GROUP 54C

SMART WIRING SYSTEM (SWS) USING SWS MONITOR

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GENERAL INFORMATION

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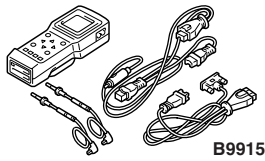
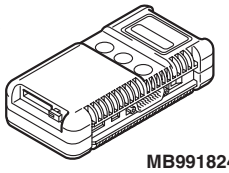
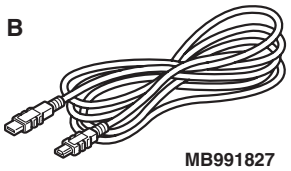
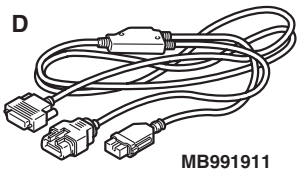
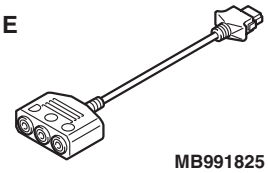
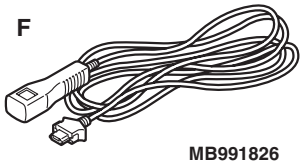
For the general information regarding the SWS, refer to GROUP 54B –General Information P.54B-2.

SPECIAL TOOLS

M1549000301206

Tool	Number	Name	Use
 B991502	MB991502	M.U.T.-II sub-assembly	Check the SWS (The M.U.T.-II displays diagnosis codes and pulse check)
A  MB991824 B  MB991827 C DO NOT USE MB991910 D  MB991911 E  MB991825 F  MB991826 MB991955	MB991955 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991825 F: MB991826	M.U.T.-III sub-assembly A: Vehicle communication interface (V.C.I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (vehicles with CAN communication system) D: M.U.T.-III main harness B (vehicles without CAN communication system) E: M.U.T.-III measure adapter F: M.U.T.-III trigger harness	SWS communication line check (ECU check and service data) **⚠ CAUTION** **M.U.T.-III main harness B (MB991911) should be used. M.U.T.-III main harness A should not be used for this vehicle.**

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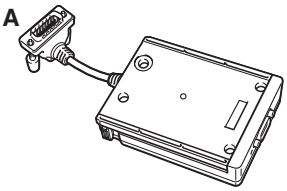
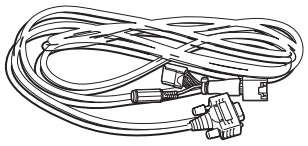
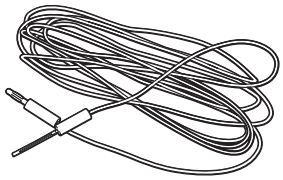
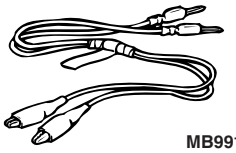
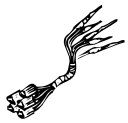
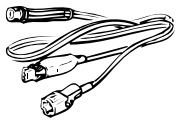
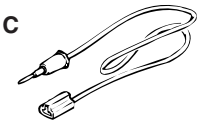
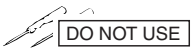
Tool	Number	Name	Use
A  B  C  B991813	MB991813 A: MB991806 B: MB991812 C: MB991822	SWS monitor kit A: SWS monitor cartridge B: SWS monitor harness (for column-ECU) C: Probe harness	SWS communication line check (ECU check and service data)
 MB991529	MB991529	Diagnosis code check harness	Input signal check by using a voltmeter
A  B  C  D  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Check harness B: LED harness C: LED harness adapter D: Probe	Continuity check and voltage measurement at harness wire or connector A: For checking connector pin contact pressure B: For checking power supply circuit C: For checking power supply circuit D: For connecting a locally sourced tester

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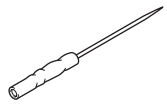
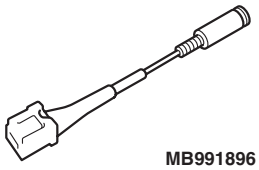
Tool	Number	Name	Use
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector
 MB991896	MB991896	Adapter harness for door communication	Door communication line check (service data)

TROUBLESHOOTING

PRIOR TO TROUBLESHOOTING

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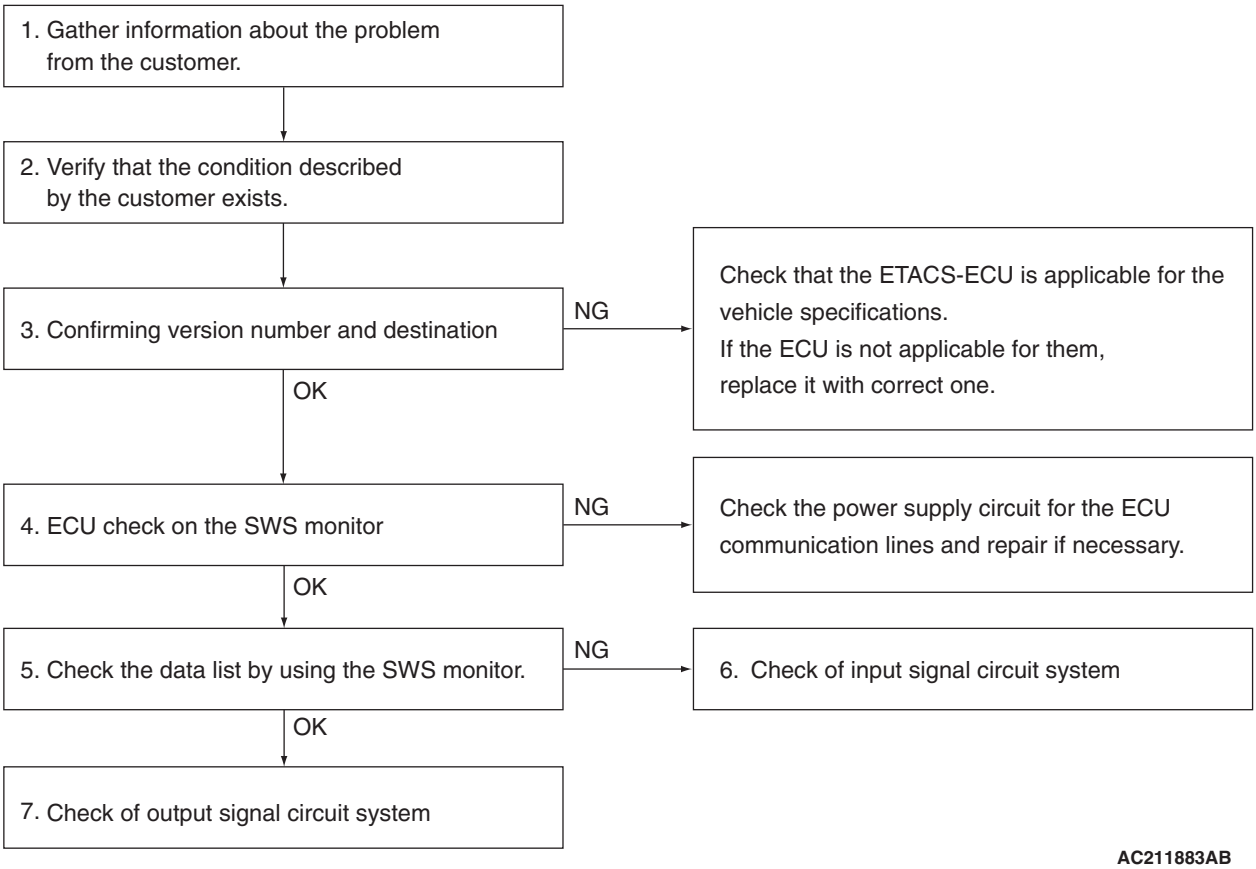
Before carrying out troubleshooting, check the following two items.

- Make sure that the ETACS-ECU, the junction block (J/B), the front-ECU and the engine compartment relay box are connected securely.
- Check that the system fuses and fusible links are not burned out.

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1549000501095



AC211883AB

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

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

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3. Confirming version number and destination

   Check whether the SWS version number (0) and destination (AUSTRALIA) meet the vehicle specifications. If they are different, replace the ETACS-ECU with a correct one.

4. ECU check on the SWS monitor

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

- If "OK " is displayed for all related ECUs, they communicate with each other normally and the input or output signal circuit system may be defective. Therefore, check SWS monitor service data.
- If "NG" is displayed for any of the related ECUs, something may be wrong with the ECU for which "NG" appears, its power supply or earthing system, or a wiring harness or connector between the SWS monitor and the ECU. Check the wiring harness and connectors associated with the ECU and examine the ECU itself.

5. Check the data list by using the SWS monitor.

   Select the defective function from the function-specific diagnostic menu, and check the service data that appears for each function item. This allows you to check whether the transmission data is normal or not. You can judge which circuit is the cause of the trouble, input circuit or output circuit.

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

- The switch condition does not meet the service data display: Input signal system related to defective functions
- The switch condition meets the service data display: Output signal system related to defective functions

6. Check of input signal circuit system

   Check relevant switch, sensor, input signal-side ECU and their wiring harness and connector.

7. Check of output signal circuit system

   Check an output signal-side ECU, electrical load components and their wiring harness and connector.

HOW TO CONNECT THE SWS MONITOR

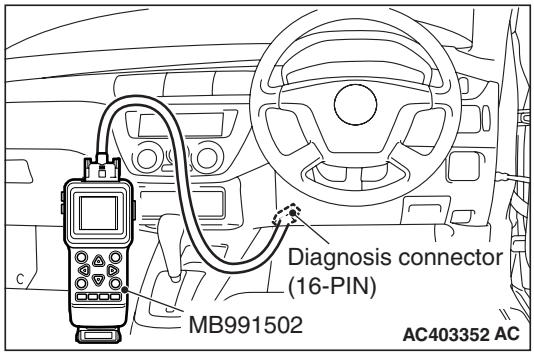
M1549014800836

⚠ CAUTION

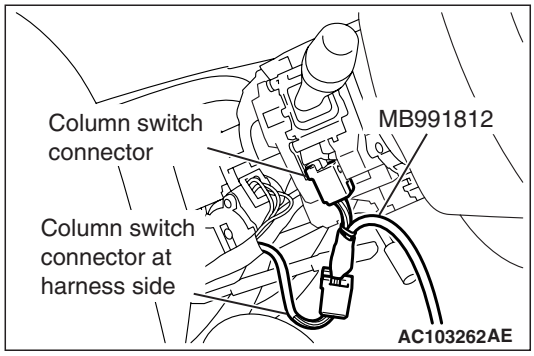
Always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting the SWS monitor and the M.U.T.-II/III.

<WHEN THE M.U.T.-II IS USED>

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.



2. Connect the M.U.T.-II to the diagnosis connector.
3. Remove the column cover.
4. Disconnect the steering column switch connector.



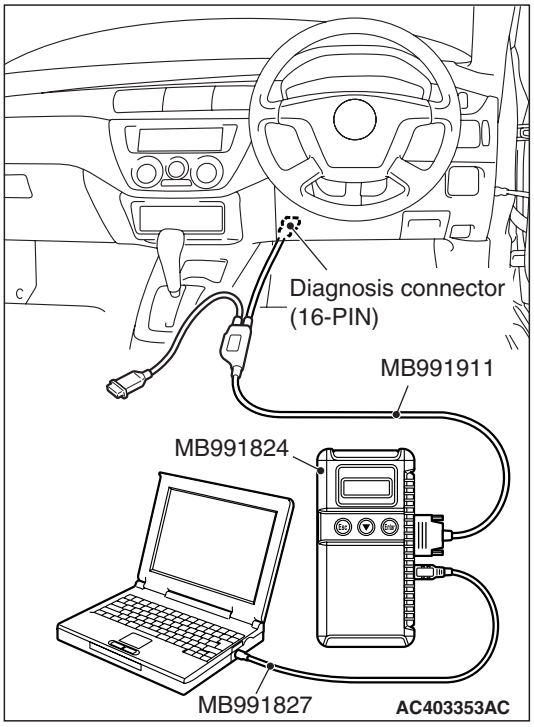
5. Connect the SWS monitor kit to the column switch connector.

<WHEN THE M.U.T.-III IS USED>

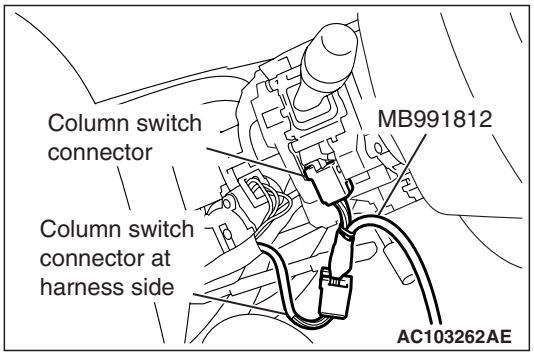
⚠ CAUTION

Connect the M.U.T.-III main harness B before connecting the SWS monitor harness. Be sure to connect the SWS monitor cartridge after turning on the V.C.I.

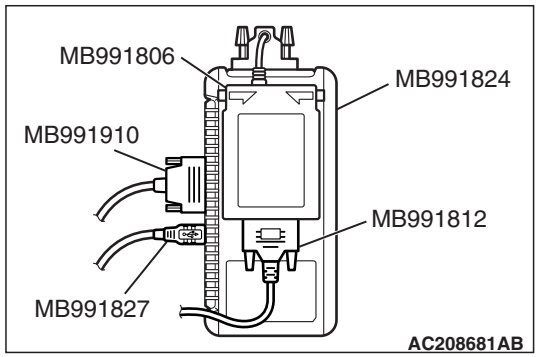
1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.



3. Connect the M.U.T.-III USB cable to the V.C.I. and the personal computer.
4. Connect the M.U.T.-III main harness B to the V.C.I.
5. Connect the M.U.T.-III main harness B to the diagnosis connector.
6. Remove the steering column cover.



7. Disconnect the steering column switch connector.
8. Connect the SWS monitor harness to column switch connector.



9. Connect the SWS monitor harness to the SWS monitor cartridge.
10. Connect the SWS monitor cartridge to the V.C.I.
11. Turn the power switch of the V.C.I. to the "ON" position.

    NOTE: When the V.C.I. is energized, the V.C.I. indicator light will be illuminated in a green colour.
12. Start the M.U.T.-III system on the personal computer.

ECU CHECK

M1549014900781

1. Use the M.U.T.-II/III and the SWS monitor to check ECUs (Refer to M.U.T.-II reference manual or M.U.T.-III user's manual).
2. The following ECUs can be checked by using the M.U.T.-II/III and the SWS monitor.

NOTE: If a malfunction is found by the "ECU CHECK", proceed "Symptom Procedure" (Refer to P.54C-17).

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SWS monitor-compatible ECUs and their conditions

Item No.	ECUs to be checked	Display on M.U.T.-II/III	Normal condition	ECU condition
Item 80	Column switch (column-ECU)	COLUMN ECU	OK*1	All of the column switch, power supply, earth and interconnecting communication line are normal
Item 83	ETACS-ECU	ETACS ECU	OK	All of the ETACS-ECU switch, power supply, earth and interconnecting communication line are normal
Item 84	Front-ECU	FRONT ECU	OK*2	All of the front-ECU, power supply, earth and interconnecting communication line are normal
Item 86	Sunroof motor assembly (sunroof-ECU)	SUNROOF ECU	OK	All of the sunroof motor assembly, power supply, earth and interconnecting communication line are normal
–	Other SWS-related ECUs	Other ECUs	NG	ECUs are not used

NOTE:

- **1: If "NG" is displayed beside the ETACS-ECU while the ignition switch is off, "NG" is also displayed beside the column-ECU.*
- **2: If "NG" is displayed beside the ETACS-ECU, "NG" is also displayed beside the front-ECU and the power window main switch (power window module).*

DATA LIST CHECK

M1549015000833

1. Use the M.U.T.-II/III and the SWS monitor to check "DATA LIST." This "DATA LIST" check is applicable for signals, which are transmitted and received through the SWS communication line and the communication lines routed from one door to another. For the input signals which are not applicable for the SWS monitor check, refer to pulse check procedure P.54C-20.

NOTE: If a problem is found in the "DATA LIST" check, refer to the Problems during Input Signal Check <Service data, function diagnosis or pulse check> (Refer to P.54C-20).

2. The following input signals can be checked by using the M.U.T.-II/III and the SWS monitor.

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DATA LIST REFERENCE TABLE

Column switch (column-ECU)

Item No.	Check items	Display on M.U.T.-II/III	Check condition	Normal condition
00	Headlamp switch	HEADLAMP SW	lighting switch: HEAD	ON
			lighting switch: Other than HEAD	OFF
01	Tail lamp switch	TAIL LAMP SW	Lighting switch: TAIL	ON
			Lighting itch: OFF	OFF
02	Dimmer switch	DIMMER SW	Dimmer switch: ON	ON
			Dimmer switch: OFF	OFF
03	Passing lamp switch	PASSING SW	Passing lamp which: ON	ON
			Passing lamp which: OFF	OFF
05	Windshield intermittent wiper switch	INT WIPER SW	Wiper switch: INT	ON
			Wiper switch: Other than INT	OFF
06	Windshield low-speed wiper switch	LO WIPER SW	Wiper switch: LO	ON
			Wiper switch: Other than LO	OFF
07	Windshield high-speed wiper switch	HI WIPER SW	Wiper switch: HI	ON
			Wiper switch: Other than HI	OFF
08	Wind shield mist wiper switch	MIST WIPER SW	Wiper switch: Mist	ON
			Wiper switch: Other than mist	OFF
09	Windshield washer switch	FRONT WASH. SW	Windshield washer switch: ON	ON
			Windshield washer switch: OFF	OFF
10	Turn-signal lamp switch (RH)	TURN SIG. RH	Turn-signal lamp switch: RH	ON
			Turn-signal lamp switch: Other than RH	OFF
11	Turn-signal lamp switch (LH)	TURN SIG. LH	Turn-signal lamp switch: LH	ON
			Turn-signal lamp switch: Other than LH	OFF
13	Rear wiper switch	REAR WIPER SW	Rear wiper switch: INT	ON
			Rear wiper switch: Other than INT	OFF
14	Rear washer switch	REAR WASH. SW	Rear wiper switch: Washer	ON
			Rear wiper switch: Other than washer	OFF
15	With or without windshield intermittent wiper control	INT WIP KNOB	Vehicles with intermittent wiper control	EQUIP
			Vehicles without intermittent wiper control	NONE
16	Headlamp washer switch	HD WASHER SW	Headlamp washer switch: ON	ON
			Headlamp washer switch: OFF	OFF

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ETACS-ECU

Item No.	Check items	Display on M.U.T.-II/III	Check condition	Normal condition
30	Ignition switch (IG1)	IG SW(IG1)	Ignition switch: ON or START	ON
			Ignition switch: LOCK (OFF) or ACC	OFF
31	Ignition switch (ACC)	IG SW(ACC)	Ignition switch: ACC or ON	ON
			Ignition switch: LOCK (OFF) or START	OFF
32	Driver's door and front passenger's door switch	FRONT DOOR SW	Driver's or front passenger's door switch ON (The driver's or front passenger's door is open).	ON
			Driver's and front passenger's door switch OFF (The driver's and front passenger's door is closed).	OFF
36	Request of fog lamp illumination	F.FOG LAMP	1. Lighting switch: "TAIL" or "HEAD" 2. Fog lamp switch: ON	ON
			Other than the conditions above	OFF
37	Windshield intermittent wiper interval	INT WIPE TIME	1. Ignition switch: ACC or ON 2. Operate the intermittent wiper control, and change the wiper interval	The M.U.T.-II/III displays intermittent wiper interval in response to the intermittent wiper control positions
41	Back-up lamp switch <M/T>	INHIBITOR SW	Back-up lamp switch: ON	ON
			Back-up lamp switch: OFF	OFF
	Inhibitor switch <A/T>		Inhibitor switch: R position	ON
			Inhibitor switch: Other than R position	OFF
43	Buzzer	BUZZER	1. Ignition switch: LOCK (OFF) 2. Tail lamp or headlamp switch: ON 3. Driver's door switch: ON (driver's door open)	ON
			When requirements for sounding each warning buzzer are not satisfied	OFF

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Front-ECU

Item No.	Check items	Display on M.U.T.-II/III	Check condition	Normal condition
70	Response by the front-ECU	FRONT ECU ACK	lighting switch: Other than OFF (excluding when high-beam is on) or the wiper switch is at position other than OFF	NORMAL ACK
			• Ignition switch: ON or START • Lighting switch: OFF	SLEEP ACK
			• Lighting switch: HEAD • Headlamps: at high beam	HI-BEAM ACK
			–	NO ACK

NOTE: For item number 70, the M.U.T.-II/III also displays "NG" under the "ECU Check" when it displays "No response" under the front-ECU check.

FUNCTION DIAGNOSIS

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

WIPER

Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
F.WIPER INT (intermittent)	Windshield intermittent wiper switch	05	INT WIPER SW	ON
	Windshield low-speed wiper switch	06	LO WIPER SW	OFF
	Windshield high-speed wiper switch	07	HI WIPER SW	OFF
	Wind shield mist wiper switch	08	MIST WIPER SW	OFF
	Windshield washer switch	09	FRONT WASH. SW	OFF
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Windshield intermittent wiper interval	37	WIPER INT TIME	The M.U.T.-II/III displays intermittent wiper interval in response to the intermittent wiper control positions
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

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Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
F.WIPER LO (low speed)	Windshield intermittent wiper switch	05	INT WIPER SW	OFF
	Windshield low-speed wiper switch	06	LO WIPER SW	ON
	Windshield high-speed wiper switch	07	HI WIPER SW	OFF
	Wind shield mist wiper switch	08	MIST WIPER SW	OFF
	Windshield washer switch	09	FRONT WASH. SW	OFF
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.WIPER HI (high speed)	Windshield intermittent wiper switch	05	INT WIPER SW	OFF
	Windshield low-speed wiper switch	06	LO WIPER SW	OFF
	Windshield high-speed wiper switch	07	HI WIPER SW	ON
	Wind shield mist wiper switch	08	MIST WIPER SW	OFF
	Windshield washer switch	09	FRONT WASH. SW	OFF
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

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Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
F.WIPER MIST	Windshield intermittent wiper switch	05	INT WIPER SW	OFF
	Windshield low-speed wiper switch	06	LO WIPER SW	OFF
	Windshield high-speed wiper switch	07	HI WIPER SW	OFF
	Wind shield mist wiper switch	08	MIST WIPER SW	ON
	Windshield washer switch	09	FRONT WASH. SW	OFF
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.WIPER WASH	Wind shield mist wiper switch	08	MIST WIPER SW	OFF
	Windshield washer switch	09	FRONT WASH. SW	ON
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

REAR WIPER

Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
REAR WIPER	Rear wiper switch	13	REAR WIPER SW	ON
	Rear washer switch	14	REAR WASH. SW	OFF
	Ignition switch (ACC)	31	IG SW(ACC)	ON
REV. INTERLOCK	Rear wiper switch	13	REAR WIPER SW	ON
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Back-up lamp switch <M/T> or inhibitor switch <A/T>	41	INHIBITOR SW	ON
REAR WASHER	Rear washer switch	14	REAR WASH. SW	ON
	Ignition switch (ACC)	31	IG SW(ACC)	ON

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LIGHTING

Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
OFF	Headlamp switch	00	HEADLAMP SW	OFF
	Tail lamp switch	01	TAIL LAMP SW	OFF
	Passing lamp switch	03	PASSING SW	OFF
	Ignition switch (IG1)	30	IG SW(IG1)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
TAIL LAMP	Headlamp switch	00	HEADLAMP SW	OFF
	Tail lamp switch	01	TAIL LAMP SW	ON
	Passing lamp switch	03	PASSING SW	OFF
	Ignition switch (IG1)*	30	IG SW(IG1)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK
HEADLAMP LO (low-beam)	Headlamp switch	00	HEADLAMP SW	ON
	Passing lamp switch	03	PASSING SW	OFF
	Ignition switch (IG1)	30	IG SW(IG1)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK
HEADLAMP HI (high-beam)	Headlamp switch	00	HEADLAMP SW	ON
	Dimmer switch	02	DIMMER SW	ON
	Ignition switch (IG1)	30	IG SW(IG1)	ON
	Response by the front-ECU	70	FRONT ECU ACK	HI-BEAM ACK
PASSING LAMP	Passing lamp switch	03	PASSING SW	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.FOG LAMP	Headlamp switch	00	HEADLAMP SW	Either of items is ON
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IG SW(IG1)	ON
	Request of fog lamp illumination	36	F.FOG LAMP	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK

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NOTE:

- *When checking the input signals (off, tail, low-beam or high-beam), turn the ignition switch to the "ON" position in order to disable the headlamp automatic shutdown function. However, the titles on the M.U.T.-II/III screen will not be high lamped as this has nothing to do with actual lamp operation.*
- *For checking item "HEADLAMP HI", the M.U.T.-II/III displays "OFF" on the item No.2 "DIMMER SW" when the headlamps are at high-beam. Therefore, the M.U.T.-II/III should display "ON" momentarily when the dimmer switch is operated.*

TURN SIGNAL LAMP

Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
Turn-signal lamp (RH)	Turn-signal lamp switch (RH)	10	TURN SIGNAL RH SW	ON
	Turn-signal lamp switch (LH)	11	TURN SIGNAL LH SW	OFF
	Ignition switch (IG1)	30	IGNITION SW IG1	ON
Turn-signal lamp (LH)	Turn-signal lamp switch (RH)	10	TURN SIGNAL RH SW	OFF
	Turn-signal lamp switch (LH)	11	TURN SIGNAL LH SW	ON
	Ignition switch (IG1)	30	IGNITION SW IG1	ON

BUZZER

Item	Input signals	Item No.	Display on M.U.T.-II/III	Normal condition
Lamping monitor buzzer	Headlamp switch	00	HEADLAMP SW	Either is on
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IGNITION SW IG1	OFF
	Driver's or front passenger's door switch	32	FRONT DOOR SW	ON
	Buzzer	43	Buzzer	ON

PULSE CHECK

M1549015100670

⚠ CAUTION

Before connecting or disconnecting the M.U.T.-II/III, turn the ignition switch to the "LOCK" (OFF) position.

1. The input signals (signals other than communication line signals), which are compatible with the SWS monitor by using the M.U.T.-II/III or voltmeter, can be confirmed by the Pulse Check.

NOTE: If a problem is found in the "Pulse Check", refer to the Problems during Input Signal Check <Service data, function diagnosis or pulse check> (Refer to P.54C-20).

2. Use the M.U.T.-II/III or voltmeter to check the following input signals.

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Switches which are applicable to input signal check, and their check conditions

Input signals		Requirements for sounding buzzer
Key reminder switch <vehicles with keyless entry system>		When the inserted ignition key is pulled out.
Hazard warning lamp switch		When the switch is turned from off to on.
All of the door switches		A door is opened when all the doors are closed.
Front door lock actuator (RH)		When the driver's key cylinder or inside lock knob is unlocked or locked.
Vehicle speed signal		When the vehicle speed has reached 10 km/h or more.
Keyless entry transmitter	Switches	When the switch is turned from off to on.
Interior lamp loaded signal		When a load is applied through multi-purpose fuse No.18.
Door lock key cylinder switch		Turn the key to the lock or unlock position

M.U.T.-II/III DRIVE RECORDER FUNCTION

M1549027300046

1. The SWS monitor cartridge memory can store the ECU check results, the service data, the communication data obtained by the function diagnosis. This communication data can be displayed as a chart or graphical form.
2. If data obtained by the M.U.T.-II/III drive recorder function has to be stored for long time, the data can be transferred to the SWS monitor cartridge. By doing this, you can disconnect the M.U.T.-II/III to prevent excessive battery drain.

NOTE:

- *For the details about the M.U.T.-II drive recorder function, refer to M.U.T.-II Reference Manual.*
- *For the details about the M.U.T.-III drive recorder function, refer to M.U.T.-III User's Manual.*

TROUBLE SYMPTOM CHART

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M1549000801580

Symptom	Inspection procedure number	Reference page
Communication with the SWS monitor is not possible.	A-1	P.54C-22
Communication with the column switch (column-ECU) is not possible.	A-2	P.54C-25
Communication with the ETACS-ECU is not possible.	A-3	P.54C-30
Communication with the front-ECU is not possible.	A-4	P.54C-35
Communication with the sunroof motor assembly (sunroof-ECU) is not possible.	A-5	P.54C-39

<FUNCTION SYSTEM>

Symptom		Inspection procedure number	Reference page
Buzzer	Lamp reminder buzzer function does not work normally.	B-1	P.54C-45
Central door locking system	Central door locking system does not work.	C-1	P.54C-47
	A door or a tailgate cannot be locked or unlocked by the central door locking system.	C-2	P.54C-50
	The central door locking system can not be operated by means of the front passenger's door lock key cylinder.	C-3	P.54C-59
	The ignition key reminder function does not work normally.	C-4	P.54C-61
Power windows	Power windows do not work at all.	D-1	P.54C-63
	Driver's power window does not work by means of the power window main switch.	D-2	P.54C-69
	Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.	D-3	P.54C-71
	Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	D-4	P.54C-85
	The window glass lowers automatically while it is rising.	D-5	P.54C-87
	The power window timer function does not work normally.	D-6	P.54C-88
Keyless entry system	Keyless entry system does not work.	E-1	P.54C-89
	Keyless entry hazard warning lamp answerback function or the room lamp answerback function does not work normally.	E-2	P.54C-91
	Encrypted code cannot be registered.	E-3	P.54C-92
	The timer lock function does not work after the doors have been unlocked by the keyless entry system.	E-4	P.54C-93
Sunroof	The sunroof does not work at all.	F-1	P.54C-94
	Any of the sunroof switch positions is defective.	F-2	P.54C-96
	Sunroof timer function does not work normally.	F-3	P.54C-97
	Sunroof anti-trap function does not work normally.	F-4	P.54C-99

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Symptom		Inspection procedure number	Reference page
Windshield wiper and washer	The windshield wipers do not work at all.	G-1	P.54C-100
	The windshield wipers does not work when the wiper switch is at "INT", "WASHER" or "MIST" position. However, the wipers work at low speed when the switch is at "LO" and "HI" position.	G-2	P.54C-105
	The windshield wipers do not stop at the specified park position.	G-3	P.54C-106
	The windshield wipers do not work normally.	G-4	P.54C-110
	The intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper volume control.	G-5	P.54C-114
	The intermittent wiper interval is not changed according to the vehicle speed.	G-6	P.54C-115
	The windshield washer does not work.	G-7	P.54C-117
Rear wiper and washer	The rear wiper does no not work at all.	H-1	P.54C-121
	The rear wiper does not stop at the specified park position.	H-2	P.54C-125
	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.54C-129
	The rear washer does not work.	H-4	P.54C-130
Headlamp and tail lamp	The headlamps do not illuminate when the lamping switch is at "TAIL" or "PASSING" position, but illuminate only at low beam when the switch is at "HEAD" position. However, the headlamps do not illuminate at high beam.	I-1	P.54C-133
	The tail lamps do not illuminate normally.	I-2	P.54C-134
	The low-beam headlamps do not illuminate normally.	I-3	P.54C-136
	The high-beam headlamps do not illuminate normally.	I-4	P.54C-139
	The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.	I-5	P.54C-141
	Any of tail lamps, position lamps or licence plate lamps does not illuminate.	I-6	P.54C-142
	The headlamp(s) do not illuminate. <including high-beam indicator>	I-7	P.54C-150
Flasher timer	The turn-signal lamps do not illuminate.	J-1	P.54C-155
	The hazard warning lamps do not illuminate.	J-2	P.54C-158
	Any of the turn-signal lamps does not illuminate.	J-3	P.54C-160
Fog lamp	The fog lamps do not illuminate normally.	K-1	P.54C-170
	The fog lamps or the fog lamp indicator do not illuminate normally.	K-2	P.54C-174

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Symptom		Inspection procedure number	Reference page
Interior lamp	The interior lamp does not illuminate or extinguish normally.	L-1	P.54C-179
	Interior lamp automatic shutdown function does not work normally.	L-2	P.54C-191
	The door-ajar warning lamp does not illuminate/extinguish normally.	L-3	P.54C-193
	The seat belt warning lamp does not flash normally.	L-4	P.54C-196

CHECK TROUBLE BY USING THE INPUT SIGNAL CHECK

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M1549024200697

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<PULSE CHECK>

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

Symptom		Inspection procedure number	Reference page
The ignition switch (ACC) signal is not received.		M-1	P.54C-200
The ignition switch (IG1) signal is not received.		M-2	P.54C-202
The back-up lamp switch signal is not received. <M/T>		M-3	P.54C-204
The inhibitor switch (reverse position) signal is not received. <A/T>			P.54C-208
The front door switch signals are not received.		M-4	P.54C-212
The column switch (lighting and turn-signal lamp switch) signal is not received.	The tail lamp switch signal is not received.	M-5	P.54C-214
	The headlamp switch signal is not received.		
	The dimmer switch signal is not received.		
	The passing switch signal is not received.		
	The turn-signal lamp switch (LH) signal is not received.		
	The turn-signal lamp switch (RH) signal is not received.		
The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.	The windshield mist wiper switch signal is not received.	M-6	P.54C-216
	The windshield intermittent wiper switch signal is not received.		
	The windshield low-speed wiper switch signal is not received.		
	The windshield high-speed wiper switch signal is not received.		
	The windshield washer switch signal is not received.		
	The rear wiper switch signal is not received.		
	The rear washer switch signal is not received.		
	The windshield intermittent wiper volume signal is not received.	M-7	P.54C-218
The fog lamp switch signal is not received.		M-8	P.54C-220
When the sunroof switch is operated, the switch signals are not received.		M-9	P.54C-223
The key reminder switch signal is not received.		M-10	P.54C-227
The hazard warning lamp switch signal is not received.		M-11	P.54C-230

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Symptom	Inspection procedure number	Reference page
All the door switch signals are not received.	M-12	P.54C-233
The front door lock actuator (RH) switch signal is not received.	M-13	P.54C-237
The vehicle speed sensor signal is not received. <M/T>	M-14	P.54C-241
The vehicle speed signal is not received. <A/T>		P.54C-244
Each switch signal of the keyless entry transmitter is not received.	M-15	P.54C-246
The interior lamp loaded signal is not received.	M-16	P.54C-248
The door lock key cylinder switch signal is not received.	M-17	P.54C-252

OPERATION AND FUNCTION QUICK-REFERENCE TABLE FOR INPUT SIGNAL INSPECTION PROCEDURES

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If troubles have occurred in the functions which use the SWS simultaneously, observe the table below to check input signals. (This table shows only the input signals which will cause troubles in at least two functions simultaneously).

Function	M-1	M-2	M-4	M-5	M-6	M-10	M-12	M-14	M-15	M-16
Lamp reminder function	–	•	•	•	–	–	–	–	–	–
Control of central door locking	–	–	–	–	–	–	–	•	–	–
Key reminder function	–	–	•	–	–	•	–	•	–	–
Keyless entry system	–	–	•	–	–	•	•	•	–	–
Sunroof timer control	–	•	•	–	–	–	–	–	–	–
Control of windshield wiper washer	•	–	–	–	•	–	–	–	•	–
Rear wiper washer control	•	–	–	–	•	–	–	–	–	–
Headlamp control	–	•	–	•	–	–	–	–	–	–
Tail lamp control	–	•	–	•	–	–	–	–	–	–
Fog lamp control	–	–	–	•	–	–	–	–	–	–
Turn-signal lamp control	–	•	–	•	–	–	–	–	–	–
Interior lamp control	–	•	•	–	–	•	•	•	•	•
Interior lamp automatic shutdown function	•	•	•	–	–	–	–	–	–	•
Door-ajar indicator lamp	–	–	•	–	–	–	•	–	–	–

NOTE: • indicates the applicable points.

SYMPTOM PROCEDURES

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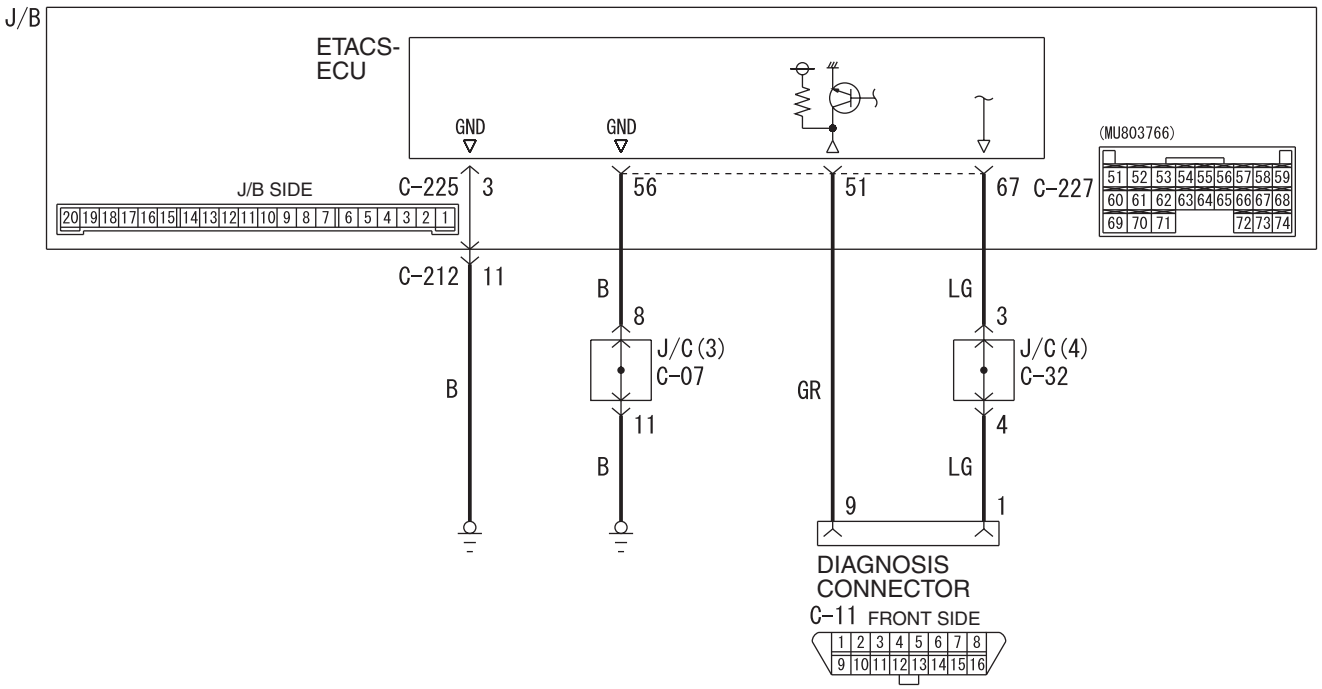
INSPECTION PROCEDURE A-1: Communication with the SWS monitor is not possible.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the earthing circuit and the communication circuit are normal.

MUT-II/III Communication and ETACS-ECU Ground Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The SWS monitor may be connected improperly.

PROBABLE CAUSES

- Malfunction of the SWS monitor cartridge
- Malfunction of the SWS monitor harness
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check that the M.U.T.-II/III communicates with the other systems.

Use the M.U.T.-II/III to confirm that it communicates with the engine-ECU.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Diagnose the engine control system. Refer to P.13A-208.

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STEP 2. Check that the M.U.T.-II/III can communicate with the system.

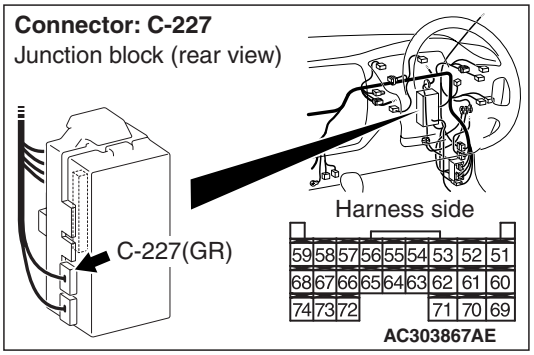
When the ignition switch is turned ON, check if the M.U.T.-II/III can communicate with the system.

Q: Is the check result normal?

YES : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

NO : Go to Step 3.

STEP 3. Connector check: C-227 ETACS-ECU connector

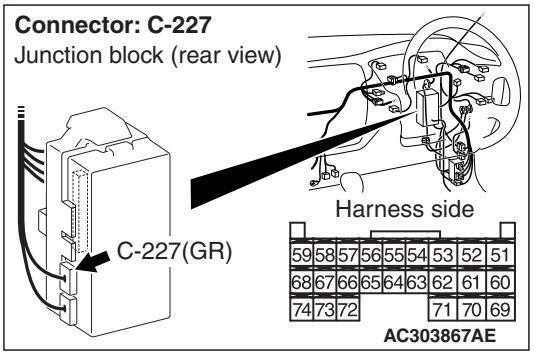


Q: Is the check result normal?

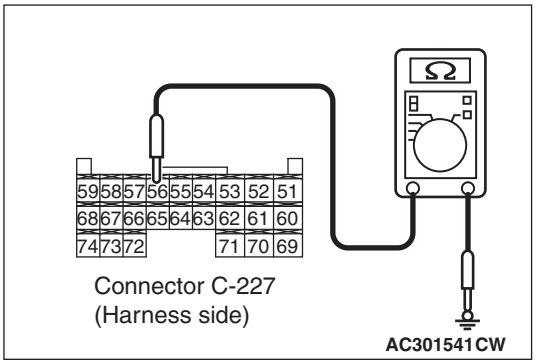
YES : Go to Step 4.

NO : Repair the defective connector.

STEP 4. Resistance measurement at the C-227 ETACS-ECU connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between C-227 ETACS-ECU connector terminal No.56 and body earth

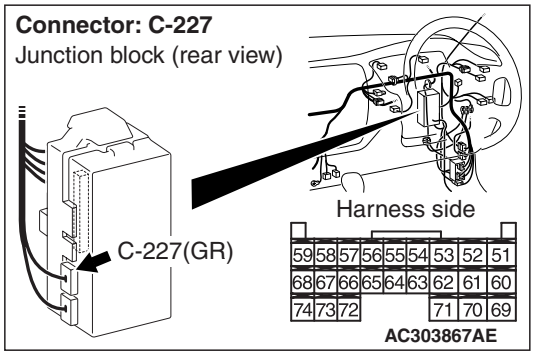
OK: 2 Ω or less

Q: Is the check result normal?

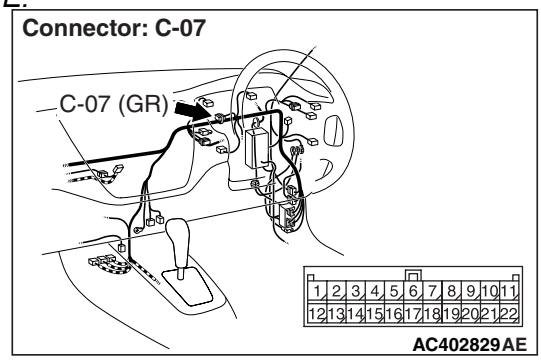
YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between C-227 ETACS-ECU connector terminal No.56 and body earth.



NOTE:



Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.

- Check the earth wires for open circuit.

Q: Are the check results normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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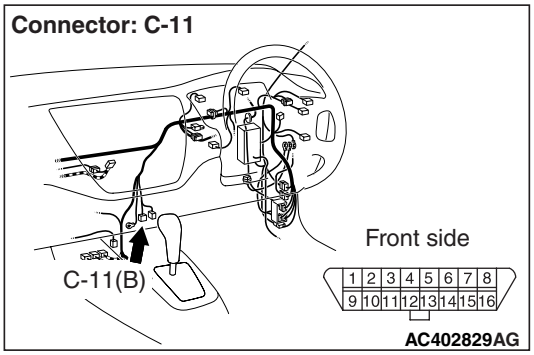
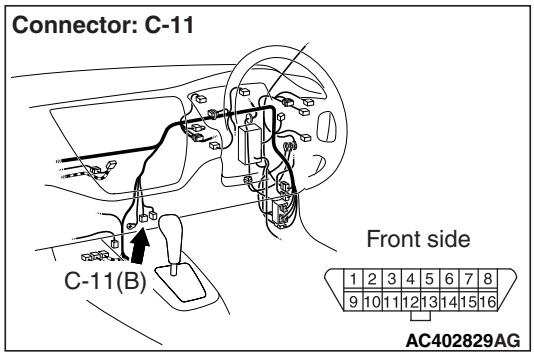
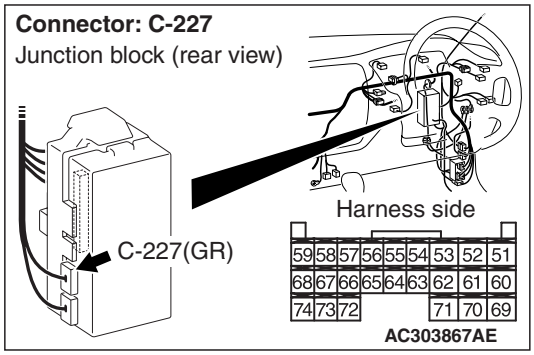
STEP 6. Connector check: C-11 diagnosis connector



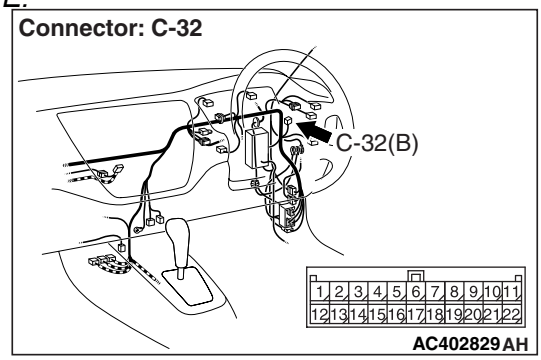
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

STEP 7. Check the wiring harness from C-227 ETACS-ECU connector terminal Nos. 51 and 67 to C-11 diagnosis connector terminal Nos. 9 and 1.





NOTE:



Prior to the wiring harness inspection, check joint connector C-32, and repair if necessary.

- Check the communication lines for open circuit.

Q: Are the check results normal?
YES : Replace the ETACS-ECU.
NO : Repair the wiring harness.

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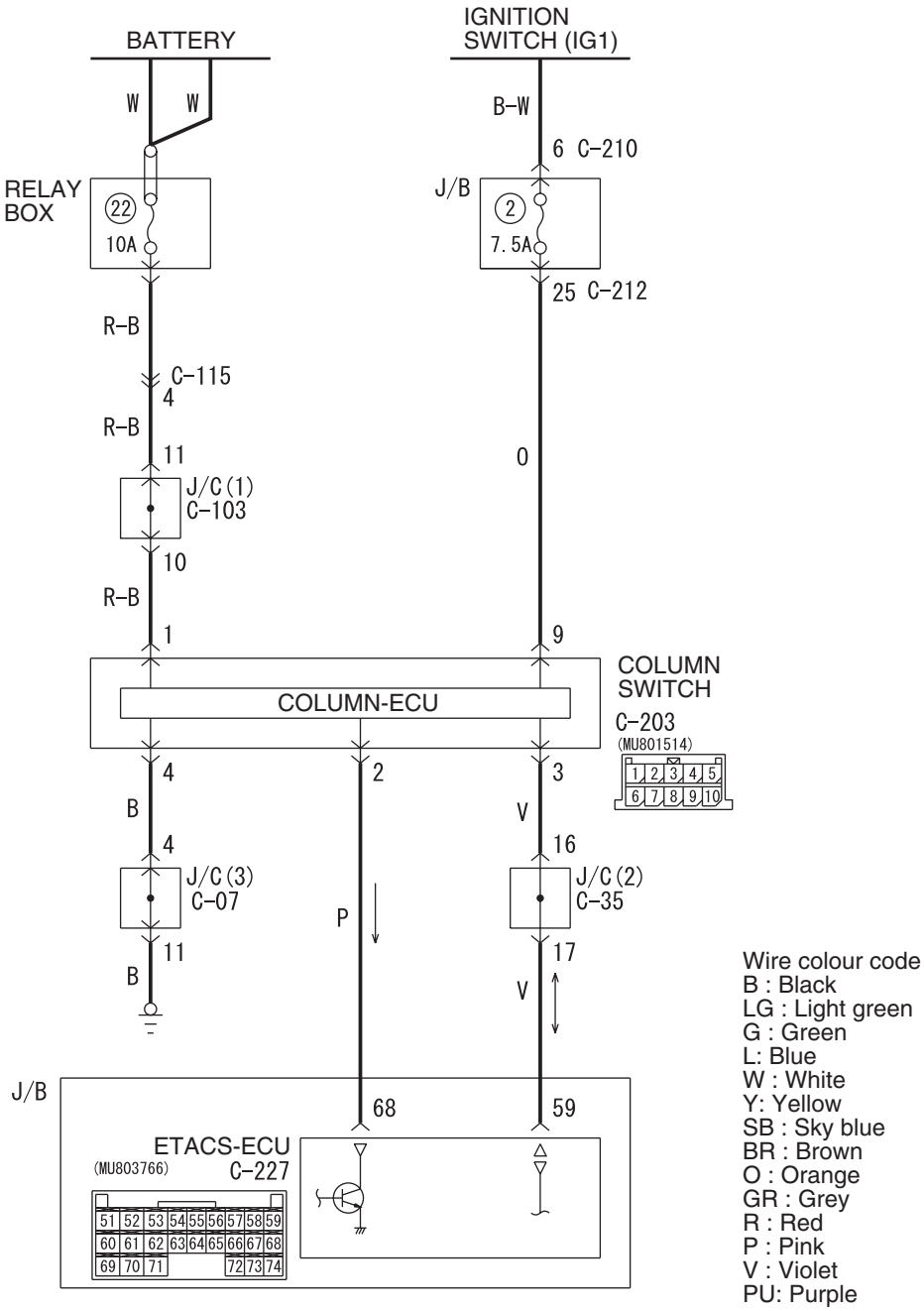
INSPECTION PROCEDURE A-2: Communication with the column switch (column-ECU) is not possible.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the earthing circuit and the communication circuit are normal.

Column Switch Power Supply and SWS Communication Circuit



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COMMENTS ON TROUBLE SYMPTOM

The power supply circuit to the column switch (column-ECU) may be defective. If the wiring harness of the battery power supply circuit for the ECU (column switch terminal No.1) is defective, also check the power supply circuit to the ignition switch (IG1) (column switch terminal No.9) and repair if necessary.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.

(2) Check the following ECU.

ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

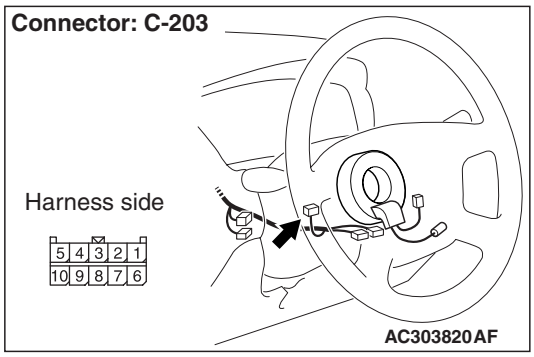
STEP 2. Connector check: C-203 column switch connector

Q: Is the check result normal?

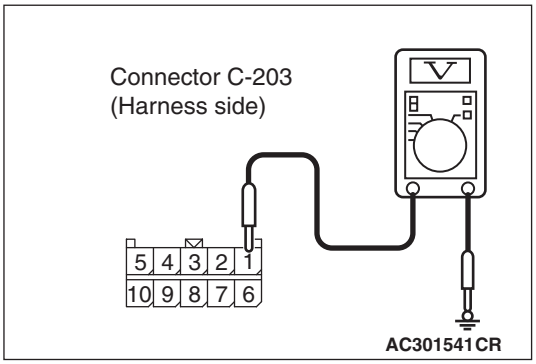
YES : Go to Step 3.

NO : Repair the defective connector.

STEP 3. Voltage measurement at C-203 column switch connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Voltage between C-203 column switch connector No.1 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

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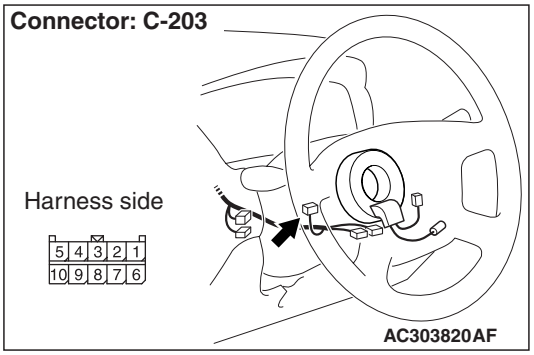
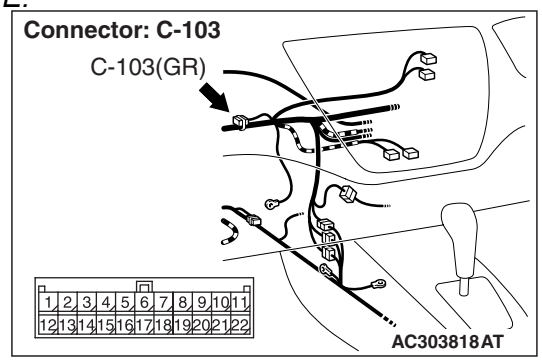
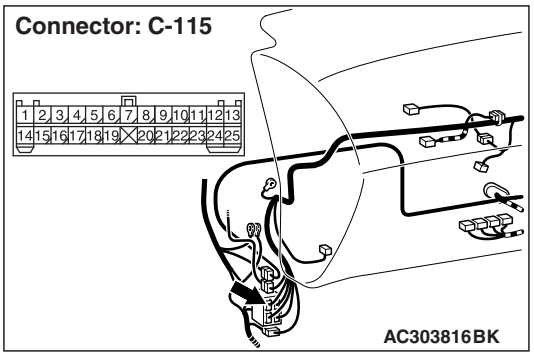
STEP 4. Check the wiring harness between C-203 column switch connector terminal No.1 and battery.



NOTE:



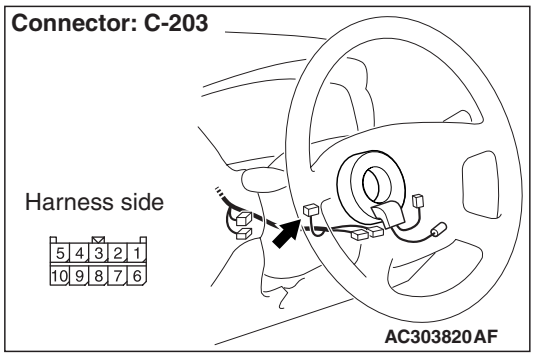


Prior to the wiring harness inspection, check intermediate connector C-115, joint connector C-103, and repair if necessary.

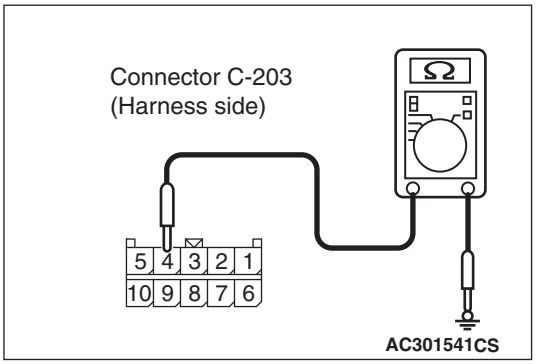
- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Resistance measurement at C-203 column switch connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between C-203 column switch connector No.4 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

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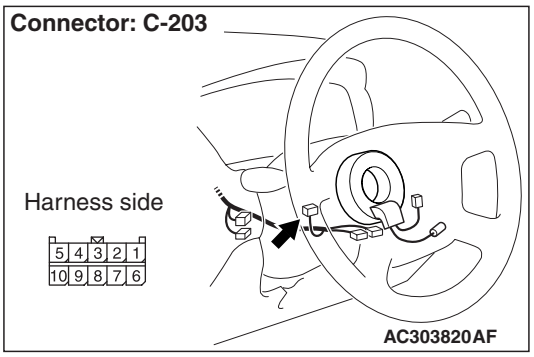
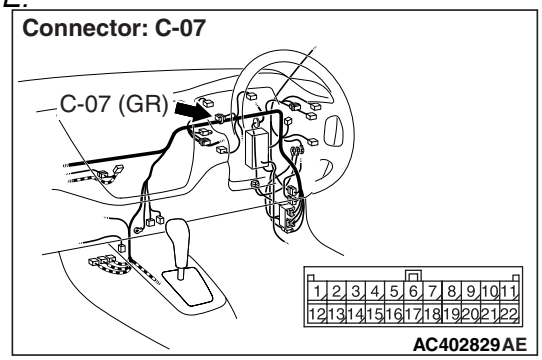
STEP 6. Check the wiring harness between C-203 column switch connector No.4 and body earth.



NOTE:



Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.

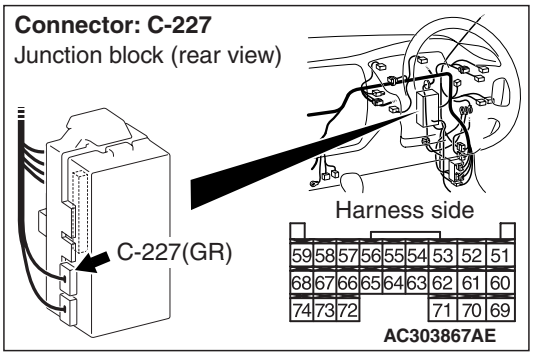
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. Connector check: C-227 ETACS-ECU connector

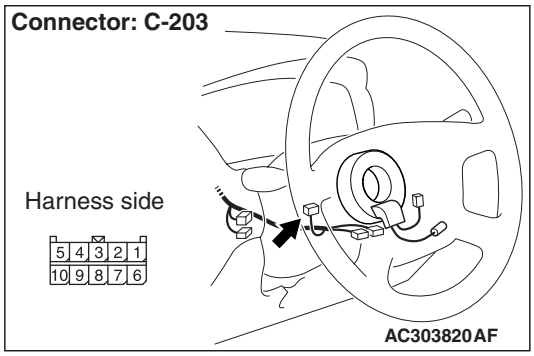


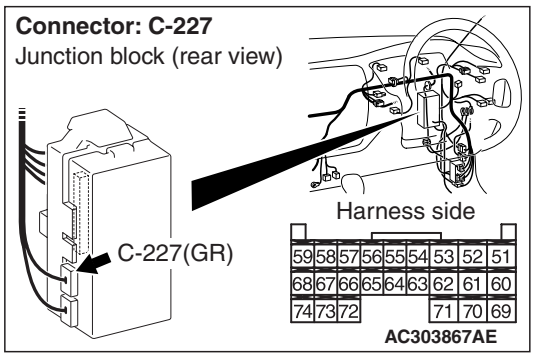
Q: Is the check result normal?

YES : Go to Step 8.

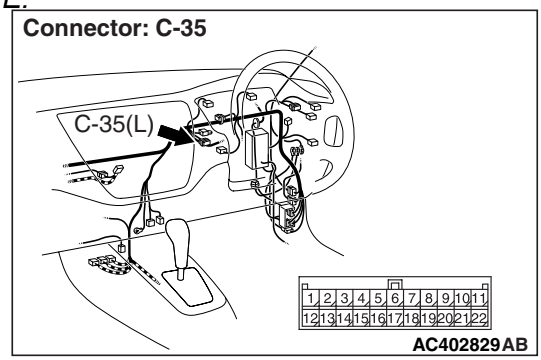
NO : Repair the defective connector.

STEP 8. Check the wiring harness from C-227 ETACS-ECU connector terminal Nos. 59 and 68 to C-203 column switch connector terminal Nos. 3 and 2.





NOTE:



Prior to the wiring harness inspection, check joint connector C-35, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the wiring harness.

STEP 9. ECU check by using the SWS monitor.

(1) Turn the ignition switch to the "OFF" position.

(2) Check the following ECU.

COLUMN ECU

OK: "OK" is displayed on the "COLUMN ECU" menu.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Replace the column switch.

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STEP 10. Retest the system.

Check that the ETACS-ECU communicates with the column switch.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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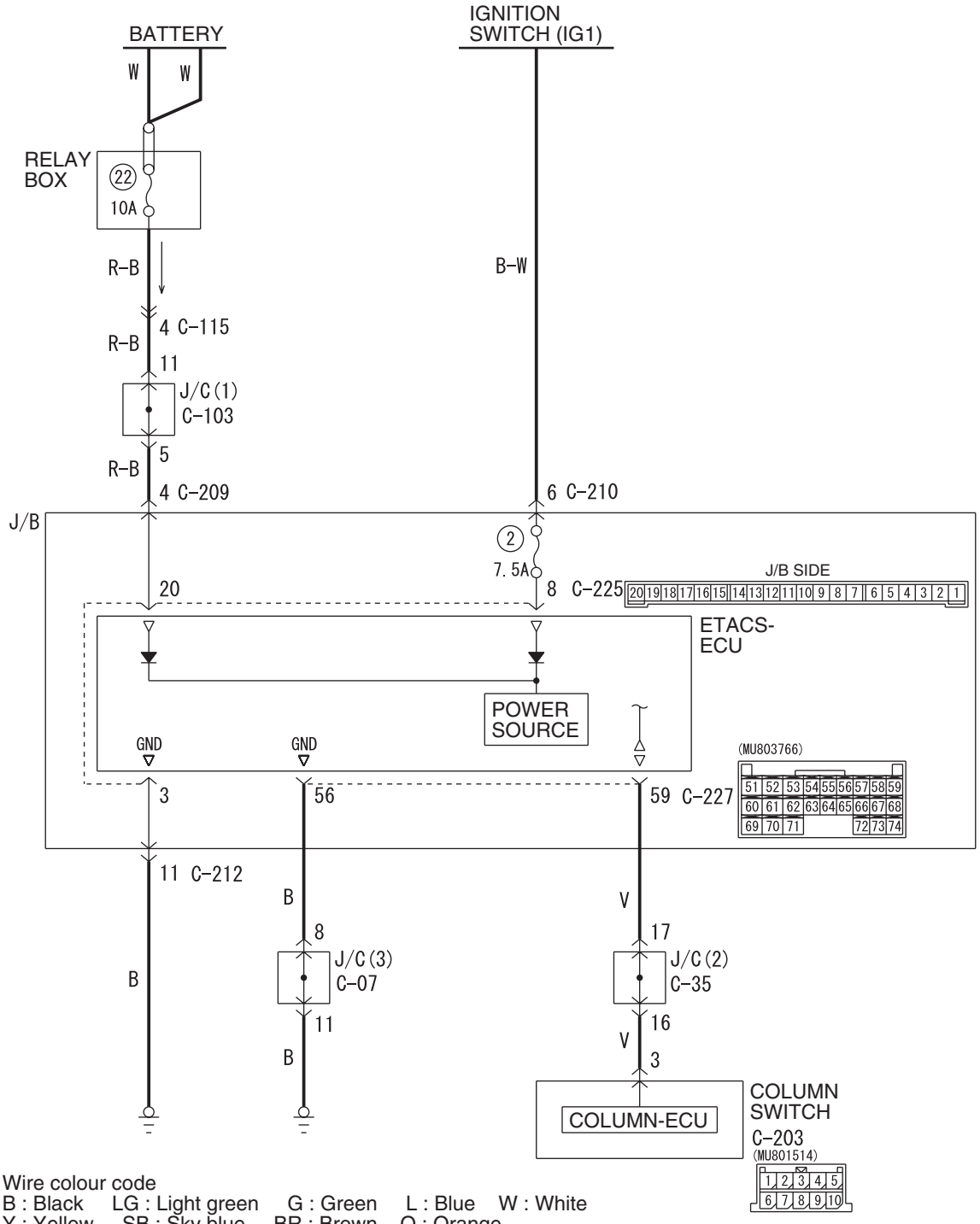
INSPECTION PROCEDURE A-3: Communication with the ETACS-ECU is not possible.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the earthing circuit and the communication circuit are normal.

ETACS-ECU Power Supply and SWS Communication Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White
Y : Yellow SB : Sky blue BR : Brown O : Orange
GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

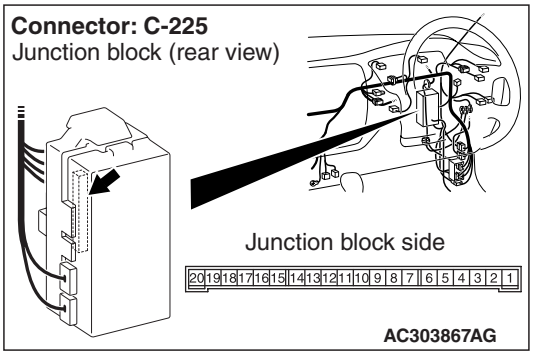
It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the SWS monitor and the ETACS-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal No.20 of the ETACS-ECU) is damaged, also check the power supply circuit from the ignition switch (IG1) (terminal No.8 of the ETACS-ECU), and repair if necessary. If the earth circuit to the ECU (terminal No.3 of the ETACS-ECU) is defective, also check the earth circuit to the sensor (terminal No.56 of the ETACS-ECU), and repair if necessary.

PROBABLE CAUSES

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

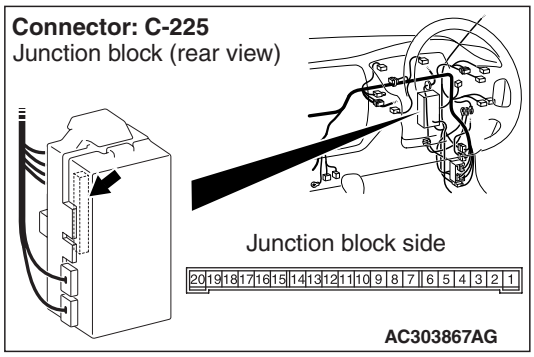
DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-225 ETACS-ECU connector

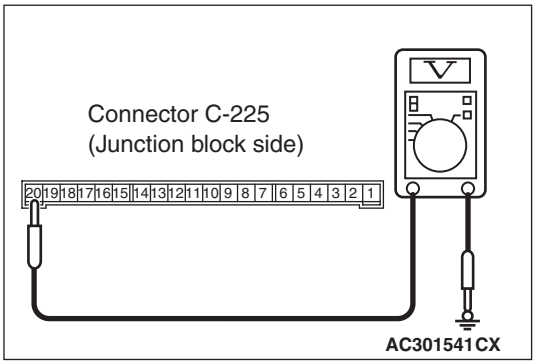


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.



(2) Voltage between C-225 ETACS-ECU connector terminal No.20 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

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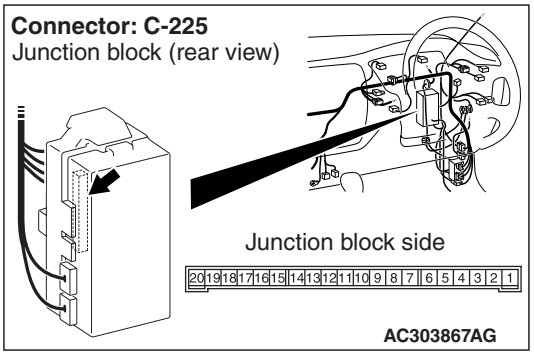
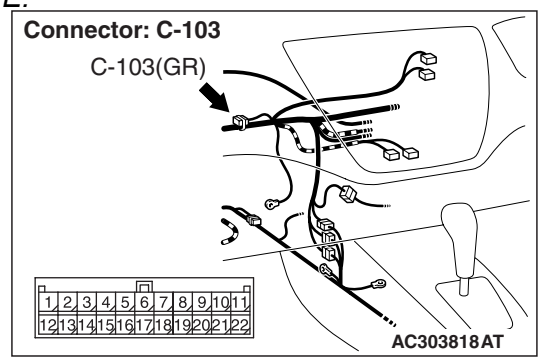
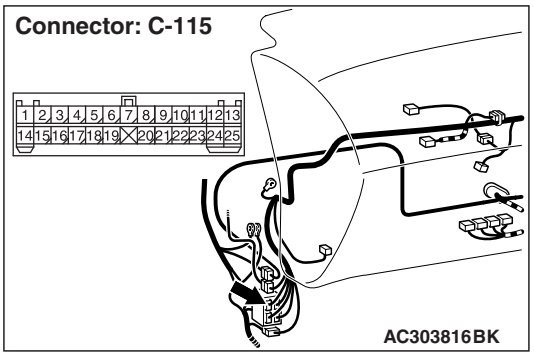
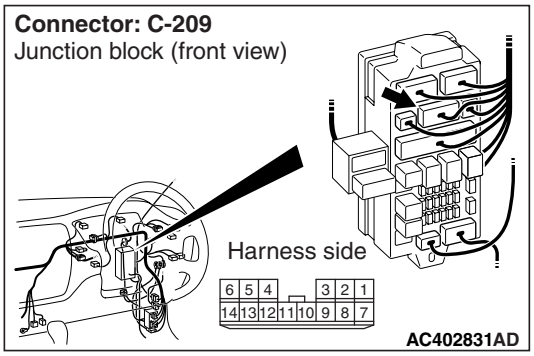
STEP 3. Check the wiring harness between C-225 ETACS-ECU connector terminal No.20 and battery.



NOTE:





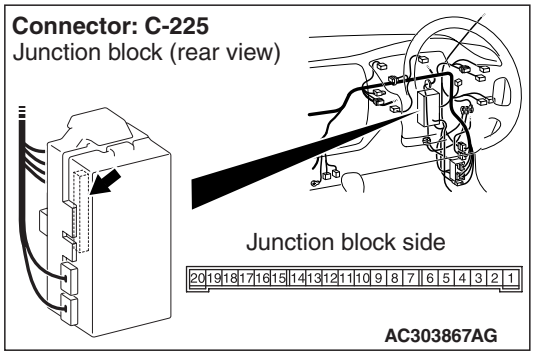


Prior to the wiring harness inspection, check joint connector C-103, intermediate connector C-115 and junction block connector C-209, and repair if necessary.

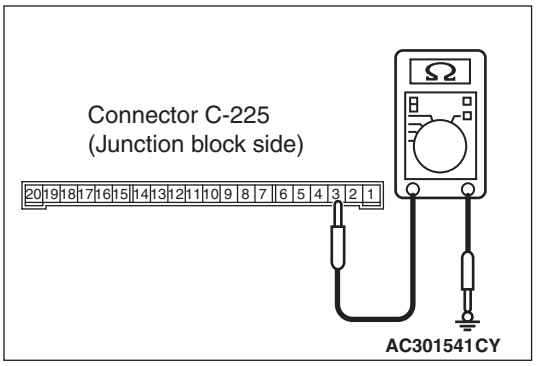
- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 4. Resistance measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.



(2) Resistance between C-225 ETACS-ECU connector terminal No.3 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 5.

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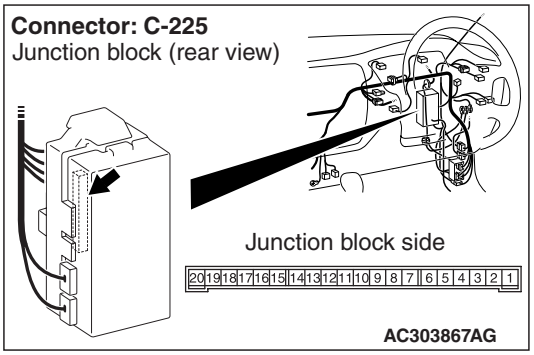
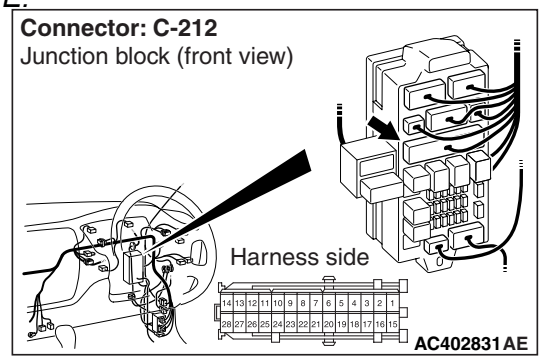
STEP 5. Check the wiring harness between C-225 ETACS-ECU connector terminal No.3 and body earth.



NOTE:



Prior to the wiring harness inspection, check junction block connector C-212, and repair if necessary.

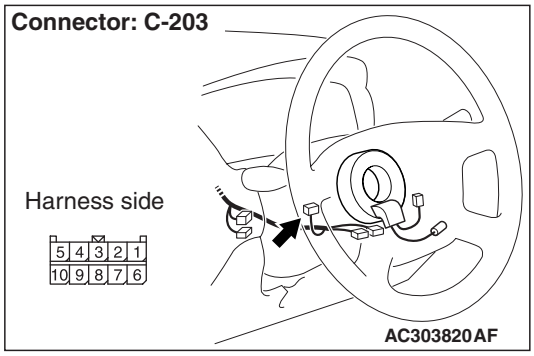
- Check the earth wires for open circuit.

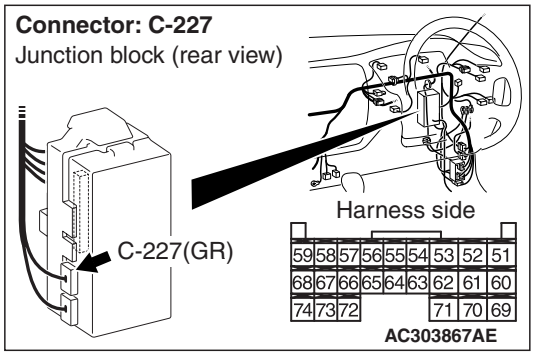
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 6. Connector check: C-227 ETACS-ECU connector and C-203 column switch connector





Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the defective connector.

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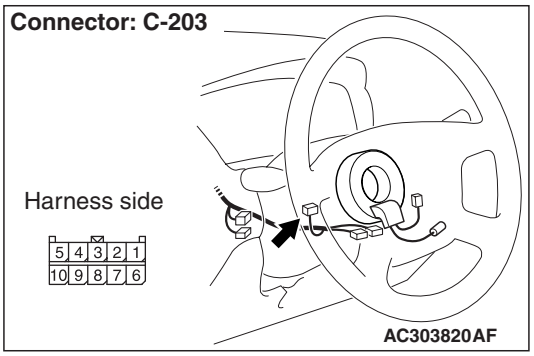
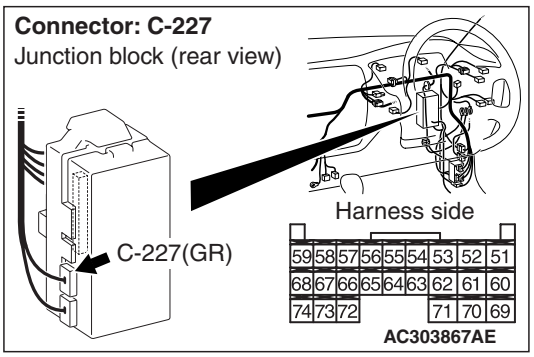
STEP 7. Check the wiring harness from C-227 ETACS-ECU connector terminal Nos. 59 and 68 to C-203 column switch connector terminal Nos. 3 and 2.





- Check the communication lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

STEP 8. ECU check by using the SWS monitor.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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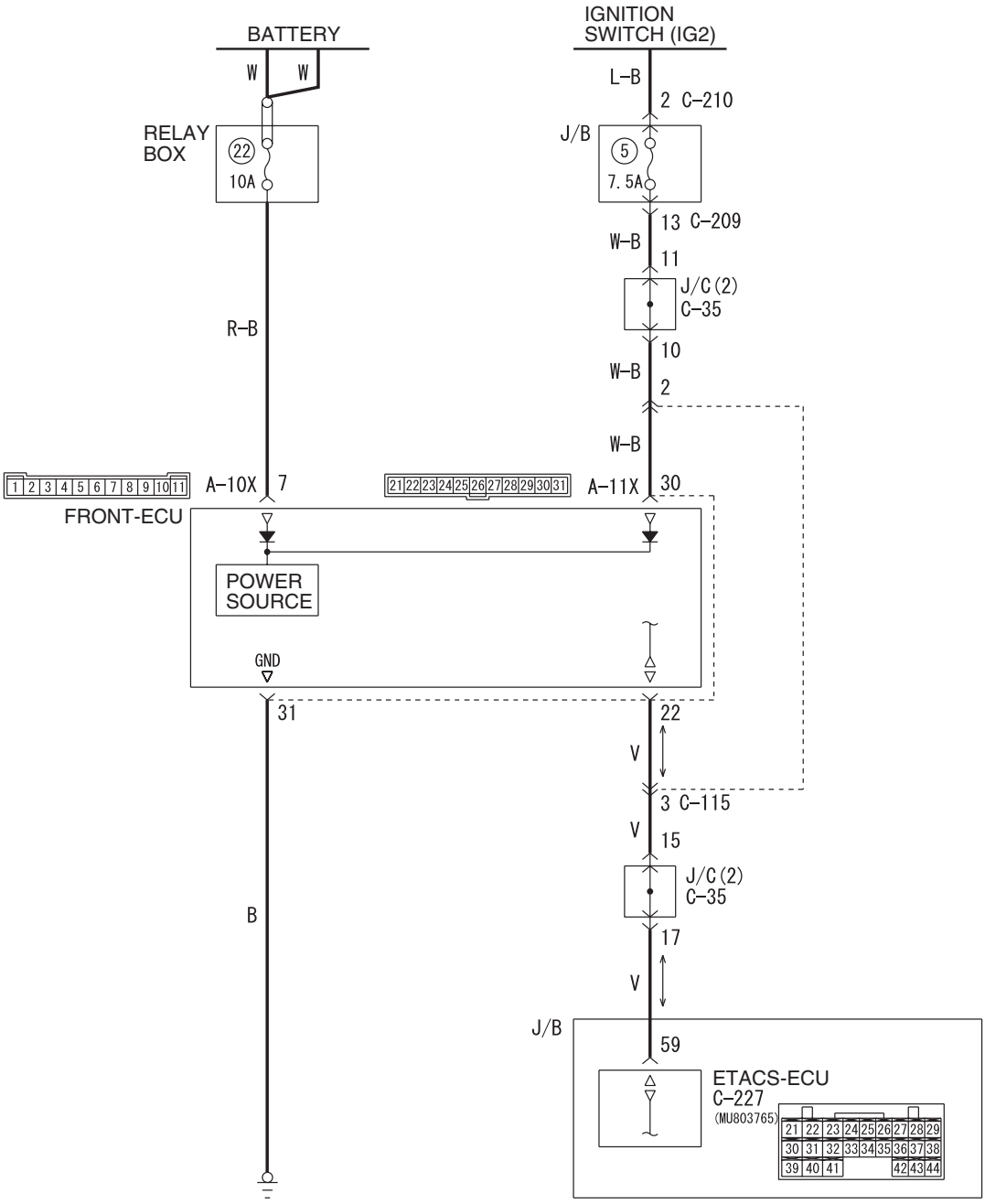
INSPECTION PROCEDURE A-4: Communication with the front-ECU is not possible.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the power supply circuit, the earthing circuit and the communication circuit are normal.

Front-ECU Power Supply and SWS Communication Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

It is suspected that the power supply circuit to the front-ECU is defective, or the wiring harness between the SWS monitor and the front-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal No.5 of the front-ECU) is damaged, also check the power supply circuit from the ignition switch (IG2) (terminal No.22 of the front-ECU), and repair if necessary.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.

(2) Check the following ECU.

ETACS ECU

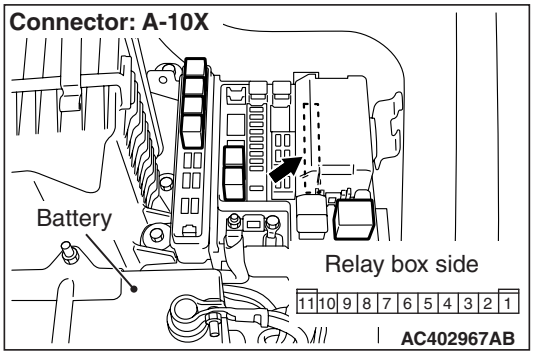
OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. Connector check: A-10X front-ECU connector

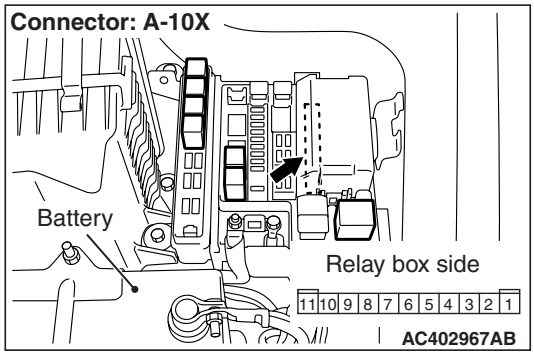


Q: Is the check result normal?

YES : Go to Step 3.

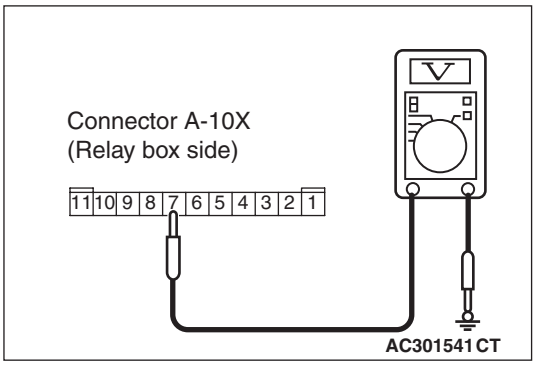
NO : Repair the defective connector.

STEP 3. Voltage measurement at A-10X front-ECU connector



(1) Disconnect the connector, and measure at the relay box side.

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



(3) Voltage between A-10X front-ECU connector No.7 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 4.

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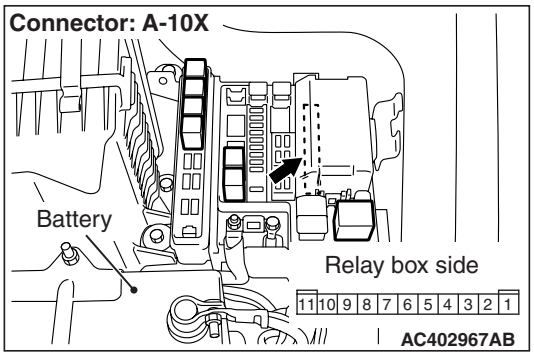
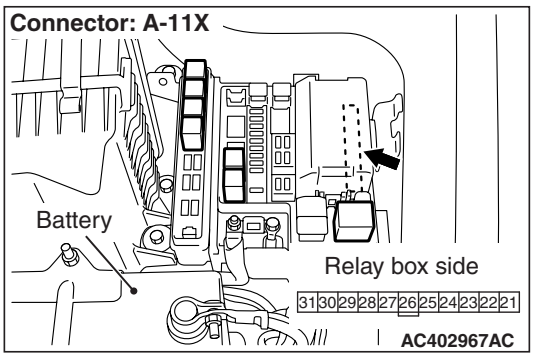
STEP 4. Check the wiring harness between A-10X front-ECU connector terminal No.7 and the battery.



- Check the power supply line for open circuit.

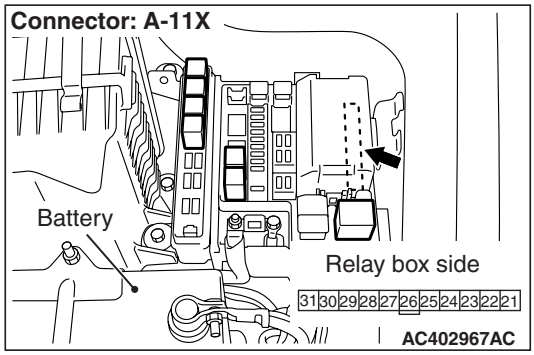
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Connector check: A-11X front-ECU connector

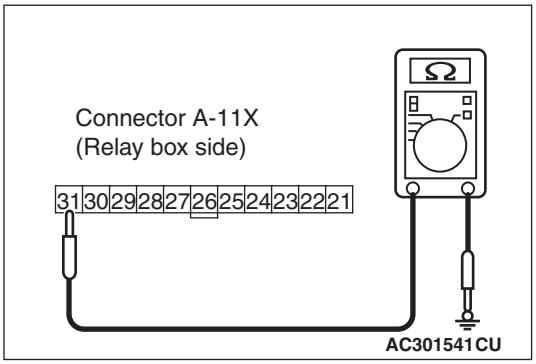


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Resistance measurement at A-11X front-ECU connector



(1) Disconnect the connector, and measure at the relay box side.

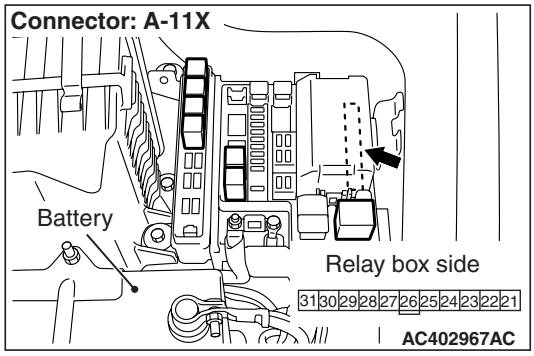


(2) Resistance between A-11X front-ECU connector terminal No.31 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 8.
NO : Go to Step 7.

STEP 7. Check the wiring harness between A-11X front-ECU terminal connector No.31 and body earth.



- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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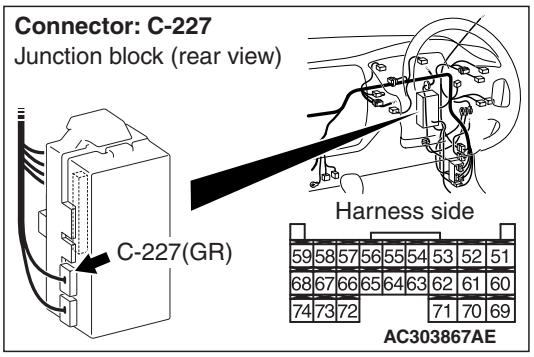
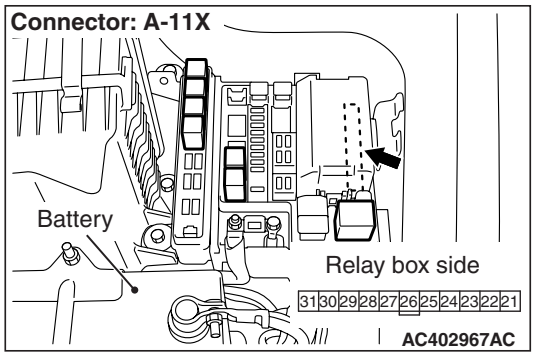
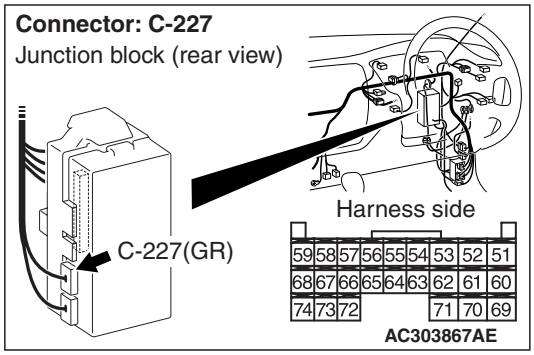
STEP 8. Connector check: C-227 ETACS-ECU connector



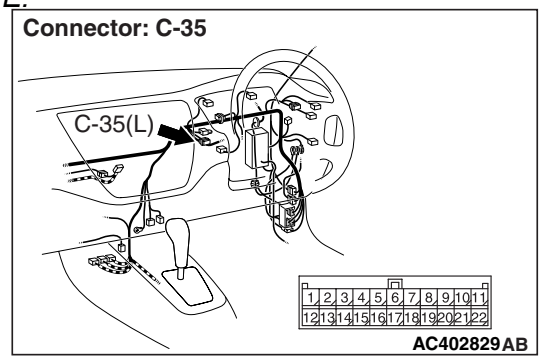
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

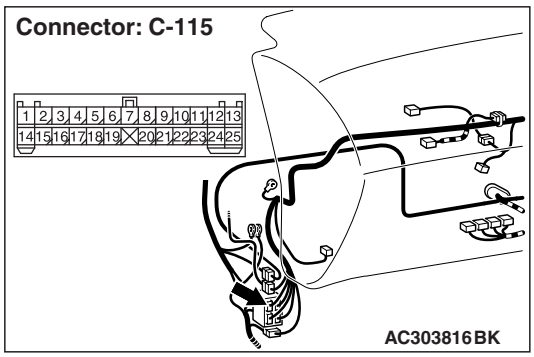
STEP 9. Check the wiring harness between A-11X front-ECU connector terminal No.22 and C-227 ETACS-ECU connector terminal No.59.





NOTE:





Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-115, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

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STEP 10. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ON" position.
(2) Check the following ECU.
FRONT ECU

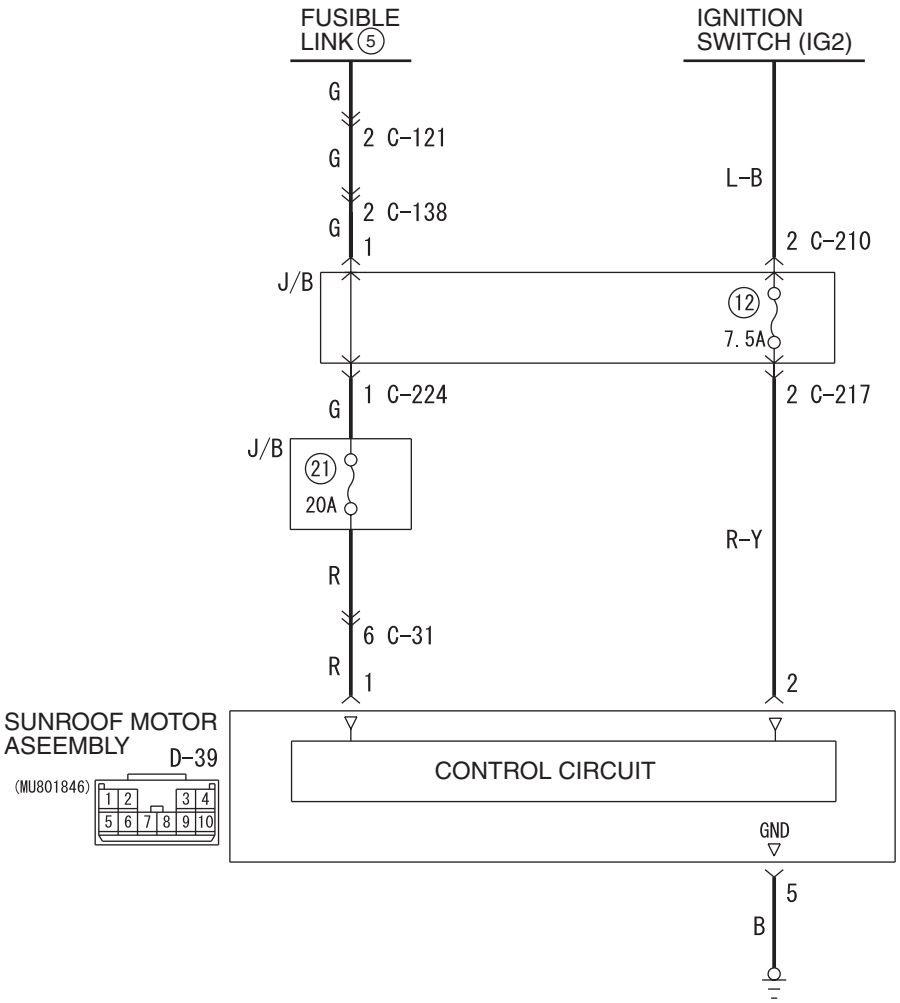
OK: "OK" is displayed on the "FRONT ECU" menu.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof Motor Assembly Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L052A

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COMMENTS ON TROUBLE SYMPTOM

The sunroof motor assembly (sunroof-ECU), the power supply circuit or the communication circuit for that assembly may be defective.

PROBABLE CAUSES

- Malfunction of the sunroof motor assembly (sunroof-ECU)
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.

(2) Check the following ECU.

ETACS ECU

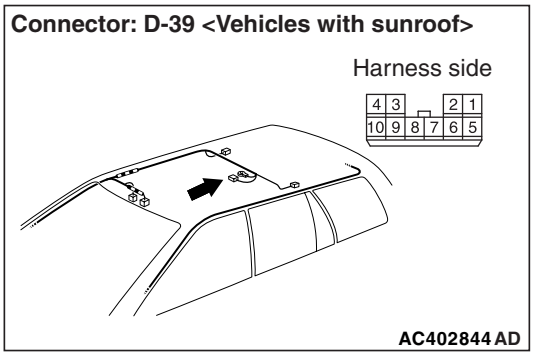
OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. Connector check: D-39 sunroof motor assembly (sunroof-ECU) connector

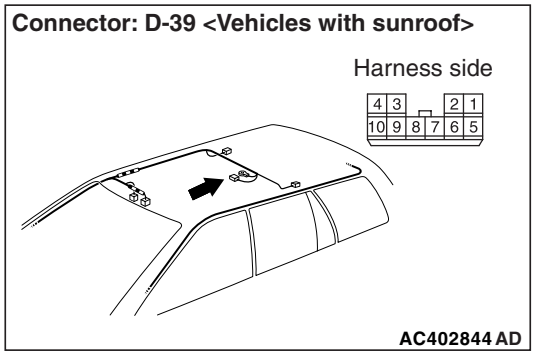


Q: Is the check result normal?

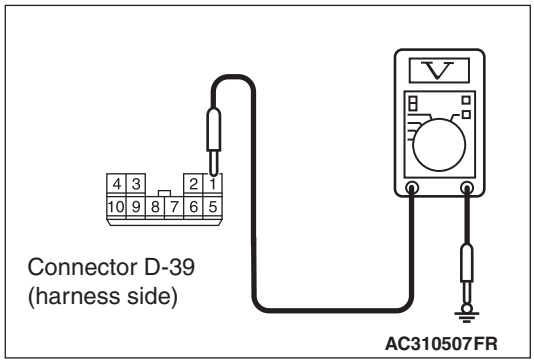
YES : Go to Step 3.

NO : Repair the defective connector.

STEP 3. Measure the voltage at D-39 sunroof motor assembly (sunroof-ECU) connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Voltage between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.1 and body earth

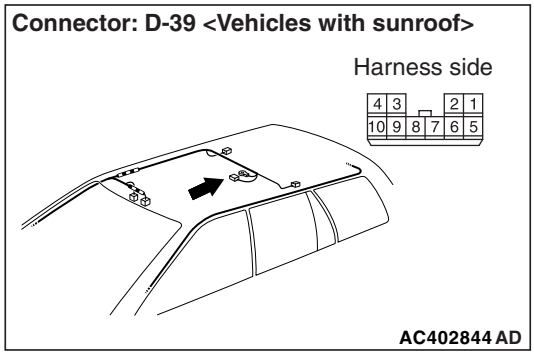
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Check the wiring harness between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.1 and fusible link (5).



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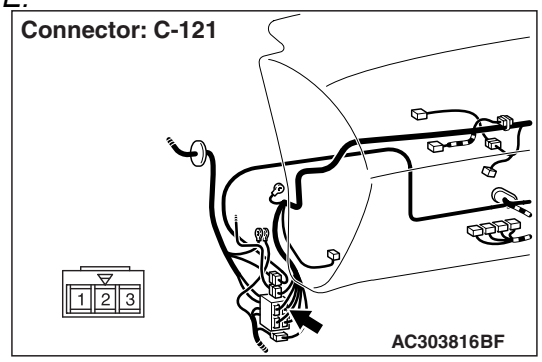
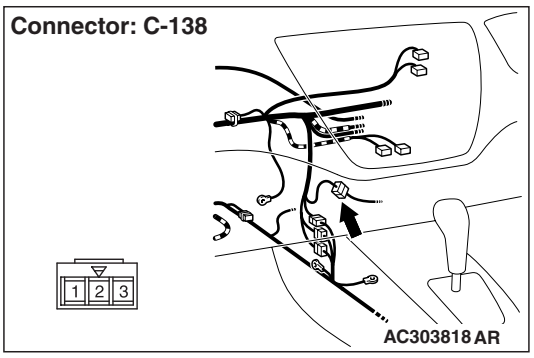
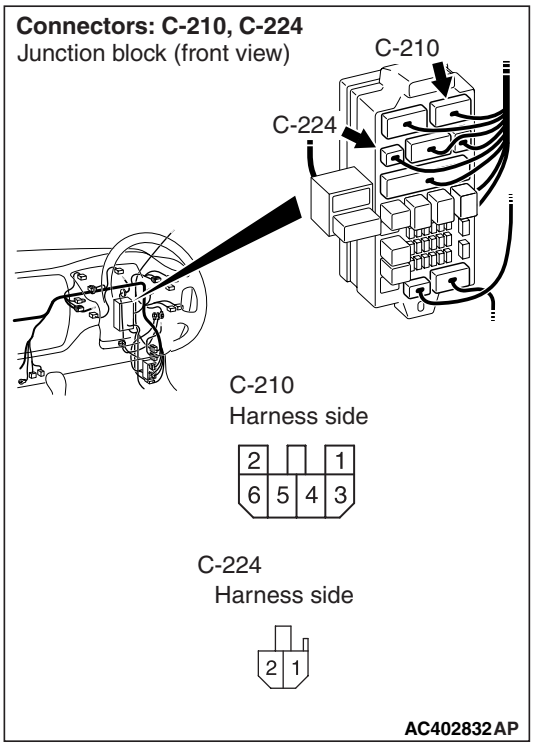
NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-121, C-138, C-210 and C-224, and repair if necessary.

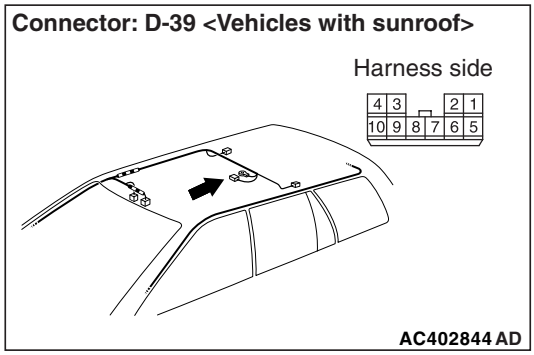
- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

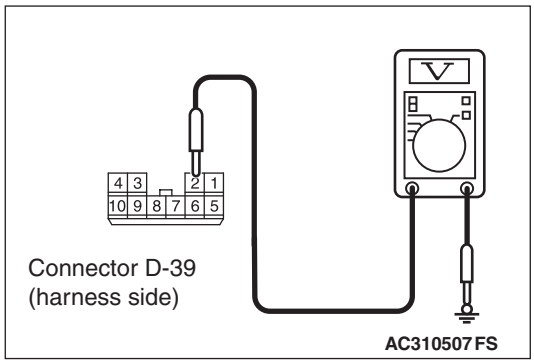
NO : Repair the wiring harness.

STEP 5. Measure the voltage at D-39 sunroof motor assembly (sunroof-ECU) connector.



(1) Disconnect the connector, and measure at the wiring harness side.

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



(3) Voltage between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.2 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

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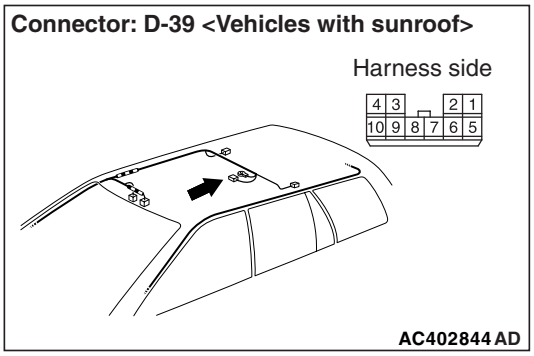
STEP 6. Check the wiring harness between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.2 and ignition switch (IG2).



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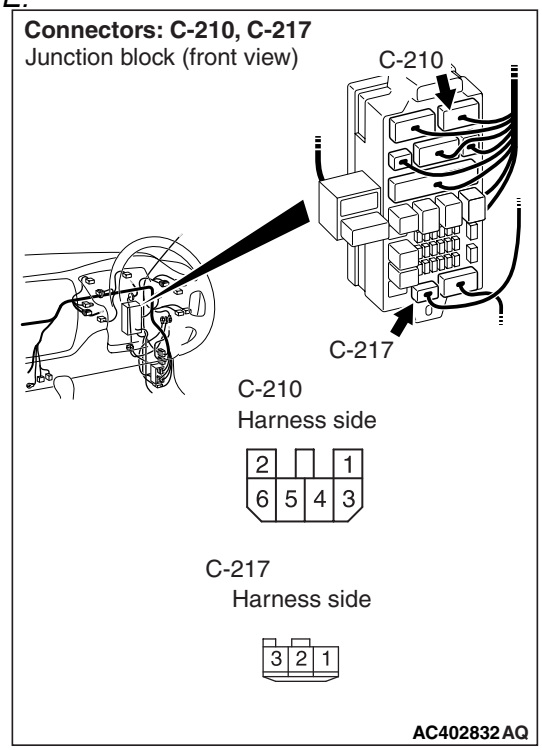


Prior to the wiring harness inspection, check junction block connectors C-210 and C-217, and repair if necessary.

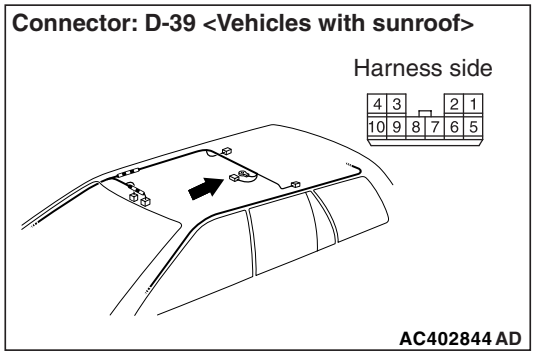
- Check the power supply line for open circuit.

Q: Is the check result normal?

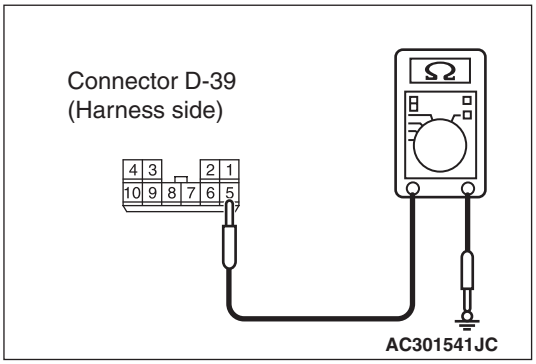
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. Measure the resistance at D-39 sunroof motor assembly (sunroof-ECU) connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.5 and body earth

OK: 2 Ω or less

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 8.

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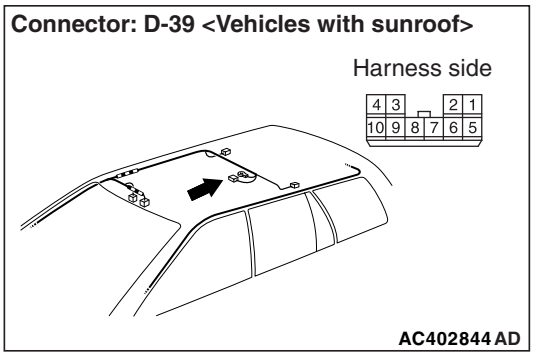
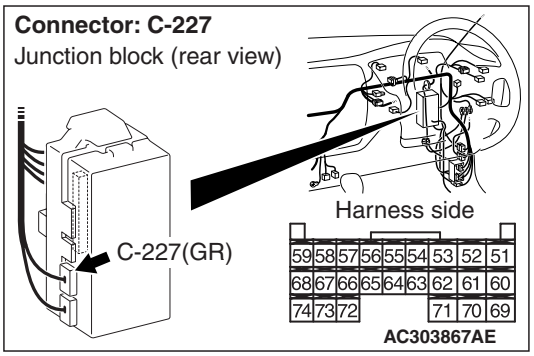
STEP 8. Check the wiring harness between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.5 and body earth.



- Check the earth wires for open circuit.

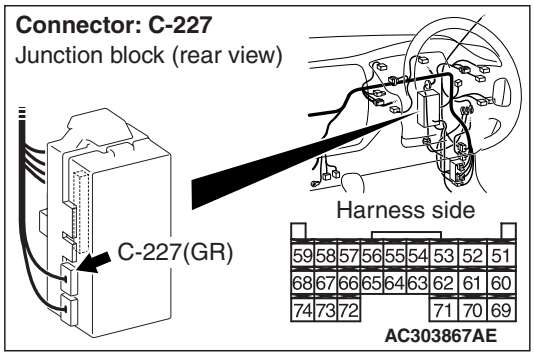
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

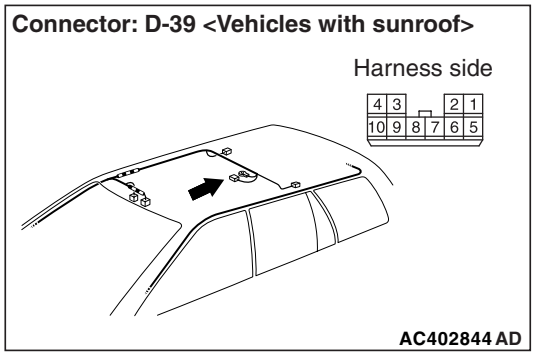
STEP 9. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the defective connector.

STEP 10. Check the wiring harness between D-39 sunroof motor assembly (sunroof-ECU) connector terminal No.10 and C-227 ETACS-ECU connector terminal No.59.





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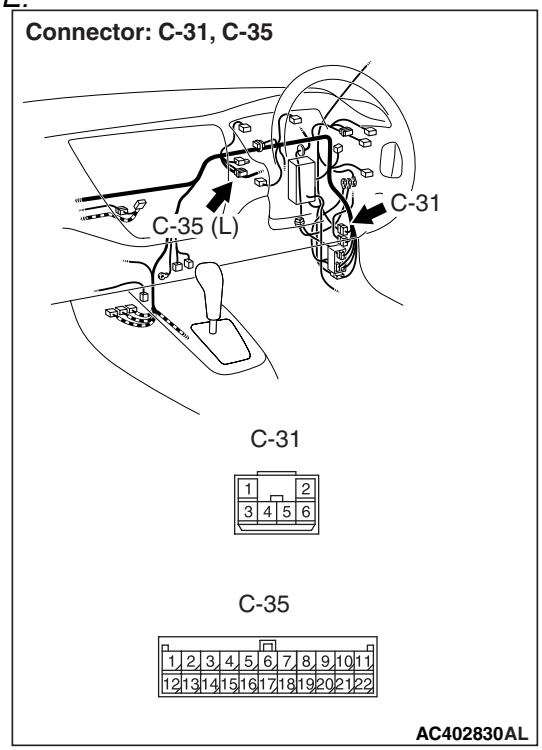
NOTE:



Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-31, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the wiring harness.

STEP 11. ECU check by using the SWS monitor
Check that the power supply and earth lines to the sunroof motor assembly (sunroof-ECU) and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
SUNROOF ECU

OK: "OK" is displayed on the "SUNROOF ECU" menu.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the sunroof motor assembly (sunroof-ECU).

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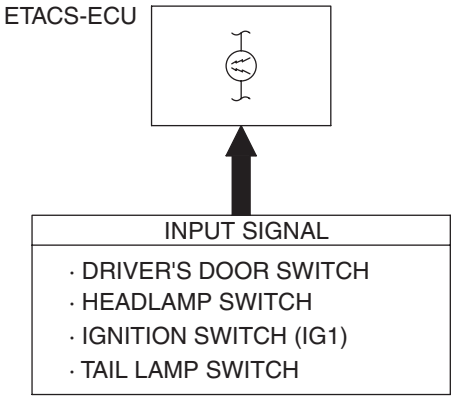
BUZZER

INSPECTION PROCEDURE B-1: Lamp reminder buzzer function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Lamp Reminder Buzzer Function



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- Driver's door switch
- Tail lamp switch
- Headlamp switch

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the driver's door switch
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.

Check that the power supply and earth lines to the ETACS-ECU and the column switch (column-ECU) and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
- COLUMN ECU
- ETACS ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?

YES <"OK" is displayed for all the items> : Go to Step 2.

NO <"NG" is displayed on the "ETACS ECU" menu> : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."

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STEP 2. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the lamp reminder function.

<Selected item> BUZZER - LGT MONI. ALRM

- Turn the ignition switch to the "OFF" position. (key removed)
- Turn the lighting switch to the "HEAD" position.
- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON when the lighting switch is at HEAD
Item 01	TAIL LAMP SW	ON when the lighting switch is at TAIL
Item 30	IG SW(IG1)	OFF
Item 32	FRONT DOOR SW	ON
Item 43	BUZZER	ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?

YES <Normal conditions displayed for all the items> : Go to Step 3.

NO <Normal condition is not displayed for item No.00 or No.01> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

NO <Normal condition is not displayed for item No.32> : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212."

NO <Normal condition is not displayed for item No.43> : Replace the ETACS-ECU.

STEP 3. Retest the system.

The lamp reminder buzzer function should work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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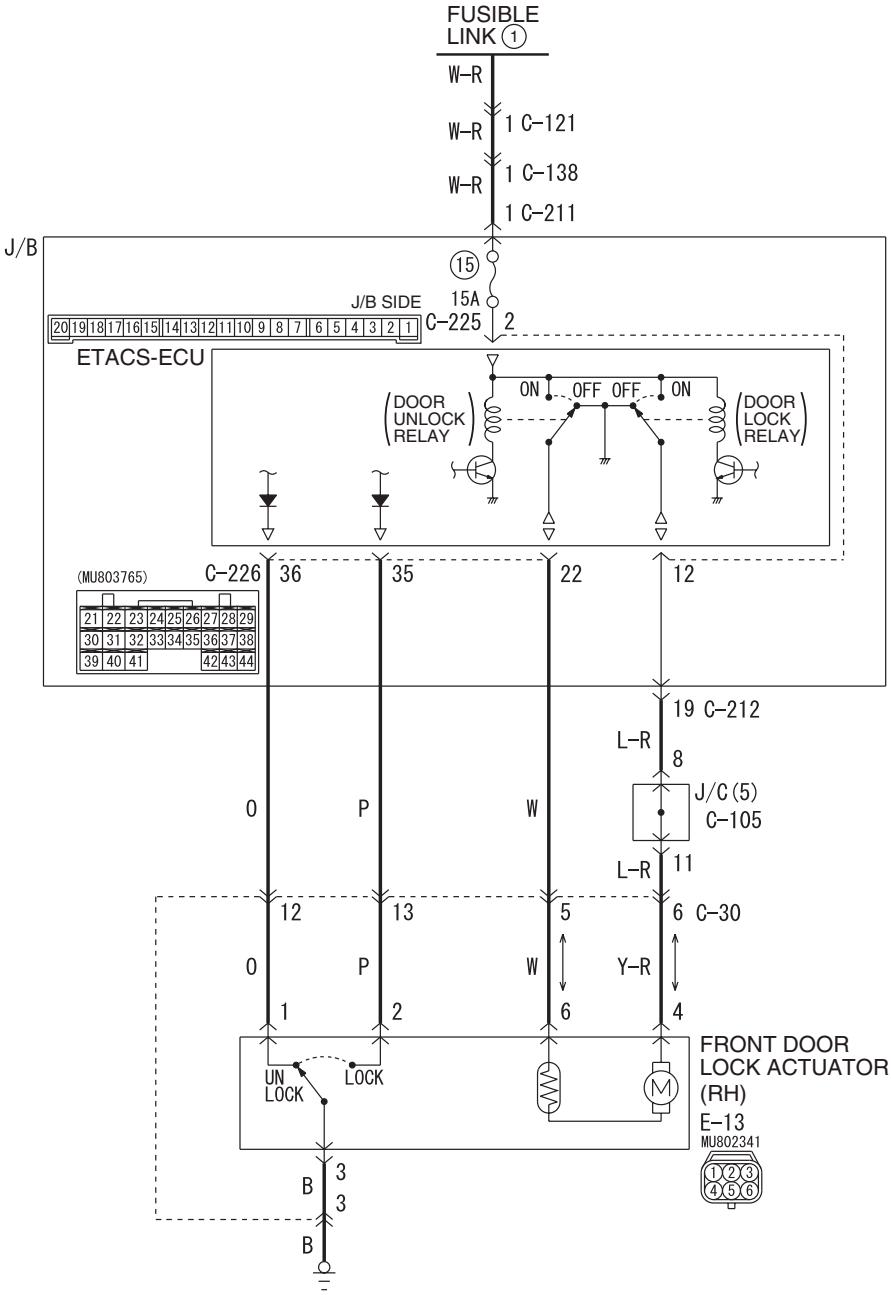
CENTRAL DOOR LOCKING SYSTEM

INSPECTION PROCEDURE C-1: Central door locking system does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Central Door Lock Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENT ON TROUBLE SYMPTOM

If the central door locking system does not work at all, the front door lock actuator (RH) or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. Pulse check

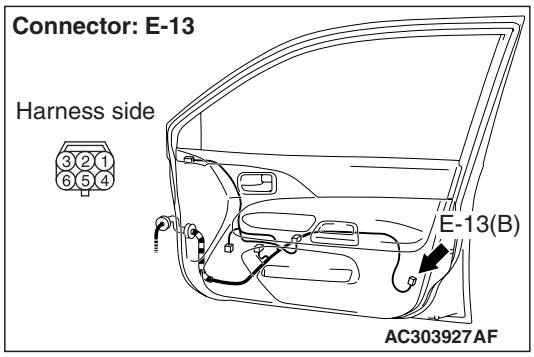
Check the input signal from the font door lock actuator (RH) switch.

System switch	Check condition
Front door lock actuator (RH) switch	When the driver's key cylinder or inside lock knob is unlocked or locked

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-13 "The front door lock actuator (RH) switch signal is not received P.54C-237."

STEP 3. Connector check: E-13 front door lock actuator (RH) connector



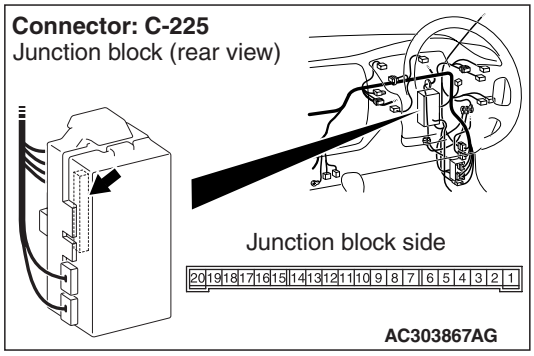
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

STEP 4. Check the front door lock actuator (RH).

Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 –Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the front door lock actuator (RH).

STEP 5. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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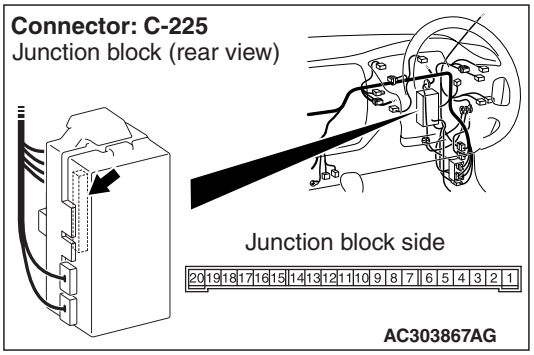
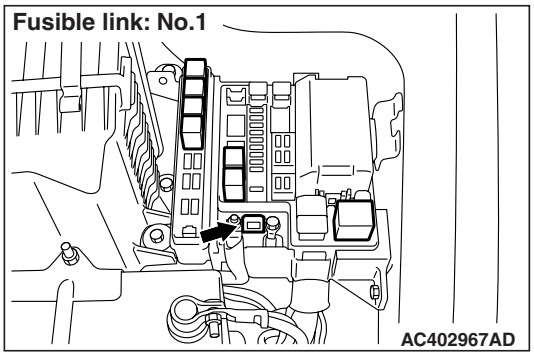
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.2 and fusible link (1).





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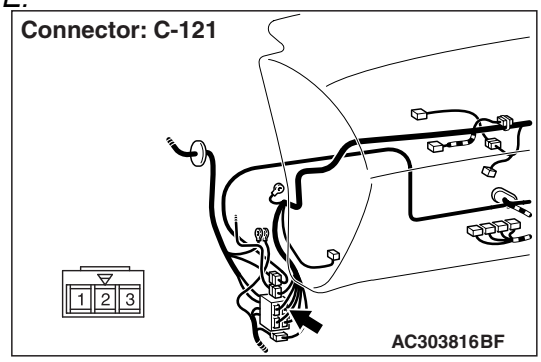

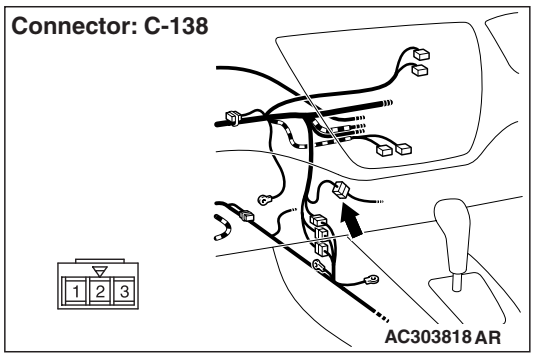

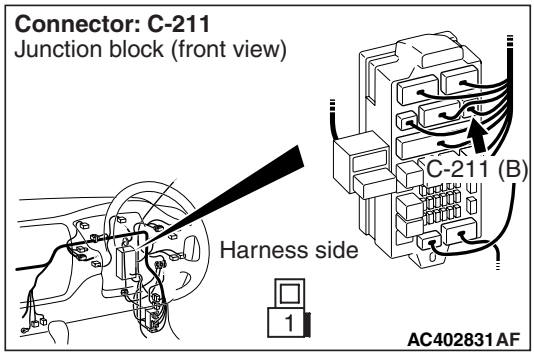

Prior to the wiring harness inspection, check intermediate connector C-121, C-138 and junction block connector C-211, and repair if necessary.

- Check the power supply line for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.
Check that the central door locking system works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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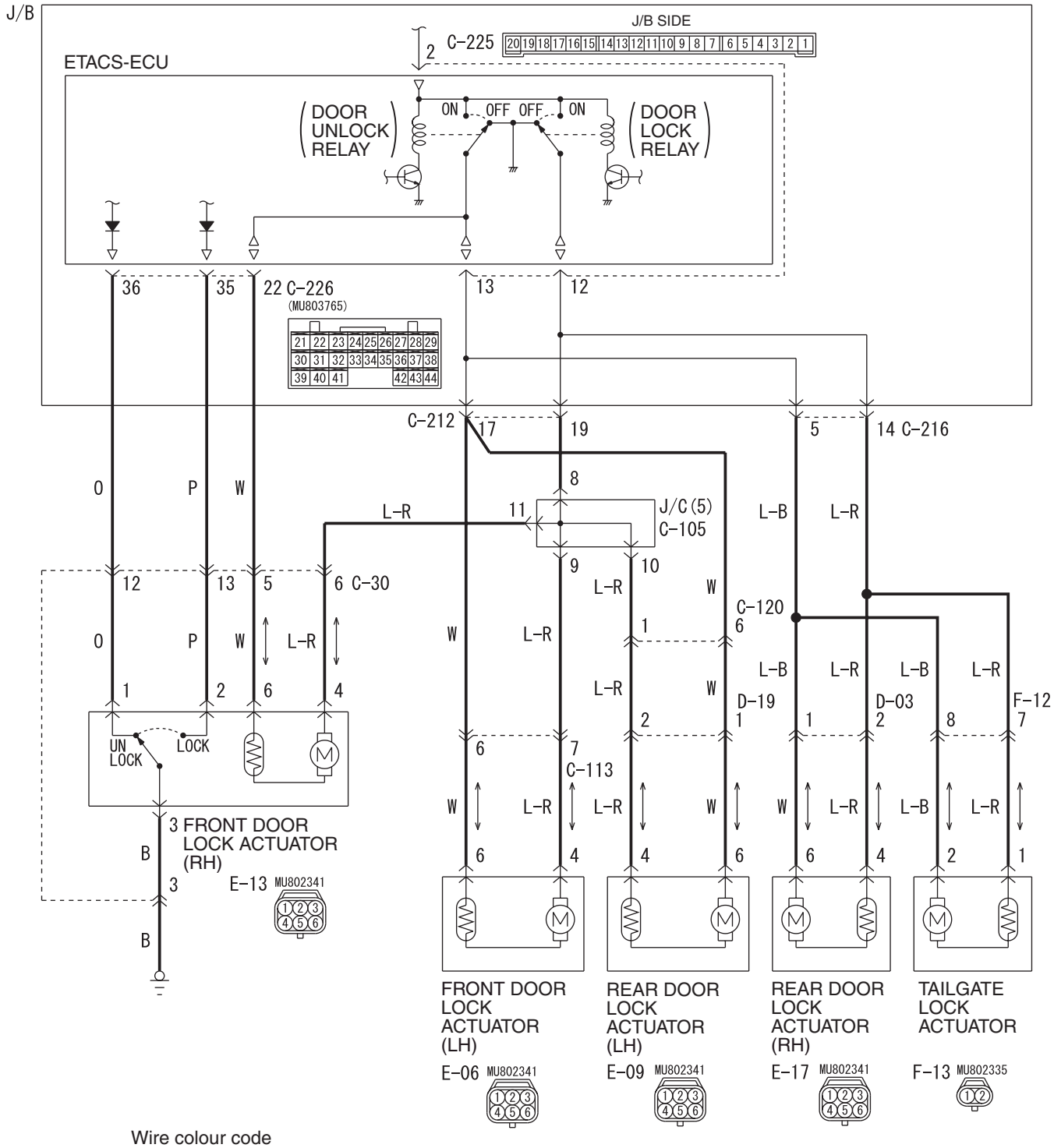
INSPECTION PROCEDURE C-2: A door or a tailgate cannot be locked or unlocked by the central door locking system.

Central Door Lock Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENT ON TROUBLE SYMPTOM

If a door or the tailgate cannot be locked or unlocked by the central door locking system, the door lock actuator or the tailgate lock actuator may be defective.

PROBABLE CAUSES

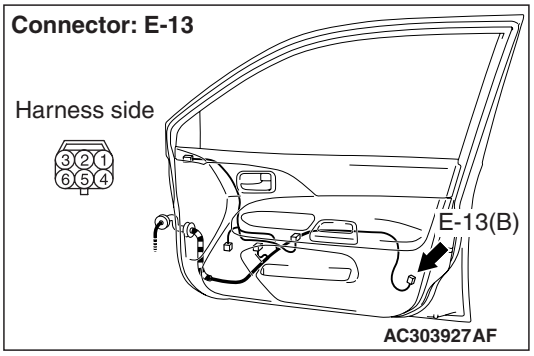
- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Confirm which door lock actuator is defective.

Q: Which door fails to lock correctly?
Driver's door : Go to Step 2.
Front passenger's door : Go to Step 6.
Rear right door : Go to Step 10.
Rear left door : Go to Step 14.
Tailgate : Go to Step 18.

STEP 2. Connector check: E-13 front door lock actuator (RH) connector



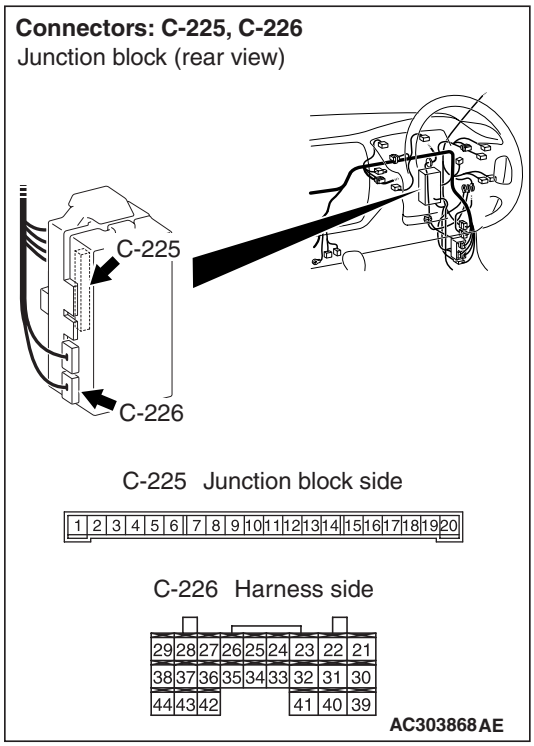
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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

Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 –Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the front door lock actuator (RH).

STEP 4. Connector check: C-225, C-226 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

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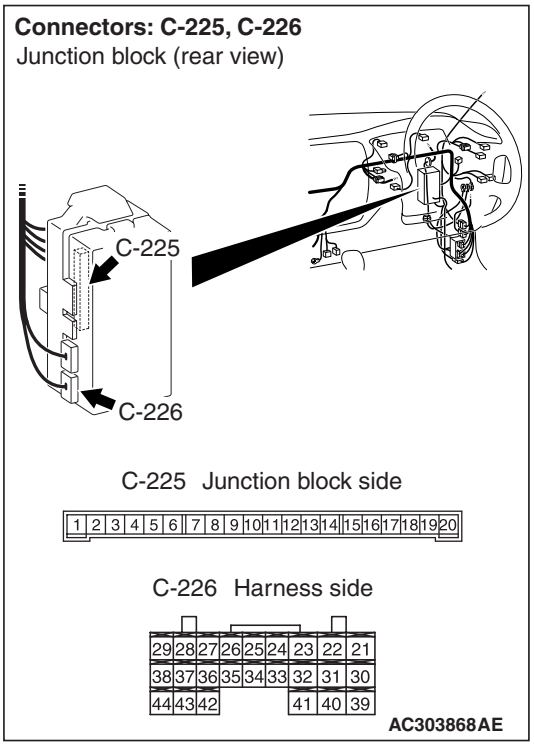
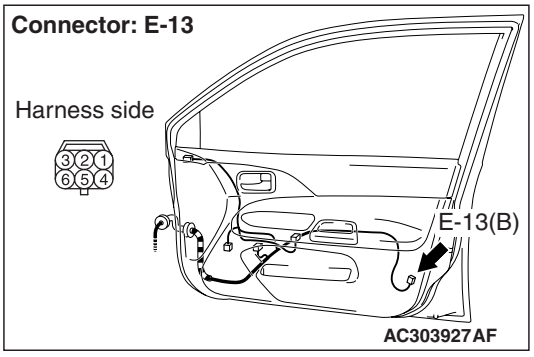
STEP 5. Check the wiring harness from C-225 ETACS-ECU connector terminal No.12 and C-226 ETACS-ECU connector No.22 to E-13 front door lock actuator (RH) connector terminal Nos. 6 and 4.





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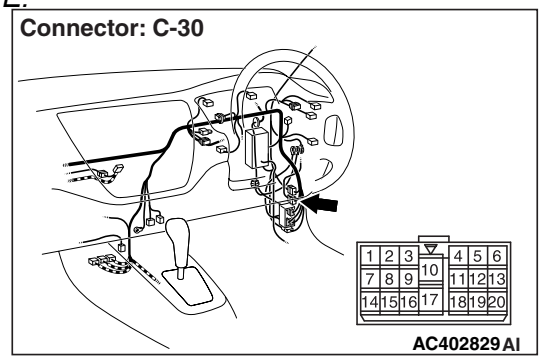

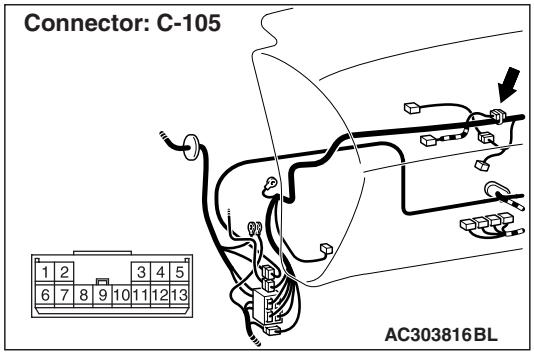

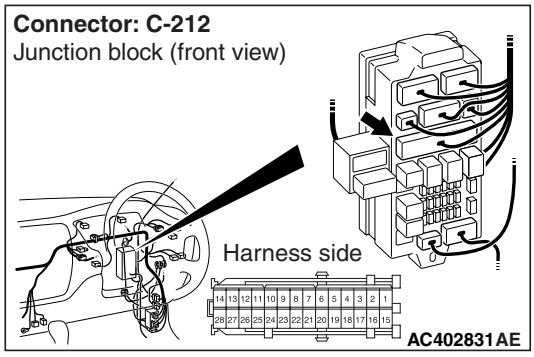

Prior to the wiring harness inspection, check intermediate connector C-30 and joint connector C-105, junction block connector C-212, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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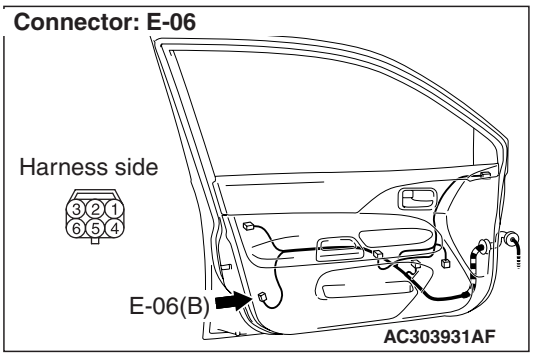
STEP 6. Connector check: E-06 front door lock actuator (LH) connector

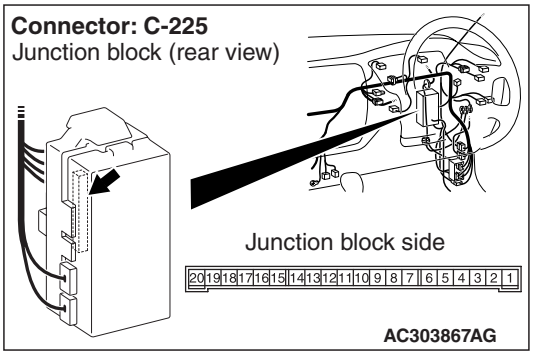


Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

STEP 7. Check the front door lock actuator (LH).
Check that the front door lock actuator (LH) works normally. Refer to GROUP 42 –Door P.42-34.

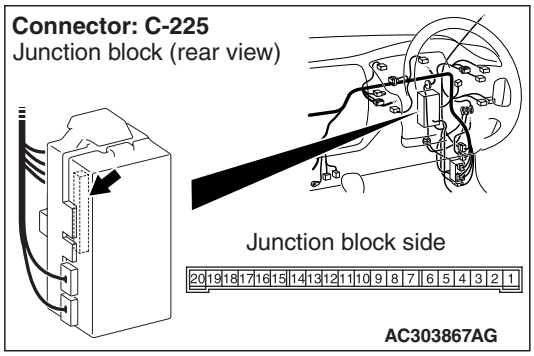
Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the front door lock actuator (LH).

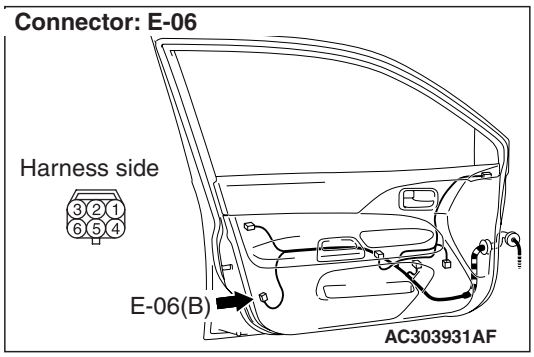
STEP 8. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

STEP 9. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to E-06 front door lock actuator (LH) connector terminal Nos. 4 and 6.





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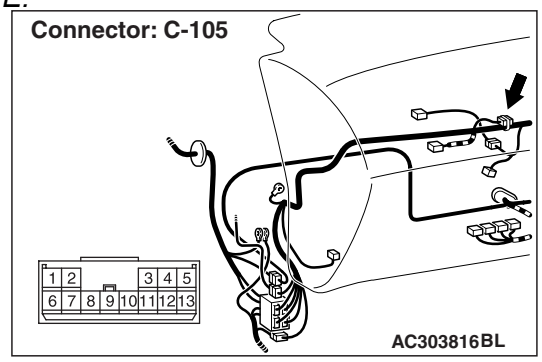
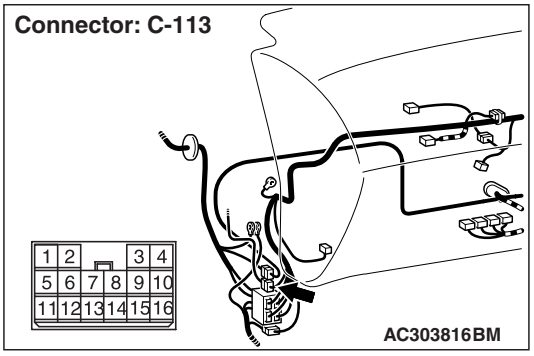
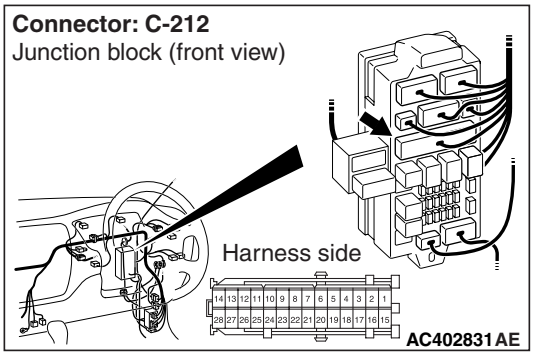
NOTE:





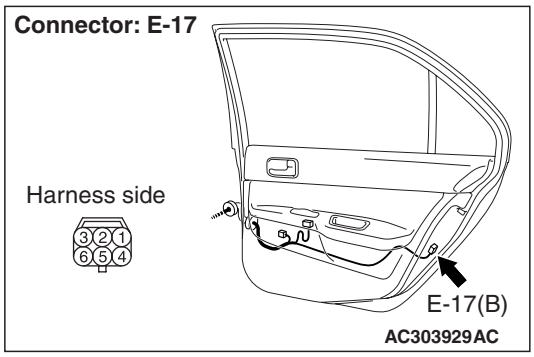


Prior to the wiring harness inspection, check intermediate connector C-113 and joint connector C-105, junction block connector C-212, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 10. Connector check: E-17 rear door lock actuator (RH) connector



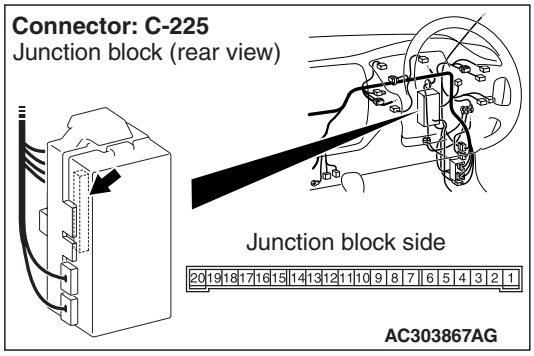
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

STEP 11. Check the rear door lock actuator (RH).

Check that the rear door lock actuator (RH) is in good condition. Refer to GROUP 42 –Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 12.
NO : Replace the rear door lock actuator (RH).

STEP 12. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the defective connector.

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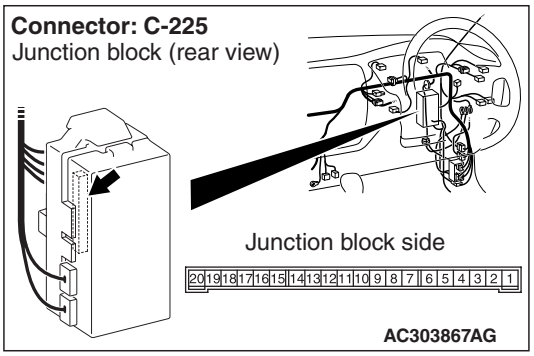
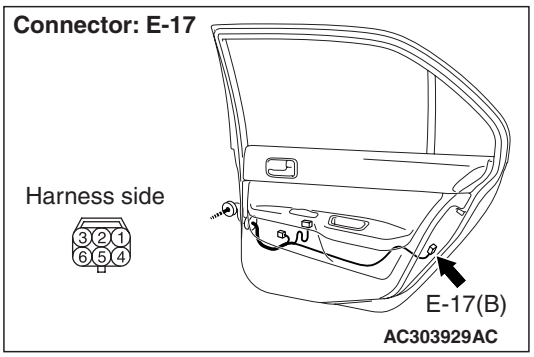
STEP 13. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to E-17 rear door lock actuator (RH) connector terminal Nos. 4 and 6.





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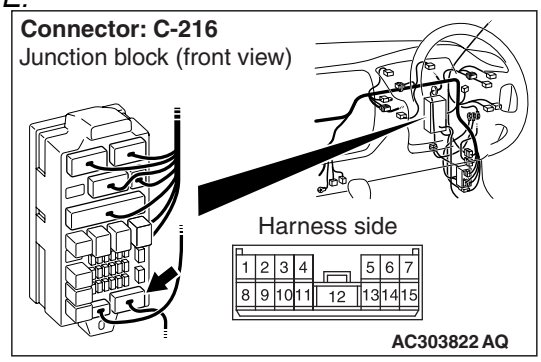
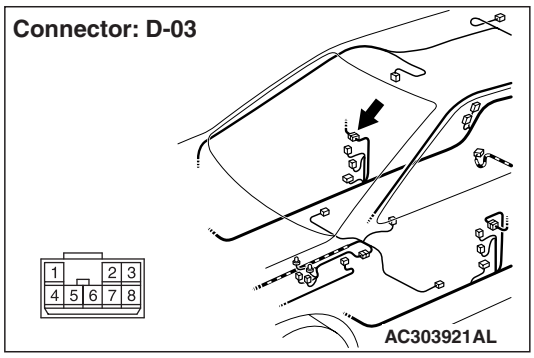




Prior to the wiring harness inspection, check intermediate connector D-03 and junction block connector C-216, and repair if necessary.

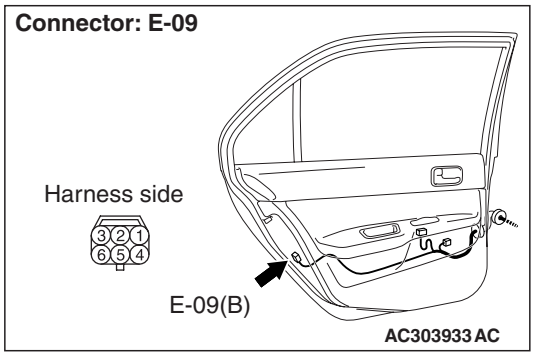
- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 14. Connector check: E-09 rear door lock actuator (LH) connector



Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the defective connector.

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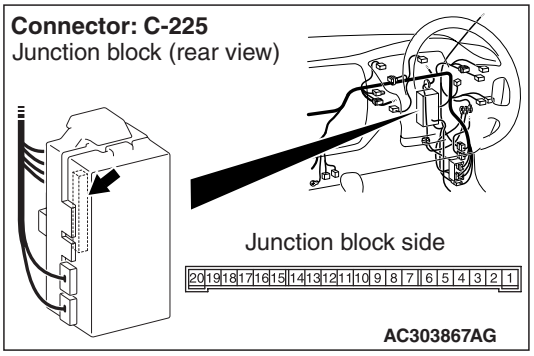
STEP 15. Check the rear door lock actuator (LH).
Check that the rear door lock actuator (LH) is in good condition. Refer to GROUP 42 –Door P.42-34.

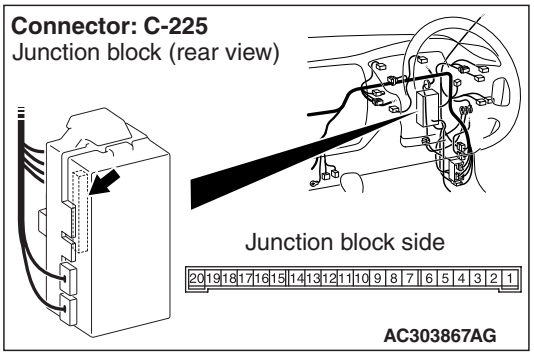
Q: Is the check result normal?
YES : Go to Step 16.
NO : Replace the rear door lock actuator (LH).

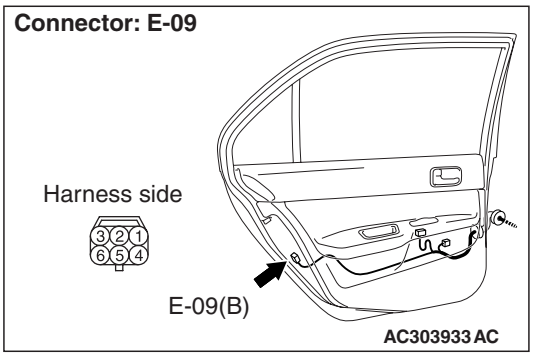
STEP 16. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the defective connector.

STEP 17. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to E-09 rear door lock actuator (LH) connector terminal Nos. 4 and 6.





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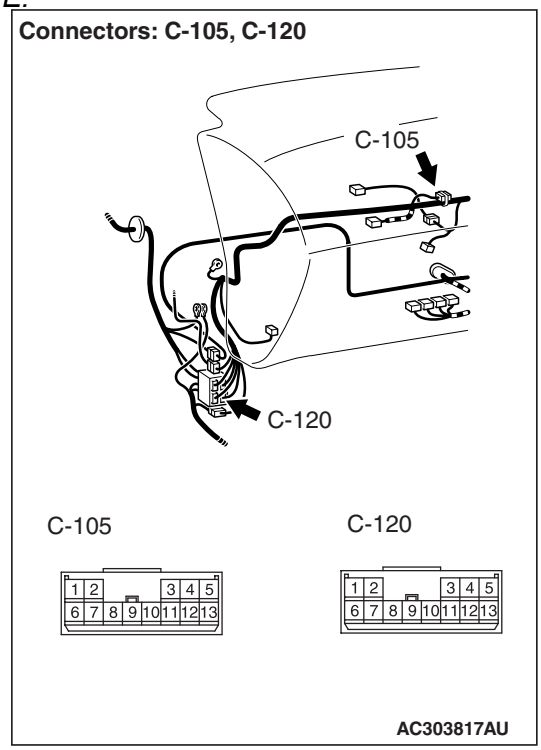

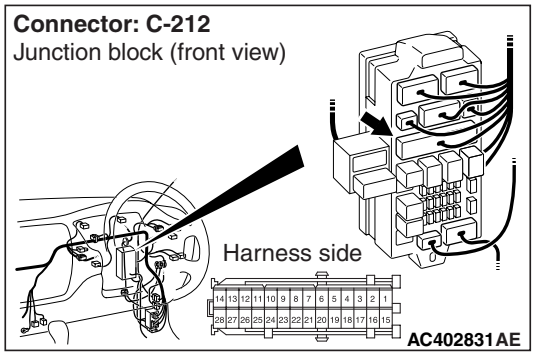

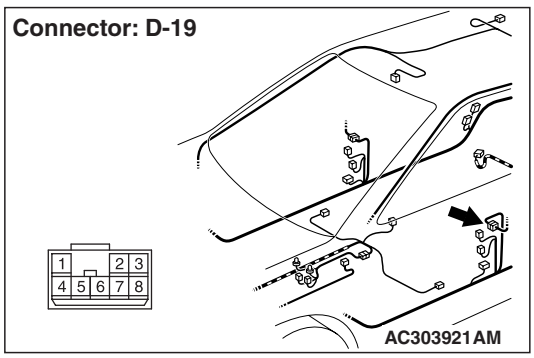

Prior to the wiring harness inspection, check intermediate connectors C-120, D-19 and joint connector C-105, junction block connector C-212, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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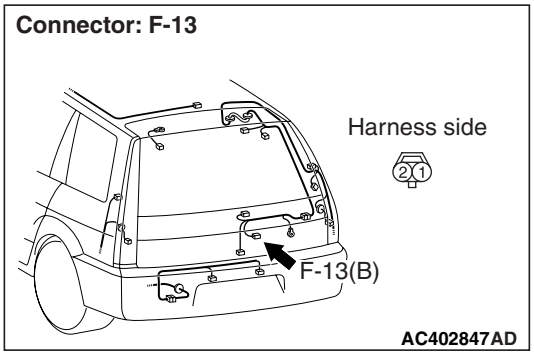
STEP 18. Connector check: F-13 tailgate lock actuator connector



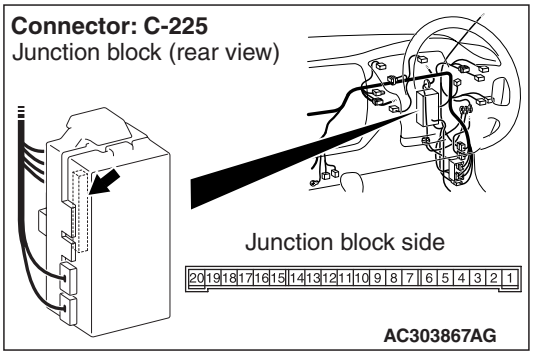
Q: Is the check result normal?
YES : Go to Step 19.
NO : Repair the defective connector.

STEP 19. Check the tailgate lock actuator.

Check that the tailgate lock actuator is in good condition. Refer to GROUP 42 –Tailgate P.42-45.

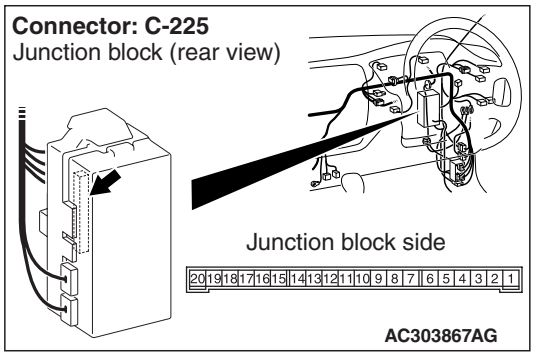
Q: Is the check result normal?
YES : Go to Step 20.
NO : Replace the tailgate lock actuator.

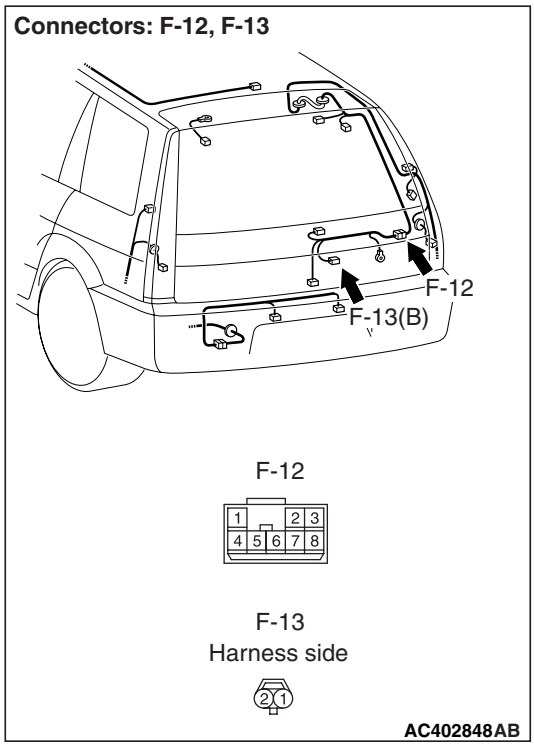
STEP 20. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 21.
NO : Repair the defective connector.

STEP 21. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to F-13 tailgate lock actuator connector terminal Nos. 1 and 2.





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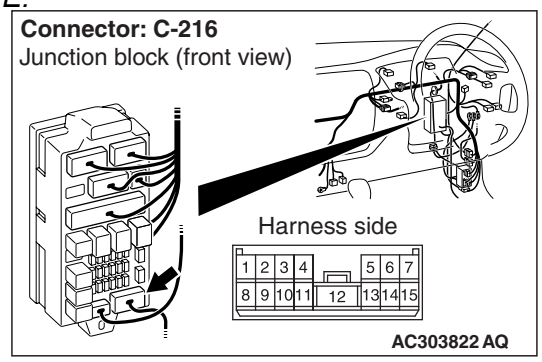
NOTE:



Prior to the wiring harness inspection, check intermediate connector F-12 and junction block connector C-216, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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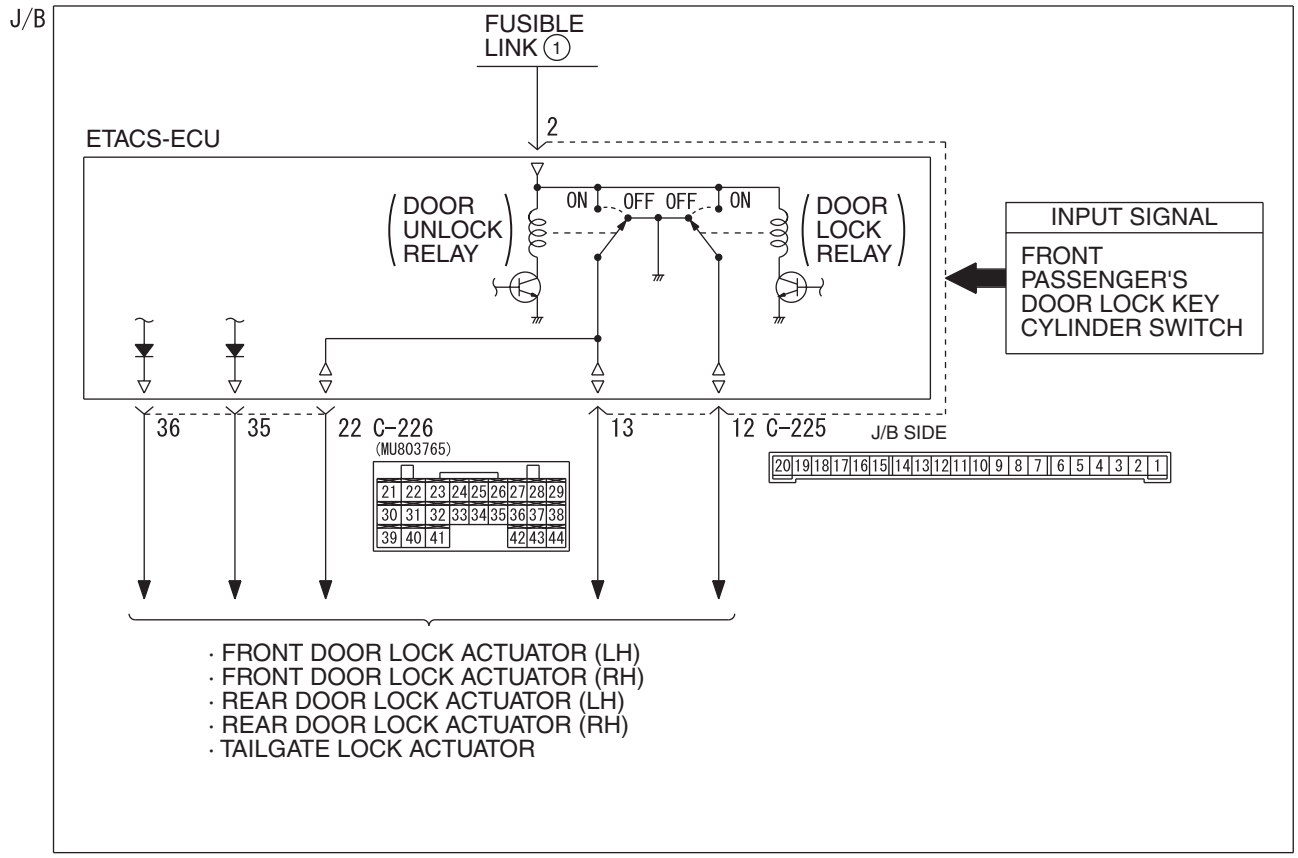
INSPECTION PROCEDURE C-3: The central door locking system can not be operated by means of the front passenger's door lock key cylinder.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Central Door Lock (Front Passenger's Door Lock Key Cylinder Switch) Circuit



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COMMENT ON TROUBLE SYMPTOM

If the central door locking system does not work by means of the front passenger's door lock key cylinder, the front passenger's door lock key cylinder or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the front passenger's door lock key cylinder
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the central door locking system.

Check that the central door locking system works normally by means of the driver's door lock key cylinder and inside lock knob.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure C-1 "Central door locking system does not work P.54C-47."

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STEP 2. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 3. Pulse check

Check the input signal from the front passenger's door lock key cylinder switch.

System switch	Check condition
Front passenger's door lock key cylinder switch	Turn the key to the lock or unlock position

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to inspection procedure M-17 "The door lock key cylinder switch signal is not received P.54C-252."

STEP 4. Retest the system.

Check that the central door locking system works normally by means of the front passenger's door lock key cylinder.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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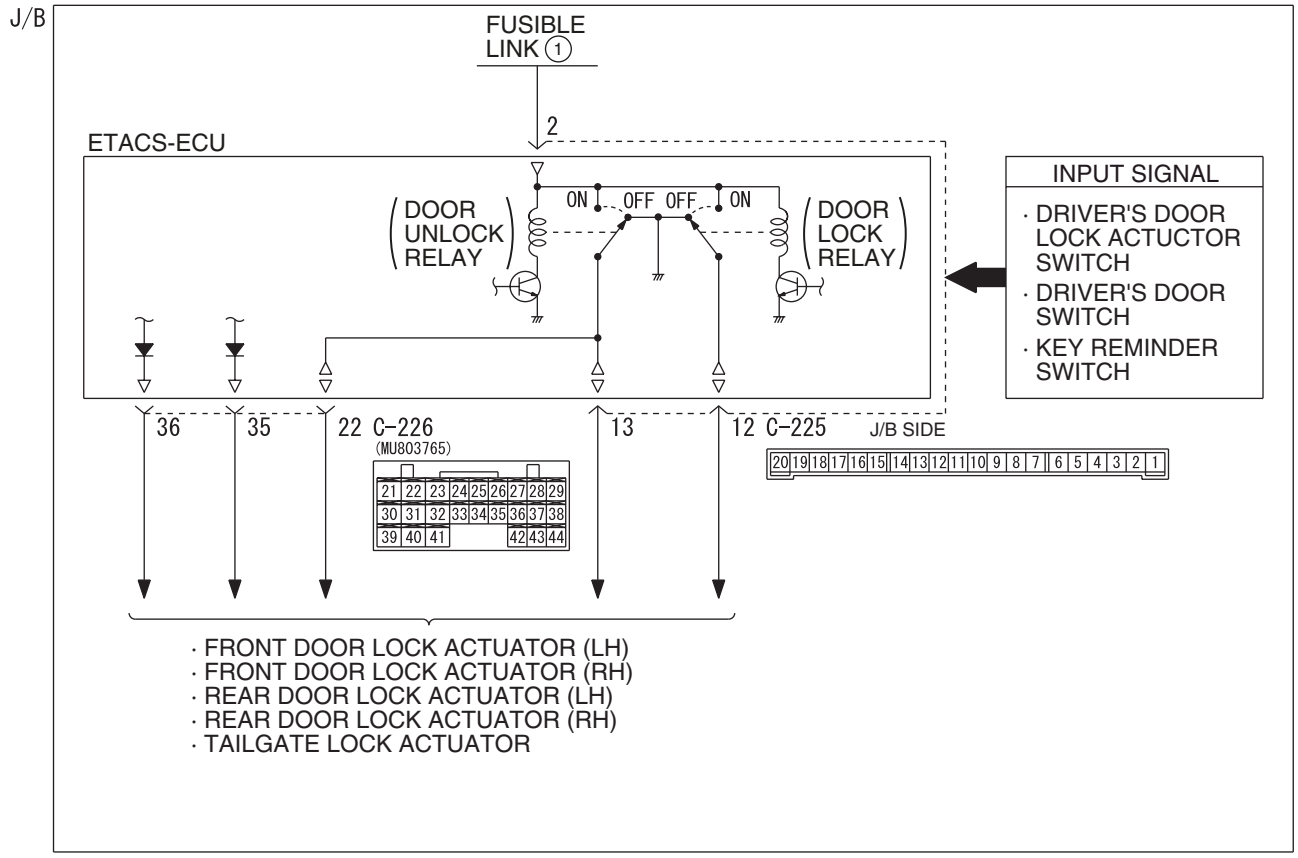
INSPECTION PROCEDURE C-4: The ignition key reminder function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Ignition Key Reminder Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the key reminder function does not work normally, the input signal circuits below or the ETACS-ECU may be defective.

- Key reminder switch
- Door switch (front: RH)
- Front door lock actuator (RH)

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switch (front: RH)
- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

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STEP 2. Confirm communication data by using the SWS monitor.

Check the SWS communication signals, which are related to the key reminder function.

<Selected item> ETACS ECU

- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 32	FRONT DOOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212."

STEP 3. Pulse check

Check the input signals below which are related to the key reminder function.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
Front door lock actuator (RH) switch	When the driver's key cylinder or inside lock knob is unlocked or locked

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES <All the signals are received normally> : Go to Step 4.

NO <The key reminder switch signal is not received> : Refer to inspection procedure M-10 "The key reminder switch signal is not received P.54C-227."

NO <The front door lock actuator (RH) switch signal is not received> : Refer to inspection procedure M-13 "The front door lock actuator (RH) switch signal is not received P.54C-237."

STEP 4. Retest the system.

Q: Does the ignition key reminder function work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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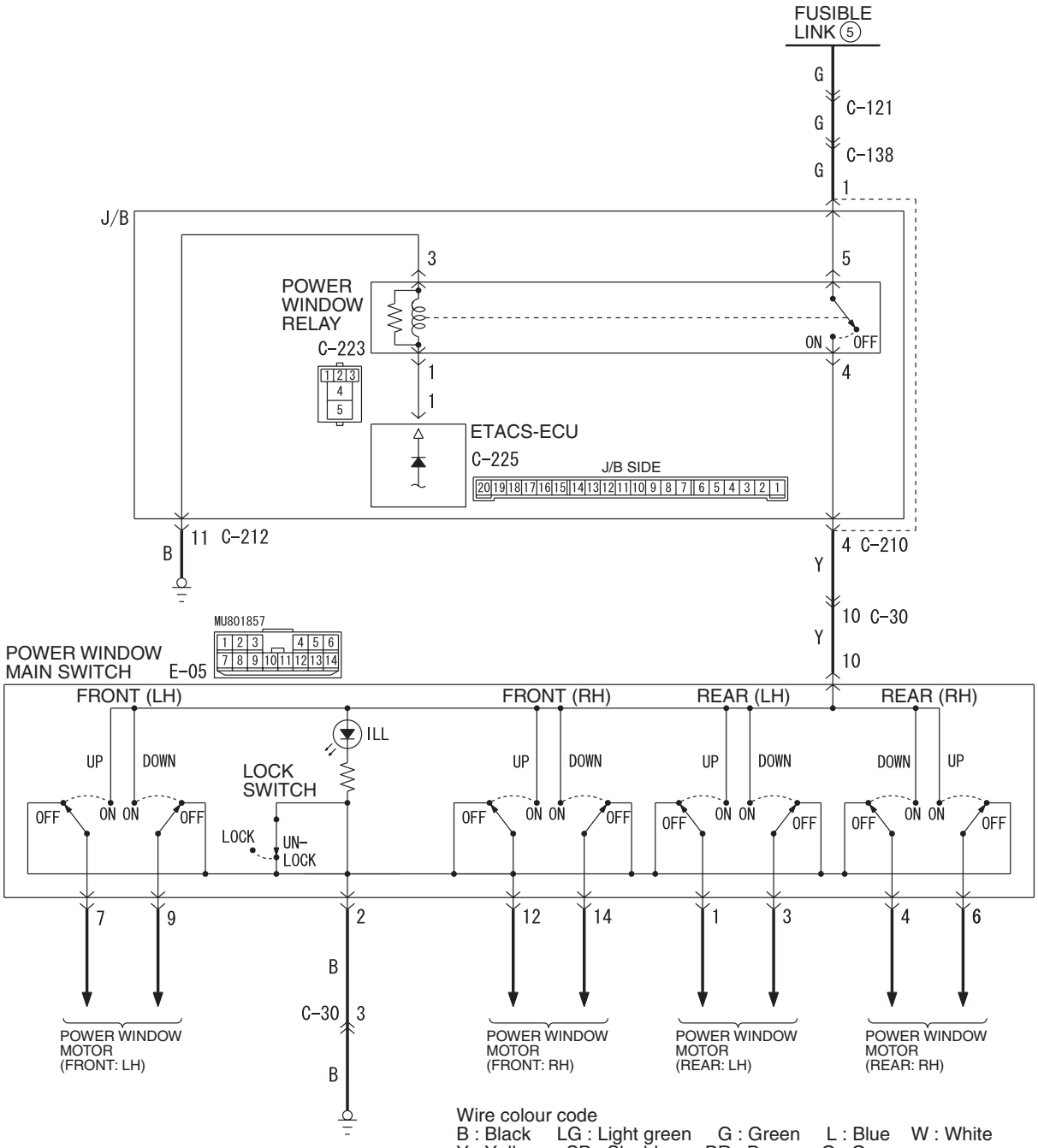
POWER WINDOW

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

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window Relay Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White
Y : Yellow SB : Sky blue BR : Brown O : Orange
GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L075A

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COMMENTS ON TROUBLE SYMPTOM

If the power windows do not work at all, the power window relay, the power window main switch or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the power window relay
- Malfunction of the power window main switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ON" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" are displayed for all the items

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. SWS monitor data list

<Selected item> ETACS ECU

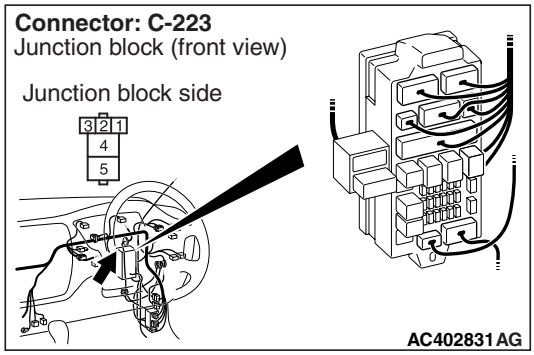
- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 30	Ignition SW(IG1)	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

STEP 3. Connector check: C-223 power window relay connector



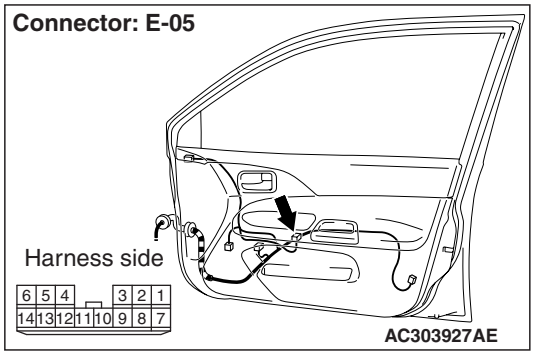
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

STEP 4. Check the power window relay.

Refer to GROUP 42 –Door –On-vehicle Service P.42-25.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the power window relay.

STEP 5. Connector check: E-05 power window main switch connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

STEP 6. Check the power window main switch

Check that the power window main switch works normally. Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the power window main switch.

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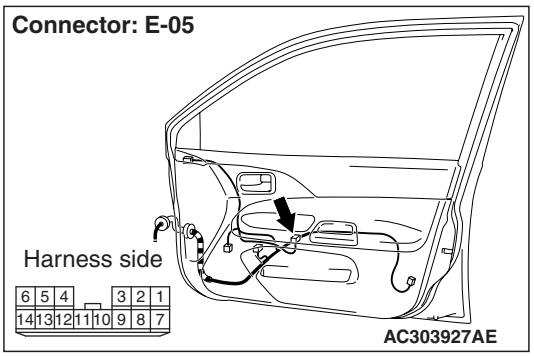
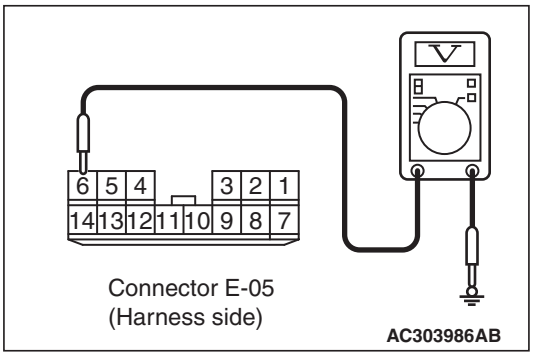
STEP 7. Voltage measurement at the E-05 power window main switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.

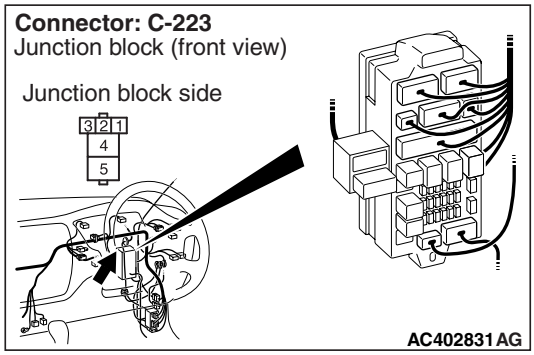


(3) Voltage between terminal 10 and body earth

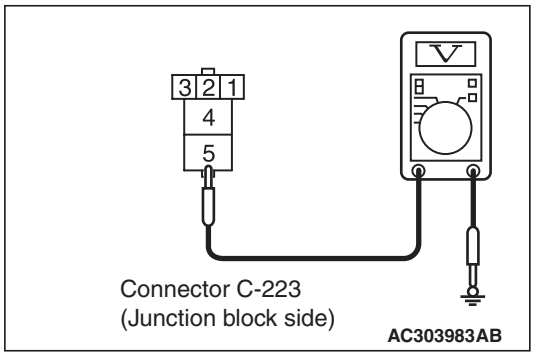
OK: System voltage

Q: Is the check result normal?
YES : Go to Step 11.
NO : Go to Step 8.

STEP 8. Voltage measurement at C-223 power window relay connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.



(3) Voltage between terminal 5 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

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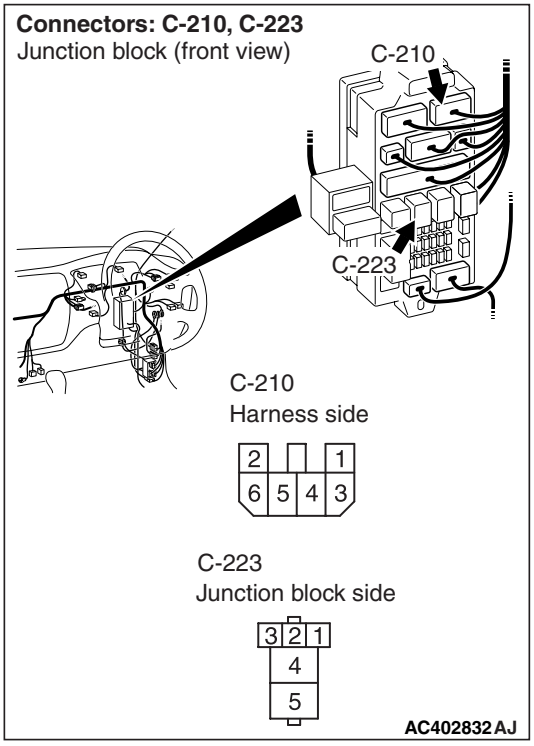
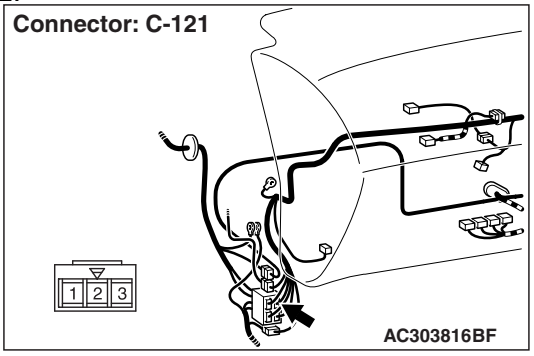
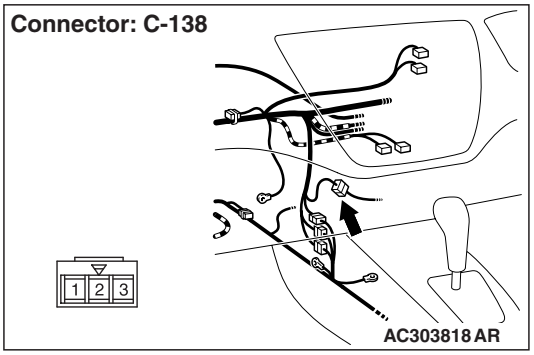
STEP 9. Check the wiring harness between C-223 power window relay connector terminal No.5 and fusible link (5).



NOTE:



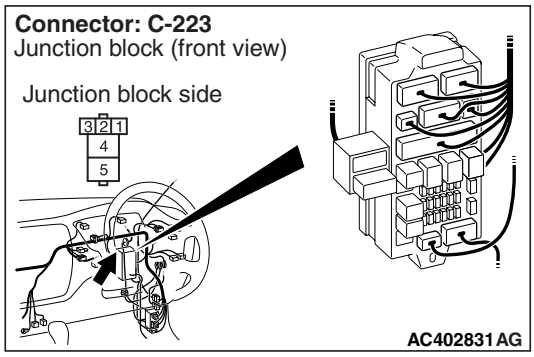


Prior to the wiring harness inspection, check intermediate connectors C-121, C-138 and junction block connector C-210, and repair if necessary.

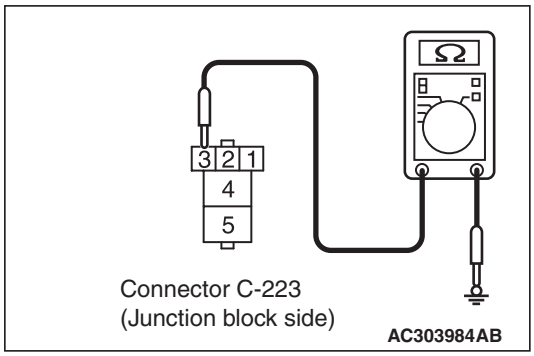
- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 10. Resistance measurement at C-223 power window relay connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between terminal 3 and body earth

OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 12.
NO : Go to Step 11.

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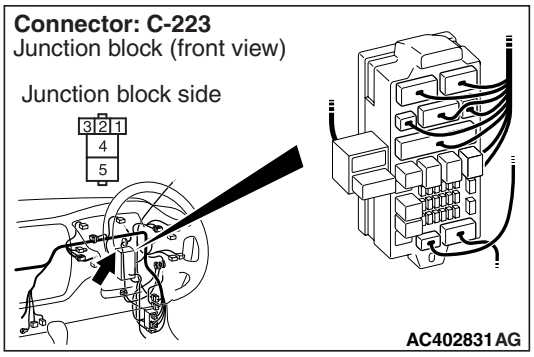
STEP 11. Check the wiring harness between C-223 power window relay connector terminal No.3 and body earth.



NOTE: Prior to the wiring harness inspection, check junction block connector C-212, and repair if necessary.

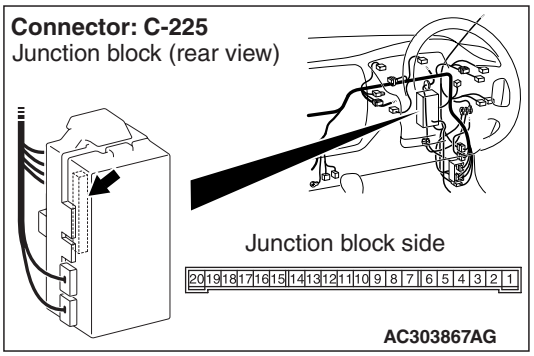
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 12. Connector check: C-225 ETACS-ECU connector

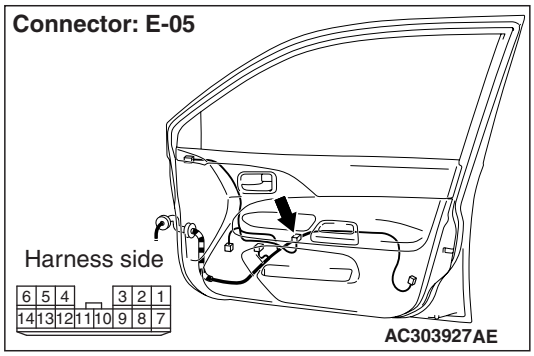


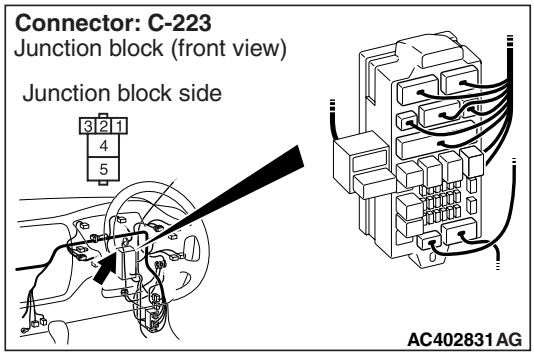
Q: Is the check result normal?

YES : Go to Step 13.

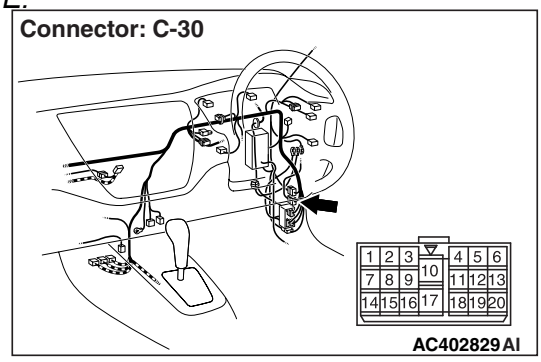
NO : Repair the connector.

STEP 13. Check the wiring harness between C-223 power window relay connector terminal No.4 and E-05 power window main switch connector terminal No.10.





NOTE:



Prior to the wiring harness inspection, check joint connector C-30 and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the harness wire, and then go to Step 14.

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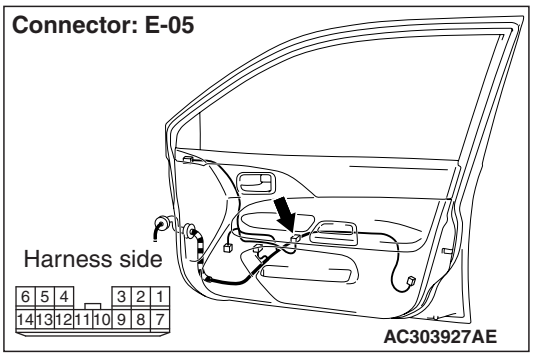
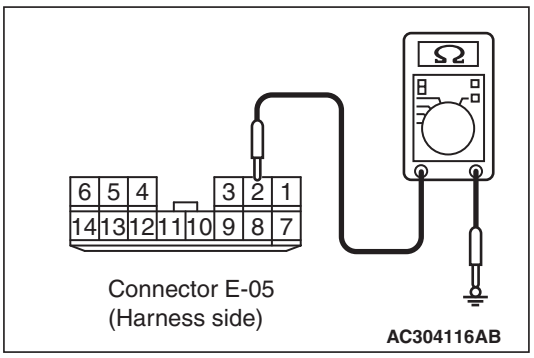
STEP 14. Resistance measurement at the E-05 power window main switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.

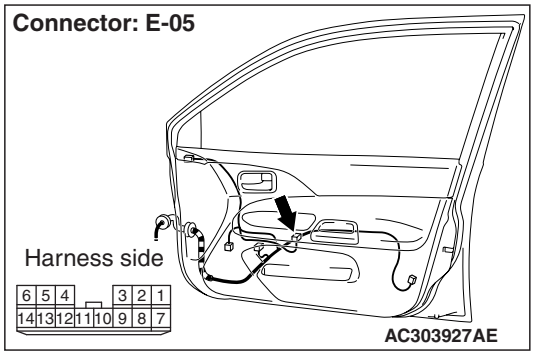


(2) Resistance between terminal 2 and body earth

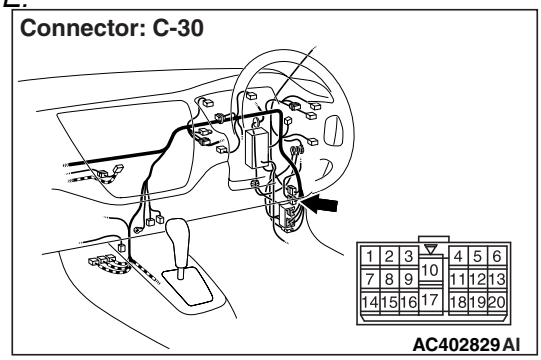
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 16.
NO : Go to Step 15.

STEP 15. Check the wiring harness between E-05 power window main switch connector terminal No.2 and body earth.



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30 and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 16. Retest the system.

Check that the all the power windows work.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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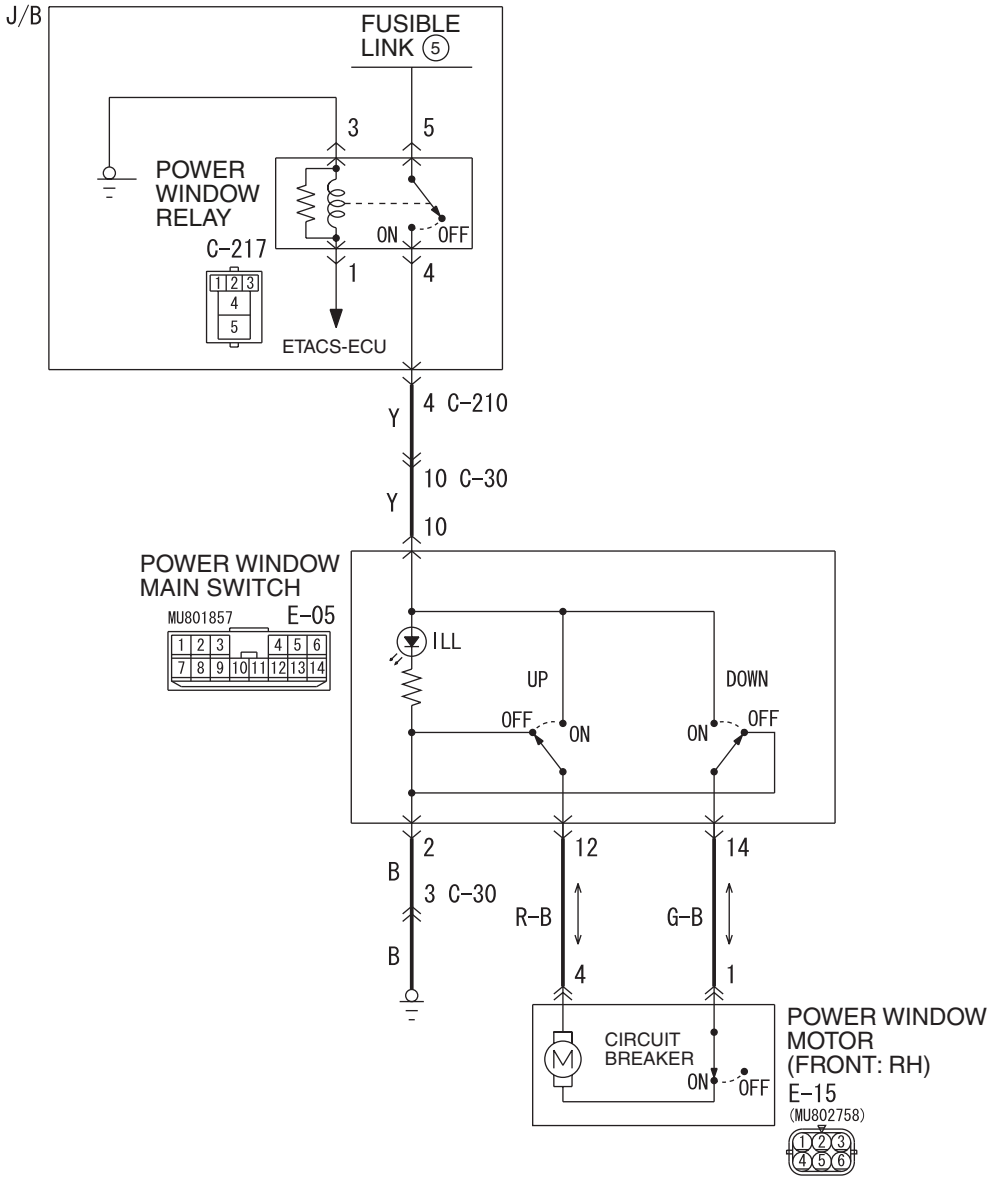
INSPECTION PROCEDURE D-2: Driver's power window does not work by means of the power window main switch.

Power Window (Front: RH) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the driver's power window does not work by means of the power window main switch, the power window main switch or the driver's door power window motor may be defective.

PROBABLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the front power window motor (RH)
- Damaged harness wires and connectors

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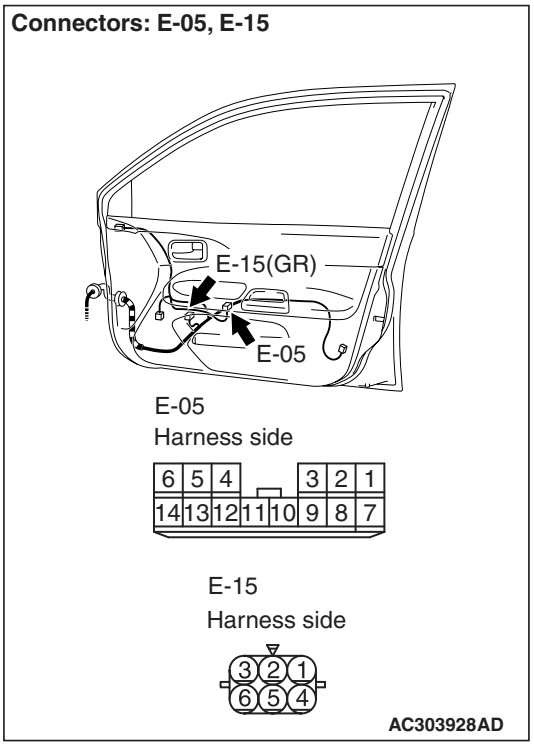
DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.
Check that all of the front passenger's and rear door power windows can operate by means of the power window main switch.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-63."

STEP 2. Connector check: E-05 power window main switch connector and E-15 front power window motor (RH) connector



Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

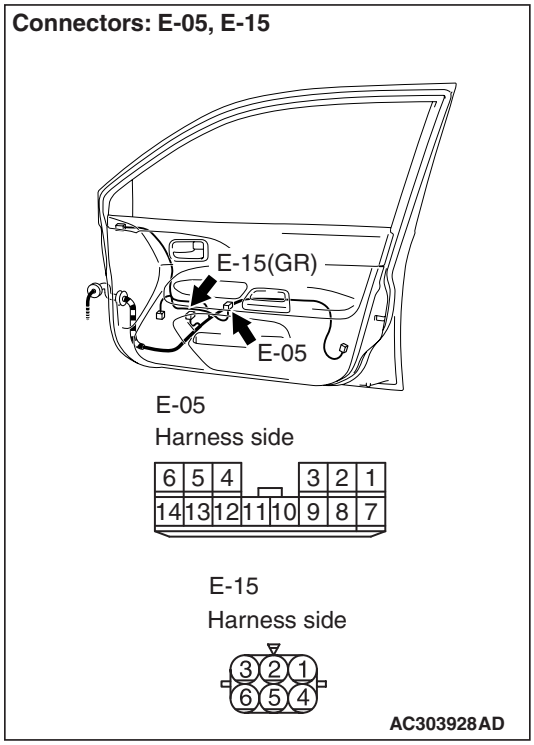
STEP 3. Check the power window main switch
Check that the power window main switch works normally. Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the power window main switch.

STEP 4. Check the power window motor
Check that the power window motor (front: RH) works normally. Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the power window motor (front: RH).

STEP 5. Check the wiring harness from E-15 front power window motor (RH) connector terminal Nos. 1 and 4 to E-05 power window main switch connector terminal Nos. 7 and 1.



- Check the input and output lines for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

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STEP 6. Retest the system.

After the power window main switch is replaced, check that the driver's door power window can be operated by the power window main switch.

(1) Replace the power window main switch.
(2) Check that the driver's power window works by means of the power window main switch.

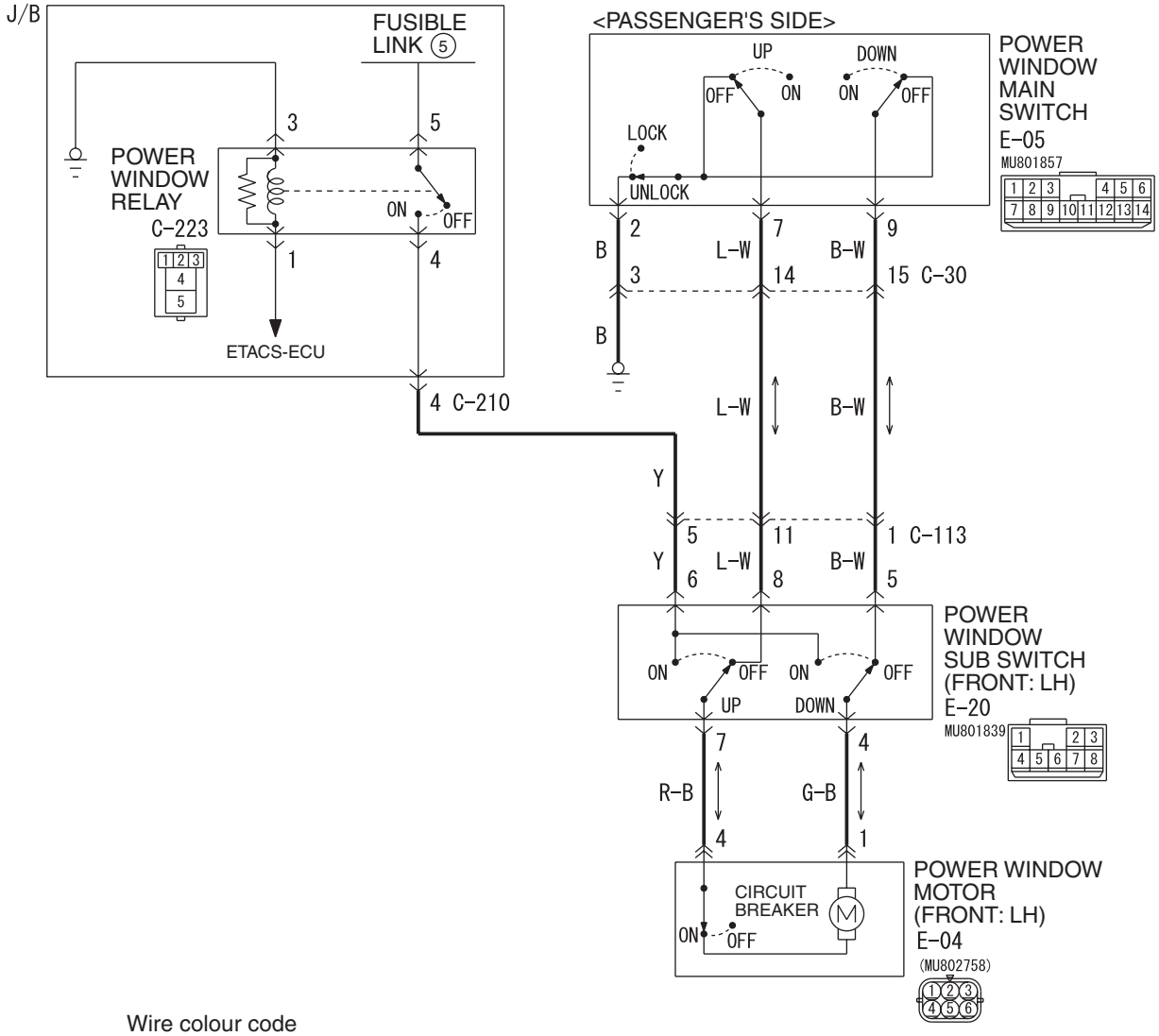
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the front power window motor assembly (RH).

INSPECTION PROCEDURE D-3: Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.

Power Window Sub Switch Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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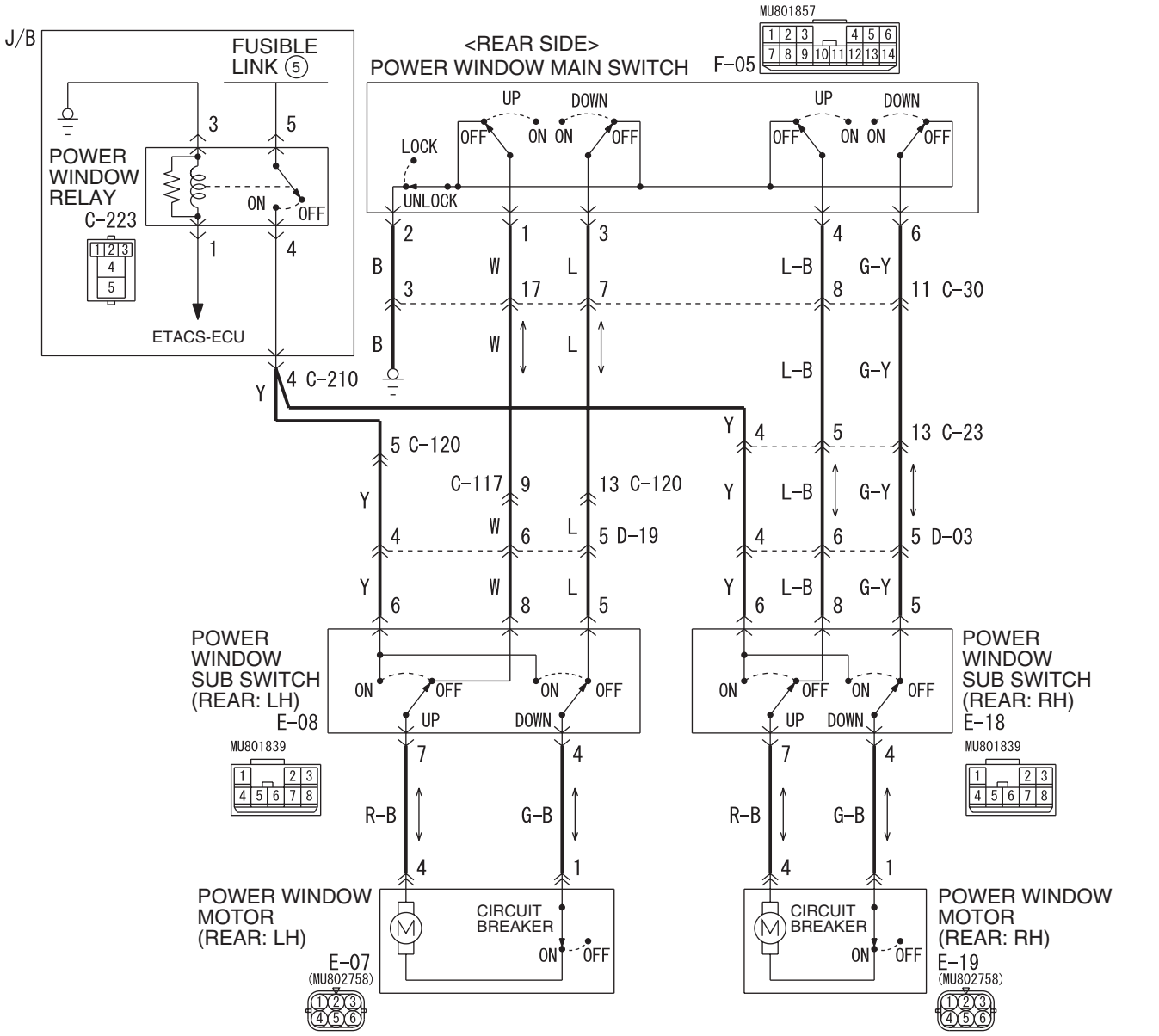
Power Window Sub Switch Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the front passenger's or rear power window does not work by means of the respective power window sub switch, the power window sub switch or the power window motor may be defective.

PROBABLE CAUSES

- Malfunction of the power window motor (front: LH), power window motor (rear: RH) or power window motor (rear: LH)
- Damaged harness wires and connectors

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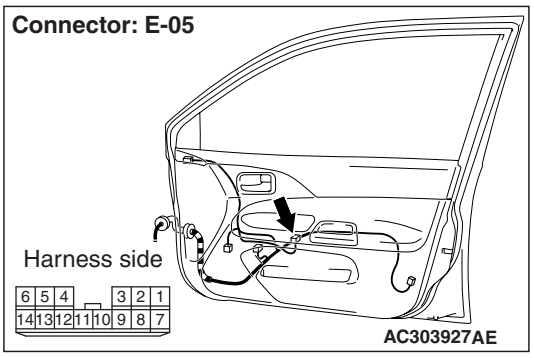
DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.
Check that the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Turn off the power window lock switch.

STEP 2. Connector check: E-05 power window main switch connector



Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

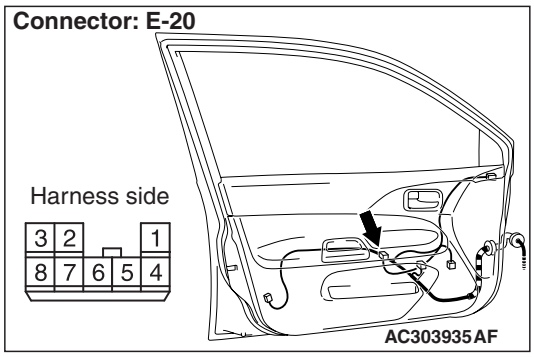
STEP 3. Check the power window main switch.
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the power window main switch.

STEP 4. Determine a trouble spot.

Q: Which power window does not work?
Front passenger's door : Go to Step 5.
Rear right door : Go to Step 15.
Rear left door : Go to Step 25.

STEP 5. Connector check: E-20 power window sub switch (front: LH) connector

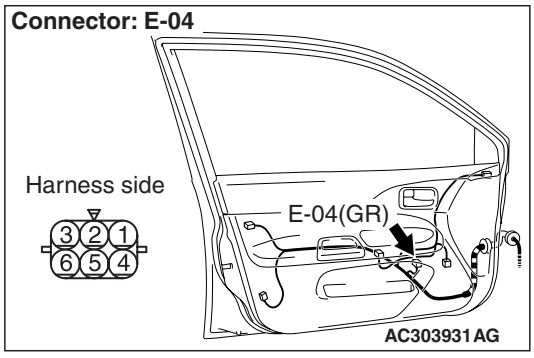


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

STEP 6. Check the power window sub switch (front: LH).
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the power window sub switch (front: LH).

STEP 7. Connector check: E-04 power window motor (front: LH) connector



Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

STEP 8. Check the power window motor (front: LH).
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Replace the power window motor (front: LH).

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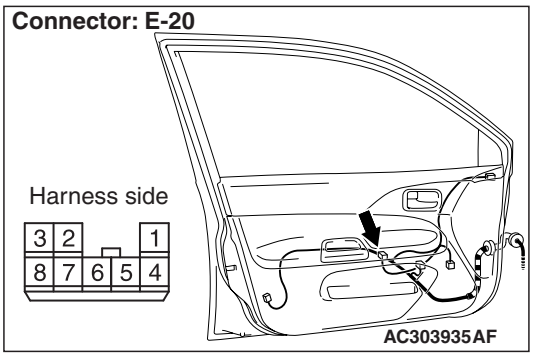
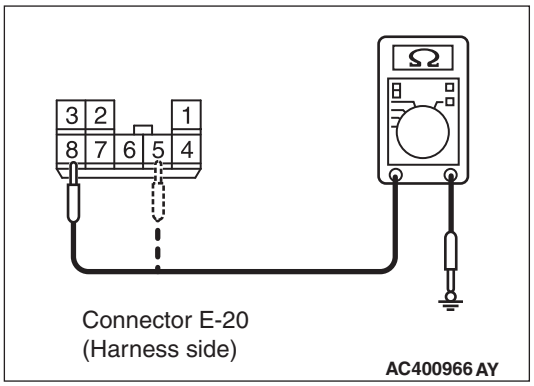
STEP 9. Resistance measurement at E-20 power window sub switch (front: LH) connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between terminals 5 or 8 and body earth

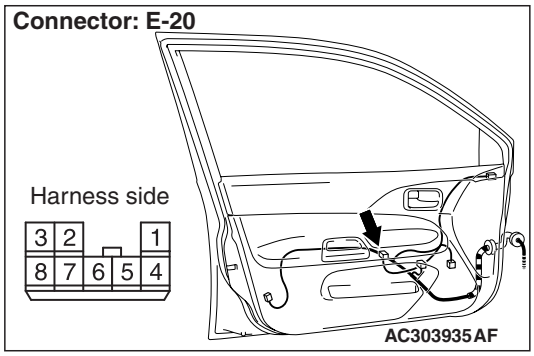
OK: 2Ω or less

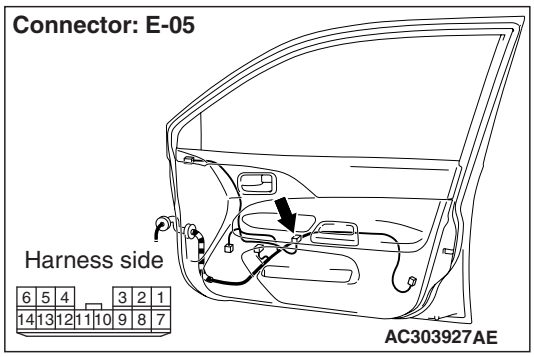
Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.

STEP 10. Check the wiring harness from E-20 power window sub switch (front: LH) connector terminal Nos. 5 and 8 to E-05 power window main switch connector terminal Nos. 9 and 7.





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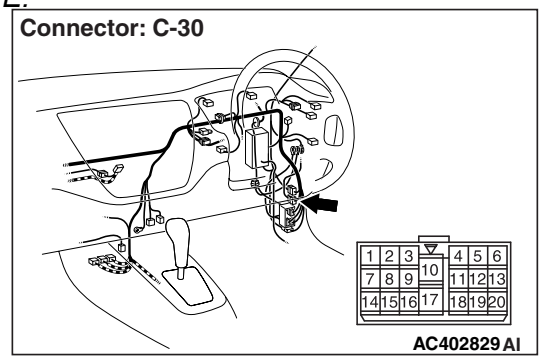
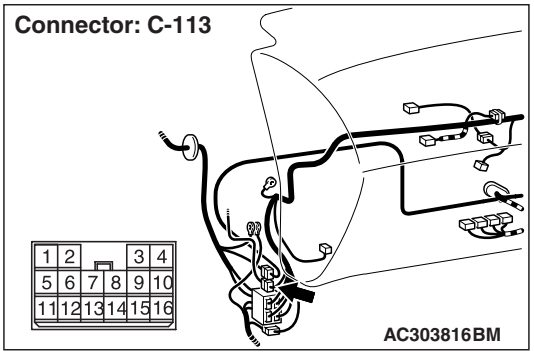
NOTE:





Prior to the wiring harness inspection, check intermediate connectors C-30, C-113, and repair if necessary.

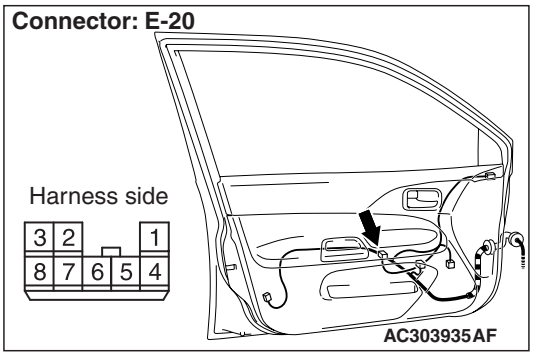
Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

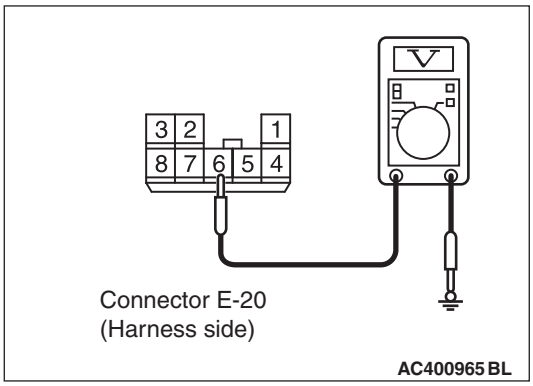
NO : Repair the wiring harness.

STEP 11. Voltage measurement at E-20 power window sub switch (front: LH) connector



(1) Disconnect the connector, and measure at the wiring harness side.

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



(3) Voltage between terminal 6 and body earth

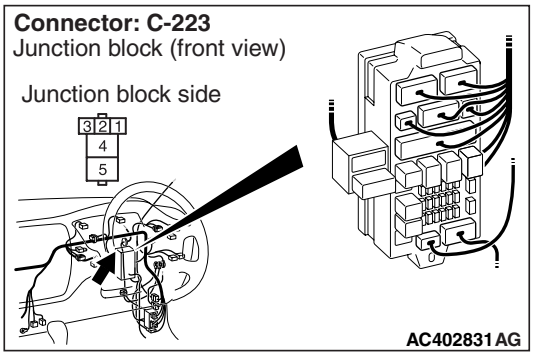
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 14.

NO : Go to Step 12.

STEP 12. Connector check: C-223 power window relay connector



Q: Is the check result normal?

YES : Go to Step 13.

NO : Repair the connector.

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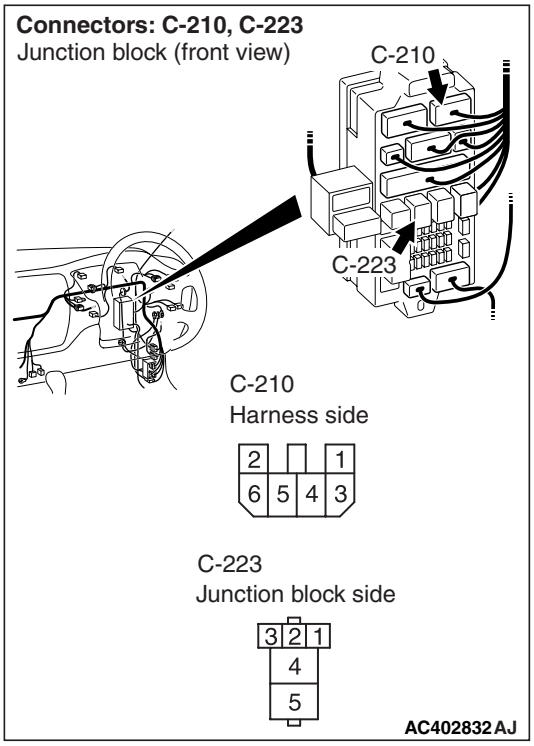
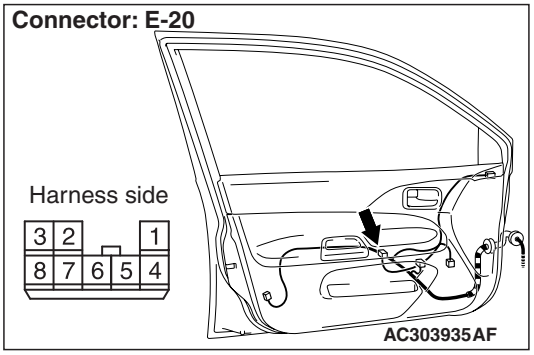
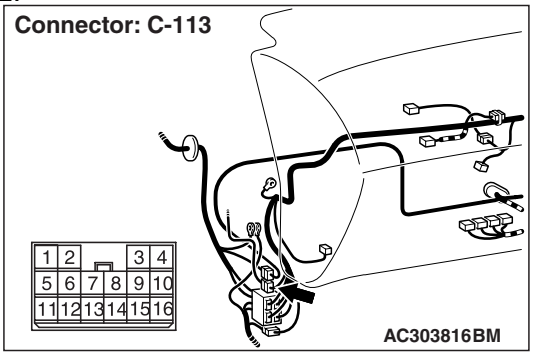
STEP 13. Check the wiring harness from E-20 power window sub switch (front: LH) connector terminal No. 6 to C-223 power window relay connector terminal No. 4.





NOTE:

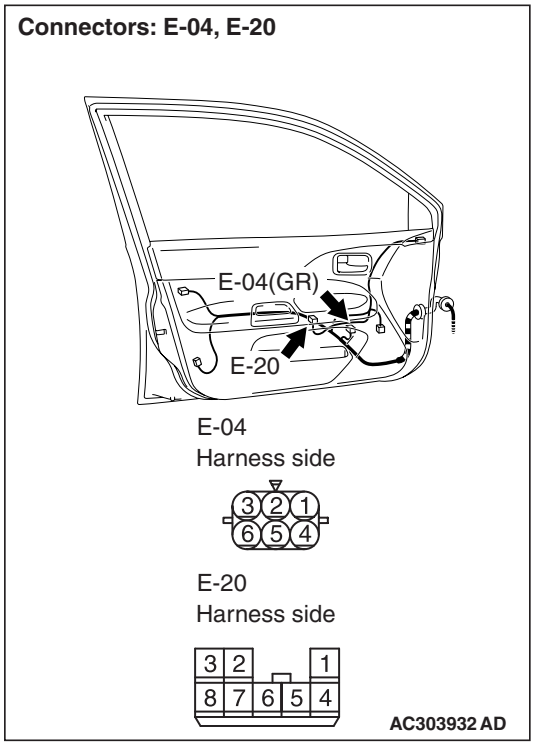


Prior to the wiring harness inspection, check intermediate connector C-113 and junction block connector C-210, and repair if necessary.
Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 14. Check the wiring harness from E-04 power window motor (front: LH) connector terminal Nos. 1 and 4 to E-20 power window sub switch (front: LH) connector terminal Nos. 4 and 7.



Check the input and output lines for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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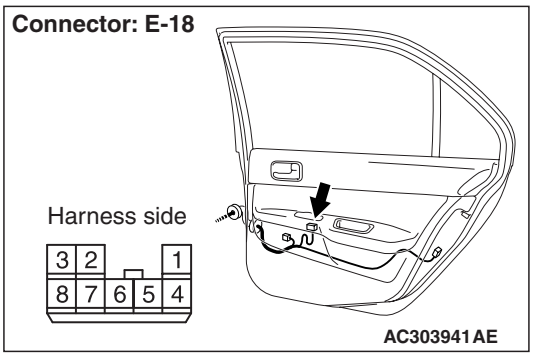
STEP 15. Connector check: E-18 power window sub switch (rear: RH) connector



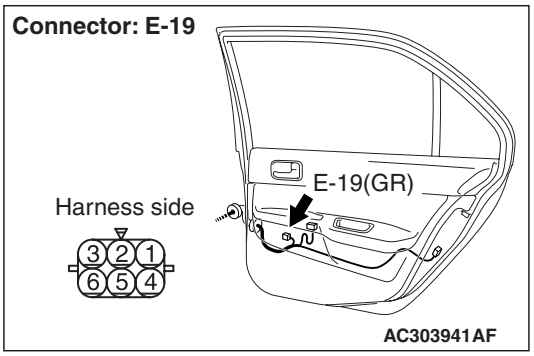
Q: Is the check result normal?
YES : Go to Step 16.
NO : Repair the connector.

STEP 16. Check the power window sub switch (rear: RH).

Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 17.
NO : Replace the power window sub switch (rear: RH).

STEP 17. Connector check: E-19 power window motor (rear: RH) connector



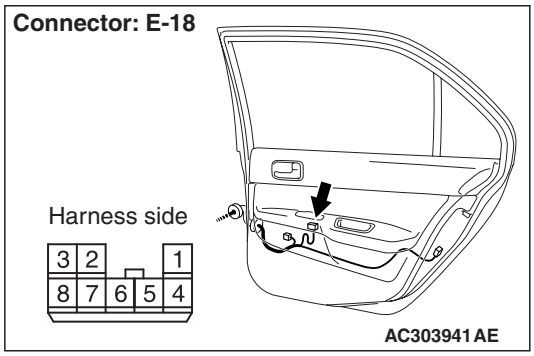
Q: Is the check result normal?
YES : Go to Step 18.
NO : Repair the connector.

STEP 18. Check the power window motor (rear: RH).

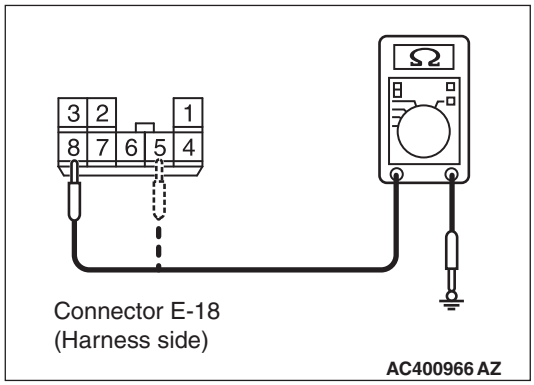
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 19.
NO : Replace the power window motor (rear: RH).

STEP 19. Resistance measurement at E-18 power window sub switch (rear: RH) connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between terminal 5 or 8 and body earth

OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 21.
NO : Go to Step 20.

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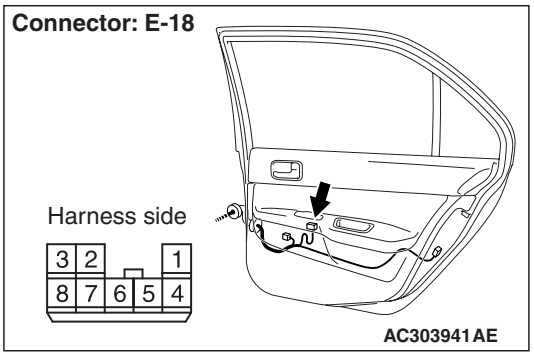
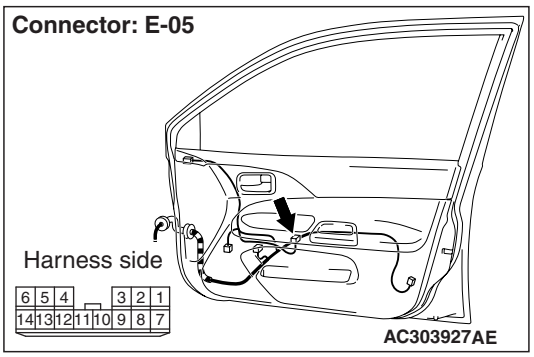
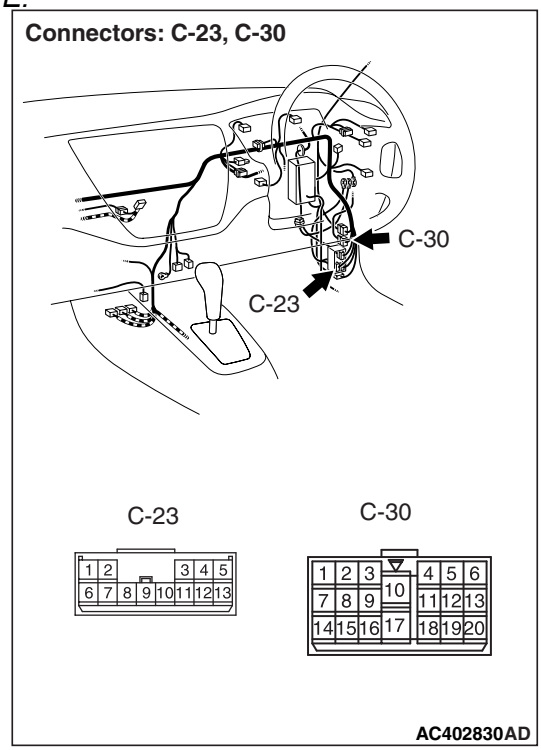
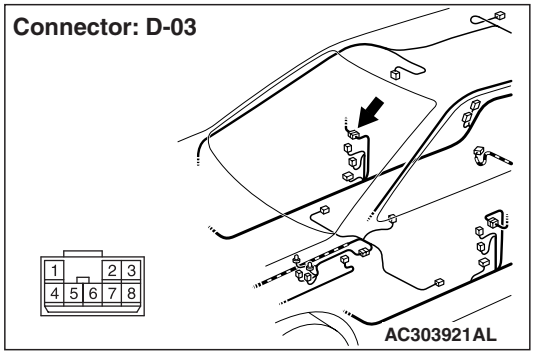
STEP 20. Check the wiring harness from E-18 power window sub switch (rear: RH) connector terminal Nos. 5 and 8 to E-05 power window main switch connector terminal Nos. 6 and 4.





NOTE:





Prior to the wiring harness inspection, check intermediate connectors C-23, C-30, D-03, and repair if necessary.

Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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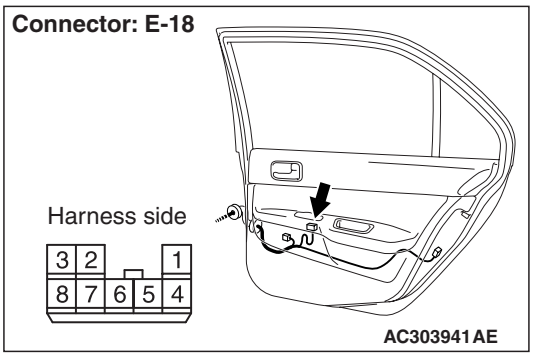
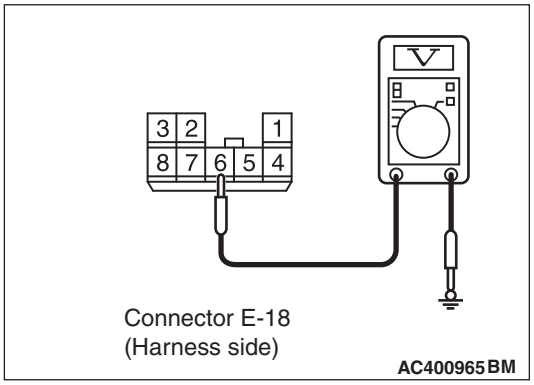
STEP 21. Voltage measurement at E-18 power window sub switch (rear: RH) connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.

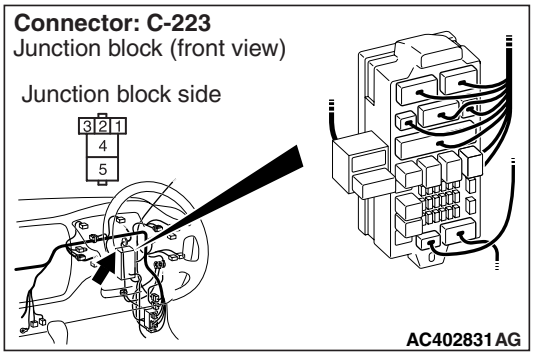


(3) Voltage between terminal 6 and body earth

OK: System voltage

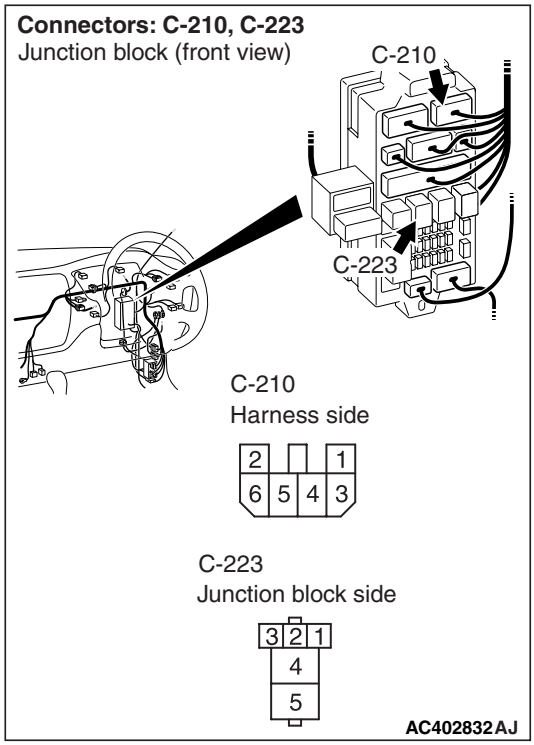
Q: Is the check result normal?
YES : Go to Step 24.
NO : Go to Step 22.

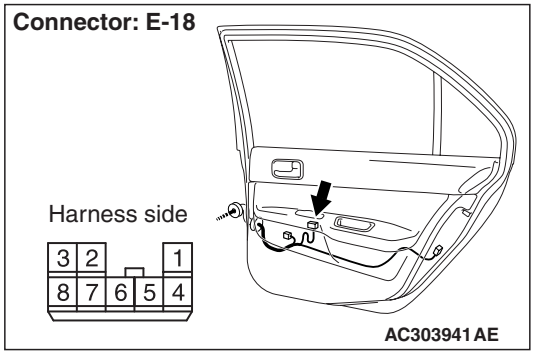
STEP 22. Connector check: C-223 power window relay connector



Q: Is the check result normal?
YES : Go to Step 23.
NO : Repair the connector.

STEP 23. Check the wiring harness from E-18 power window sub switch (rear: RH) connector terminal No. 6 to C-223 power window connector terminal No. 4.





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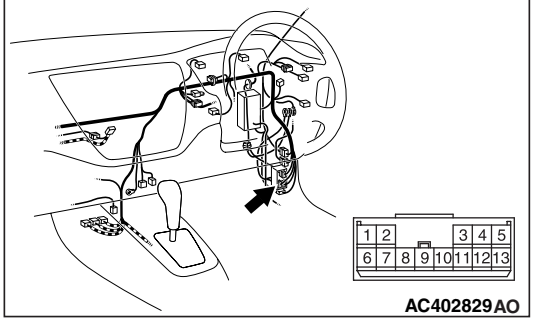
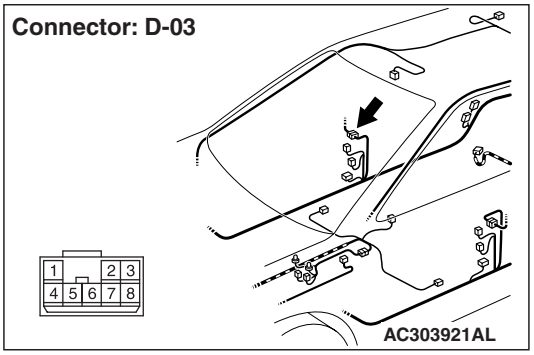
NOTE:

Connector: C-23



Connector: D-03



Prior to the wiring harness inspection, check intermediate connectors C-23, D-03 and junction block connector C-210, and repair if necessary.

Check the power supply line for open circuit.

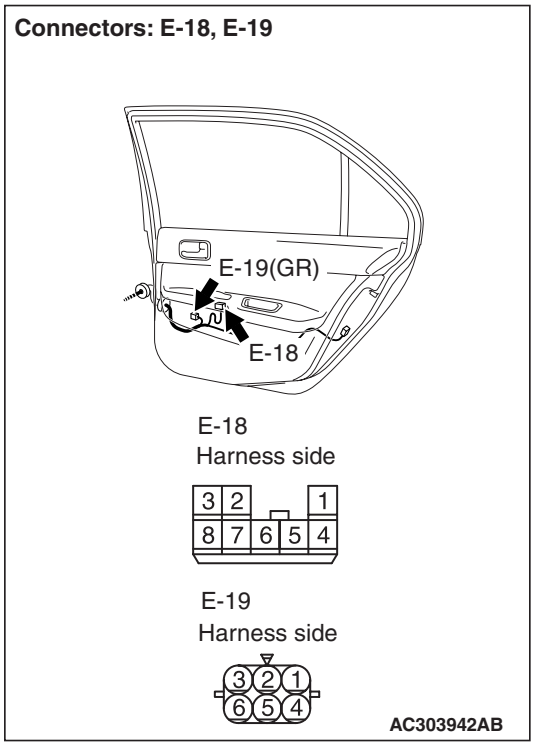
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 24. Check the wiring harness from E-19 power window motor (rear: RH) connector terminal Nos. 1 and 4 to E-18 power window sub switch (rear: RH) connector terminal Nos. 4 and 7.

Connectors: E-18, E-19



Check the input and output lines for open or short circuit.

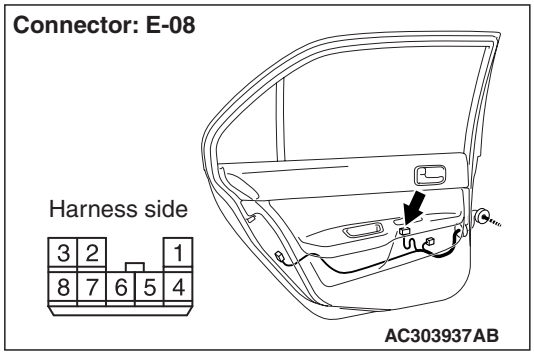
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 25. Connector check: E-08 power window sub switch (rear: LH) connector

Connector: E-08



Q: Is the check result normal?

YES : Go to Step 26.

NO : Repair the connector.

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STEP 26. Check the power window sub switch (rear: LH).

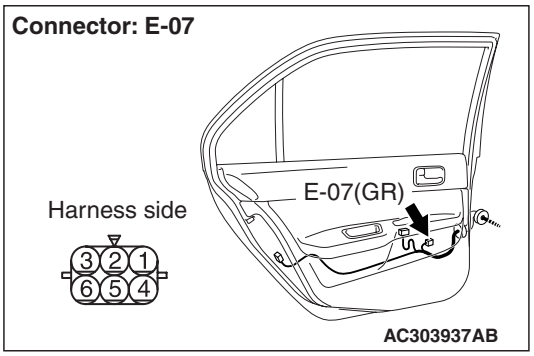
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?

YES : Go to Step 27.

NO : Replace the power window sub switch (rear: LH).

STEP 27. Connector check: E-07 power window motor (rear: LH) connector



Q: Is the check result normal?

YES : Go to Step 28.

NO : Repair the connector.

STEP 28. Check the power window motor (rear: LH).

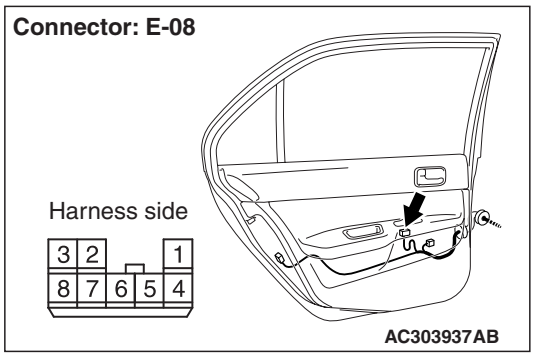
Refer to GROUP 42 –Door P.42-30.

Q: Is the check result normal?

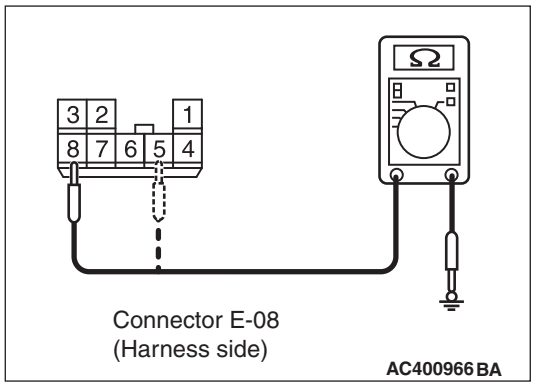
YES : Go to Step 29.

NO : Replace the power window motor (rear: LH).

STEP 29. Resistance measurement at E-08 power window sub switch (rear: LH) connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between terminal 5 or 8 and body earth

OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 31.

NO : Go to Step 30.

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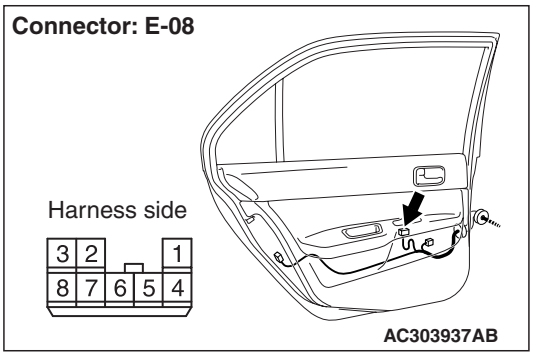
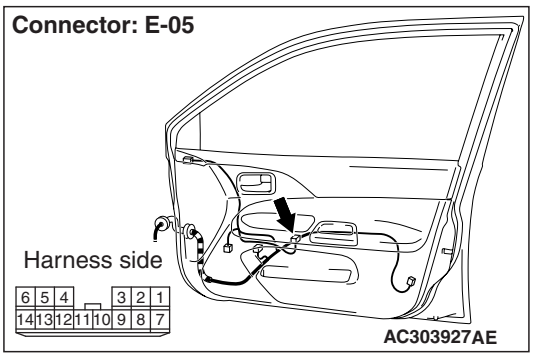
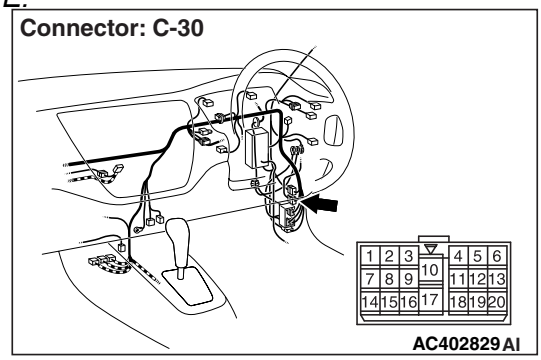
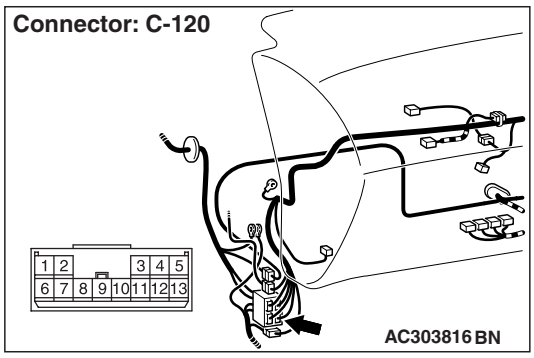
STEP 30. Check the wiring harness from E-08 power window sub switch (rear: LH) connector terminal Nos. 5 and 8 to E-05 power window main switch connector terminal Nos. 3 and 1.

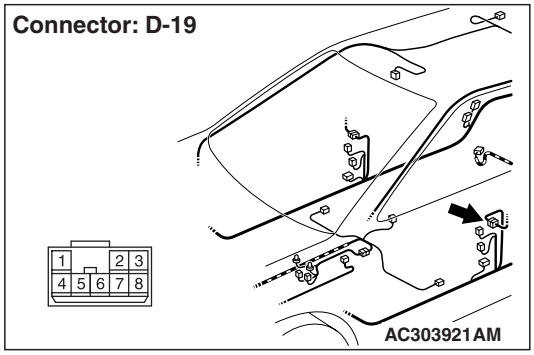




NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-30, C-120, D-19, and repair if necessary.

Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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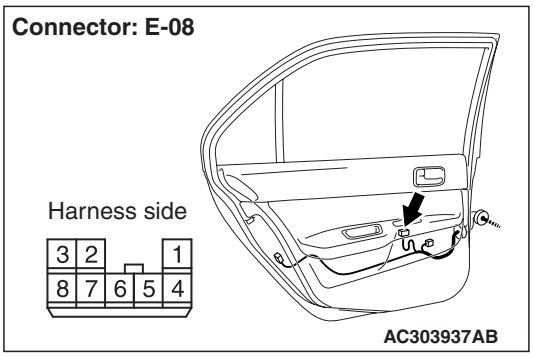
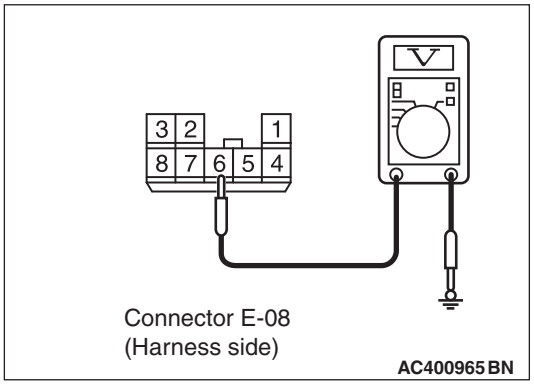
STEP 31. Voltage measurement at E-08 power window sub switch (rear: LH) connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.

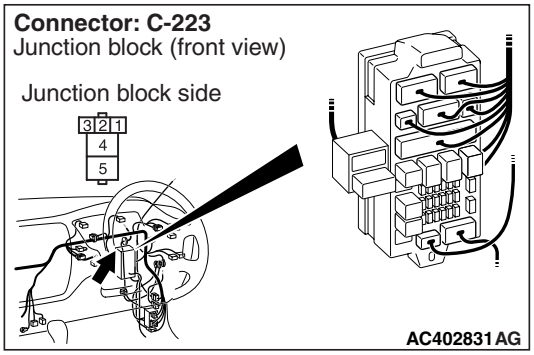


(3) Voltage between terminal 6 and body earth

OK: System voltage

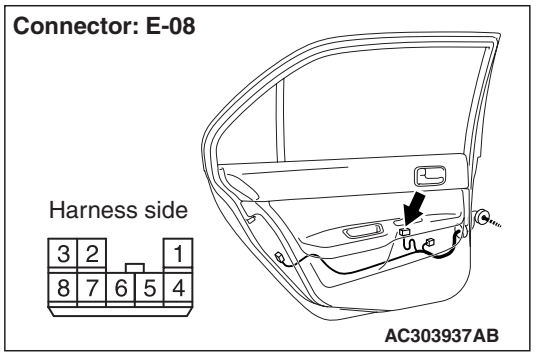
Q: Is the check result normal?
YES : Go to Step 34.
NO : Go to Step 32.

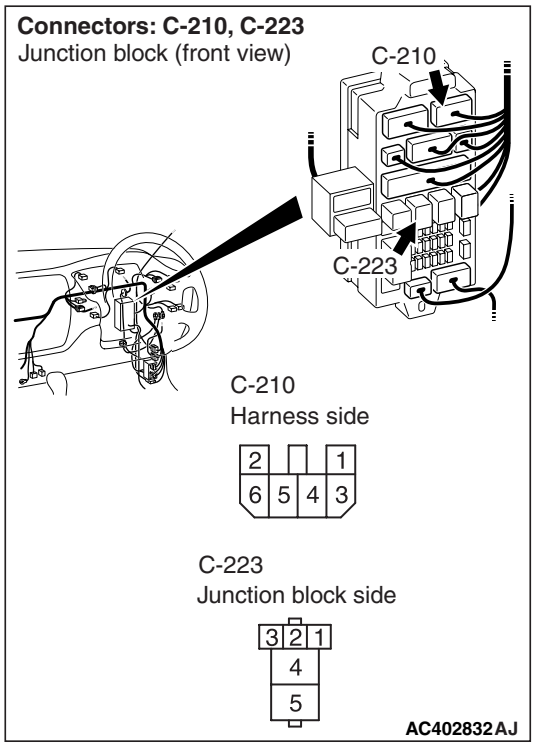
STEP 32. C-223 power window relay connector



Q: Is the check result normal?
YES : Go to Step 33.
NO : Repair the connector.

STEP 33. Check the wiring harness from E-08 power window sub switch (rear: LH) connector terminal No.6 to C-223 power window relay connector terminal No.4.





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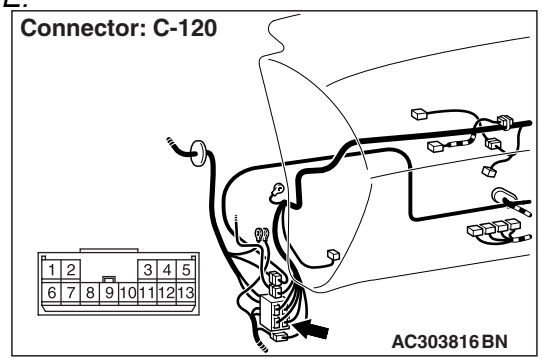
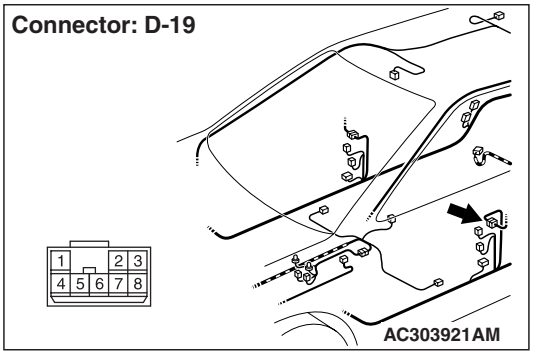
NOTE:

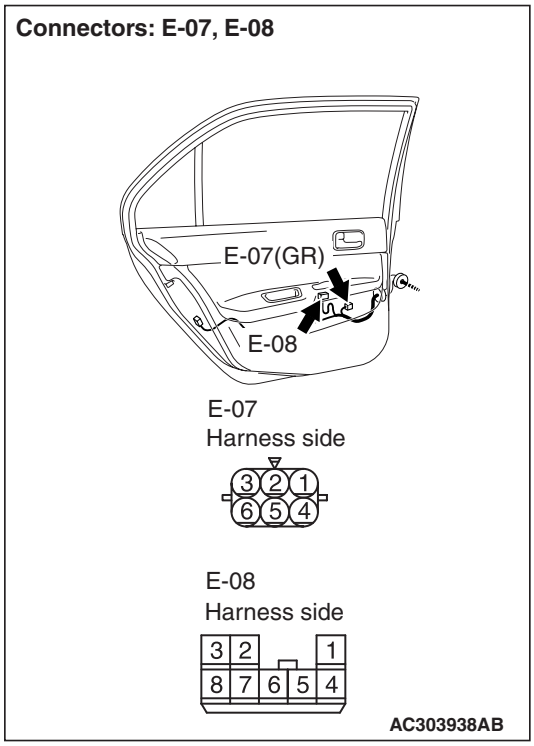




Prior to the wiring harness inspection, check intermediate connectors C-120, D-19 and junction block connector C-210, and repair if necessary.
Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 34. Check the wiring harness from E-07 power window motor (rear: LH) connector terminal Nos. 1 and 4 to E-08 power window sub switch (rear: LH) connector terminal Nos. 4 and 7.



Check the input and output lines for open or short circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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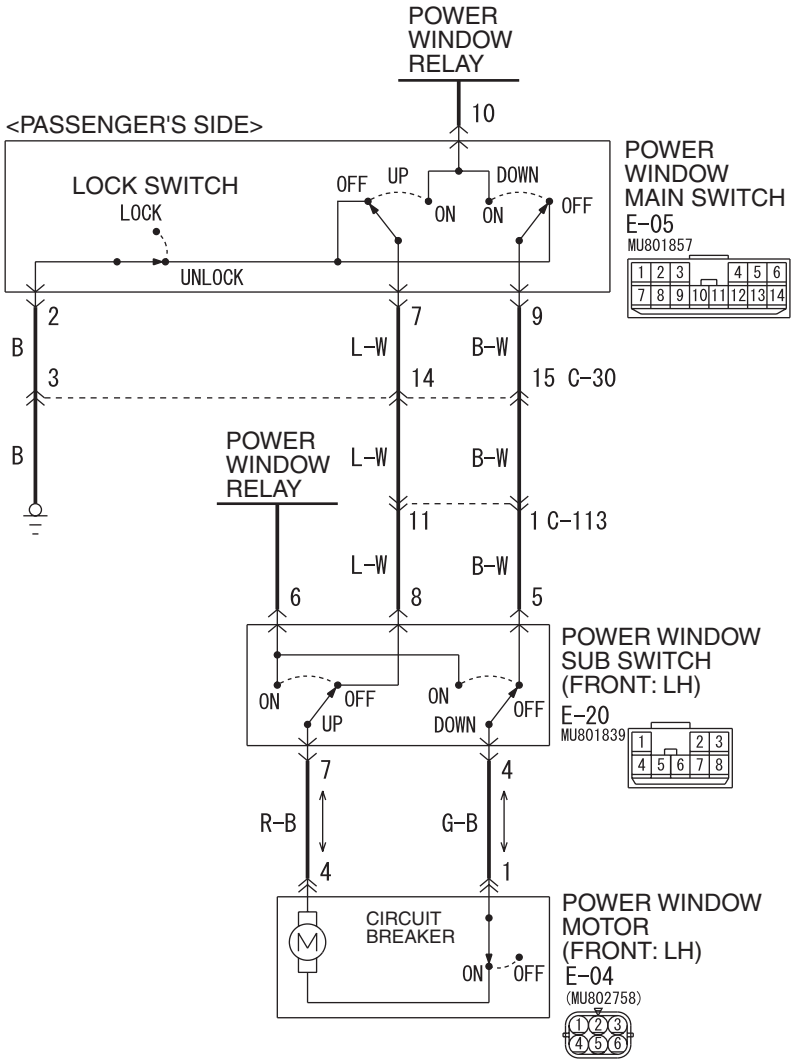
INSPECTION PROCEDURE D-4: Front and/or rear passenger's power window(s) do not work by means of the power window main switch.

Power Window (Front: RH) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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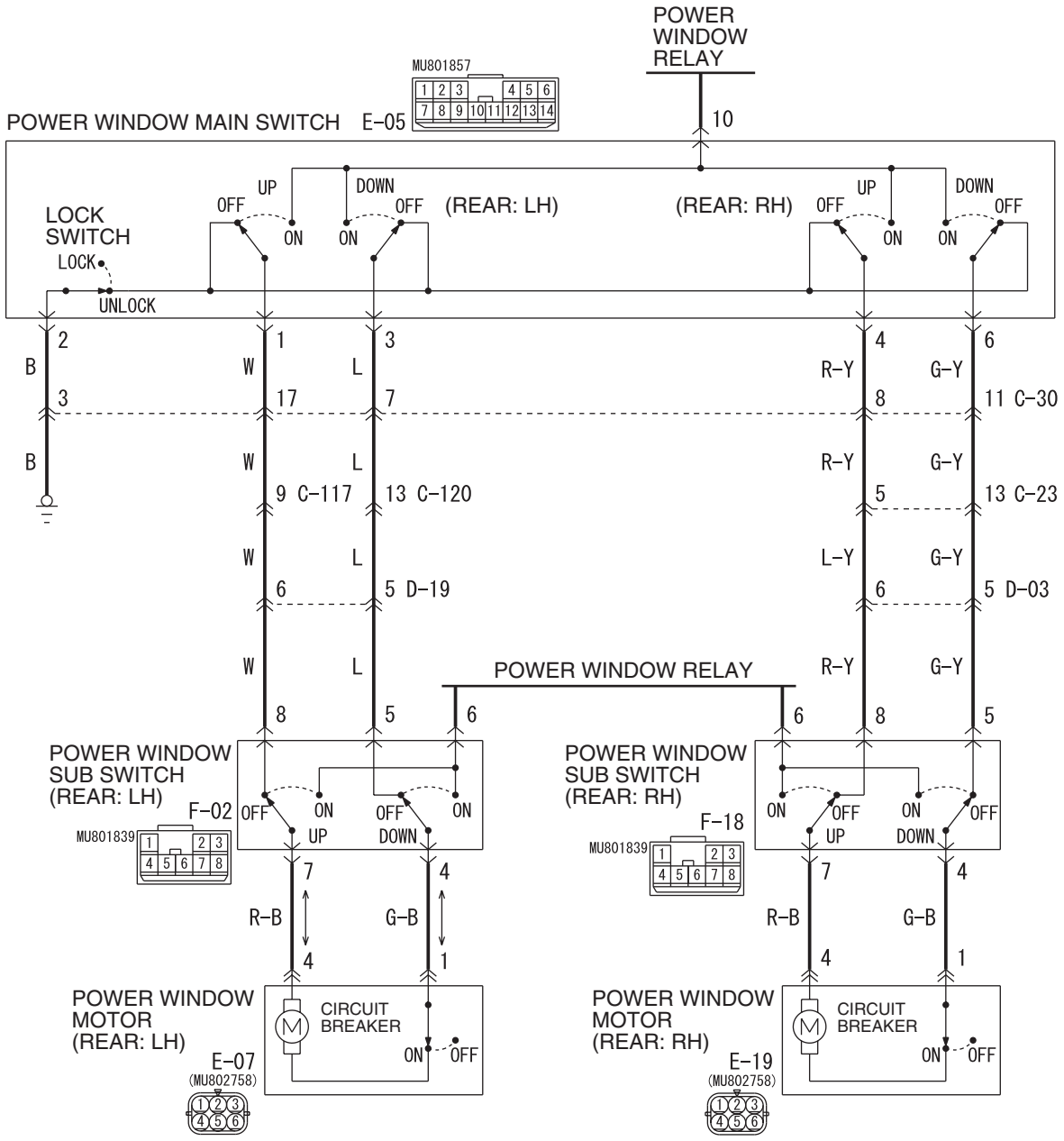
Power Window (Rear) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the passenger's and/or rear power window does not work by means of the power window main switch, the power window main switch or the respective power window sub switch(es) may be defective.

PROBABLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the power window sub switch (front: LH), power window sub switch (rear: RH) or power window sub switch (rear: LH)
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.
Check that the driver's power window works by means of the power window main switch.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure D-2 "Driver's power window does not work by means of the power window main switch P.54C-69."

STEP 2. Check the power window sub switch.
Check that each power window works by means of the respective power window sub switch when the power window lock switch is turned off.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Refer to inspection procedure D-3 "Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches P.54C-71."

INSPECTION PROCEDURE D-5: The window glass lowers automatically while it is rising.

COMMENTS ON TROUBLE SYMPTOM

If the sliding resistance is too great when the window is being raised or the window glass encounters an object, the window glass will lower by approximately 150 mm.

PROBABLE CAUSES

- Improper adjusted door window glass
- Incorrectly installed or warped glass slider
- Malfunction of the power window motor

DIAGNOSIS PROCEDURE

STEP 1. Check the power window operating current.
Check that the power window operating current is normal (Refer to GROUP 42 –Door –On-vehicle service P.42-25).

Q: Is the check result normal?
YES : Adjust the door window glass (Refer to GROUP 42 –Door –On-vehicle service P.42-24), and then go to Step 2.
NO : Replace the defective power window motor assembly which operating current are abnormal.

STEP 2. Check that the door window glasses are installed correctly.
Check that the door window glasses are installed correctly. Refer to GROUP 42 –Door –On-vehicle Service P.42-24.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Adjust the door window glass (Refer to GROUP 42 –Door –On-vehicle service P.42-24).

STEP 3. Retest the system.
Check that the power window does not lower automatically while it is being raised.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the power window motor assembly of the defective window.

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INSPECTION PROCEDURE D-6: The power window timer function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

OPERATION
The ETACS-ECU operates this function in accordance with the input signals below.
- Ignition switch (IG1)
- Driver's door switch
- Front passenger's door switch

COMMENTS ON TROUBLE SYMPTOM
If the power window timer function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective.

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.
Check that all of the front passenger's and rear door power windows can operate by means of the power window main switch.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-63."

STEP 2. ECU check by using the SWS monitor
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch from the "ON" to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" are displayed for all the items

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 3. SWS monitor data list
Check the SWS communication signal, which are related to the power window timer function.

<Selected item> ETACS ECU
- Turn the ignition switch to the "OFF" position.
- Operate the driver's door or front passenger's door from close to open.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	OFF
Item 32	FRONT DOOR SW	from OFF to ON

OK: Normal conditions are displayed for all the items

Q: Are the check result normal?
Normal conditions are displayed for all the items. : Go to Step 4.
Normal condition is not displayed for item No.30. : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."
Normal condition is not displayed for item No.32. : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212."

STEP 4. Retest the system.
Check that the power window timer function works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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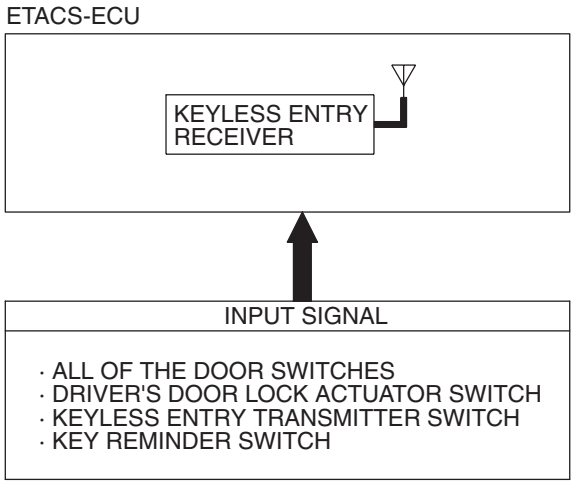
KEYLESS ENTRY SYSTEM

INSPECTION PROCEDURE E-1: Keyless entry system does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Keyless Entry System Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the keyless entry system does not work normally, the input signal circuits to the components below or the ETACS-ECU may be defective.

- Key reminder switch
- All of the door switches
- Keyless entry transmitter
- Front door lock actuator (RH)

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the keyless entry transmitter
- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

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STEP 2. Pulse check

Check the input signals below which are related to the keyless entry system.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
All of the door switches	A door is opened when all the doors are closed
Front door lock actuator (RH) switch	When the driver's key cylinder or inside lock knob is unlocked or locked
Keyless entry transmitter switch	When the switch is turned from off to on

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES <All the signals are received normally> : Go to Step 3.

NO <The key reminder switch signal is not received> : Refer to inspection procedure M-10 "The key reminder switch signal is not received P.54C-227."

NO <All the door switch signals are not received> : Refer to inspection procedure M-12 "All the door switch signals are not received P.54C-233 ."

NO <The front door lock actuator (RH) switch signal is not received> : Refer to inspection procedure M-13 "The front door lock actuator (RH) switch signal is not received P.54C-237 ."

NO <The keyless entry transmitter switch signal is not received> : Refer to inspection procedure M-15 "Each switch signal of the keyless entry transmitter is not received P.54C-246."

STEP 3. Retest the system.

Check the keyless entry system works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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INSPECTION PROCEDURE E-2: Keyless entry hazard warning lamp answerback function or the room lamp answerback function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamp and the room lamp work normally, the ETACS-ECU may be defective. Alternatively, it is possible that the keyless entry hazard warning lamp answerback function was disabled by the adjustment function.

PROBABLE CAUSES

- Defective turn-signal lamp
- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.
Check that the keyless entry hazard warning lamp answerback function has been enabled by using the adjustment function.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Enable the keyless entry hazard warning lamp answerback function by using the adjustment function (Refer to GROUP 54B – Adjustment function P.54B-261).

STEP 2. Check the operation of the hazard warning lamp.
Check that the hazard warning lamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure J-2 "The hazard warning lamps do not illuminate P.54C-158 ."

STEP 3. Check the operation of the room lamps.
Check that the room lamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to inspection procedure L-1 "The front or rear room lamp do not illuminate or extinguish normally P.54C-179 ."

STEP 4. Check the operation of the centre door locking system.
Check that all doors are locked and unlocked when the driver's inside lock knob is operated to the lock and unlock position.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Refer to inspection procedure C-1 "The central door locking system does not work P.54C-47."

STEP 5. ECU check by using the SWS monitor
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 6. Retest the system.
Check that the keyless entry hazard warning lamp answerback function or the room lamp answerback function work normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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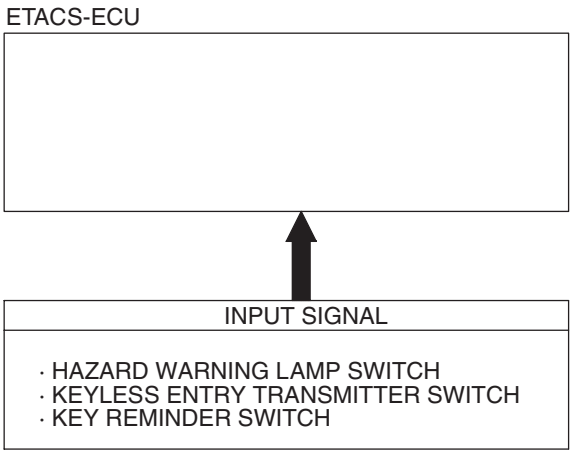
INSPECTION PROCEDURE E-3: Encrypted code cannot be registered.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Encrypted Transmitter Code Register Mode



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COMMENTS ON TROUBLE SYMPTOM

If the encrypted code registration mode is not entered, the key reminder switch, the hazard warning lamp switch or the ETACS-ECU may be defective.
If the registration is not possible although the registration mode is entered, the keyless entry transmitter or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the encrypted code registration mode.
Check that the encrypted code registration mode is entered.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Go to Step 2.

STEP 2. Pulse check
Check the input signals below which are related to the encrypted code of the keyless entry transmitter.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
Hazard warning lamp switch	When the switch is turned from off to on
Keyless entry transmitter switch	When the switch is turned from off to on

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 3.
NO <The key reminder switch signal is not received> : Refer to inspection procedure M-10 "The key reminder switch signal is not received P.54C-227."
NO <The hazard warning lamp switch signal is not received> : Refer to inspection procedure M-11 "The hazard warning lamp switch signal is not received P.54C-230."
NO <The keyless entry transmitter switch signal is not received> : Refer to inspection procedure M-15 "Each switch signal of the keyless entry transmitter is not received P.54C-246."

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STEP 3. Retest the system.
Check that the encrypted code can be registered.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE E-4: The timer lock function does not work after the doors have been unlocked by the keyless entry system.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENT ON TROUBLE SYMPTOM

If the keyless entry timer lock does not work normally, the input signal circuit(s) to the keyless entry transmitter or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the keyless entry transmitter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the keyless entry system.
Check that the keyless entry system works normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure E-1 "Keyless entry system does not work P.54C-89."

STEP 2. Retest the system.
Check that the timer lock works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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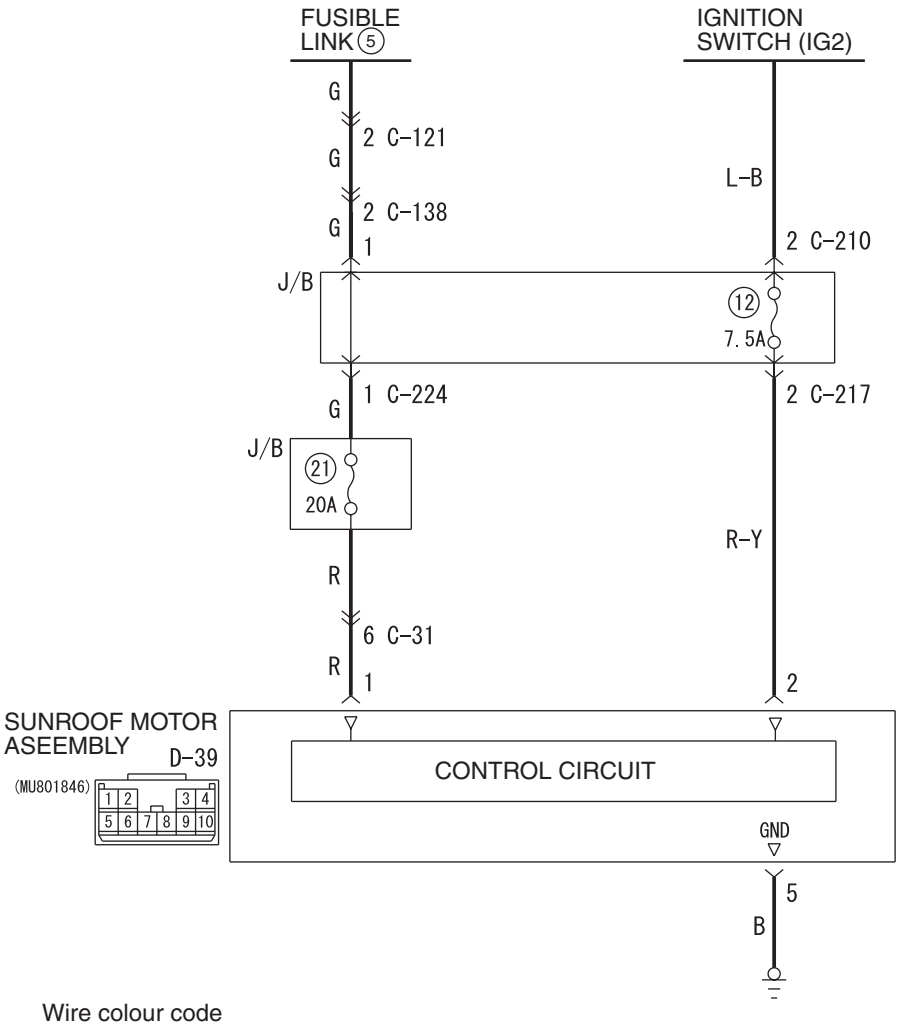
SUNROOF

INSPECTION PROCEDURE F-1: The sunroof does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof Motor Assembly Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the sunroof does not work at all, these power supply circuit(s), these earth circuit(s), sunroof switch or the sunroof motor assembly (sunroof ECU) may be defective.

PROBABLE CAUSES

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly (sunroof ECU)
- Malfunction of the power window main switch
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.
Check that the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Turn off the power window lock switch.

STEP 2. ECU check by using the SWS monitor
Check that the power supply and earth lines to the sunroof motor assembly (sunroof-ECU) and the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ON" position.
(2) Operate the sunroof switch.
(3) Check the following ECU.
- ETACS ECU
- SUNROOF ECU

OK: "OK" are displayed for all the items.

Q: Are the check result normal?
YES <"OK" are displayed for all the items> : Go to Step 3.
NO <"NG" is displayed on the "ETACS ECU" menu> : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."
NO <"NG" is displayed on the "SUNROOF ECU" menu> : Refer to Inspection Procedure A-5 "Communication with the sunroof motor assembly (sunroof-ECU) is not possible P.54C-39."

STEP 3. Check the power window main switch.
Check that all of the front passenger's and rear door power windows can operate by means of the power window main switch.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-63."

STEP 4. Function diagnosis by using the SWS monitor
Check the SWS communication signal, which are related to the sunroof.

<Selected item> SUNROOF OPE
- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	ON
Item 72	S/R ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?
YES <Normal conditions are displayed for all the items> : Go to Step 5.
NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."
NO <Normal condition is not displayed for item No.72> : Refer to inspection procedure M-9 "When the sunroof switch is operated, the switch signals are not received P.54C-223."

STEP 5. Retest the system.
The sunroof assembly should now work normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the sunroof motor assembly.

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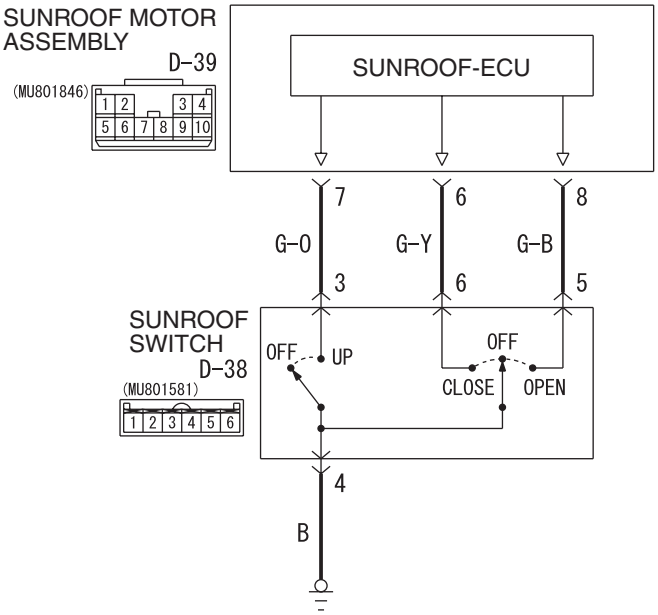
INSPECTION PROCEDURE F-2: Any of the sunroof switch positions is defective.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof Switch Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If any of the sunroof switch positions is defective, the communication line between the sunroof switch and the sunroof motor assembly (sunroof-ECU) may be defective.

PROBABLE CAUSES

- Malfunction of the sunroof switch
- Malfunction of the sunroof motor assembly (sun-roof-ECU)
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

SWS monitor data list.
Check the SWS communication signal, which are related to the sunroof.

<Selected item> SUNROOF ECU

- Turn the ignition switch to the "ON" position.
- Operate the sunroof switch.

Item No.	Item name	Normal condition
Item 72	S/R ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Refer to inspection procedure M-9 "When the sunroof switch is operated, the switch signals are not received P.54C-223."

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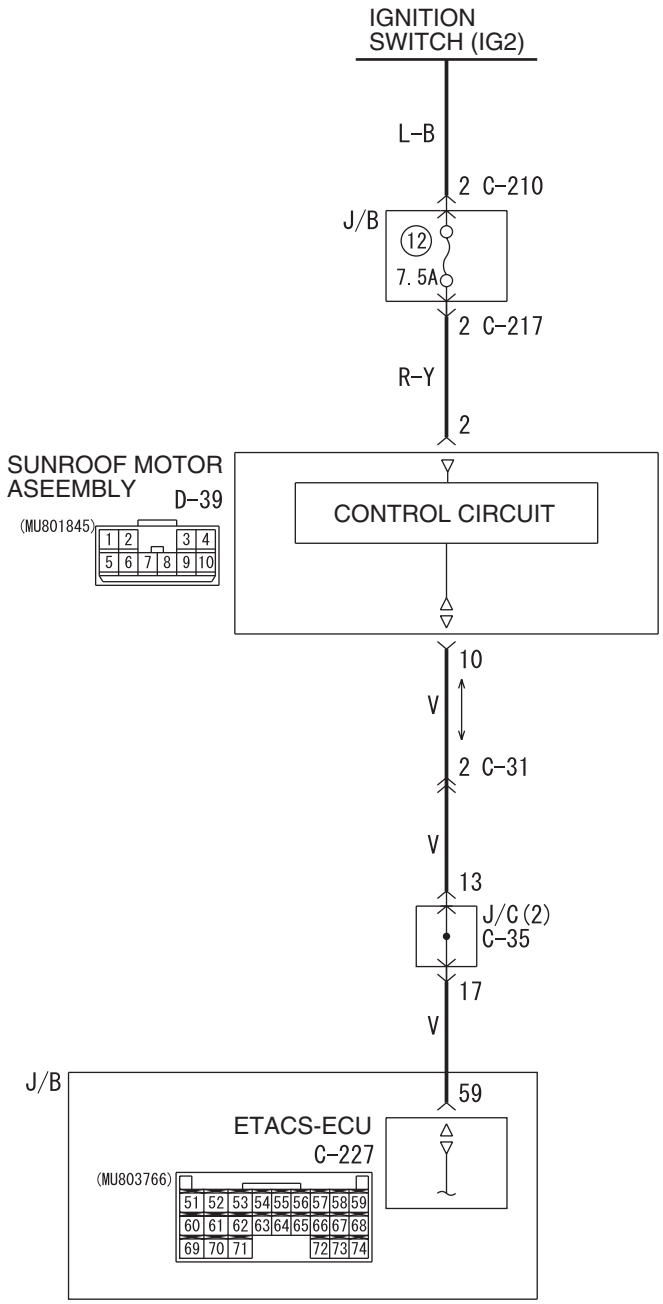
INSPECTION PROCEDURE F-3: Sunroof timer function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Sunroof Timer Function



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the sunroof timer function does not work, the input circuit from the ignition switch (IG1), the driver's door switch, or the passenger's door switch, the communication lines between the ETACS-ECU and the sunroof motor assembly (sunroof-ECU), the sunroof motor assembly (sunroof-ECU) or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the driver's door switch
- Malfunction of the passenger's door switch
- Malfunction of ETACS-ECU
- Malfunction of the sunroof motor assembly (sunroof-ECU)
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation condition of the sunroof.

Check that the sunroof works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure F-1 "The sunroof does not work at all P.54C-94."

STEP 2. ECU check by using the SWS monitor

Check that the power supply and earth lines to the sunroof motor assembly (sunroof-ECU) and the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.

(2) Operate the sunroof switch.

NOTE: Operate the sunroof switch within the timer period after the ignition switch is turned off.

(3) Check the following ECU.

- ETACS ECU
- SUNROOF ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?

YES <"OK" are displayed for all the items> : Go to Step 3.

NO <"NG" is displayed on the "ETACS ECU" menu> : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

NO <"NG" is displayed on the "SUNROOF ECU" menu> : Refer to Inspection Procedure A-5 "Communication with the sunroof motor assembly (sunroof-ECU) is not possible P.54C-39."

STEP 3. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the sunroof.

<Selected item> SUNROOF OPE

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 72	S/R ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the sunroof motor assembly.

STEP 4. SWS monitor data list

Check the SWS communication signal, which are related to the sunroof timer function.

<Selected item> ETACS ECU

- Turn the ignition switch to the "OFF" position.
- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	OFF
Item 32	FRONT DOOR SW	from OFF to ON

OK: Normal conditions are displayed for all the items

Q: Are the check result normal?

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

NO <Normal condition is not displayed for item No.30 : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

NO <Normal condition is not displayed for item No.32> : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212."

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STEP 5. Pulse check

Check the SWS communication signal, which are related to the sunroof timer function.

System switch	Check condition
All of the door switches	Front passenger's door is opened when all the doors are closed

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Refer to inspection procedure M-12 "All the door switch signals are not received P.54C-233."

STEP 6. Retest the system.

After the sunroof motor assembly is replaced, check that the sunroof timer function works normally.

(1) Replace the sunroof motor assembly.

(2) Check that the sunroof timer function works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE F-4: Sunroof anti-trap function does not work normally.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the sunroof anti-trap function does not work, the sunroof motor assembly (sunroof-ECU) may be defective.

PROBABLE CAUSE

Malfunction of the sunroof motor assembly (sunroof-ECU)

DIAGNOSIS PROCEDURE

Retest the system.

Check that the sunroof anti-trap function work normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the sunroof motor assembly.

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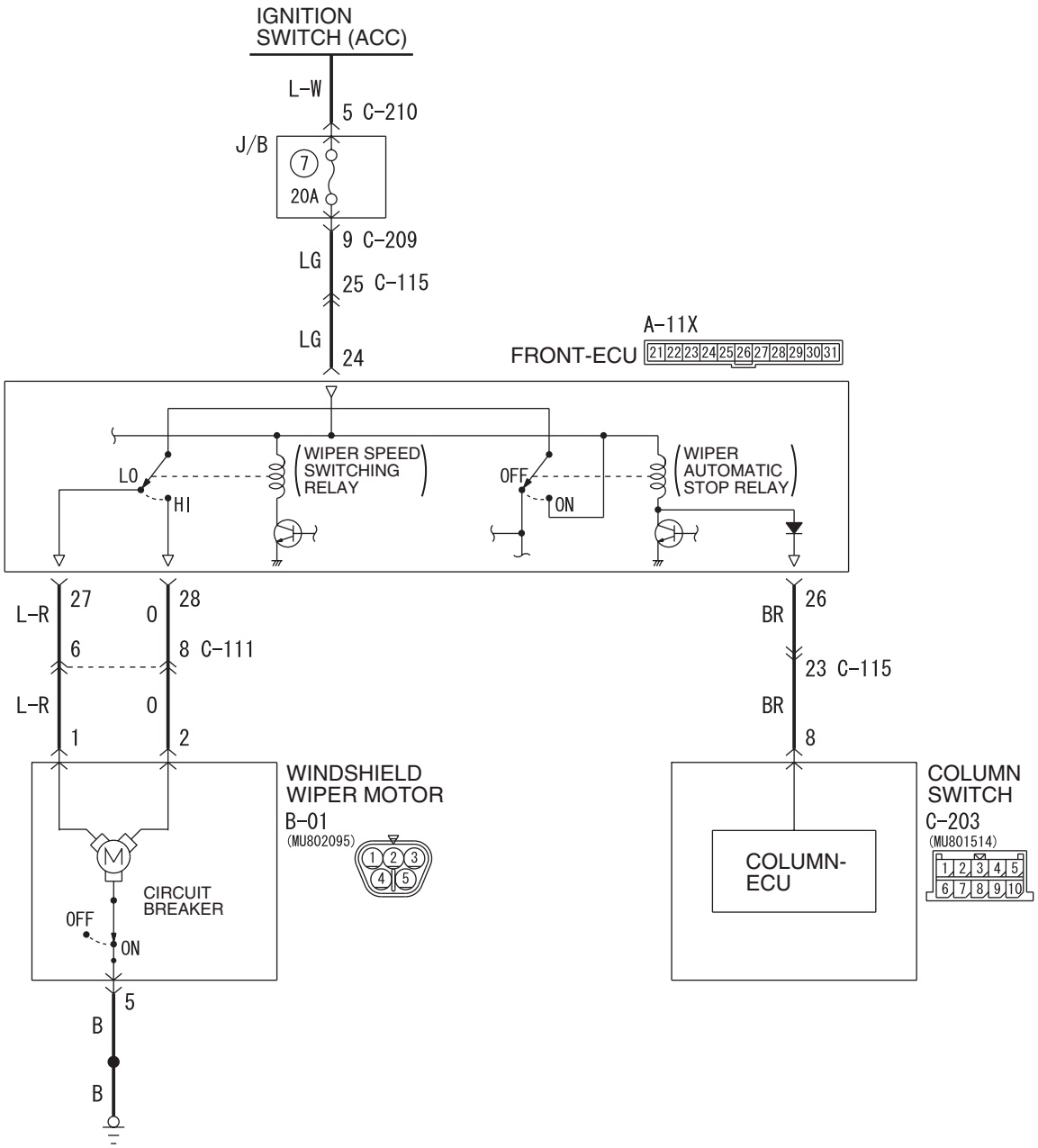
WINDSHIELD WIPER AND WASHER

INSPECTION PROCEDURE G-1: The windshield wipers do not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The windshield wiper motor, the column switch or the front-ECU may be defective. If a problem is found in the ECU check by using the SWS monitor, also check the wiper backup circuit (between C-203 column switch connector terminal No.8 and A-11X front-ECU connector terminal No.26) and repair if necessary.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the ON position.
(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

STEP 2. Function diagnosis by using the SWS monitor

Check the SWS communication signal, which are related to the windshield wiper function.

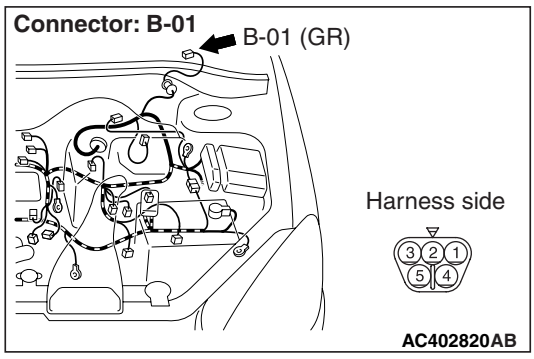
<Selected item> F.WIPER INT
- Turn the ignition switch to the ACC position.
- Windshield wiper switch: INT

Item No.	Item name	Normal condition
Item 05	INT WIPER SW	ON
Item 31	IGNITION SW ACC	ON
Item 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES <Normal conditions displayed for all the items> : Go to Step 3.
NO <Normal condition is not displayed for item No.05> : Replace the column switch.
NO <Normal condition is not displayed for item No.31> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54C-200."
NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

STEP 3. Connector check: B-01 windshield wiper motor connector



Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

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STEP 4. Check the windshield wiper motor assembly.

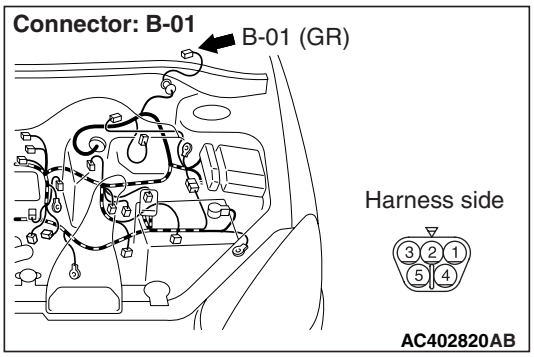
Refer to GROUP 51 –Windshield wiper P.51-25.

Q: Is the check result normal?

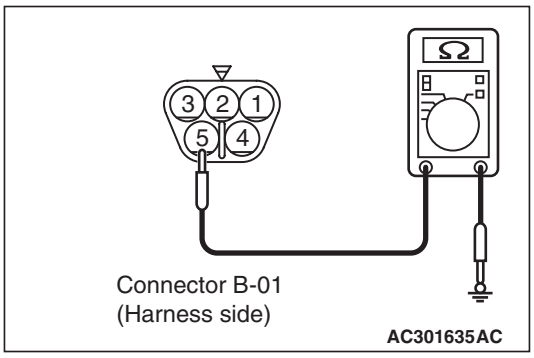
YES : Go to Step 5

NO : Replace the windshield wiper motor assembly.

STEP 5. Resistance measurement at the B-01 windshield wiper motor connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between B-01 windshield wiper motor connector terminal No.5 and body earth

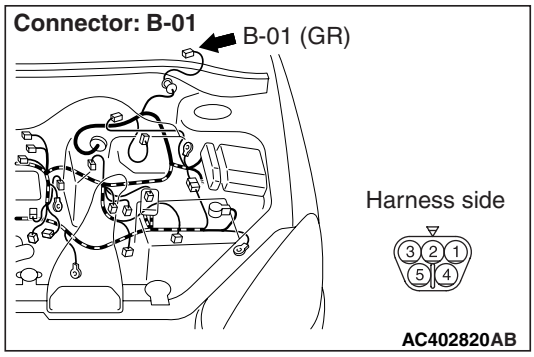
OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between B-01 windshield wiper motor connector terminal No.5 and body earth.



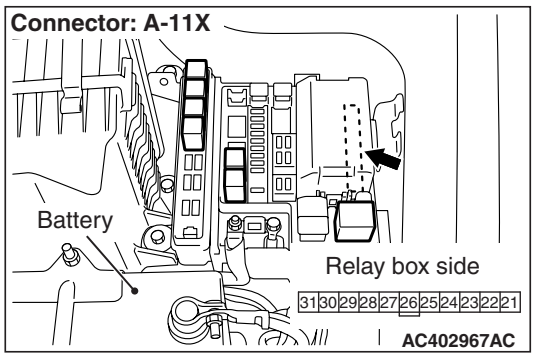
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. Connector check: A-11X front-ECU connector

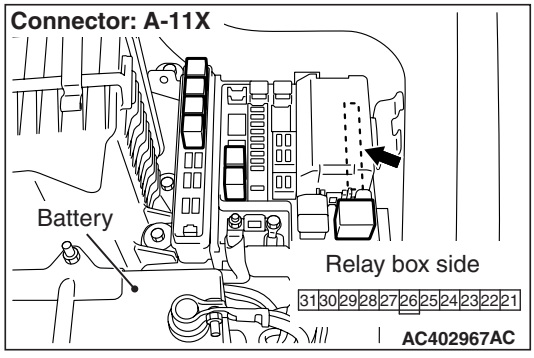


Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector.

STEP 8. Voltage measurement at the A-11X front-ECU connector



(1) Remove the front-ECU, and measure at the relay box side.

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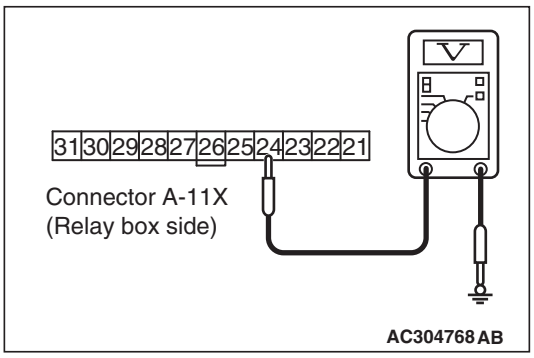
(2) Turn the ignition switch to the "ACC" position.

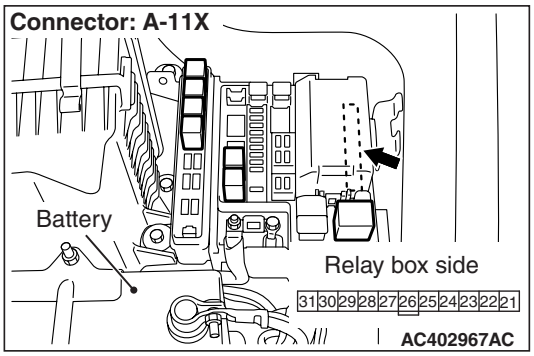


(3) Check the voltage between the A-11X front-ECU connector terminal No.24 and body earth.

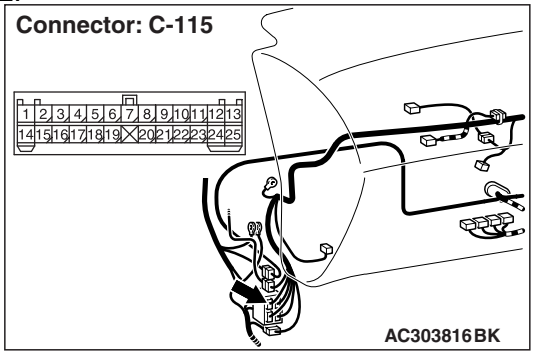
OK: System voltage

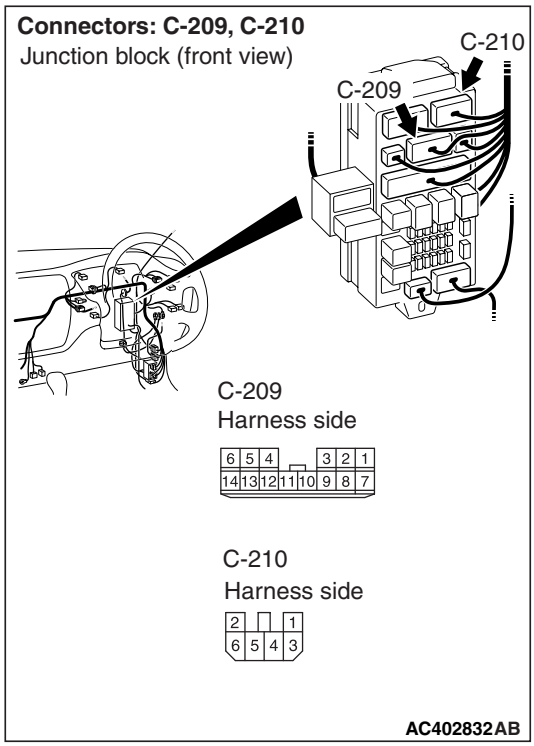
Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

STEP 9. Check the wiring harness between A-11X front-ECU connector terminal No.24 and ignition switch (ACC).



NOTE:





Prior to the wiring harness inspection, check the junction block connectors C-209, C-210 and intermediate connector C-115 and repair if necessary.

- Check the power supply line from ignition switch (ACC) for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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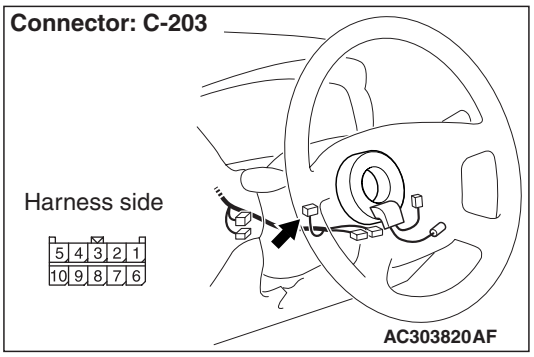
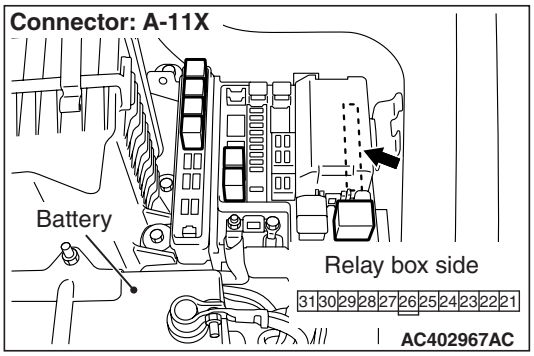
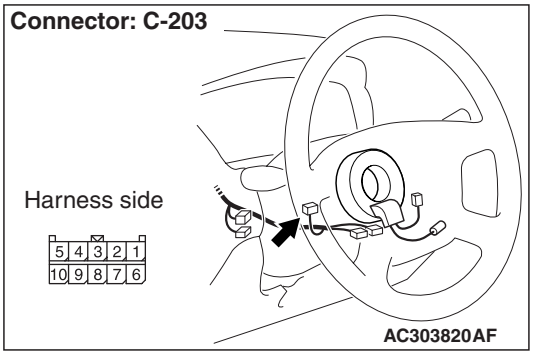
STEP 10. Connector check: C-203 column switch connector



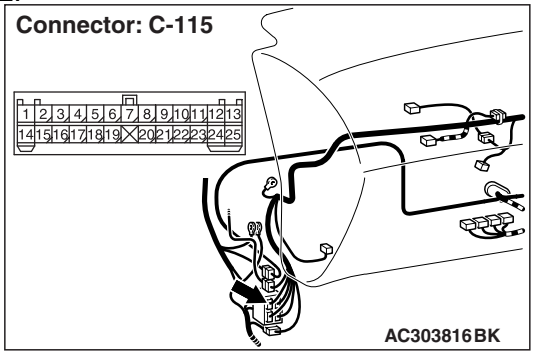
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the connector.

STEP 11. Check the wiring harness between C-203 column switch connector terminal No.8 and A-11X front-ECU connector terminal No.26.





NOTE:



Prior to the wiring harness inspection, check the intermediate connector C-115 and repair if necessary.

- Check the wiper backup circuit.

Q: Is the check result normal?
YES : Go to Step 12.
NO : Repair the wiring harness.

STEP 12. Retest the system.

The windshield wiper should now work normally at all.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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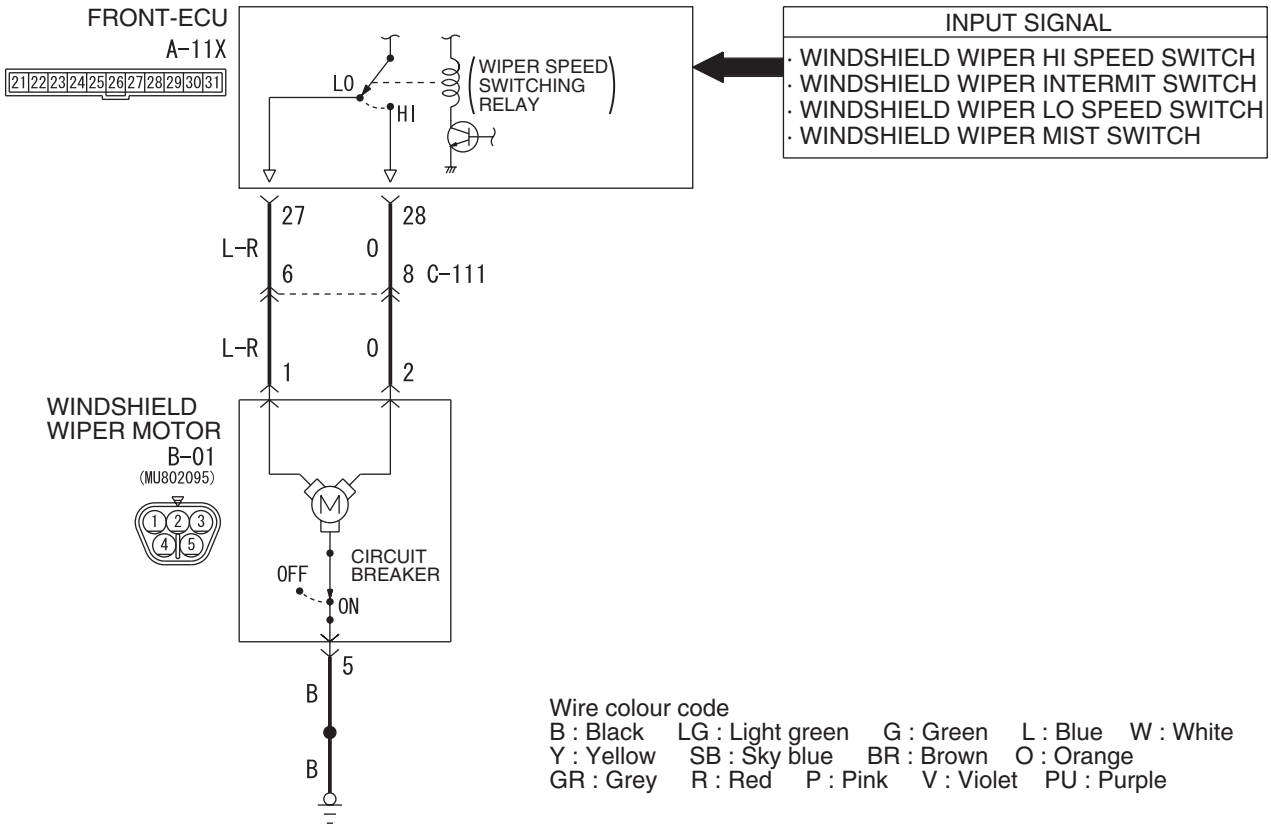
INSPECTION PROCEDURE G-2: The windshield wipers does not work when the wiper switch is at "INT", "WASHER" or "MIST" position. However, the wipers work at low speed when the switch is at "LO" and "HI" position.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Motor Drive Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White
Y : Yellow SB : Sky blue BR : Brown O : Orange
GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The system may be at fail-safe mode as the SWS communication line is defective. If the ETACS-ECU does not receive the ignition switch (ACC) signal due to an open circuit in the SWS communication lines or other reasons when the ignition switch is at the ACC position, the system will enter the fail-safe mode.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor
Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the ACC position.

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(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

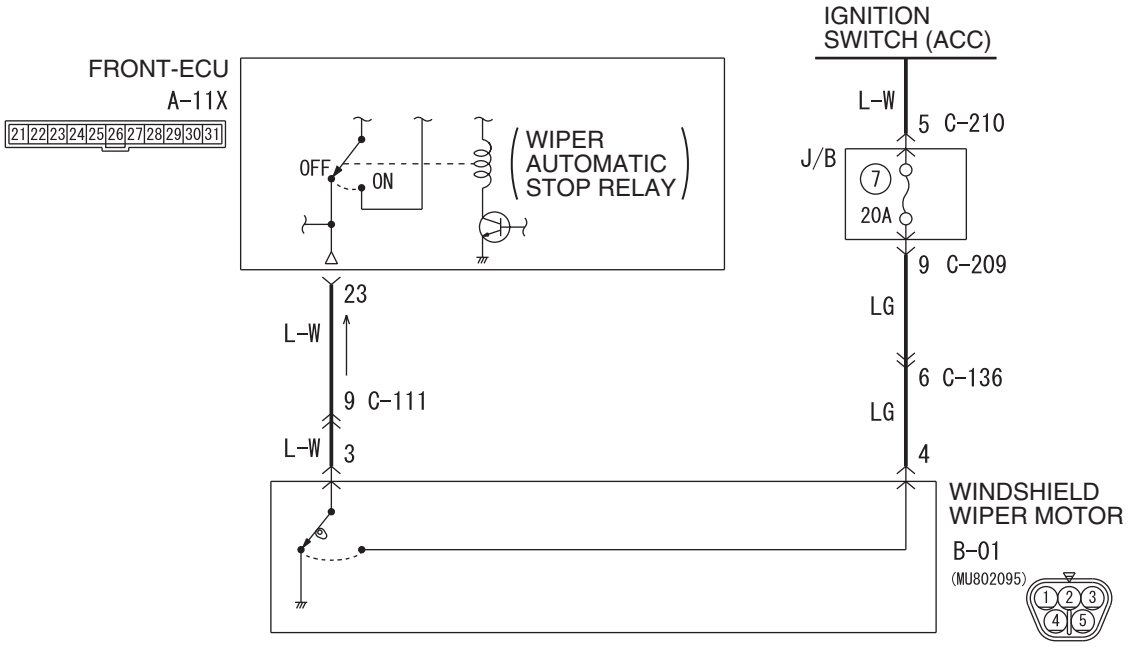
STEP 2. Retest the system.
The windshield wiper should now work normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

INSPECTION PROCEDURE G-3: The windshield wipers do not stop at the specified park position

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Automatic Stop Relay Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L011A

COMMENTS ON TROUBLE SYMPTOM
The windshield wiper motor or the front-ECU may be defective.

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

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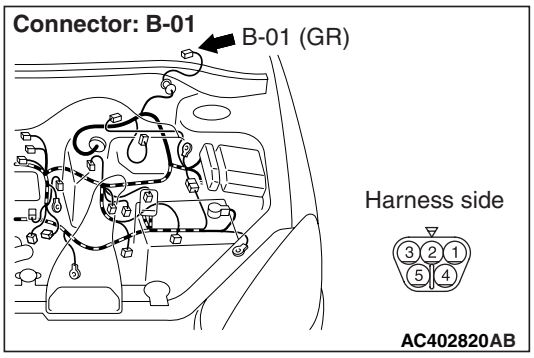
DIAGNOSIS PROCEDURE

STEP 1. Connector check: B-01 windshield wiper motor connector



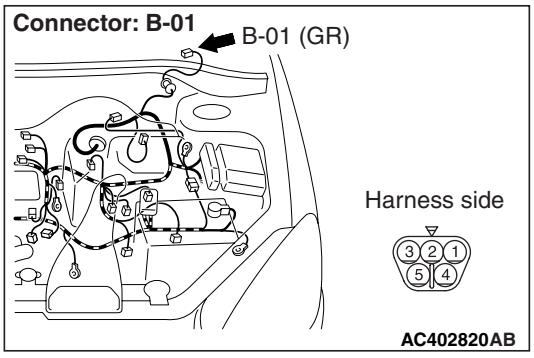
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the windshield wiper motor assembly.

Refer to GROUP 51 –Windshield wiper P.51-25.

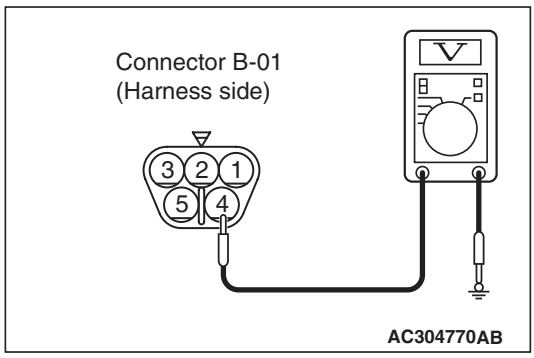
Q: Is the check result normal?
YES : Go to Step 3
NO : Replace the windshield wiper motor assembly.

STEP 3. Voltage measurement at the B-01 windshield wiper motor connector



(1) Disconnect the connector, and measure at the wiring harness side.

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

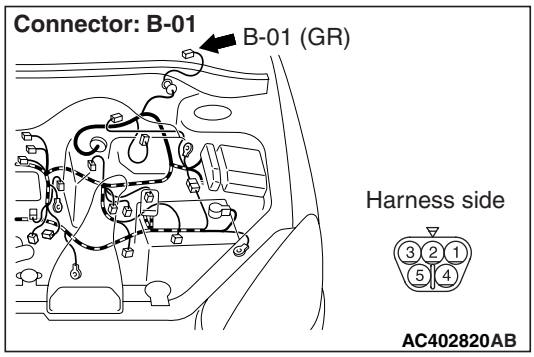


(3) Check the voltage between the B-01 windshield wiper motor connector terminal No.4 and body earth.

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between B-01 windshield wiper motor connector terminal No.4 and ignition switch (ACC).



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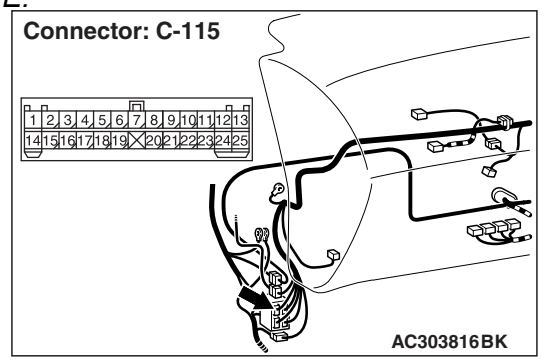
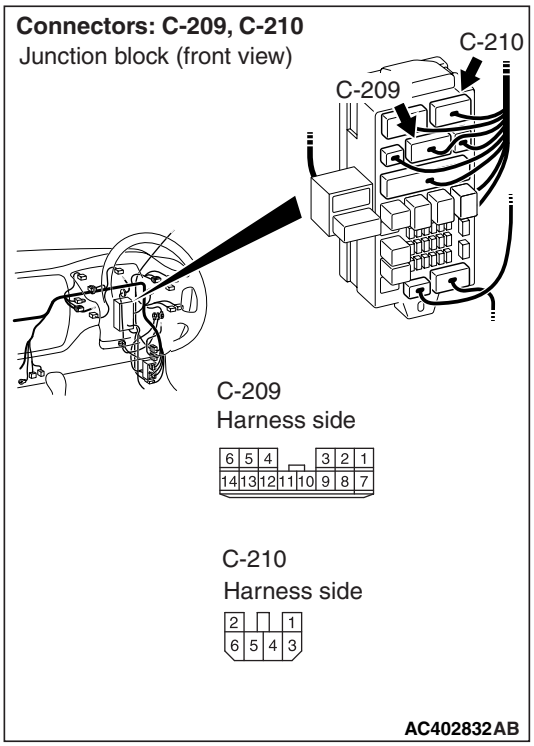
NOTE:





Prior to the wiring harness inspection, check the junction connectors C-209, C-210 and the intermediate connector C-115 and repair if necessary.

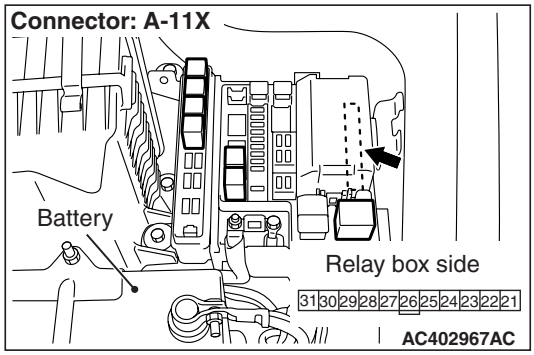
- Check the power supply line to ignition switch (ACC) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Connector check: A-11X front-ECU connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

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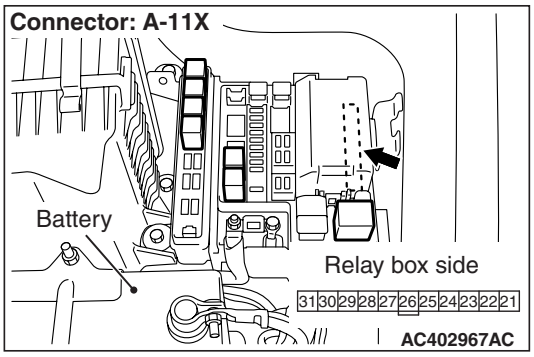
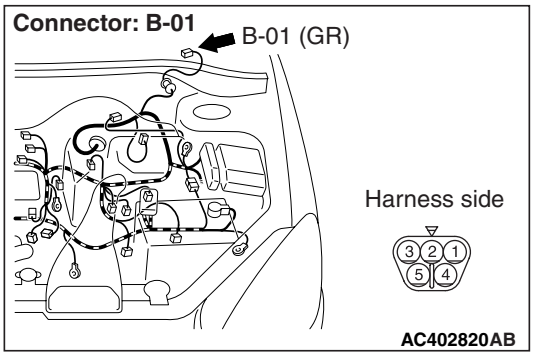
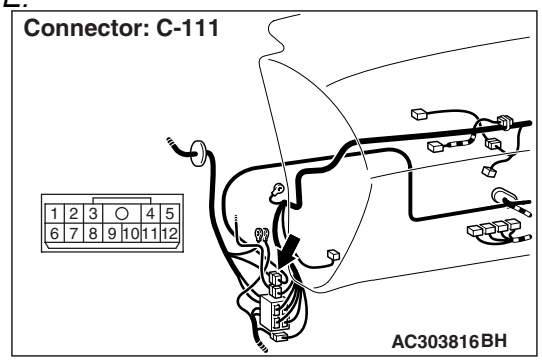
STEP 6. Check the wiring harness between B-01 windshield wiper motor connector terminal No.3 and A-11X front-ECU connector terminal No.23.





NOTE:



Prior to the wiring harness inspection, check the intermediate connector C-111 and repair if necessary.

- Check the input signal lines.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.
Check that the windshield wipers stop at the specified park position.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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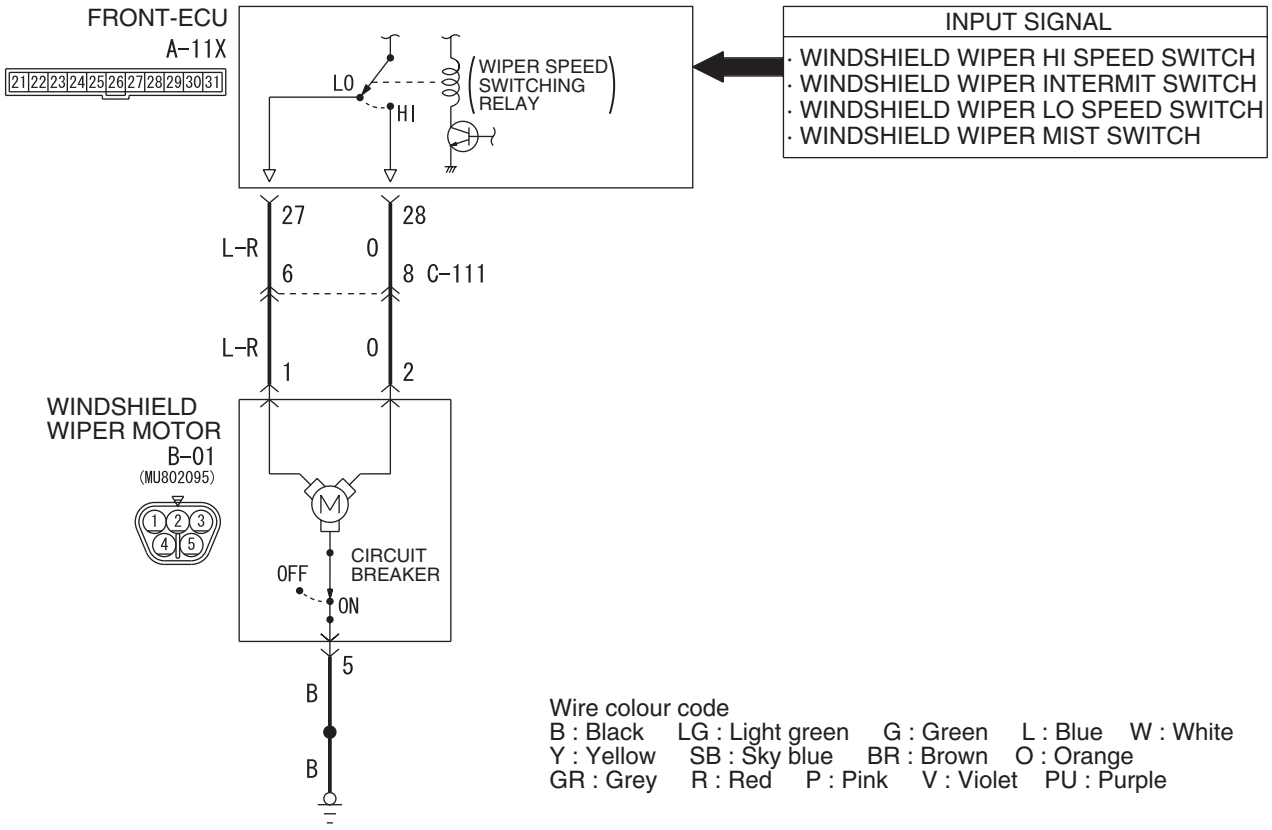
INSPECTION PROCEDURE G-4: The windshield wipers do not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Motor Drive Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White
Y : Yellow SB : Sky blue BR : Brown O : Orange
GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. SWS monitor communication data.
Check the SWS communication signal, which are related to the windshield wipers.

<Selected item> Column switch (column-ECU)
- Turn the ignition switch to the "ON" position.
- Move the windshield wiper switch to each position.

Item No.	Item name	Normal condition
Item 05	INT WIPER SW	ON
Item 06	LO WIPER SW	ON
Item 07	HI WIPER SW	ON
Item 08	MIST WIPER SW	ON

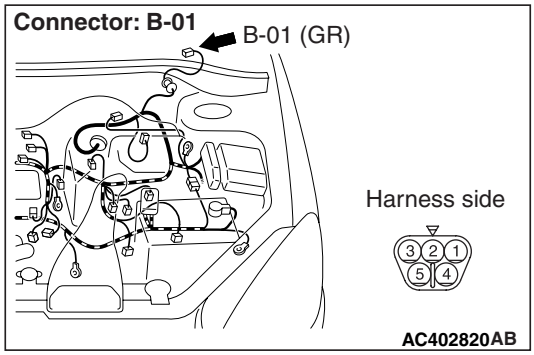
OK: Normal conditions are displayed for all the functions of the switch.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Replace the column switch

STEP 2. Check the operation of the windshield wipers.
Check that the windshield wipers work at high speed and the mist mode.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Go to Step 8.

STEP 3. Connector check: B-01 windshield wiper motor connector

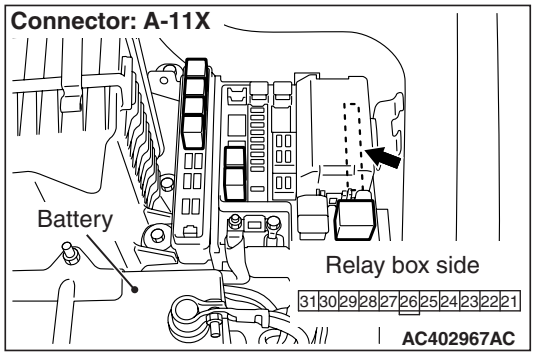


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

STEP 4. Check the windshield wiper motor assembly.
Refer to GROUP 51 –Windshield wiper P.51-25.

Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the windshield wiper motor assembly.

STEP 5. Connector check: A-11X front-ECU connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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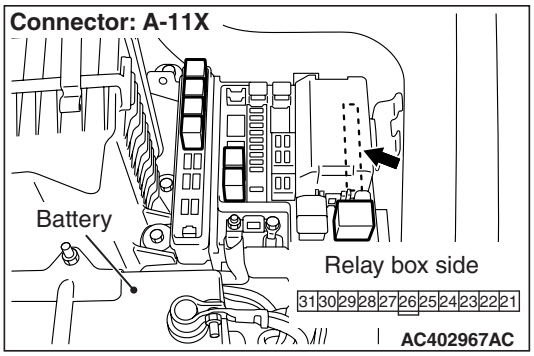
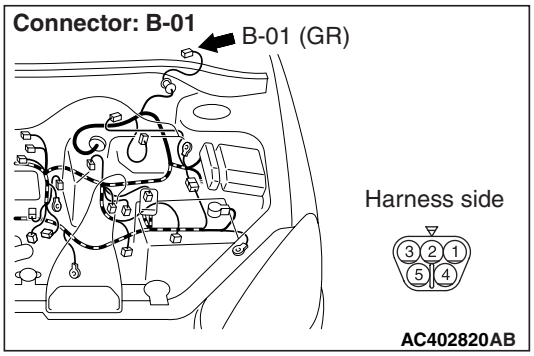
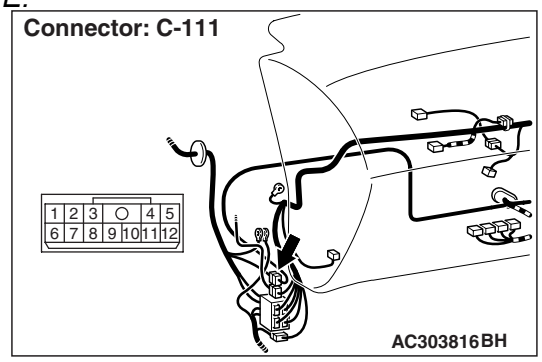
STEP 6. Check the wiring harness between A-11X front-ECU connector terminal No.27 and B-01 windshield wiper motor connector terminal No.1.





NOTE:



Prior to the wiring harness inspection, check the intermediate connector C-111, and repair if necessary.

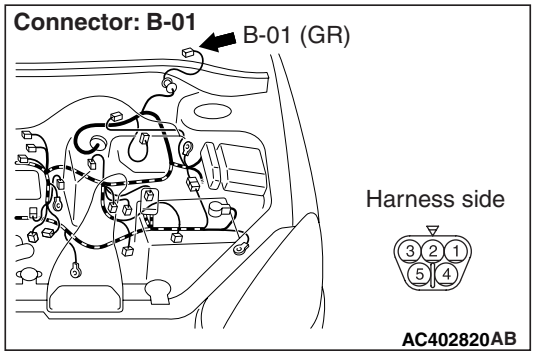
- Check the power supply line to front-ECU for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.
Check that the windshield wipers work normally by moving the switch to each position.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

STEP 8. Connector check: B-01 windshield wiper motor connector

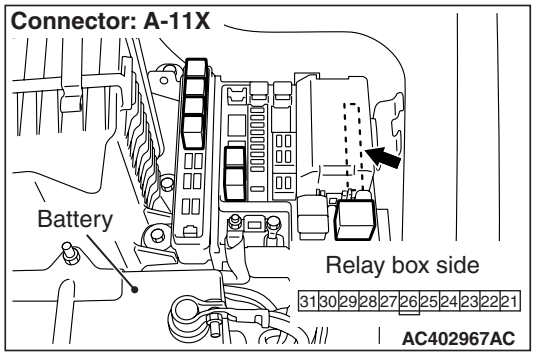


Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

STEP 9. Check the windshield wiper motor assembly.
Refer to GROUP 51 –Windshield wiper P.51-25.

Q: Is the check result normal?
YES : Go to Step 10
NO : Replace the windshield wiper motor assembly.

STEP 10. Connector check: A-11X front-ECU connector



Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

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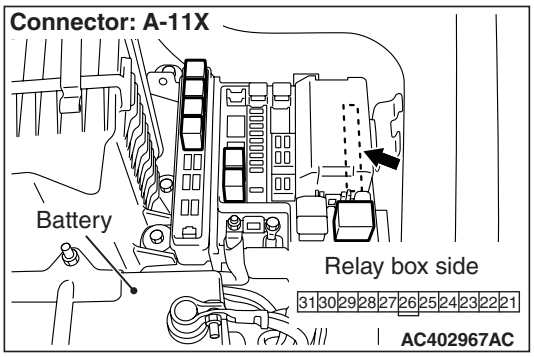
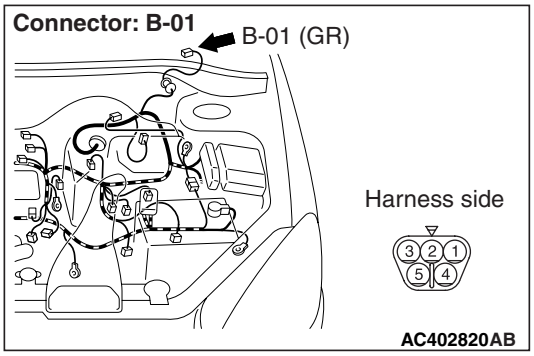
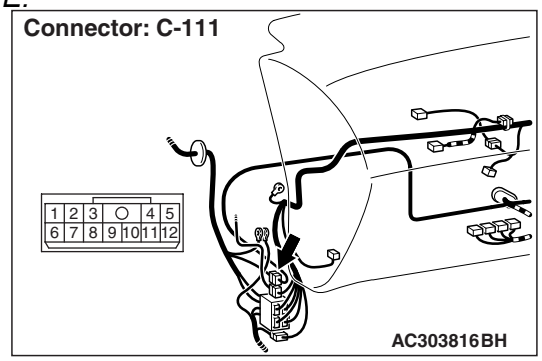
STEP 11. Check the wiring harness between A-11X front-ECU connector terminal No.28 and B-01 windshield wiper motor connector terminal No.2.





NOTE:



Prior to the wiring harness inspection, check the intermediate connector C-111, and repair if necessary.

- Check the power supply line to front-ECU for open circuit.

Q: Is the check result normal?
YES : Go to Step 12.
NO : Repair the wiring harness.

STEP 12. Retest the system.
Check that the windshield wipers work normally by moving the switch to each position.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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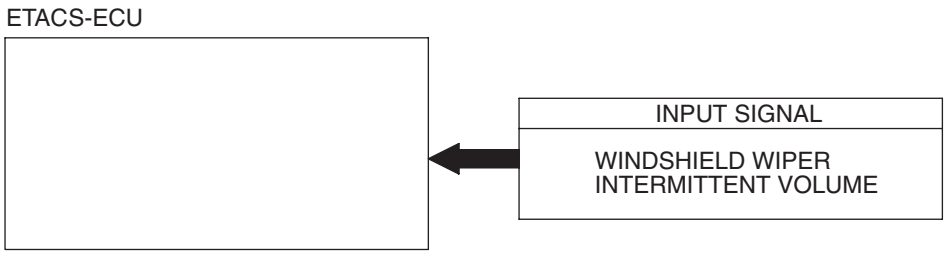
INSPECTION PROCEDURE G-5: The intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper volume control.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Wiper Intermittent Volume Input Signal



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COMMENTS ON TROUBLE SYMPTOM
The column switch or the front-ECU may be defective.

PROBABLE CAUSES
- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. SWS monitor data list.

<Selected item> ETACS ECU
- Turn the ignition switch to the "ACC" position.
- Turn the wiper switch to the "INT" position.

Item No.	Item name	Normal condition
Item 37	INT WIPE TIME	2.4 to 18.0 s

OK: The display will be changed as the intermittent wiper volume is rotated.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure M-7 "The windshield intermittent wiper volume signal is not received P.54C-218."

STEP 2. Retest the system.
Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

OK: The intermittent wiper interval is changed as the intermittent wiper volume is rotated.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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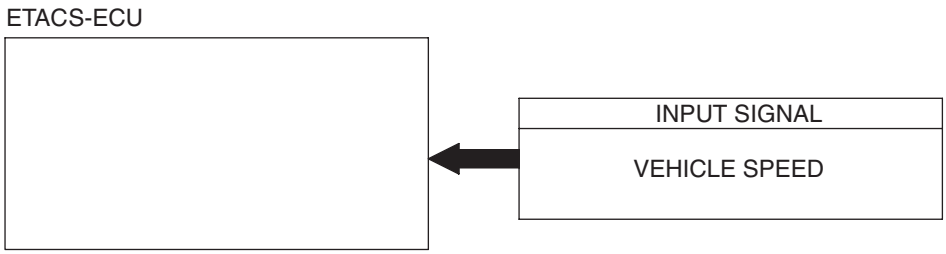
INSPECTION PROCEDURE G-6: The intermittent wiper interval is not changed according to the vehicle speed.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Vehicle Speed Input Signal



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU calculates the intermittent wiper interval according to the vehicle speed signal which is sent by the engine-ECU.
If the intermittent wiper interval does not depend on the vehicle speed, the input circuit of the vehicle speed signal and the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the vehicle speed signal (engine-ECU)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.
Check that the vehicles speed sensing function has been enabled by using the adjustment function.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Enable the vehicles speed sensing function by using the adjustment function. (Refer to P.54B-261).

STEP 2. Retest the system.
Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure G-5 "The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control P.54C-114."

STEP 3. Pulse check.
Check the vehicle speed sensor signal.

System switch	Check condition
Vehicle speed sensor signal	When the vehicle speed has reached 10 km/h or more

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to Inspection Procedure M-14 "The vehicle speed sensor signal is not received P.54C-241 <M/T>." Or refer to Inspection Procedure M-14 "The vehicle speed signal is not received P.54C-244 <A/T>."

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STEP 4. Retest the system.

Check that the intermittent wiper interval depends on the vehicle speed.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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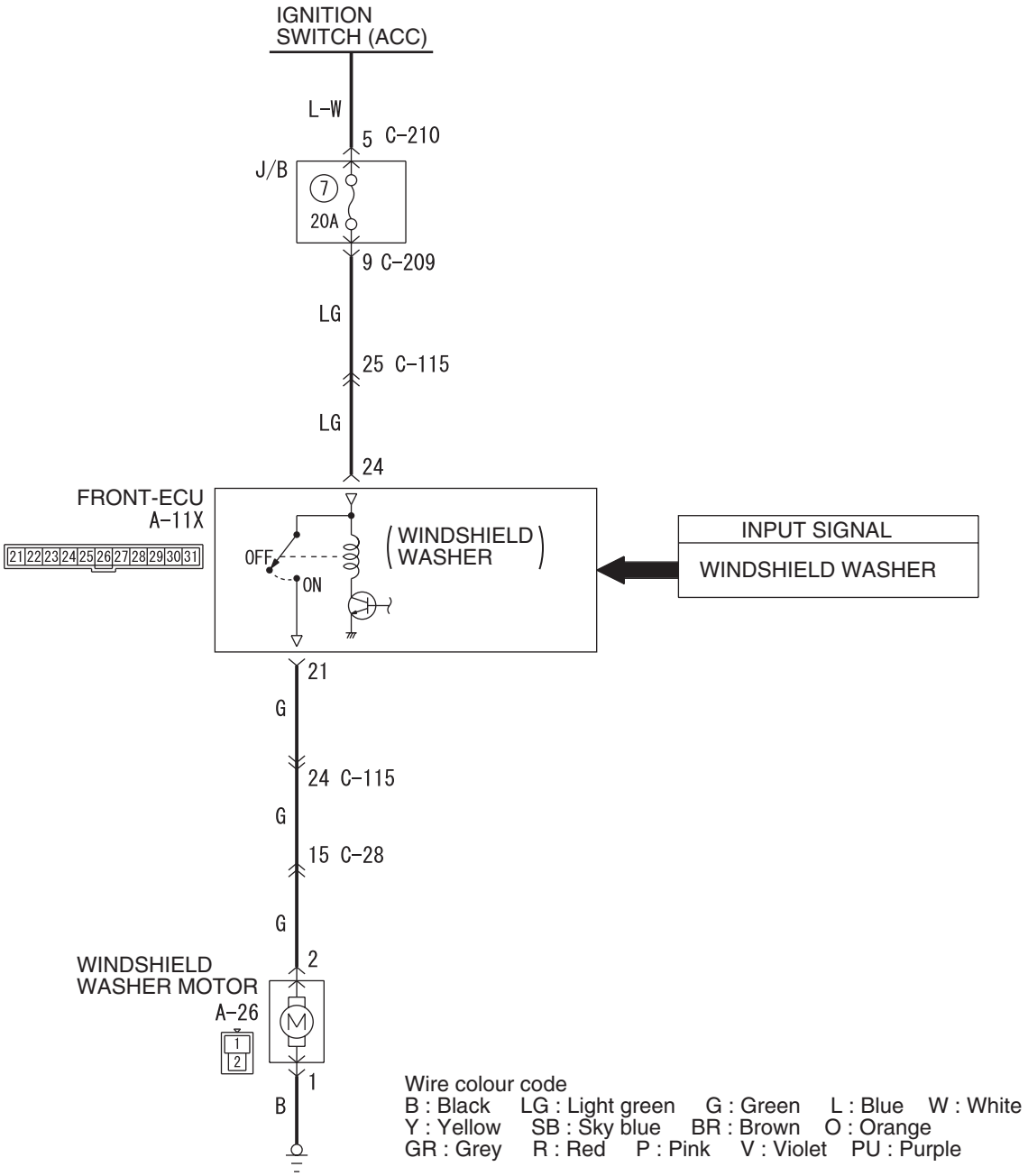
INSPECTION PROCEDURE G-7: The windshield washer does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Windshield Washer Motor Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Malfunction of the windshield washer motor
- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the windshield wipers.
Check that the windshield wipers work normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure G-1 "The windshield wipers do not work at all P.54C-100."

STEP 2. ECU check by using the SWS monitor
Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ACC" position.
(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 3.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

STEP 3. Function diagnosis by using the SWS monitor
Check the SWS communication signal, which are related to the windshield washer function.

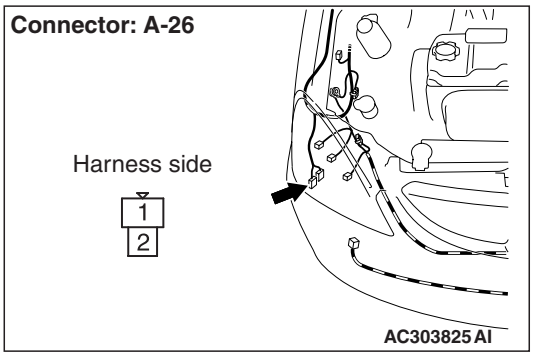
<Selected item> F.WIPER WASH
- Turn the ignition switch to the ACC position.
- Windshield washer switch: ON

Item No.	Item name	Normal condition
Item 09	FRONT WASH. SW	ON
Item 31	IG SW(ACC)	ON
Item 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES <Normal conditions are displayed for all the items> : Go to Step 4.
NO <Normal condition is not displayed for item No.09> : Replace the column switch.
NO <Normal condition is not displayed for item No.31> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54C-200."
NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

STEP 4. Connector check: A-26 windshield washer motor connector



Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

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STEP 5. Check the windshield washer motor assembly.

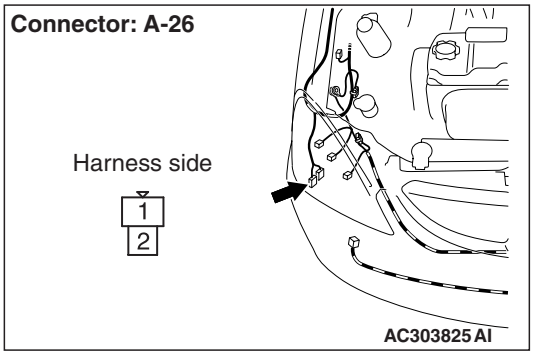
Refer to GROUP 51 –Windshield washer P.51-25.

Q: Is the check result normal?

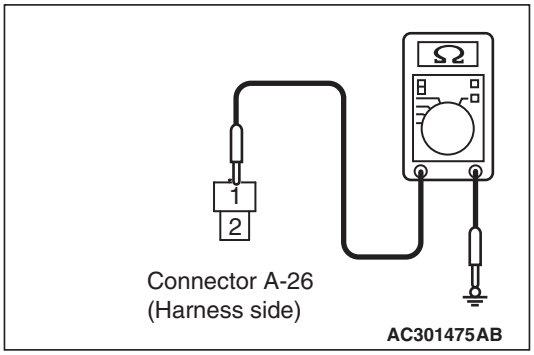
YES : Go to Step 6

NO : Replace the windshield washer motor.

STEP 6. Resistance measurement at the A-26 windshield washer motor connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Continuity between A-26 windshield washer motor connector terminal No.1 and body earth

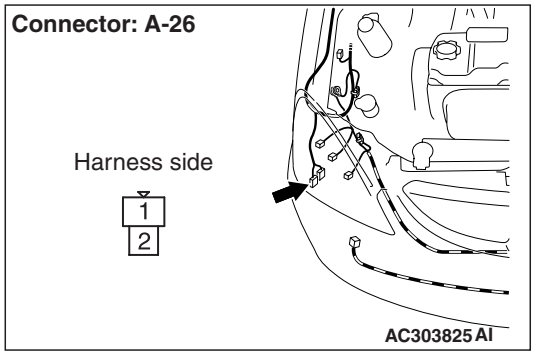
OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check the wiring harness between A-26 windshield washer motor connector terminal No.1 and body earth.



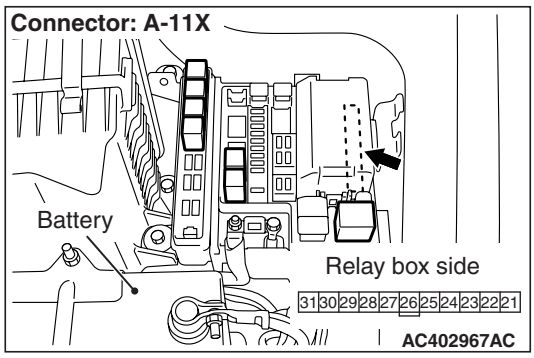
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 8. Connector check: A-11X front-ECU connector



Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the connector.

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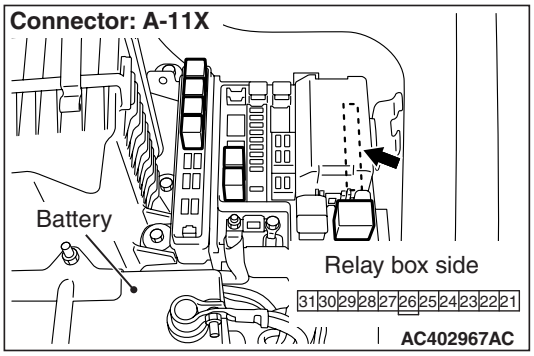
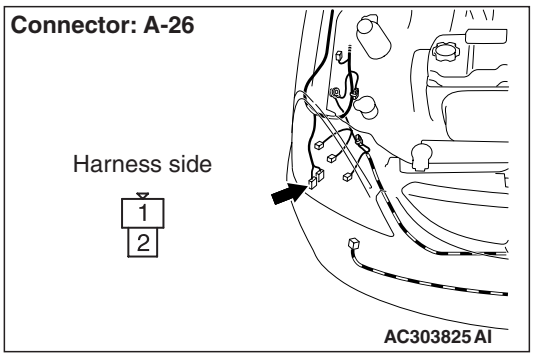
STEP 9. Check the wiring harness between A-26 windshield washer motor connector terminal No.2 and A-11X front-ECU connector terminal No.21.





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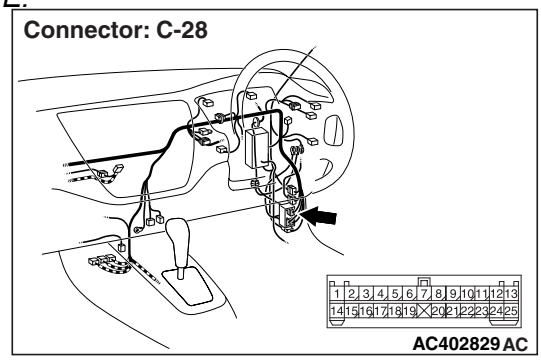

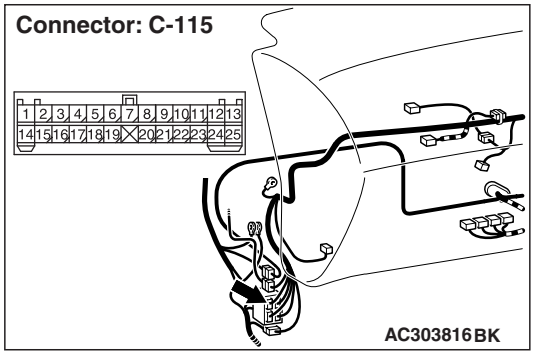

Prior to the wiring harness inspection, check the intermediate connector C-28, C-115 and repair if necessary.

- Check the power supply line from the ignition switch (ACC) for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 10. Retest the system.
The windshield washer should now work normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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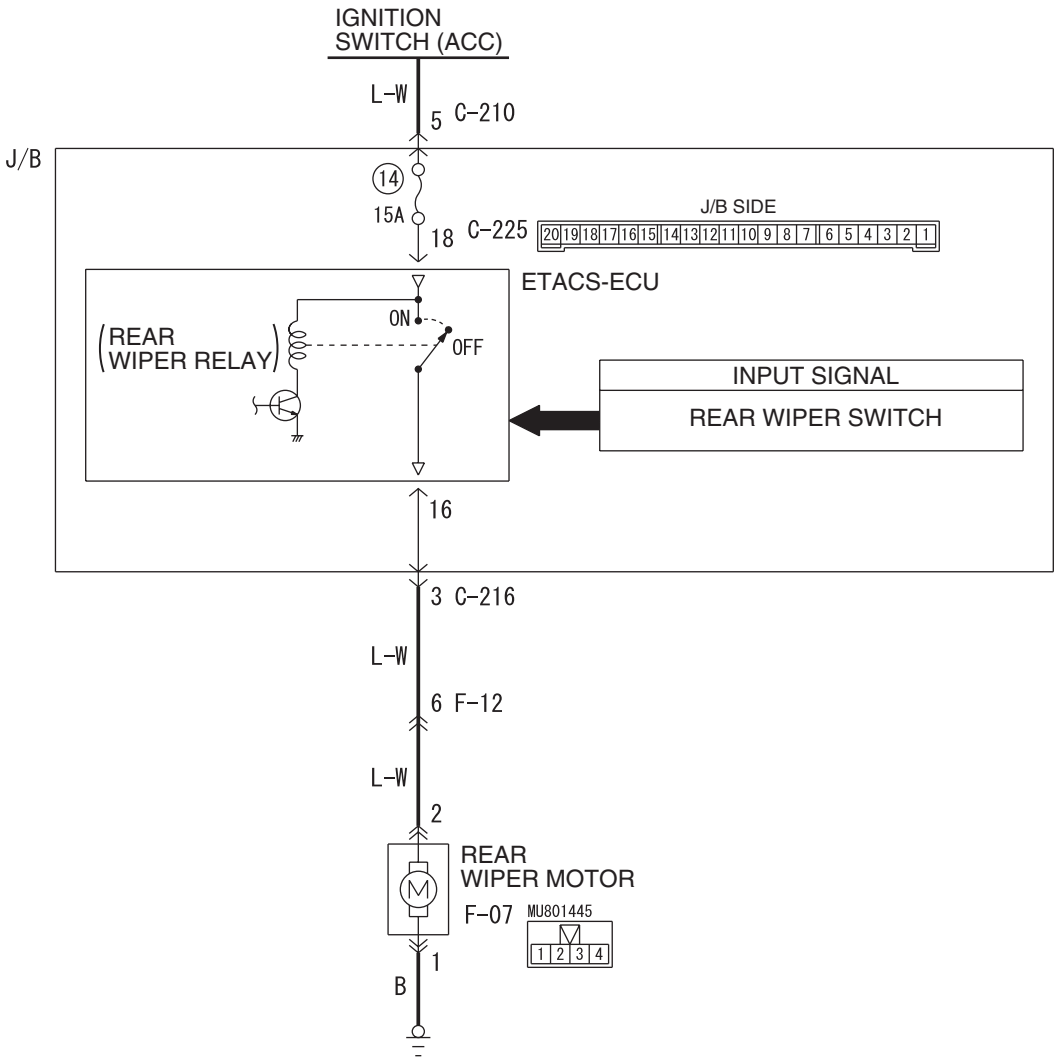
REAR WIPER AND WASHER

INSPECTION PROCEDURE H-1: The rear wiper does not work at all.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Wiper Drive Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not work normally, the input signal circuits to the components below, the rear wiper motor or the ETACS-ECU may be defective.

- Ignition switch (ACC)
- Rear wiper switch

PROBABLE CAUSES

- Malfunction of the rear wiper motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ACC" position.
(2) Check the following ECU.
- COLUMN ECU
- ETACS ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "ETACS ECU" menu> : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. Function diagnosis by using the SWS monitor
Check the SWS communication signal, which are related to the rear wiper function.

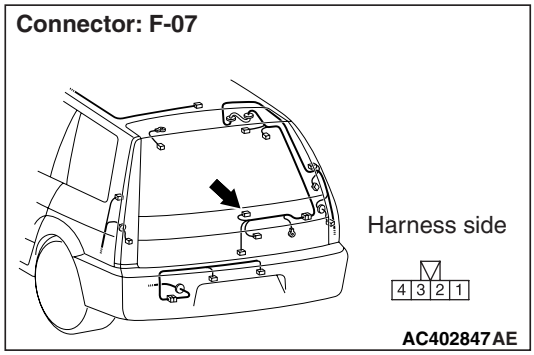
<Selected item> REAR WIPER
- Turn the ignition switch to the "ACC" position.
- Turn the rear wiper switch to the ON position.

Item No.	Item name	Normal condition
Item 13	REAR WIPER SW	ON
Item 31	IG SW(ACC)	ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES <Normal conditions displayed for all the items> : Go to Step 3.
NO <Normal condition is not displayed for item No.13> : Replace the column switch.
NO <Normal condition is not displayed for item No.31> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54C-200."

STEP 3. Connector check: F-07 rear wiper motor connector



Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

STEP 4. Check the rear wiper motor.
Refer to GROUP 51 –Rear wiper and washer P.51-30.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the rear wiper motor.

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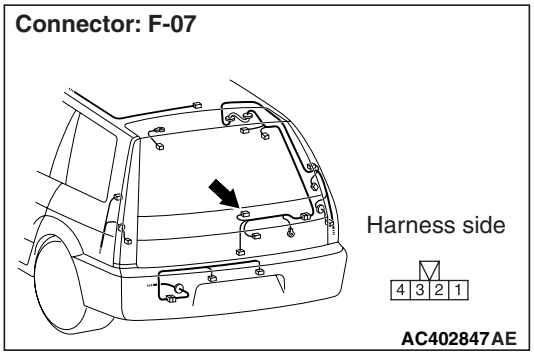
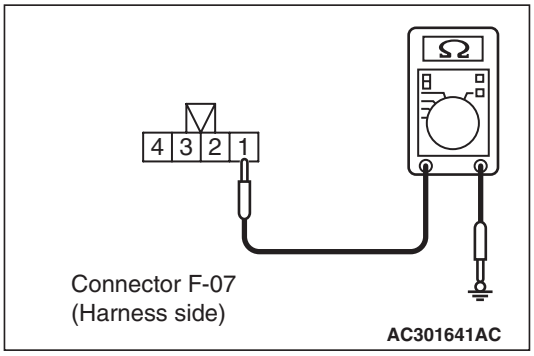
STEP 5. Resistance measurement at the F-07 rear wiper motor connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between F-07 rear wiper motor connector terminal No.1 and body earth

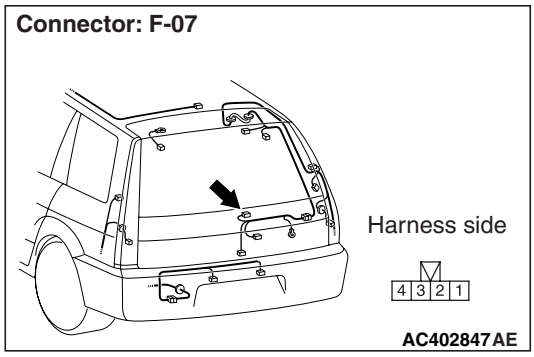
OK: 2 Ω or less

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between F-07 rear wiper motor connector terminal No.1 and body earth.



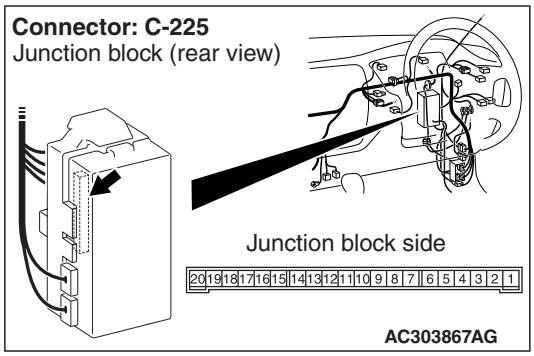
- Check the earth line for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector.

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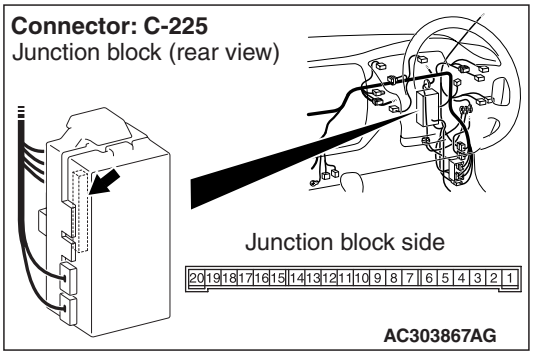
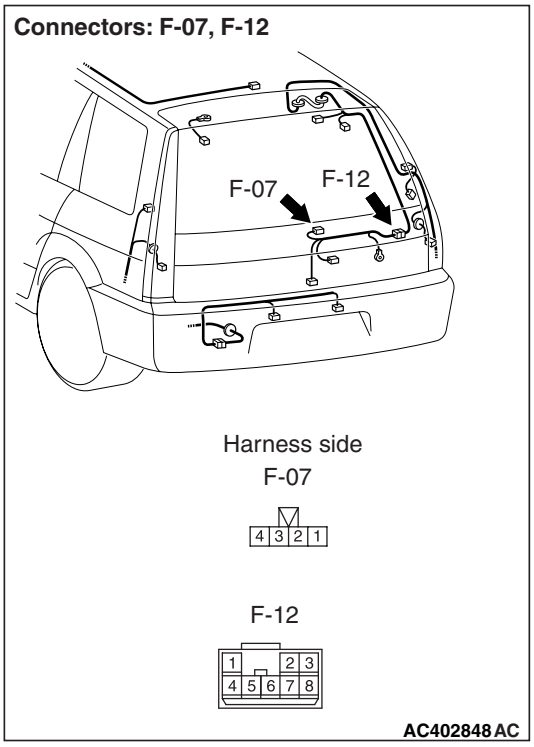
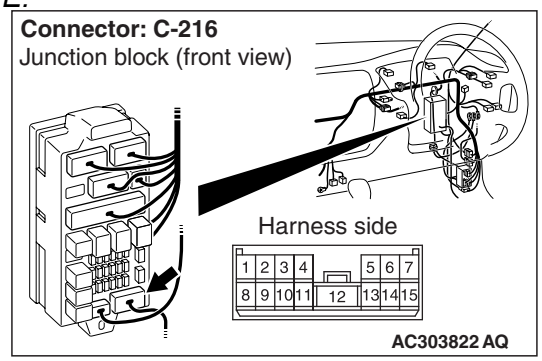
STEP 8. Check the wiring harness between C-225 ETACS-ECU connector terminal No.16 and F-07 rear wiper motor connector terminal No.2.





NOTE:



Prior to the wiring harness inspection, check intermediate connector F-02 <LHdrive vehicles>, F-12 and junction block connectors C-215 <LHdrive vehicles>, C-216 <RHdrive vehicles> and repair if necessary.

- Check the output line.

Q: 1Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

STEP 9. Retest the system.
Check that the rear wiper works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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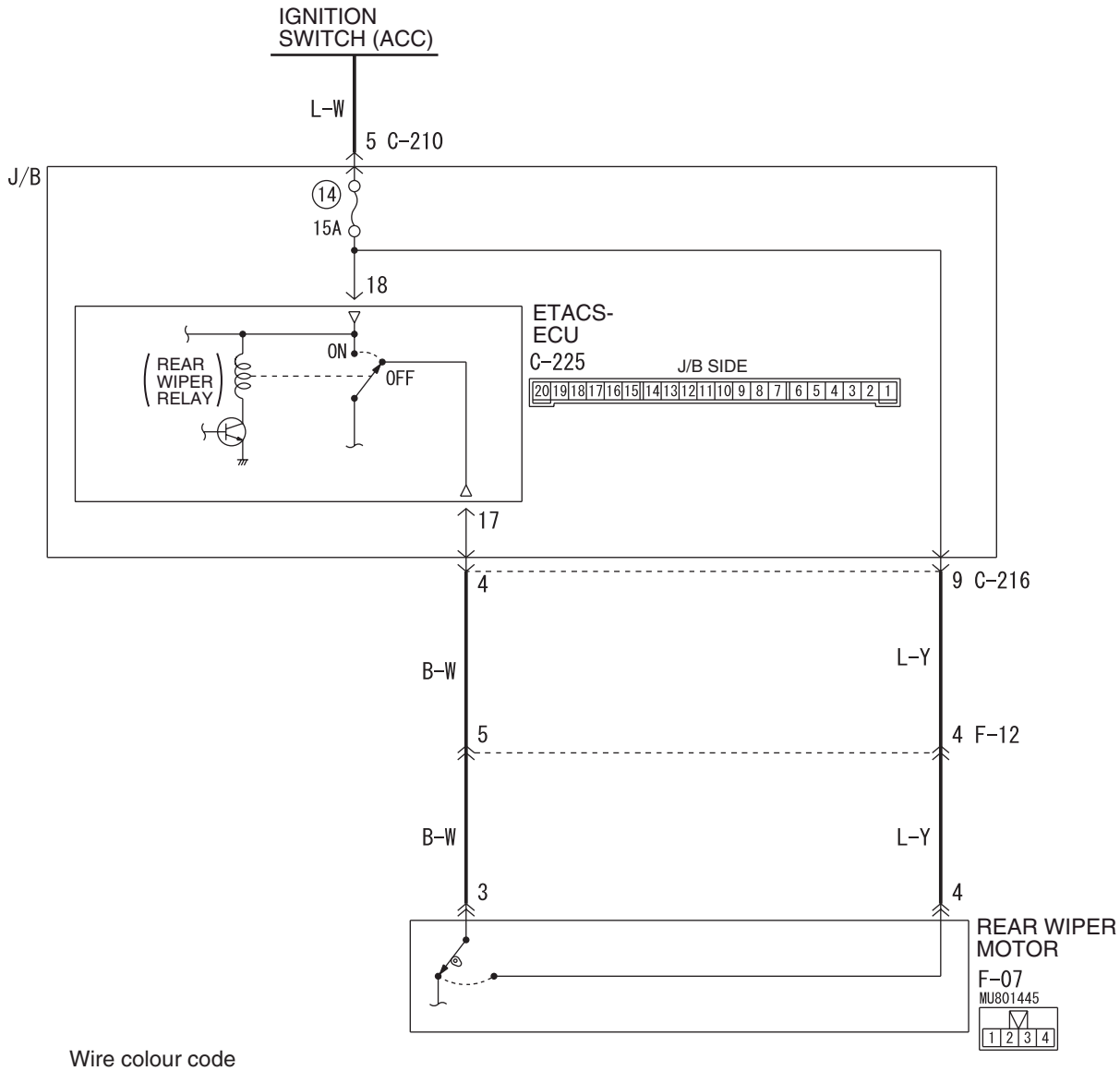
INSPECTION PROCEDURE H-2: The rear wiper does not stop at the specified park position.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Wiper Auto-stop Signal Input



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not stop normally within the predetermined range, the rear wiper motor or the ETACS-ECU may be defective.

PROBABLE CAUSES

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

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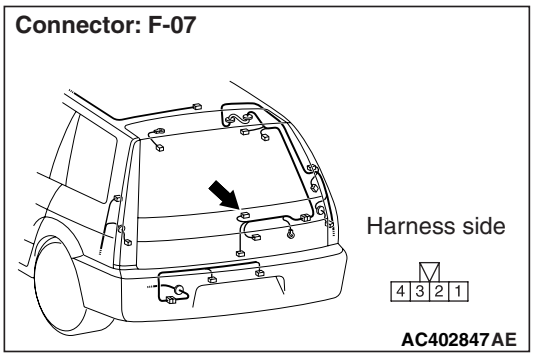
DIAGNOSIS PROCEDURE

STEP 1. Connector check: F-07 rear wiper motor connector



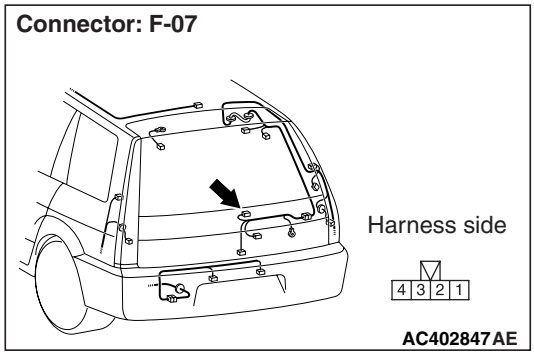
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the rear wiper motor.

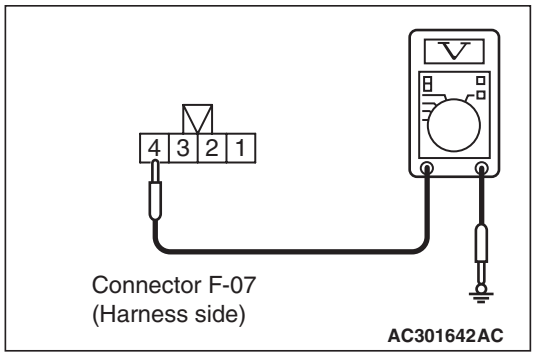
Refer to GROUP 51 –Rear wiper and washer P.51-30.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the rear wiper motor.

STEP 3. Voltage measurement at the F-07 rear wiper motor connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ACC" position.



(3) Check the voltage between F-07 rear wiper motor connector terminal No.4 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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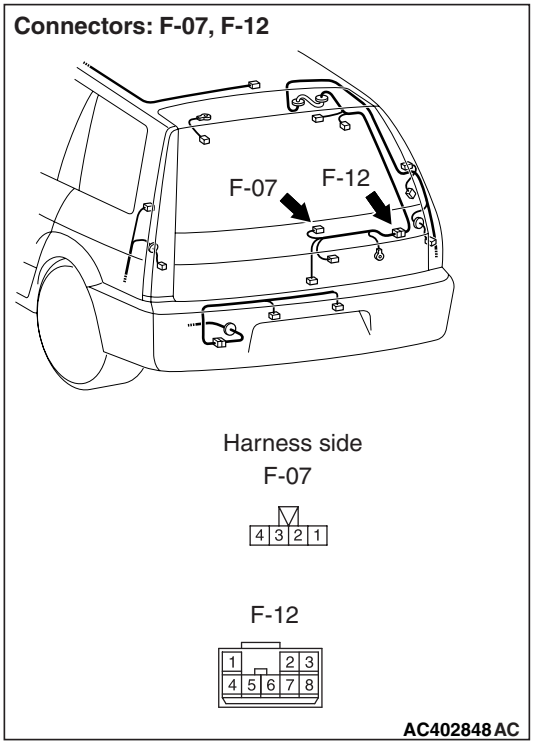
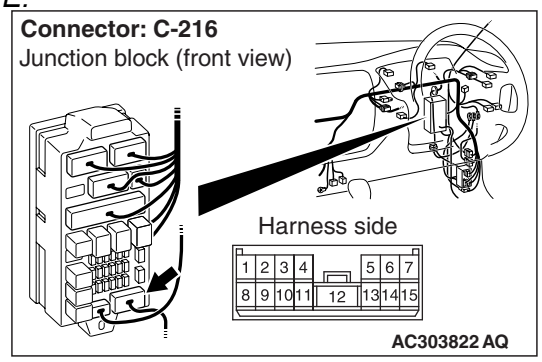
STEP 4. Check the wiring harness between ignition switch (ACC) and F-07 rear wiper motor connector terminal No.4.



NOTE:



Prior to the wiring harness inspection, check intermediate connector F-12 and junction block connector C-216 and repair if necessary.

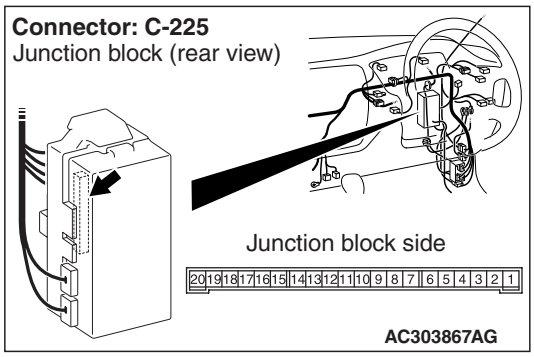
- Check the power supply line for open or short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

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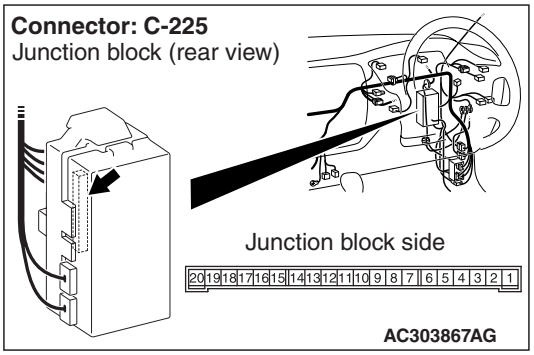
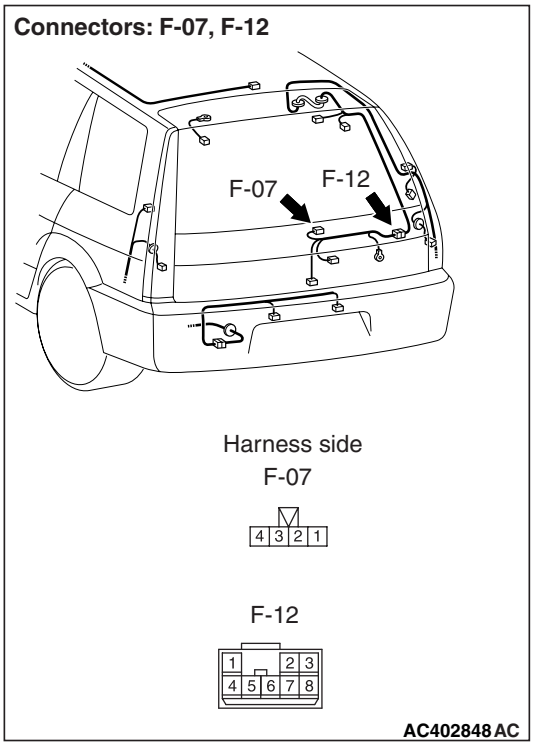
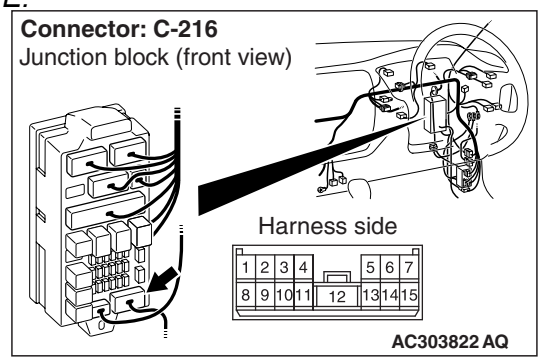
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.17 and F-07 rear wiper motor connector terminal No.3.





NOTE:



Prior to the wiring harness inspection, check intermediate connector F-12 and junction block connector C-216 and repair if necessary.

- Check the power supply line for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.
Check that the rear wiper auto stop function works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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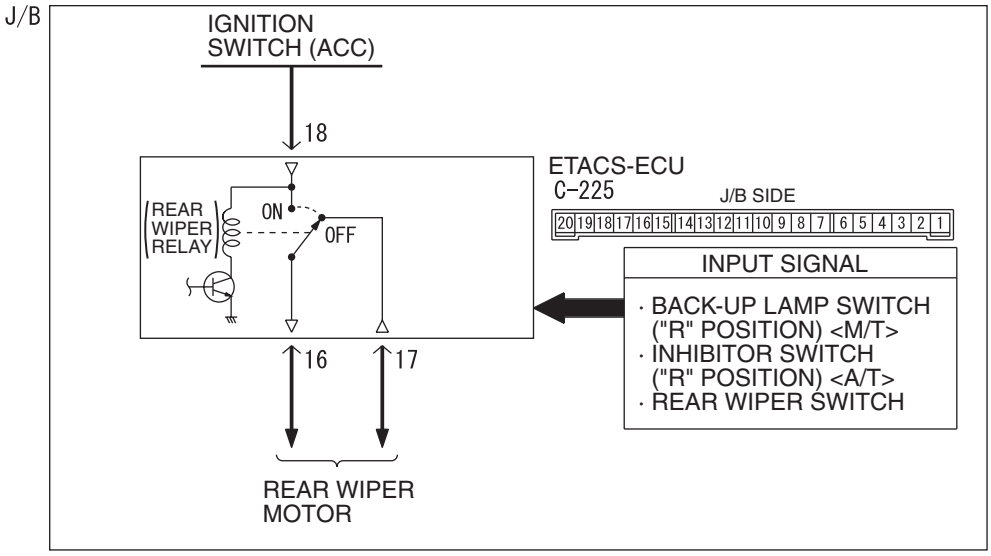
INSPECTION PROCEDURE H-3: When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

"R" Position During Rear Wiper Operation Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not operate consecutively when the shift lever <M/T> or selector lever <A/T> is moved to the "R" position during the rear wiper operation, the input signal circuit to the back-up lamp switch ("R" position) <M/T>, the inhibitor switch (reverse position) <A/T> or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the back-up lamp switch <M/T>
- Malfunction of the inhibitor switch <A/T>
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Function diagnosis by using the SWS monitor

Check the SWS communication signal, which are related to the R (reverse) gear-linked rear wiper operation.

<Selected item> REAR WIPER - REV. INTERLOCK

- Turn the ignition switch to the "ON" position.
- Turn the rear wiper switch to the ON position.
- Move the shift lever <M/T> or selector lever <A/T> to the "R" position.

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure M-3 "The back-up lamp switch signal is not received P.54C-204 <M/T>. " Refer to inspection procedure M-3 "The inhibitor switch (reverse position) signal is not received P.54C-208 <A/T>."

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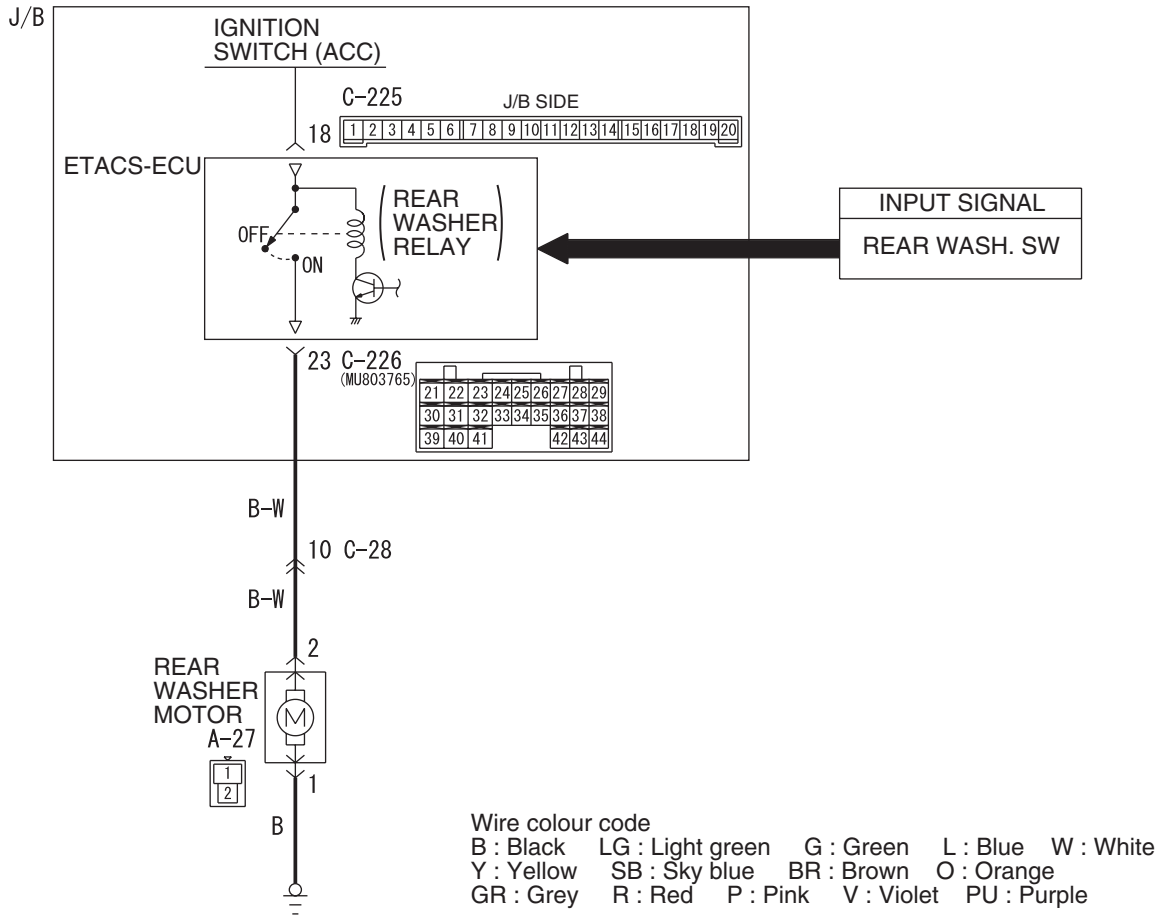
STEP 2. Retest the system.
Check that the rear wiper operates consecutively when the shift position is moved to the R position during the rear wiper operation.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE H-4: The rear washer does not work.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Rear Washer Drive Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the rear washer does not work normally, the input signal circuits to the rear washer switch, rear washer motor or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the rear washer motor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Confirm the operation of the rear wiper.
Check that the rear wiper work normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure H-1 "The rear wiper does not work at all P.54C-121."

STEP 2. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the rear washer function.

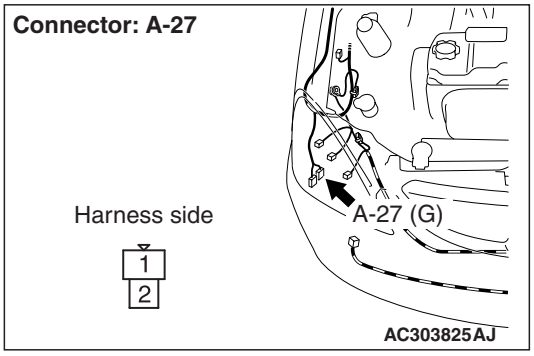
<Selected item> REAR WIPER-REAR WASHER
- Turn the ignition switch to the "ACC" position.
- Turn the rear washer switch to the ON position.

Item No.	Item name	Normal condition
Item 14	REAR WASH. SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54C-216."

STEP 3. Connector check: A-27 rear washer motor connector

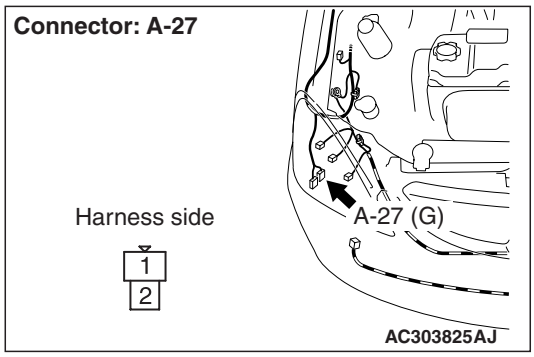


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

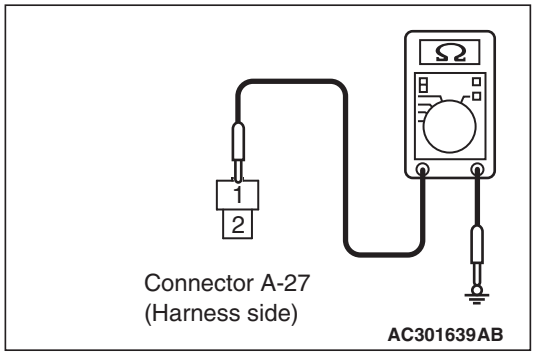
STEP 4. Check the rear washer motor.
Refer to GROUP 51 –Rear wiper and washer P.51-30.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the rear washer motor.

STEP 5. Resistance measurement at the A-27 rear washer motor connector



(1) Disconnect the connector, and measure at the wiring harness side.

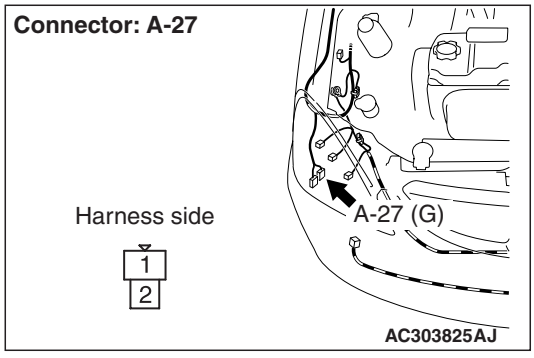


(2) Resistance between A-27 rear washer motor connector terminal No.1 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check the wiring harness between A-27 rear washer motor connector terminal No.1 and body earth.



- Check the earth line for open or short circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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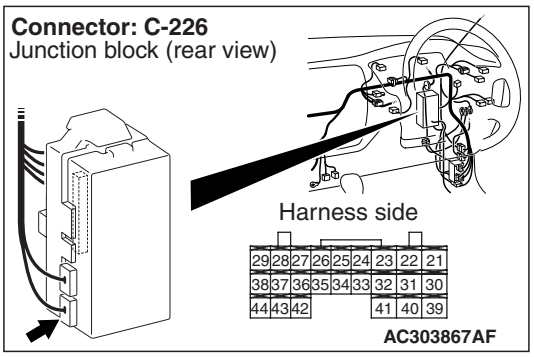
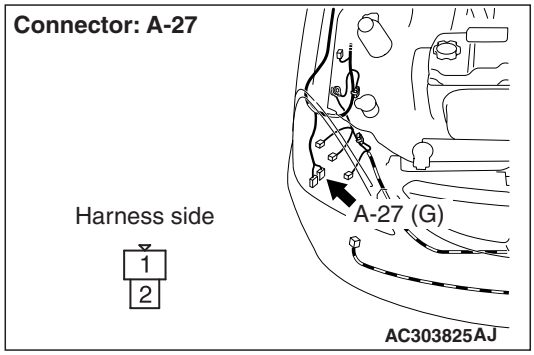
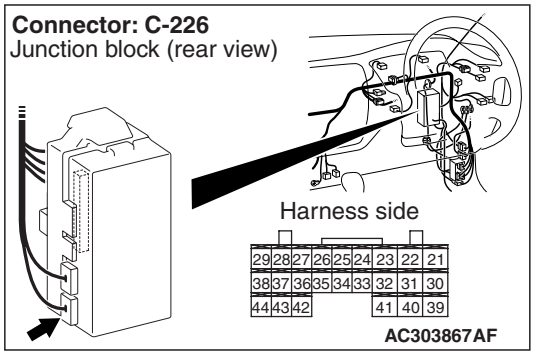
STEP 7. Connector check: C-226 ETACS-ECU connector



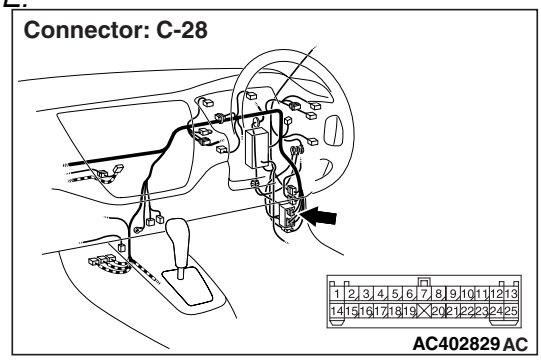
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

STEP 8. Check the wiring harness between C-226 ETACS-ECU connector terminal No.23 and A-27 rear washer motor connector terminal No.2.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-28 and repair if necessary.

- Check the output signal line.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

STEP 9. Retest the system.

Check that the rear washer works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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HEADLAMP AND TAIL LAMP

INSPECTION PROCEDURE I-1: The headlamps do not illuminate when the lamping switch is at "TAIL" or "PASSING" position, but illuminate only at low beam when the switch is at "HEAD" position. However, the headlamps do not illuminate at high beam.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the headlamps illuminate only at low beam regardless of the lighting switch position, the headlamp fail-safe function may be activated.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

STEP 2. Retest the system.
Check that the headlamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the column switch.

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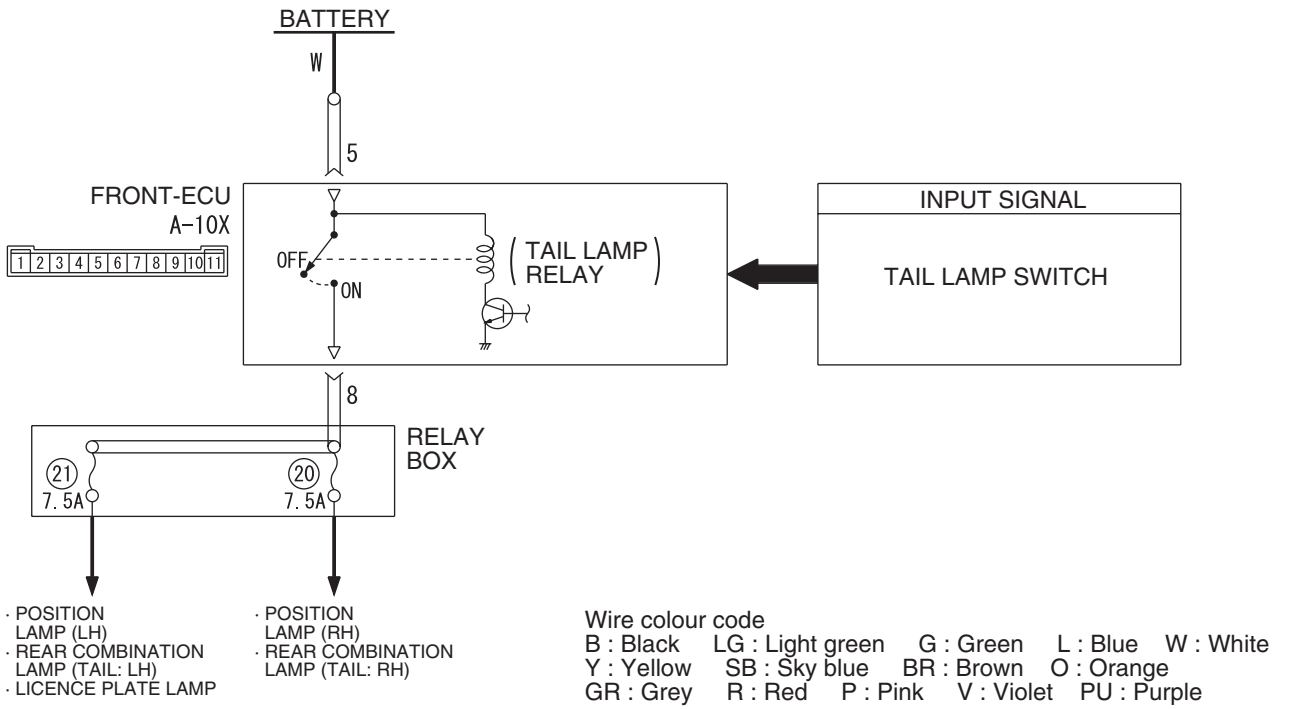
INSPECTION PROCEDURE I-2: The tail lamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Tail Lamp Relay Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White
Y : Yellow SB : Sky blue BR : Brown O : Orange
GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If all the tail lamps do not illuminate, the tail lamp switch input circuit or the front-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

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STEP 2. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the tail lamps.

<Selected item> LIGHTING - TAIL LAMP

- Turn the ignition switch to the "ON" position.
- Turn the lighting switch to the "TAIL" position.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON when the lighting switch is at HEAD
Item 01	TAIL LAMP SW	ON when the lighting switch is at TAIL
Item 03	PASSING SW	OFF
Item 30	IG SW(IG1)	ON
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

Q: Is the check result normal?

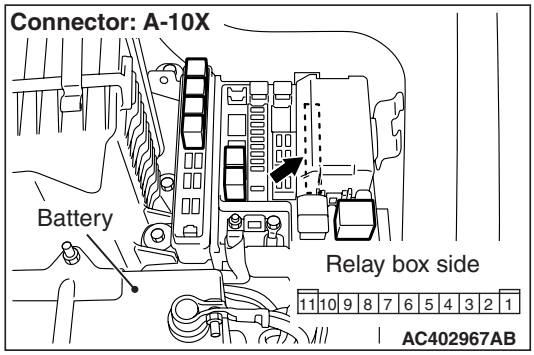
YES <Normal conditions are displayed for all the items> : Go to Step 3.

NO <Normal condition is not displayed for item 00, 01 or 03> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

STEP 3. Connector check: A-10X front-ECU connector

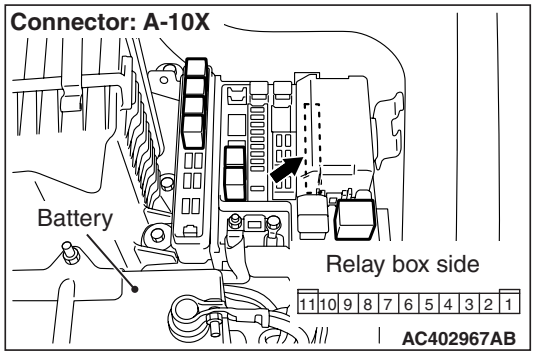


Q: Is the check result normal?

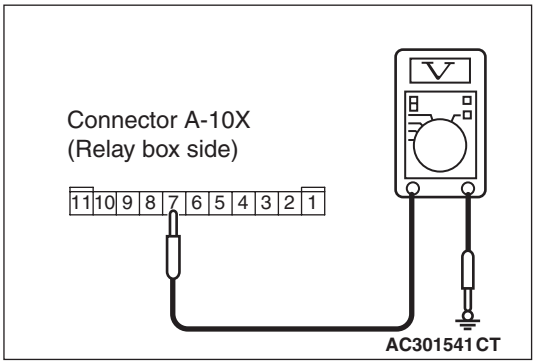
YES : Go to Step 4.

NO : Repair the defective connector.

STEP 4. Voltage measurement at A-10X front-ECU connector



(1) Remove the front-ECU, and measure at the relay box side.



(2) Voltage between A-10X front-ECU connector terminal No.7 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

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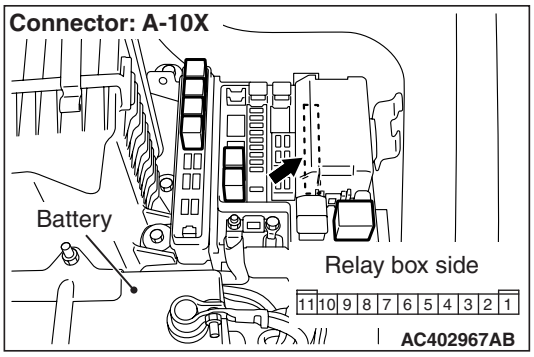
STEP 5. Check the wiring harness between A-10X front-ECU connector terminal No.7 and the battery.



- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

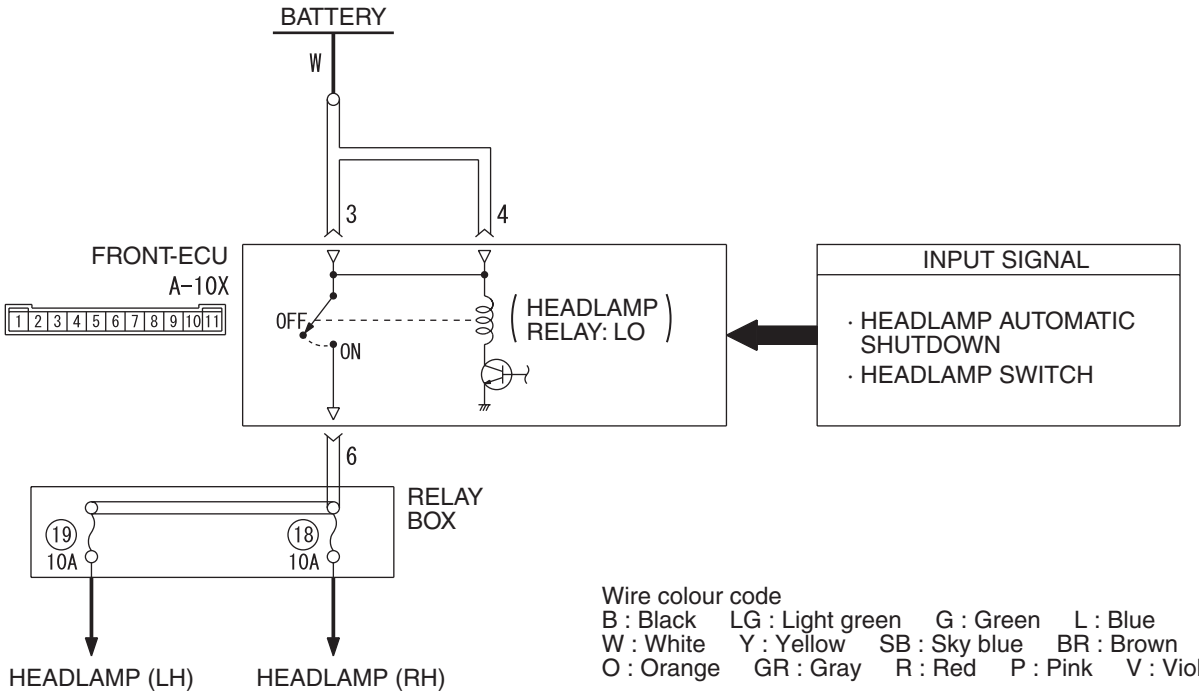
STEP 6. Retest the system.
Check that the tail lamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

INSPECTION PROCEDURE I-3: The low-beam headlamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamp Relay (Low-Beam) Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue
W : White Y : Yellow SB : Sky blue BR : Brown
O : Orange GR : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

If the low-beam headlamps do not illuminate, the headlamp switch input circuit or the front-ECU may be defective.

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PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.

Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.

(2) Check the following ECU.

- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?

YES <"OK" is displayed for all the items> : Go to Step 2.

NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."

NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

STEP 2. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the low-beam headlamps.

<Selected item> LIGHTING - HEADLAMP LO

- Turn the ignition switch to the "ON" position.
- Turn the lighting switch to the "HEAD" position.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON
Item 03	PASSING SW	OFF
Item 30	IG SW(IG1)	ON
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

Q: Is the check result normal?

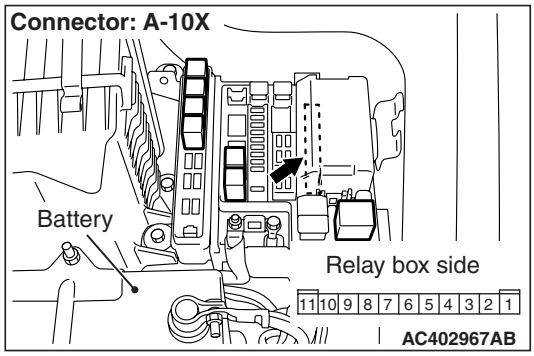
YES <Normal conditions are displayed for all the items> : Go to Step 3.

NO <Normal condition is not displayed for item 00 or 03> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

STEP 3. Connector check: A-10X front-ECU connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

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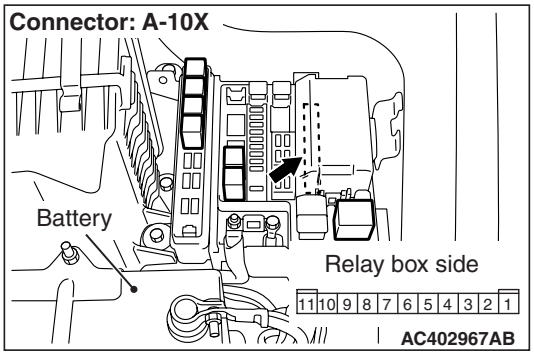
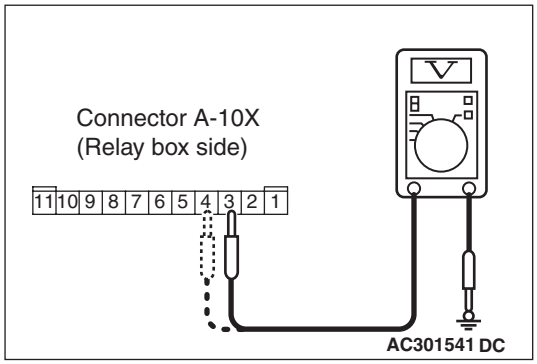
STEP 4. Voltage measurement at A-10X front-ECU connector



(1) Remove the front-ECU, and measure at the relay box side.

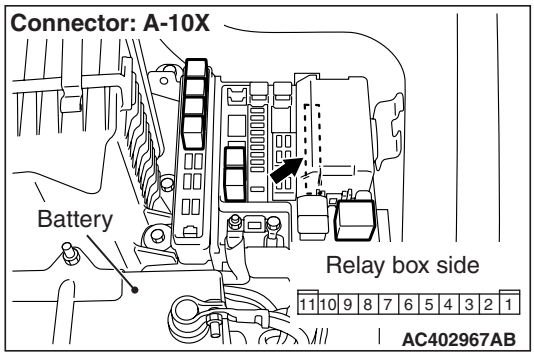


(2) Voltage between A-10X front-ECU connector terminal Nos. 3, 4 and body earth

OK: System voltage

Q: Are the check results normal?
YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between A-10X front-ECU connector terminal Nos. 3, 4 and the battery.



- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 6. Retest the system.
Check that the low-beam headlamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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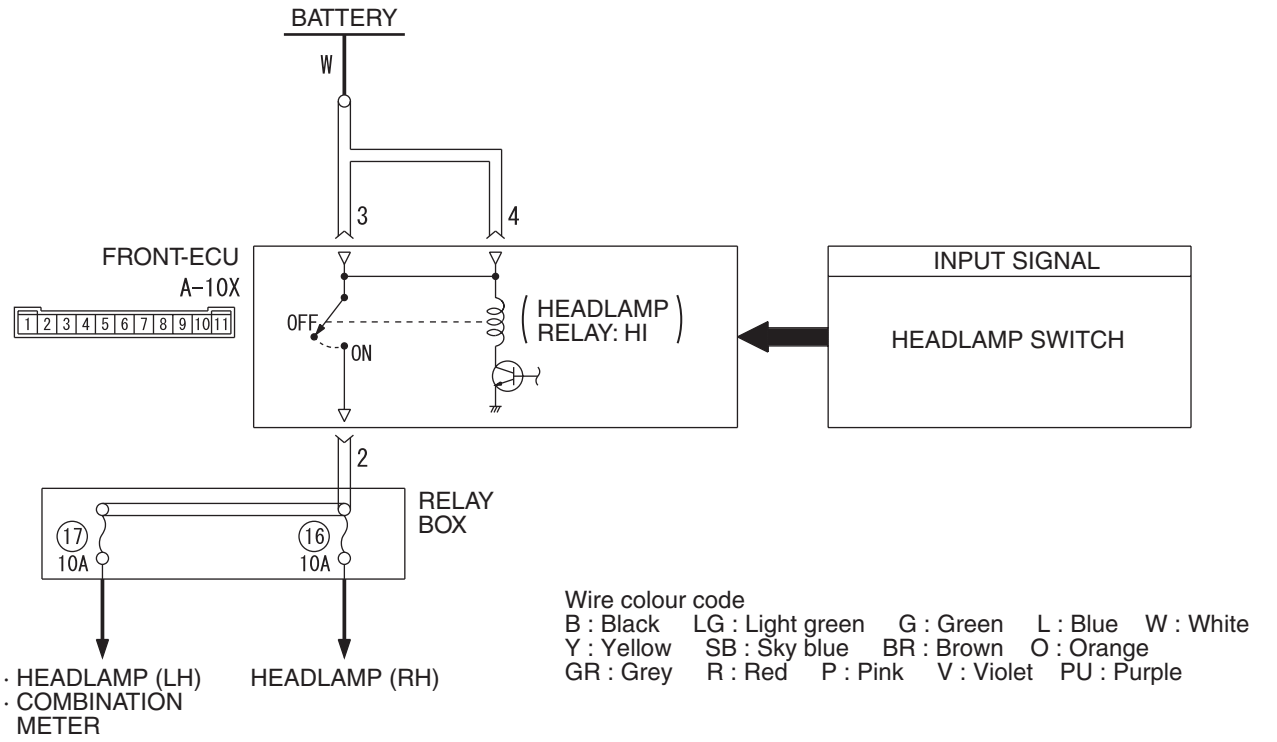
INSPECTION PROCEDURE I-4: The high-beam headlamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamp Relay (High-Beam) Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the high-beam headlamps do not illuminate, the dimmer switch input circuit or the front-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the OFF position.
(2) Check the following ECU.
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 2.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

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STEP 2. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the high-beam headlamps.

<Selected item> LIGHTING - HEADLAMP HI

- Turn the ignition switch to the "ON" position.
- Turn the lighting switch to the "HEAD" position.
- Operate the dimmer switch from OFF to ON, and then to OFF again.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON
Item 02	DIMMER SW	from OFF to ON, and then to OFF again ("ON" should be displayed when the dimmer switch is operated)
Item 03	PASSING SW	OFF
Item 30	IG SW(IG1)	ON
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

Q: Is the check result normal?

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

NO <Normal condition is not displayed for item 00, 02 or 03> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

STEP 3. Retest the system.

Check that the high-beam headlamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the front-ECU.

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INSPECTION PROCEDURE I-5: The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

COMMENTS ON TROUBLE SYMPTOM

If the low-beam and high-beam headlamps are normal, the passing switch input signal circuit or the front-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the headlamps.
Check that the low-beam and high-beam headlamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure I-3 "The low-beam headlamps do not illuminate normally P.54C-136." And refer to inspection procedure I-4 "The high-beam headlamps do not illuminate normally P.54C-139."

STEP 2. Check the SWS monitor data list.
Check the ETACS-ECU signals which are related to the headlamps.

<Selected item> COLUMN ECU
- Operate the passing lamp switch.

Item No.	Item name	Normal condition
Item 03	PASSING SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

STEP 3. Retest the system.
When the passing switch is turned on, check if the headlamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the front-ECU.

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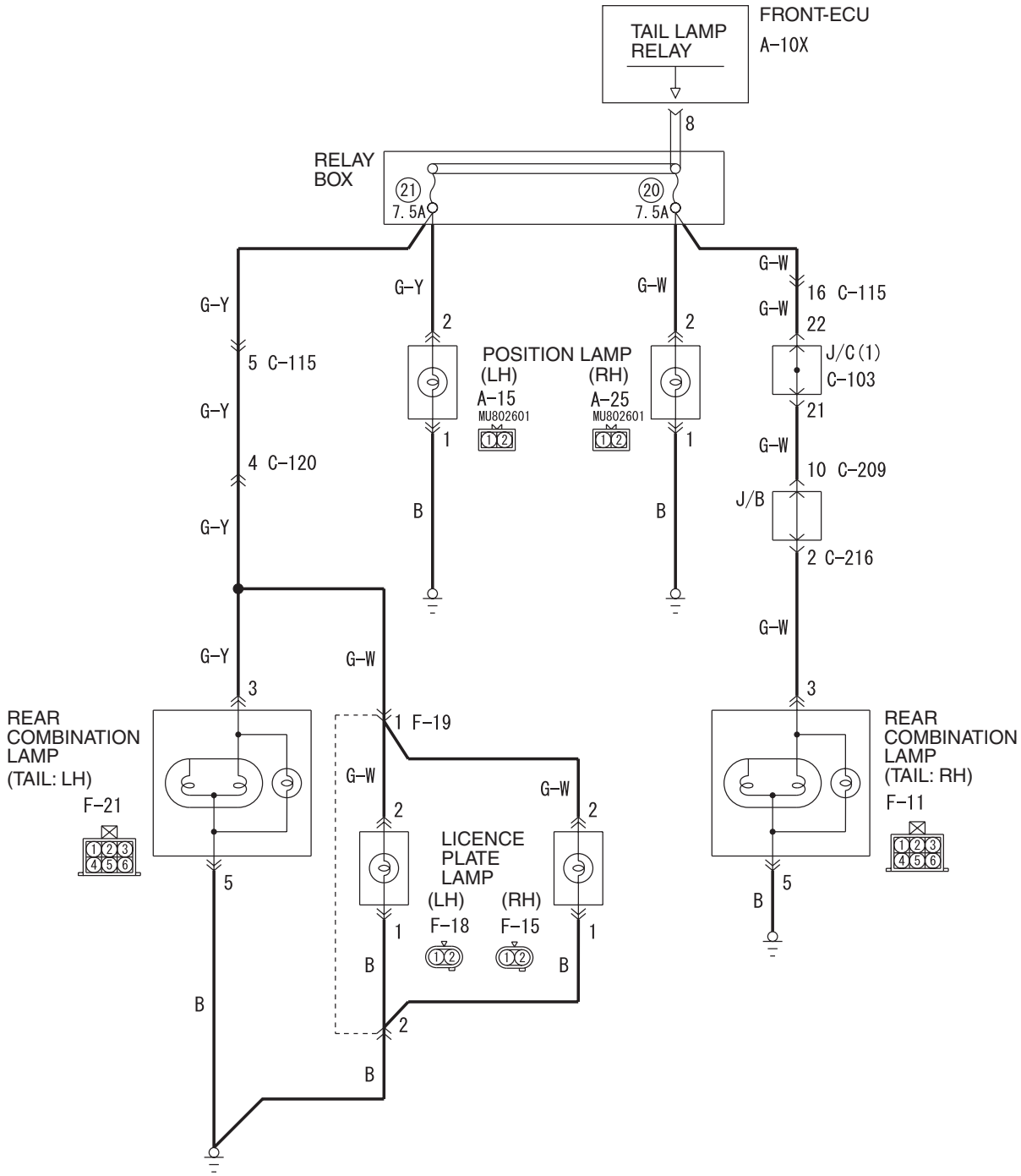
INSPECTION PROCEDURE I-6: Any of tail lamps, position lamps or licence plate lamps does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Tail Lamps, Position Lamps and Licence Plate Lamps Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the tail lamps, the position lamps or the licence plate lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

PROBABLE CAUSES

- Burned-out bulb
- Damaged harness wires and connectors

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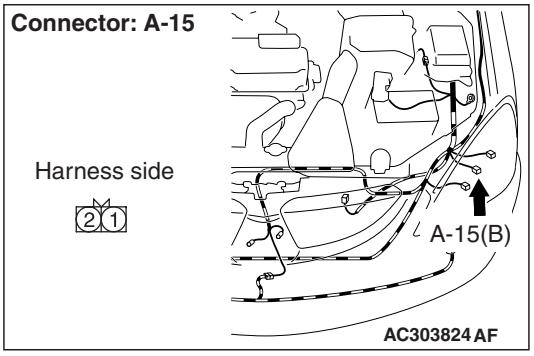
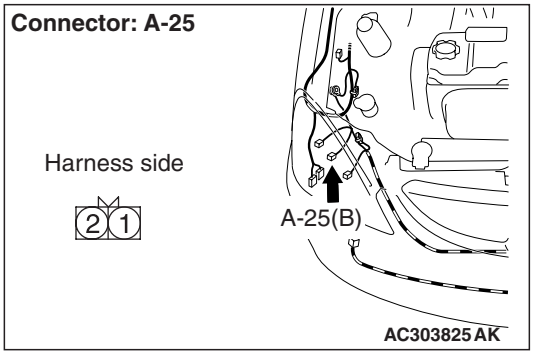
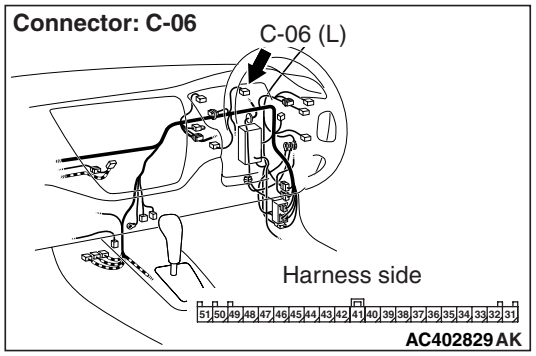
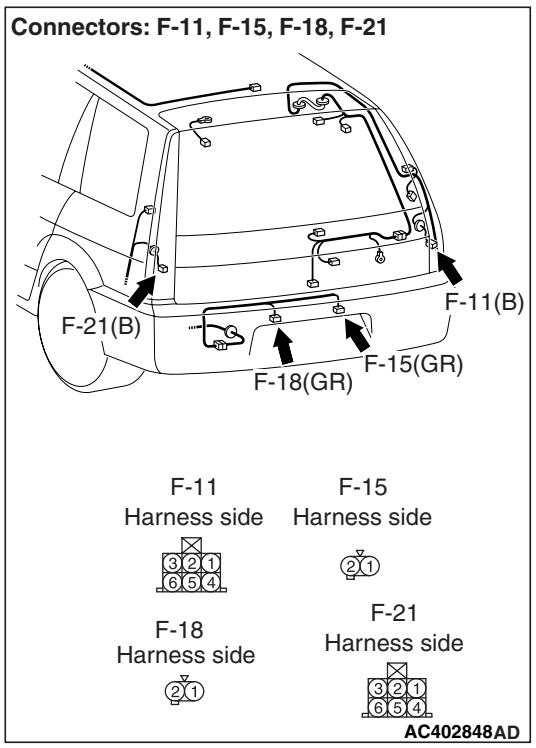
DIAGNOSIS PROCEDURE

STEP 1. Connector check: F-21 <tail lamp LH> or F-11 <tail lamp RH> rear combination lamp connector, A-15 <position lamp LH> or A-25 <position lamp RH> position lamp connector, F-18 <licence plate lamp LH> or F-15 <licence plate lamp RH> licence plate lamp connector, C-06 <tail lamp indicator> combination meter connector









Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the bulbs of the tail lamps, the position lamp, the licence plate lamp or tail lamp indicator.
Check the bulb of the lamp which does not illuminate.

Q: Is the check result normal?
YES <The lamps except the tail lamp indicator do not Illuminate> : Go to Step 5.
YES <The tail lamp indicator does not Illuminate> : Go to Step 3.
NO : Replace the bulb of the lamp which does not illuminate.

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STEP 3. Check the rheostat.

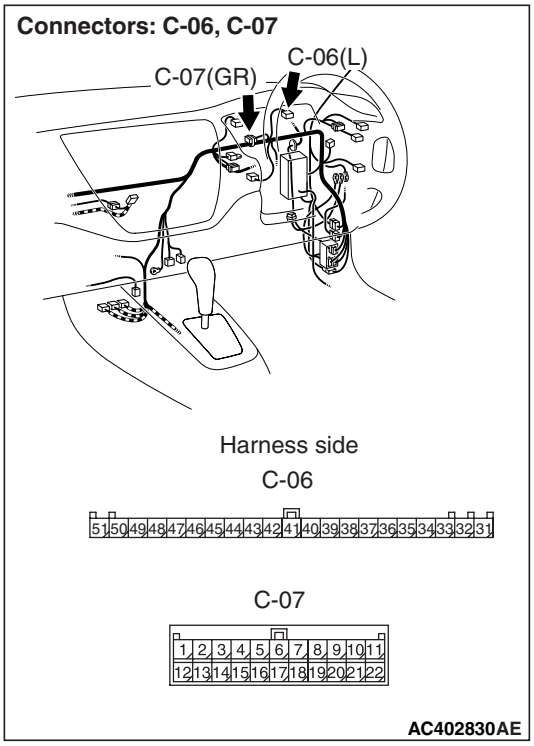
Check that the brightness of the other indicator changes when the rheostat is operated.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the rheostat.

STEP 4. Check the wiring harness from C-06 <tail lamp indicator> combination meter connector terminal No.40 to rheostat.



NOTE: Prior to the wiring harness inspection, check joint connector C-07 and repair if necessary.

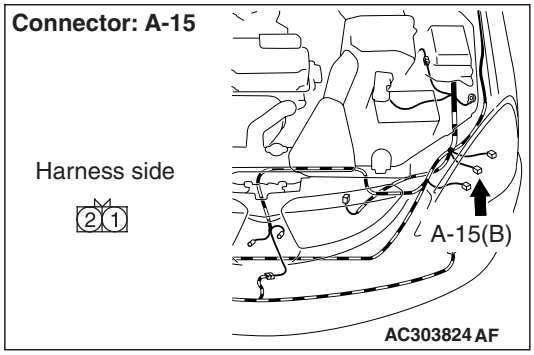
- Check the earth wires for open circuit.

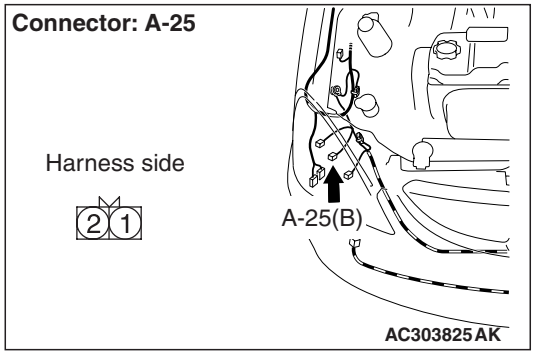
Q: Is the check result normal?

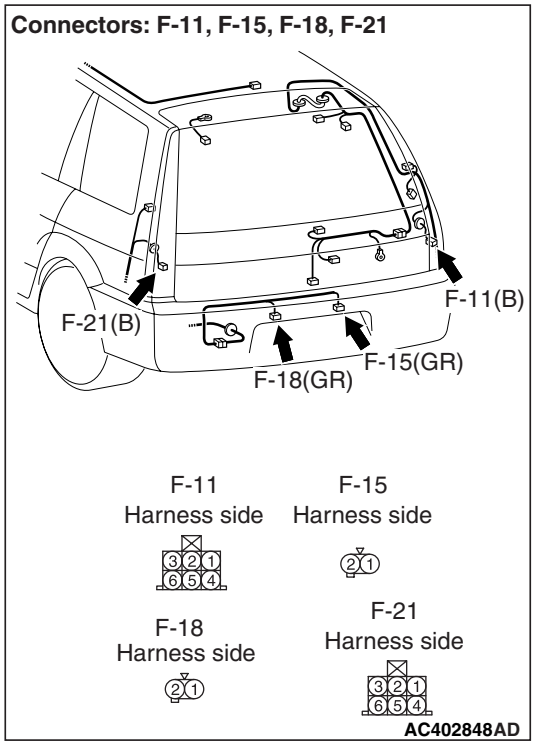
YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 5. Resistance measurement at the F-21 <tail lamp LH> or F-11 <tail lamp RH> rear combination lamp connector, the A-15 <position lamp LH> or A-25 <position lamp RH> position lamp connector, the F-18 <licence plate lamp LH> or F-15 <licence plate lamp RH> licence plate lamp connector







(1) Disconnect the connector, and measure at the wiring harness side.

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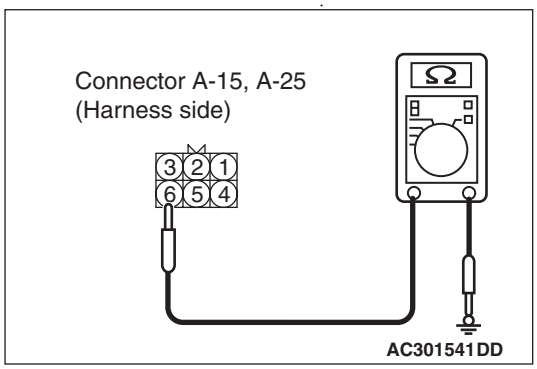
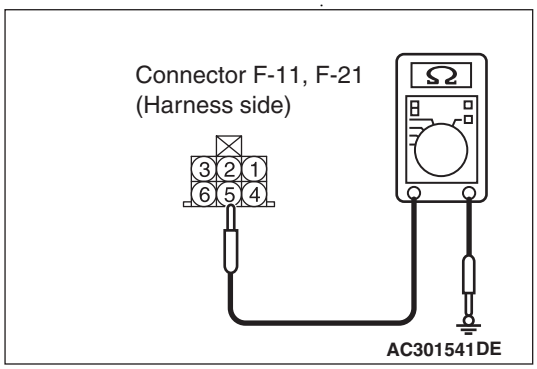
(2) Check the resistance between the lamp connector and body earth.



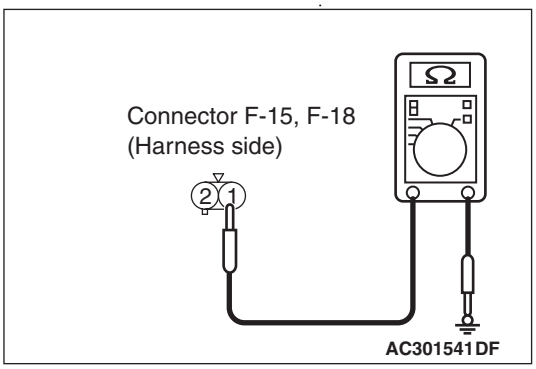
Resistance between A-15 <position lamp LH> position lamp connector terminal No.6 and body earth

- Resistance between A-25 <position lamp RH> position lamp connector terminal No.6 and body earth



Resistance between F-21 <tail lamp LH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-11 <tail lamp RH> rear combination lamp connector terminal No.5 and body earth



Resistance between F-18 <licence plate lamp LH> licence plate lamp connector terminal No.1 and body earth

- Resistance between F-15 <licence plate lamp RH> licence plate lamp connector terminal No.1 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

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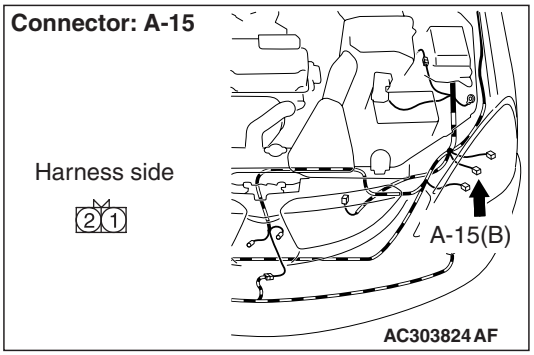
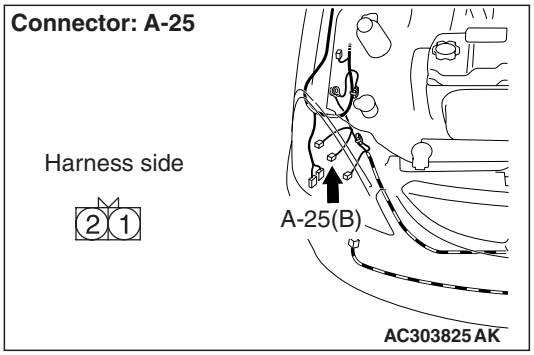
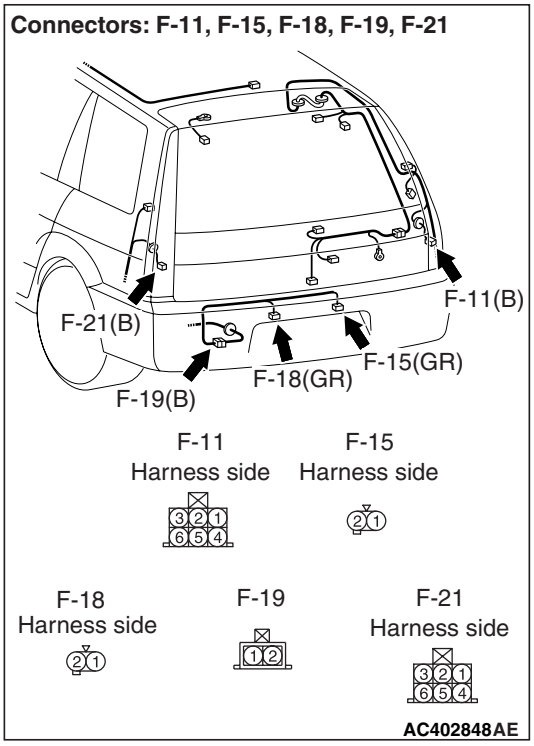
STEP 6. Check the wiring harness from F-21 <tail lamp LH> or F-11 <tail lamp RH> rear combination lamp connector terminal No.5, A-15 <position lamp LH> or A-25 <position lamp RH> position lamp connector terminal No.6, F-18 <licence plate lamp LH> or F-15 <licence plate lamp RH> licence plate lamp connector terminal No.1 to body earth.





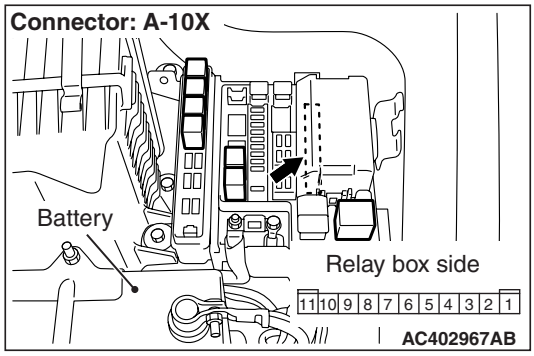


NOTE: Prior to the wiring harness inspection, check intermediate connector F-19 <licence plate lamp> and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Connector check: A-10X front-ECU connector



Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

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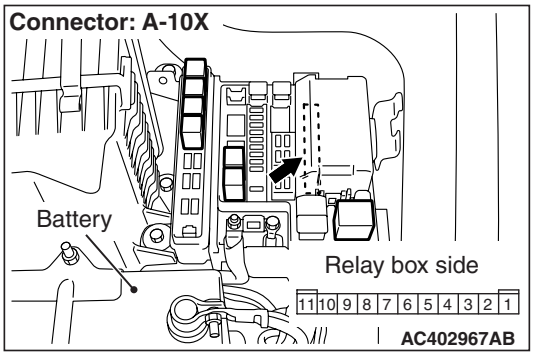
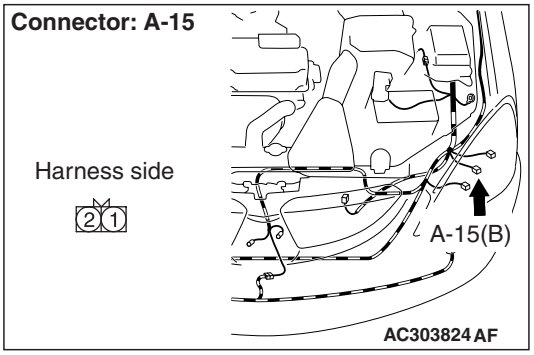
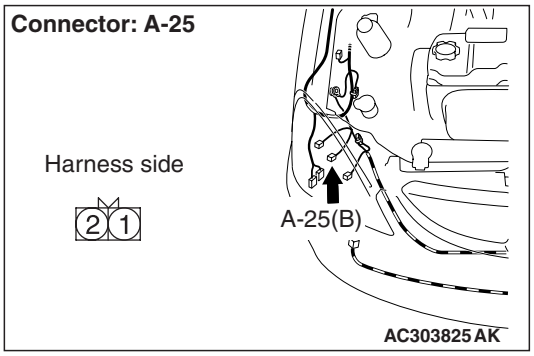
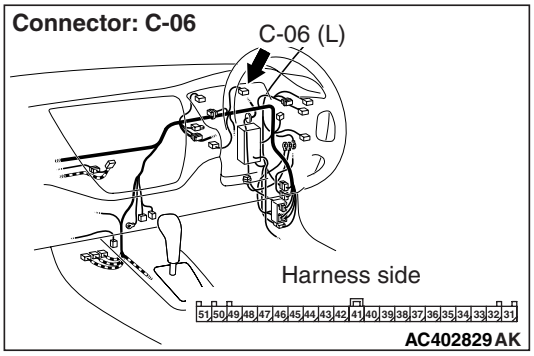
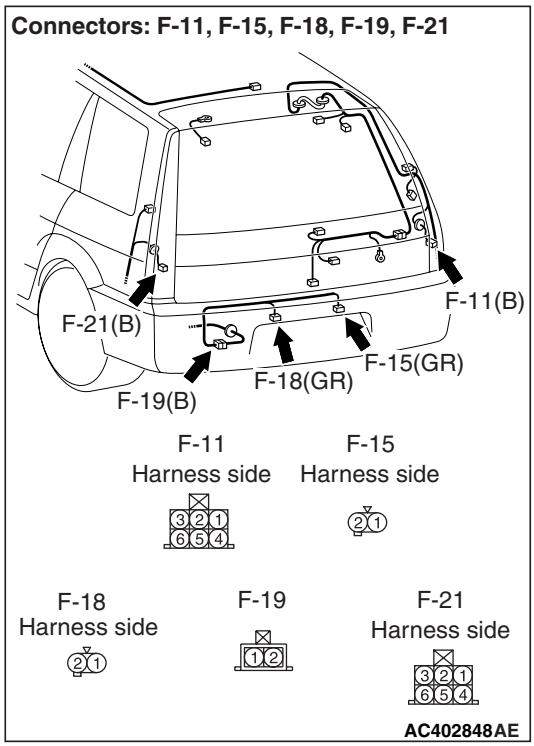
STEP 8. Check the wiring harness from F-21 <tail lamp LH> or F-11 <tail lamp RH> rear combination lamp connector terminal No.3, A-15 <position lamp LH> or A-25 <position lamp RH> position lamp connector terminal No.3, F-18 <licence plate lamp LH> or F-15 <licence plate lamp RH> licence plate lamp connector terminal No.2, C-06 <tail lamp indicator> combination meter connector terminal No.38 to A-10X front-ECU connector terminal No.8.











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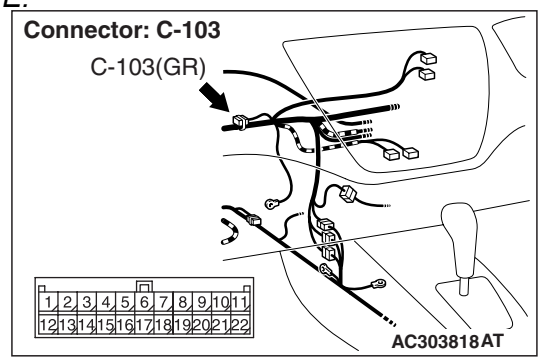
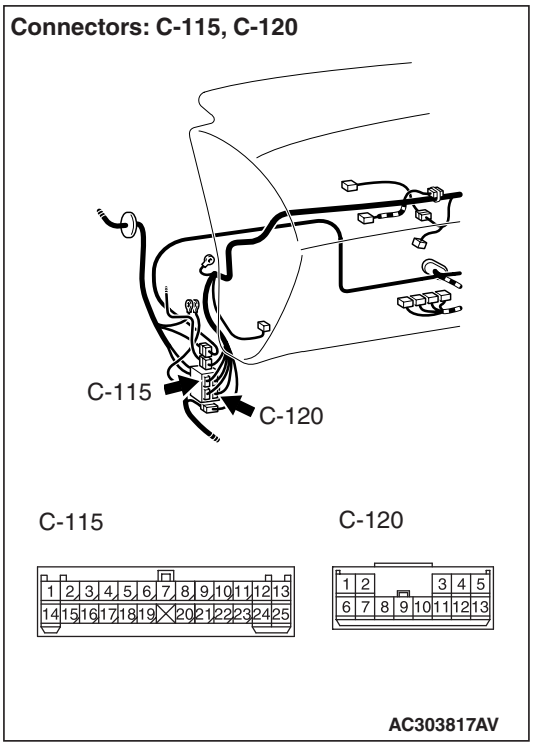
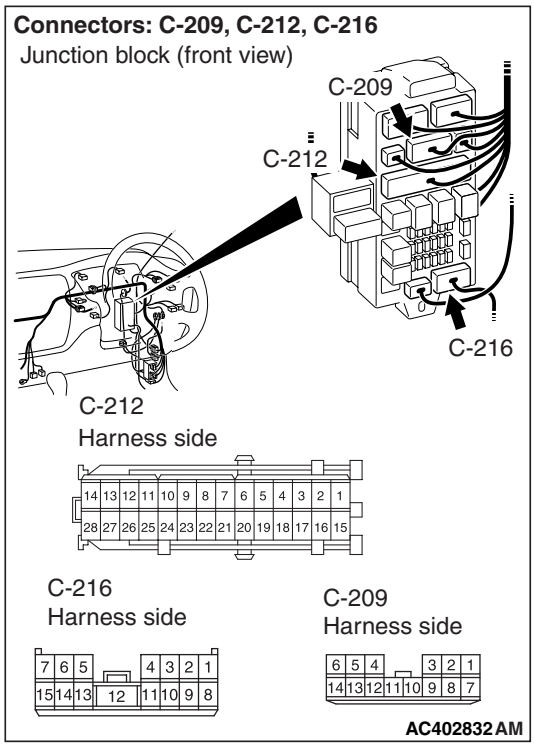
NOTE:







Prior to the wiring harness inspection, check intermediate connector C-115 <tail lamp, licence plate lamp>, C-120 <tail lamp or licence plate lamp> or F-19 <licence plate lamp>, joint connector C-103 <tail lamp RH or tail lamp indicator>, junction block connector C-209 <tail lamp RH or tail lamp indicator>, C-212 <tail lamp indicator> or C-216 <tail lamp RH or tail lamp indicator> and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

STEP 9. Retest the system.

Check that the tail lamps, the position lamps and the licence plate lamps illuminate normally.

Q: Is the check result normal?
YES <The all lamps illuminate normally> : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO <When the tail lamps do not illuminate> : Replace the rear combination lamp socket assembly.
NO <When the position lamps do not illuminate> : Replace the position lamp socket.
NO <When the licence plate lamps do not illuminate> : Replace the licence plate lamp socket.
NO <When the tail lamp indicator do not illuminate> : Replace the combination meter assembly.

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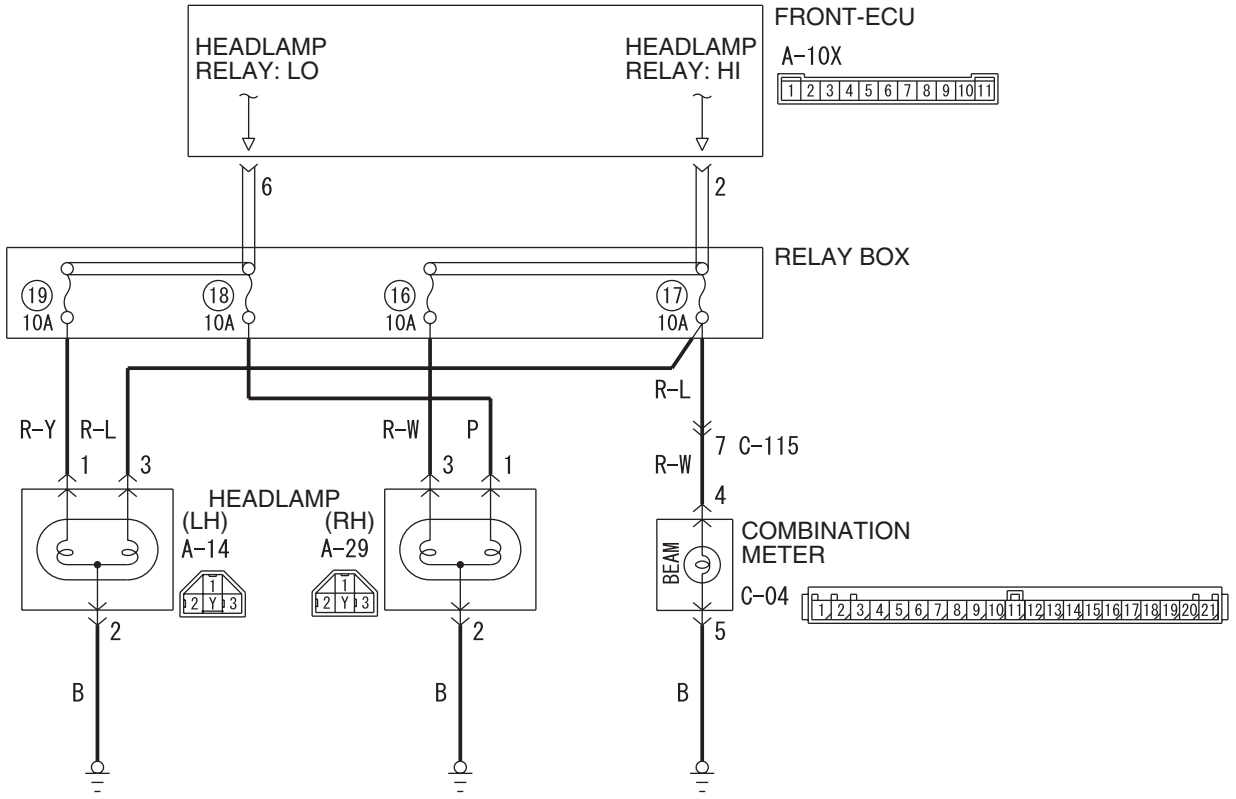
INSPECTION PROCEDURE I-7: The headlamp(s) do not illuminate. <including high-beam indicator>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Headlamps Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If any of the headlamps or the high-beam indicator does not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

PROBABLE CAUSES

- Malfunction of the headlamp bulbs
- Malfunction of the high-beam indicator bulb
- Damaged harness wires and connectors

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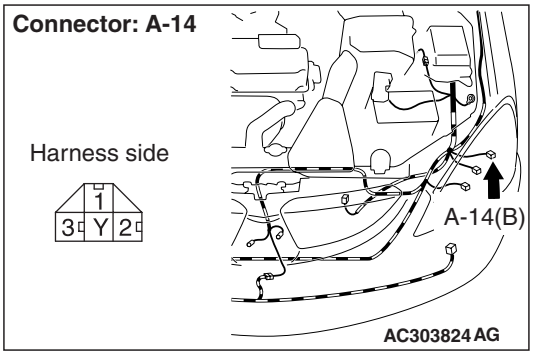
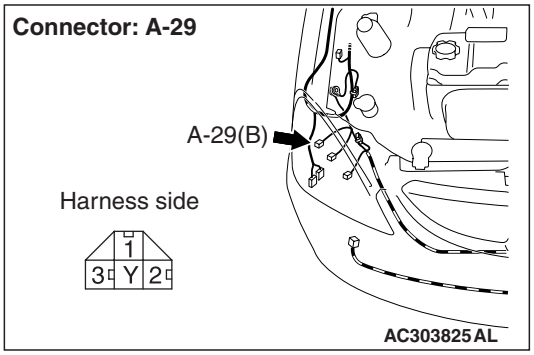
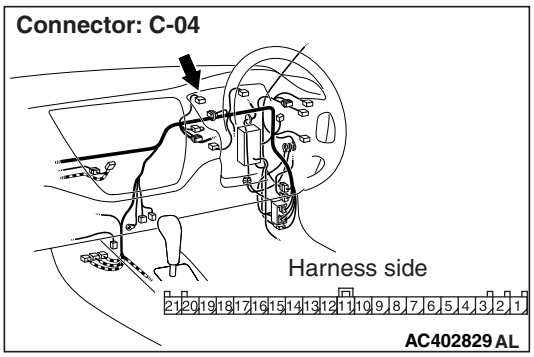
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-29 <headlamp RH>, A-14 <headlamp LH> headlamp assembly connector or C-04 <high-beam indicator> combination meter connector





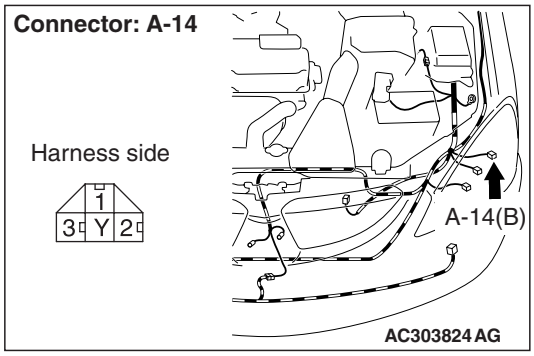


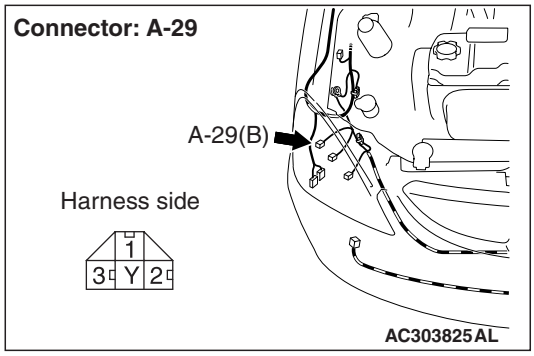
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

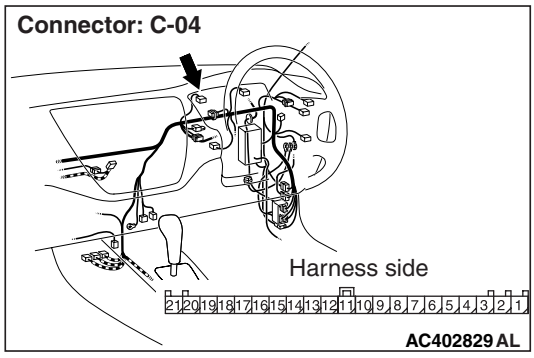
STEP 2. Check the bulb(s) of the headlamps or the high-beam indicator lamp.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

STEP 3. Resistance measurement at A-29 <headlamp RH>, A-14 <headlamp LH> headlamp assembly connector or C-04 <high-beam indicator> combination meter connector







(1) Disconnect the connector, and measure at the wiring harness side.

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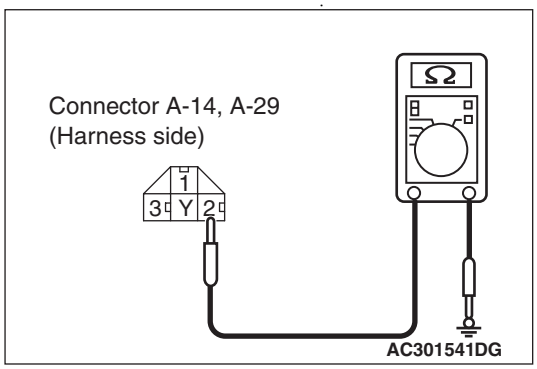
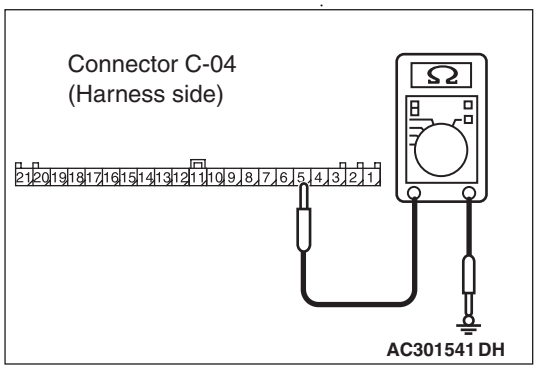
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-29 <headlamp RH> headlamp assembly connector terminal No.2 and body earth

- Resistance between A-14 <headlamp LH> headlamp assembly connector terminal No.2 and body earth

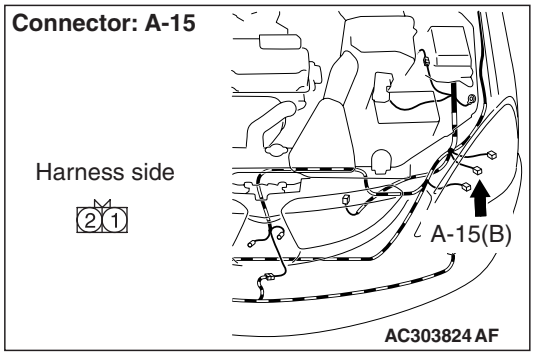


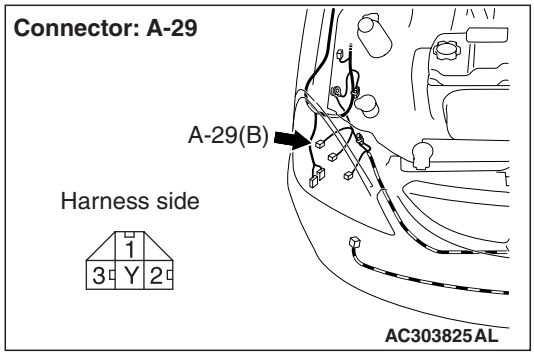
Resistance between C-04 <high-beam indicator> combination meter connector terminal No.5 and body earth

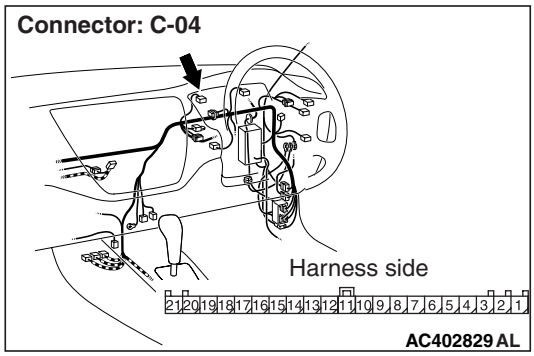
OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness from A-29 <headlamp RH> or A-14 <headlamp LH> headlamp connector terminal No.2, or C-04 <high-beam indicator> combination meter connector terminal No.5 to body earth.







- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

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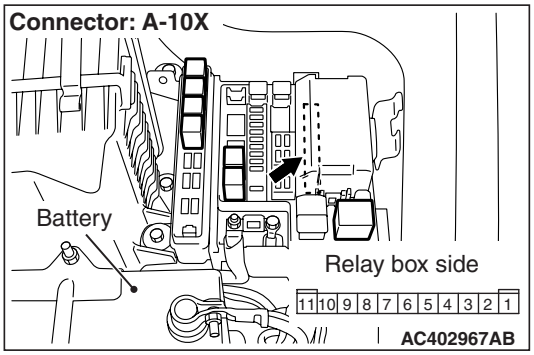
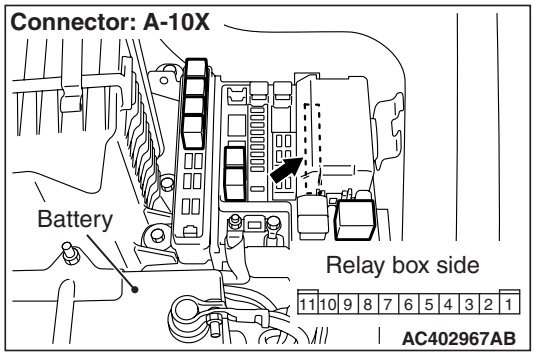
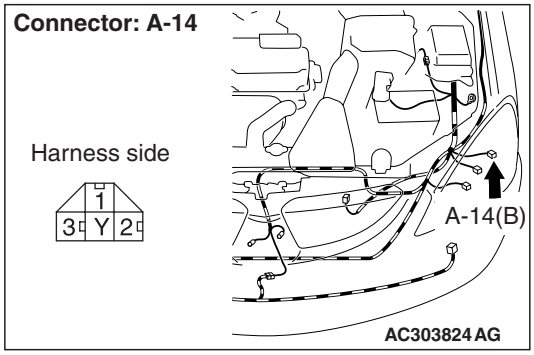
STEP 5. Connector check: A-10X front-ECU connector

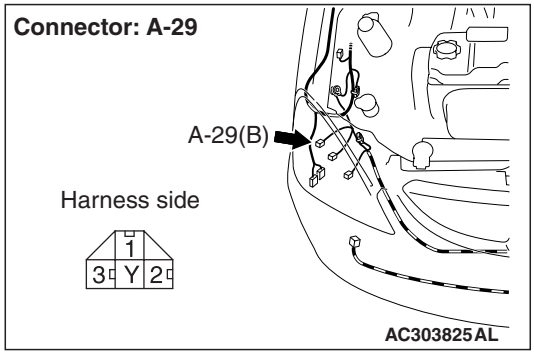


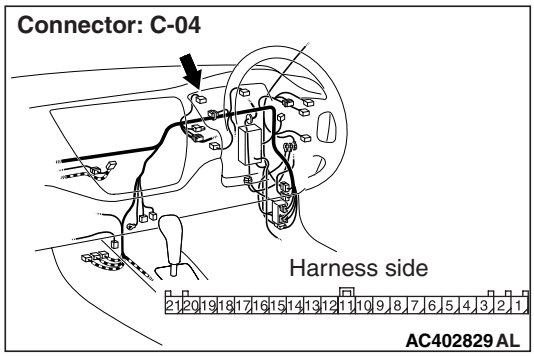
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Check the wiring harness from A-29 <headlamp RH>, A-14 <headlamp LH> headlamp connector terminal No.1 <low-beam>, No.3 <high-beam>, C-04 combination meter connector terminal No.4 <high-beam indicator> to A-10X front-ECU connector terminal No.6 <low-beam> or No.2 <high-beam>.









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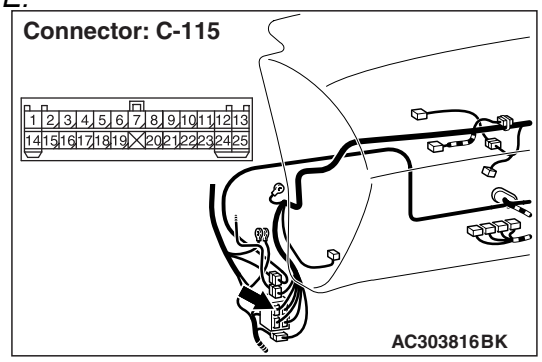
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-27 <LH drive vehicles - high-beam indicator> or C-115 <RH drive vehicles - high-beam indicator>, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.
Check that the headlamps and the high-beam indicator lamp illuminate/extinguish normally.

Q: Is the check result normal?
YES <The lamps illuminate normally at both high and low beams> : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO <When the headlamps do not illuminate> : Replace the headlamp socket.
NO <When the high-beam indicator lamp does not illuminate> : Replace the combination meter.

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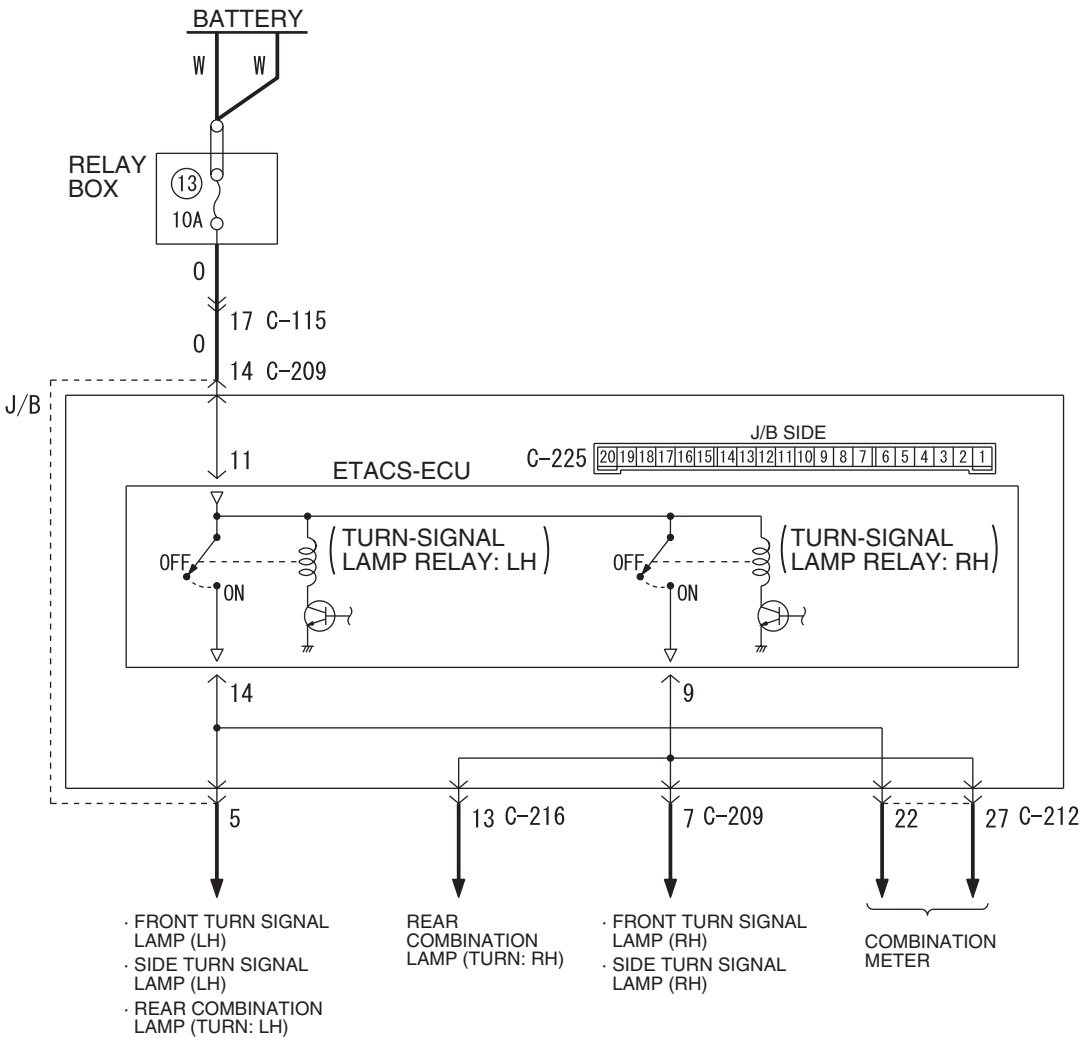
FLASHER TIMER

INSPECTION PROCEDURE J-1: The turn-signal lamps do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Turn-Signal Lamp Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L024A

COMMENTS ON TROUBLE SYMPTOM

If all the turn-signal lamps do not illuminate, the ignition switch (IG1), the turn-signal lamp switch input circuit or the ETACS-ECU may be defective.

PROBABLE CAUSES

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

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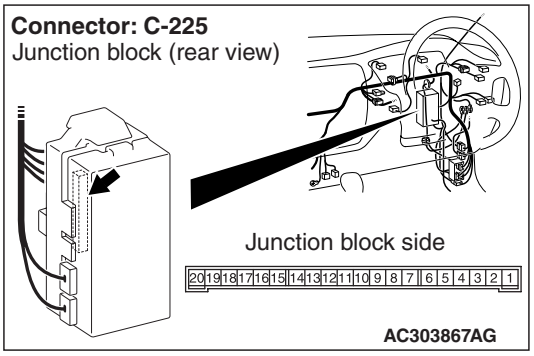
DIAGNOSIS PROCEDURE

STEP 1. Check that the hazard warning lamps operate.

Check that the hazard warning lamps illuminate normally.

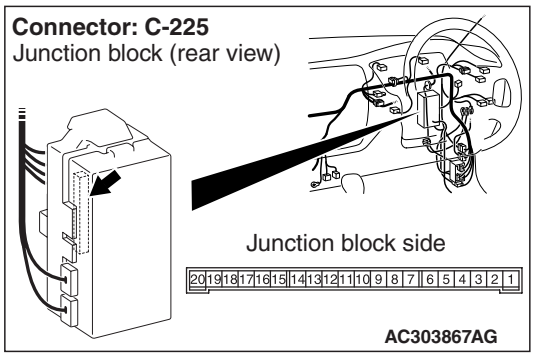
Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 2.

STEP 2. Connector check: C-225 ETACS-ECU connector

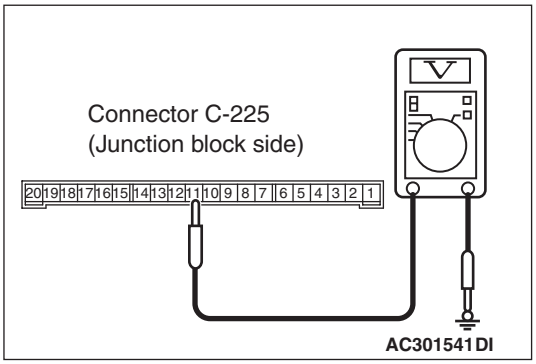


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.



(2) Voltage between C-225 ETACS-ECU connector terminal No.11 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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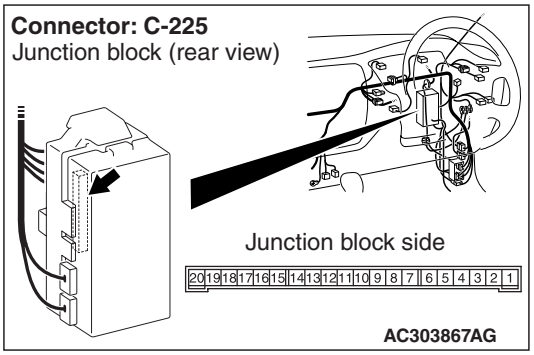
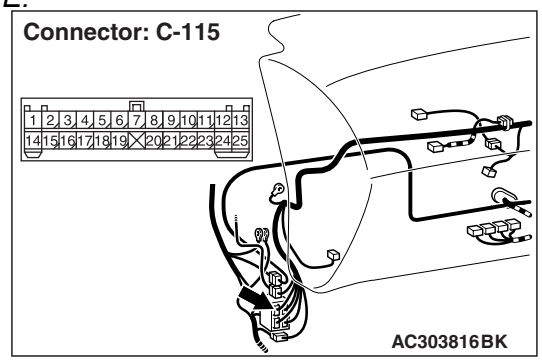
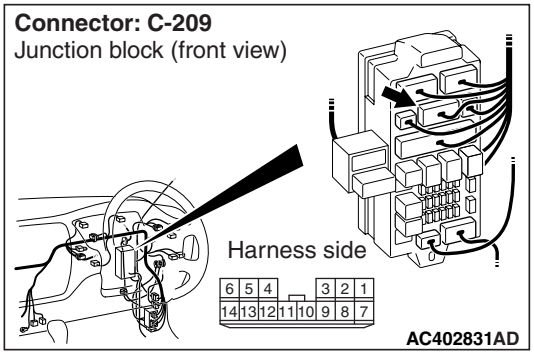
STEP 4. Check the wiring harness between C-225 ETACS-ECU connector terminal No.11 and the battery.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-115 and junction block connector C-209, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Retest the system.

Check that the turn-signal lamps illuminate normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

STEP 6. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the right turn-signal lamps.

<Selected item> TURN SIGNAL - TURN-SIG. RH

- Operate the turn-signal lamp switch to the "RH" position.
- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 10	TURN SIG.RH	ON
Item 11	TURN SIG.LH	OFF
Item 30	IG SW(IG1)	ON

OK: Normal conditions displayed for all the items

Q: Is the check result normal?

YES <Normal conditions are displayed for all the items> : Go to Step 7.

NO <Normal condition is not displayed for item 10 or 11> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

STEP 7. Function diagnosis by using the SWS monitor.

Check the SWS communication signal, which are related to the left turn-signal lamps.

<Selected item> TURN SIGNAL - TURN-SIG. LH

- Operate the turn-signal lamp switch to the "LH" position.
- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 10	TURN SIG.RH	OFF
Item 11	TURN SIG.LH	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES <Normal conditions are displayed for all the items> : Go to Step 8.

NO <Normal condition is not displayed for item 10 or 11> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."

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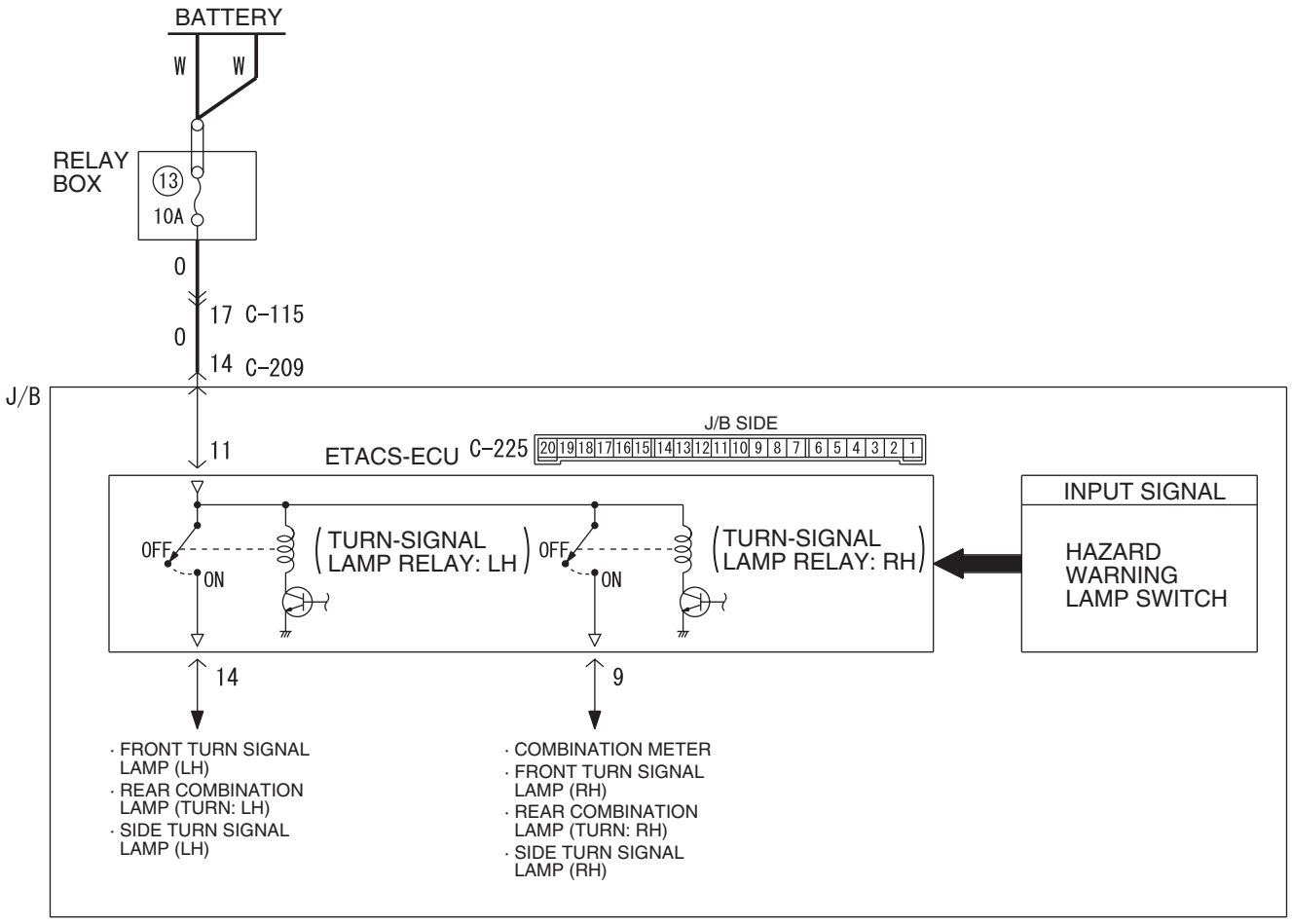
STEP 8. Retest the system.
Check that the turn-signal lamps illuminate.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE J-2: The hazard warning lamps do not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Hazard Warning Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamps do not illuminate, the hazard warning lamp input signal circuit or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Check that the turn-signal lamps operate.

Check that the turn-signal lamps illuminate normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure J-1 "The turn-signal lamps do not illuminate P.54C-155."

STEP 2. Pulse check

Check the input signal from the hazard warning lamp switch.

System switch	Check condition
Hazard warning lamp switch	When the hazard warning lamp switch is turned from off to on

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure M-11 "The hazard warning lamp switch signal is not received P.54C-230."

STEP 3. Retest the system.

Check that the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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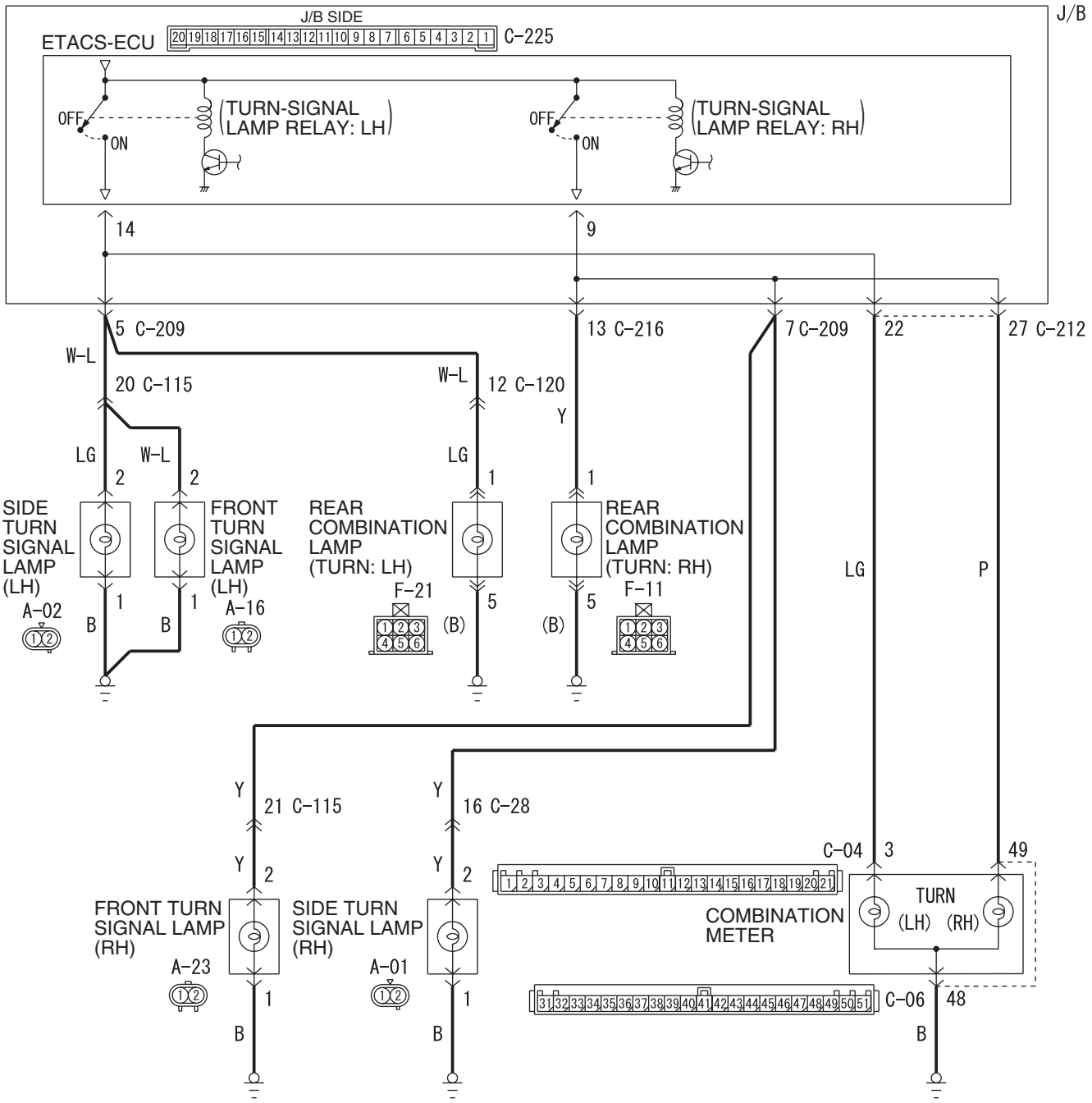
INSPECTION PROCEDURE J-3: Any of the turn-signal lamps does not illuminate.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Turn-Signal Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If any of the turn-signal lamp does not illuminate normally, wiring harness connector(s) or the bulb may be defective.

PROBABLE CAUSES

- Defective turn-signal lamp bulb
- Damaged harness wires and connectors

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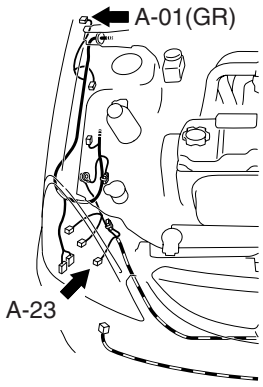
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-23 <front RH> or A-16 <front LH> front turn-signal lamp connector, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, F-11 <rear RH> or F-21 <rear LH> rear combination lamp connector, C-06 <turn-signal indicator lamp> and C-04 <turn-signal indicator lamp (LH)> combination meter connector

Connectors: A-01, A-23

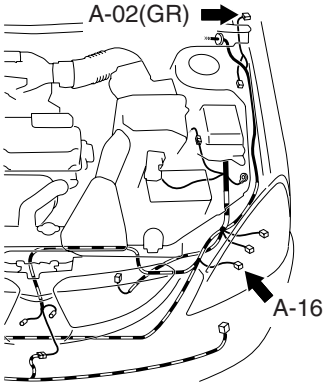


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

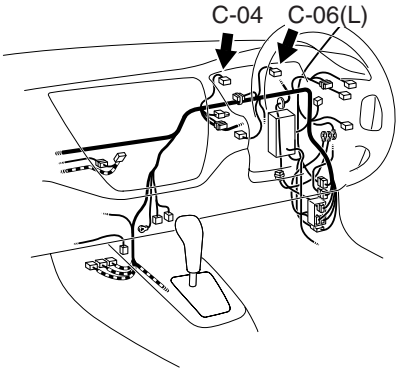


Harness side

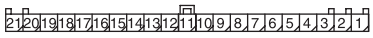
A-02 A-16

AC303781AC

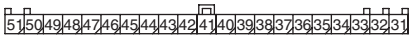
Connectors: C-04, C-06



C-04
Harness side



C-06
Harness side



AC402830AF

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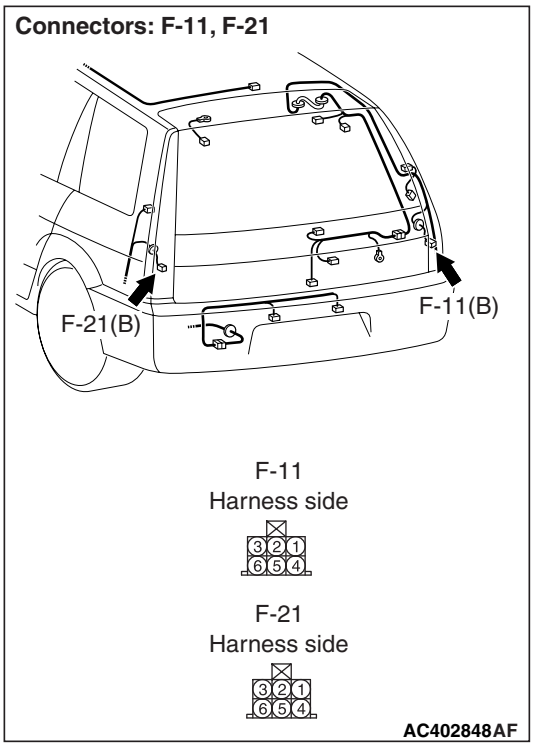

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the bulb(s) of the turn-signal lamps or the turn-signal indicator lamps.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

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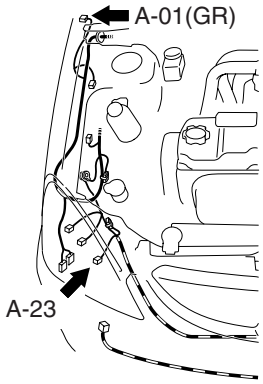
STEP 3. Resistance measurement at the A-23 <front RH> or A-16 <front LH> front turn-signal lamp connector, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, the F-11 <rear RH> or F-21 <rear LH> rear combination lamp connector, the C-06 <turn-signal indicator lamp> combination meter connector

Connectors: A-01, A-23

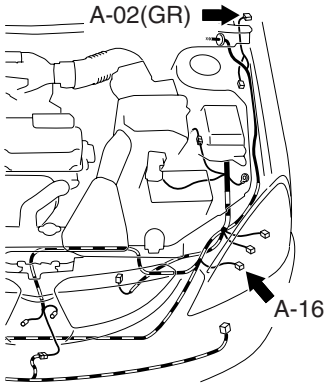


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

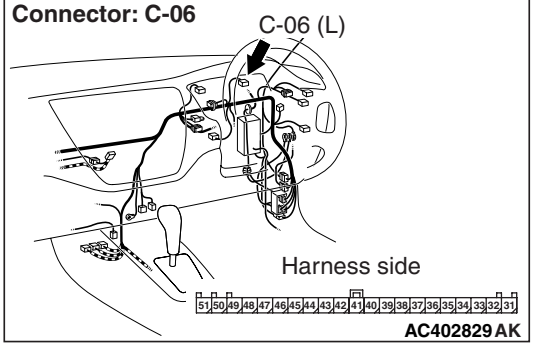


Harness side

A-02 A-16

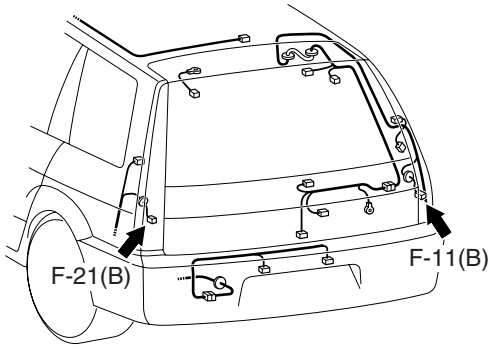
AC303781AC

Connector: C-06



AC402829AK

Connectors: F-11, F-21



F-11
Harness side

F-21
Harness side

AC402848AF

(1) Disconnect the connector, and measure at the wiring harness side.

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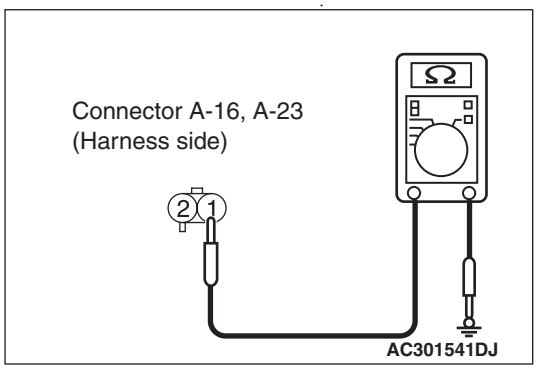
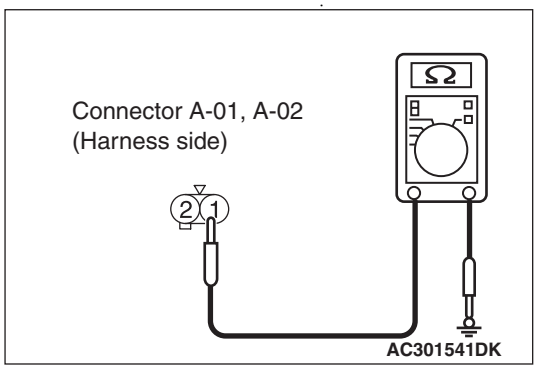
(2) Measure the resistance between the defective lamp connector terminal and body earth.



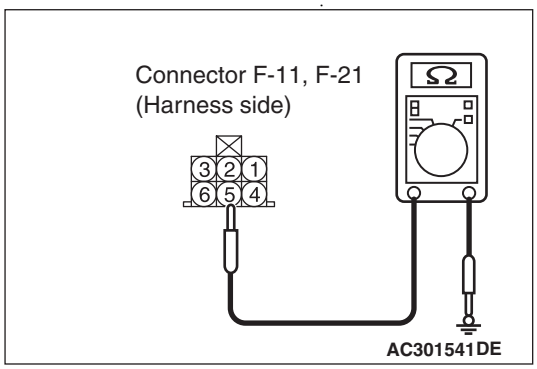
Resistance between A-23 <front RH> headlamp assembly connector terminal No.1 and body earth

- Resistance between A-16 <front LH> headlamp assembly connector terminal No.1 and body earth



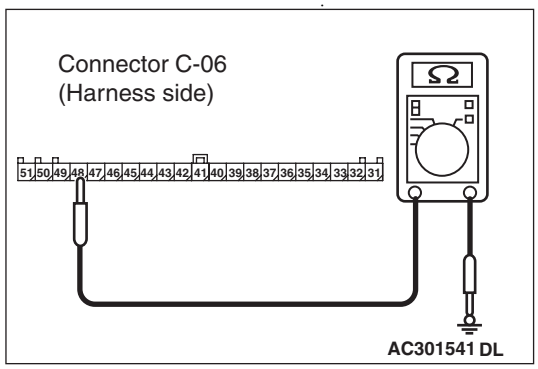
Resistance between A-01 <side RH> side turn-signal lamp connector terminal No.1 and body earth

- Resistance between A-02 <side LH> side turn-signal lamp connector terminal No.1 and body earth



Resistance between F-11 <rear RH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-21 <rear LH> rear combination lamp connector terminal No.5 and body earth



Resistance between C-06 <turn-signal indicator lamp> combination meter terminal No.48 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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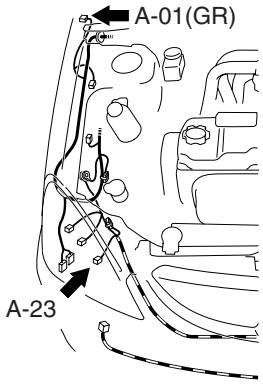
STEP 4. Check the wiring harness from A-23 <front RH> or A-16 <front LH> front turn-signal lamp connector terminal No.1, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.1, F-11 <rear RH> or F-21 <rear LH> rear combination lamp connector terminal No.5, or C-06 <turn-signal indicator lamp> combination meter connector terminal No.48 to body earth.

Connectors: A-01, A-23

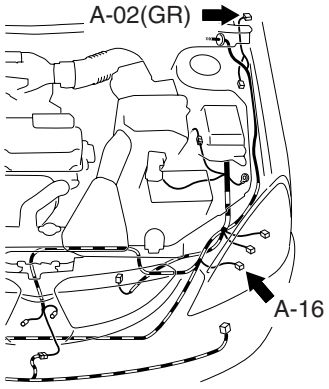


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

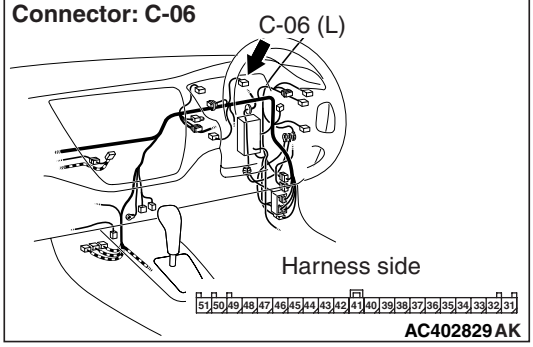


Harness side

A-02 A-16

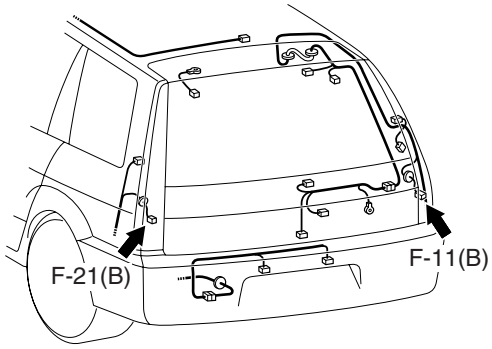
AC303781AC

Connector: C-06



AC402829AK

Connectors: F-11, F-21



F-11
Harness side

F-21
Harness side

AC402848AF

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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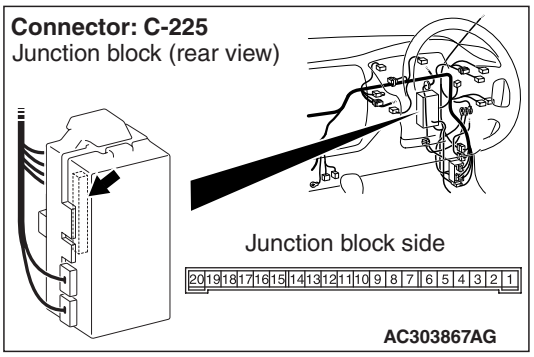
STEP 5. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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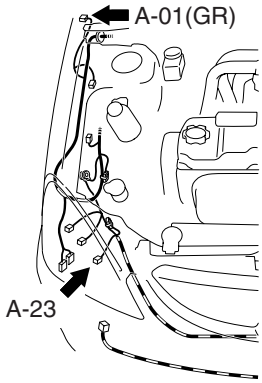
STEP 6. Check the wiring harness from the A-23 <front RH> or A-16 <front LH> front turn-signal lamp connector terminal No.2, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.2, the F-11 <rear RH> or F-21 <rear LH> rear combination lamp connector terminal No.1, the C-06 <turn-signal indicator lamp RH> combination meter connector terminal No.49 or C-04 <turn-signal indicator lamp LH> combination lamp connector terminal No.3 to C-225 ETACS-ECU connector terminal No.9 <RH> or 14 <LH>.

Connectors: A-01, A-23

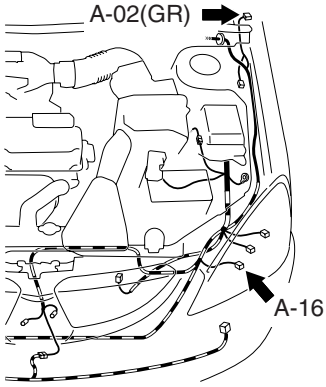


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

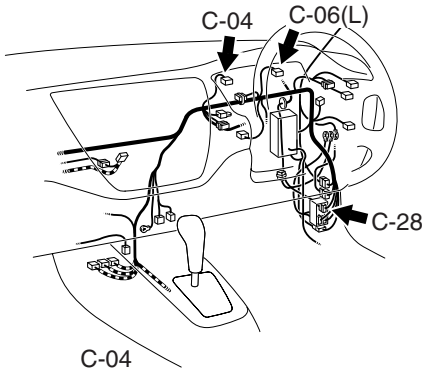


Harness side

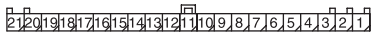
A-02 A-16

AC303781AC

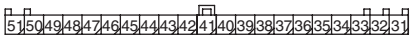
Connectors: C-04, C-06, C-28



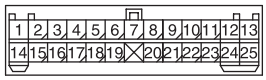
C-04
Harness side



C-06
Harness side



C-28



AC402830AG

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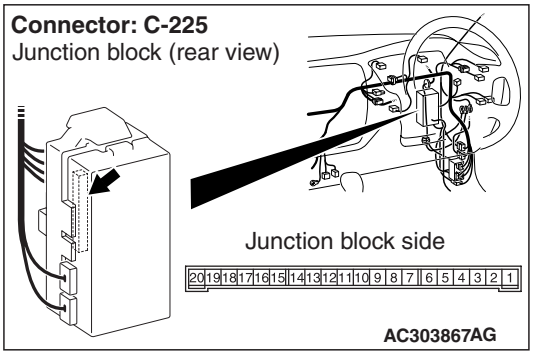
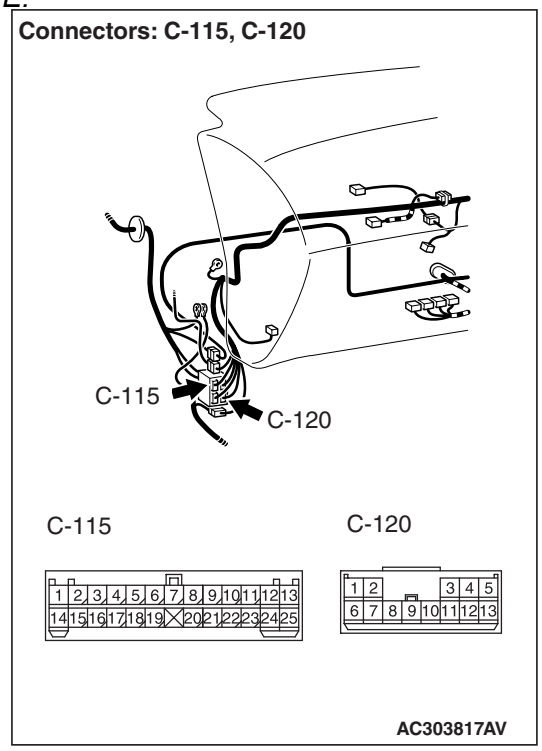
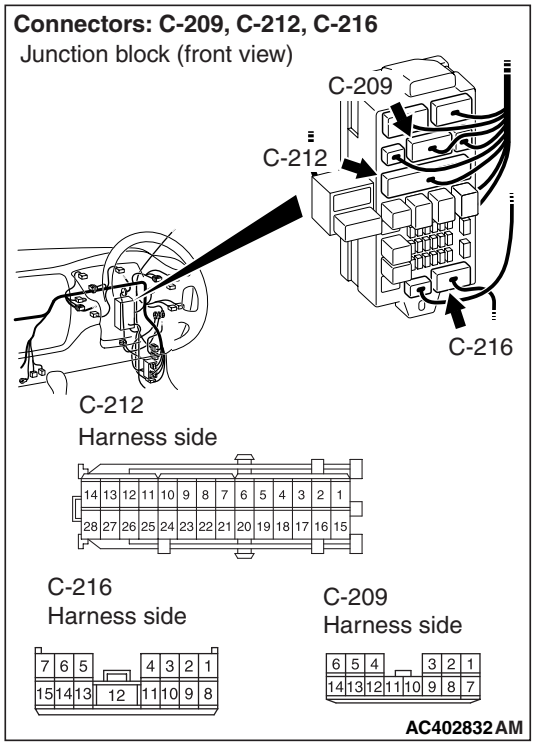


NOTE:





Prior to the wiring harness inspection, check intermediate connector C-115 <front or rear LH>, C-120 <rear LH> or C-28 <side RH> and junction block connector C-209 <front, side or rear LH>, C-216 <rear RH> or C-212 <turn-signal indicator lamp>, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the turn-signal lamps and the indicator lamps illuminate normally.

Q: Is the check result normal?
YES <The lamps illuminate normally at both left and right lamps> : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO <The front turn-signal lamps do not illuminate> : Replace the socket.
NO <The side turn-signal lamps do not illuminate> : Replace the socket.
NO <The rear turn-signal lamps do not illuminate> : Replace the socket assembly.
NO <The turn-signal indicator lamps do not illuminate> : Replace the combination meter.

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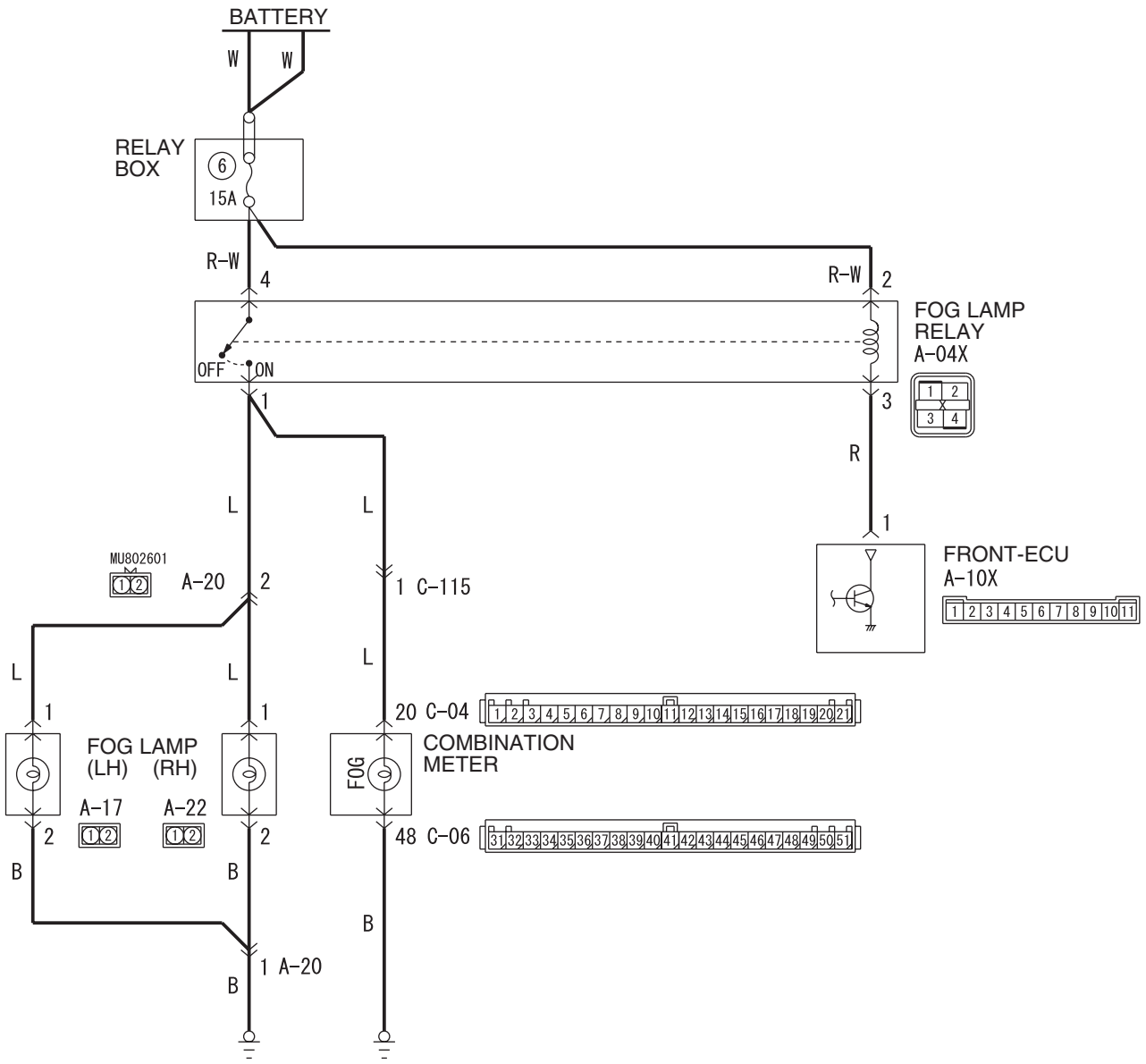
FOG LAMP

INSPECTION PROCEDURE K-1: The fog lamps do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Fog Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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OPERATION

The ETACS-ECU operates this function in accordance with the input signals below.

- Tail lamp switch
- Headlamp switch
- Fog lamp switch

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If the fog lamps do not illuminate normally, these input signal circuit(s) or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the fog lamp switch
- Malfunction of the front-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check that the tail lamps and headlamps operate.
Check that the tail lamps and headlamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the tail lamp(s) and headlamp(s). Refer to trouble symptom chart P.54C-17.

STEP 2. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU), the ETACS-ECU and the front-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
- COLUMN ECU
- ETACS ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
YES <"OK" is displayed for all the items> : Go to Step 3.
NO <"NG" is displayed on the "COLUMN ECU" menu> : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."
NO <"NG" is displayed on the "ETACS ECU" menu> : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."
NO <"NG" is displayed on the "FRONT ECU" menu> : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-35."

STEP 3. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the fog lamps.

<Selected item> LIGHTING - F.FOG LAMP
- Turn the ignition switch to the "ON" position.
- Turn the lighting switch to the "TAIL" or "HEAD" position.
- Push the fog lamp switch.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON when the lighting switch is at HEAD
Item 01	TAIL LAMP SW	ON when the lighting switch is at TAIL or HEAD
Item 30	IG SW(IG1)	ON
Item 36	F.FOG LAMP	ON
Item 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
YES <Normal conditions are displayed for all the items> : Go to Step 4.
NO <Normal condition is not displayed for item 00 or 01> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-214."
NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."
NO <Normal condition is not displayed for item No.36> : Refer to inspection procedure M-8 "The fog lamp switch signal is not received P.54C-220."
NO <Normal condition is not displayed for item No.70> : Replace the front-ECU.

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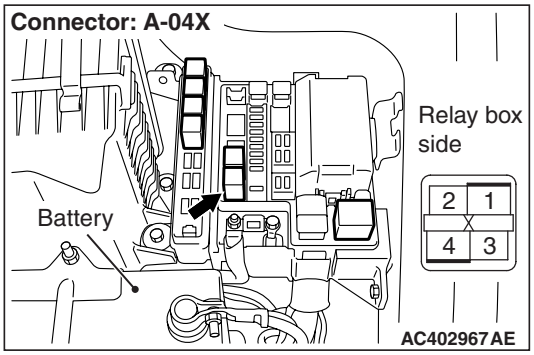
STEP 4. Connector check: A-04X fog lamp relay connector.

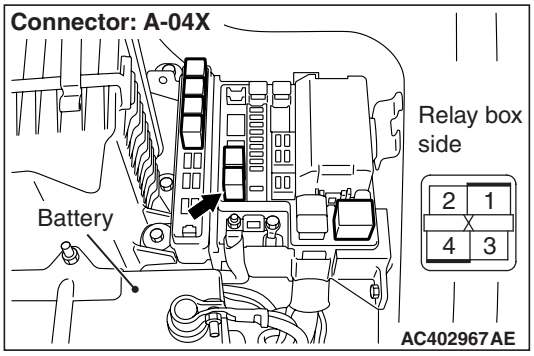


Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

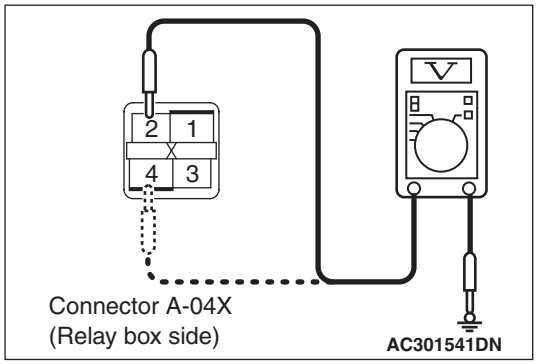
STEP 5. Check the fog lamp relay.
Refer to GROUP 54A –Fog lamp P.54A-62.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the fog lamp relay.

STEP 6. Voltage measurement at the A-04X fog lamp relay connector



(1) Remove the fog lamp relay, and measure at the relay box side.

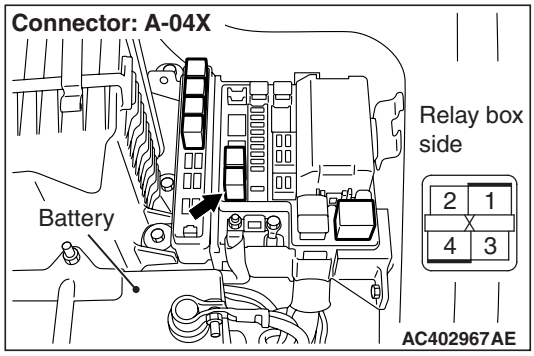


(2) Check the voltage between the fog lamp relay connector and body earth.
- Voltage between A-04X fog lamp relay connector terminal No.2 and body earth
- Voltage between A-04X fog lamp relay connector terminal No.4 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 8.
NO : Go to Step 7.

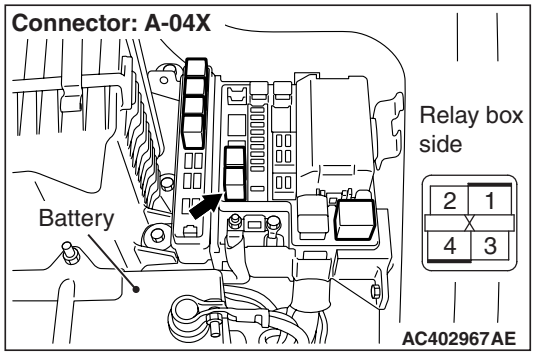
STEP 7. Check the wiring harness between A-04X fog lamp relay connector (terminal Nos. 2 and 4) and the battery.



- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 8. Connector check: A-10X front-ECU connector



Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

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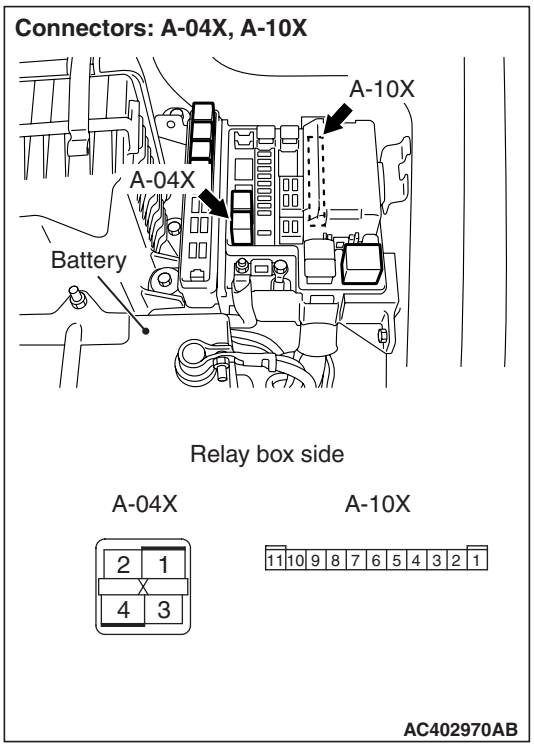
STEP 9. Check the wiring harness between A-04X fog lamp relay connector terminal No.3 and A-10X front-ECU connector terminal No.1.



- Check the output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 10. Retest the system.
Check that the fog lamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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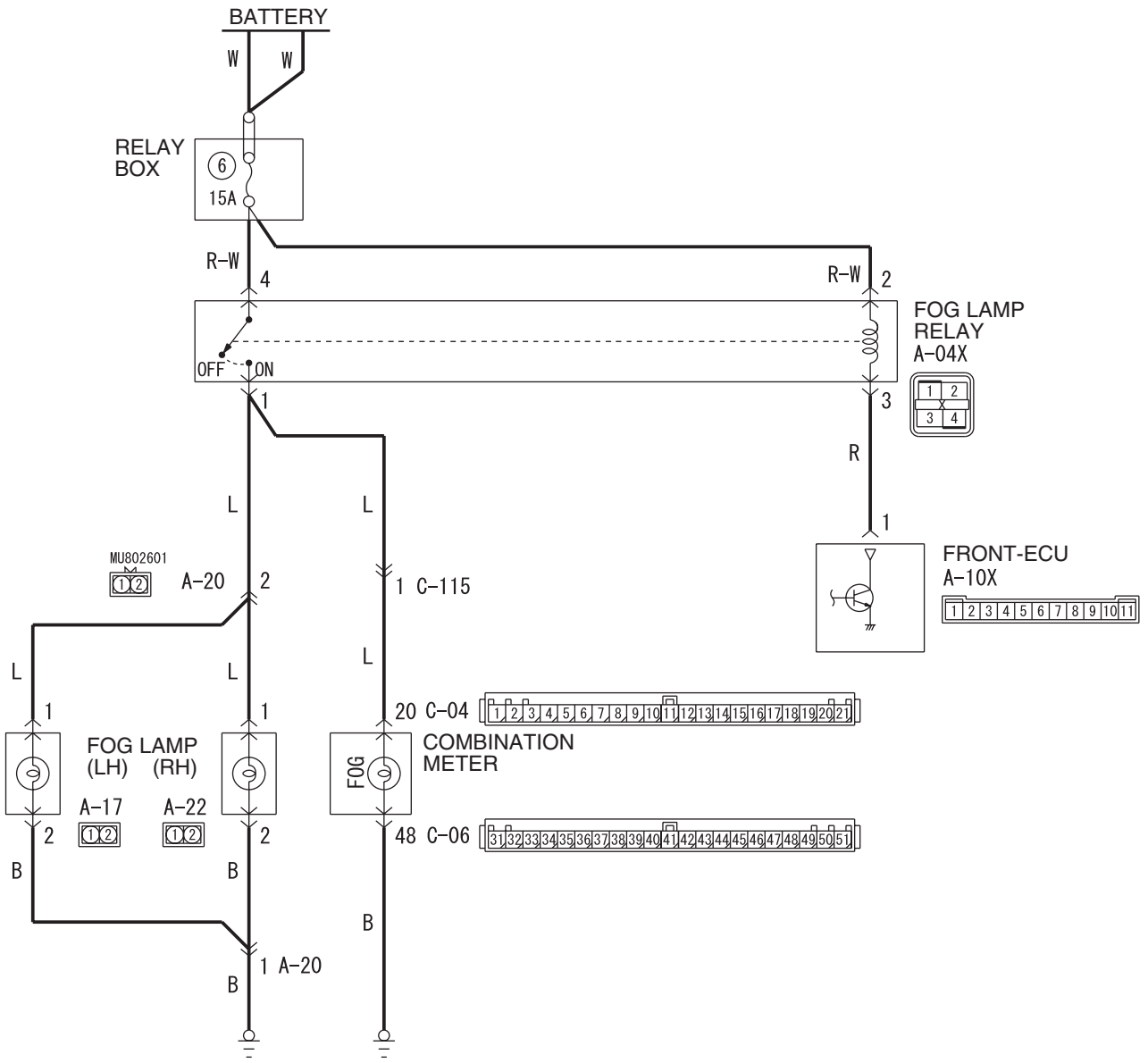
INSPECTION PROCEDURE K-2: The fog lamps or the fog lamp indicator do not illuminate normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Fog Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If any of the fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

PROBABLE CAUSES

- Burned-out fog lamp bulb
- Damaged harness wires and connectors

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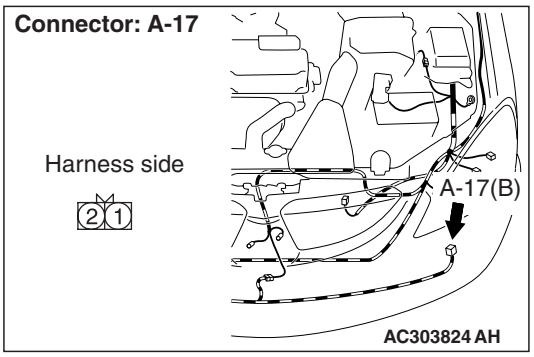
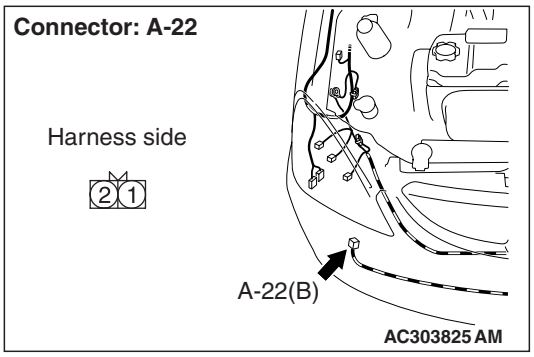
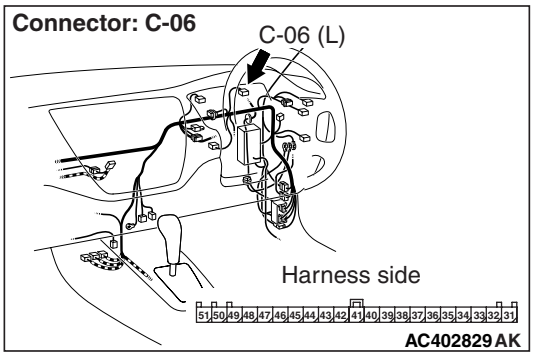
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-22 <RH> or A-17 <LH> fog lamp connector, or C-06 <fog lamp indicator lamp> combination meter connector





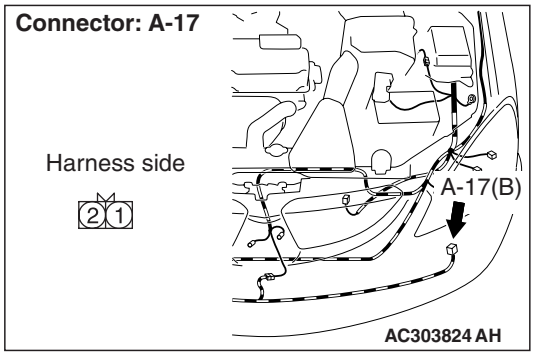


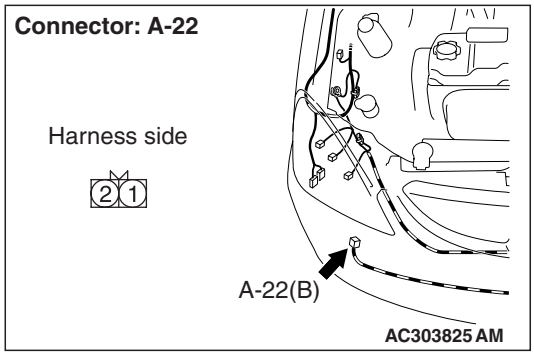
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

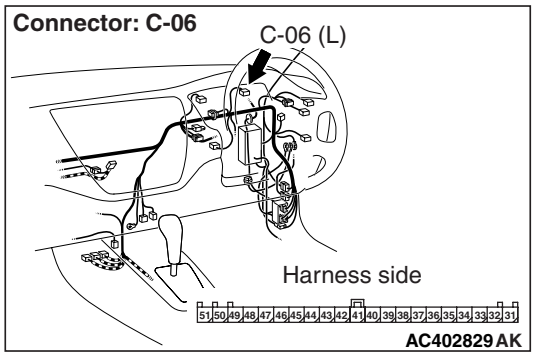
STEP 2. Check the bulbs of the fog lamps or the fog lamp indicator lamp.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

STEP 3. Resistance measurement at A-22 <RH> or A-17 <LH> fog lamp connector, or C-06 <fog lamp indicator lamp> combination meter connector







(1) Disconnect the connector, and measure at the wiring harness side.

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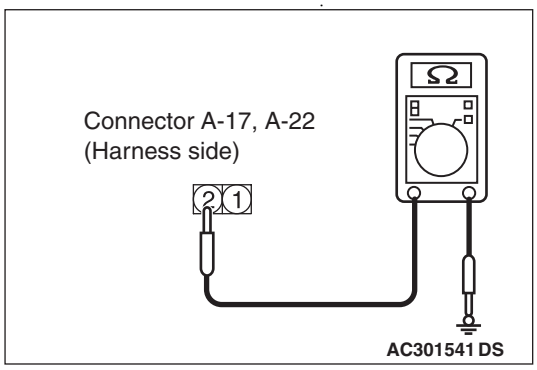
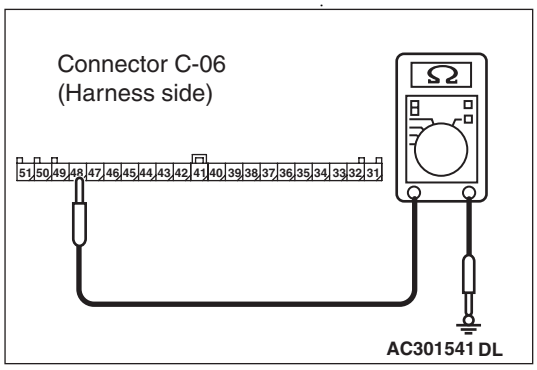
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-22 <RH> fog lamp connector terminal No.2 and body earth

- Resistance between A-17 <LH> fog lamp connector terminal No.2 and body earth

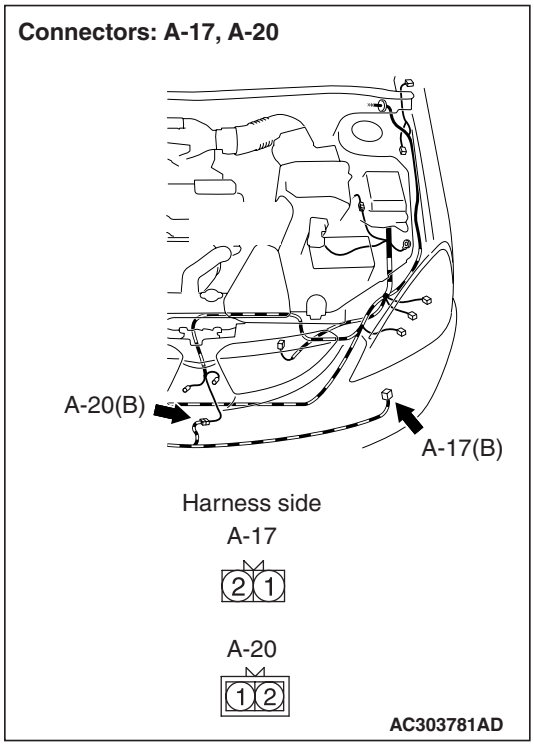


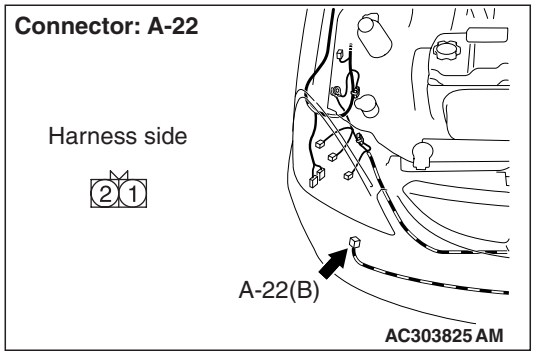
Resistance between C-06 <fog lamp indicator lamp> combination meter connector terminal No.48 and body earth

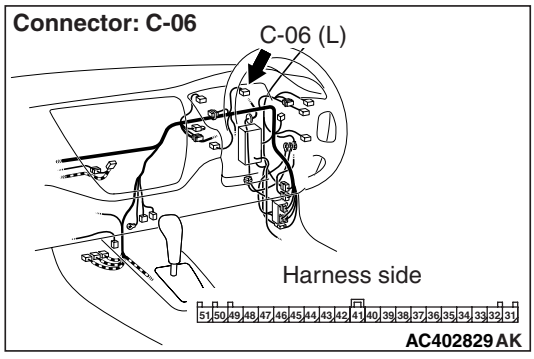
OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness from A-22 <RH> or A-17 <LH> fog lamp connector terminal No.2 or C-06 <fog lamp indicator lamp> combination meter connector terminal No.48 to body earth.







NOTE: Prior to the wiring harness inspection, check intermediate connector A-20 <fog lamp>, and repair if necessary.

- Check the earth wires for open circuit.

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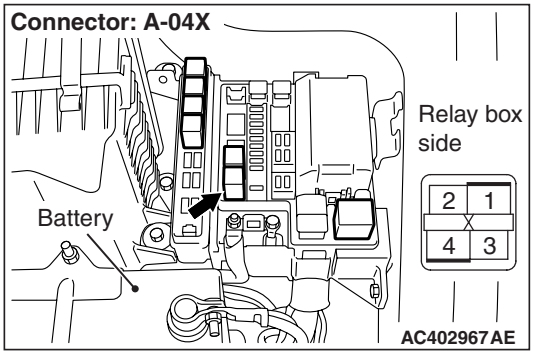
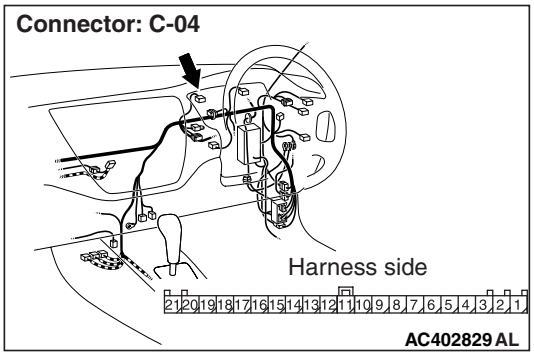
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

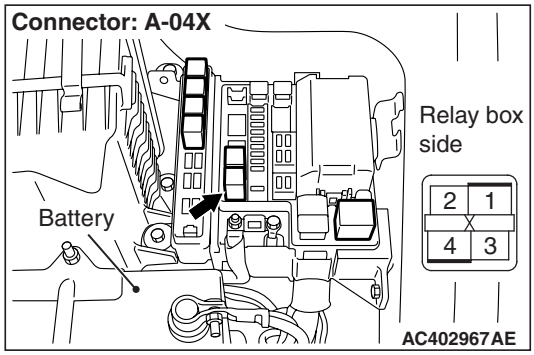
STEP 5. Connector check: A-04X fog lamp relay connector, C-04 <fog lamp indicator lamp> combination meter connector

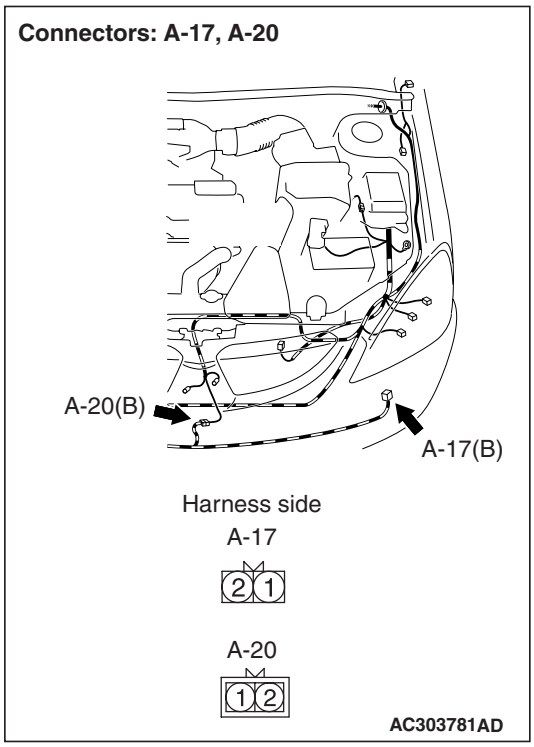


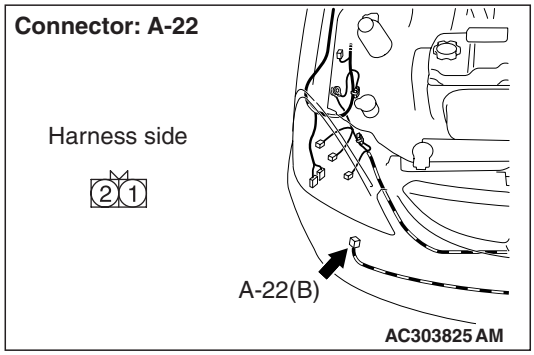


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Check the wiring harness from A-22 <RH> or A-17 <LH> fog lamp connector terminal No.1 or C-04 <fog lamp indicator lamp> combination meter connector terminal No.20 to A-04X fog lamp relay connector terminal No.1.







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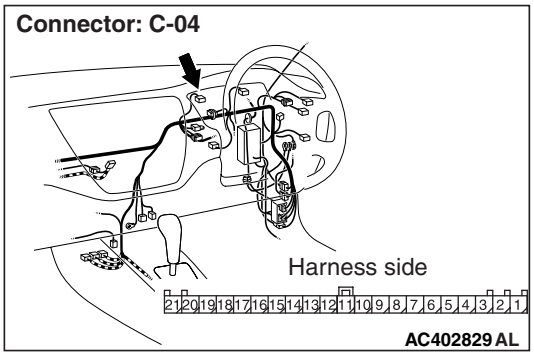

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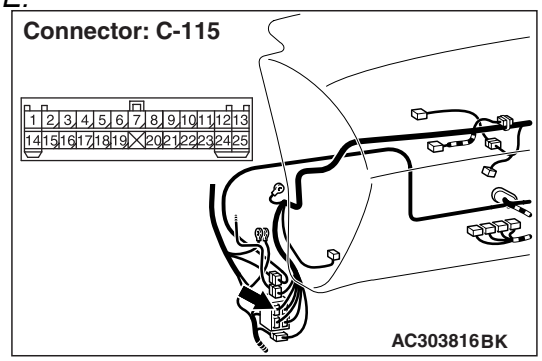

Prior to the wiring harness inspection, check intermediate connector A-20 <fog lamp>, C-27 <LH drive vehicles - fog lamp indicator lamp> or C-115 <RH drive vehicles - fog lamp indicator lamp>, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the fog lamp and the fog lamp indicator lamp illuminate normally.

Q: Is the check result normal?

YES <The lamps illuminate normally at both left and right beams> : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO <The fog lamps do not illuminate> : Replace the fog lamp(s).

NO <The fog lamp indicator lamp does not illuminate> : Replace the combination meter.

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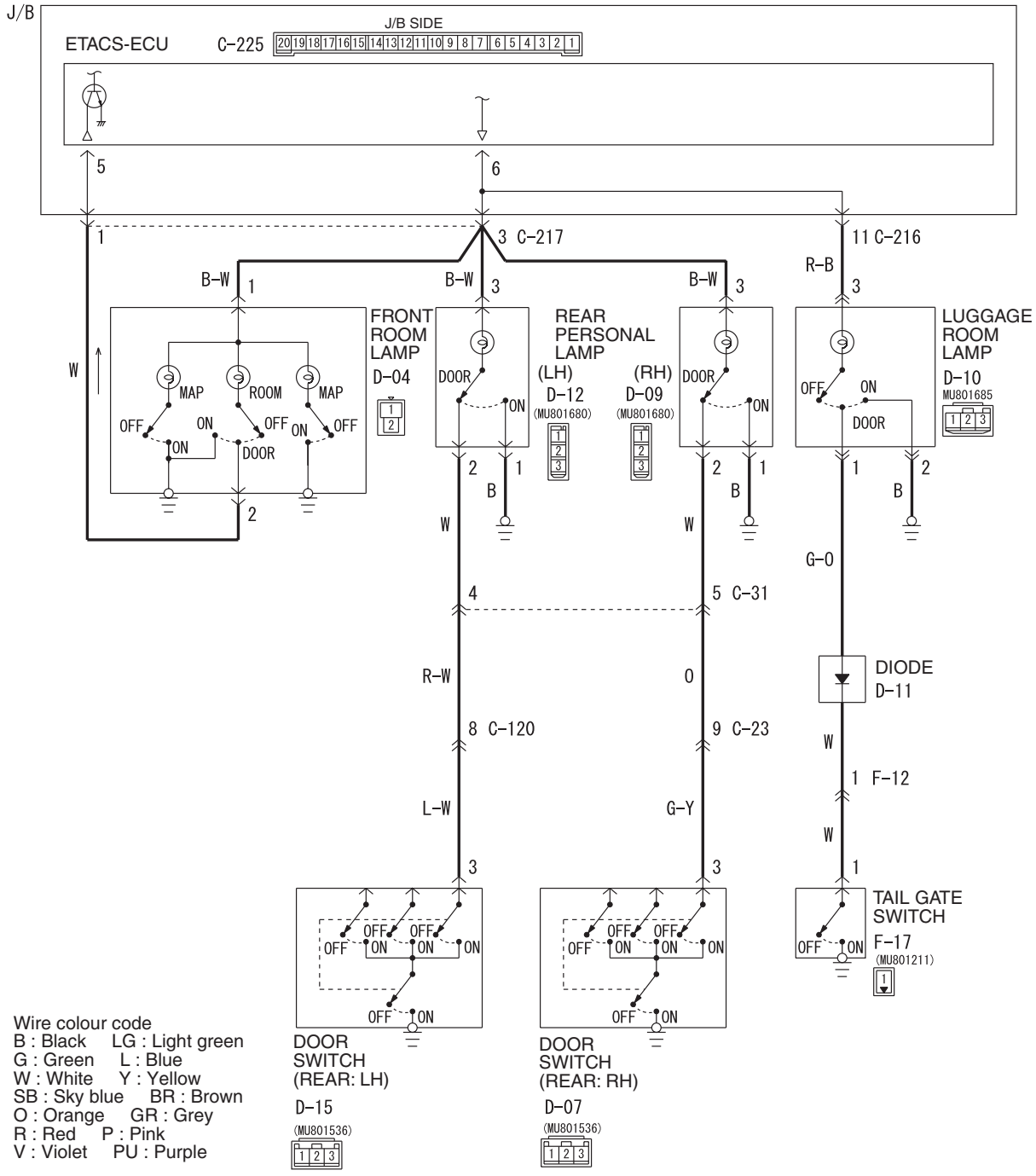
INTERIOR LAMP

INSPECTION PROCEDURE L-1: The interior lamp does not illuminate or extinguish normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Room Lamp Circuit <Vehicles without Curtain Air Bag>



Wire colour code
B : Black LG : Light green
G : Green L : Blue
W : White Y : Yellow
SB : Sky blue BR : Brown
O : Orange GR : Grey
R : Red P : Pink
V : Violet PU : Purple

W5J54L069A

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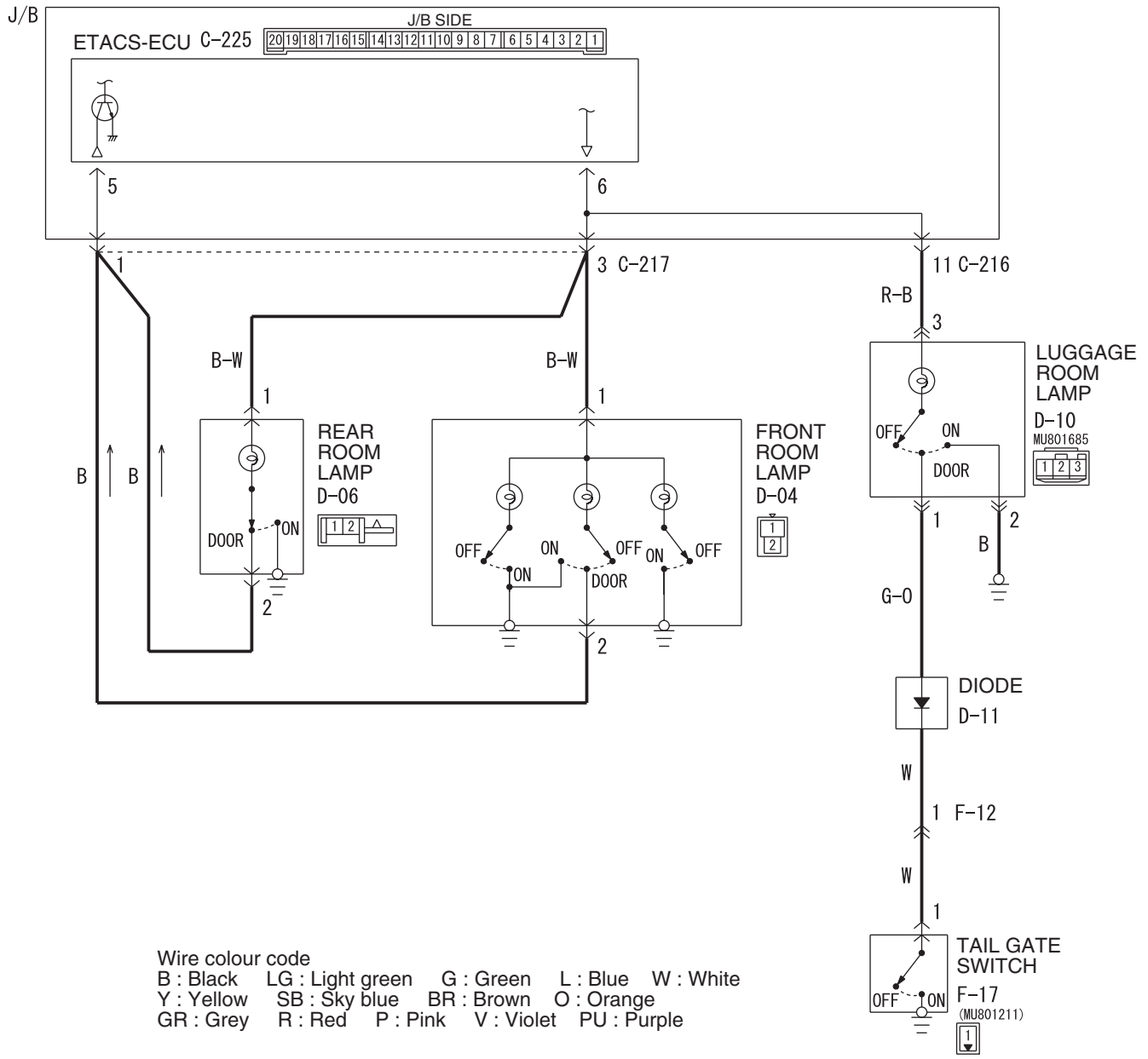
Room Lamp Circuit <Vehicles with Curtain Air Bag>



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- All of the door switches
- Front door lock actuator (RH)
- Interior lamp loaded signal

If this function does not work normally, these input signal circuit(s), the interior lamp automatic shut-down function or the ETACS-ECU may be defective. The delay-off setting of this function can be changed by the adjustment function (default setting; 15 seconds).

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.
Check that the room lamp delay-off time has been set to other than "0 second" by the adjustment function.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Use the adjustment function to set the room lamp delay-off time to other than "0 second" (Refer to GROUP 54B –Adjustment function P.54B-261).

STEP 2. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 3. SWS monitor data list.
Check the input signals below, which are related to the interior lamps.

<Selected item> ETACS ECU
- Turn the ignition switch to the "OFF" position.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	OFF

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

STEP 4. Pulse check
Check the input signals below, which are related to the interior lamps.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
All of the door switches	A door is opened when all the doors are closed
Front door lock actuator switch (RH)	When the driver's door is unlocked or locked
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 5.
NO <The key reminder switch signal is not received> : Refer to inspection procedure M-10 "The key reminder switch signal is not received P.54C-227."
NO <All the door switch signals are not received> : Refer to inspection procedure M-12 "All the door switch signals are not received P.54C-233 ."
NO <The front door lock actuator (RH) switch signal is not received> : Refer to inspection procedure M-13 "The front door lock actuator (RH) switch signal is not received P.54C-237 ."
NO <The interior lamp loaded signal is not received> : Refer to inspection procedure M-16 "Interior lamp loaded signal is not detected P.54C-248."

STEP 5. Determine a trouble spot.

Q: Which lamp does not illuminate?
No lamps illuminate : Replace the ETACS-ECU.
The front room lamp or the rear room lamp <Vehicles with curtain air bag> does not illuminate. : Go to Step 6.
The rear personal lamp (LH) <Vehicles without curtain air bag> does not illuminate. : Go to Step 11.
The rear personal lamp (RH) <Vehicles without curtain air bag> does not illuminate. : Go to Step 18.
The luggage room lamp does not illuminate. : Go to Step 25.

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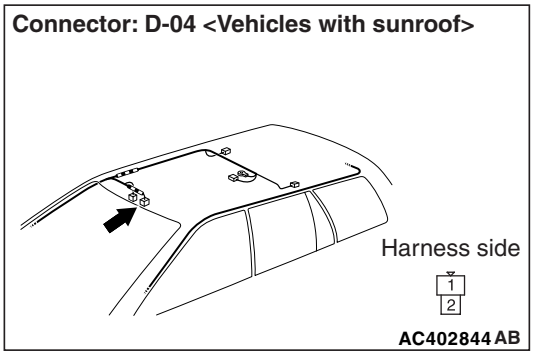
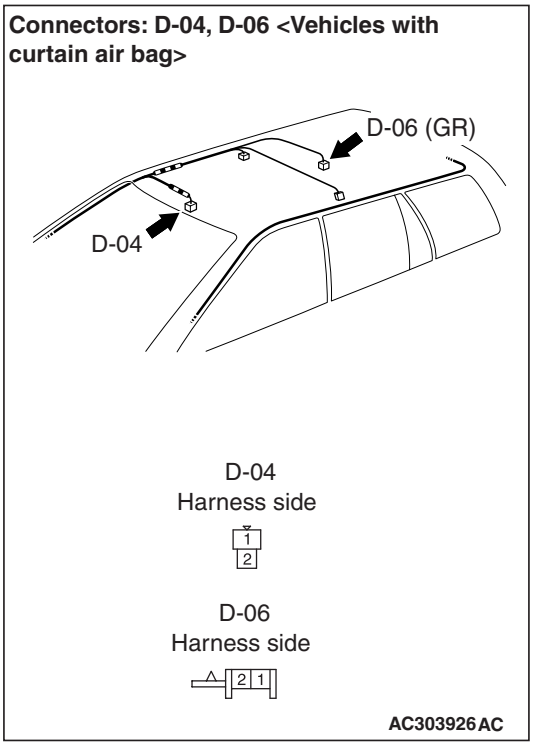
STEP 6. Connector check: D-04 front room lamp connector, D-06 rear room lamp connector





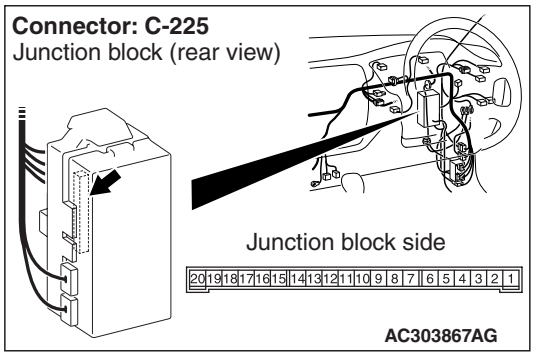
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

STEP 7. Check the bulbs of the front or rear room lamps.

Check that the front or rear room lamp bulbs are not burned out.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the front or rear room lamp bulb.

STEP 8. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

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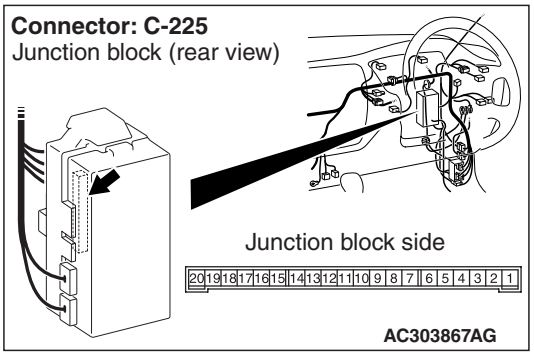
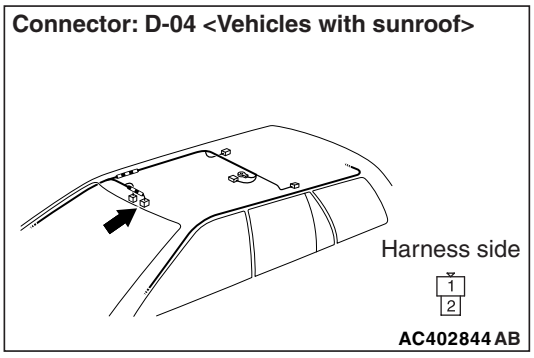
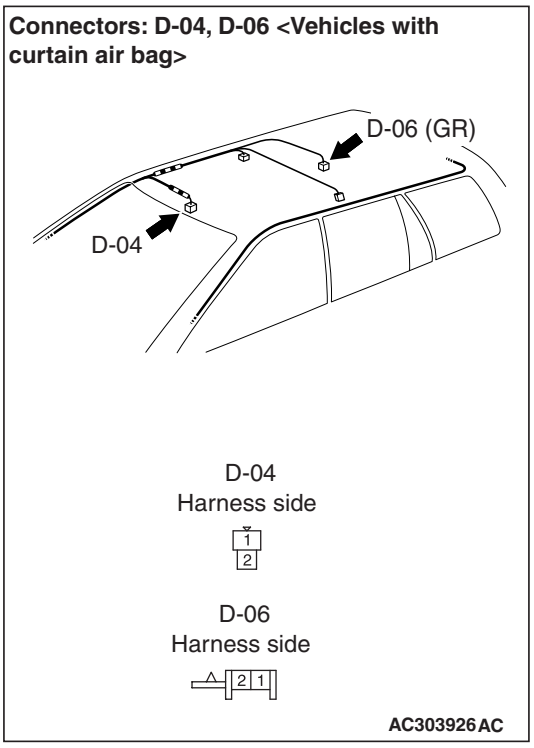
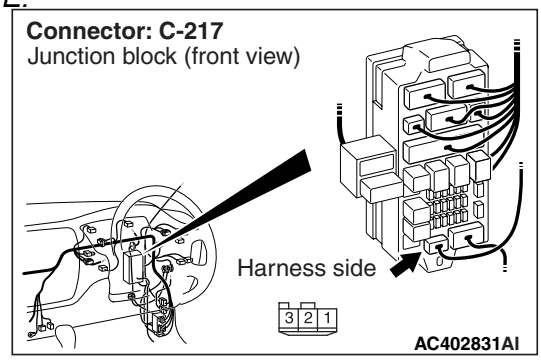
STEP 9. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 5 and 6 to D-04 front room lamp connector terminal Nos. 2 and 1 or D-06 rea room lamp connector terminal Nos. 2 and 1.







NOTE:



Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.

- Check the input or output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 10. Retest the system.

Check that the front or rear room lamp illuminates and extinguishes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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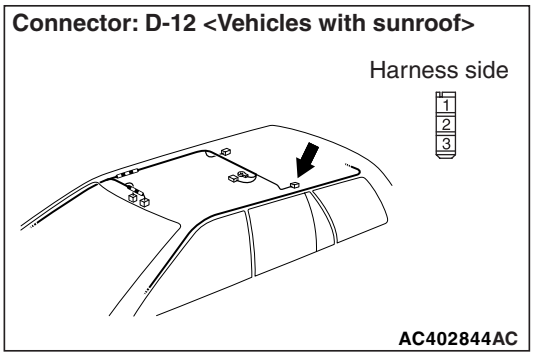
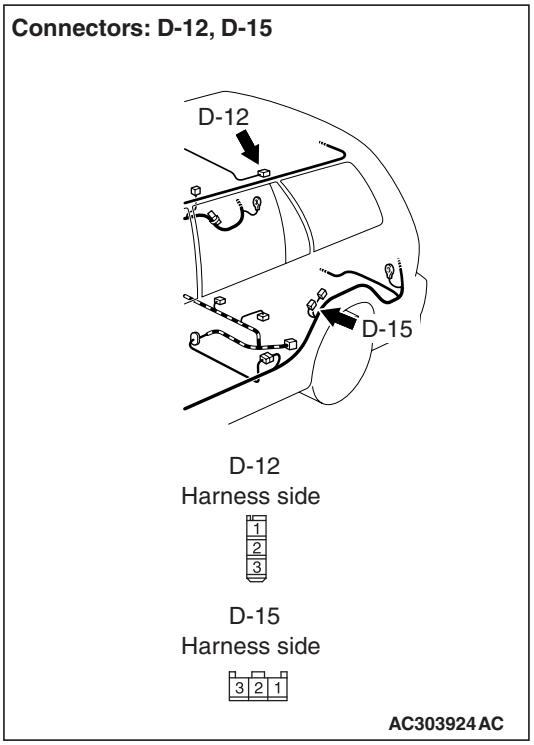
STEP 11. Connector check: D-12 rear personal lamp (LH) connector, D-15 door switch (rear: LH) connector





Q: Is the check result normal?
YES : Go to Step 12.
NO : Repair the defective connector.

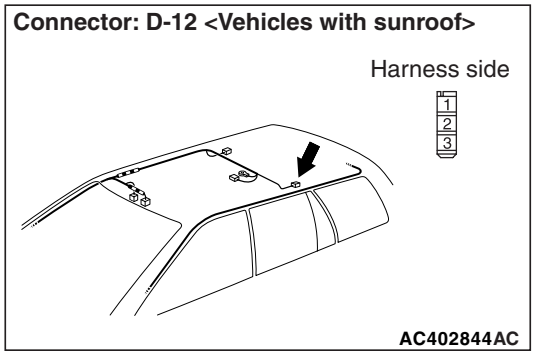
STEP 12. Check the bulbs of the rear personal lamp (LH).
Check that the rear personal lamp (LH) bulb are not burned out.

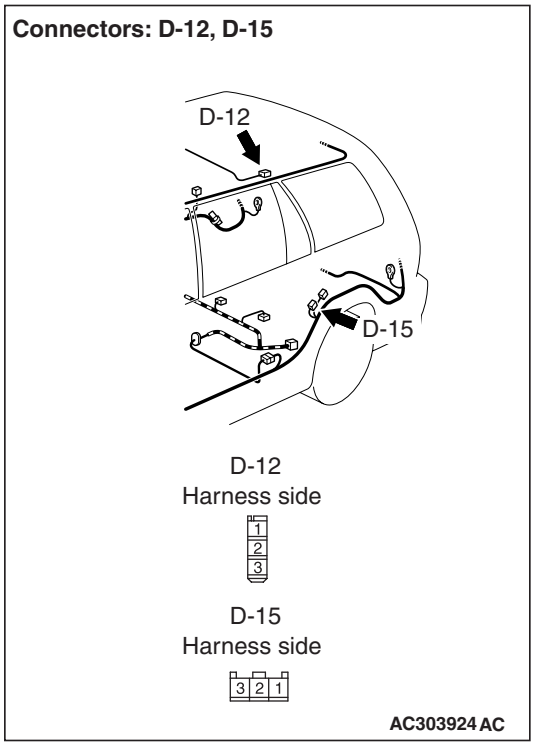
Q: Is the check result normal?
YES : Go to Step 13.
NO : Replace the rear personal lamp (LH) bulb.

STEP 13. Check the door switch (rear: LH).
Check the door switch (rear: LH). Refer to GROUP 42 –Door P.42-28.

Q: Is the check result normal?
YES : Go to Step 14.
NO : Replace the door switch (rear: LH).

STEP 14. Check the wiring harness from D-12 rear personal lamp (LH) connector terminal No.2 to D-15 door switch (rear: LH) connector terminal No.3.





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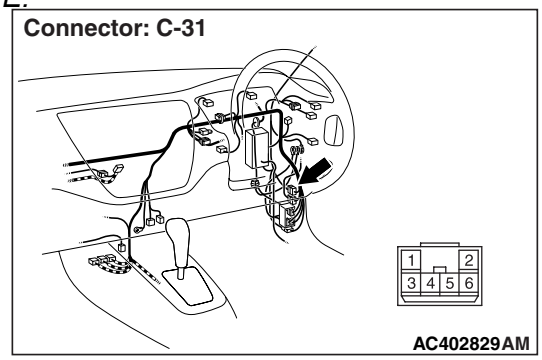
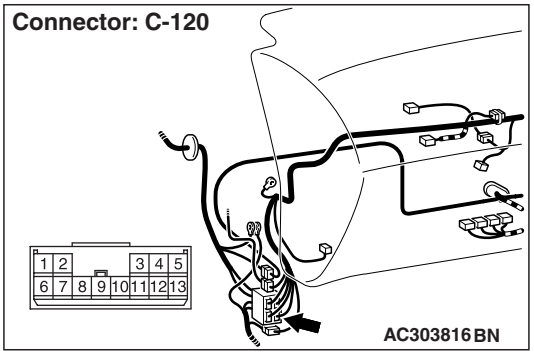
NOTE:



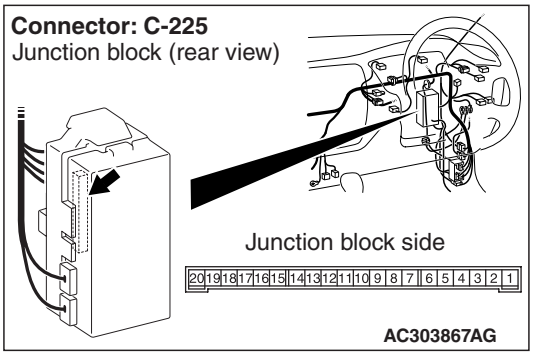


Prior to the wiring harness inspection, check intermediate connector C-31 or C-120, and repair if necessary.

- Check the earth wires for open circuit.

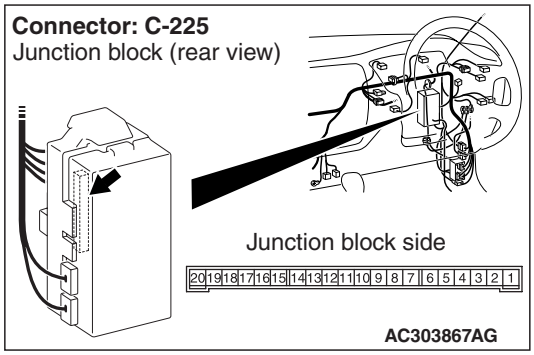
Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the wiring harness.

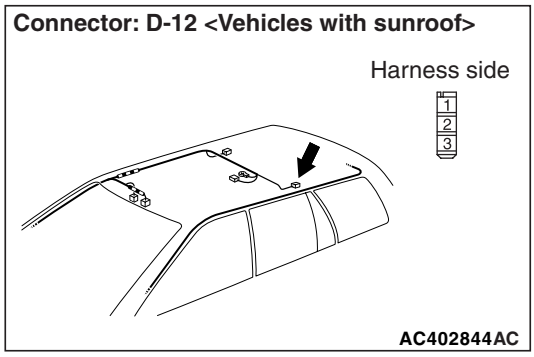
STEP 15. Connector check: C-225 ETACS-ECU connector

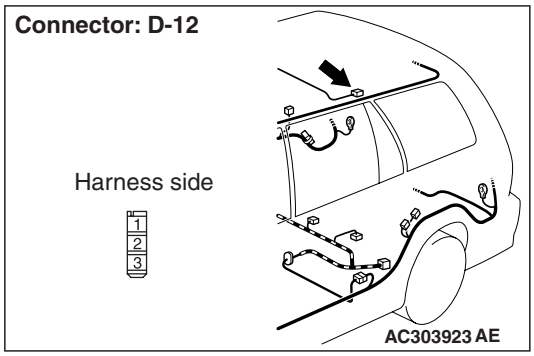


Q: Is the check result normal?
YES : Go to Step 16.
NO : Repair the defective connector.

STEP 16. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-12 rear personal lamp (LH) connector terminal No.3.







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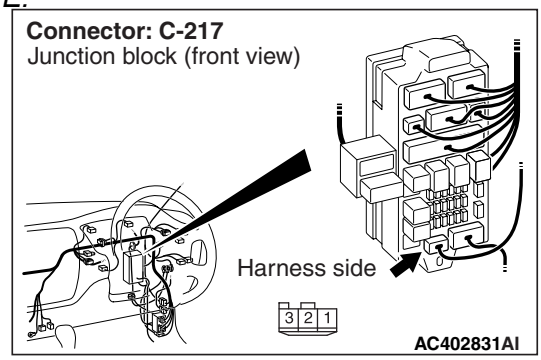

Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the wiring harness.

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STEP 17. Retest the system.

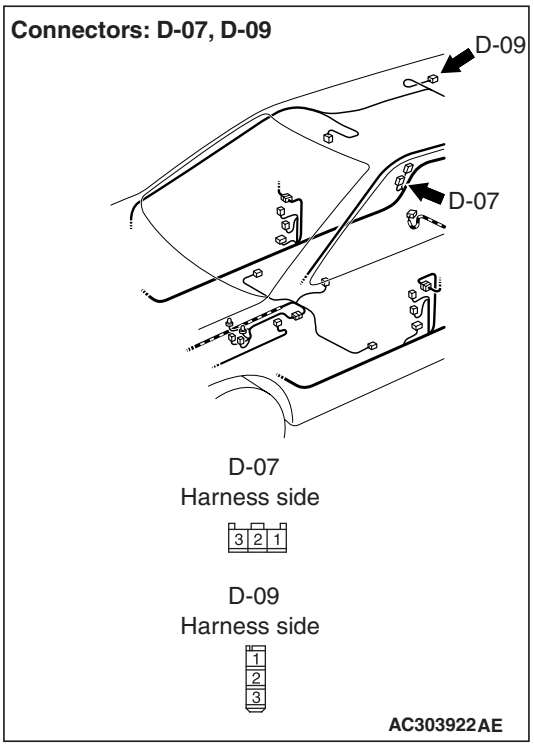
Check that the rear personal lamp (LH) illuminates and extinguishes normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

STEP 18. Connector check: D-09 rear personal lamp (RH) connector, D-07 door switch (rear: RH) connector



Q: Is the check result normal?

YES : Go to Step 19.

NO : Repair the defective connector.

STEP 19. Check the bulbs of the rear personal lamp (RH).

Check that the rear personal lamp (RH) bulb are not burned out.

Q: Is the check result normal?

YES : Go to Step 20.

NO : Replace the rear personal lamp (RH) bulb.

STEP 20. Check the door switch (rear: RH).

Check the door switch (rear: RH). Refer to GROUP 42 –Door P.42-28.

Q: Is the check result normal?

YES : Go to Step 21.

NO : Replace the door switch (rear: RH).

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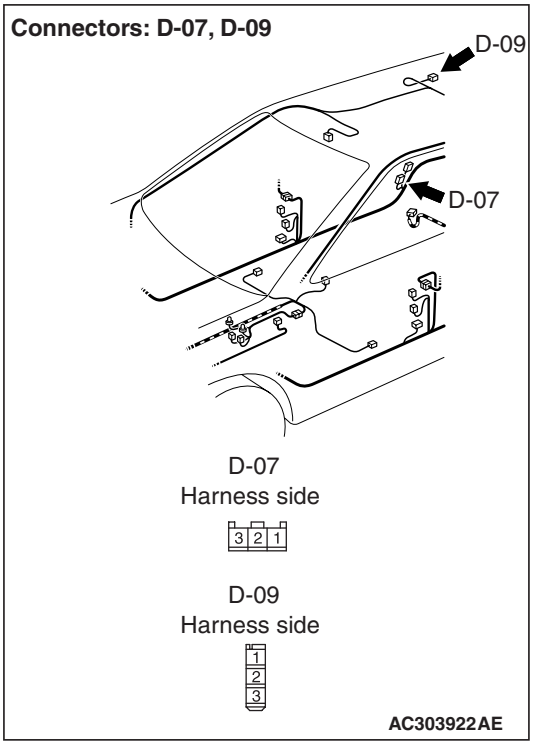
STEP 21. Check the wiring harness from D-09 rear personal lamp (RH) connector terminal No.2 to D-07 door switch (rear: LH) connector terminal No.3.



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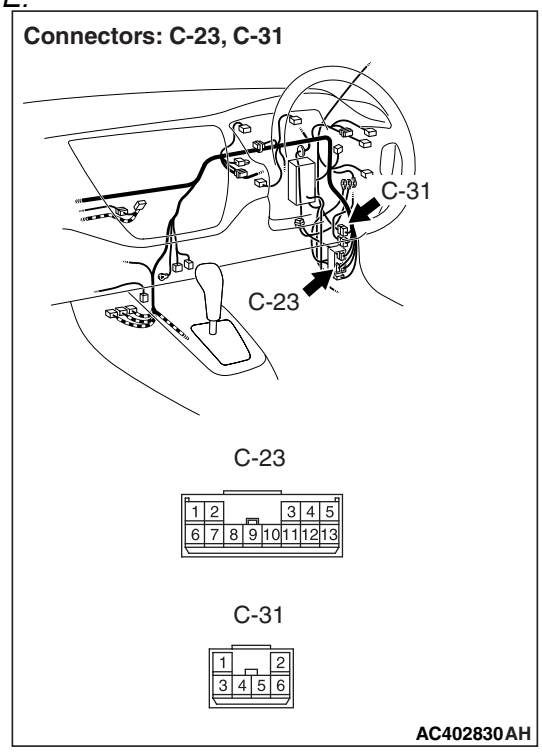
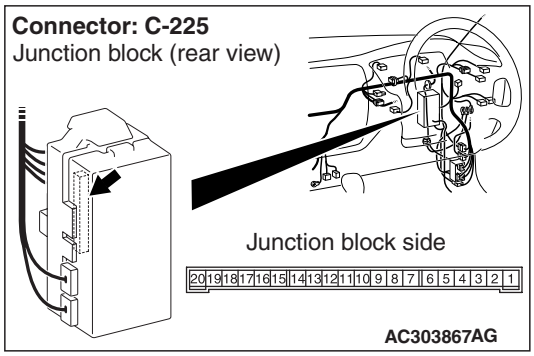


Prior to the wiring harness inspection, check intermediate connector C-23 or C-31, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 22.
NO : Repair the wiring harness.

STEP 22. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 23.
NO : Repair the defective connector.

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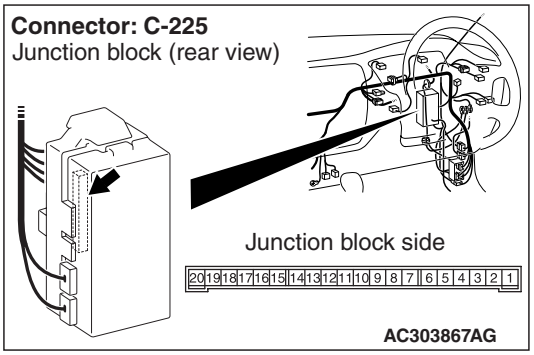
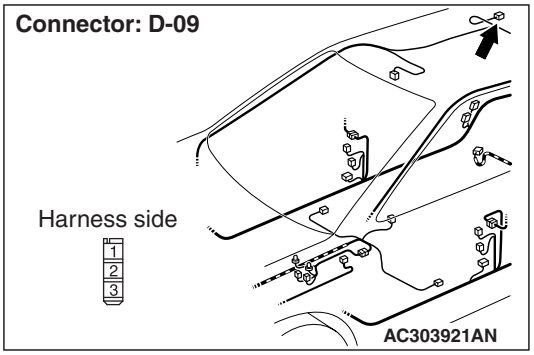
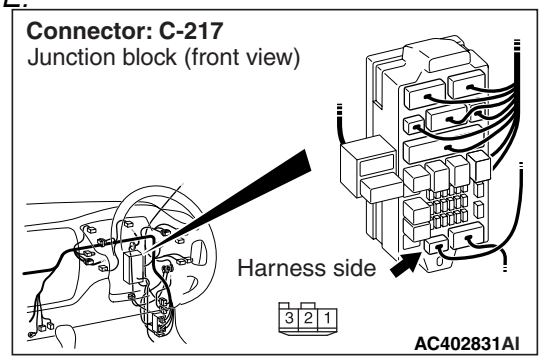
STEP 23. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-09 rear personal lamp (RH) connector terminal No.3.





NOTE:



Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.

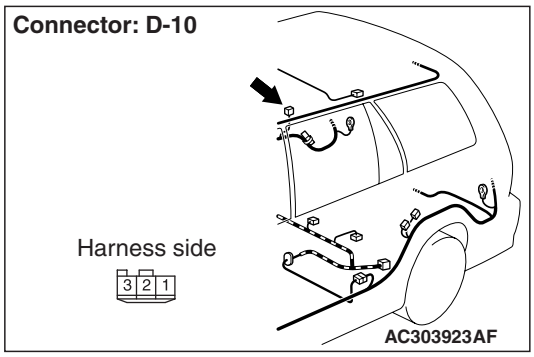
- Check the power supply line for open circuit.

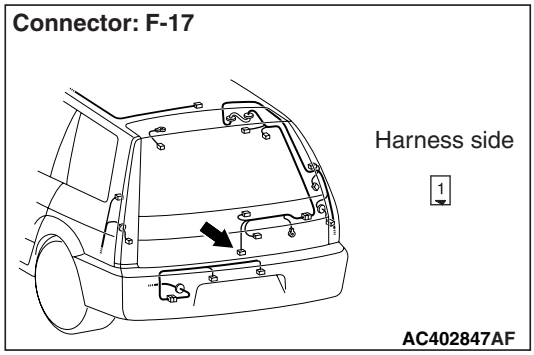
Q: Is the check result normal?
YES : Go to Step 24.
NO : Repair the wiring harness.

STEP 24. Retest the system.
Check that the rear personal lamp (RH) illuminates and extinguishes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

STEP 25. Connector check: D-10 luggage room lamp connector, F-17 tailgate switch connector





Q: Is the check result normal?
YES : Go to Step 26.
NO : Repair the defective connector.

STEP 26. Check the bulbs of the luggage room lamp.
Check that the luggage room lamp bulb are not burned out.

Q: Is the check result normal?
YES : Go to Step 27.
NO : Replace the rear personal lamp (RH) bulb.

STEP 27. Check the tailgate switch.
Check the tailgate switch. Refer to GROUP 42 –Tailgate P.42-45.

Q: Is the check result normal?
YES : Go to Step 28.
NO : Replace the tailgate switch.

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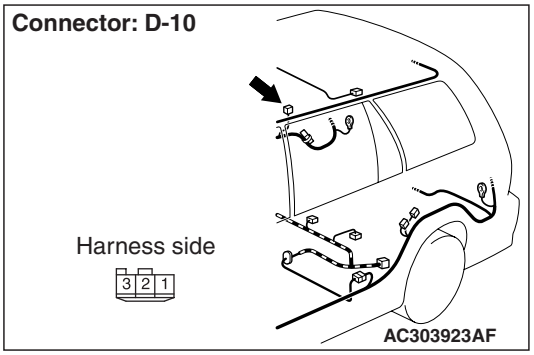
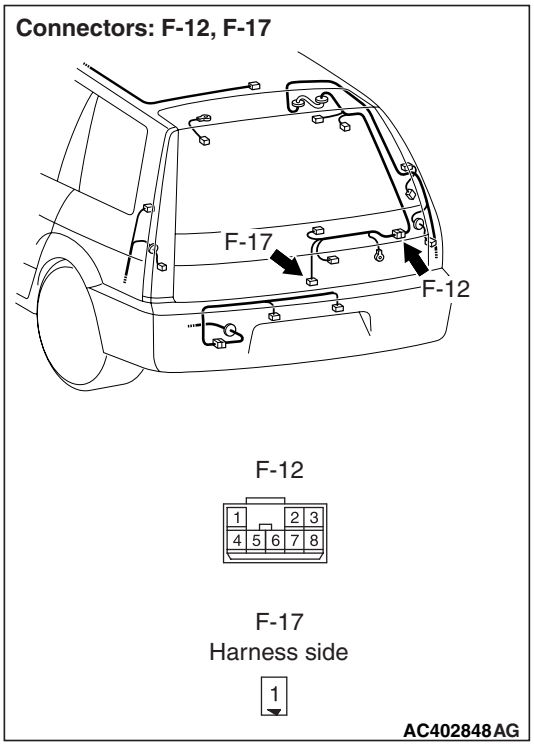
STEP 28. Check the wiring harness from D-10 luggage room lamp connector terminal No.1 to F-17 tailgate switch connector terminal No.1.



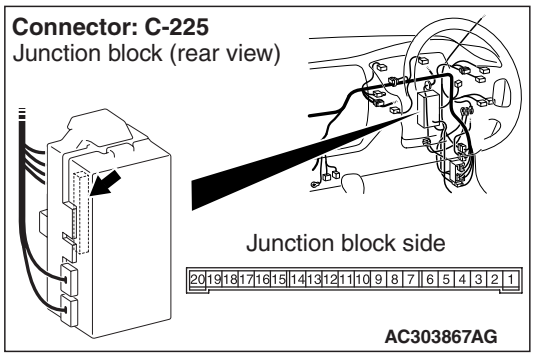


NOTE: Prior to the wiring harness inspection, check intermediate connector F-12, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : Go to Step 29.
NO : Repair the wiring harness.

STEP 29. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 30.
NO : Repair the defective connector.

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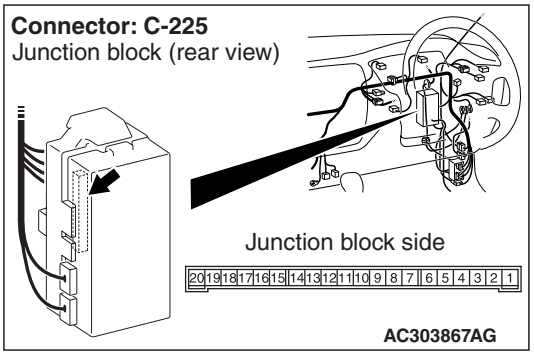
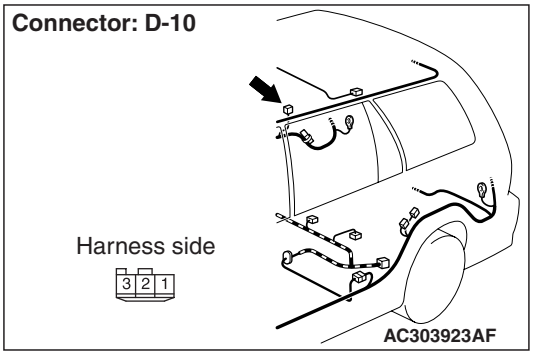
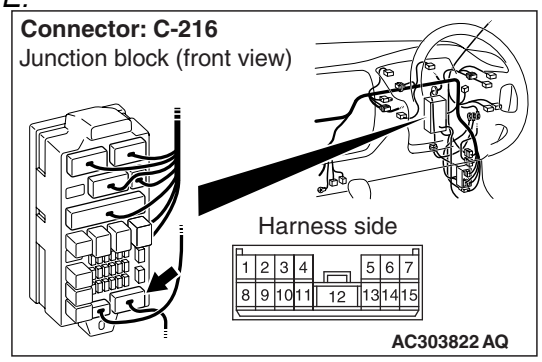
STEP 30. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-10 luggage room lamp connector terminal No.3.





NOTE:



Prior to the wiring harness inspection, check junction block connector C-216, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : Go to Step 31.
NO : Repair the wiring harness.

STEP 31. Retest the system.
Check that the luggage room lamp illuminates and extinguishes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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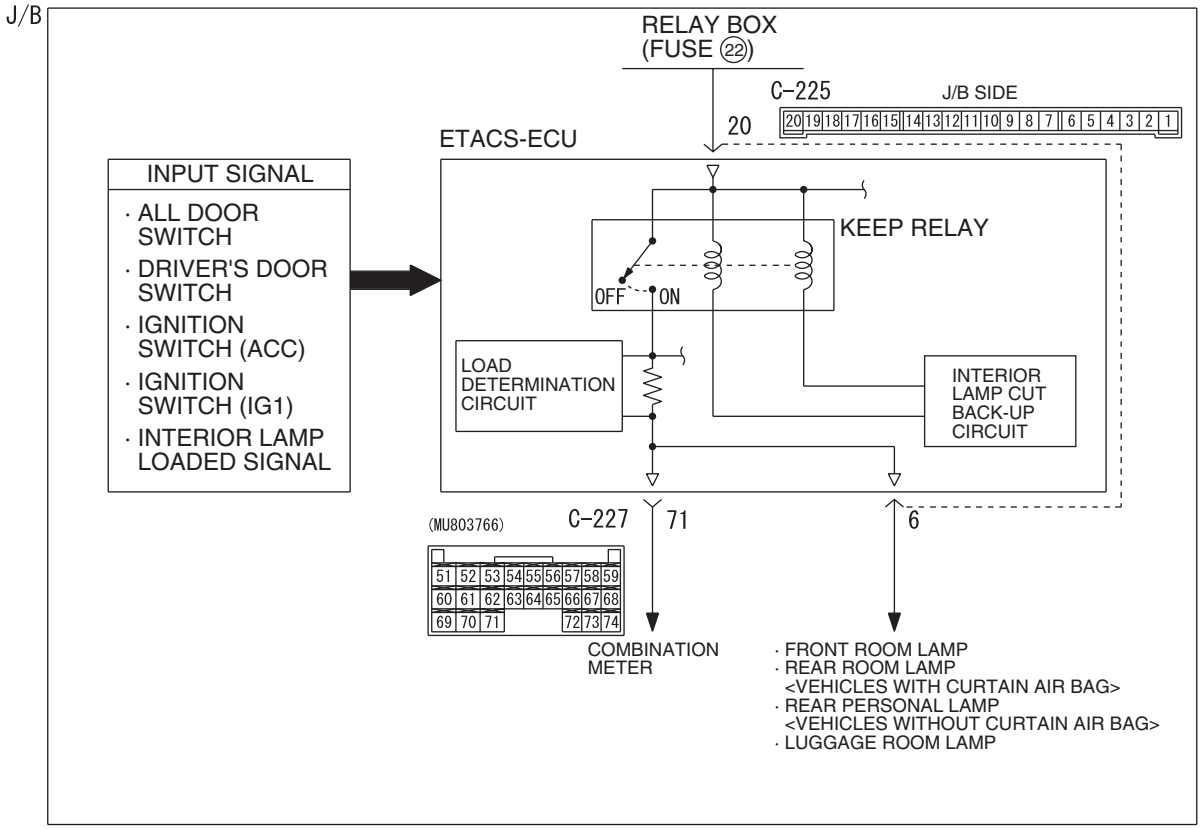
INSPECTION PROCEDURE L-2: Interior lamp automatic shutdown function does not work normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Interior Lamp Automatic Shutdown Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates the interior lamp automatic shutdown function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Driver's door switch
- All of the door switches
- Interior lamp loaded signal

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Note that this function can be disabled/enabled by the adjustment function (default setting; enabled).

PROBABLE CAUSES

- Malfunction of the door switches
- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.

Check that the interior lamp automatic shutdown function has been enabled by using the adjustment function.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Enable the interior lamp automatic shutdown function by using the adjustment function (Refer to GROUP 54B –Adjustment function P.54B-261).

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STEP 2. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 3. SWS monitor data list.
Check the input signals below, which are related to the interior lamp automatic shutdown function.

<Selected item> ETACS ECU
- Turn the ignition switch to the "OFF" position.
- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	OFF
Item 31	IG SW(ACC)	OFF
Item 32	FRONT DOOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES <Normal conditions are displayed for all the items> : Go to Step 4.
NO <Normal condition is not displayed for item No.30> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."
NO <Normal condition is not displayed for item No.31> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54C-200."
NO <Normal condition is not displayed for item No.32> : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212 ."

STEP 4. Pulse check.
Check the input signals below, which are related to the interior lamp automatic shutdown function.

System switch	Check condition
All of the door switches	A door is opened when all the doors are closed
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 5.
NO <All the door switch signals are not received> : Refer to inspection procedure M-12 "All the door switch signals are not received P.54C-233 ."
NO <The interior lamp loaded signal is not received> : Refer to inspection procedure M-16 "Interior lamp loaded signal is not detected P.54C-248."

STEP 5. Retest the system.
Check that the interior lamp automatic shutdown function works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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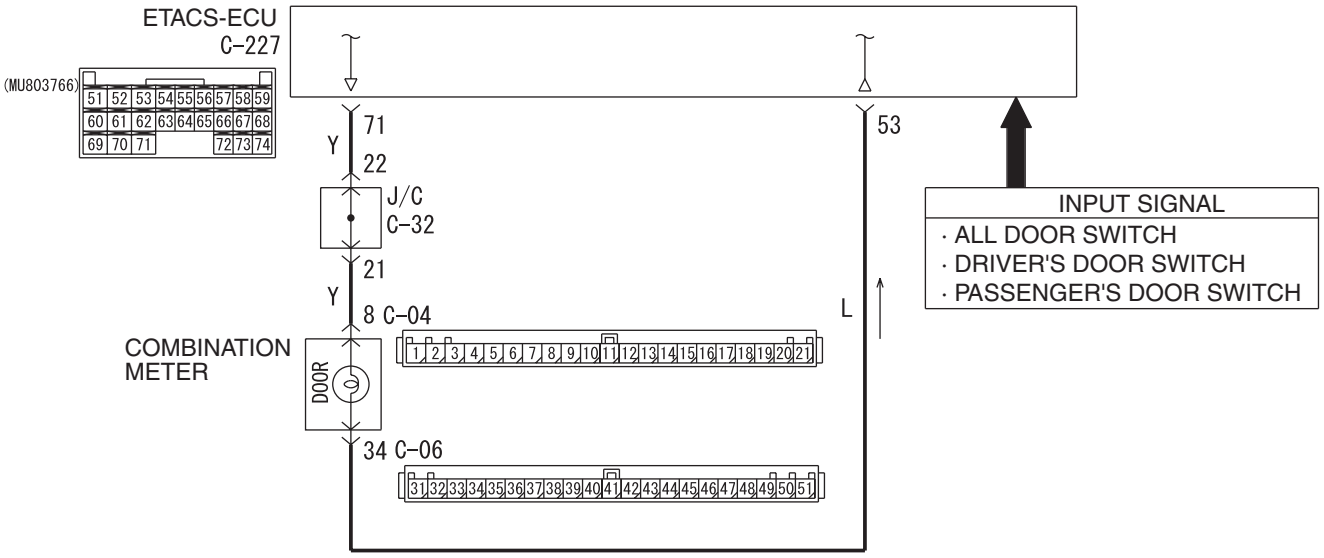
INSPECTION PROCEDURE L-3: The door-ajar warning lamp does not illuminate/extinguish normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Door Ajar Indicator Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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OPERATION

The ETACS-ECU operates this function in accordance with all the door switch signals. If the door-ajar warning lamp does not work normally, the input signal circuits from all the door switches or the ETACS-ECU may be defective.

PROBABLE CAUSES

- All the door switches are defective.
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the interior lamp.
Check that the interior lamps illuminate and extinguish normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure L-1 "The interior lamp does not illuminate or extinguish normally P.54C-179."

STEP 2. SWS monitor data list.
Check the input signals below, which are related to the door-ajar warning lamp.

<Selected item> ETACS ECU
- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 32	FRONT DOOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212."

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STEP 3. Pulse check

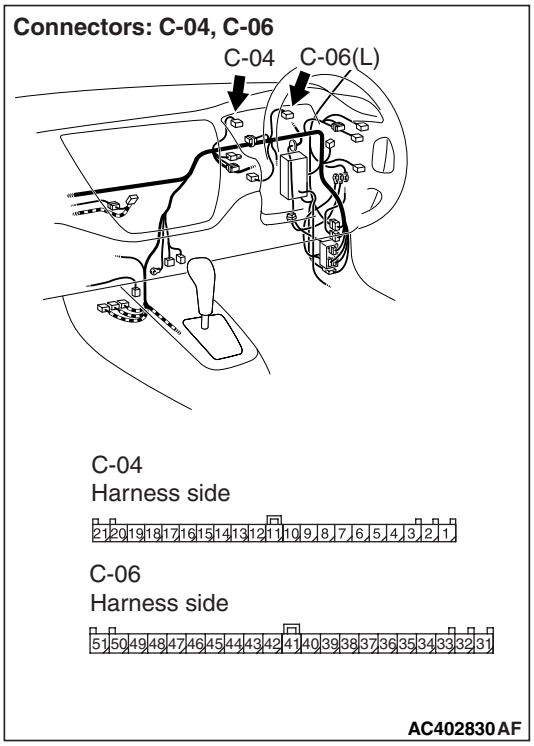
Check the input signals below, which are related to the door-ajar warning lamp.

System switch	Check condition
All of the door switches	A door is opened when all the doors are closed

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to inspection procedure M-12 "All the door switch signals are not received P.54C-233."

STEP 4. Connector check: C-04 and C-06 combination meter connector



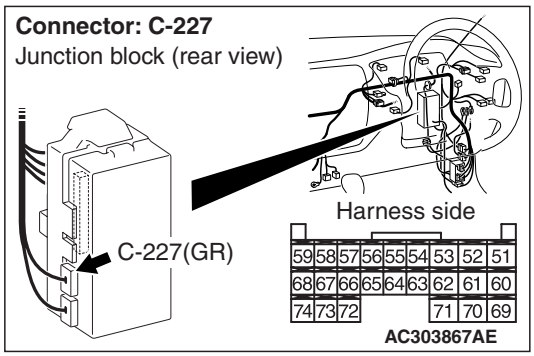
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

STEP 5. Check the door-ajar warning lamp bulb.

Check the door-ajar warning lamp bulb.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the door-ajar warning lamp bulb.

STEP 6. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

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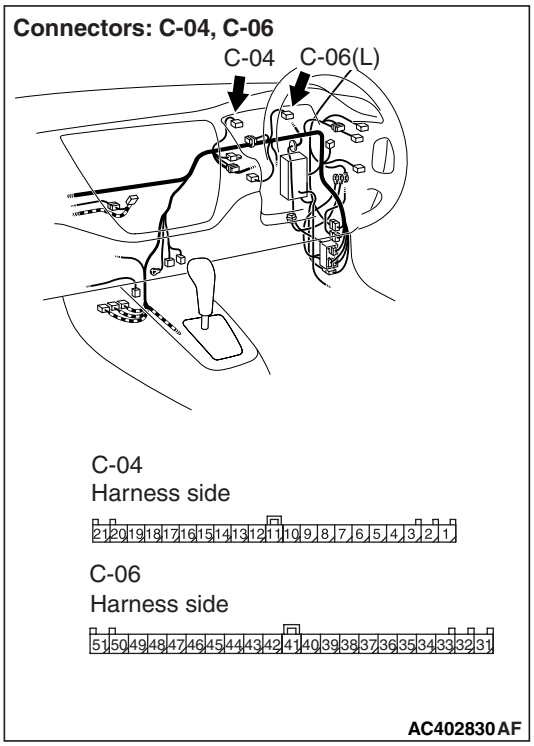
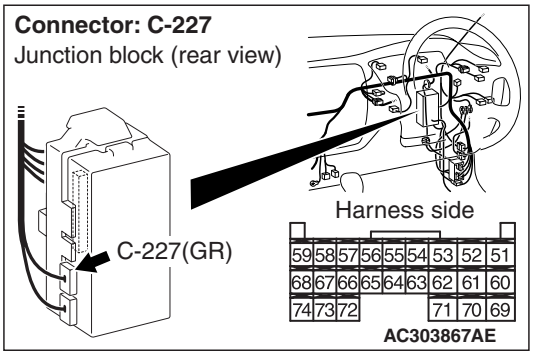
STEP 7. Check the wiring harness from C-227 ETACS-ECU connector terminal Nos. 53 and 71 to C-06 combination meter connector terminal No.34 and C-04 combination meter connector terminal No.8.





- Check the input or output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

STEP 8. Retest the system.
Replace the ETACS-ECU, and then check that the door-ajar warning lamp illuminates/extinguishes normally.
(1) Replace the ETACS-ECU.
(2) Check that the door-ajar warning lamp illuminates/extinguishes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the combination meter.

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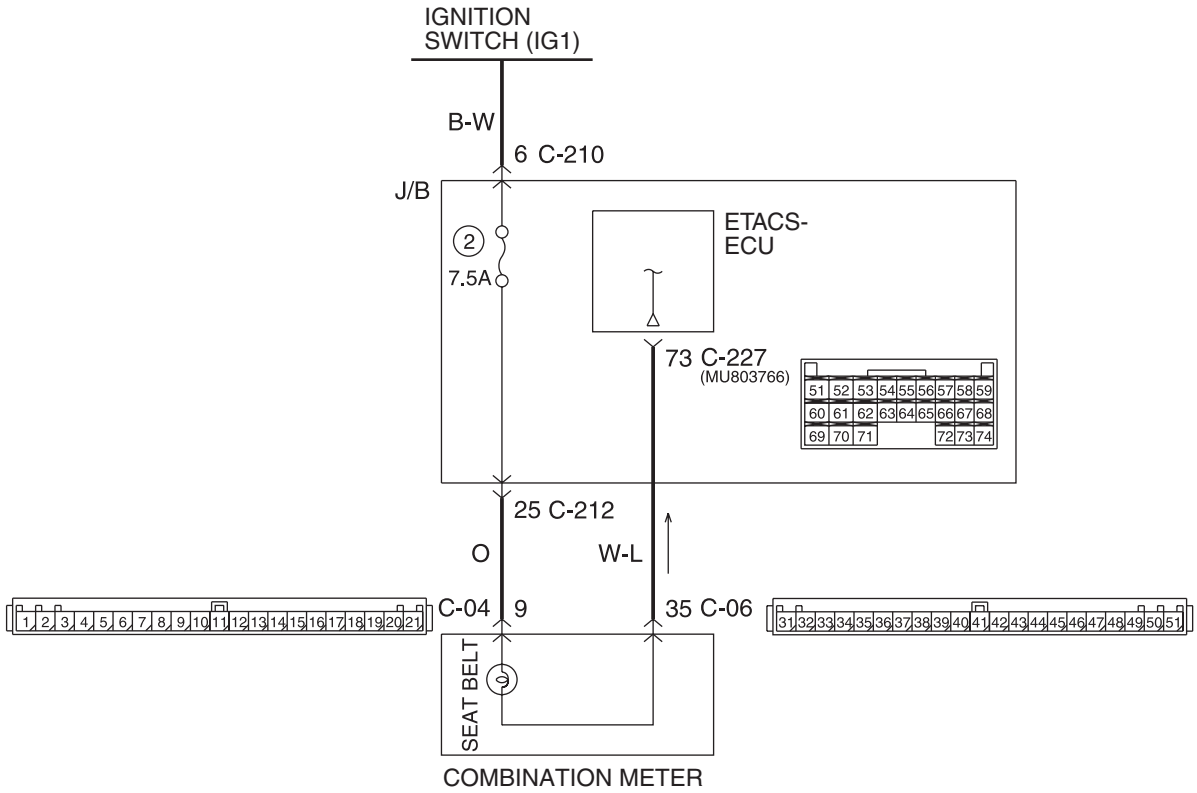
INSPECTION PROCEDURE L-4: The seat belt warning lamp does not flash normally.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Seat Belt Warning Lamp Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU flashes the seat belt warning lamp in accordance with the input signal from the ignition switch (IG1).

If it does not flash normally, these input signal circuit(s) or the ETACS-ECU may be defective.

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. SWS monitor data list

Check the SWS communication signal, which is related to the seat belt warning lamp.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	ON

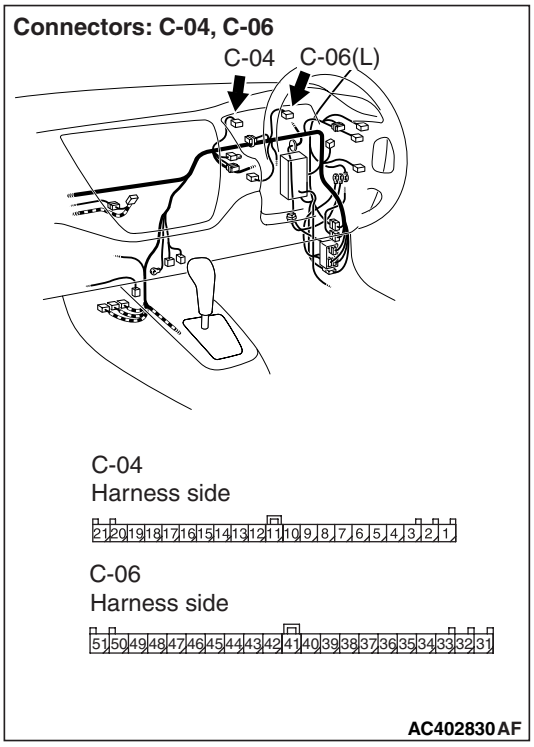
OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure M-2 "The ignition switch (IG1) signal is not received P.54C-202."

STEP 2. Connector check: C-04 and C-06 combination meter connectors

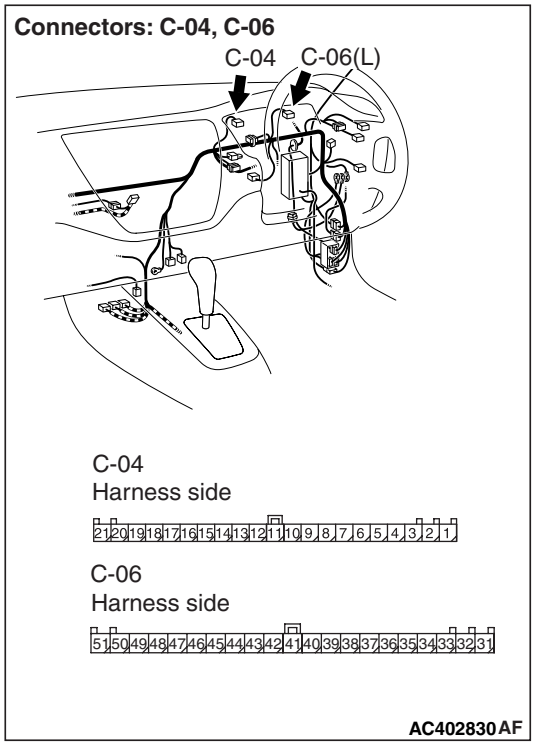


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

STEP 3. Check the seat belt warning lamp.



(1) Disconnect the C-04 and C-06 combination meter connectors, and check at the equipment side.

(2) When you connect the positive battery terminal to C-04 combination meter connector terminal No.9 and the negative battery terminal to C-06 combination meter connector terminal No.35 respectively, check that the seat belt warning lamp should illuminate.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the combination meter.

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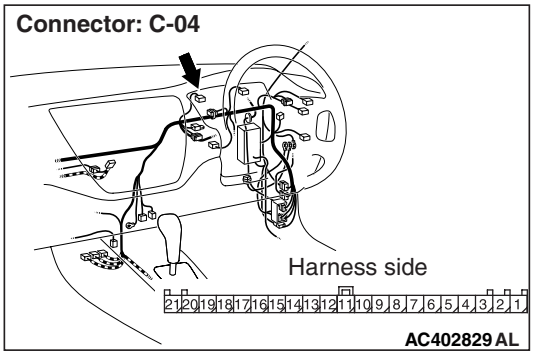
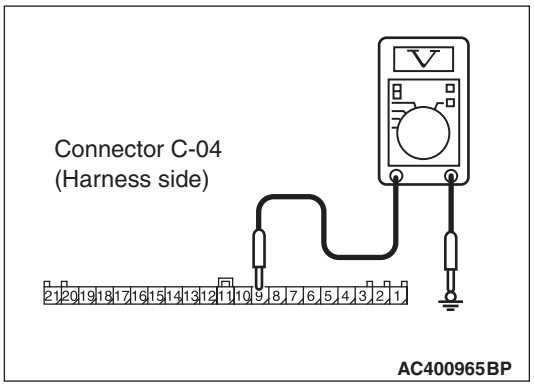
STEP 4. Measure the voltage at the C-04 combination meter connector.



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Voltage between C-04 combination meter connector No.9 and body earth

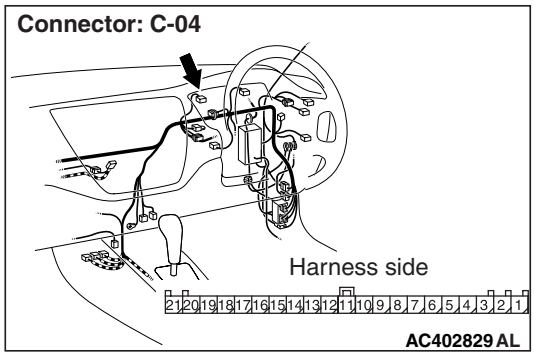
OK: System voltage

Q: Is the check result normal?

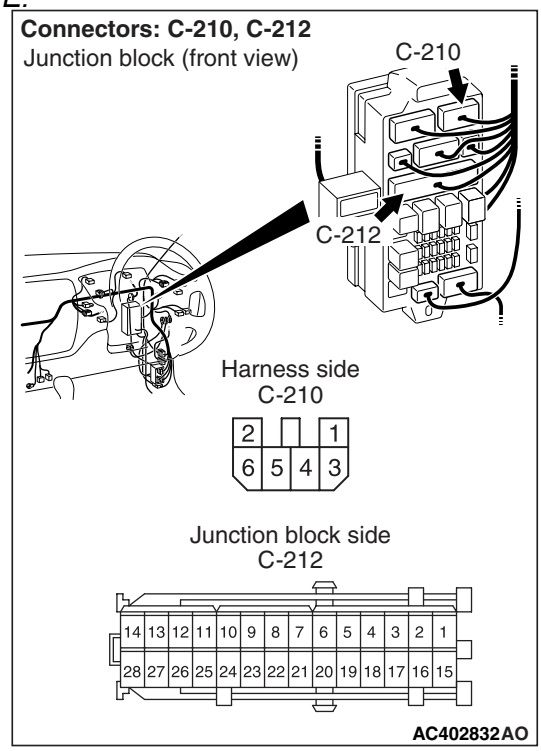
YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between C-04 combination meter connector terminal No.9 and the ignition switch (IG1).



NOTE:



Prior to the wiring harness inspection, check junction block connectors C-210 and C-212, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

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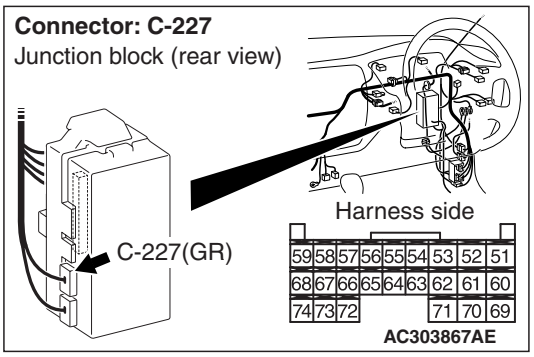
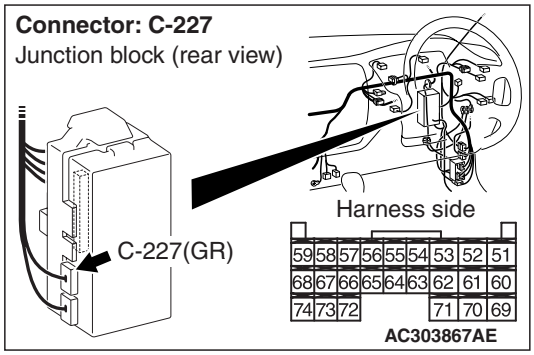
STEP 6. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

STEP 7. Check the wiring harness between C-06 combination meter connector terminal No.35 and C-227 ETACS-ECU connector terminal No.73.



- Check the input and output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

STEP 8. Retest the system.

Check that the seat belt warning lamp flashes normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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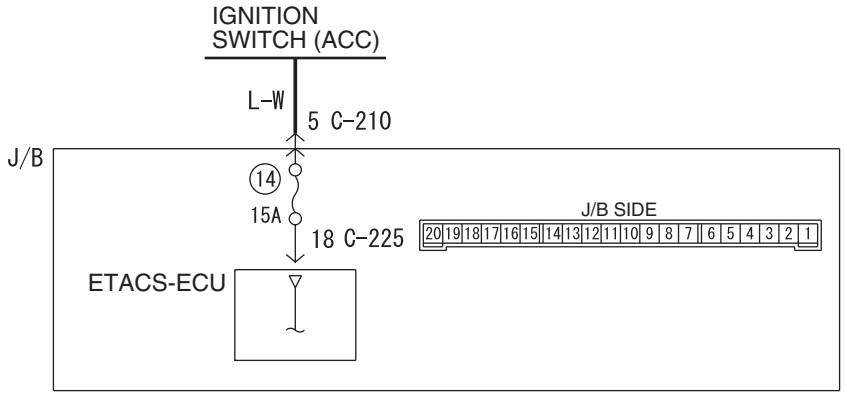
INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE M-1: The ignition switch (ACC) signal is not received.

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

Ignition Switch (ACC) Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (ACC) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

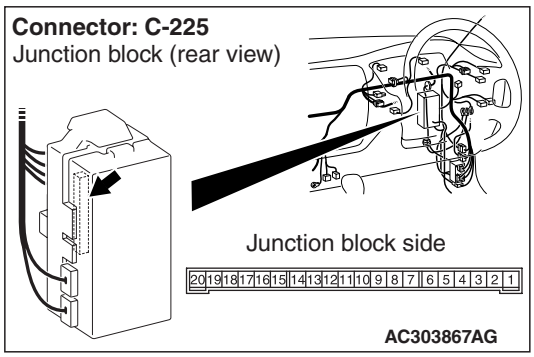
- Windshield wiper and washer
- Rear wiper and washer
- Interior lamp automatic shutdown function

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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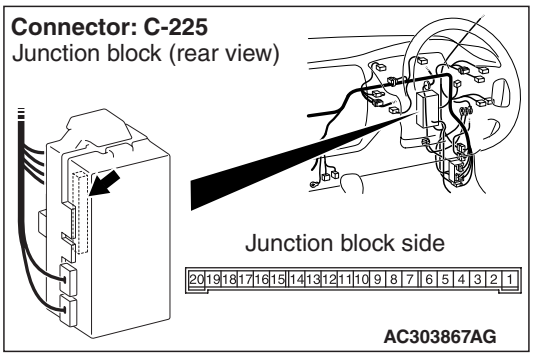
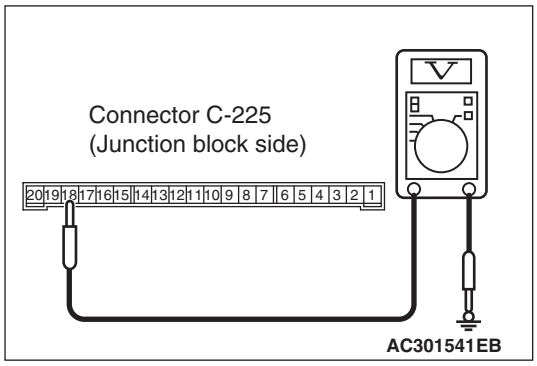
STEP 2. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the "ACC" position.

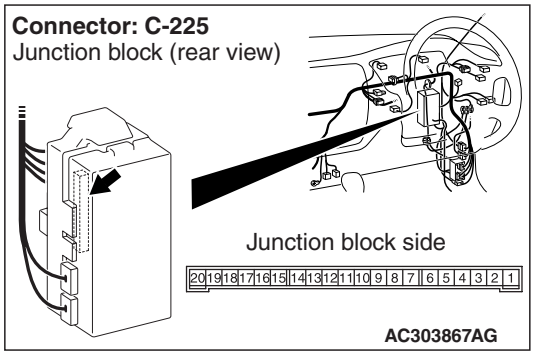


(3) Voltage between C-225 ETACS-ECU connector terminal No.18 and body earth

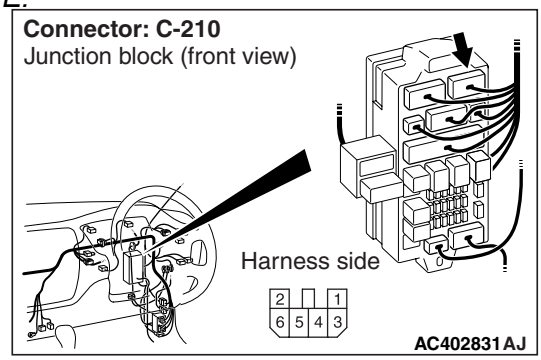
OK: System voltage

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the wiring harness between C-225 ETACS-ECU connector terminal No.18 and the ignition switch (ACC).



NOTE:



Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 4. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ACC" position.

Item No.	Item name	Normal condition
Item 31	IG SW(ACC)	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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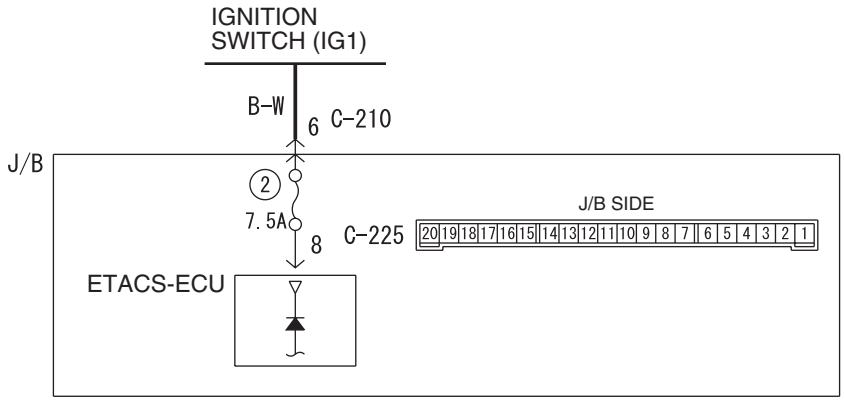
INSPECTION PROCEDURE M-2: The ignition switch (IG1) signal is not received.

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

Ignition Switch (IG1) Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L033A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (IG1) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

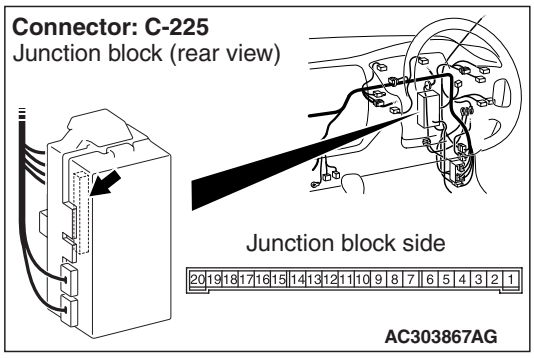
- Lamp reminder function
- Headlamp automatic shutdown function
- Turn-signal lamp
- Room lamps

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-225 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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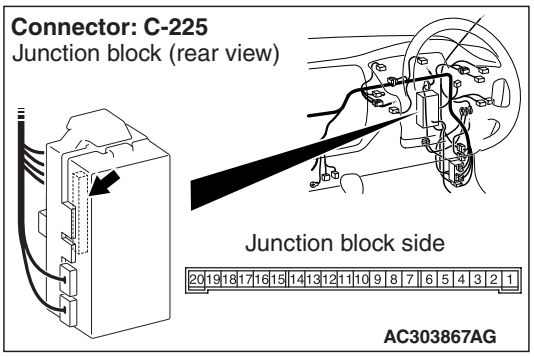
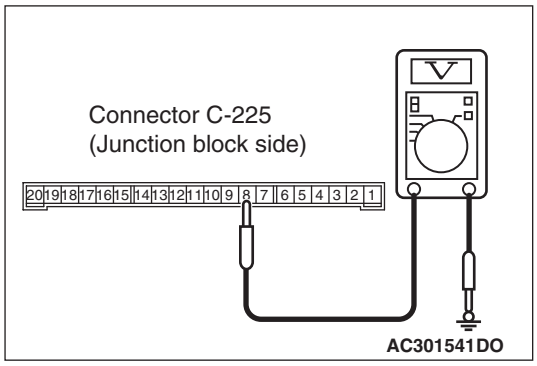
STEP 2. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the "ON" position.

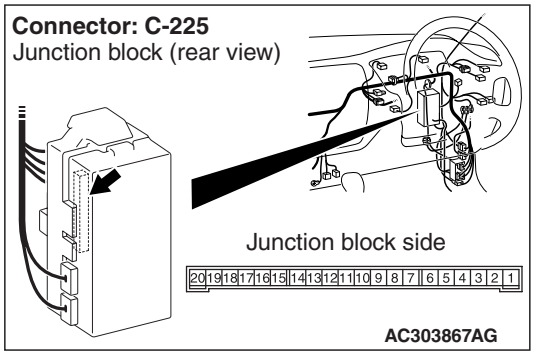


(3) Voltage between C-225 ETACS-ECU connector terminal No.8 and body earth

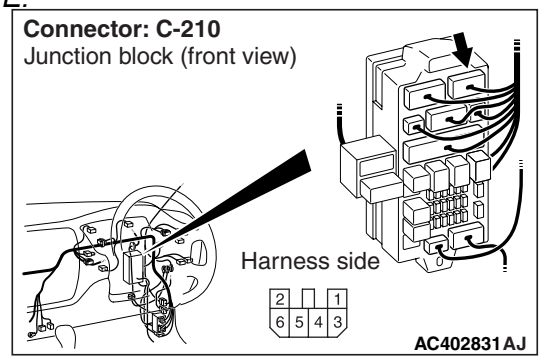
OK: System voltage

Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. Check the wiring harness between C-225 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



NOTE:



Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

- Check the power supply line for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 4. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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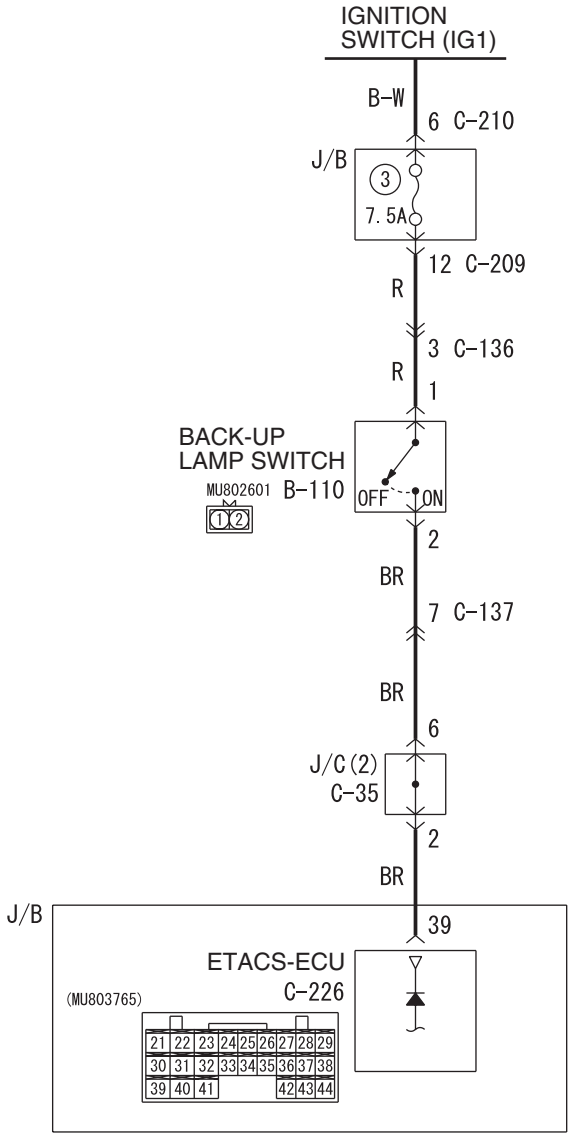
INSPECTION PROCEDURE M-3: The back-up lamp switch signal is not received. <M/T>

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

Back-up Lamp Switch Input Circuit <M/T>



Wire colour code
B : Black LG : Light green
G : Green L : Blue
W : White Y : Yellow
SB : Sky blue BR : Brown
O : Orange GR : Grey
R : Red P : Pink
V : Violet PU : Purple

W5J54L074A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the back-up lamp switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

PROBABLE CAUSES

- Malfunction of the back-up lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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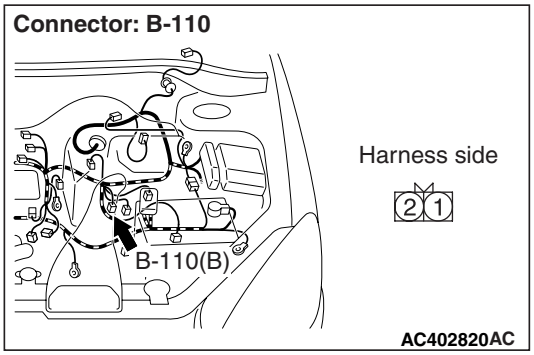
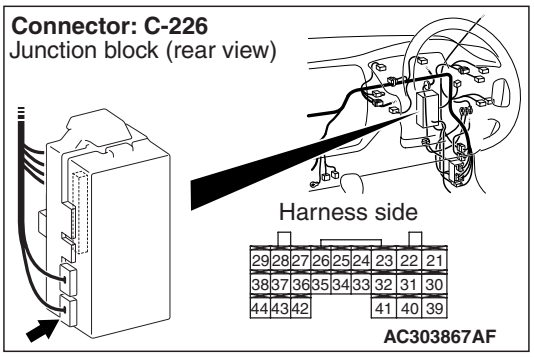
DIAGNOSIS PROCEDURE

STEP 1. Connector check: B-110 back-up lamp switch connector and C-226 ETACS-ECU connector





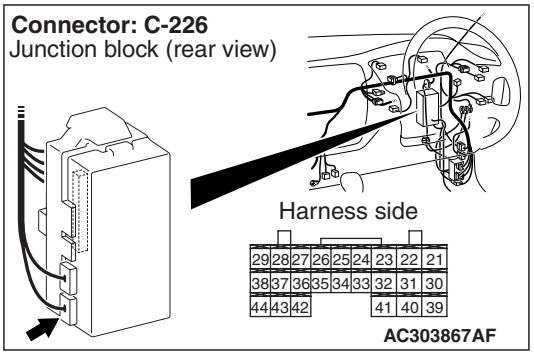
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the back-up lamp switch

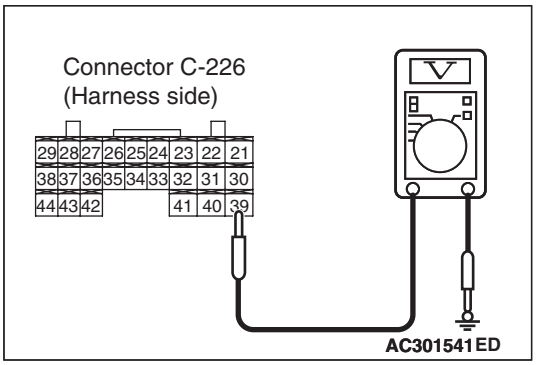
Check the back-up lamp switch (Refer to GROUP 22B –Transmission P.22B-18).

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

STEP 3. Voltage measurement at the C-226 ETACS-ECU connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.
(3) Move the shift lever to the "R" position.

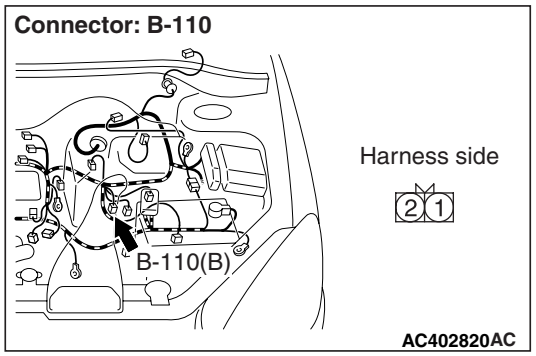


(4) Voltage between C-226 ETACS-ECU connector terminal No.39 and body earth

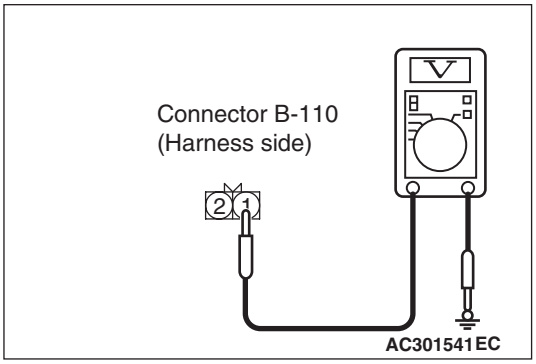
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

STEP 4. Voltage measurement at the B-110 back-up lamp switch connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.



(3) Voltage between B-110 back-up lamp switch connector terminal No.1 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 6.

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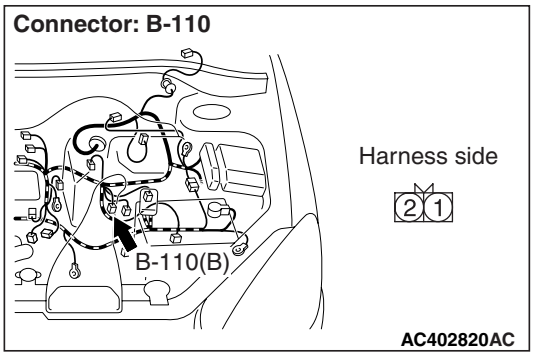
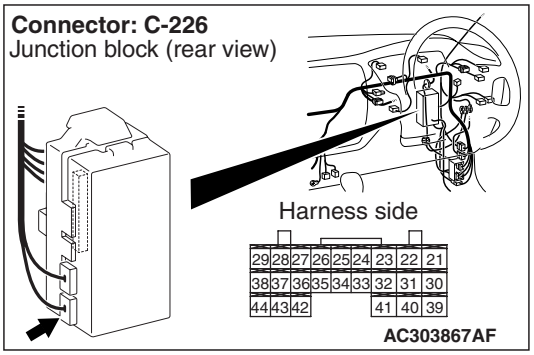
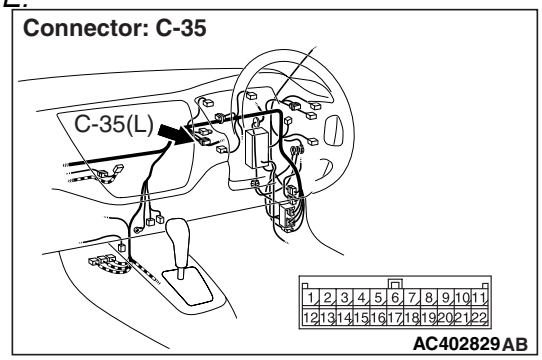
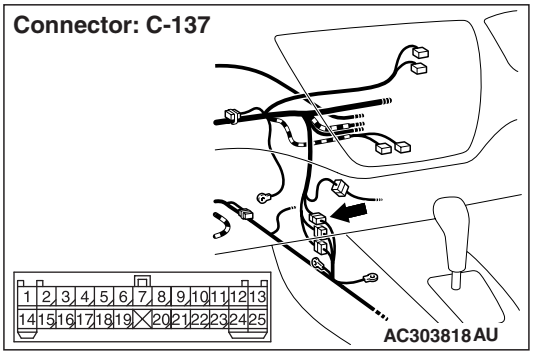
STEP 5. Check the wiring harness between B-110 back-up lamp switch connector terminal No.2 and C-226 ETACS-ECU connector terminal No.39.





NOTE:



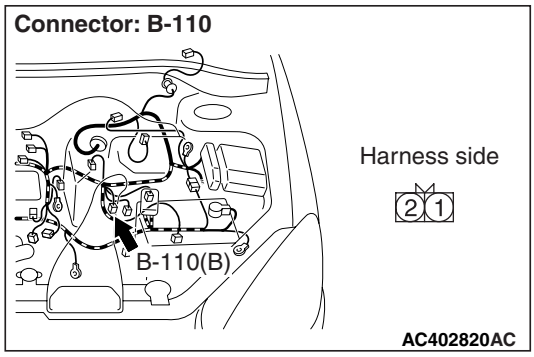


Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-137, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 6. Check the wiring harness between B-110 back-up lamp switch connector terminal No.1 and the ignition switch (IG1).



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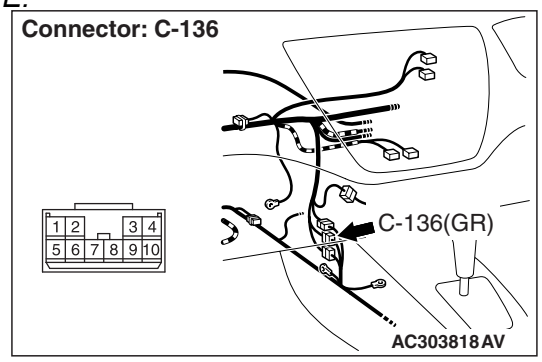
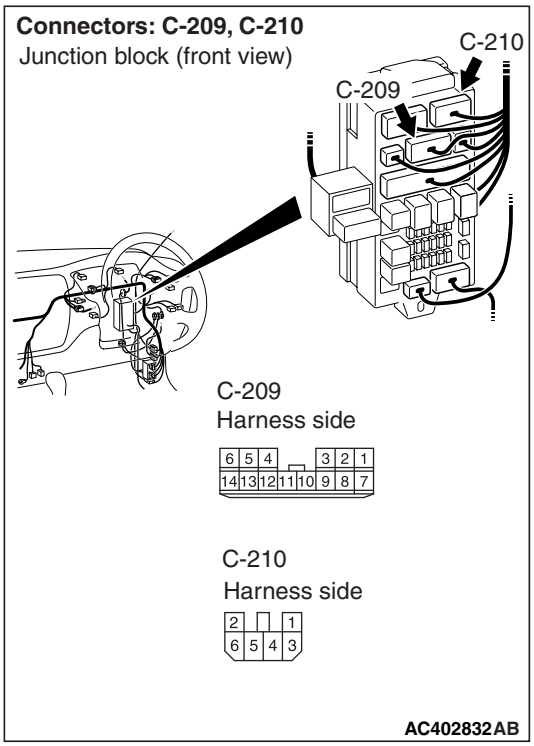
NOTE:





Prior to the wiring harness inspection, check intermediate connector C-136, junction block connectors C-209 and C-210, and repair if necessary.

- Check the power supply line to the ignition switch (IG1) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ON" position.
- Move the shift lever to the "R" position.

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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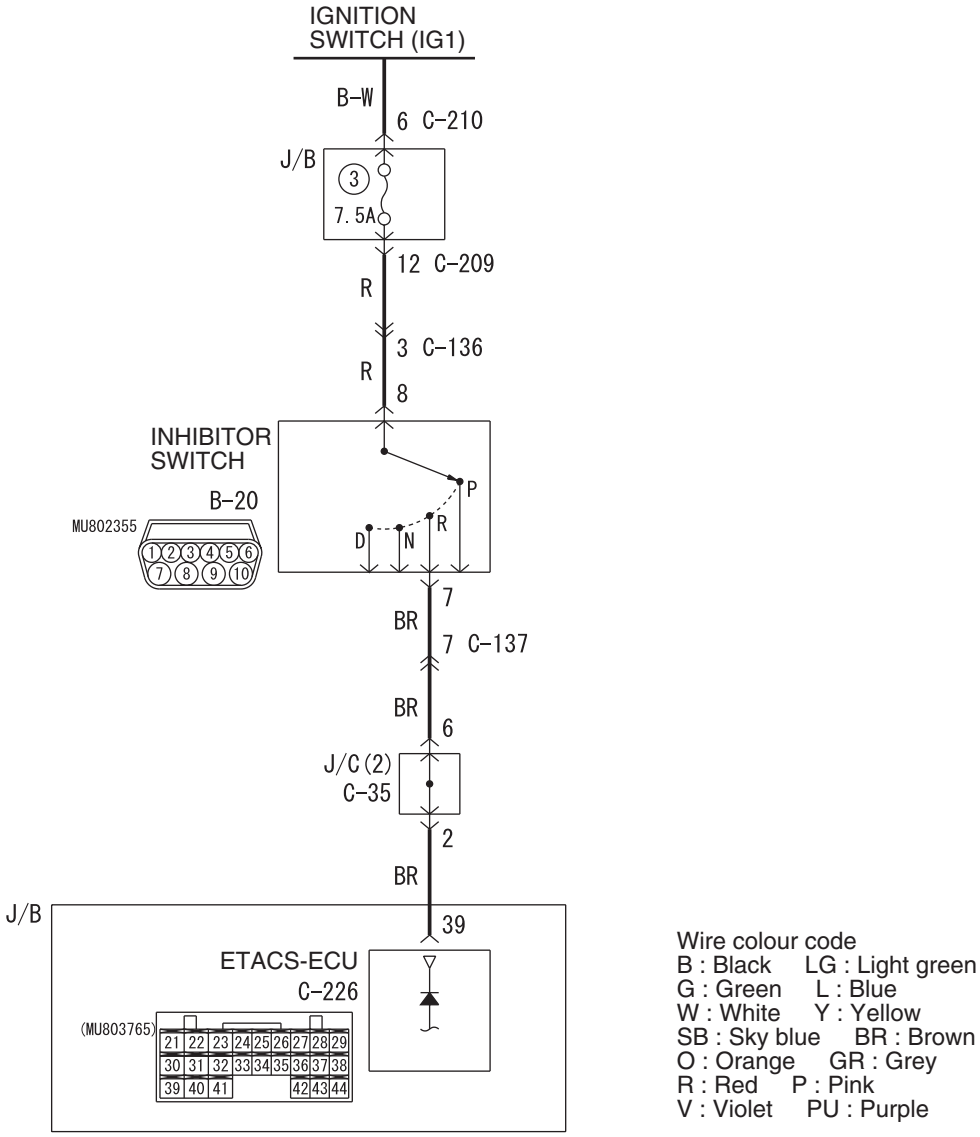
INSPECTION PROCEDURE M-3: The inhibitor switch (reverse position) signal is not received. <A/T>

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

Inhibitor Switch Input Circuit <A/T>



Wire colour code
B : Black LG : Light green
G : Green L : Blue
W : White Y : Yellow
SB : Sky blue BR : Brown
O : Orange GR : Grey
R : Red P : Pink
V : Violet PU : Purple

W5J54L035A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the back-up lamp switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

PROBABLE CAUSES

- Malfunction of the inhibitor switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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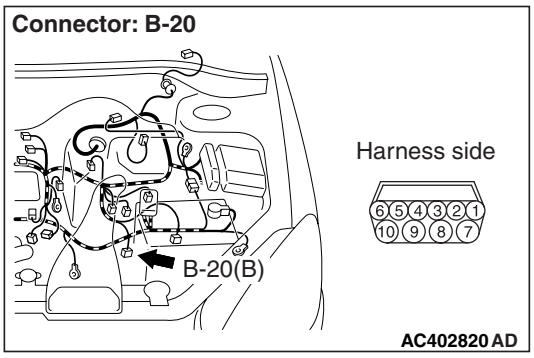
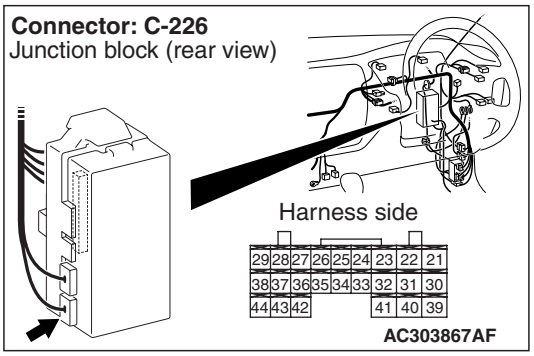
DIAGNOSIS PROCEDURE

STEP 1. Connector check: B-20 inhibitor switch connector and C-226 ETACS-ECU connector





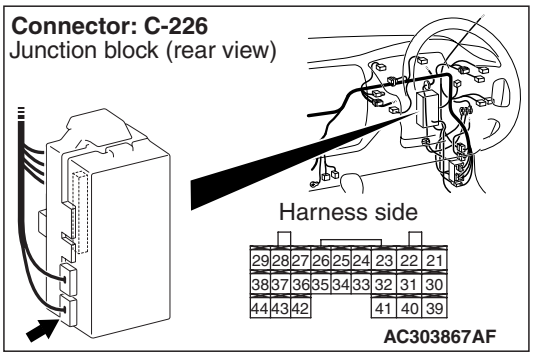
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the inhibitor switch

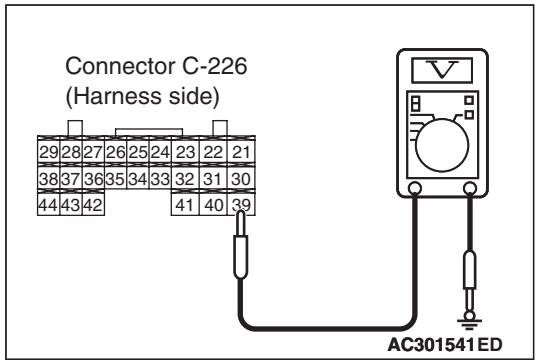
Refer to GROUP 23A –On-vehicle Service P.23A-110.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

STEP 3. Voltage measurement at the C-226 ETACS-ECU connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.
(3) Move the selector lever to the "R" position.

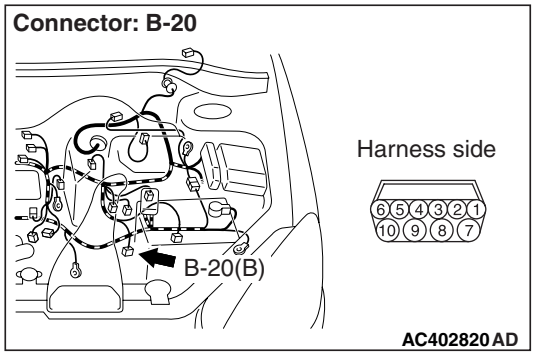


(4) Voltage between C-226 ETACS-ECU connector terminal No.39 and body earth

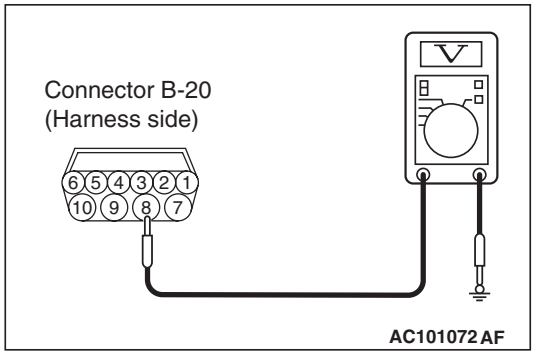
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

STEP 4. Voltage measurement at the B-20 inhibitor switch connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.



(3) Voltage between B-20 inhibitor switch connector terminal No.8 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 6.

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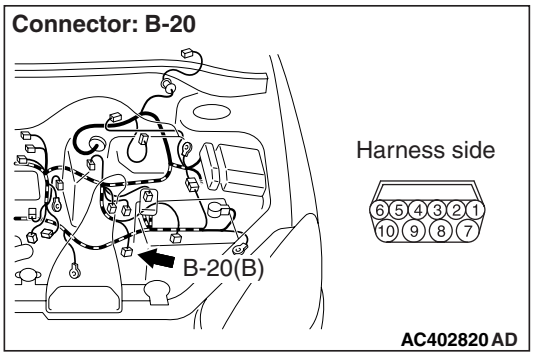
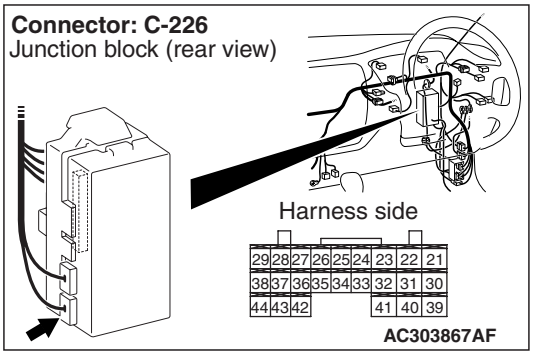
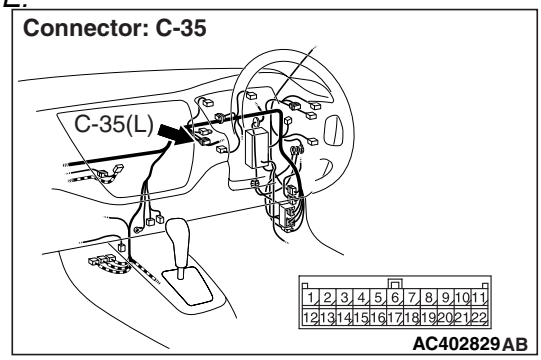
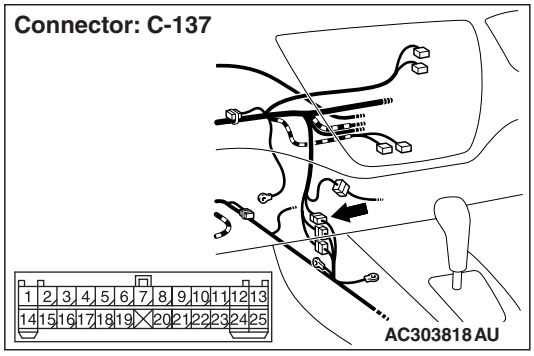
STEP 5. Check the wiring harness between B-20 inhibitor switch connector terminal No.7 and C-226 ETACS-ECU connector terminal No.39.





NOTE:



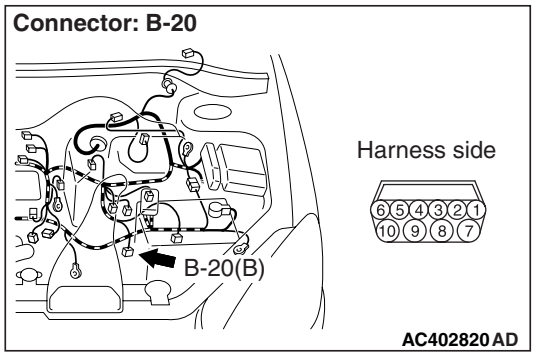


Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-137, and repair if necessary.

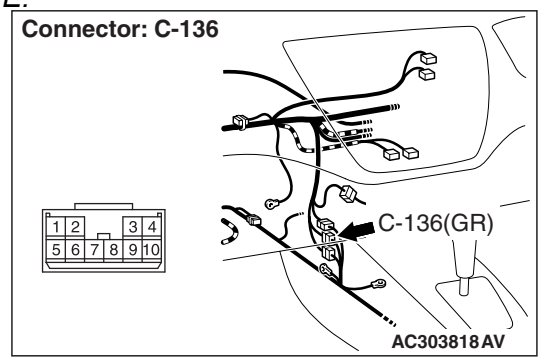
- Check the input line for open circuit.

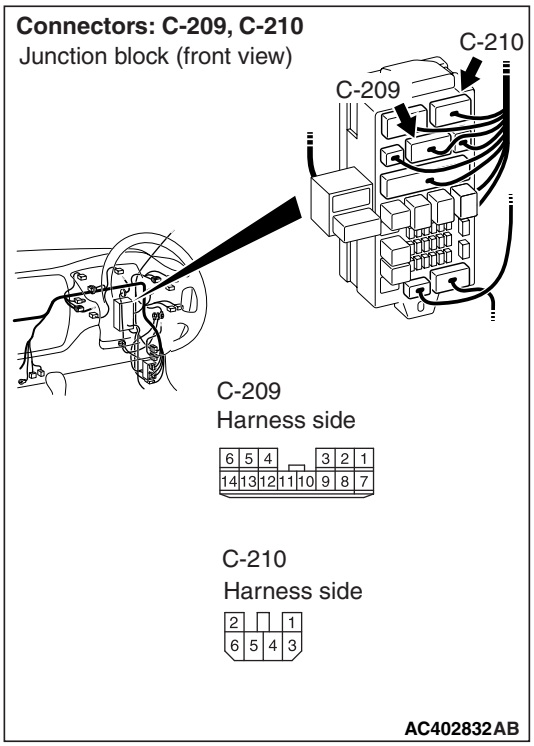
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 6. Check the wiring harness between B-20 inhibitor switch connector terminal No.8 and the ignition switch (IG1).



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-136 and junction block connectors C-209 and C-210, and repair if necessary.

- Check the power supply line to the ignition switch (IG1) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 7. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ON" position.
- Move the selector lever to the "R" position.

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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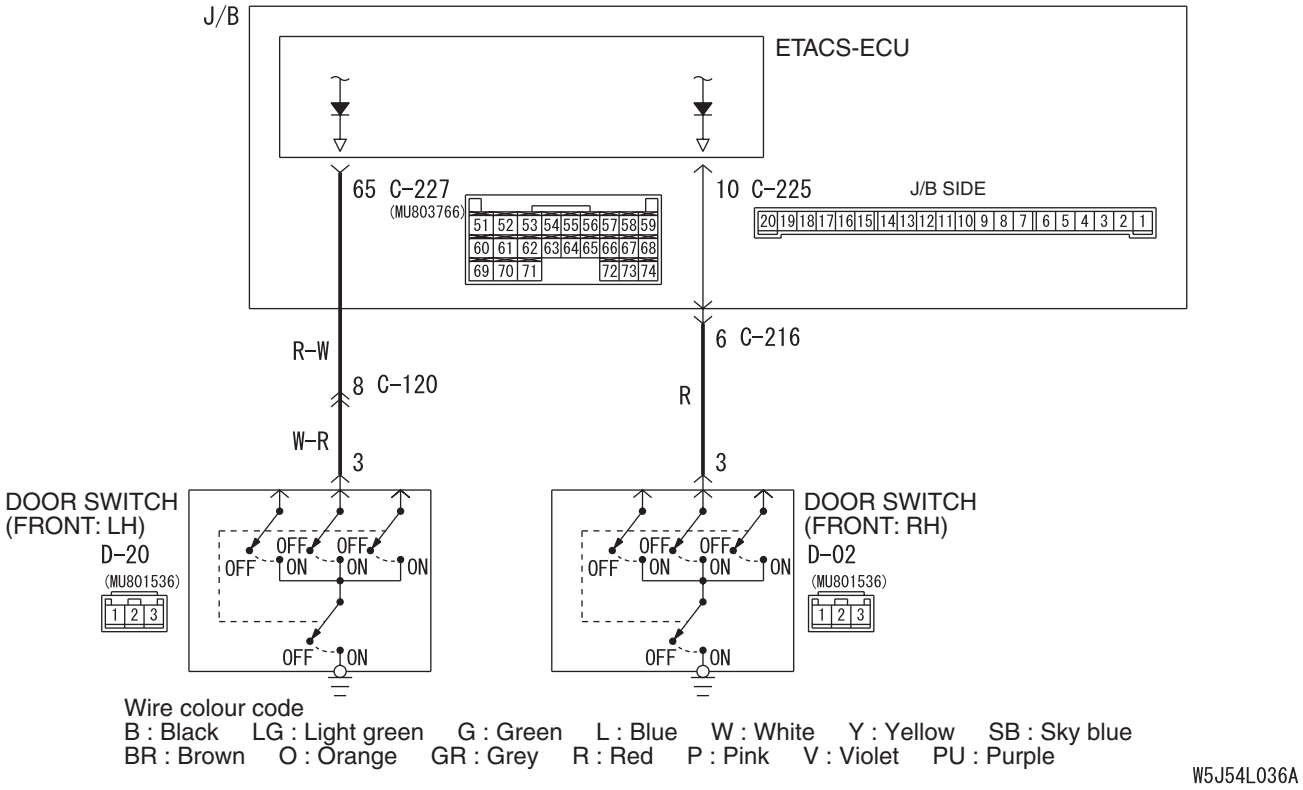
INSPECTION PROCEDURE M-4: The front door switch signals are not received.

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

Front door Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L036A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the door switch (front: RH) or door switch (front: LH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Lamp reminder function
- Power window timer function
- Sunroof timer function
- Room lamps

PROBABLE CAUSES

- Malfunction of the door switch (front: RH)
- Malfunction of the door switch (front: LH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the installation condition.

Check that the door switch (front: RH) or (front: LH) is installed on the body correctly.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Correct the installation condition.

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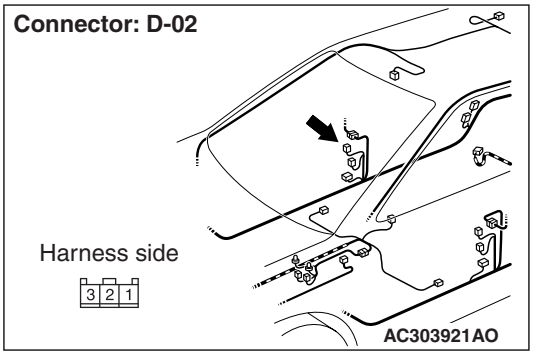
STEP 2. Connector check: D-02 door switch (front: RH) or D-20 door switch (front: LH) connector

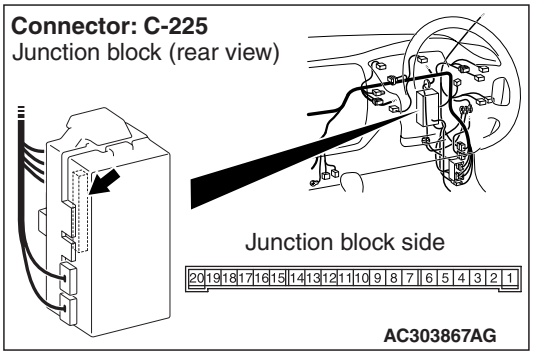


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Check the door switch (front: RH) or door switch (front: LH).
Refer to GROUP 42 –Door P.42-28.

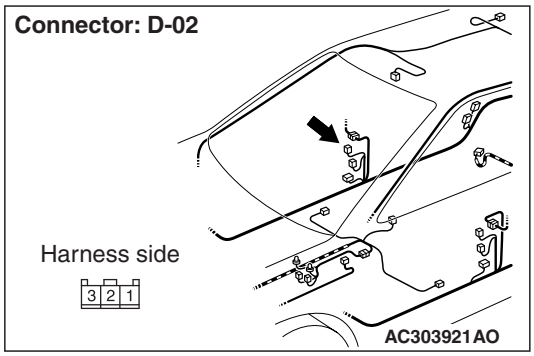
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the door switch (front: RH) or door switch (front: LH).

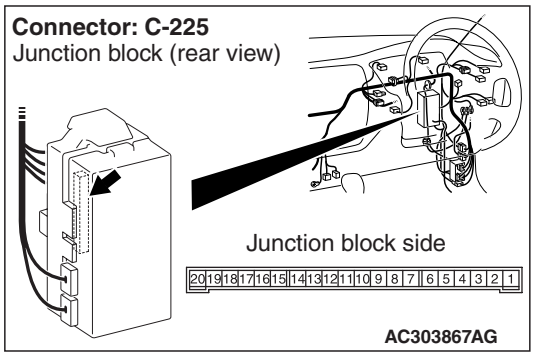
STEP 4. Connector check: C-225 ETACS-ECU connector <door switch (front: RH)> or C-227 ETACS-ECU connector <door switch (front: LH)>



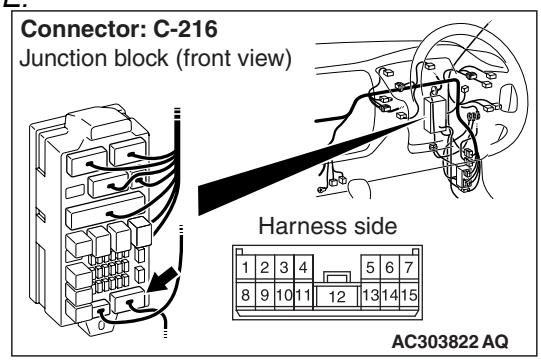
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

STEP 5. Check the wiring harness between D-02 door switch (front: RH) connector terminal No.3 and C-225 ETACS-ECU connector terminal No.10 or D-20 door switch (front: LH) connector terminal No.3 and C-227 ETACS-ECU connector terminal No.65.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-120 <door switch (front: LH)> or junction block connector C-216 <door switch (front: RH)>, and repair if necessary.
Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the wiring harness.

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STEP 6. SWS monitor data list.

<Selected item> ETACS ECU

- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 32	FRONT DOOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

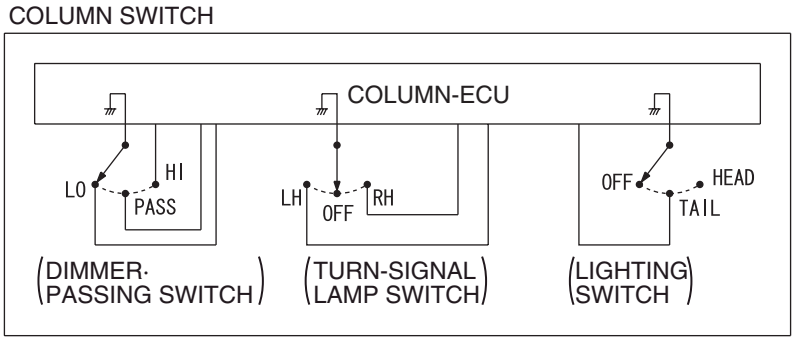
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-5: The column switch (lighting and turn-signal lamp switch) signal is not received.

⚠ CAUTION

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

Lighting Switch Input Circuit



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COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (lighting, turn-signal lamp and headlamp washer switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Lamp reminder function
- Headlamp and tail lamp
- Headlamp automatic shutdown function
- Fog lamp
- Turn-signal lamp
- Headlamp washer

PROBABLE CAUSES

- Malfunction of the column switch
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the column switch connector.

Check that the wiper and washer switch connector, the lighting switch connector and the switch body connector are in good condition.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the defective connector.

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STEP 2. Check the column switch (lighting switch and switch body).
Refer to GROUP 54A –Column switch P.54A-70.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the column switch.

STEP 3. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
COLUMN ECU

OK: "OK" is displayed on the "COLUMN ECU" menu.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."

STEP 4. SWS monitor data list.

<Selected item> COLUMN ECU
- Operate each function of the switch.

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON
Item 01	TAIL LAMP SW	ON
Item 02	DIMMER SW	ON
Item 03	PASSING SW	ON
Item 10	TURN SIG.RH	ON
Item 11	TURN SIG.LH	ON
Item 16	HD WASHER SW	ON

OK: Normal conditions are displayed for all the functions of the switch.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the column switch.

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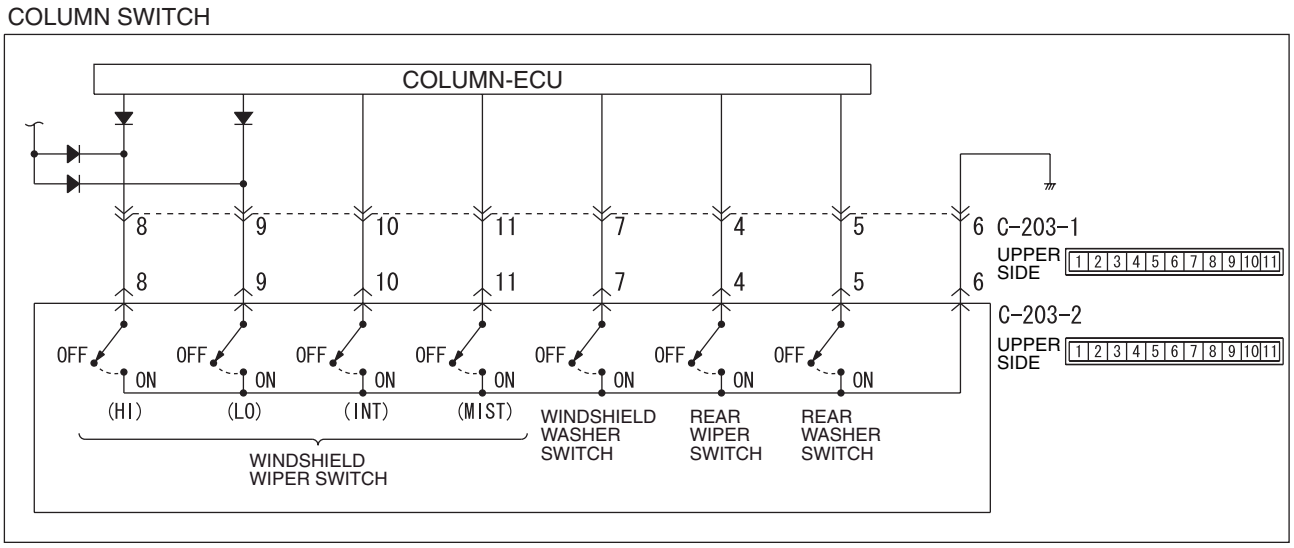
INSPECTION PROCEDURE M-6: The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.

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

Windshield Wiper and Washer Switch Input Circuit



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COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (wiper switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Windshield wiper and washer
- Rear wiper and washer

PROBABLE CAUSES

- Malfunction of the column switch
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.
Check that the power supply and earth lines to the column switch (column-ECU) and the SWS communication lines are normal.
(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
COLUMN ECU

OK: "OK" is displayed on the "COLUMN ECU" menu.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-2 "Communication with the column switch (column-ECU) is not possible P.54C-25."

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STEP 2. SWS monitor data list.

<Selected item> COLUMN ECU
Operate each function of the switch.

Item No.	Item name	Normal condition
Item 05	INT WIPER SW	ON
Item 06	LO WIPER SW	ON
Item 07	HI WIPER SW	ON
Item 08	MIST WIPER SW	ON
Item 09	FRONT WASH.SW	ON
Item 13	REAR WIPER SW	ON
Item 14	REAR WASH.SW	ON

OK: Normal conditions are displayed for all the functions of the switch.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the column switch.

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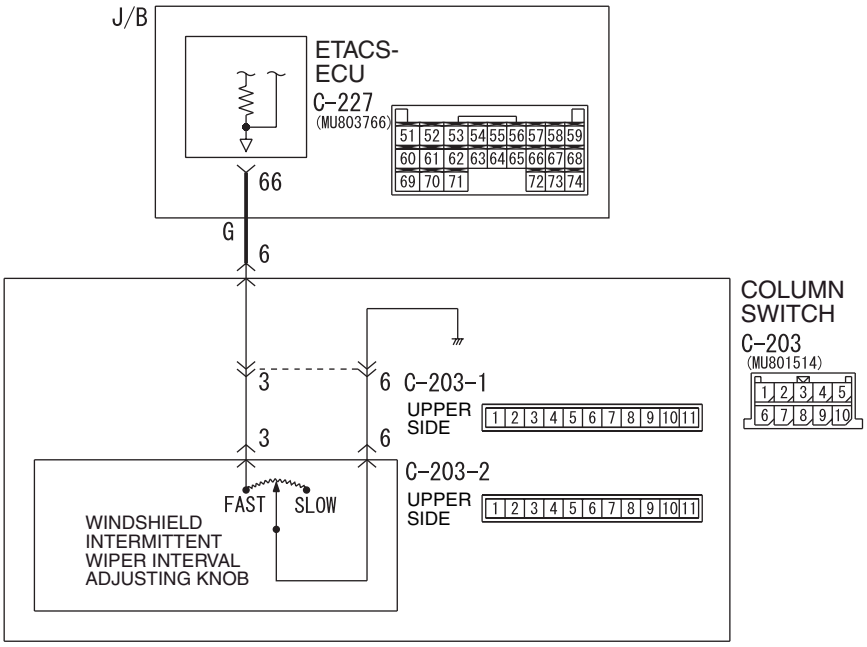
INSPECTION PROCEDURE M-7: The windshield intermittent wiper volume signal is not received.

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

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L061A

COMMENTS ON TROUBLE SYMPTOM

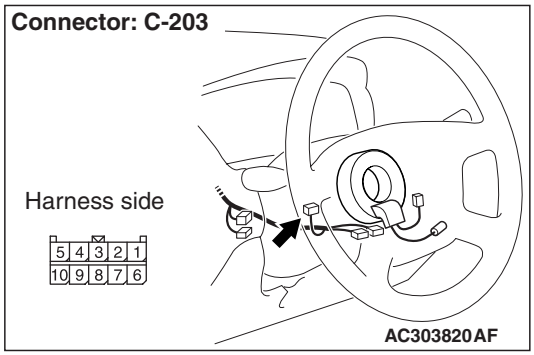
The intermittent wiper interval is calculated in accordance with the input signal from the windshield intermittent wiper volume. If this signal is abnormal, the wiper interval can not be adjusted.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-203 column switch connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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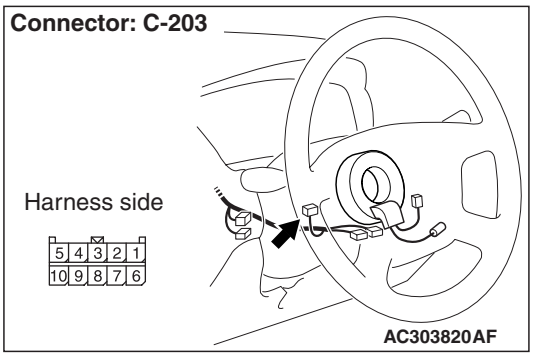
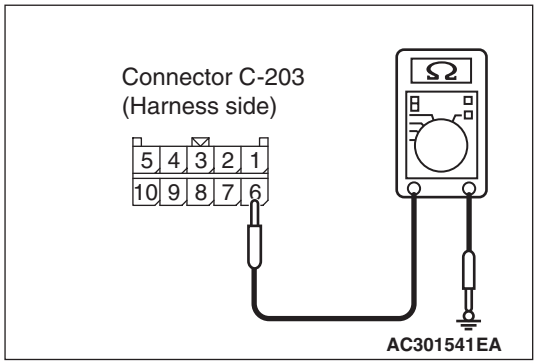
STEP 2. Resistance measurement at the C-203 column switch connector



(1) Disconnect the connector, and measure at the column switch side.

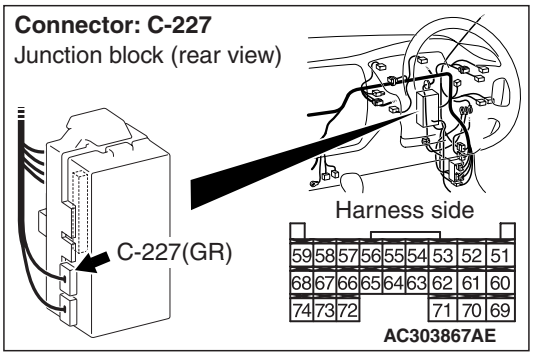


(2) Resistance between C-203 column switch connector terminal No.6 and body earth

OK: The resistance should rise from 0 to 1 kΩ when the windshield intermittent wiper volume is rotated from "Fast" to "Slow".

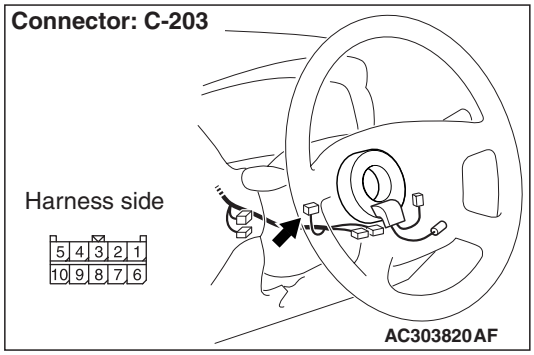
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the column switch.

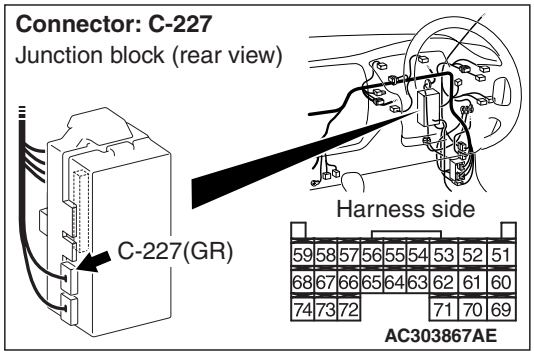
STEP 3. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

STEP 4. Check the wiring harness between C-203 column switch connector terminal No.6 and C-227 ETACS-ECU connector terminal No.66.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ACC" position.
- Turn the wiper switch to the "INT" position.

Item No.	Item name	Normal condition
Item 37	INT WIPE TIME	2.4 to 18.0 s

OK: The display will be changed as the intermittent wiper volume is rotated.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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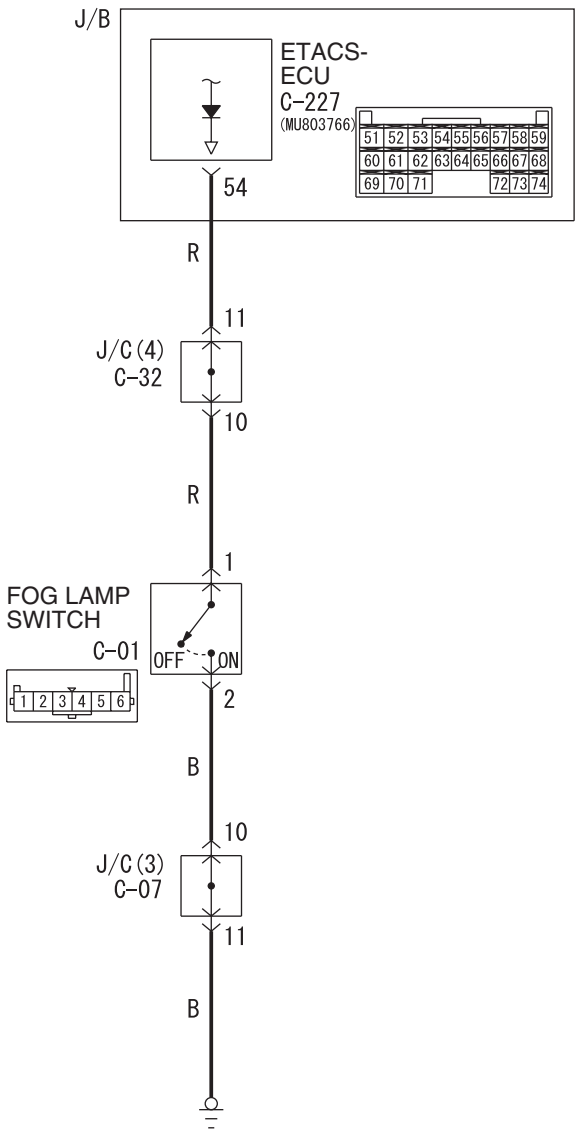
INSPECTION PROCEDURE M-8: The fog lamp switch signal is not received.

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

Fog Lamp Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L043A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the fog lamp switch is used to operate the fog lamps. If the signal is abnormal, the fog lamps will not illuminate and extinguish normally.

PROBABLE CAUSES

- Malfunction of the fog lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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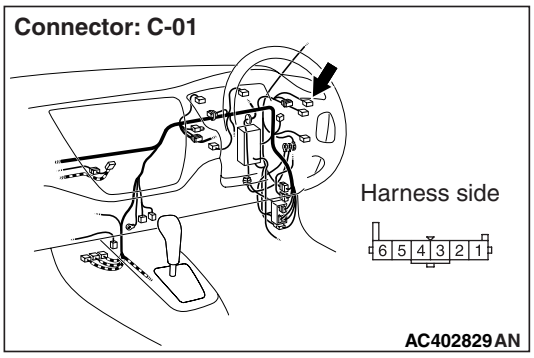
DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-01 fog lamp switch connector



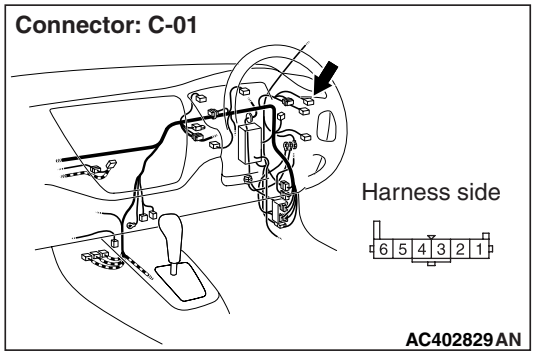
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the fog lamp switch.

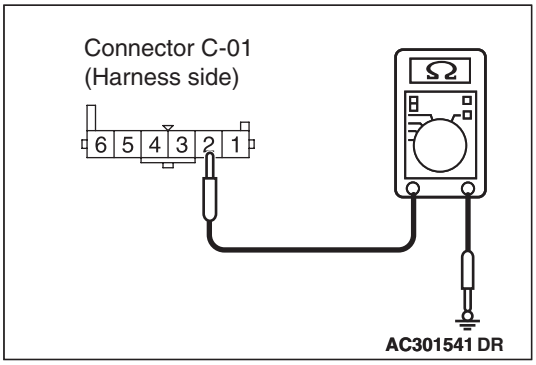
Refer to GROUP 54A –Fog lamp P.54A-62.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

STEP 3. Resistance measurement at the C-01 fog lamp switch connector



(1) Remove the fog lamp switch, and measure at the wiring harness side.



(2) Resistance between C-01 fog lamp switch connector terminal No.2 and body earth

OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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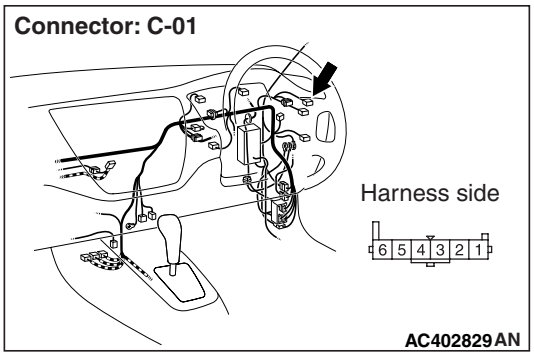
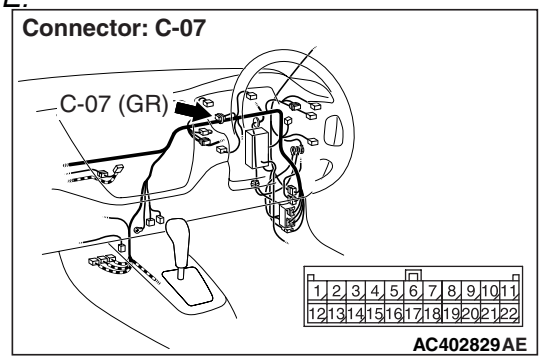
STEP 4. Check the wiring harness from C-01 fog lamp switch connector terminal No.2 to body earth.



NOTE:



Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.

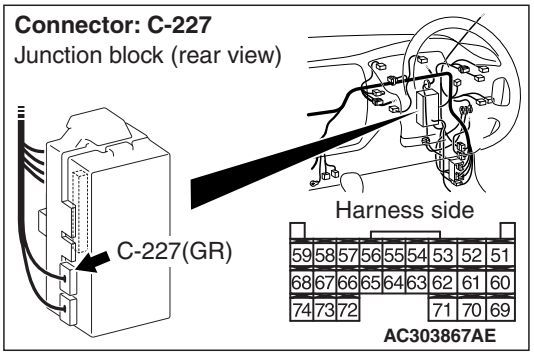
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Connector check: C-227 ETACS-ECU connector

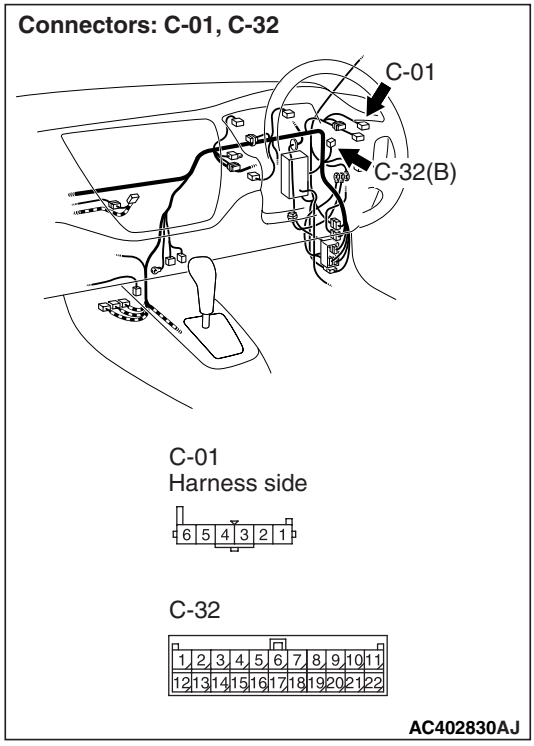


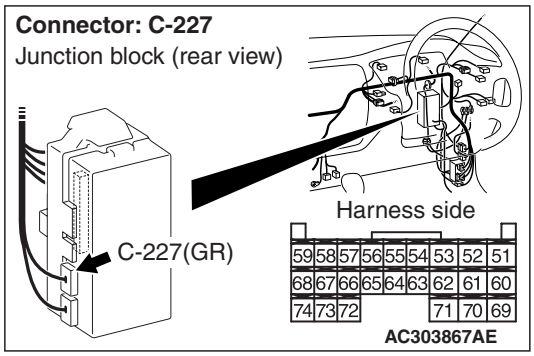
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

STEP 6. Check the wiring harness from C-227 ETACS-ECU connector No.54 to C-01 fog lamp switch connector terminal No.1.





NOTE: Prior to the wiring harness inspection, check joint connector C-32, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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STEP 7. SWS monitor data list.

<Selected item> ETACS ECU

- Turn the ignition switch to the "ON" position.
- Turn the lighting switch to the "TAIL" or "HEAD" position.
- Push the fog lamp switch.

Item No.	Item name	Normal condition
Item 36	F.FOG LAMP	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

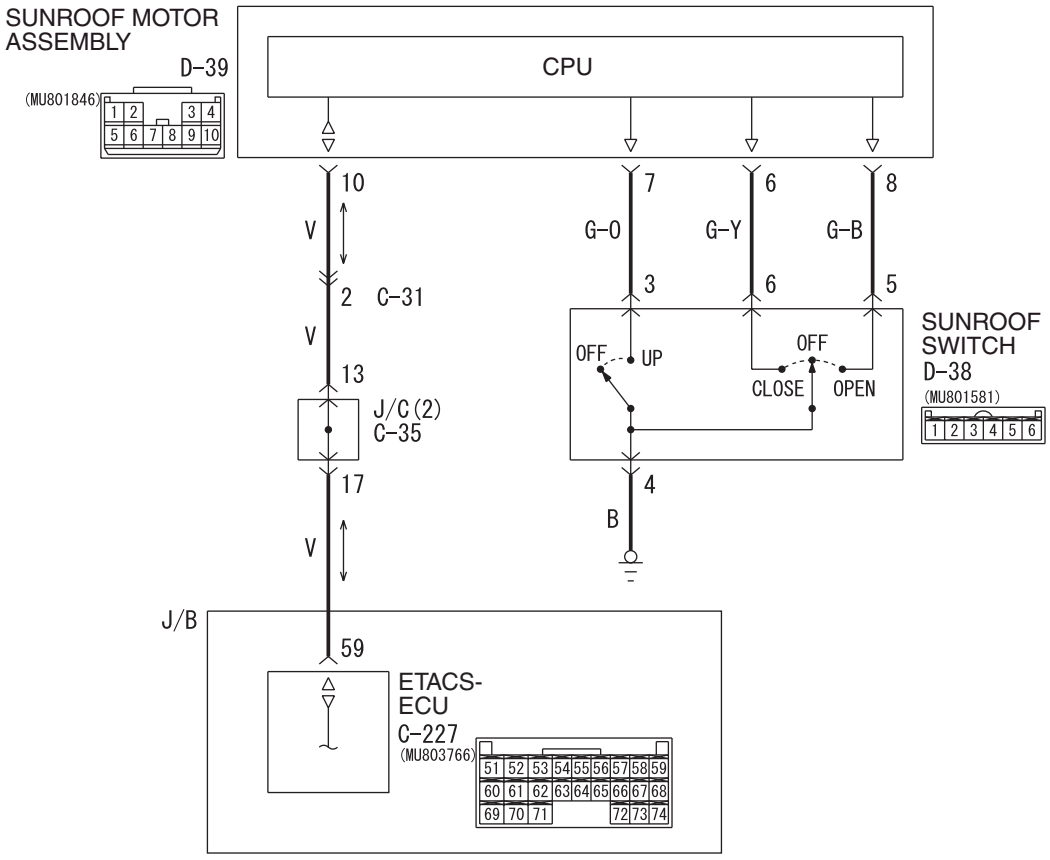
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-9: When the sunroof switch is operated, the switch signals are not received.

⚠ CAUTION

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

Sunroof Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

If the input signal from the sunroof switch is abnormal, the sunroof input check response signal will not be sent to the SWS communication line.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

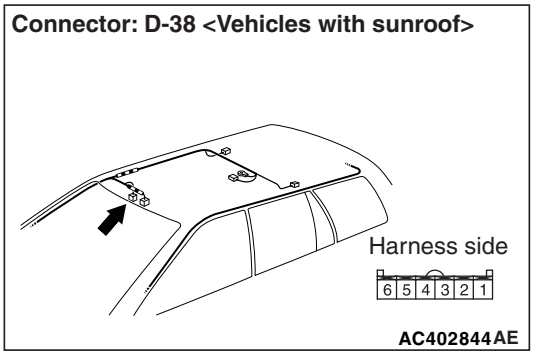
STEP 1. ECU check by using the SWS monitor

Check that the power supply and earth lines to the sunroof motor assembly (sunroof-ECU) and the SWS communication lines are normal.
(1) Turn the ignition switch to the "ON" position.
(2) Check the following ECU.
SUNROOF ECU

OK: "OK" is displayed on the "SUNROOF ECU" menu.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-5 "Communication with the sunroof motor assembly (sunroof-ECU) is not possible P.54C-39."

STEP 2. Connector check: D-38 sunroof switch connector



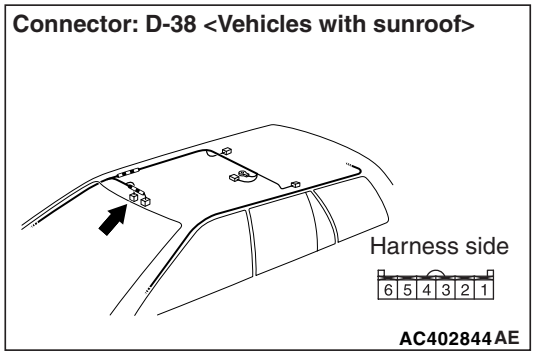
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

STEP 3. Check the sunroof switch.

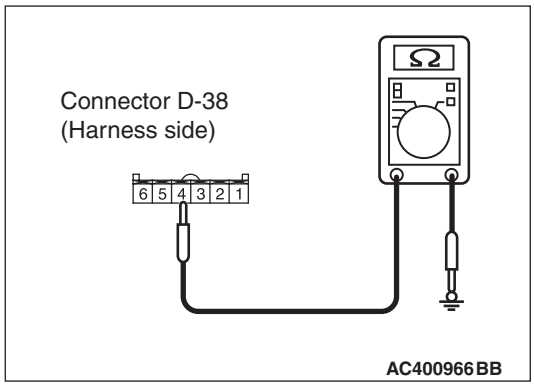
Refer to GROUP 42 –Sunroof P.42-60.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the sunroof switch.

STEP 4. Resistance measurement at the D-38 sunroof switch connector.



(1) Disconnect the connector, and measure at the wiring harness side.

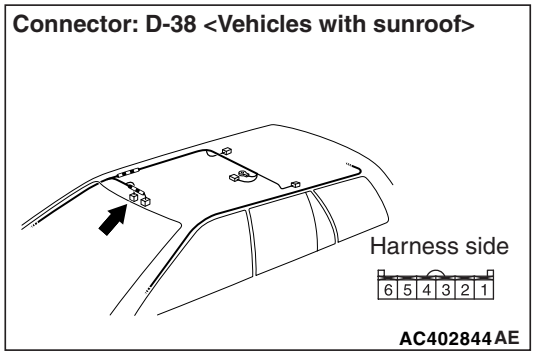


(2) Continuity between D-38 sunroof switch connector terminal No.4 and body earth

OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between D-38 sunroof switch connector terminal No.4 and body earth.



- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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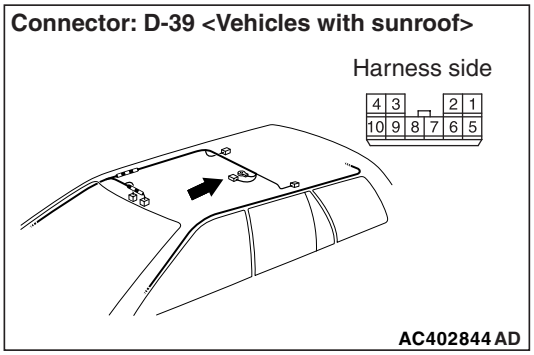
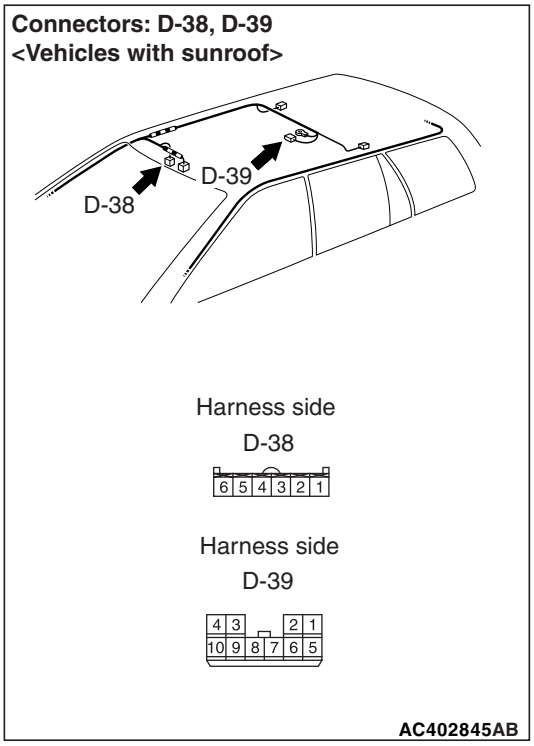
STEP 6. Connector check: D-39 sunroof motor assembly connector



Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector.

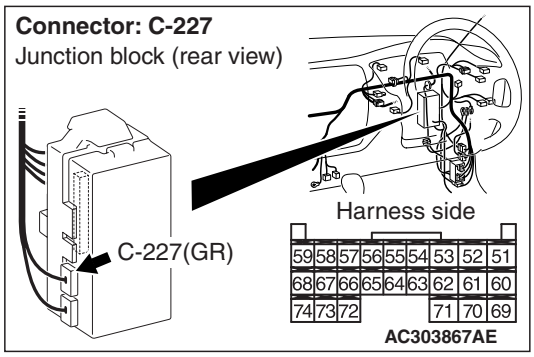
STEP 7. Check the wiring harness from D-39 sunroof motor assembly connector (terminal Nos. 6, 7 and 8) to D-38 sunroof switch connector (terminal Nos. 6, 3 and 5).



- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

STEP 8. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector.

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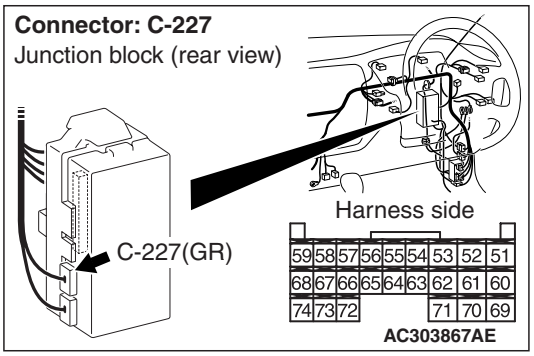
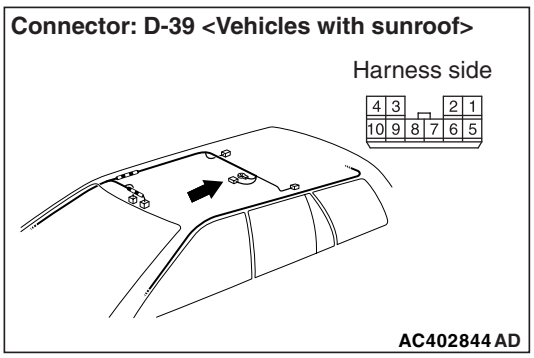
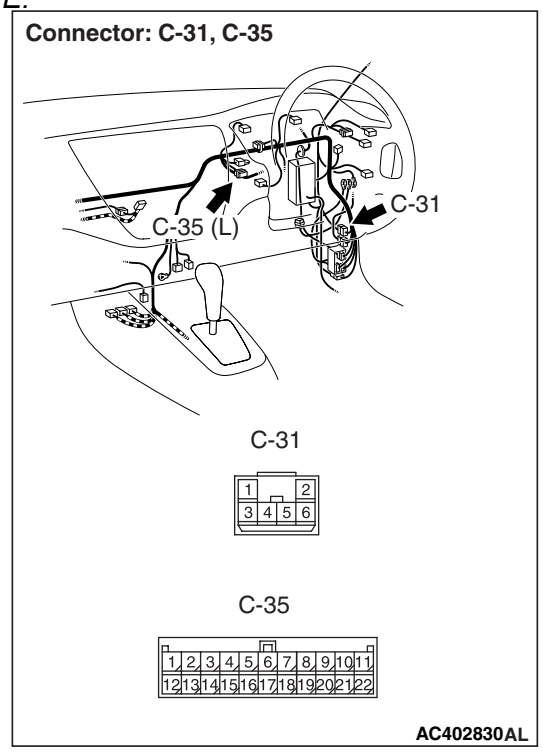
STEP 9. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.10 and C-227 ETACS-ECU connector terminal No.59.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-31 and joint connector C-35, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

STEP 10. SWS monitor data list.

<Selected item> SUNROOF ECU

- Operate the sunroof switch.

Item No.	Item name	Normal condition
Item 72	S/R ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the sunroof motor assembly.

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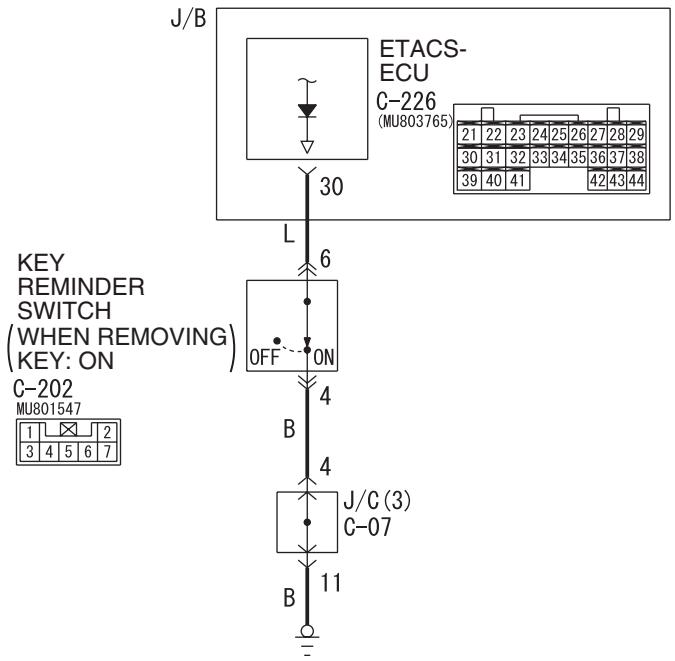
INSPECTION PROCEDURE M-10: The key reminder switch signal is not received.

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

Key Reminder Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L037A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the key reminder switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

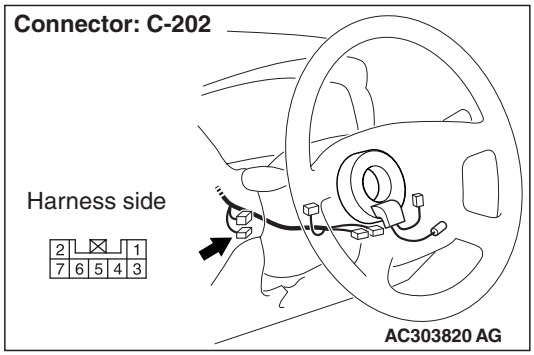
- Key reminder function
- Keyless entry system
- Room lamps

PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-202 key reminder switch connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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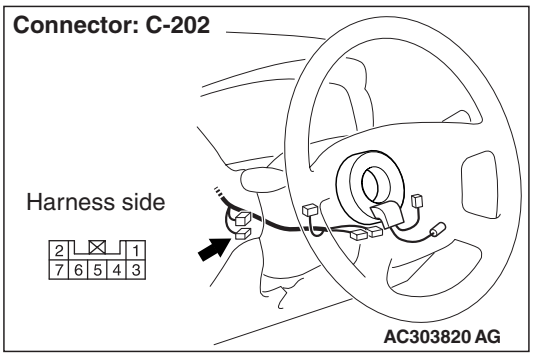
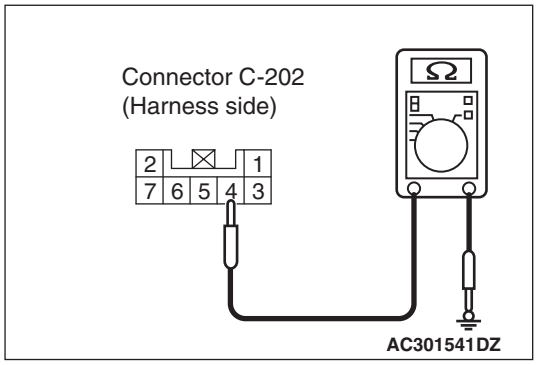
STEP 2. Check the key reminder switch.
Refer to GROUP 54A –Ignition switch P.54A-25.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the key reminder switch.

STEP 3. Resistance measurement at the C-202 key reminder switch connector



(1) Disconnect the connector, and measure at the wiring harness side.

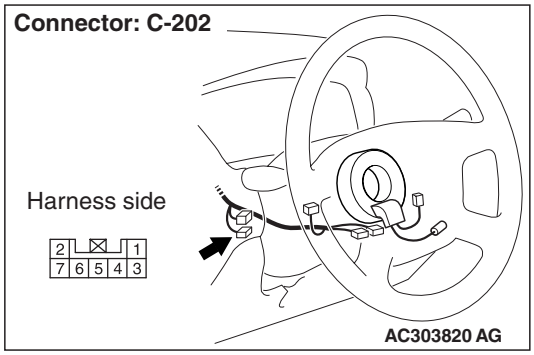


(2) Resistance between C-202 key reminder switch connector terminal No.4 and body earth

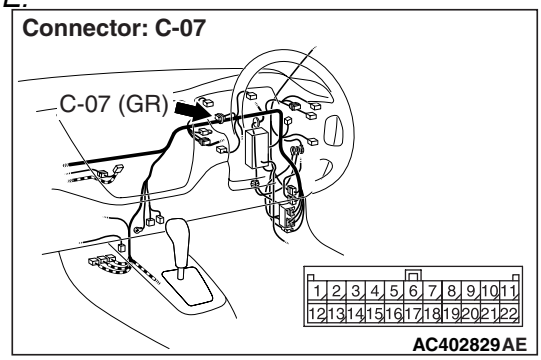
OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between C-202 key reminder switch connector terminal No.4 and the body earth.



NOTE:

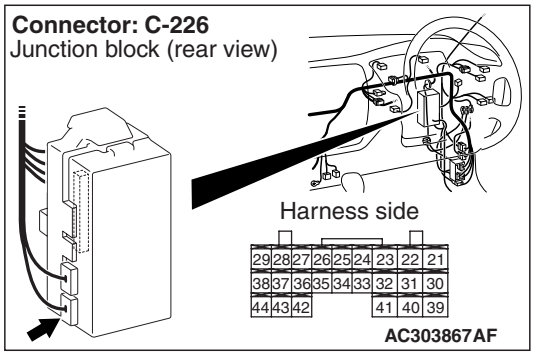


Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Connector check: C-226 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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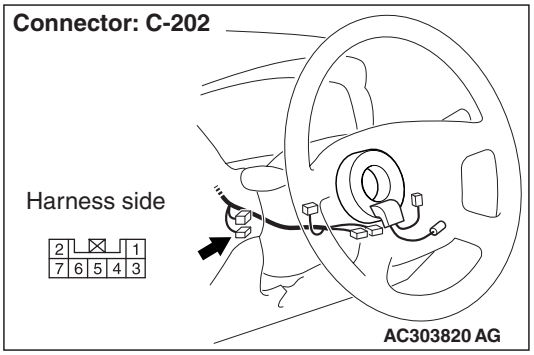
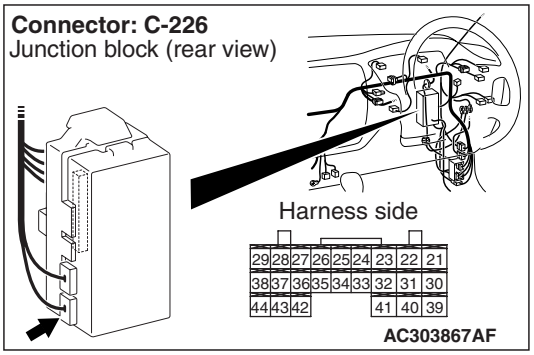
STEP 6. Check the wiring harness between C-202 key reminder switch connector terminal No.6 and C-226 ETACS-ECU connector terminal No.30.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Pulse check
Check the input signal from the key reminder switch.

System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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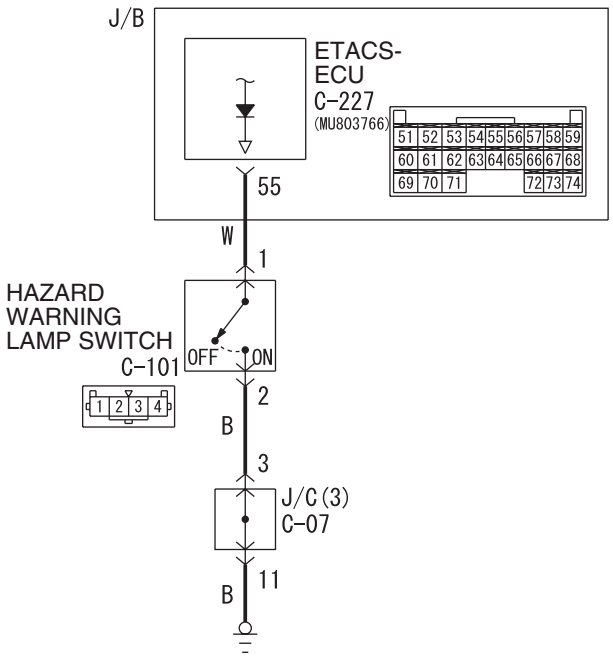
INSPECTION PROCEDURE M-11: The hazard warning lamp switch signal is not received.

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

Hazard Warning Lamp Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L038A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the hazard warning lamp switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

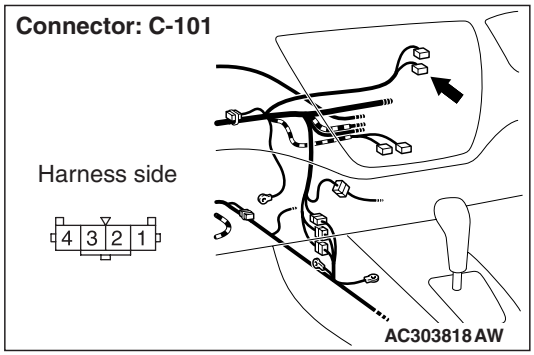
- Keyless entry system (encrypted code registration)
- Hazard warning lamp

PROBABLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-101 hazard warning lamp switch connector



Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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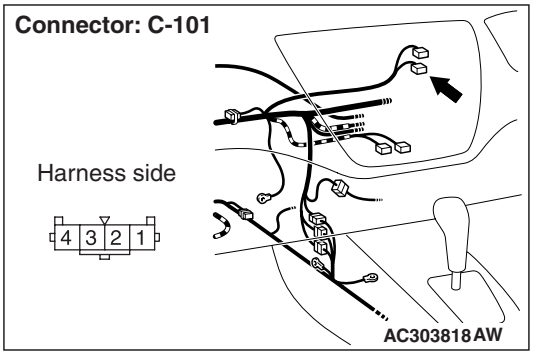
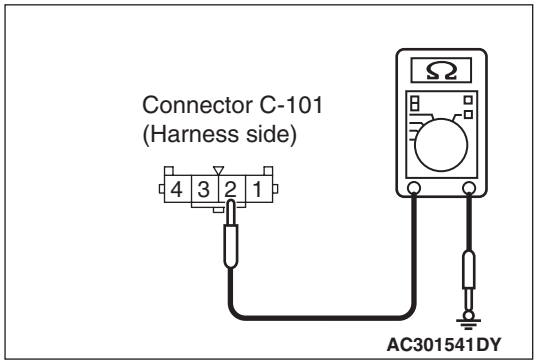
STEP 2. Check the hazard warning lamp switch.
Refer to GROUP 54A –Hazard warning lamp switch P.54A-68.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the hazard warning lamp switch.

STEP 3. Resistance measurement at the C-101 hazard warning lamp switch connector



(1) Disconnect the connector, and measure at the wiring harness side.

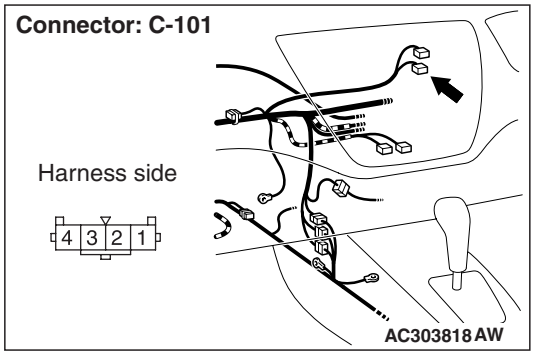


(2) Resistance between C-101 hazard warning lamp switch connector terminal No.2 and body earth

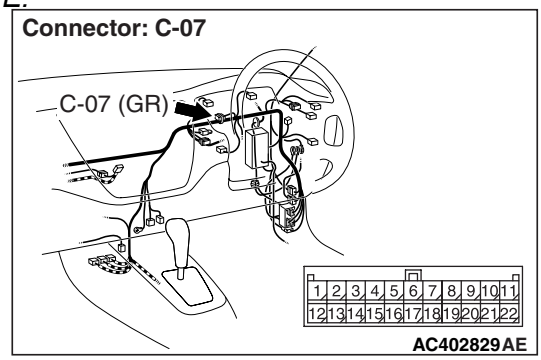
OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between C-101 hazard warning lamp switch connector terminal No.2 and the body earth.



NOTE:

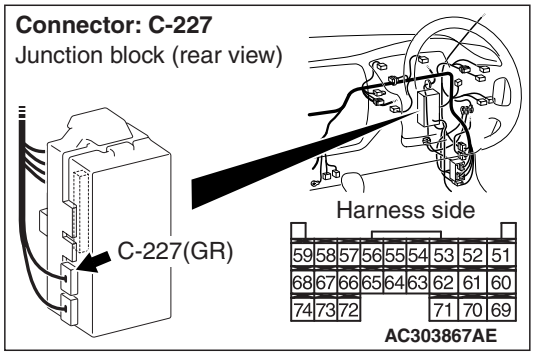


Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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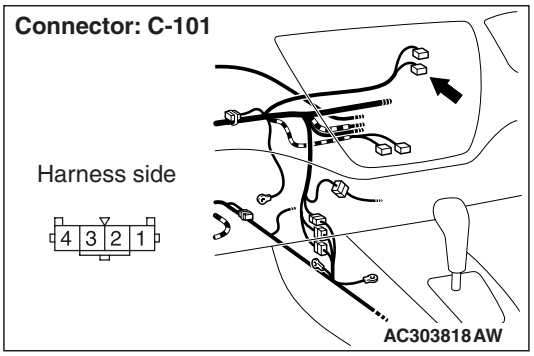
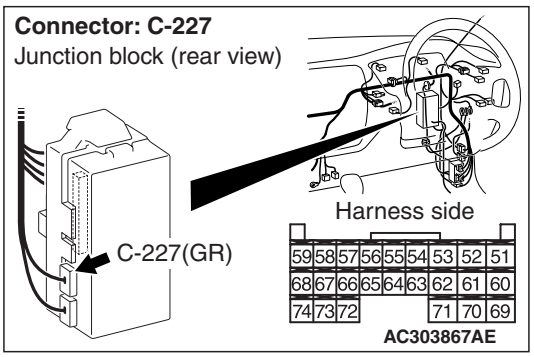
STEP 6. Check the wiring harness between C-227 ETACS-ECU connector terminal No.55 and C-101 hazard warning lamp switch connector terminal No.1.





- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Pulse check
Check the input signal from the hazard warning lamp switch.

System switch	Check condition
Hazard warning lamp switch	When the hazard warning lamp switch is turned from off to on

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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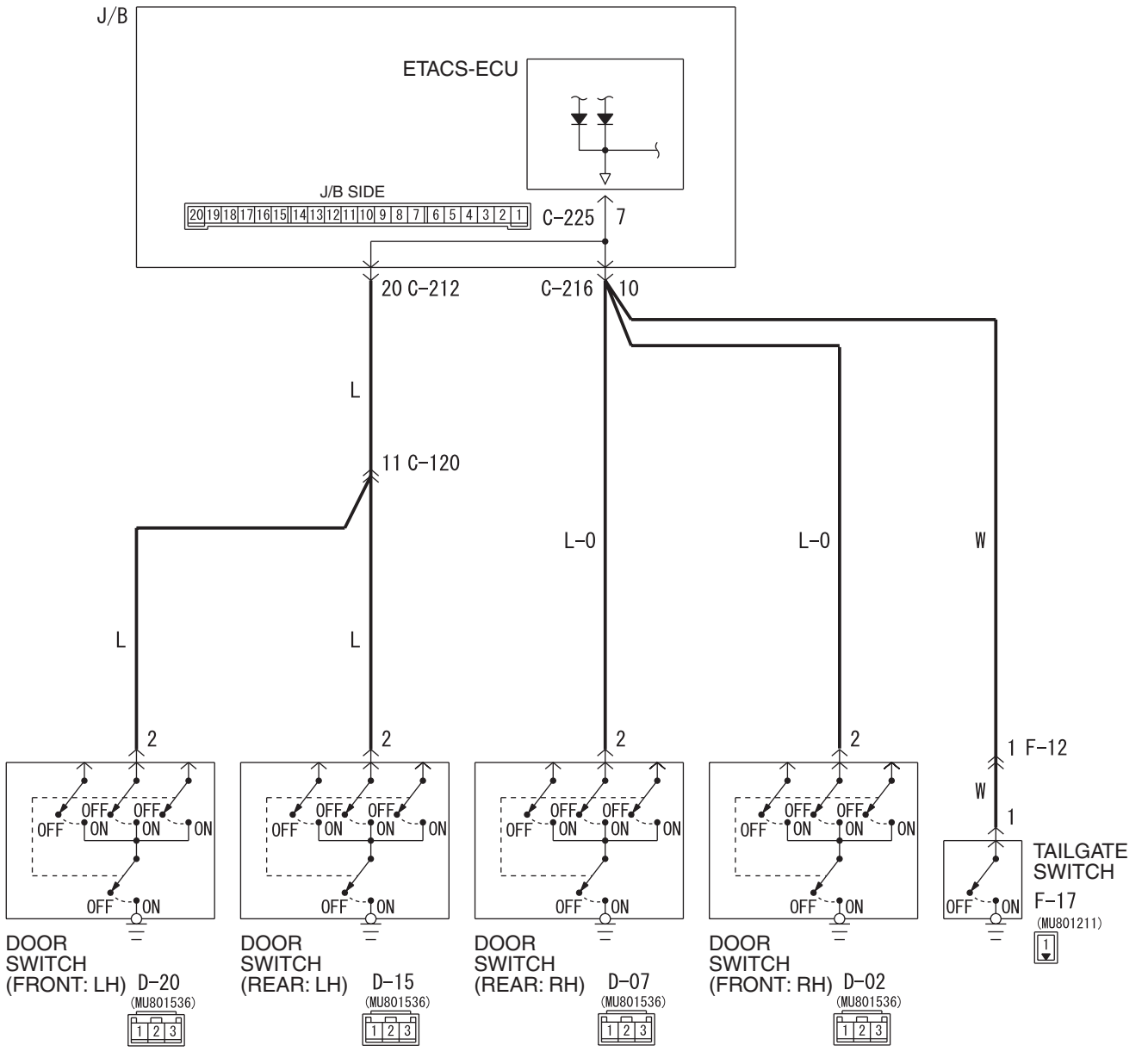
INSPECTION PROCEDURE M-12: All the door switch signals are not received.

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

All Door Switches Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L070A

COMMENTS ON TROUBLE SYMPTOM

Input signals from all the door switches are used to operate the functions below. If the signal(s) are abnormal, these functions will not work normally.

- Keyless entry system
- Room lamps

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. SWS monitor data list.

<Selected item> ETACS ECU

- Open the driver's door or front passenger's door.

Item No.	Item name	Normal condition
Item 32	FRONT DOOR SW	ON

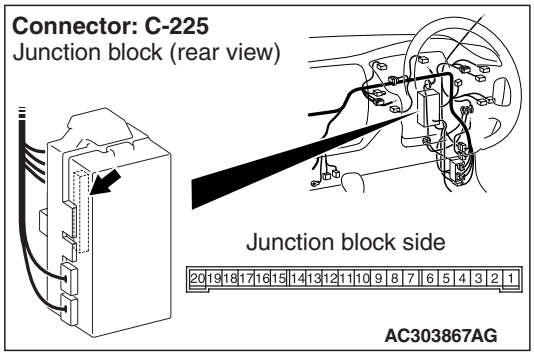
OK: Normal condition is displayed.

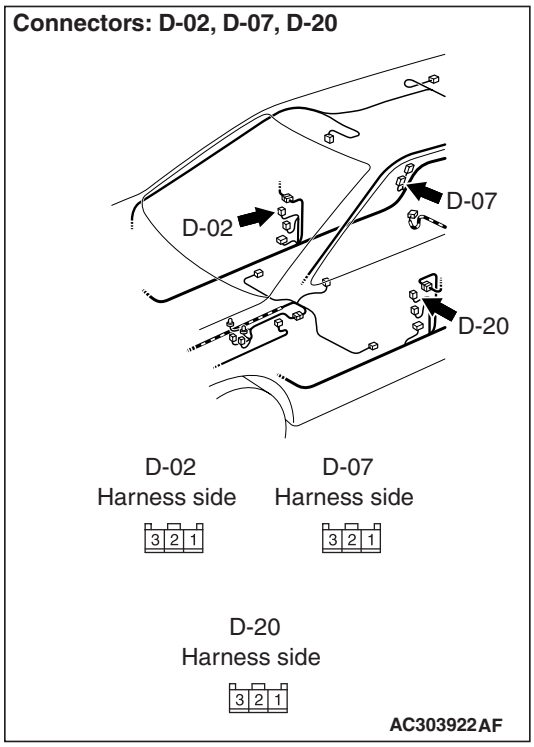
Q: Is the check result normal?

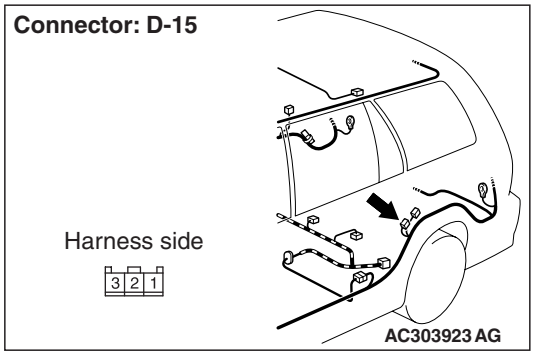
YES : Go to Step 2.

NO : Refer to inspection procedure M-4 "The front door switch signals are not received P.54C-212 ."

STEP 2. Connector check: D-20 <front: LH>, D-02 <front: RH>, D-07 <rear: RH> or D-15 <rear: LH> door switch connectors or F-17 <tailgate (Wagon)> tailgate switch connector, and C-225 ETACS-ECU connector







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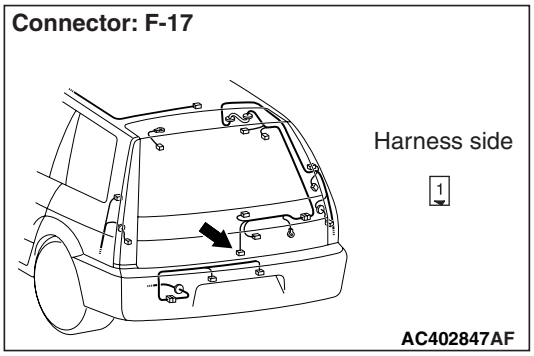


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

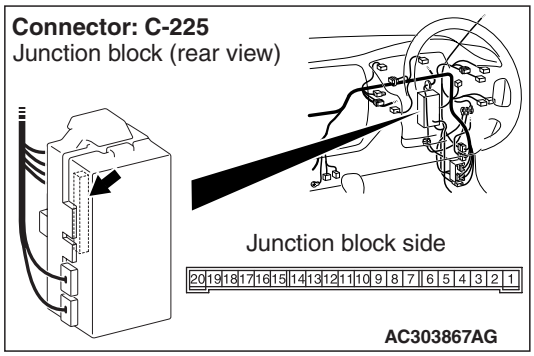
STEP 3. Check the installation condition.
Check that the door switch is installed on the body correctly.

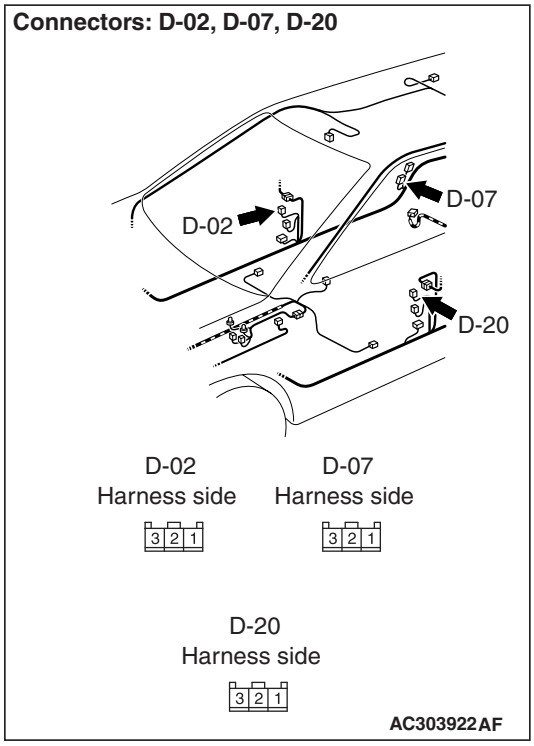
Q: Is the check result normal?
YES : Go to Step 4.
NO : Correct the installation condition.

STEP 4. Check the door switch.
Refer to GROUP 42 –Door P.42-28.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the door switch.

STEP 5. Check the wiring harness from terminal No.2 of the D-20 <front: LH>, D-02 <front: RH>, D-07 <rear: RH> or D-15 <rear: LH> door switch connector or terminal No.1 of the F-17 <tailgate (Wagon)> tailgate switch connector to terminal No.7 of the C-225 ETACS-ECU connector.





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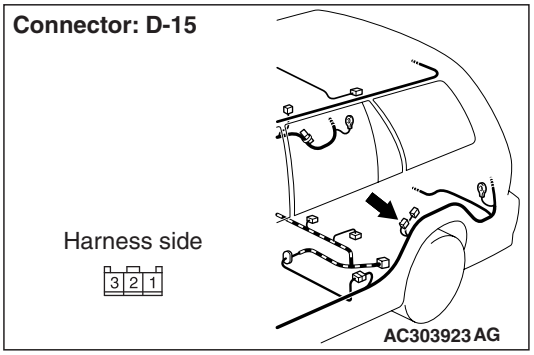

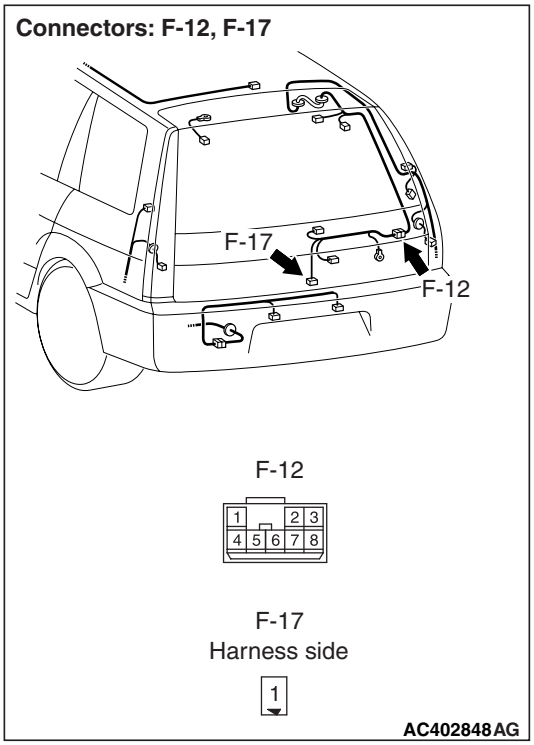

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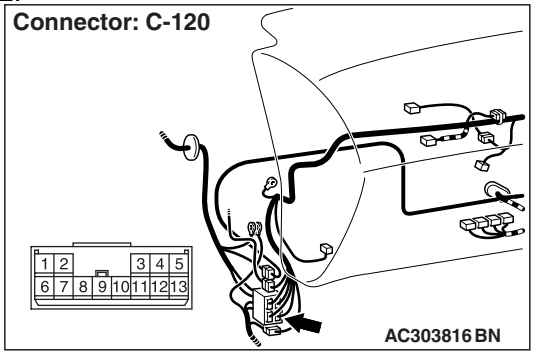

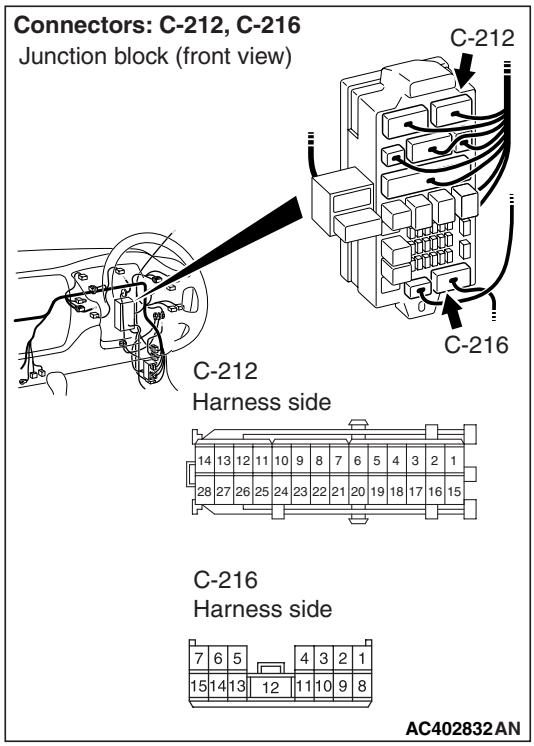

Prior to the wiring harness inspection, check intermediate connector F-12 <tailgate> or C-119 <RH> and junction block connector C-212 <RH and tailgate> or C-215 <LH>, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness between each of the door switches and the ETACS-ECU.

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STEP 6. Pulse check

Check the input signals from all the door switches.

System switch	Check condition
All of the door switches	A door is opened when all the doors are closed

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

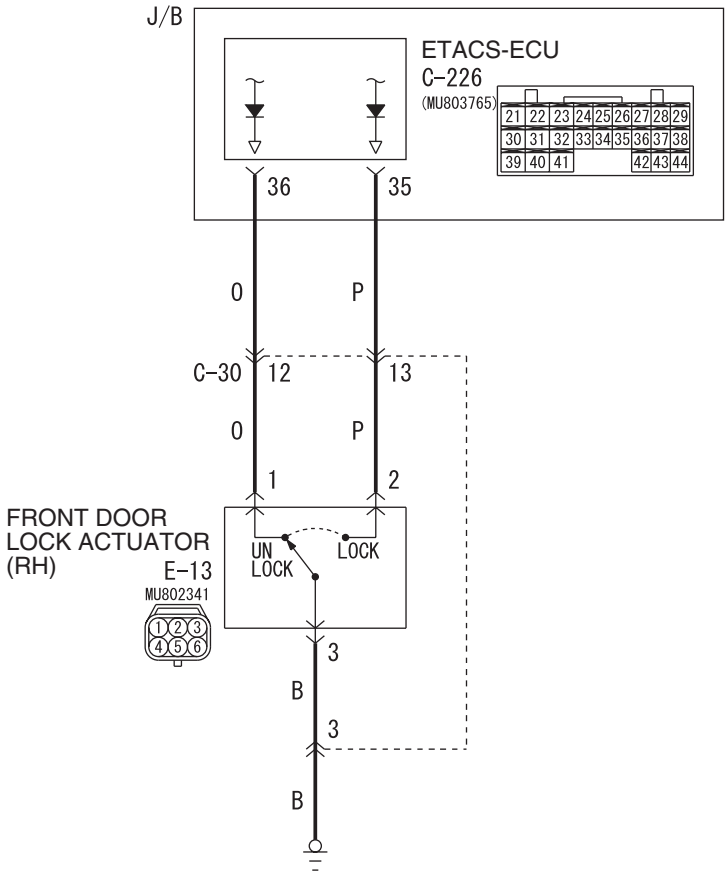
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-13: The front door lock actuator (RH) switch signal is not received.

⚠ CAUTION

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

Front Door Lock Actuator Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the front door lock actuator (RH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

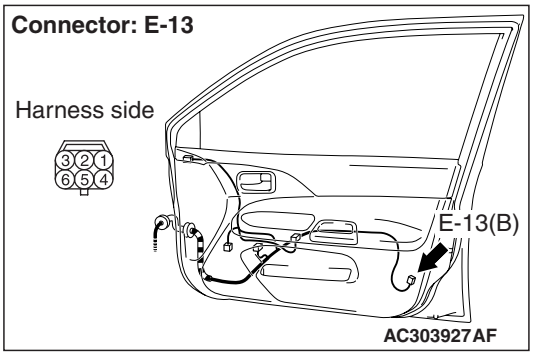
- Key reminder function
- Central door locking
- Keyless entry system
- Room lamps

PROBABLE CAUSES

- Malfunction of the front door lock actuator (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Connector check: E-13 front door lock actuator (RH) connector



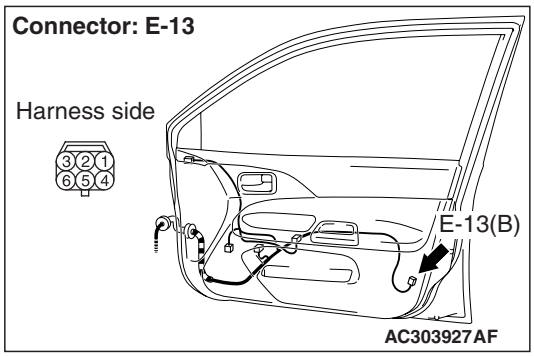
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the front door lock actuator (RH).

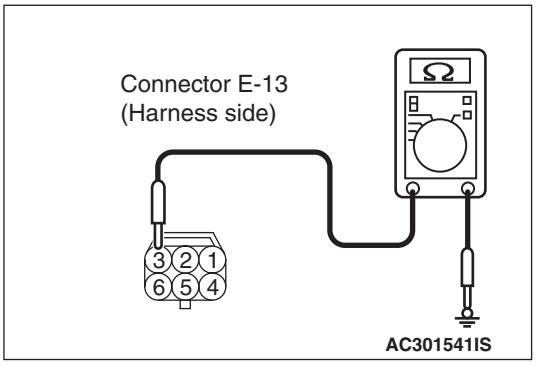
Refer to GROUP 42 –Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the front door lock actuator (RH).

STEP 3. Resistance measurement at the E-13 front door lock actuator (RH) connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between E-13 front door lock actuator (RH) connector terminal No.3 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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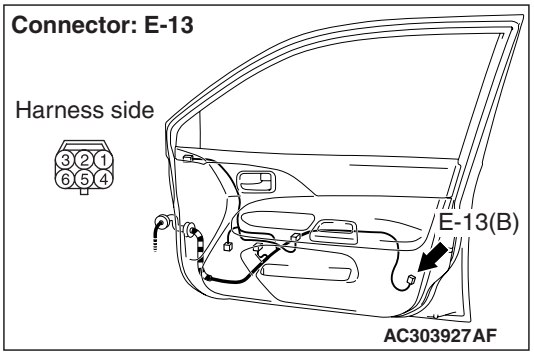
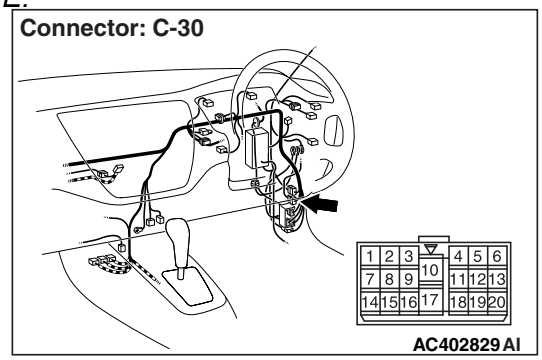
STEP 4. Check the wiring harness between E-13 front door lock actuator (RH) connector terminal No.3 and body earth



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30, and repair if necessary.

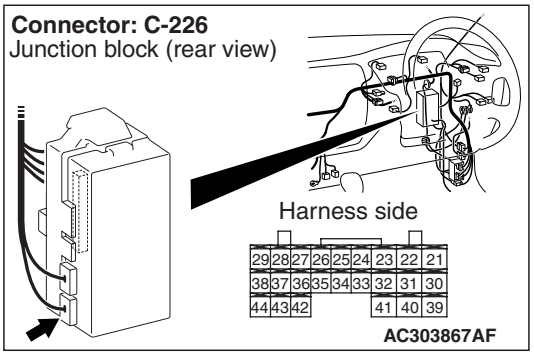
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Connector check: C-226 ETACS-ECU connector

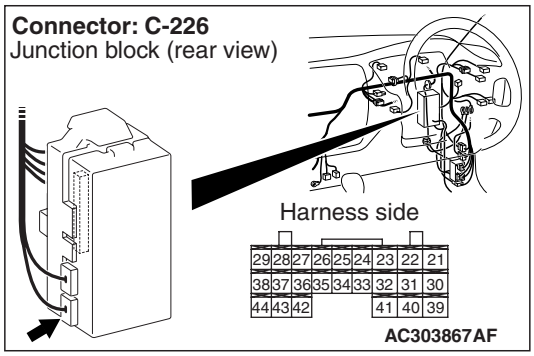


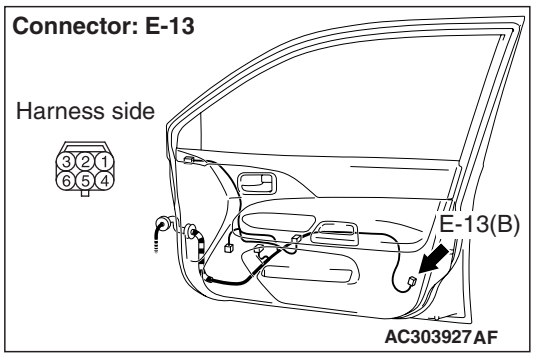
Q: Is the check result normal?

YES : Go to Step 6.

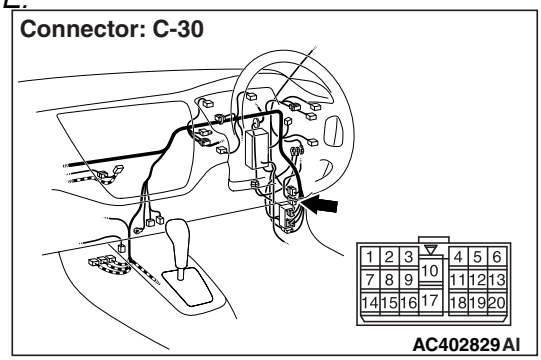
NO : Repair the defective connector.

STEP 6. Check the wiring harness from E-13 front door lock actuator (RH) connector terminal Nos. 2 and 1 to C-226 ETACS-ECU connector terminal Nos. 35 and 36.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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STEP 7. Pulse check

Check the input signal from the front door lock actuator (RH) switch.

System switch	Check condition
Front door lock actuator (RH) switch	When the driver's door is unlocked or locked

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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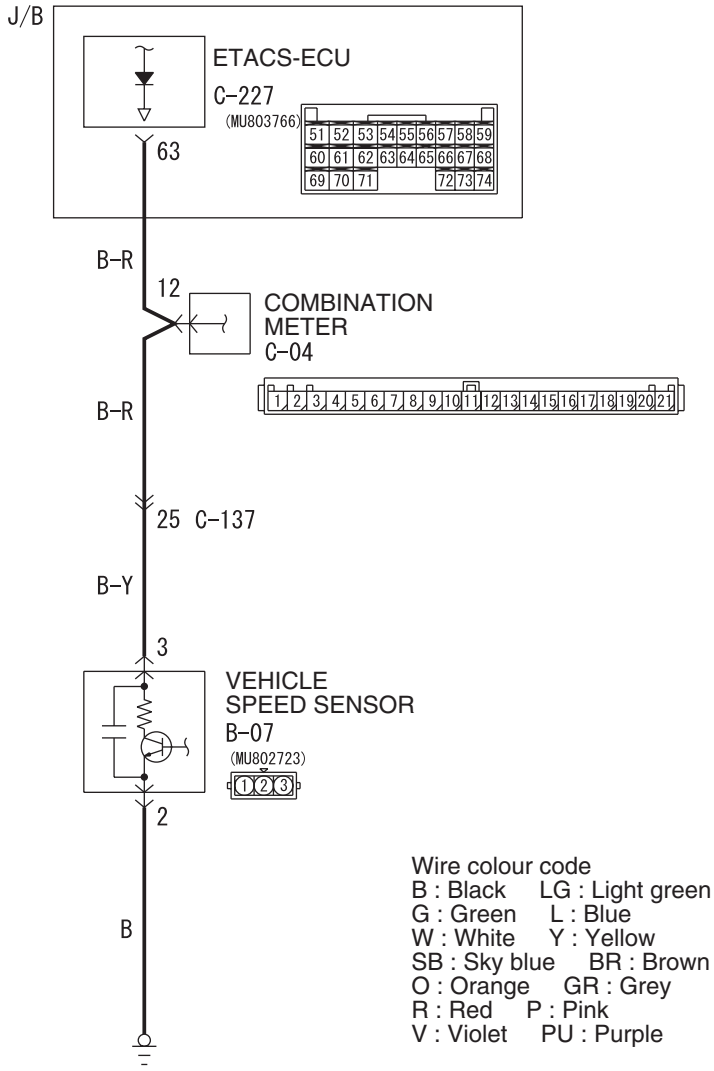
INSPECTION PROCEDURE M-14: The vehicle speed sensor signal is not received. <M/T>

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

Vehicle Speed Signal Input Circuit <M/T>



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COMMENTS ON TROUBLE SYMPTOM

Vehicle speed sensor signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

PROBABLE CAUSES

- Malfunction of the vehicles speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the speedometer.
Check that the speedometer works normally.

Q: Is the diagnosis code set?
YES : Go to Step 2.
NO : Diagnose the combination meter (Refer to GROUP 54A –Combination meter P.54A-29).

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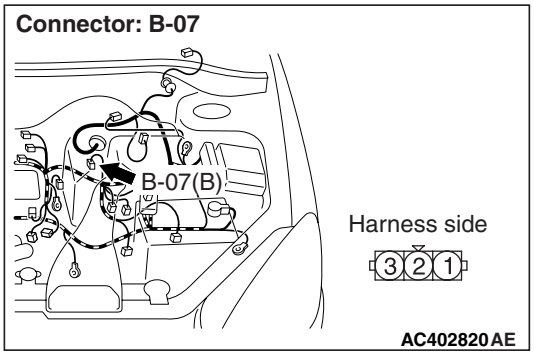
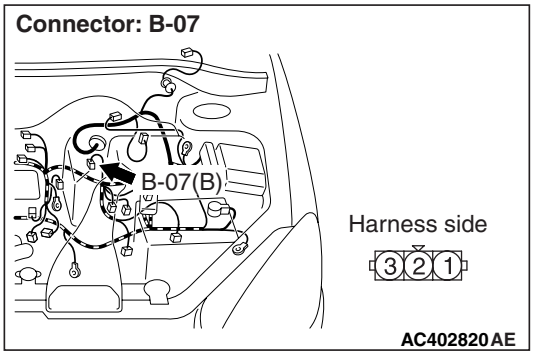
STEP 2. Connector check: B-07 vehicles speed sensor connector

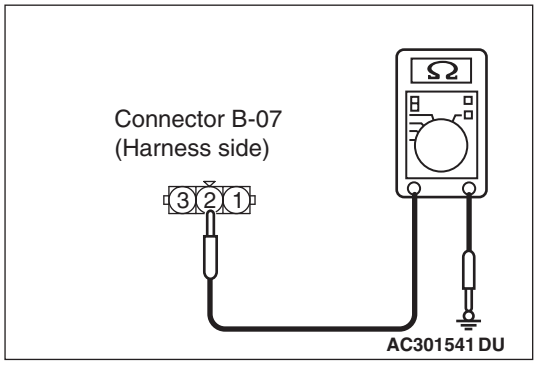


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Resistance measurement at the B-07 vehicles speed sensor connector



(1) Disconnect the connector, and measure at the wiring harness side.

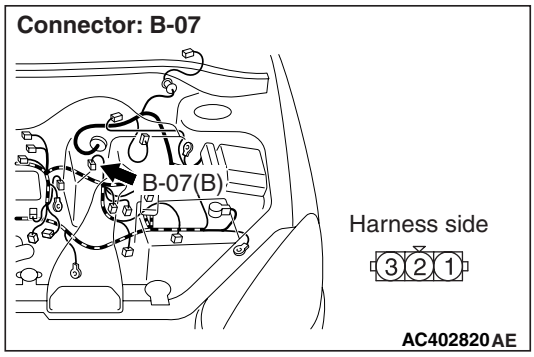


(2) Resistance between B-07 vehicles speed sensor connector terminal No.2 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

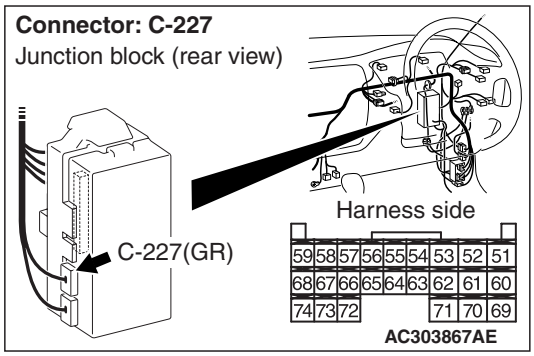
STEP 4. Check the wiring harness between B-07 vehicles speed sensor connector terminal No.2 and the body earth.



- Check the earth wires for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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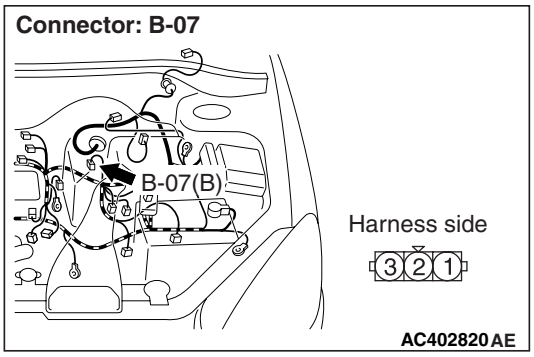
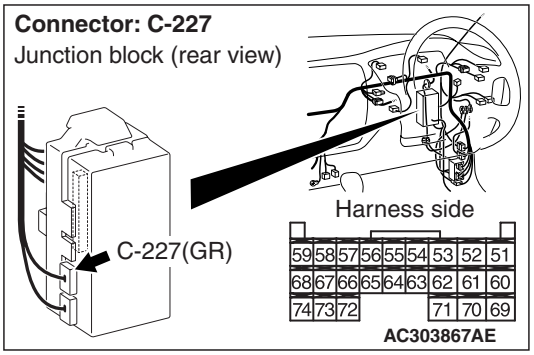
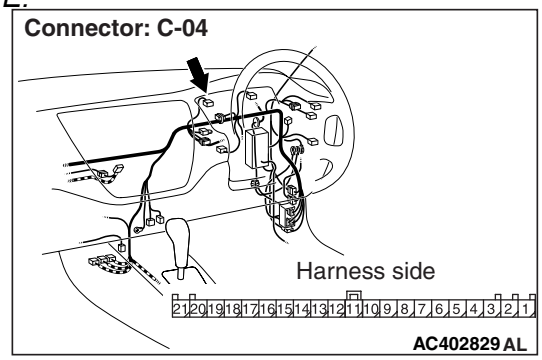
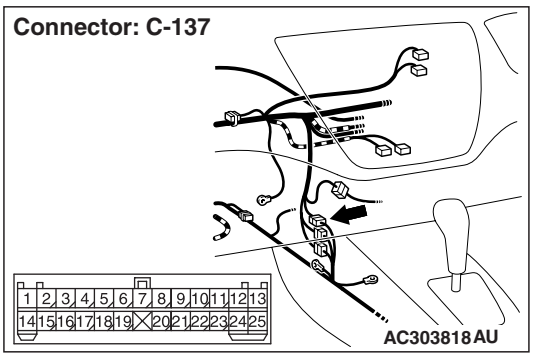
STEP 6. Check the wiring harness between B-07 vehicles speed sensor connector terminal No.3 and C-227 ETACS-ECU connector terminal No.63.





NOTE:





Prior to the wiring harness inspection, check joint connector C-03 and intermediate connector C-13, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Pulse check
Check the vehicle speed sensor signal.

System switch	Check condition
Vehicle speed sensor signal	When the vehicle speed has reached 10 km/h or more

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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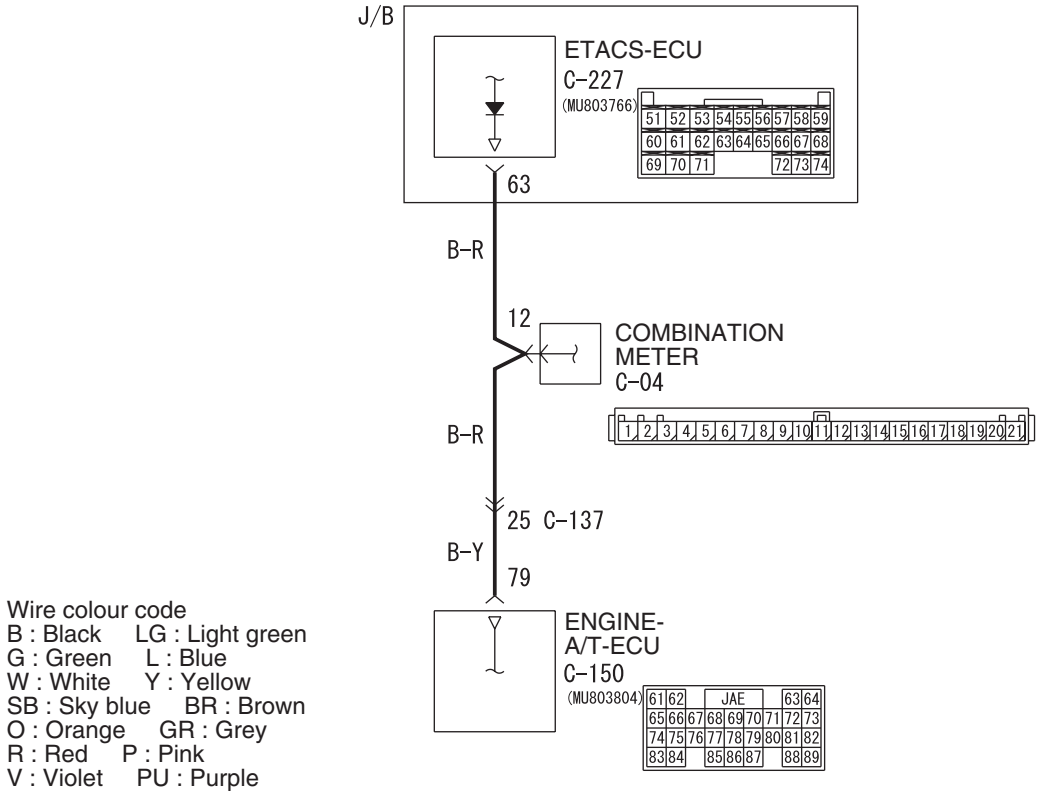
INSPECTION PROCEDURE M-14: The vehicle speed signal is not received. <A/T>

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

Vehicle Speed Signal Input Circuit <A/T>



Wire colour code
B : Black LG : Light green
G : Green L : Blue
W : White Y : Yellow
SB : Sky blue BR : Brown
O : Orange GR : Grey
R : Red P : Pink
V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

Vehicle speed signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

PROBABLE CAUSES

- Malfunction of the engine-A/T-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check if the A/T related diagnosis code is set.

Q: Is the diagnosis code set?
YES : Diagnose the automatic transmission control system. (Refer to GROUP 23 – Troubleshooting P.23A-15)
NO : Go to Step 2.

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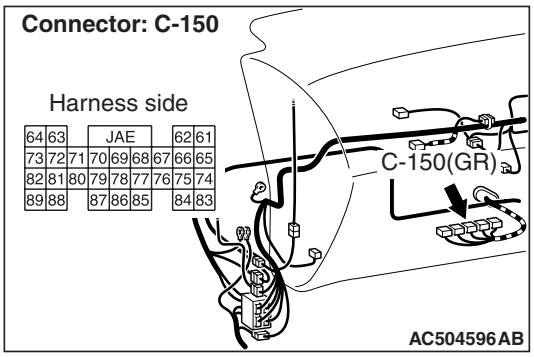
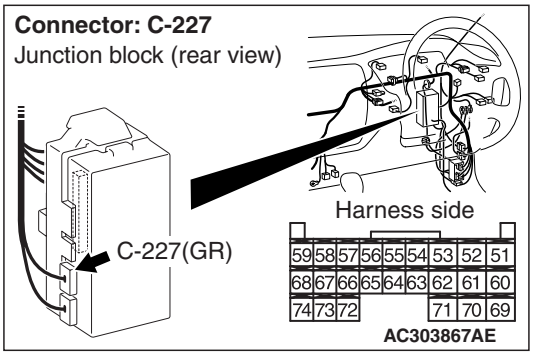
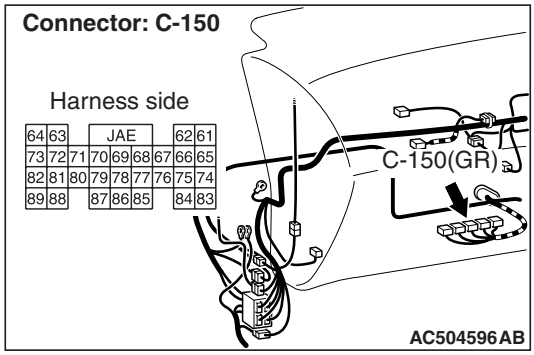
STEP 2. Connector check: C-150 engine-A/T-ECU connector and C-227 ETACS-ECU connector

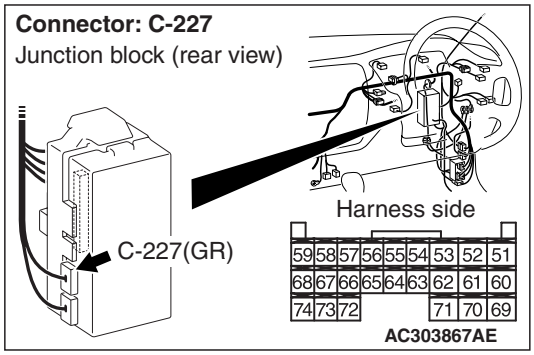




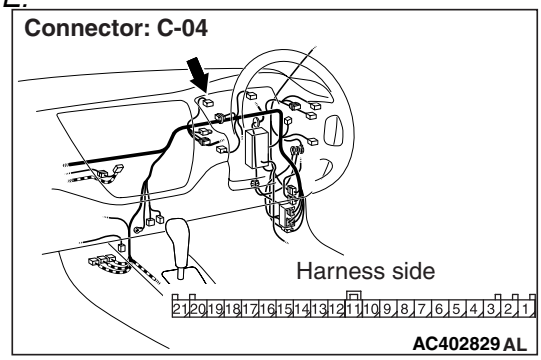
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

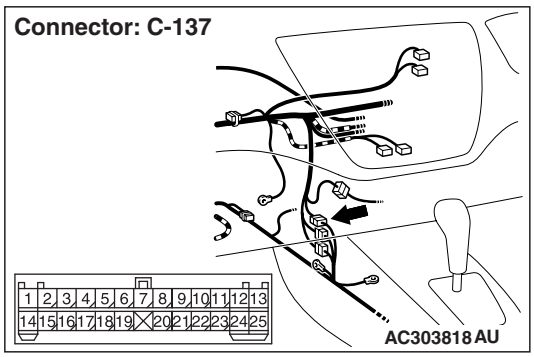
STEP 3. Check the wiring harness between C-150 engine-A/T-ECU connector terminal No.79 and C-227 ETACS-ECU connector terminal No.63.





NOTE:





Prior to the wiring harness inspection, check combination meter connector C-04 and intermediate connector C-137, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the wiring harness.

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STEP 4. Check the speedometer.
Check that the speedometer works normally.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the engine-A/T-ECU.

STEP 5. Pulse check
Check the vehicle speed signal.

System switch	Check condition
Vehicle speed signal	When the vehicle speed has reached 10 km/h or more

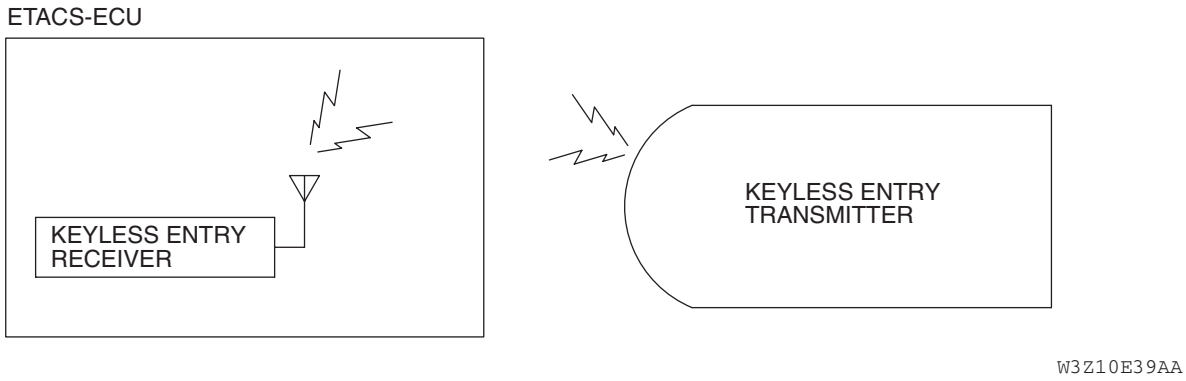
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-15: Each switch signal of the keyless entry transmitter is not received.

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

Transmitter Input Circuit



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

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

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DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check whether the ETACS-ECU receives signal from a transmitter or not. For this check, you should use the 2-button-type transmitter (integrated with a key), which cover screw is silver and has already been registered.

NOTE: For how to register the keyless entry transmitter encrypted code, refer to GROUP 42 –On-vehicle Service P.42-50.

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

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Go to Step 4.

STEP 2. Check the transmitter battery.

Refer to GROUP 42 –Keyless entry system P.42-55.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the keyless entry transmitter battery.

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

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

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the keyless entry transmitter.

STEP 4. Retest the system.

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

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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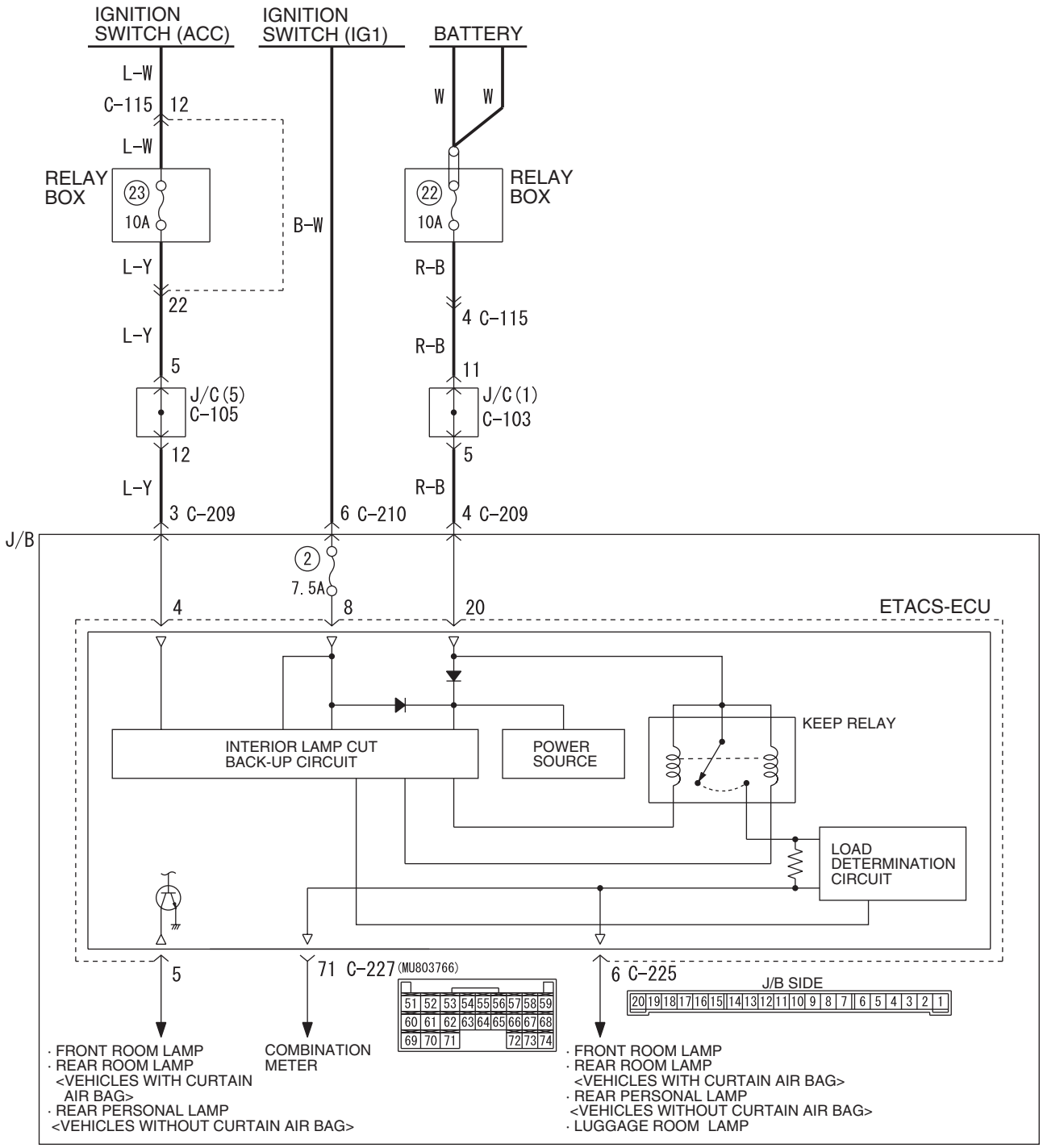
INSPECTION PROCEDURE M-16: The interior lamp loaded signal is not received.

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

Interior Lamp Automatic Shutdown Function Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

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COMMENTS ON TROUBLE SYMPTOM

The interior lamp automatic shutdown function operates in accordance with the interior lamp loaded signal. If this signal is abnormal, the functions below will not work normally.

- Ignition key cylinder illumination lamp
- Room lamps
- Interior lamp automatic shutdown function

PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged wiring harness or connector(s)

DIAGNOSIS PROCEDURE

STEP 1. ECU check by using the SWS monitor.

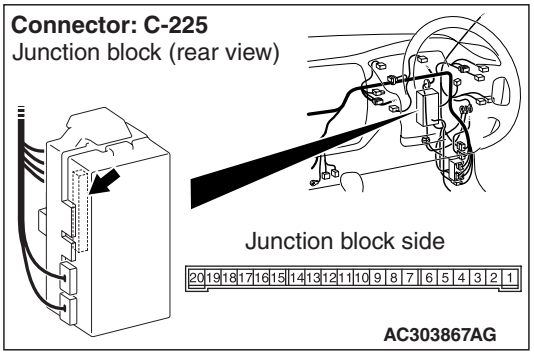
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.

(1) Turn the ignition switch to the "OFF" position.
(2) Check the following ECU.
ETACS ECU

OK: "OK" is displayed on the "ETACS ECU" menu.

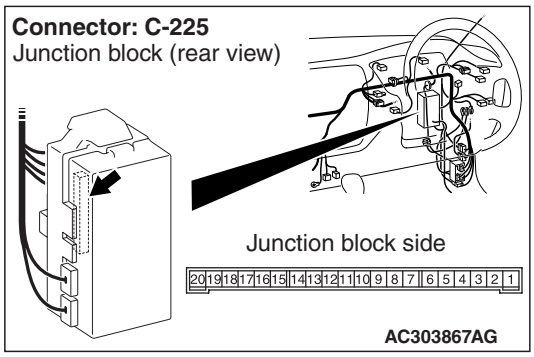
Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-30."

STEP 2. Connector check: C-225 ETACS-ECU connector

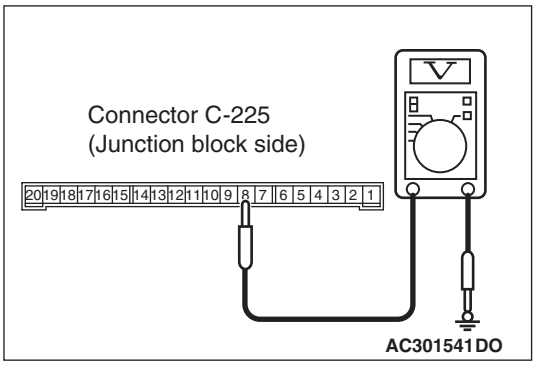


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the ON position.



(3) Voltage between C-225 ETACS-ECU connector terminal No.8 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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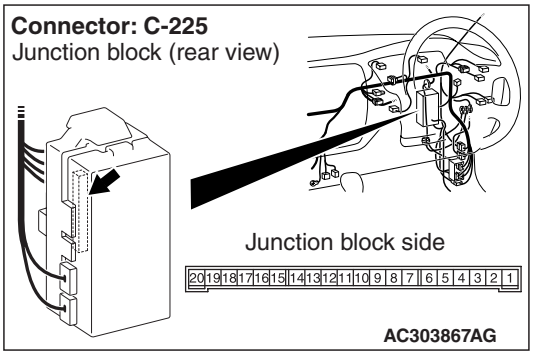
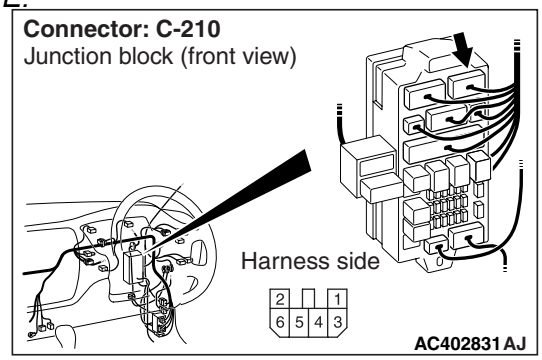
STEP 4. Check the wiring harness between C-225 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



NOTE:



Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

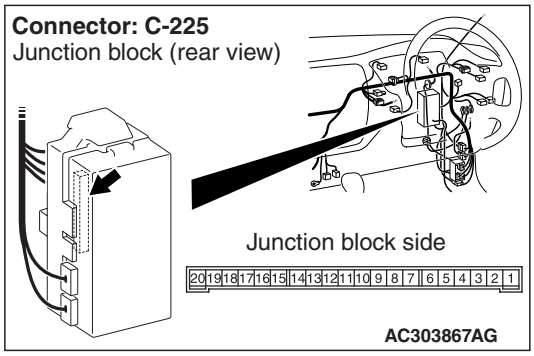
- Check the power supply line to the ignition switch (IG1) for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

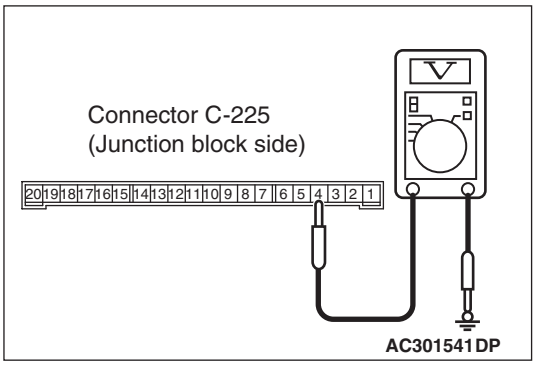
NO : Repair the wiring harness.

STEP 5. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.

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



(3) Voltage between C-225 ETACS-ECU connector terminal No.4 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

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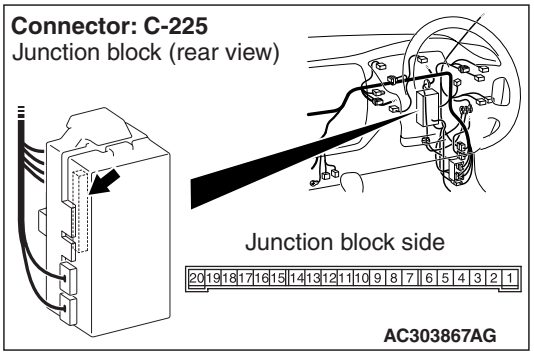
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.4 and the ignition switch (ACC).



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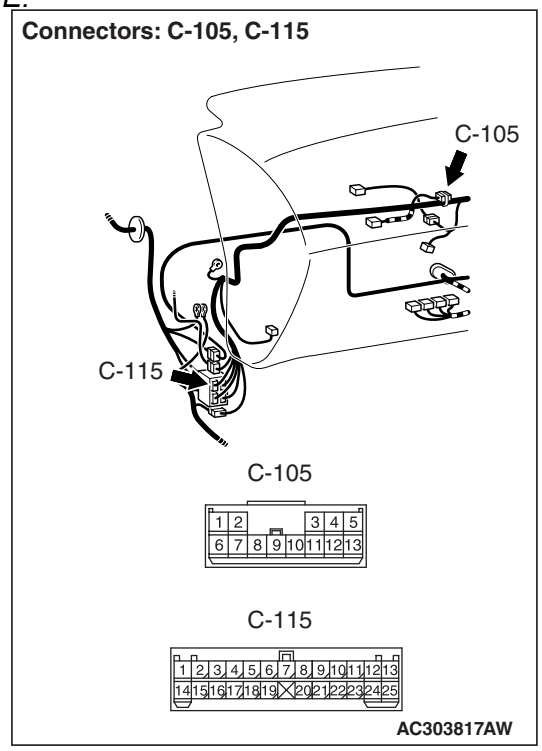

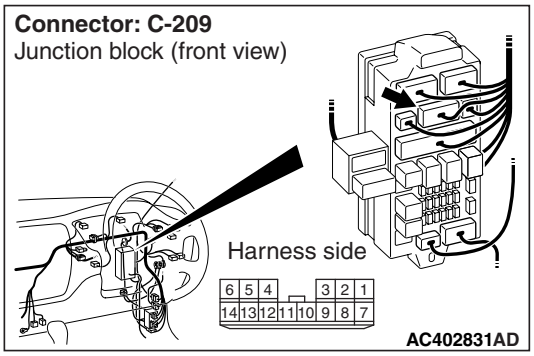

Prior to the wiring harness inspection, check joint connector C-105, junction block connector C-209 or intermediate connector C-115, and repair if necessary.

- Check the power supply line to the ignition switch (ACC) for open circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 7. Pulse check

Check the input of the interior lamp loaded signal.

System switch	Check condition
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

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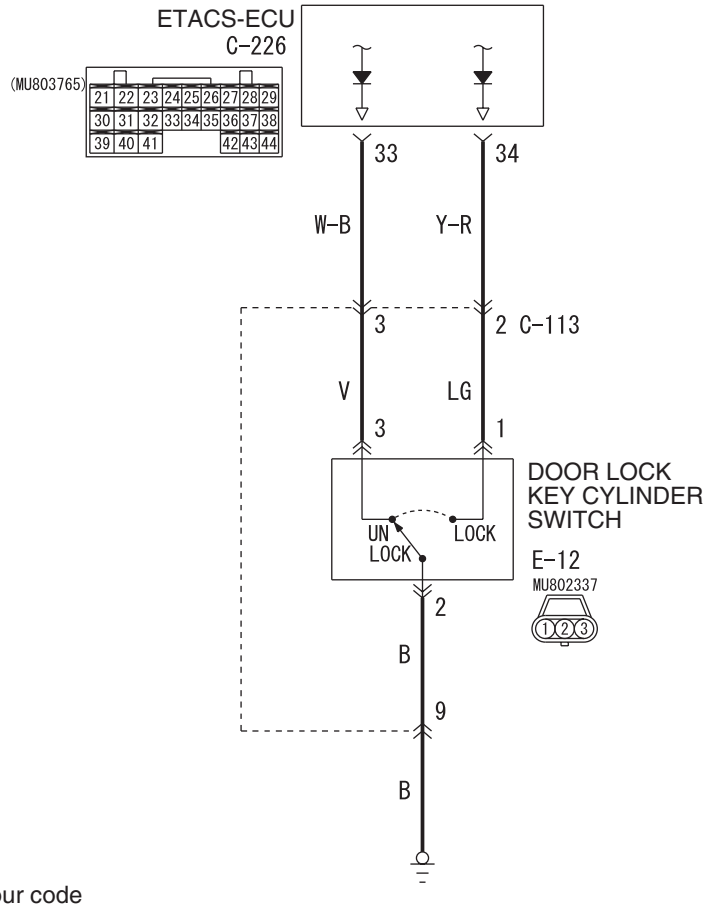
INSPECTION PROCEDURE M-17: The door lock key cylinder switch signal is not received.

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

Door Lock Key Cylinder Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple

W5J54L045A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the door lock key cylinder switch is used to operate the central door locking function. If the signal is abnormal, the central door locking function will not work normally.

PROBABLE CAUSES

- Malfunction of the door lock key cylinder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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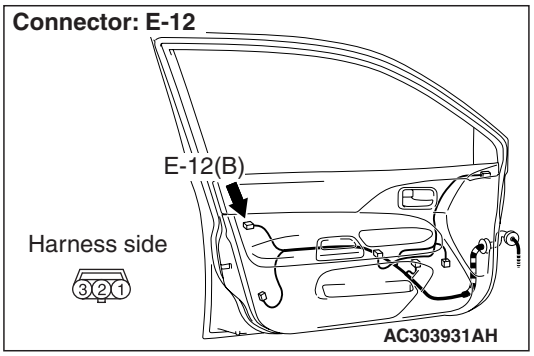
DIAGNOSIS PROCEDURE

STEP 1. Connector check: E-12 door lock key cylinder switch connector



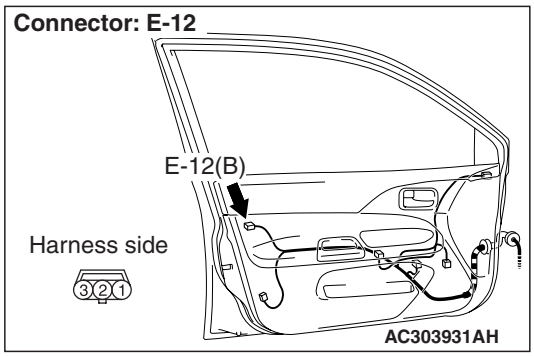
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the door lock key cylinder switch.

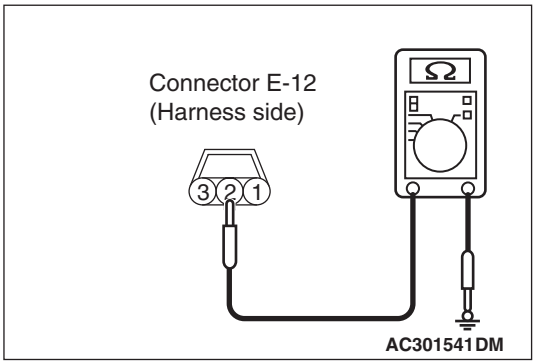
Refer to GROUP 42 –Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the door lock key cylinder switch.

STEP 3. Resistance measurement at the E-12 door lock key cylinder switch connector



(1) Disconnect the connector, and measure at the wiring harness side.



(2) Resistance between E-12 door lock key cylinder switch connector terminal No.2 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

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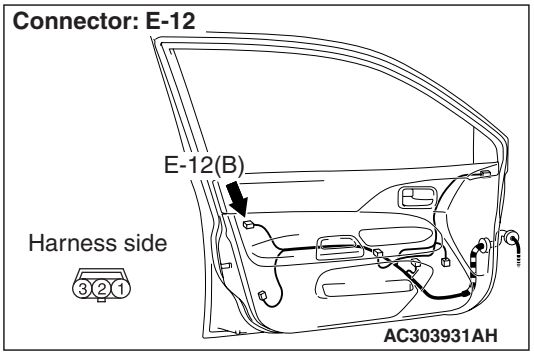
STEP 4. Check the wiring harness between E-12 door lock key cylinder switch connector terminal No.2 and body earth.



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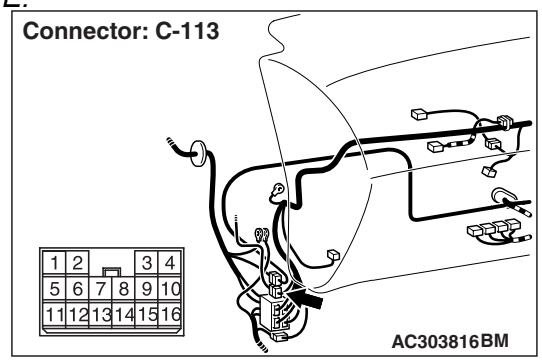


Prior to the wiring harness inspection, check intermediate connector C-113, and repair if necessary.

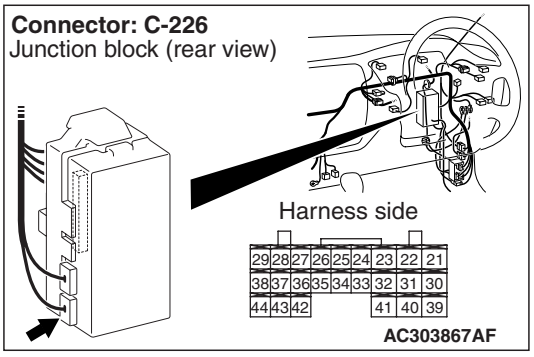
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness.

STEP 5. Connector check: C-226 ETACS-ECU connector

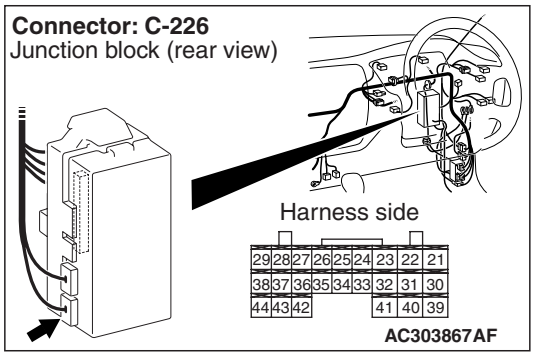


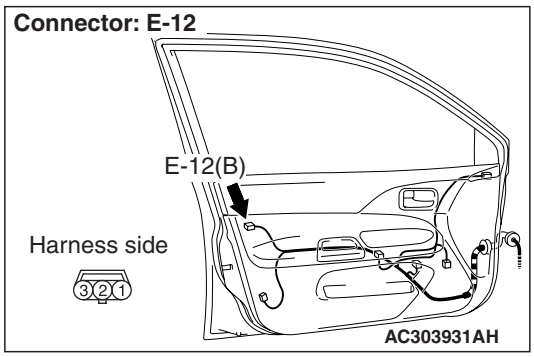
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

STEP 6. Check the wiring harness from E-12 door lock key cylinder switch connector terminal Nos. 1 and 3 to C-226 ETACS-ECU connector terminal Nos. 33 and 34.





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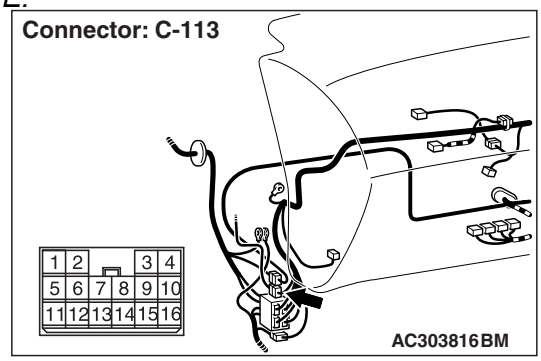

Prior to the wiring harness inspection, check intermediate connector C-113, and repair if necessary.

- Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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STEP 7. Pulse check

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

System switch	Check condition
Door lock key cylinder switch	Turn the key to the lock or unlock position

OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

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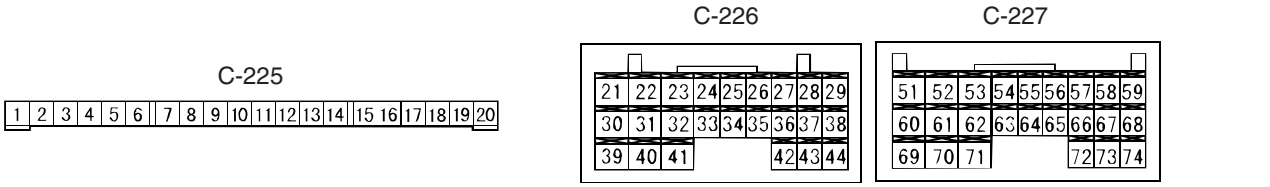
CHECK AT ECU TERMINAL

M1549001201202

ETACS-ECU



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NOTE: Terminal numbers 1 to 20 can not be measured as the ETACS-ECU is mounted on the junction block directly. The values are for reference only.

Terminal No.	Check items	Check conditions	Normal conditions
1	Output to the power window relay	When the power windows are operative	System voltage
2	Power supply to the central door locking system (battery positive voltage)	Always	System voltage
3	Earth (for ECU)	Always	0 V
4	Ignition switch (ACC)	Ignition switch: ACC	System voltage
5	Output to room lamp	When the room lamp is on	2 V or less
6	Power supply to interior lamp (battery positive voltage)	Always (when the interior lamp off function is off)	System voltage
7	Input from all the door switches	One of the door switches: ON (door open)	0 V
8	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
9	Output to right turn-signal lamps	When right turn-signal lamps are on	System voltage
10	Input from driver's door switch	Driver's door switch: ON (door open)	0 V
11	Power supply to hazard warning lamp (battery positive voltage)	Always	System voltage
12	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	System voltage
13	Output to central door locking (for unlocking the doors other than the driver's door)	When the door lock actuators unlock the doors	System voltage
14	Output to left turn-signal lamps	When the left turn-signal lamps are on	System voltage
15	–	–	–
16	Output to rear wiper	When rear wiper is operating	System voltage
17	Input of rear wiper automatic stop signal	When rear wiper is operating	System voltage
18	–	–	–
19	–	–	–

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Terminal No.	Check items	Check conditions	Normal conditions
20	Battery power supply (for ECU)	Always	System voltage
21	–	–	–
22	Output to central door locking (for unlocking the driver's door)	When the door lock actuators unlock the doors	System voltage
23	Rear washer output	When rear washer is operating	System voltage
24 to 28	–	–	–
29	Input of collision signal	–	–
30	Input to key reminder switch	Key reminder switch: ON (ignition key removed)	0 V
31, 32	–	–	–
33	Input to door lock key cylinder switch (lock switch)	All doors: Locked	0 V
34	Input to door lock key cylinder switch (unlock switch)	All doors: Unlocked	0 V
35	Input to driver's door lock actuator (lock switch)	Driver's door lock: Locked	0 V
36	Input to driver's door lock actuator (unlock switch)	Driver's door lock: Unlocked	0 V
37, 38	–	–	–
39	Input to back-up lamp switch	Shift lever: R Ignition switch: ON	System voltage
	Input to inhibitor switch ("R" position)	Selector lever: R Ignition switch: ON	
40 to 44	–	–	–
51	Setting diagnosis code or sending input check signal	When diagnosis code is set (the M.U.T.-II/III is connected or the diagnosis connector No.1 is earthed)	0 to 12 V (pulse signal)
		When input check signal is sent	0 V, 12 V (input signal is fluctuating)
52, 53	–	–	–
54	Input from fog lamp switch	Fog lamp switch: ON	0 V
55	Input from hazard warning lamp switch	Hazard warning lamp switch: ON	0 V
56	Earth (for sensor)	Always	0 V
57, 58	–	–	–
59	SWS communication line	Always	0 to 12 V (pulse signal)
60 to 62	–	–	–
63	Input of vehicle speed signal	When the vehicle is being driven	0 to 12 V (pulse signal)
64, 65	–	–	–

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Terminal No.	Check items	Check conditions	Normal conditions
66	Input from windshield intermittent wiper volume	Turn the ignition switch to the ACC position, and move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
67	Input from diagnosis control	When M.U.T.-II/III is connected	0 V
68	Input of SWS request signal	Always	0 to 12 V (pulse signal)
69	Output to ignition key cylinder illumination lamp	When ignition key cylinder illumination is on	2 V or less
70	–	–	–
71	Power supply to interior lamp	Always (when the interior lamp off function is off)	System voltage
72	–	–	–
73	Output to seat belt warning lamp	When seat belt warning lamp is on	0 V
74	–	–	–

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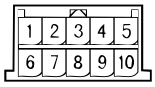
COLUMN SWITCH

C-203



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Terminal No.	Check items	Check conditions	Normal conditions
1	System voltage	Always	System voltage
2	Input of SWS request signal	Always	0 to 12 V (pulse signal)
3	SWS communication line	Always	0 to 12 V (pulse signal)
4	Earth	Always	0 V
5	–	–	–
6	Output to windshield intermittent wiper volume	Ignition switch: ACC Move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
7	–	–	–
8	Back-up output to windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
10	Back-up output to headlamp switch	Headlamp switch: ON	0 V

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FRONT-ECU

AC305097AB

NOTE: Measurement is not possible as the front-ECU is mounted on the relay box directly. The values are for reference only.

Terminal No.	Check item	Check condition	Normal condition
1	Output to fog lamps	When fog lamps are on	System voltage
2	Output to high-beam headlamps	When high-beam headlamps are on	System voltage
3, 4	Battery power supply (for headlamps)	Always	System voltage
5	Battery power supply (for tail lamps)	Always	Battery voltage
6	Output to low-beam headlamps	When low-beam headlamps are on	Battery voltage
7	Battery power supply (for ECU)	Always	System voltage
8	Output to tail lamps	When the tail lamps are on	System voltage
9~11	–	–	–
21	Output to windshield washer	When windshield washer is operating	System voltage
22	SWS communication line	Always	0 to 12 V (pulse signal)
23	Input of windshield wiper automatic stop signal	When windshield wipers are operating	System voltage
24	Power supply from ignition switch (ACC)	Ignition switch: ACC	System voltage
25	Back-up input from headlamp switch	Headlamp switch: ON	0 V
26	Back-up input from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
27	Output to windshield wiper (low speed operation)	When windshield wipers are operating at low speed	System voltage
28	Output to windshield wiper (high speed operation)	When windshield wipers are operating at high speed	System voltage
29	–	–	–
30	Power supply to the ignition switch (IG2)	Ignition switch: ON	System voltage
31	Earth	Always	0 V

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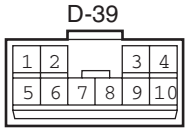
SUNROOF MOTOR ASSEMBLY



ACX01514 AD

Terminal No.	Check items	Check conditions	Normal conditions
1	Battery power supply (for motor)	Always	System voltage
2	Power supply to the ignition switch (IG2)	Ignition switch: ON	System voltage
5	Earth	Always	0 V
6	Input signal ("CLOSE/DOWN") from the sunroof switch	Sunroof switch: "CLOSE/DOWN"	0 V
7	Input signal ("UP") from the sunroof switch	Sunroof switch: "UP"	0 V
8	Input signal ("OPEN") from the sunroof switch	Sunroof switch: "OPEN"	0 V
10	SWS communication line	Always	0 to 12 V (pulse signal)