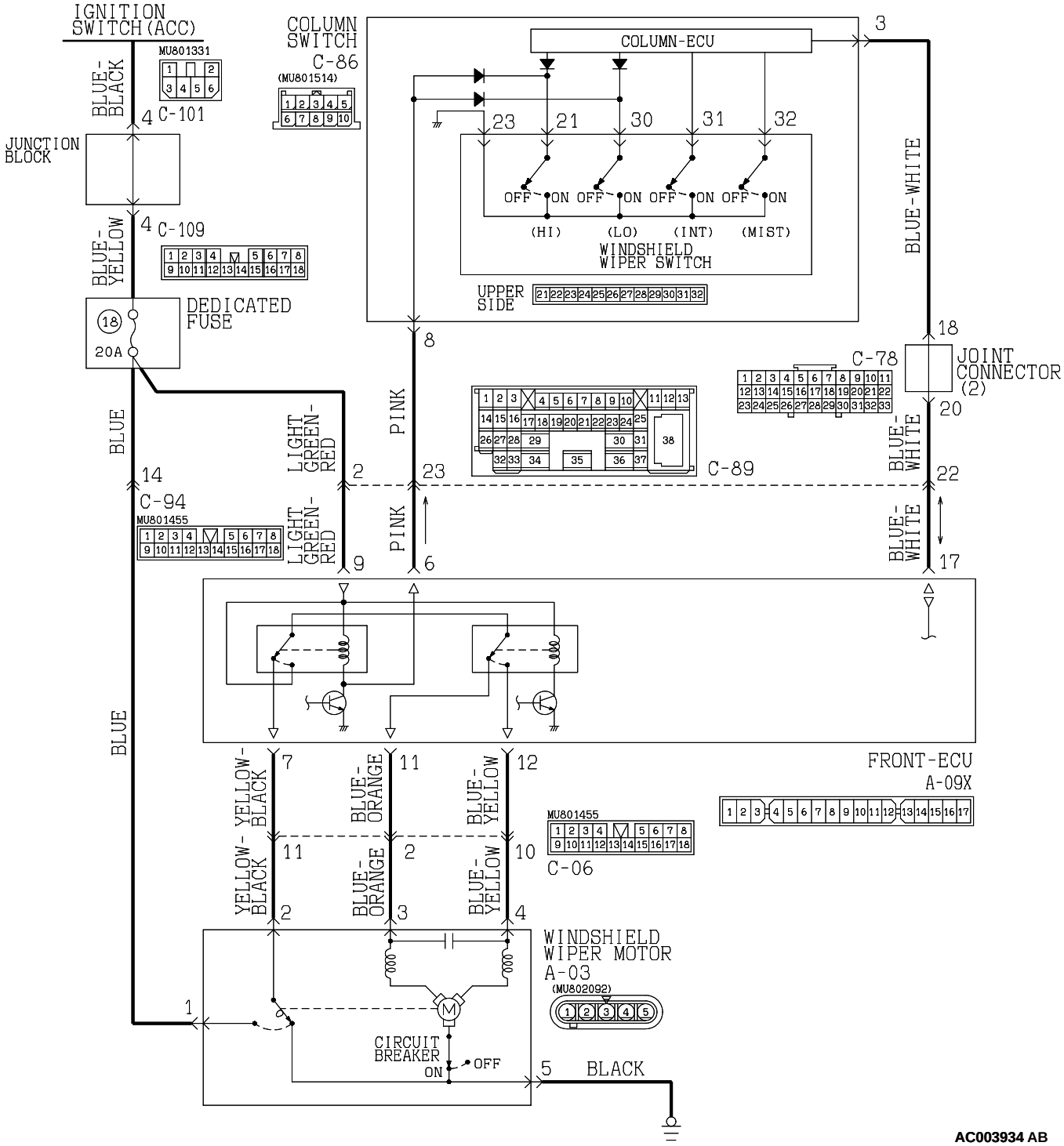
YES : Replace the sunroof motor assembly. The sunroof timer function should work normally.

NO : Check the relevant input circuit. Refer to P.54B-9.

TSB Revision

Inspection Procedure G-1: Windshield wiper and washer: Windshield wiper does not operate.

Windshield Wiper Motor Driver Circuit



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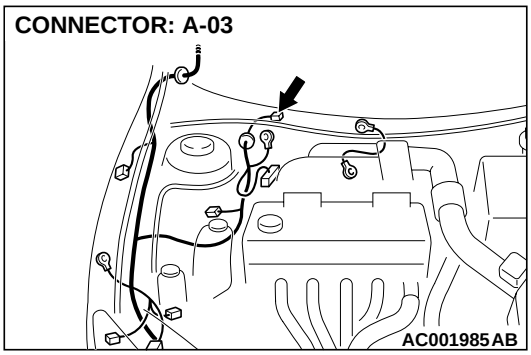
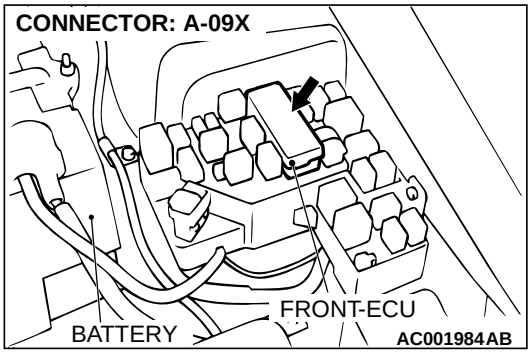
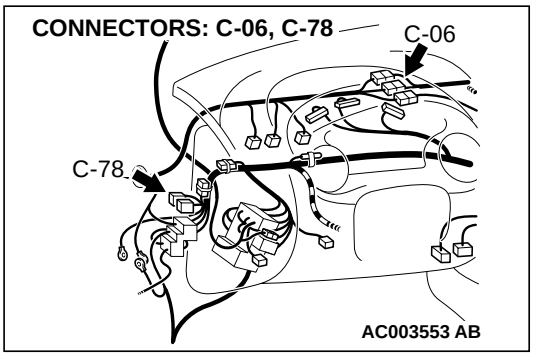
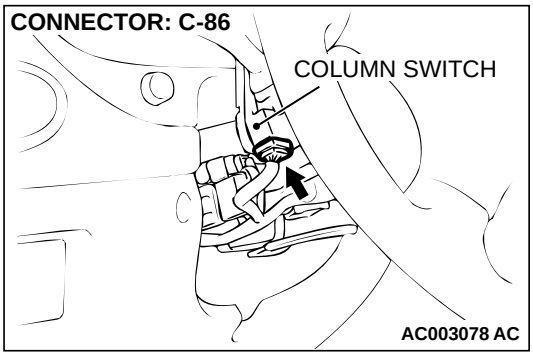
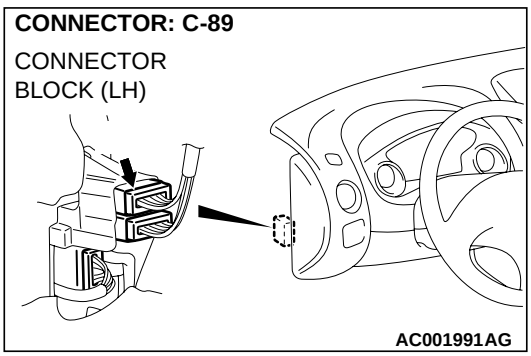
TSB Revision

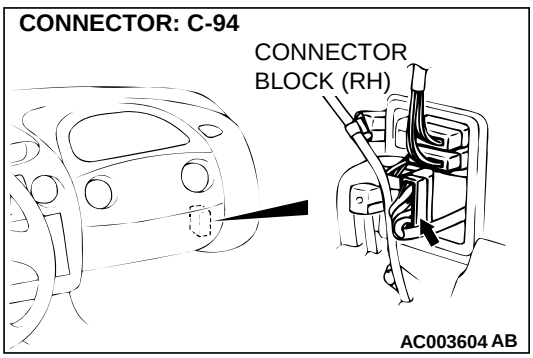


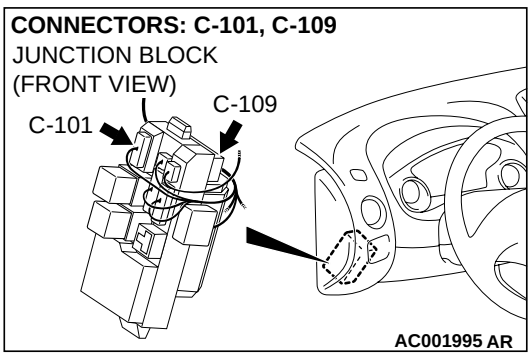












CIRCUIT OPERATION

- A signal from the windshield wiper switch is sent through the column-ECU inside the column switch to the front-ECU. The signal turns on the relay inside the front-ECU to operate the wiper motor.
- If the SWS communication line is defective, another signal line (wiper back-up circuit) will be active. In that case, the windshield wiper will operate at low-speed when the windshield wiper switch is in the "LOW" or "HIGH" position.

TECHNICAL DESCRIPTION (COMMENT)

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

TSB Revision

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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

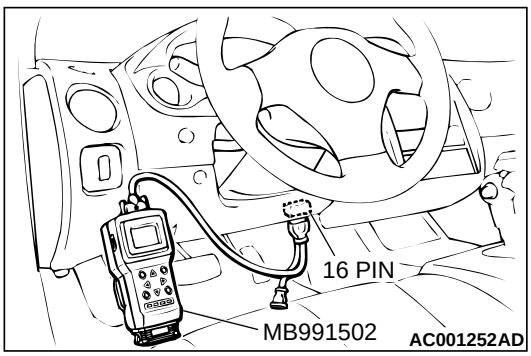
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the windshield wiper 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



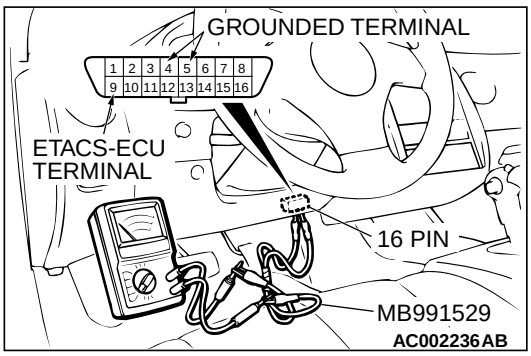
Q: Does the tone alarm of scan tool MB991502 sounds when the input signal enters?

YES : Go to Step 4.
NO : Check the windshield wiper switch input circuit. Refer to Inspection Procedure O-18 (P.54B-274).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the windshield wiper switches.

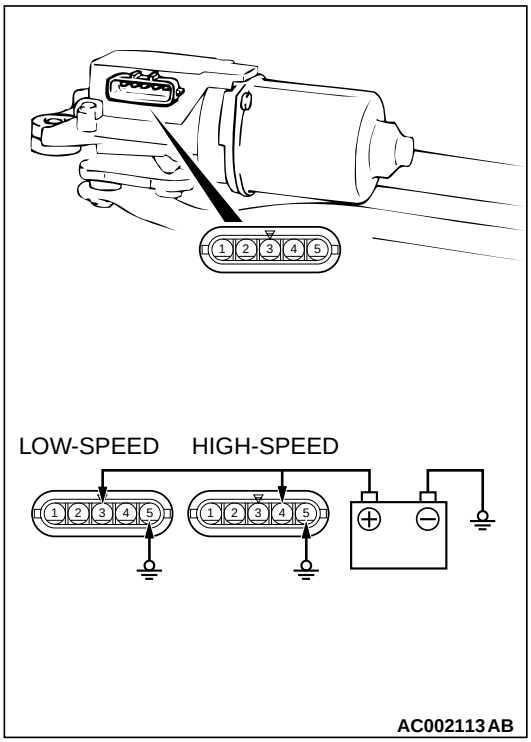
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the windshield wiper switch input circuit. Refer to Inspection Procedure O-18 (P.54B-274).

TSB Revision

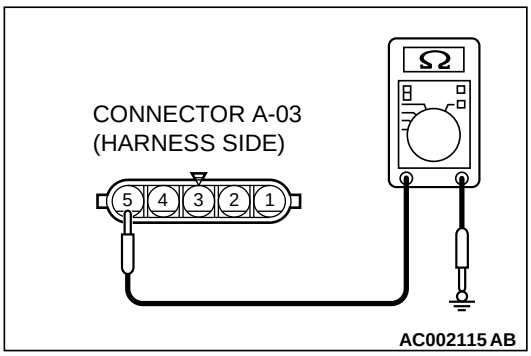


STEP 4. Check the windshield wiper motor.

(1) Disconnect the wiper motor connector A-03.
(2) Connect a battery to the wiper motor as shown in the illustration and check motor operation at low-speed and high-speed.

Q: Is the wiper motor in good condition?

YES : Go to Step 5.
NO : Replace the wiper motor. The windshield wiper should work normally.

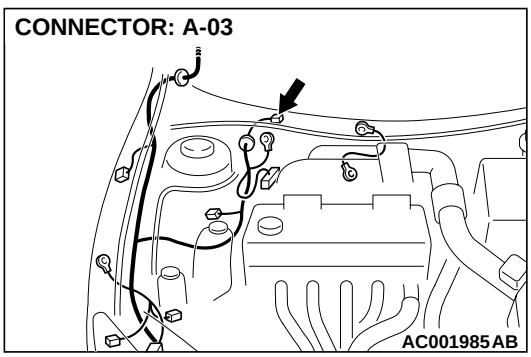


STEP 5. Check the wiper motor ground circuit at wiper motor connector A-03.

(1) Disconnect wiper motor connector A-03 and measure at the harness side.
(2) Measure the resistance between terminal 5 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 8.
NO : Go to Step 6.

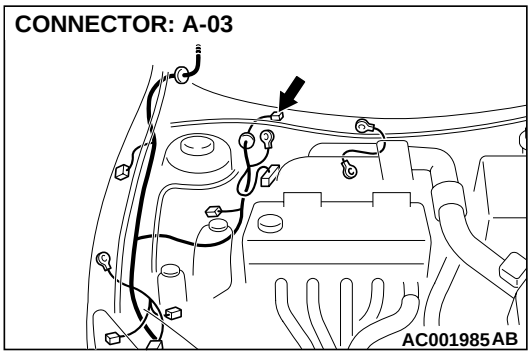


STEP 6. Check wiper motor connector A-03 for damage.

Q: Is wiper motor connector A-03 in good condition?

YES : Go to Step 7.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should work normally.

TSB Revision

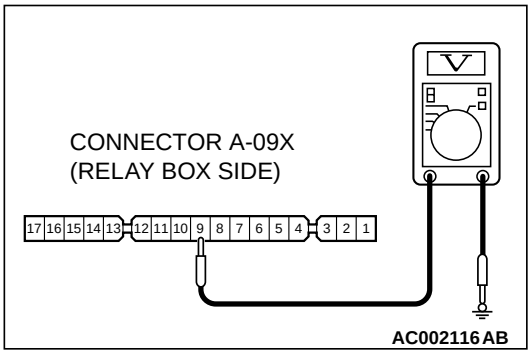


STEP 7. Check the harness wire between wiper motor connector A-03 and ground.

Q: Is the harness wire between wiper motor connector A-03 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The windshield wiper should work normally.



STEP 8. Check the front-ECU power supply circuit [ignition switch (ACC)] at the front-ECU connector A-09X.

(1) Disconnect the front-ECU connector A-09X and measure at the relay box side.

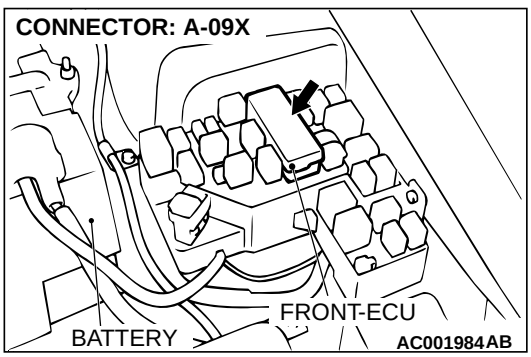
(2) Turn the ignition switch to "ACC" position.

(3) Measure the voltage between terminal 9 and ground.

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

YES : Replace the front-ECU. The windshield wiper should work normally.

NO : Go to Step 9.



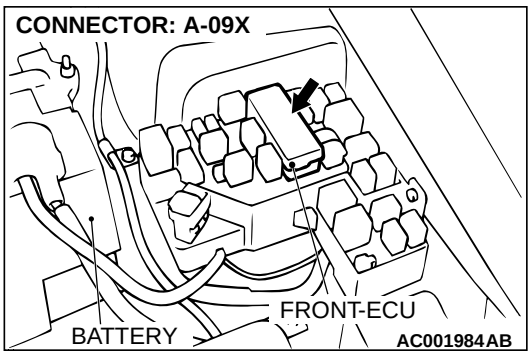
STEP 9. Check front-ECU connector A-09X for damage.

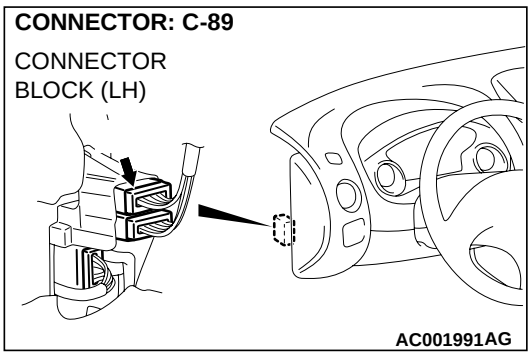
Q: Is front-ECU connector A-09X in good condition?

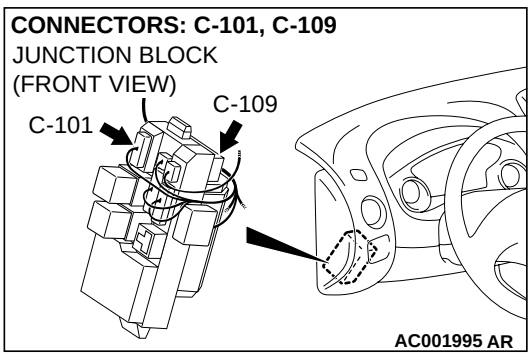
YES : Go to Step 10.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should work normally.

TSB Revision







STEP 10. Check the harness wires between front-ECU connector A-09X and ignition switch (ACC).

NOTE: After checking intermediate connector C-89 and junction block connectors C-101 and C-109, check the wires. If intermediate connector C-89 and junction block connectors C-101 and C-109 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between front-ECU connector A-09X and ignition switch (ACC) in good condition?

YES : There is no action to be taken.

NO : Repair them. The windshield wiper should work normally.

Inspection Procedure G-2: Windshield wiper and washer: Any of the windshield wiper switch positions is defective.

Windshield Wiper Motor Drive Circuit

- Refer to Inspection Procedure G-1 (P.54B-81).

CIRCUIT OPERATION

A signal from the windshield wiper switch is sent through the column-ECU inside the column switch to the front-ECU. The signal turns on the relay inside the front-ECU to operate the wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

The 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

TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

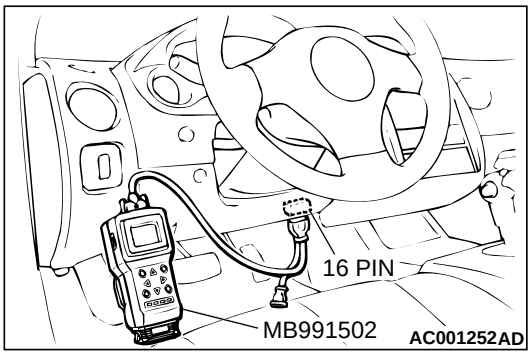
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the windshield wiper 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



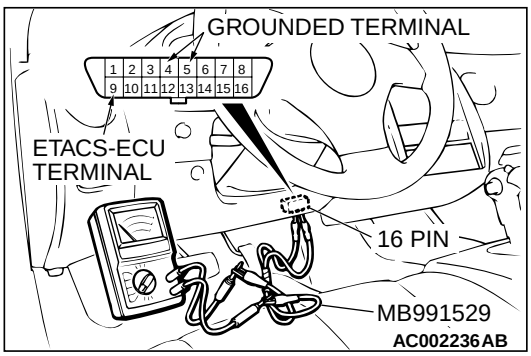
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the windshield wiper switch input circuit. Refer to Inspection Procedure O-18 (P.54B-274).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the windshield wiper switches.

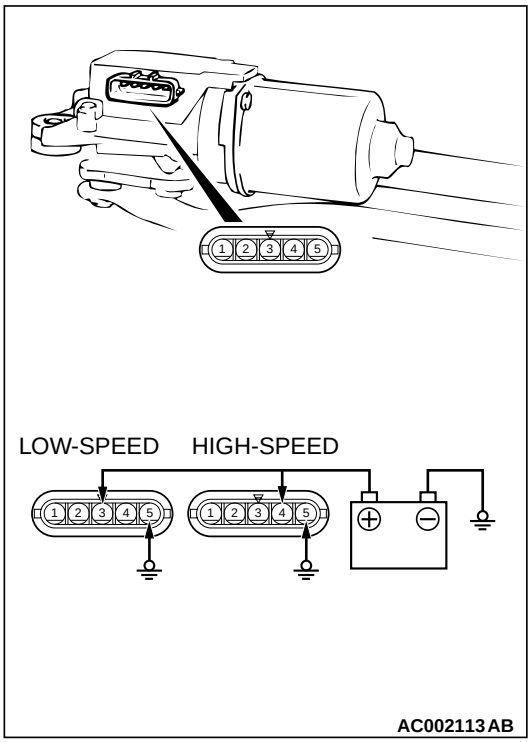
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the windshield wiper switch input circuit. Refer to Inspection Procedure O-18 (P.54B-274).

TSB Revision



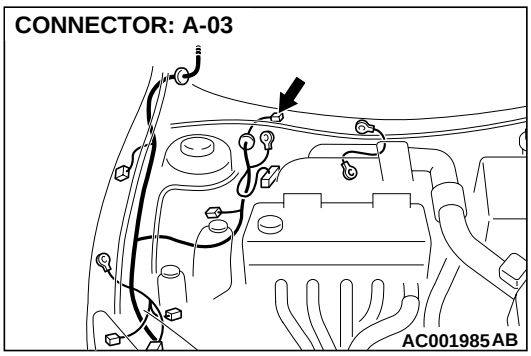
STEP 4. Check the windshield wiper motor.

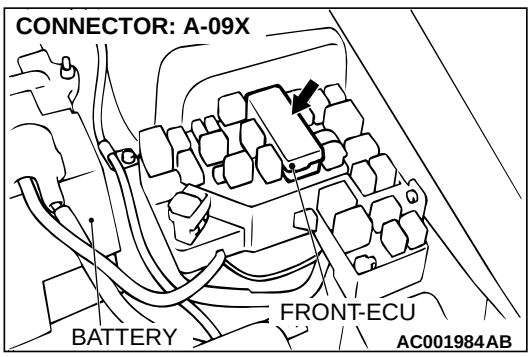
(1) Disconnect the wiper motor connector A-03.
(2) Connect a battery to the wiper motor as shown in the illustration and check motor operation at low-speed and high-speed.

Q: Is the wiper motor in good condition?

YES : Go to Step 5.

NO : Replace the wiper motor. The windshield wiper should work normally when the windshield wiper switch is set to all positions.





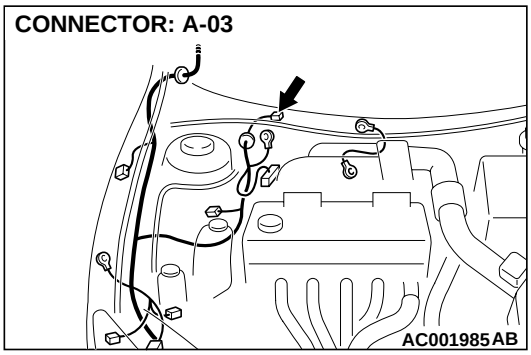
STEP 5. Check the wiper motor connector A-03 and front-ECU connector A-09X for damage.

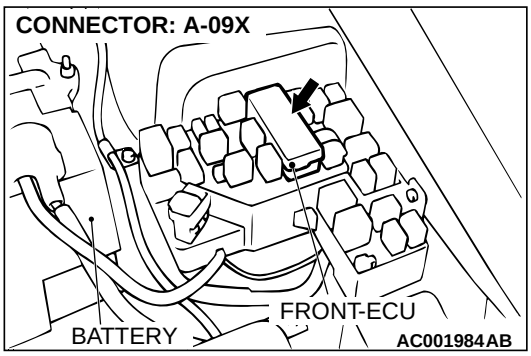
Q: Are wiper motor connector A-03 and front-ECU connector A-09X in good condition?

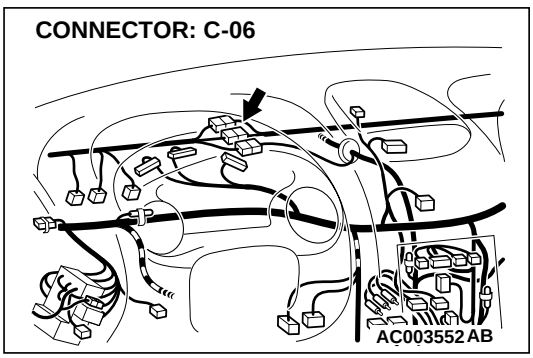
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should work normally when the windshield wiper switch is set to all positions.

TSB Revision







STEP 6. Check the harness wires between wiper motor connector A-03 and front-ECU connector A-09X.

NOTE: After checking intermediate connector C-06, check the wires. If intermediate connector C-06 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between wiper motor connector A-03 and front-ECU connector A-09X in good condition?

YES : There is no action to be taken.

NO : Repair them. The windshield wiper should work normally when the windshield wiper switch is set to all positions.

Inspection Procedure G-3: Windshield wiper and washer: Windshield wiper does not stop at the predetermined park position.

Windshield Wiper Motor Drive Circuit

- Refer to Inspection Procedure G-1 (P.54B-81).

CIRCUIT OPERATION

A signal from the windshield wiper switch is sent through the column-ECU inside the column switch to the front-ECU. The signal turns on the relay inside the front-ECU to operate the wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

The wiper motor or the front-ECU may be defective.

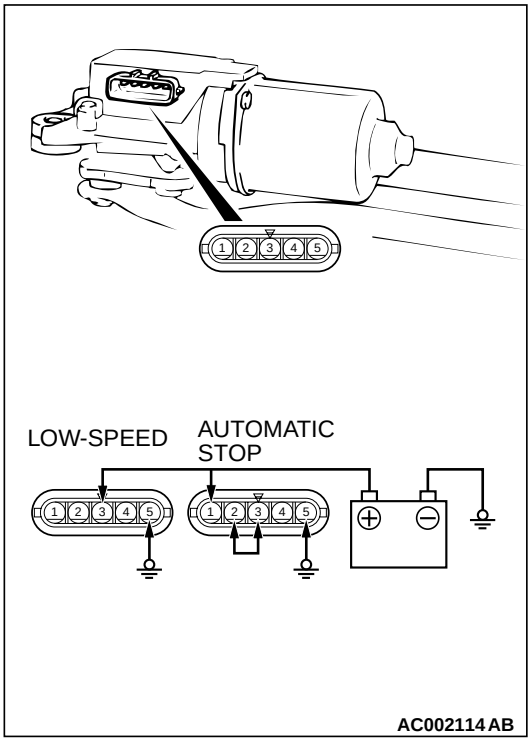
TROUBLESHOOTING HINTS

- Malfunction of the wiper motor
- Malfunction of the front-ECU
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tool:
- MB991223: Test Harness Set

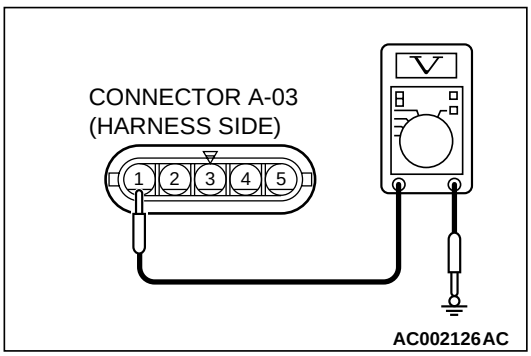


STEP 1. Check the windshield wiper motor

(1) Disconnect the wiper motor connector A-03.
(2) Run the wiper motor at low-speed, disconnect the battery, and stop the motor.
(3) Reconnect the battery as shown in the illustration, and confirm that after the motor starts turning at low-speed, and stops at the automatic stop position.

Q: Is the wiper motor in good condition?

YES : Go to Step 2.
NO : Replace the wiper motor. The windshield wiper should stop at the predetermined park position.



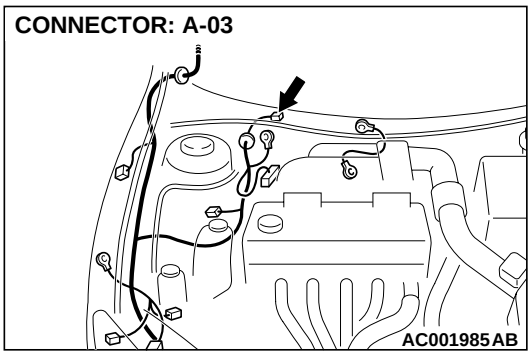
STEP 2. Check the wiper motor power supply circuit at the wiper motor connector A-03 by back probing.

(1) Do not disconnect the wiper motor connector A-03.
(2) Turn the ignition switch to "ACC" position.
(3) Measure the voltage between terminal 1 and ground by back probing.

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

YES : Go to Step 5.
NO : Go to Step 3.

TSB Revision

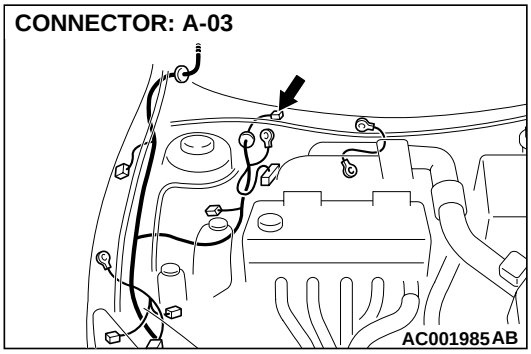


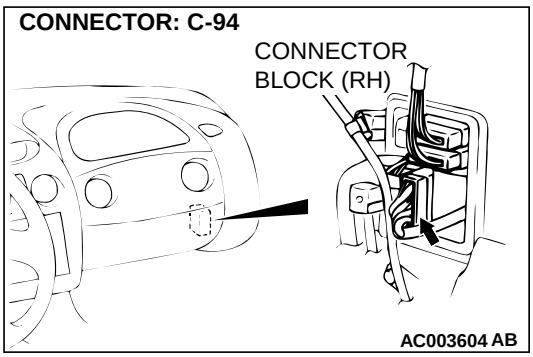
STEP 3. Check wiper motor connector A-03 for damage.

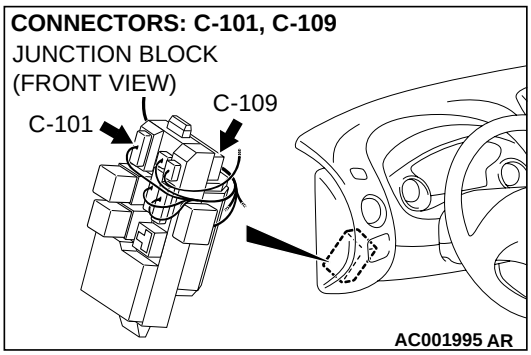
Q: Is wiper motor connector A-03 in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should stop at the predetermined park position.







STEP 4. Check the harness wires between wiper motor connector A-03 and ignition switch (ACC).

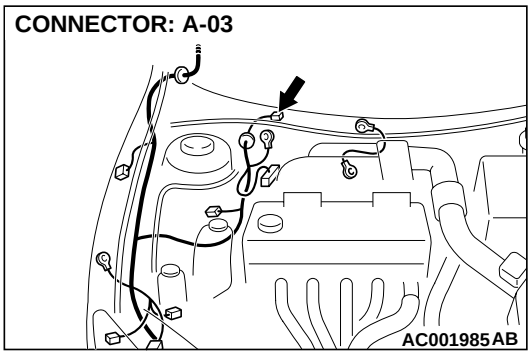
NOTE: After checking intermediate connector C-94 and junction block connectors C-101 and C-109, check the wires. If intermediate connector C-94 and junction block connectors C-101 and C-109 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

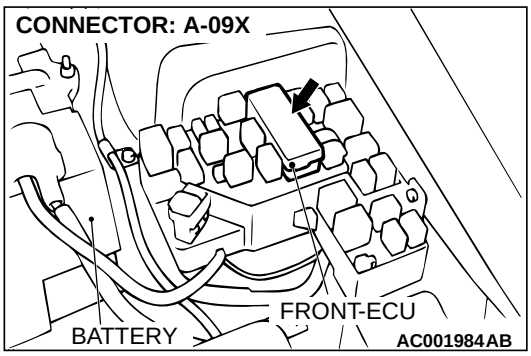
Q: Are the harness wires between wiper motor connector A-03 and ignition switch (ACC) in good condition?

YES : There is no action to be taken.

NO : Repair or replace them. The windshield wiper should stop at the predetermined park position.

TSB Revision





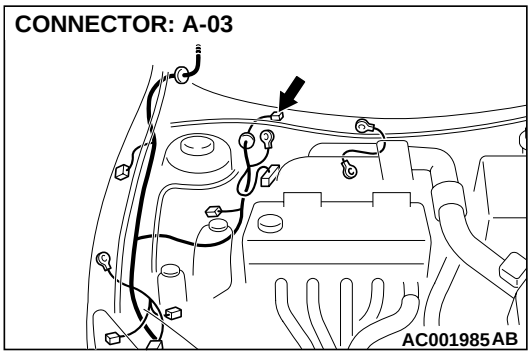
STEP 5. Check the wiper motor connector A-03 and front-ECU connector A-09X for damage.

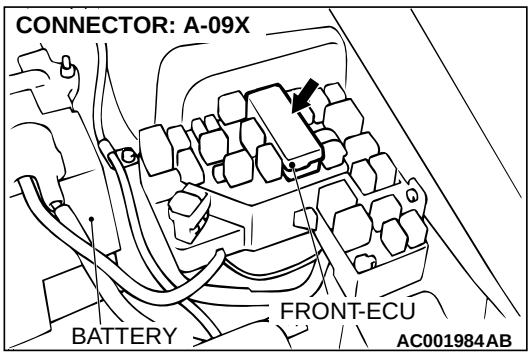
Q: Are wiper motor connector A-03 and front-ECU connector A-09X in good condition?

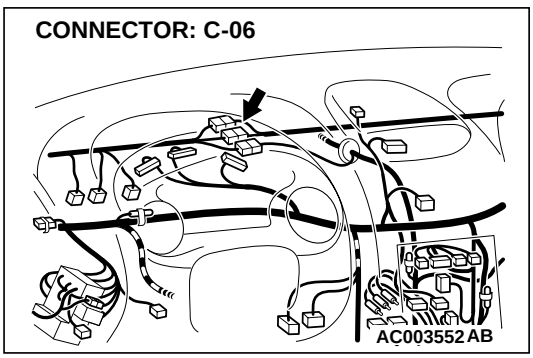
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield wiper should stop at the predetermined park position.

TSB Revision







STEP 6. Check the harness wires between wiper motor connector A-03 and front-ECU connector A-09X.

NOTE: After checking intermediate connector C-06, check the wires. If intermediate connector C-06 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the harness wires between wiper motor connector A-03 and front-ECU connector A-09X in good condition?

YES : There is no action to be taken.

NO : Repair them. The windshield wiper should stop at the predetermined park position.

Inspection Procedure G-4: Windshield wiper and washer: Windshield intermittent wiper interval cannot be adjusted.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU calculates the intermittent wiper interval from the following input signals, and sends a signal to the front-ECU through the SWS communication line.

- Speed sensor
- Windshield intermittent wiper interval adjusting knob

If the signal is defective, the front-ECU will ignore the signal and set the intermittent wiper interval to four seconds.

TROUBLESHOOTING HINTS

- Malfunction of speed sensor
- 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

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

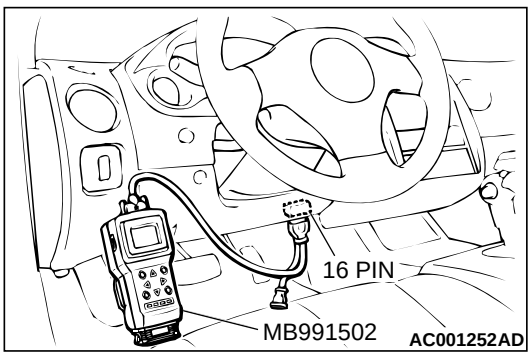
Check the input signals from the following switches.
- Speed sensor
- Windshield intermittent wiper interval adjusting knob

NOTE: If the windshield intermittent wiper interval adjusting knob is rotated from "FAST" to "SLOW" when the ignition switch is at the "ON" position, the ETACS-ECU will send a signal around the medium knob position.

⚠ CAUTION

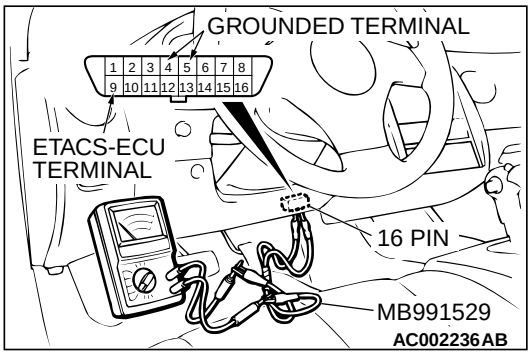
To prevent damage to scan tool MB991502, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991502.

(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the relevant input circuit. Refer to P.54B-9.



STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches.

- Speed sensor
- Windshield intermittent wiper interval adjusting knob

NOTE: If the windshield intermittent wiper interval adjusting knob is rotated from "FAST" to "SLOW" when the ignition switch is at the "ON" position, the ETACS-ECU will send a signal around the medium knob position.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Go o Step 4.
NO : Check the relevant input circuit. Refer to P.54B-9.

STEP 4. Replacement of ECU

(1) Replace the front-ECU.
(2) The windshield intermittent wiper interval should be changed.

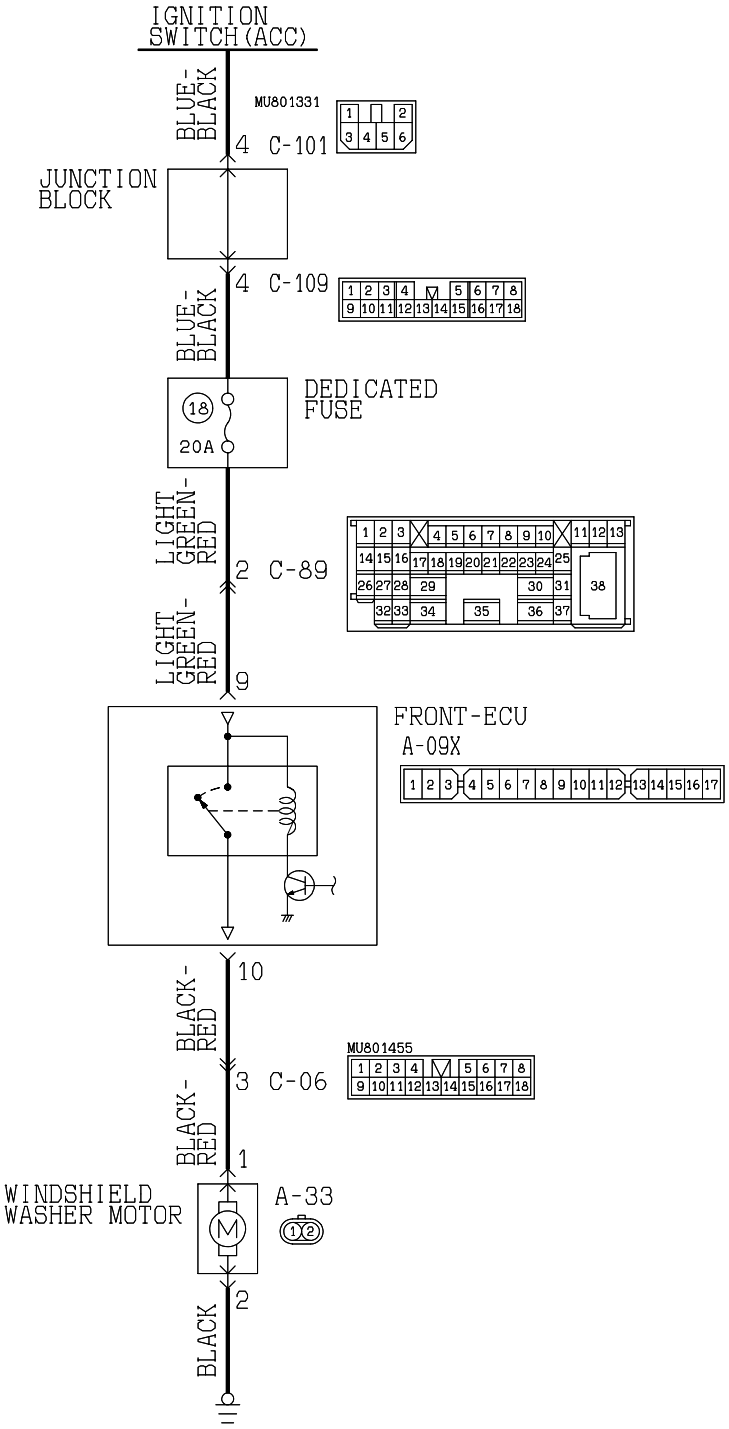
Q: Is it possible to adjust the windshield intermittent wiper interval?

YES : There is no action to be taken.
NO : Replace the ETACS-ECU. The windshield intermittent wiper interval should be changed.

TSB Revision

Inspection Procedure G-5: Windshield wiper and washer: Windshield washer does not work.

Windshield Washer Motor Circuit



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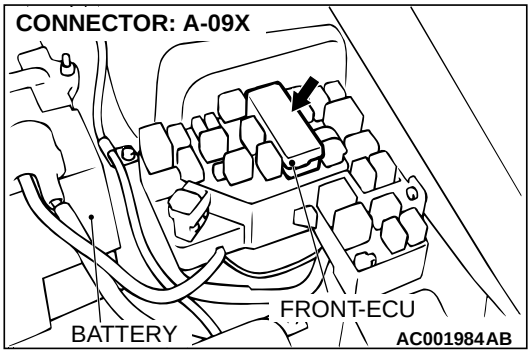
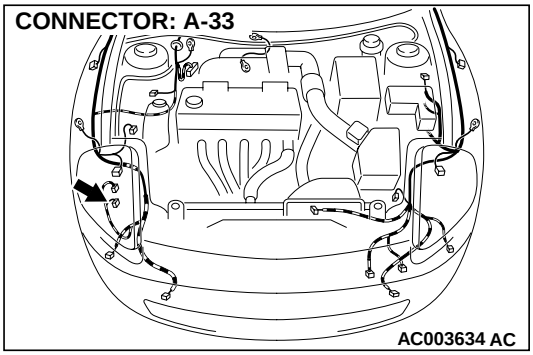
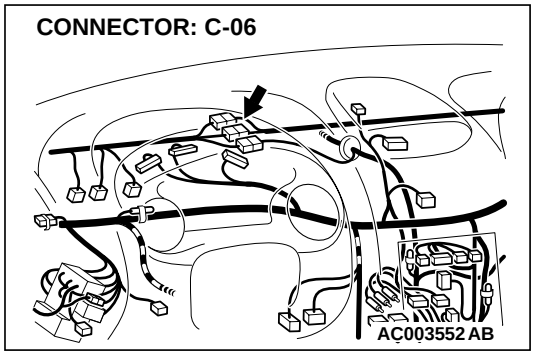
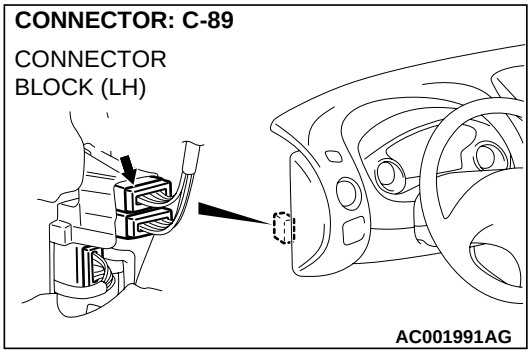
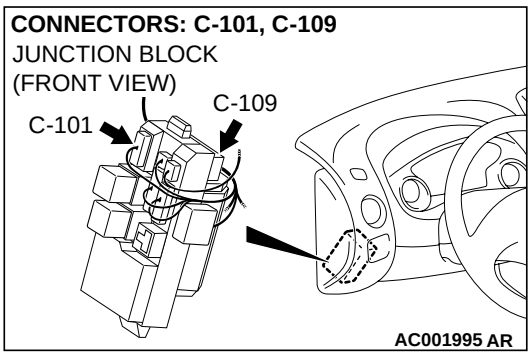
TSB Revision











CIRCUIT OPERATION

A signal from the windshield washer switch is sent through the column-ECU inside the column switch to the front-ECU. The signal turns on the relay inside the front-ECU to operate the washer motor.

TECHNICAL DESCRIPTION (COMMENT)

The washer motor, the column switch (windshield wiper and washer switch) or the front-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the washer 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)
- MB991529: Diagnostic Trouble Code Check Harness

TSB Revision

STEP 1. Check the windshield wiper operation.

Q: Does the windshield wiper work normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Check the input signal (by using scan tool MB991502).

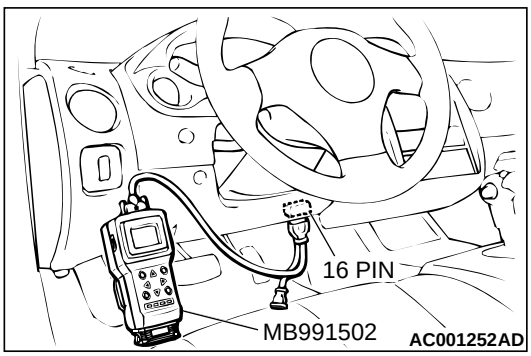
Check the input signal from the windshield washer switch.

⚠ 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.

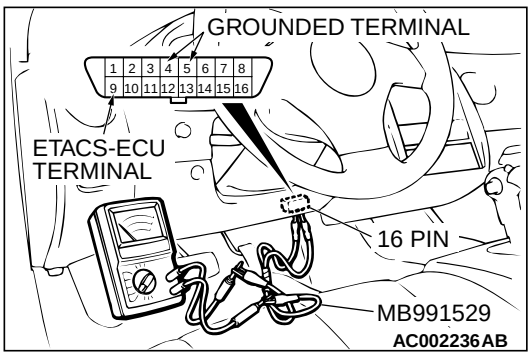
NO : Check the input signal circuit from the windshield washer switch. Refer to Inspection Procedure O-18 (P.54B-274).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the windshield washer switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

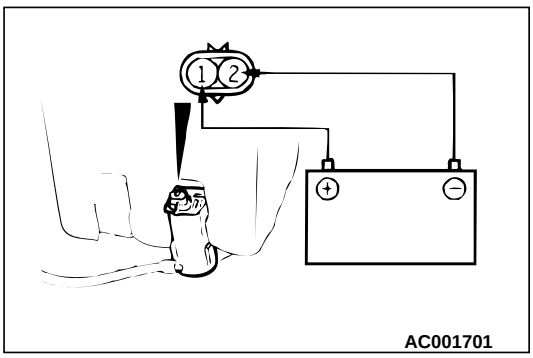
NO : Check the input signal circuit from the windshield washer switch. Refer to Inspection Procedure O-18 (P.54B-274).

STEP 4. Check the washer motor.

(1) Disconnect the washer motor connector A-33.

(2) Fill the washer tank with water.

(3) Check that the water squirts out strongly when battery positive voltage is applied to terminals 1 and 2.

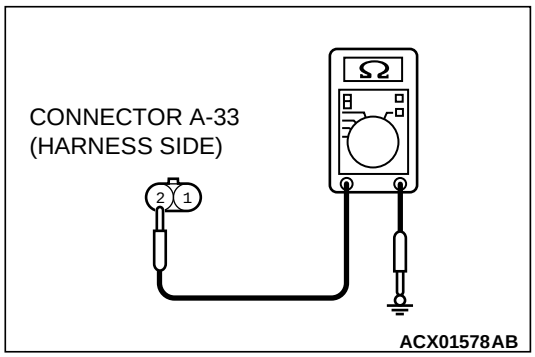


Q: Is the washer motor in good condition?

YES : Go to Step 5.

NO : Replace it. The windshield washer should work normally.

TSB Revision



STEP 5. Check the washer motor ground circuit at the washer motor connector A-33.

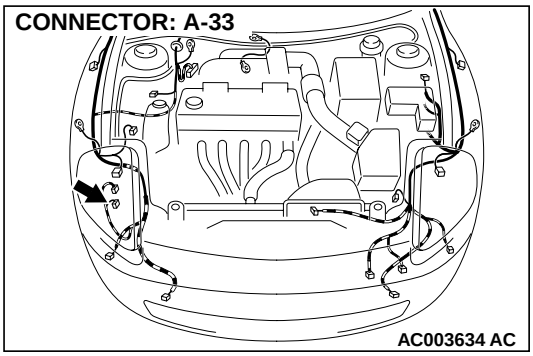
(1) Disconnect the washer motor connector A-33 and measure at the harness side.

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

Q: Is the resistance between terminal 2 and ground less than 2 ohm?

YES : Go to Step 8.

NO : Go to Step 6.

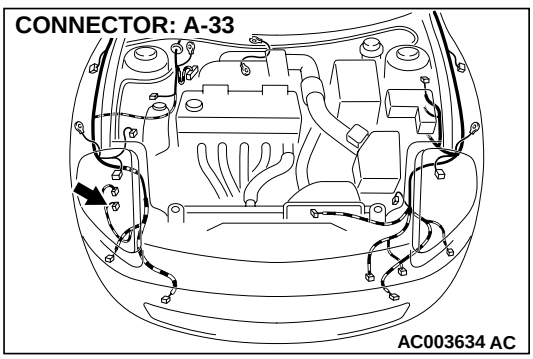


STEP 6. Check washer motor connector A-33 for damage.

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

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield washer should work normally.



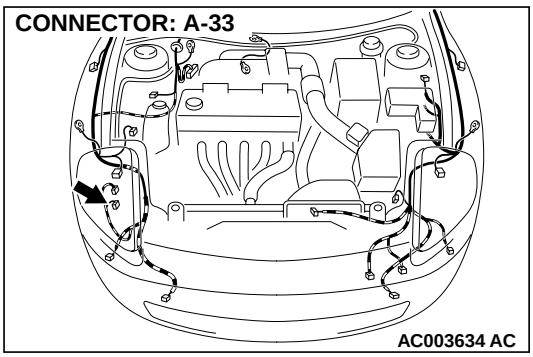
STEP 7. Check the harness wire between washer motor connector A-33 and ground.

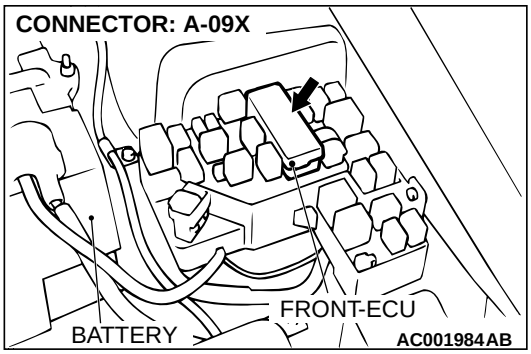
Q: Is the harness wire between washer motor connector A-33 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The windshield washer should work normally.

TSB Revision





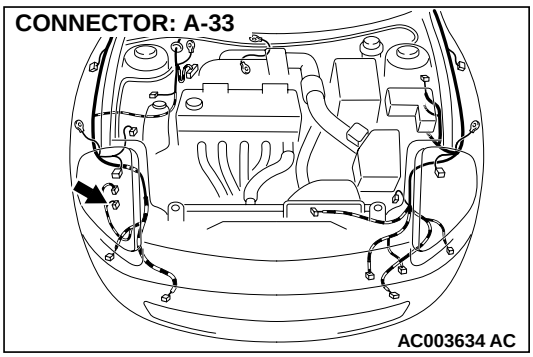
STEP 8. Check washer motor connector A-33 and front-ECU connector A-09X for damage.

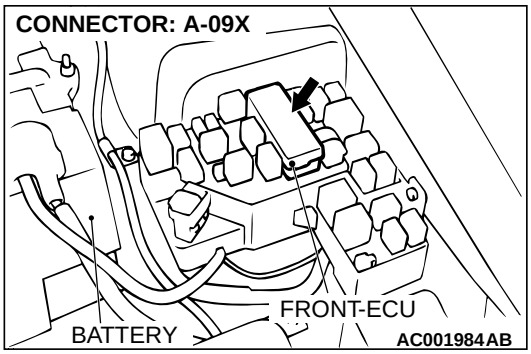
Q: Are washer motor connector A-33 and front-ECU connector A-09X in good condition?

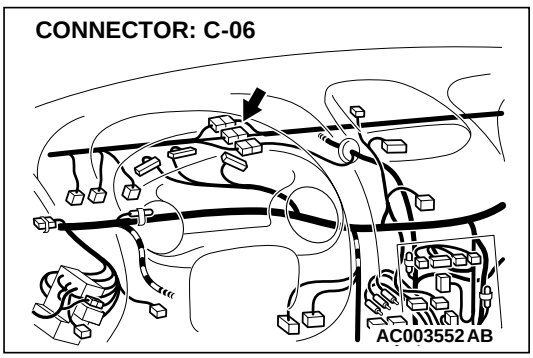
YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The windshield washer should work normally.

TSB Revision







STEP 9. Check the harness wires between washer motor connector A-33 and front-ECU connector A-09X.

NOTE: After checking intermediate connector C-06, check the wires. If intermediate connector C-06 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

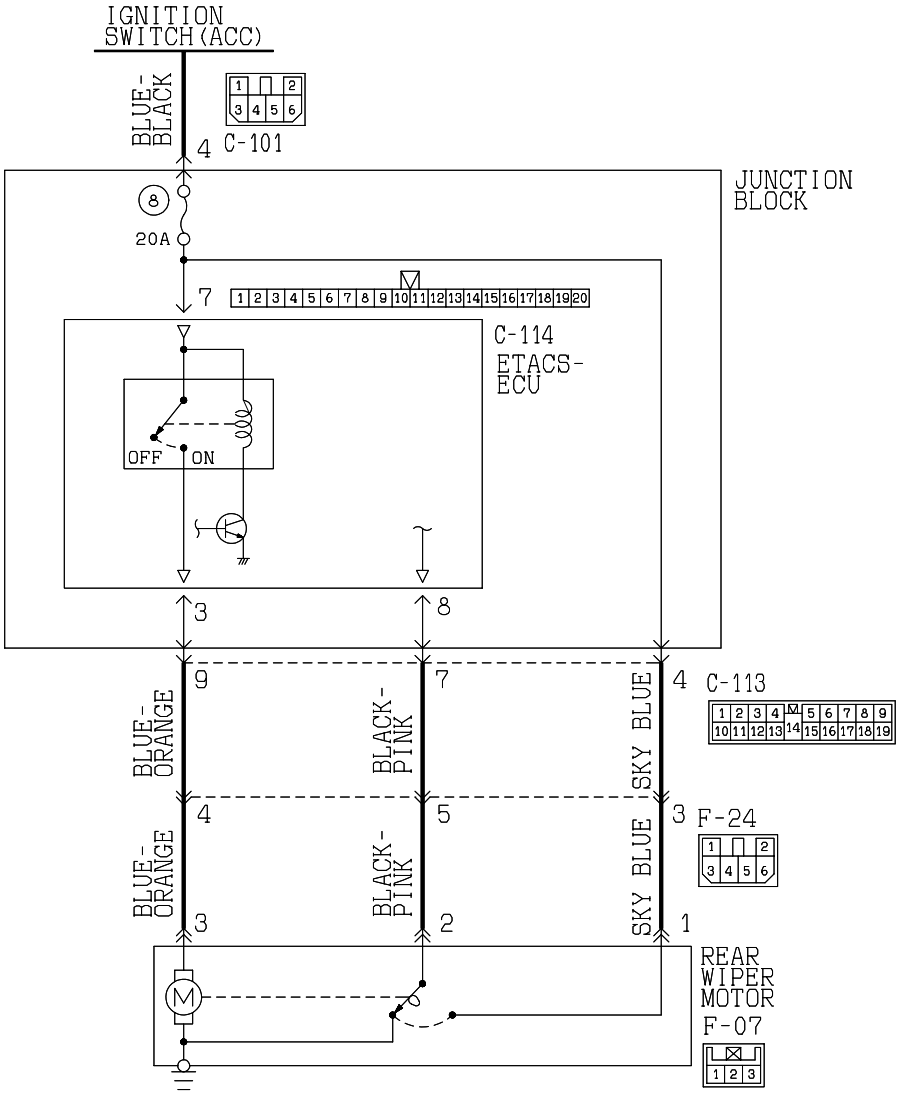
Q: Are the harness wires between washer motor connector A-33 and front-ECU connector A-09X in good condition?

YES : There is no action to be taken.

NO : Repair them. The windshield washer should work normally.

Inspection Procedure H-1: Rear wiper and washer: Rear wiper does not work at all.

Rear Wiper Motor Drive Circuit



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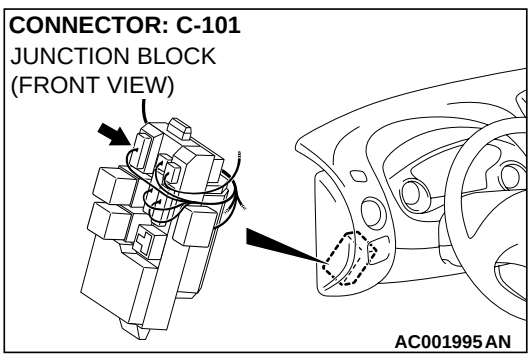
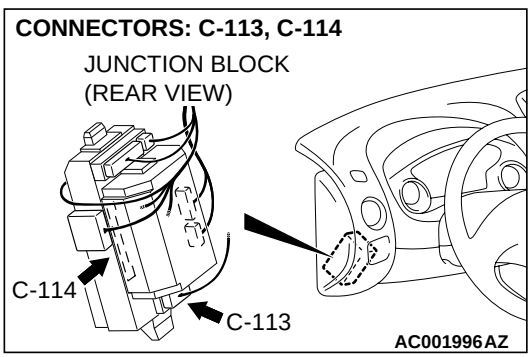
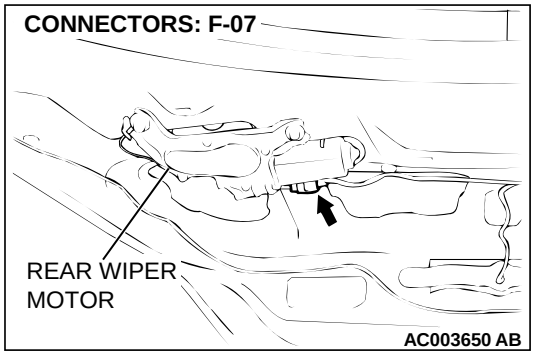
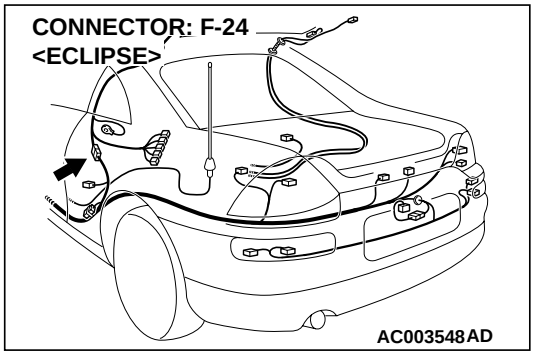




TSB Revision





CIRCUIT OPERATION

A signal from the rear wiper switch is sent through the column-ECU inside the column switch to the ETACS-ECU. The signal turns on the relay inside the ETACS-ECU to operate the rear wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU operates the rear wiper according to the input signals from the following switches:

- Ignition switch (ACC)
- Rear wiper switch

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

TROUBLESHOOTING HINTS

- Malfunction of the rear wiper motor
- Malfunction of the column switch (windshield wiper and windshield 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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

- Ignition switch (ACC)
- Rear wiper switch

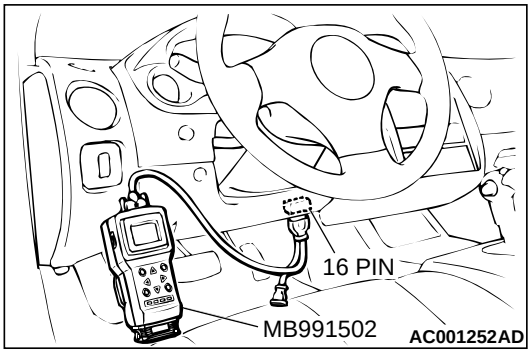
⚠ CAUTION

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

(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the relevant input signal circuit. Refer to P.54B-9.



STEP 3. Check the input signal (by using a voltmeter).

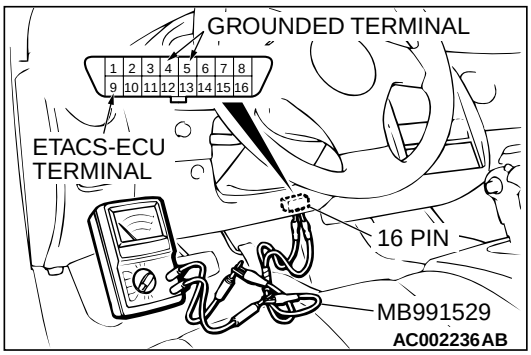
Check the input signals from the following switches:

- Ignition switch (ACC)
- Rear wiper switch

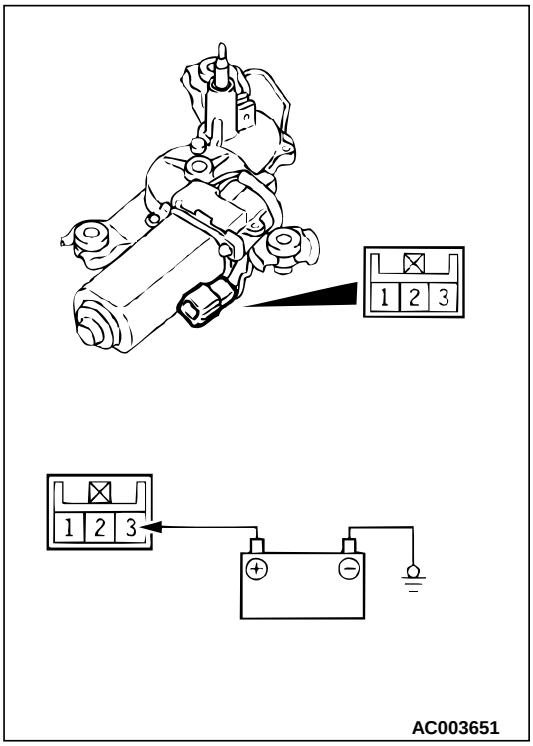
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the relevant input signal circuit. Refer to P.54B-9.



TSB Revision

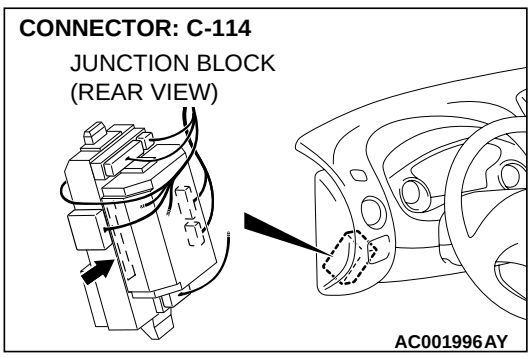


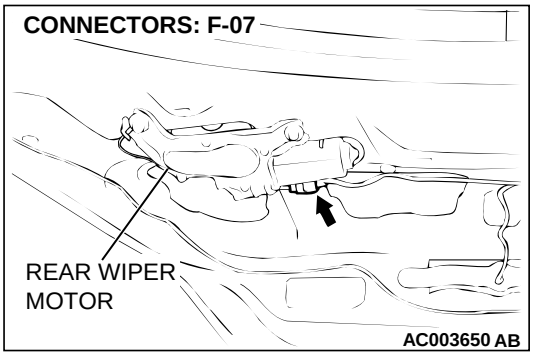
STEP 4. Check the rear wiper motor.

(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 5.
NO : Repair it. The rear wiper should work normally.



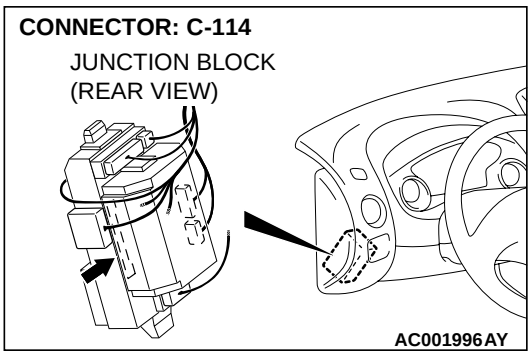


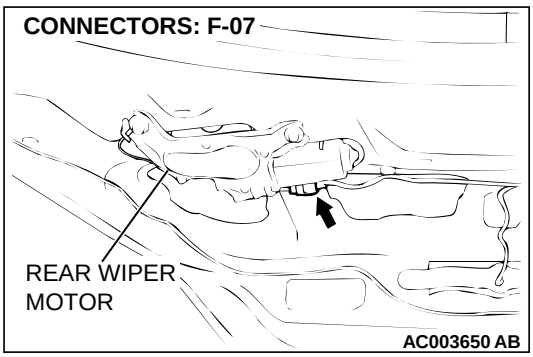
STEP 5. Check the rear wiper motor connector F-07 and ETACS-ECU connector C-114 for damage.

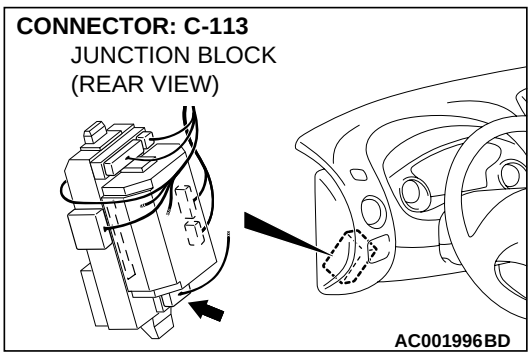
Q: Are rear wiper motor connector F-07 and ETACS-ECU connector C-114 in good condition?

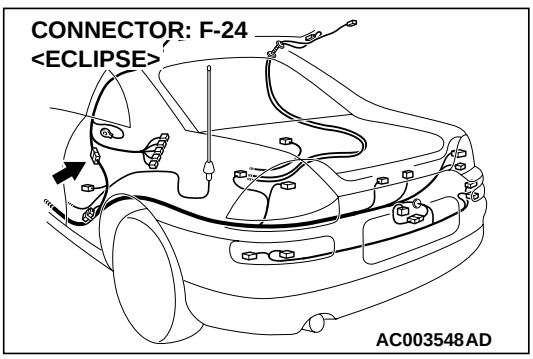
YES : Go to Step 6.
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear wiper should work normally.

TSB Revision









STEP 6. Check the harness wires between rear wiper motor connector F-07 and ETACS-ECU connector C-114.

NOTE: After checking intermediate connectors F-24 and junction block connector C-113, check the wires. If intermediate connectors F-24 and junction block connector C-113 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between rear wiper motor connector F-07 and ETACS-ECU connector C-114 in good condition?

YES : Replace the ETACS-ECU. The rear wiper should work normally.

NO : Repair them. The rear wiper should work normally.

TSB Revision

Inspection Procedure H-2: Rear wiper and washer: Rear wiper does not stop at the predetermined park position.

Rear Wiper Motor Drive Circuit

- Refer to Inspection Procedure H-1 (P.54B-102).

CIRCUIT OPERATION

A signal from the rear wiper switch is sent through the column-ECU inside the column switch to the ETACS-ECU. The signal turns on the relay inside the ETACS-ECU to operate the rear wiper motor.

TECHNICAL DESCRIPTION (COMMENT)

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:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

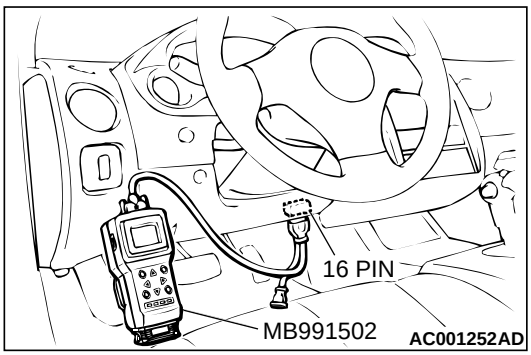
Check that the rear wiper auto-stop signal is sent to the ETACS-ECU.

NOTE: Whenever the rear wiper begins to work, 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.

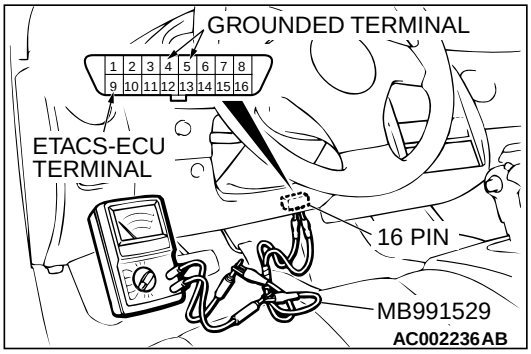
(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The rear wiper should stop at the predetermined park position.
NO : Check the rear wiper auto-stop signal input circuit. Refer to Inspection Procedure O-8 (P.54B-212).

TSB Revision



STEP 3. Check the input signal (by using a voltmeter).
Check that the rear wiper auto-stop signal is sent to the ETACS-ECU.

NOTE: Whenever the rear wiper begins to work, a signal is sent to the ETACS-ECU.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The rear wiper should stop at the predetermined park position.
NO : Check the rear wiper auto-stop signal input circuit. Refer to Inspection Procedure O-8 (P.54B-212).

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.

TECHNICAL DESCRIPTION (COMMENT)
The ETACS-ECU operates the rear wiper consecutively twice when the selector lever is moved to "R" position while the rear wiper is turned on. If the rear wiper does not work consecutively twice, the park/neutral position switch ("R" position) 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:
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

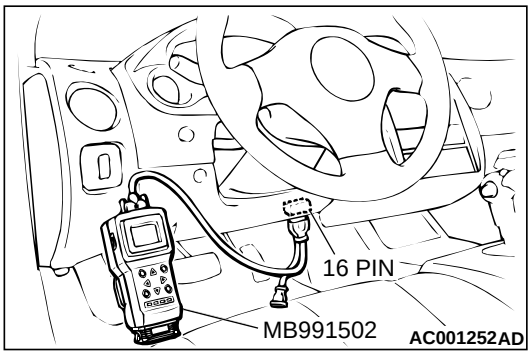
Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the park/neutral position switch "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.



(1) Connect scan tool MB991502 to the data link connector.
(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

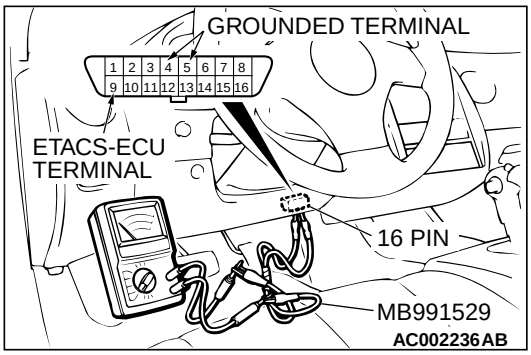
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The rear wiper should work consecutively twice when the selector lever is moved to "R" position.

NO : Check the park/neutral position switch "R" position input signal circuit. Refer to P.54B-207.

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the park/neutral position switch "R" position.



(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

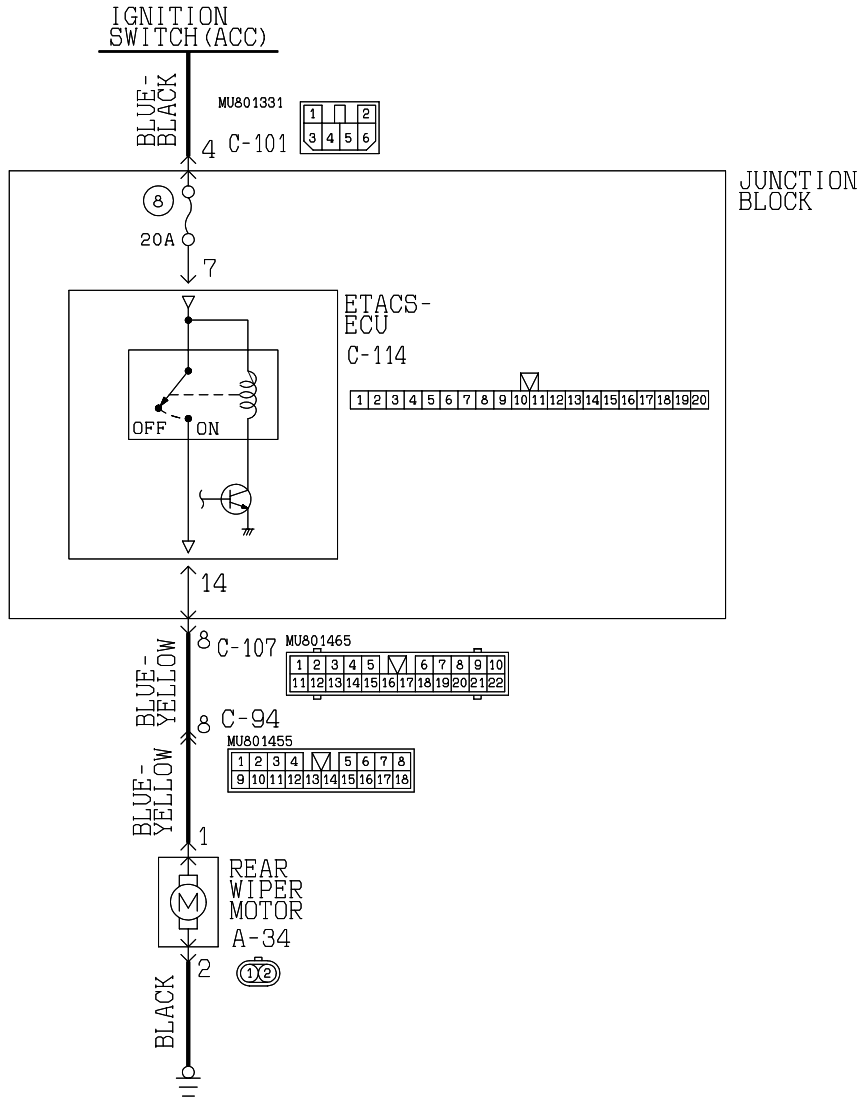
YES : Replace the ETACS-ECU. The rear wiper should work consecutively twice when the selector lever is moved to "R" position.

NO : Check the park/neutral position switch "R" position input circuit. Refer to P.54B-207.

TSB Revision

Inspection Procedure H-4: Rear washer does not work.

Rear Washer Motor Drive Circuit



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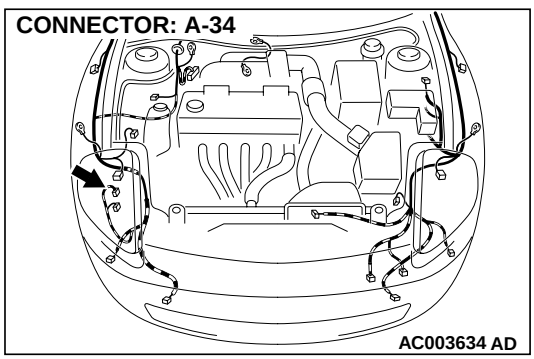
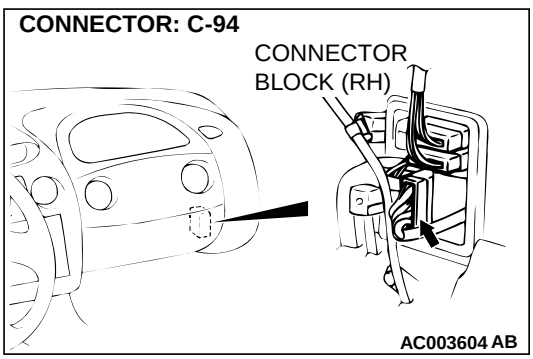
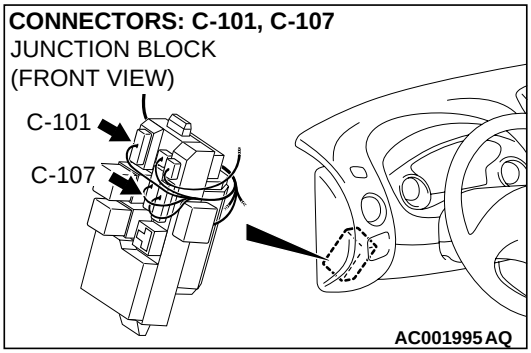
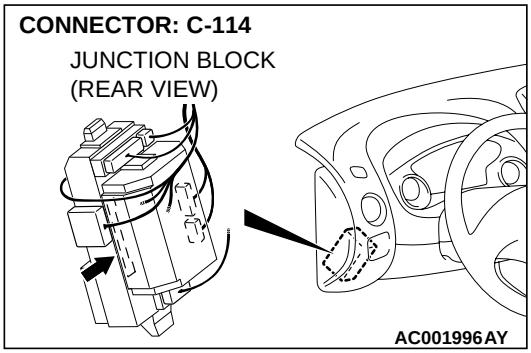




TSB Revision





CIRCUIT OPERATION

A signal from the rear washer switch is sent through the column-ECU inside the column switch to the ETACS-ECU. The signal turns on the relay inside the ETACS-ECU to operate the washer motor.

TECHNICAL DESCRIPTION (COMMENT)

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 windshield 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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the rear wiper operation.

Q: Does the rear wiper work normally?

YES : Go to Step 2<when using scan tool MB991502> or 3<when using a voltmeter>.

NO : Solve the problem first. Refer to P.54B-9.

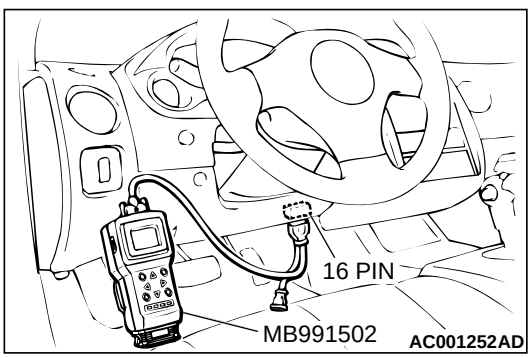
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signal from the rear washer 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

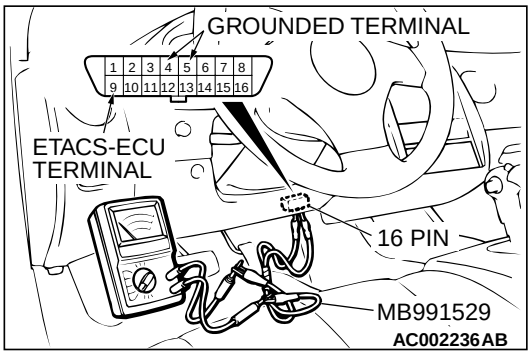


Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.

NO : Check the rear washer switch input signal circuit. Refer to Inspection Procedure O-18 (P.54B-274).

TSB Revision



STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the rear washer switch:

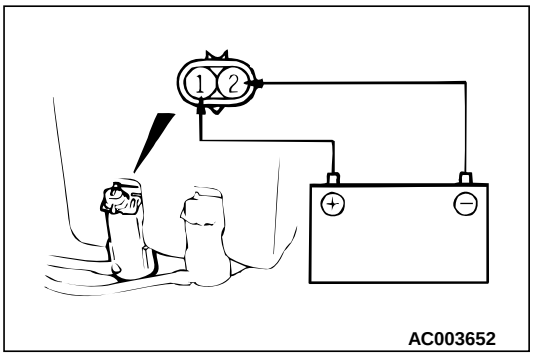
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

NO : Check the rear washer switch input signal circuit. Refer to Inspection Procedure O-18 (P.54B-274).



STEP 4. Check the rear washer motor.

(1) Disconnect rear washer motor connector A-34.

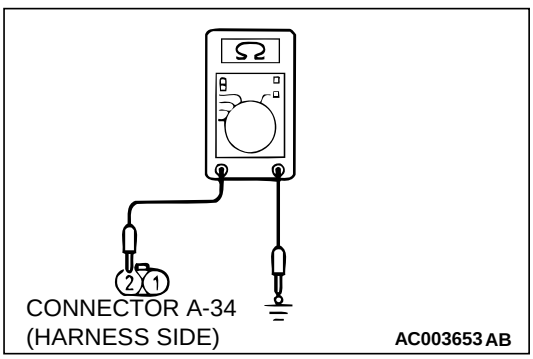
(2) Fill the washer tank with water.

(3) Check that the water squirts out strongly when battery positive voltage is applied to terminals 1 and 2.

Q: Is the rear washer motor in good condition?

YES : Go to Step 5.

NO : Replace it. The rear washer should work normally



STEP 5. Check the rear washer motor ground circuit at the rear washer motor connector A-34.

(1) Disconnect the rear washer motor connector A-34 and measure at the harness side.

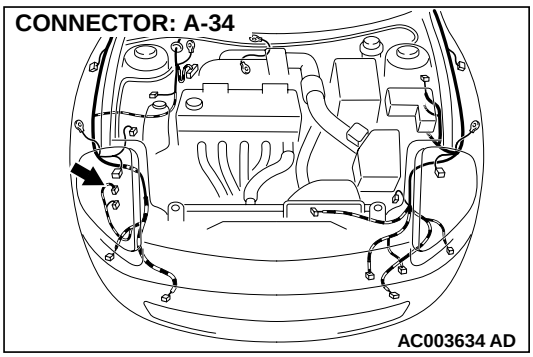
(2) Measure the resistance between terminal 2 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 8.

NO : Go to Step 6.

TSB Revision

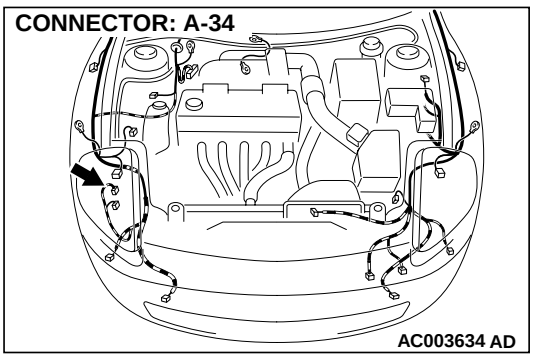


STEP 6. Check the rear washer motor connector A-34 for damage.

Q: Is rear washer motor connector A-34 in good condition?

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear washer should work normally.

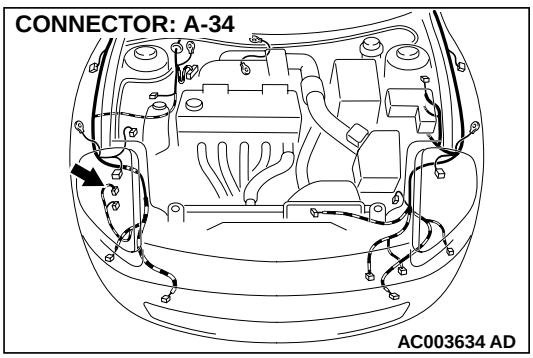


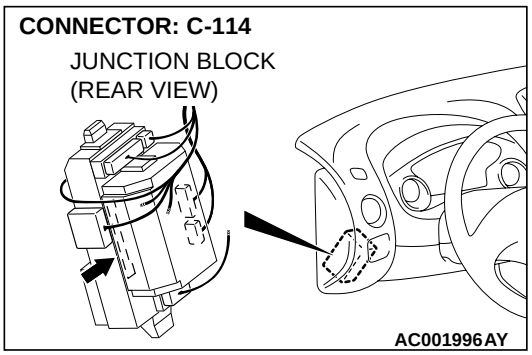
STEP 7. Check the harness wire between rear washer motor connector A-34 and ground.

Q: Is the harness wire between rear washer motor connector A-34 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The rear washer should work normally.





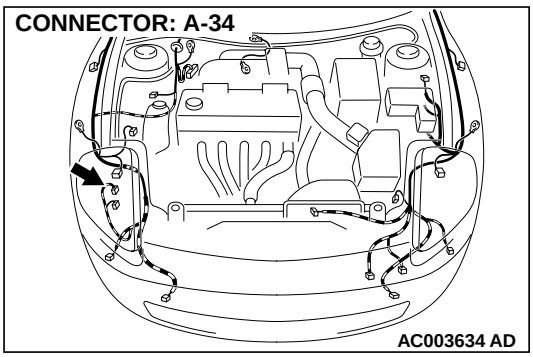
STEP 8. Check the rear washer motor connector A-34 and ETACS-ECU connector C-114 for damage.

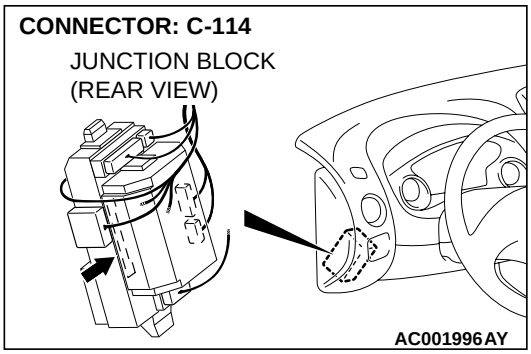
Q: Are rear washer motor connector A-34 and ETACS-ECU connector C-114 in good condition?

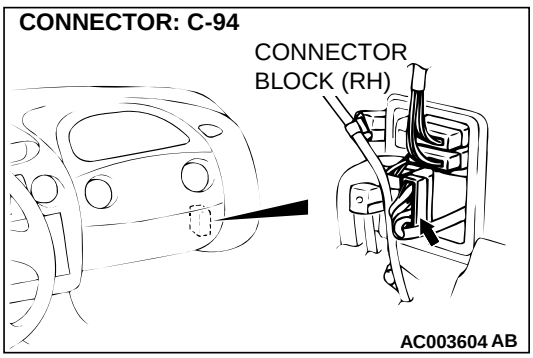
YES : Go to Step 9.

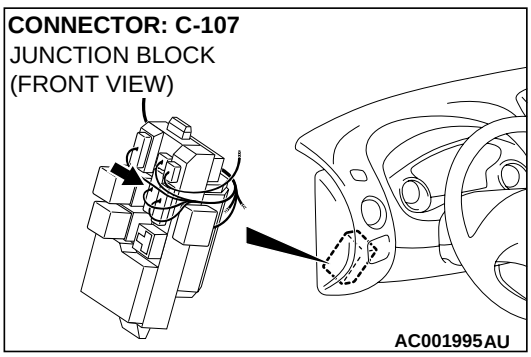
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear washer should work normally.

TSB Revision









STEP 9. Check the harness wires between rear washer motor connector A-34 and ETACS-ECU connector C-114.

NOTE: After checking intermediate connectors C-94 and junction block connector C-107, check the wires. If intermediate connectors C-94 and junction block connector C-107 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between rear washer motor connector A-34 and ETACS-ECU connector C-114 in good condition?

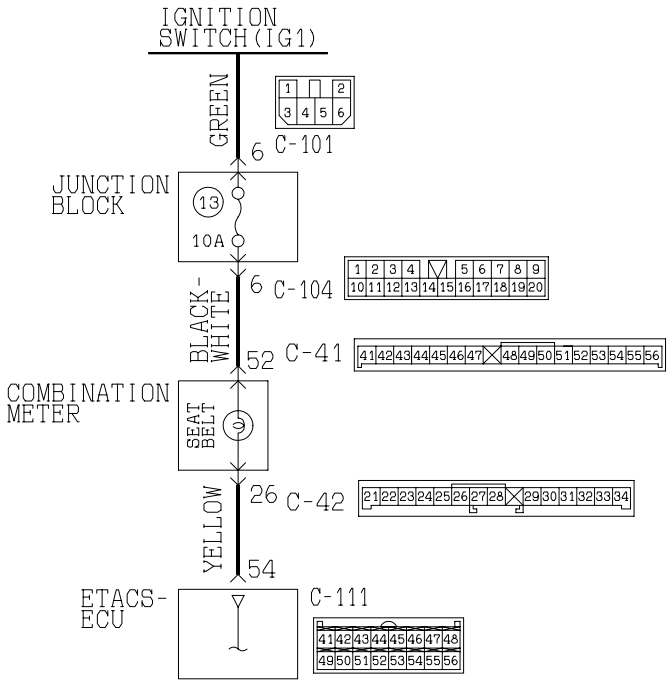
YES : Replace the ETACS-ECU. The rear washer should work normally.

NO : Repair them. The rear washer should work normally.

TSB Revision

Inspection Procedure I-1: Seat belt warning light: Seat belt warning light does not work normally.

Seat Bekt Warning Light Circuit



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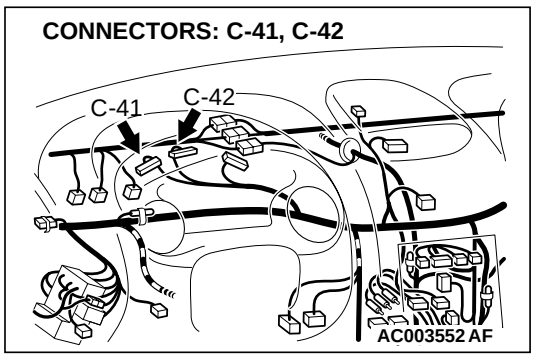

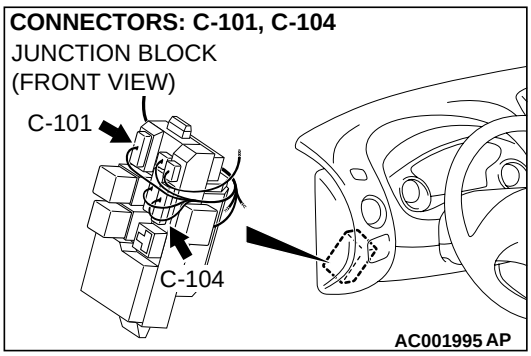

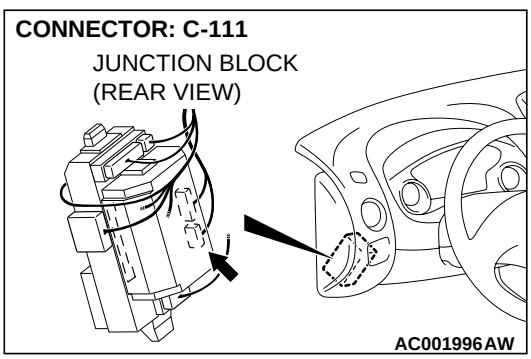

CIRCUIT OPERATION

The seat belt warning light illuminates when the driver turns the ignition switch to "ON" position without wearing the seat belt.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU illuminates the seat belt warning light according to the input signals from the following switches:

- Ignition switch (IG1)

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- Driver's seat belt switch

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

TROUBLESHOOTING HINTS

- Malfunction of the driver's side seat belt switch
- Malfunction of the combination meter (seat belt warning light bulb or printed-circuit board)
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check method of the input signal

Q: Which is to be used, the scan tool or the voltmeter to check the input signal?

Scan tool MB991502 : Go to Step 2.
Voltmeter : Go to Step 3.

STEP 2. Check the input signal (by using scan tool MB991502).

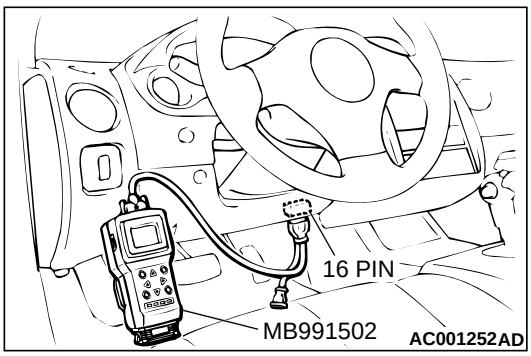
Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's side seat belt 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the relevant input signal circuit. Refer to P.54B-9.

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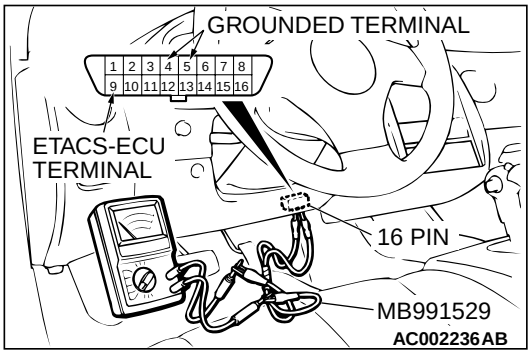


STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Ignition switch (IG1)
- Driver's side seat belt switch

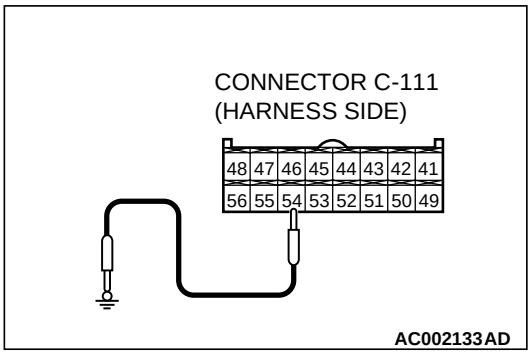
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

NO : Check the relevant input signal circuit. Refer to P.54B-9.



STEP 4. Check the seat belt warning light circuit at the ETACS-ECU connector C-111.

(1) Disconnect the ETACS-ECU connector C-111 and measure at the harness side.

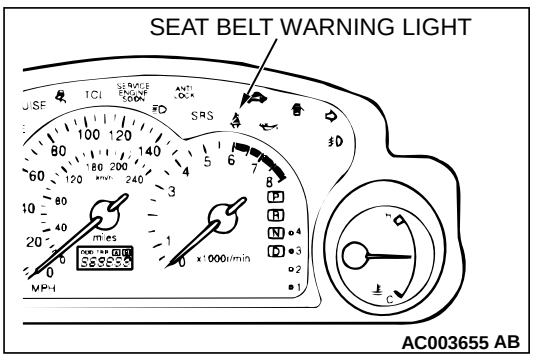
(2) Turn the ignition switch to the "ON" position.

(3) Connect terminal 54 to the ground.

Q: Does the seat belt warning light illuminate?

YES : Replace the ETACS-ECU. The seat belt warning light should work 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 it. The seat belt warning light should work normally.

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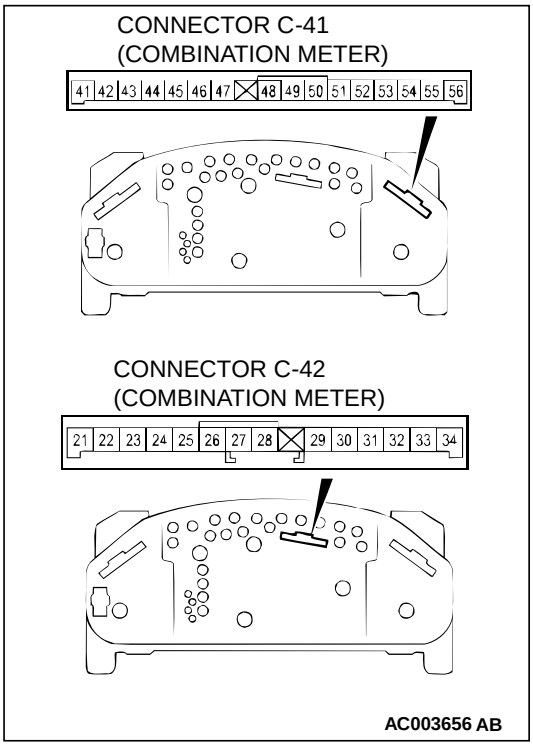


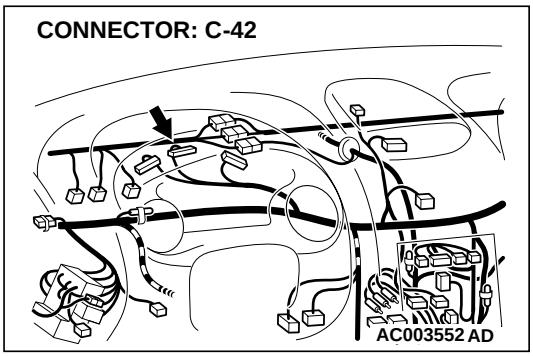
STEP 6. Check the combination meter (printed-circuit board).

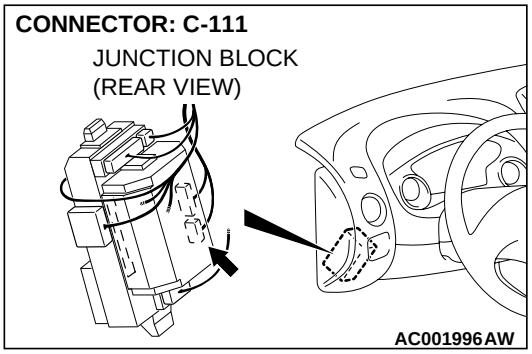
(1) Remove the combination meter.
(2) Remove the seat belt warning light bulb. Then measure the resistance between the bulb terminals.
(3) Install the bulb to the combination meter, and then measure the resistance between connector C-41 terminal 52 and connector C-42 terminal 26. The resistance reading at this time should be much the same as the resistance measured at Step (2).

Q: Are the two resistance values extremely different each other?

YES : Repair or replace the combination meter (printed circuit board). The seat belt warning light should work normally.

NO (much the same) : Go to Step 7.





STEP 7. Check combination meter connector C-42 and ETACS-ECU Connector C-111 for damage.

Q: Is combination meter connector C-42 and ETACS-ECU connector C111 in good condition?

YES : Go to Step 9.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The seat belt warning light should work normally.

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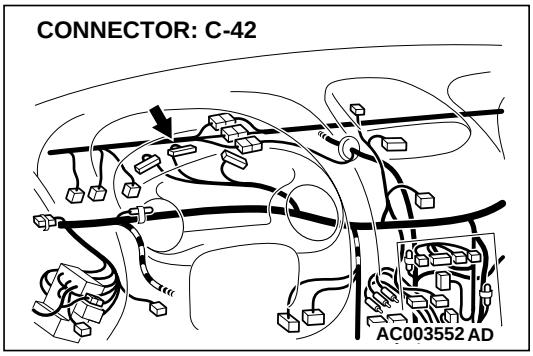
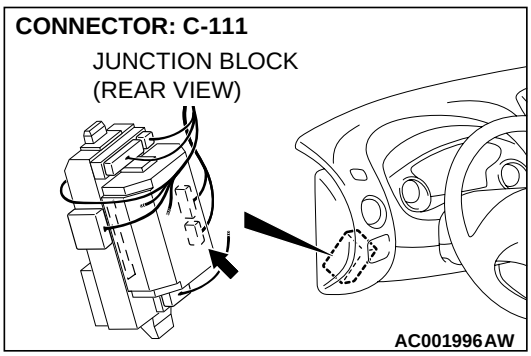


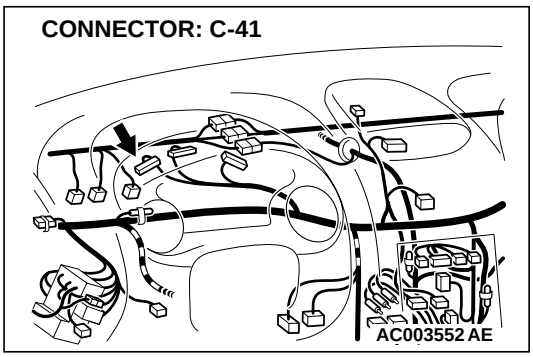


STEP 8. Check the harness wires between combination meter connector C-42 and ETACS-ECU connector C-111 (IG1).

Q: Are the harness wires between combination meter connector C-42 and ETACS-ECU connector C-111 (IG1) in good condition?

YES : There is no action to be taken.

NO : Repair or replace them. The seat belt warning light should work normally.



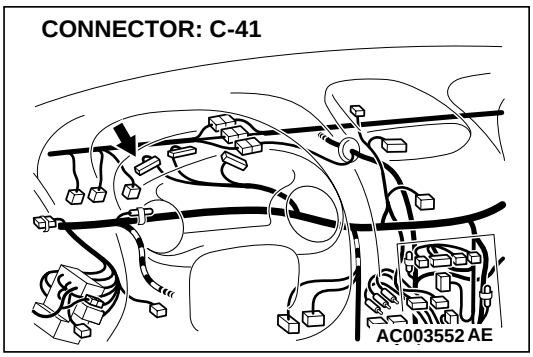
STEP 9. Check combination meter connector C-41 for damage.

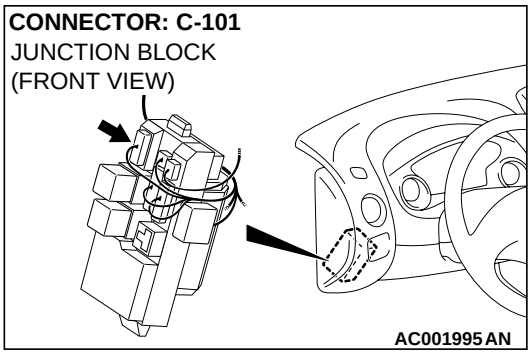
Q: Is combination meter connector C-41 in good condition?

YES : Go to Step 9.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The seat belt warning light should work normally.

TSB Revision





STEP 9. Check the harness wires between combination meter connector C-41 and ignition switch (IG1).

NOTE: After checking junction block connectors C-101 and C-104, check the wires. If junction block connectors C-101 and C-104 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

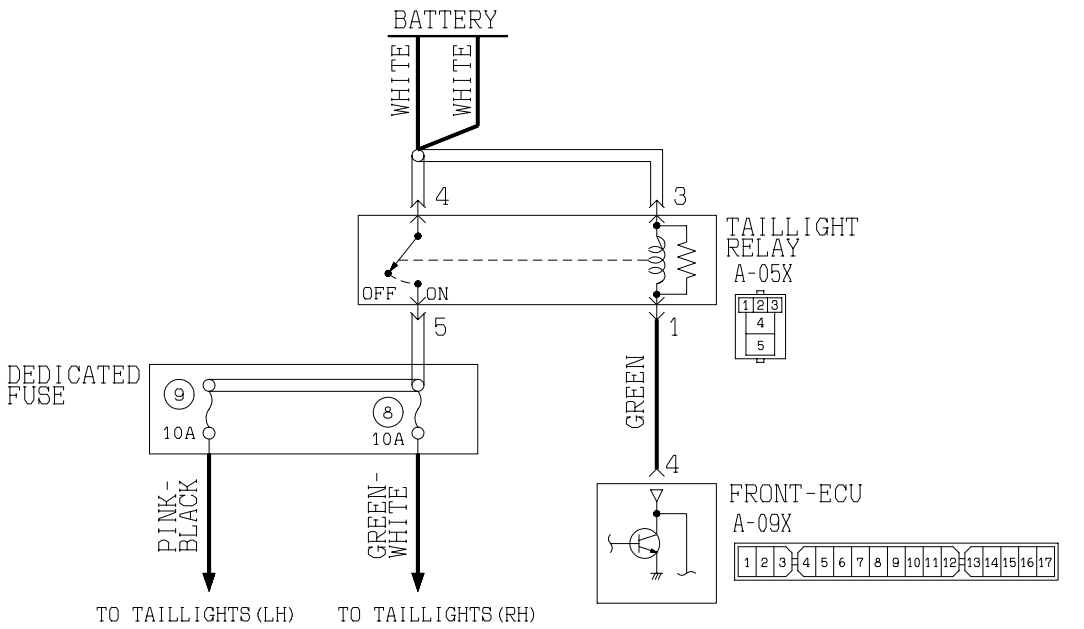
Q: Are the harness wires between combination meter connector C-41 and ignition switch (IG1) in good condition?

YES : There is no action to be taken.

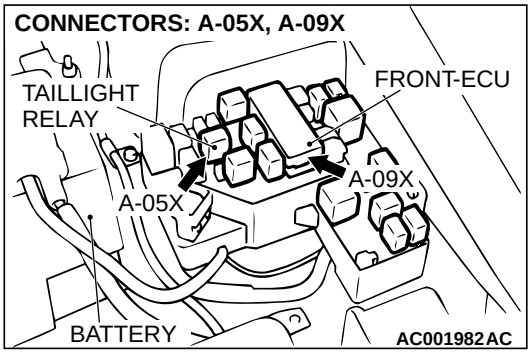
NO : Repair or replace them. The seat belt warning light should work normally.

Inspection Procedure J-1: Headlight, taillight: Taillights do not illuminate.

Taillight Relay Drive Circuit



TSB Revision



CIRCUIT OPERATION
The front-ECU illuminates the taillights if the column switch sends the taillight ON signal to the front-ECU.

TECHNICAL DESCRIPTION (COMMENT)
The taillight relay, column switch or the front-ECU may be defective.

NOTE: If only one light does not illuminate, the harness wire between the light and the taillight relay may be defective or the light bulb may be burned out. In this case, check the circuit by referring to GROUP 90, Taillight, Position Light and License Plate Light *P.90-112**.*

TROUBLESHOOTING HINTS
- Malfunction of the column switch
- Malfunction of the 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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the DTC.

Q: Does DTC set when the ignition switch is turned to the "LOCK" (OFF) position?

YES : Carry out the troubleshooting by referring to Diagnostic Trouble Code Chart (P.54B-9).

NO : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

TSB Revision

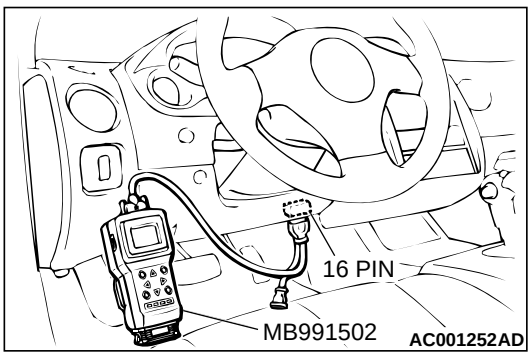
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signal from the taillight 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



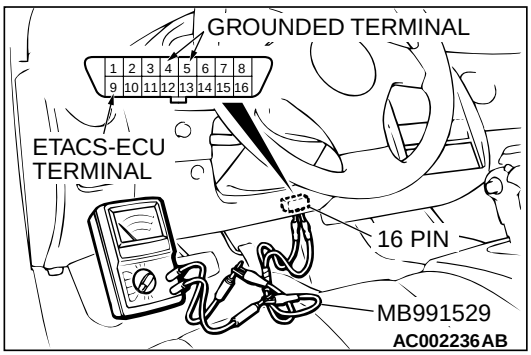
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the taillight switch input signal circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the taillight switch.

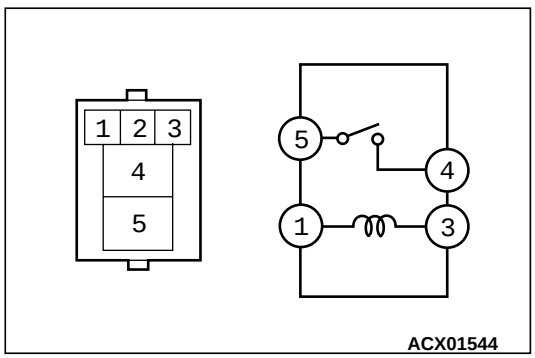
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the taillight switch input signal circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 4. Check the taillight relay.

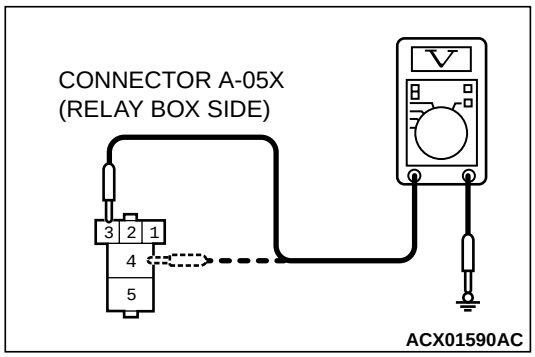


BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (–) terminal, 3 – Battery (+) terminal	4 – 5	Continuity

Q: Is the taillight relay in good condition?

YES : Go to Step 5.
NO : Replace it. The taillights should illuminate normally.

TSB Revision

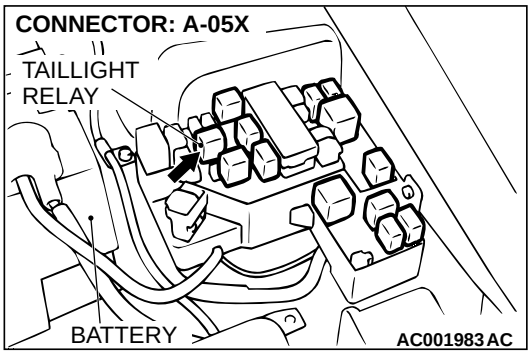


STEP 5. Check the taillight relay power supply circuit at the taillight relay connector A-05X.

(1) Disconnect the taillight relay connector A-05X and measure at the relay box side.
(2) Measure the voltages between terminal 3, 4 and ground.

Q: Are the voltages approximately 12 volts (battery positive voltage)?

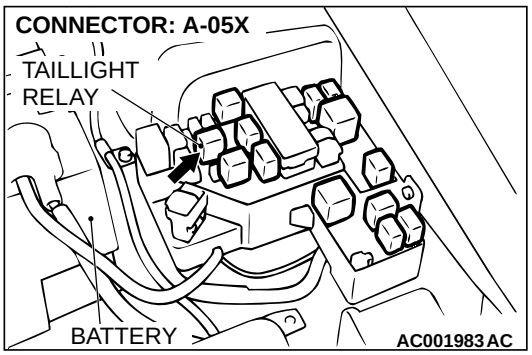
YES : Go to Step 8.
NO : Go to Step 6.



STEP 6. Check taillight relay connector A-05X for damage.

Q: Is taillight relay connector A-05X in good condition?

YES : Go to Step 7.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The taillights should illuminate normally.

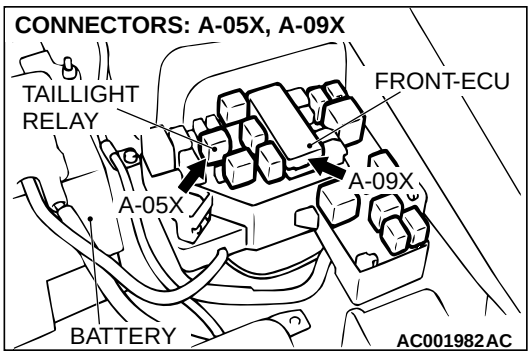


STEP 7. Check the harness wire between taillight relay connector A-05X and battery.

Q: Is the harness wire between taillight relay connector A-05X and battery in good condition?

YES : There is no action to be taken.
NO : Repair it. The taillights should illuminate normally.

TSB Revision

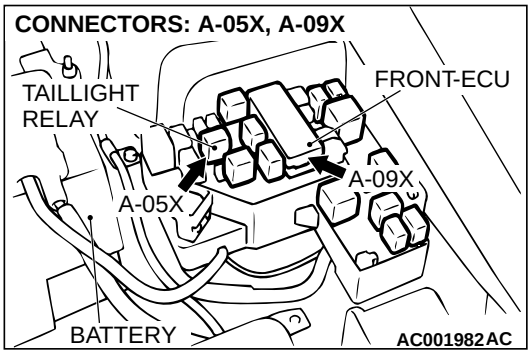


STEP 8. Check taillight relay connector A-05X and front-ECU connector A-09X for damage.

Q: Are taillight relay connector A-05X and front-ECU connector A-09X in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The taillights should illuminate normally.



STEP 9. Check the harness wire between taillight relay connector A-05X and front-ECU connector A-09X.

Q: Is the harness wire between taillight relay connector A-05X and front-ECU connector A-09X in good condition?

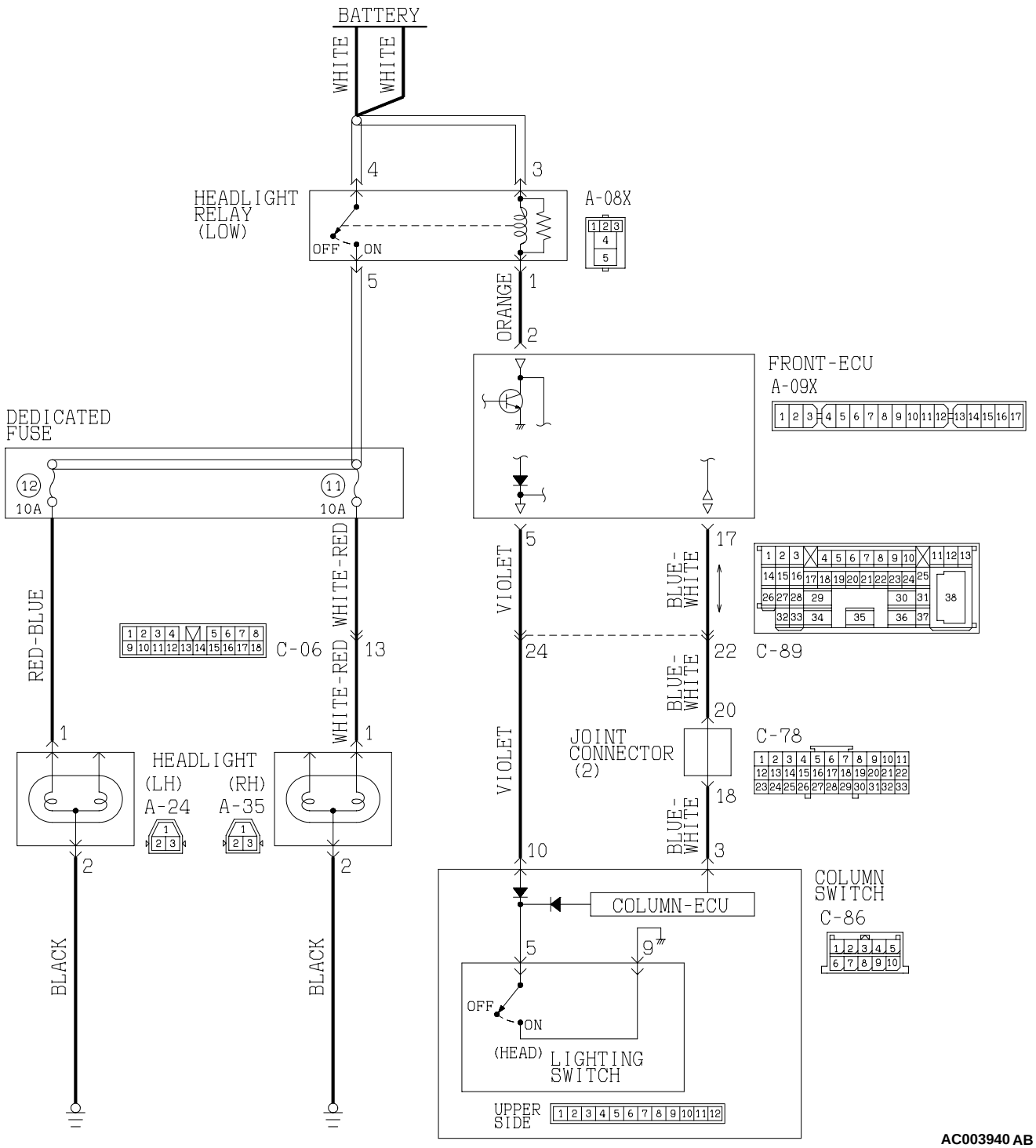
YES : Replace the front-ECU. The taillights should illuminate normally.

NO : Repair it. The taillights should illuminate normally.

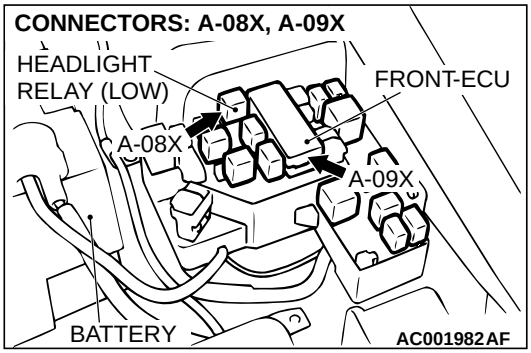
TSB Revision

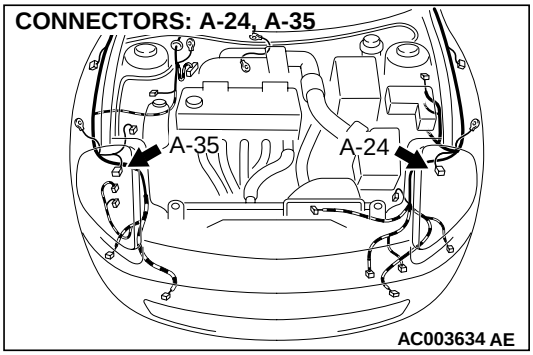
Inspection Procedure J-2: Headlight, taillight: Headlights (low-beam) do not illuminate.

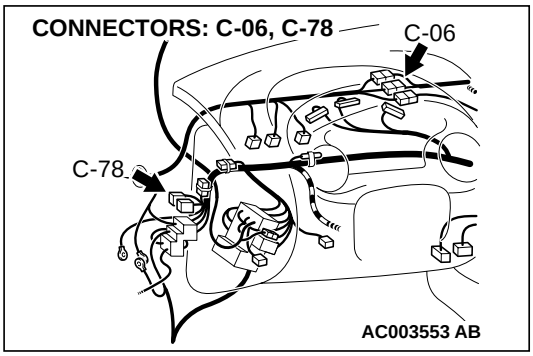
Headlight Relay (low) Drive Circuit

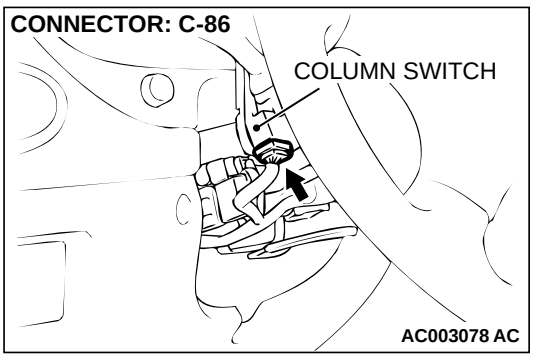


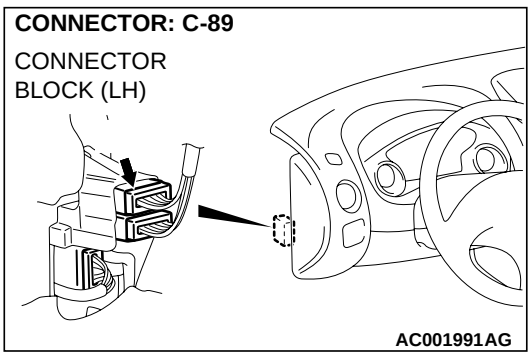
TSB Revision











CIRCUIT OPERATION

- If the headlight switch signal from the column switch turns on, the front-ECU makes the headlights illuminate. Whenever the headlights illuminate, the low-beam lights illuminate due to the headlight dimmer switch automatic resetting function.
- If the SWS communication line is defective, the low-beam headlights will illuminate by using other signal line (headlight back-up circuit).

TECHNICAL DESCRIPTION (COMMENT)

The headlight relay (low), column switch or the front-ECU may be defective.

NOTE: If only one of the headlights does not illuminate, the light bulb may be burned out or the harness wires between the light and the headlight relay (low) may be defective. In this case, check the circuit by referring to GROUP 90, Headlight P.90-108.

TROUBLESHOOTING HINTS

- Malfunction of the headlight relay (low)
- Malfunction of the 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)
- MB991529: Diagnostic Trouble Code Check Harness

TSB Revision

STEP 1. Check the DTC.

Q: Doe the DTC set when the ignition switch is turned to the "LOCK" (OFF) position?

YES : Carry out the troubleshooting by referring to Diagnostic Trouble Code Chart (P.54B-9).

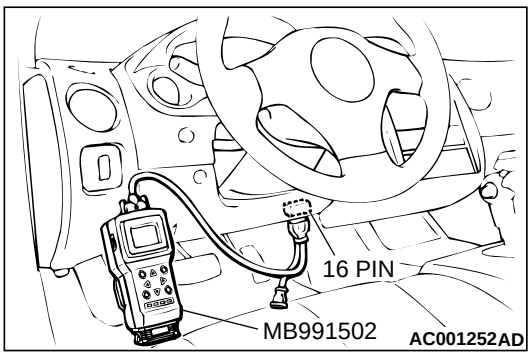
NO : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signal from the headlight 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

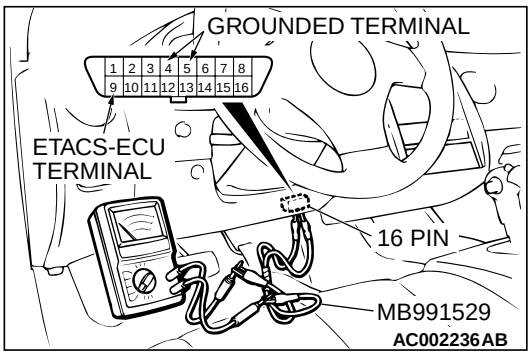
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.

NO : Check the headlight switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the headlight switch.



(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

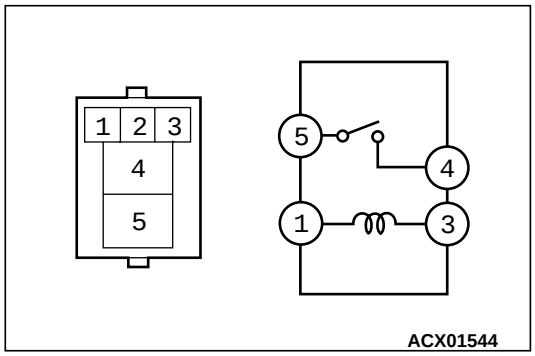
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

NO : Check the headlight switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

TSB Revision



STEP 4. Check the headlight relay (low).

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (–) terminal, 3 – Battery (+) terminal	4 – 5	Continuity

Q: Is the headlight relay (low) in good condition?

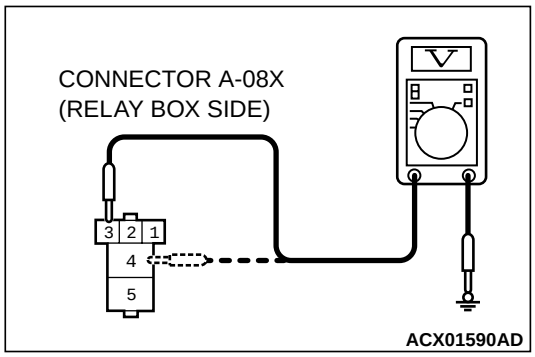
YES : Go to Step 5.

NO : Replace it. The headlights (low-beam) should illuminate normally.

STEP 5. Check the headlight relay (low) power supply circuit at the headlight relay (low) connector A-08X.

(1) Disconnect the headlight relay (low) connector A-08X and measure at the relay box side.

(2) Measure the voltages between terminal 3, 4 and ground.



Q: Are the voltages approximately 12 volts (battery positive voltage)?

YES : Go to Step 8.

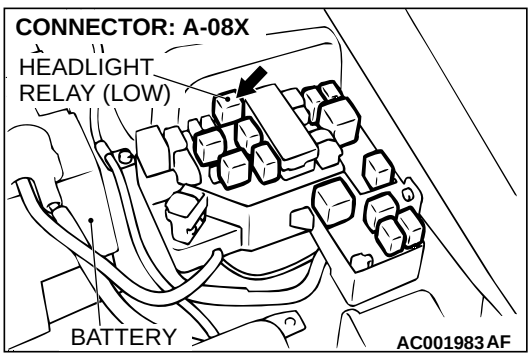
NO : Go to Step 6.

STEP 6. Check headlight relay (low) connector A-08X for damage.

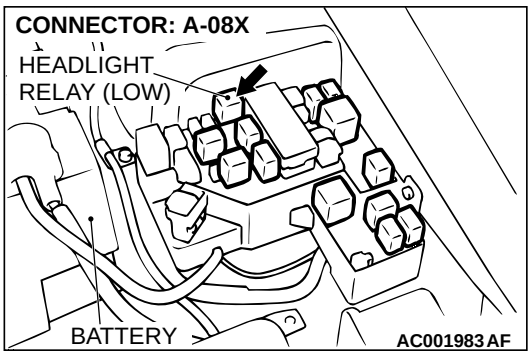
Q: Is headlight relay (low) connector A-08X in good condition?

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlight (low-beam) should illuminate normally.



TSB Revision

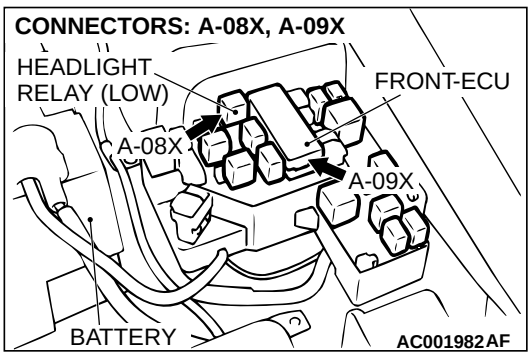


STEP 7. Check the harness wire between headlight relay (low) connector A-08X and battery.

Q: Is the harness wire between headlight relay (low) connector A-08X and battery in good condition?

YES : There is no action to be taken.

NO : Repair it. The headlights (low-beam) should illuminate normally.

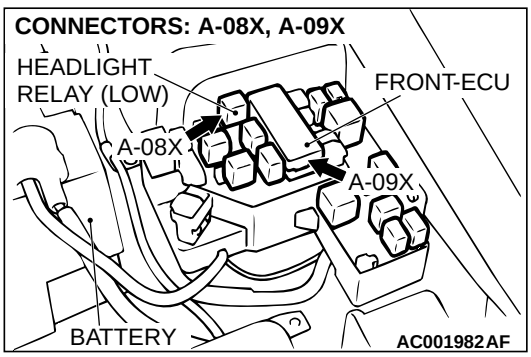


STEP 8. Check headlight relay (low) connector A-08X and front-ECU connector A-09X for damage.

Q: Are headlight relay (low) connector A-08X and front-ECU connector A-09X in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlights (low-beam) should illuminate normally.



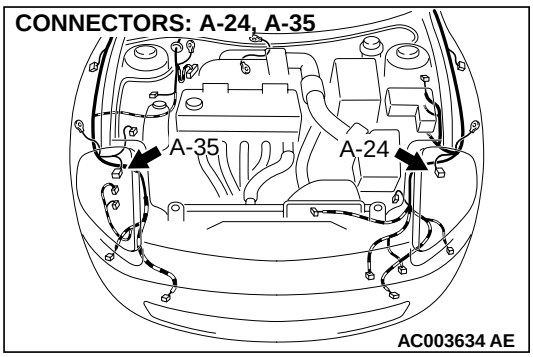
STEP 9. Check the harness wire between headlight relay (low) connector A-08X and front-ECU connector A-09X.

Q: Is the harness wire between headlight relay (low) connector A-08X and front-ECU connector A-09X in good condition?

YES : Go to Step 10.

NO : Repair it. The headlights (low-beam) should illuminate normally.

TSB Revision

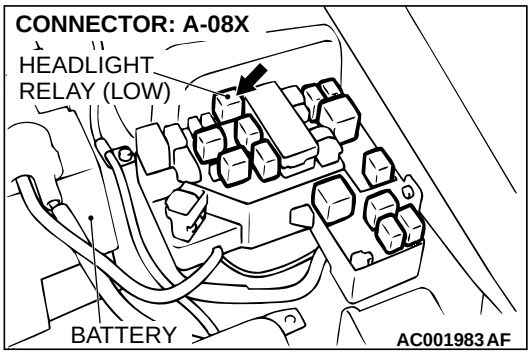


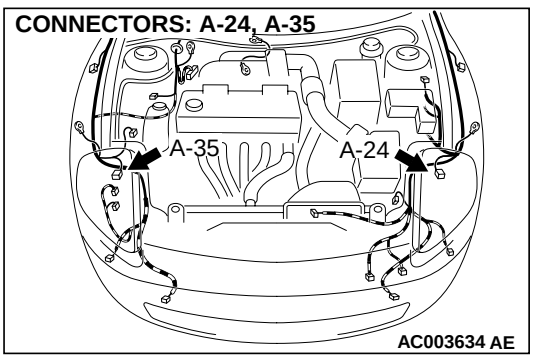
STEP 10. Check headlight connectors A-24 and A-35 for damage.

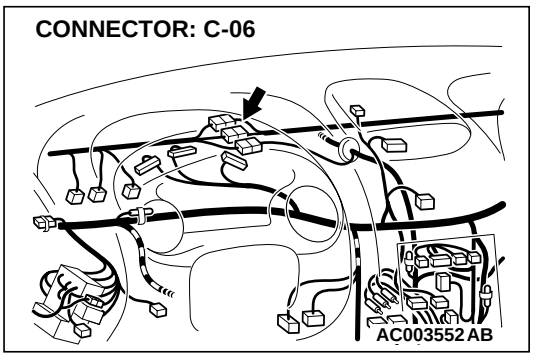
Q: Are headlight connectors A-24 and A-35 in good condition?

YES : Go to Step 11.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlights (low-beam) should illuminate normally.







STEP 11. Check the harness wires between headlight relay (low) connector A-08X and headlight connectors A-24 and A-35.

NOTE: After checking intermediate connector C-06, check the wires. If intermediate connector C-06 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between headlight relay (low) connector A-08X and headlight connectors A-24 and A-35 in good condition?

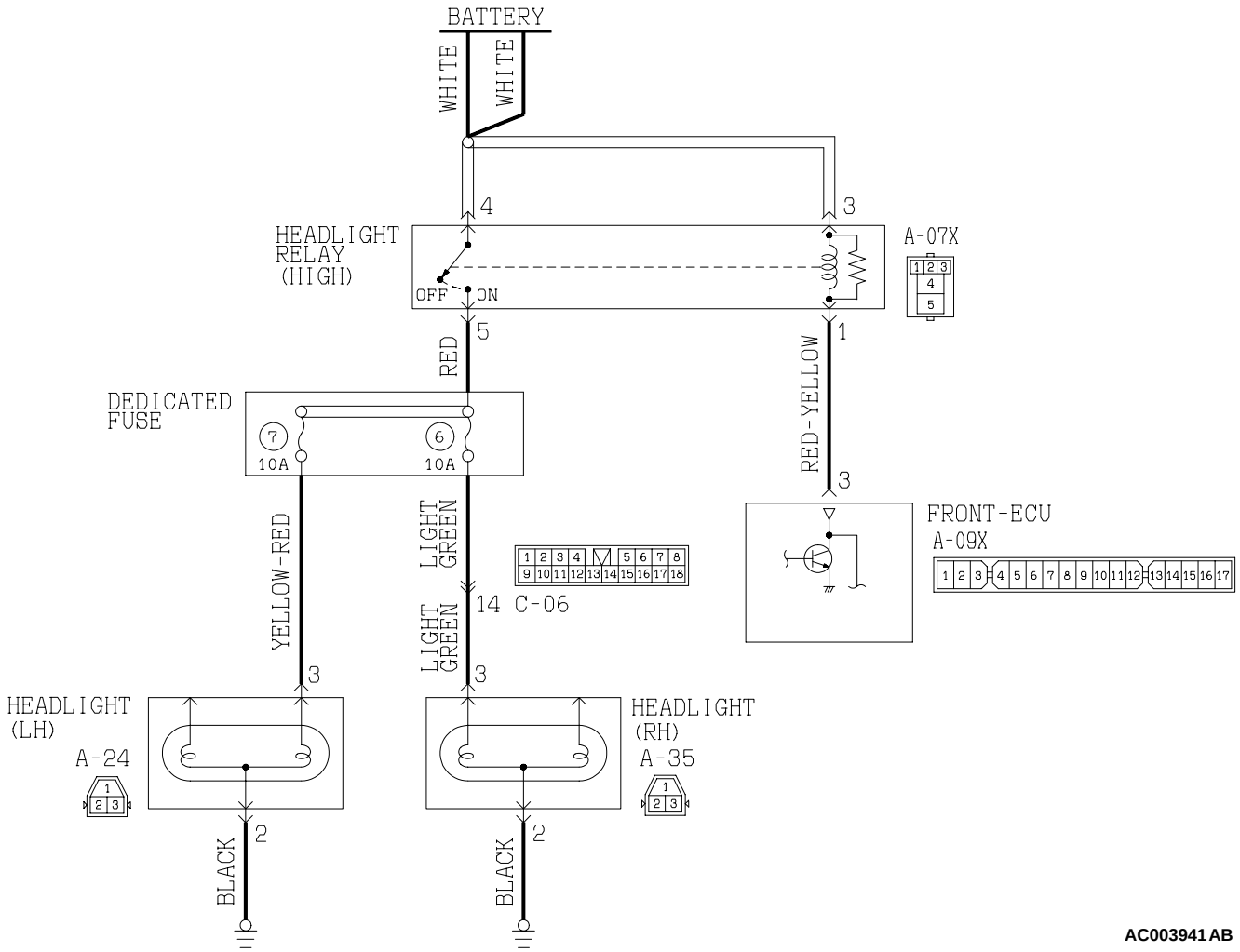
YES : Replace the front-ECU. The headlights (low-beam) should illuminate normally.

NO : Repair them. The headlights (low-beam) should illuminate normally.

TSB Revision

Inspection Procedure J-3: Headlight, taillight: Headlights (high-beam) do not illuminate.

Headlight Relay (high) Drive Circuit



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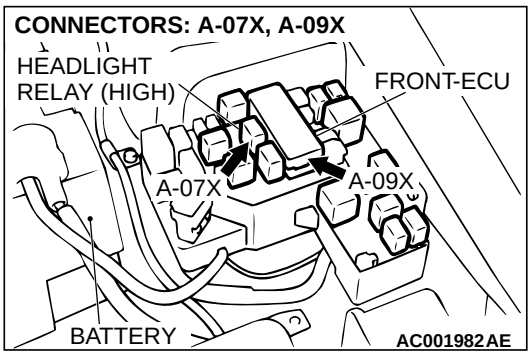

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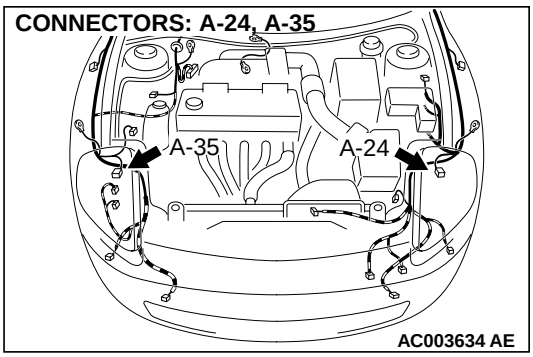

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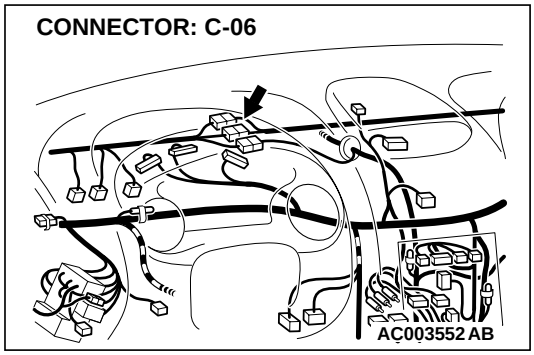
TSB Revision



CIRCUIT OPERATION

If the column switch sends the dimmer switch ON signal to the front-ECU, the front-ECU switches the headlights from low-beam to high-beam or vice versa.

TECHNICAL DESCRIPTION (COMMENT)

The headlight relay (high), column switch or the front-ECU may be defective.

NOTE: If only one of the headlights does not illuminate, the light bulb may be burned out or the harness wires between the light and the headlight relay (high) may be defective. In this case, check the circuit by referring to GROUP 90, Headlight P.90-108.

TROUBLESHOOTING HINTS

- Malfunction of the headlight relay (high)
- Malfunction of the 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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the headlight (low-beam) operation.

Q: Do the headlights (low-beam) illuminate normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to Inspection Procedure J-2 (P.54B-125).

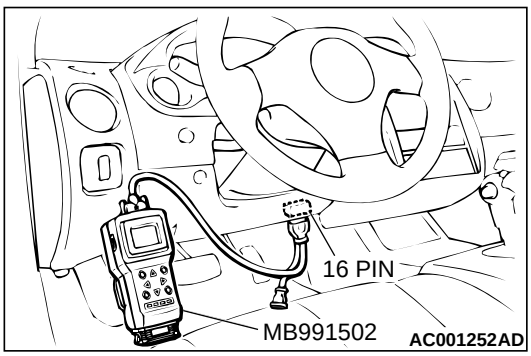
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signal from the dimmer 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



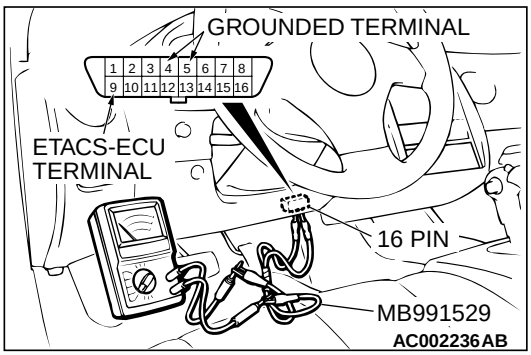
Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.
NO : Check the headlight switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the dimmer switch.

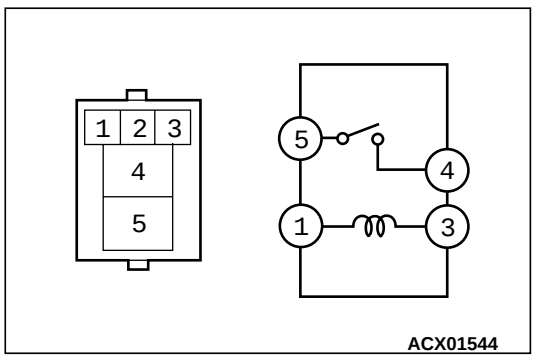
(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.
NO : Check the headlight switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 4. Check the headlight relay (high).

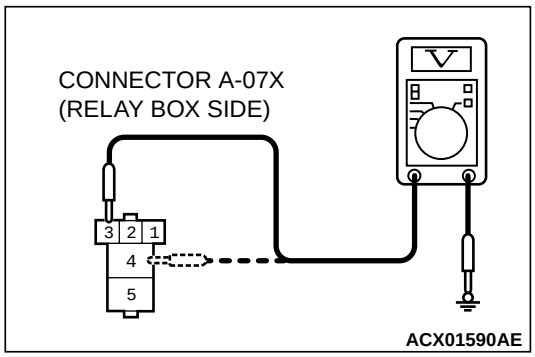


BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (–) terminal, 3 – Battery (+) terminal	4 – 5	Continuity

Q: Is the headlight relay (high) in good condition?

YES : Go to Step 5.
NO : Replace it. The headlights (high-beam) should illuminate normally.

TSB Revision

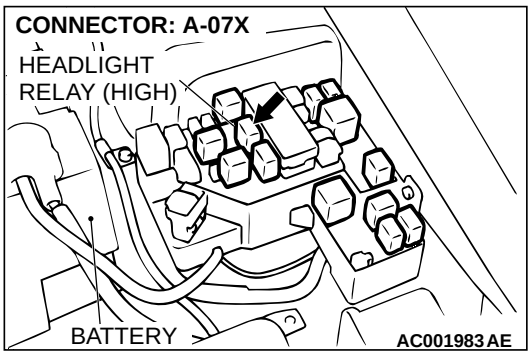


STEP 5. Check the headlight relay (high) power supply circuit at the headlight relay (high) connector A-07X.

(1) Disconnect the headlight relay (high) connector A-07X and measure at the relay box side.
(2) Measure the voltages between terminal 3, 4 and ground.

Q: Are the voltages approximately 12 volts (battery positive voltage)?

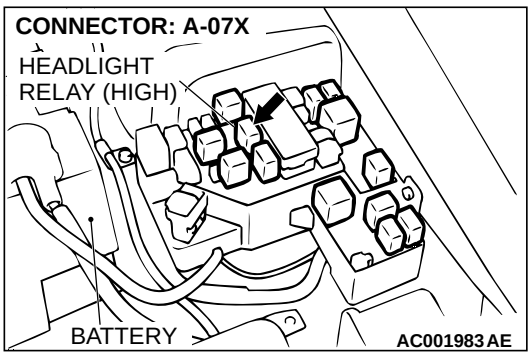
YES : Go to Step 8.
NO : Go to Step 6.



STEP 6. Check headlight relay (high) connector A-07X for damage.

Q: Is headlight relay (high) connector A-07X in good condition?

YES : Go to Step 7.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlight (high-beam) should illuminate normally.

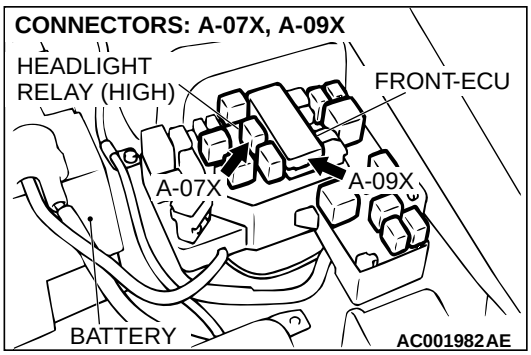


STEP 7. Check the harness wire between headlight relay (high) connector A-07X and battery.

Q: Is the harness wire between headlight relay (high) connector A-07X and battery in good condition?

YES : There is no action to be taken.
NO : Repair it. The headlights (high-beam) should illuminate normally.

TSB Revision

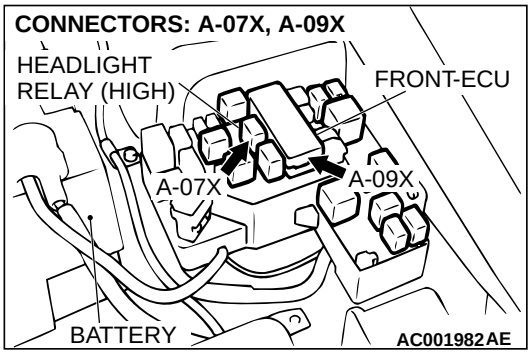


STEP 8. Check headlight relay (high) connector A-07X and front-ECU connector A-09X for damage.

Q: Are headlight relay (high) connector A-07X and front-ECU connector A-09X in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlights (high-beam) should illuminate normally.

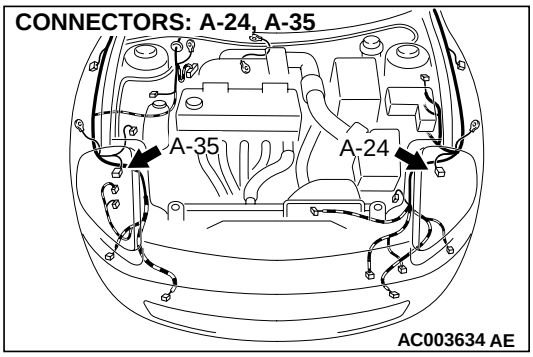


STEP 9. Check the harness wire between headlight relay (high) connector A-07X and front-ECU connector A-09X.

Q: Is the harness wire between headlight relay (high) connector A-07X and front-ECU connector A-09X in good condition?

YES : Go to Step 10.

NO : Repair it. The headlights (high-beam) should illuminate normally.



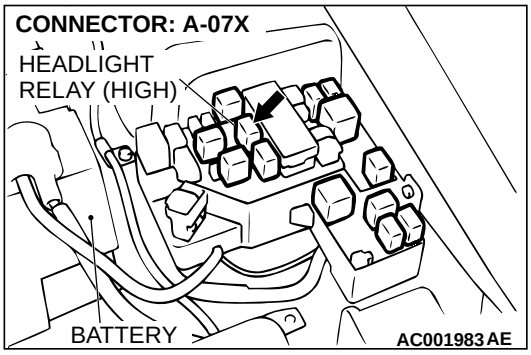
STEP 10. Check headlight connectors A-24 and A-35 for damage.

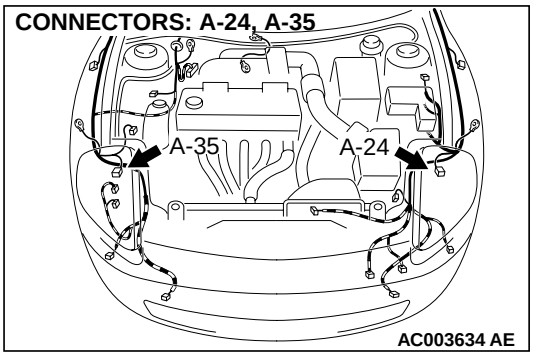
Q: Are headlight connectors A-24 and A-35 in good condition?

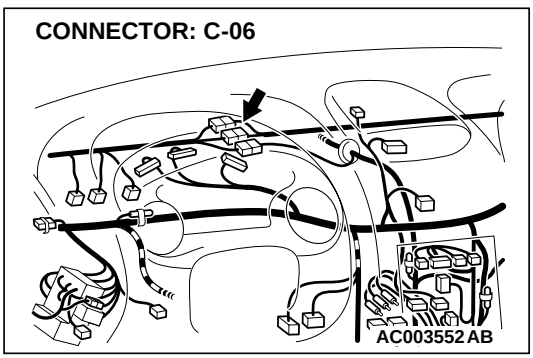
YES : Go to Step 11.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The headlights (high-beam) should illuminate normally.

TSB Revision







STEP 11. Check the harness wires between headlight relay (high) connector A-07X and headlight connectors A-24 and A-35.

NOTE: After checking intermediate connector C-06, check the wires. If intermediate connector C-06 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between headlight relay (high) connector A-07X and headlight connectors A-24 and A-35 in good condition?

YES : Replace the front-ECU. The headlights (high-beam) should illuminate normally.

NO : Repair them. The headlights (high-beam) should illuminate normally.

Inspection Procedure J-4: Headlight, taillight: Headlights do not illuminate when the passing switch is operated.

TECHNICAL DESCRIPTION (COMMENT)

If the column switch or the front-ECU is suspected to be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

TSB Revision

STEP 1. Check the headlight (low-beam and high-beam) operation.

Q: Do the headlights (low-beam and high-beam) illuminate normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Check the input signal (by using scan tool MB991502).

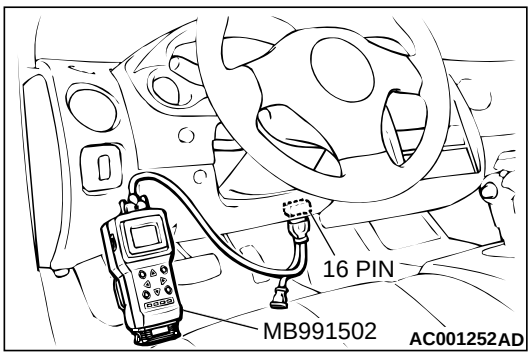
Check the input signal from the passing switch.

⚠ 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.

(1) Connect scan tool MB991502 to the data link connector.

(2) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the front-ECU. The passing switch should work normally.

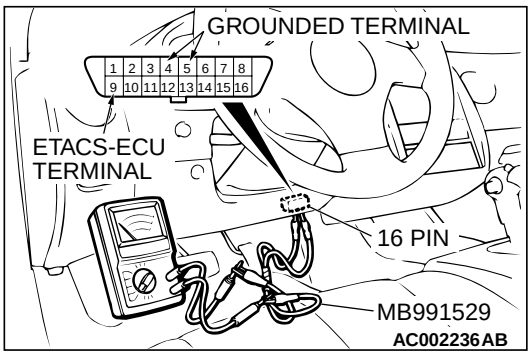
NO : Check the passing switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signal from the passing switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

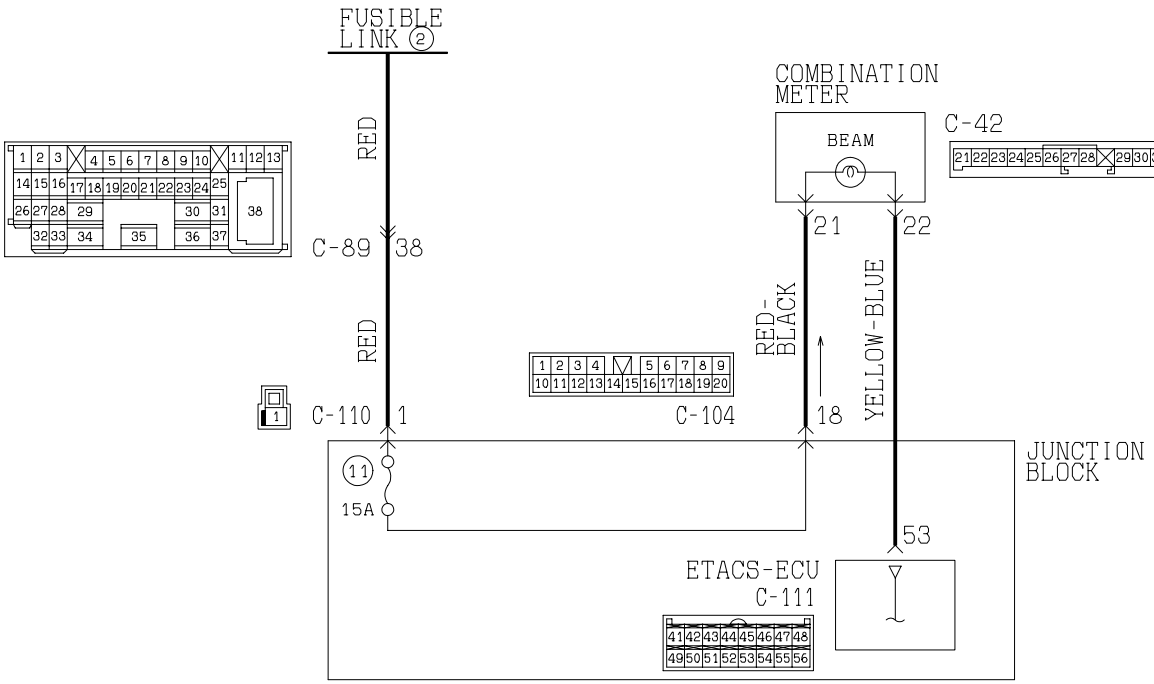
YES : Replace the front-ECU. The passing switch should work normally.

NO : Check the passing switch input circuit. Refer to Inspection Procedure O-17 (P.54B-272).

TSB Revision

Inspection Procedure J-5: Headlight, taillight: High-beam indicator light does not illuminate.

High-beam Indicator Light Circuit



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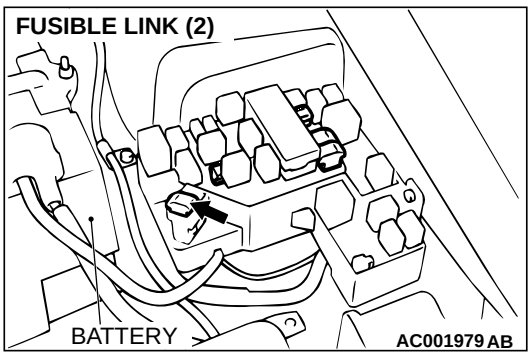

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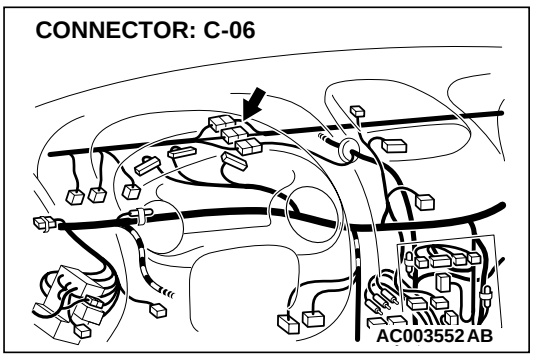

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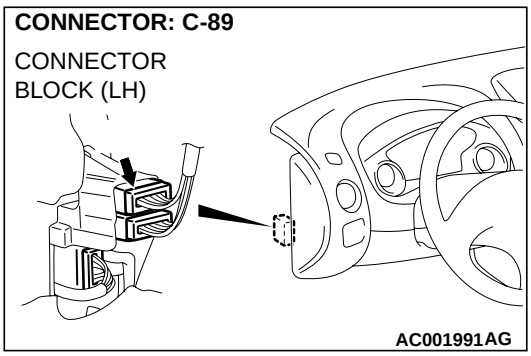

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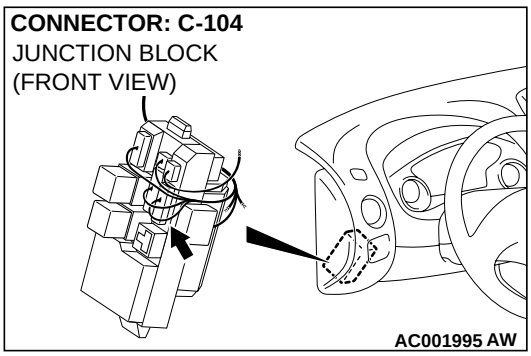
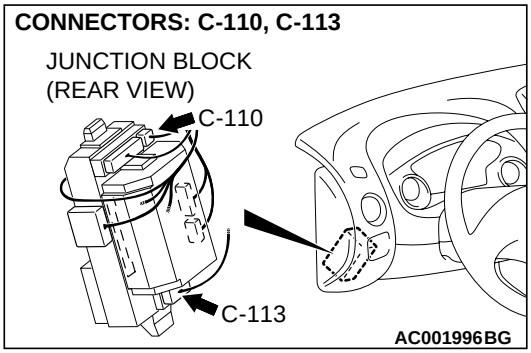


AC001995AW

TSB Revision



CIRCUIT OPERATION
When the passing switch is on or the front-ECU is illuminating the headlights (high-beam), the ETACS-ECU illuminates the high-beam indicator light.

TECHNICAL DESCRIPTION (COMMENT)
If the headlights (high-beam and passing) operate normally, the combination meter (high-beam indicator light bulb or printed-circuit board), the front-ECU or the ETACS-ECU is suspected to be defective.

TROUBLESHOOTING HINTS
- Malfunction of the combination meter (high-beam indicator light bulb or printed-circuit board)
- Malfunction of the front-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:
- MB991223: Test Harness Set

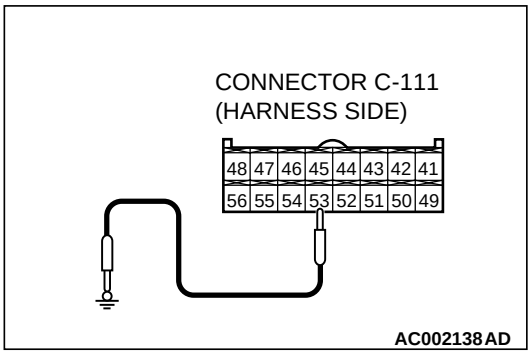
STEP 1. Check the headlights (high-beam and passing) operation.

Q: Do the headlights (high-beam and passing) illuminate normally?

YES : Go to Step 2.
NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Check the high-beam indicator light circuit at the ETACS-ECU connector C-313.

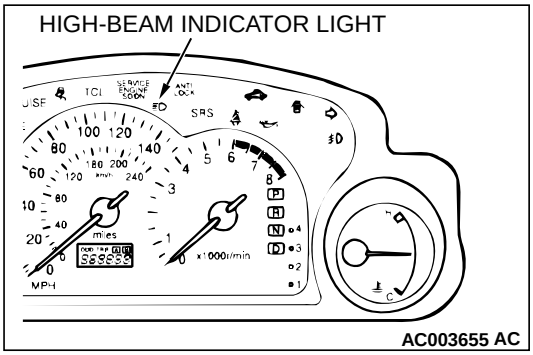
(1) Disconnect the ETACS-ECU connector C-111 and measure at the harness side.
(2) Connect terminal 53 to the ground.



Q: Does the high-beam indicator light illuminate?

YES : Go to Step 10.
NO : Go to Step 3.

TSB Revision

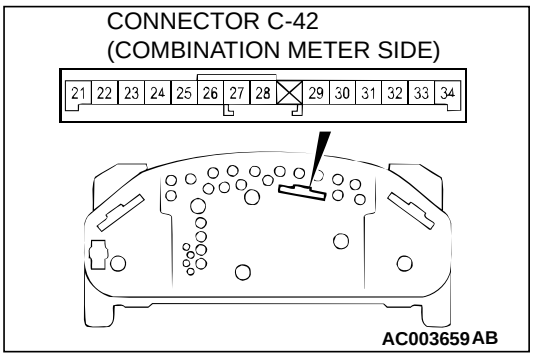


STEP 3. Check the high-beam indicator light bulb.

Q: Is the high-beam indicator light bulb in good condition?

YES : Go to Step 4.

NO : Replace it. The high-beam indicator light should work normally.



STEP 4. Check the combination meter (printed-circuit board).

(1) Remove the combination meter.

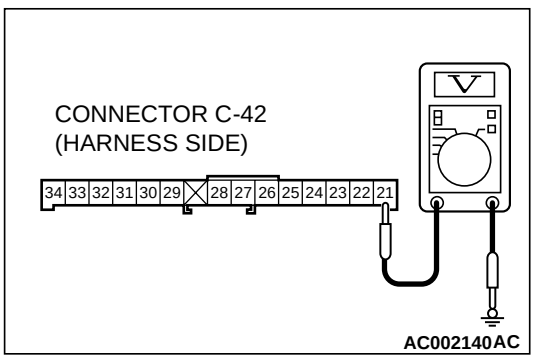
(2) Remove the high-beam indicator light bulb. Then measure the resistance between the bulb terminals.

(3) Install the bulb to the combination meter, and then measure the resistance between connector C-42 terminal 21 and 22. The resistance reading at this time should be much the same as the resistance measured at Step (2).

Q: Are the two resistance values extremely different each other?

YES : Repair or replace the combination meter (printed circuit board). The high-beam indicator light should work normally.

NO (much the same) : Go to Step 5.



STEP 5. Check the combination meter power supply circuit at the combination meter connector C-42.

(1) Disconnect the combination meter connector C-42 and measure at the harness side.

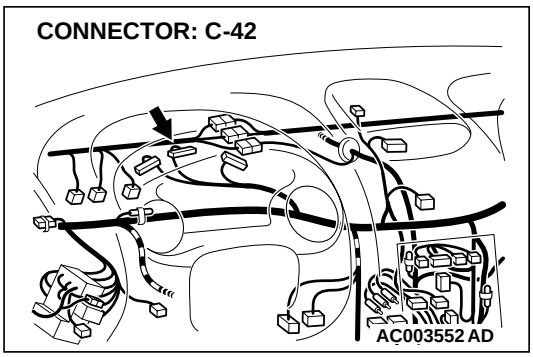
(2) Measure the voltage between terminal 21 and ground.

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

YES : Go to Step 8.

NO : Go to Step 6.

TSB Revision

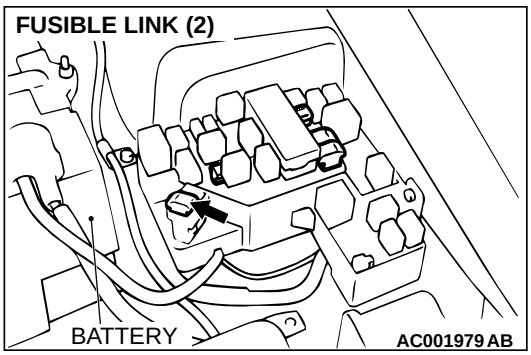


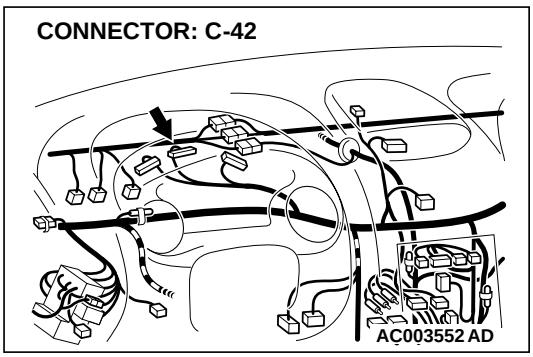
STEP 6. Check combination meter connector C-42 for damage.

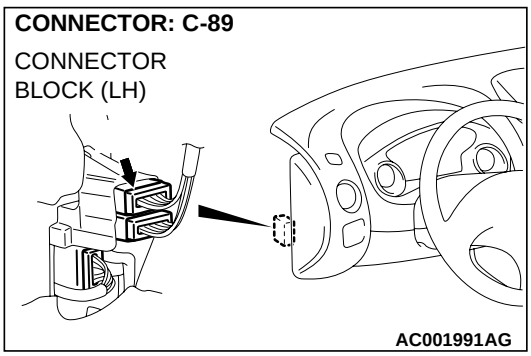
Q: Is combination meter connector C-42 in good condition?

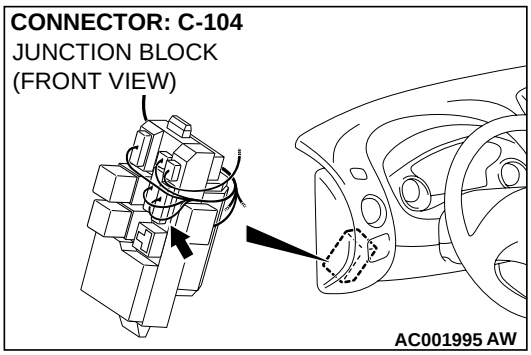
YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector InspectionP.00E-2. The high-beam indicator light should work normally.









STEP 7. Check the harness wires between combination meter connector C-42 and fusible link (2).

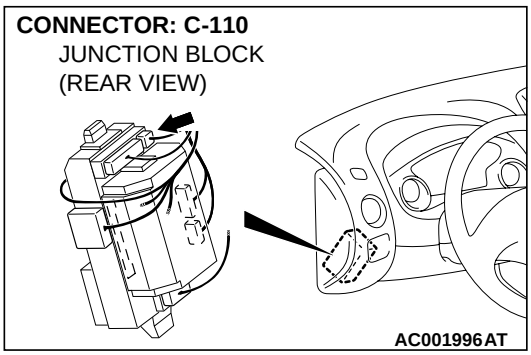
NOTE: After checking junction block connectors C-104 and C-110 and intermediate connector C-89, check the wires. If junction block connectors C-104 and C-110 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

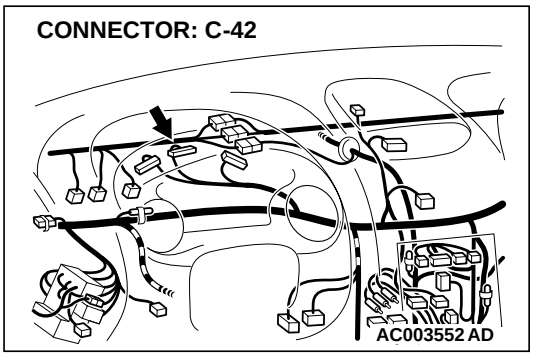
Q: Are the harness wires between combination meter connector C-42 and fusible link (2) in good condition?

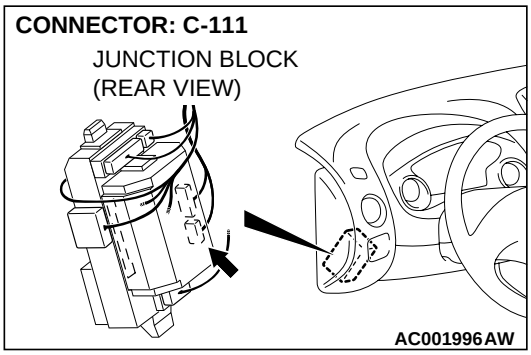
YES : There is no action to be taken.

NO : Repair or replace them. The high-beam indicator light should work normally.

TSB Revision







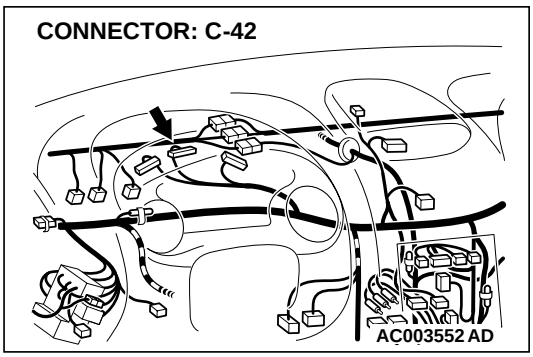
STEP 8. Check combination meter connector C-42 and ETACS-ECU connector C-111 for damage.

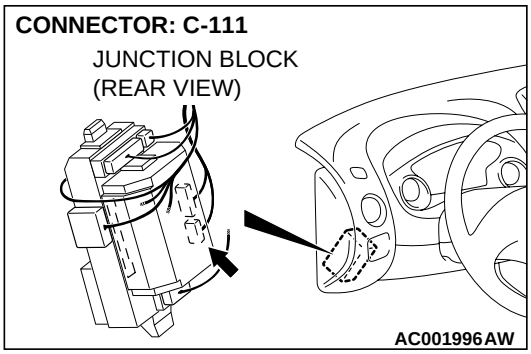
Q: Are combination meter connector C-42 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The high-beam indicator light should work normally.

TSB Revision





STEP 9. Check the harness wire between combination meter connector C-42 and ETACS-ECU connector C-111.

Q: Is the harness wire between combination meter connector C-42 and ETACS-ECU connector C-111 in good condition?

YES : There is no action to be taken.

NO : Repair it. The high-beam indicator light should work normally.

STEP 10. Replacement of ECU.

(1) Replace the ETACS-ECU.

(2) The high-beam indicator light should work normally.

Q: Is the high-beam indicator light working normally?

YES : There is no action to be taken.

NO : Replace the front-ECU. The high-beam indicator light should work normally.

Inspection Procedure J-6: The headlight, taillight: Headlight automatic shutdown function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU and front-ECU operates the headlight automatic shutdown function, based on the signals from the following switches:

- Ignition switch (IG1)
- Taillight switch
- Headlight switch

If the function does work normally, a defect on relevant input circuits, the ETACS-ECU or the front-ECU is suspected.

TROUBLESHOOTING HINTS

- 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:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

TSB Revision

STEP 1. Check the DTC.

Q: Does the DTC set when the ignition switch is turned to the "LOCK" (OFF) position?

YES : Carry out the troubleshooting by referring to Diagnostic Trouble Code Chart. Refer to P.54B-9.

NO : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches.

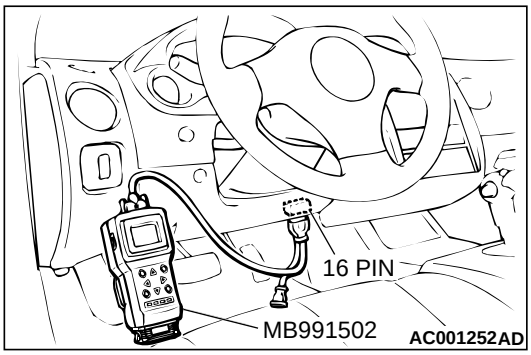
- Ignition switch (IG1)
- Taillight switch
- Headlight switch

⚠ 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.

NO : Check the relevant input signal circuit. Refer to P.54B-9.

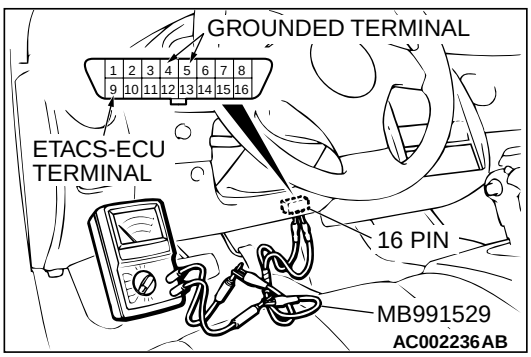
STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches.

- Ignition switch (IG1)
- Taillight switch
- Headlight switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

NO : Check the relevant input signal circuit. Refer to P.54B-9.

TSB Revision

STEP 4. Replacement of ECU.
(1) Replace the front-ECU.
(2) The headlight automatic shutdown function should work normally.

Q: Is the headlight automatic shutdown function working normally?

YES : There is no action to be taken.
NO : Replace the ETACS-ECU. The headlight automatic shutdown function should work normally.

Inspection Procedure J-7: Headlight, taillight: Headlight dimmer switch automatic resetting function does not work normally.

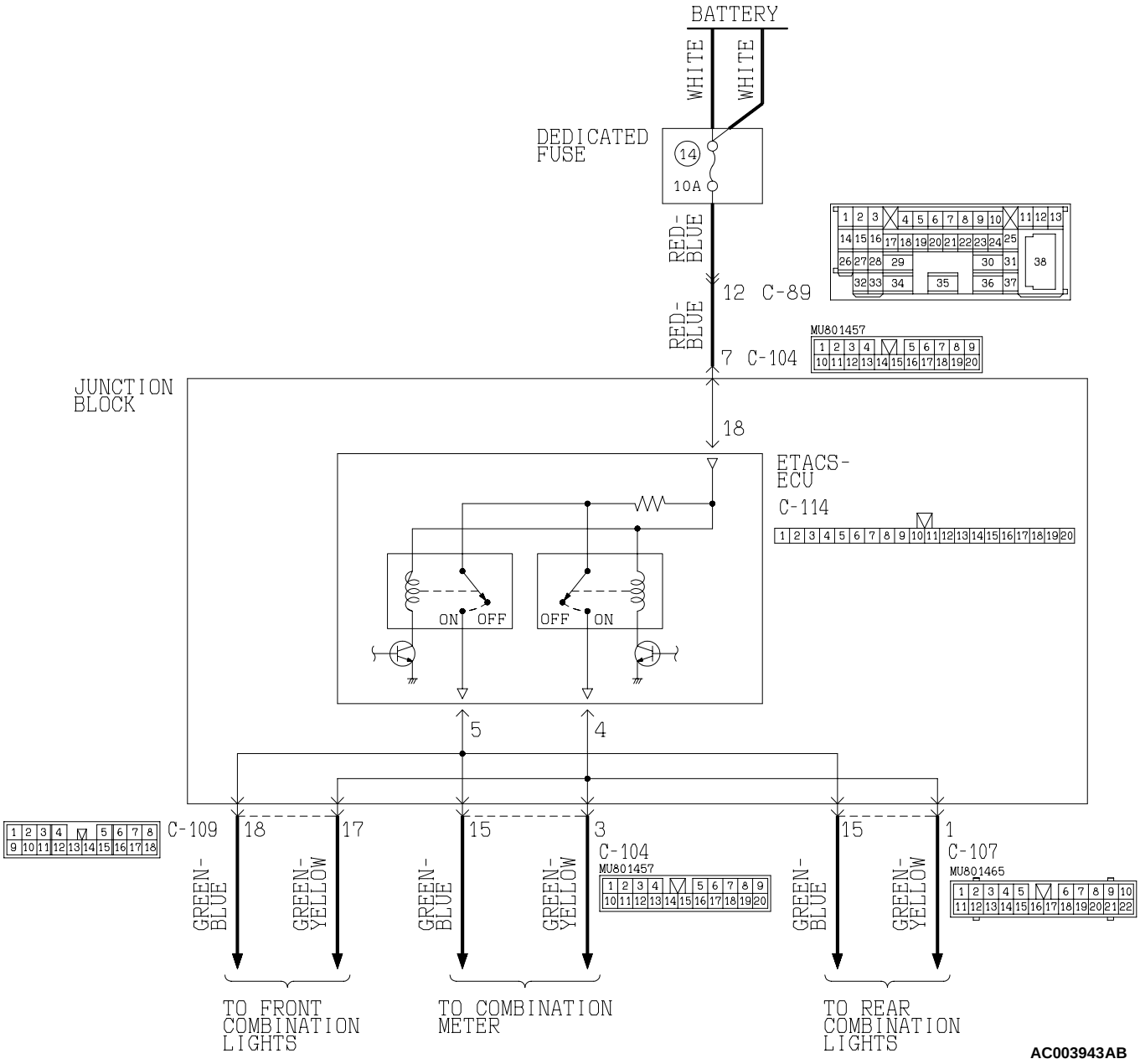
TECHNICAL DESCRIPTION (COMMENT)
The headlight dimmer switch automatic resetting function is controlled by the front-ECU. If a defect appears, the front-ECU may be defective.

TROUBLESHOOTING HINT
Malfunction of the front-ECU

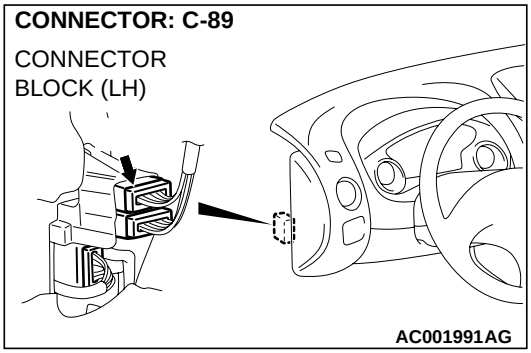
DIAGNOSIS
Replace the front-ECU.
The headlight dimmer switch automatic resetting function should work normally.

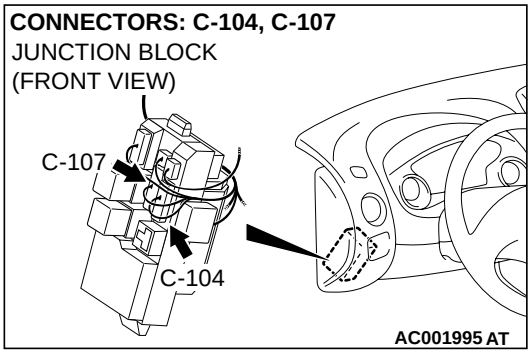
Inspection Procedure K-1: Flasher timer: Turn-signal lights does not flash when the turn-signal light switch is turned on.

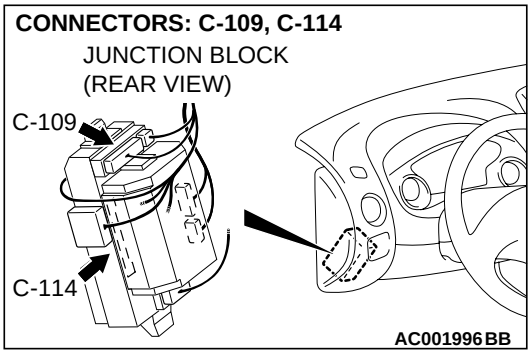
Turn-signal Light Drive Circuit



TSB Revision







CIRCUIT OPERATION

If the ETACS-ECU receives a signal from the turn-signal light switch, the flasher timer circuit (which is incorporated in the ETACS-ECU) marks the turn-signal lights flash.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU makes the turn-signal lights flash, based on the input signals from the following switches:

- Ignition switch (IG1)
- Turn-signal light switch

If the turn-signal lights do not flash normally, a defect on the relevant circuits or the ETACS-ECU may be suspected.

If the hazard warning lights also do not flash, a defect in the ETACS-ECU power supply line specific to the turn-signal lights is suspected.

NOTE: If only one of the turn-signal lights does not flash, the light bulb may be burned out or the harness wires between the ETACS-ECU and the light may be defective. In this case, check the circuit by referring to GROUP 90, Turn-signal Light and Hazard Warning Light P.90-128.

TROUBLESHOOTING HINTS

- Malfunction of the 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)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the hazard warning light operation.

Q: Do the hazard warning lights work normally?

YES : Go to Step 8 <when using scan tool MB991502> or 9 <when using a voltmeter>.

NO : Go to Step 2.

TSB Revision

STEP 2. Check turn-signal light state operation.

Q: Does any turn-signal lights flash?

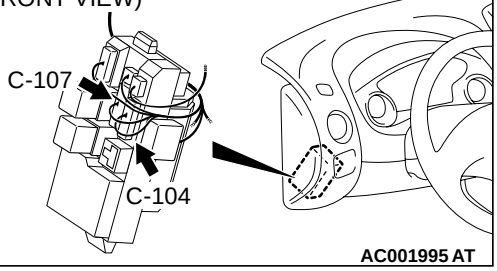
YES (only one side illuminates) : Go to Step 3.
NO (no lights flash at all) : Go to Step 5.

STEP 3. Check ETACS-ECU connector C-114 and junction block connectors C-104, C-107 and C-109 for damage.

Q: Are ETACS-ECU connector C-114 and junction block connectors C-104, C-107 and C-109 in good condition?

YES : Go to Step 4.
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The turn-signal lights should flash normally.

CONNECTORS: C-104, C-107
JUNCTION BLOCK
(FRONT VIEW)



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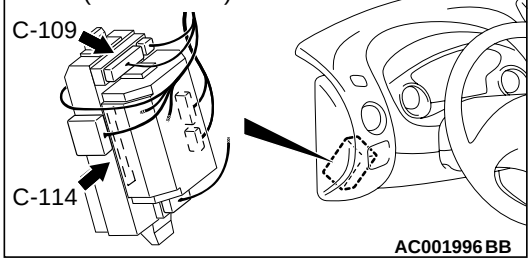
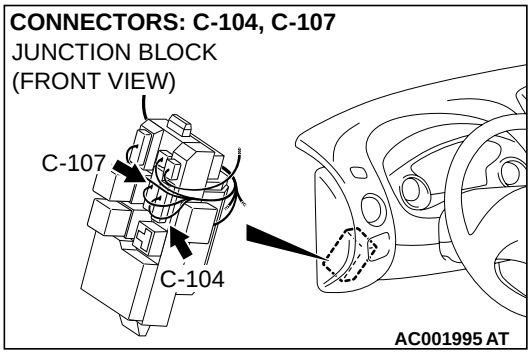
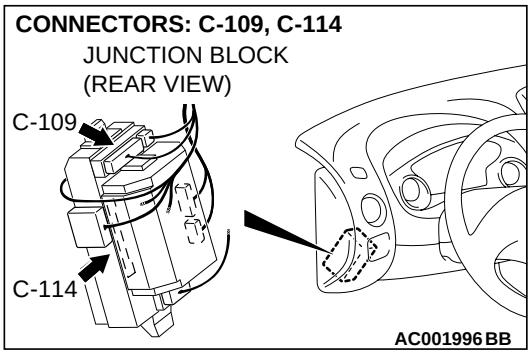
CONNECTORS: C-109, C-114
JUNCTION BLOCK
(REAR VIEW)



AC001996 BB

STEP 4. Check the harness wires between ETACS-ECU connector C-114 and junction block connectors C-104, C-107 and C-109.





Q: Are the harness wires between ETACS-ECU connector C-114 and junction block connectors C-104, C-107 and C-109 in good condition?

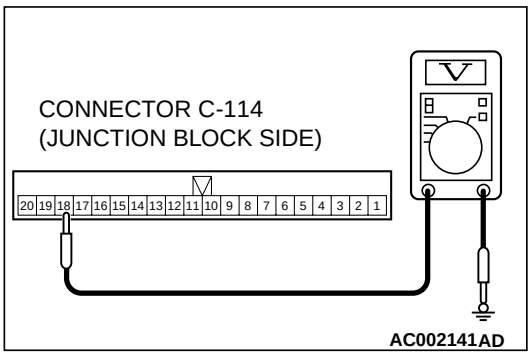
YES : Replace the ETACS-ECU. The turn-signal lights should flash normally.

NO : Repair them. The turn-signal lights should flash normally.

STEP 5. Check the ETACS-ECU power supply circuit (for turn-signal light) at the ETACS-ECU connector C-114.

(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.

(2) Measure the voltage between terminal 18 and ground.

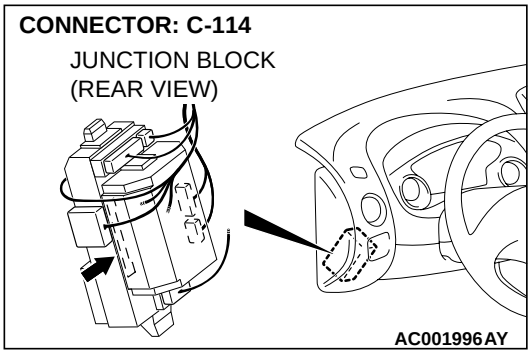


Q: Is the voltage approximately 12 volts (battery positive voltage)?

YES : Replace the ETACS-ECU. The turn-signal lights should flash normally.

NO : Go to Step 6.

STEP 6. Check ETACS-ECU connector C-114 for damage.

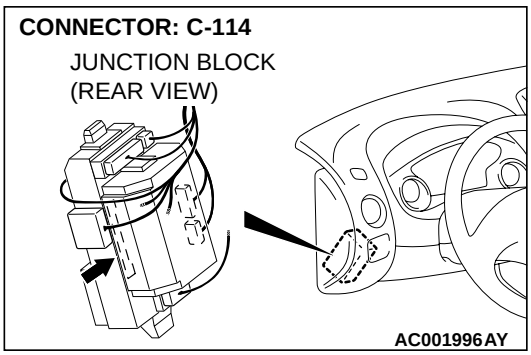


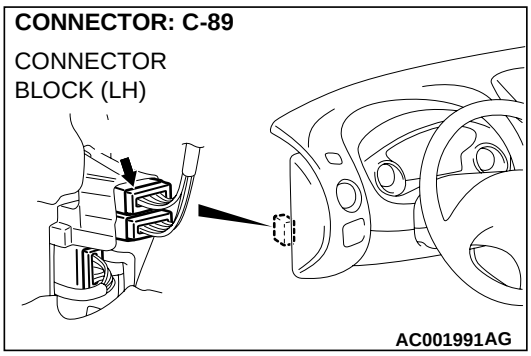
Q: Is ETACS-ECU connector C-114 in good condition?

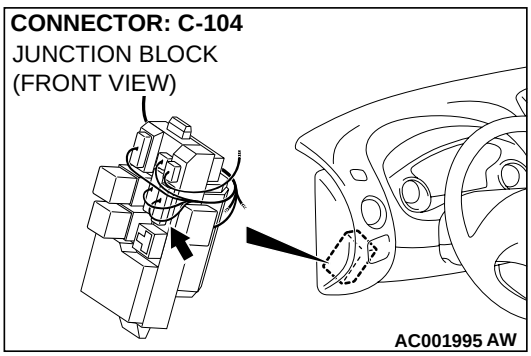
YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The turn-signal lights should flash normally.

TSB Revision







STEP 7. Check the harness wires between ETACS-ECU connector C-114 and battery.

NOTE: After checking junction block connector C-104 and intermediate connector C-89, check the wires. If junction block connector C-104 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and battery in good condition?

YES : There is no action to be taken.

NO : Repair them. The turn-signal lights should flash normally.

STEP 8. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches.

- Ignition switch (IG1)
- Turn-signal light switch

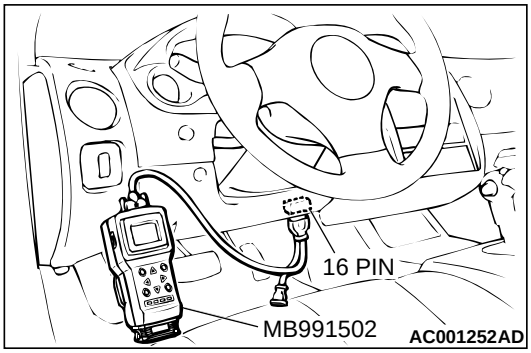
⚠ CAUTION

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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The turn-signal lights should flash normally.
NO : Check the relevant input signal circuit. Refer to P.54B-9.



STEP 9. Check the input signal (by using a voltmeter).

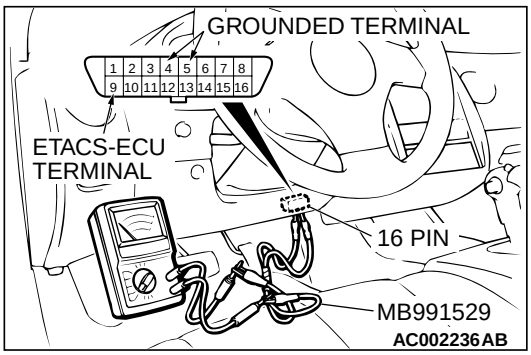
Check the input signals from the following switches.

- Ignition switch (IG1)
- Turn-signal light switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The turn-signal lights should flash normally.
NO : Check the relevant input signal circuit. Refer to P.54B-9.



Inspection Procedure K-2: Flasher timer: Hazard warning lights does not flash when the hazard warning light switch is turned on.

Turn-signal Light Drive Circuit

- Refer to Inspection Procedure K-1 (P.54B-147).

CIRCUIT OPERATION

If the ETACS-ECU receives a signal from the hazard warning light switch, the flasher timer circuit (which is incorporated in the ETACS-ECU) makes the turn-signal lights flash.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU makes the turn-signal lights flash, based on the input signals from the hazard warning light switch. If the turn-signal lights do not flash normally, the hazard warning light switch input circuit or the ETACS-ECU may be defective.
If the turn-signal lights do not flash, a defect in the ETACS-ECU power supply line specific to the turn-signal lights is suspected.

TSB Revision

NOTE: If only one of the turn-signal lights does not flash, the light bulb may be burned out or the harness wires between the ETACS-ECU and the light may be defective. In this case, check the circuit by referring to GROUP 90, Turn-signal Light and Hazard Warning Light P.90-128.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the turn-signal light operation.

Q: Do the turn-signal lights work normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to Inspection Procedure K-1 (P.54B-147).

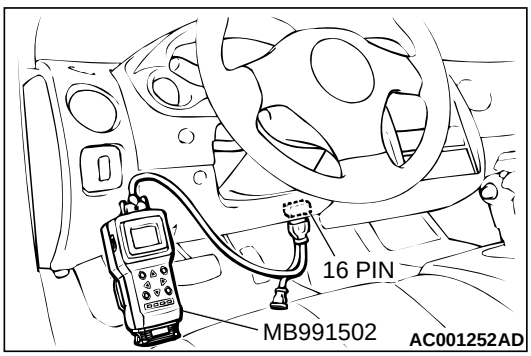
STEP 2. Check the input signal (by using scan tool MB991502).

Check the input signals 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

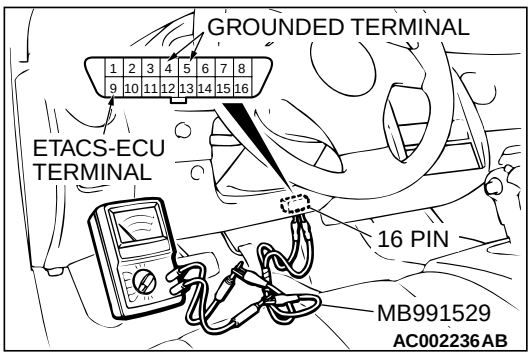
YES : Replace the ETACS-ECU. The hazard warning lights should flash normally.

NO : Check the hazard warning light switch input circuit. Refer to Inspection Procedure O-4 (P.54B-193).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the hazard warning light switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

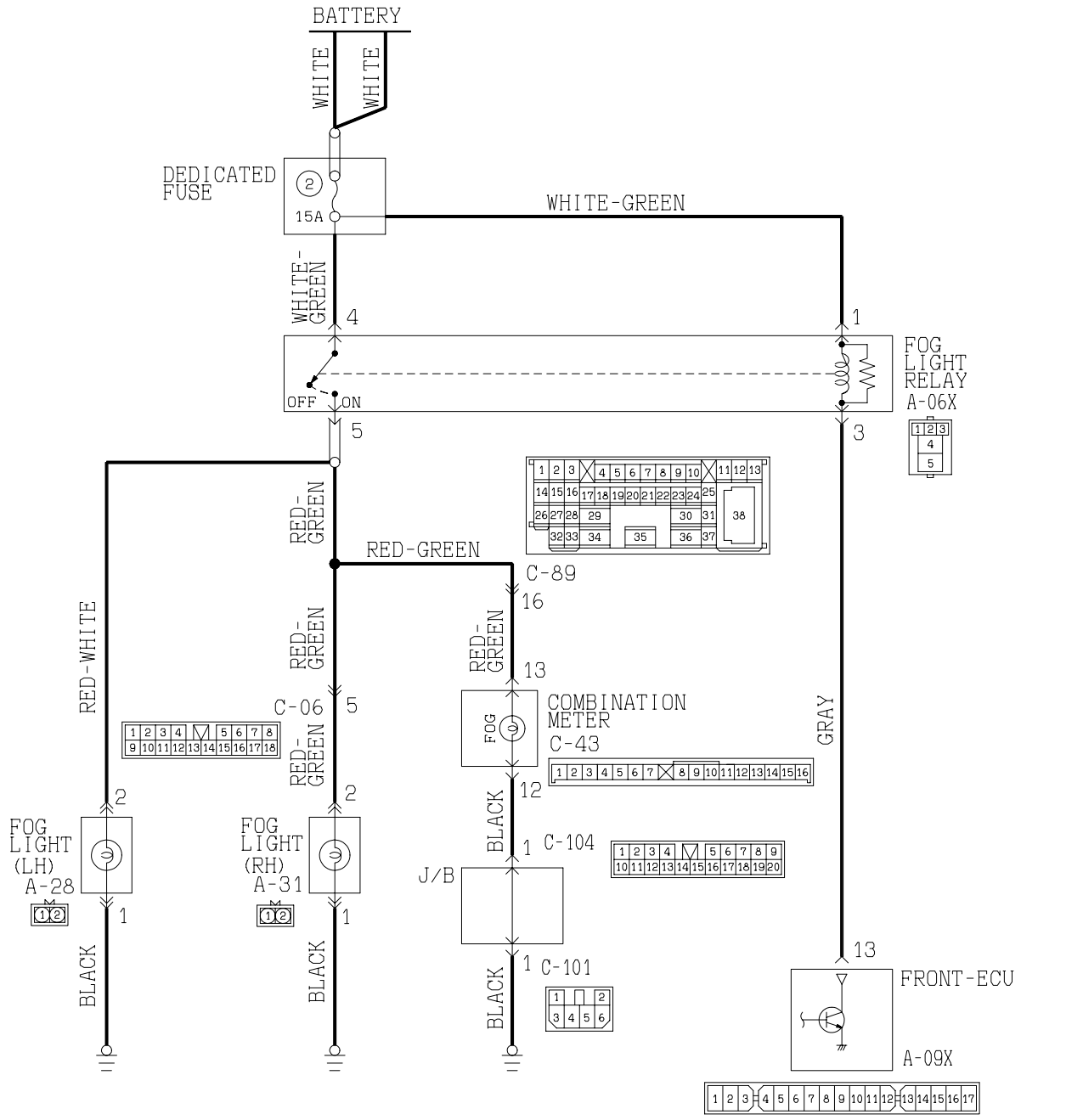
YES : Replace the ETACS-ECU. The hazard warning lights should flash normally.

NO : Check the hazard warning light switch input circuit. Refer to Inspection Procedure O-4 (P.54B-193).

TSB Revision

Inspection Procedure L-1: Fog light: Fog lights do not illuminate when the fog light switch is turned on.

Fog Light Relay Drive Circuit



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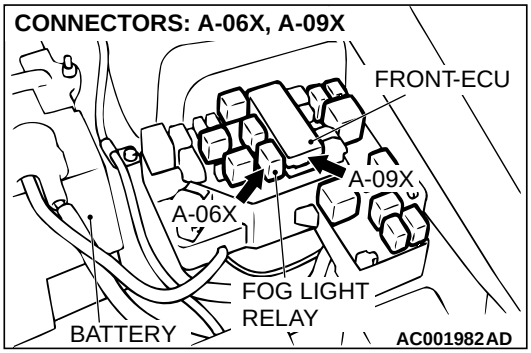
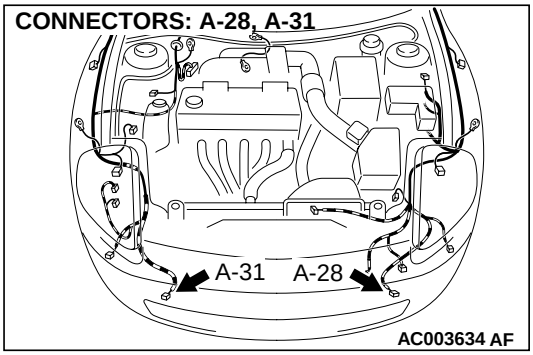
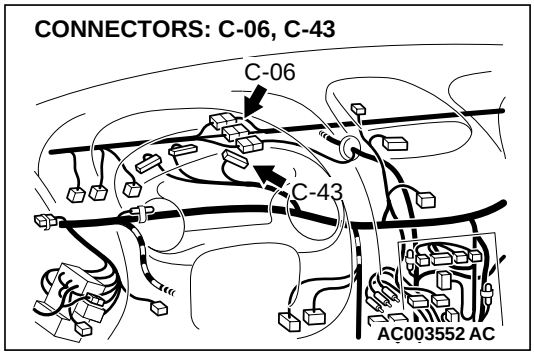
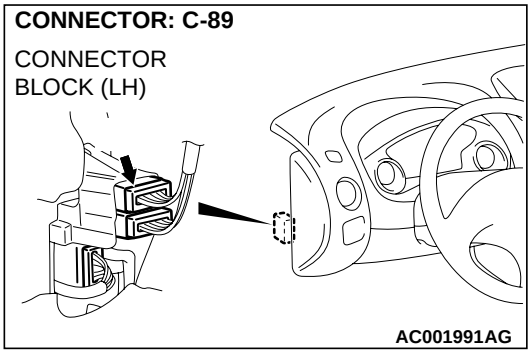
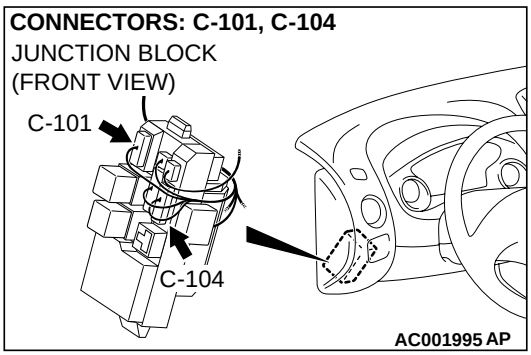
TSB Revision











CIRCUIT OPERATION

When the fog light switch is turned on while the front-ECU is illuminating the taillights or headlights (low-beam), the ETACS-ECU sends a `light on' signal to the front-ECU, causing the front-ECU to illuminate the fog lights.

TECHNICAL DESCRIPTION (COMMENT)

If the taillights and headlights illuminate normally, the fog light relay, the fog light switch, the front-ECU or the ETACS-ECU may be defective.

NOTE: If only one of the fog lights or the fog light indicator light does not illuminate, the relevant bulb may be burned out or the harness wire between the defective light and the fog light relay may be defective. In this case, check the relevant circuit by referring to GROUP 90, Fog Light P.90-116.

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)
- MB991529: Diagnostic Trouble Code Check Harness

TSB Revision

STEP 1. Check the taillights and headlight operation.

Q: Do the taillights and headlights illuminate normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Check the input signal (by using scan tool MB991502).

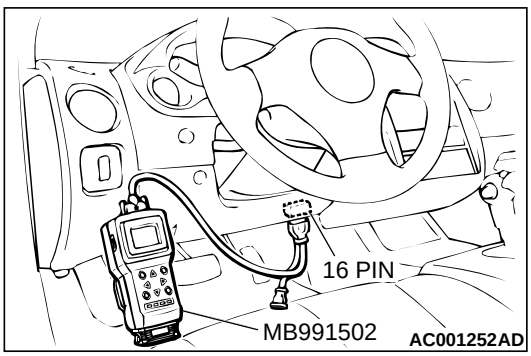
Check the input signals from the fog light switch.

⚠ 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Go to Step 4.

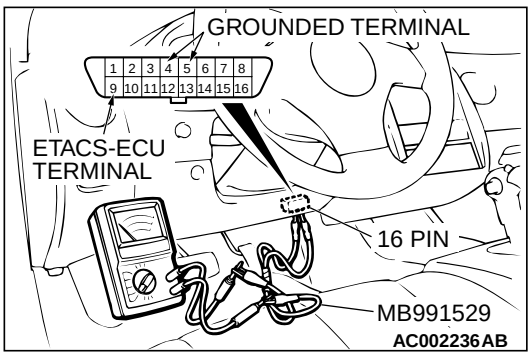
NO : Check the fog light input signal circuit. Refer to Inspection Procedure O-5 (P.54B-197).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the fog light switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

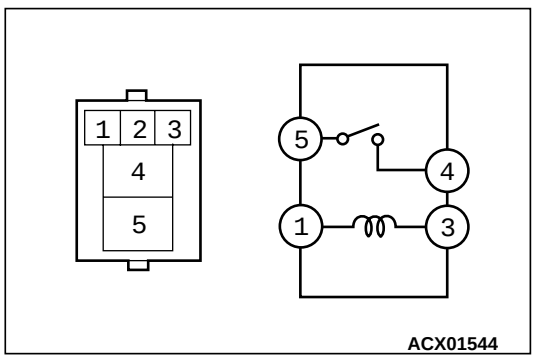


Q: Does the voltmeter indicator deflect?

YES : Go to Step 4.

NO : Check the fog light input signal circuit. Refer to Inspection Procedure O-5 (P.54B-197).

STEP 4. Check the fog light relay.



BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (+) terminal, 3 – Battery (–) terminal	4 – 5	Continuity

Q: Is the fog light relay in good condition?

YES : Go to Step 5.

NO : Replace it. The fog lights should illuminate normally.

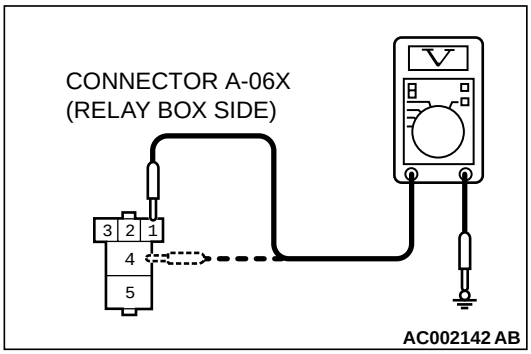
TSB Revision

STEP 5. Check the fog light relay power supply circuit at the fog light relay connector A-06X.

(1) Disconnect the fog light relay connector A-06X and measure at the relay box side.
(2) Measure the voltages between terminal 1, 4 and ground.

Q: Are the voltages approximately 12 volts (battery positive voltage)?

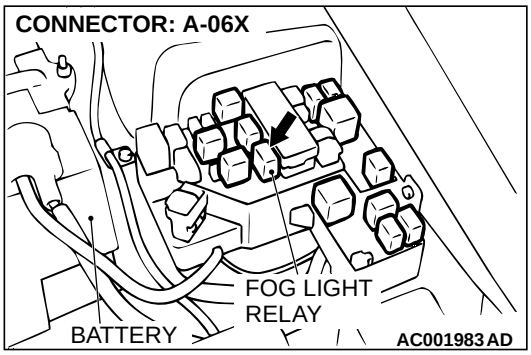
YES : Go to Step 8.
NO : Go to Step 6.



STEP 6. Check fog light relay connector A-06X for damage.

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

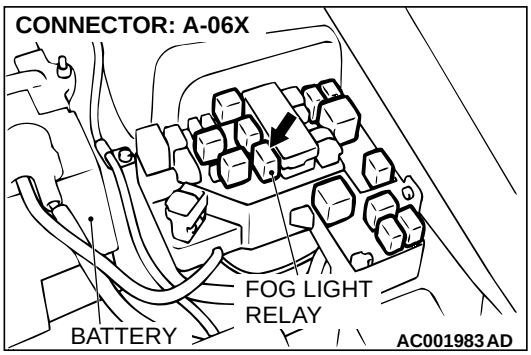
YES : Go to Step 7.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The fog lights should illuminate normally.



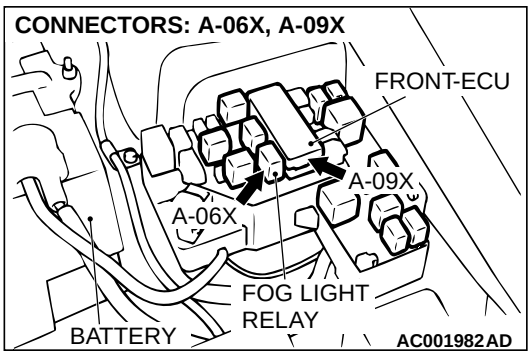
STEP 7. Check the harness wire between fog light relay connector A-06X and battery.

Q: Is the harness wire between fog light relay connector A-06X and battery in good condition?

YES : There is no action to be taken.
NO : Repair it. The fog lights should illuminate normally.



TSB Revision

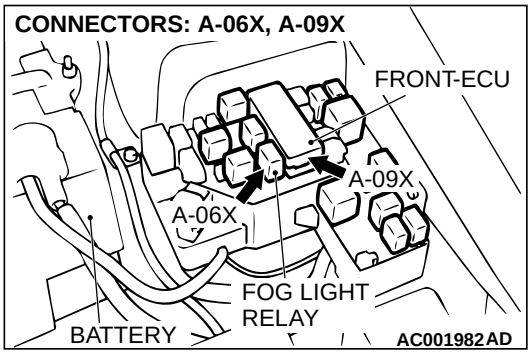


STEP 8. Check fog light relay connector A-06X and front-ECU connector A-09X for damage.

Q: Are fog light relay connector A-06X and front-ECU connector A-09X in good condition?

YES : Go to Step 9.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The fog lights should illuminate normally.

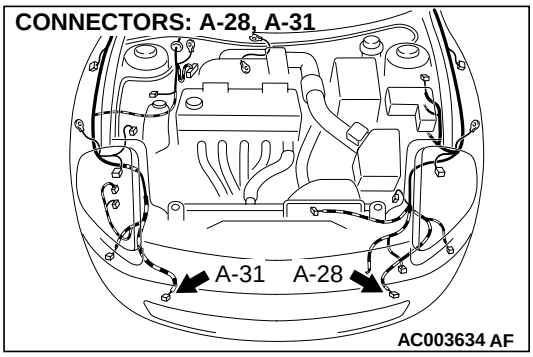


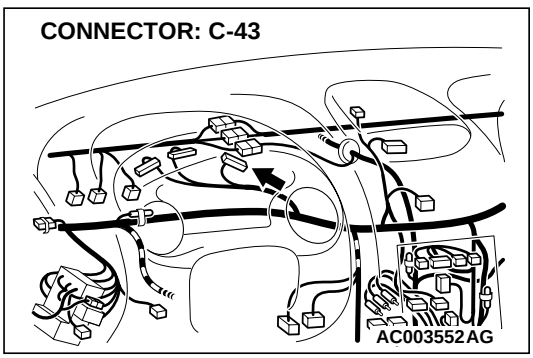
STEP 9. Check the harness wire between fog light relay connector A-06X and front-ECU connector A-09X.

Q: Is the harness wire between fog light relay connector A-06X and front-ECU connector A-09X in good condition?

YES : Go to Step 10.

NO : Repair it. The fog lights should illuminate normally.





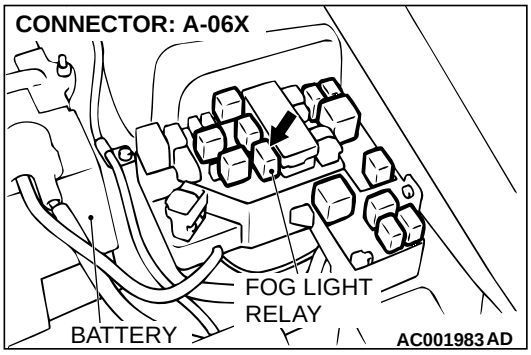
STEP 10. Check fog light connectors A-28 and A-31 and combination meter connector C-43 for damage.

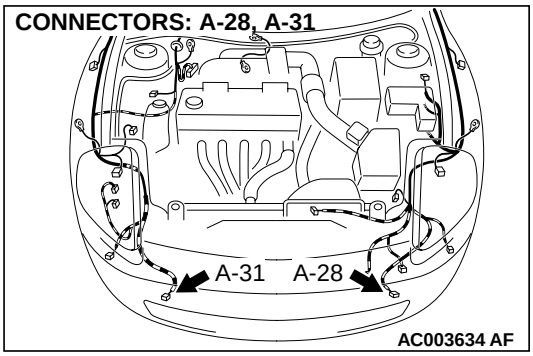
Q: Are fog light connectors A-28 and A-31 and combination meter connector C-43 in good condition?

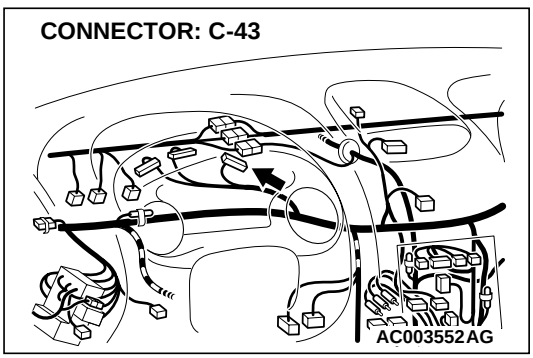
YES : Go to Step 11.

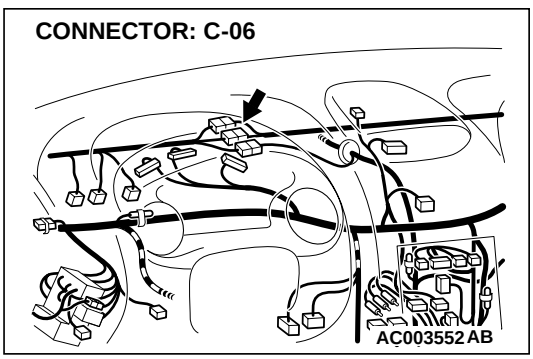
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The fog lights should illuminate normally.

TSB Revision









STEP 11. Check the harness wires between fog light relay connector A-06X and fog light connectors A-28 and A-31 and combination meter connector C-43.

NOTE: After checking intermediate connectors C-06 and C-89, check the wires. If intermediate connectors C-06 and C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between fog light relay connector A-06X and fog light connectors A-28 and A-31 and combination meter connector C-43 in good condition?

YES : Go to Step 12.

NO : Repair them. The fog lights should illuminate normally.

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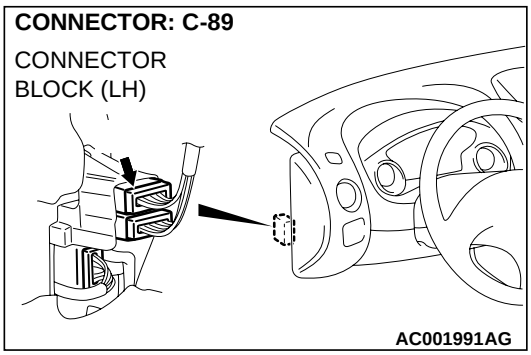


STEP 12. Replacement of ECU

(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 malfunction above occurs, the front-ECU may be defective.

TROUBLESHOOTING HINT

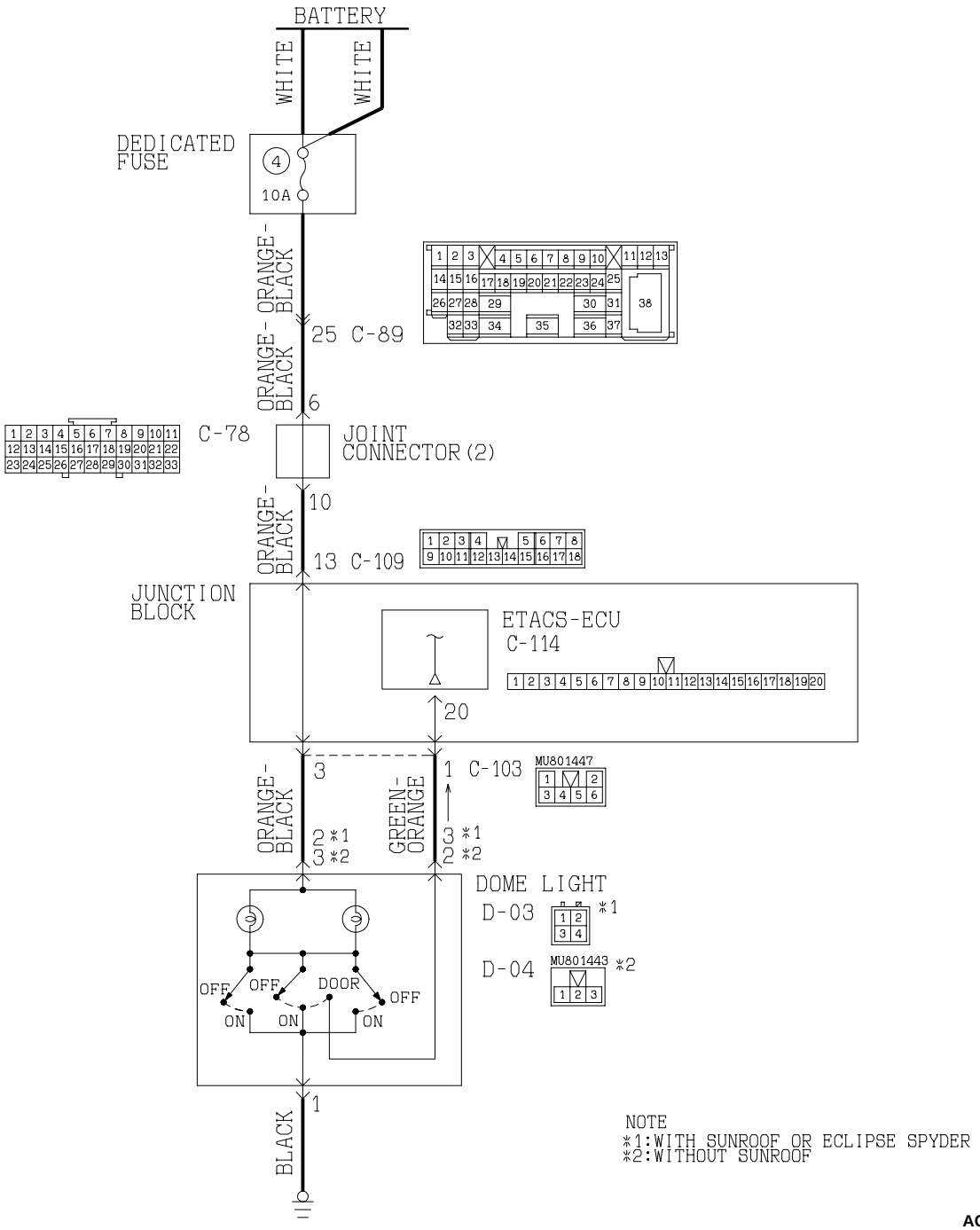
Malfunction of the front-ECU

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 M-1: Dome light: Dome light does not illuminate.

Dome Light Drive Circuit



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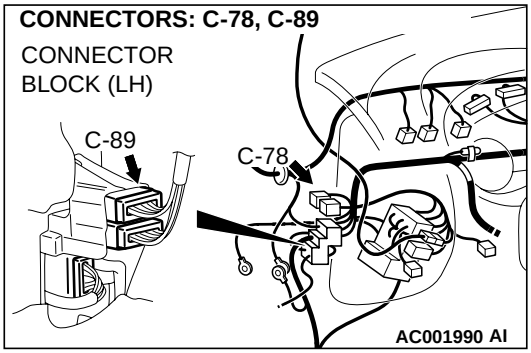
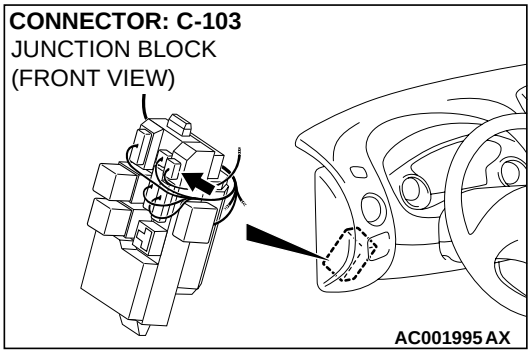
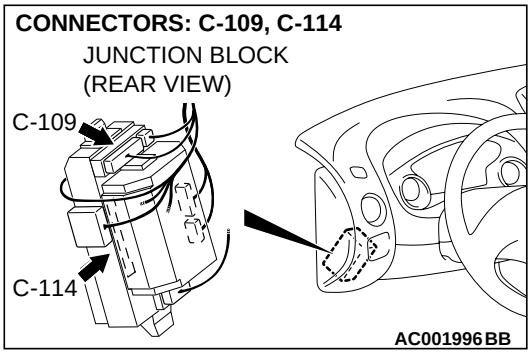
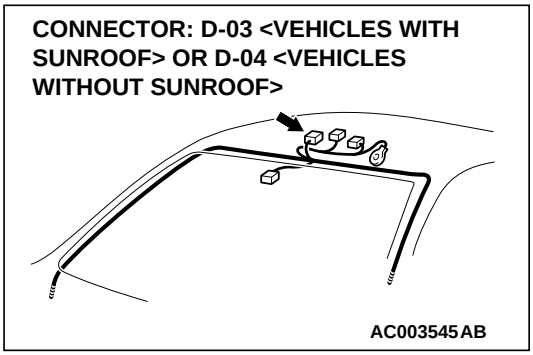








CIRCUIT OPERATION

The dome light dimming function and the keyless entry system answerback function illuminate the dome light when the dome light switch is at "door control operation position."

TECHNICAL DESCRIPTION (COMMENT)

If the dome light does not illuminate at all, the dome light bulb may be burned out, or the power supply circuit or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check the trouble symptom.

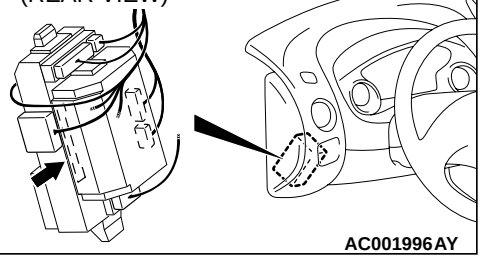
Q: Does the dome light illuminate when the dome light switch is set to "ON" position?

YES : Go to Step 2.
NO : Go to Step 4.

TSB Revision

CONNECTOR: C-114

JUNCTION BLOCK
(REAR VIEW)



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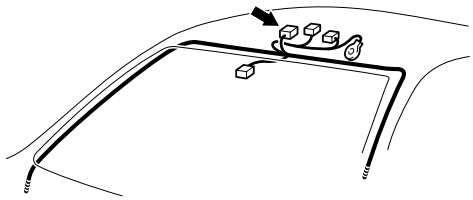
CONNECTOR: D-03 <VEHICLES WITH SUNROOF> OR D-04 <VEHICLES WITHOUT SUNROOF>



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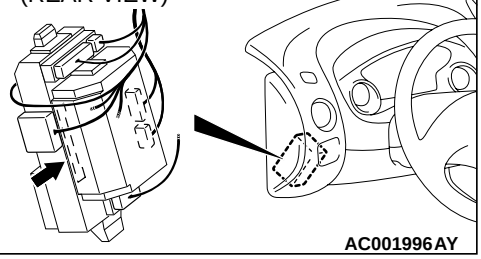
STEP 2. Check the dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and ETACS-ECU connector C-114 for damage.

Q: Are dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and ETACS-ECU connector C-114 in good condition?

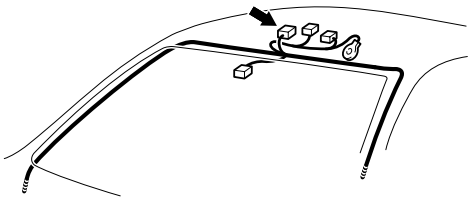
YES : Go to Step 3.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The dome light should illuminate.

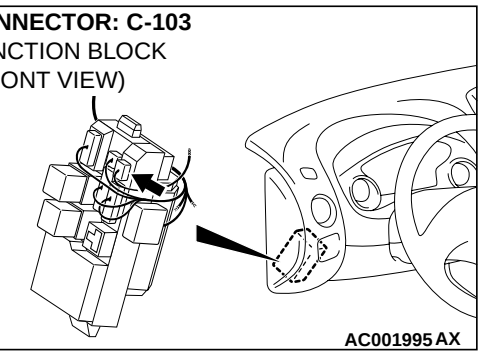
CONNECTOR: C-114
JUNCTION BLOCK
(REAR VIEW)



CONNECTOR: D-03 <VEHICLES WITH SUNROOF> OR D-04 <VEHICLES WITHOUT SUNROOF>



CONNECTOR: C-103
JUNCTION BLOCK
(FRONT VIEW)



STEP 3. Check the harness wires between dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and ETACS-ECU connector C-114.

NOTE: After checking intermediate connector C-103, check the wires. If intermediate connector C-103 is damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and ETACS-ECU connector D-114 in good condition?

YES : Replace the ETACS-ECU. The dome light should illuminate.

NO : Repair them. The dome light should illuminate.

STEP 4. Check the dome light bulb.

Q: Is the dome light bulb in good condition?

YES : Go to Step 5.

NO : Replace it. The dome light should illuminate.

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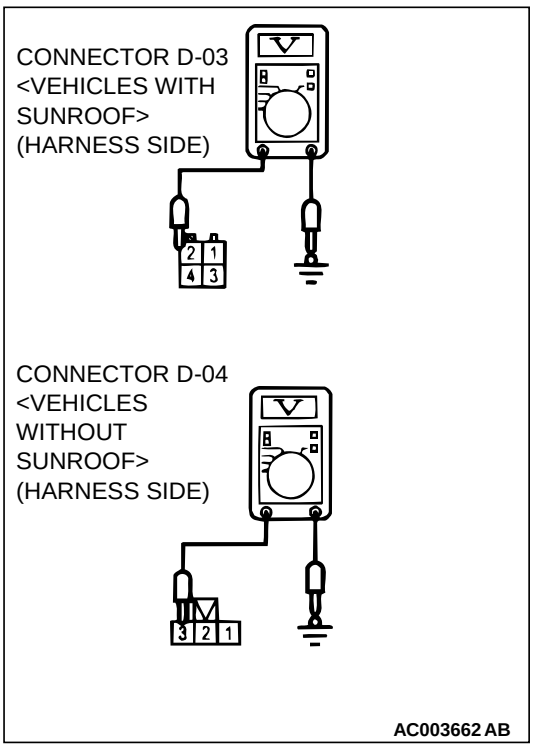


STEP 5. Check the dome light power supply circuit at the dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof>.

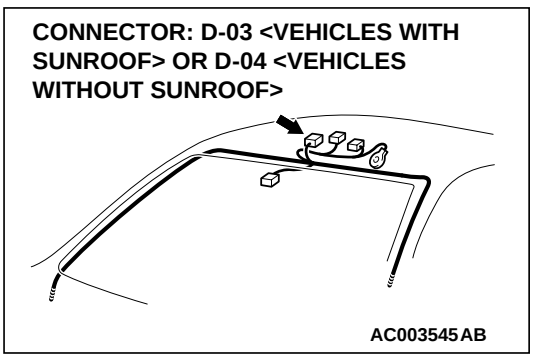
(1) Disconnect the dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and measure at the harness side.

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

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

YES : Replace the dome light. The dome light should illuminate.

NO : Go to Step 6.



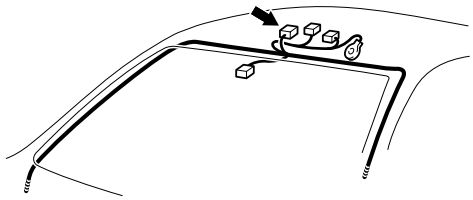
STEP 6. Check dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> for damage.

Q: Is dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> in good condition?

YES : Go to Step 7.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The dome light should illuminate.

CONNECTOR: D-03 <VEHICLES WITH SUNROOF> OR D-04 <VEHICLES WITHOUT SUNROOF>



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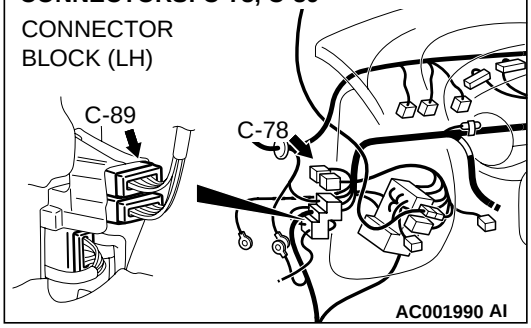
CONNECTORS: C-78, C-89

CONNECTOR BLOCK (LH)



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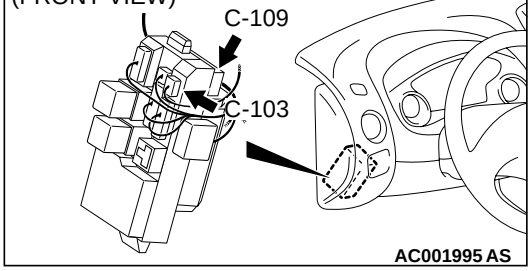
CONNECTORS: C-103, C-109

JUNCTION BLOCK (FRONT VIEW)



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STEP 7. Check the harness wires between dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and battery.

NOTE: After checking intermediate connectors C-103 and C-109, junction block connectors C-78 and intermediate connector C-89, check the wires. If junction block connectors C-103 and C-109 and junction block connectors C-78 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between dome light connector D-03 <vehicles with sunroof> or D-04 <vehicles without sunroof> and battery in good condition?

YES : There is no action to be taken.

NO : Repair them. The dome light should illuminate.

Inspection Procedure M-2: Dome light: Dome light dimming function does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU dims the dome light according to the input signals from the following switches:

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Driver's door lock actuator switch

If the dome light does not be dimmed normally, the relevant input signal circuit 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

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the ETACS-ECU power supply circuit.
Do all of the following functions work when the ignition switch is turned to the "LOCK" (OFF) position?
- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Central door locking system
- Ignition key hole illumination light
- Hazard warning light
- Theft-alarm system

Q: Do any of the functions work?

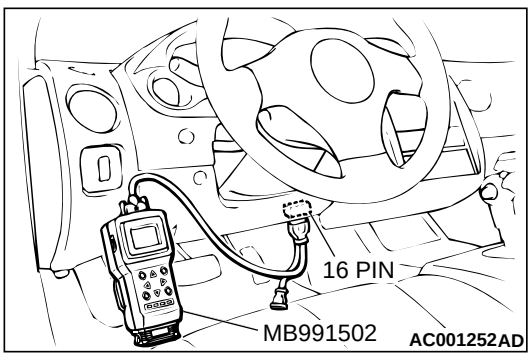
YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Check the ETACS-ECU battery circuit. Refer to Inspection Procedure P-1 (P.54B-283).

STEP 2. Check the input signal (by using scan tool MB991502).
Check the input signals from the following switches:
- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Driver'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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The dome light dimming function should work normally.

NO : Check the relevant input signal circuit. Refer toP.54B-9.

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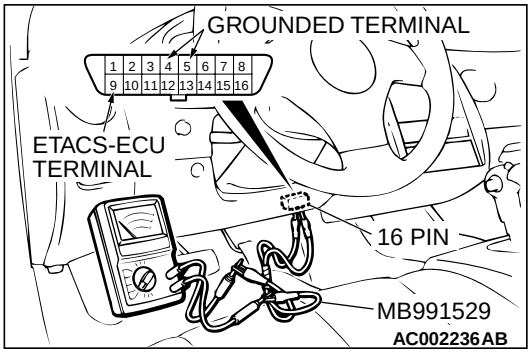


STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Ignition switch (IG1)
- Key reminder switch
- Driver's and passenger's door switch
- Driver's door lock actuator switch

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.

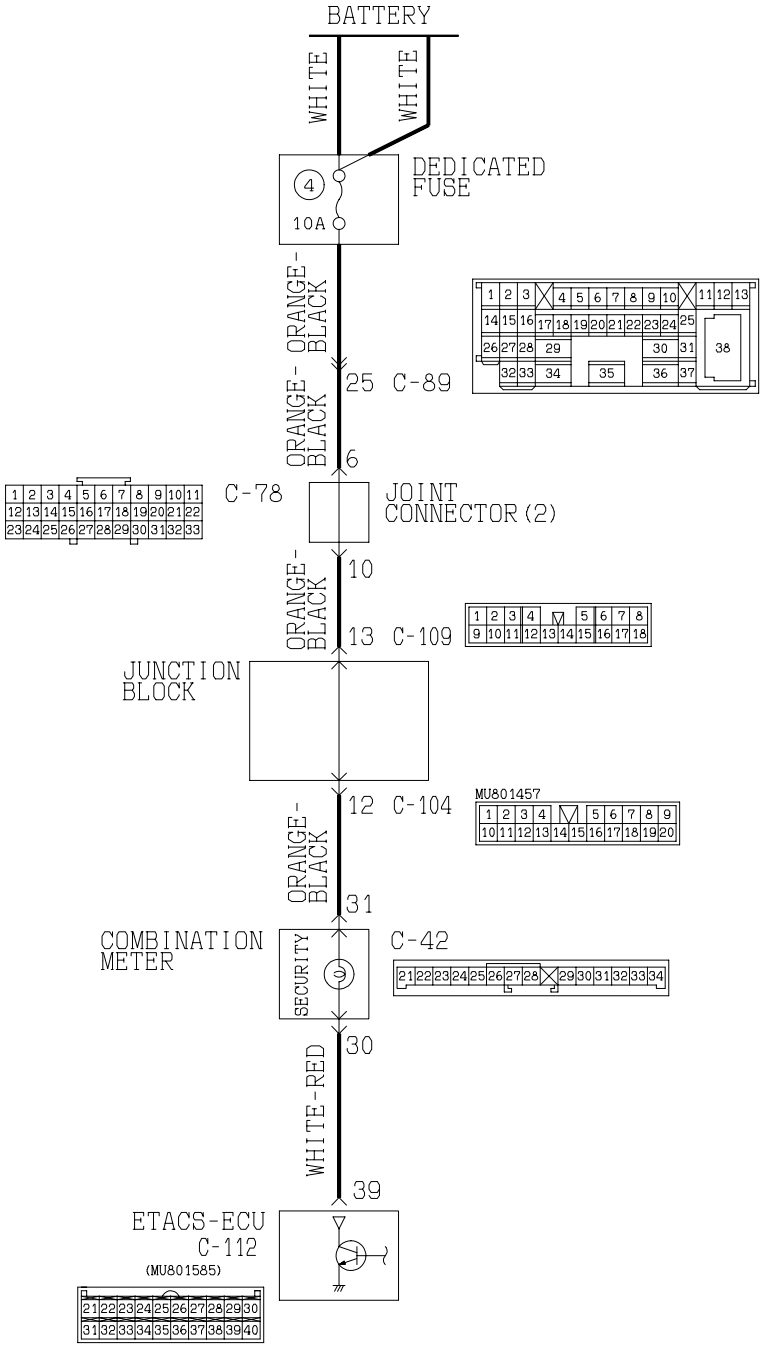
Q: Does the voltmeter indicator deflect?

YES : Replace the ETACS-ECU. The dome light dimming function should work normally.

NO : Check the relevant input signal circuit. Refer to P.54B-9.

Inspection Procedure N-1: Theft-alarm system: Theft-alarm system is not armed (security indicator light does not illuminate).

"SECURITY" Indicator Light Circuit



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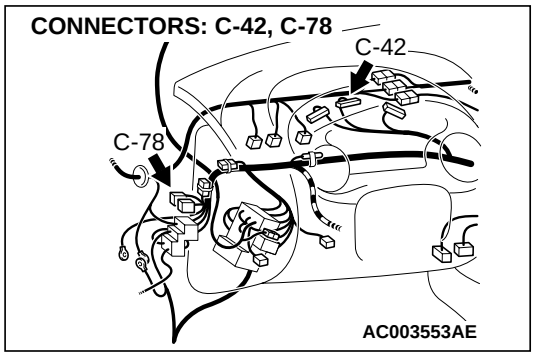

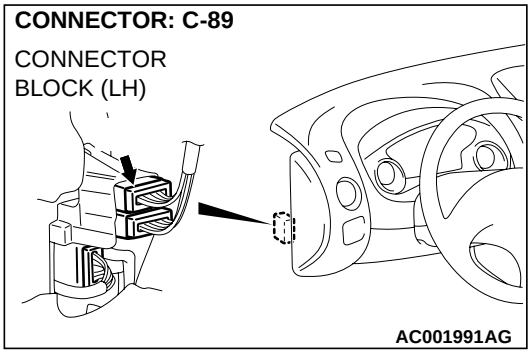

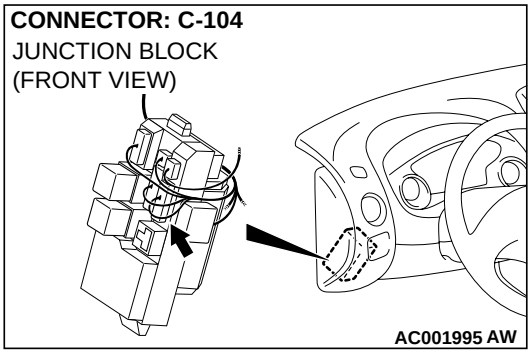

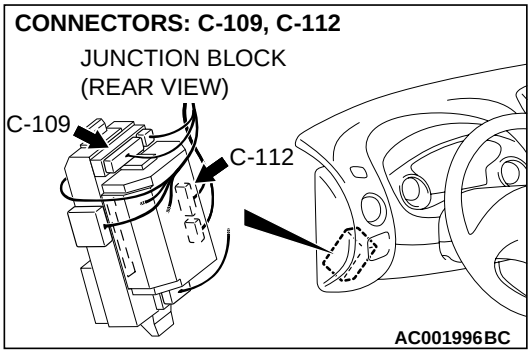

CIRCUIT OPERATION

The theft-alarm system will be armed after the doors are locked and then the security indicator light has illuminated for approximately 18 seconds.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU arms the theft-alarm system according to the input signals from the following switches:

- Ignition key reminder switch
- Driver's and passenger's door switch
- Door switches
- Driver's and passenger's door key cylinder switch
- Driver's and front passenger's door lock actuator switch
- Trunk lid latch switch
- Trunk lid lock key cylinder switch
- Transmitter

If the theft-alarm system is armed normally, the relevant input signal circuit(s), the theft-alarm indicator light or the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the combination meter (security indicator light bulb or printed-circuit board)
- Malfunction of the ignition key reminder switch
- Malfunction of the driver's or passenger's door switch
- Malfunction of the door switches
- Malfunction of the driver's or passenger's door lock key cylinder switch
- Malfunction of the driver's or passenger's door lock actuator switch
- Malfunction of the trunk lid latch switch
- Malfunction of the trunk lid lock key cylinder 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)
- MB991529: Diagnostic Trouble Code Check Harness

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STEP 1. Check the ETACS-ECU power supply circuit.

Do all of the following functions work when the ignition switch is turned to the "LOCK" (OFF) position?

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Central door locking system
- Hazard warning light
- Interior light dimming function

Q: Do any of the functions work?

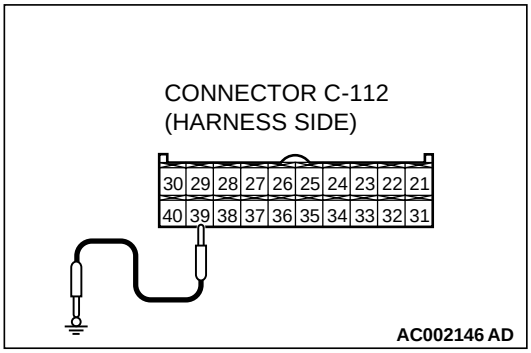
YES : Go to Step 2.

NO : Check the ETACS-ECU battery circuit. Refer to Inspection Procedure P-1 (P.54B-283).

STEP 2. Check the security indicator circuit at the ETACS-ECU connector C-112.

(1) Disconnect the ETACS-ECU connector C-112 and measure at the harness side.

(2) Connect terminal 39 to the ground.



Q: Does the security indicator light illuminate?

YES : Go to Step 9 <when using scan tool MB991502> or 10 <when using a voltmeter>.

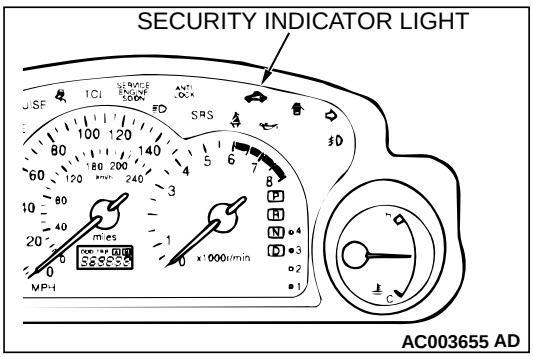
NO : Go to Step 3.

STEP 3. Check the security indicator light bulb.

Q: Is the security indicator light bulb in good condition?

YES : Go to Step 4.

NO : Replace it. The security indicator light should illuminate, and the theft-alarm system should be armed normally.



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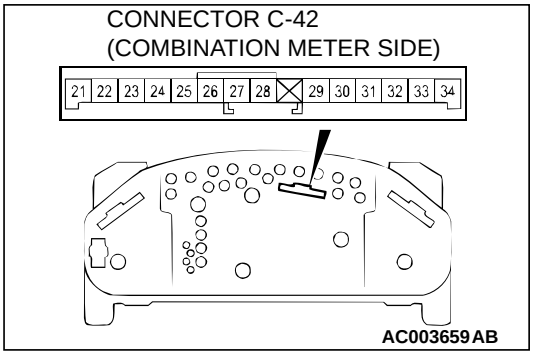
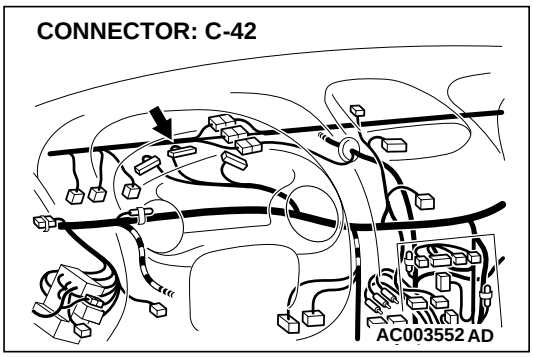


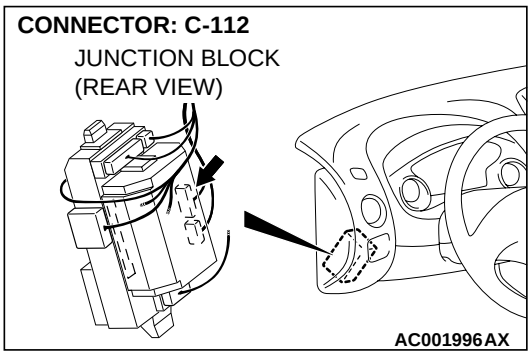
STEP 4. Check the combination meter (printed-circuit board).

(1) Remove the combination meter.
(2) Remove the seat belt warning light bulb. The measure the resistance between the bulb terminals.
(3) Install the bulb to the combination meter, and then measure the resistance between connector C-42 terminal 30 and 31. The resistance reading at this time should be muck the same as the resistance measured at Step (2).

Q: Are the two resistance values extremely different each other?

YES : Repair or replace the combination meter (printed-circuit board). The security indicator light should illuminate, and the theft-alarm system should be armed normally.
NO : Go to Step 5.





STEP 5. Check combination meter connector C-42 and ETACS-ECU connector C-112 for damage.

Q: Are combination meter connector C-42 and ETACS-ECU connector C-112 in good condition?

YES : Go to Step 9.
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The security indicator light should illuminate, and the theft-alarm system should be armed normally.

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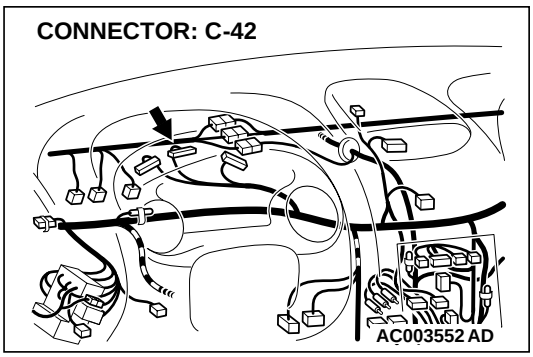
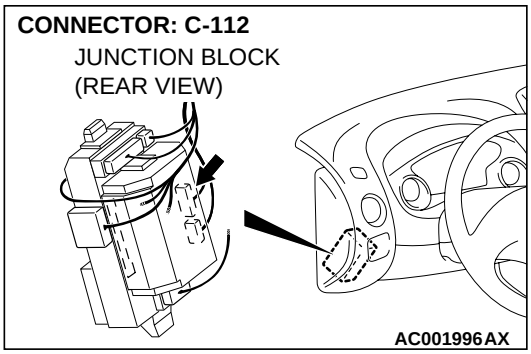


STEP 6. Check the harness wire between combination meter connector C-42 and ETACS-ECU connector C-112.

Q: Is the harness wire between combination meter connector C-42 and ETACS-ECU connector C-112 in good condition?

YES : Go to step 7.

NO : Repair it. The security indicator light should illuminate, and the theft-alarm system should be armed normally.

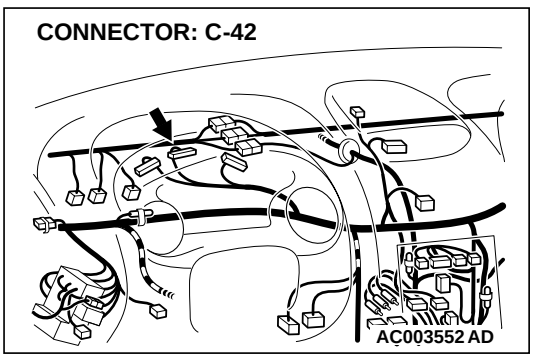


STEP 7. Check combination meter connector C-42 damage.

Q: Are combination meter connector C-42 in good condition?

YES : Go to Step 8.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The security indicator light should illuminate, and the theft-alarm system should be armed normally.



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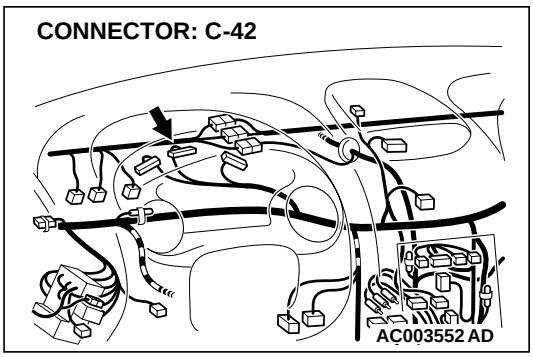
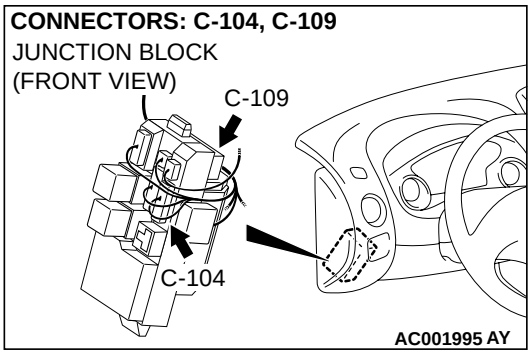
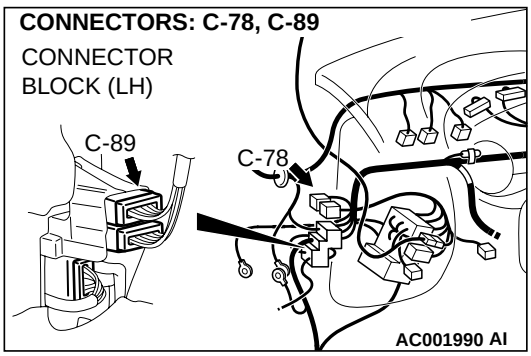






STEP 8. Check the harness wires between combination meter connector C-42 and battery.

NOTE: After checking junction block connectors C-104 and C-109, joint connector C-78 and intermediate connector C-89, check the wires. If junction block connectors C-104 and C-109, joint connector C-78 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between combination meter connector C-42 and battery in good condition?

YES : There is no action to be taken.

NO : Repair or replace them. The security indicator light should illuminate, and the theft-alarm system should be armed normally.

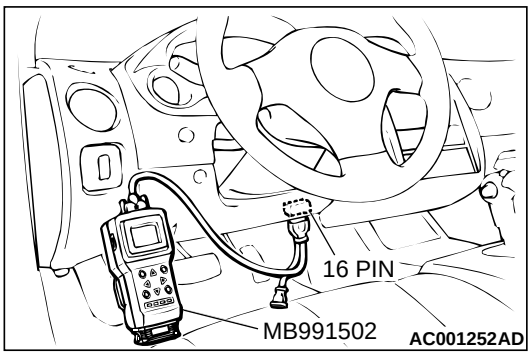
STEP 9. Check the input signal (by using scan tool MB991502).

Check the input signals from the following switches:

- Ignition key reminder switch
- Driver's and passenger's door switch
- Door switches
- Driver's and passenger's door key cylinder switch
- Driver's and front passenger's door lock actuator switch
- Trunk lid latch switch
- Trunk lid lock key cylinder switch
- 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.

Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

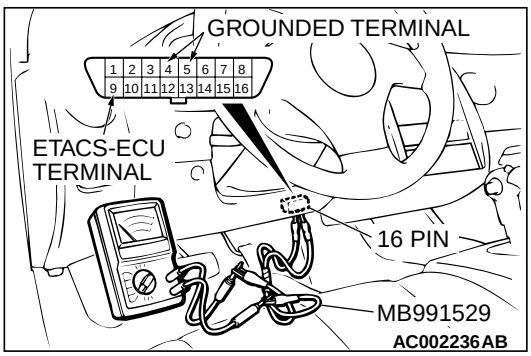
YES : Replace the ETACS-ECU. The security indicator light should illuminate, and the theft-alarm system should be armed normally.

NO : Check the relevant input signal circuit. Refer to P.54B-9.

STEP 10. Check the input signal (by using a voltmeter).

Check the input signals from the following switches:

- Ignition key reminder switch
- Driver's and passenger's door switch
- Door switches
- Driver's and passenger's door key cylinder switch
- Driver's and front passenger's door lock actuator switch
- Trunk lid latch switch
- Trunk lid lock key cylinder switch
- Transmitter



(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.
(2) Check that the voltmeter indicator deflects once when the input signal enters.

Q: Does the voltmeter indicator deflect?

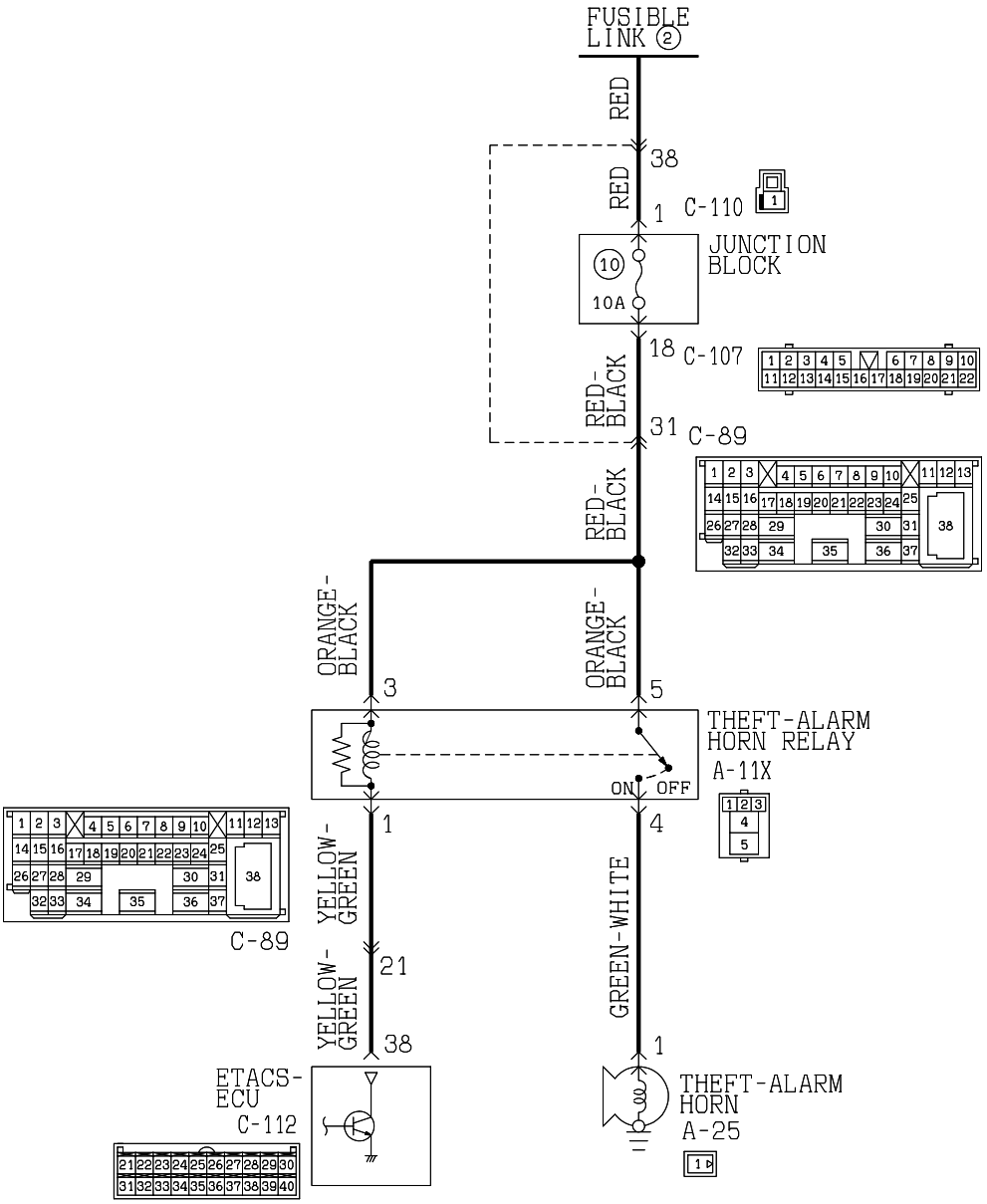
YES : Replace the ETACS-ECU. The security indicator light should illuminate, and the theft-alarm system should be armed normally.

NO : Check the relevant input signal circuit. Refer to P.54B-9.

TSB Revision

Inspection Procedure N-2: Theft-alarm system: Horn does not sound when the theft-alarm is triggered.

Theft-alarm Horn Circuit



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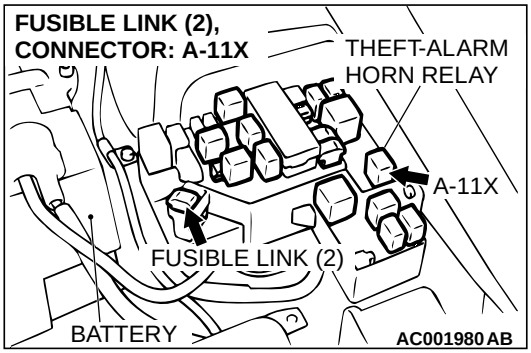
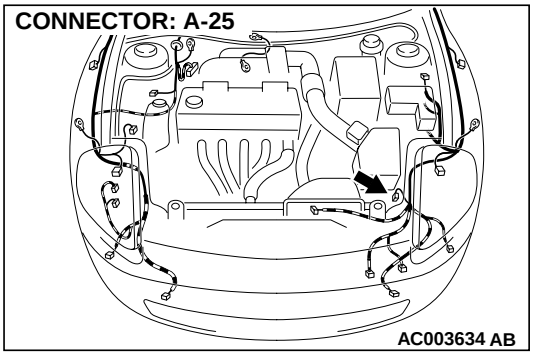
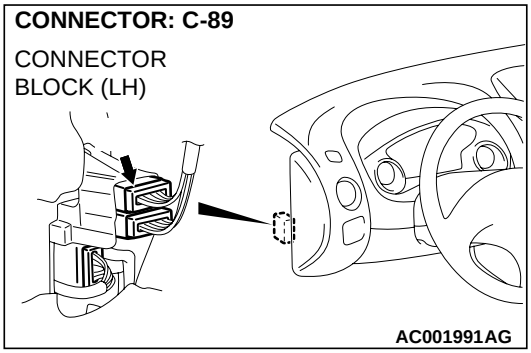
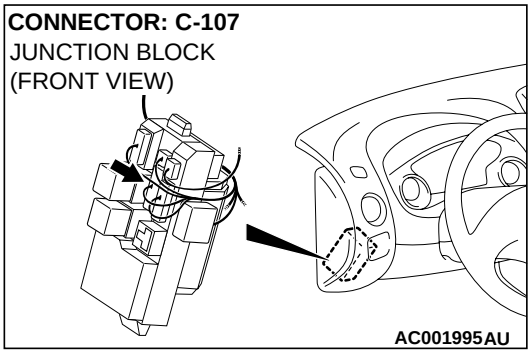
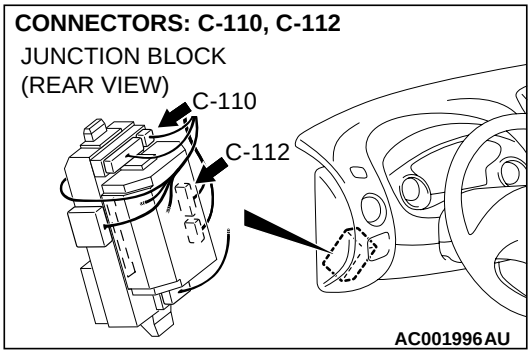
TSB Revision











CIRCUIT OPERATION

The ETACS-ECU will sound the theft-alarm horn and horn if the theft-alarm system or the keyless entry system answerback is triggered.

TECHNICAL DESCRIPTION (COMMENT)

The theft-alarm horn is shared by the keyless entry system. If the theft-alarm horn sounds normally through the keyless entry system answerback, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the theft-alarm horn
- Malfunction of the theft-alarm horn relay
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

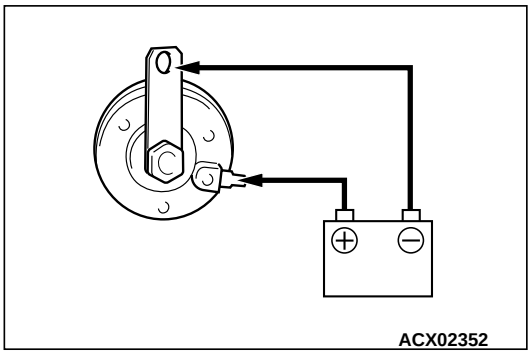
TSB Revision

STEP 1. Check the keyless entry system horn answerback.
Activate the keyless entry system horn answerback. (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Enabling/disabling the Answerback Function P.42-101.)

Q: Does the horn answerback function work?

YES : Replace the ETACS-ECU. The horn should sound when the theft-alarm system is triggered.
NO : Go to Step 2.

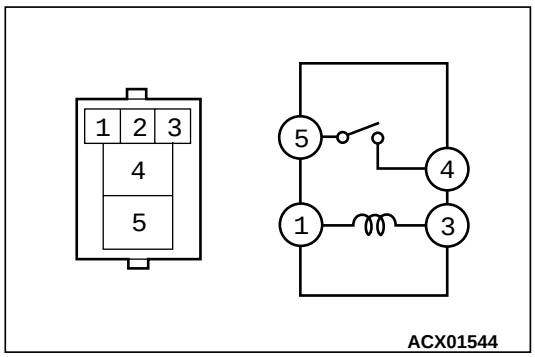
STEP 2. Check the theft-alarm horn.
Connect the battery as shown and check that the theft-alarm horn sounds.



Q: Is the theft-alarm horn in good condition?

YES : Go to Step 3.
NO : Replace it. The horn should sound when the theft-alarm system is triggered.

STEP 3. Check the theft-alarm horn relay.

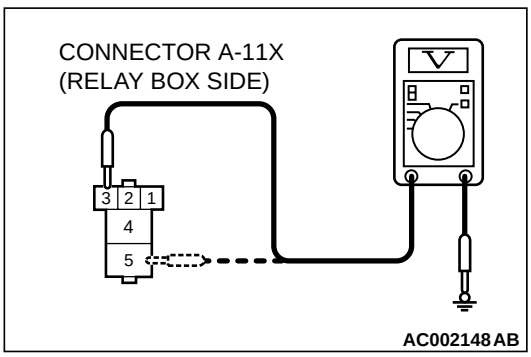


BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 3	Continuity
1 – Battery (–) terminal, 3 – Battery (+) terminal	4 – 5	Continuity

Q: Is the theft-alarm horn relay in good condition?

YES : Go to Step 4.
NO : Replace it. The horn should sound when the theft-alarm system is triggered.

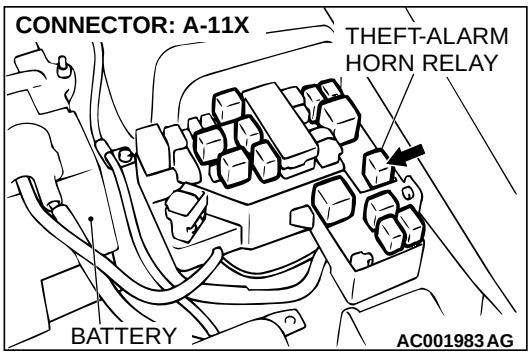
STEP 4. Check the theft-alarm horn relay power supply circuit at the theft-alarm horn relay connector A-11X.
(1) Disconnect the theft-alarm horn relay connector A-11X and measure at the relay box side.
(2) Measure the voltages between terminals 3, 5 and ground.



Q: Are the voltages approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.
NO : Go to Step 5.

TSB Revision

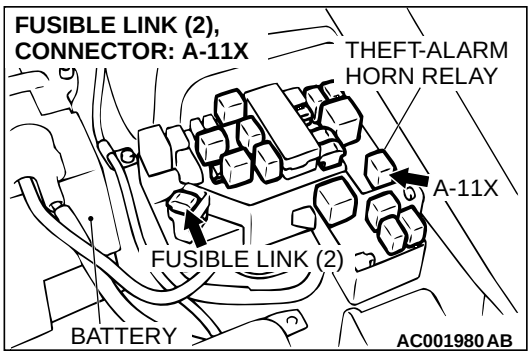


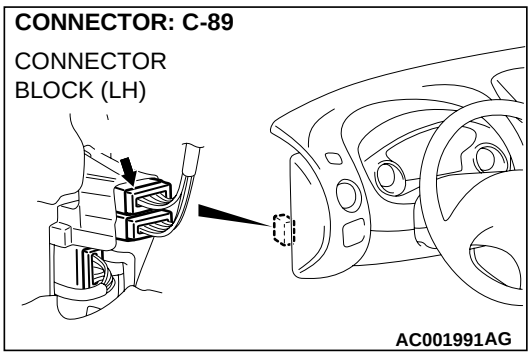
STEP 5. Check the theft-alarm horn relay connector A-11X for damage.

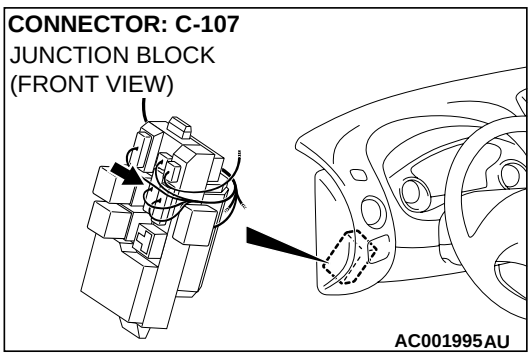
Q: Is theft-alarm horn relay connector A-11X in good condition?

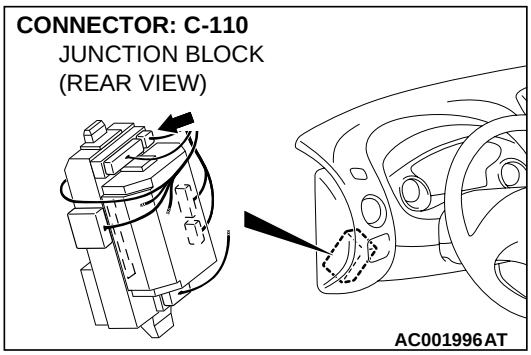
YES : Go to Step 6.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The horn should sound when the theft-alarm system is triggered.









STEP 6. Check the harness wires between theft-alarm horn relay connector A-11X and fusible link (2).

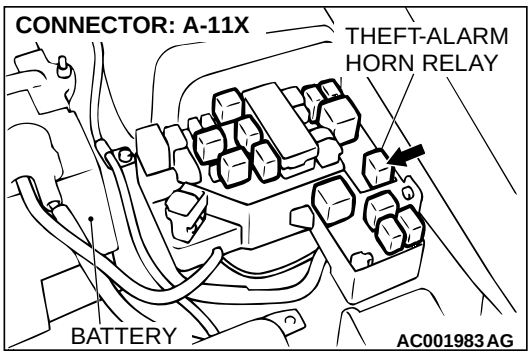
NOTE: After checking intermediate connector C-89 and junction block connector C-107 and C-110, check the wires. If intermediate connector C-89 and junction block connector C-107 and C-110 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

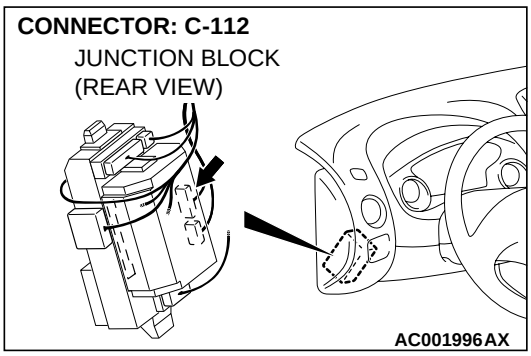
Q: Are the harness wire between theft-alarm horn relay connector A-11X and fusible link (2) in good condition?

YES : There is no action to be taken.

NO : Repair them. The horn should sound when the theft-alarm system is triggered.

TSB Revision





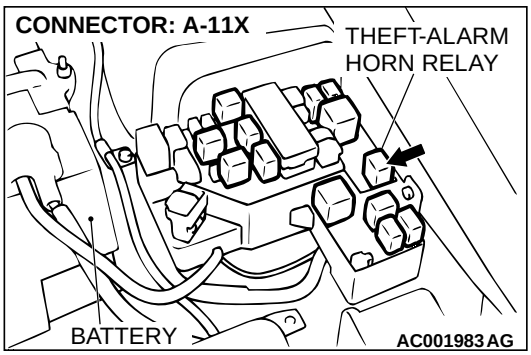
STEP 7. Check the theft-alarm horn relay connector A-11X and ETACS-ECU connector C-112 for damage.

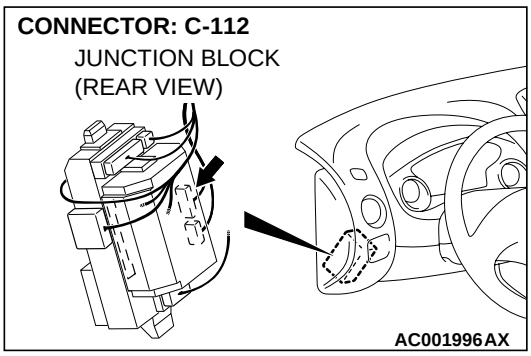
Q: Are theft-alarm horn relay connector A-11X and ETACS-ECU connector C-112 in good condition?

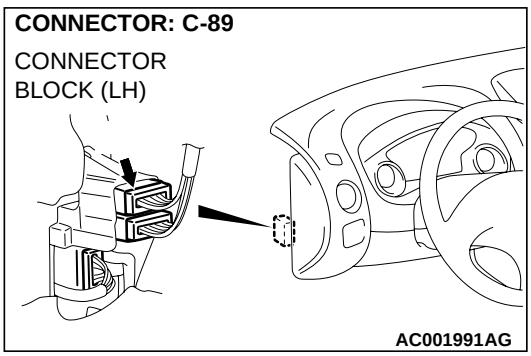
YES : Go to Step 8.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The horn should sound when the theft-alarm system is triggered.

TSB Revision







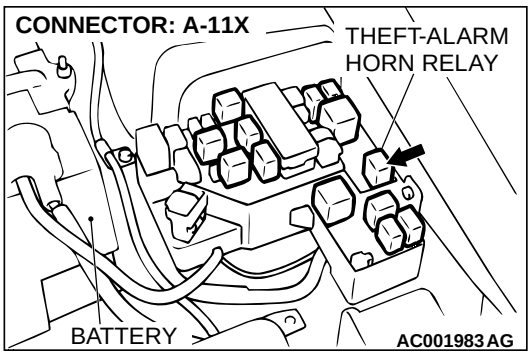
STEP 8. Check the harness wires between theft-alarm horn relay connector A-11X and ETACS-ECU connector C-112.

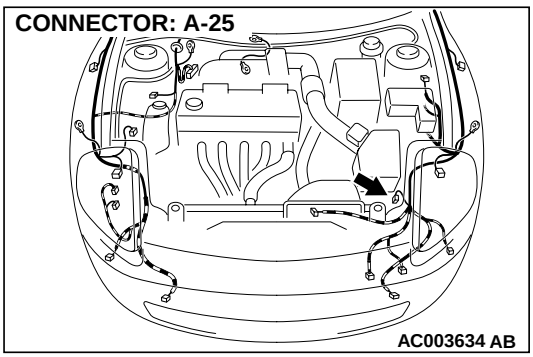
NOTE: After checking intermediate connector C-89, check the wires. If intermediate connector C-89 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between theft-alarm horn relay connector A-11X and ETACS-ECU connector C-112 in good condition?

YES : Go to Step 9.

NO : Repair them. The horn should sound when the theft-alarm system is triggered.



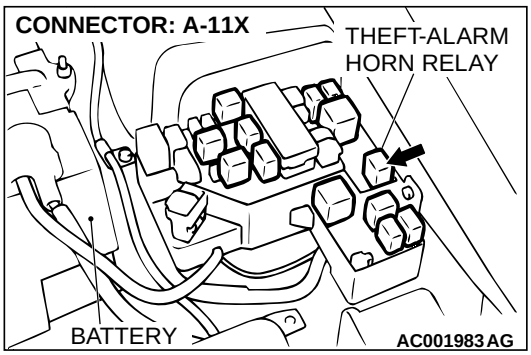


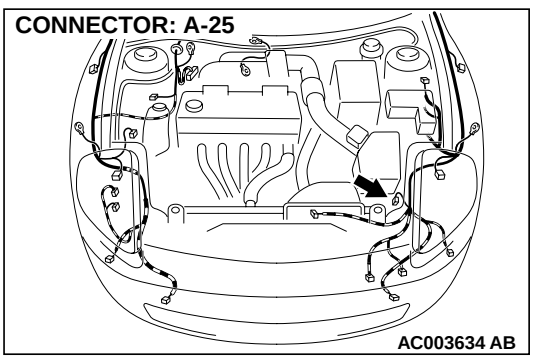
STEP 9. Check the theft-alarm horn relay connector A-11X and theft-alarm horn connector A-25 for damage.

Q: Are theft-alarm horn relay connector A-11X and theft-alarm horn connector A-25 in good condition?

YES : Go to Step 10.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The horn should sound when the theft-alarm system is triggered.





STEP 10. Check the harness wire between theft-alarm horn relay connector A-11X and theft-alarm horn connector A-25.

Q: Is the harness wire between horn relay connector A-11X and theft-alarm horn connector A-04 in good condition?

YES : Go to Step 11.

NO : Repair it. The horn should sound when the theft-alarm system is triggered.

TSB Revision

STEP 11. Check that the theft-alarm horn is installed properly.

NOTE: The theft-alarm horn is grounded to the body through the installation bolts.

Q: Is the theft-alarm horn installation in good condition?

YES : Replace the ETACS-ECU. The horn should sound when the theft-alarm system is triggered.

NO : Repair it. The 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) work 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 (high-beam) illuminate normally?

YES : Go to Step 2.

NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Replacement of ECU

(1) Replace the ETACS-ECU.

(2) The headlights (high-beam) should flash when the theft-alarm system is triggered.

Q: Do the headlights (high-beam) flash normally by the theft-alarm system?

YES : There is no action to be taken.

NO : Replace the front-ECU. The headlights (high-beam) should flash when the theft-alarm system is triggered.

Inspection Procedure N-4: Theft-alarm system: Panic alarm fonction does not work.

TECHNICAL DESCRIPTION (COMMENT)

If the keyless entry system is normal, the ETACS-ECU is defective.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991502: Scan Tool (MUT-II)
- MB991529: Diagnostic Trouble Code Check Harness

STEP 1. Check the keyless entry system.

Q: Does the keyless entry system work normally?

YES : Go to Step 2 <when using scan tool MB991502> or 3 <when using a voltmeter>.

NO : Solve the problem first. Refer to P.54B-9.

STEP 2. Check the input signal (by using scan tool MB991502).

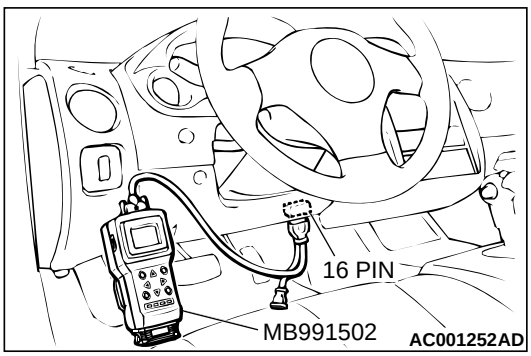
Check the input signals from the transmitter "PANIC" switch.

⚠ 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) Check that the tone alarm of scan tool MB991502 sounds when the input signal enters.



Q: Does the tone alarm of scan tool MB991502 sound when the input signal enters?

YES : Replace the ETACS-ECU. The panic alarm should work normally.

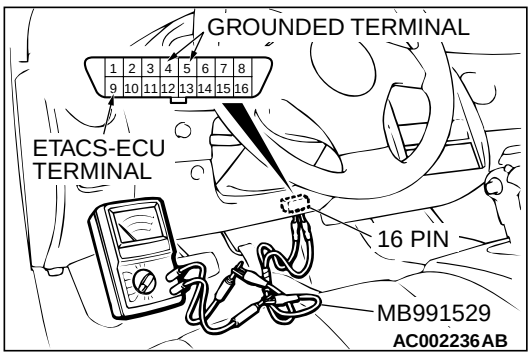
NO : Check the transmitter input signal circuit. Refer to Inspection Procedure O-21 (P.54B-282).

STEP 3. Check the input signal (by using a voltmeter).

Check the input signals from the transmitter "PANIC" switch.

(1) Use special tool MB991529 to connect a voltmeter between ground terminal 4 or 5 and ETACS-ECU terminal 9 of the data link connector.

(2) Check that the voltmeter indicator deflects once when the input signal enters.



Q: Does the voltmeter indicator deflect?

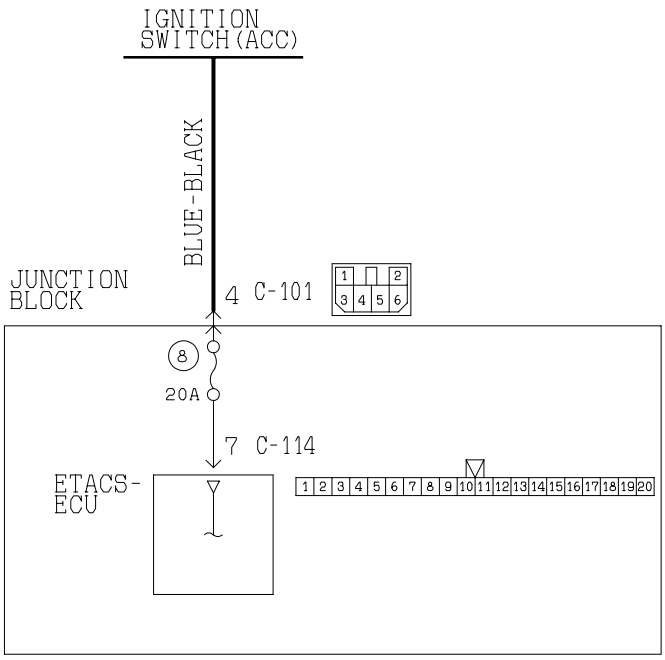
YES : Replace the ETACS-ECU. The panic alarm should work normally.

NO : Check the transmitter input signal circuit. Refer to Inspection Procedure O-21 (P.54B-282).

TSB Revision

Inspection Procedure O-1: The ignition switch (ACC) signal is not sent to the ETACS-ECU.

Ignition Switch (ACC) Input Circuit



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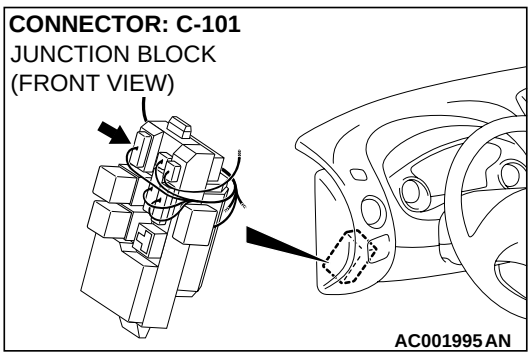
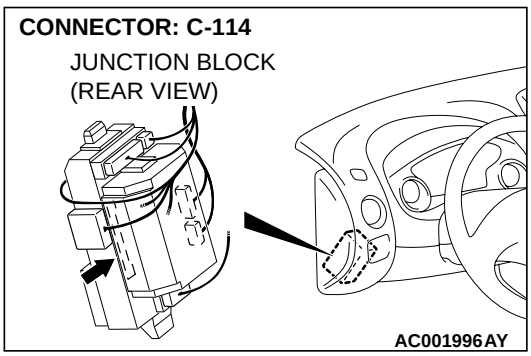
CONNECTOR: C-101
JUNCTION BLOCK
(FRONT VIEW)



AC001995 AN

CONNECTOR: C-114
JUNCTION BLOCK
(REAR VIEW)



AC001996 AY

CIRCUIT OPERATION
The ETACS-ECU operates various functions according to the input signal from the ignition switch (ACC).

TECHNICAL DESCRIPTION (COMMENT)
The ignition switch (ACC) input signal is used to operate the windshield wiper and washer. If the signal fails, windshield wiper and washer will not work normally.

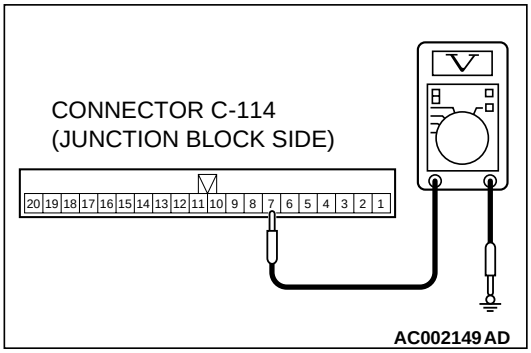
NOTE: The windshield wiper and washer works normally if a normal ignition switch (ACC) signal is sent from the ignition switch directly to the front-ECU.

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

DIAGNOSIS

Required Special Tools:
- MB991223: Test Harness Set

TSB Revision

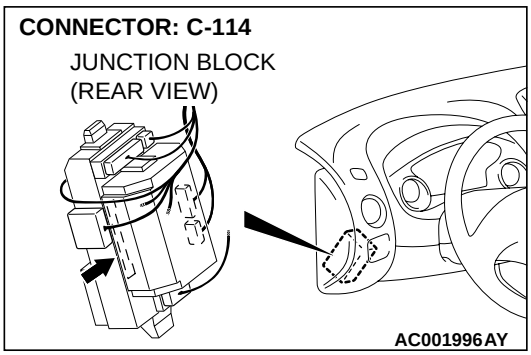


STEP 1. Check the ignition switch (ACC) circuit at the ETACS-ECU connector C-114.

(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.
(2) Turn the ignition switch to the "ACC" position.
(3) Measure the voltage between terminal 7 and ground.

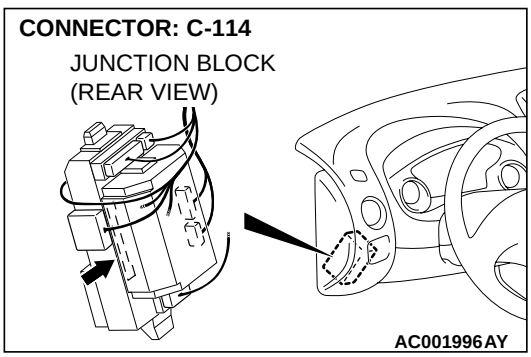
Q: Is the voltage approximately 12 volts (battery positive voltage)?

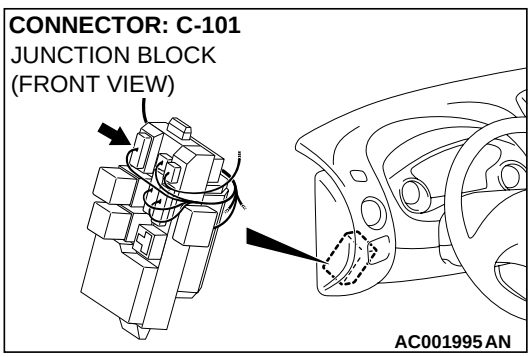
YES : Replace the ETACS-ECU. The ignition switch (ACC) input signal should be able to be checked and the windshield wiper and washer should work normally.
NO : Go to Step 2.



STEP 2. Check ETACS-ECU connector C-114 for damage.
Q: Is ETACS-ECU connector C-114 in good condition?

YES : Go to Step 3.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The ignition switch (ACC) input signal should be able to be checked and the windshield wiper and washer should work normally.





STEP 3. Check the harness wires between ETACS-ECU connector C-114 and ignition switch (ACC).

NOTE: After checking junction block connector C-101, check the wires. If junction block connector C-101 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

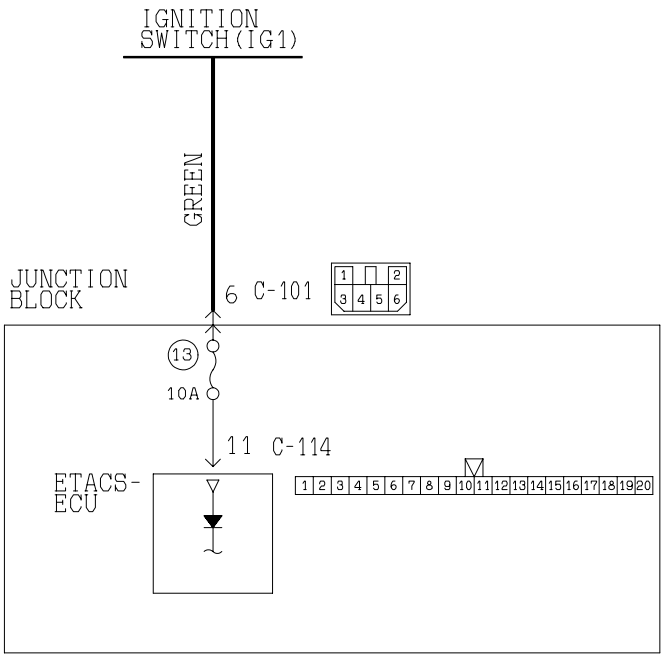
Q: Are the harness wires between ETACS-ECU connector C-114 and ignition switch (ACC) in good condition?

YES : There is no action to be taken.
NO : Repair them. The ignition switch (ACC) input signal should be able to be checked and the windshield wiper and washer should work normally.

TSB Revision

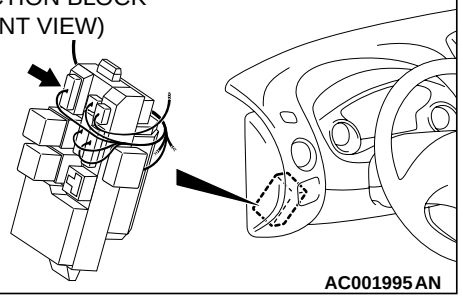
Inspection Procedure O-2: The ignition switch (IG1) signal is not sent to the ETACS-ECU.

Ignition Switch (IG1) Input Circuit



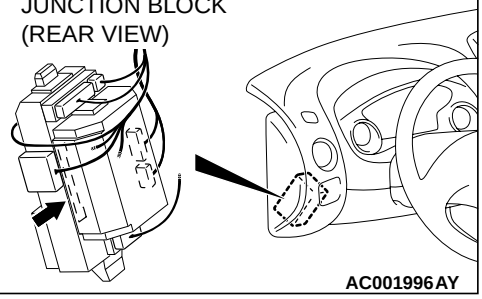
AC003948AB

CONNECTOR: C-101
JUNCTION BLOCK
(FRONT VIEW)



AC001995AN

CONNECTOR: C-114
JUNCTION BLOCK
(REAR VIEW)



AC001996AY

CIRCUIT OPERATION

- The ETACS-ECU operates various functions according to the input signal from the ignition switch (IG1).
- This circuit will work as a backup circuit if the battery circuit to the ETACS-ECU is open circuit.

TECHNICAL DESCRIPTION (COMMENT)

The ignition switch (IG1) input signal is used to operate the following devices or functions:

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Door ajar tone alarm function
- Low washer fluid level tone alarm function
- Seat belt tone alarm function
- Low fuel level tone alarm function
- Rolling lock function
- Power window timer function
- Sunroof timer function
- Low washer fluid level warning light
- Seat belt warning light
- Headlight automatic shutdown function
- Turn-signal light
- Interior light dimming function

If the signal fails, these devices will not work normally.

TROUBLESHOOTING HINTS

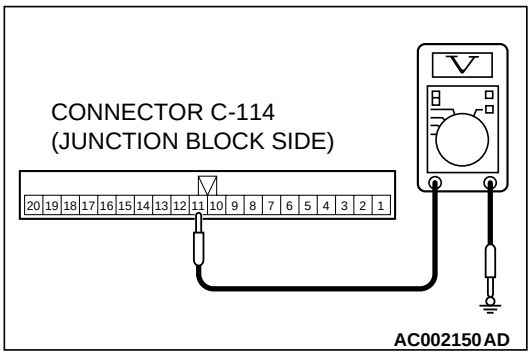
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

TSB Revision



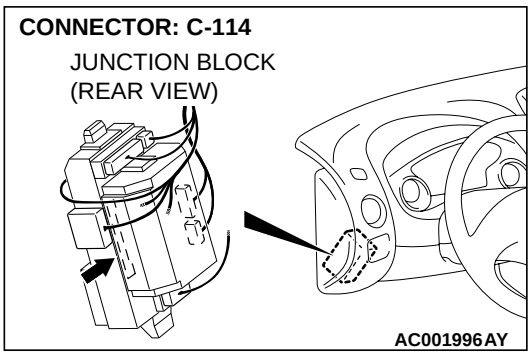
STEP 1. Check the ignition switch (IG1) circuit at the ETACS-ECU connector C-114.

(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 11 and ground.

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

YES : Replace the ETACS-ECU. The ignition switch (IG1) input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Go to Step 2.

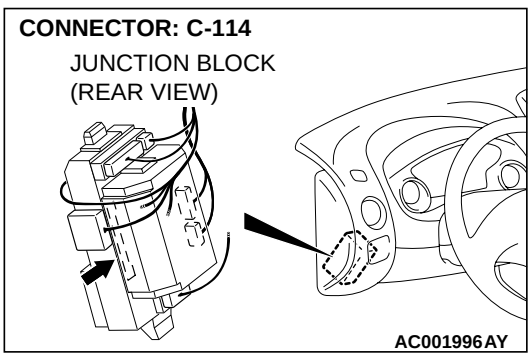


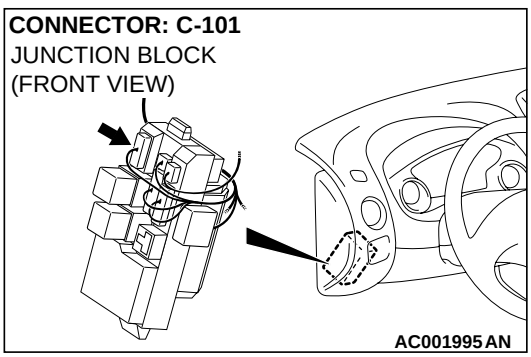
STEP 2. Check ETACS-ECU connector C-114 for damage.

Q: Is ETACS-ECU connector C-114 in good condition?

YES : Go to Step 3.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The ignition switch (IG1) input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





STEP 3. Check the harness wires between ETACS-ECU connector C-114 and ignition switch (IG1).

NOTE: After checking junction block connector C-101, check the wires. If junction block connector C-101 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and ignition switch (IG1) in good condition?

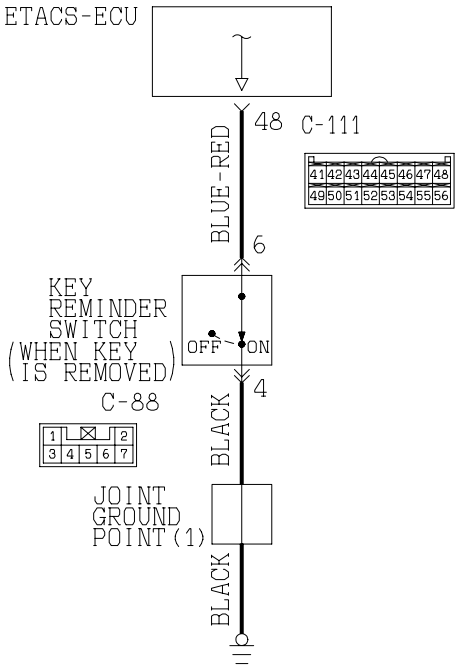
YES : There is no action to be taken.

NO : Repair them. The ignition switch (IG1) input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

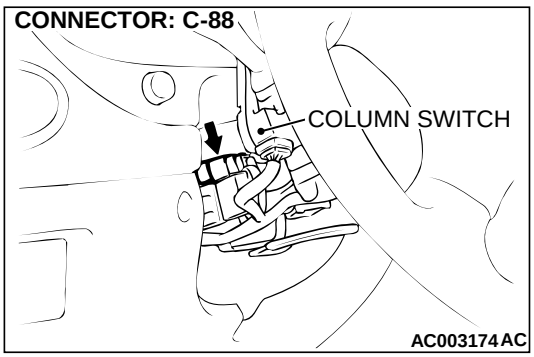
TSB Revision

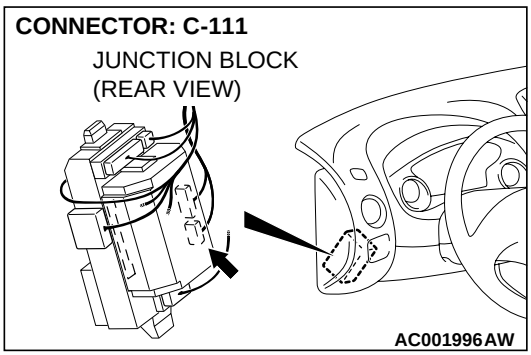
Inspection Procedure O-3: The key reminder switch signal is not sent to the ETACS-ECU.

Key Reminder Switch Input Circuit



AC003949AB





CIRCUIT OPERATION
The ETACS-ECU operates various functions according to the input signal from the key reminder switch.

TECHNICAL DESCRIPTION (COMMENT)
The key reminder switch input signal is used to operate the following functions or system:
- Ignition key reminder tone alarm function
- Forgotten key prevention function
- Keyless entry system
- Interior lights dimming function
- Theft-alarm system

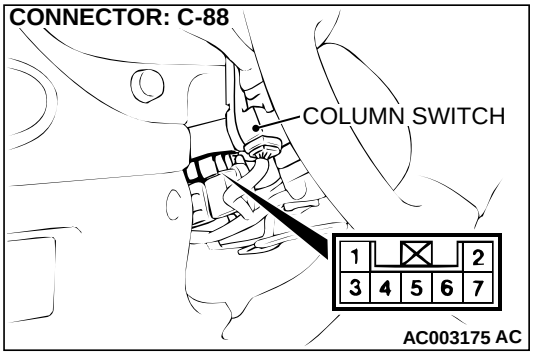
If the signal fails, these functions or system will not work normally.

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

TSB Revision



STEP 1. Check the key reminder switch.

Disconnect key reminder switch connector C-88. Then check the continuity.

IGNITION KEY	TESTER CONNECTION	SPECIFIED CONDITION
Removed	4 – 6	Continuity
Installed	–	No continuity

Q: Is the key reminder switch in good condition?

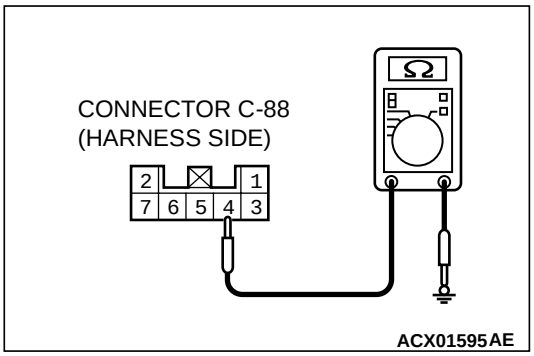
YES : Go to Step 2.

NO : Repair it. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 2. Check the key reminder switch ground circuit at the key reminder switch connector C-88.

(1) Disconnect the key reminder switch connector C-88 and measure at the harness side.

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



Q: Is the resistance less than 2 ohms?

YES : Go to Step 5.

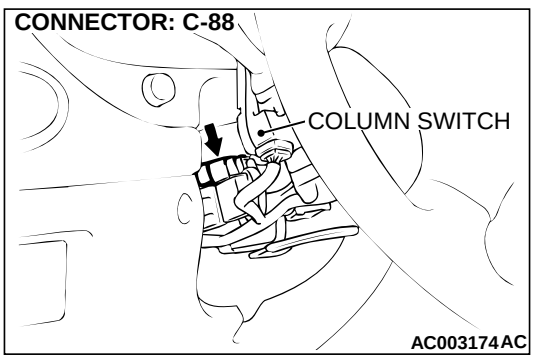
NO : Go to Step 3.

STEP 3. Check key reminder switch connector C-88 for damage.

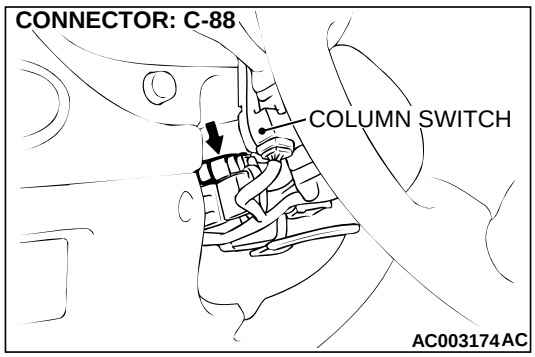
Q: Is key reminder switch connector C-88 in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



TSB Revision

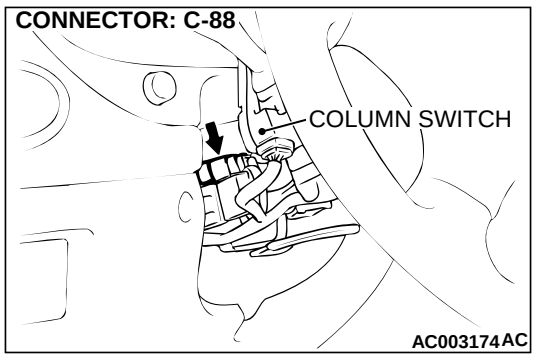


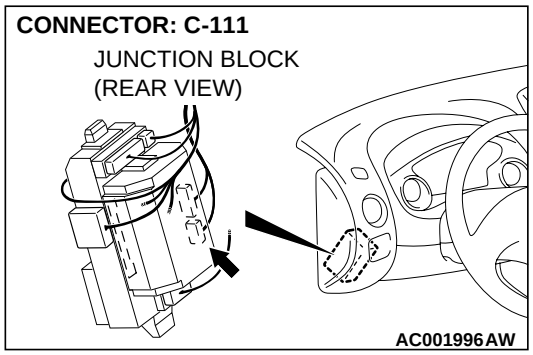
STEP 4. Check the harness wire between key reminder switch connector C-88 and ground.

Q: Is the harness wires between key reminder switch connector C-88 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





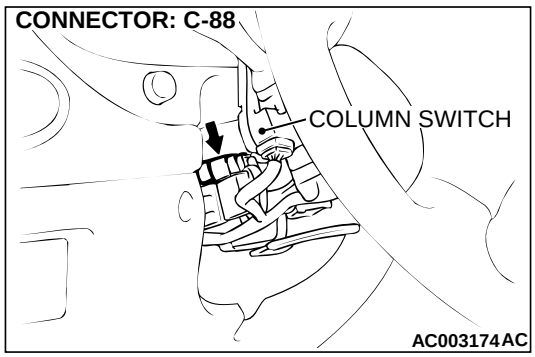
STEP 5. Check key reminder switch connector C-88 and ETACS-ECU connector C-111 for damage.

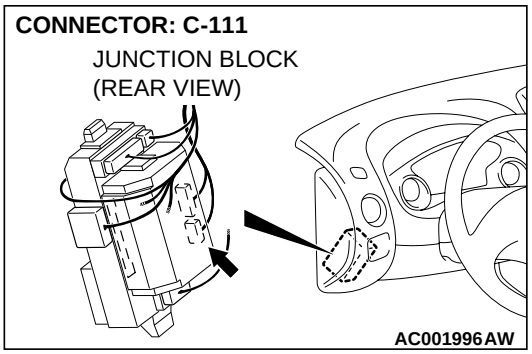
Q: Are key reminder switch connector C-88 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision





STEP 6. Check the harness wire between key reminder switch connector C-88 and ETACS-ECU connector C-111.

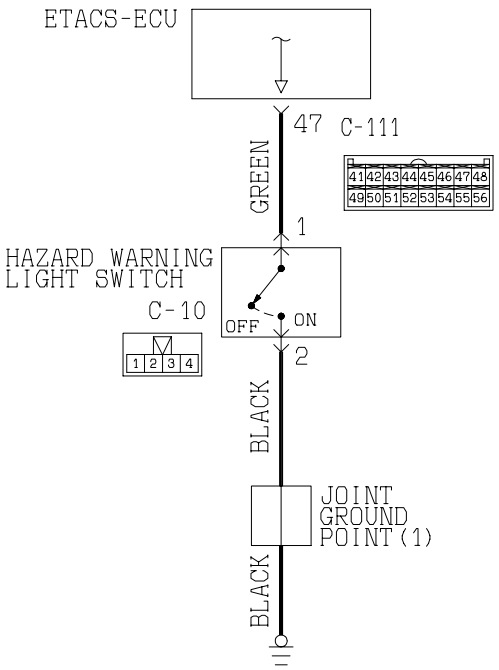
Q: Is the harness wire between key reminder switch connector C-88 and ETACS-ECU connector C-111 in good condition?

YES : Replace the ETACS-ECU. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Repair it. The key reminder switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

Inspection Procedure O-4: The hazard warning light switch signal is not sent to the ETACS-ECU.

Hazard Warning Light Switch Input Circuit



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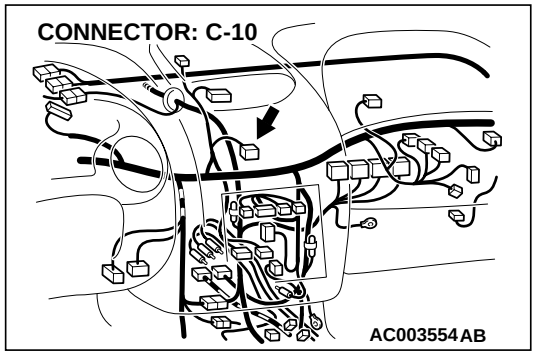
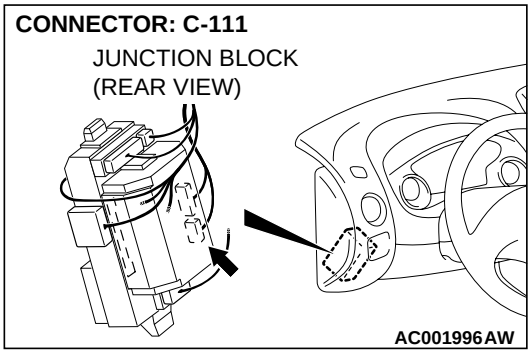
TSB Revision





CIRCUIT OPERATION

The ETACS-ECU operates various functions according to the input signal from the hazard warning light switch.

TECHNICAL DESCRIPTION (COMMENT)

Hazard warning light switch input signal is used to operate the following device or system:

- Hazard warning light
- Keyless entry system (registering the encrypted code)

If the signal fails, these device or system will not work normally.

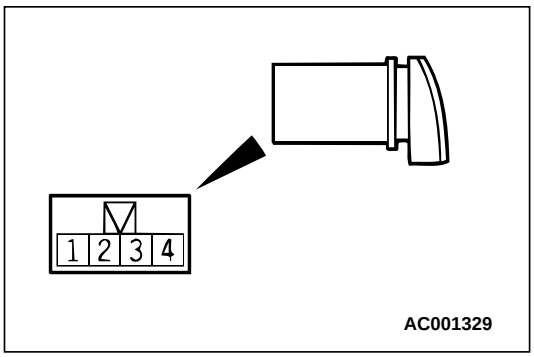
TROUBLESHOOTING HINTS

- 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



STEP 1. Check the hazard warning light switch.

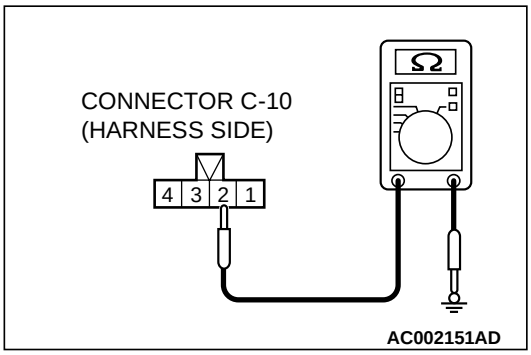
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	–	No continuity
Pressed	1 – 2	Continuity

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

YES : Go to Step 2.

NO : Repair it. The hazard warning light switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

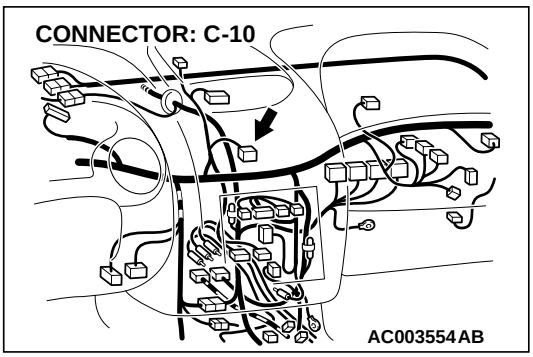


STEP 2. Check the hazard warning light switch ground circuit at the hazard warning light switch connector C-10.

(1) Disconnect the hazard warning light switch connector C-10 and measure at the harness side.
(2) Measure the resistance between terminal 2 and ground.

Q: Is the resistance less than 2 ohms?

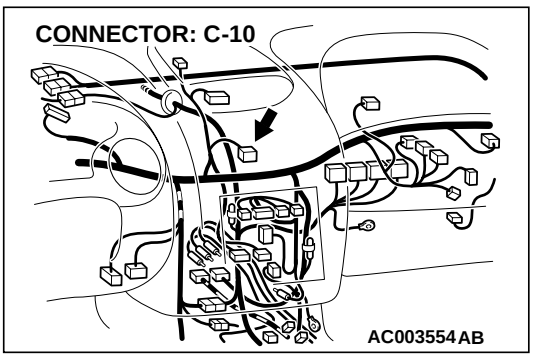
YES : Go to Step 5.
NO : Go to Step 3.



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 it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The hazard warning light switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

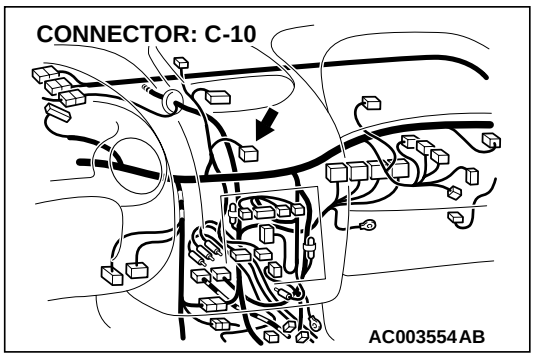


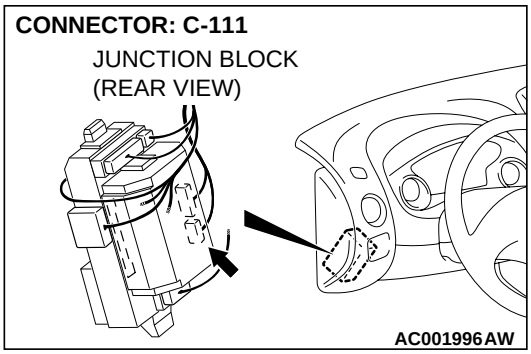
STEP 4. Check the harness wire between hazard warning light switch connector C-10 and ground.

Q: Is the harness wire between hazard warning light switch connector C-10 and ground in good condition?

YES : There is no action to be taken.
NO : Repair it. The hazard warning light switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision



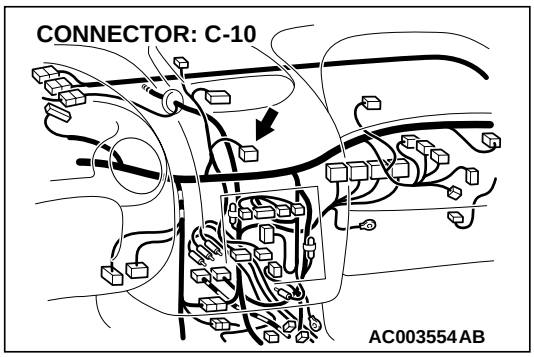


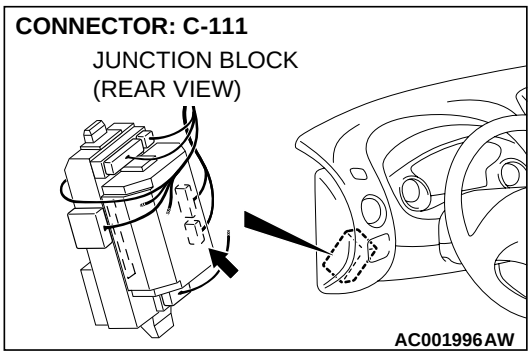
STEP 5. Check the hazard warning light switch connector C-10 and ETACS-ECU connector C-111 for damage.

Q: Are hazard warning light switch connector C-10 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The hazard warning light switch input signal 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 wire between hazard warning light switch connector C-10 and ETACS-ECU connector C-111.

Q: Is the harness wire between hazard warning light switch connector C-10 and ETACS-ECU connector C-111 in good condition?

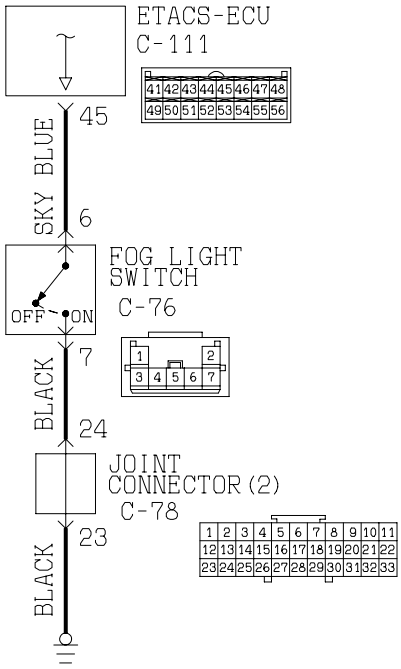
YES : Replace the ETACS-ECU. The hazard warning light switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Repair it. The hazard warning light switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

Inspection Procedure O-5: The fog light switch signal is not sent to the ETACS-ECU.

Fog Light Switch Input Circuit



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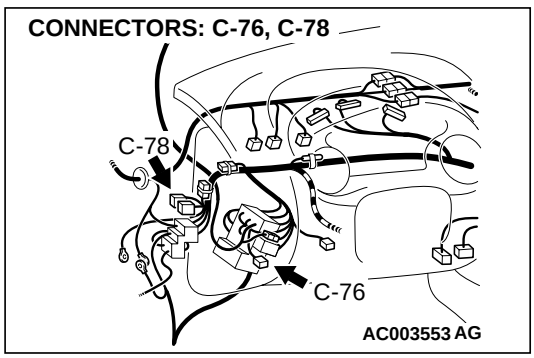
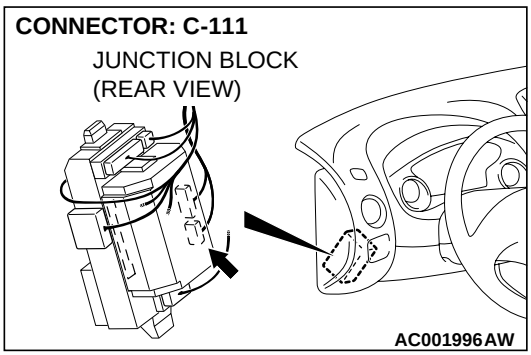




CIRCUIT OPERATION
The ETACS-ECU operates the fog lights according to the input signal from the fog light switch.

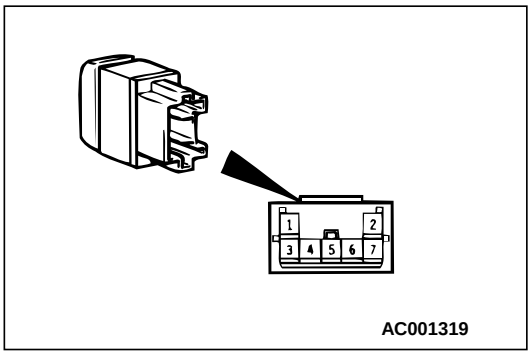
TECHNICAL DESCRIPTION (COMMENT)
The fog lights will not work normally if the fog light switch input signal is an error.

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

TSB Revision



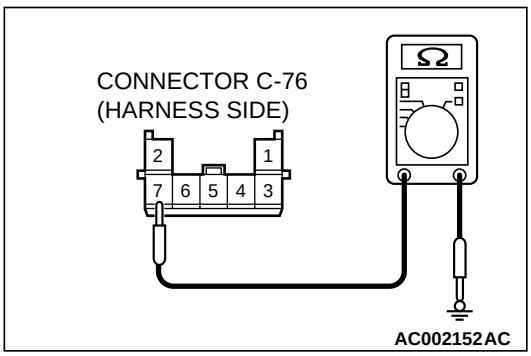
STEP 1. Check the fog light switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	–	No continuity
Pressed	6 – 7	Continuity

Q: Is the fog light switch in good condition?

YES : Go to Step 2.

NO : Repair it. The fog light switch input signal should be able to be checked and the fog lights should work normally.



STEP 2. Check the fog light switch ground circuit at the fog light switch connector C-76.

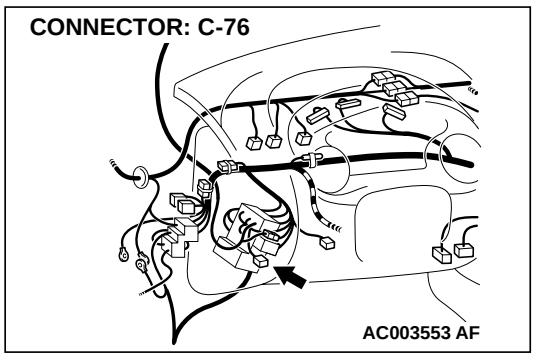
(1) Disconnect the fog light switch connector C-76 and measure at the harness side.

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

Q: Is the resistance less than 2 ohms?

YES : Go to Step 5.

NO : Go to Step 3.



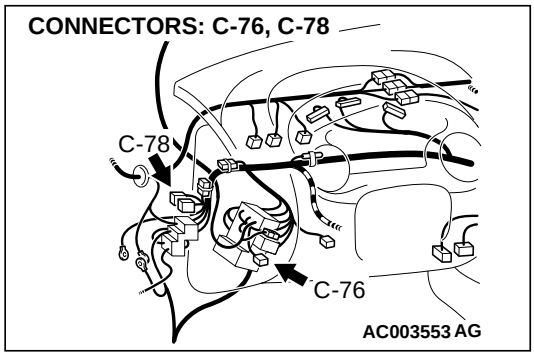
STEP 3. Check fog light switch connector C-76 for damage.

Q: Is fog light switch connector C-76 in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The fog light switch input signal should be able to be checked and the fog light should work normally.

TSB Revision



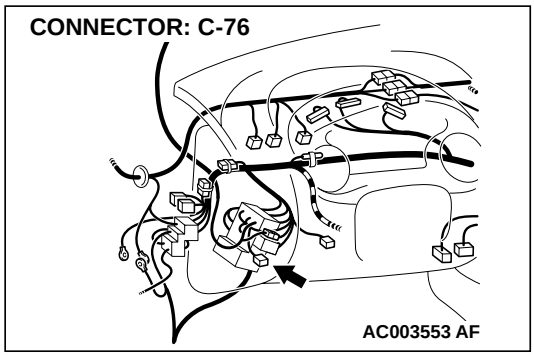
STEP 4. Check the harness wires between fog light switch connector C-76 and ground.

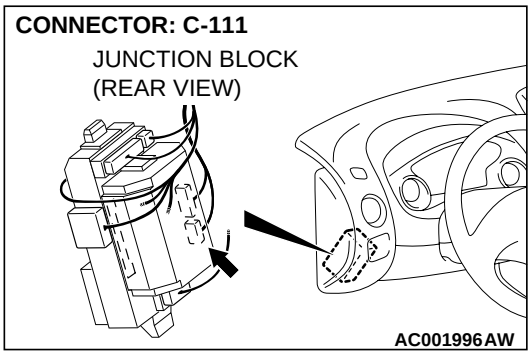
NOTE: After checking joint connector C-78, check the wires. If joint connector C-78 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between fog light switch connector C-76 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The fog light switch input signal should be able to be checked and the fog lights should work normally.



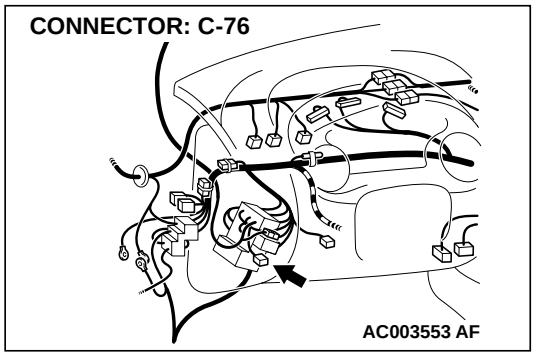


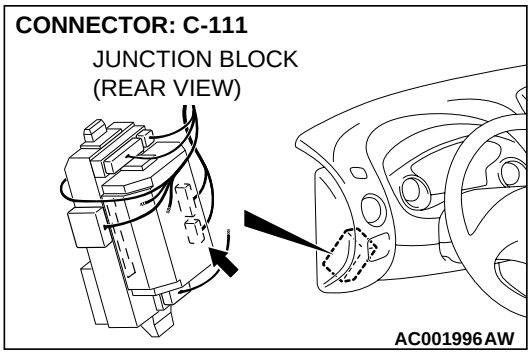
STEP 5. Check fog light switch connector C-76 and ETACS-ECU connector C-111 for damage.

Q: Are fog light switch connector C-76 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The fog light switch input signal should be able to be checked and the fog lights should work normally.





STEP 6. Check the harness wire between fog light switch connector C-76 and ETACS-ECU connector C-111.

Q: Is the harness wire between fog light switch connector C-76 and ETACS-ECU connector C-111 in good condition?

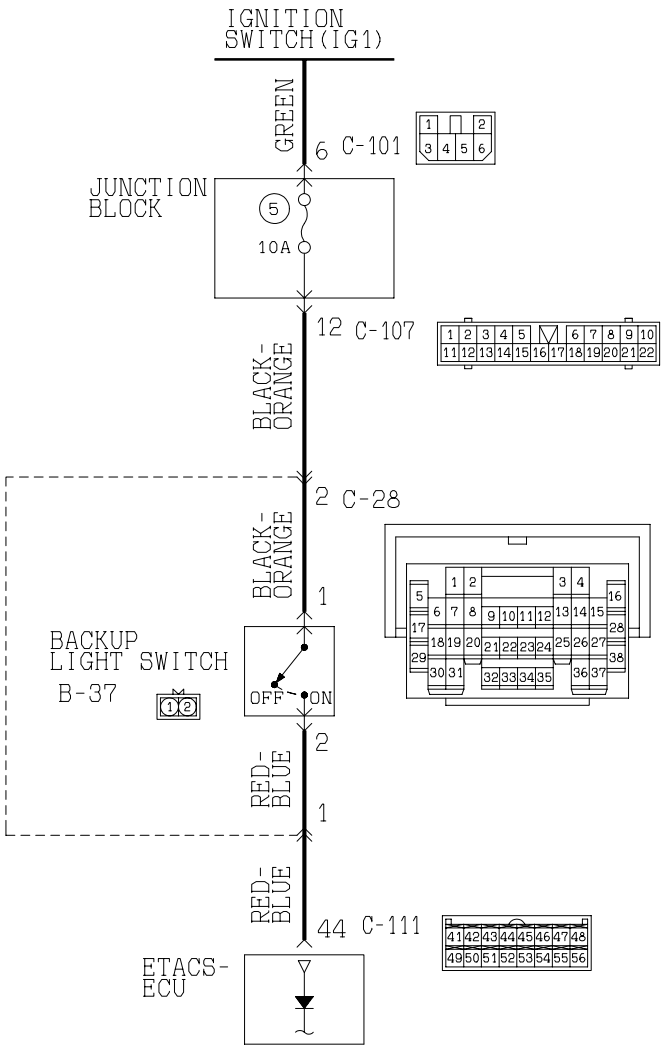
YES : Replace the ETACS-ECU. The fog light switch input signal should be able to be checked and the fog lights should work normally.

NO : Repair it. The fog light switch input signal should be able to be checked and the fog lights should work normally.

TSB Revision

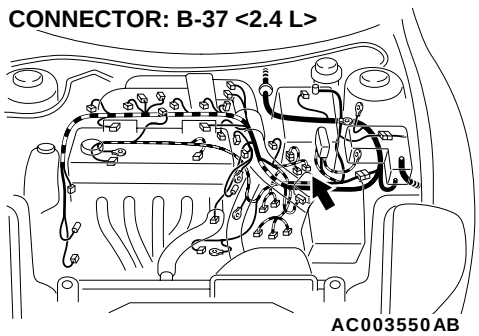
Inspection Procedure O-6: The backup light switch signal is not sent to the ETACS-ECU. <M/T>

Backup Light Switch Input Circuit



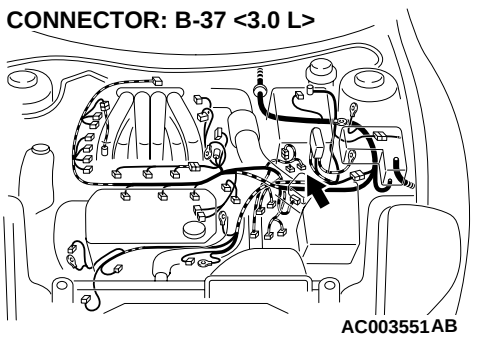
AC003952 AB

CONNECTOR: B-37 <2.4 L>



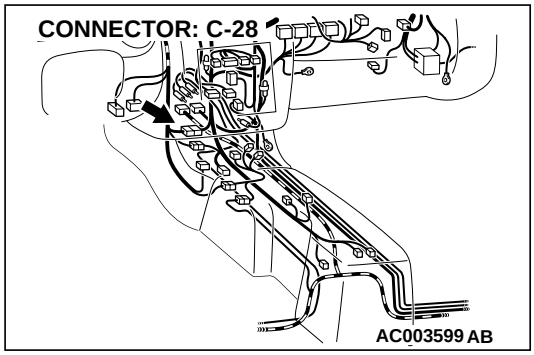
AC003550 AB

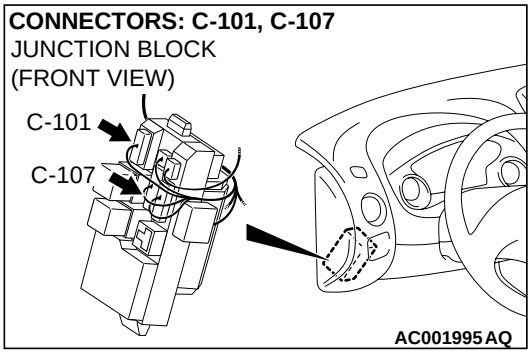
CONNECTOR: B-37 <3.0 L>

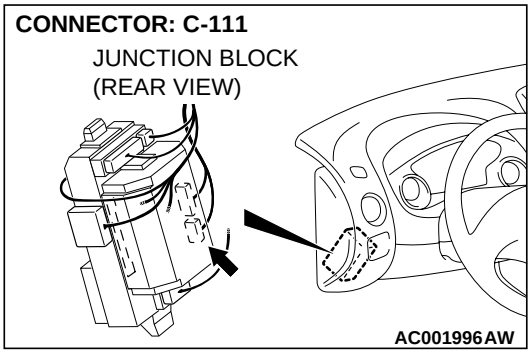


AC003551 AB

TSB Revision







CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to the input signal from the fog light switch.

TECHNICAL DESCRIPTION (COMMENT)

The backup light switch input signal is used to operate the rear wiper. If the signal is an error, the rear wiper will not operate consecutively twice when the rear wiper is on and the shift lever is moved to "R" position.

TROUBLESHOOTING HINTS

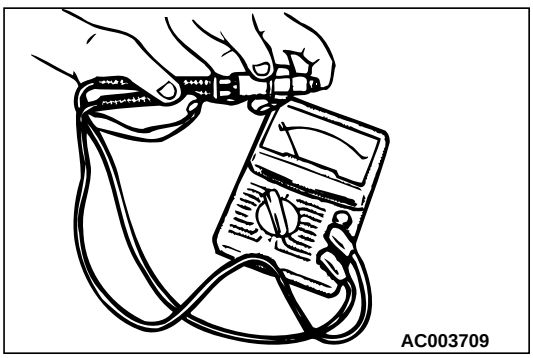
- Malfunction of the backup light switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

STEP 1. Check the backup light switch.



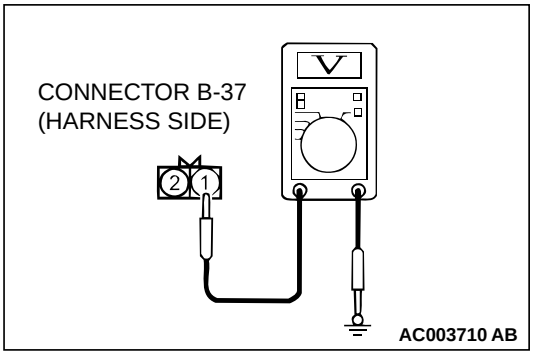
SWITCH POSITION	CONTINUITY
Pressed	Less than 2 ohms
Released	Open loop

Q: Is the backup light switch in good condition?

YES : Go to Step 2.

NO : Repair it. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

TSB Revision

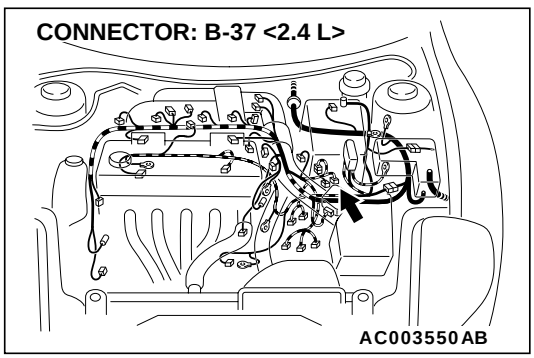


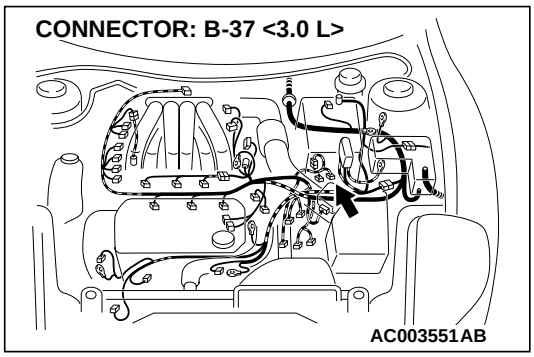
STEP 2. Check the backup light switch power supply circuit at the backup light switch connector B-37.

(1) Disconnect the backup light switch connector B-37 and measure at the harness side.
(2) Turn the ignition switch to "ON" position.
(3) Voltage between terminal 1 and ground.

Q: Is the voltage approximately 12 volts?

YES : Go to Step 5.
NO : Go to Step 3.



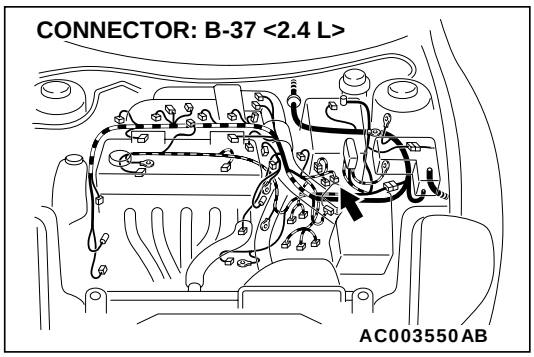


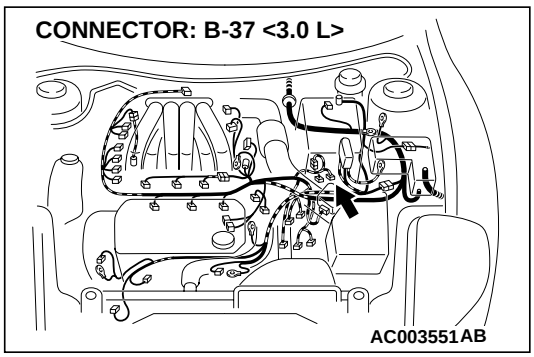
STEP 3. Check the backup light switch connector B-37 for damage.

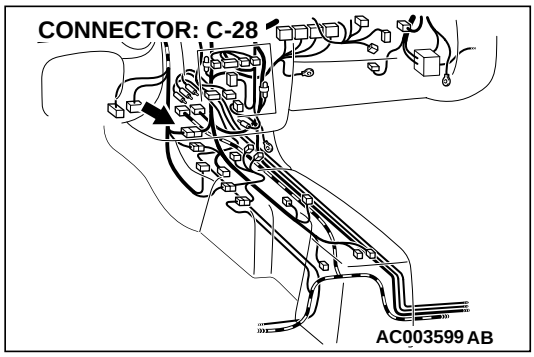
Q: Is backup light switch connector B-37 in good condition?

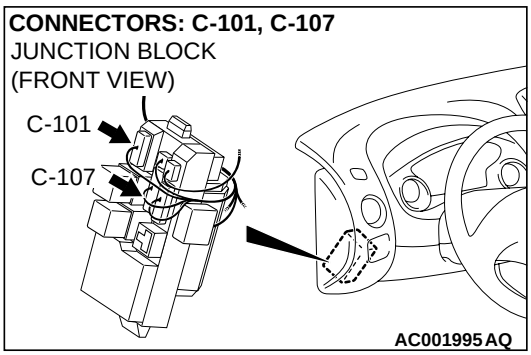
YES : Go to Step 4.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

TSB Revision









STEP 4. Check the harness wires between backup light switch connector B-37 and ignition switch (IG1).

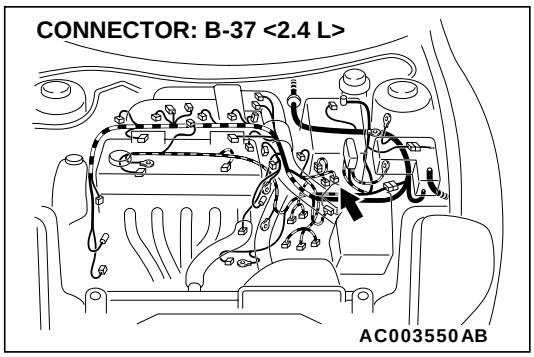
NOTE: After checking intermediate connector C-28 and junction block connectors C-101 and C-107, check the wires. If intermediate connector C-28 and junction block connectors C-101 and C-107 are damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

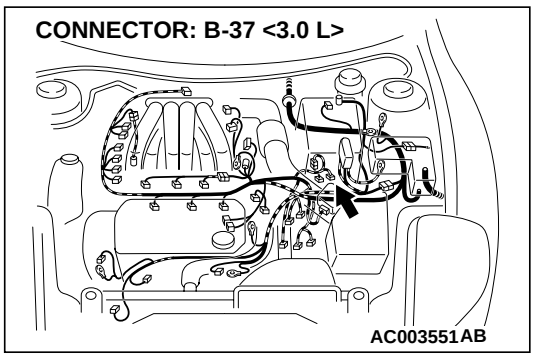
Q: Are the harness wires between backup light switch connector B-37 and ignition switch (IG1) in good condition?

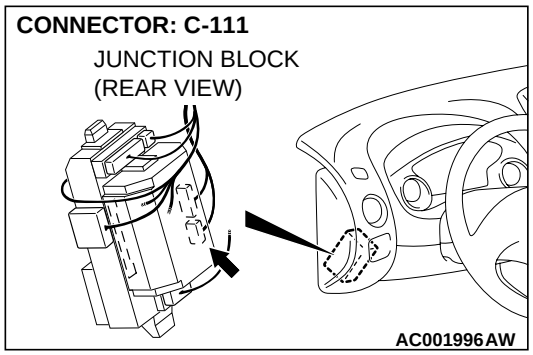
YES : There is no action to be taken.

NO : Repair them. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

TSB Revision







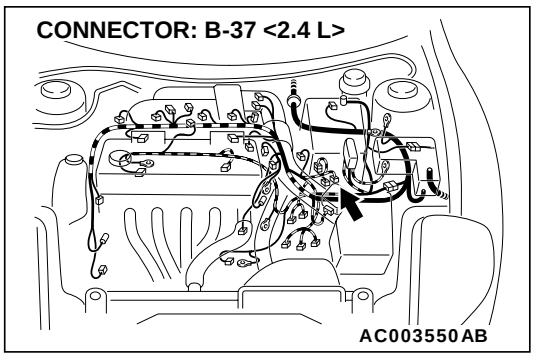
STEP 5. Check backup light switch connector B-37 and ETACS-ECU connector C-111 for damage.

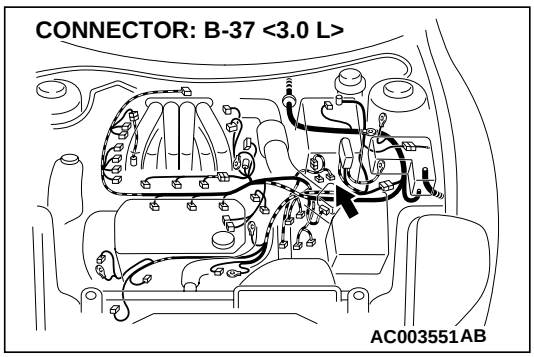
Q: Are backup light switch connector B-37 and ETACS-ECU connector C-111 in good condition?

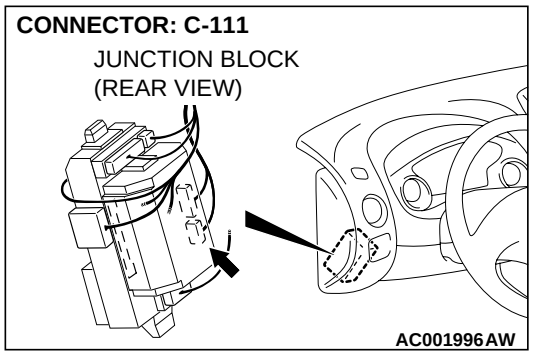
YES : Go to Step 6.

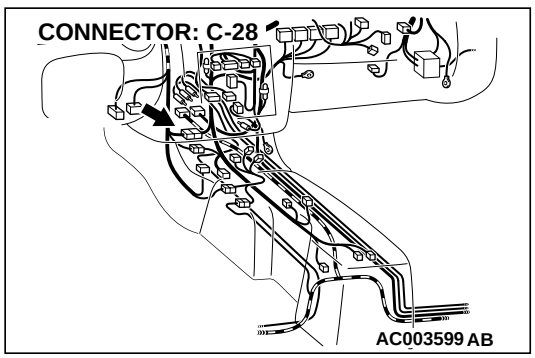
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

TSB Revision









STEP 6. Check the harness wire between backup light switch connector B-37 and ETACS-ECU connector C-111.

NOTE: After checking intermediate connector C-28, check the wires. If intermediate connector C-28 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection.

Q: Is the harness wire between backup light switch connector B-37 and ETACS-ECU connector C-111 in good condition?

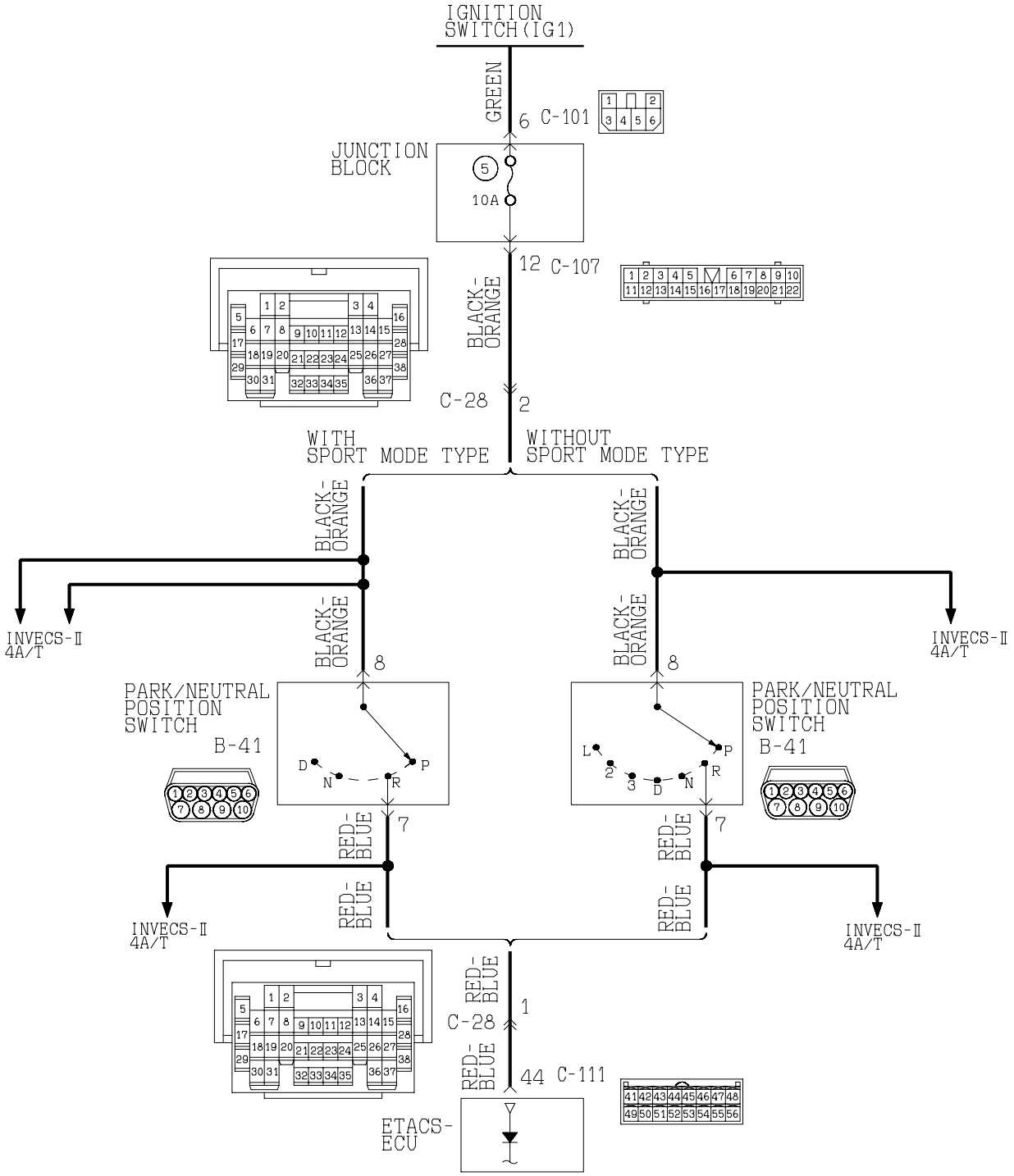
YES : Replace the ETACS-ECU. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

NO : Repair it. The backup light switch input signal should be able to be checked and the rear wiper should work normally.

TSB Revision

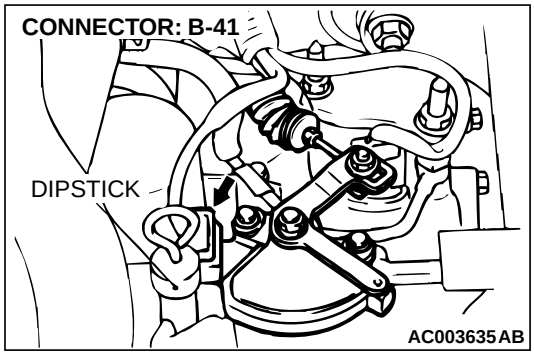
Inspection Procedure Q-7: The park/neutral position switch "R" position signal is not sent to the ETACS-ECU.

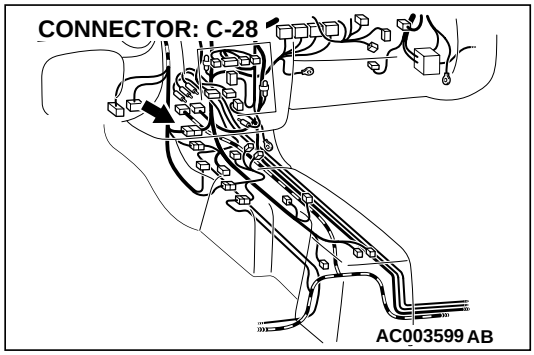
Park/neutral Position Switch "R" Position Input Circuit

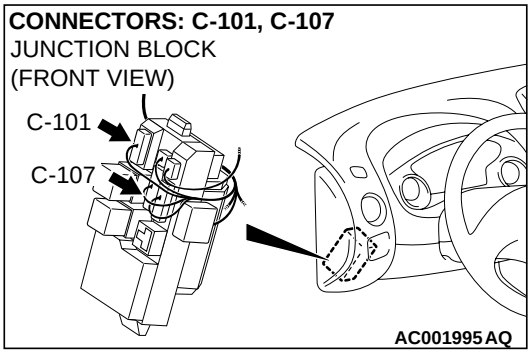


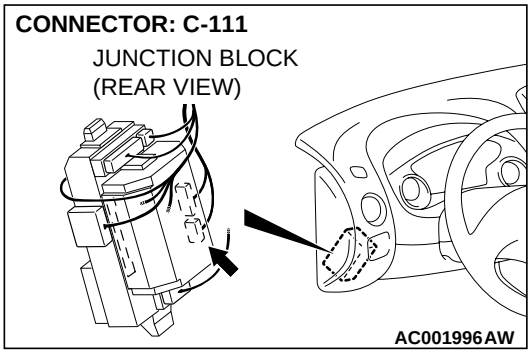
AC003953 AD

TSB Revision









CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to the "R" position signal from the park/neutral position switch.

TECHNICAL DESCRIPTION (COMMENT)

The park/neutral position switch "R" position signal is used to operate the rear wiper. If the signal is an error, the rear wiper will not operate consecutively twice when the rear wiper is on and the selector lever is moved to "R" position.

NOTE: The park/neutral position switch is also used in A/T. If the problem is not solved, perform the A/T troubleshooting. Refer to GROUP 23A, A/T Diagnosis P.23A-14.

TROUBLESHOOTING HINTS

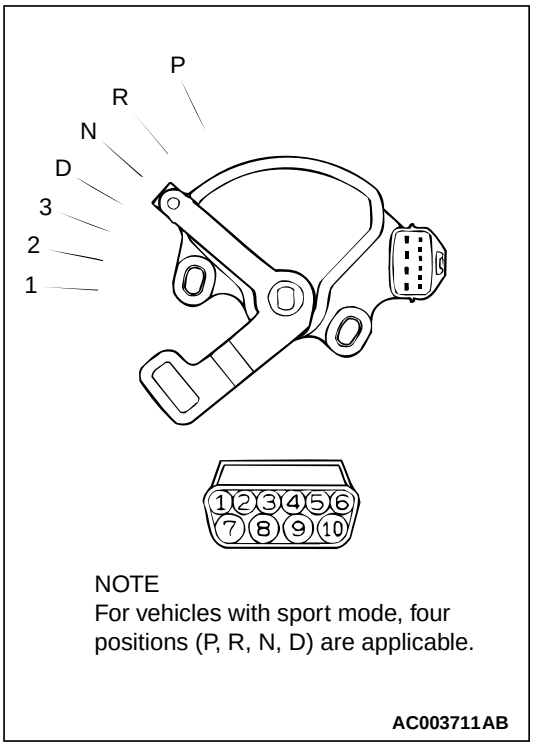
- Malfunction of the park/neutral position switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

TSB Revision



NOTE
For vehicles with sport mode, four positions (P, R, N, D) are applicable.

AC003711AB

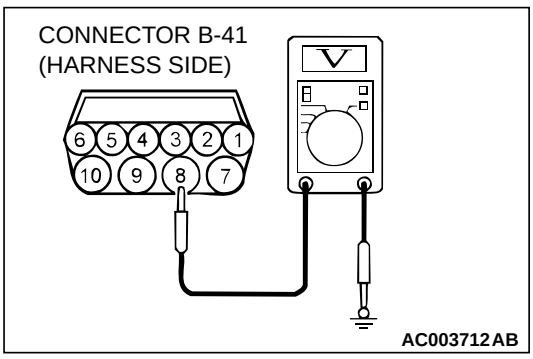
STEP 1. Check the park/neutral position switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
P, N, D	–	No continuity
R	7 – 8	Continuity

Q: Is the park/neutral position switch in good condition?

YES : Go to Step 2.

NO : Repair it. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.



AC003712AB

STEP 2. Check the park/neutral position switch power supply circuit at the park/neutral switch connector B-41.

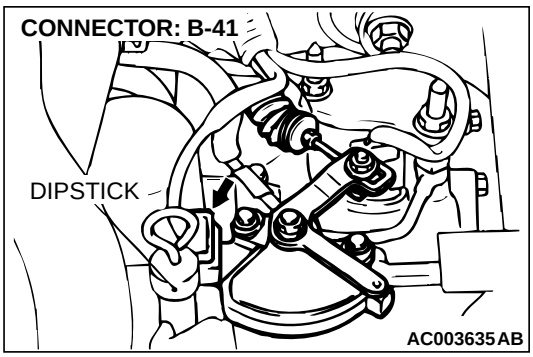
(1) Disconnect park/neutral position switch connector B-41 and measure at the harness side.
(2) Turn the ignition switch to "ON" position.
(3) Measure the voltage between terminal 8 and ground.

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

YES : Go to Step 5.

NO : Go to Step 3.

TSB Revision

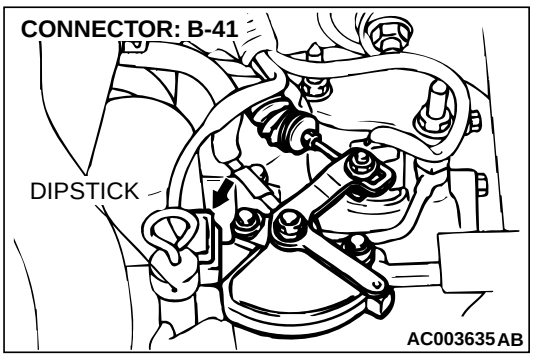


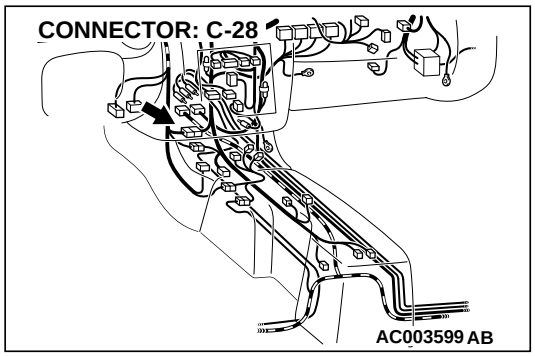
STEP 3. Check park/neutral position switch connector B-41 for damage.

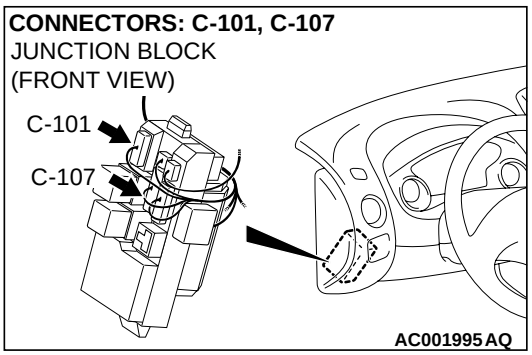
Q: Is park/neutral position switch connector B-41 in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.







STEP 4. Check the harness wires between park/neutral position switch connector B-41 and ignition switch (IG1).

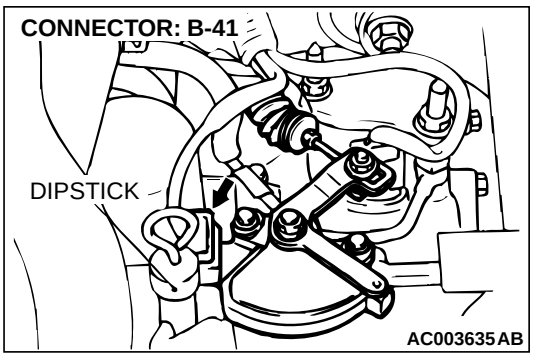
NOTE: After checking intermediate connector C-28 and junction block connectors C-101 and C-107, check the wires. If intermediate connector C-28 and junction block connectors C-101 and C-107 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between park/neutral position switch connector B-41 and ignition switch (IG1) in good condition?

YES : There is no action to be taken.

NO : Repair them. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.

TSB Revision

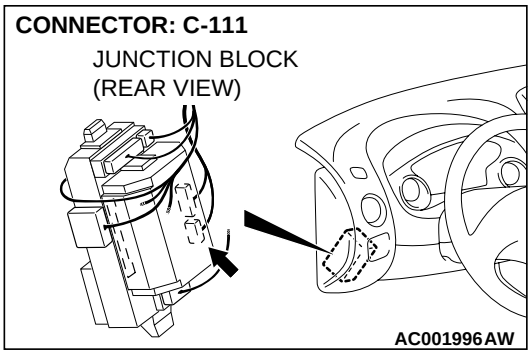


STEP 5. Check park/neutral position switch connector B-41 and ETACS-ECU connector C-111 for damage.

Q: Are park/neutral position switch connector B-41 and ETACS-ECU connector C-111 in good condition?

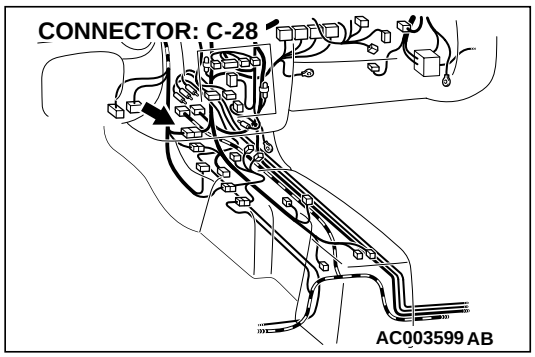
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.



STEP 6. Check the harness wires between park/neutral position switch connector B-41 and ETACS-ECU connector C-111.

NOTE: After checking intermediate connectors C-28, check the wires. If intermediate connectors C-28 is damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



Q: Are the harness wires between park/neutral position switch connector B41 and ETACS-ECU connector C-111 in good condition?

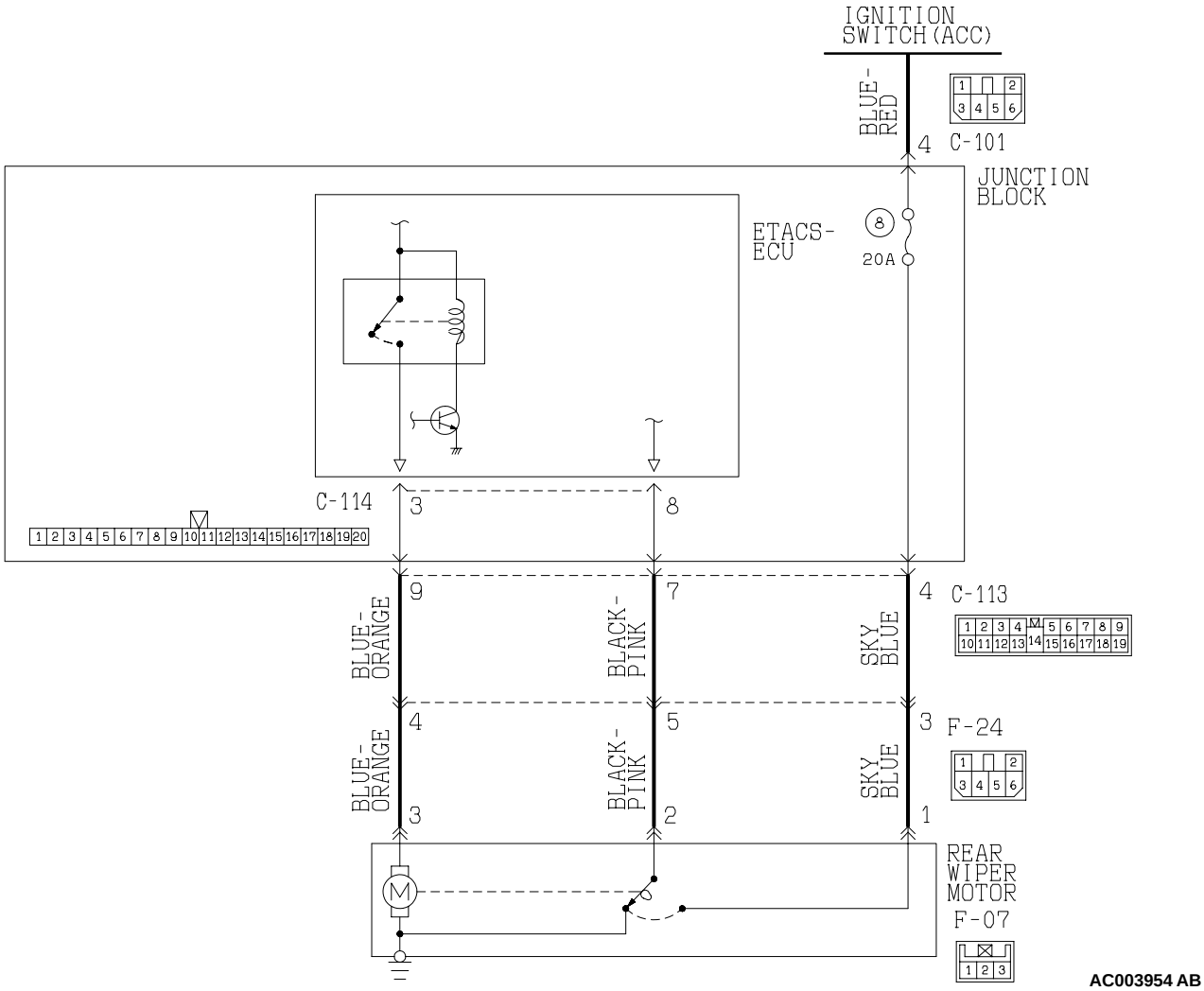
YES : Replace the ETACS-ECU. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.

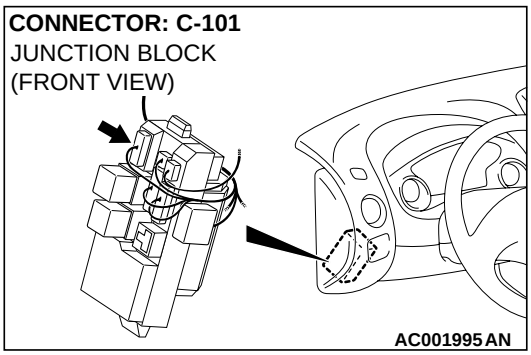
NO : Repair them. The park/neutral position switch "R" position signal should be able to be checked and the rear wiper should work normally.

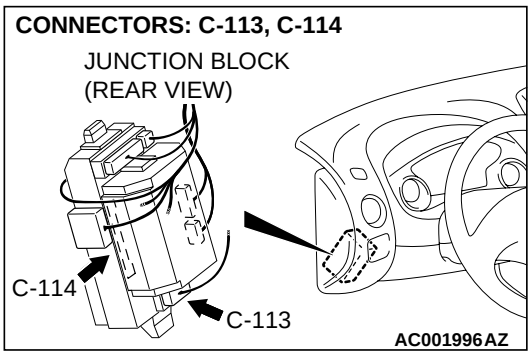
TSB Revision

Inspection Procedure O-8: The rear wiper motor auto-stop signal is not sent to the ETACS-ECU.

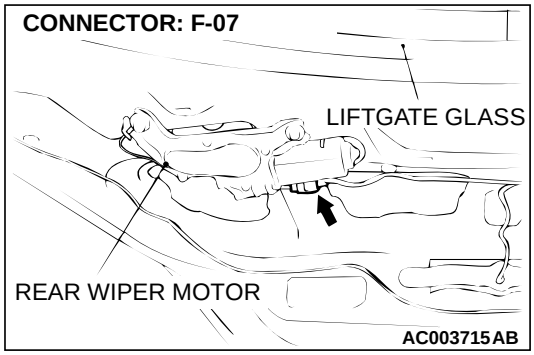
Rear Wiper Motor Auto-stop Signal Input Circuit

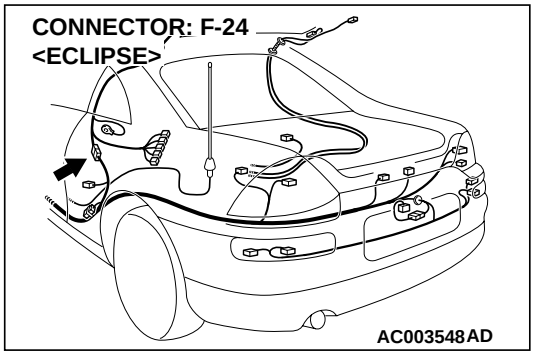






TSB Revision





CIRCUIT OPERATION

The ETACS-ECU operates the rear wiper according to the input signal from the rear wiper motor auto-stop signal.

TECHNICAL DESCRIPTION (COMMENT)

Rear wiper motor auto-stop signal is used to operate the rear wiper. If the signal is an error, the rear wiper will 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

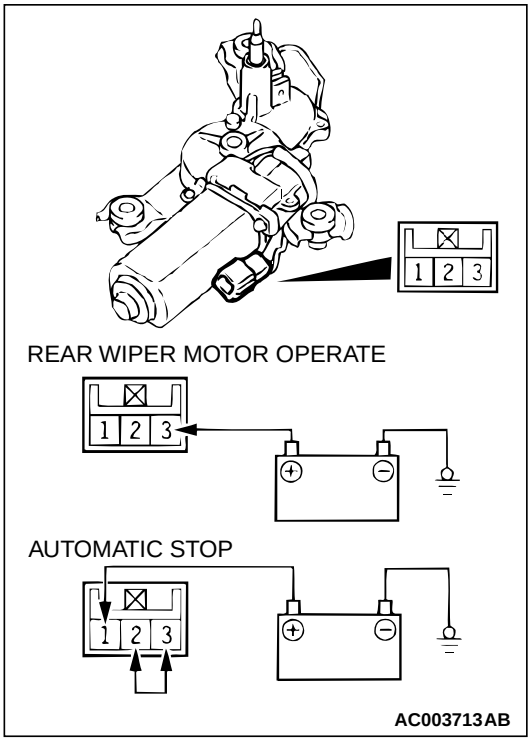
STEP 1. Check the rear wiper operation.

Q: Does the rear wiper motor work (However, the rear wiper does not stop at the predetermined park position.)?

YES : Go to Step 2.

NO : Check the rear wiper motor drive circuit. Refer to Inspection Procedure H-1 (P.54B-102).

TSB Revision

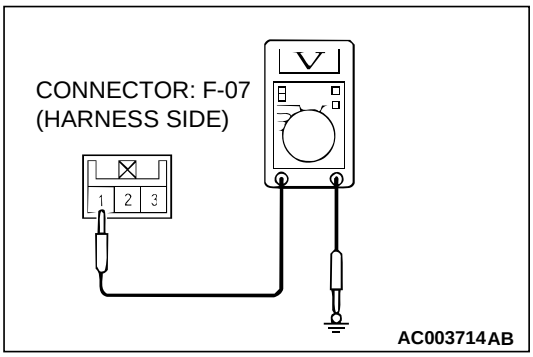


STEP 2. Check the rear wiper motor.

(1) Disconnect the rear wiper motor connector F-07.
(2) Run the rear wiper motor, disconnect the battery, and stop the motor.
(3) Reconnect the battery as shown in the illustration, and confirm that after the motor starts turning it stops at the automatic stop position.

Q: Is the rear wiper motor in good condition?

YES : Go to Step 3.
NO : Replace the rear wiper motor. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.



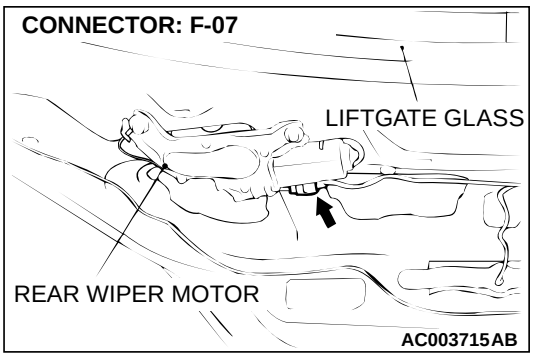
STEP 3. Check the rear wiper motor power supply circuit at the wiper motor connector F-07.

(1) Disconnect the rear wiper motor connector F-07 and measure at the harness side.
(2) Turn the ignition switch to "ACC" position.
(3) Voltage between terminal 1 and ground.

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

YES : Go to Step 6.
NO : Go to Step 4.

TSB Revision

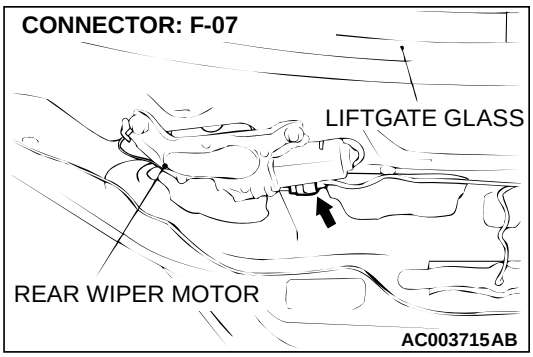


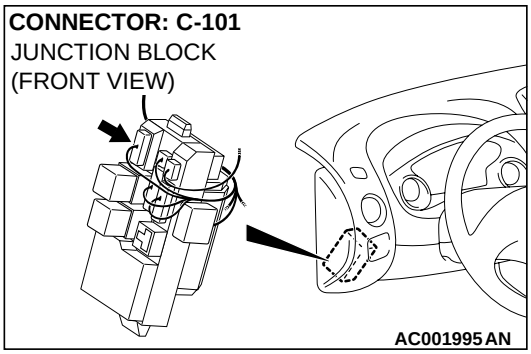
STEP 4. Check rear wiper motor connector F-07 for damage.

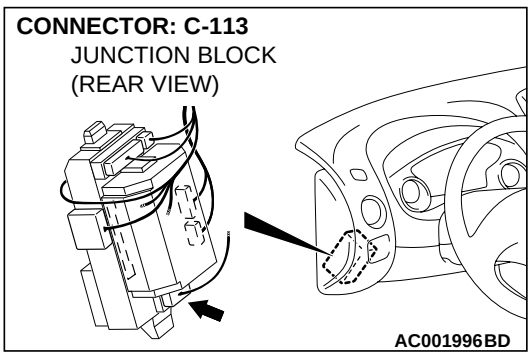
Q: Is rear wiper motor connector F-07 in good condition?

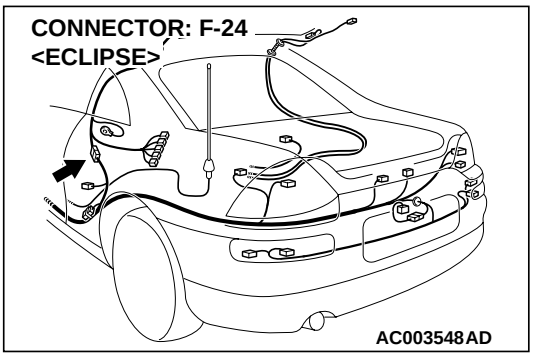
YES : Go to Step 5.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.









STEP 5. Check the harness wires between rear wiper motor connector F-07 and ignition switch (ACC).

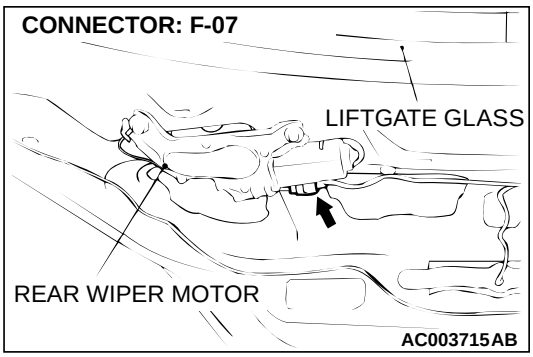
NOTE: After checking intermediate connector F-24 and junction block connectors C-101 and C-113, check the wires. If intermediate connector F-24 and junction block connectors C-101 and C-113 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

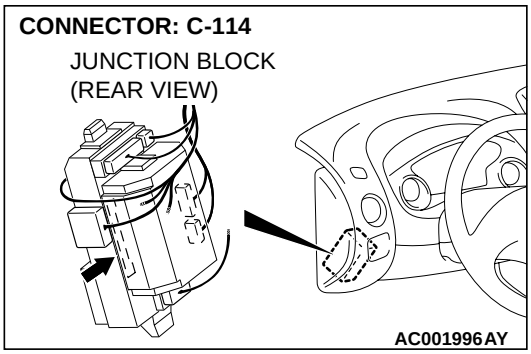
Q: Are the harness wires between rear wiper motor connector F-07 and ignition switch (ACC) in good condition?

YES : There is no action to be taken.

NO : Repair them. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.

TSB Revision



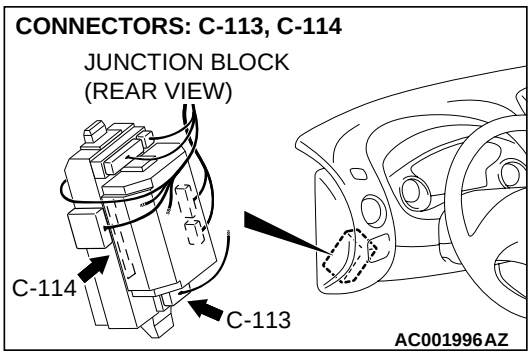


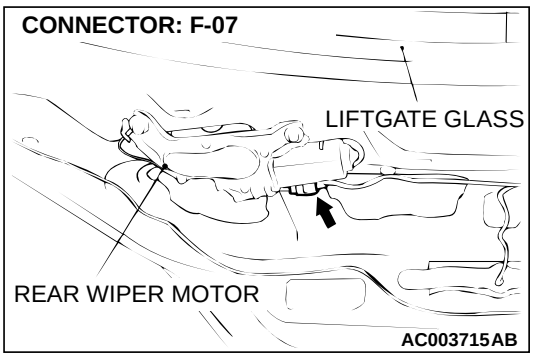
STEP 6. Check rear wiper motor connector F-07 and ETACS-ECU connector C-114 for damage.

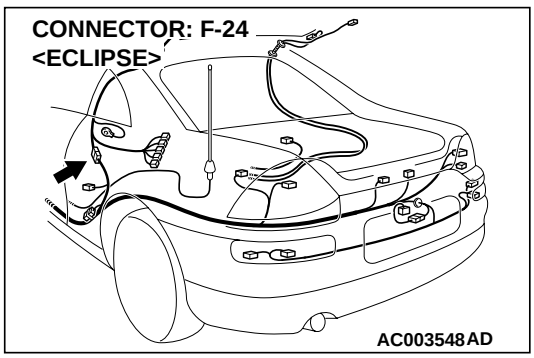
Q: Are rear wiper motor connector F-07 and ETACS-ECU connector C-114 in good condition?

YES : Go to Step 7.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.







STEP 7. Check the harness wires between rear wiper motor connector F-07 and ETACS-ECU connector C-114.

NOTE: After checking intermediate connectors F-24 and junction block connector C-113, check the wires. If intermediate connectors F-24 junction block connector C-113 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between rear wiper motor connector F-07 and ETACS-ECU connector C-114 in good condition?

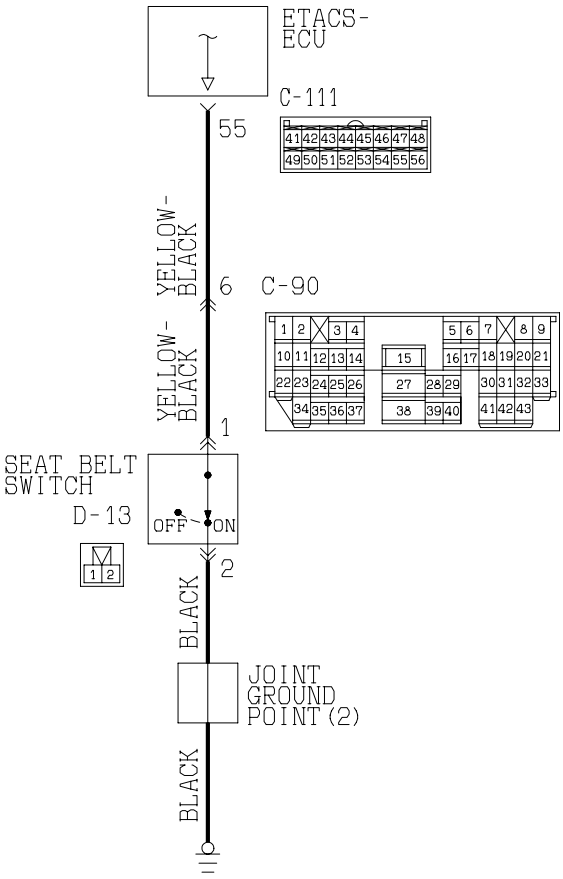
YES : Replace the ETACS-ECU. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.

NO : Repair them. The rear wiper motor auto-stop signal should be able to be checked and the rear wiper should stop at the predetermined park position.

TSB Revision

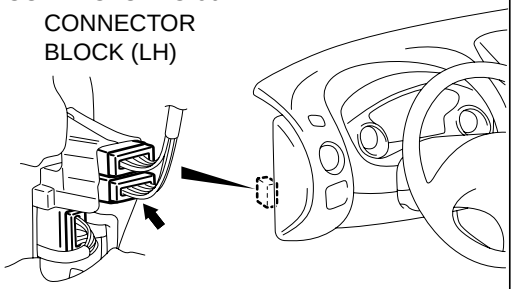
Inspection Procedure O-9: The driver's seat belt switch is not sent to the ETACS-ECU.

Driver's Seat Belt Switch Input Circuit



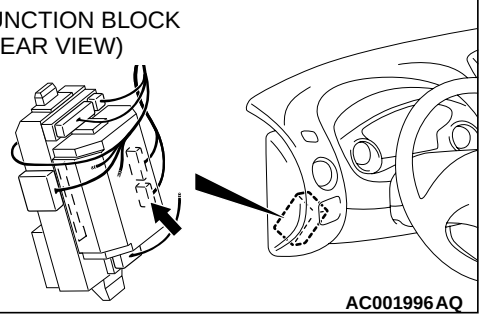
AC003955AB

CONNECTOR: C-90
CONNECTOR
BLOCK (LH)



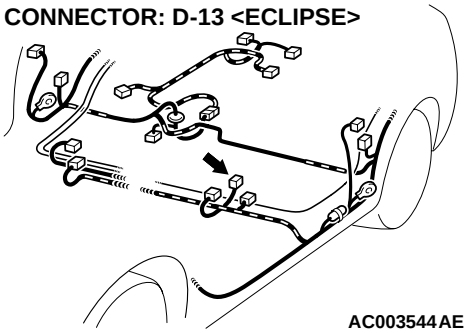
AC001991AI

CONNECTOR: C-313
JUNCTION BLOCK
(REAR VIEW)



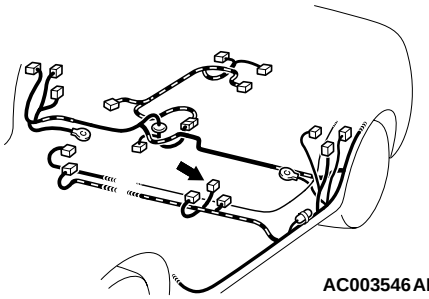
AC001996AQ

CONNECTOR: D-13 <ECLIPSE>



AC003544AE

CONNECTOR: D-13 <ECLIPSE SPYDER>



AC003546AE

TSB Revision

CIRCUIT OPERATION

The ETACS-ECU operates various functions according to the input signals from the driver's seat belt switch.

TECHNICAL DESCRIPTION (COMMENT)

The driver's seat belt switch input signal is used to operate the following functions; seat belt tone alarm function, seat belt warning light. If the input signal is an error, these functions will not work normally.

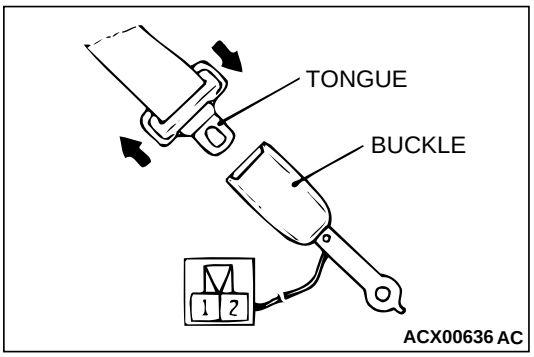
TROUBLESHOOTING HINTS

- 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



STEP 1. Check the driver's seat belt switch.

ITEM	TESTER CONNECTION	SPECIFIED CONDITION
Fastened seat belt	–	No continuity
Unfastened seat belt	1 – 2	Continuity

Q: Is the driver's seat belt switch in good condition?

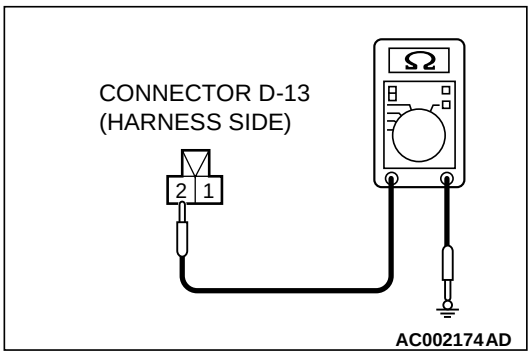
YES : Go to Step 2.

NO : Replace the driver's inner seat belt. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 2. Check the driver's seat belt switch ground circuit at driver's seat belt switch connector D-13.

(1) Disconnect driver's seat belt switch connector D-13 and measure at the harness side.

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

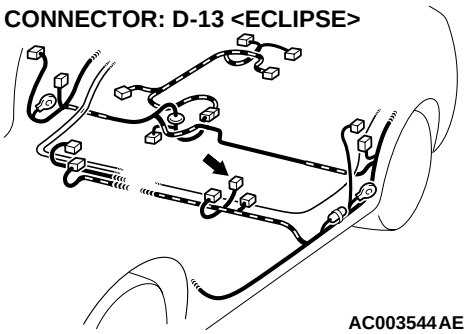


Q: Is the resistance less than 2 ohms?

YES : Go to Step 5.

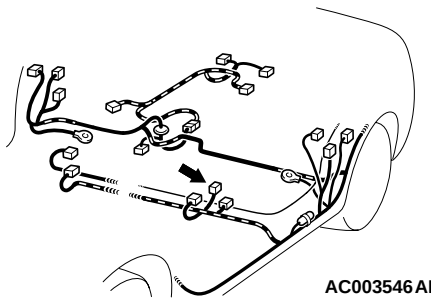
NO : Go to Step 3.

CONNECTOR: D-13 <ECLIPSE>



AC003544AE

CONNECTOR: D-13 <ECLIPSE SPYDER>



AC003546AE

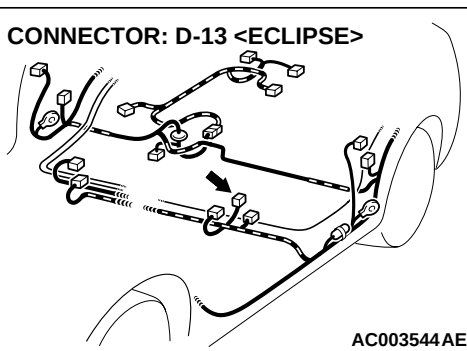
STEP 3. Check driver's seat belt switch connector D-13 for damage.

Q: Is driver's seat belt switch connector D-13 in good condition?

YES : Go to Step 4.

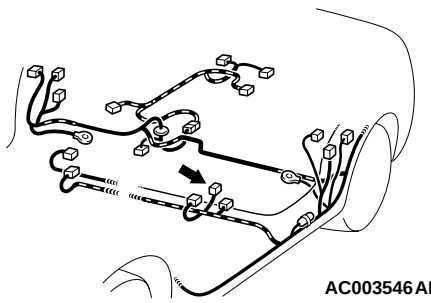
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

CONNECTOR: D-13 <ECLIPSE>



AC003544AE

CONNECTOR: D-13 <ECLIPSE SPYDER>



AC003546AE

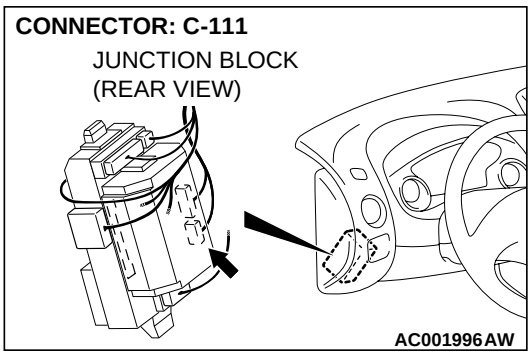
STEP 4. Check the harness wire between driver's seat belt switch connector D-13 and ground.

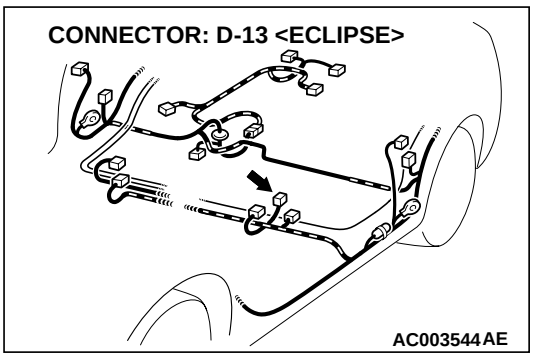
Q: Is the harness wire between driver's seat belt switch connector D-13 and ground in good condition?

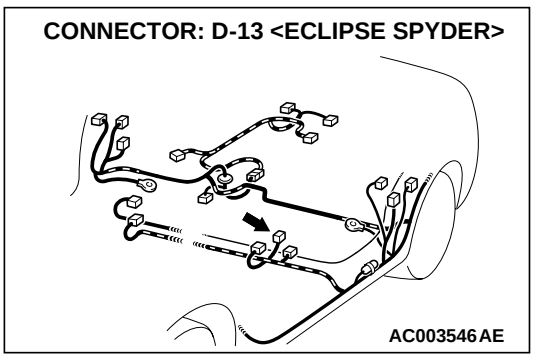
YES : There is no action to be taken.

NO : Repair it. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision







STEP 5. Check driver's seat belt switch connector D-13 and ETACS-ECU connector C-111 for damage.

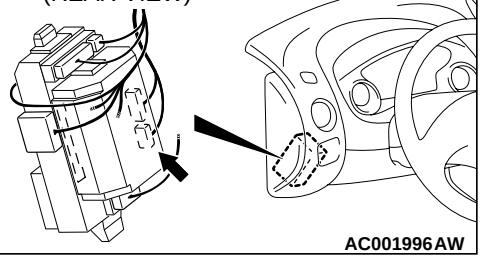
Q: Are driver's seat belt switch connector D-13 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

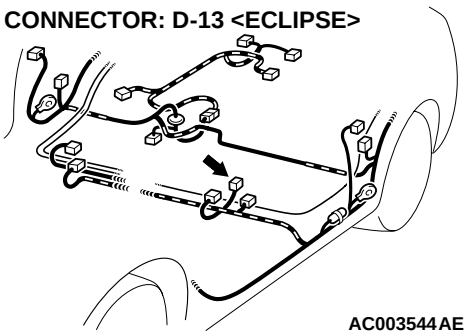
CONNECTOR: C-111

JUNCTION BLOCK
(REAR VIEW)



AC001996AW

CONNECTOR: D-13 <ECLIPSE>



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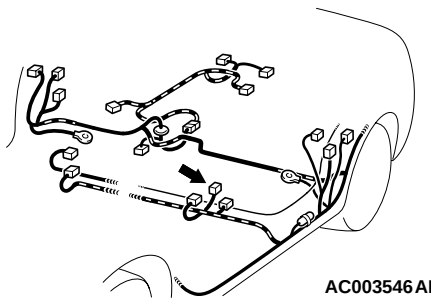
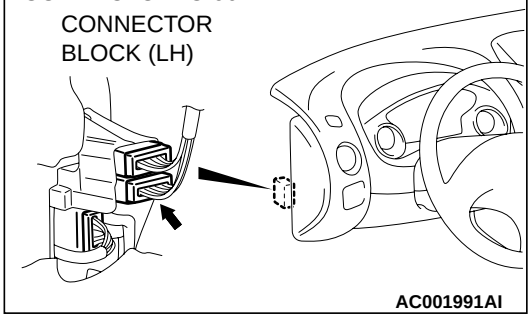
CONNECTOR: D-13 <ECLIPSE SPYDER>



AC003546AE

CONNECTOR: C-90

CONNECTOR
BLOCK (LH)



AC001991AI

STEP 6. Check the harness wires between driver's seat belt switch connector D-13 and ETACS-ECU connector C-111.

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 driver's seat belt switch connector D-13 and ETACS-ECU connector C-111 in good condition?

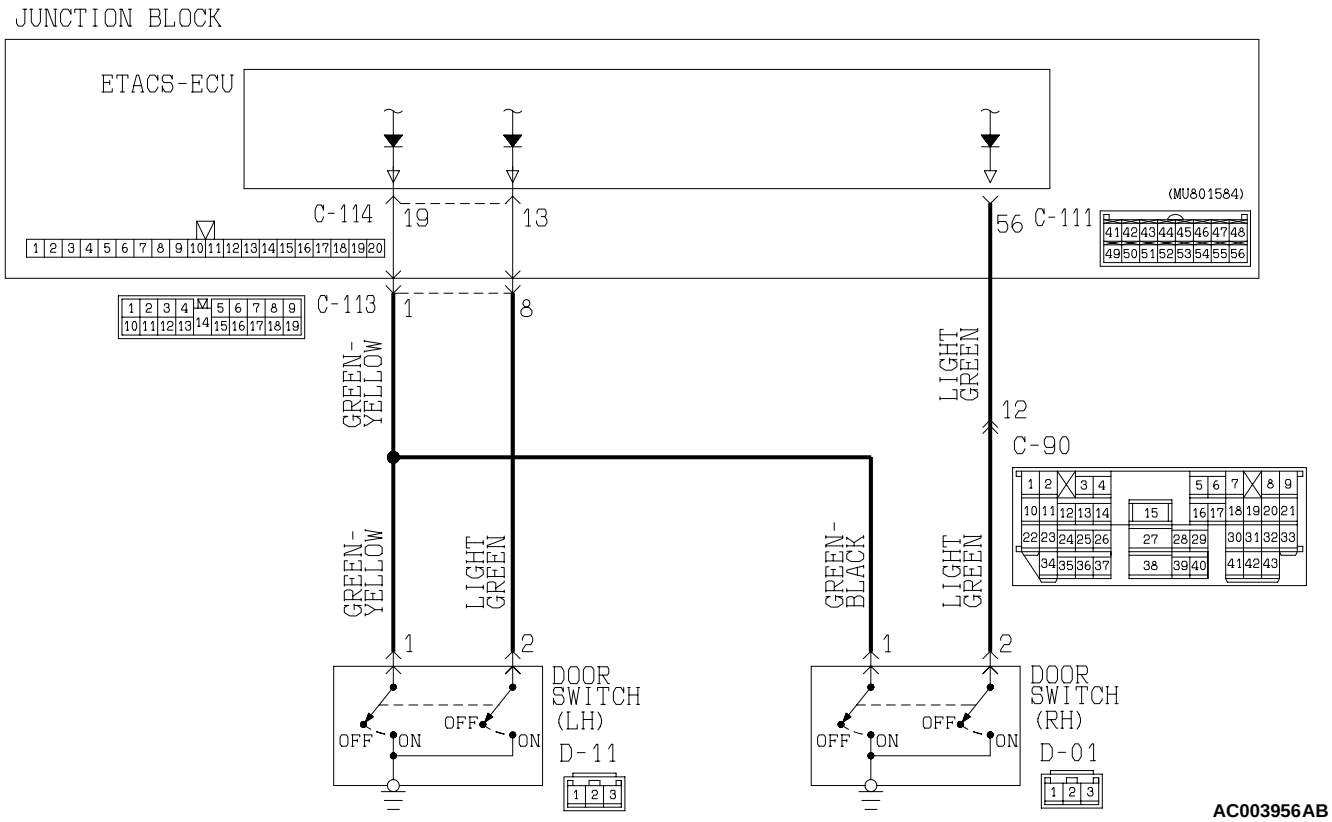
YES : Replace the ETACS-ECU. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

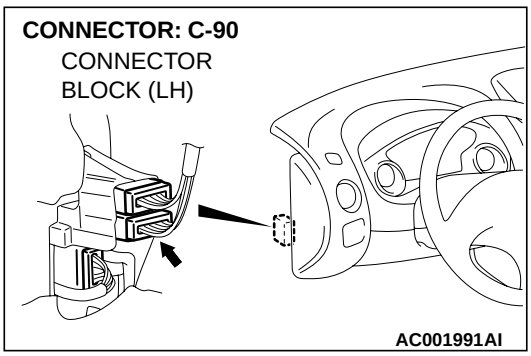
NO : Repair them. The driver's seat belt switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

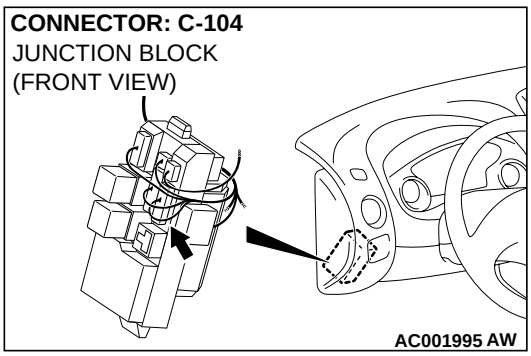
TSB Revision

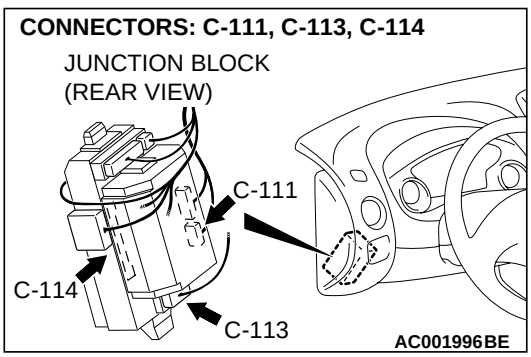
Inspection Procedure O-10: The driver's or passenger's door switch or door switches signal is not sent to the ETACS-ECU.

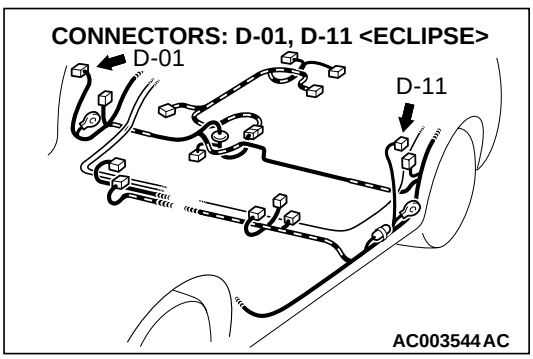
Driver's or Passenger's Door Switch Input Circuit



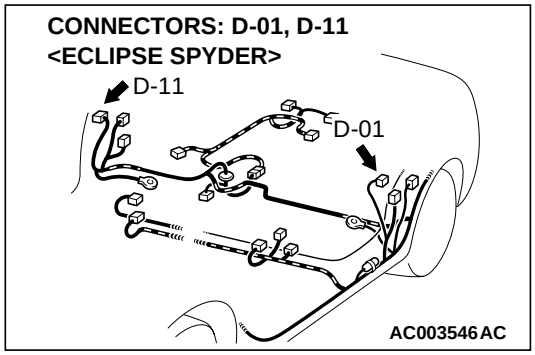








TSB Revision



CIRCUIT OPERATION
The ETACS-ECU operates various functions according to the input signal from the driver's or passenger's door switch.

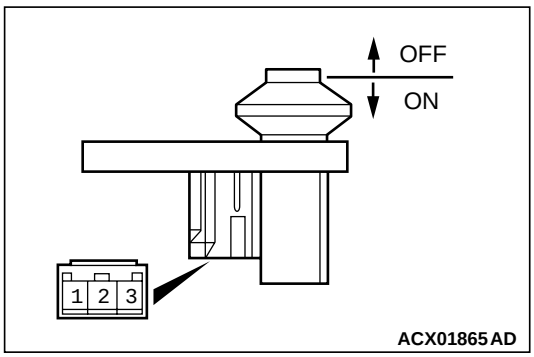
TECHNICAL DESCRIPTION (COMMENT)
The driver's and passenger's door switch and door switches are used to operate the following devices or systems:
- Ignition key reminder tone alarm function (driver's door switch only)
- Light reminder tone alarm function (driver's door switch only)
- Door ajar tone alarm function
- Forgotten key prevention function
- Power window timer function
- Keyless entry system
- Sunroof timer function
- Door ajar warning light
- Interior light
- Theft-alarm system

If the signal fails, these devices will not work normally.

TROUBLESHOOTING HINTS
- Malfunction of the driver's or passenger's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:
- MB991223: Test Harness Set



STEP 1. Check the door switch.

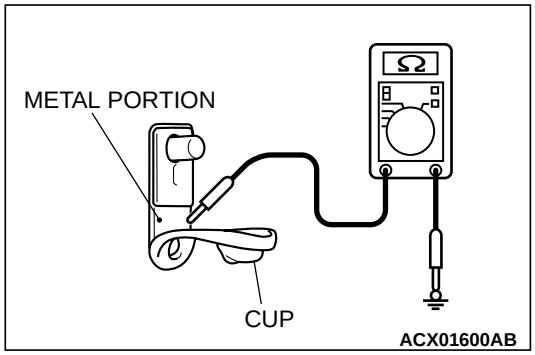
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Continuity
Pressed	–	No continuity

Q: Is the door switch in good condition?

YES : Go to Step 2.

NO : Replace it. The driver's and passenger's door switch and door switches input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision



STEP 2. Check the door switch installation state.

NOTE: The door switch is grounded to the body through the mounting screws.

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

Q: Is the resistance less than 2 ohms?

YES : Go to Step 3.

NO : Check the installation state and repair. The driver's and passenger's door switch and door switches input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

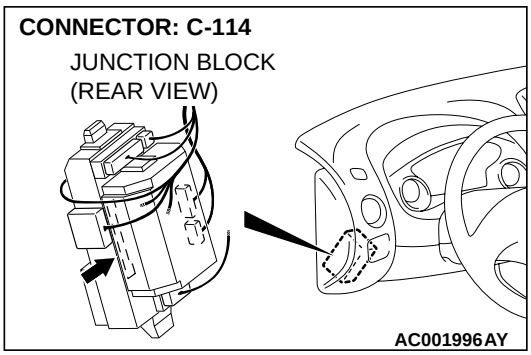
STEP 3. Check the location of malfunction.

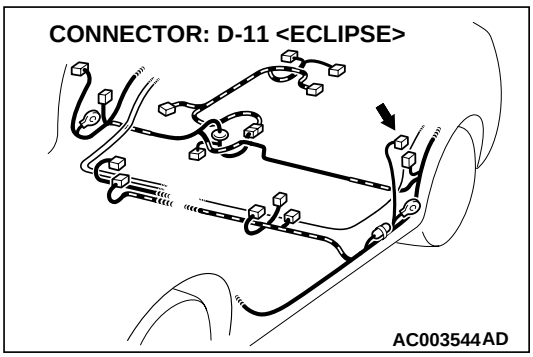
Q: Which door switch signal is not input?

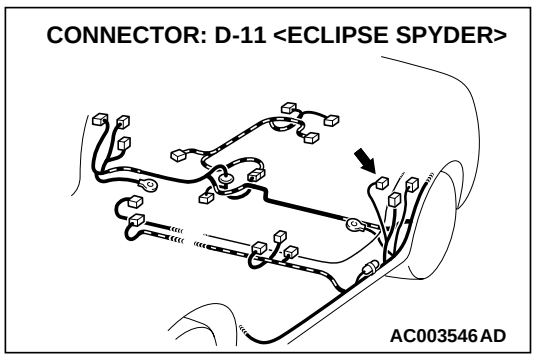
Driver's door : Go to Step 4.

Passenger's door : Go to Step 6.

TSB Revision





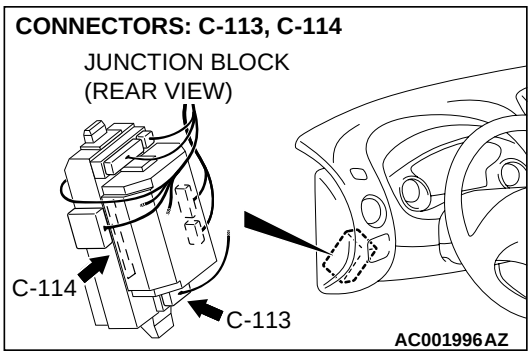


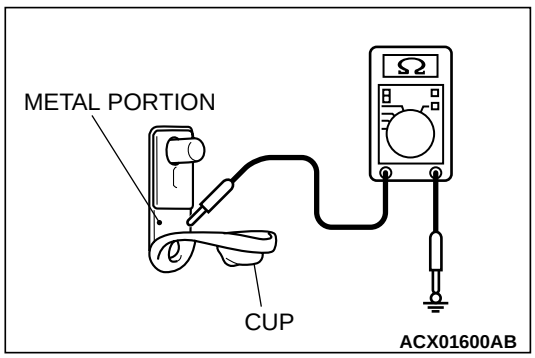
STEP 4. Check driver's door switch connector D-11 and ETACS-ECU connector C-114 for damage.

Q: Are driver's door switch connector D-11 and ETACS-ECU connector C-114 in good condition?

YES : Go to Step 5.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The driver's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





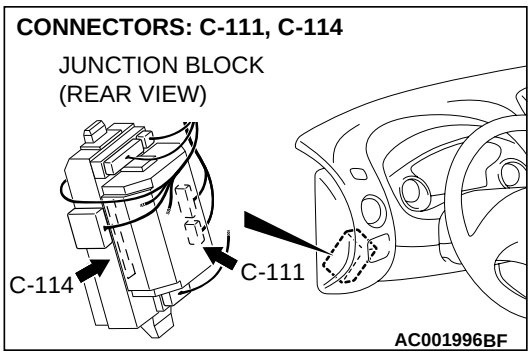
STEP 5. Check the harness wires between driver's door switch connector D-11 and ETACS-ECU connector C-114.

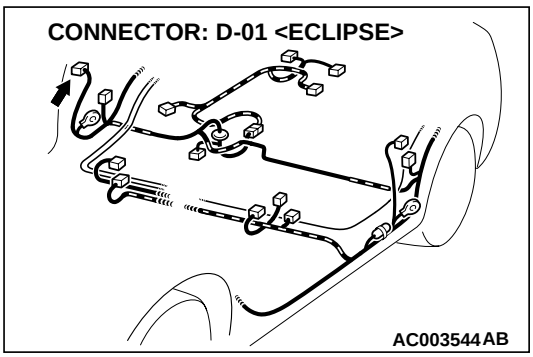
NOTE: After checking junction block connector C-113, check the wires. If junction block connector C-113 are damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

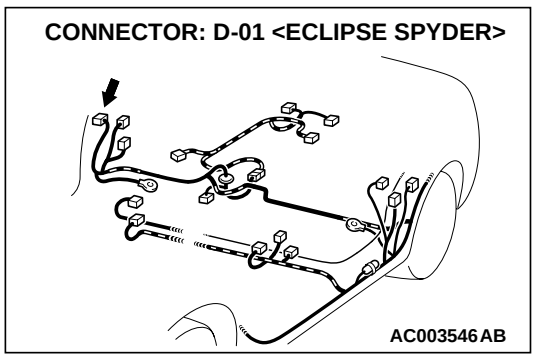
Q: Is the harness wires between the driver's door switch connector D-11 and ETACS-ECU connector C-114 in good condition?

YES : Replace the ETACS-ECU. The driver's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Repair them. The driver's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





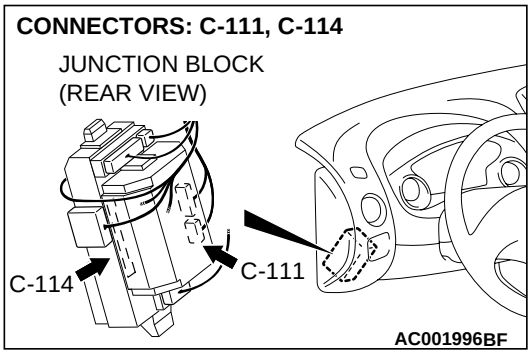


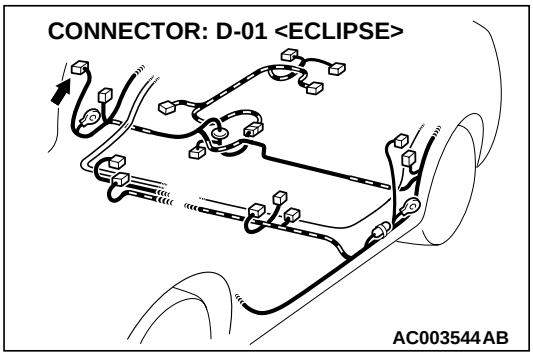
STEP 6. Check passenger's door switch connector D-01 and ETACS-ECU connectors C-111 and C-114 for damage.

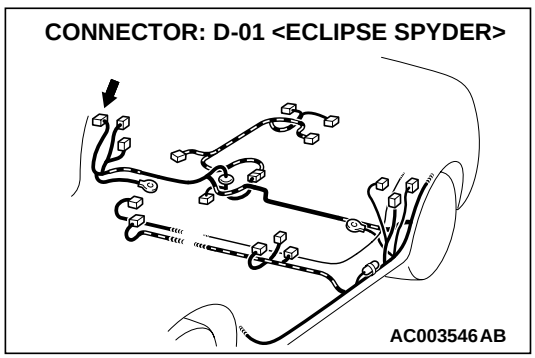
Q: Are front passenger's door switch connector D-01 and ETACS-ECU connectors C-111 and C-114 in good condition?

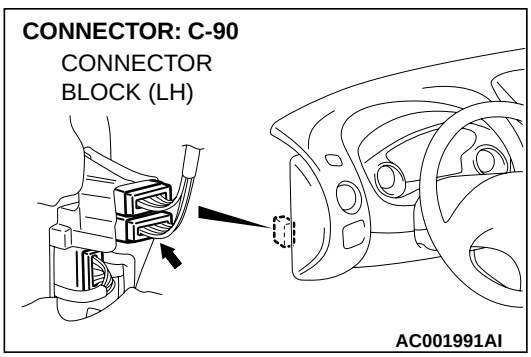
YES : Go to Step 7.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The passenger's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.









STEP 7. Check the harness wires between passenger's door switch connector D-01 and ETACS-ECU connectors C-111 and C-114.

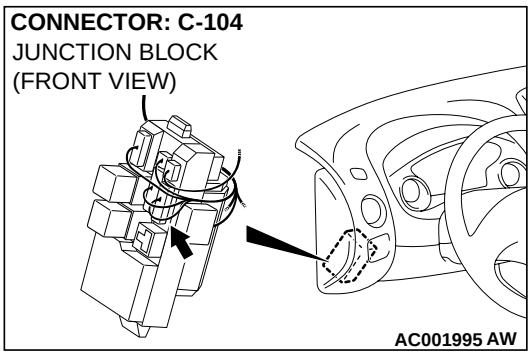
NOTE: After checking intermediate connector C-92 and junction block connector C-104, check the wires. If intermediate connector C-92 and junction block connector C-104 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between passenger's door switch connector D-01 and ETACS-ECU connector C-111 and C-114 in good condition?

YES : Replace the ETACS-ECU. The passenger's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

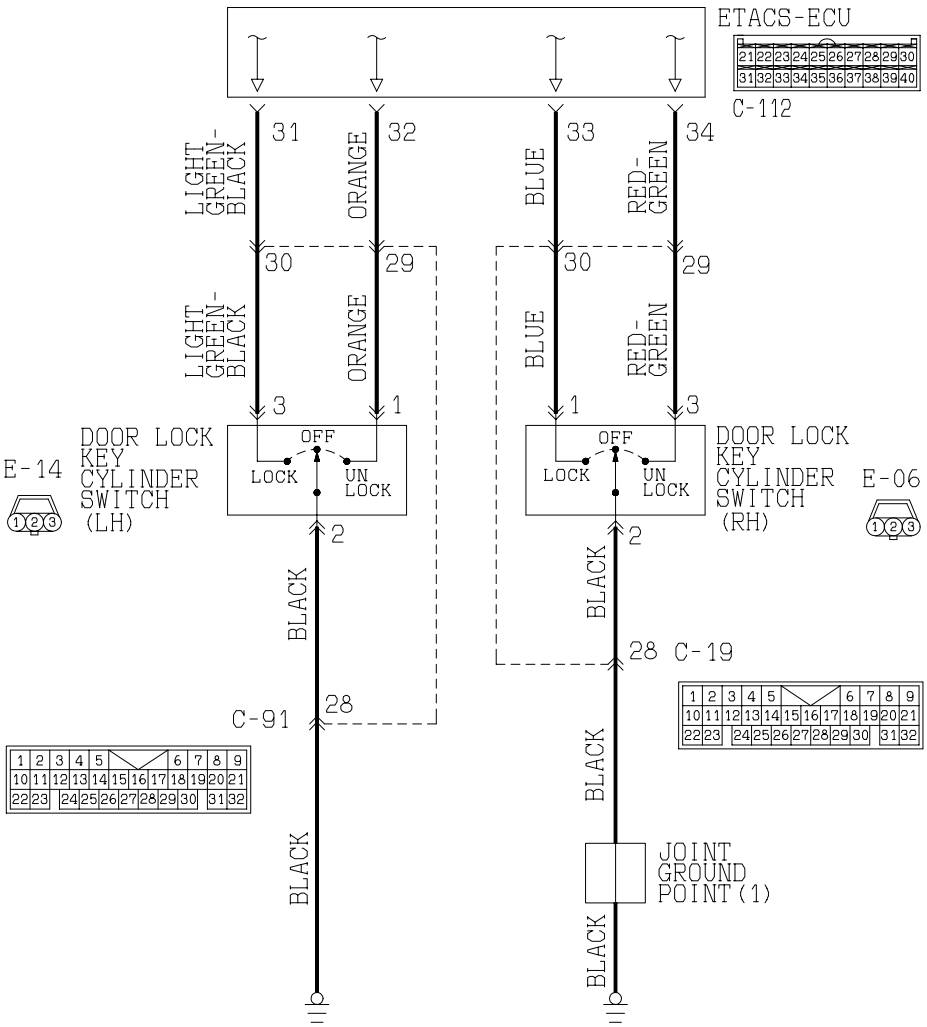
NO : Repair them. The passenger's door switch input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

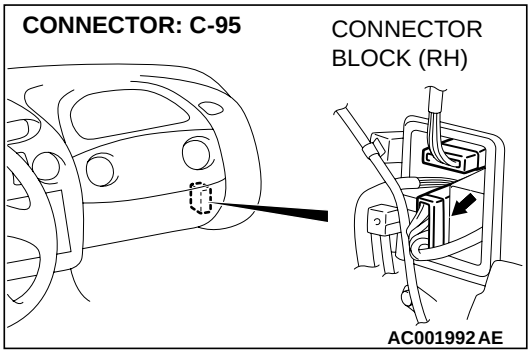


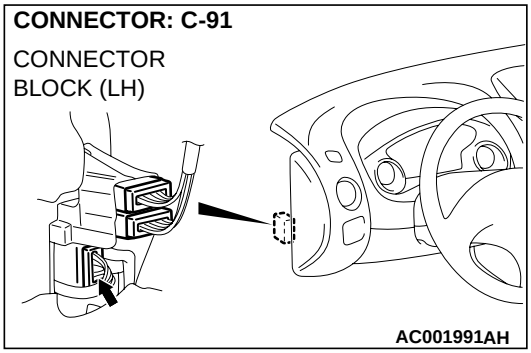
Inspection Procedure O-11: The driver's or passenger's door lock key cylinder switch is not sent to the ETACS-ECU.

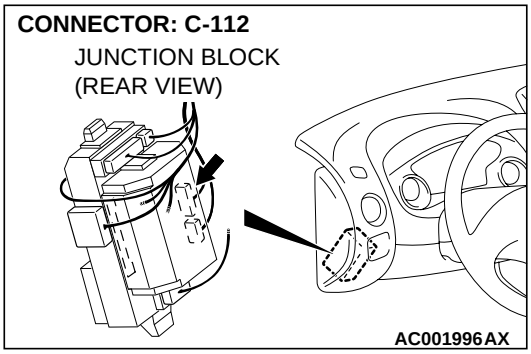
Driver's or Passenger's Door Lock Key Cylinder Switch Input Circuit

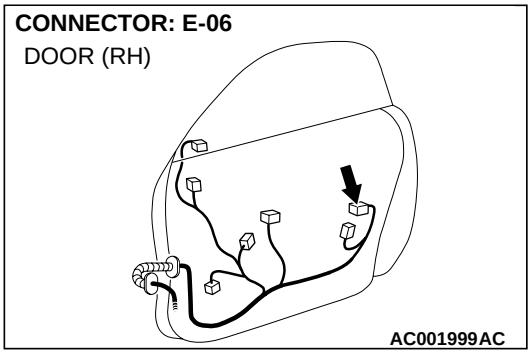


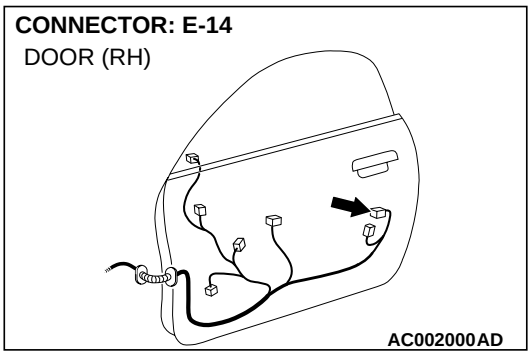
TSB Revision











CIRCUIT OPERATION

The ETACS-ECU uses the input signals from the driver's and passenger's door lock key cylinder switch to operate the following devices or functions.

TECHNICAL DESCRIPTION (COMMENT)

The driver's and passenger's door lock key cylinder switch input signals is used to operate the following devices or functions:

- Central door locking system
- Theft-alarm system

If the signal fails, these devices will not work normally.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

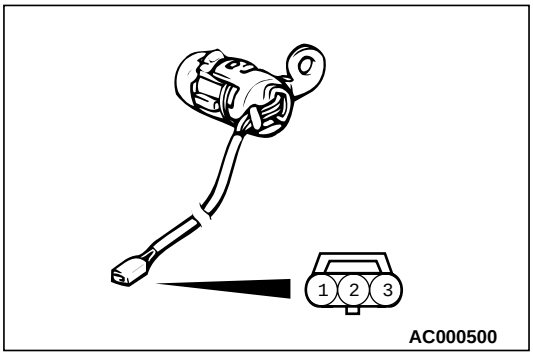
- MB991223: Test Harness Set

STEP 1. Check the location of malfunction.

Q: Which door key switch signal is not input?

Driver's door : Go to Step 2.
Passenger's door : Go to Step 8.

TSB Revision



STEP 2. Check the driver's door lock key cylinder switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	2 – 3	Continuity
Neutral (OFF)	–	No continuity
UNLOCK	1 – 2	Continuity

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

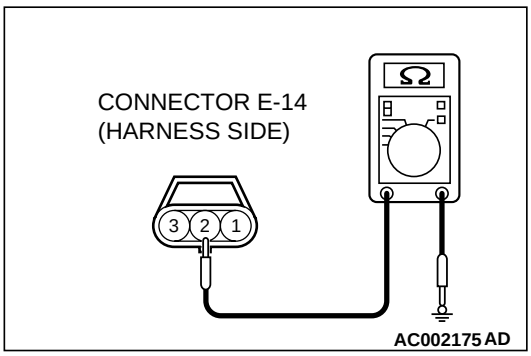
YES : Go to Step 3.

NO : Replace it. The input signal from the driver's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 3. Check the driver's door lock key cylinder switch ground circuit at driver's door lock key cylinder switch connector E-14.

(1) Disconnect driver's door lock key cylinder switch connector E-14 and measure at the harness side.

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

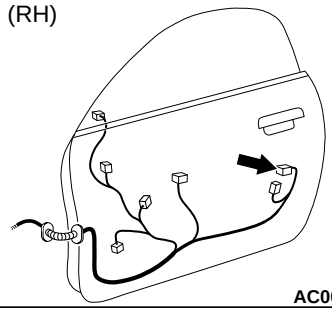


Q: Is the resistance less than 2 ohms?

YES : Go to Step 6.

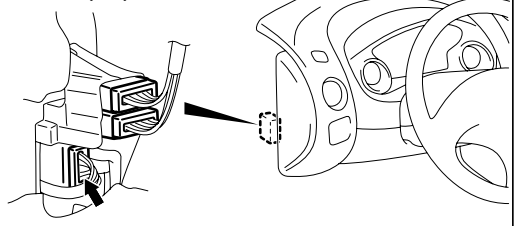
NO : Go to Step 4.

CONNECTOR: E-14
DOOR (RH)



AC002000AD

CONNECTOR: C-91
CONNECTOR
BLOCK (LH)



AC001991AH

STEP 4. Check driver's door lock key cylinder switch connector E-14 for damage.

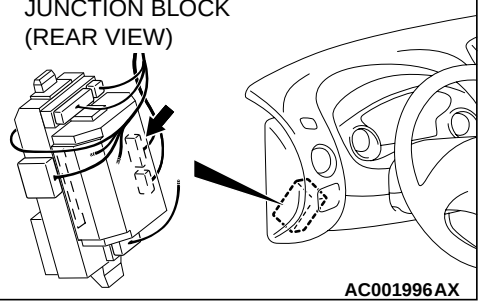
NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

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

YES : Go to Step 5.

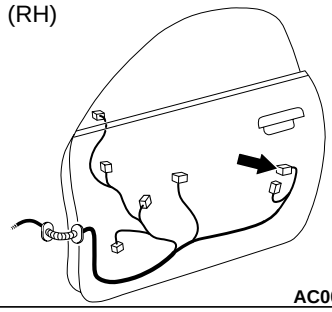
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the driver's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

CONNECTOR: C-112
JUNCTION BLOCK
(REAR VIEW)



AC001996AX

CONNECTOR: E-14
DOOR (RH)



AC002000AD

STEP 5. Check the harness wires between driver's door lock key cylinder switch connector E-14 and ground.

Q: Are the harness wires between driver's door lock key cylinder switch connector E-14 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The input signal from the driver's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

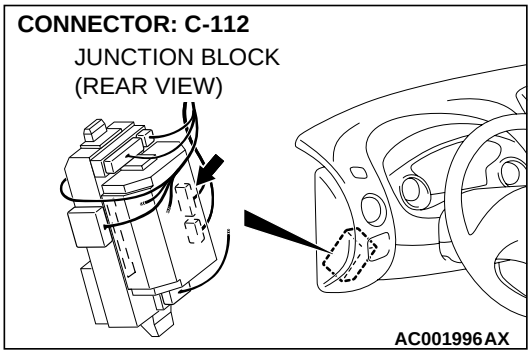
STEP 6. Check the driver's door lock key cylinder switch connector E-14 and ETACS-ECU connector C-112 for damage.

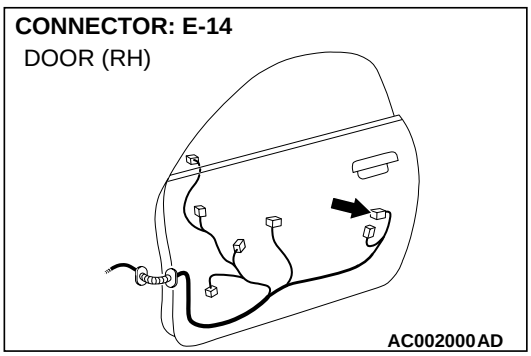
NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

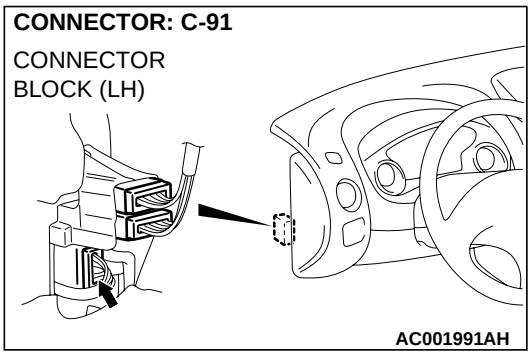
Q: Are driver's door lock key cylinder switch connector E-14 and ETACS-ECU connector C-112 in good condition?

YES : Go to Step 7.

NO : Repair them. The input signal from the driver's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.







STEP 7. Check the passenger's door lock key cylinder switch ground circuit at driver's door lock key cylinder switch connector E-06.

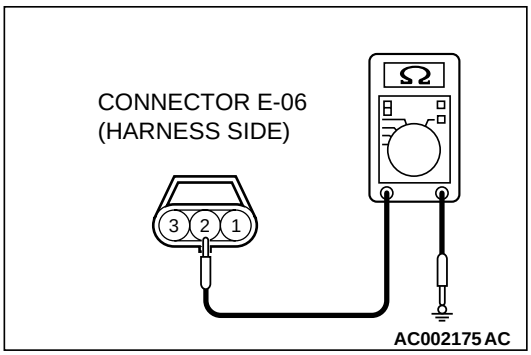
(1) Disconnect passenger's door lock key cylinder switch connector E-06 and measure at the harness side.

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

Q: Is the resistance less than 2 ohms?

YES : Go to Step 10.

NO : Go to Step 8.



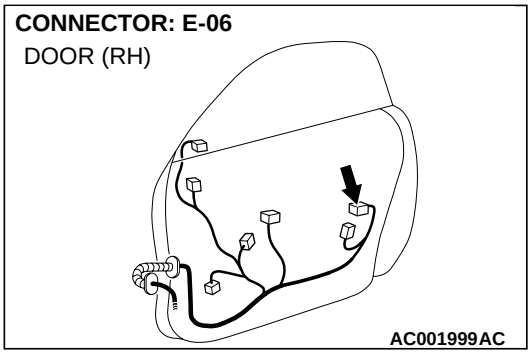
TSB Revision

STEP 8. Check passenger's door lock key cylinder switch connector E-06 for damage.

Q: Is passenger's door lock key cylinder switch connector E-06 in good condition?

YES : Go to Step 9.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the passenger's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



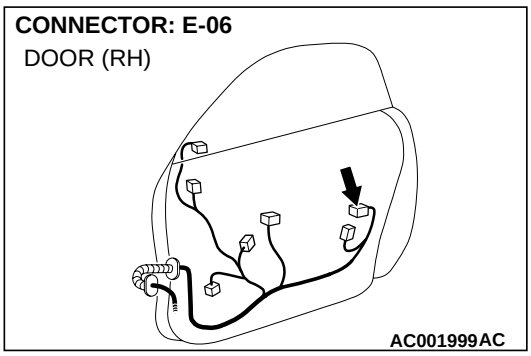
STEP 9. Check the harness wires between passenger's door lock key cylinder switch connector E-06 and ground.

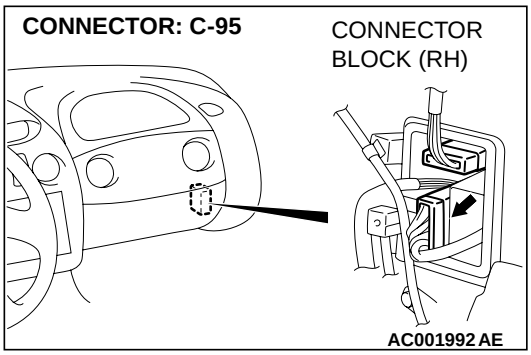
NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between passenger's door lock key cylinder switch connector E-06 and ground in good condition?

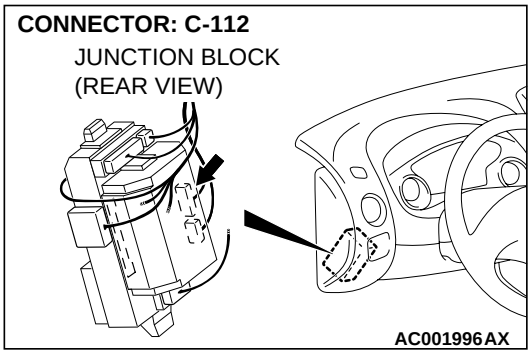
YES : There is no action to be taken.

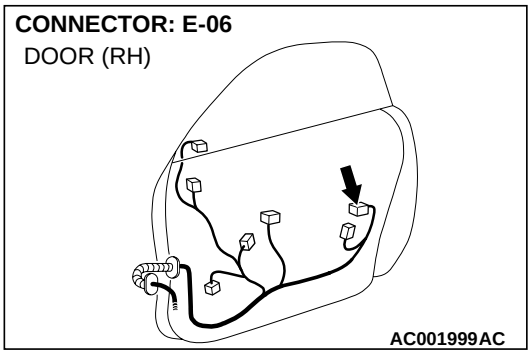
NO : Repair them. The input signal from the passenger's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





TSB Revision



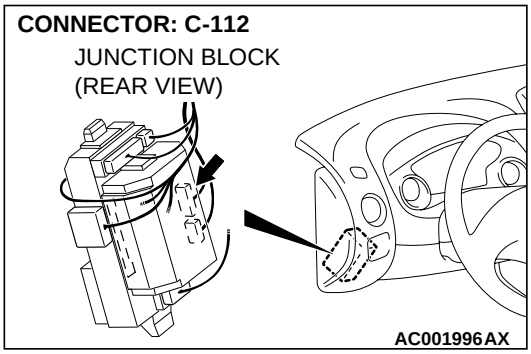


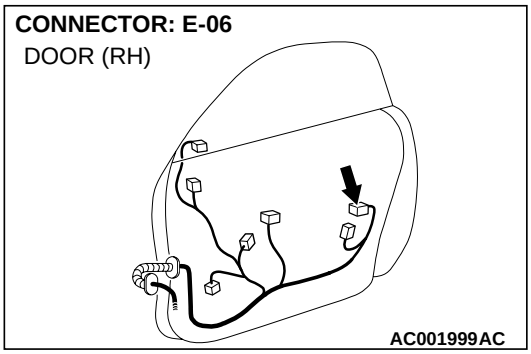
STEP 10. Check the passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-112 for damage.

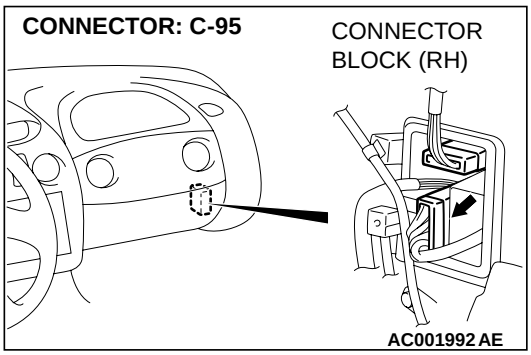
Q: Are passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-112 in good condition?

YES : Go to Step 13.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the passenger's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.







STEP 11. Check the harness wires between passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-112.

NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between passenger's door lock key cylinder switch connector E-06 and ETACS-ECU connector C-112 in good condition?

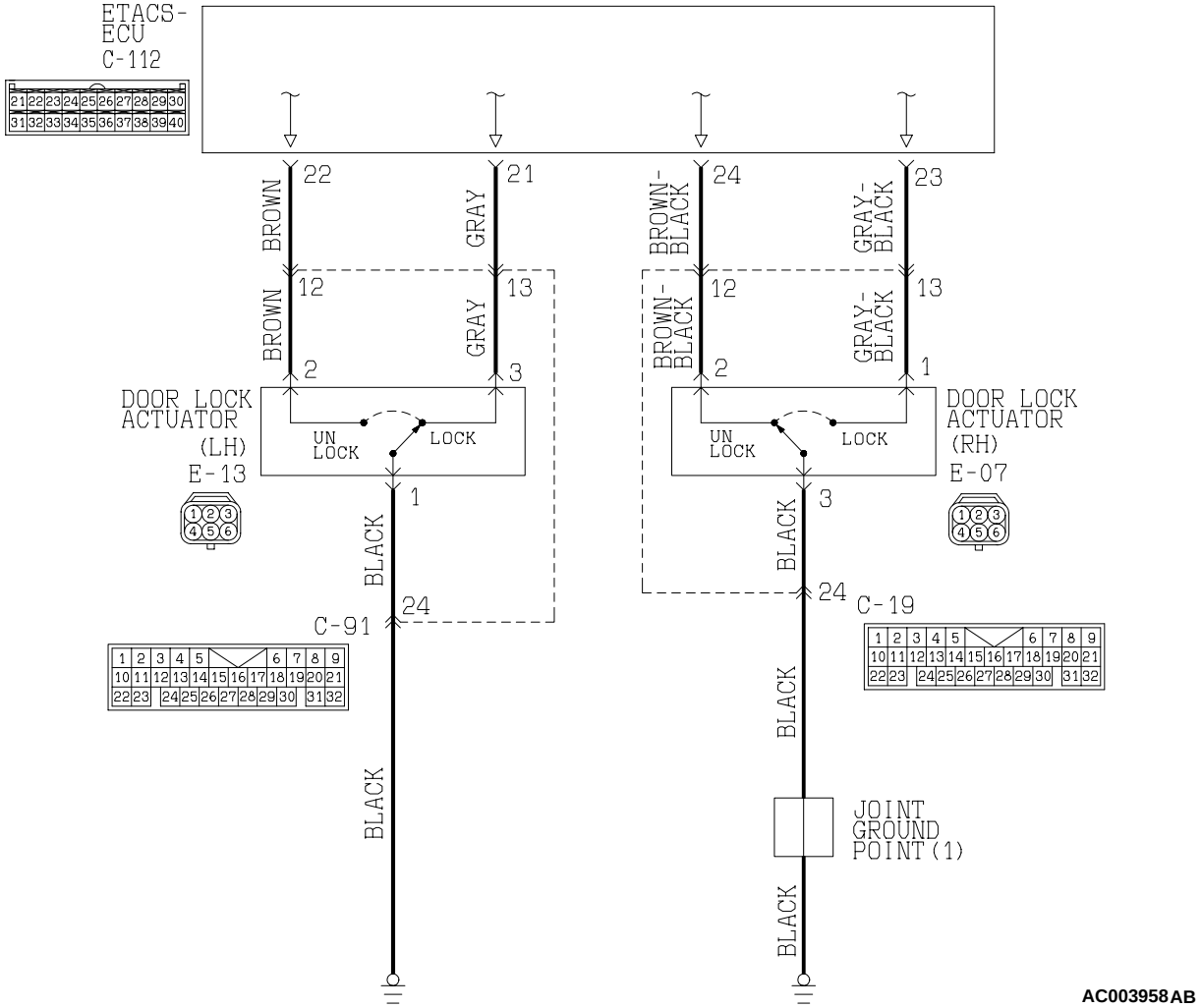
YES : Replace the ETACS-ECU. The input signal from the passenger's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

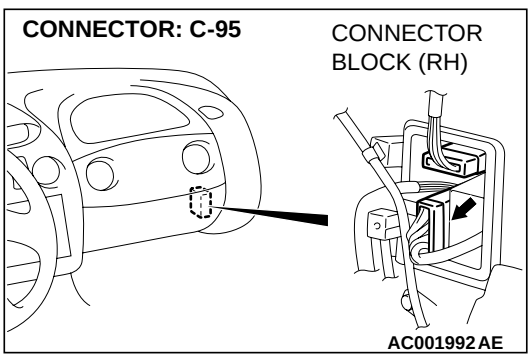
NO : Repair them. The input signal from the passenger's door lock key cylinder switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

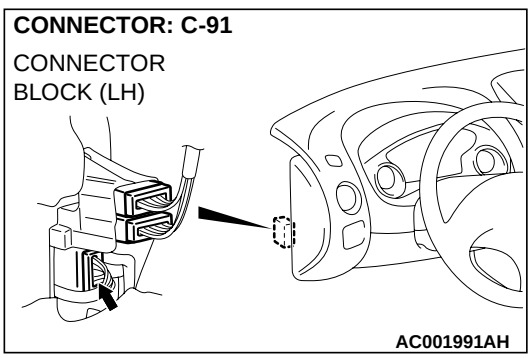
TSB Revision

Inspection Procedure O-12: The driver's or passenger's door lock actuator switch is not sent to the ETACS-ECU.

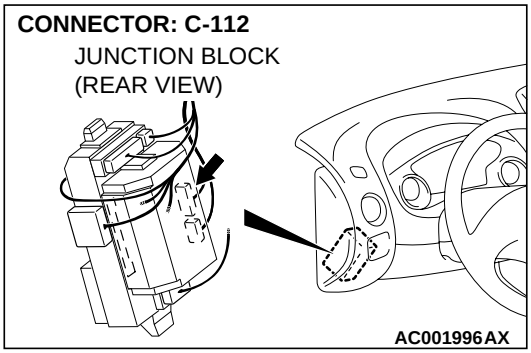
Driver's or Passenger's Door Lock Actuator Switch Input Circuit

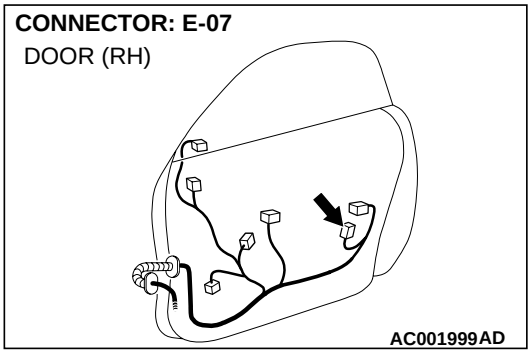


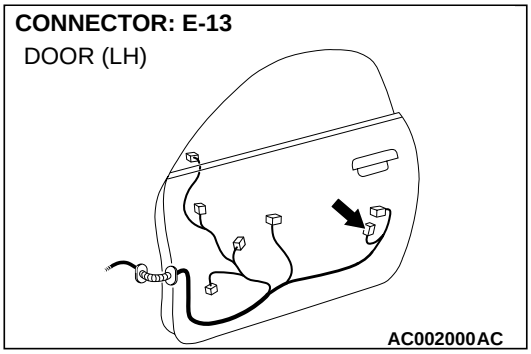




TSB Revision







CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the driver's, passenger's, rear and back door lock actuator switch to operate the following functions.

TECHNICAL DESCRIPTION (COMMENT)

<Driver's door lock actuator switch>

The input signal from the driver's door lock actuator switch is used to operate the following systems or functions:

- Central door locking system
- Forgotten key prevention function
- Rolling lock function
- Keyless entry system
- Interior light dimming function
- Theft-alarm system

If the signal fails, these systems or function will not work normally.

TECHNICAL DESCRIPTION (COMMENT)

<Passenger's door lock actuator switch>

The input signal from the passenger's door lock actuator switch is used to operate the following systems or functions:

- Forgotten key prevention function
- Rolling lock function
- Theft-alarm system

If the signal fails, these systems or function will not work normally.

TROUBLESHOOTING HINTS

- Malfunction of the driver's or passenger's door latch assembly
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

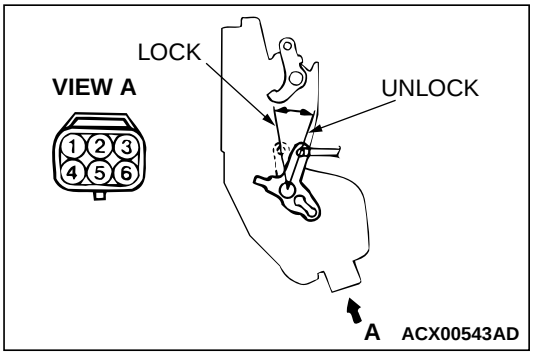
- MB991223: Test Harness Set

STEP 1. Check the location of malfunction.

Q: Which door lock actuator switch signal is not input?

Driver's door : Go to Step 2.
Passenger's door : Go to Step 8.

TSB Revision



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

ROD POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 3	Continuity
UNLOCK	1 – 2	Continuity

Q: Is the driver's door lock actuator switch in good condition?

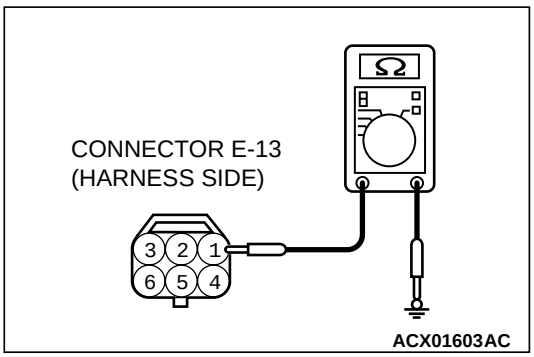
YES : Go to Step 3.

NO : Replace it. The input signal from the driver's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

STEP 3. Check the driver's door lock actuator switch ground circuit at driver's door lock actuator switch connector E-13

(1) Disconnect driver's door lock actuator switch connector E-13 and measure at the harness side.

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



Q: Is the resistance less than 2 ohms?

YES : Go to Step 6.

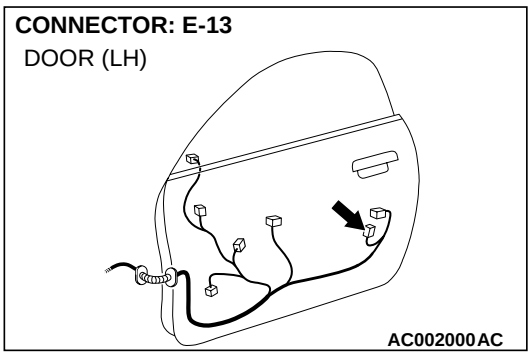
NO : Go to Step 4.

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 it. Refer to GROUP 00E, Harness Connector Inspection. The input signal from the driver's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



TSB Revision

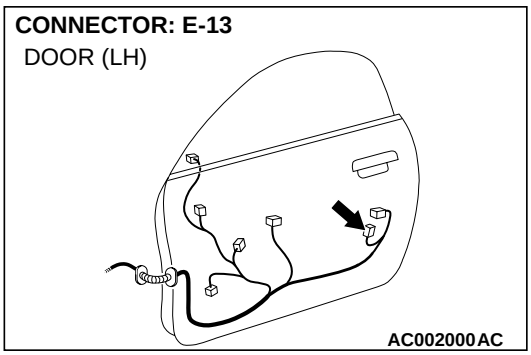
STEP 5. Check the harness wires between driver's door lock actuator switch connector E-13 and ground.

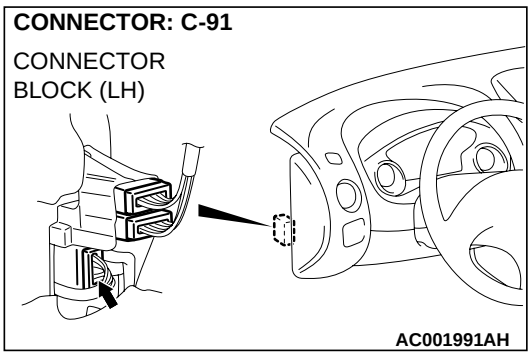
NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between driver's door lock actuator switch connector E-13 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The input signal from the driver's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



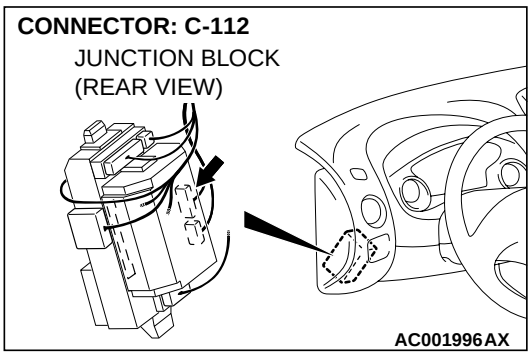


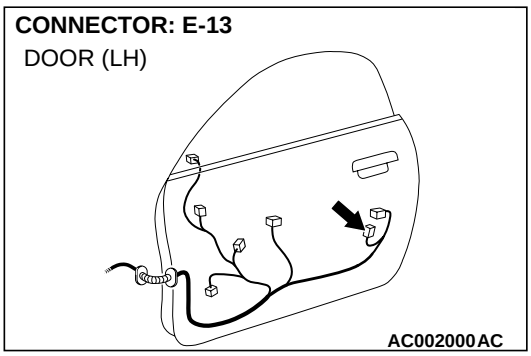
STEP 6. Check the driver's door lock actuator switch connector E-13 and ETACS-ECU connector C-112 for damage.

Q:

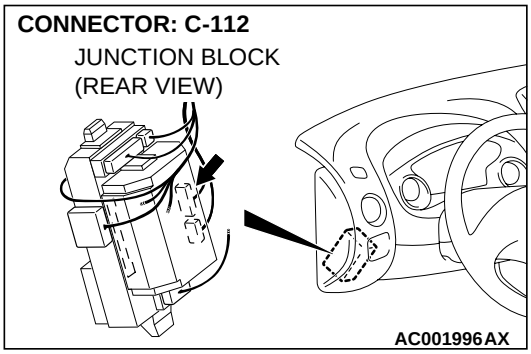
YES : Go to Step 7.

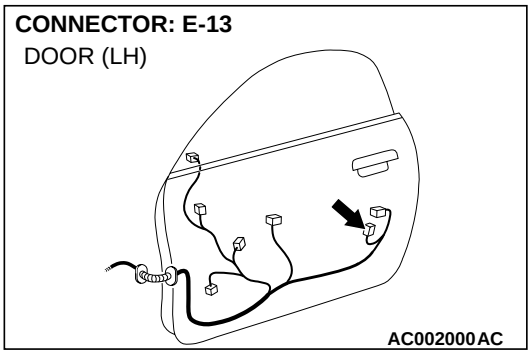
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the driver's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

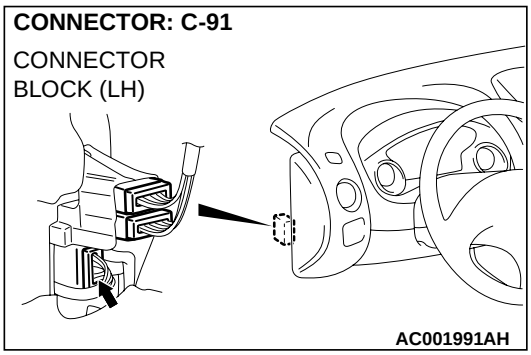




TSB Revision







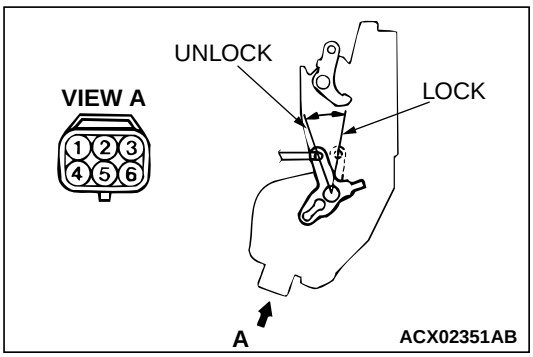
STEP 7. Check the harness wires between driver's door lock actuator switch connector E-13 and ETACS-ECU connector C-112.

NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between driver's door lock actuator switch connector E-13 and ETACS-ECU connector C-112 in good condition?

YES : Replace the ETACS-ECU. The input signal from the driver's door lock actuator switch 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 driver's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.



STEP 8. Check the passenger's door lock actuator switch.

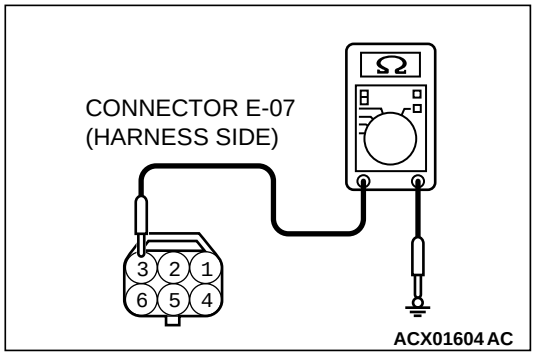
ROD POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 3	No continuity
UNLOCK	2 – 3	Continuity

Q: Is the passenger's door lock actuator switch in good condition?

YES : Go to Step 9.

NO : Replace it. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

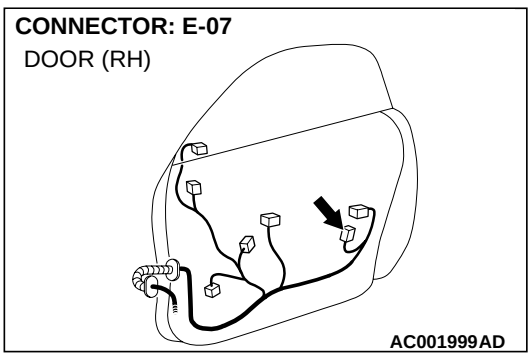


STEP 9. Check the passenger's door lock actuator switch ground circuit at passenger's door lock actuator switch connector E-07.

(1) Disconnect passenger's door lock actuator switch connector E-07 and measure at the harness side.
(2) Measure the resistance between terminal 3 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 12.
NO : Go to Step 10.

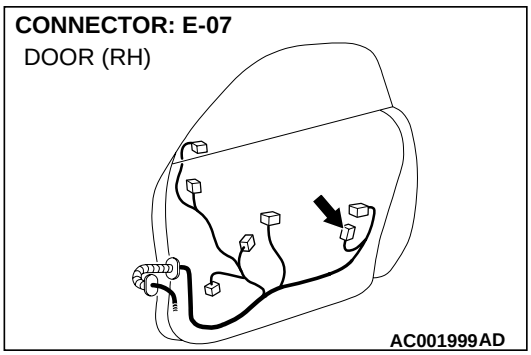


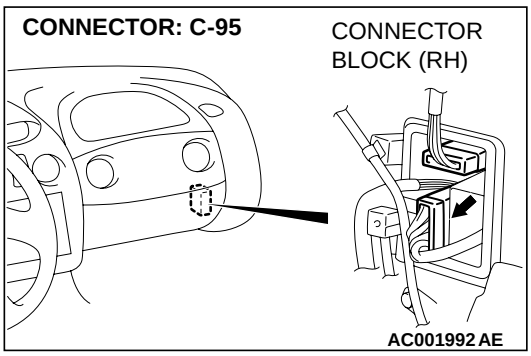
STEP 10. Check passenger's door lock actuator switch connector E-07 for damage.

Q: Is passenger's door lock actuator switch connector E-07 in good condition?

YES : Go to Step 11.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision





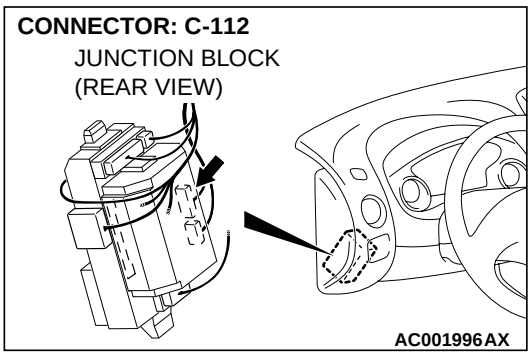
STEP 11. Check the harness wires between passenger's door lock actuator switch connector E-07 and ground.

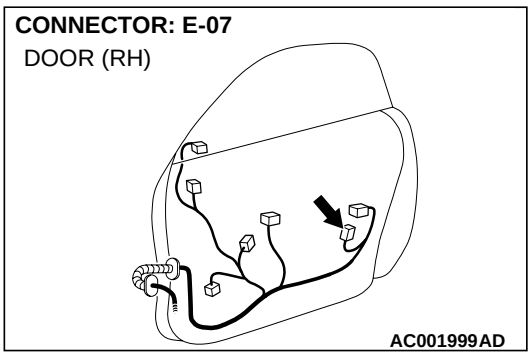
NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between passenger's door lock actuator switch connector E-07 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





STEP 12. Check the passenger's door lock actuator switch connector E-07 and ETACS-ECU connector C-112 for damage.

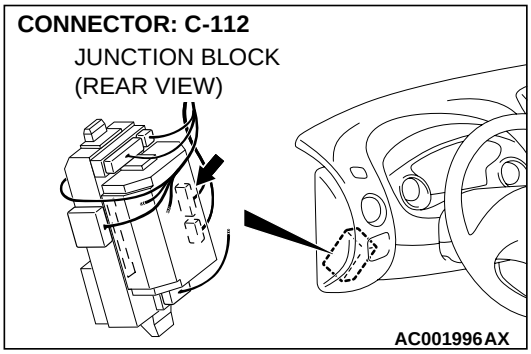
Q:

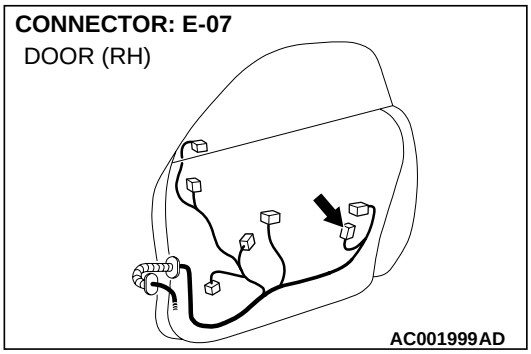
YES : Go to Step 13.

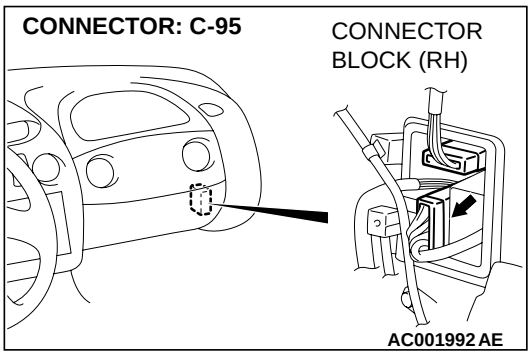
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

STEP 13. Check the harness wires between passenger's door lock actuator switch connector E-07 and ETACS-ECU connector C-112.







NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between passenger's door lock actuator switch connector E-07 and ETACS-ECU connector C-112 in good condition?

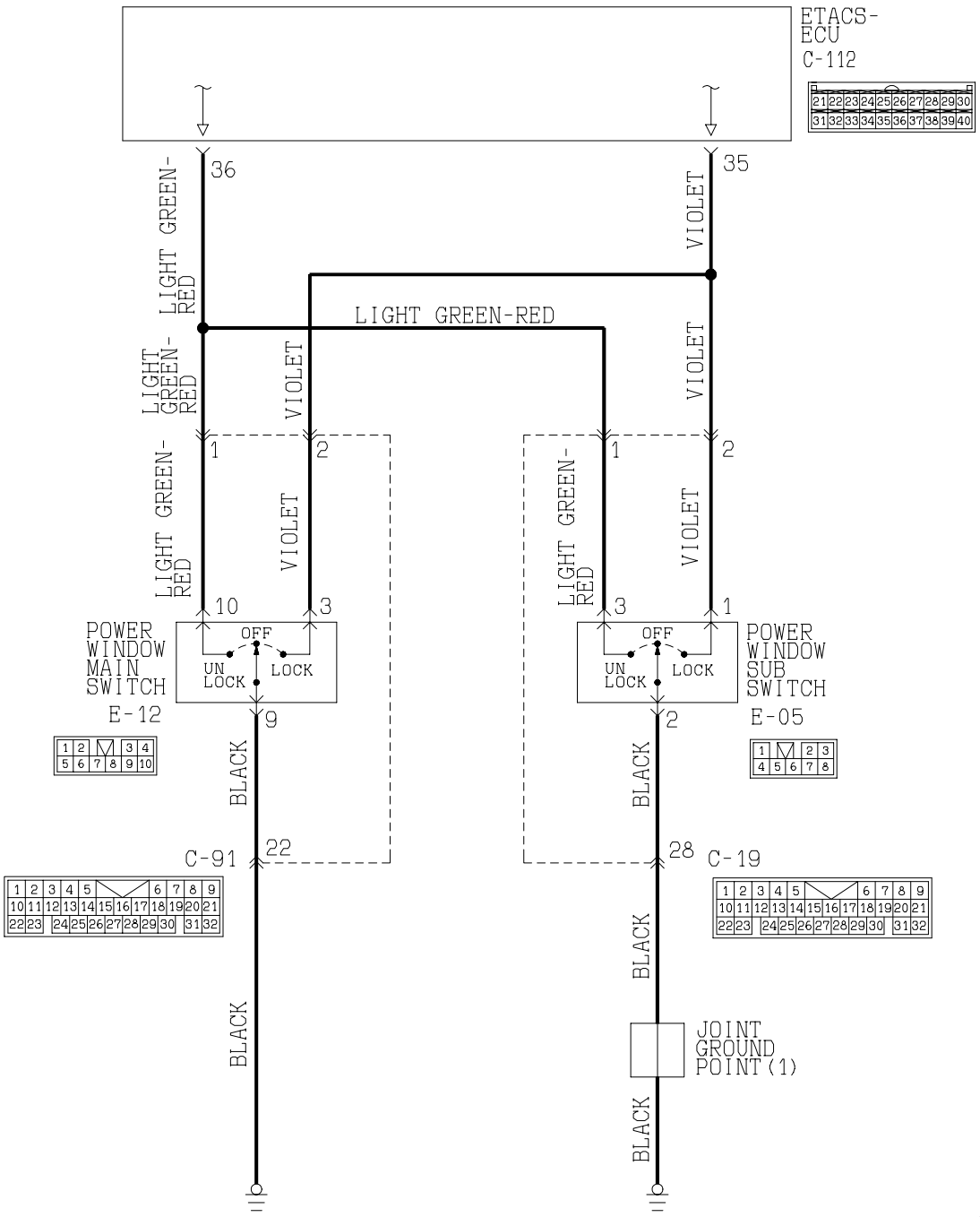
YES : Replace the ETACS-ECU. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Repair them. The input signal from the passenger's door lock actuator switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

TSB Revision

Inspection Procedure O-13: The door lock switch (incorporated in power window main switch and power window sub switch) signal is not sent to the ETACS-ECU.

Door Lock Switch Input Circuit



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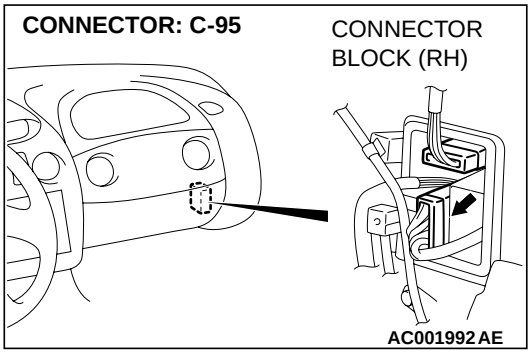
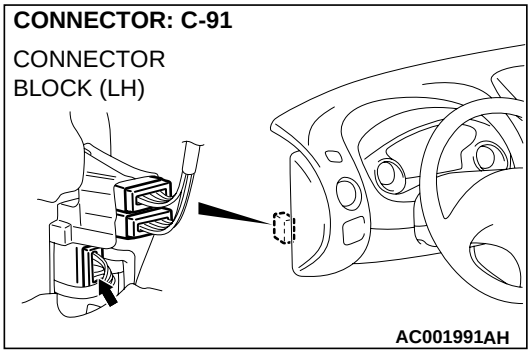
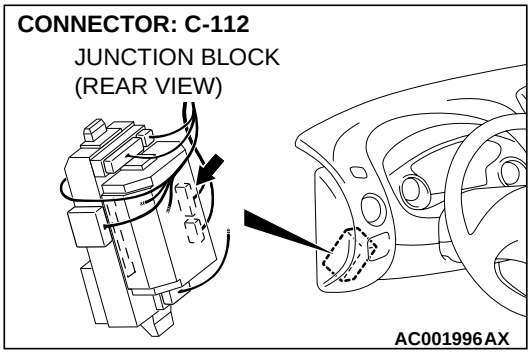
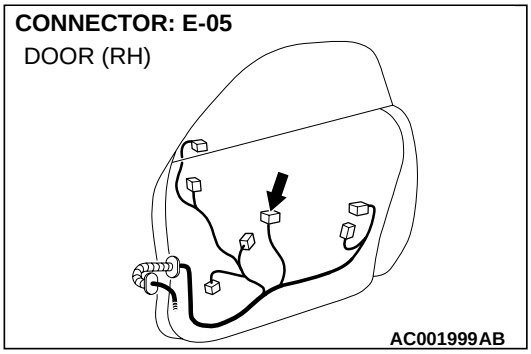
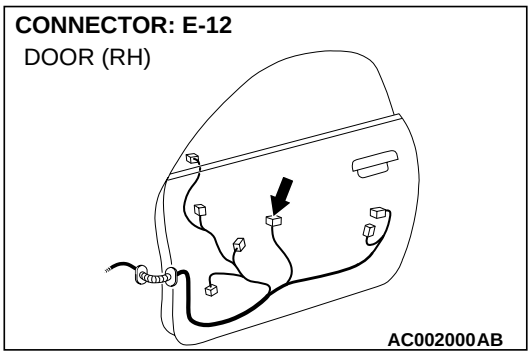
TSB Revision











CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the door lock switch to operate the central door locking system.

TECHNICAL DESCRIPTION (COMMENT)

The door lock switch input signal is used to operate the central door locking system. If the signal fails, the door will not be locked or unlocked when the door lock switch is operated.

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)
- MB991529: Diagnostic Trouble Code Check Harness

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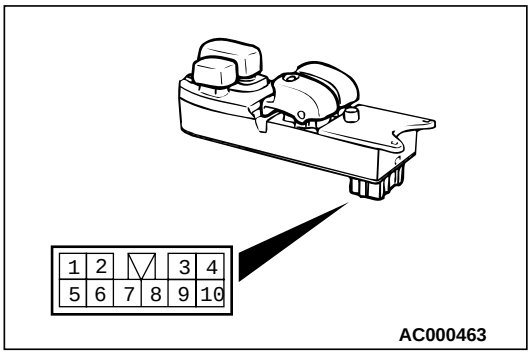
STEP 1. Check the location of malfunction.

Q: Which door lock switch signal is not input?

Power window main switch (Driver's door) : Go to Step 2.

Power window sub switch (Passenger's door) : Go to Step 8.

STEP 2. Check the door lock switch (power window main switch).



SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	3 – 9	Continuity
OFF	–	No continuity
UNLOCK	9 – 10	Continuity

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

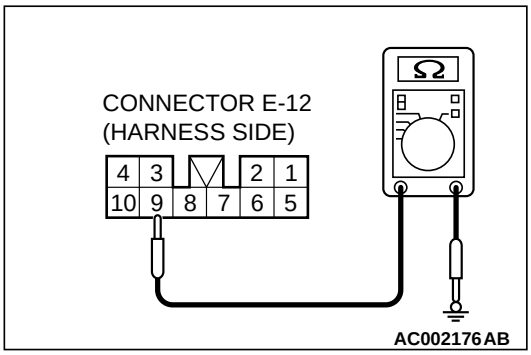
YES : Go to Step 3.

NO : Replace the power window main switch. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

STEP 3. Check the power window main switch ground circuit at power window main switch connector E-12.

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

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

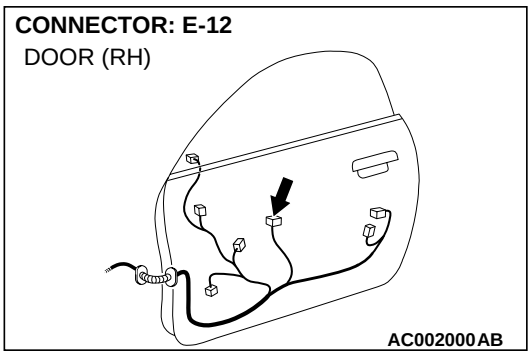


Q: Is the resistance less than 2 ohms?

YES : Go to Step 6.

NO : Go to Step 4.

TSB Revision

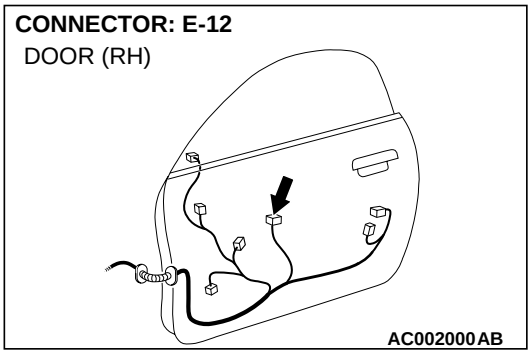


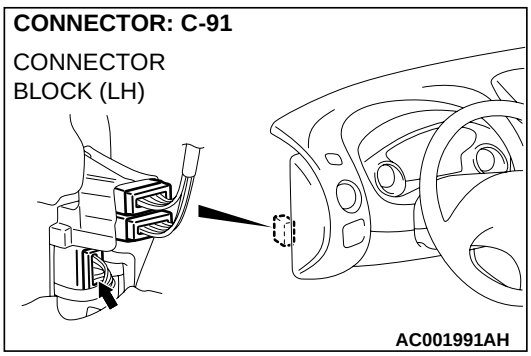
STEP 4. Check power window main switch connector E-12 for damage.

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

YES : Go to Step 5.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door lock switch input signal should be able to be checked and the central door locking system should work normally.





STEP 5. Check the harness wires between power window main switch connector E-12 and ground.

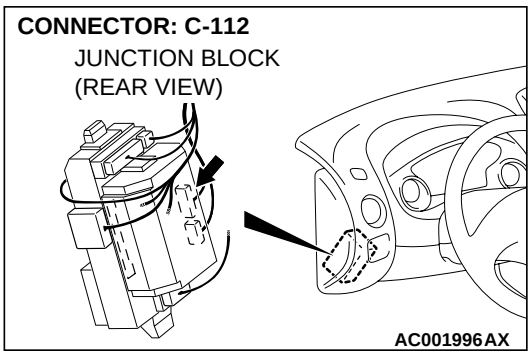
NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection.

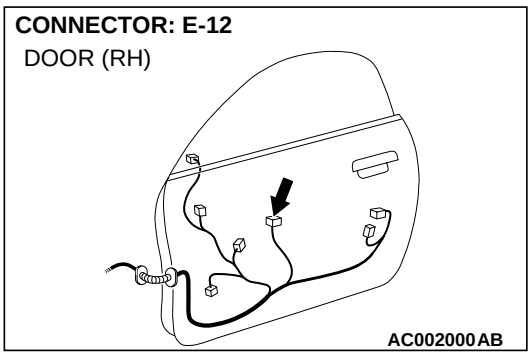
Q: Are the harness wires between power window main switch connector E-12 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

TSB Revision





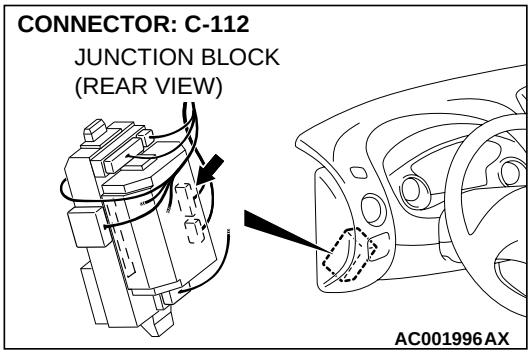
STEP 6. Check the power window main switch connector E-12 and ETACS-ECU connector C-112 for damage.

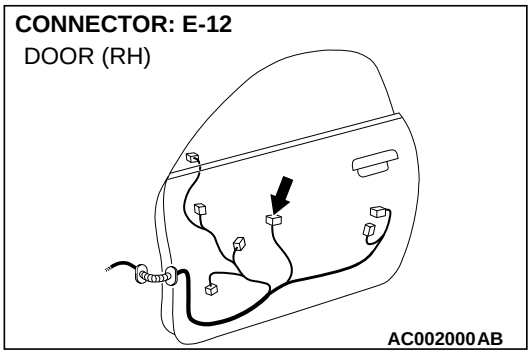
Q: Are power window main switch connector E-12 and ETACS-ECU connector C-112 in good condition?

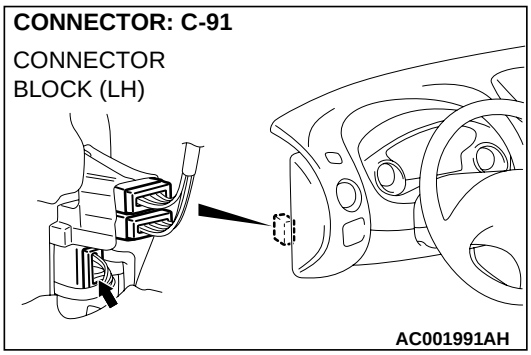
YES : Go to Step 7.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

TSB Revision







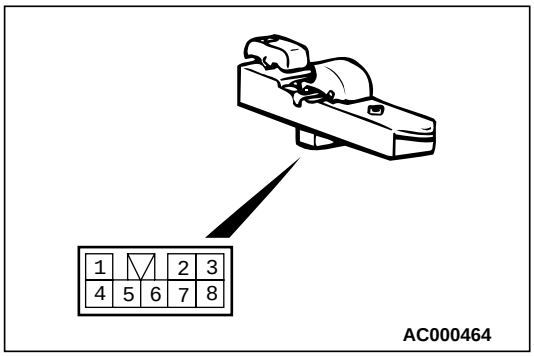
STEP 7. Check the harness wires between power window main switch connector E-12 and ETACS-ECU connector C-112.

NOTE: After checking intermediate connector C-91, check the wires. If intermediate connector C-91 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between power window main switch connector E-12 and ETACS-ECU connector C-211 in good condition?

YES : Replace the ETACS-ECU. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

NO : Repair them. The door lock switch input signal should be able to be checked and the central door locking system should work normally.



STEP 8. Check the door lock switch (power window sub switch).

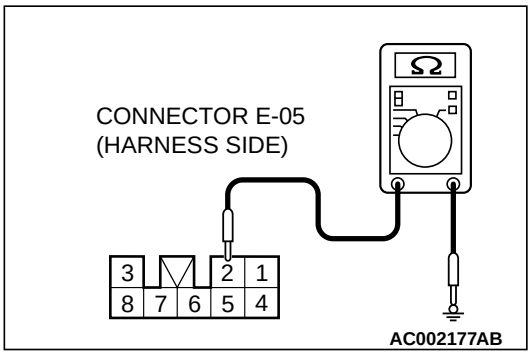
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	1 – 2	Continuity
OFF	–	No continuity
UNLOCK	2 – 3	Continuity

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. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

TSB Revision

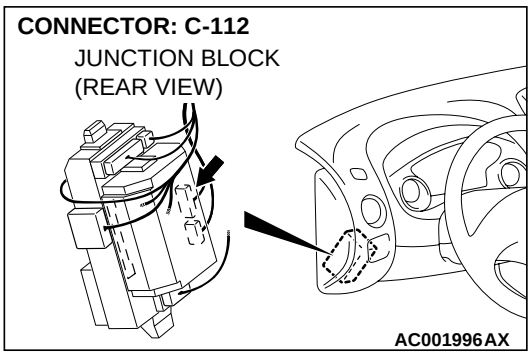


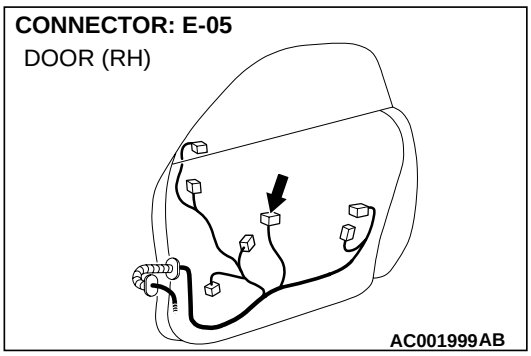
STEP 9. Check the power window sub switch ground circuit at power window sub switch connector E-05.

(1) Disconnect power window sub switch connector E-05 and measure at the harness side.
(2) Measure the resistance between terminal 2 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 12.
NO : Go to Step 10.





STEP 10. Check power window sub switch connector E-05 and ETACS-ECU connector C-112 for damage.

Q: Is power window sub switch connector E-05 in good condition?

YES : Go to Step 11.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

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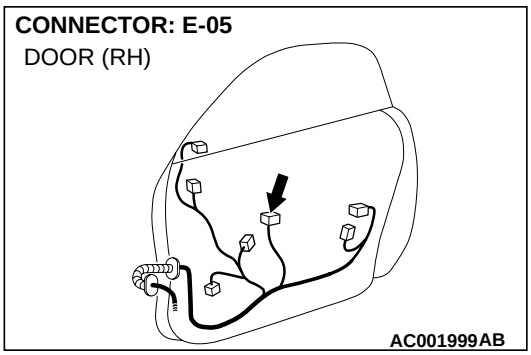
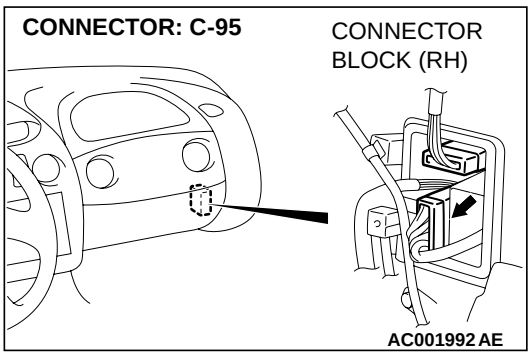




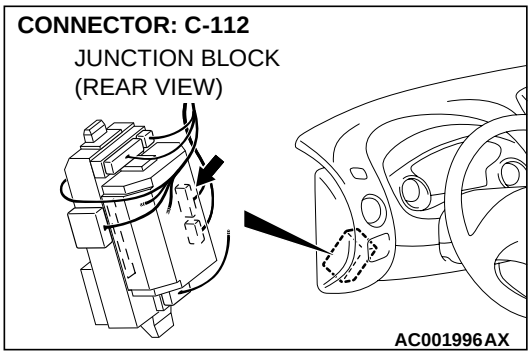
STEP 11. Check the harness wires between power window sub switch connector E-05 and ground.

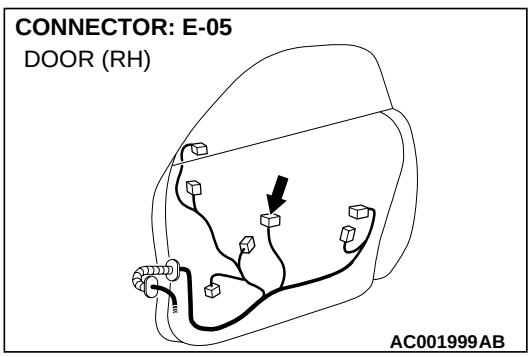
NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection.

Q: Are the harness wires between power window sub switch connector E-05 and ground in good condition?

YES : There is no action to be taken.

NO : Repair them. The door lock switch input signal should be able to be checked and the central door locking system should work normally.





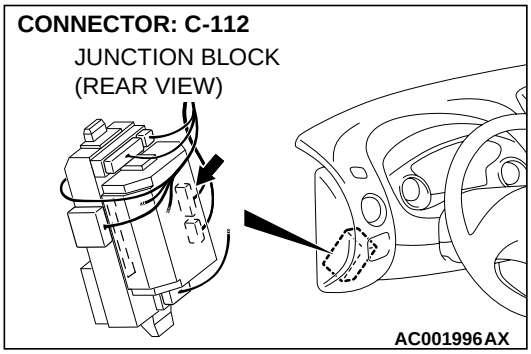
STEP 12. Check the power window sub switch connector E-05 and ETACS-ECU connector C-112 for damage.

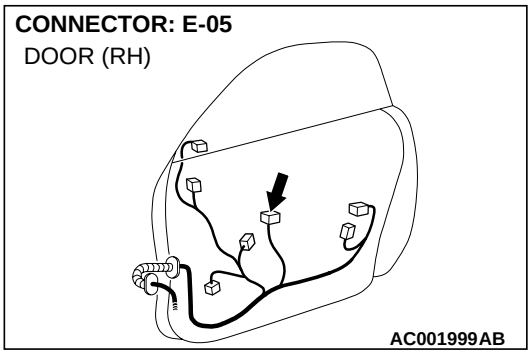
Q:

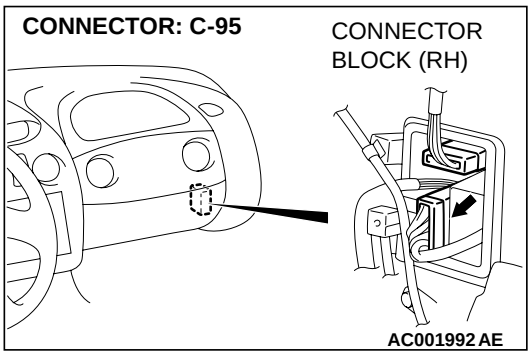
YES : Go to Step 13.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

TSB Revision







STEP 13. Check the harness wires between power window sub switch connector E-05 and ETACS-ECU connector C-112.

NOTE: After checking intermediate connector C-95, check the wires. If intermediate connector C-95 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

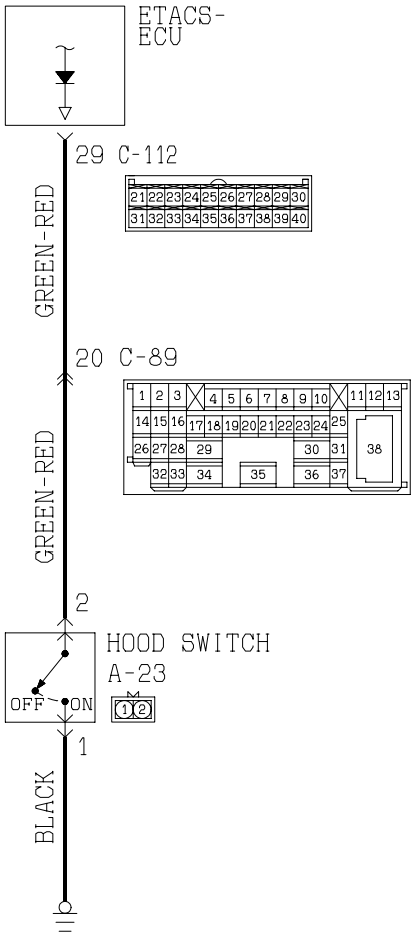
Q: Are the harness wires between power window sub switch connector E-05 and ETACS-ECU connector C-112 in good condition?

YES : Replace the ETACS-ECU. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

NO : Repair them. The door lock switch input signal should be able to be checked and the central door locking system should work normally.

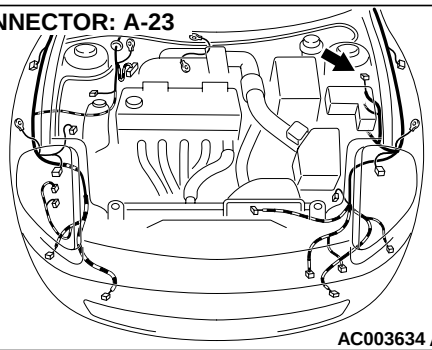
Inspection Procedure O-14: The hood switch signal is not sent to the ETACS-ECU.

Hood Switch Input Circuit



AC003960AB

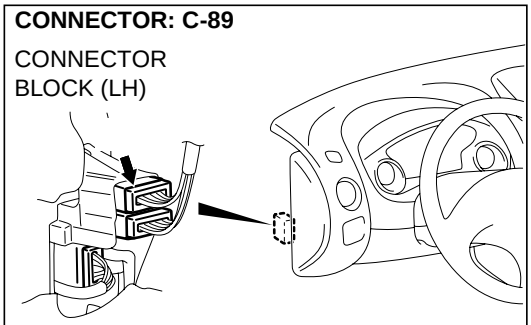
CONNECTOR: A-23



AC003634 AG

CONNECTOR: C-89

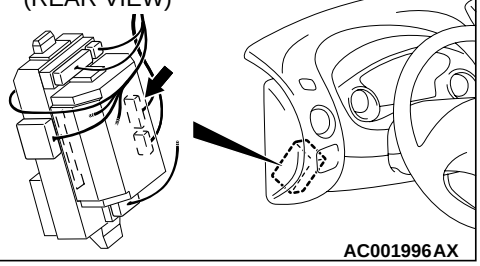
CONNECTOR
BLOCK (LH)



AC001991AG

CONNECTOR: C-112

JUNCTION BLOCK
(REAR VIEW)



AC001996AX

TSB Revision

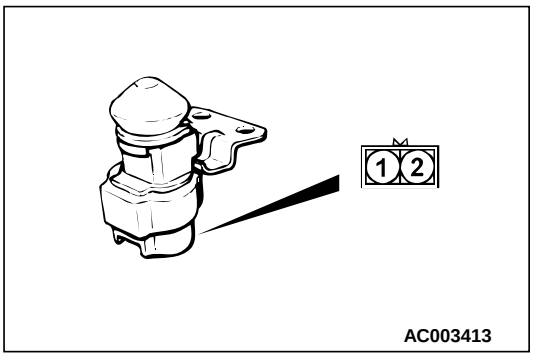
CIRCUIT OPERATION
The ETACS-ECU uses the input signal from the hood switch to arm the theft-alarm system.

TECHNICAL DESCRIPTION (COMMENT)
The hood switch 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 hood switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set

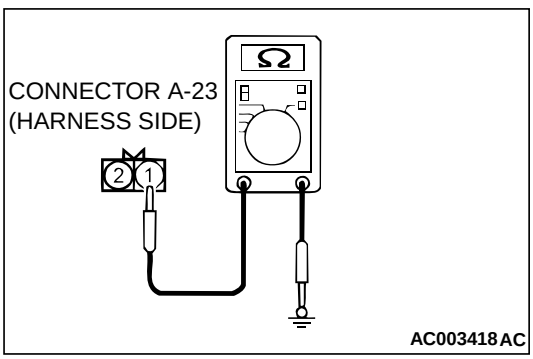


STEP 1. Check the hood switch.

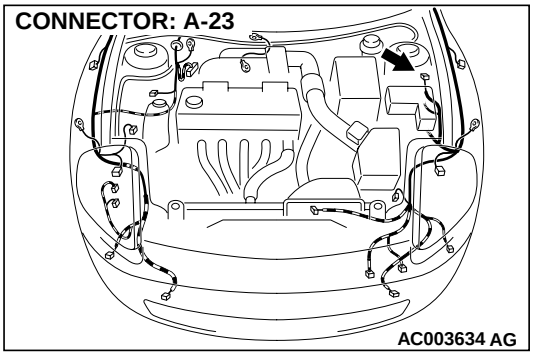
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
Released	1 – 2	Continuity
Pressed	–	No continuity

Q: Is the hood switch in good condition?
YES : Go to Step 2.
NO : Replace it. The input signal from the hood switch should be able to be checked and the theft-alarm system should be armed normally.

STEP 2. Check the hood switch ground circuit at hood switch connector A-23.
(1) Disconnect hood switch connector A-23 and measure at the harness side.
(2) Measure the resistance between terminal 2 and ground.



Q: Is the resistance less than 2 ohms?
YES : Go to Step 5.
NO : Go to Step 3.

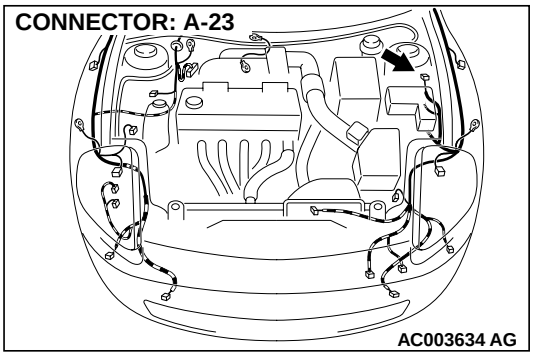


STEP 3. Check hood switch connector A-23 for damage.

Q: Is hood switch connector A-23 in good condition?

YES : Go to Step 4.

NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the hood switch should be able to be checked and the theft-alarm system should be armed normally.

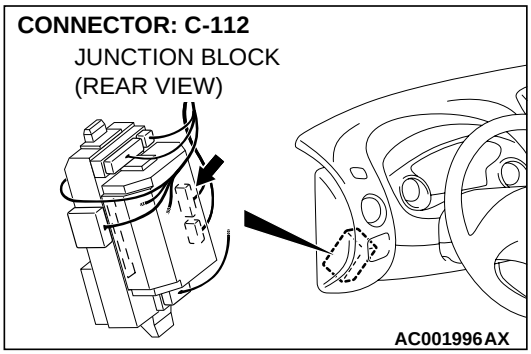


STEP 4. Check the harness wire between hood switch connector A-23 and ground.

Q: Is the harness wire between hood switch connector A-23 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The input signal from the hood switch should be able to be checked and the theft-alarm system should be armed normally.



STEP 5. Check hood switch connector A-23 and ETACS-ECU connector C-112 for damage.

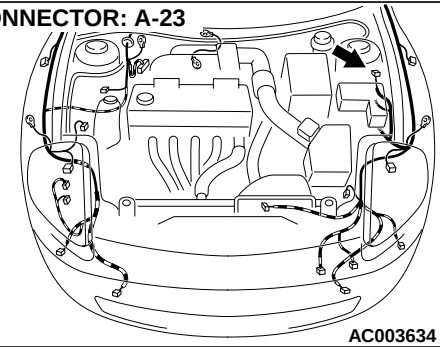
Q: Are hood switch connector A-23 and ETACS-ECU connector C-112 in good condition?

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 hood switch should be able to be checked and the theft-alarm system should be armed normally.

TSB Revision

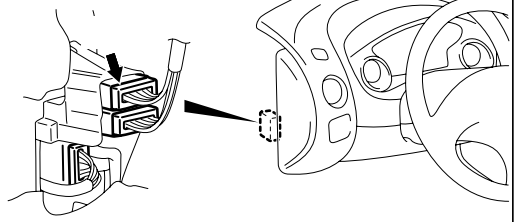
CONNECTOR: A-23



AC003634 AG

CONNECTOR: C-89

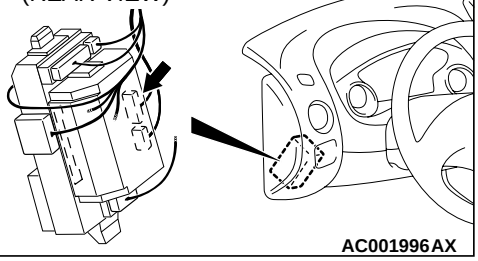
CONNECTOR
BLOCK (LH)



AC001991AG

CONNECTOR: C-112

JUNCTION BLOCK
(REAR VIEW)



AC001996AX

STEP 6. Check the harness wires between hood switch connector A-23 and ETACS-ECU connector C-112.

NOTE: After checking intermediate connector C-89, check the wires. If intermediate connector C-89 is damaged, repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

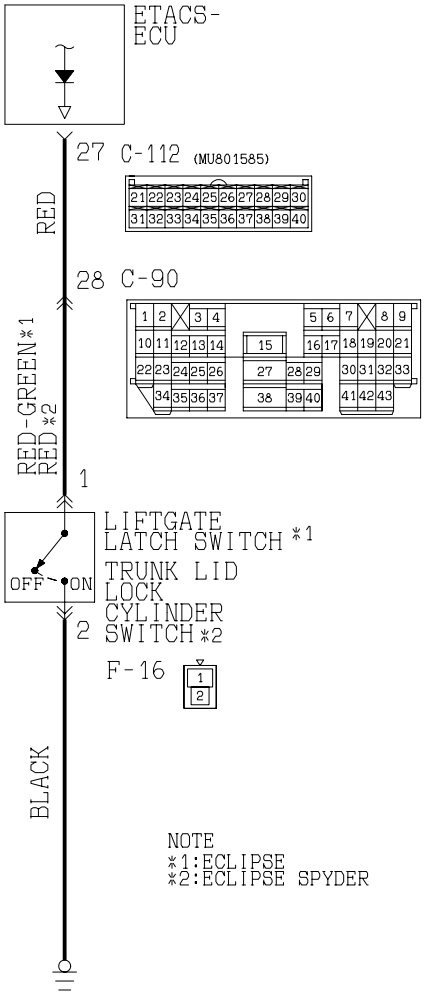
Q: Are the harness wires between hood switch connector A-23 and ETACS-ECU connector C-112 in good condition?

YES : Replace the ETACS-ECU. The input signal from the hood switch should be able to be checked and the theft-alarm system should be armed normally.

NO : Repair them. The input signal from the hood switch should be able to be checked and the theft-alarm system should be armed normally.

Inspection Procedure O-15: The liftgate latch switch signal is not sent to the ETACS-ECU.

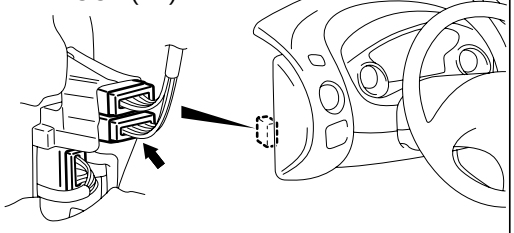
Liftgate Latch Switch Input Circuit



AC003961AB

CONNECTOR: C-90

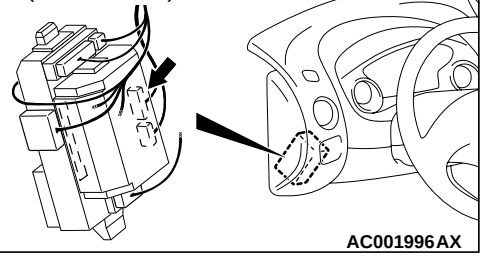
CONNECTOR BLOCK (LH)



AC001991AI

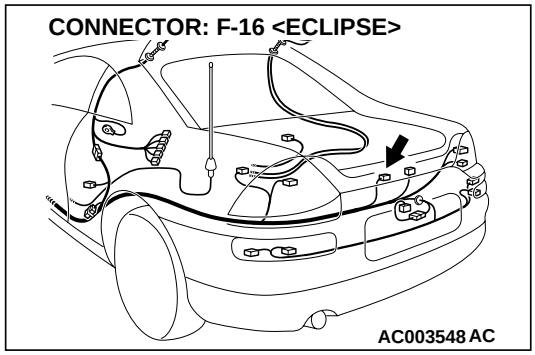
CONNECTOR: C-112

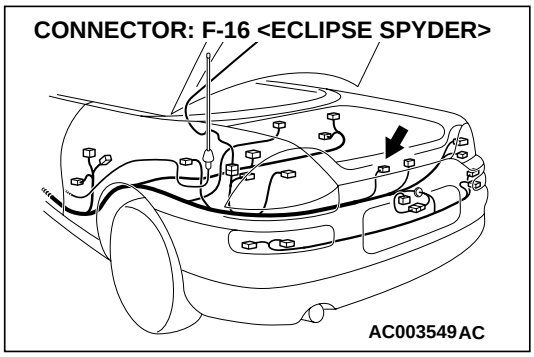
JUNCTION BLOCK (REAR VIEW)



AC001996AX

TSB Revision





CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the trunk lid latch switch to operate the following functions.

- Door ajar warning light
- Theft-alarm system

TECHNICAL DESCRIPTION (COMMENT)

The trunk lid latch switch input signal is used to operate the following functions. If the signal fails, these function will not work normally.

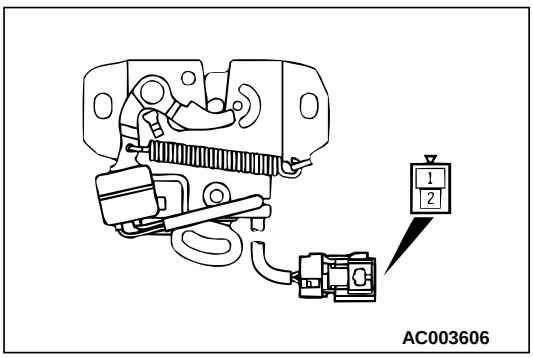
TROUBLESHOOTING HINTS

- Malfunction of the trunk lid latch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set



STEP 1. Check the trunk lid latch switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
LOCK	–	No continuity
UNLOCK	1 – 2	Continuity

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

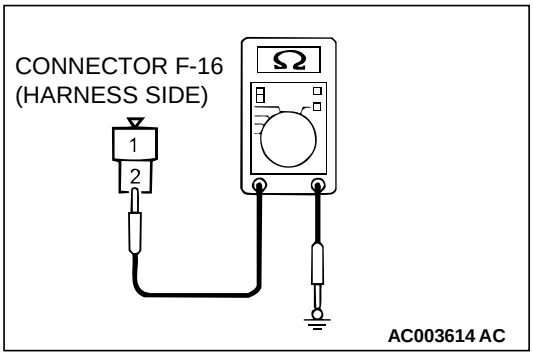
YES : Go to Step 2.

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

STEP 2. Check the trunk lid latch switch ground circuit at trunk lid latch switch connector F-16.

(1) Disconnect trunk lid latch switch connector F-16 and measure at the harness side.

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

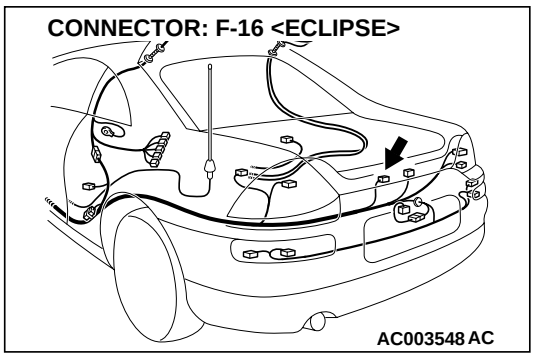


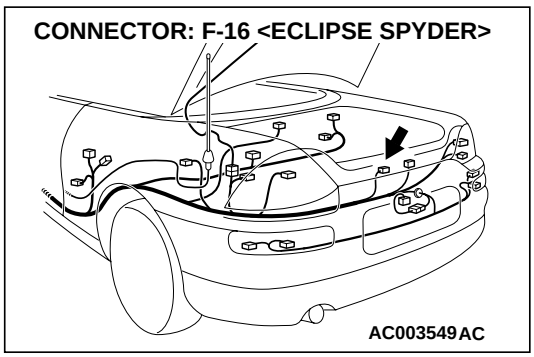
Q: Is the resistance less than 2 ohms?

YES : Go to Step 5.

NO : Go to Step 3.

TSB Revision



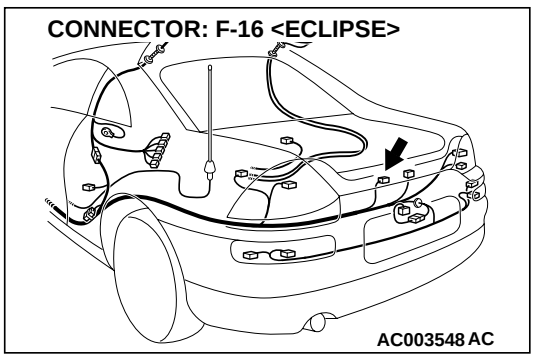


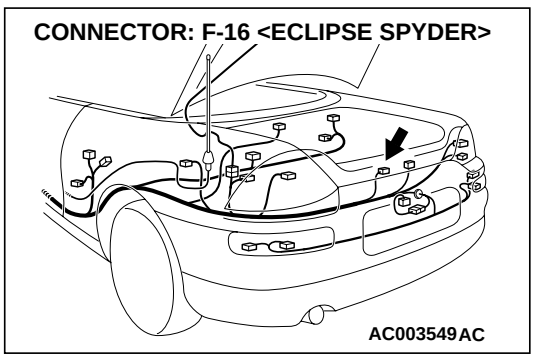
STEP 3. Check trunk lid latch switch connector F-16 for damage.

Q: Is trunk lid latch switch connector F-16 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 trunk lid latch switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.





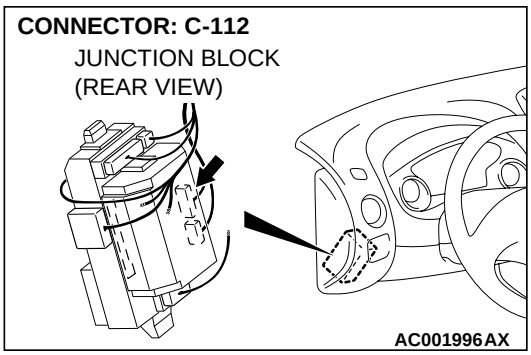
STEP 4. Check the harness wire between trunk lid latch switch connector F-16 and ground.

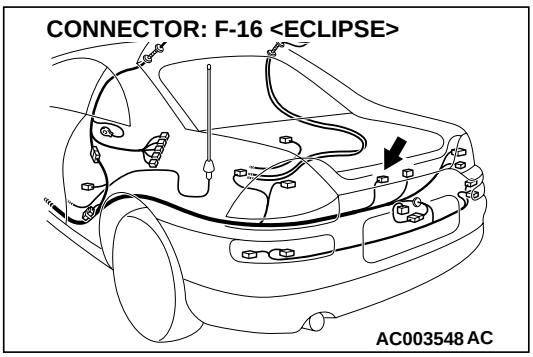
Q: Is the harness wire between trunk lid latch switch connector F-16 and ground in good condition?

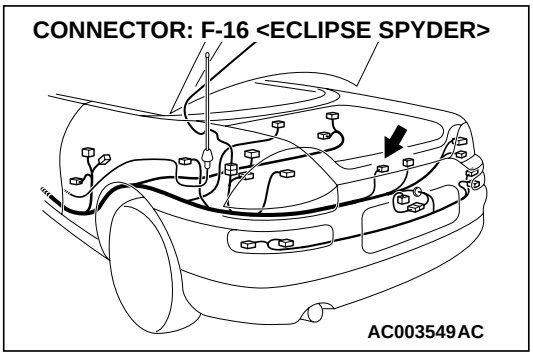
YES : There is no action to be taken.

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

TSB Revision





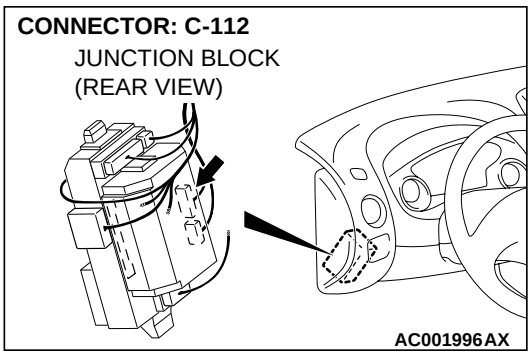


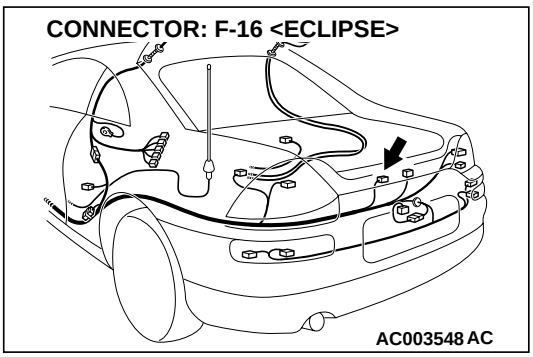
STEP 5. Check trunk lid latch switch connector F-16 and ETACS-ECU connector C-112 for damage.

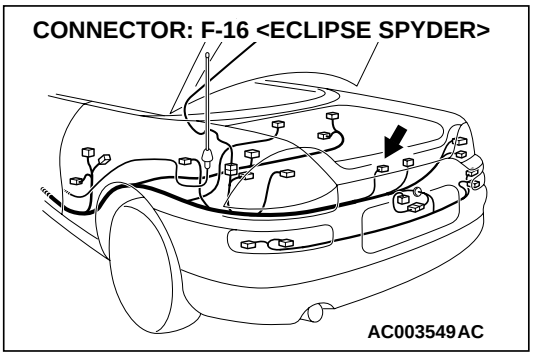
Q: Are trunk lid latch switch connector F-16 and ETACS-ECU connector C-112 in good condition?

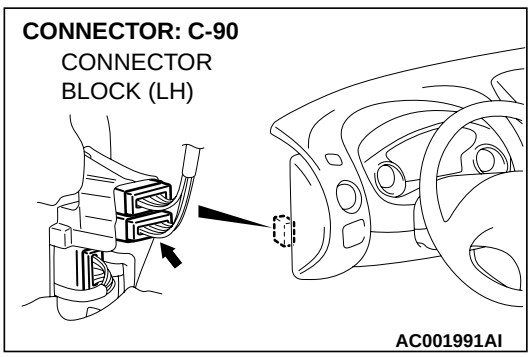
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the trunk lid latch switch 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 trunk lid latch switch connector F-16 and ETACS-ECU connector C-112.

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 trunk lid latch switch connector F-16 and ETACS-ECU connector C-112 in good condition?

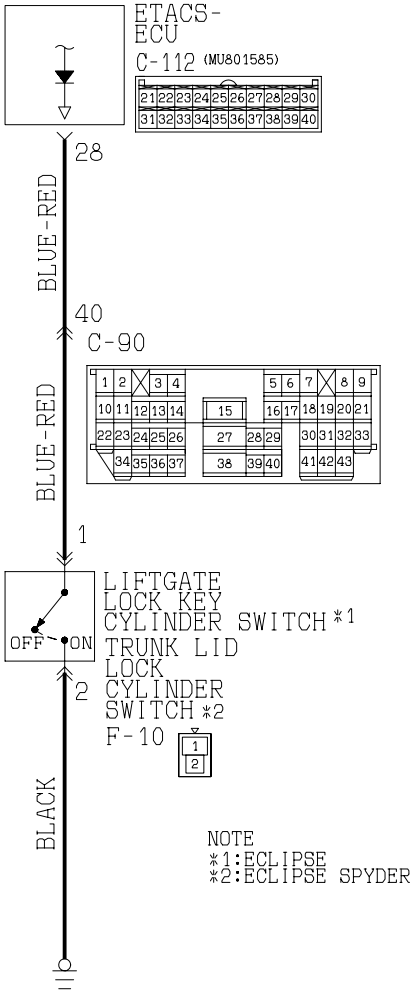
YES : Replace the ETACS-ECU. The input signal from the trunk lid latch switch should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

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

TSB Revision

Inspection Procedure O-16: The liftgate lock key cylinder switch signal is not sent to the ETACS-ECU.

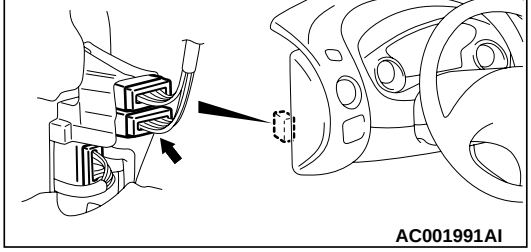
Liftgate Lock Key Cylinder Switch Input Circuit



AC003962AB

CONNECTOR: C-90

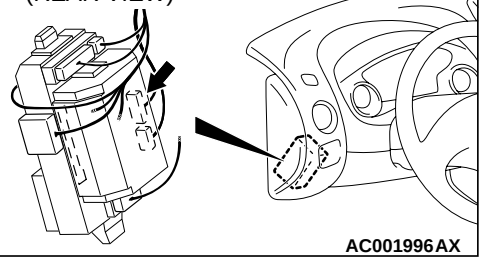
CONNECTOR
BLOCK (LH)



AC001991AI

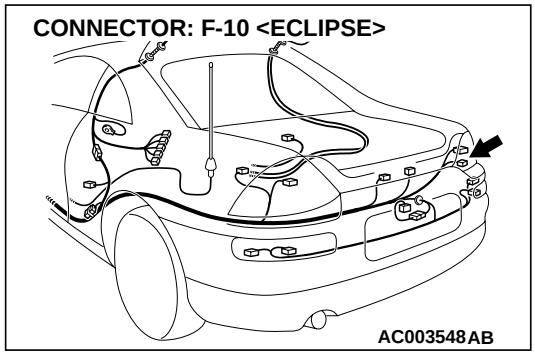
CONNECTOR: C-112

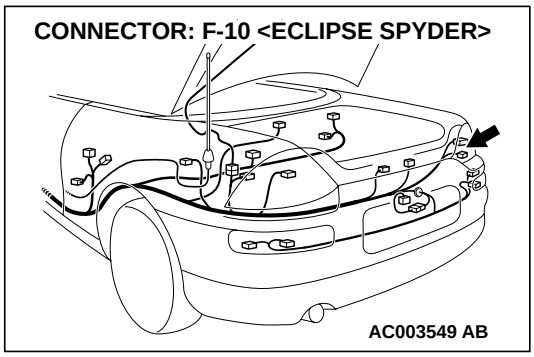
JUNCTION BLOCK
(REAR VIEW)



AC001996AX

TSB Revision





CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the trunk lid lock key cylinder switch to arm the theft-alarm system.

TECHNICAL DESCRIPTION (COMMENT)

The trunk lid lock key cylinder switch 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.

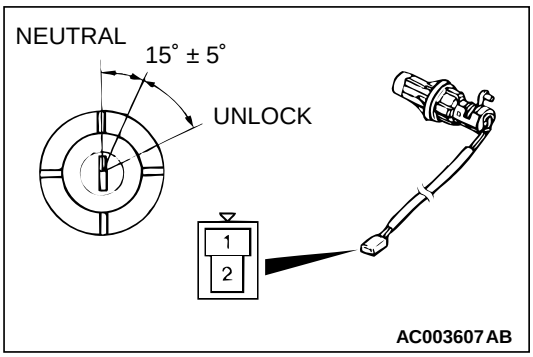
TROUBLESHOOTING HINTS

- Malfunction of the trunk lid lock key cylinder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set



STEP 1. Check the trunk lid lock key cylinder switch.

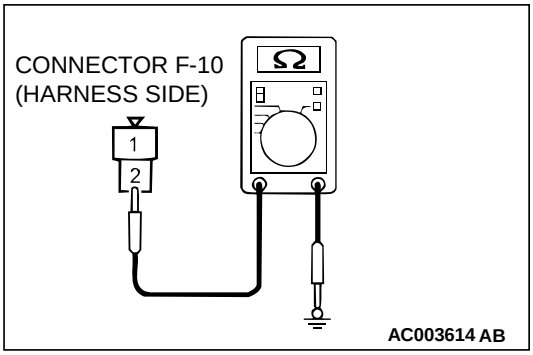
SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
UNLOCK	1 – 2	Continuity
Neutral (OFF)	–	No continuity

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

YES : Go to Step 2.

NO : Replace it. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.

TSB Revision

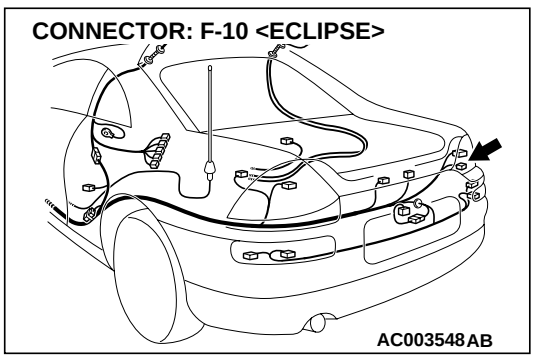


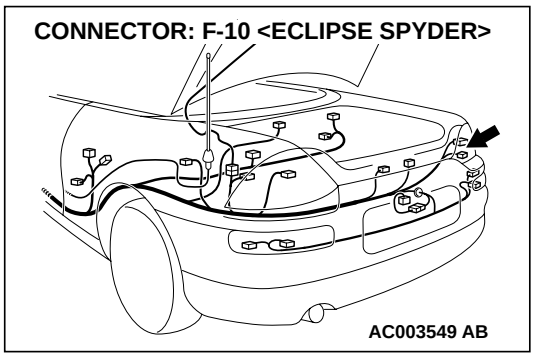
STEP 2. Check the trunk lid lock key cylinder switch ground circuit at trunk lid lock key cylinder switch connector F-10.

(1) Disconnect trunk lid lock key cylinder switch connector F-06 and measure at the harness side.
(2) Measure the resistance between terminal 2 and ground.

Q: Is the resistance less than 2 ohms?

YES : Go to Step 5.
NO : Go to Step 3.



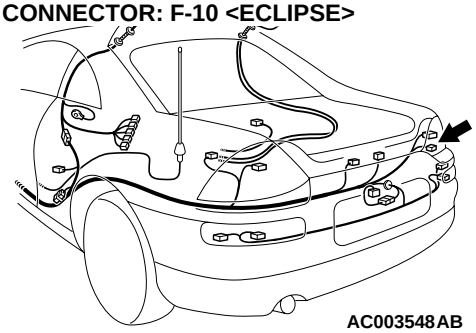


STEP 3. Check trunk lid lock key cylinder switch connector F-10 for damage.

Q: Is trunk lid lock key cylinder switch connector F-10 in good condition?

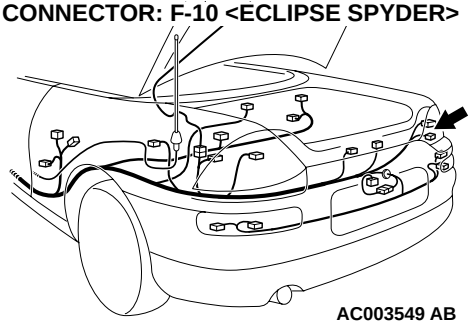
YES : Go to Step 4.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.

CONNECTOR: F-10 <ECLIPSE>



AC003548AB

CONNECTOR: F-10 <ECLIPSE SPYDER>



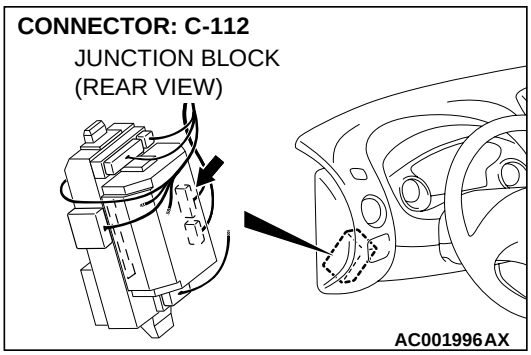
AC003549 AB

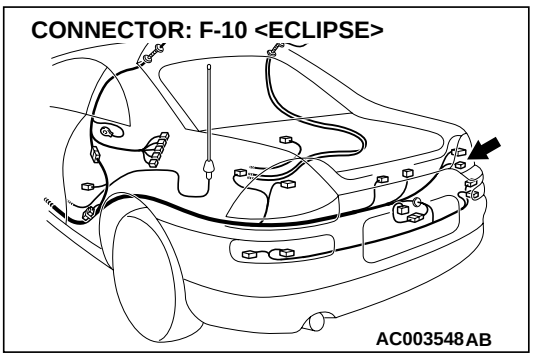
STEP 4. Check the harness wire between trunk lid lock key cylinder switch connector F-10 and ground.

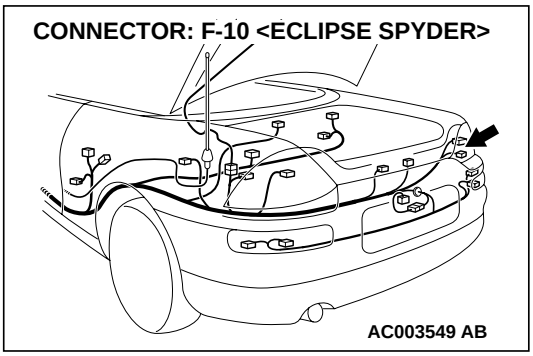
Q: Is the harness wire between trunk lid lock key cylinder switch connector F-10 and ground in good condition?

YES : There is no action to be taken.

NO : Repair it. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.





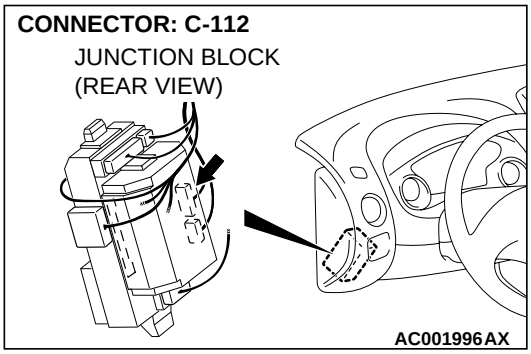


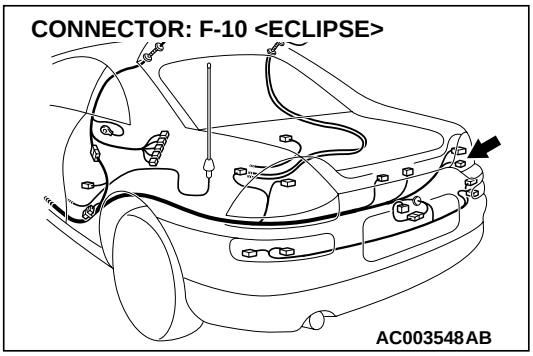
STEP 5. Check trunk lid lock key cylinder switch connector F-10 and ETACS-ECU connector C-112 for damage.

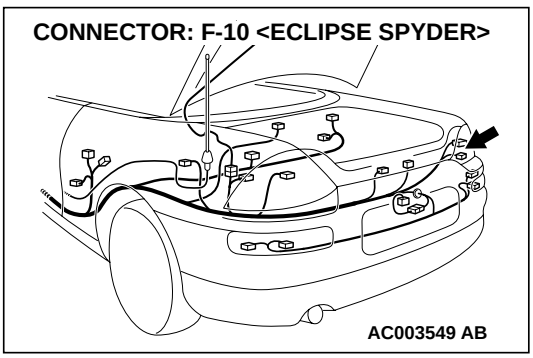
Q: Are trunk lid lock key cylinder switch connector F-10 and ETACS-ECU connector C-112 in good condition?

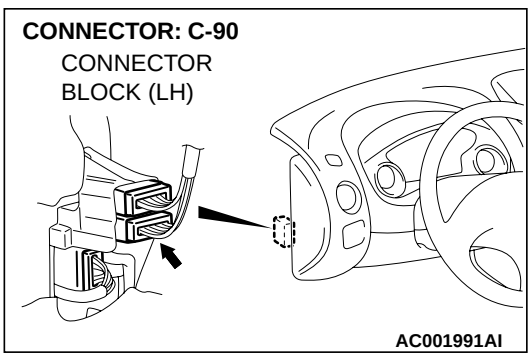
YES : Go to Step 6.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.









STEP 6. Check the harness wires between trunk lid lock key cylinder switch connector F-10 and ETACS-ECU connector C-112.

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 trunk lid lock key cylinder switch connector F-10 and ETACS-ECU connector C-112 in good condition?

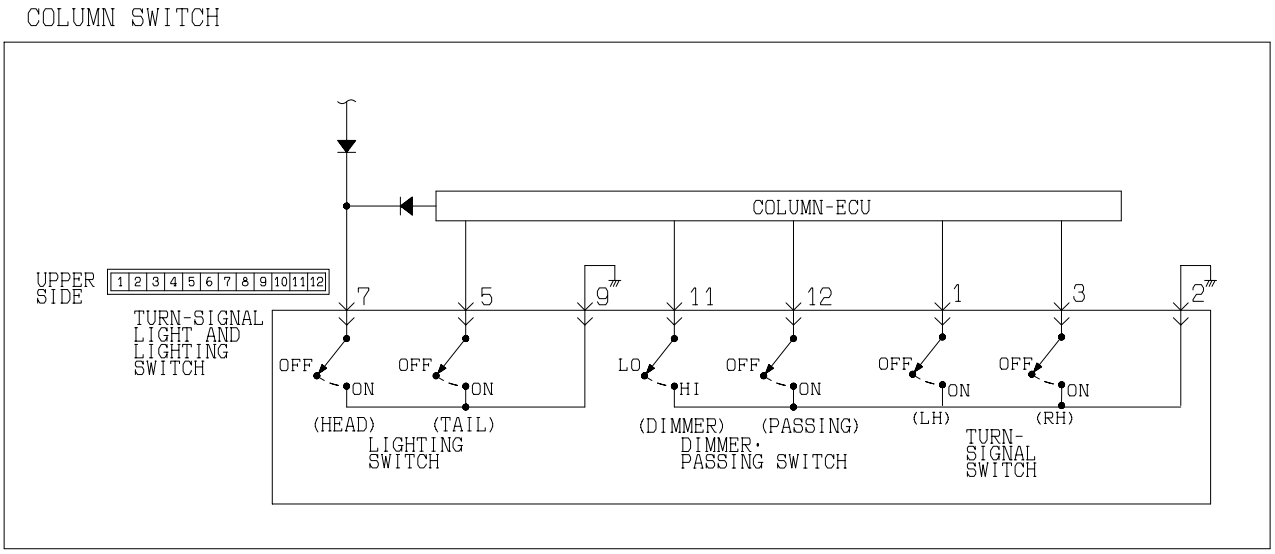
YES : Replace the ETACS-ECU. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.

NO : Repair them. The input signal from the trunk lid lock key cylinder switch should be able to be checked and the theft-alarm system should be armed normally.

TSB Revision

Inspection Procedure O-17: Column switch: The taillight switch, headlight switch, passing light switch, dimmer switch or turn-signal light switch signal is not sent to the ETACS-ECU.

Turn-signal Light and Lifhting Switch Input Circuit



AC003963 AB

CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the column switch (turn-signal light and lighting switch) to operate various functions.

TECHNICAL DESCRIPTION (COMMENT)

The column switch (turn-signal light and lighting switch) input signal is used to operate the following devices or functions:

- Light reminder tone alarm function
- Headlight washer
- Headlight
- Turn-signal light
- Fog light

If the signal fails, these devices will not work normally.

TROUBLESHOOTING HINTS

- Malfunction of the 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

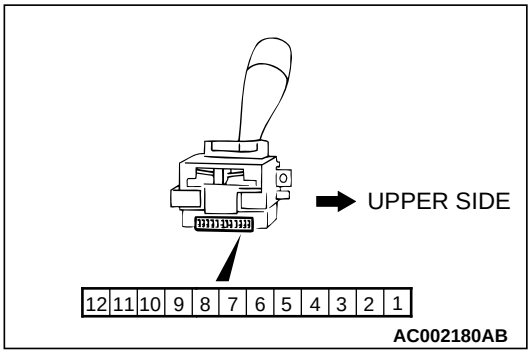
STEP 1. Check the ignition switch positions.

Q: Does a diagnostic trouble code set when the ignition switch is at any of the positions?

YES : Carry out the troubleshooting by referring to the Diagnostic Trouble Code Chart. Refer to P.54B-9.

NO : Go to Step 2.

TSB Revision



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

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	–	No continuity
Taillight switch	5 – 9	Continuity
Headlight switch	5 – 7 – 9	Continuity
Passing switch	2 – 12	Continuity
Dimmer switch	2 – 11 – 12	Continuity
Turn-signal light switch (LH)	1 – 2	Continuity
Turn-signal light switch (RH)	2 – 3	Continuity

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?

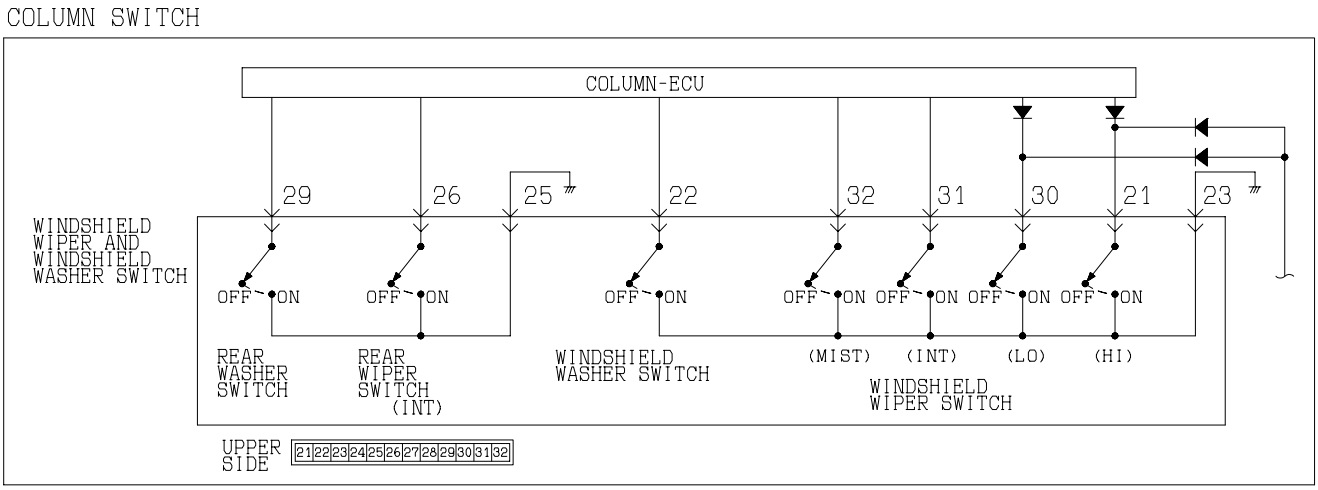
YES : There is no action to be taken.

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.

TSB Revision

Inspection Procedure O-18: Column switch: The windshield mist wiper switch, windshield intermittent wiper switch, windshield low-speed wiper switch, windshield high-speed wiper switch or windshield washer switch signal is not sent to the ETACS-ECU.

Windshield Wiper and Windshield Washer Switch Input Circuit



AC003964AB

CIRCUIT OPERATION

The ETACS-ECU uses the input signal from the column switch (windshield wiper and washer switch) to operate various functions.

TECHNICAL DESCRIPTION (COMMENT)

The column switch (windshield wiper and washer switch) input signal is used to operate the windshield wiper and washer. If the signal fails, windshield wiper and washer will 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

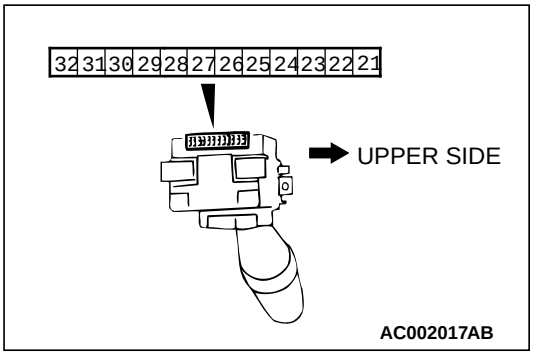
STEP 1. Check the ignition switch positions.

Q: Does a diagnostic trouble code set when the ignition switch is at any of the positions?

YES : Carry out the troubleshooting by referring to the Diagnostic Trouble Code Chart. Refer to P.54B-9.

NO : Go to Step 2.

TSB Revision



STEP 2. Check the windshield wiper and washer switch.

SWITCH POSITION	TESTER CONNECTION	SPECIFIED CONDITION
OFF	–	No continuity
Windshield mist wiper switch	23 – 32	Continuity
Windshield intermittent wiper switch	23 – 31	Continuity
Windshield low-speed wiper switch	23 – 30	Continuity
Windshield high-speed wiper switch	21 – 23	Continuity
Windshield washer switch	22 – 23	Continuity
Rear wiper switch	25 – 26	Continuity
Rear washer switch	22 – 23	Continuity

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

YES : Go to Step 3.

NO : Replace it. The input signal from the column switch (windshield wiper and washer switch) should be able to be checked and the windshield wiper and washer should work normally.

STEP 3. Replacement of ECU

(1) Replace the column switch (turn-signal light and lighting switch).

(2) The input signal from the column switch (windshield wiper and washer switch) should be able to be checked and the windshield wiper and washer should work normally.

Q: Is the input signal from the column switch (windshield wiper and washer switch) input normally?

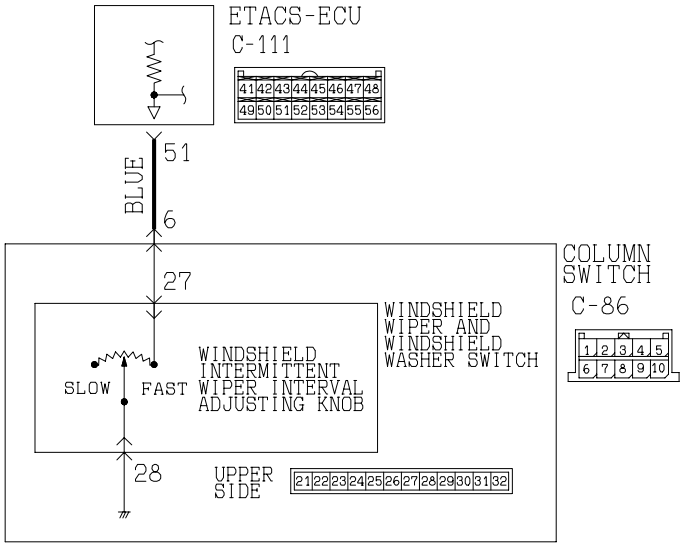
YES : There is no action to be taken.

NO : Replace the ETACS-ECU. The input signal from the column switch (windshield wiper and washer switch) should be able to be checked and the windshield wiper and washer should work normally.

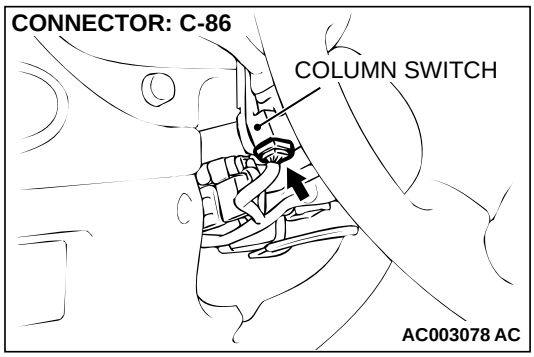
TSB Revision

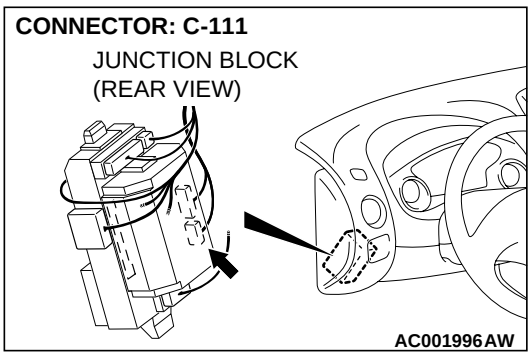
Inspection Procedure O-19: The windshield intermittent wiper interval adjusting knob signal is not sent to the ETACS-ECU.

Windshield Intermittent Wiper Intervals Adjusting Knob Input Circuit



AC003965AB





CIRCUIT OPERATION
The ETACS-ECU calculates the windshield intermittent wiper interval according to the resistance of the windshield intermittent wiper interval adjusting knob, which is incorporated in the column switch (windshield wiper and windshield washer switch).

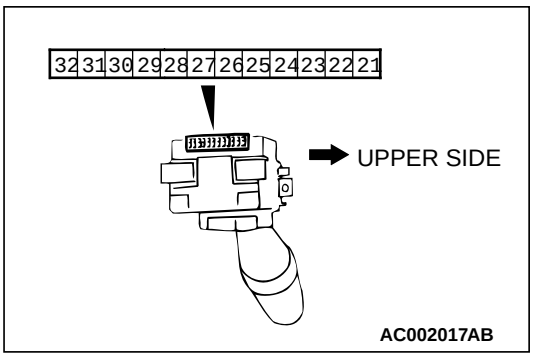
TECHNICAL DESCRIPTION (COMMENT)
If the windshield intermittent wiper interval adjusting knob is defective, the windshield intermittent wiper interval can not be adjusted.

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

DIAGNOSIS

Required Special Tools:
- MB991223: Test Harness Set

TSB Revision



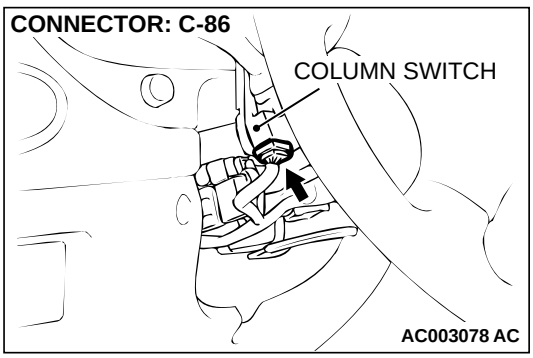
STEP 1. Check the windshield intermittent wiper interval adjusting knob and column switch body.

Check the resistance at terminal numbers 27 and 28. The resistance should change smoothly from approximately 0 Ω ("FAST" position) to approximately 1 kΩ ("SLOW" position).

Q: Is the windshield intermittent wiper interval adjusting knob in good condition?

YES : Go to Step 2.

NO : Replace the it. Check that the input signal from the windshield intermittent wiper interval adjusting knob can be checked and the wiper interval can be adjusted.

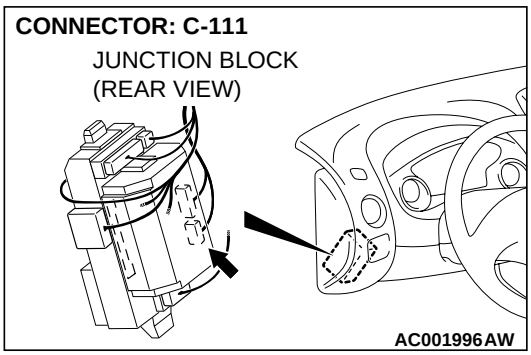


STEP 2. Check column switch connector C-86 and ETACS-ECU connector C-111 for damage.

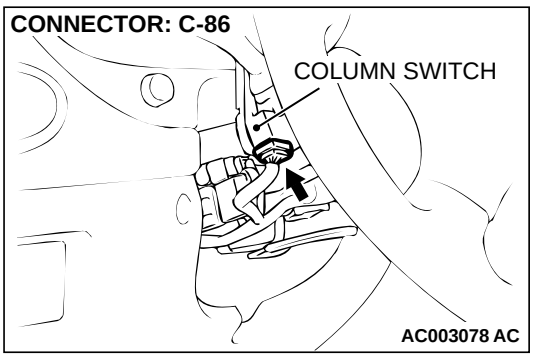
Q: Is column switch connector C-86 and ETACS-ECU connector C-111 in good condition?

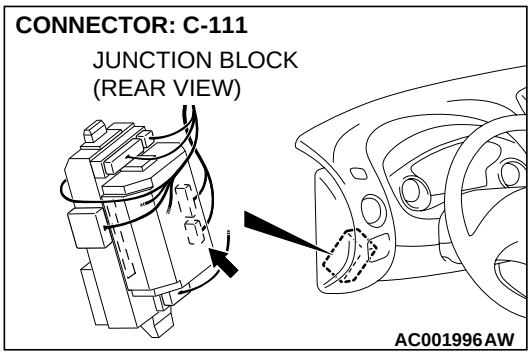
YES : Go to Step 3.

NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the input signal from the windshield intermittent wiper interval adjusting knob can be checked and the wiper interval can be adjusted.



TSB Revision





STEP 3. Check the harness wire between column switch connector C-86 and ETACS-ECU connector C-111.

Q: Is the harness wire between column switch connector C-86 and ETACS-ECU connector C-111 in good condition?

YES : Go to 4.

NO : Repair it. Check that the input signal from the windshield intermittent wiper interval adjusting knob can be checked and the wiper interval can be adjusted.

STEP 4. Replacement of ECU

(1) Replace the ETACS-ECU.

(2) Check that the input signal from the windshield intermittent wiper interval adjusting knob can be checked and the wiper interval can be adjusted.

Q: Is the input signal from the windshield intermittent wiper interval adjusting knob input normally?

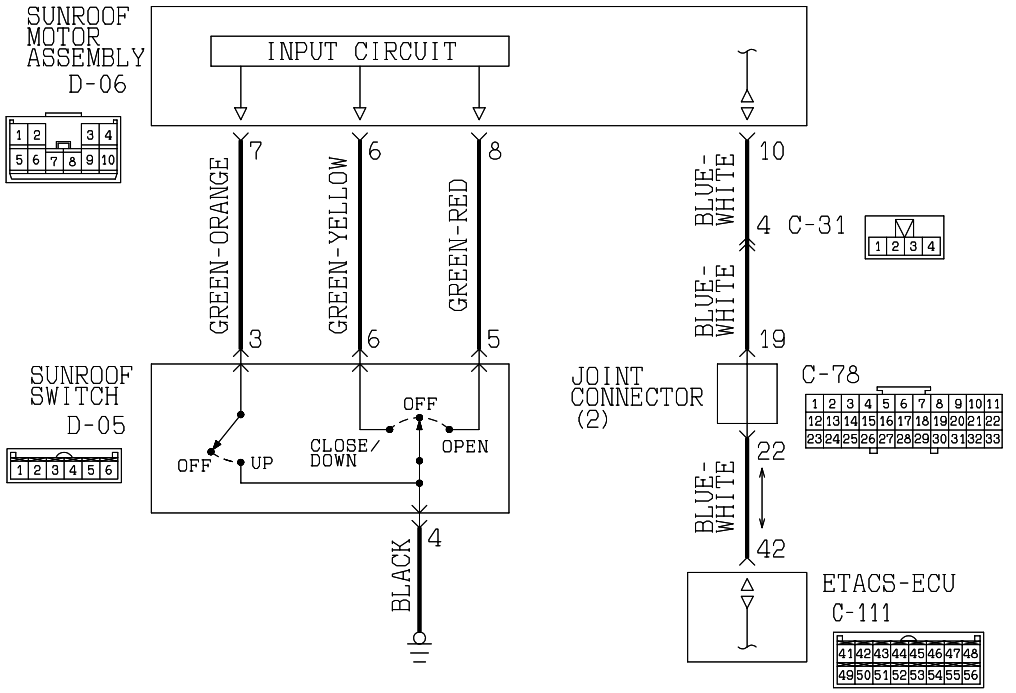
YES : There is no action to be taken.

NO : Replace the column switch. Check that the input signal from the windshield intermittent wiper interval adjusting knob can be checked and the wiper interval can be adjusted.

TSB Revision

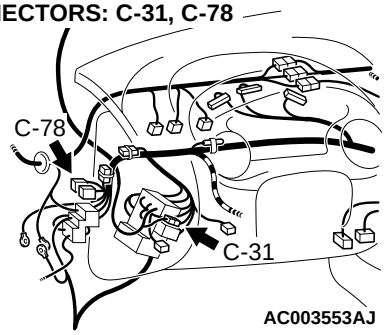
Inspection Procedure O-20: Sunroof switch: The open, close/tilt-down, or tilt-up switch signal is not sent to the ETACS-ECU.

Sunroof Switch Input Circuit and SWS Communication Circuit



AC003966 AB

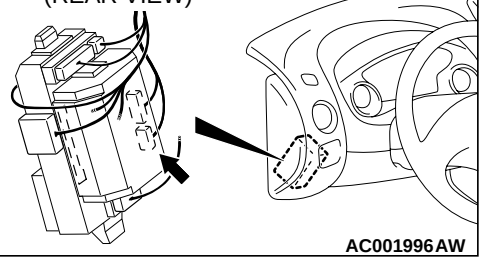
CONNECTORS: C-31, C-78



AC003553AJ

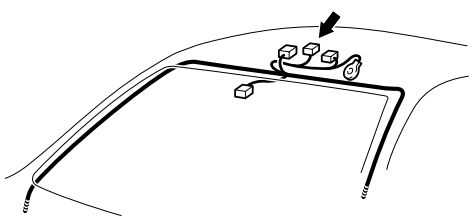
CONNECTOR: C-111

JUNCTION BLOCK (REAR VIEW)



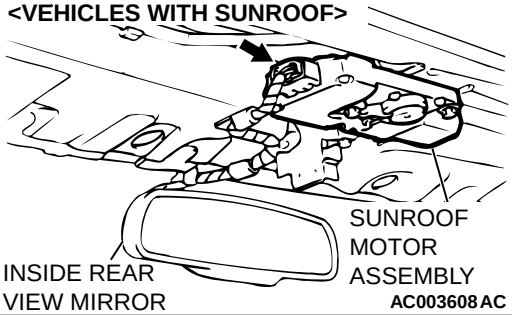
AC001996AW

CONNECTOR: D-05 <ECLIPSE>



AC003545AC

CONNECTOR: D-06 <VEHICLES WITH SUNROOF>



AC003608AC

CIRCUIT OPERATION

The ETACS-ECU receives a signal from the sunroof switch through the sunroof motor assembly, and sends the input 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 sunroof switch input signal can not be checked even if the sunroof is normal.

TSB Revision

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

STEP 1. Check the sunroof operation.

Q: Does the sunroof work normally?

YES : Go to Step 2.

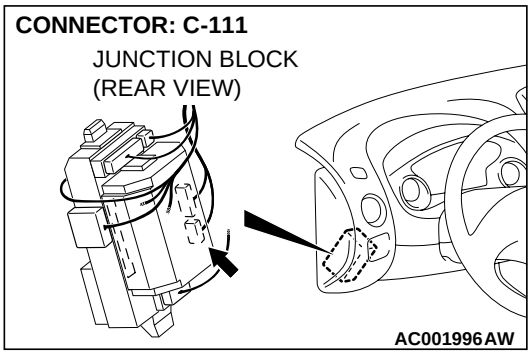
NO : Solve the problem first. Refer to Inspection Procedure F-1 (P.54B-69).

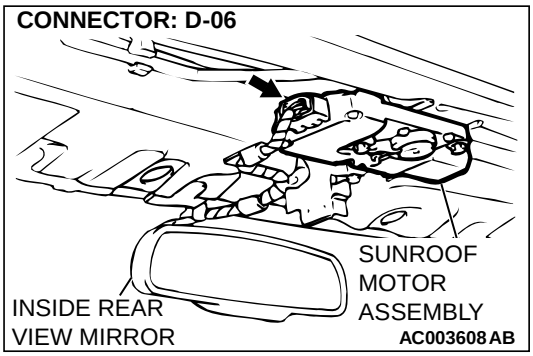
STEP 2. Check sunroof motor assembly connector D-06 and ETACS-ECU connector C-111 for damage.

Q: Are sunroof motor assembly connector D-06 and ETACS-ECU connector C-111 in good condition?

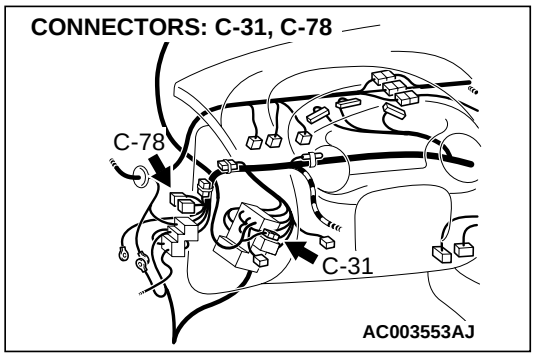
YES : Go to Step 3.

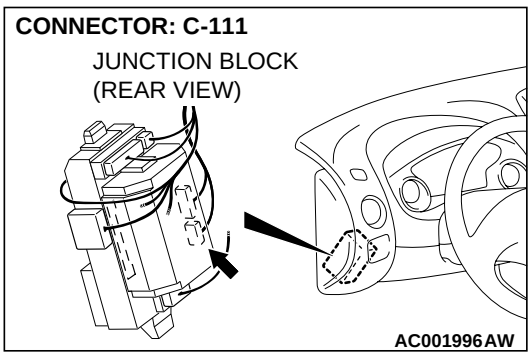
NO : Repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The input signal from the sunroof switch should be able to be checked and the sunroof should work normally.

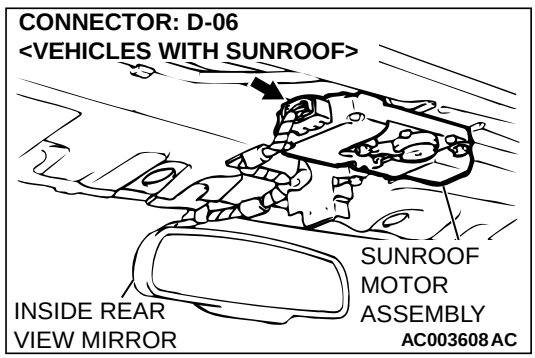




TSB Revision







STEP 3. Check the harness wires between sunroof motor assembly connector D-06 and ETACS-ECU connector C-111.

NOTE: After checking intermediate connector C-31 and joint connector C-78, check the wires. If intermediate connector C-31 and joint connector C-78 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between sunroof motor assembly connector D-06 and ETACS-ECU connector C-111 in good condition?

YES : Go to Step 4.

NO : Repair them. The input signal from the sunroof switch should be able to be checked and the sunroof should work normally.

STEP 4. Replacement of ECU

(1) Replace the sunroof motor assembly.

(2) The input signal from the sunroof switch should be able to be checked and the sunroof should work normally.

Q: Is the input signal from the sunroof switch input normally?

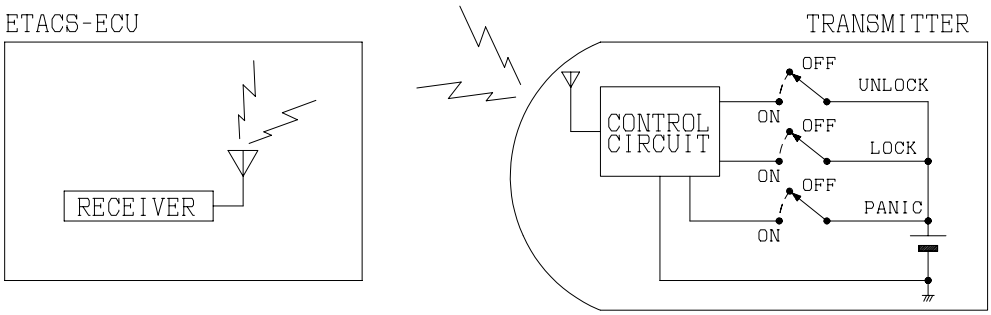
YES : There is no action to be taken.

NO : Replace the ETACS-ECU. The input signal from the sunroof switch should be able to be checked and the sunroof should work normally.

TSB Revision

Inspection Procedure O-21: Transmitter: The lock, unlock or panic switch singal is not sent to the ETACS-ECU.

Receiver and transmitter Communication System



AC003968 AB

CIRCUIT OPERATION
The ETACS-ECU receives an input signal from the transmitter through its built-in receiver, and evaluates the signal to operate various functions.

TECHNICAL DESCRIPTION (COMMENT)
The transmitter input signal is used to operate the following systems:
- Keyless entry system
- Theft-alarm system

If the signal fails, these systems will not work normally.

TROUBLESHOOTING HINTS
- Malfunction of the transmitter
- Malfunction of the ETACS-ECU

DIAGNOSIS

Required Special Tools:
- MB991223: Test Harness Set

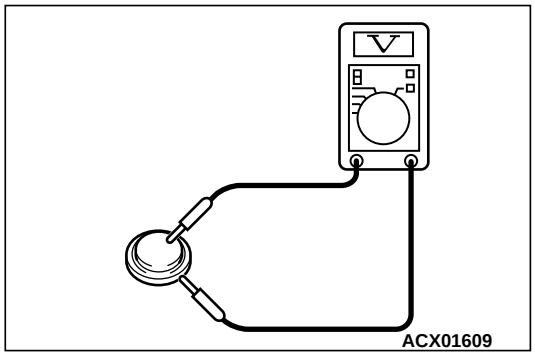
STEP 1. Register the transmitter.
Register the transmitter (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Encrypted Code Registration Method P.42-103.)

Q: Is the transmitter registered successfully?

YES : The transmitter input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Go to Step 2.

STEP 2. Check the transmitter battery.
Measure the transmitter battery's voltage.



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Q: Is the voltage approximately 2.5 – 3.2 volts?

YES : Go to Step 3.

NO : Replace the battery. If the transmitter is registered successfully, the transmitter input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

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STEP 3. Check the transmitter.

(1) Use an other transmitter to register the secret code. (Refer to GROUP 42, Keyless Entry System – On-vehicle Service – Encrypted Code Registration Method P.42-103.)

Q: Is the transmitter registered successfully?

YES : The transmitter input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

NO : Replace the ETACS-ECU. The transmitter input signal should be able to be checked and the functions, which are described in the "Technical Description (comment)," should work normally.

Inspection Procedure P-1: Check the circuit (power supply line) from the battery to the ETACS-ECU.

ETACS-ECU Power Supply Circuit

- Refer to Inspection Procedure A-1 (P.54B-31).

CIRCUIT OPERATION

The ETACS-ECU is always energized by the battery.

TECHNICAL DESCRIPTION (COMMENT)

If that power supply circuit is defective, the circuit flowing through the ignition switch (IG1) will function as a backup circuit. In this case, the following functions will not work when the ignition switch is at "LOCK" (OFF) position:

- Ignition key reminder tone alarm function
- Light reminder tone alarm function
- Central door locking system
- Hazard warning light
- Interior light dimming function
- Theft-alarm system

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Test Harness Set

STEP 1. Check the battery circuit at the ETACS-ECU connector C-114.

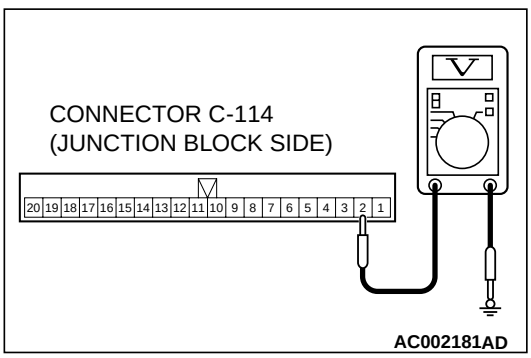
(1) Disconnect the ETACS-ECU connector C-114 and measure at the junction block side.

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

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

YES : Replace the ETACS-ECU. The functions, which are described in the "Technical Description (comment)," should work normally.

NO : Go to Step 2.



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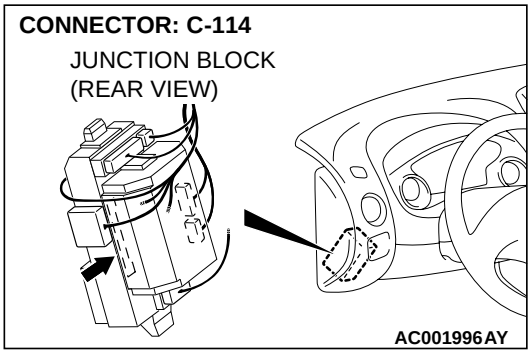
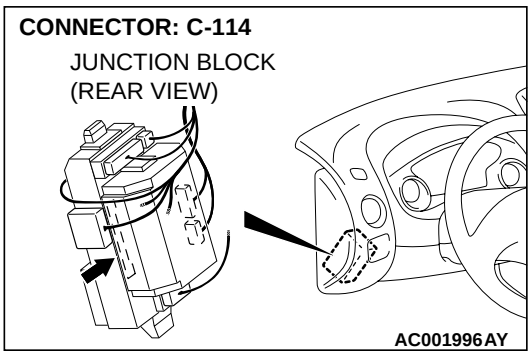
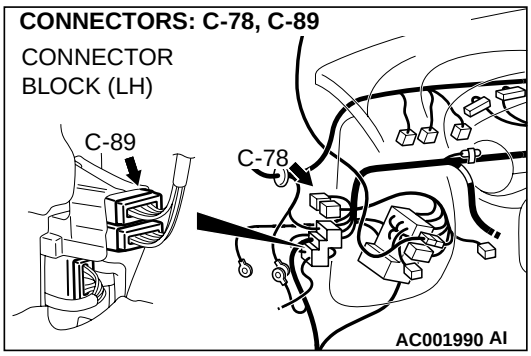


STEP 2. Check ETACS-ECU connector C-114 for damage.
Q: Is ETACS-ECU connector C-114 in good condition?

YES : Go to Step 3.
NO : Repair or replace it. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The functions, which are described in the "Technical Description (comment)," should work normally.





STEP 3. Check the harness wires between ETACS-ECU connector C-114 and battery.

NOTE: After checking junction block connector C-78 and intermediate connector C-89, check the wires. If joint connector C-78 and intermediate connector C-89 are damaged, repair or replace them. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Are the harness wires between ETACS-ECU connector C-114 and battery in good condition?

YES : There is no action to be taken.
NO : Repair them. The functions, which are described in the "Technical Description (comment)," should work normally.

CHECK AT ECU TERMINAL (SWS)

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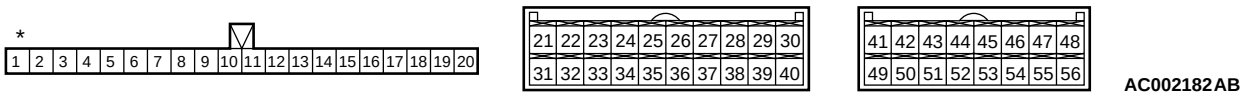
1. ETACS-ECU



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*NOTE: *: Since the ETACS-ECU is directly mounted on the junction box and the measurement for connector of terminals No.1 to 20 is impossible, the values concerning these terminals are shown for reference only.*

TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Ground	Always	0 V
2	Battery power source (for ECU)	Always	Battery positive voltage
4	Turn-signal light (LH) output	When turn-signal light (LH) is lighted	Battery positive voltage
5	Turn-signal light (RH) output	When turn-signal light (RH) is lighted	Battery positive voltage
6	Door lock output	When the door lock actuators are working to lock	Battery positive voltage
7	Ignition switch (ACC) power source	Ignition switch: "ACC"	Battery positive voltage
11	Ignition switch (IG1) power source	Ignition switch: "ON"	Battery positive voltage
12	Door unlock output (for passenger's door)	When door lock actuators passenger's door are working to unlock	Battery positive voltage
	Door unlock output	When door lock actuators are working to unlock	Battery positive voltage
13	Driver's door switch signal input	Driver's door switch: ON (Driver's door open)	0 V
16	Battery power source (for central door lock)	Always	Battery positive voltage
17	Door unlock output (for driver's door)	When driver's door lock actuator is working to unlock	Battery positive voltage
18	Battery power source (for turn-signal light)	Always	Battery positive voltage
19	Door switches signal input	Either door switch: ON (Door open)	0 V
20	Interior lights output	When interior lights is lighted	2 V or less
21	Driver's door lock actuator switch (LOCK) signal input	Driver's door lock actuator switch: LOCK	0 V
22	Driver's door lock actuator switch (UNLOCK) signal input	Driver's door lock actuator switch: UNLOCK	0 V
23	Passenger's door lock actuator switch (LOCK) signal input	Driver's door lock actuator switch: LOCK	0 V

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TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
24	Passenger's door lock actuator switch (UNLOCK) signal input	Driver's door lock actuator switch: UNLOCK	0 V
25	Door ajar warning light output	When door ajar warning light is lighted	2 V or less
27	Trunk lid latch switch signal input	Trunk lid latch switch: ON (Trunk lid open)	0 V
28	Trunk lid lock key cylinder switch signal input	Trunk lid lock key cylinder switch: UNLOCK	0 V
29	Washer fluid level switch signal input	Washer fluid level switch: ON (when float position is lowered down)	0 V
31	Driver's door lock key cylinder switch (LOCK) signal input	Driver's door lock key cylinder switch: LOCK	0 V
32	Driver's door lock key cylinder switch (UNLOCK) signal input	Driver's door lock key cylinder switch: UNLOCK	0 V
33	Passenger's door lock key cylinder switch (LOCK) signal input	Passenger's door lock key cylinder switch: LOCK	0 V
34	Passenger's door lock key cylinder switch (UNLOCK) signal input	Passenger's door lock key cylinder switch: UNLOCK	0 V
35	Door lock switch (LOCK) signal input	Door lock switch: LOCK	0 V
36	Door lock switch (UNLOCK) signal input	Door lock switch: UNLOCK	0 V
37	Low washer fluid level warning light output	When low washer fluid level warning light is lighted	2 V or less
38	Theft-alarm horn output	When theft-alarm horn is sounding	2 V or less
39	Theft-alarm indicator light output	When theft-alarm indicator light is lighted	2 V or less
40	Trunk lid opener output	When the trunk lid opener actuators are working to lock	Battery positive voltage
41	Ground (for signals)	Always	0 V
42	SWS communication line	Always	0 – 12 V (pulse signal)
43	Data request signal output	Always	0 – 5 V (pulse signal)
44	Low fuel level warning light signal input	When low fuel level warning light is lighted	2 V or less
45	Fog light switch signal input	Fog light switch: ON (Pressed)	0 V
47	Hazard warning light switch signal input	Hazard warning light switch: ON (Pressed)	0 V
48	Key reminder switch signal input	Key reminder switch: ON (Ignition key removed)	0 V
49	Diagnosis indication selection input	When scan tool is connected	0 V

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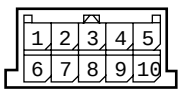
TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
50	Diagnosis output or input signal check output	When diagnosis is output	0 – 12 V (pulse signal)
		When input signal check is output	0 – 12 V (When input pulse signal is changed)
51	Windshield intermittent wiper interval adjusting knob signal input	Ignition switch: "ACC" Windshield intermittent wiper interval adjusting knob: "FAST" → "SLOW"	0 → 2.5 V
52	Speed sensor signal input	When the vehicle is being driven	0 – 12 V (pulse signal)
53	High-beam indicator light output	When theft-alarm indicator light is lighted	2 V or less
54	Seat belt warning light output	When seat belt warning light is lighted	2 V or less
55	Driver's seat belt switch signal input	Driver's seat belt switch: ON (Unfastened seat belt)	0 V
56	Passenger's door switch signal input	Passenger's door switch: ON (Passenger's door open)	0 V

2. COLUMN SWITCH



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TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Battery power source	Always	Battery positive voltage
2	Data request signal input	Always	0 – 5 V (pulse signal)
3	SWS communication line	Always	0 – 12 V (pulse signal)
4	Ground	Always	0 V
6	Windshield intermittent wiper interval adjusting knob signal output	Igniting switch: "ACC" Windshield intermittent wipe interval adjusting knob: "FAST" → "SLOW"	0 → 2.5 V
8	Windshield wiper switch backup output	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V (when windshield wiper motor is operated), 12 V (when windshield wiper motor is not operated)
9	Ignition switch (IG1) power source	Ignition switch: "ON"	Battery positive voltage
10	Headlight switch backup output	Ignition switch: "ON" Headlight switch: ON	0 – 1 V

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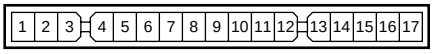
3. FRONT-ECU



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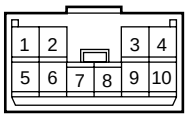
NOTE: Since the front-ECU is directly mounted on the relay box and measurement is impossible, these values are shown for reference.

TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITIONS	NORMAL VALUE
1	Ground	Always	0 V
2	Headlight relay (low) output	When headlight (low-beam) is lighted	2 V or less
3	Headlight relay (high) output	When headlight (high-beam) is lighted	2 V or less
4	Taillight relay output	When taillight is lighted	2 V or less
5	Headlight switch backup input	Headlight switch: ON	0 V
6	Windshield wiper backup input	Windshield low-speed wiper switch or windshield high-speed wipe switch: ON	0 V
7	Windshield wiper auto-stop signal input	When Windshield wiper is operated	Battery positive voltage
9	Ignition switch (ACC) power source	Ignition switch: ACC	Battery positive voltage
10	Windshield washer output	When Windshield washer is operated	Battery positive voltage
11	Windshield wiper (low-speed) output	When windshield wiper is operated (at low speed)	Battery positive voltage
12	Windshield wiper (high-speed) output	When windshield wiper is operated (at high speed)	Battery positive voltage
13	Fog light relay output	When fog light is lighted	2 V or less
14	Power window relay output	When power window can be operated	2 V or less
15	Ignition switch (IG2) power source	Ignition switch: ON	Battery positive voltage
16	Battery power source	Always	Battery positive voltage
17	SWS communication line	Always	0 – 12 V (pulse signal)

4. SUNROOF MOTOR ASSEMBLY



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TERMINAL NO.	INSPECTION ITEMS	INSPECTION CONDITION	NORMAL VALUE
1	Battery power source (for motor)	Always	Battery positive voltage
2	Ignition switch (IG2) power source	Ignition switch: ON	Battery positive voltage
3	Battery power source (for ECU)	Always	Battery positive voltage
5	Ground	Always	0 V
6	Sunroof switch (close/tilt down) signal input	Sunroof switch: "CLOSE/TILT DOWN"	0 V
8	Sunroof switch (open/tilt up) signal	Sunroof switch: "OPEN/ TILT UP"	0 V
9	Ground	Always	0 V
10	SWS communication line	Always	0 – 12 V (pulse signal)

SPECIAL TOOLS

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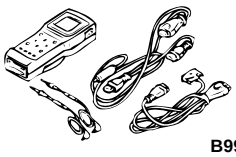
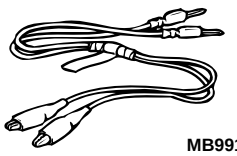
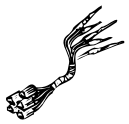
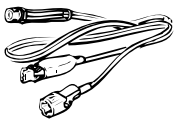
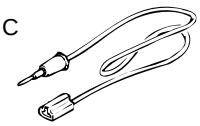
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 B991502	MB991502 Scan tool (MUT-II)	MB991496-OD	Checking the diagnostic trouble code and input signal
 MB991529	MB991529 Diagnostic trouble code check harness	Tool not necessary if the scan tool (MUT-II) is available	Checking input signal when using a voltmeter
A  B  C  D  MB991223AD	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe	MB991223	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

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NOTES