GROUP 54C

SMART WIRING SYSTEM (SWS) USING SWS MONITOR

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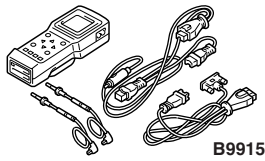
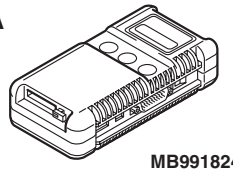
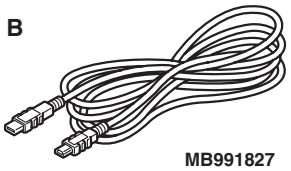
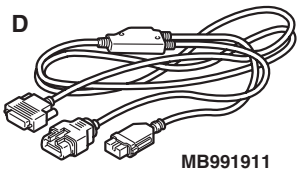
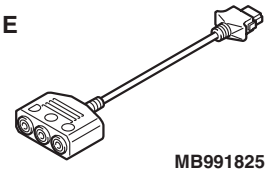
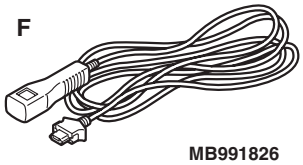
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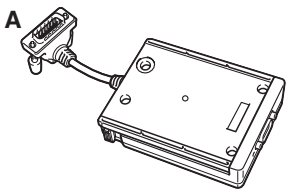
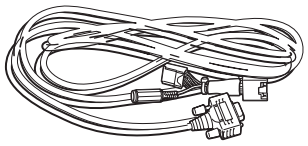
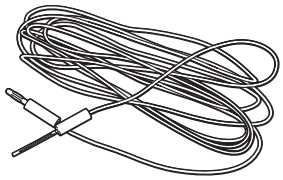
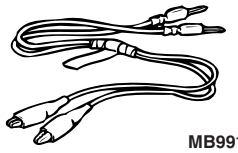
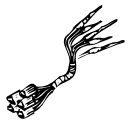
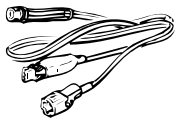
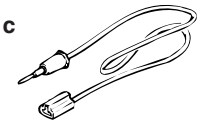
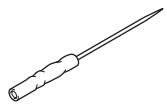
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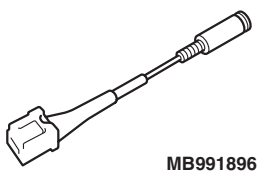
For the general information regarding the SWS, refer to GROUP 54B – General Information P.54B-2.

SPECIAL TOOLS

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Tool	Number	Name	Use
 B991502	MB991502	M.U.T.-II sub-assembly	Check the SWS (ECU check and service data)
A  MB991824 B  MB991827 C  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 measurement 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.**

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  DO NOT USE MB991223	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
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

Tool	Number	Name	Use
 MB991896	MB991896	Adapter harness for door communication	Door communication line check (service data)

TROUBLESHOOTING

PRIOR TO TROUBLESHOOTING

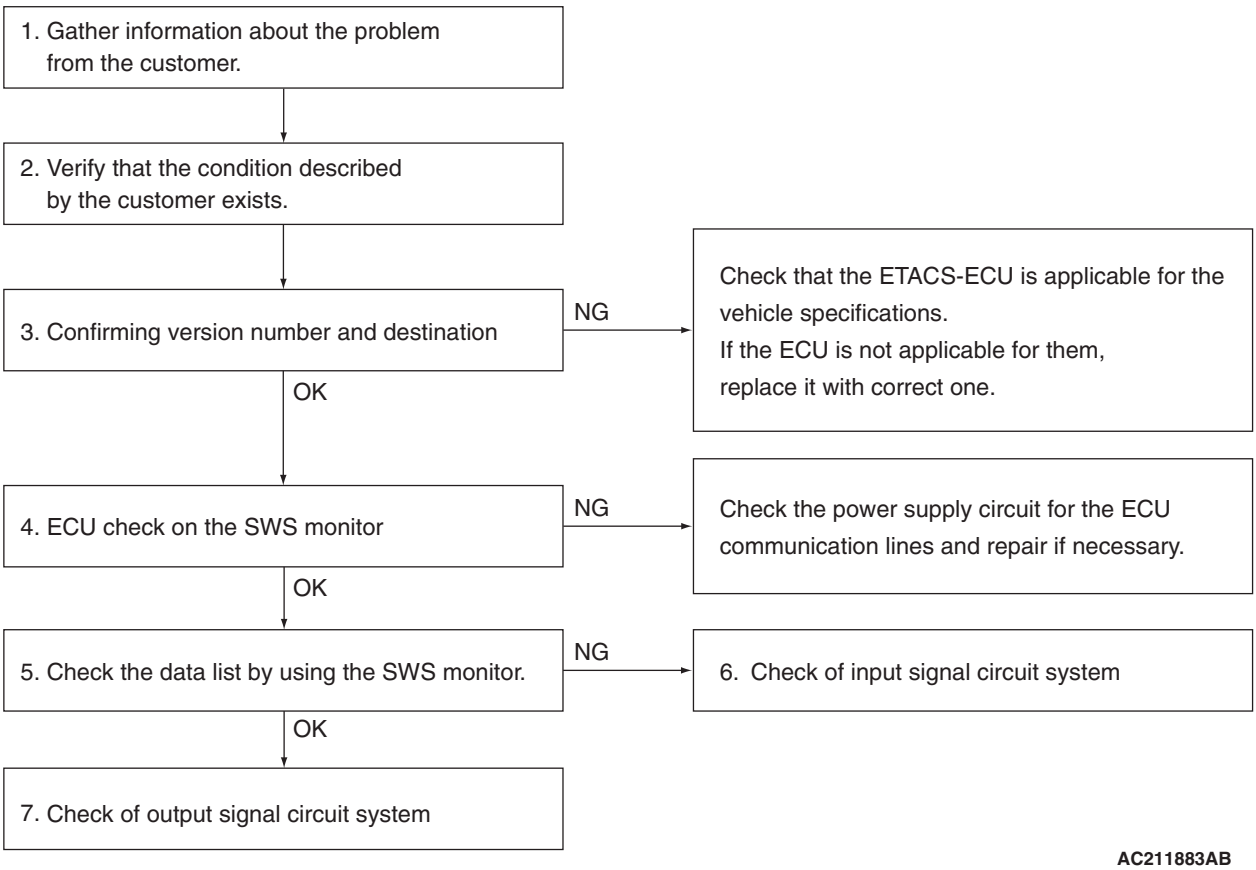
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Before carrying out troubleshooting, check the following two items.

- 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

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

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

3. Confirming version number and destination

   Check whether the SWS version number (0) and destination (EU W/O DRL) 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

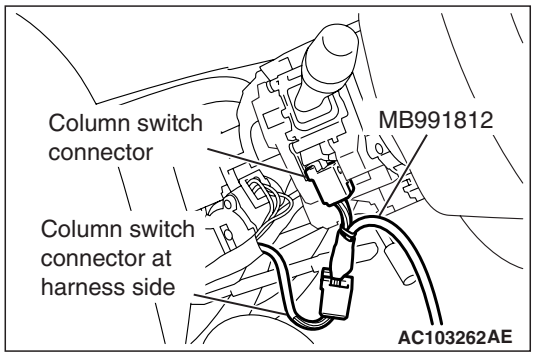
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⚠ CAUTION

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

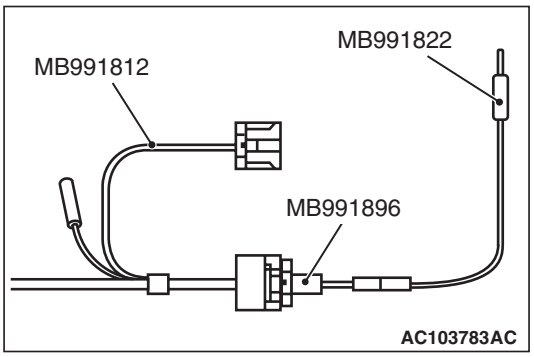
HOW TO CONNECT THE SWS COMMUNICATION LINE

1. Connect M.U.T.-II/III to the diagnostic connector.
2. Remove the steering column cover.
3. Remove the steering column switch connector.



4. Connect special tool SWS monitor harness (for column-ECU) MB991812 to the column switch connector and column switch harness connector.

HOW TO ESTABLISH COMMUNICATION BETWEEN DOORS



1. Connect special tool SWS monitor harness (for column-ECU) MB991812 to special tool adapter harness for door communication MB991896.
2. Connect special tool Probe harness MB991822 to special tool adapter harness for door communication MB991896 assembled in step 1.

3. Confirm that all the harnesses are connected. Then insert the probe of special probe harness MB991822 to each female connector terminal on special tool adapter harness for door communication MB991896 by backprobing.

   NOTE: For the connectors and their terminal numbers on the door communication line for the probe to insert, refer to the reference table.

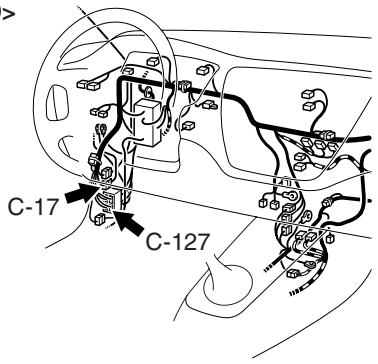
Reference table of connectors and their terminal numbers on door communication line

Insert the probe of the probe harness to each female connector terminal on the door communication line by backprobing.

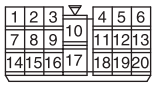
<LH DRIVE VEHICLES>

Connector name		Connector number	Terminal No.
Intermediate connector	Instrument panel wiring harness and front door wiring harness (LH) combination	C-17 [Front door wiring harness (LH) side]	7
	Instrument panel wiring harness and front door wiring harness (RH) combination	C-110 [Front door wiring harness (RH) side]	8
	Instrument panel wiring harness and floor wiring harness (RH) combination	C-113 (Instrument panel wiring harness side)	20
	Instrument panel wiring harness and floor wiring harness (LH) combination	C-127 (Instrument panel wiring harness side)	2
	Floor wiring harness (RH) and rear door wiring harness (RH) combination	D-04 [Floor wiring harness (RH) side]	7
	Floor wiring harness (LH) and rear door wiring harness (LH) combination	D-15 [Floor wiring harness (LH) side]	7
Power window main switch		E-05	11
Front power window sub switch		E-14	6
Rear power window sub switch (LH)		E-08	6
Rear power window sub switch (RH)		E-17	6

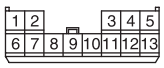
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C-17

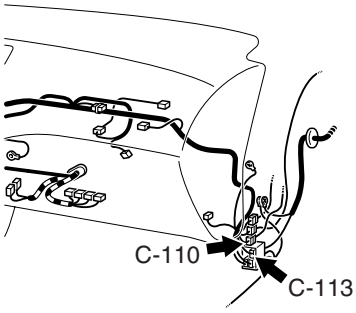


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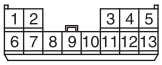


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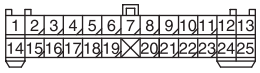
Connectors: C-110, C-113
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C-110

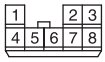


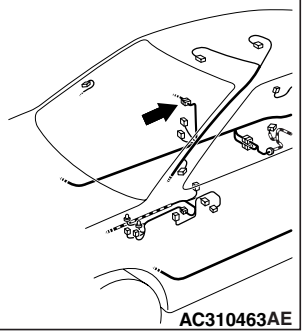
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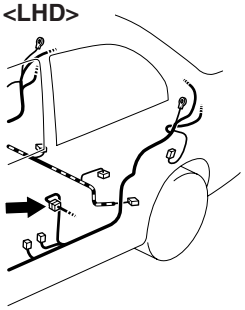
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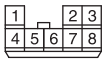




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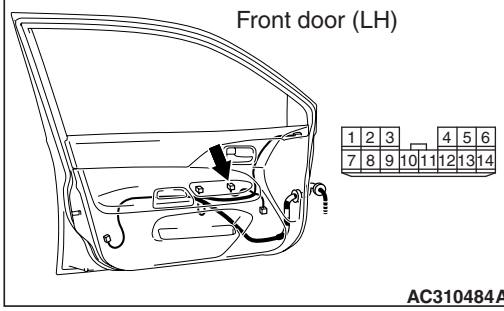
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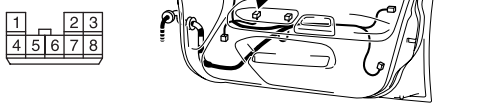
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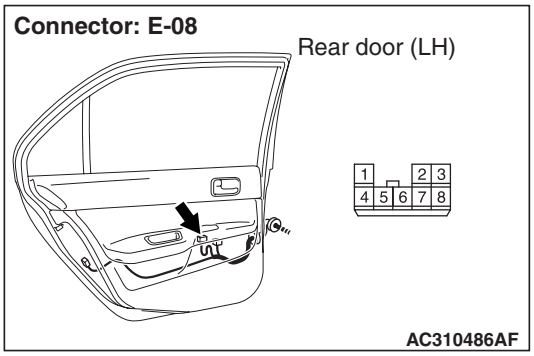


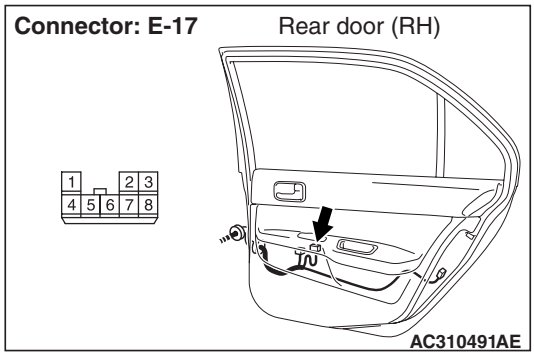
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Connector: E-14
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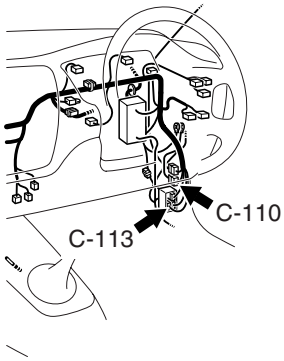




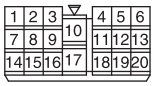
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Connector name		Connector number	Terminal No.
Intermediate connector	Instrument panel wiring harness and floor wiring harness (LH) combination	C-17 [Front door wiring harness (LH) side]	8
	Instrument panel wiring harness and front door wiring harness (RH) combination	C-110 [Front door wiring harness (RH) side]	7
	Instrument panel wiring harness and front door wiring harness (LH) combination	C-113(Instrument panel wiring harness side)	2
	Instrument panel wiring harness and floor wiring harness (LH) combination	C-127 (Instrument panel wiring harness side)	13
	Floor wiring harness (RH) and rear door wiring harness (RH) combination	D-04 [Floor wiring harness (RH) side]	7
	Floor wiring harness (LH) and rear door wiring harness (LH) combination	D-15 [Floor wiring harness (LH) side]	7
Power window main switch		E-05	11
Front power window sub switch		E-14	6
Rear power window sub switch (RH)		E-17	6
Rear power window sub switch (LH)		E-08	6

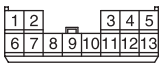
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C-110

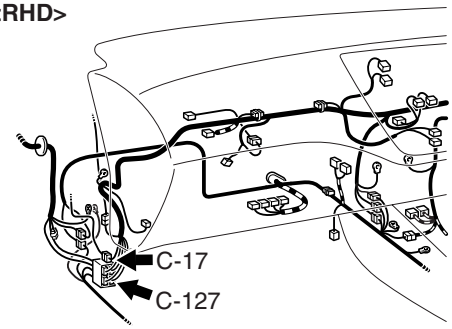


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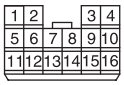


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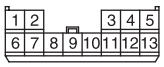
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C-17

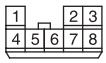


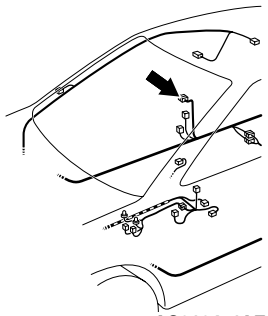
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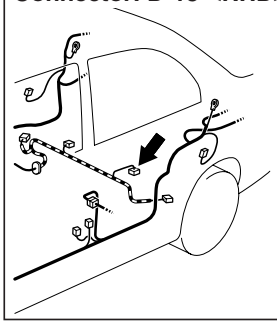
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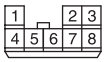




AC310471AE

Connector: D-15 <RHD>

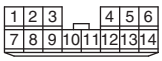


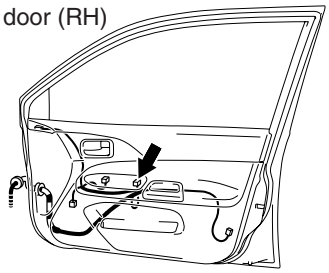


AC310473AF

Connector: E-05
<RHD>

Front door (RH)

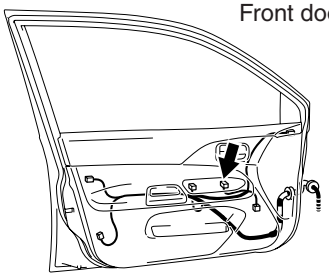


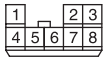


AC310493AI

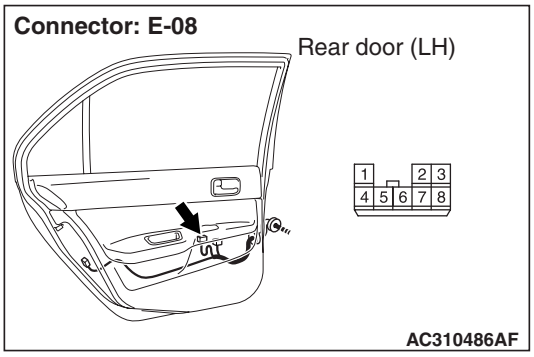
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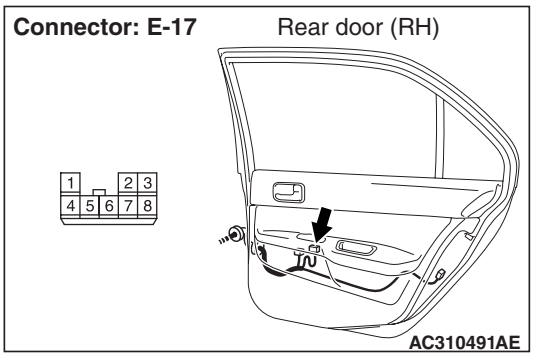
Front door (LH)





AC310498AE





ECU CHECK

M1549014900457

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).

1. 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-20).

SWS MONITOR-COMPATIBLE ECUS AND THEIR CONDITIONS

Item No.	ECUs to be checked	Display on M.U.T.-II/III	Normal condition	ECU condition
80	Column switch (column-ECU)	COLUMN ECU	OK*1	All of the column switch, power supply, earth and interconnecting communication line are normal
83	ETACS-ECU	ETACS ECU	OK	All of the ETACS-ECU switch, power supply, earth and interconnecting communication line are normal
84	Front-ECU	FRONT ECU	OK*2	All of the front-ECU, power supply, earth and interconnecting communication line are normal
85	Power window main switch (power window module)	P/W MODULE	OK*2 (when the ignition switch is ON)	All of the power window main switch, 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

M1549015000480

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-24.

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-24).

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

DATA LIST REFERENCE TABLE

COLUMN SWITCH (COLUMN-ECU)

Item No.	Check item	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 switch: 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
15	With or without windshield intermittent wiper control	INT WIP KNOB	Vehicles with intermittent wiper control	EQUIP
			Vehicles without intermittent wiper control	NONE

ETACS-ECU

Item No.	Check item	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 switch	DR DOOR SW	Driver's door switch ON (The driver's door is open).	ON
			Driver's door switch OFF (The driver's door is closed).	OFF
33	Reception of power window switch	P/W SW ACCEPT	Ignition switch: ON or START	PERMIT
			Ignition switch: from ON or START to LOCK (OFF) or ACC	from PERMIT to PROHIBIT (after approximately 30 seconds)
35	Headlamp automatic shutdown function	HD AUTO-CUT	1. Lighting switch: Other than OFF 2. Ignition switch: from ON or START to LOCK (OFF) or ACC 3. Driver's door switch: ON (driver's door open)	OFF to ON (after approximately one second)
			When requirements for the headlamp automatic shutdown are not satisfied	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	INHIBITOR SW	Back-up lamp switch: ON	ON
			Back-up lamp switch: OFF	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

FRONT-ECU

Item No.	Check item	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 ACK" under the front-ECU check.

POWER WINDOW MAIN SWITCH (POWER WINDOW MODULE)

Item No.	Check item	Display on M.U.T.-II/III	Check condition	Normal condition
71	Response from power window module	P/W ECU ACK	Ignition switch: ON or START	NORMAL ACK
			1. Ignition switch: ON or START 2. Operate any switch of the power window main switch.	INPUT CHECK (only momentarily when switch is operated)
			–	NO ACK

NOTE: For item number 71, the M.U.T.-II/III also displays "NG" under the "ECU Check" when it displays "NO ACK" under the "P/W ECU ACK" check.

COMMUNICATION BETWEEN DOORS

Item No.	Check item	Display on M.U.T.-II/III	Check condition	Normal condition
C0	Front passenger's power window UP switch	PASS DOR UP	Front passenger's power window switch: UP	ON
			Front passenger's power window switch: Other than "UP"	OFF
C1	Front passenger's power window DOWN switch	PASS DOR DOWN	Front passenger's power window switch: DOWN	ON
			Front passenger's power window switch: Other than "DOWN"	OFF
C2	Front passenger's power window AUTO switch	PASS DOR AUTO	Front passenger's power window switch: AUTO	ON
			Front passenger's power window switch: Other than "AUTO"	OFF

Item No.	Check item	Display on M.U.T.-II/III	Check condition	Normal condition
C4	Rear right power window UP switch	REAR RH UP	Rear right power window switch: UP	ON
			Rear right power window switch: Other than "UP"	OFF
C5	Rear right power window DOWN switch	REAR RH DOWN	Rear right power window switch: DOWN	ON
			Rear right power window switch: Other than "DOWN"	OFF
C6	Rear right power window AUTO switch	REAR RH AUTO	Rear right power window switch: AUTO	ON
			Rear right power window switch: Other than "AUTO"	OFF
C8	Rear left power window UP switch	REAR LH UP	Rear left power window switch: UP	ON
			Rear left power window switch: Other than "UP"	OFF
C9	Rear left power window DOWN switch	REAR LH DOWN	Rear left power window switch: DOWN	ON
			Rear left power window switch: Other than "DOWN"	OFF
CA	Rear left power window AUTO switch	REAR LH AUTO	Rear left power window switch: AUTO	ON
			Rear left power window switch: Other than "AUTO"	OFF
CB	Power window lock switch	P/W LOCK SW	Power window lock switch: ON	ON
			Power window lock switch: OFF	OFF
CD	Multi-stop	MLT-MODE STOP	1. When multi-mode is working 2. Either function of keyless entry transmitter: ON	ON (only momentarily when switch is operated)
			Other than the conditions above	OFF
CE	Reception of power window switch	P/W SW RECEPT	Ignition switch: ON or START	PERMIT
			Ignition switch: from ON or START to LOCK (OFF) or ACC	from PERMIT to PROHIBIT (after approximately 30 seconds)
CF	Ignition switch (IG1)	IG1	Ignition switch: ON or START	ON
			Ignition switch: LOCK (OFF) or ACC	OFF

NOTE: Service data of door communication will be sent from the power window main switch to the door communication line. Therefore, the display will remain "OFF" unless the probe is inserted.

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 signal	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
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

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
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
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

LIGHTING

Item	Input signal	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
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	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
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	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
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	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
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	Response by the front-ECU	70	FRONT ECU ACK	HI-BEAM ACK

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
PASSING LAMP	Passing lamp switch	03	PASSING SW	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
REAR FOG LAMP	Headlamp switch	00	HEADLAMP SW	ON
	Tail lamp switch	01	TAIL LAMP SW	ON
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
HD AUTO-CUT	Headlamp switch	00	HEADLAMP SW	Either is on
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IG SW(IG1)	OFF
	Driver's door switch	32	DR DOOR SW	ON
	Headlamp automatic shutdown function	35	HD AUTO-CUT	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

NOTE:

1. *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 highlighted as this has nothing to do with actual lamp operation.*
2. *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

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

BUZZER

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
LGT MONI_ALRM	Headlamp switch	00	HEADLAMP SW	Either is on
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IG SW(IG1)	OFF
	Driver's door switch	32	DR DOOR SW	ON
	Headlamp automatic shutdown function	35	HD AUTO-CUT	OFF
	Buzzer	43	BUZZER	ON

NOTE: The headlamp automatic shutdown function works in approximately one second after the lighting monitor buzzer starts sounding, and then the buzzer ceases sounding.

PULSE CHECK

M1549015100421

⚠ 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-24).

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

SWITCHES WHICH ARE APPLICABLE TO INPUT SIGNAL CHECK, AND THEIR CHECK CONDITIONS

Input signal		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.
Driver's door lock actuator		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

M1549027300024

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.

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

TROUBLE SYMPTOM CHART

M1549000800877

Symptom	Inspection procedure number	Reference page
Communication with the SWS monitor is not possible.	A-1	P.54C-26
Communication with the column switch (column-ECU) is not possible.	A-2	P.54C-30
Communication with the ETACS-ECU is not possible.	A-3	P.54C-36
Communication with the front-ECU is not possible.	A-4	P.54C-42
Communication with the power window main switch (power window module) is not possible.	A-5	P.54C-47

<FUNCTION SYSTEM>

Symptom		Inspection procedure number	Reference page
Buzzer	Lamp reminder buzzer function does not work normally.	B-1	P.54C-57
Central door locking system	Central door locking system does not work. <LH drive vehicles>	C-1	P.54C-59
	Central door locking system does not work. <RH drive vehicles>		P.54C-62
	A door or a tailgate cannot be locked or unlocked by the central door locking system. <LH drive vehicles>	C-2	P.54C-65
	A door or a tailgate cannot be locked or unlocked by the central door locking system. <RH drive vehicles>		P.54C-72
	The central door locking system can not be operated by means of the front passenger's door lock key cylinder.	C-3	P.54C-79
	The ignition key reminder function does not work normally.	C-4	P.54C-81
	The impact detection door unlock function does not function.	C-5	P.54C-83
Power windows	Power windows do not work at all.	D-1	P.54C-86
	Driver's power window does not work by means of the power window main switch. <LH drive vehicles>	D-2	P.54C-89
	Driver's power window does not work by means of the power window main switch. <RH drive vehicles>		P.54C-91
	Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.	D-3	P.54C-93
	Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	D-4	P.54C-111
	The window glass lowers automatically while it is rising.	D-5	P.54C-123
	Power window anti-trap function does not work normally.	D-6	P.54C-124

Symptom		Inspection procedure number	Reference page
Keyless entry system	Keyless entry system does not work.	E-1	P.54C-137
	Keyless entry hazard warning lamp answerback function or the room lamp answerback function does not work normally.	E-2	P.54C-139
	Encrypted code cannot be registered.	E-3	P.54C-140
	The timer lock function does not work after the doors have been unlocked by the keyless entry system.	E-4	P.54C-141
Windshield wiper and washer	The windshield wipers do not work at all.	F-1	P.54C-142
	The windshield wipers do 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.	F-2	P.54C-149
	The windshield wipers do not stop at the specified park position.	F-3	P.54C-151
	The windshield wipers do not work normally.	F-4	P.54C-156
	The intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper volume control.	F-5	P.54C-161
	The intermittent wiper interval is not changed according to the vehicle speed.	F-6	P.54C-162
	The windshield washer does not work.	F-7	P.54C-164
Ignition key cylinder illumination lamp	The ignition key cylinder illumination lamp does not illuminate/extinguish normally.	G-1	P.54C-169
Headlamp and tail lamp	The headlamps do not illuminate when the lighting 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.	H-1	P.54C-173
	The tail lamps do not illuminate normally.	H-2	P.54C-174
	The low-beam headlamps do not illuminate normally.	H-3	P.54C-177
	The high-beam headlamps do not illuminate normally.	H-4	P.54C-180
	The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.	H-5	P.54C-182
	The headlamp automatic shutdown function does not work normally.	H-6	P.54C-183
	Any of tail lamps, position lamps or licence plate lamps does not illuminate. <LH drive vehicles>	H-7	P.54C-185
	Any of tail lamps, position lamps or licence plate lamps does not illuminate. <RH drive vehicles>		P.54C-192
	The headlamp(s) do not illuminate. <including high-beam indicator>	H-8	P.54C-199

Symptom		Inspection procedure number	Reference page
Flasher timer	The turn-signal lamps do not illuminate.	I-1	P.54C-208
	The hazard warning lamps do not illuminate.	I-2	P.54C-213
	Any of the turn-signal lamps does not illuminate. <LH drive vehicles>	I-3	P.54C-215
	Any of the turn-signal lamps does not illuminate. <RH drive vehicles>		P.54C-223
Fog lamp	The rear fog lamp do not illuminate normally.	J-1	P.54C-231
	The rear fog lamp or the rear fog lamp indicator does not illuminate normally.	J-2	P.54C-237
Room lamp	The front or rear room lamp does not illuminate or extinguish normally.	K-1	P.54C-244
	Interior lamp automatic shutdown function does not work normally.	K-2	P.54C-252
	The door-ajar warning lamp does not illuminate/extinguish normally.	K-3	P.54C-254

CHECK TROUBLE BY USING THE INPUT SIGNAL CHECK

M1549024200329

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.		L-1	P.54C-258
The ignition switch (IG1) signal is not received.		L-2	P.54C-261
The door switch (front: LH) signal is not received. <LH drive vehicles>		L-3	P.54C-263
The door switch (front: RH) signal is not received. <RH drive vehicles>			P.54C-265
Column switch (lighting and turn-signal lamp switch)	The tail lamp switch signal is not received.	L-4	P.54C-267
	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 headlamp washer switch signal is not received.		
Column switch (windshield wiper/washer and rear wiper washer switch)	The windshield mist wiper switch signal is not received.	L-5	P.54C-268
	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 windshield intermittent wiper volume signal is not received.	L-6	P.54C-270
Power window main switch	When the power window main switch is operated, the switch signals are not received.	L-7	P.54C-274
The rear fog lamp switch signal is not received.		L-8	P.54C-277
The key reminder switch signal is not received.		L-9	P.54C-281
The hazard warning lamp switch signal is not received.		L-10	P.54C-285
All the door switch signals are not received.	LH drive vehicles	L-11	P.54C-289
	RH drive vehicles		P.54C-292

Symptom	Inspection procedure number	Reference page
The front door lock actuator (LH) switch signal is not received. <LH drive vehicles>	L-12	P.54C-296
The front door lock actuator (RH) switch signal is not received. <RH drive vehicles>		P.54C-299
The vehicle speed sensor signal is not received.	L-13	P.54C-302
Each switch signal of the keyless entry transmitter is not received.	L-14	P.54C-306
The interior lamp loaded signal is not detected.	L-15	P.54C-307
The door lock key cylinder switch signal is not detected.	L-16	P.54C-312

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).

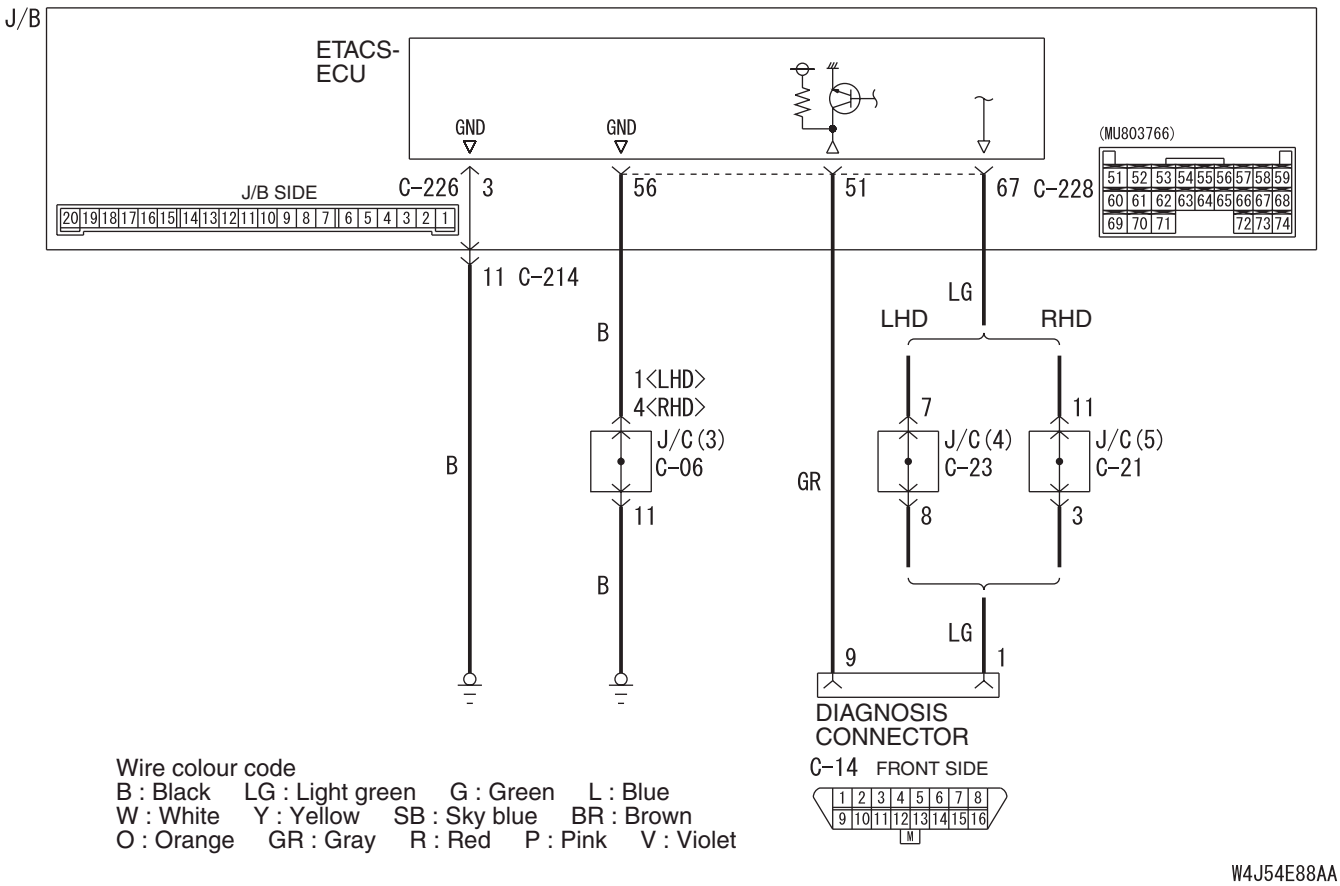
Function	L-1	L-2	L-3	L-4	L-9	L-11	L-12	L-15
Lamp reminder function	–	×	×	×	–	–	–	–
Control of central door locking	–	–	–	–	–	–	×	–
Key reminder function	–	–	×	–	×	–	×	–
Door locking released due to impact detection.	–	–	–	–	–	–	–	–
Keyless entry system	–	–	×	–	×	×	×	–
Keyless entry hazard warning lamp answerback	–	–	–	–	–	–	–	–
Power window control	–	×	–	–	–	–	–	–
Control of windshield wiper washer	×	–	–	–	–	–	–	–
Ignition key cylinder illumination lamp function	–	×	×	–	×	–	–	×
Headlamp control	–	×	–	×	–	–	–	–
Tail lamp control	–	×	–	×	–	–	–	–
Headlamp automatic shutdown function	–	×	×	×	–	–	–	–
Fog lamp control	–	–	–	×	–	–	–	–
Turn-signal lamp control	–	×	–	×	–	–	–	–
Dome lamp control	–	×	×	–	×	×	×	×
Interior lamp automatic shutdown function	×	–	–	–	–	–	–	×
Door-ajar indicator lamp	–	–	×	–	–	×	–	–

SYMPTOM PROCEDURES

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 Circuit 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 : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

The SWS monitor may be connected improperly.

POSSIBLE CAUSES

- Malfunction of the SWS monitor body (I/F 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 GROUP 13A – Troubleshooting P.13A-237.

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

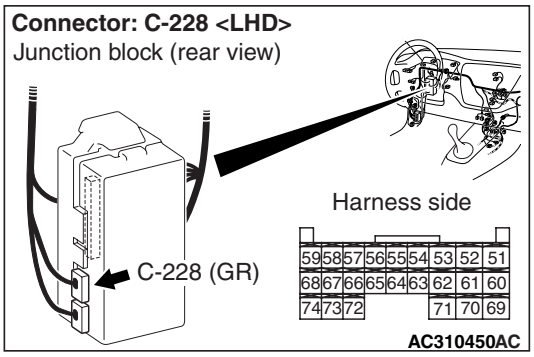
When the ignition switch is turned ON, check if the M.U.T.-II/III can communicate with the system.

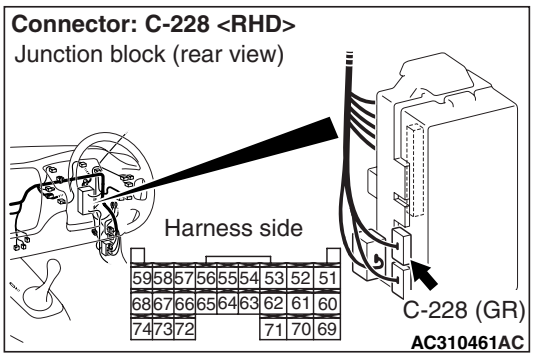
Q: Is the check result normal?

YES : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."

NO : Go to Step 3.

Step 3. Connector check: C-228 ETACS-ECU connector



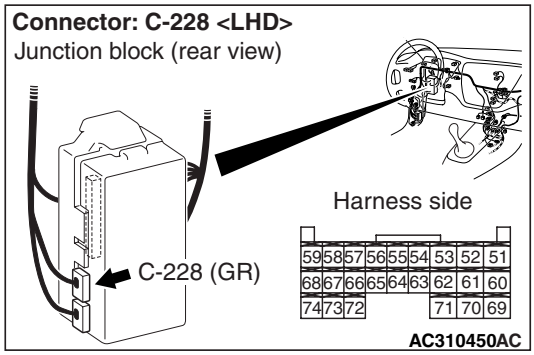


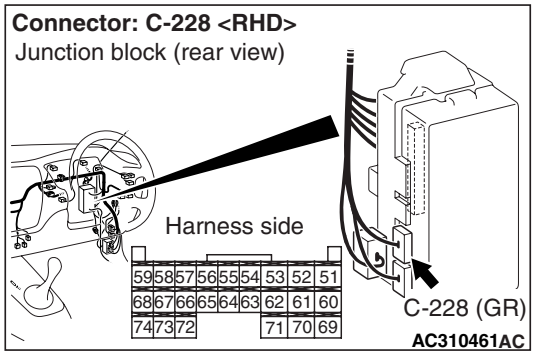
Q: Is the check result normal?

YES : Go to Step 4.

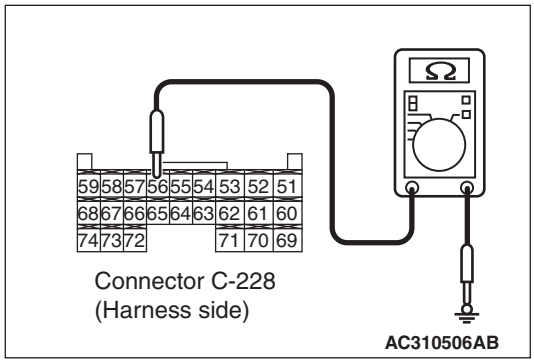
NO : Repair the defective connector.

Step 4. Resistance measurement at the C-228 ETACS-ECU connector





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



(2) Resistance between C-228 ETACS-ECU connector terminal No.56 and body earth

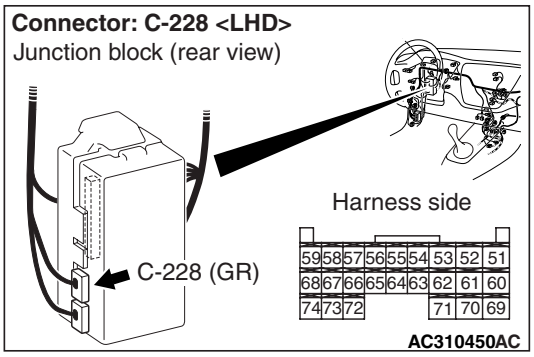
OK: 2 Ω or less

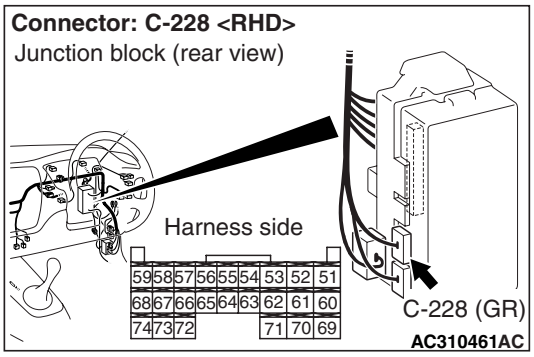
Q: Is the check result normal?

YES : Go to Step 6.

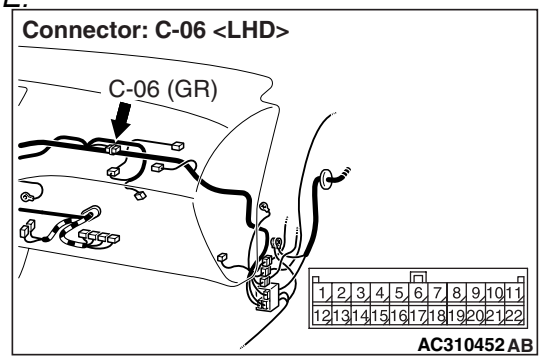
NO : Go to Step 5.

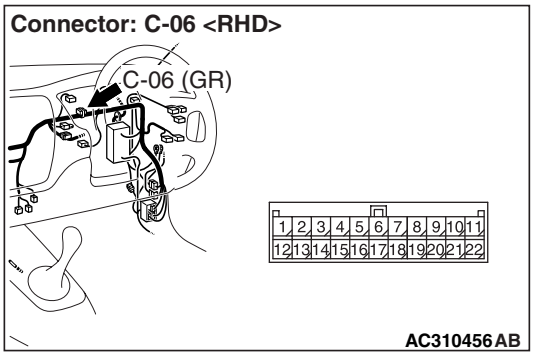
Step 5. Check the wiring harness between C-228 ETACS-ECU connector terminal No.56 and body earth.





NOTE:





Prior to the wiring harness inspection, check joint connector C-06, and repair if necessary.

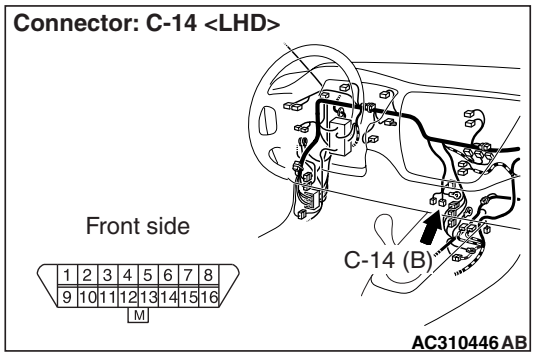
- Check the earth wires for open circuit.

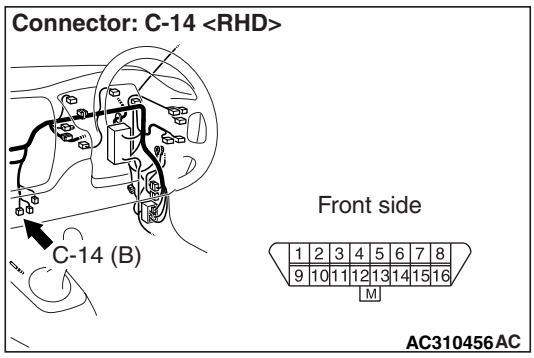
Q: Are the check results normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 6. Connector check: C-14 diagnosis connector



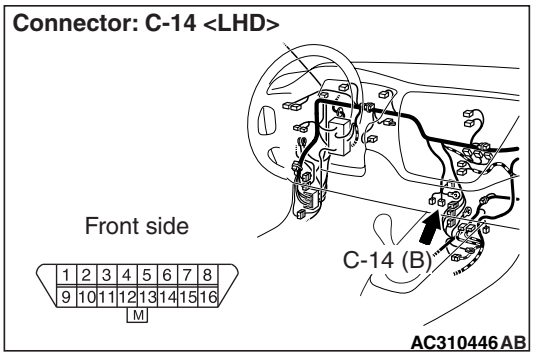


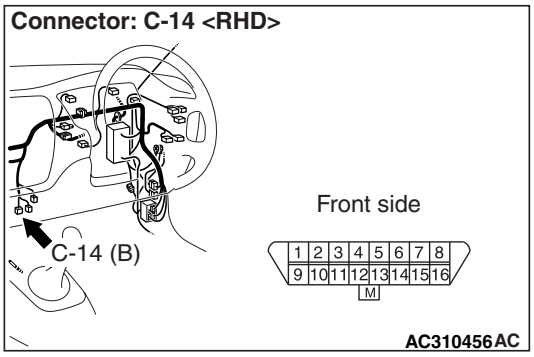
Q: Is the check result normal?

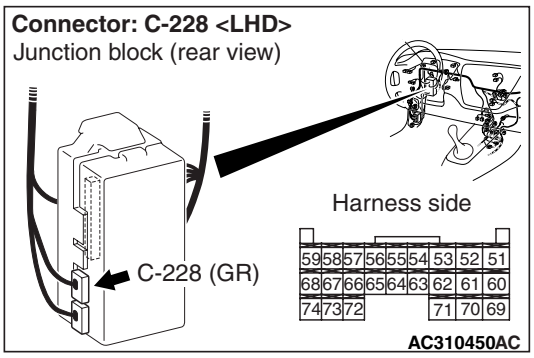
YES : Go to Step 7.

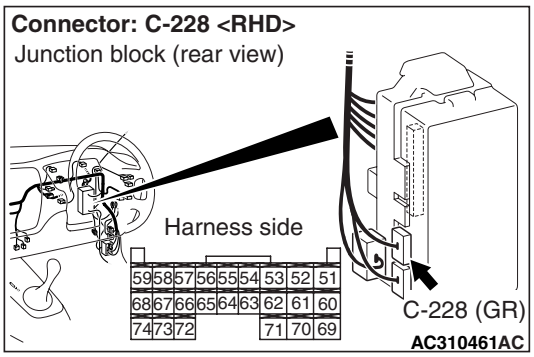
NO : Repair the defective connector.

Step 7. Check the wiring harness from C-228 ETACS-ECU connector terminal Nos.51 and 67 to C-14 diagnosis connector terminal Nos.9 and 1.

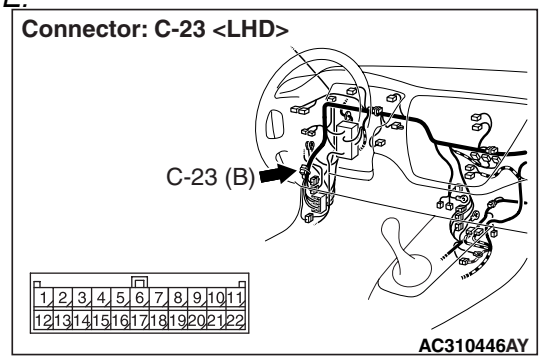


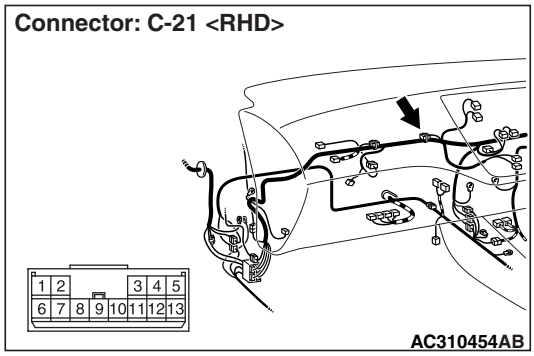






NOTE:





Prior to the wiring harness inspection, check joint connector C-23 <LH drive vehicles> or C-21 <RH drive vehicles>, and repair if necessary.

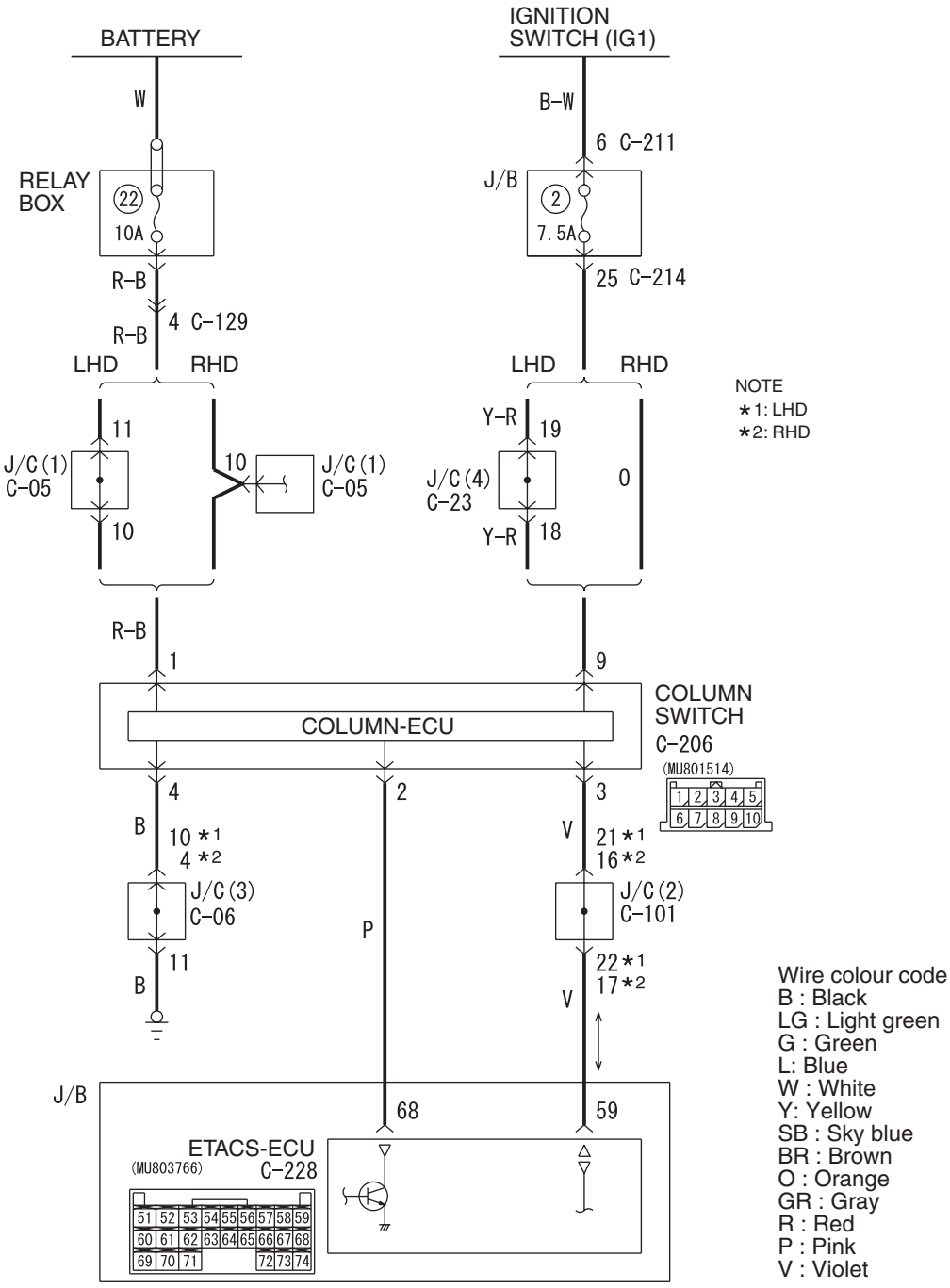
- Check the communication lines for open circuit.

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

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



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

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.

TROUBLESHOOTING HINTS

- 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- ETACS ECU

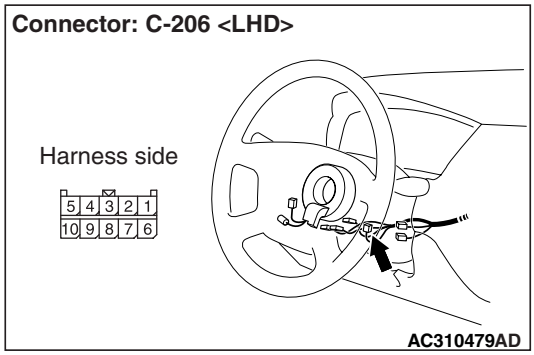
OK: "OK" is displayed on the "ETACS ECU" menu.

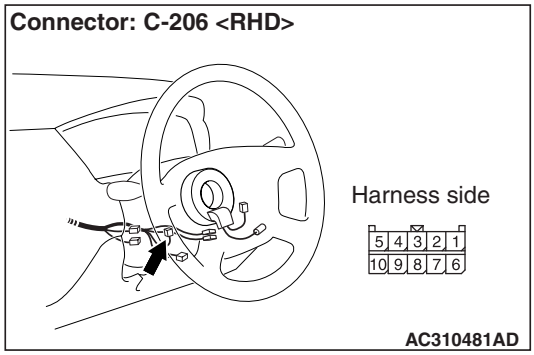
Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."

Step 2. Connector check: C-206 column switch connector



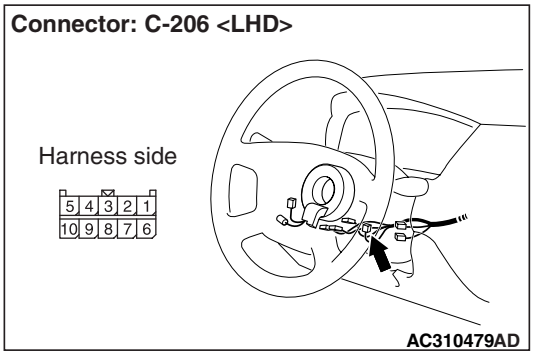


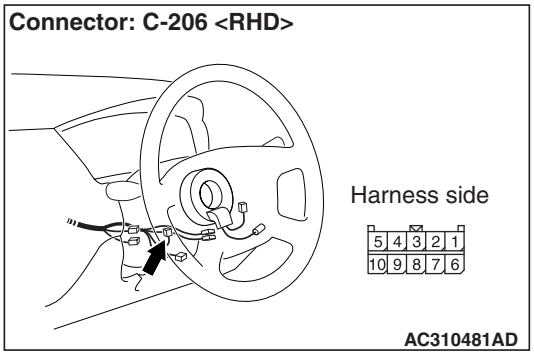
Q: Is the check result normal?

YES : Go to Step 3.

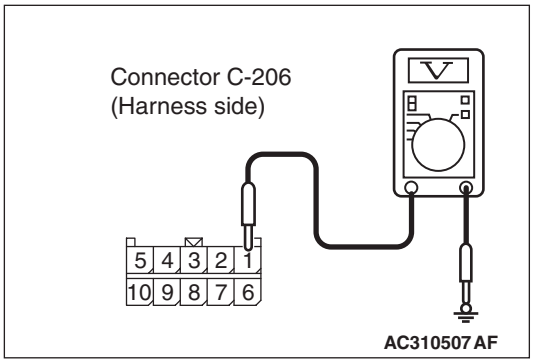
NO : Repair the defective connector.

Step 3. Voltage measurement at C-206 column switch connector





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

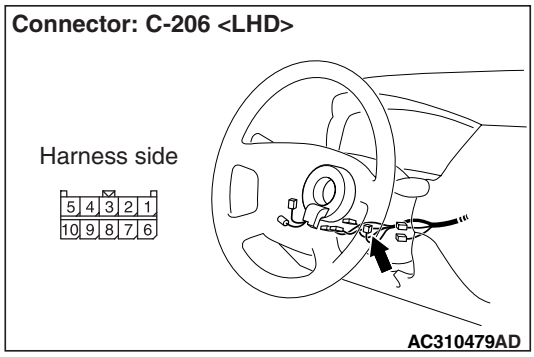


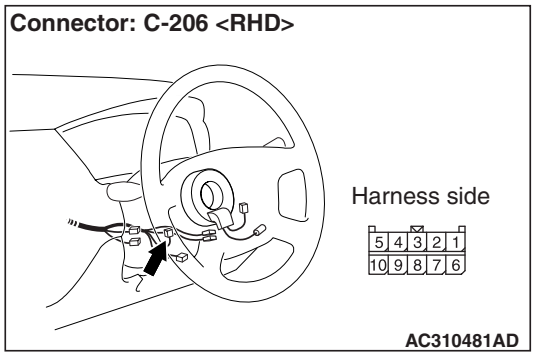
(2) Voltage between C-206 column switch connector terminal No.1 and body earth

OK: System voltage

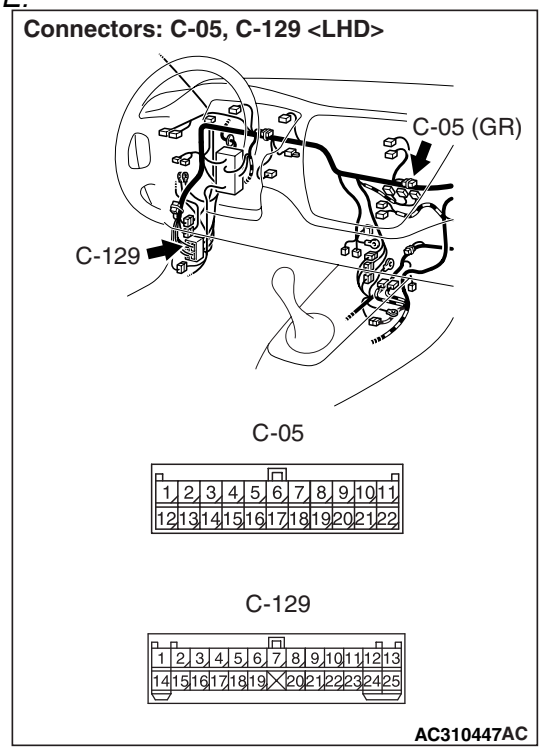
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

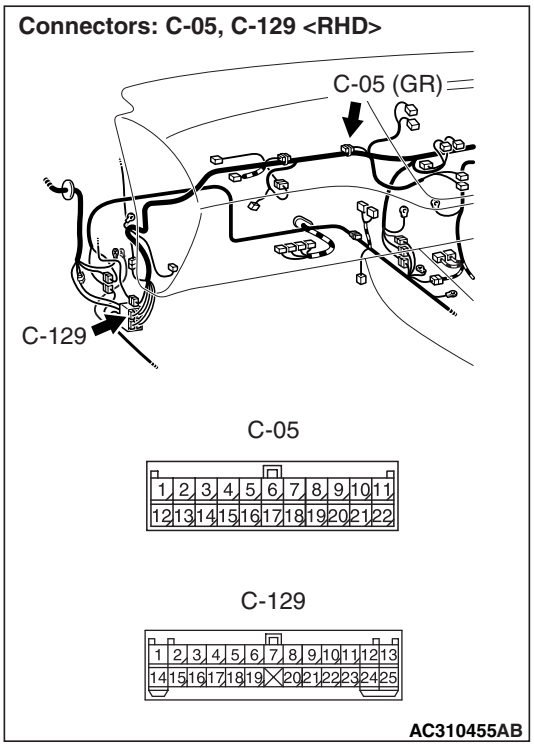
Step 4. Check the wiring harness between C-206 column switch connector terminal No.1 and battery.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-129, joint connector C-05, and repair if necessary.

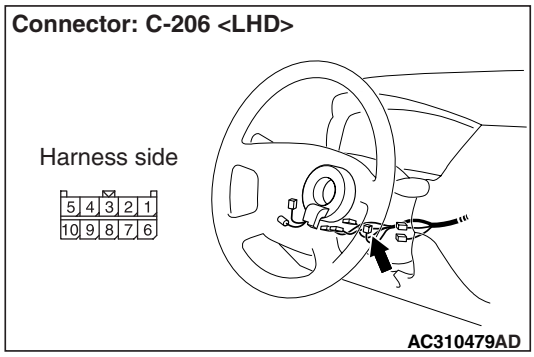
- Check the power supply line for open circuit.

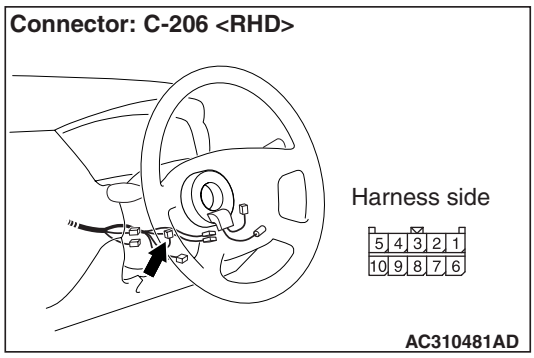
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

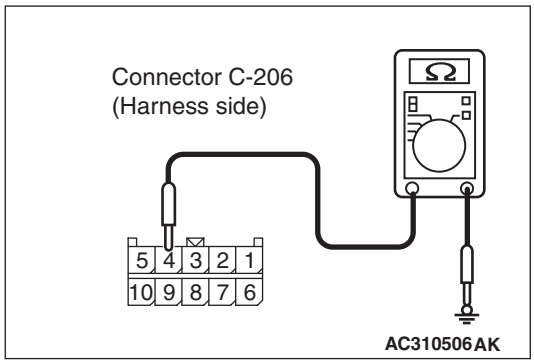
NO : Repair the wiring harness.

Step 5. Resistance measurement at C-206 column switch connector





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



(2) Continuity between C-206 column switch connector terminal No.4 and body earth

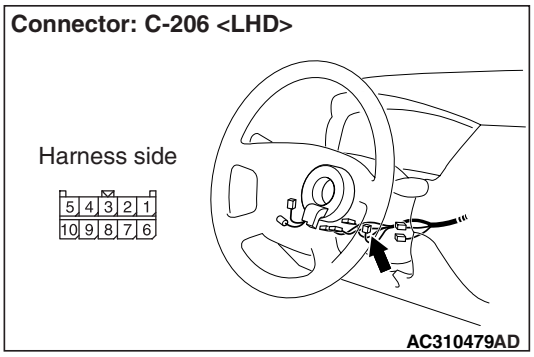
OK: 2 Ω or less

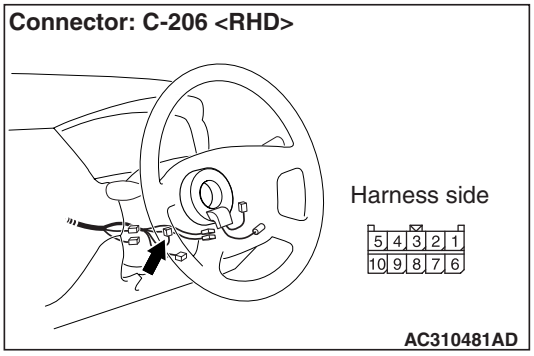
Q: Is the check result normal?

YES : Go to Step 7.

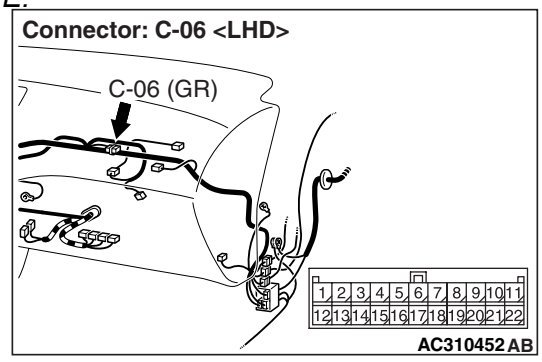
NO : Go to Step 6.

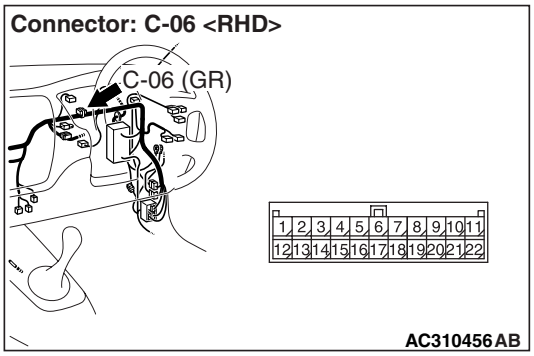
Step 6. Check the wiring harness between C-206 column switch connector terminal No.4 and body earth.





NOTE:





Prior to the wiring harness inspection, check joint connector C-06, and repair if necessary.

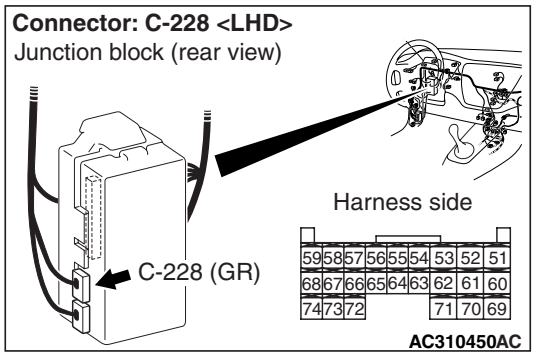
- Check the earth wires for open circuit.

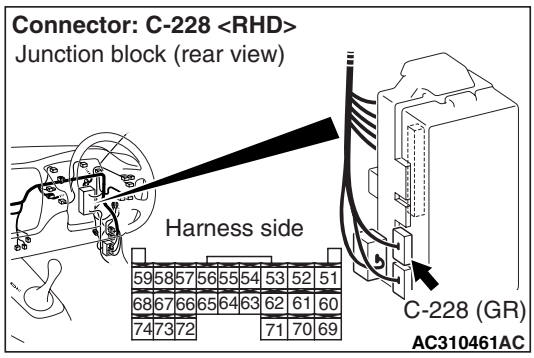
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 7. Connector check: C-228 ETACS-ECU connector



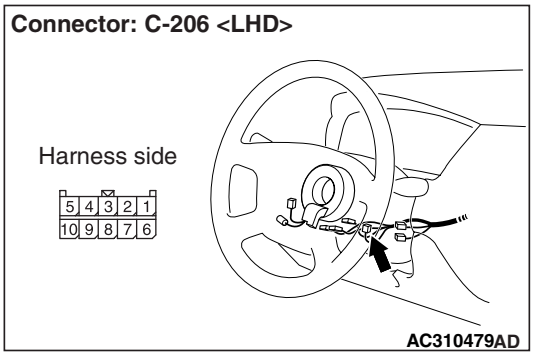


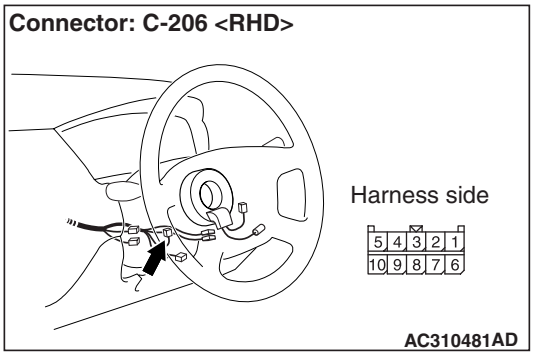
Q: Is the check result normal?

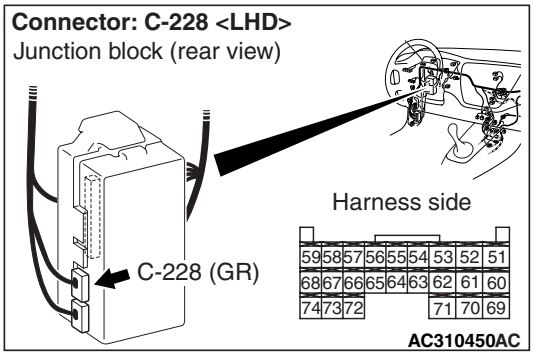
YES : Go to Step 8.

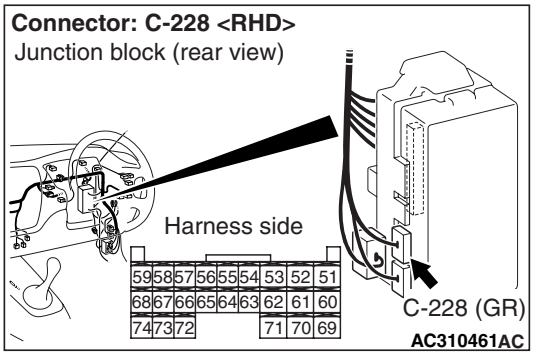
NO : Repair the defective connector.

Step 8. Check the wiring harness from C-228 ETACS-ECU connector terminal Nos.59 and 68 to C-206 column switch connector terminal Nos.3 and 2.

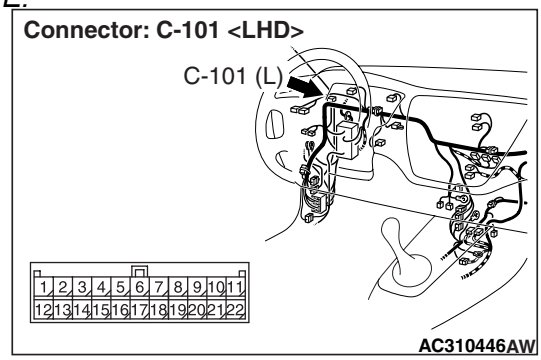


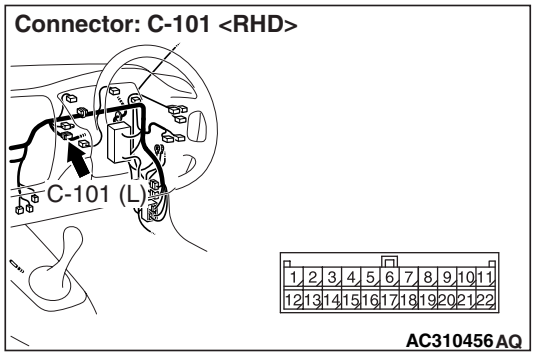






NOTE:





Prior to the wiring harness inspection, check joint connector C-101, 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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.

Step 10. Retest the system.

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

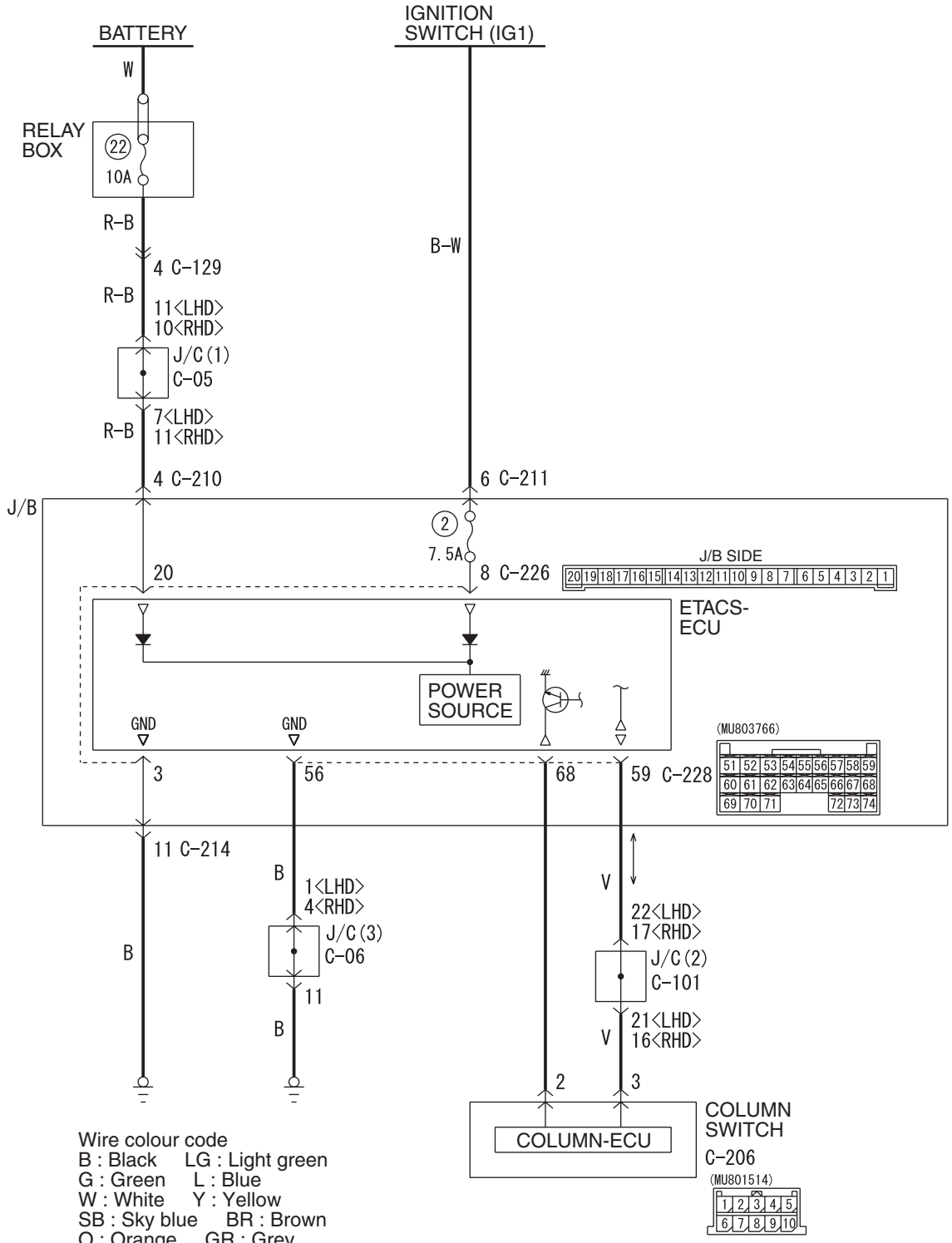
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

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

W6J54E025A

COMMENTS ON TROUBLE SYMPTOM

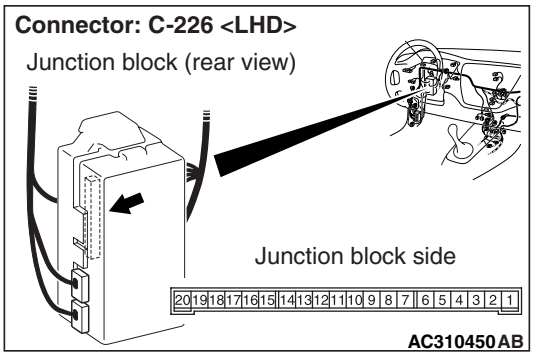
It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the SWS monitor and the ETACS-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal No.20 of the ETACS-ECU) is damaged, also check the power supply circuit 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.

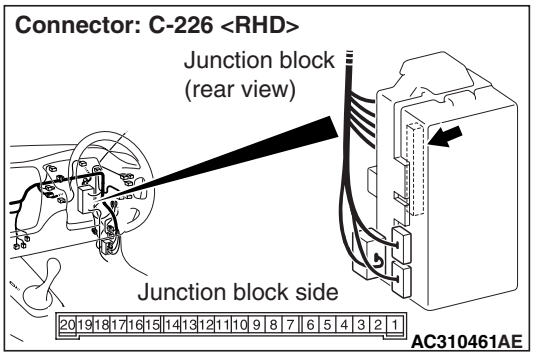
TROUBLESHOOTING HINTS

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

DIAGNOSIS PROCEDURE

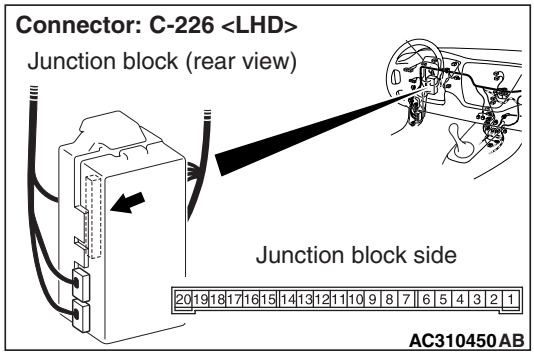
Step 1. Connector check: C-226 ETACS-ECU connector

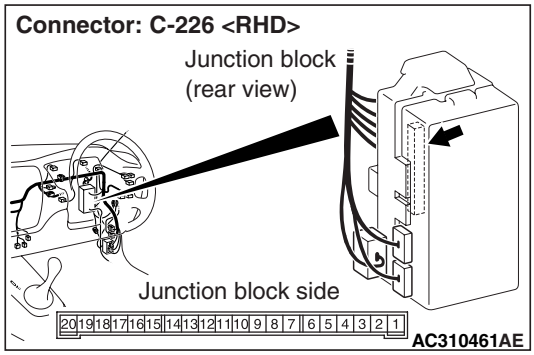




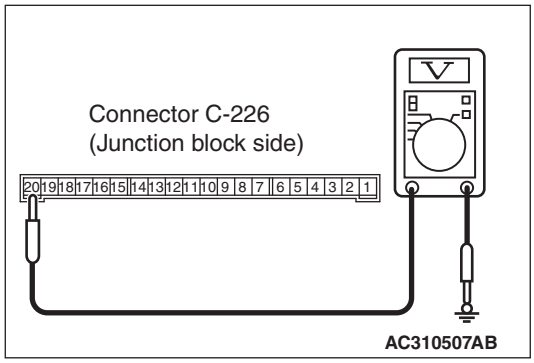
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-226 ETACS-ECU connector





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

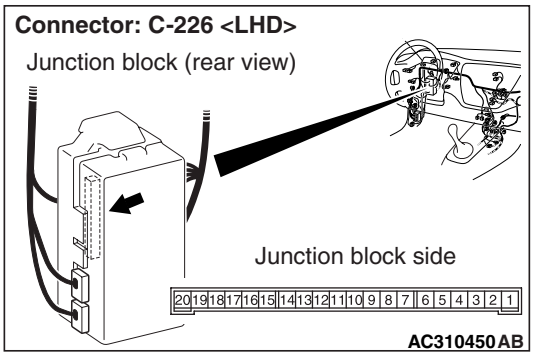


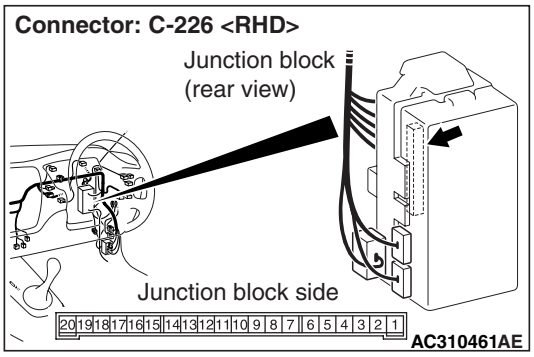
(2) Voltage between C-226 ETACS-ECU connector terminal No.20 and body earth

OK: System voltage

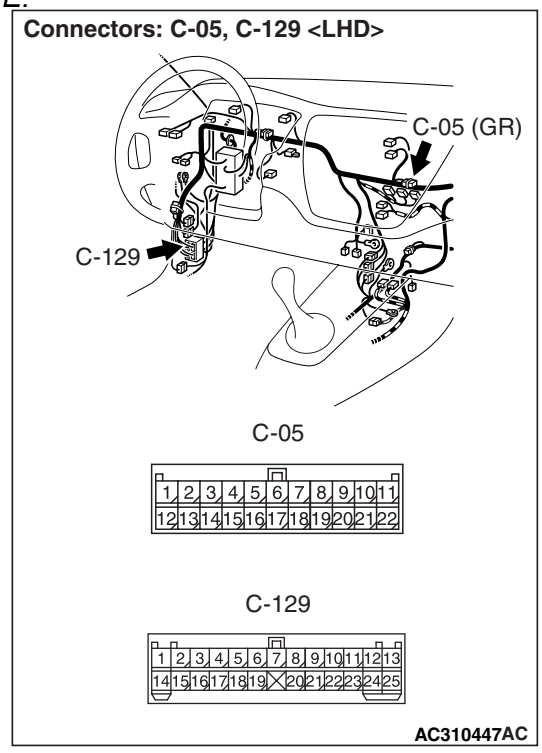
Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

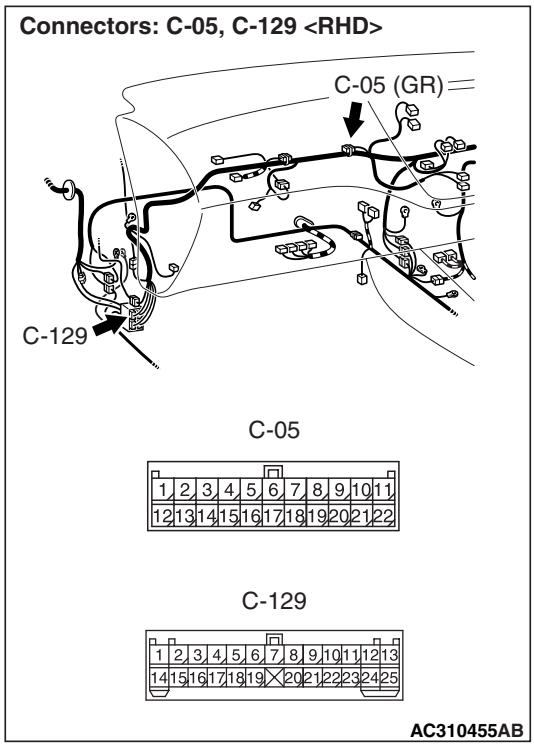
Step 3. Check the wiring harness between C-226 ETACS-ECU connector terminal No.20 and battery.

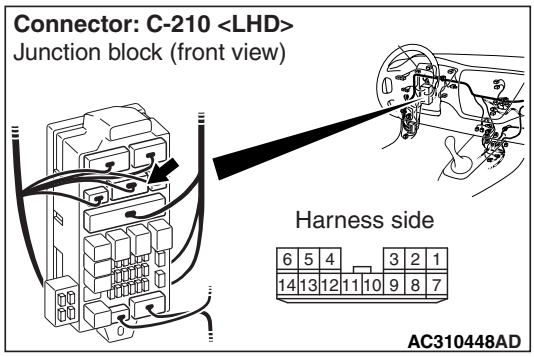


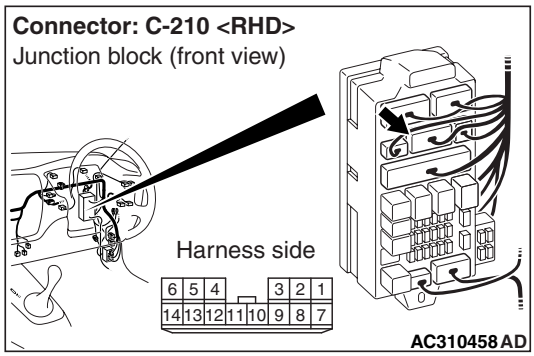


NOTE:









Prior to the wiring harness inspection, check joint connector C-05, intermediate connector C-129 and junction block connector C-210, and repair if necessary.

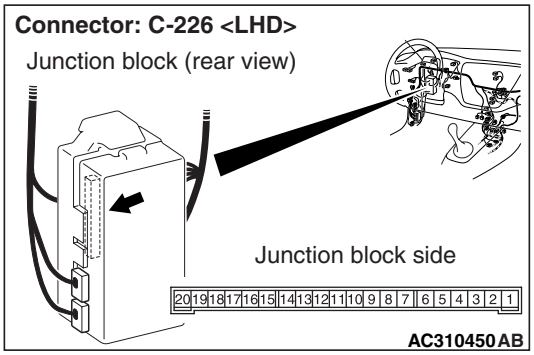
- Check the power supply line for open circuit.

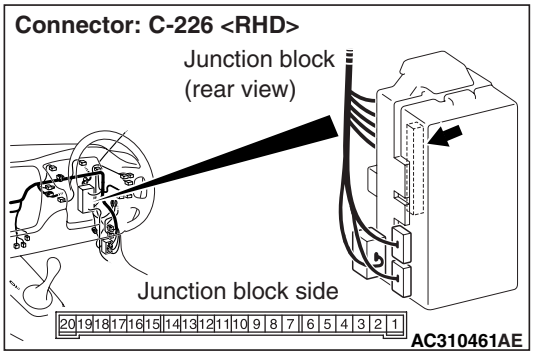
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

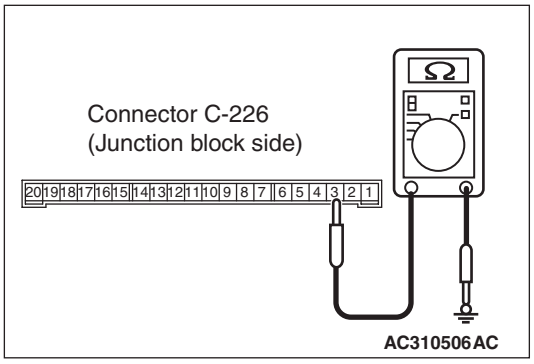
NO : Repair the wiring harness.

Step 4. Resistance measurement at the C-226 ETACS-ECU connector





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

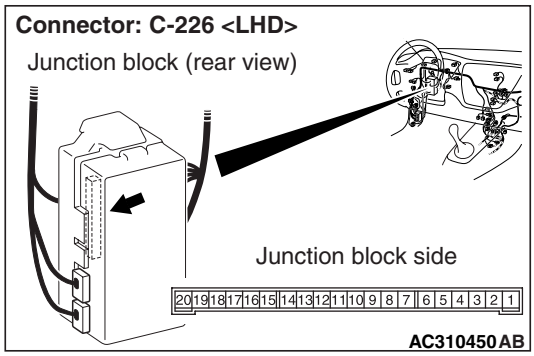


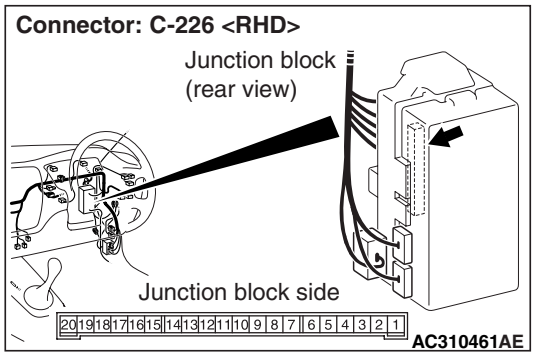
(2) Resistance between C-226 ETACS-ECU connector terminal No.3 and body earth

OK: 2 Ω or less

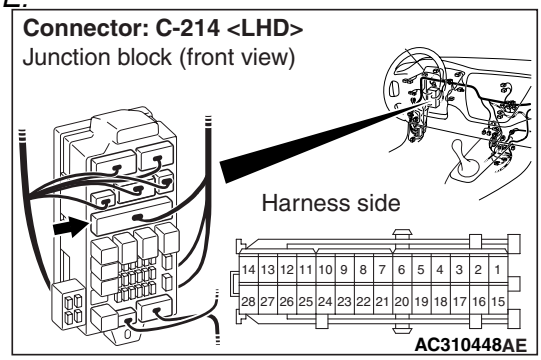
Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 5.

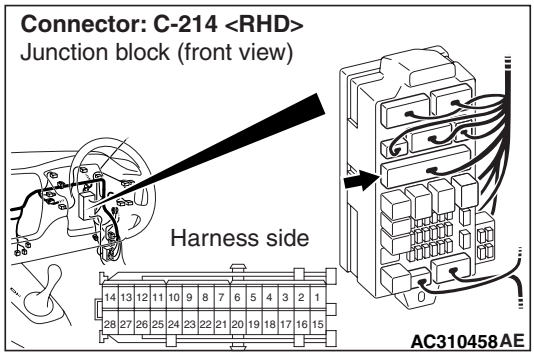
Step 5. Check the wiring harness between C-226 ETACS-ECU connector terminal No.3 and body earth.





NOTE:



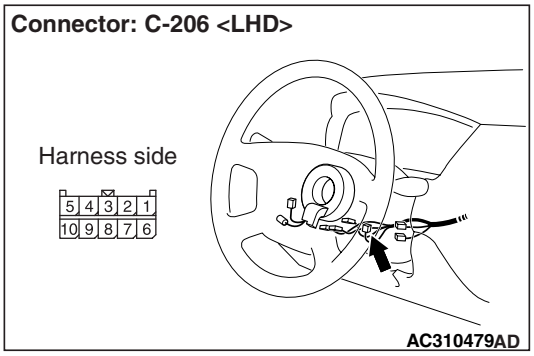


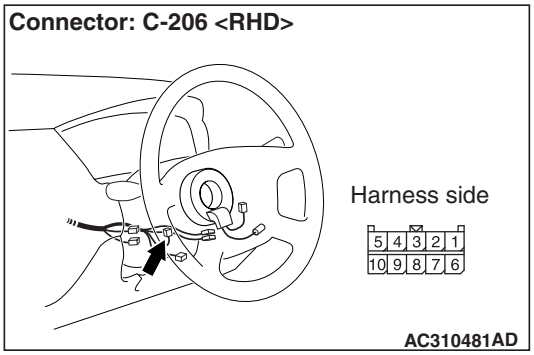
Prior to the wiring harness inspection, check junction block connector C-214, and repair if necessary.

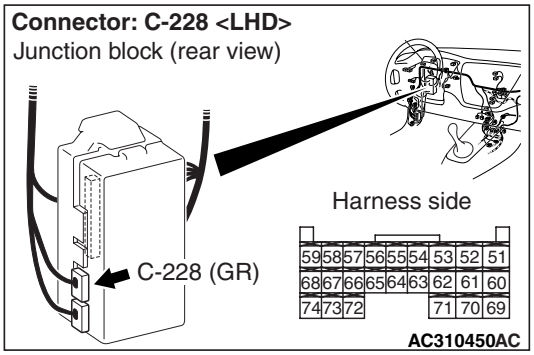
- Check the earth wires for open circuit.

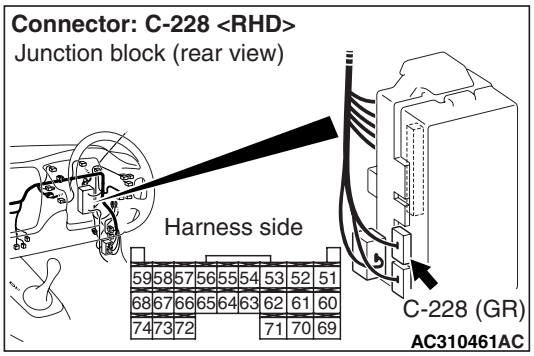
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 6. Connector check: C-228 ETACS-ECU connector and C-206 column switch connector



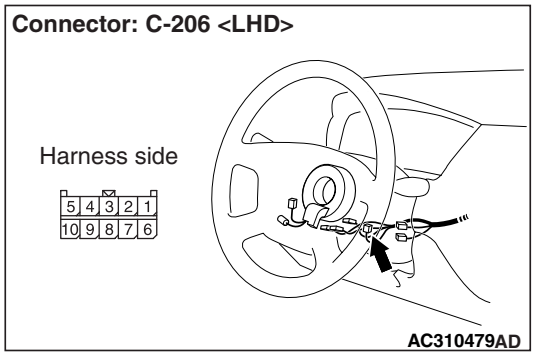


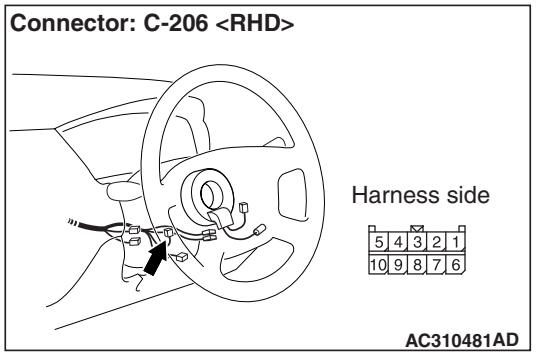


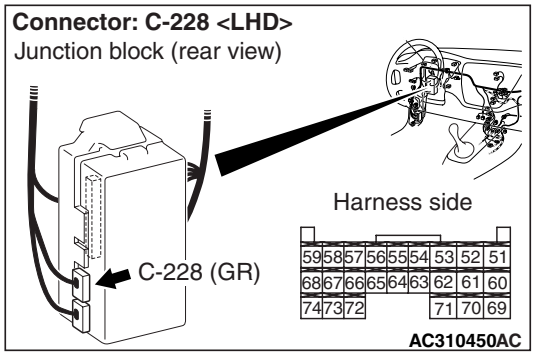


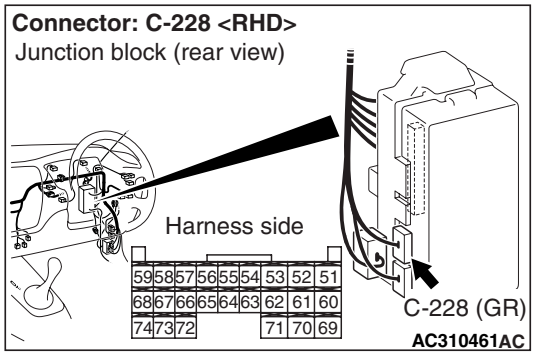
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

Step 7. Check the wiring harness from C-228 ETACS-ECU connector terminal Nos.59 and 68 to C-206 column switch connector terminal Nos.3 and 2.

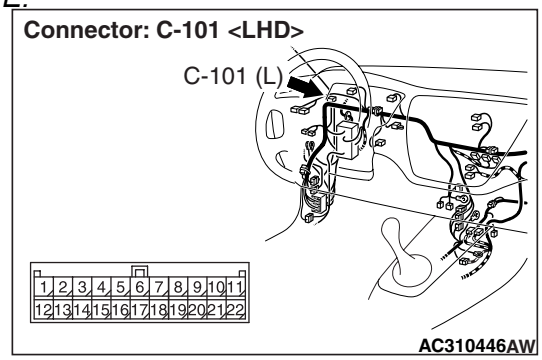


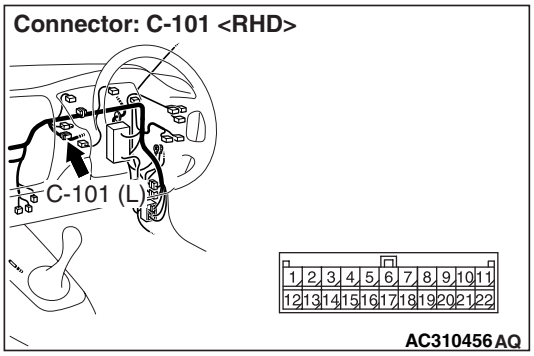






NOTE:





Prior to the wiring harness inspection, check joint connector C-101, and repair if necessary.

- 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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.00-5).

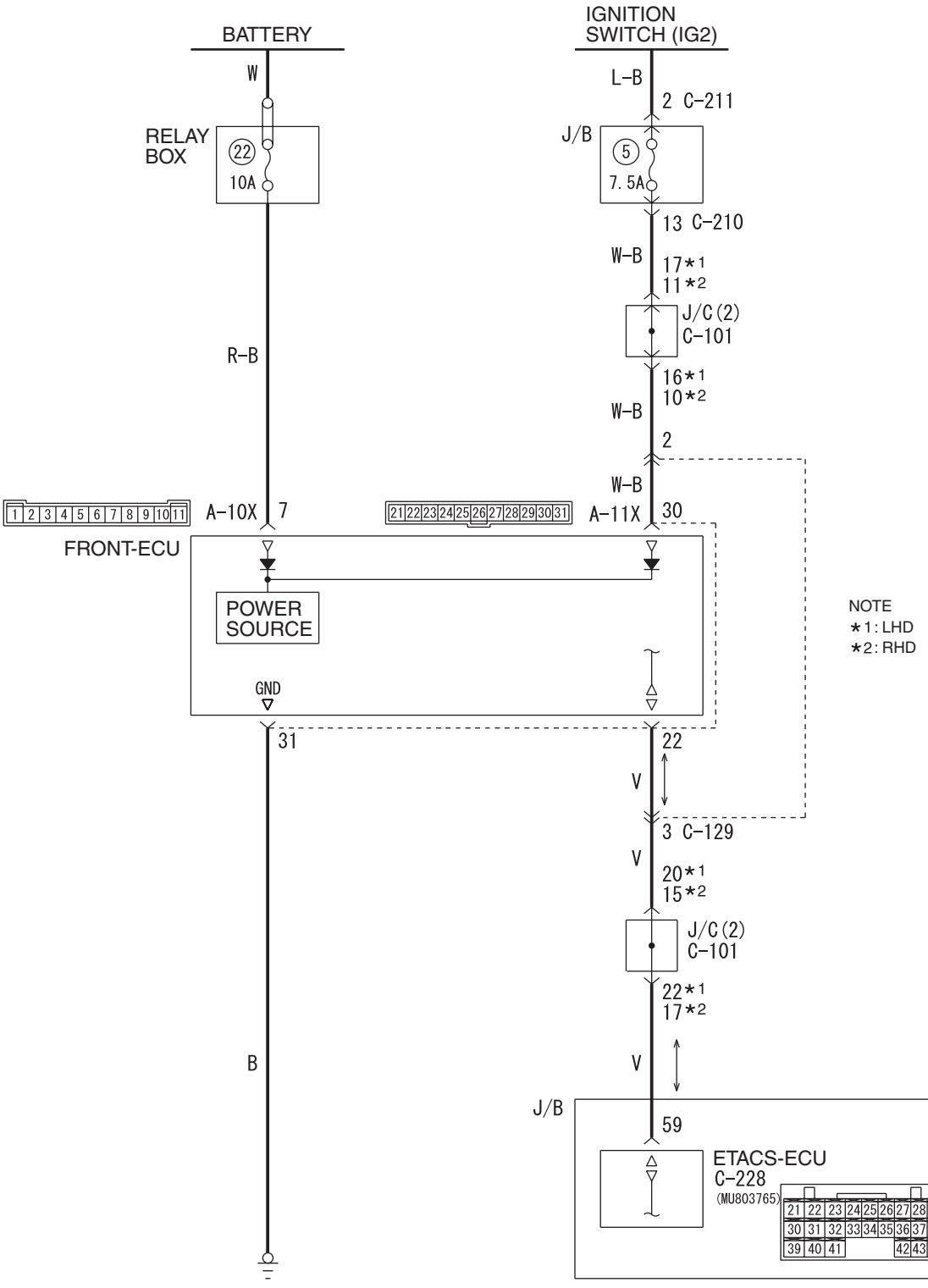
NO : Replace the ETACS-ECU.

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 : Gray R : Red P : Pink V : Violet

W4J54E85AA

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.

POSSIBLE 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- ETACS ECU

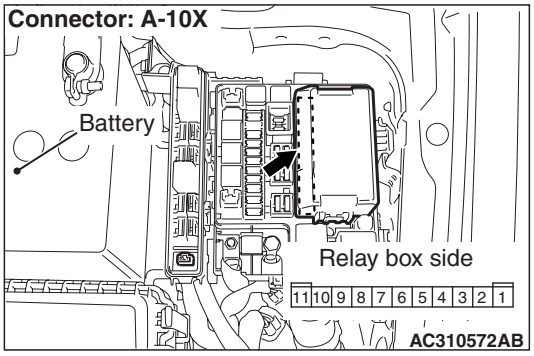
OK: "OK" is displayed on the "ETACS ECU" menu.

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-36."

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

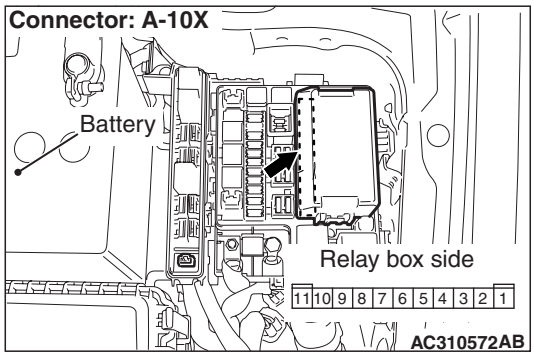


Q: Is the check result normal?

YES : Go to Step 3.

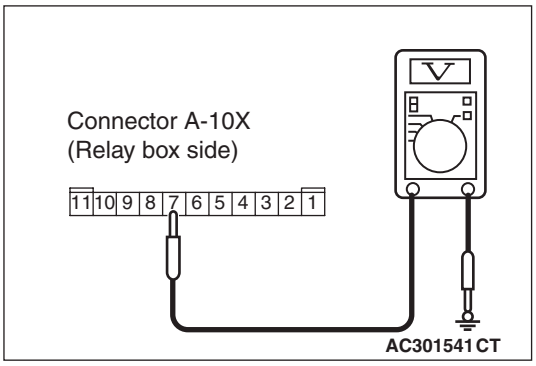
NO : Repair the defective connector.

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



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

(2) Ignition switch: ON



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

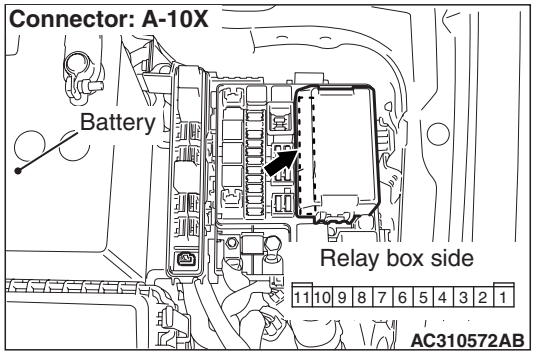
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 4.

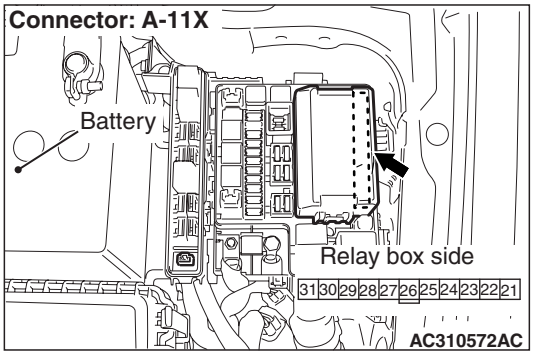
Step 4. Check the wiring harness between A-10X front-ECU connector terminal No.7 and the battery.



- Check the power supply line for open circuit.

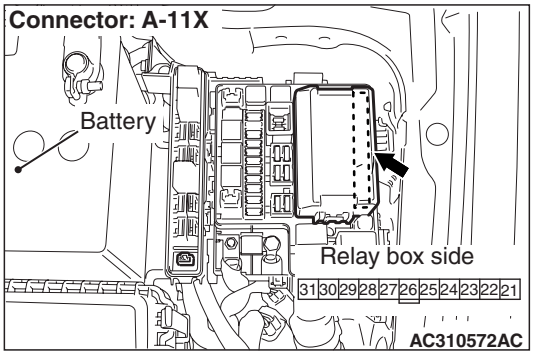
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

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

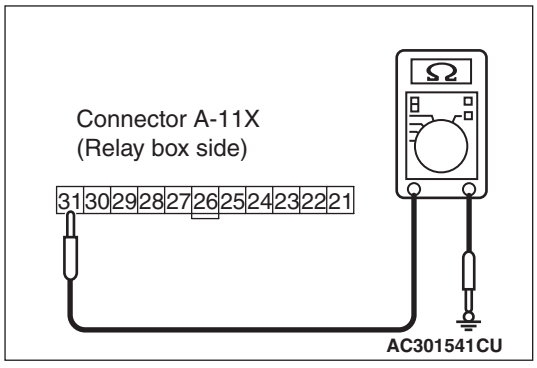


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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



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

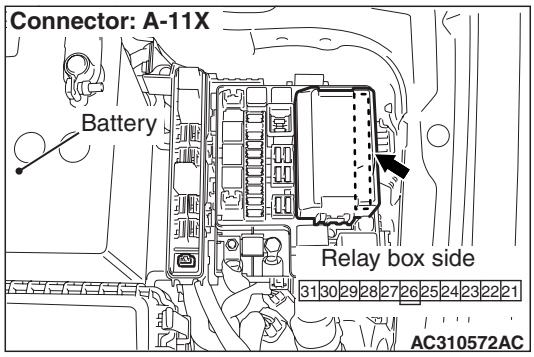


(2) Resistance between A-11X front-ECU connector terminal No.31 and body earth

OK: 2 Ω or less

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

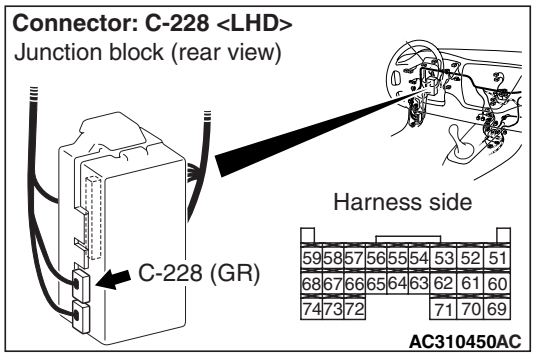
Step 7. Check the wiring harness between A-11X front-ECU terminal connector terminal No.31 and body earth.

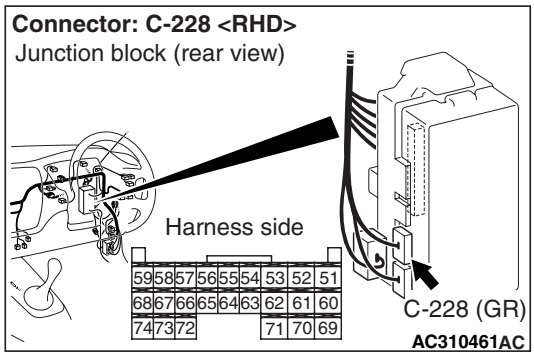


- Check the earth wires for open circuit.

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.00-5).
NO : Repair the wiring harness.

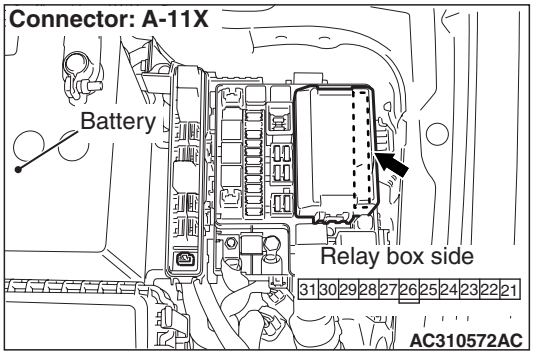
Step 8. Connector check: C-228 ETACS-ECU connector

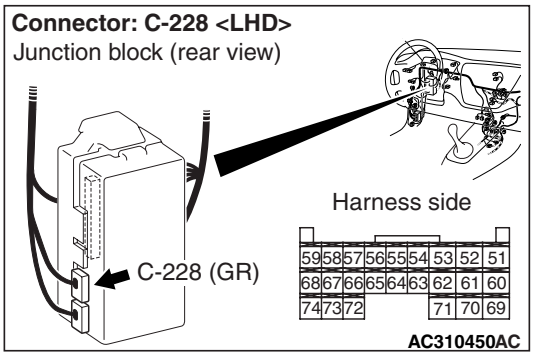


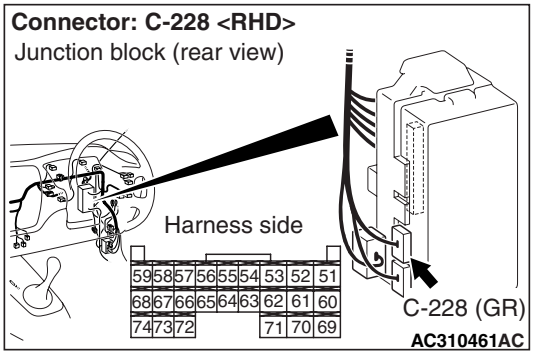


Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

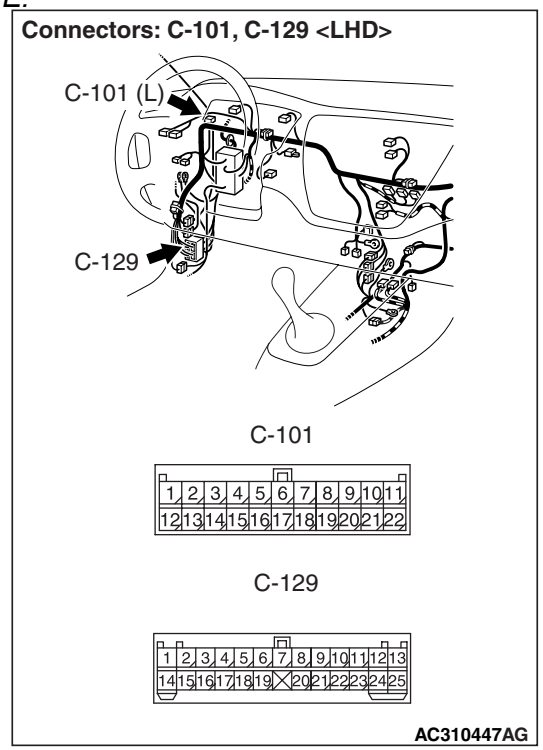
Step 9. Check the wiring harness between A-11X front-ECU connector terminal No.22 and C-228 ETACS-ECU connector terminal No.59.

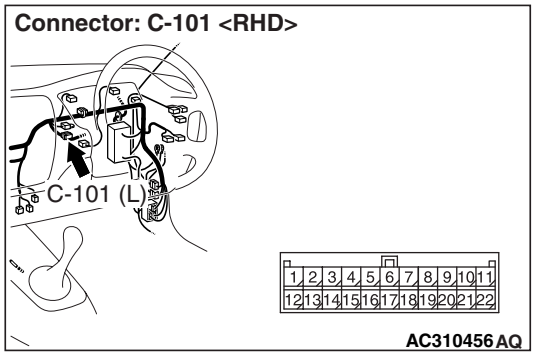


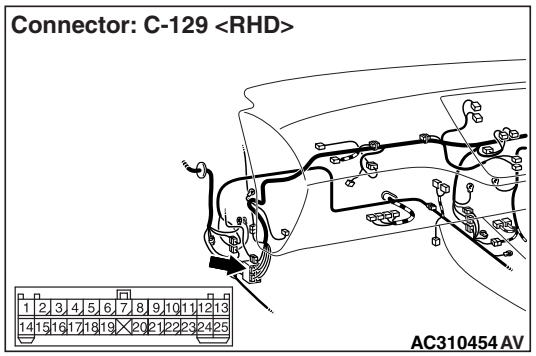




NOTE:







Prior to the wiring harness inspection, check joint connector C-101 and intermediate connector C-129, 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. 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.
- Ignition switch: ON

ECUS TO BE CHECKED
- FRONT ECU

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

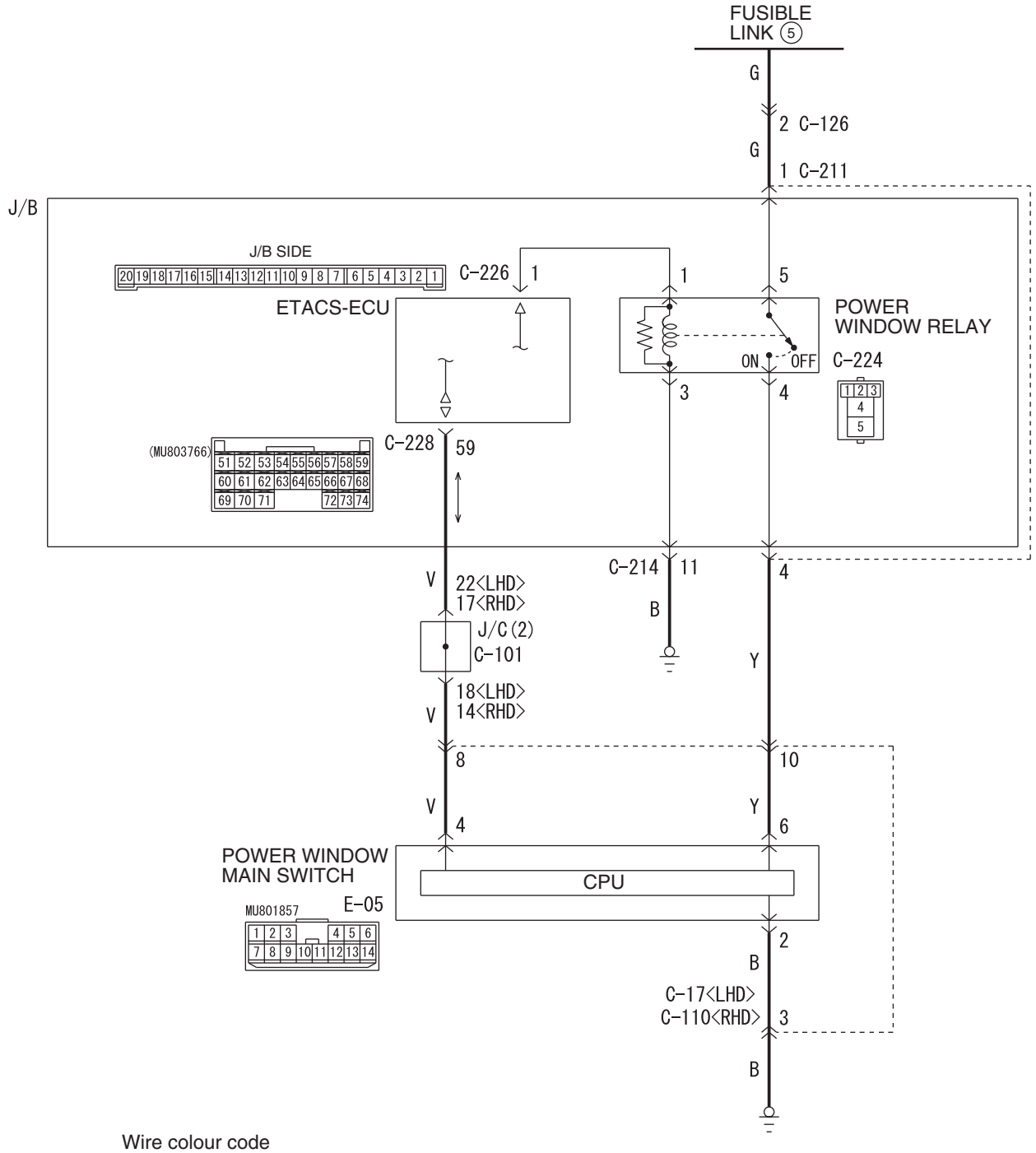
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE A-5: Communication with the power window main switch (power window module) is not possible.

⚠ CAUTION

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

Power Window Main Switch 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 : Gray R : Red P : Pink V : Violet

W4J54E83AA

COMMENTS ON TROUBLE SYMPTOM

The power window main switch, the power supply circuit (power window relay driving circuit) or communication circuit for that switch may be defective.

POSSIBLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the power window relay
- 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

Step 2. SWS monitor data list.

<Selected item> ETACS ECU

- Ignition switch: ON

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

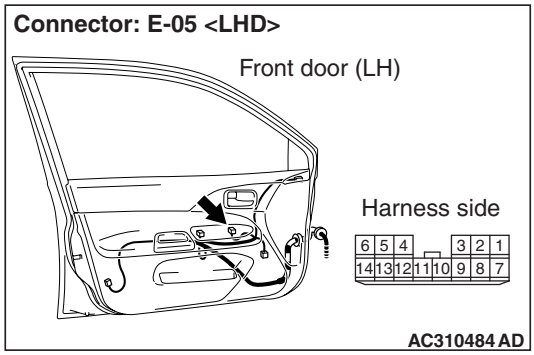
OK: Normal condition is displayed.

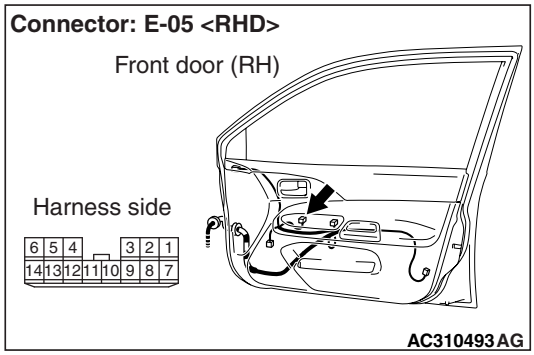
Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."

Step 3. Connector check: E-05 power window main switch connector



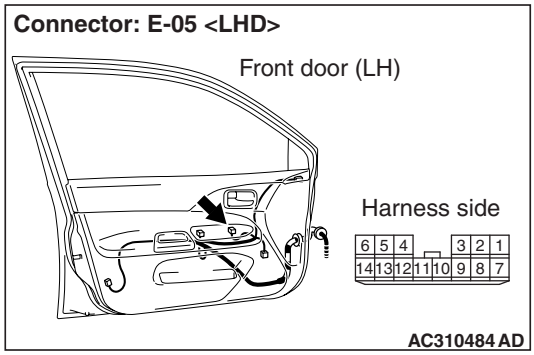


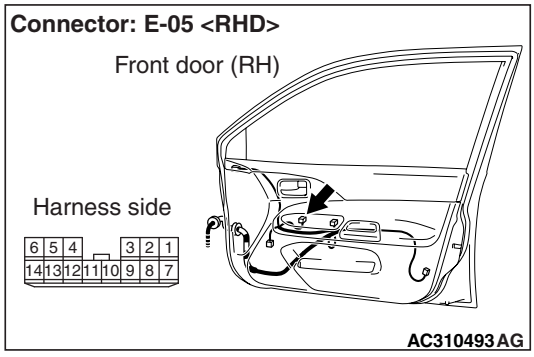
Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

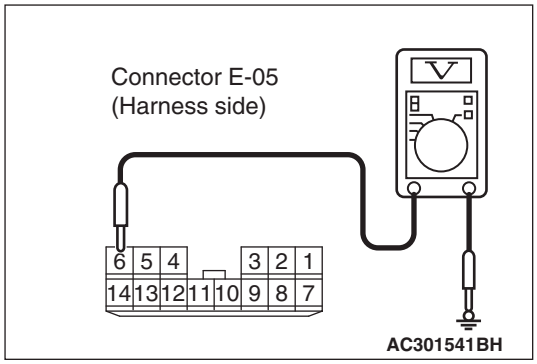
Step 4. Voltage measurement at the E-05 power window main switch connector





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

(2) Ignition switch: ON

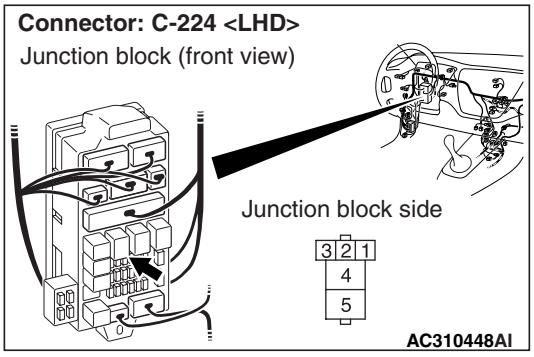


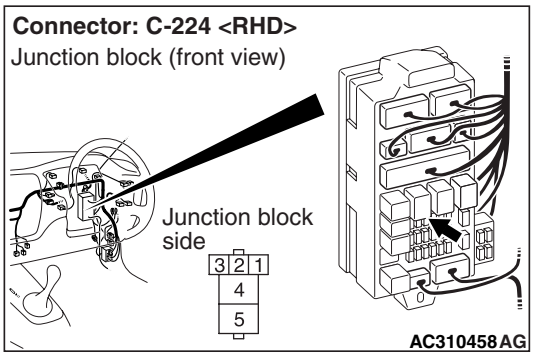
(3) Voltage between E-05 power window main switch connector terminal No.6 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 13.
NO : Go to Step 5.

Step 5. Connector check: C-224 power window relay connector





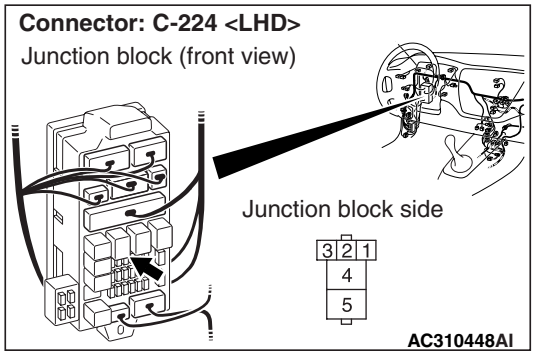
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

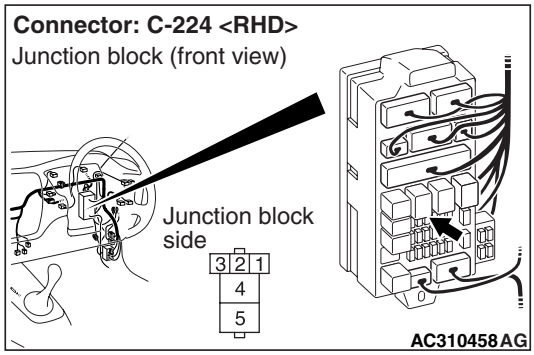
Step 6. Check the power window relay.

Refer to GROUP 42 – Door P.42-24.

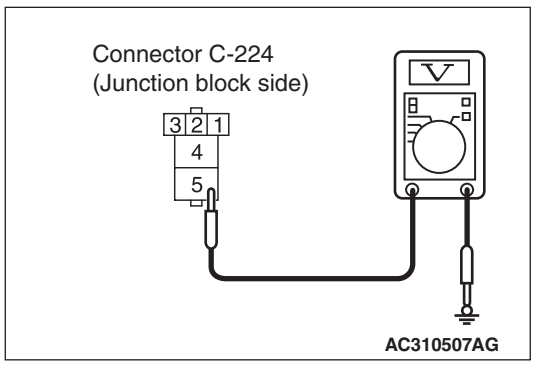
Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the power window relay.

Step 7. Voltage measurement at C-224 power window relay connector





(1) Remove the power window relay, and measure at the junction block side.

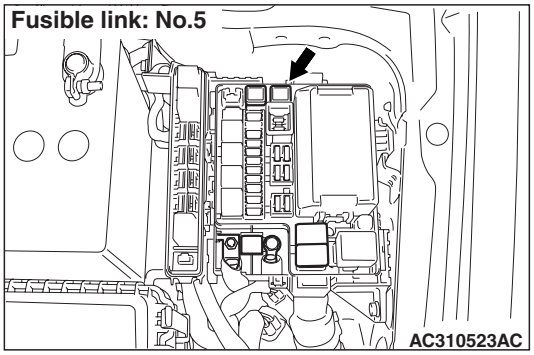


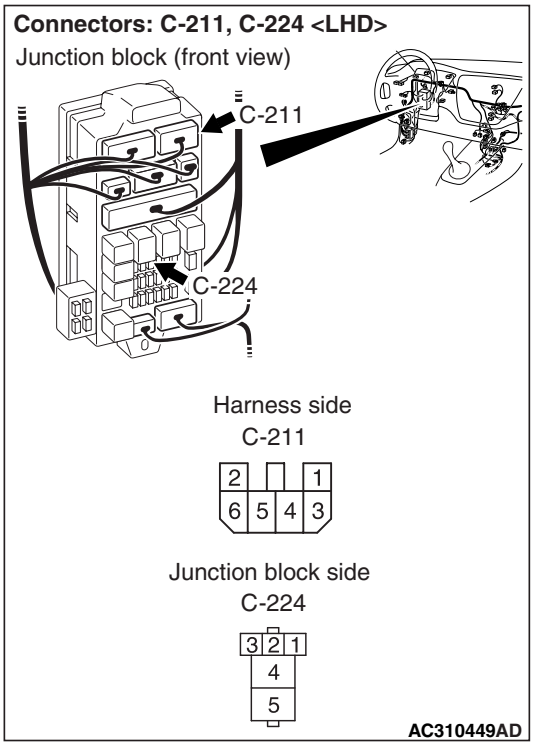
(2) Voltage between C-224 power window relay connector terminal No.5 and body earth

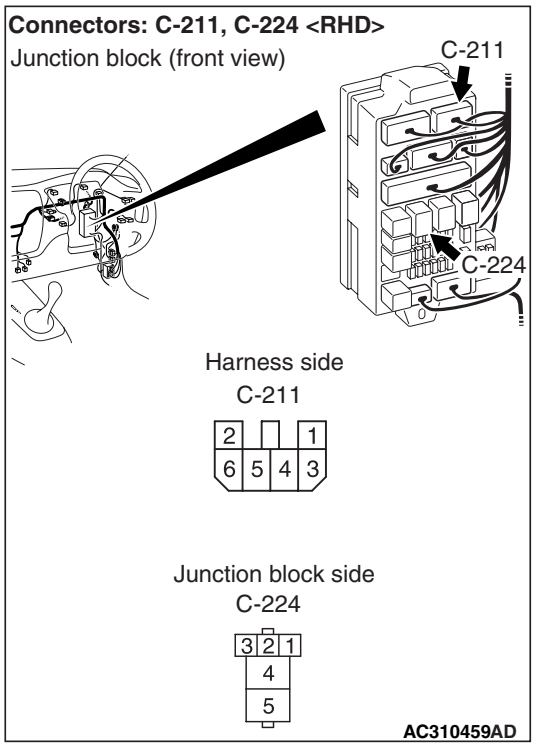
OK: System voltage

Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 8.

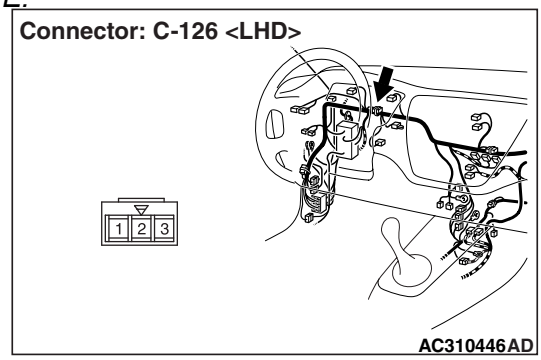
Step 8. Check the wiring harness between C-224 power window relay connector terminal No.5 and fusible link (5).

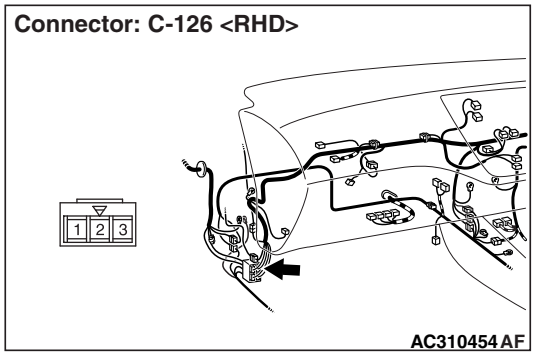






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-126 and junction block connector C-211, and repair if necessary.

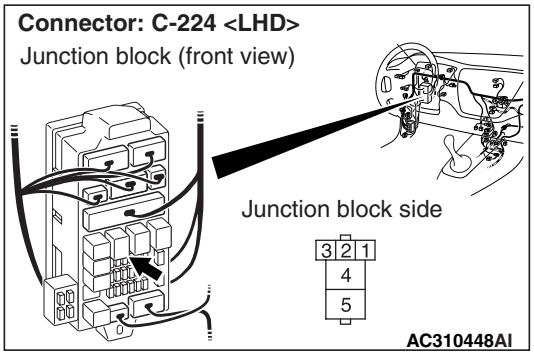
- Check the power supply line for open circuit.

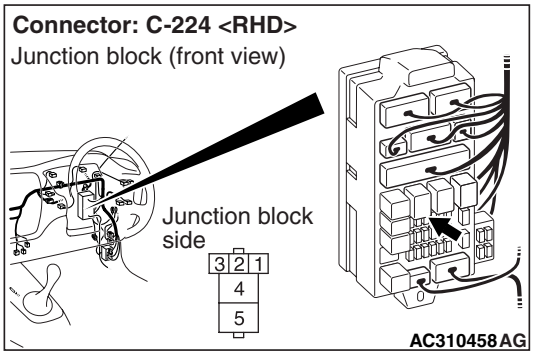
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

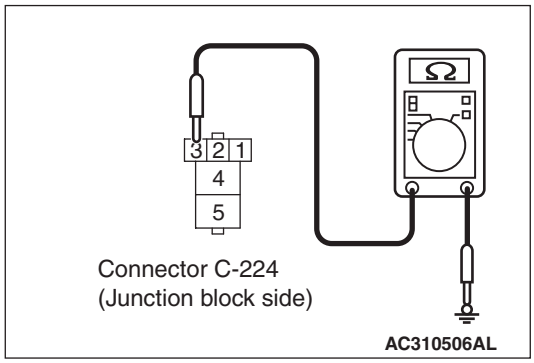
NO : Repair the wiring harness.

Step 9. Resistance measurement at C-224 power window relay connector





(1) Remove the power window relay, and measure at the junction block side.

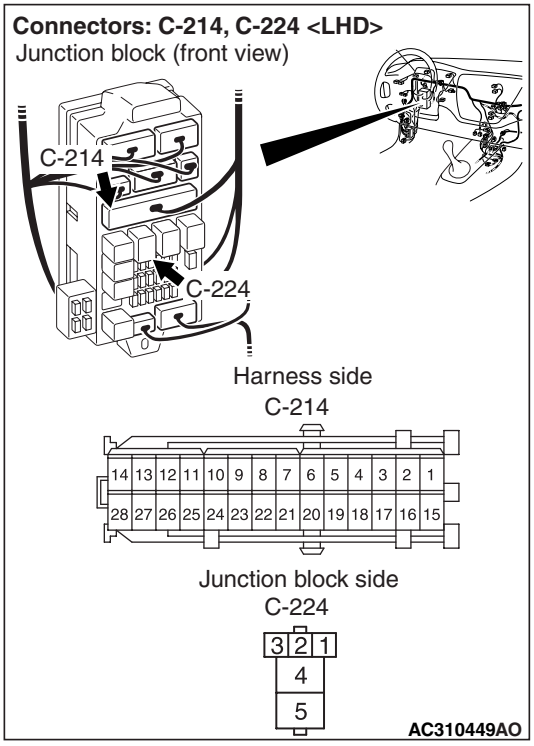


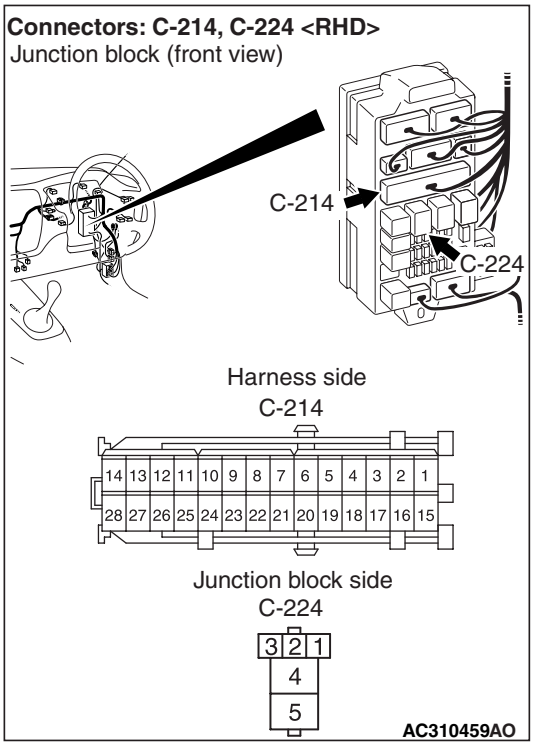
(2) Resistance between C-224 power window relay connector terminal No.3 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 11.
NO : Go to Step 10.

Step 10. Check the wiring harness between C-224 power window relay connector terminal No.3 and body earth.





NOTE: Prior to the wiring harness inspection, check junction block connector C-214, and repair if necessary.

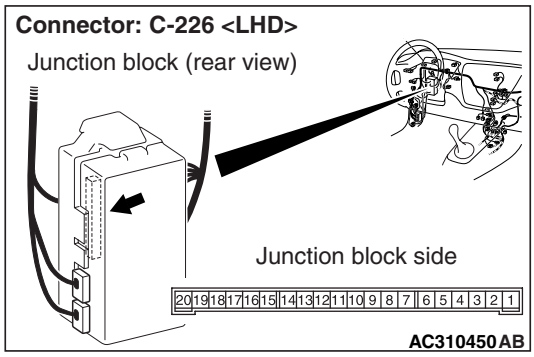
- Check the earth wires for open circuit.

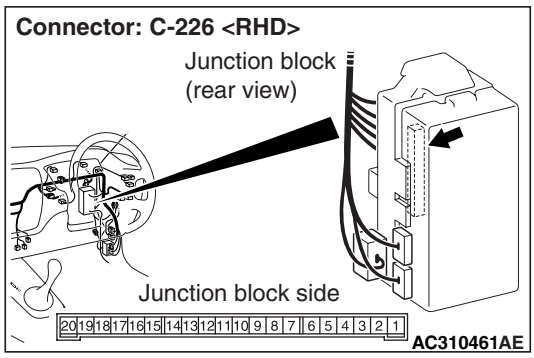
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 11. Connector check: C-226 ETACS-ECU connector



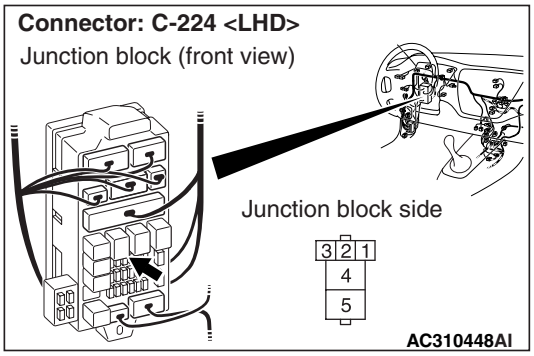


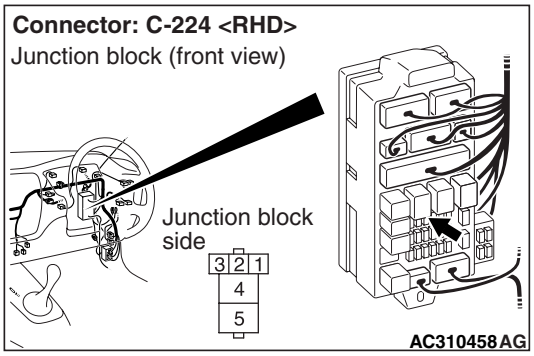
Q: Is the check result normal?

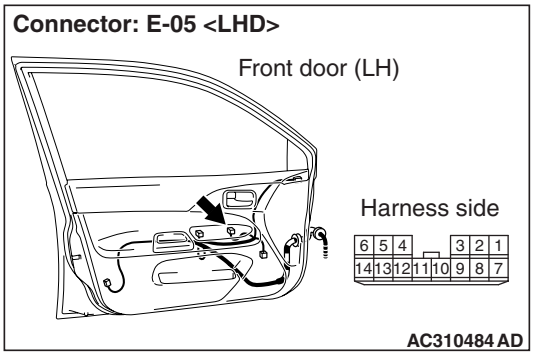
YES : Go to Step 12.

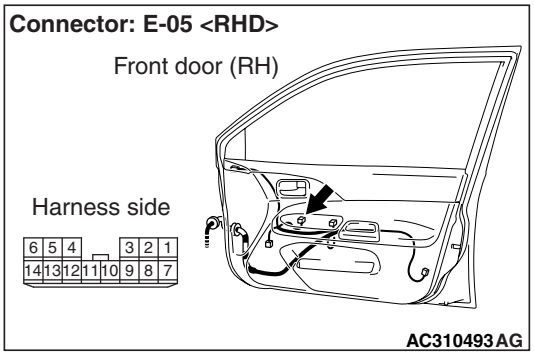
NO : Repair the defective connector.

Step 12. Check the wiring harness between C-224 power window relay connector terminal No.4 and E-05 power window main switch connector terminal No.6.

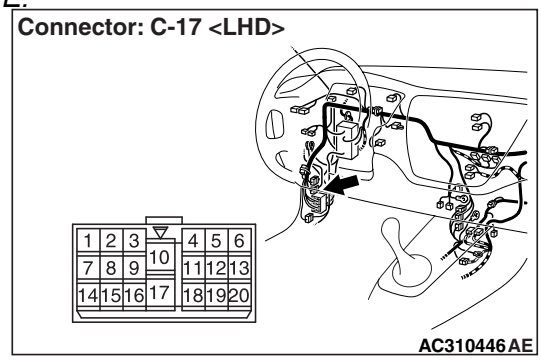


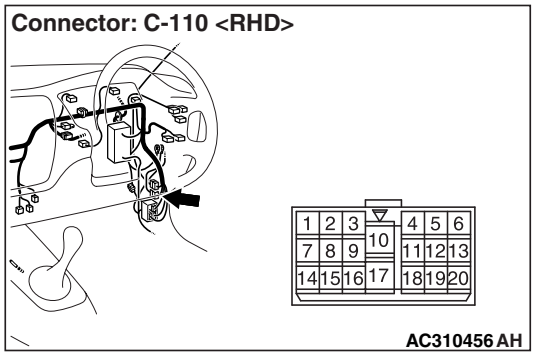


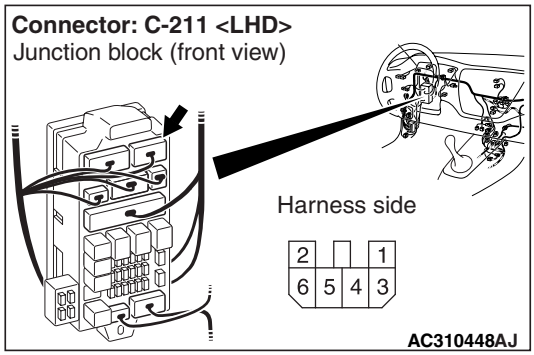


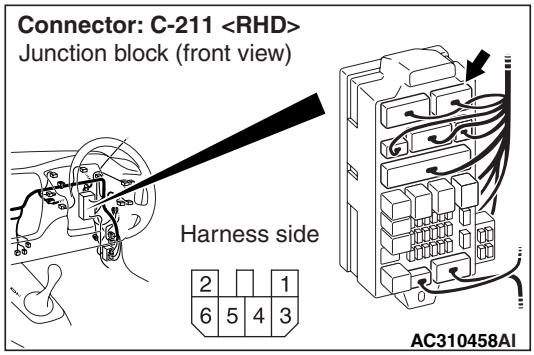


NOTE:









Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles> or C-110 <RH drive vehicles> and junction block connector C-211, and repair if necessary.

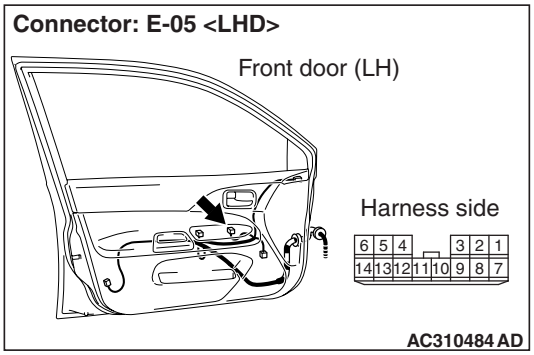
- Check the power supply line for open circuit.

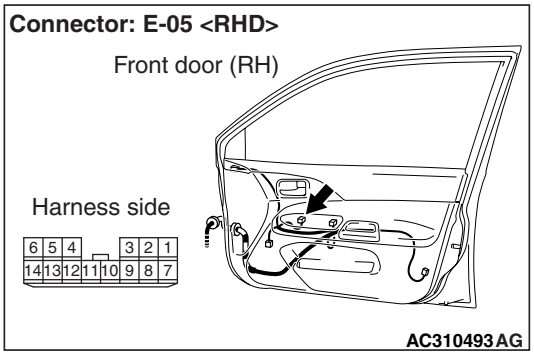
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

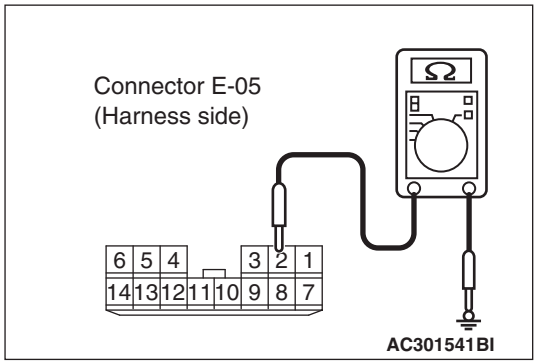
NO : Repair the wiring harness.

Step 13. Resistance measurement at the E-05 power window main switch connector





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

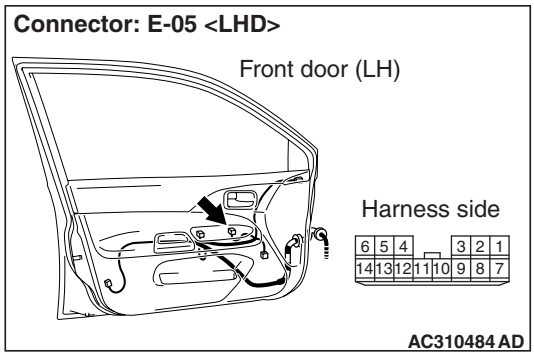


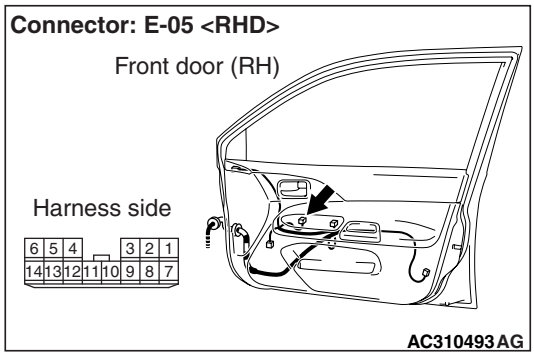
(2) Resistance between E-05 power window main switch connector terminal No.2 and body earth

OK: 2 Ω or less

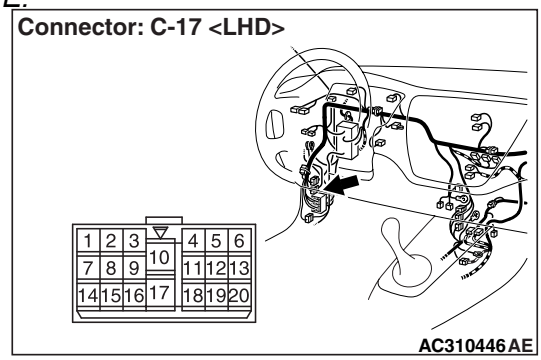
Q: Is the check result normal?
YES : Go to Step 15.
NO : Go to Step 14.

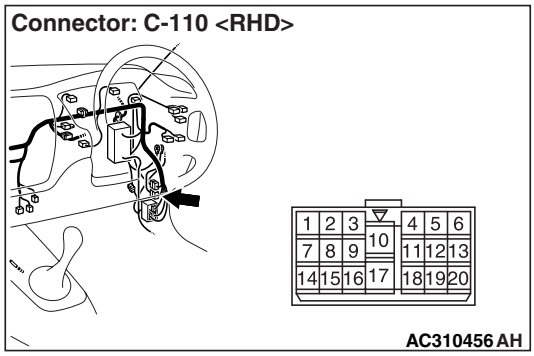
Step 14. Check the wiring harness between E-05 power window main switch connector terminal No.2 and body earth.





NOTE:



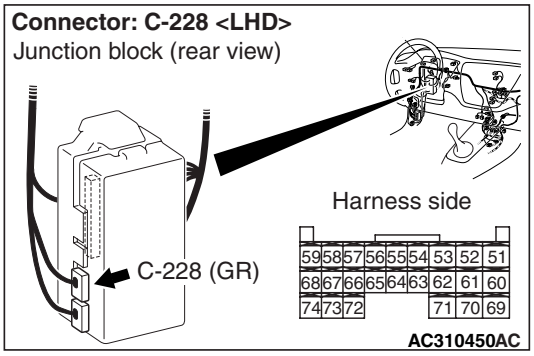


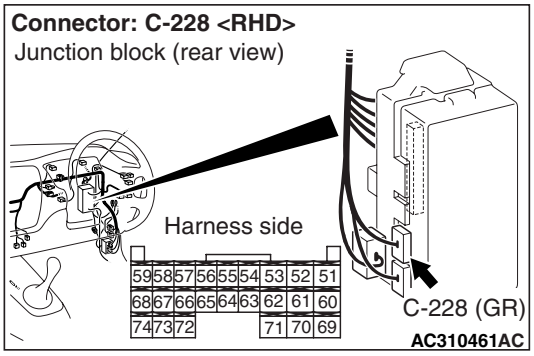
Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles> or C-110 <RH drive vehicles>, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

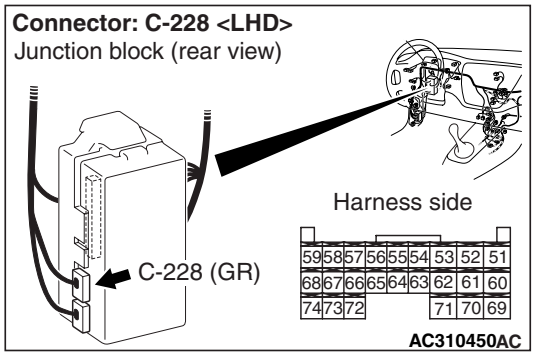
Step 15. Connector check: C-228 ETACS-ECU connector

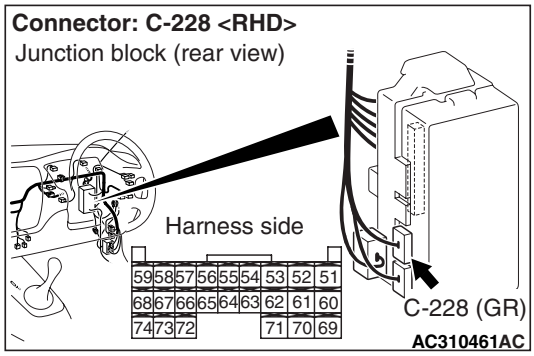


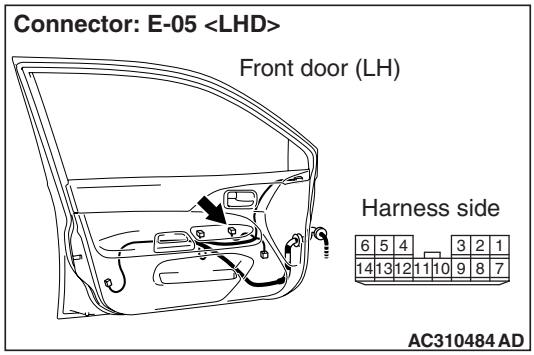


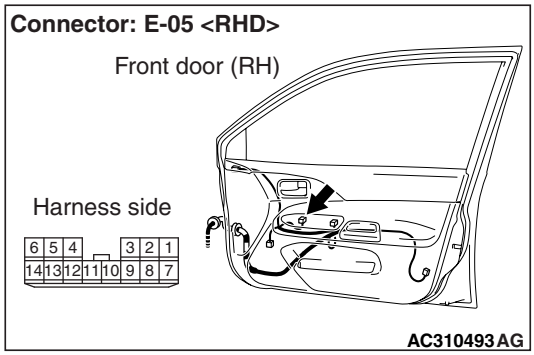
Q: Is the check result normal?
YES : Go to Step 16.
NO : Repair the defective connector.

Step 16. Check the wiring harness between C-228 ETACS-ECU connector terminal No.59 and E-05 power window main switch connector terminal No.4.



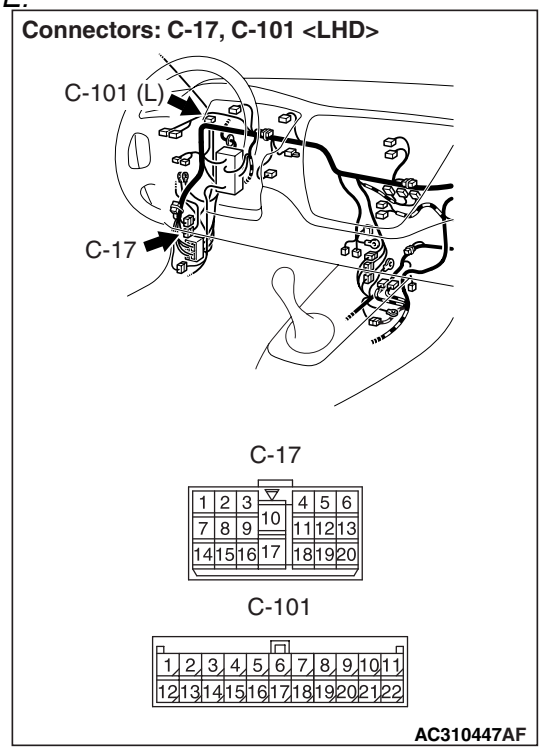




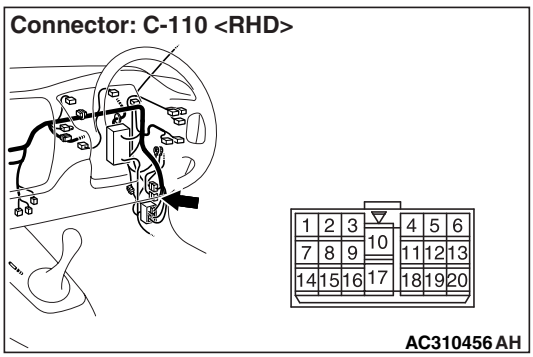


NOTE:

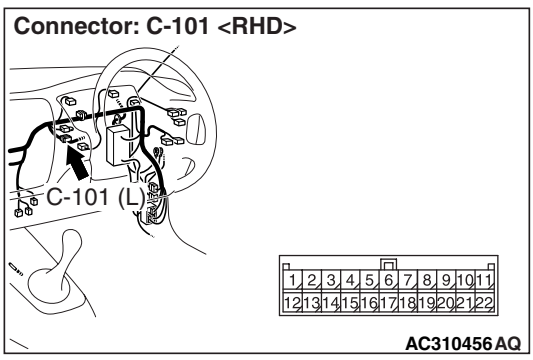
Connectors: C-17, C-101 <LHD>



Connector: C-110 <RHD>



Connector: C-101 <RHD>



Prior to the wiring harness inspection, check intermediate connector C-17 <LH drive vehicles> or C-110 <RH drive vehicles> and joint connector C-101, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 17.

NO : Repair the wiring harness.

Step 17. ECU check by using the SWS monitor.

Check that the power supply and earth lines to the power window main switch (power window module) and the SWS communication lines are normal.

- Ignition switch: ON

ECUS TO BE CHECKED

- P/W MODULE

  OK: "OK" is displayed on the "P/W MODULE" 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.00-5).

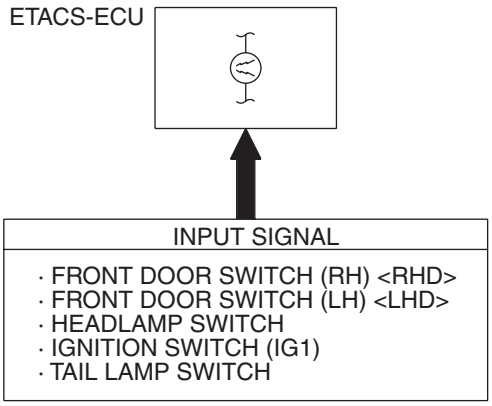
NO : Replace the power window main switch.

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 Tone Alarm Function



W4J54E90AA

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.

POSSIBLE 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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- ETACS ECU
- COLUMN ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."
"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-30."

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
- Ignition switch: OFF (key removed)
- lighting switch: HEAD
- Driver's door: open

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	DR DOOR SW	ON
Item 43	BUZZER	ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
Normal conditions displayed for all the items : Go to Step 3.
Normal condition is not displayed for item No.00 or No.01 : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30 : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.32 : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ," or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."
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.

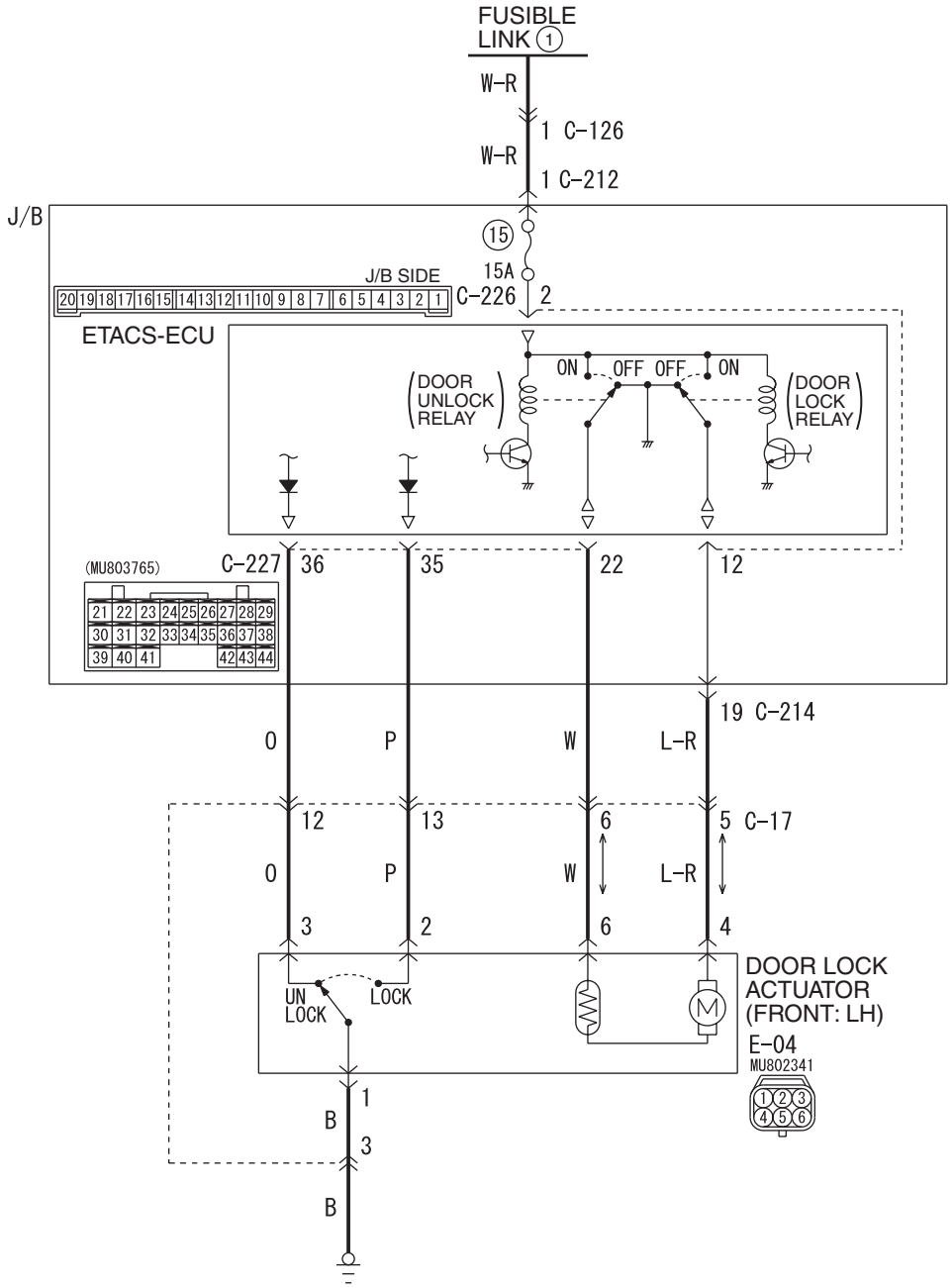
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

CENTRAL DOOR LOCKING SYSTEM

INSPECTION PROCEDURE C-1: Central door locking system does not work. <LH drive vehicles>

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

Central Door Lock Power Supply Circuit <LHD>



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

W4J54E91AA

COMMENT ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. ECU check on the SWS monitor

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

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

Step 2. Pulse check

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

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

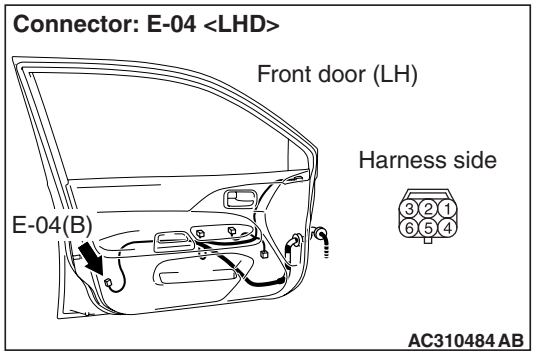
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure L-12 "The driver's door lock actuator signal is not received <LH drive vehicles>P.54C-296 ."

Step 3. Connector check: E-04 front door lock actuator (LH) 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 (LH)

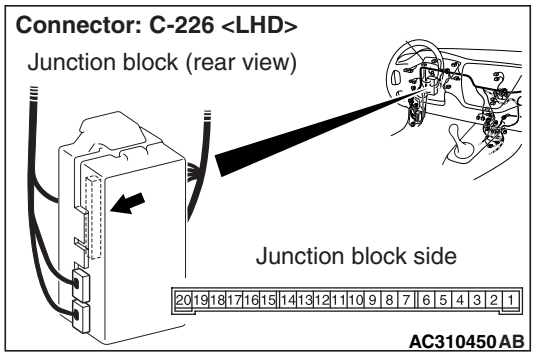
Check that the front door lock actuator (LH) works normally. Refer to GROUP 42 – Door P.42-31.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the front door lock actuator (LH).

Step 5. Connector check: C-226 ETACS-ECU connector

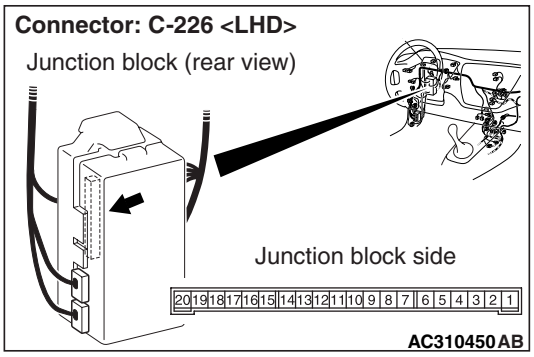


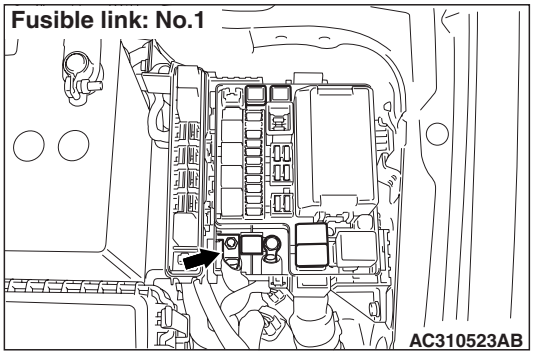
Q: Is the check result normal?

YES : Go to Step 6.

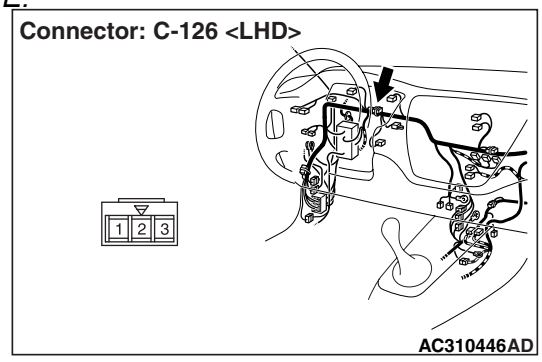
NO : Repair the defective connector.

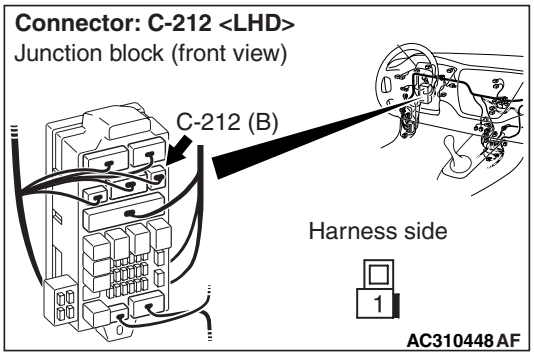
Step 6. Check the wiring harness between C-226 ETACS-ECU connector terminal No.2 and fusible link (1).





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-126 and junction block connector C-212, 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.

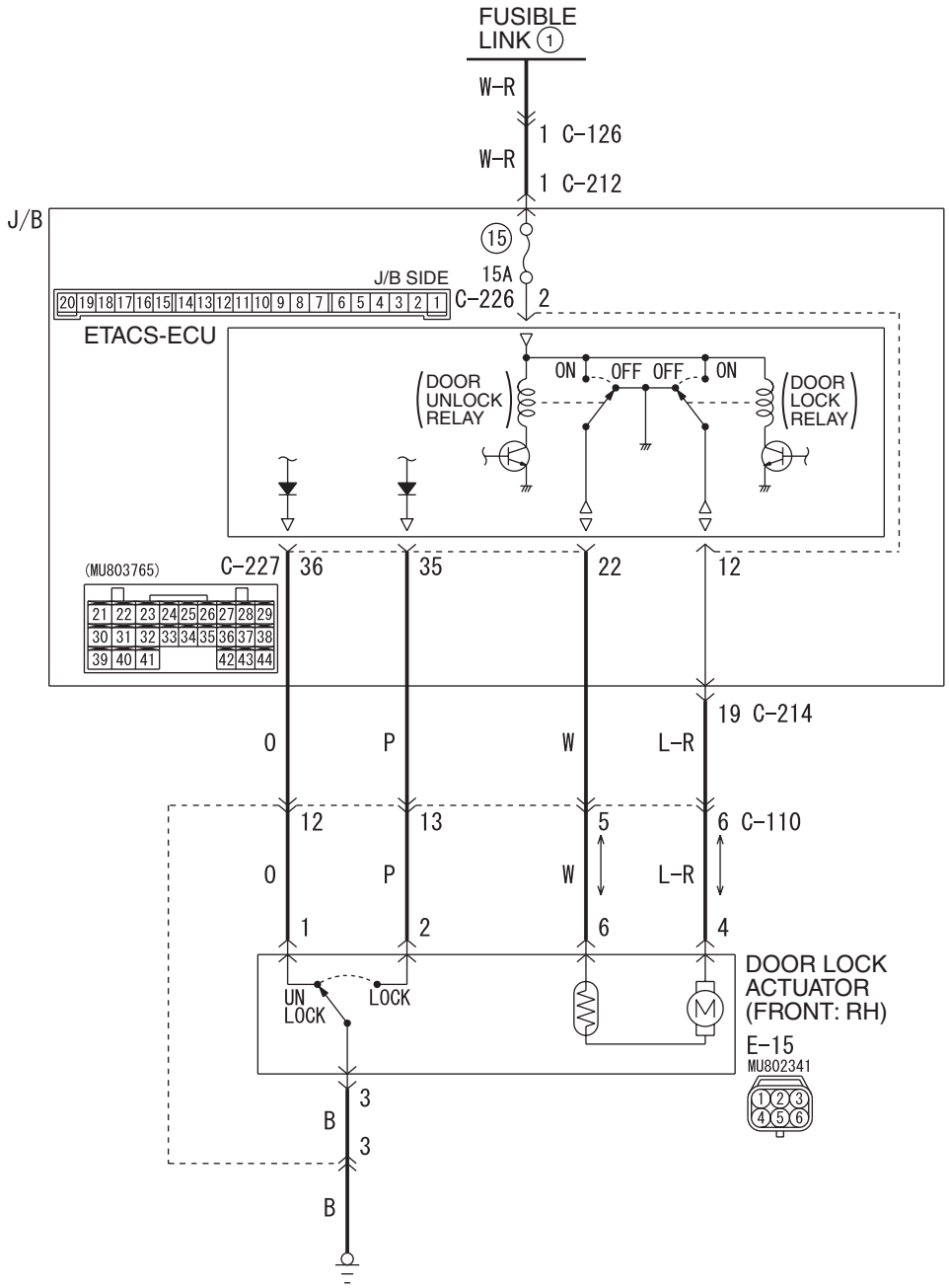
Check that the central door locking system works normally.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE C-1: Central door locking system does not work. <RH drive vehicles>

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

Central Door Lock Power Supply Circuit <RHD>



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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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.

POSSIBLE 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 on the SWS monitor

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

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

Step 2. Pulse check

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

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

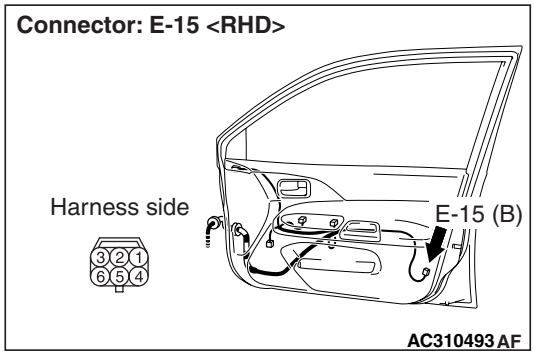
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure L-12 "The driver's door lock actuator signal is not received <RH drive vehicles>P.54C-299 ."

Step 3. Connector check: E-15 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)

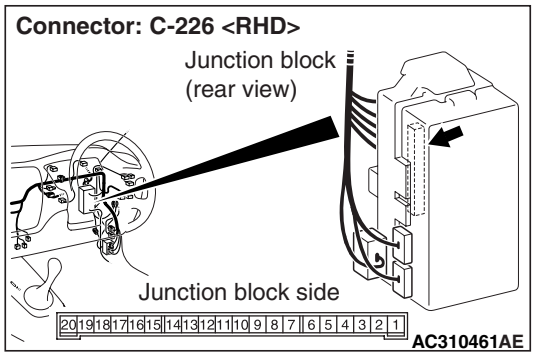
Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-31.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the front door lock actuator (RH).

Step 5. Connector check: C-226 ETACS-ECU connector

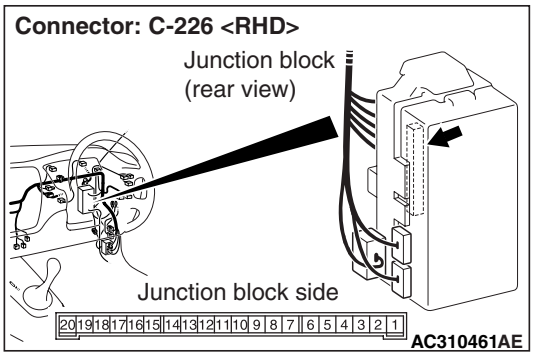


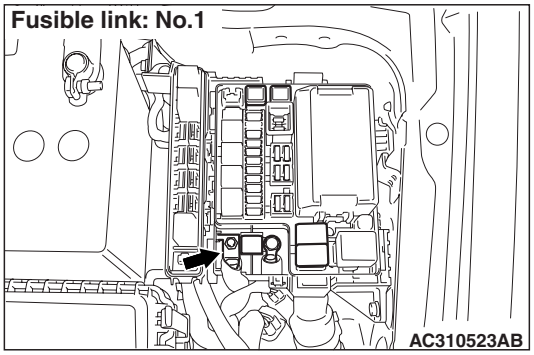
Q: Is the check result normal?

YES : Go to Step 6.

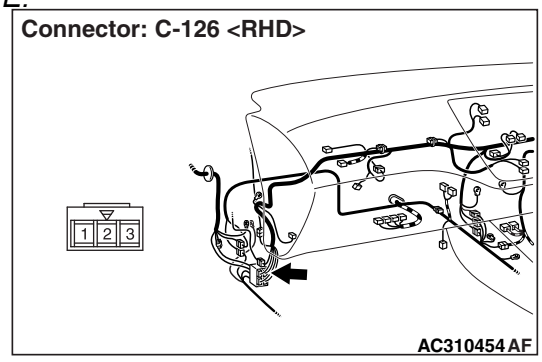
NO : Repair the defective connector.

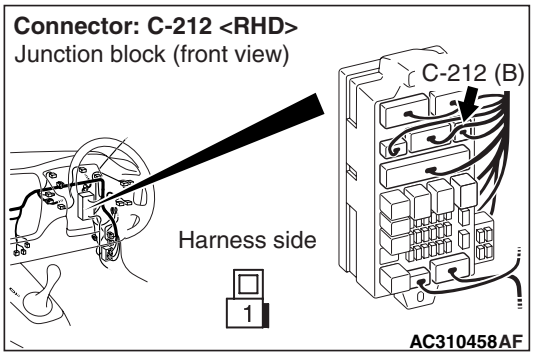
Step 6. Check the wiring harness between C-226 ETACS-ECU connector terminal No.2 and fusible link (1).





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-126 and junction block connector C-212, and repair if necessary.

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

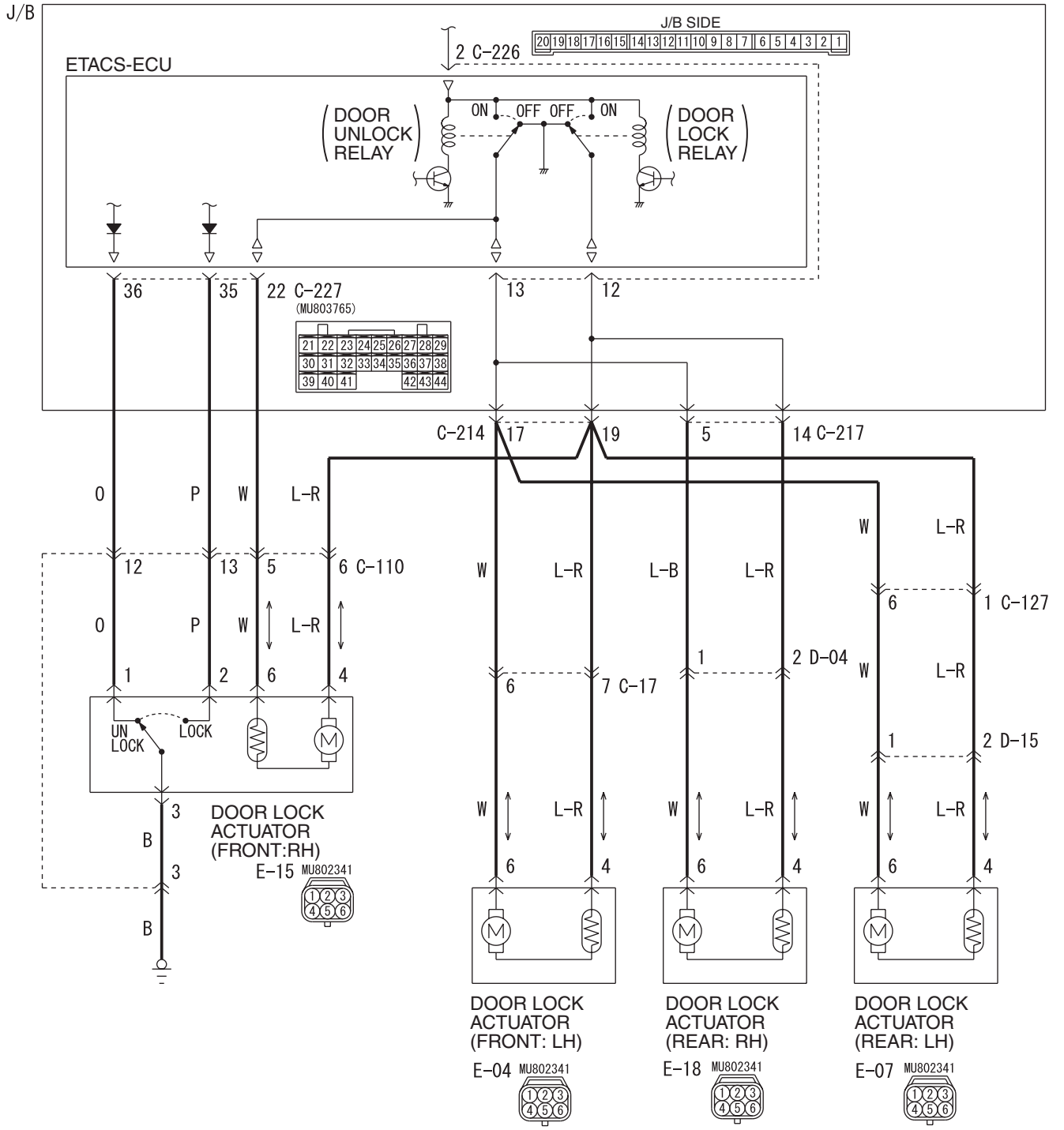
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE C-2: A Door or a tailgate cannot be locked or unlocked by the central door locking system. <LH drive vehicles>

Central Door Lock Circuit <LHD>



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.

POSSIBLE CAUSES

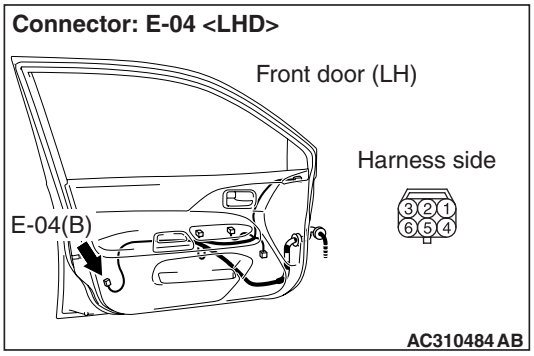
- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged harness wires and connectors

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.

Step 2. Connector check: E-04 front door lock actuator (LH) connector



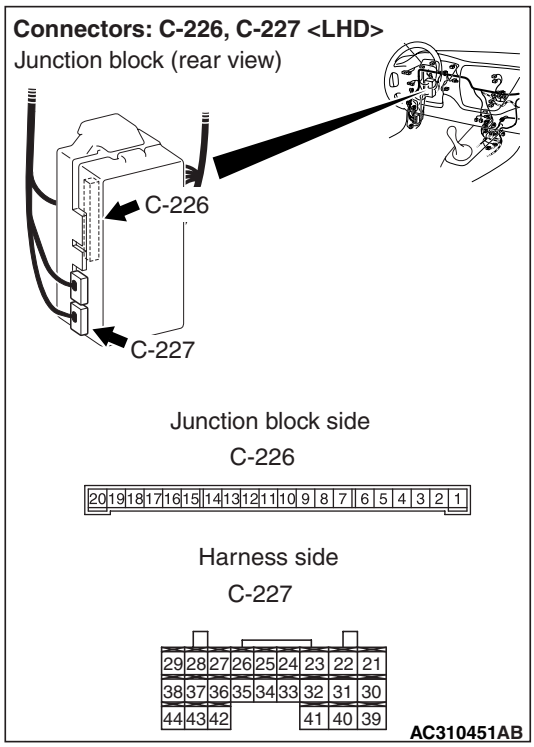
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the front door lock actuator (LH)

Check that the front door lock actuator (LH) works normally. Refer to GROUP 42 – Door P.42-31.

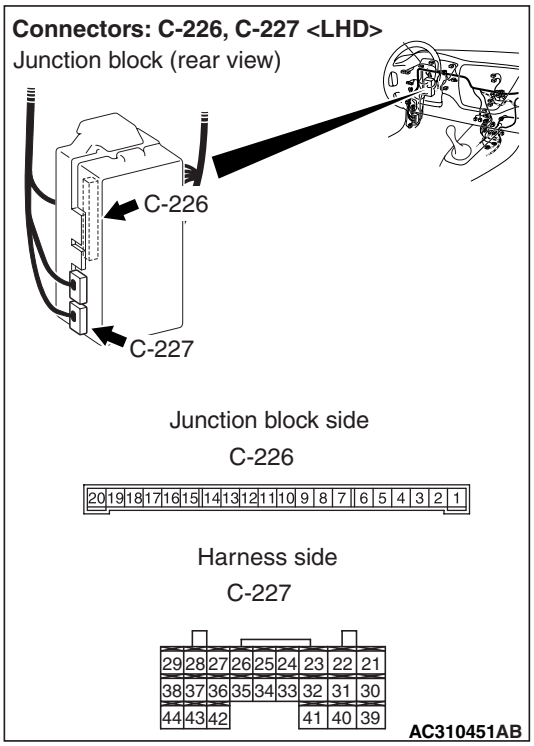
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the front door lock actuator (LH).

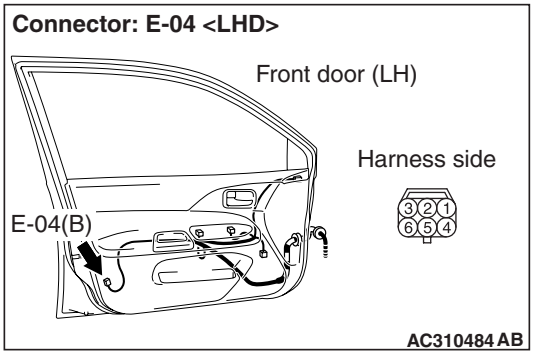
Step 4. Connector check: C-226, C-227 ETACS-ECU connector



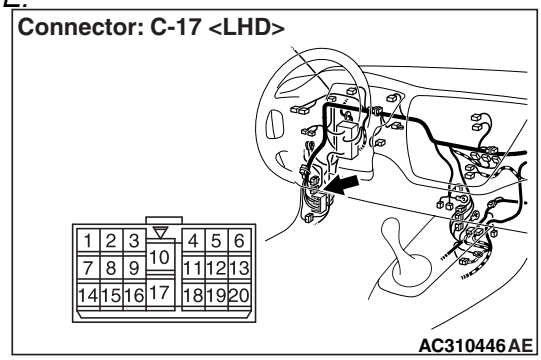
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

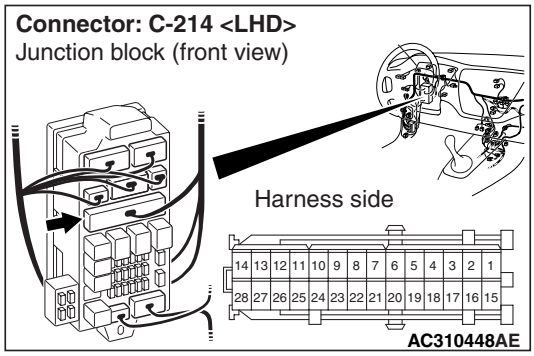
Step 5. Check the wiring harness from C-226 ETACS-ECU connector terminal No.12 and C-227 ETACS-ECU connector terminal No.22 to E-04 front door lock actuator (LH) connector terminal Nos.4 and 6.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-17 and junction block connector C-214, and repair if necessary.

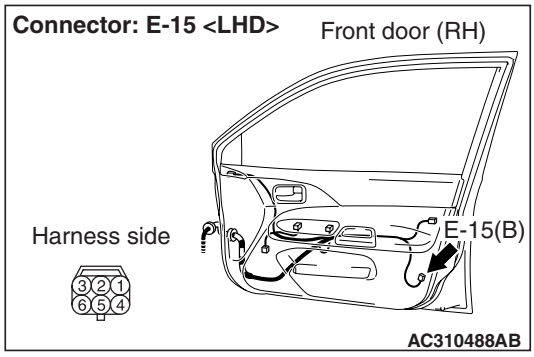
- Check the input and output lines for open circuit.

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.00-5).

NO : Repair the wiring harness.

Step 6. Connector check: E-15 front door lock actuator (RH) connector



Q: Is the check result normal?

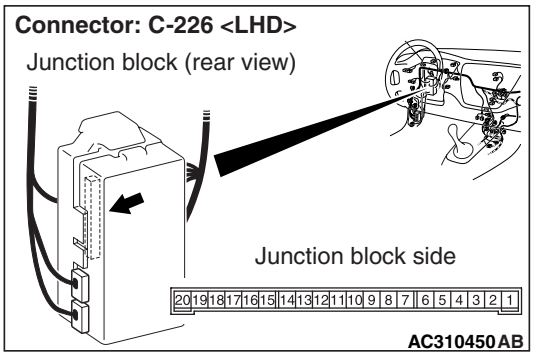
YES : Go to Step 7.

NO : Repair the defective connector.

Step 7. Check the front door lock actuator (RH).
Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-31.

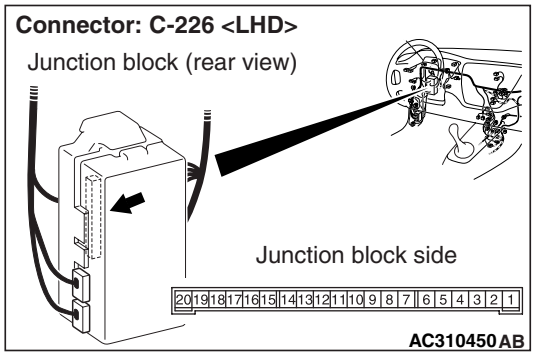
Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the front door lock actuator (RH).

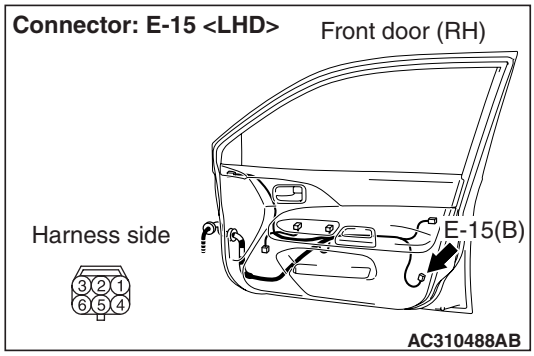
Step 8. Connector check: C-226 ETACS-ECU connector



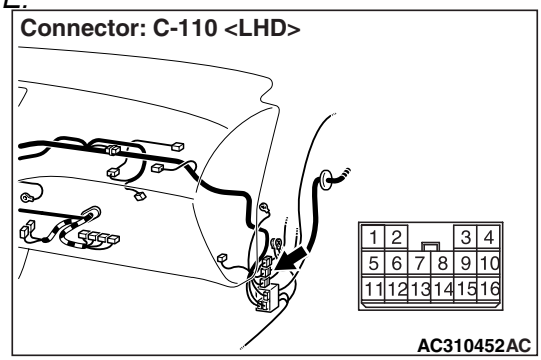
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

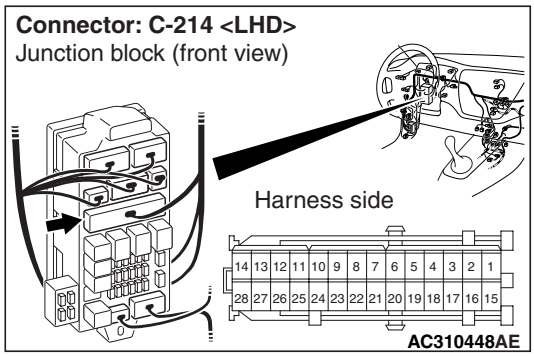
Step 9. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-15 front door lock actuator (RH) connector terminal Nos.4 and 6.





NOTE:



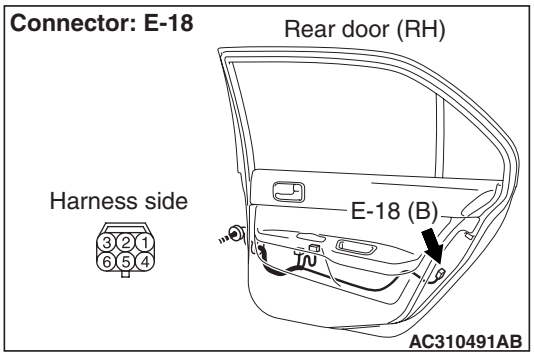


Prior to the wiring harness inspection, check intermediate connector C-110 and junction block connector C-214, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

Step 10. Connector check: E-18 rear door lock actuator (RH) connector



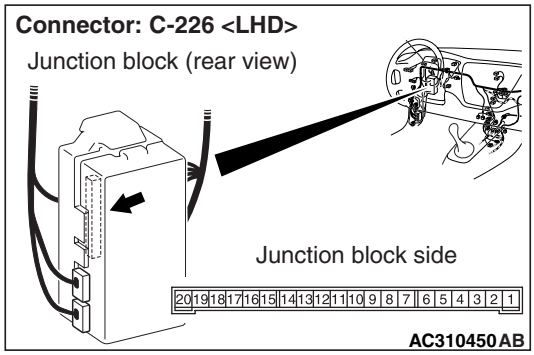
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

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.42-31.

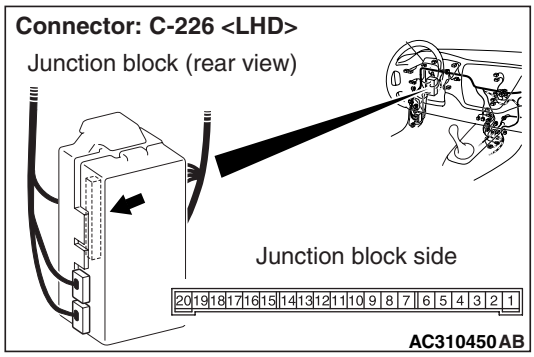
Q: Is the check result normal?
YES : Go to Step 12.
NO : Replace the rear door lock actuator (RH).

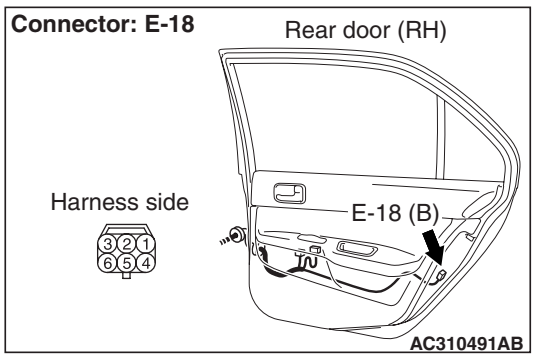
Step 12. Connector check: C-226 ETACS-ECU connector



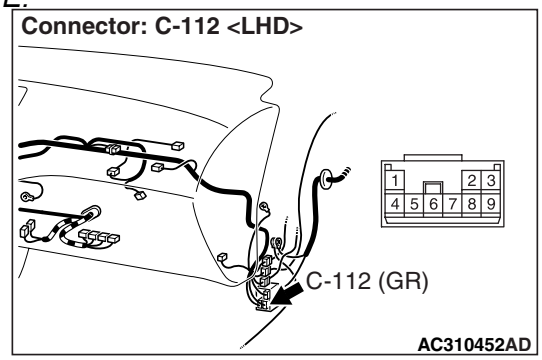
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the defective connector.

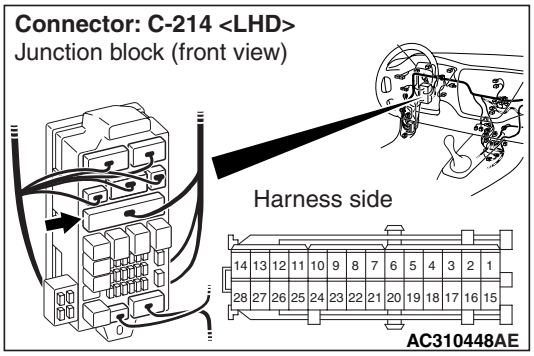
Step 13. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-18 rear door lock actuator (RH) connector terminal Nos.4 and 6.

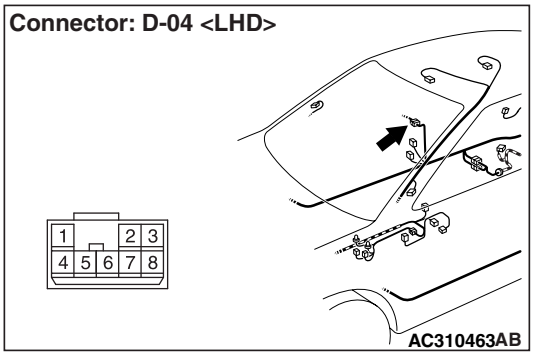




NOTE:





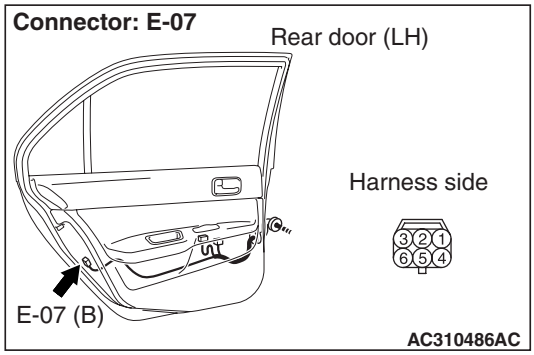


Prior to the wiring harness inspection, check C-112, D-04 intermediate connectors and C-214 junction block connector, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

Step 14. Connector check: E-07 rear door lock actuator (LH) connector



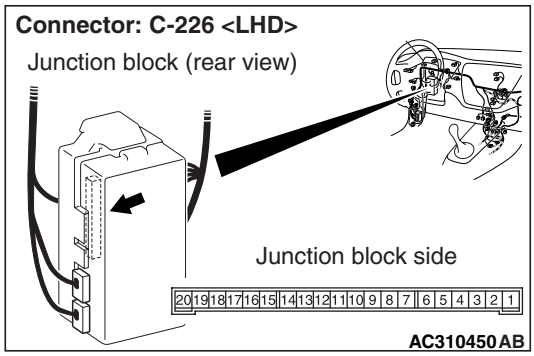
Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the defective connector.

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.42-31.

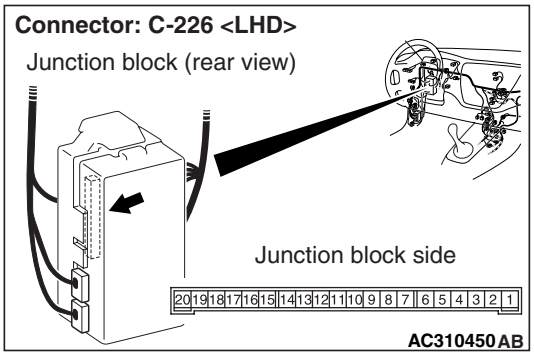
Q: Is the check result normal?
YES : Go to Step 16.
NO : Replace the rear door lock actuator (LH).

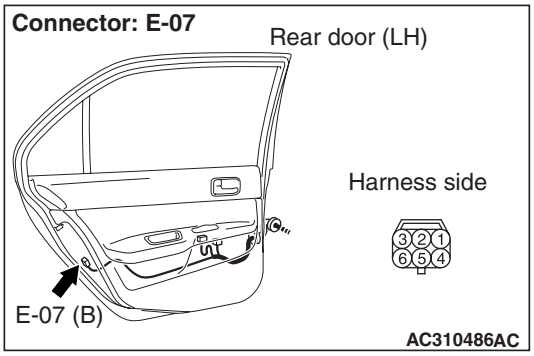
Step 16. Connector check: C-226 ETACS-ECU connector



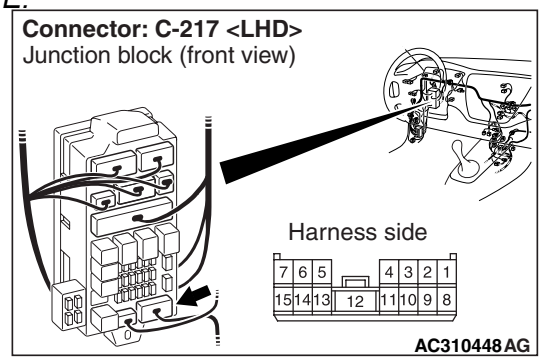
Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the defective connector.

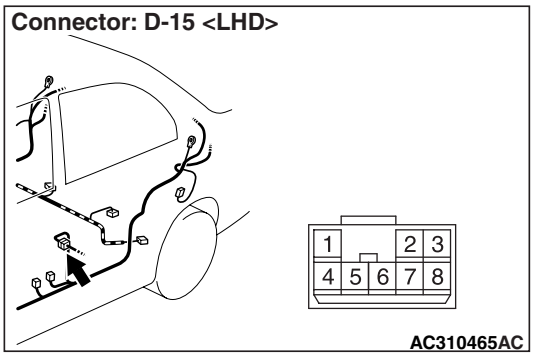
Step 17. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-07 rear door lock actuator (LH) connector terminal Nos.4 and 6.





NOTE:





Prior to the wiring harness inspection, check D-15 intermediate connectors and C-217 junction block connector, and repair if necessary.

- Check the input and output lines for open circuit.

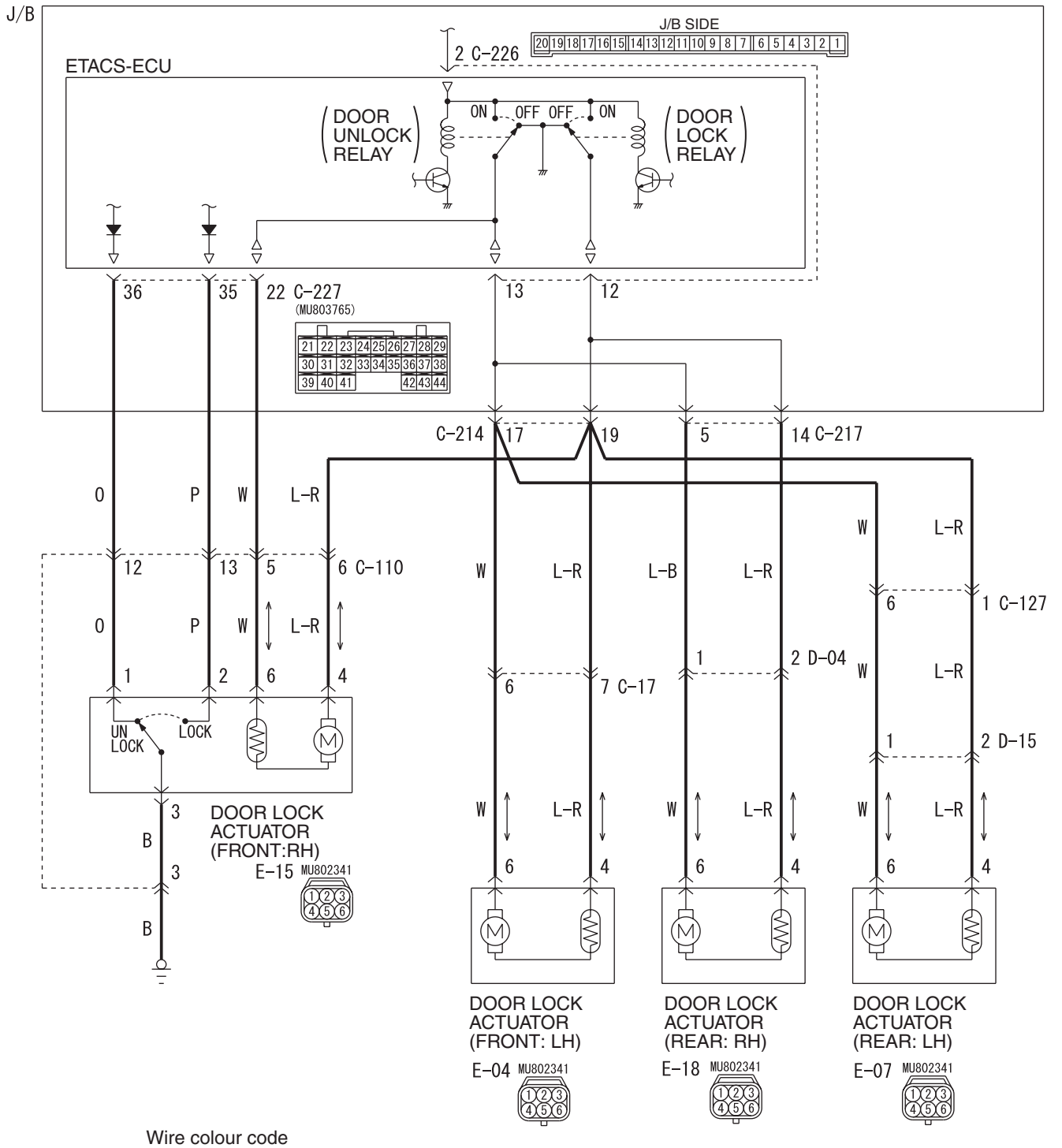
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

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

Central Door Lock Circuit <RHD>



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

W6J54E027A

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.

POSSIBLE CAUSES

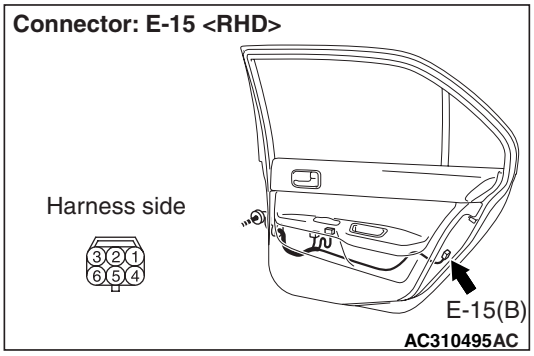
- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged harness wires and connectors

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.

Step 2. Connector check: E-15 front door lock actuator (RH) connector



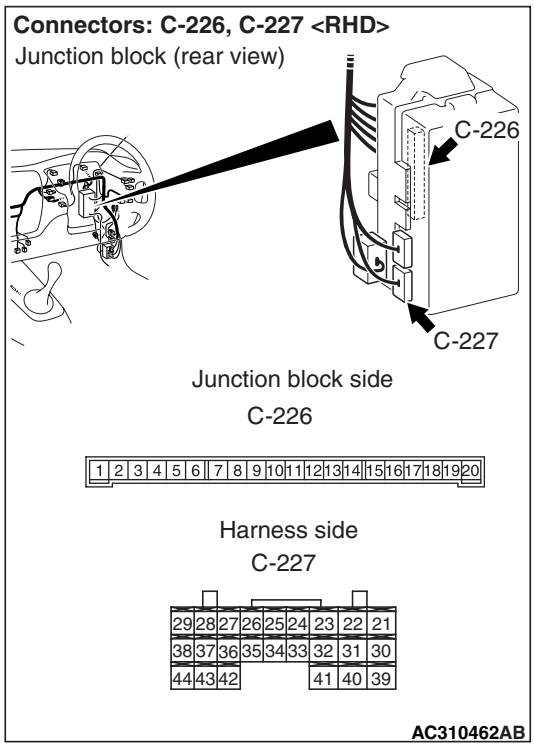
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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.42-31.

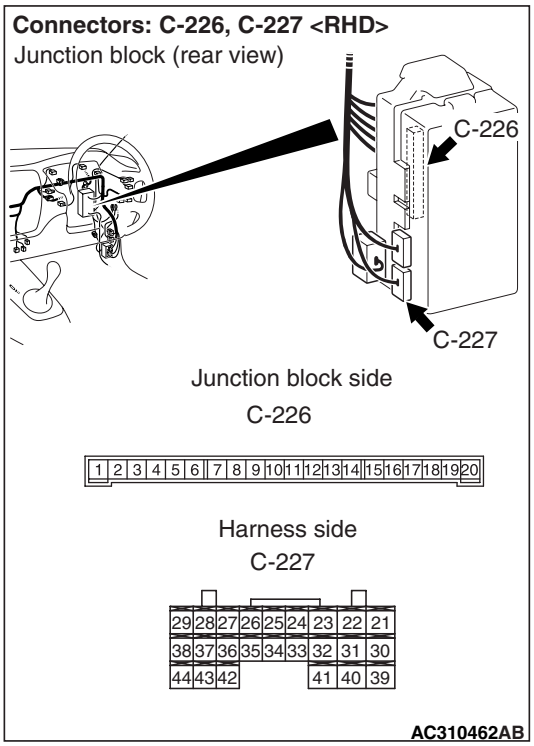
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the front door lock actuator (RH).

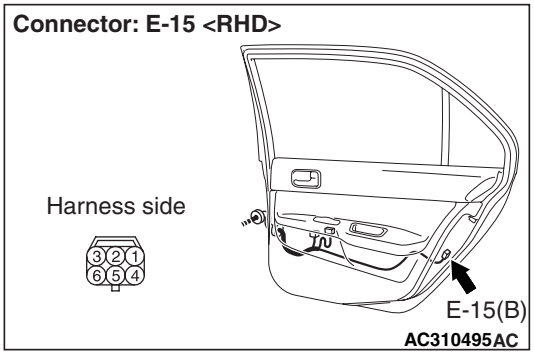
Step 4. Connector check: C-226, C-227 ETACS-ECU connector



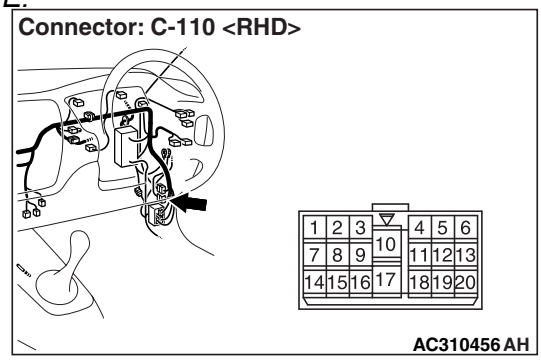
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

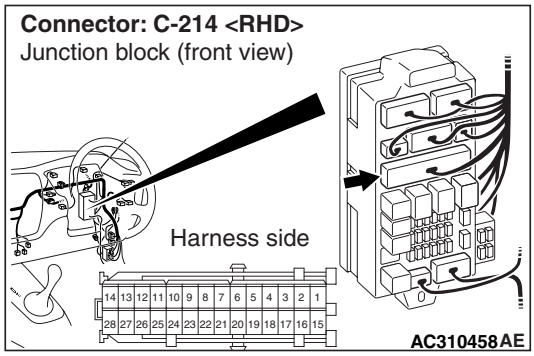
Step 5. Check the wiring harness from C-226 ETACS-ECU connector terminal No.12 and C-227 ETACS-ECU connector terminal No.22 to E-15 front door lock actuator (RH) connector terminal Nos.4 and 6.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-110 and junction block connector C-214, and repair if necessary.

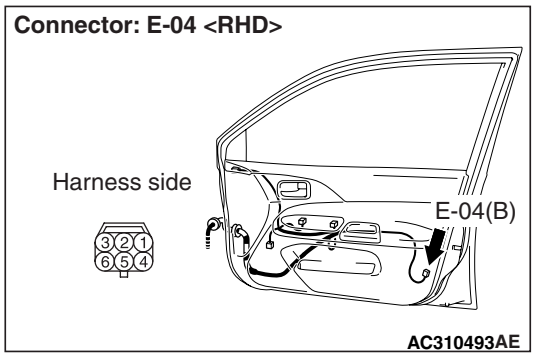
- Check the input and output lines for open circuit.

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.00-5).

NO : Repair the wiring harness.

Step 6. Connector check: E-04 front door lock actuator (LH) connector



Q: Is the check result normal?

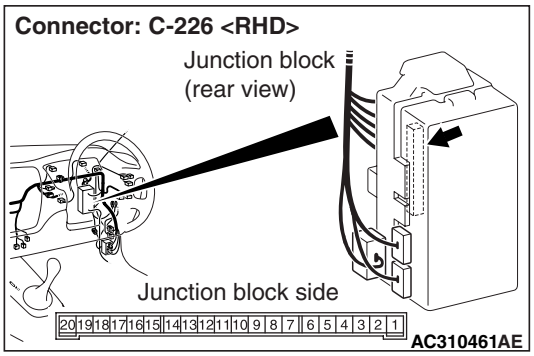
YES : Go to Step 7.

NO : Repair the defective connector.

Step 7. Check the front door lock actuator (LH).
Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-31.

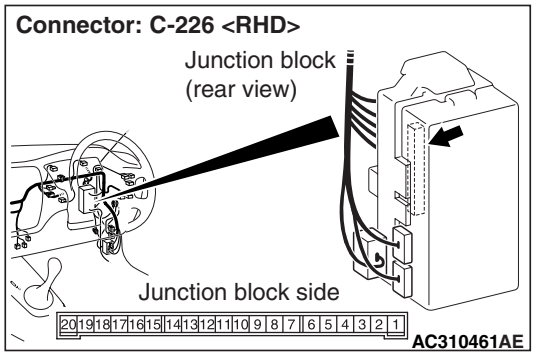
Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the front door lock actuator (LH).

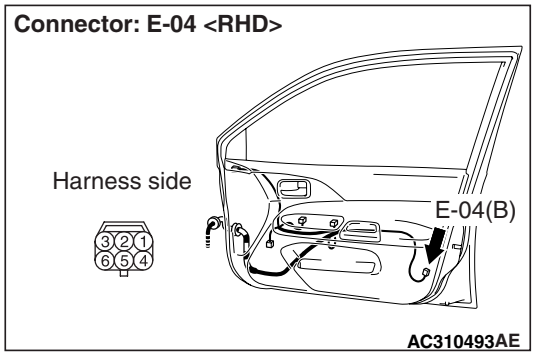
Step 8. Connector check: C-226 ETACS-ECU connector



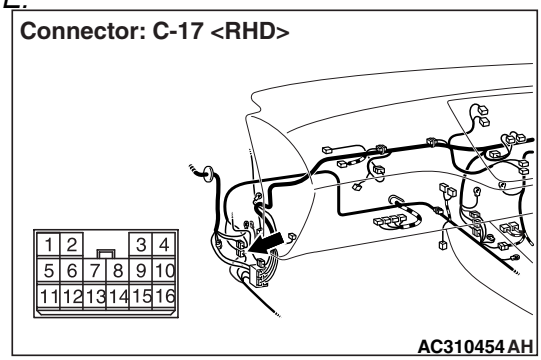
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

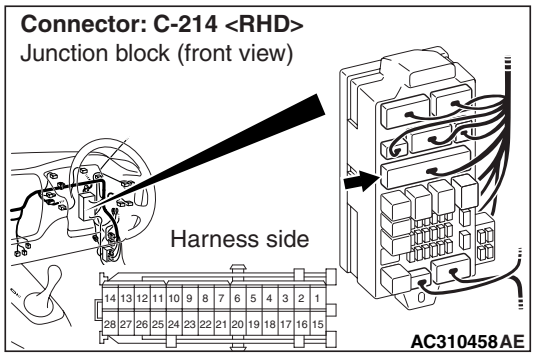
Step 9. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-04 front door lock actuator (LH) connector terminal Nos.4 and 6.





NOTE:



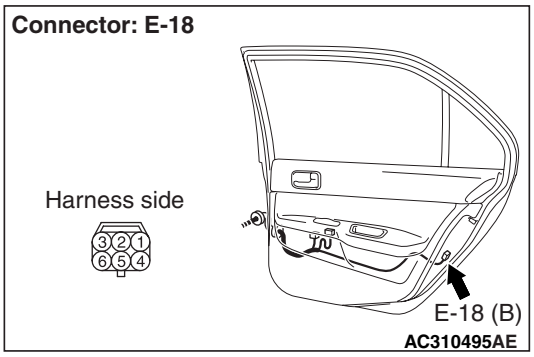


Prior to the wiring harness inspection, check intermediate connector C-17 and junction block connector C-214, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

Step 10. Connector check: E-18 rear door lock actuator (RH) connector



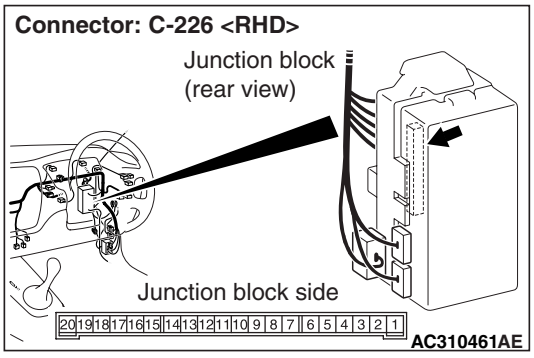
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

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.42-31.

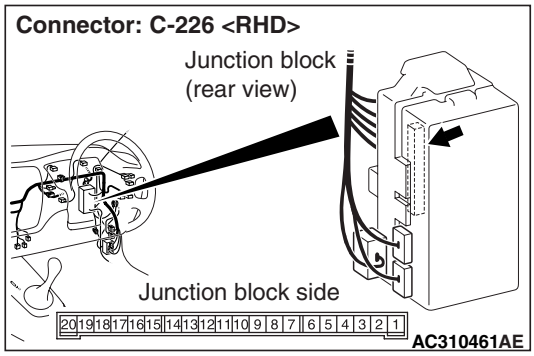
Q: Is the check result normal?
YES : Go to Step 12.
NO : Replace the rear door lock actuator (RH).

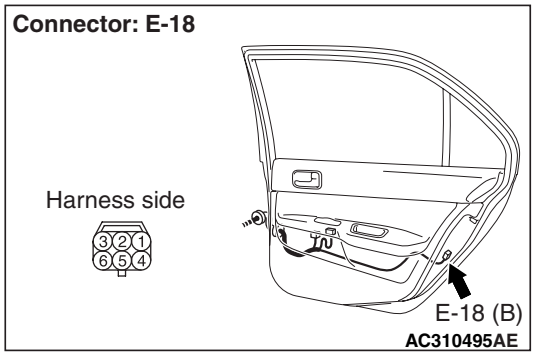
Step 12. Connector check: C-226 ETACS-ECU connector



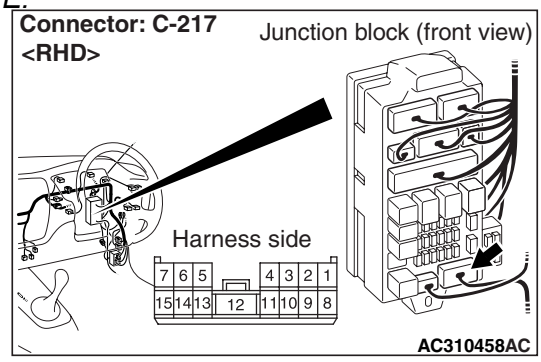
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the defective connector.

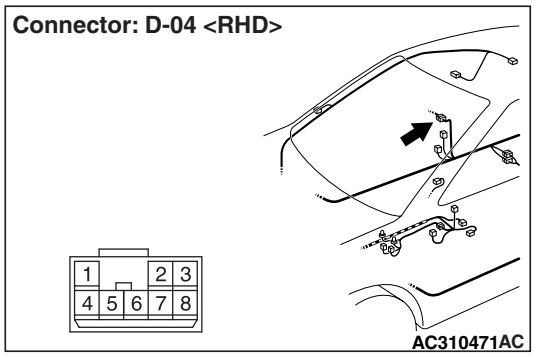
Step 13. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-18 rear door lock actuator (RH) connector terminal Nos.4 and 6.





NOTE:



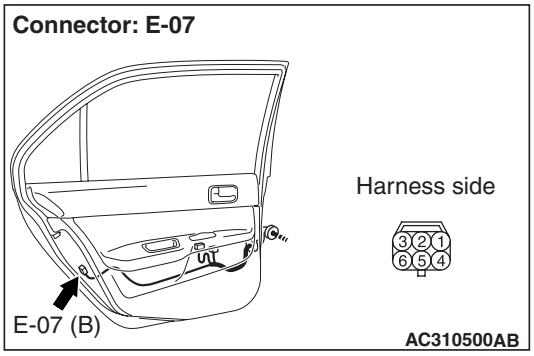


Prior to the wiring harness inspection, check junction block connector C-217 and D-04, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

Step 14. Connector check: E-07 rear door lock actuator (LH) connector



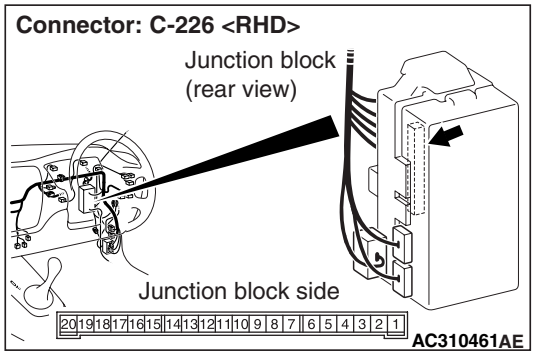
Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the defective connector.

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.42-31.

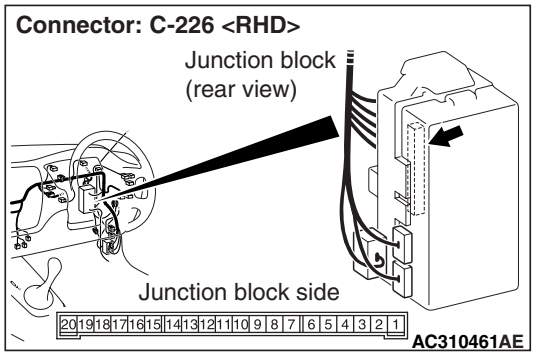
Q: Is the check result normal?
YES : Go to Step 16.
NO : Replace the rear door lock actuator (LH).

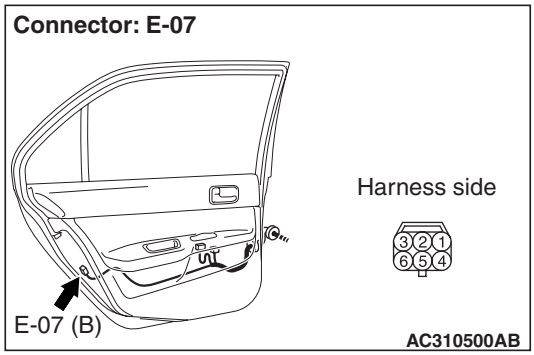
Step 16. Connector check: C-226 ETACS-ECU connector



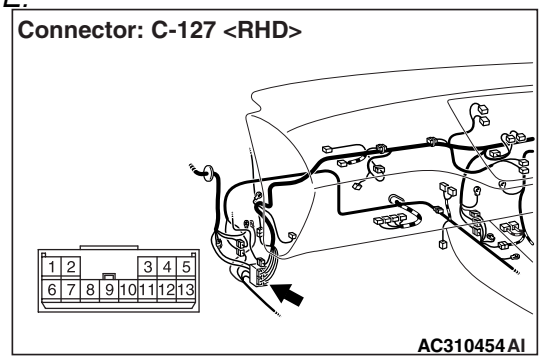
Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the defective connector.

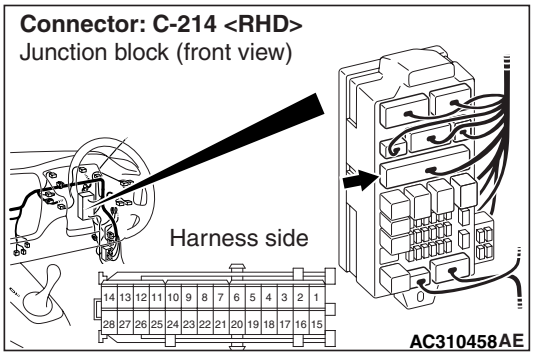
Step 17. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.12 and 13 to E-07 rear door lock actuator (LH) connector terminal Nos.4 and 6.

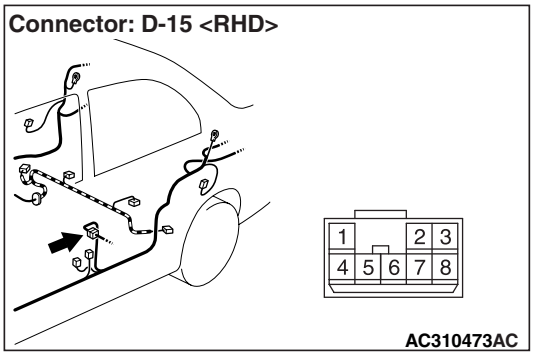




NOTE:







Prior to the wiring harness inspection, check intermediate connector C-127, D-15 and junction block connector C-214, and repair if necessary.

- Check the input and output lines for open circuit.

Q: Is the check result normal?

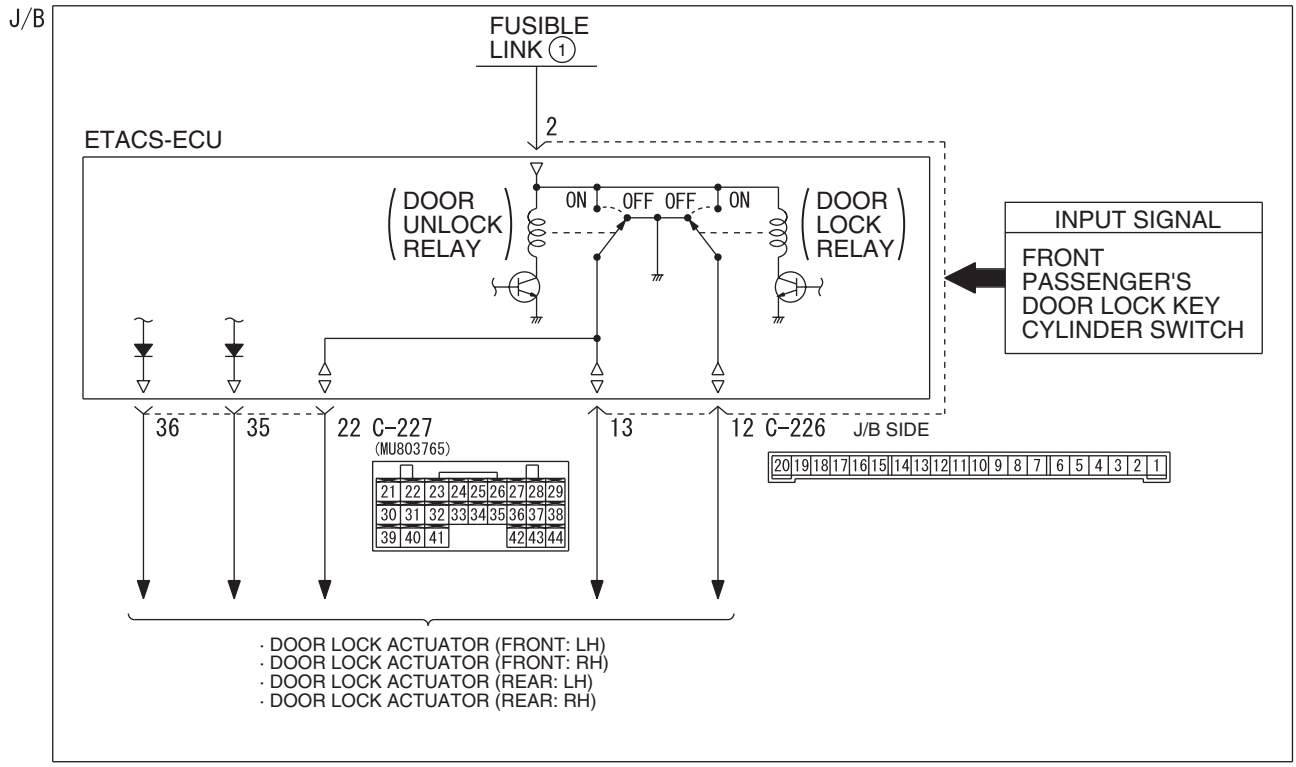
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

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



W4J54E95AA

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.

POSSIBLE 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-59 <LH drive vehicles>," or refer to Inspection Procedure C-1 "Central door locking system does not work P.54C-62 <RH drive vehicles>."

Step 2. ECU check on the SWS monitor

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

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

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 L-16 "The door lock key cylinder switch signal is not received P.54C-312."

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?

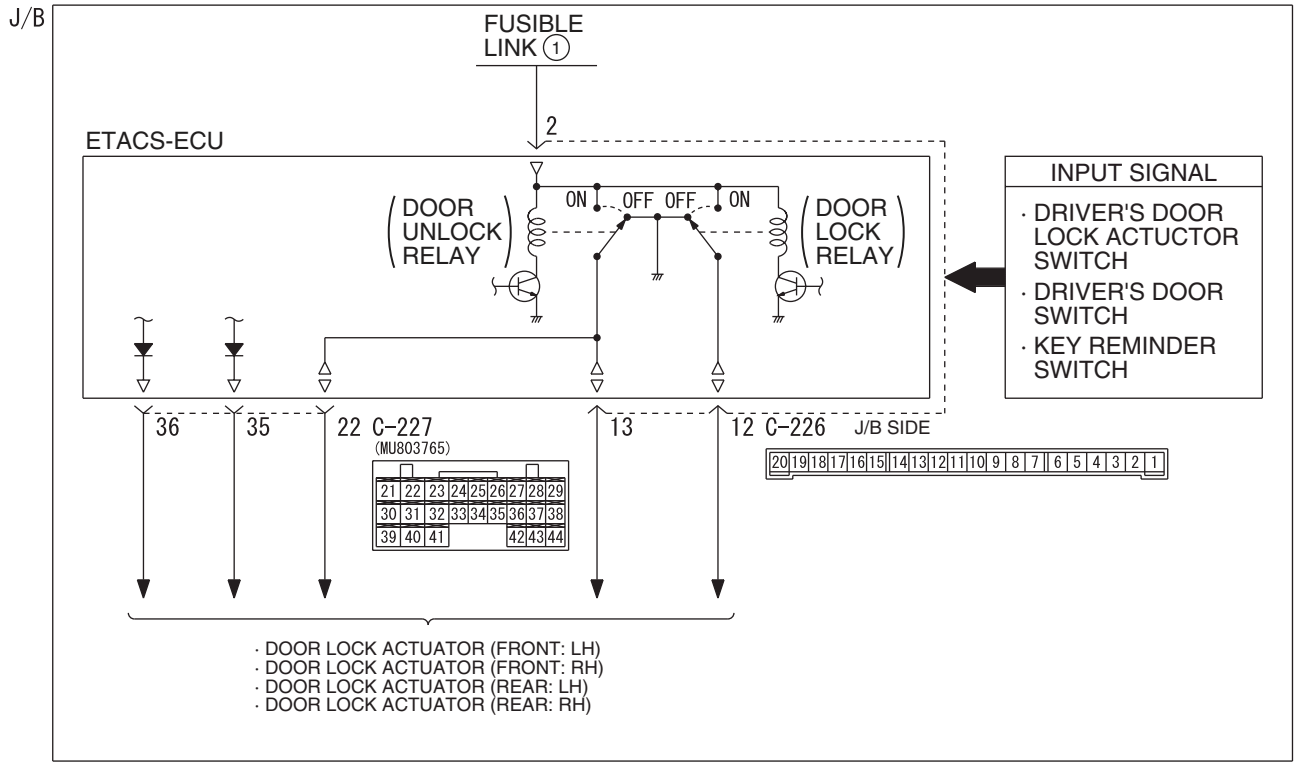
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

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



W4J54E96AA

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

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. ECU check on the SWS monitor

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

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

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

- Driver's door: open

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

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received P.54C-263 <LH drive vehicles>, " or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received P.54C-265. <RH drive vehicles>"

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
Driver's door lock actuator 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?

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

The key reminder switch signal is not received. : Refer to Inspection Procedure L-9 "The key reminder switch signal is not received P.54C-281."

The driver's door lock actuator switch signal is not received. : Refer to Inspection Procedure L-12 "The front door lock actuator (LH) signal is not received P.54C-296 <LH drive vehicles>," or refer to Inspection Procedure L-12 "The front door lock actuator (RH) signal is not received P.54C-299 <RH drive vehicles>."

Step 4. Retest the system.

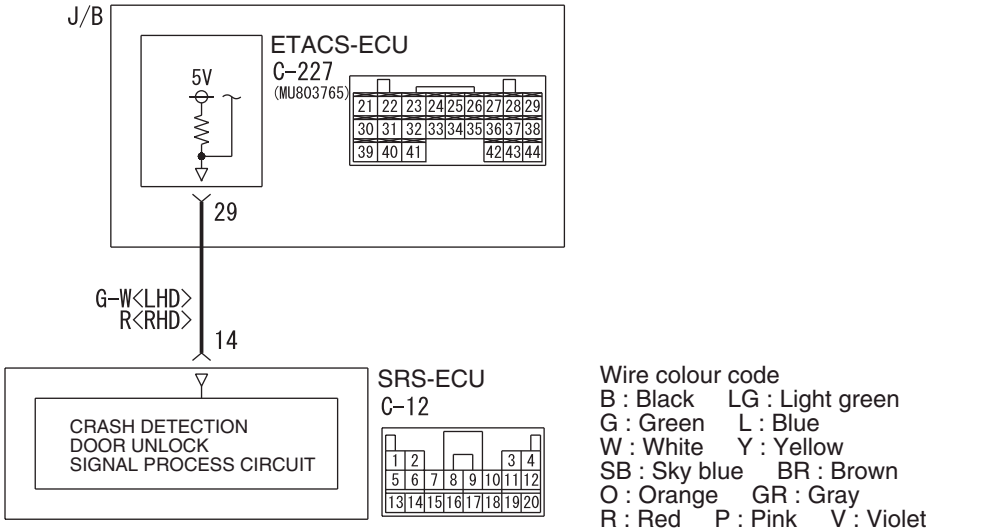
Q: Does the ignition key reminder function work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE C-5: The impact detection door unlock function does not function.

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



COMMENTS ON TROUBLE SYMPTOM

If the impact detection door unlock function does not work normally, the input signal circuit from the impact detection sensor, the SRS-ECU or the ETACS-ECU may be defective.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. M.U.T.-II/III other system diagnosis code.
Check that the SRS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to GROUP 52B – Troubleshooting P.52B-9.
NO : Go to Step 2.

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.

- Ignition switch: OFF

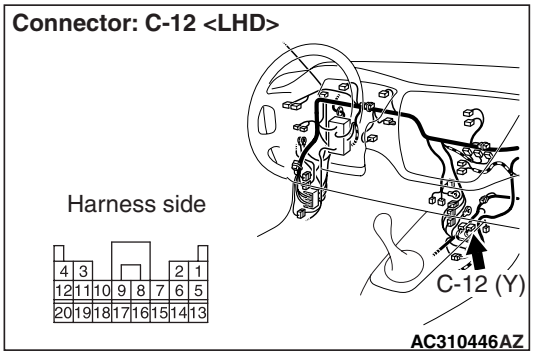
ECUS TO BE CHECKED

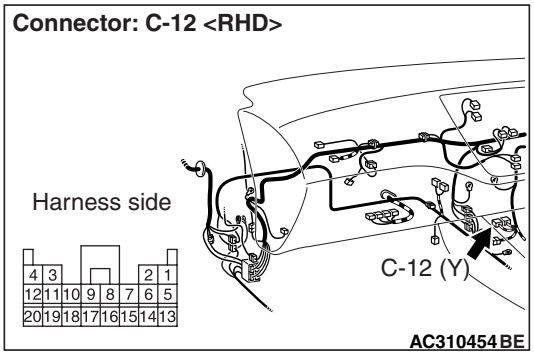
- ETACS ECU

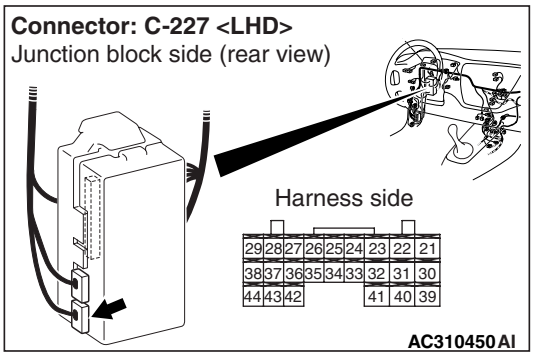
OK: "OK" is displayed on the "ETACS ECU" menu.

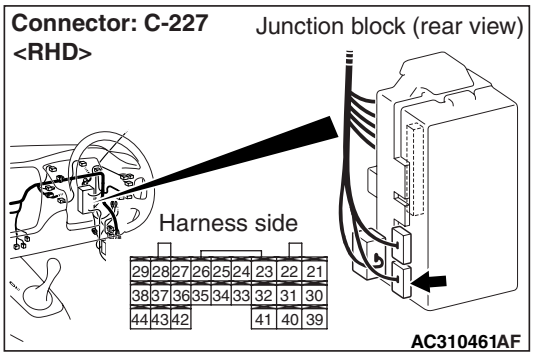
Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."

Step 3. Connector check: C-12 SRS-ECU connector and C-227 ETACS-ECU connector



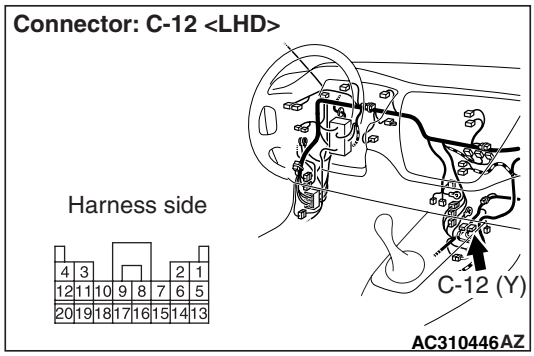


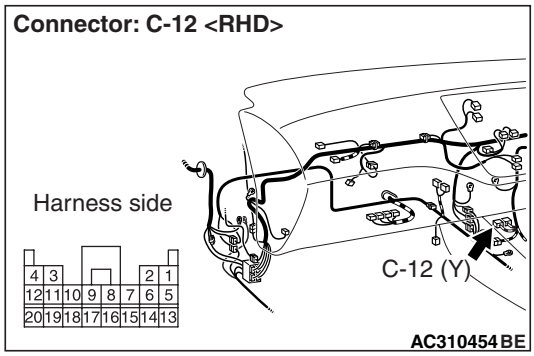


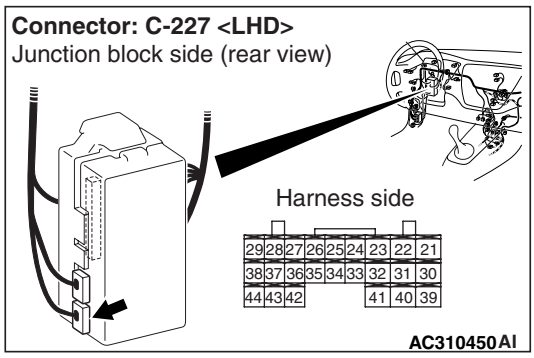


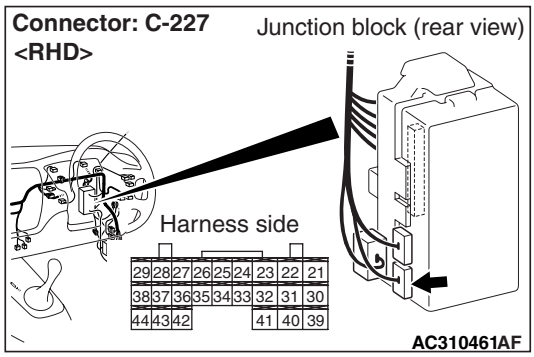
Q: Are the check results normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the wiring harness between C-227 ETACS-ECU connector terminal No.29 and C-12 SRS-ECU connector terminal No.14.









- Check the communication lines for open circuit.

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

Step 5. Retest the system.

Replace the SRS-ECU, and check that the impact detection door unlock function works normally.

(1) Replace the SRS-ECU.
(2) Check that the impact detection door unlock 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.00-5).

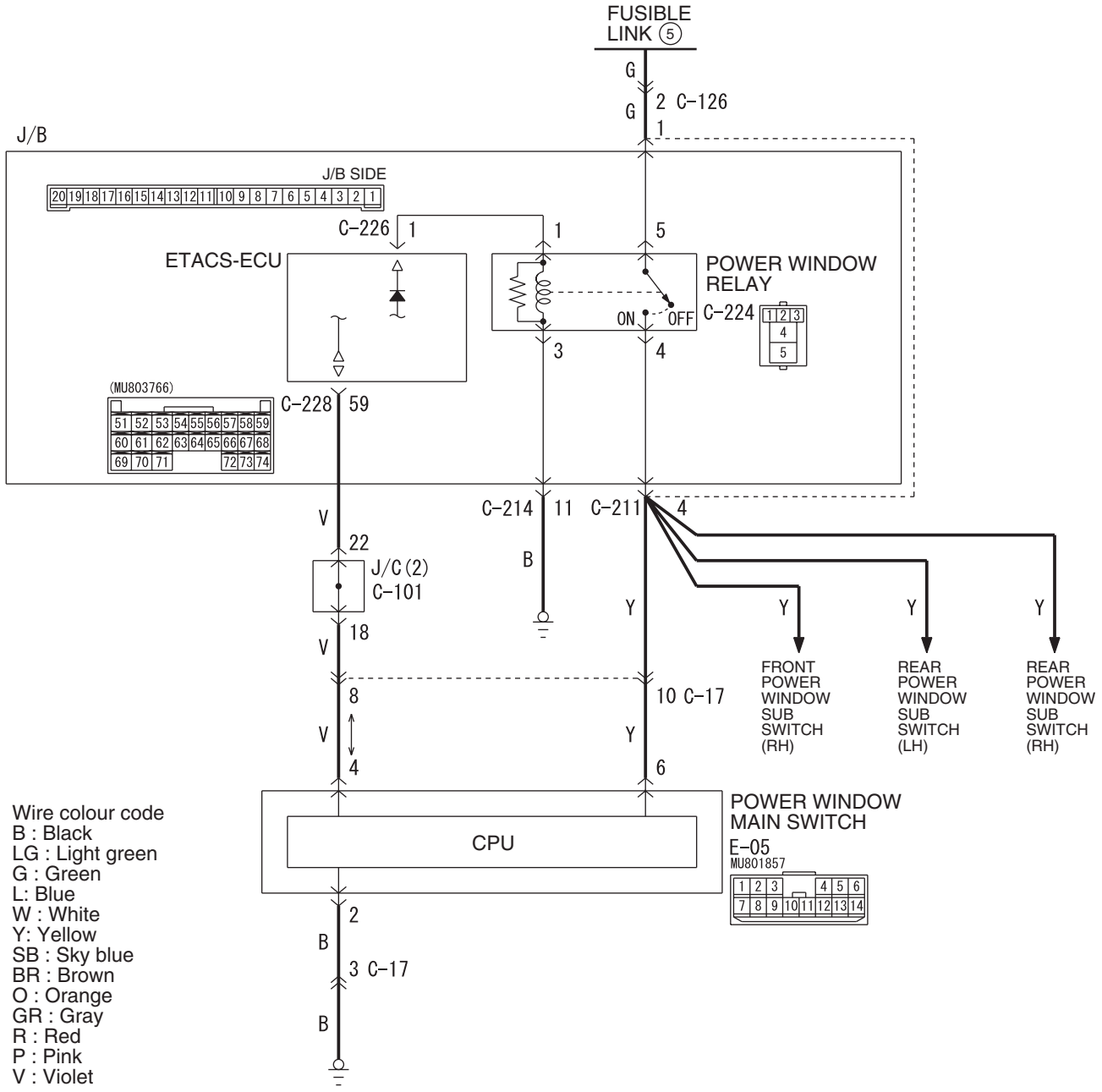
NO : Replace the ETACS-ECU.

POWER WINDOW

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

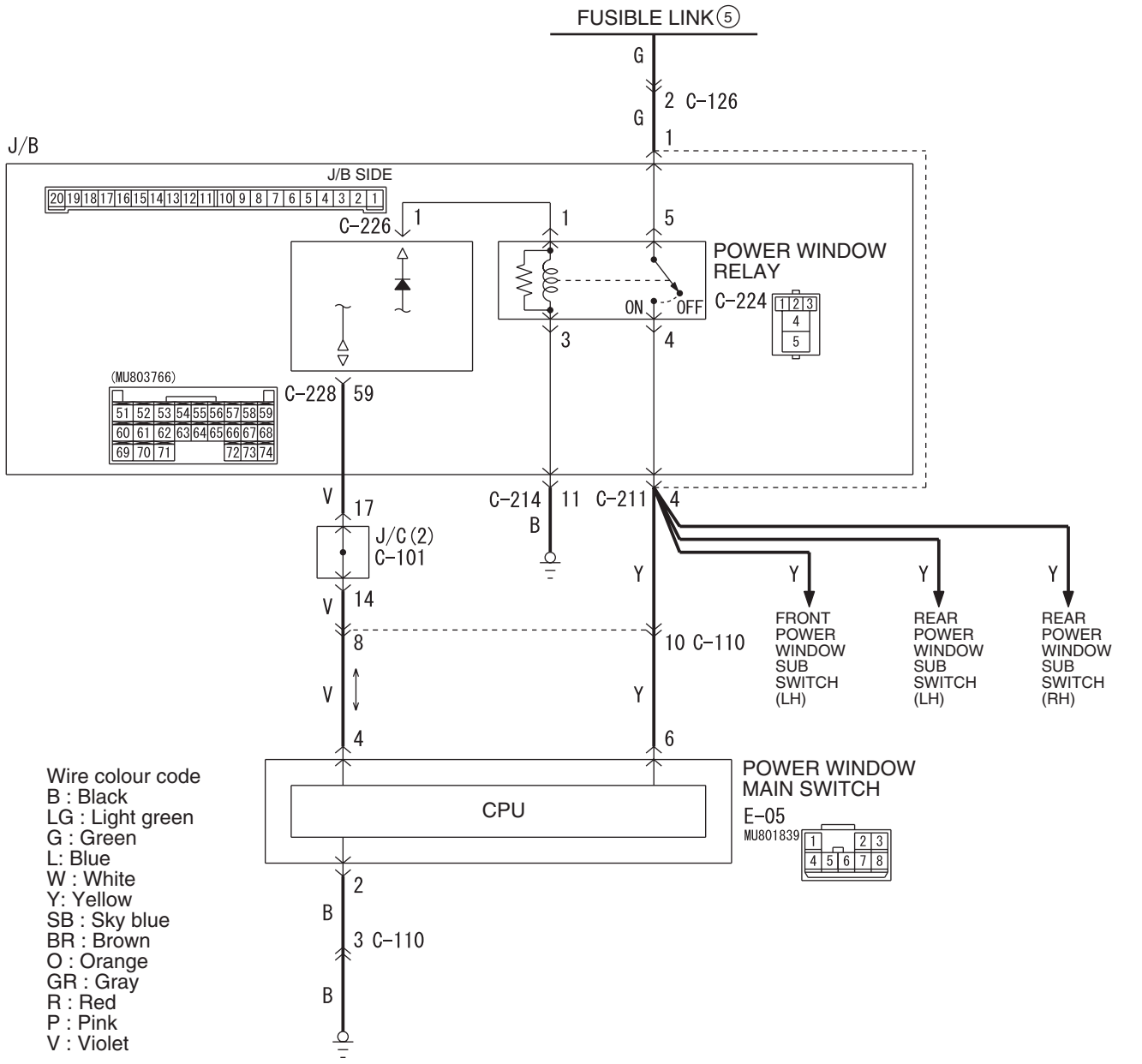
⚠ CAUTION
Whenever the ECU is replaced, ensure that the input and output signal circuits are normal.

Power Window Relay Circuit <LHD>



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Power Window Relay Circuit <RHD>



W4J54E98AA

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.

POSSIBLE 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 power window main switch (power window module) and the SWS communication lines are normal.
- Turn the ignition switch to the ON position.

ECUS TO BE CHECKED
- ETACS ECU
- P/W MODULE

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."
"NG" is displayed on the "P/W MODULE" menu. : Refer to Inspection Procedure A-5 "Communication with the power window main switch (power window module) is not possible P.54C-47."

Step 2. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the power windows.

<Selected item> POWER WINDOW
- Turn the ignition switch to the ON position.
- Power window main switch: UP

Item No.	Item name	Normal condition
Item 30	IG SW (IG1)	ON
Item 33	P/W SW ACCEPT	PERMIT
Item 71	P/W ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
Normal conditions displayed for all the items : Go to Step 3.
Normal condition is not displayed for item No.30 : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.33 : Replace the ETACS-ECU.
Normal condition is not displayed for item No.71 : Replace the power window main switch.

Step 3. Door communication by using the SWS monitor.
Check the SWS communication signal, which are related to the power windows.

<Selected item> DOOR CNT. COM.
- Insert the probe (For the insertion point, refer to P.54C-5).
- Turn the ignition switch to the ON position.
- Power window main switch: UP

Item No.	Item name	Normal condition
Item C0	PASS DOR UP	ON

OK: Normal condition is displayed.

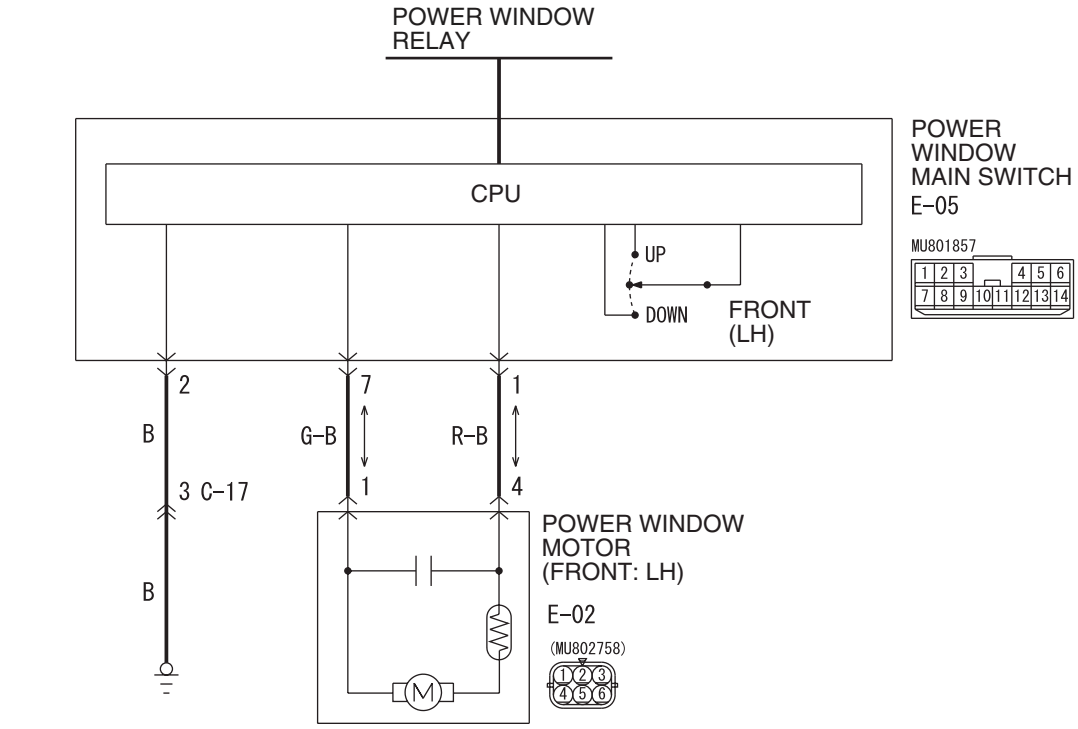
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the power window main switch.

Step 4. 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.00-5).
NO : Replace the power window main switch.

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

Power Window (front: LH) Circuit <LHD>



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 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 regulator motor may be defective.

POSSIBLE CAUSES

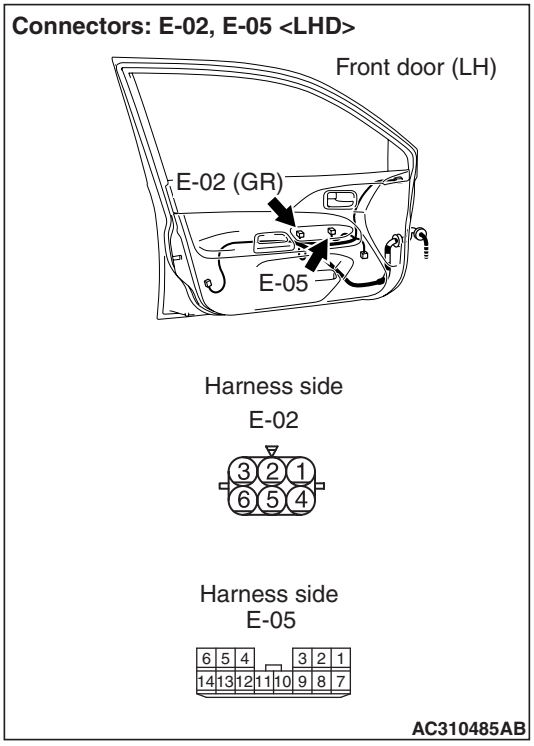
- Malfunction of the power window main switch
- Malfunction of the front power window regulator motor (LH)
- Damaged harness wires and connectors

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.

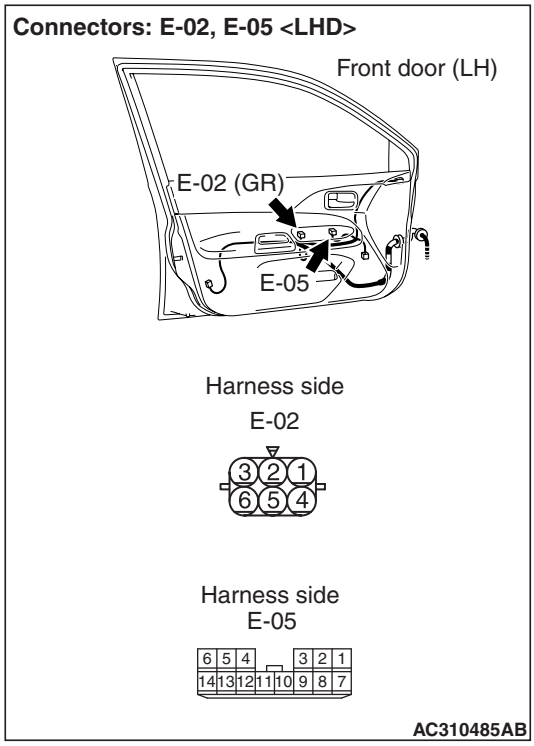
Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-86."

STEP 2. Connector check: E-05 power window main switch connector and E-02 front power window regulator motor (LH) connector



Q: Are the check results normal?
YES : Go to Step 3.
NO : Repair the connector.

STEP 3. Check the wiring harness from E-02 front power window regulator motor (LH) 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 4.
NO : Repair the wiring harness.

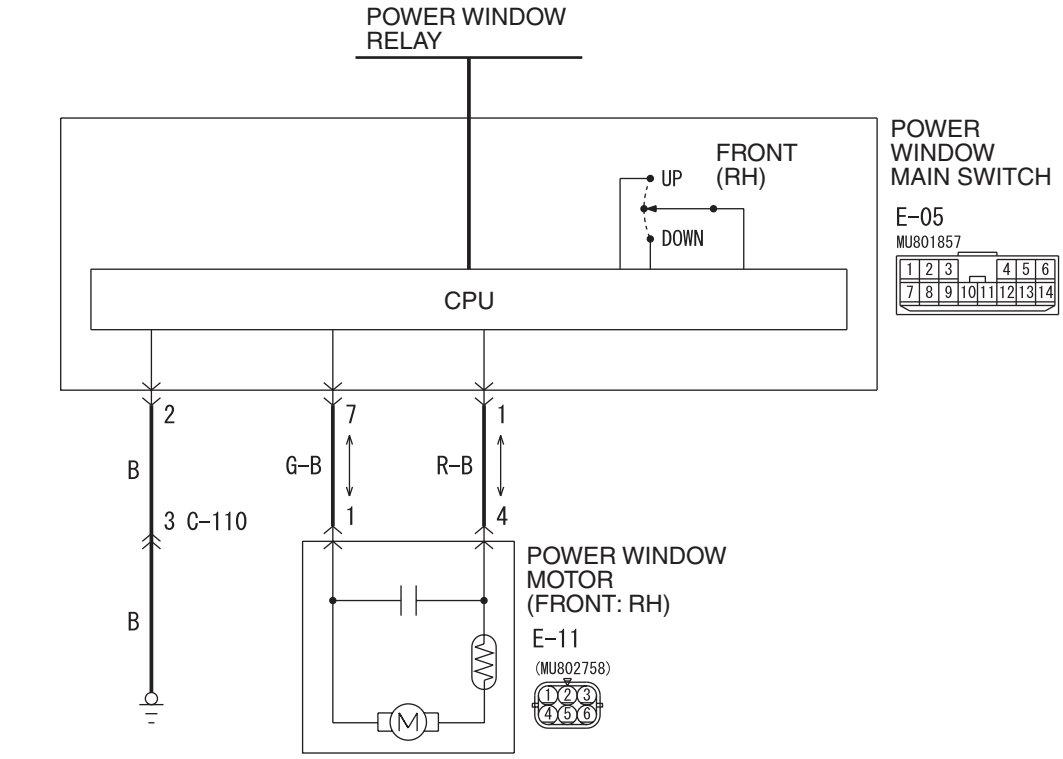
STEP 4. Retest the system.

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.00-5).
NO : Replace the front power window regulator motor assembly (LH).

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

Power Window (front: RH) Circuit <RHD>



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 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 regulator motor may be defective.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power window main switch.

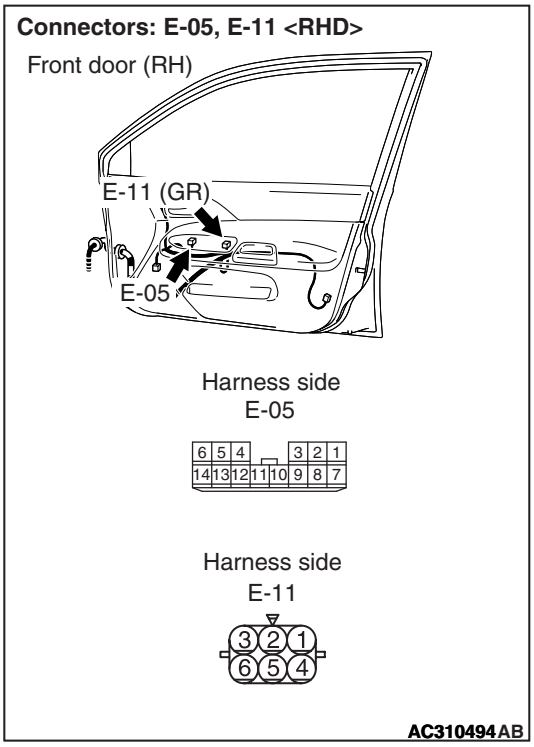
Check that all of the front passenger's and rear door power windows can operate by means of the power window main switch.

Q: Is the check result normal?

YES : Go to Step 2.

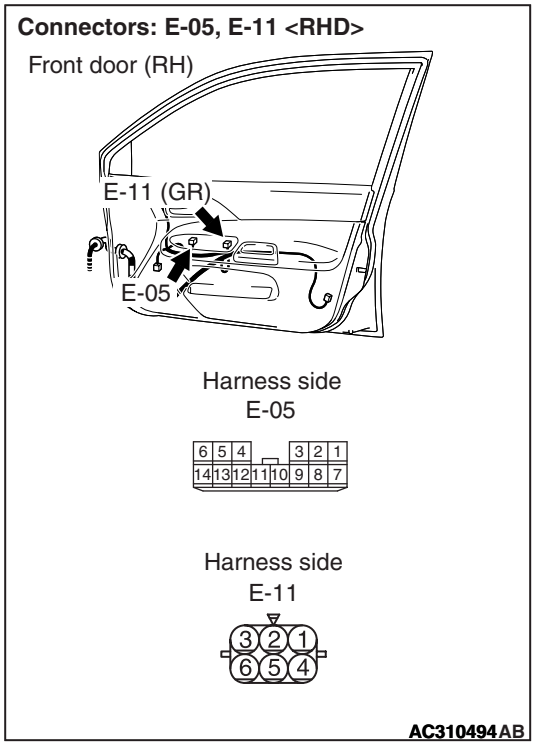
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-86."

STEP 2. Connector check: E-05 power window main switch connector and E-11 front power window regulator motor (RH) connector



Q: Are the check results normal?
YES : Go to Step 3.
NO : Repair the connector.

STEP 3. Check the wiring harness from E-11 front power window regulator 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 4.
NO : Repair the wiring harness.

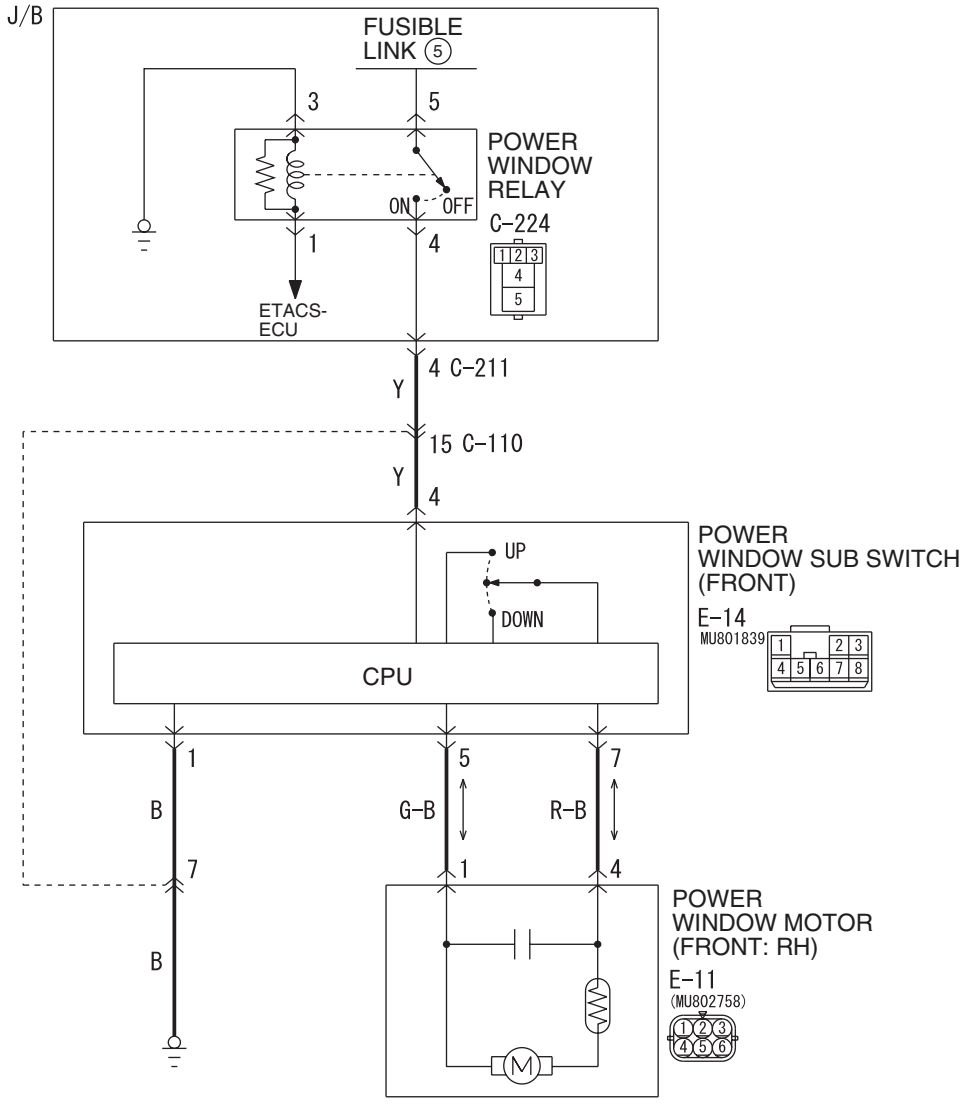
STEP 4. Retest the system.

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.00-5).
NO : Replace the front power window regulator 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.

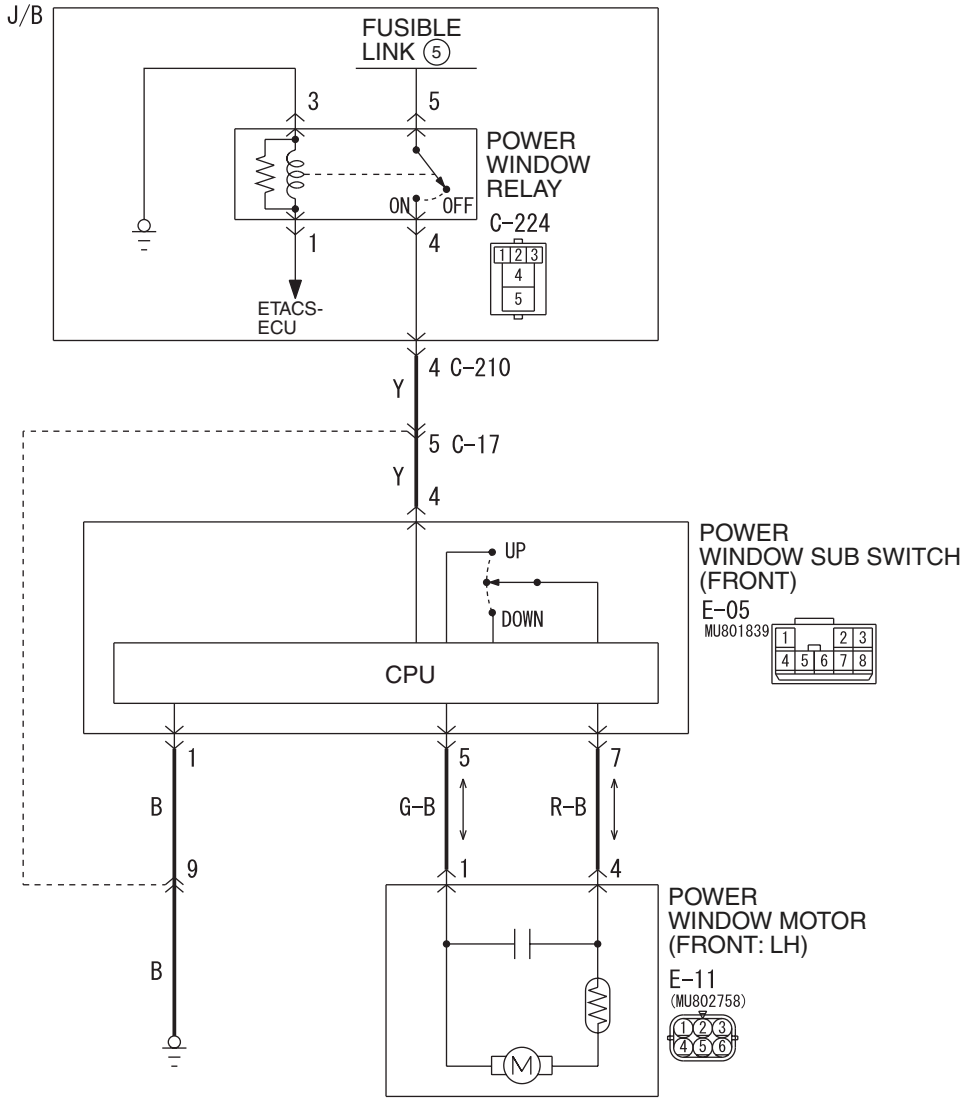
Power Window (front: RH) Circuit <LHD>



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

W4J54E101A

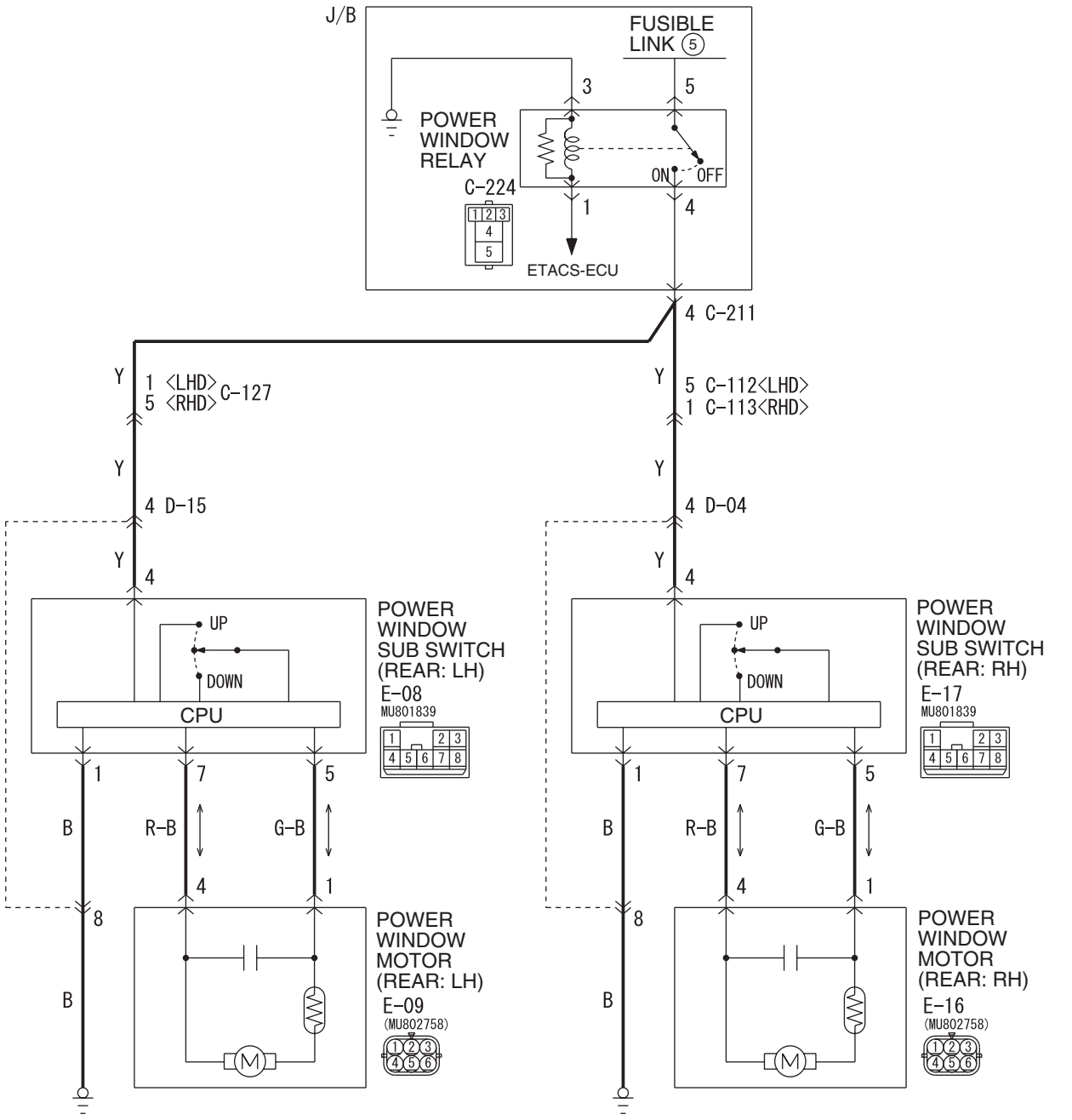
Power Window (front: LH) Circuit <RHD>



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

W4J54E102A

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 : Gray R : Red P : Pink V : Violet

W4J54E103A

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 regulator motor may be defective.

POSSIBLE CAUSES

- Malfunction of the front power window sub switch (RH) <LH drive vehicles>, front power window sub switch (LH) <RH drive vehicles>, power window sub switch (rear: RH) or power window sub switch (rear: LH)

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

DIAGNOSIS PROCEDURE

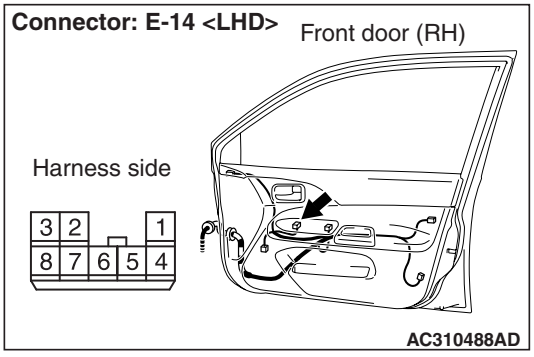
Step 1. Check the power window main switch.
Check that the power window lock switch is turned off.

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

Step 2. Determine a trouble spot.

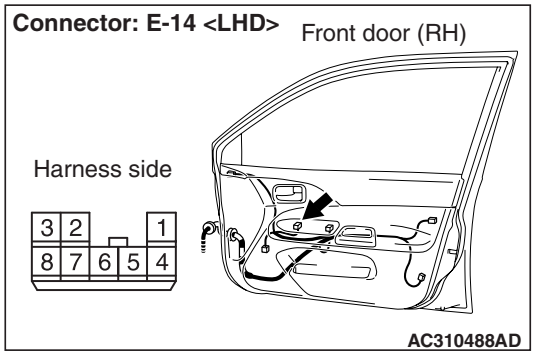
Q: Which power window does not work?
Front passenger's door <LH drive vehicles> : Go to Step 3.
Front passenger's door <RH drive vehicles> : Go to Step 12.
Rear right door : Go to Step 21.
Rear left door : Go to Step 30.

Step 3. Connector check: E-14 power window sub switch (front) connector

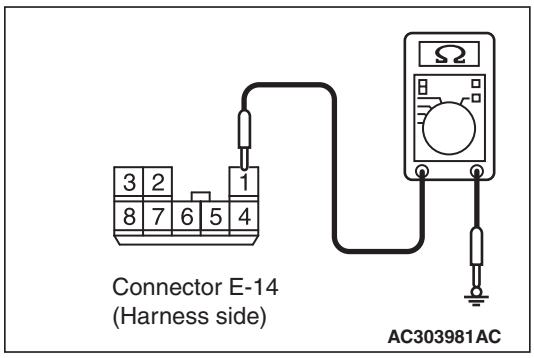


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

Step 4. Resistance measurement at E-14 power window sub switch (front) connector



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

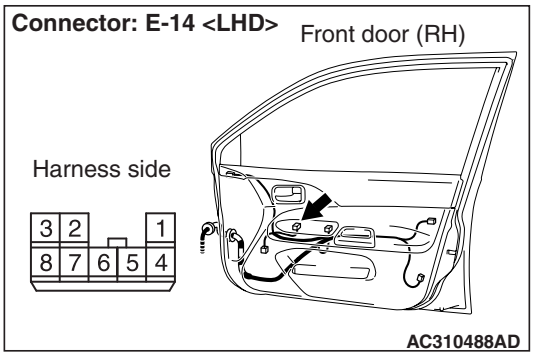


(2) Resistance between E-14 power window sub switch (front) connector terminal 1 and body earth

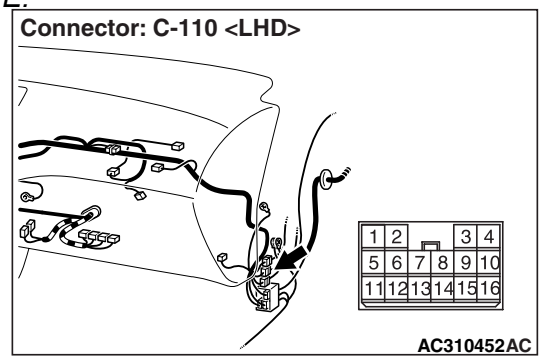
OK: 2Ω or less

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

Step 5. Check the wiring harness from E-14 power window sub switch (front) connector terminal No.1 to body earth.



NOTE:

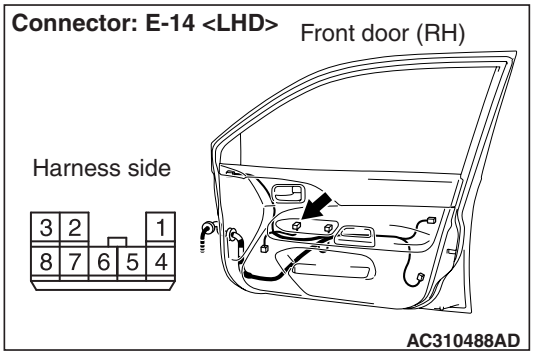


Prior to the wiring harness inspection, check intermediate connector C-110, and repair if necessary.

- Check the earth wires for open circuit.

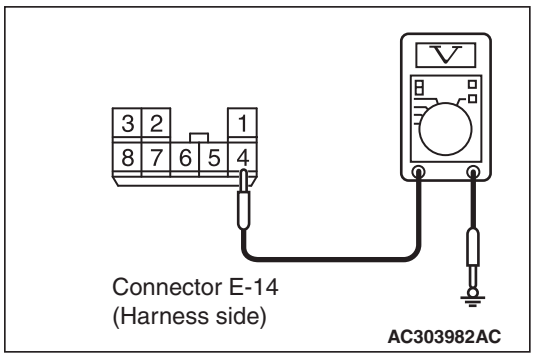
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 6. Voltage measurement at E-14 power window sub switch (front) connector



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

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

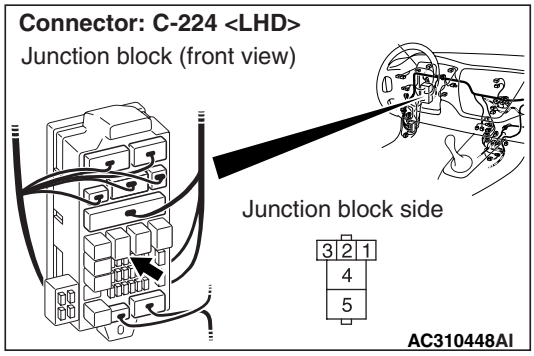


(3) Voltage between E-14 power window sub switch (front) connector terminal 4 and body earth

OK: System voltage

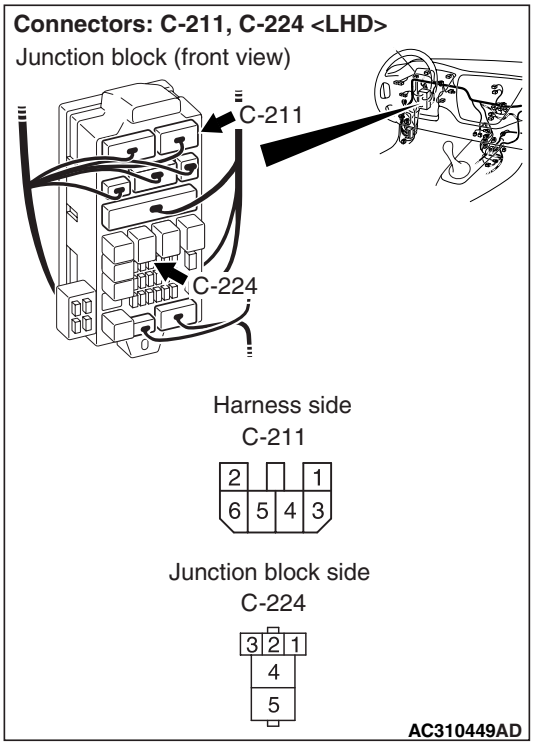
Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 7.

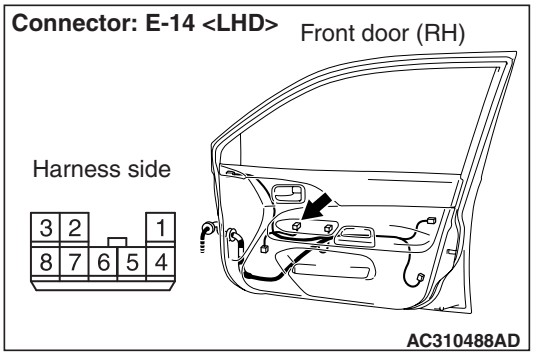
Step 7. Connector check: C-224 power window relay connector



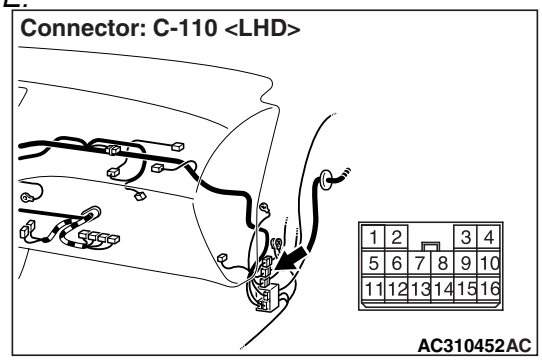
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

Step 8. Check the wiring harness from E-14 power window sub switch (front) connector terminal No.4 to C-224 power window relay connector terminal No.4.





NOTE:

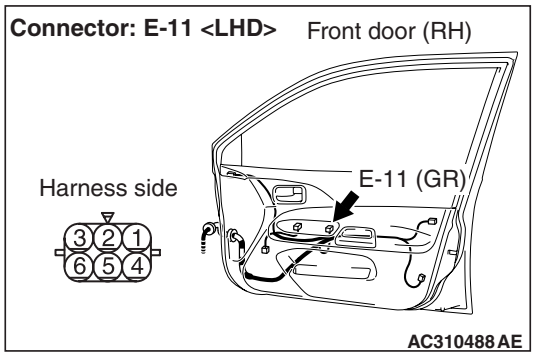


Prior to the wiring harness inspection, check intermediate connectors C-110 and junction block connector C-211, and repair if necessary.

- Check the power supply line for open circuit.

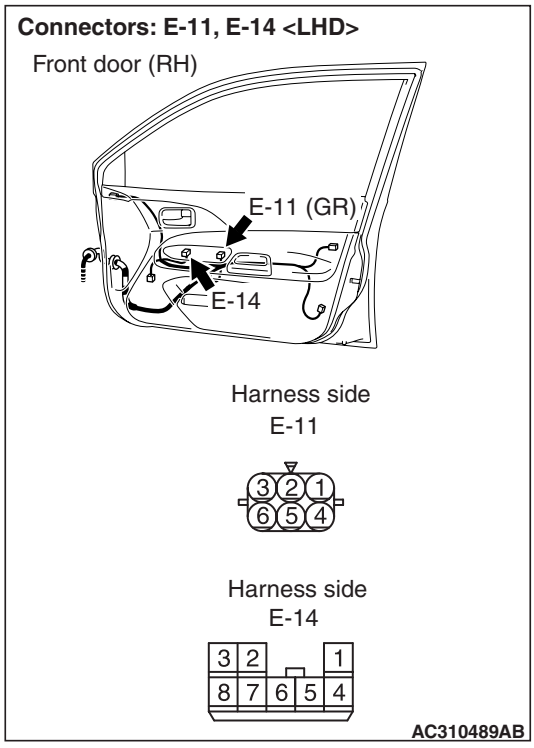
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 9. Connector check: E-11 front power window regulator motor (RH) connector



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

Step 10. Check the wiring harness from E-11 front power window regulator motor (RH) connector terminal Nos.1 and 4 to E-14 front power window sub switch (RH) connector terminal Nos.5 and 7.



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

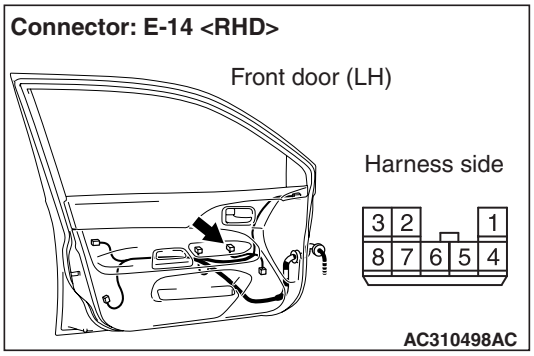
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the wiring harness.

Step 11. Retest the system.

After the front power window sub switch (RH) is replaced, check that the front passenger's door power window can be operated by the front power window sub switch (RH).
(1) Replace the front power window sub switch (RH).
(2) Check that the front passenger's door power window can be operated by the front power window sub switch (RH).

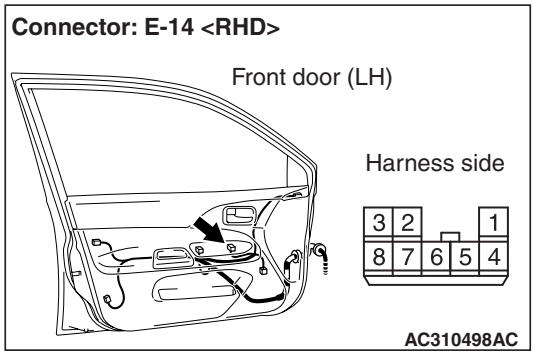
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the power window regulator motor assembly (front RH).

Step 12. Connector check: E-14 power window sub switch (front) connector

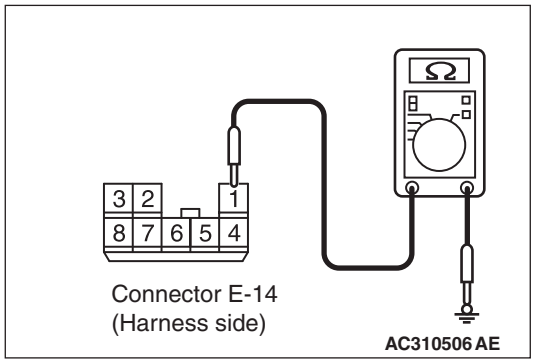


Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the connector.

Step 13. Resistance measurement at E-14 power window sub switch (front) connector



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

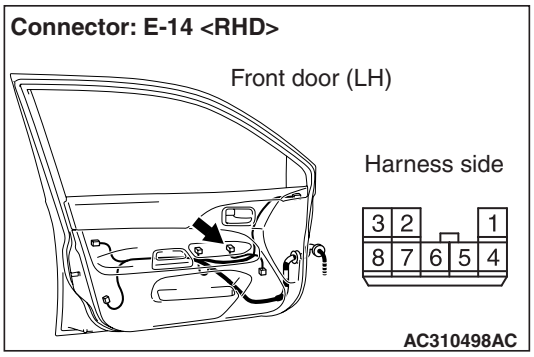


(2) Resistance between E-14 power window sub switch (front) connector terminal 1 and body earth

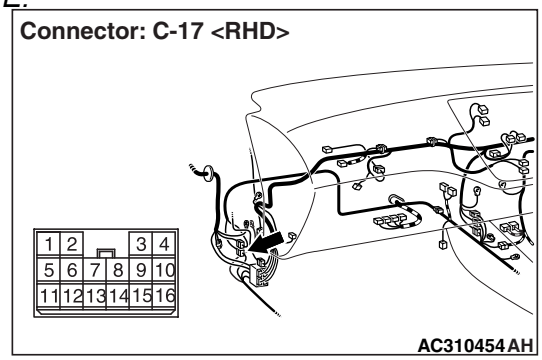
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 15.
NO : Go to Step 14.

Step 14. Check the wiring harness from E-14 power window sub switch (front) connector terminal No.1 to body earth.



NOTE:

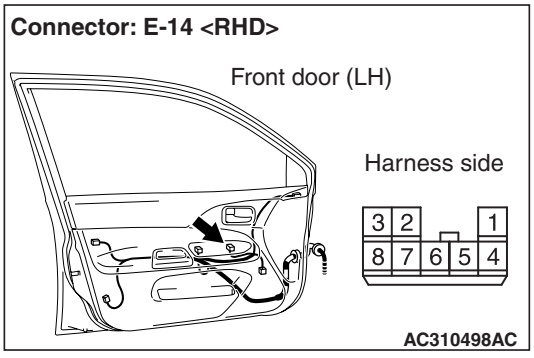


Prior to the wiring harness inspection, check intermediate connector C-17, and repair if necessary.

- Check the earth wires for open circuit.

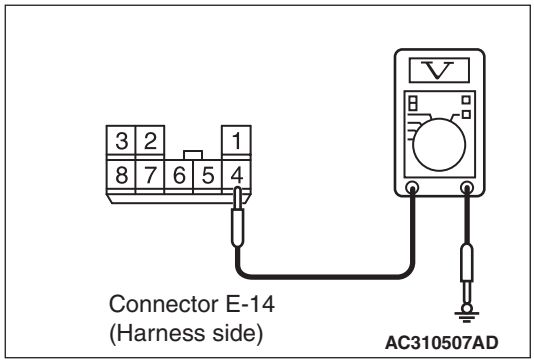
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 15. Voltage measurement at E-14 power window sub switch (front) connector



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

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

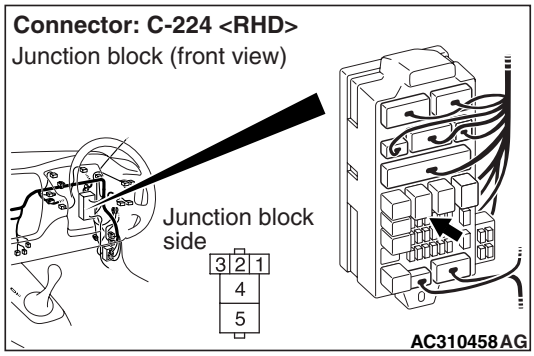


(3) Voltage between E-14 power window sub switch (front) connector terminal 4 and body earth

OK: System voltage

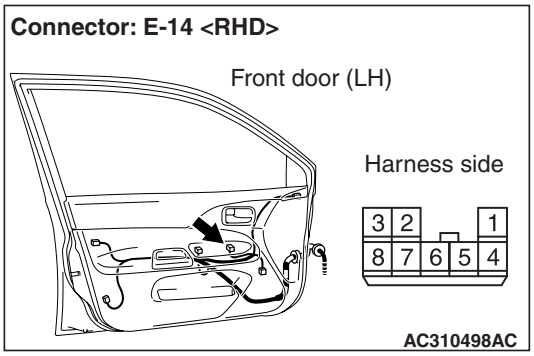
Q: Is the check result normal?
YES : Go to Step 18.
NO : Go to Step 16.

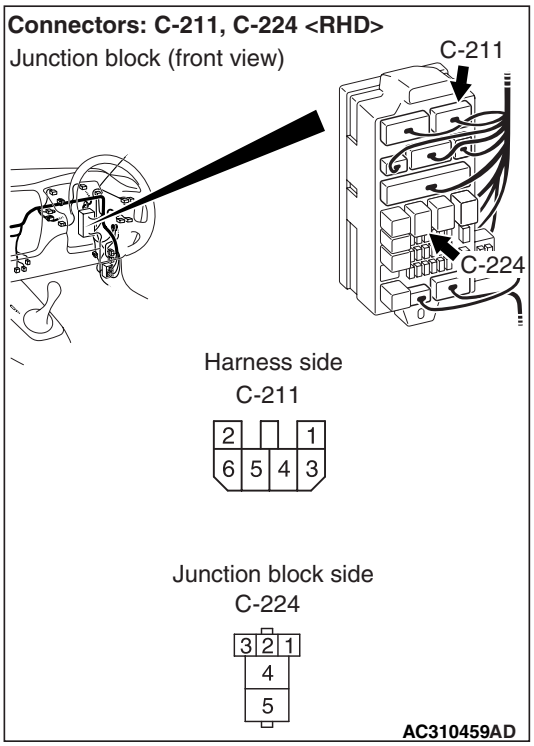
Step 16. Connector check: C-224 power window relay connector



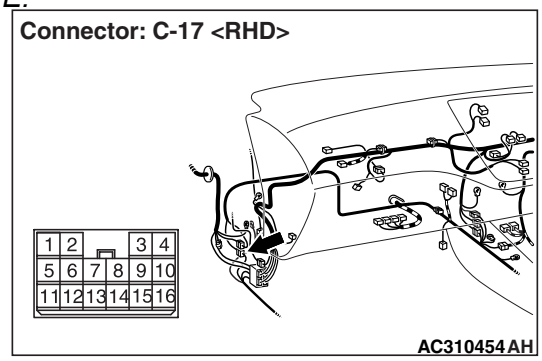
Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the connector.

Step 17. Check the wiring harness from E-14 power window sub switch (front) connector terminal No.4 to C-224 power window relay connector terminal No.4.





NOTE:

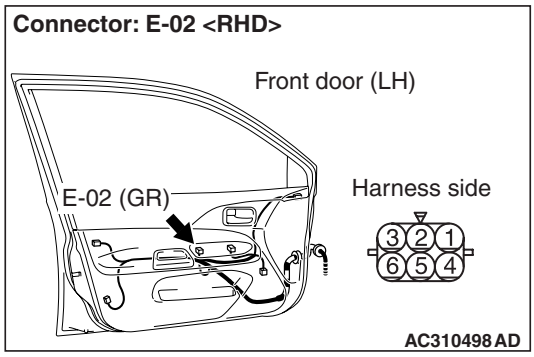


Prior to the wiring harness inspection, check intermediate connectors C-17 and junction block connector C-211, and repair if necessary.

- Check the power supply line for open circuit.

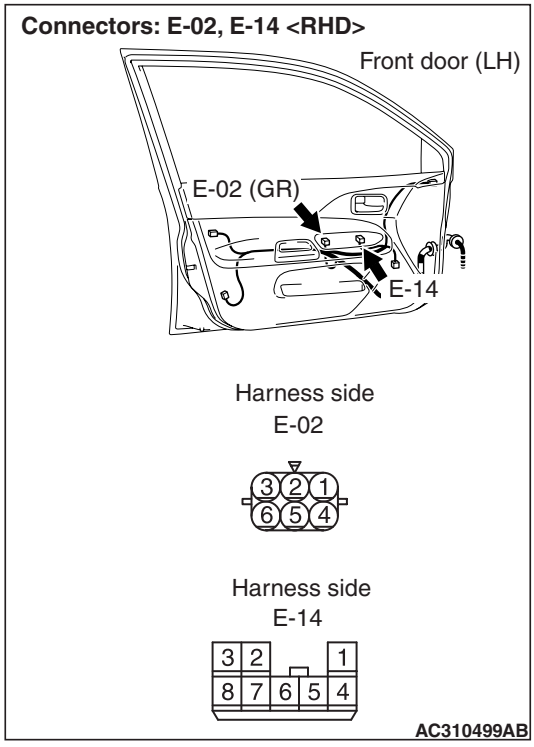
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 18. Connector check: E-11 front power window regulator motor (LH) connector



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

Step 19. Check the wiring harness from E-11 front power window regulator motor (LH) connector terminal Nos.1 and 4 to E-14 power window sub switch (front) connector terminal Nos.5 and 7.



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

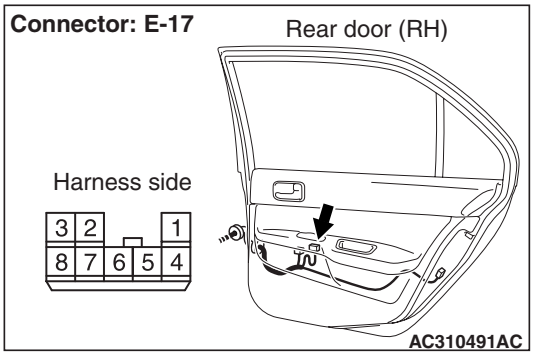
Q: Is the check result normal?
YES : Go to Step 20.
NO : Repair the wiring harness.

Step 20. Retest the system.

After the front power window sub switch (LH) is replaced, check that the front passenger's door power window can be operated by the front power window sub switch (LH).
(1) Replace the front power window sub switch (LH).
(2) Check that the front passenger's door power window can be operated by the front power window sub switch (LH).

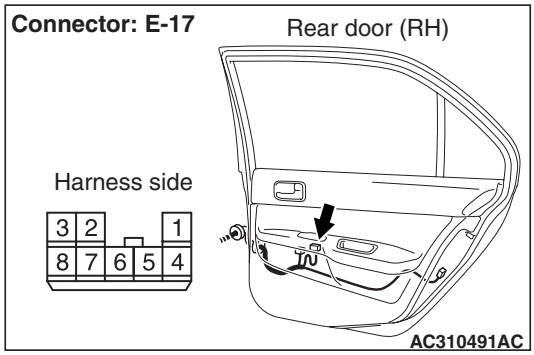
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the power window regulator motor assembly (front LH).

Step 21. Connector check: E-17 power window sub switch (rear: RH) connector

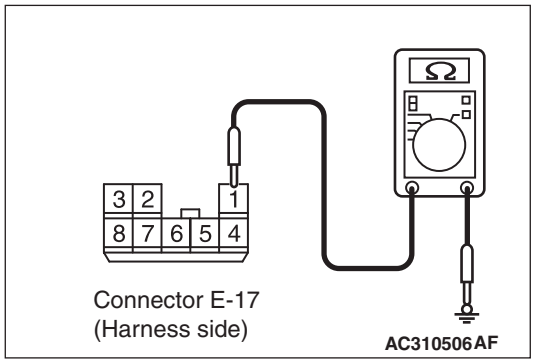


Q: Is the check result normal?
YES : Go to Step 22.
NO : Repair the connector.

Step 22. Resistance measurement at E-17 power window sub switch (rear: RH) connector



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

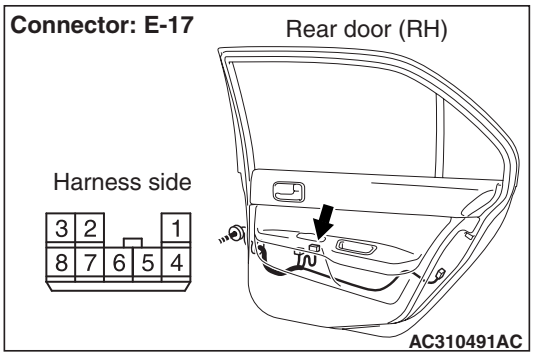


(2) Resistance between E-17 power window sub switch (rear: RH) connector terminal 1 and body earth

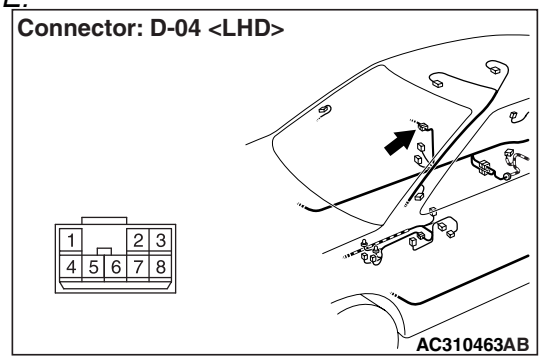
OK: 2Ω or less

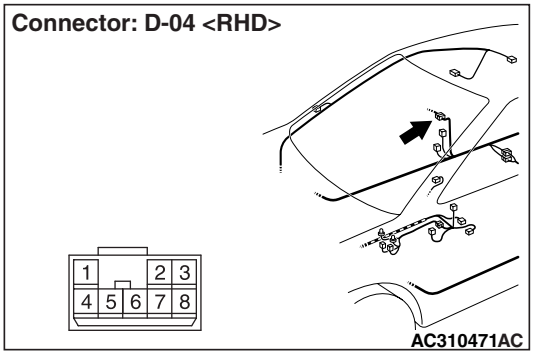
Q: Is the check result normal?
YES : Go to Step 24.
NO : Go to Step 23.

Step 23. Check the wiring harness from E-17 power window sub switch (rear: RH) connector terminal No.1 to body earth.



NOTE:





Prior to the wiring harness inspection, check intermediate connectors D-04, and repair if necessary.

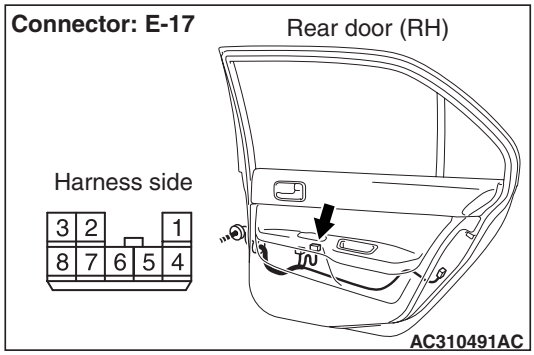
- Check the earth wires for open circuit.

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.00-5).

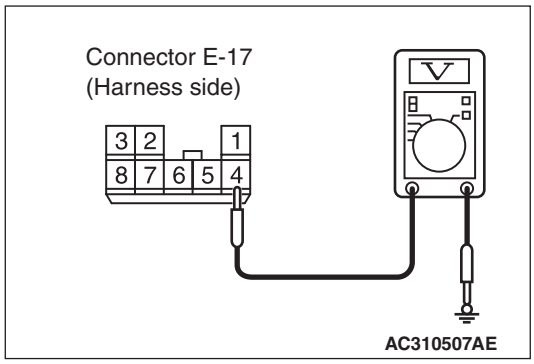
NO : Repair the wiring harness.

Step 24. Voltage measurement at E-17 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 E-17 power window sub switch (rear: RH) connector terminal 4 and body earth

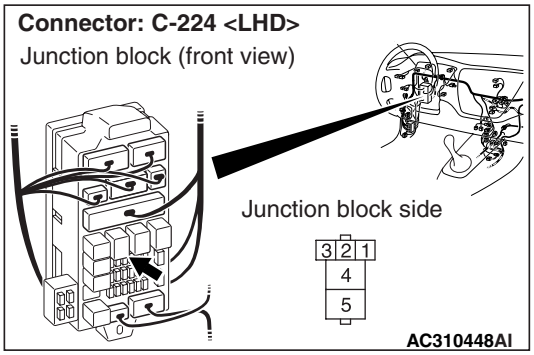
OK: System voltage

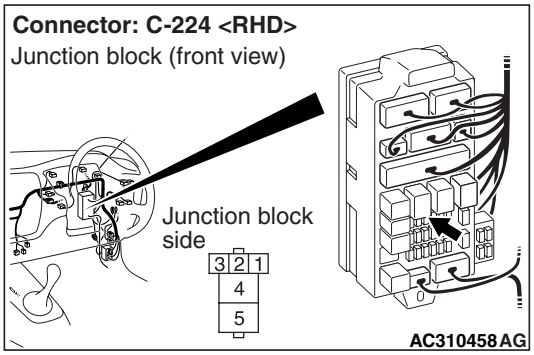
Q: Is the check result normal?

YES : Go to Step 27.

NO : Go to Step 25.

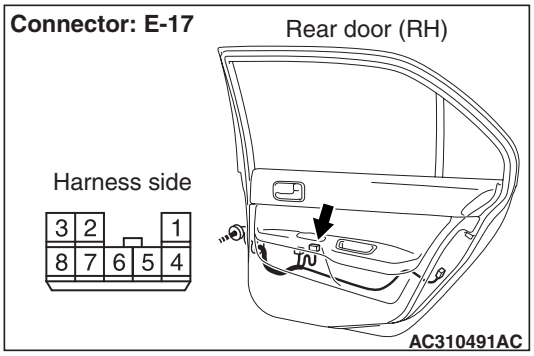
Step 25. Connector check: C-224 power window relay connector

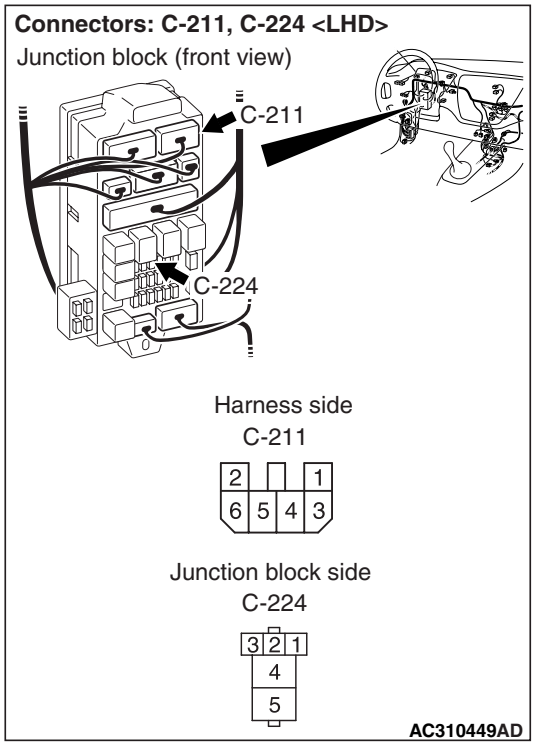


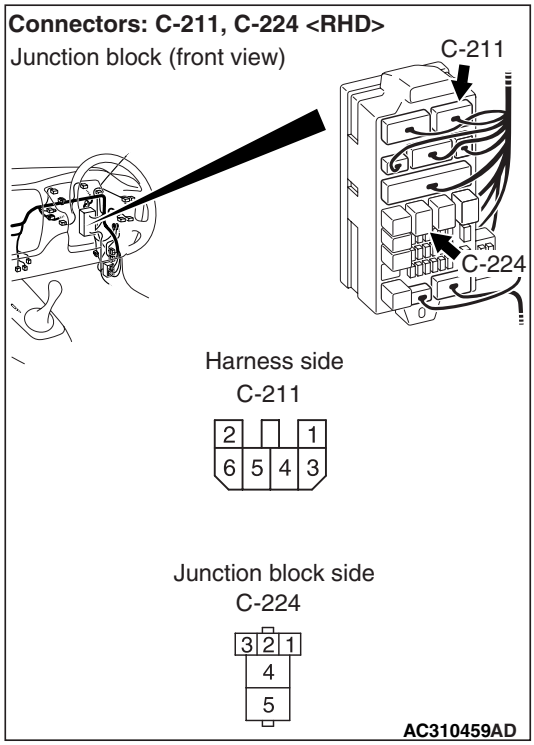


Q: Is the check result normal?
YES : Go to Step 26.
NO : Repair the connector.

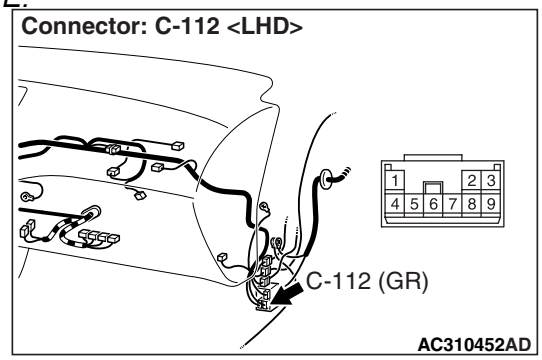
Step 26. Check the wiring harness from E-17 power window sub switch (rear: RH) connector terminal No.4 to C-224 power window connector terminal No.4.

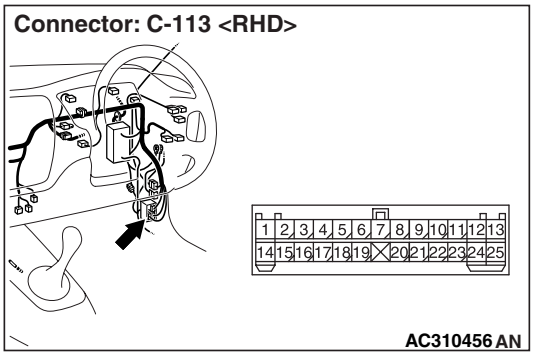


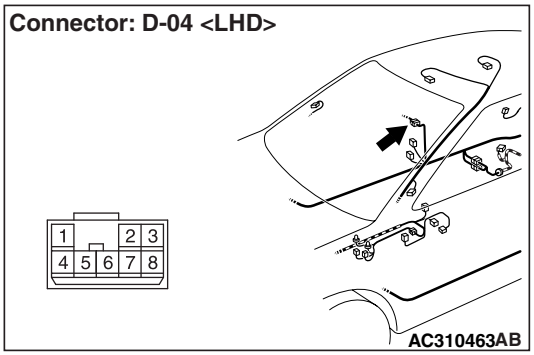


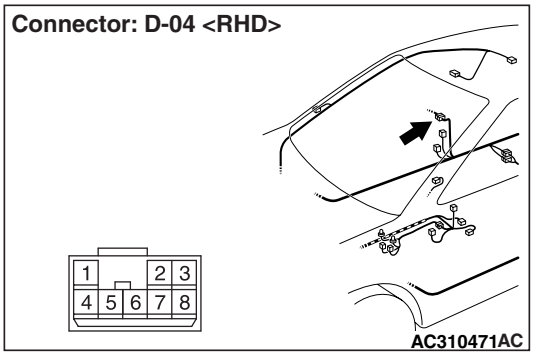


NOTE:







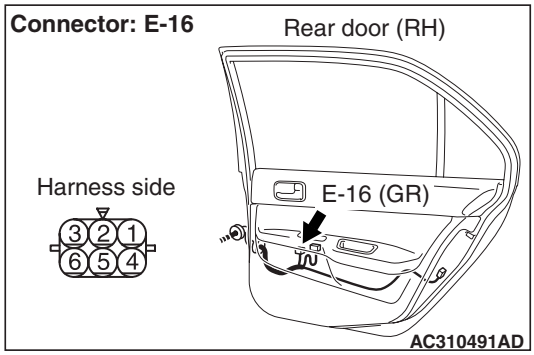


Prior to the wiring harness inspection, check intermediate connectors C-112 <LH drive vehicles>, C-113 <RH drive vehicles>, D-04 and junction block connector C-211, and repair if necessary.

- Check the power supply line for open circuit.

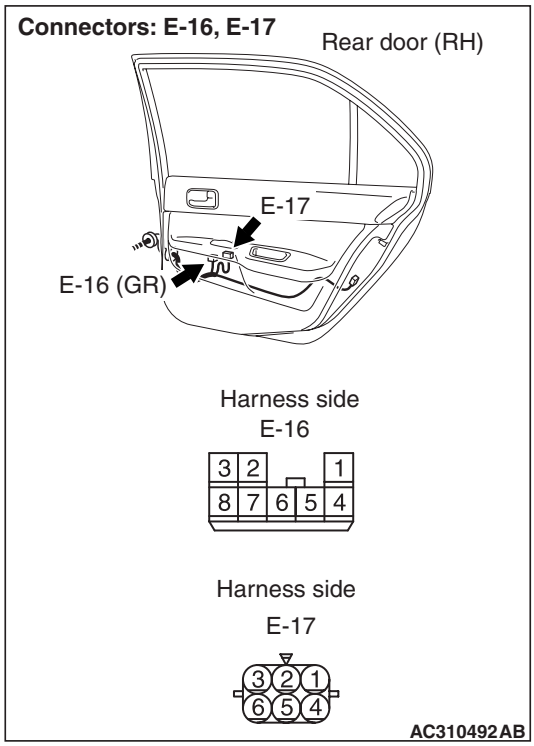
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 27. Connector check: E-16 power window regulator motor (rear: RH) connector



Q: Is the check result normal?
YES : Go to Step 28.
NO : Repair the connector.

Step 28. Check the wiring harness from E-16 power window regulator motor (rear: RH) connector terminal Nos.1 and 4 to E-17 power window sub switch (rear: RH) connector terminal Nos.5 and 7.



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

Q: Is the check result normal?
YES : Go to Step 29.
NO : Repair the wiring harness.

Step 29. Retest the system.

After the power window sub switch (rear: RH) is replaced, check that the rear right door power window can be operated by the power window sub switch (rear: RH).

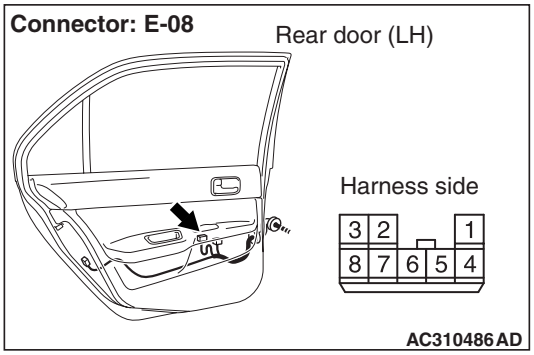
(1) Replace the power window sub switch (rear: RH).
(2) Check that the rear right door power window can be operated by the power window sub switch (rear: RH).

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.00-5).

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

Step 30. Connector check: E-08 power window sub switch (rear LH) connector

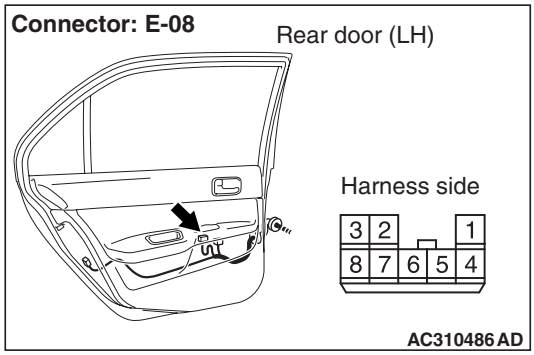


Q: Is the check result normal?

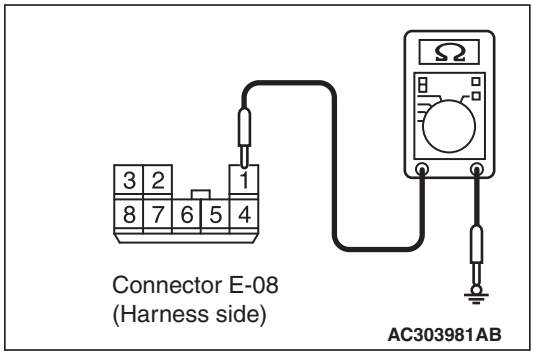
YES : Go to Step 31.

NO : Repair the connector.

Step 31. 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 E-08 power window sub switch (rear: LH) connector terminal 1 and body earth

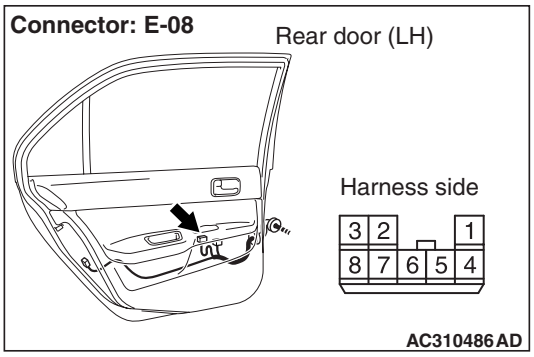
OK: 2Ω or less

Q: Is the check result normal?

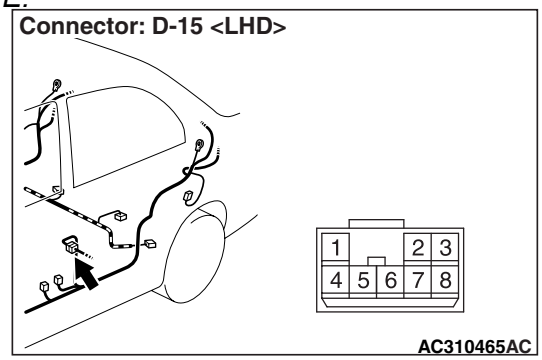
YES : Go to Step 33.

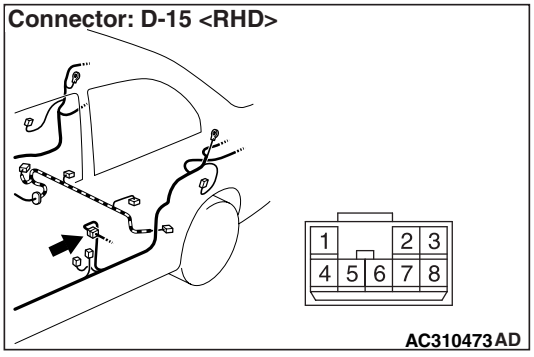
NO : Go to Step 32.

Step 32. Check the wiring harness from E-08 power window sub switch (rear: LH) connector terminal No.1 to body earth.



NOTE:





Prior to the wiring harness inspection, check intermediate connectors D-15, and repair if necessary.

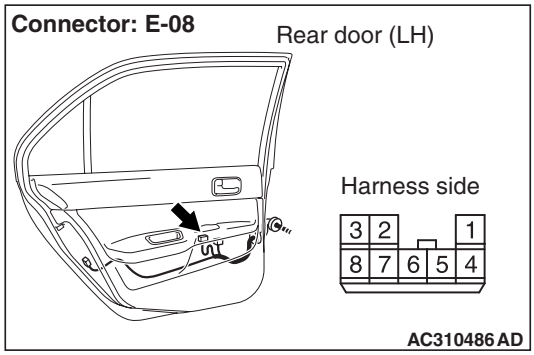
- Check the earth wires for open circuit.

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.00-5).

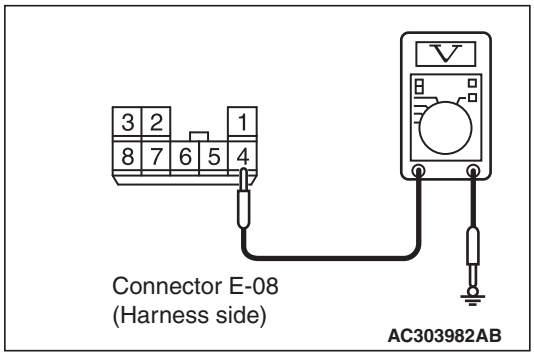
NO : Repair the wiring harness.

Step 33. 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 E-08 power window sub switch (rear: LH) connector terminal 4 and body earth

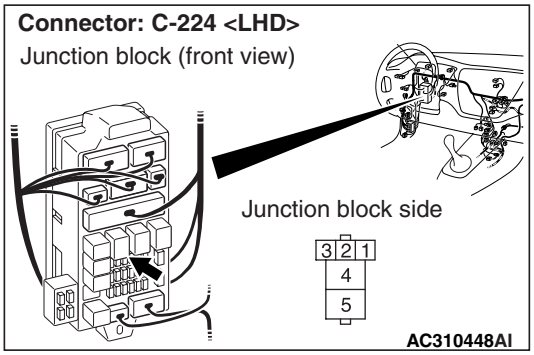
OK: System voltage

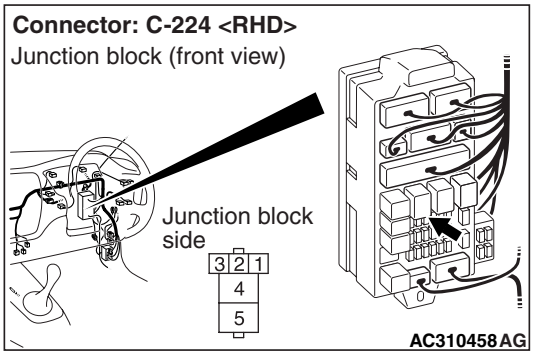
Q: Is the check result normal?

YES : Go to Step 36.

NO : Go to Step 34.

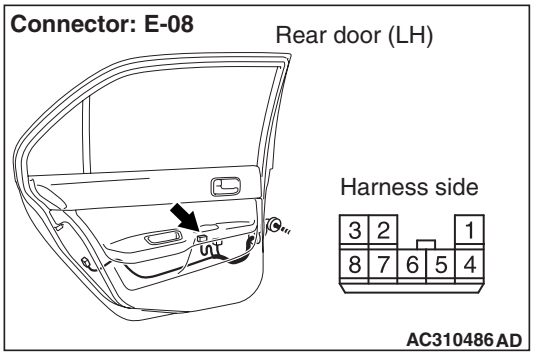
Step 34. Connector check: C-224 power window relay connector

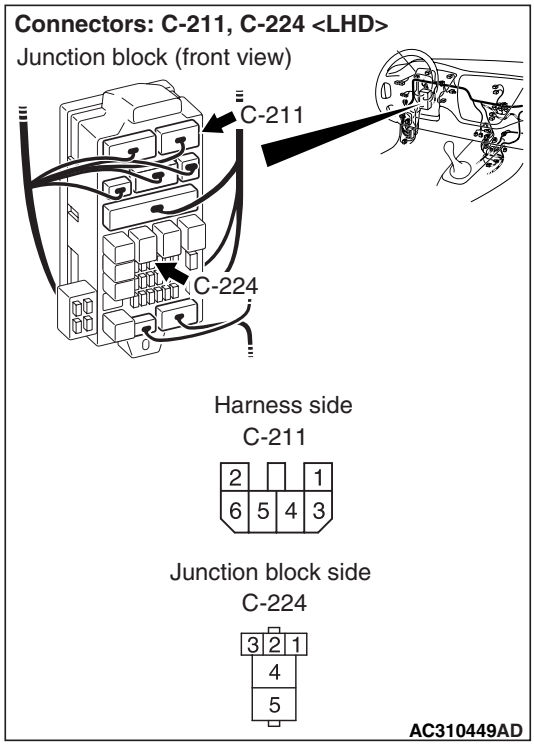


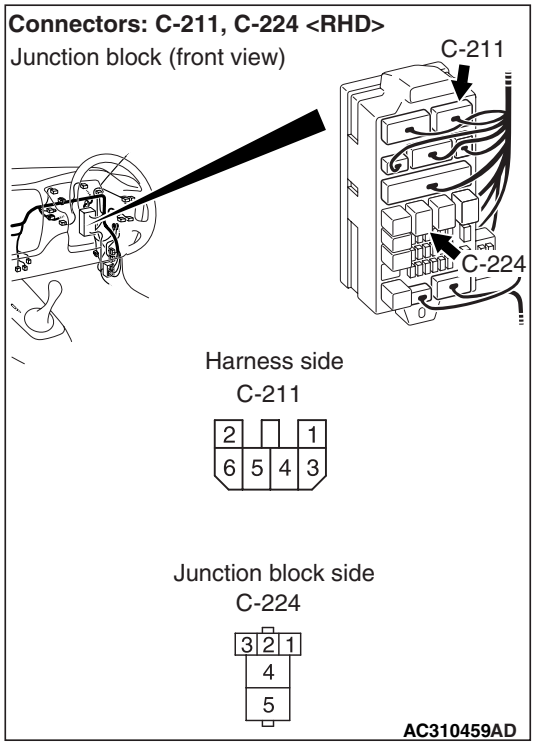


Q: Is the check result normal?
YES : Go to Step 35.
NO : Repair the connector.

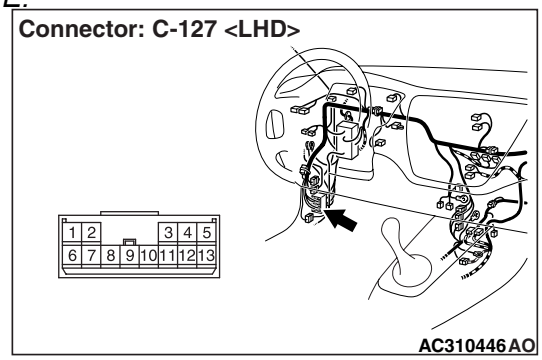
Step 35. Check the wiring harness from E-08 power window sub switch (rear: LH) connector terminal No.4 to C-224 power window relay connector terminal No.4.

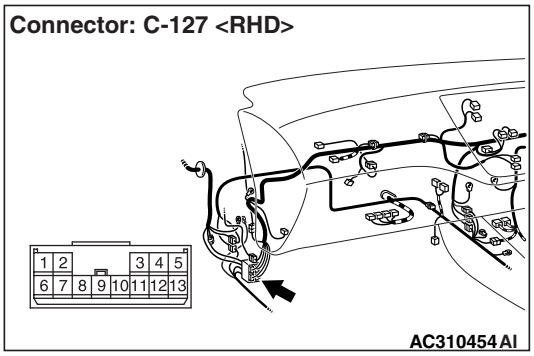


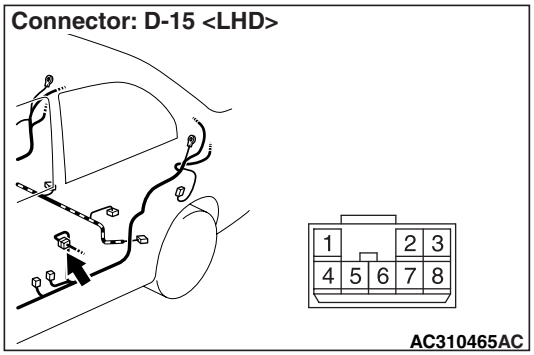


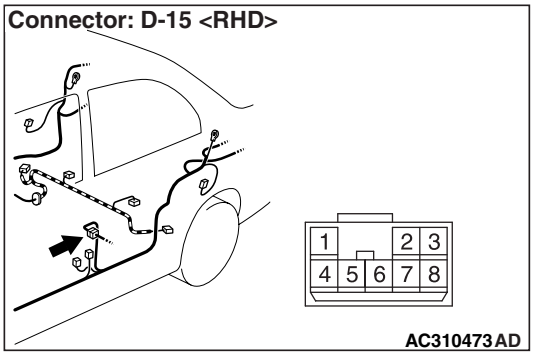


NOTE:









Prior to the wiring harness inspection, check intermediate connectors C-127, D-15 and junction block connector C-211, and repair if necessary.

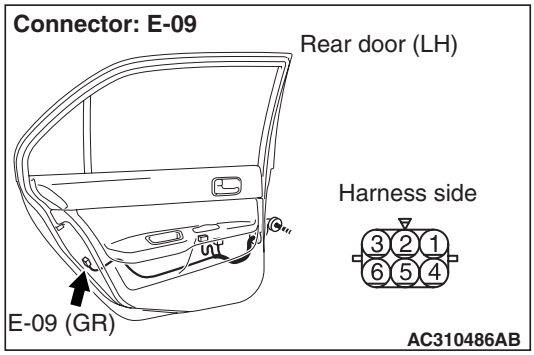
- Check the power supply line for open circuit.

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.00-5).

NO : Repair the wiring harness.

Step 36. Connector check: E-09 power window regulator motor (rear: LH) connector

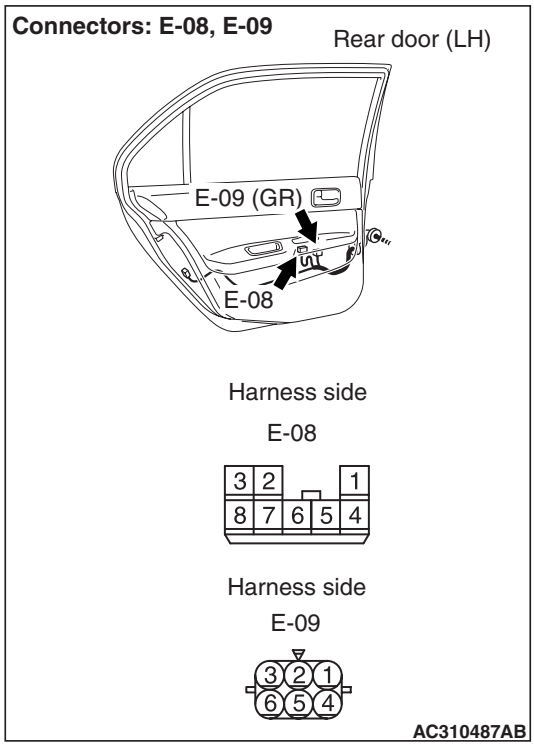


Q: Is the check result normal?

YES : Go to Step 37.

NO : Repair the connector.

Step 37. Check the wiring harness from E-09 power window regulator motor (rear: LH) connector terminal Nos.1 and 4 to E-08 power window sub switch (rear: LH) connector terminal Nos.5 and 7.



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

Q: Is the check result normal?

YES : Go to Step 38.

NO : Repair the wiring harness.

Step 38. Retest the system.

After the power window sub switch (rear: LH) is replaced, check that the rear left door power window can be operated by the power window sub switch (rear: LH).

(1) Replace the power window sub switch (rear: LH).
(2) Check that the rear left door power window can be operated by the power window sub switch (rear: LH).

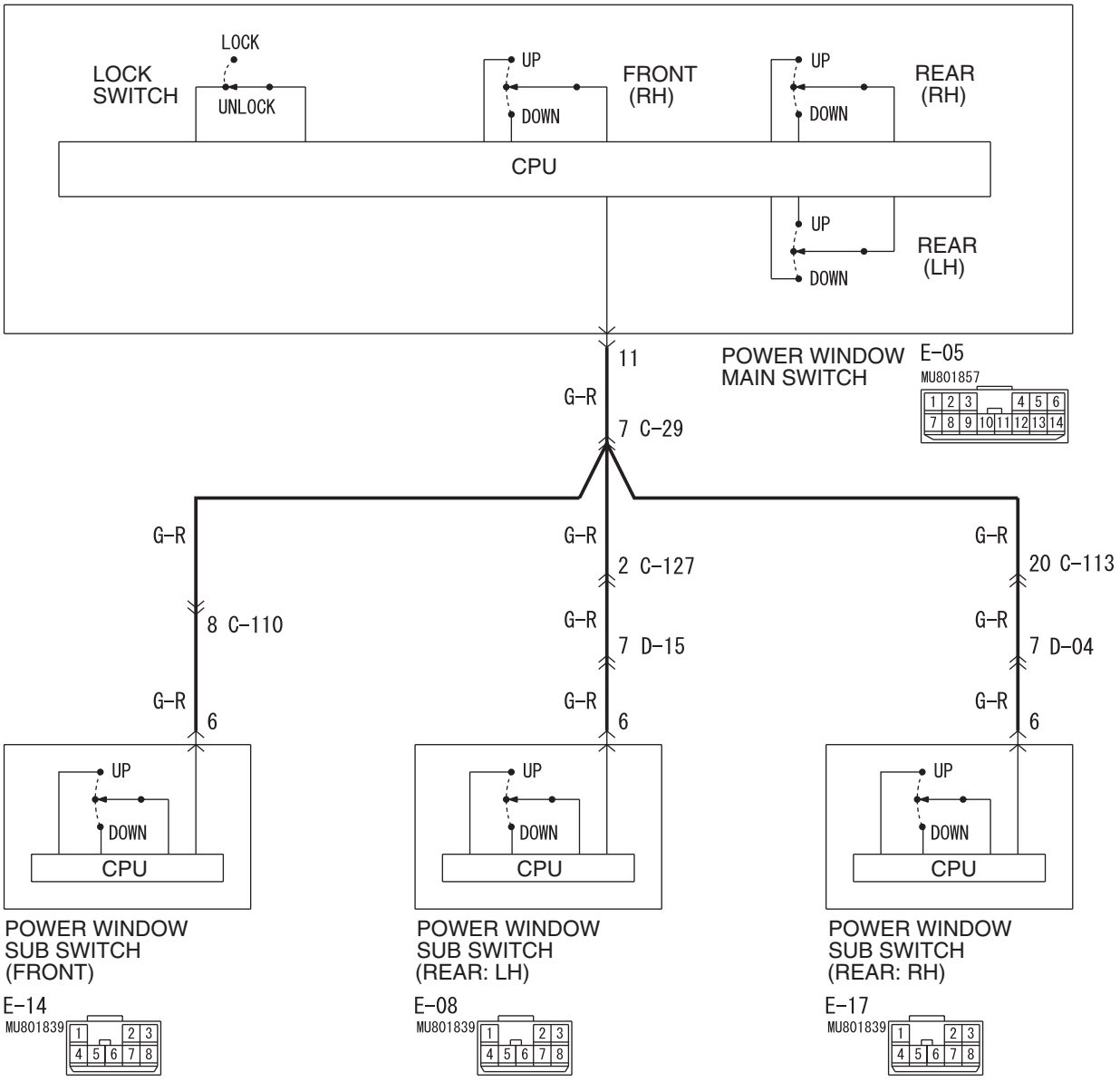
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

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

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

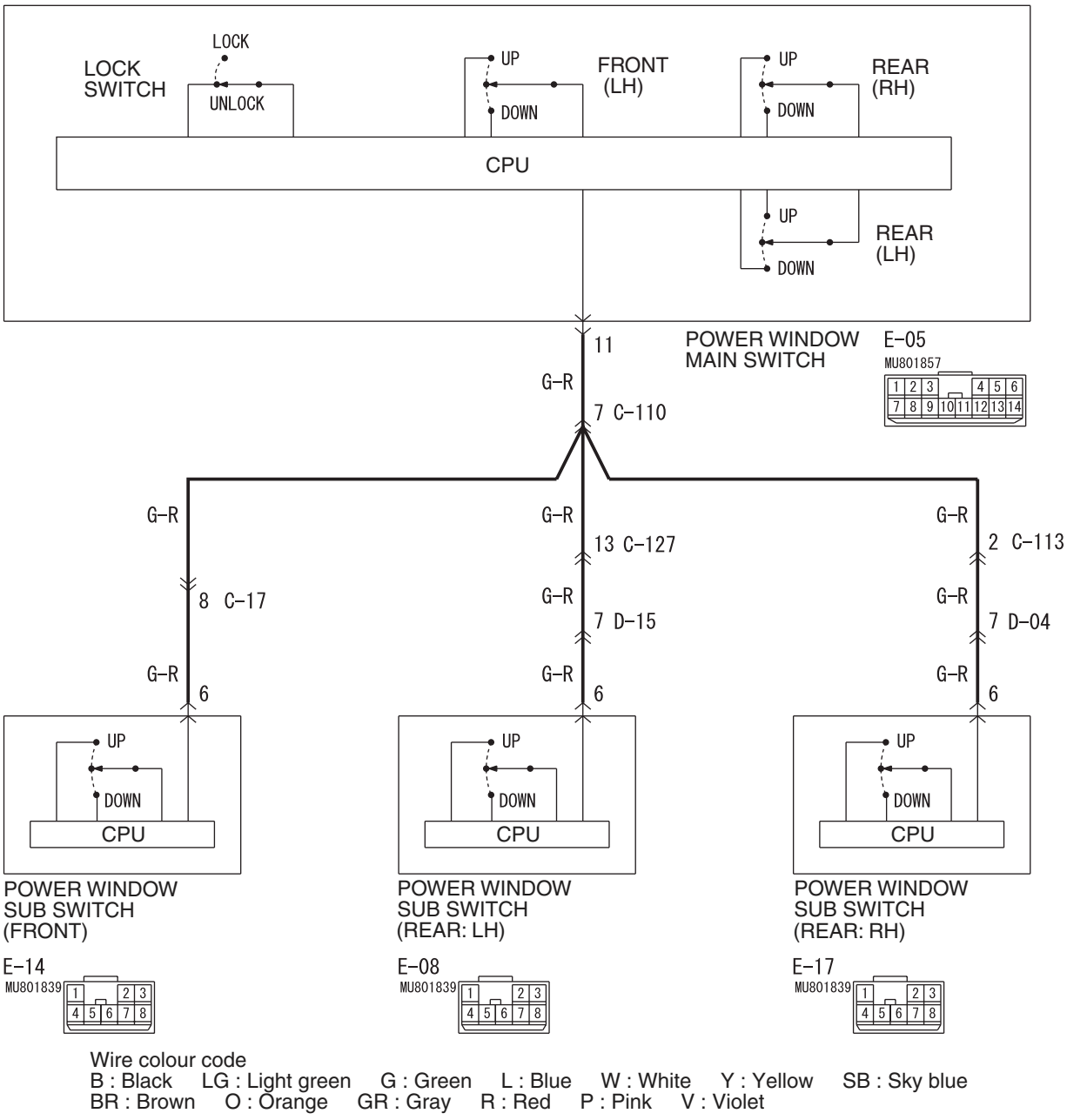
Power Window Circuit <LHD>



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

W4J54E104A

Power Window Circuit <RHD>



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

W4J54E105A

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.

POSSIBLE CAUSES

- Malfunction of the power window main switch
- Malfunction of the front power window sub switch (RH), rear power window sub switch (RH) or rear power window sub switch (LH)
- 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 power window main switch (power window module) and the SWS communication lines are normal.
- Turn the ignition switch to the ON position.

ECUS TO BE CHECKED
- P/W MODULE

OK: "OK" is displayed on the "P/W MODULE" menu.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure A-5 "Communication with the power window main switch (power window module) is not possible P.54C-47."

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 : Go to Step 3.
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-93."

Step 3. Door communication by using the SWS monitor.
Check the SWS communication signal from the power window lock switch to the ETACS-ECU.

<Selected item> DOOR CNT. COM.
- Insert a probe between a power window sub switch of a door of which power window does not work and the power window main switch (For the insertion point, refer to P.54C-5).
- Turn the ignition switch to the ON position.
- Power window lock switch: OFF

Item No.	Item name	Normal condition
Item CB	P/W LOCK SW	OFF

OK: Normal condition is displayed.

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

Step 4. Door communication by using the SWS monitor.
Check the SWS communication signals, which are used when the front and/or rear passenger's door power windows are operated by the power window main switch.

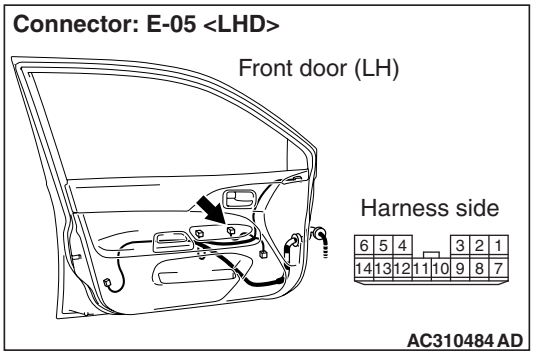
<Selected item> DOOR CNT. COM.
- Insert a probe between a power window sub switch of a door of which power window does not work and the power window main switch (For the insertion point, refer to P.54C-5).
- Turn the ignition switch to the ON position.
- Are normal conditions displayed when each switch of the power window main switch is operated?

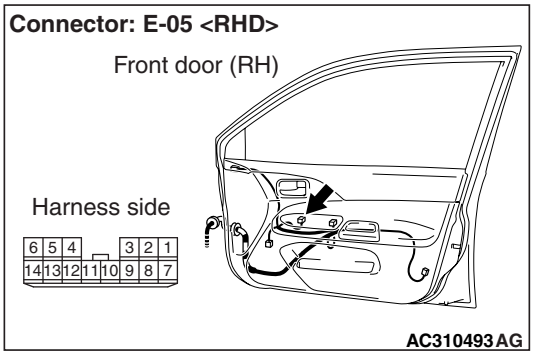
Item No.	Item name	Normal condition
Item C0	PASS DOR UP	ON
Item C1	PASS DOR DOWN	ON
Item C2	PASS DOR AUTO	ON
Item C4	REAR RH UP	ON
Item C5	REAR RH DOWN	ON
Item C6	REAR RH AUTO	ON
Item C8	REAR LH UP	ON
Item C9	REAR LH DOWN	ON
Item CA	REAR LH AUTO	ON

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
Normal conditions are displayed for all of items C0, C1 and C2 when the front passenger's power window does not work. : Go to Step 5.
Normal conditions are displayed for none of items C0, C1 and C2 when the front passenger's power window does not work. : Go to Step 7.
Normal conditions are displayed for all of items C4, C5 and C6 when the rear right power window does not work. : Go to Step 10.
Normal conditions are displayed for none of items C4, C5 and C6 when the rear right power window does not work. : Go to Step 12.
Normal conditions are displayed for all of items C8, C9 and CA when the rear left power window does not work. : Go to Step 15.
Normal conditions are displayed for none of items C8, C9 and CA when the rear left power window does not work. : Go to Step 17.
Normal condition is displayed for any of the items. : Replace the power window main switch.

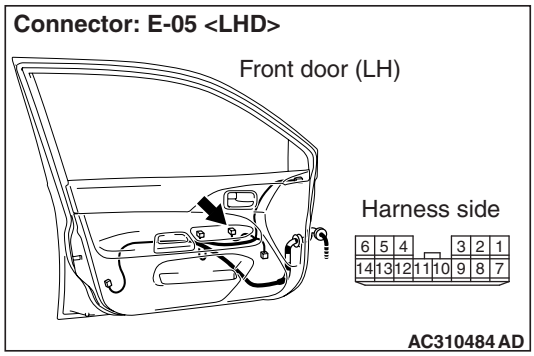
Step 5. Connector check: E-05 power window main switch connector

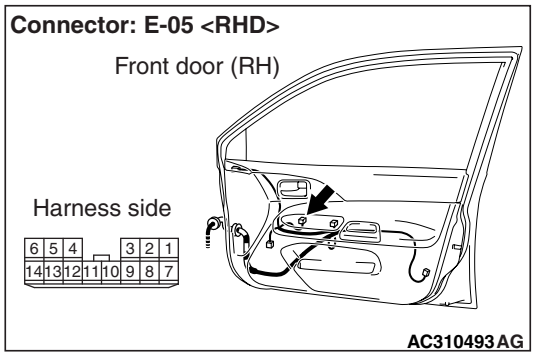




Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

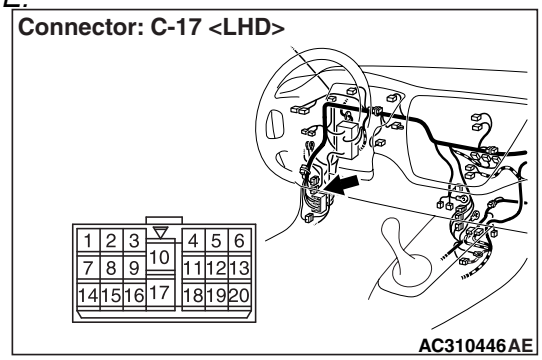
Step 6. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.





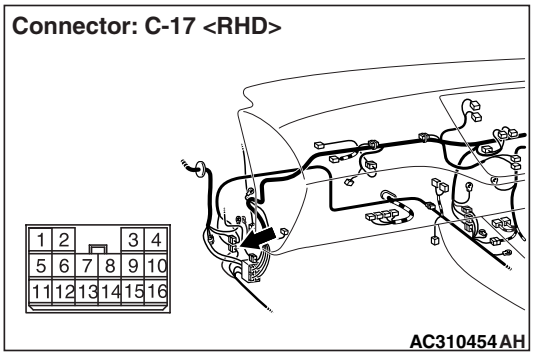
NOTE:

Connector: C-17 <LHD>



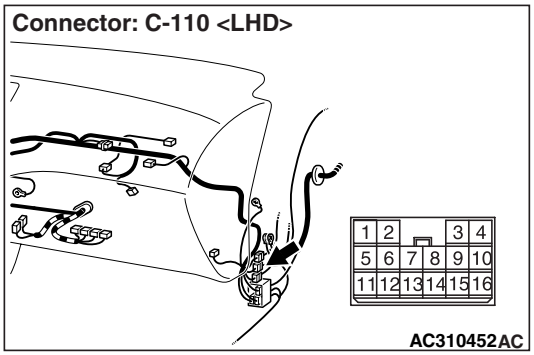
AC310446AE

Connector: C-17 <RHD>



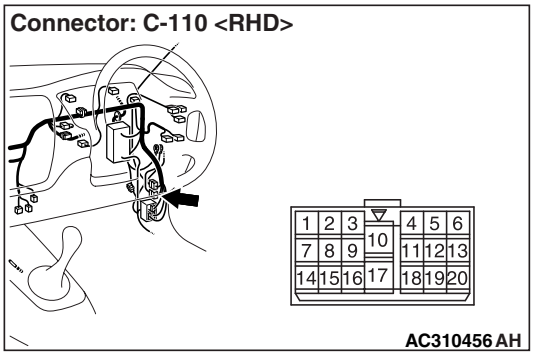
AC310454AH

Connector: C-110 <LHD>



AC310452AC

Connector: C-110 <RHD>



AC310456AH

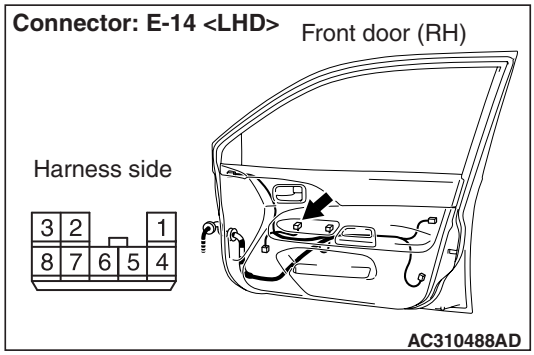
Prior to the wiring harness inspection, check intermediate connectors C-17, C-110, and repair if necessary.

- Check the communication lines for open circuit.

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

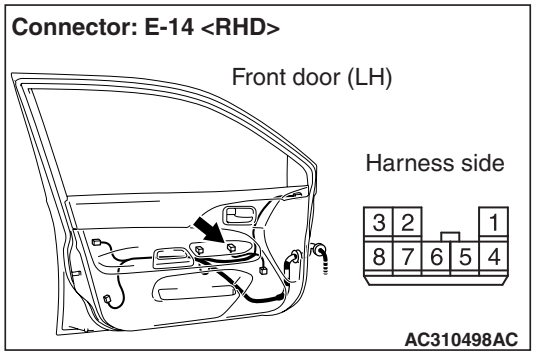
Step 7. Connector check: E-14 front power window sub switch (LH) connector

Connector: E-14 <LHD>



AC310488AD

Connector: E-14 <RHD>

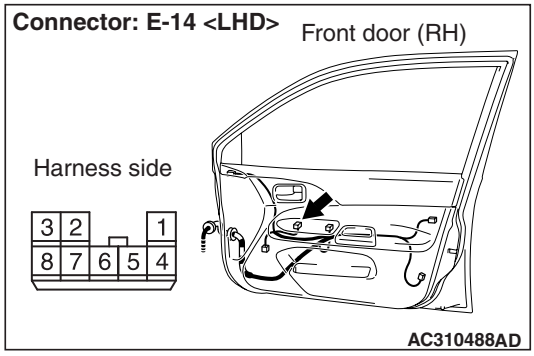


AC310498AC

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

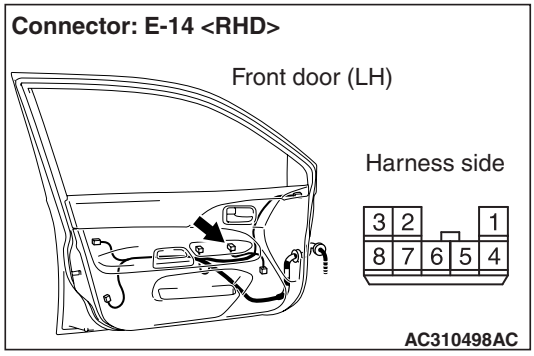
Step 8. Check the wiring harness from E-14 front power window sub switch (LH) connector terminal No.6 to the inserted probe.

Connector: E-14 <LHD>



AC310488AD

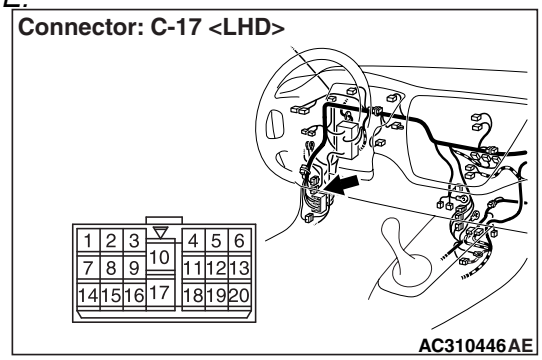
Connector: E-14 <RHD>



AC310498AC

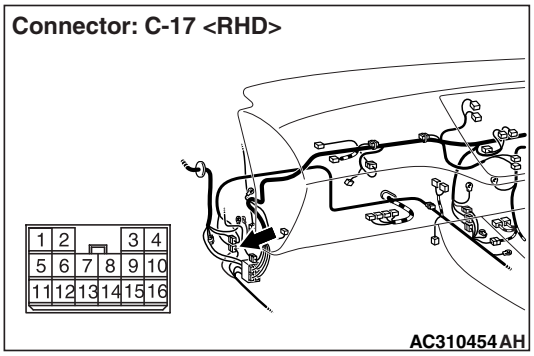
NOTE:

Connector: C-17 <LHD>



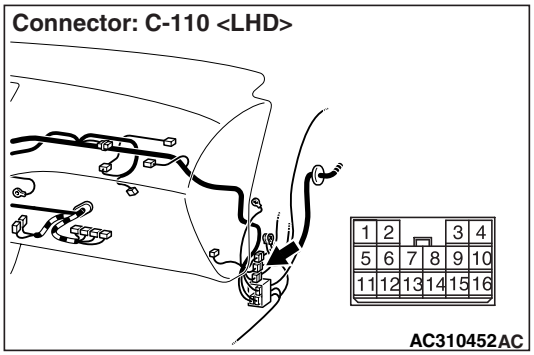
AC310446AE

Connector: C-17 <RHD>



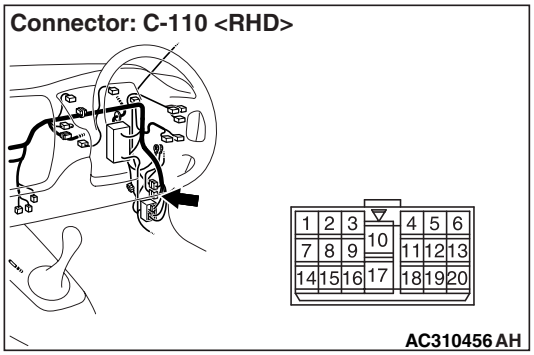
AC310454AH

Connector: C-110 <LHD>



AC310452AC

Connector: C-110 <RHD>



AC310456AH

Prior to the wiring harness inspection, check intermediate connectors C-17, C-110, 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. Retest the system.

After the front power window sub switch (LH) is replaced, check that the front passenger's door power window can be operated by the power window sub switch.

(1) Replace the front power window sub switch (LH).

(2) Check that the front passenger's power window works by means of the power window main switch.

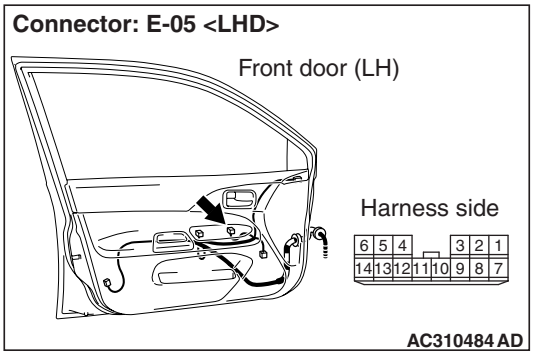
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the power window main switch.

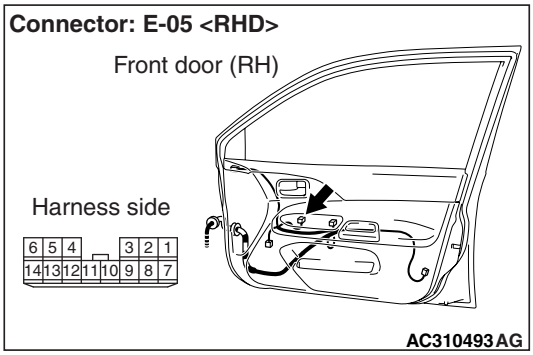
Step 10. Connector check: E-05 power window main switch connector

Connector: E-05 <LHD>



AC310484AD

Connector: E-05 <RHD>



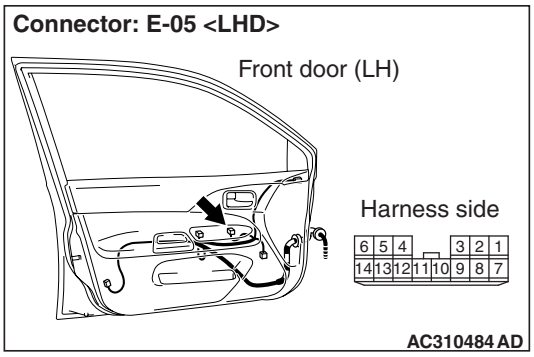
AC310493AG

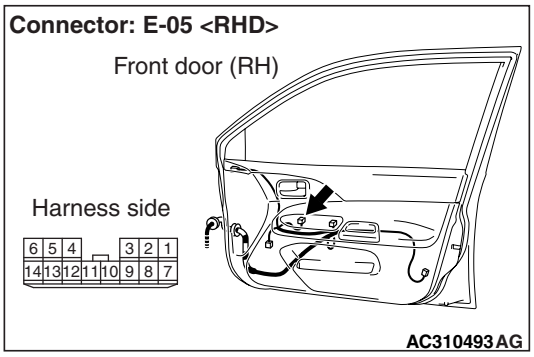
Q: Is the check result normal?

YES : Go to Step 11.

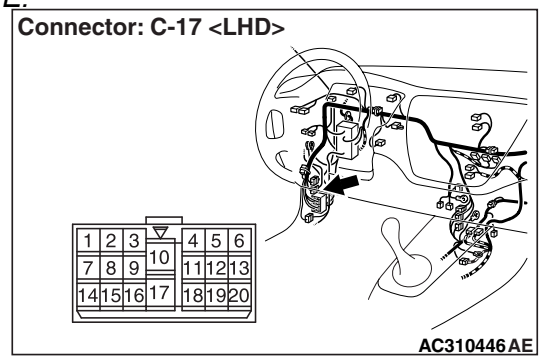
NO : Repair the connector.

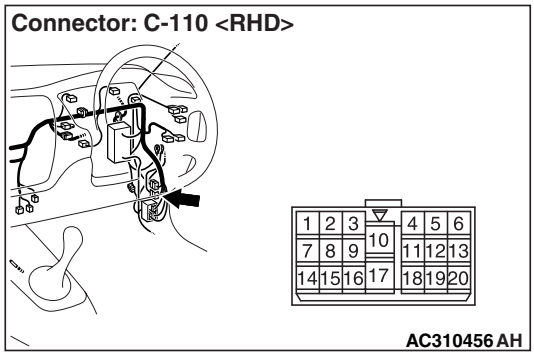
Step 11. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.

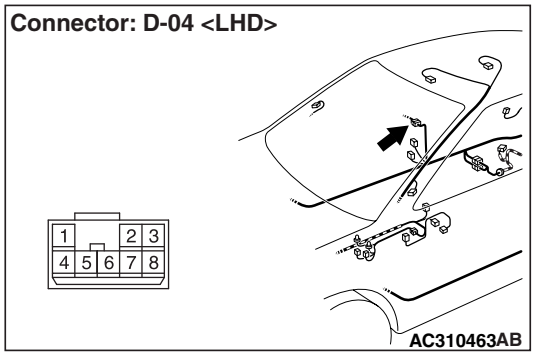


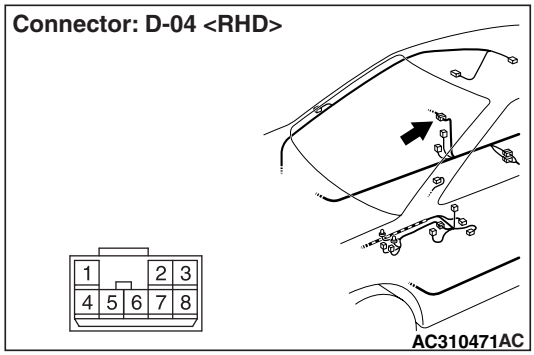


NOTE:









Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles>, C-110 <RH drive vehicles>, D-04, and repair if necessary.

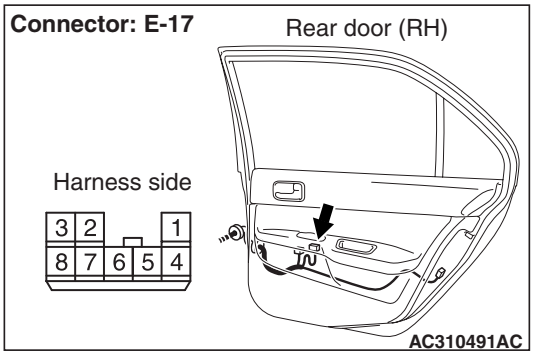
- Check the communication lines for open circuit.

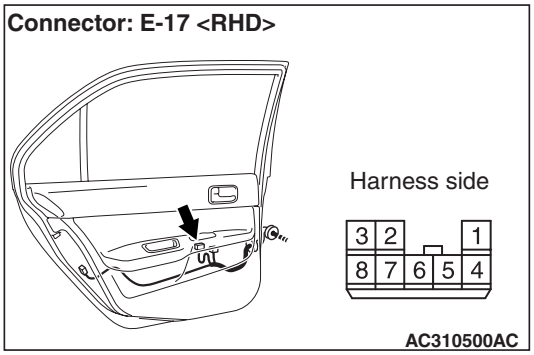
Q: Is the check result normal?

YES : Go to Step 14.

NO : Repair the wiring harness.

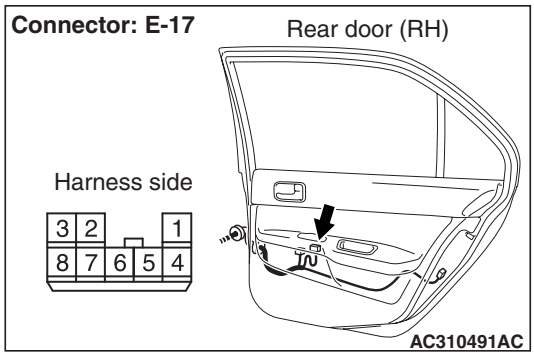
Step 12. Connector check: E-17 rear power window sub switch (RH) connector

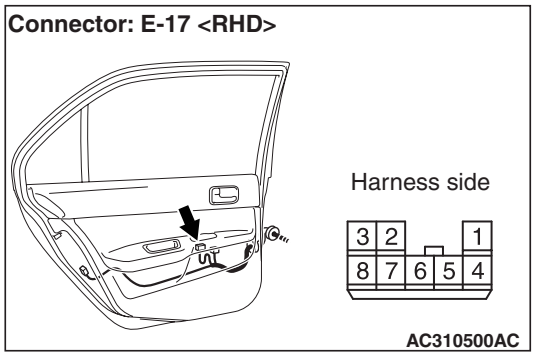




Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the connector.

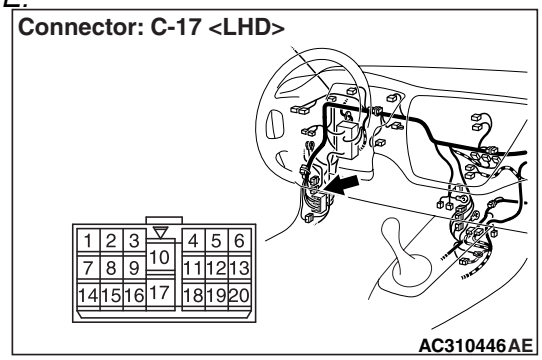
Step 13. Check the wiring harness from E-17 rear power window sub switch (RH) connector terminal No.6 to the inserted probe.



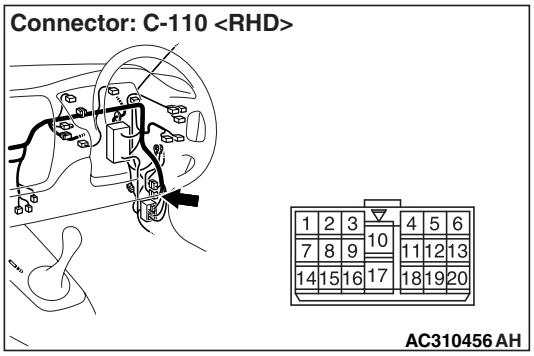


NOTE:

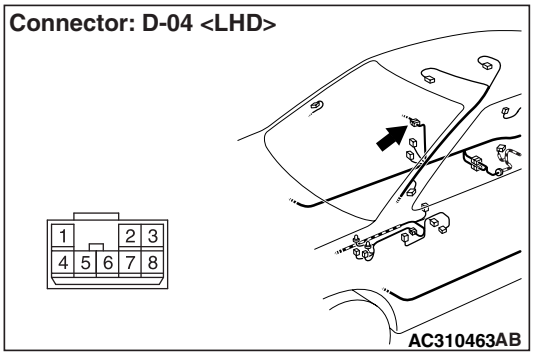
Connector: C-17 <LHD>



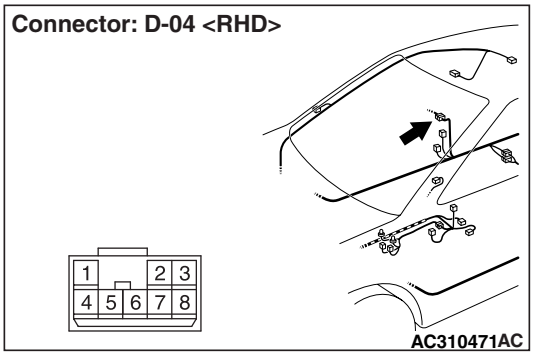
Connector: C-110 <RHD>



Connector: D-04 <LHD>



Connector: D-04 <RHD>



Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles>, C-110 <RH drive vehicles>, D-04, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 14.

NO : Repair the wiring harness.

Step 14. Retest the system.

After the rear power window sub switch (RH) is replaced, check that the rear right door power window can be operated by the power window sub switch.

(1) Replace the rear power window sub switch (RH).

(2) Check that the rear right power window works by means of the power window main switch.

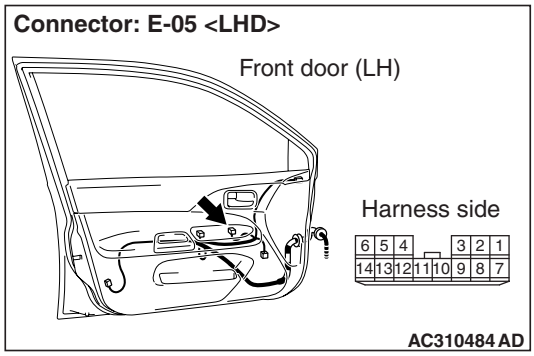
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

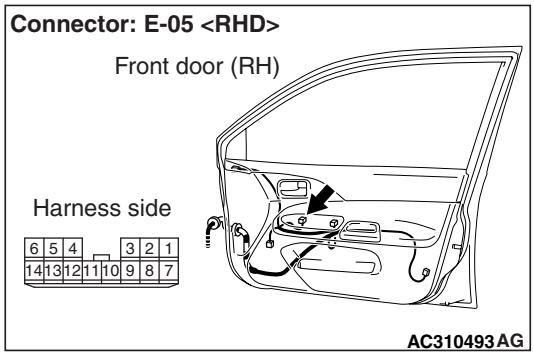
NO : Replace the power window main switch.

Step 15. Connector check: E-05 power window main switch connector

Connector: E-05 <LHD>



Connector: E-05 <RHD>

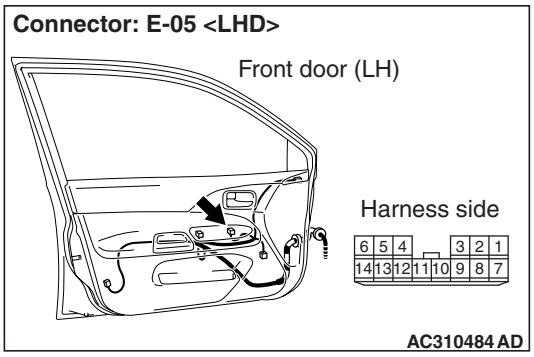


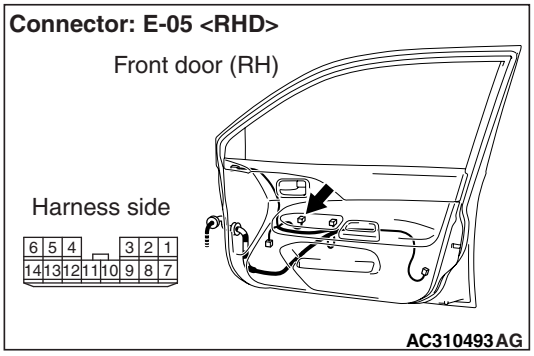
Q: Is the check result normal?

YES : Go to Step 16.

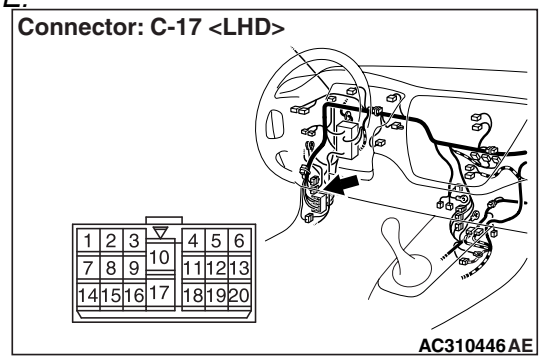
NO : Repair the connector.

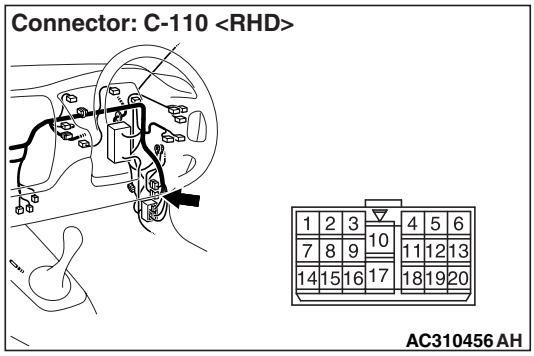
Step 16. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.

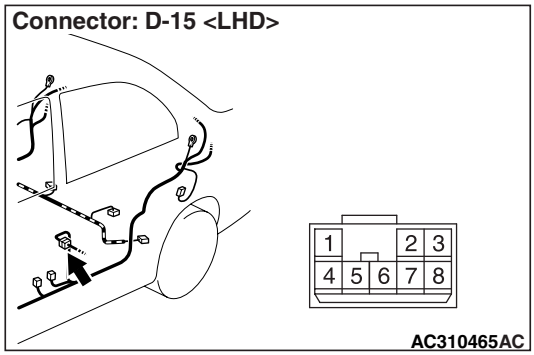


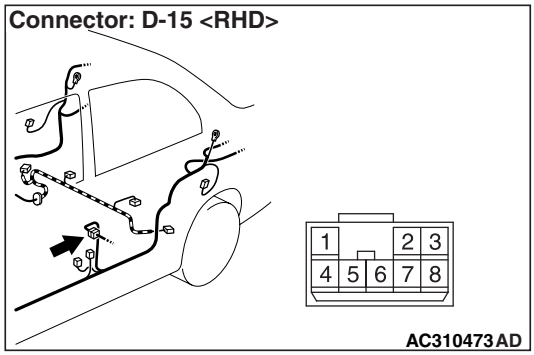


NOTE:









Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles>, C-110 <RH drive vehicles>, D-15, and repair if necessary.

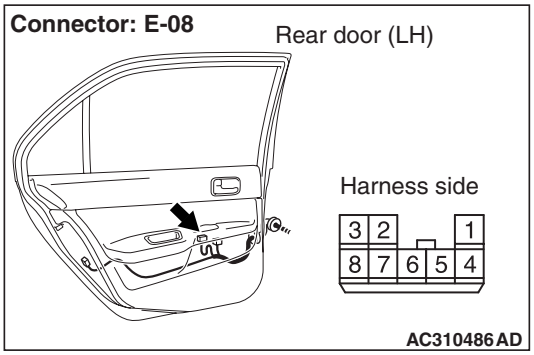
- Check the communication lines for open circuit.

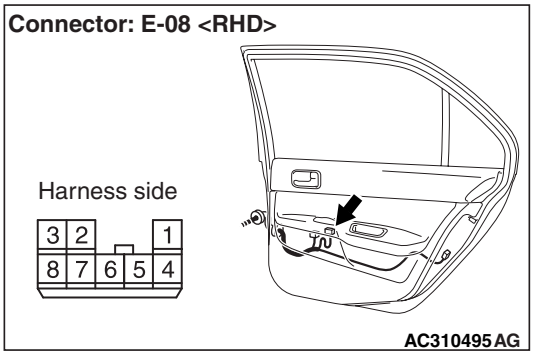
Q: Is the check result normal?

YES : Go to Step 19.

NO : Repair the wiring harness.

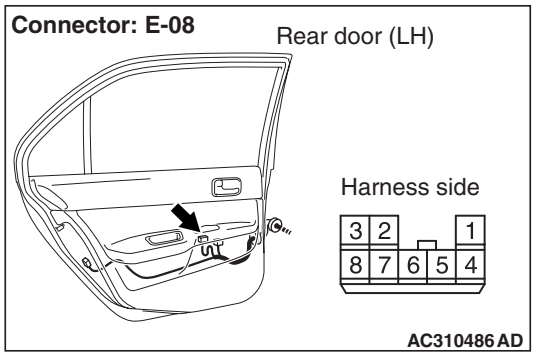
Step 17. Connector check: E-08 rear power window sub switch (LH) connector

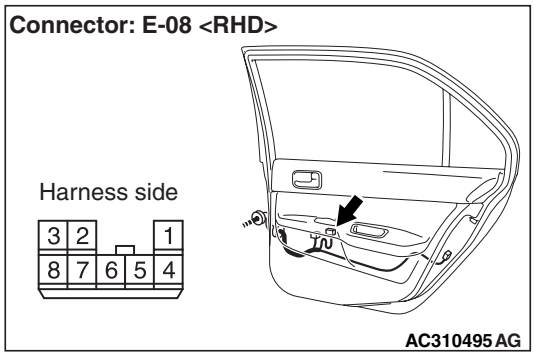




Q: Is the check result normal?
YES : Go to Step 18.
NO : Repair the connector.

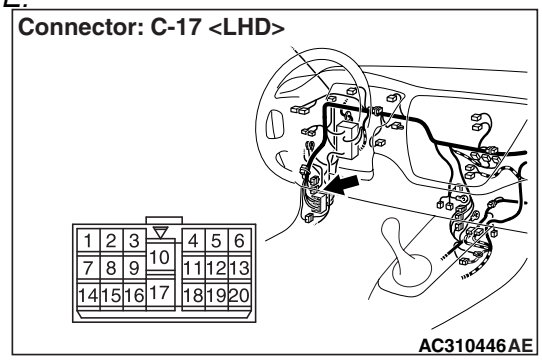
Step 18. Check the wiring harness from E-08 rear power window sub switch (LH) connector terminal No.6 to the inserted probe.





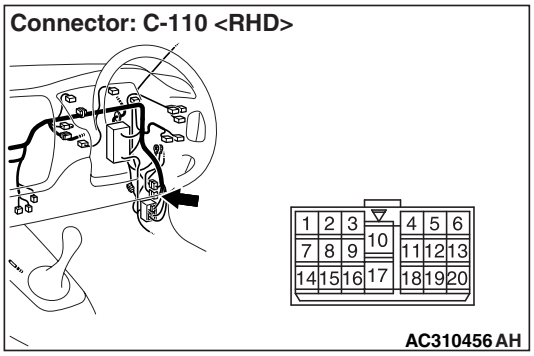
NOTE:

Connector: C-17 <LHD>



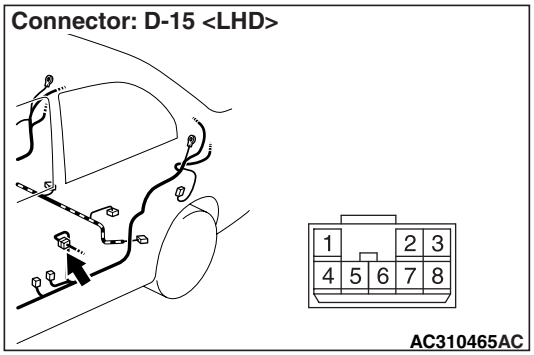
AC310446AE

Connector: C-110 <RHD>



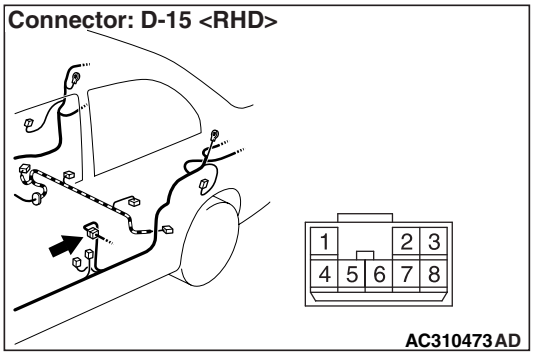
AC310456AH

Connector: D-15 <LHD>



AC310465AC

Connector: D-15 <RHD>



AC310473AD

Prior to the wiring harness inspection, check intermediate connectors C-17 <LH drive vehicles>, C-110 <RH drive vehicles>, D-15, and repair if necessary.

- Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 19.

NO : Repair the wiring harness.

Step 19. Retest the system.

After the rear power window sub switch (LH) is replaced, check that the rear left door power window can be operated by the power window sub switch.

(1) Replace the rear power window sub switch (LH).

(2) Check that the rear left 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.00-5).

NO : Replace the power window main switch.

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.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power window anti-trap function.

Check that the power window anti-trap function works. Refer to GROUP 42 – Door – On-vehicle Service P.42-24.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure D-6 "Power window anti-trap function does not work normally P.54C-124."

STEP 2. Check the power window operating current.

Check that the power window operating current is normal (Refer to GROUP 42 – Door – On-vehicle service P.42-24).

Q: Is the check result normal?

YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-23), and then go to Step 3.

NO : Replace the defective power window regulator motor assembly which operating current are abnormal.

STEP 3. 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.42-23.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-23).

STEP 4. Retest the system.

Check that the power window does not lower automatically while it is being raised.

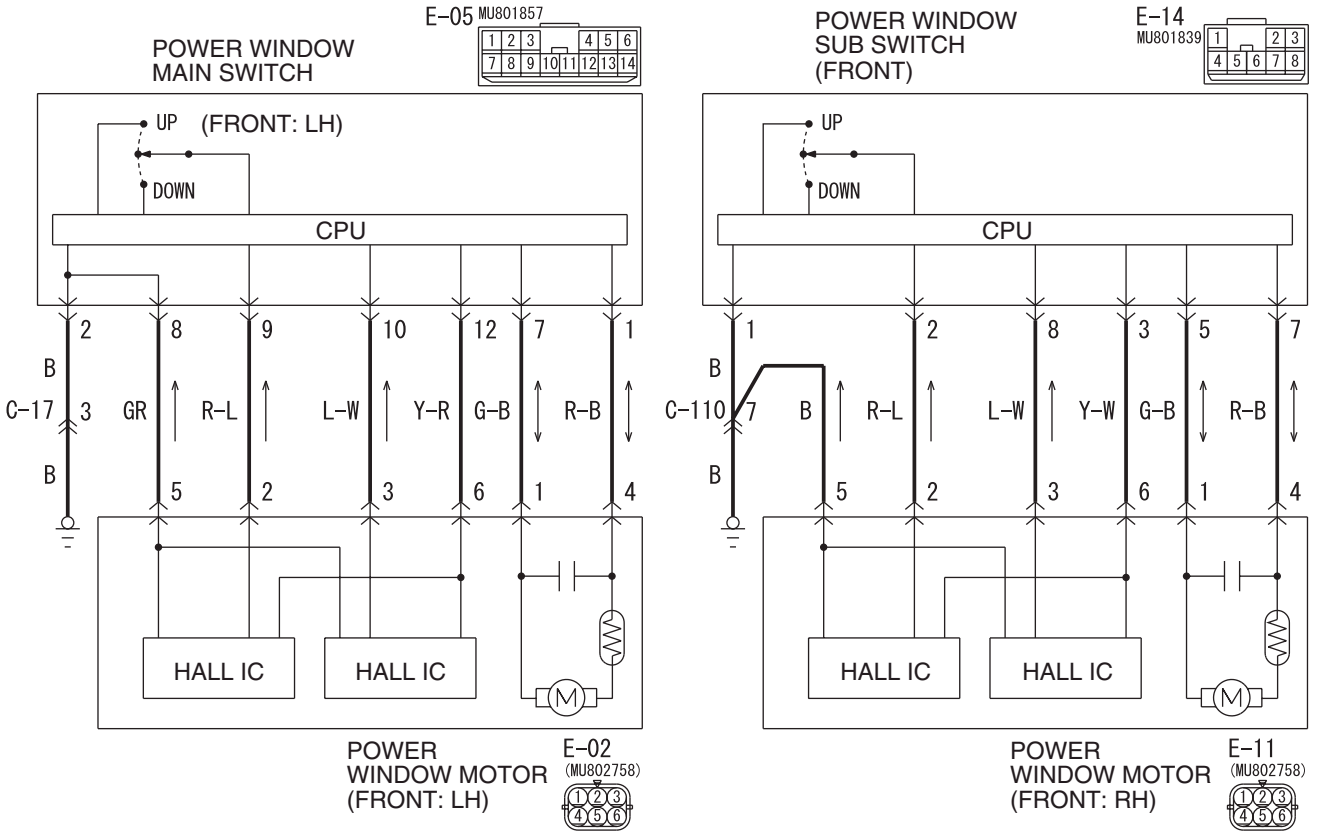
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the power window regulator motor assembly of the defective window.

INSPECTION PROCEDURE D-6: Power window anti-trap function does not work normally.

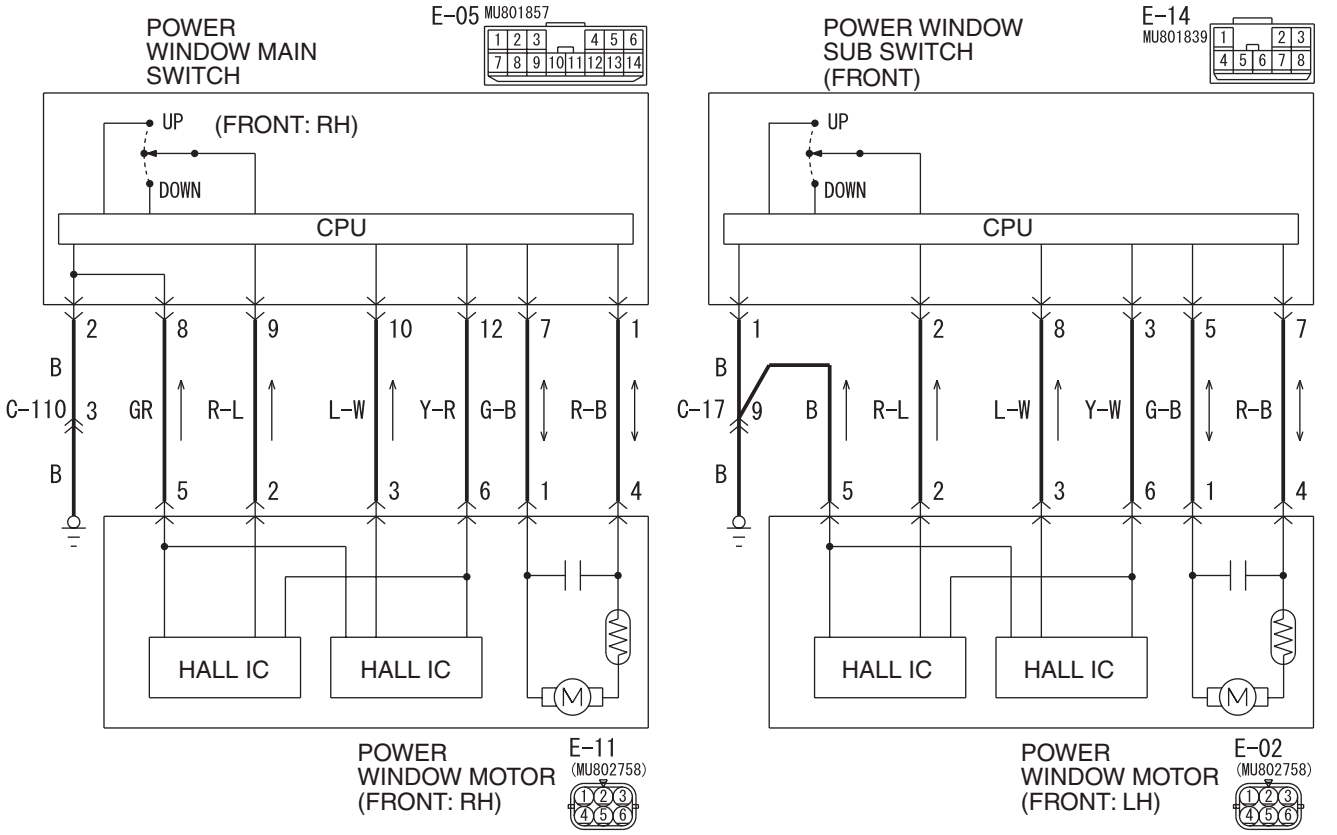
Power Window (front) Circuit <LHD>



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

W4J54E106A

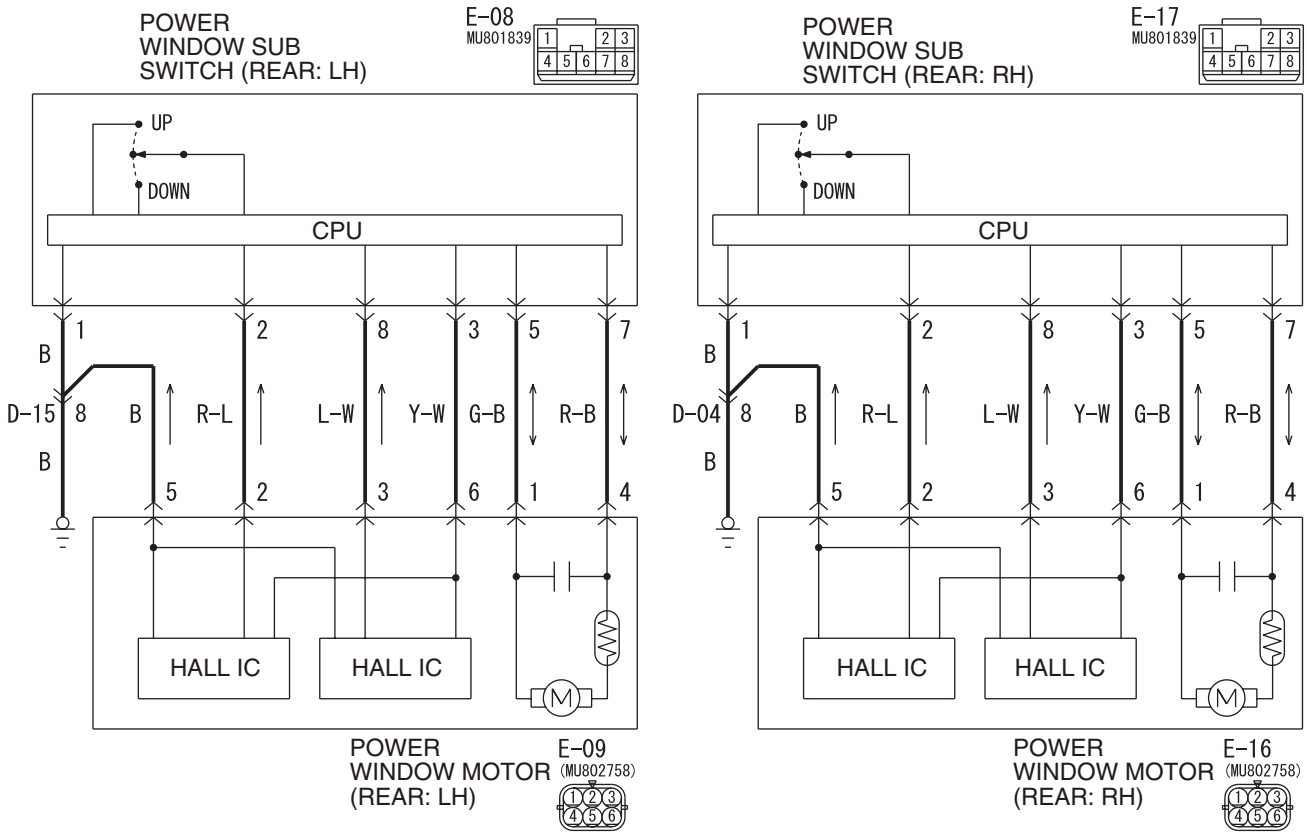
Power Window (front) Circuit <RHD>



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

W4J54E107A

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 : Gray R : Red P : Pink V : Violet

W4J54E108A

COMMENTS ON TROUBLE SYMPTOM

The revolution detection sensor, which is incorporated in the power window regulator motor, may be defective.

POSSIBLE CAUSES

- Malfunction of the power window regulator 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.42-24).

Q: Is the check result normal?

YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-23), and then go to Step 2.

NO : Replace the defective power window regulator motor assembly which operating current are abnormal.

Step 2. Confirm the power window learning function.

Check that the power window switch has learned the fully closed position of the windows (Refer to GROUP 42 – Door P.42-29).

Q: Is the check result normal?

YES : Go to Step 3.

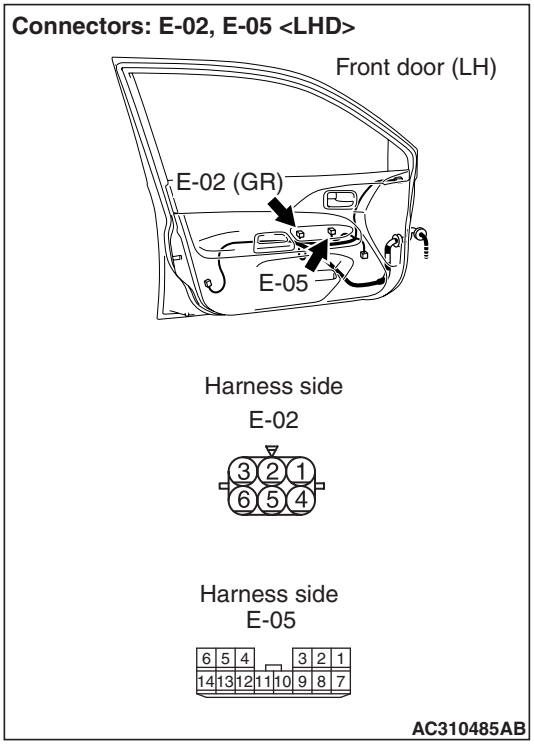
NO : Make the power window switch learn the fully closed position of the windows (Refer to GROUP 42 – Door P.42-29).

Step 3. Determine a trouble spot.

Q: Which door does the power window anti-trap function fail on?

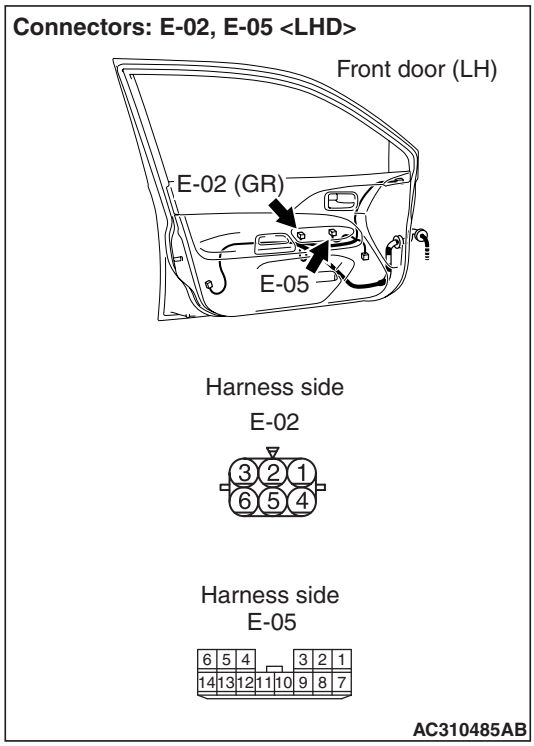
Driver's door <LH drive vehicles> : Go to Step 4.
Driver's door <RH drive vehicles> : Go to Step 7.
Front passenger's door <LH drive vehicles> : Go to Step 10.
Front passenger's door <RH drive vehicles> : Go to Step 16.
Rear right door : Go to Step 22.
Rear left door : Go to Step 28.

Step 4. Connector check: E-05 power window main switch connector and E-02 front power window regulator motor (LH) connector



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

Step 5. Check the wiring harness from E-05 power window main switch connector terminal Nos.8, 9, 10 and 12 to E-02 front power window regulator motor (RH) connector terminal Nos.5, 2, 3 and 6.



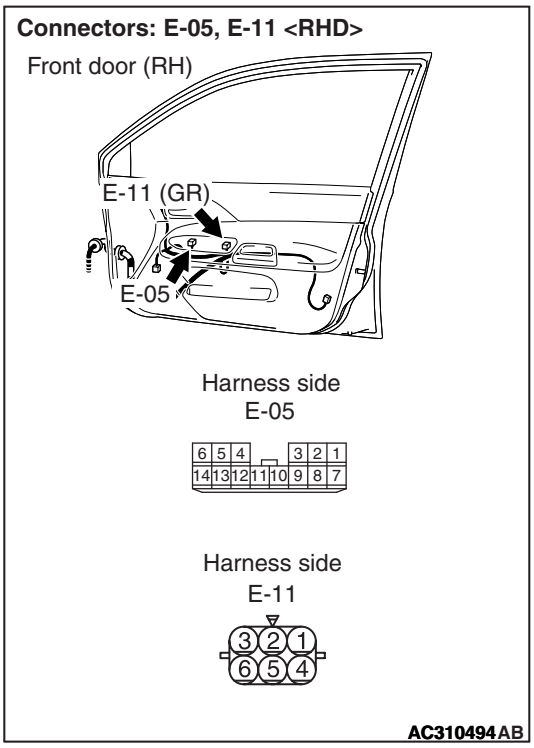
- Check the input and output lines to the revolution detection sensor for open or short circuit.

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

Step 6. Retest the system.
After the power window main switch is replaced, check that the driver's power window anti-trap function works.
(1) Replace the power window main switch.
(2) Check that the driver's power window anti-trap function works.

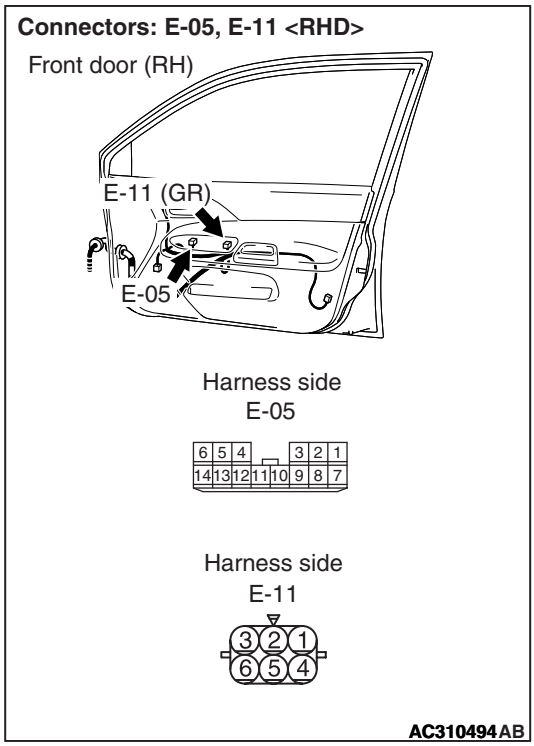
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the front power window regulator motor assembly (LH).

Step 7. Connector check: E-05 power window main switch connector and E-11 front power window regulator motor (RH) connector



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

Step 8. Check the wiring harness from E-05 power window main switch connector terminal Nos.8, 9, 10 and 12 to E-11 front power window regulator motor (RH) connector terminal Nos.5, 2, 3 and 6.



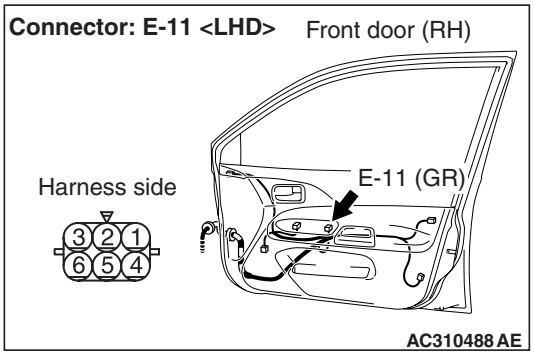
- Check the input and output lines to the revolution detection sensor for open or short circuit.

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

Step 9. Retest the system.
After the power window main switch is replaced, check that the driver's power window anti-trap function works.
(1) Replace the power window main switch.
(2) Check that the driver's power window anti-trap function works.

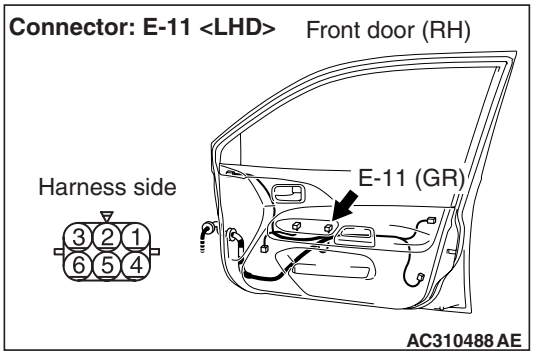
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the front power window regulator motor assembly (RH).

Step 10. Connector check: E-11 front power window regulator motor (RH) connector

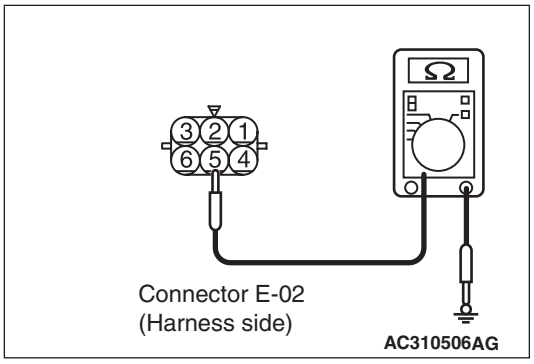


Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

Step 11. Resistance measurement at E-11 front power window regulator motor (RH) connector



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

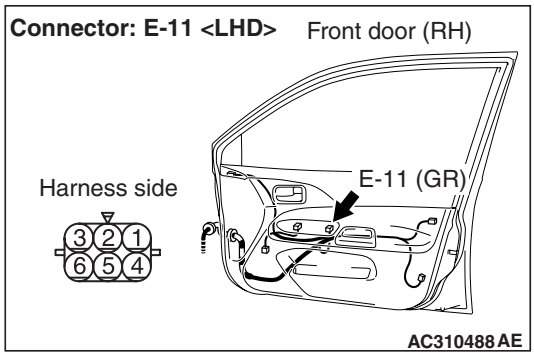


(2) Resistance between E-11 front power window regulator motor (RH) connector terminal No.5 and body earth.

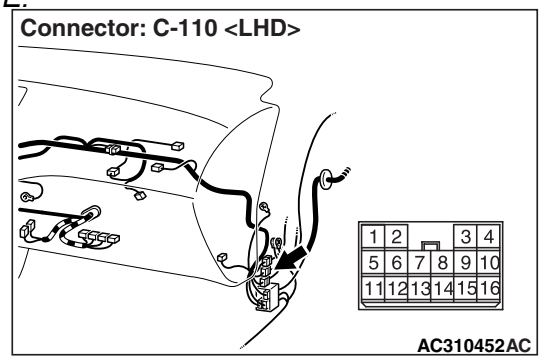
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 13.
NO : Go to Step 12.

Step 12. Check the wiring harness from E-11 front power window regulator motor (RH) connector terminal No.5 to body earth.



NOTE:

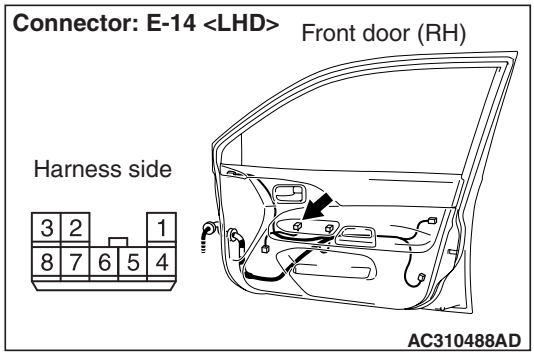


Prior to the wiring harness inspection, check intermediate connector C-110, and repair if necessary.

- Check the input and output lines to the revolution detection sensor for open or short circuit.

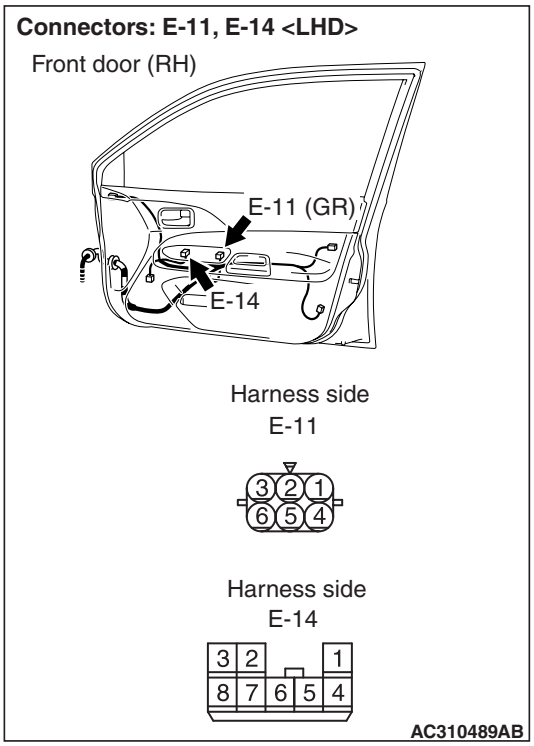
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the wiring harness.

Step 13. Connector check: E-14 front power window sub switch (RH) connector



Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair the defective connector.

Step 14. Check the wiring harness from E-14 front power window sub switch (RH) connector terminal Nos.2, 8 and 3 to E-11 front power window regulator motor (RH) connector terminal Nos.2, 3 and 6.



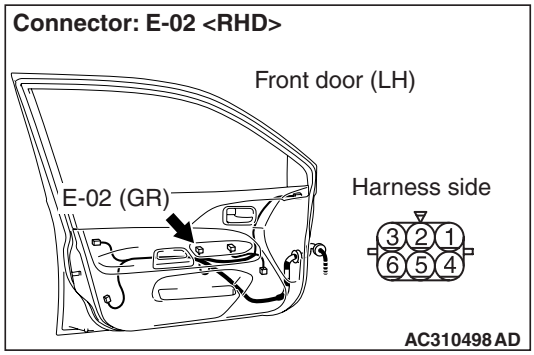
- Check the input and output lines to the revolution detection sensor for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the wiring harness.

Step 15. Retest the system.
After the front power window sub switch (RH) is replaced, check that the front passenger's anti-trap function can be operated by the power window sub switch.
(1) Replace the front power window sub switch (RH).
(2) Check that the front passenger's power window anti-trap function works.

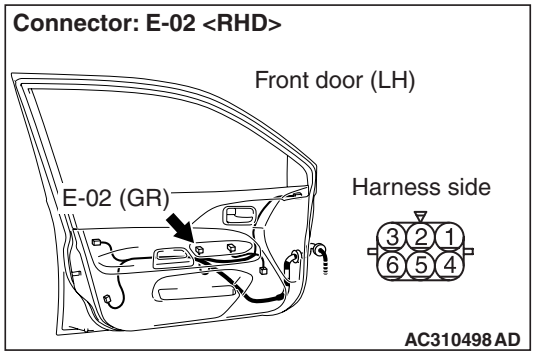
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the front power window regulator motor assembly (RH).

Step 16. Connector check: E-02 front power window regulator motor (LH) connector

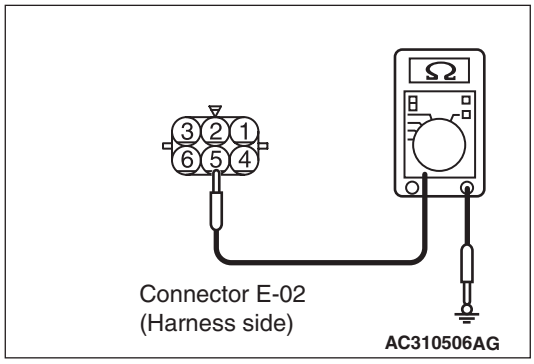


Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the defective connector.

Step 17. Resistance measurement at E-02 front power window regulator motor (LH) connector



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

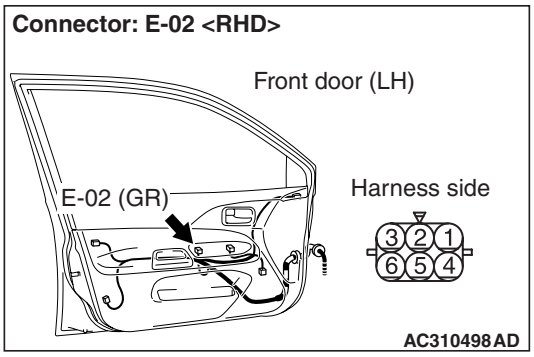


(2) Resistance between E-11 power window regulator motor (front LH) connector terminal No.5 and body earth.

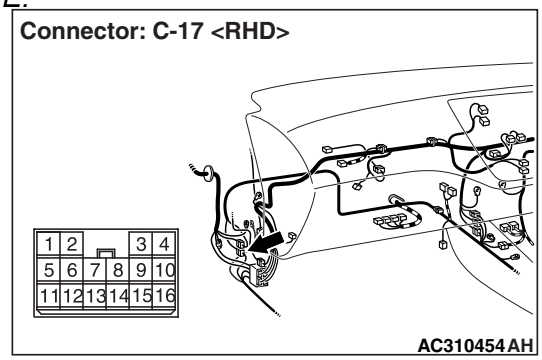
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 19.
NO : Go to Step 18.

Step 18. Check the wiring harness from E-02 front power window regulator motor (LH) connector terminal No.5 to body earth.



NOTE:

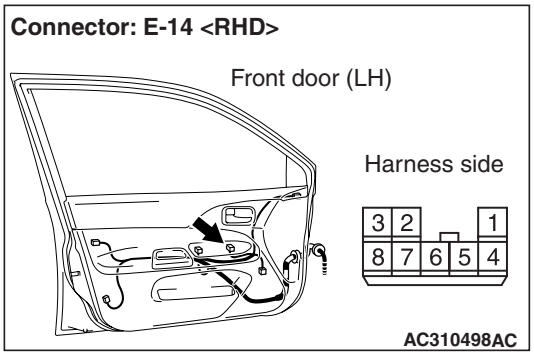


Prior to the wiring harness inspection, check intermediate connector C-17, and repair if necessary.

- Check the input and output lines to the revolution detection sensor for open or short circuit.

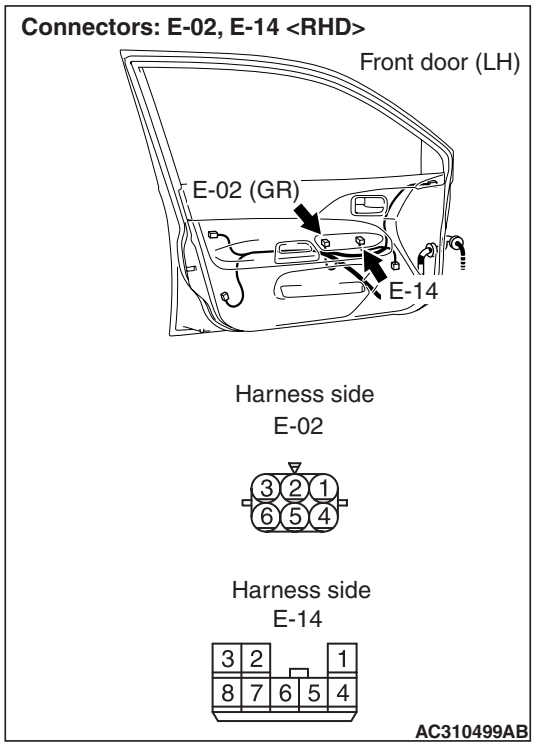
Q: Is the check result normal?
YES : Go to Step 19.
NO : Repair the wiring harness.

Step 19. Connector check: E-14 front power window sub switch (LH) connector



Q: Is the check result normal?
YES : Go to Step 20.
NO : Repair the defective connector.

Step 20. Check the wiring harness from E-14 front power window sub switch (RH) connector terminal Nos.2, 8 and 3 to E-02 front power window regulator motor (LH) connector terminal Nos.2, 3 and 6.



- Check the input and output lines to the revolution detection sensor for open or short circuit.

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

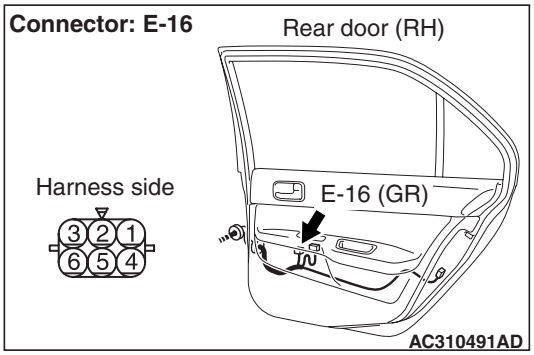
Step 21. Retest the system.

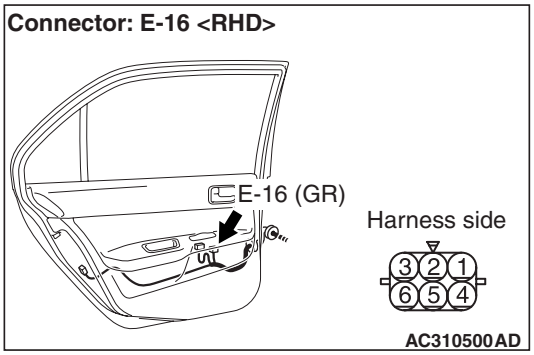
After the front power window sub switch (LH) is replaced, check that the front passenger's anti-trap function can be operated by the power window sub switch.

(1) Replace the front power window sub switch (LH).
(2) Check that the front passenger's power window anti-trap function works.

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.00-5).
NO : Replace the front power window regulator motor assembly (LH).

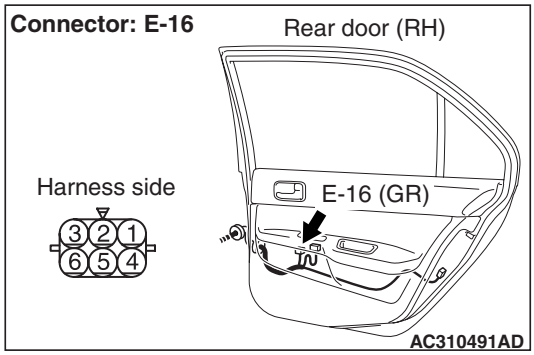
Step 22. Connector check: E-16 rear power window regulator motor (RH) connector

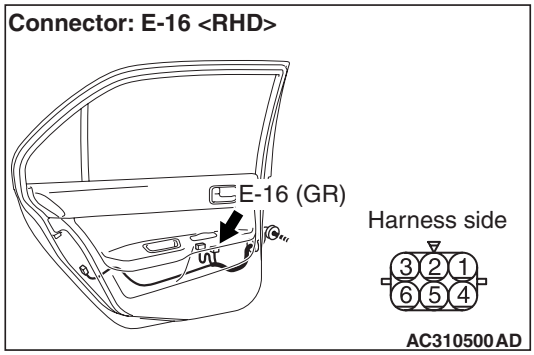




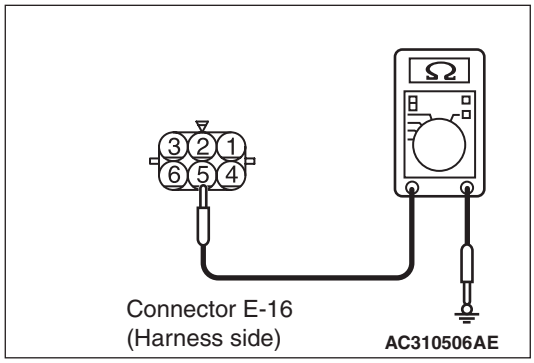
Q: Is the check result normal?
YES : Go to Step 23.
NO : Repair the defective connector.

Step 23. Resistance measurement at E-16 rear power window regulator motor (RH) connector





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

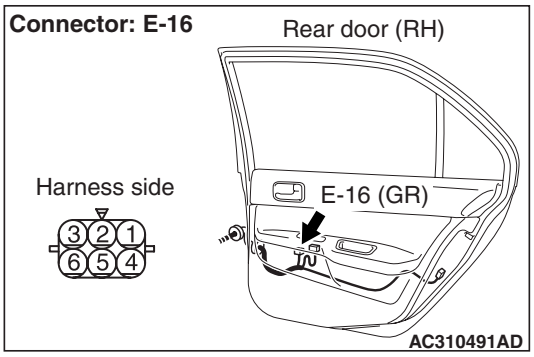


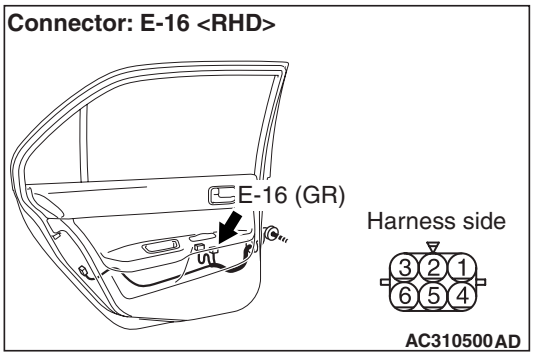
(2) Resistance between E-16 rear power window regulator motor (RH) connector terminal No.5 and body earth.

OK: 2Ω or less

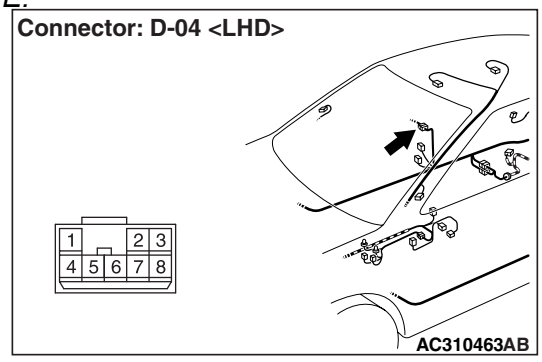
Q: Is the check result normal?
YES : Go to Step 25.
NO : Go to Step 24.

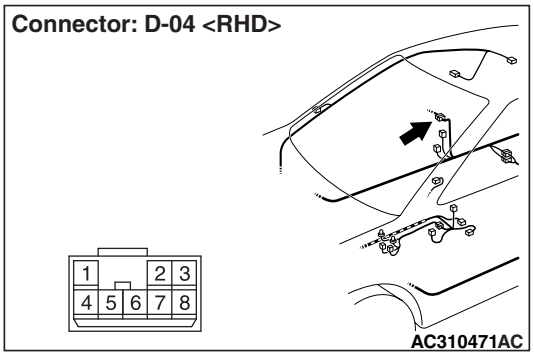
Step 24. Check the wiring harness from E-16 rear power window regulator motor (RH) connector terminal No.5 to body earth.





NOTE:



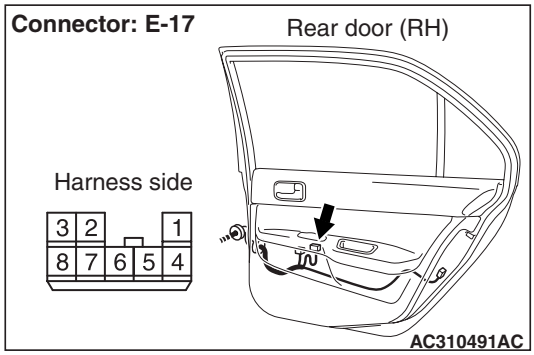


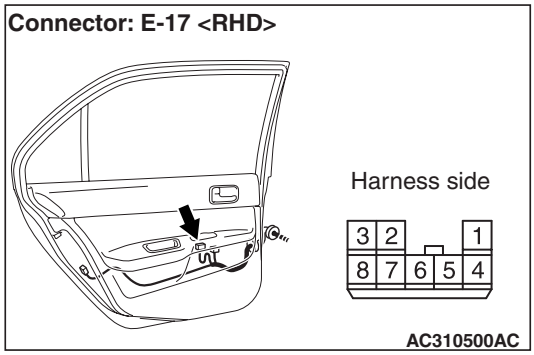
Prior to the wiring harness inspection, check intermediate connector D-04, and repair if necessary.

- Check the input and output lines to the revolution detection sensor for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 25.
NO : Repair the wiring harness.

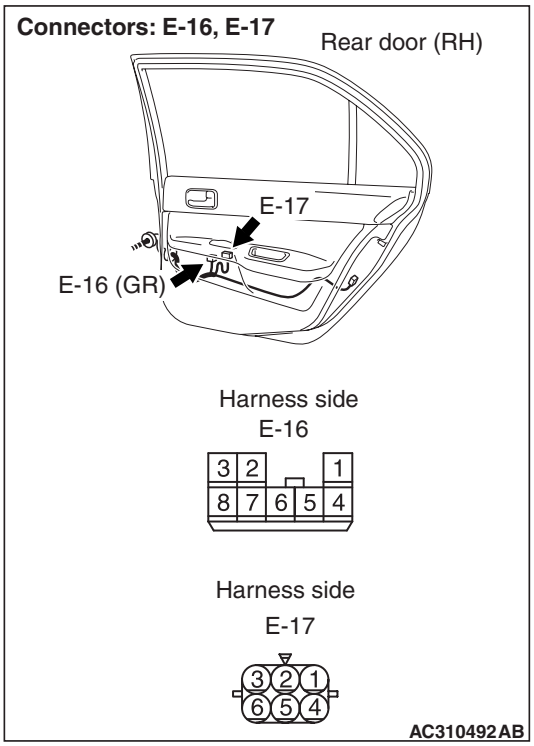
Step 25. Connector check: E-17 rear power window sub switch (RH) connector

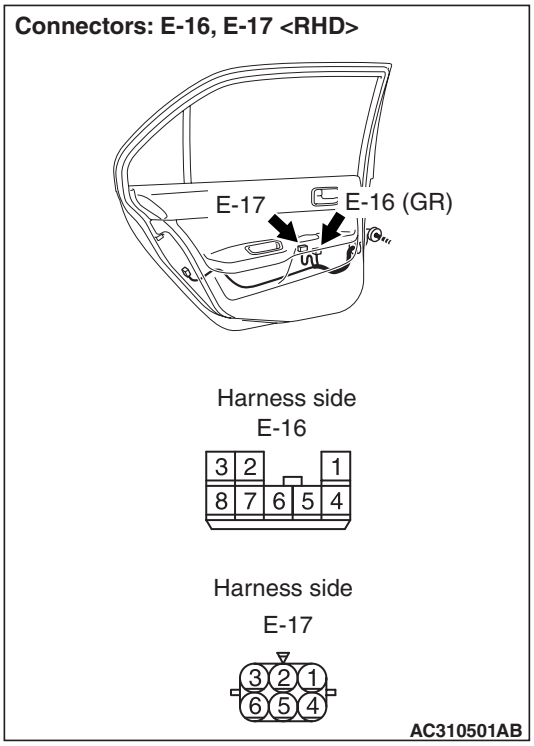




Q: Is the check result normal?
YES : Go to Step 26.
NO : Repair the defective connector.

Step 26. Check the wiring harness from E-17 rear power window sub switch (RH) connector terminal Nos.2, 8 and 3 to E-16 rear power window regulator motor (RH) connector terminal Nos.2, 3 and 6.





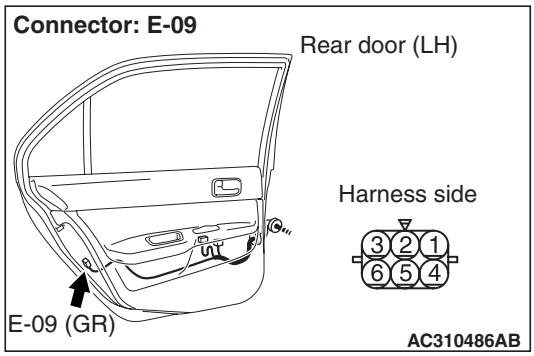
- Check the input and output lines to the revolution detection sensor for open or short circuit.

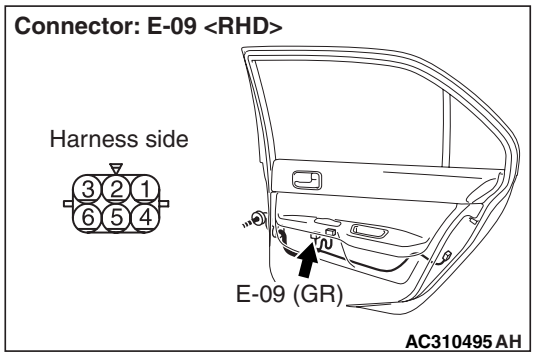
Q: Is the check result normal?
YES : Go to Step 27.
NO : Repair the wiring harness.

Step 27. Retest the system.
After the rear power window sub switch (RH) is replaced, check that the rear right door anti-trap function can be operated by the power window sub switch.
(1) Replace the rear power window sub switch (RH).
(2) Check that the rear right power window anti-trap function works.

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.00-5).
NO : Replace the rear power window regulator motor assembly (RH).

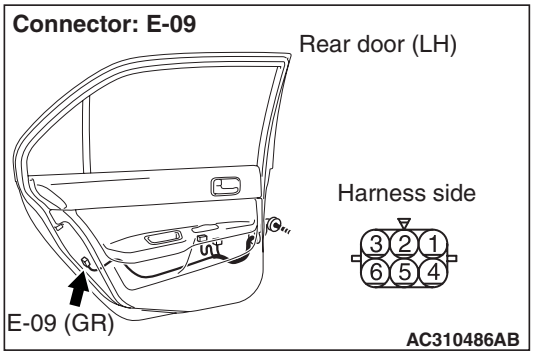
Step 28. Connector check: E-09 rear power window regulator motor (LH) connector

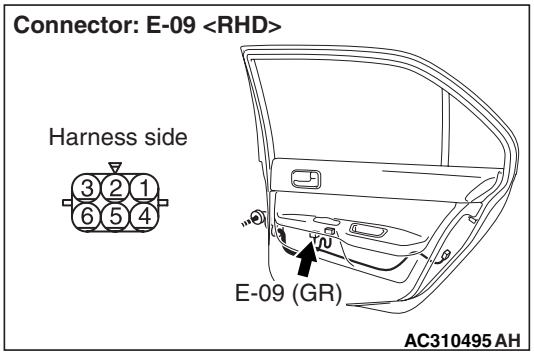




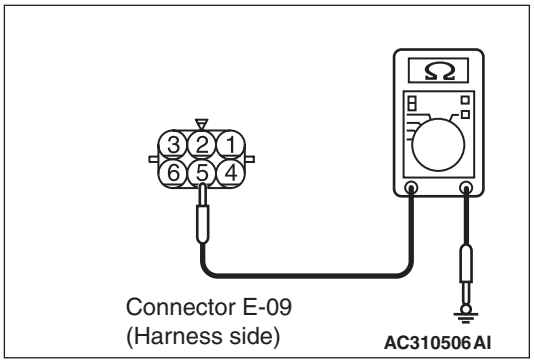
Q: Is the check result normal?
YES : Go to Step 29.
NO : Repair the defective connector.

Step 29. Resistance measurement at E-09 rear power window regulator motor (LH) connector





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

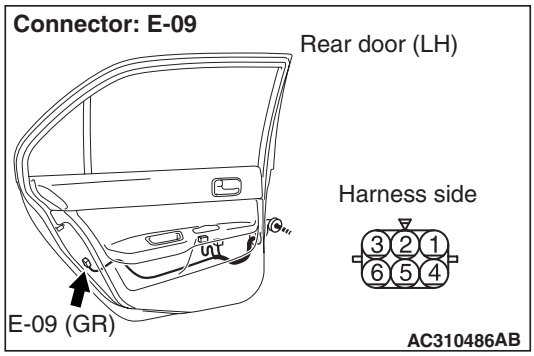


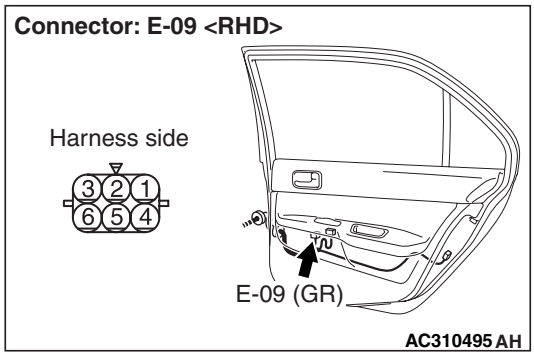
(2) Resistance between E-09 rear power window regulator motor (LH) connector terminal No.5 and body earth.

OK: 2Ω or less

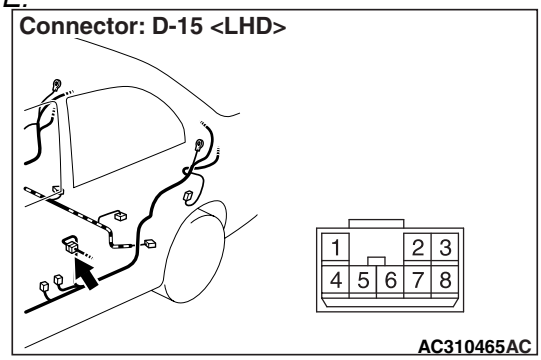
Q: Is the check result normal?
YES : Go to Step 31.
NO : Go to Step 30.

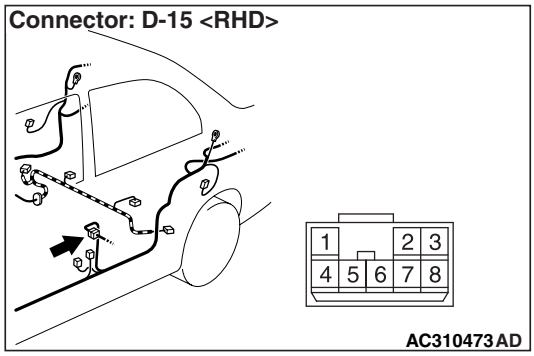
Step 30. Check the wiring harness from E-09 rear power window regulator motor (LH) connector terminal No.5 to body earth.





NOTE:



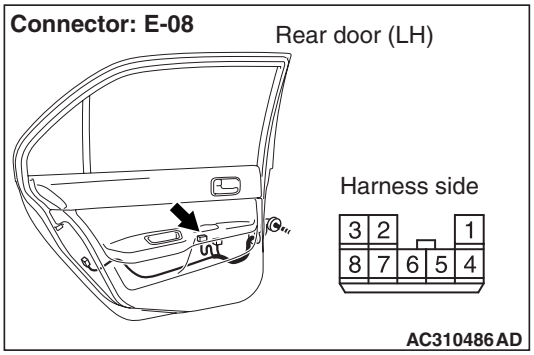


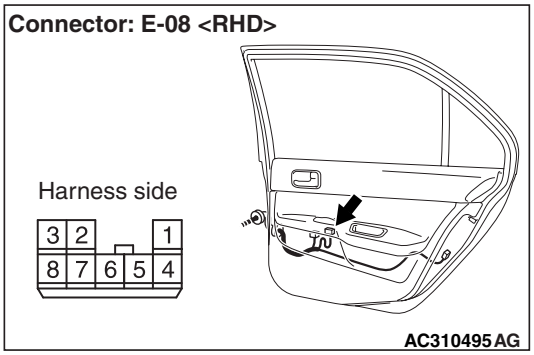
Prior to the wiring harness inspection, check intermediate connector D-15, and repair if necessary.

- Check the input and output lines to the revolution detection sensor for open or short circuit.

Q: Is the check result normal?
YES : Go to Step 31.
NO : Repair the wiring harness.

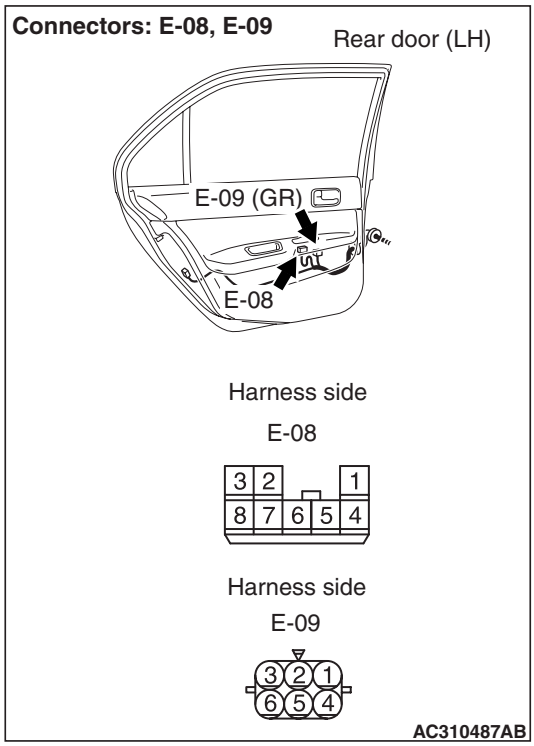
Step 31. Connector check: E-08 rear power window sub switch (LH) connector

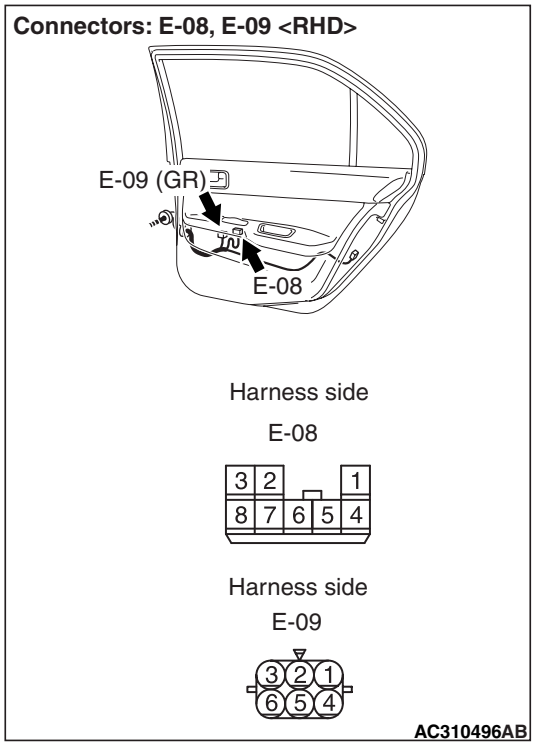




Q: Is the check result normal?
YES : Go to Step 32.
NO : Repair the defective connector.

Step 32. Check the wiring harness from E-08 rear power window sub switch (LH) connector terminal Nos.8, 2 and 3 to E-09 rear power window regulator motor (LH) connector terminal Nos.3, 2 and 6.





- Check the input and output lines to the revolution detection sensor for open or short circuit.

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

Step 33. Retest the system.
After the rear power window sub switch (LH) is replaced, check that the rear left door anti-trap function can be operated by the power window sub switch.
(1) Replace the rear power window sub switch (LH).
(2) Check that the rear left power window anti-trap function works.

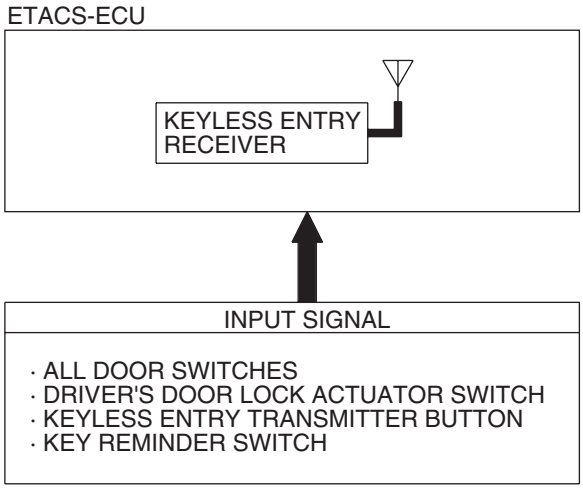
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the rear power window regulator motor assembly (LH).

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



W4J54E109A

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
- Driver's door lock actuator

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the door switches
- Malfunction of the keyless entry transmitter
- Malfunction of the driver's door lock actuator
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. ECU check on the SWS monitor

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

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-36."

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
Driver's door lock actuator 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?

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

The key reminder switch signal is not received. : Refer to Inspection Procedure L-9 "The key reminder switch signal is not received P.54C-281."

All the door switch signals are not received. : Refer to Inspection Procedure L-11 "All the door switch signals are not received <LH drive vehicles>P.54C-289 ," or refer to Inspection Procedure L-11 "All the door switch signals are not received <RH drive vehicles>P.54C-292 ."

The driver's door lock actuator switch signal is not received. : Refer to Inspection Procedure L-12 "The front door lock actuator (LH) switch signal is not received <LH drive vehicles>P.54C-296 ," or refer to Inspection Procedure L-12 "The front door lock actuator (RH) switch signal is not received <RH drive vehicles>P.54C-299 ."

The keyless entry transmitter switch signal is not received. : Refer to Inspection Procedure L-14 "Each switch signal of the keyless entry transmitter is not received P.54C-306."

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.00-5).

NO : Replace the ETACS-ECU.

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.

POSSIBLE 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-302).

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 I-2 "The hazard warning lamps do not illuminate P.54C-213".

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 K-1 "The front or rear room lamp does not illuminate or extinguish normally P.54C-244."

Step 4. ECU check on the SWS monitor
Check that the power supply and earth lines to the ETACS-ECU and the SWS communication lines are normal.
- Ignition switch: OFF

ECUS TO BE CHECKED
- ETACS ECU

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

Q: Is the check result normal?
YES : Go to Step 5.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."

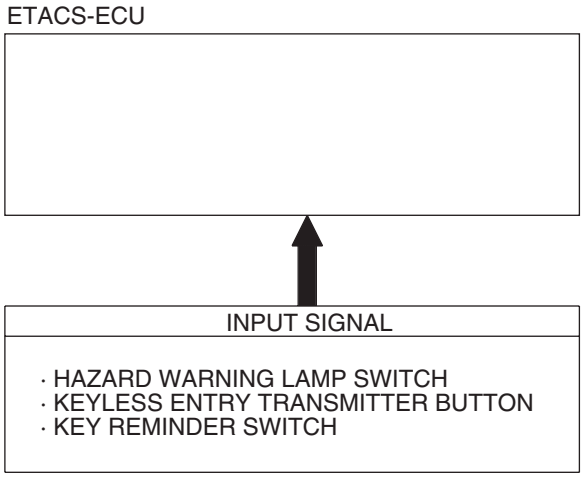
Step 5. Retest the system.
Check that the keyless entry hazard warning lamp answerback function or the room lamp answerback function work normally.

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.00-5).
NO : Replace the ETACS-ECU.

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



W4J54E110A

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.

POSSIBLE 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?

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

The key reminder switch signal is not received. : Refer to Inspection Procedure L-9 "The key reminder switch signal is not received P.54C-281."

The hazard warning lamp switch signal is not received. : Refer to Inspection Procedure L-10 "The hazard warning lamp switch signal is not received P.54C-285."

The keyless entry transmitter switch signal is not received. : Refer to Inspection Procedure L-14 "Each switch signal of the keyless entry transmitter is not received P.54C-306."

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.00-5).

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.

POSSIBLE 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-137."

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.00-5).

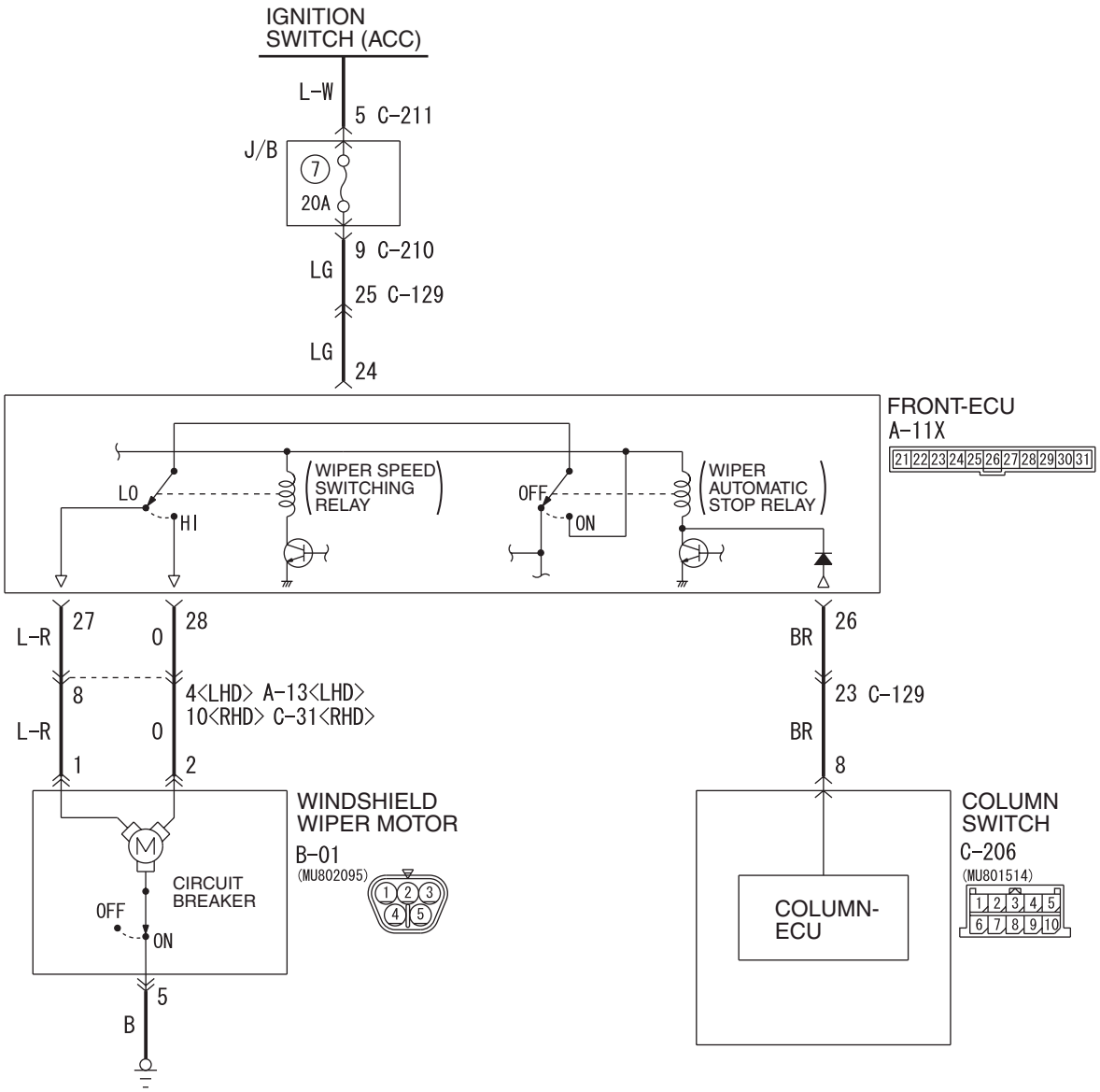
NO : Replace the ETACS-ECU.

WINDSHIELD WIPER AND WASHER

INSPECTION PROCEDURE F-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

W6J54E029A

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.

POSSIBLE 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 on 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.

- Turn the ignition switch to the ON position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?

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

"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-30."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

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?

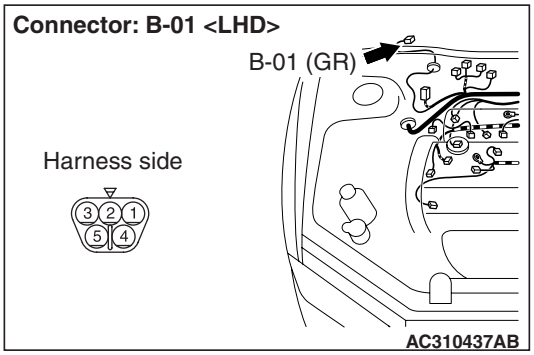
Normal conditions displayed for all the items : Go to Step 3.

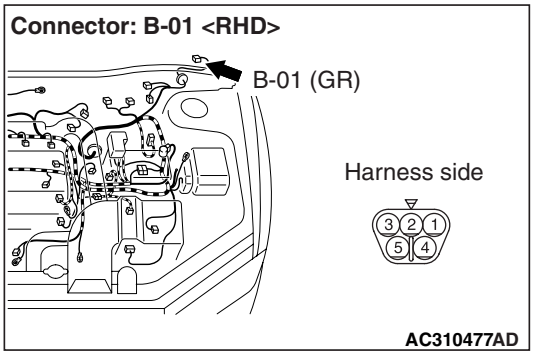
Normal condition is not displayed for item No.05 : Replace the column switch.

Normal condition is not displayed for item No.31 : Refer to Inspection Procedure L-1 "The ignition switch (ACC) signal is not received P.54C-258."

Normal condition is not displayed for item No.70 : Replace the front-ECU.

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





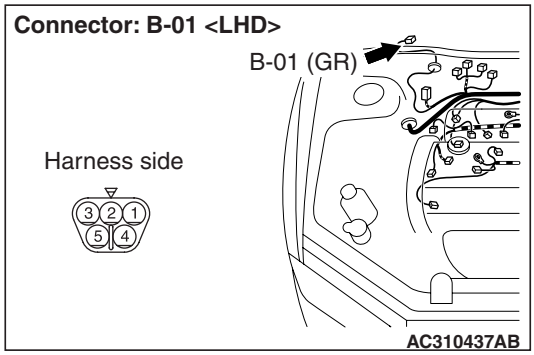
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

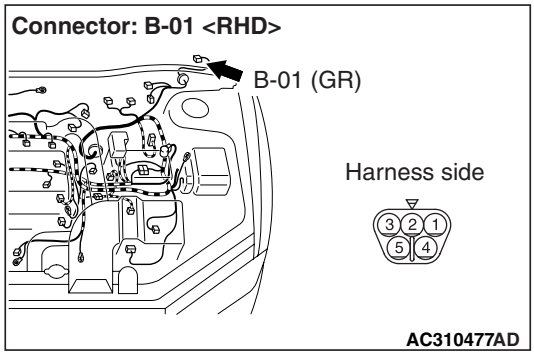
Step 4. Check the windshield wiper motor assembly.

Refer to GROUP 51 – Windshield wiper P.51-21.

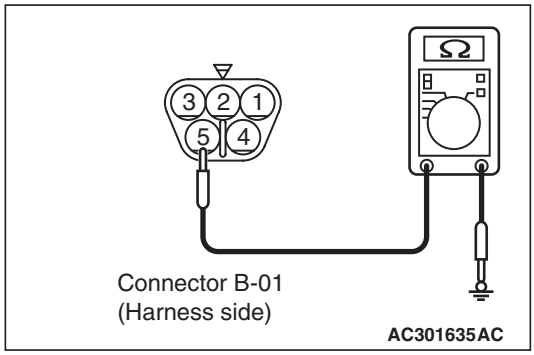
Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the windshield wiper motor assembly.

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





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

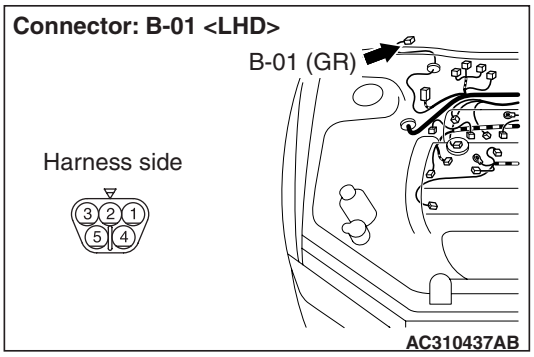


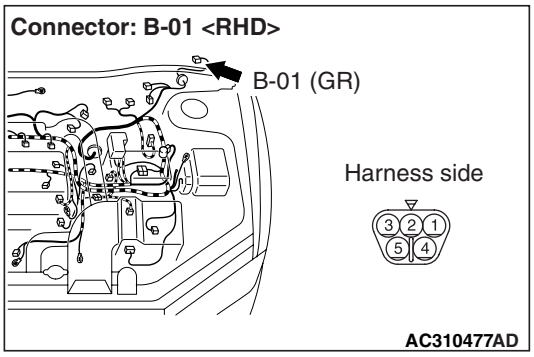
(2) Continuity between B-01 windshield wiper motor connector terminal No.5 and body earth

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.

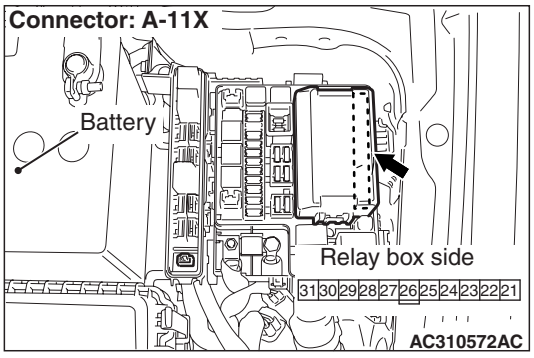




- Check the earth wires for open circuit.

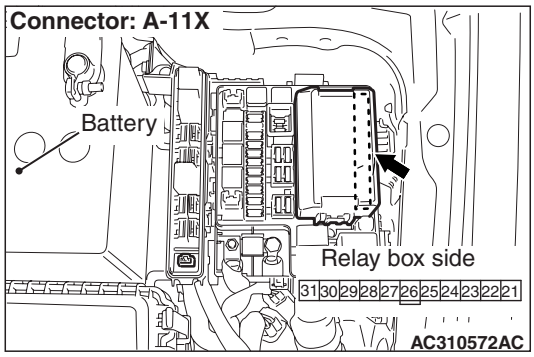
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

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

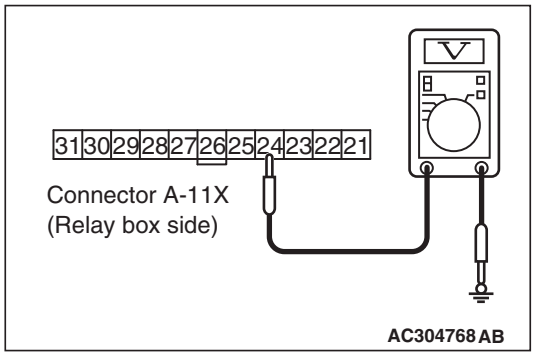


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

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



(1) Remove the front-ECU, and measure at the relay box side.
(2) Ignition switch: ACC

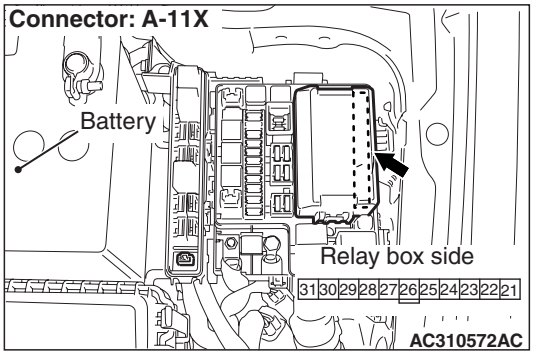


(3) Check the voltage between the A-11X front-ECU connector terminal No.24 and body earth.

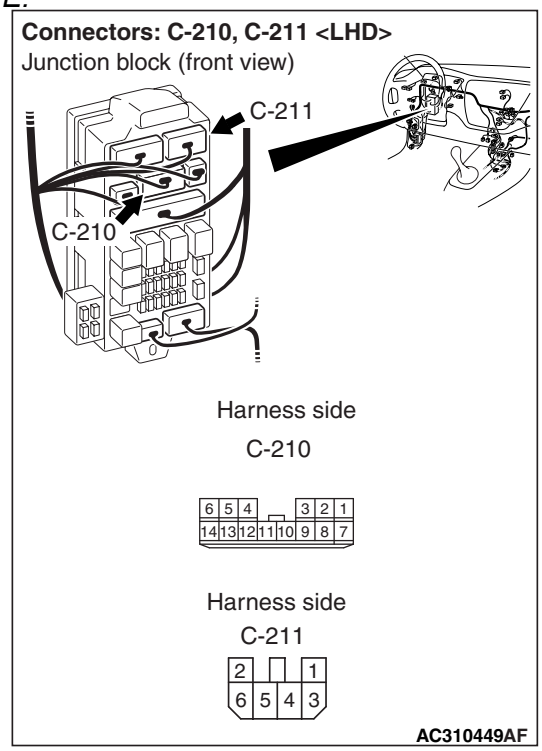
OK: System voltage

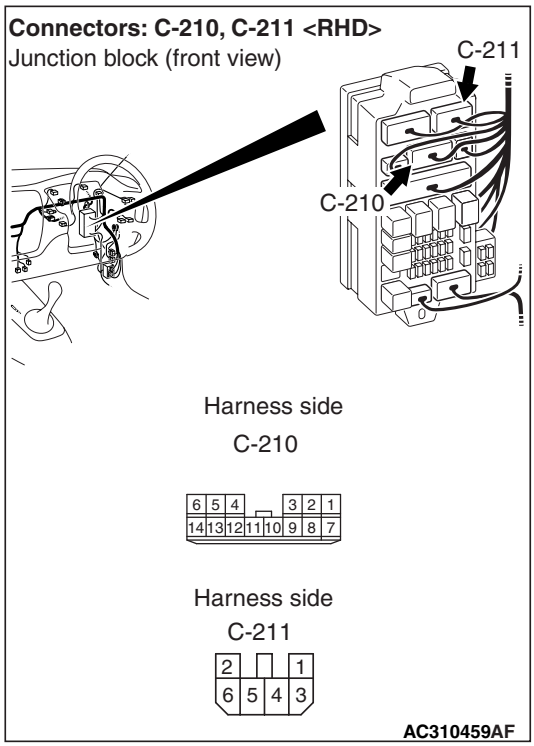
Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

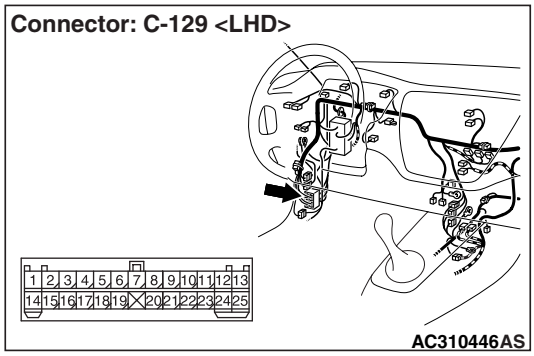
Step 9. Check the wiring harness between A-11X front-ECU connector terminal No.24 and the ignition switch (ACC).

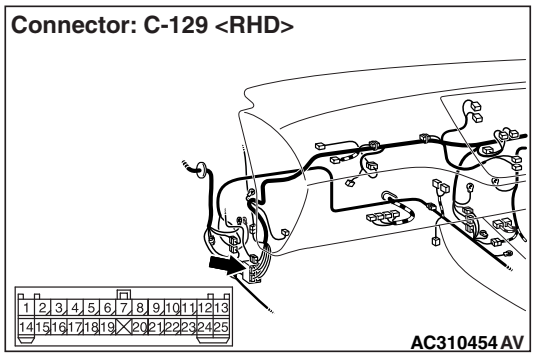


NOTE:









Prior to the wiring harness inspection, check the junction block connectors C-210, C-211 and intermediate connector C-129 and repair if necessary.

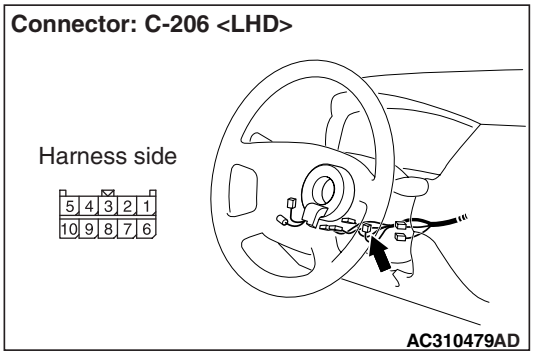
- Check the power supply line to the ignition switch (ACC) for open circuit.

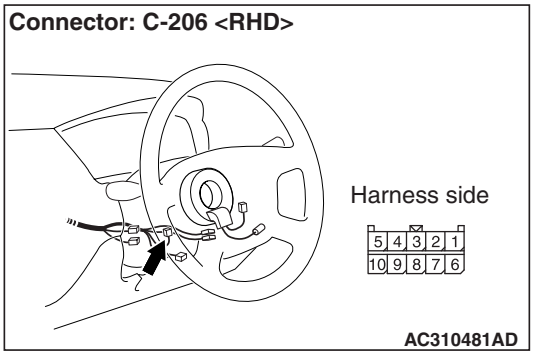
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

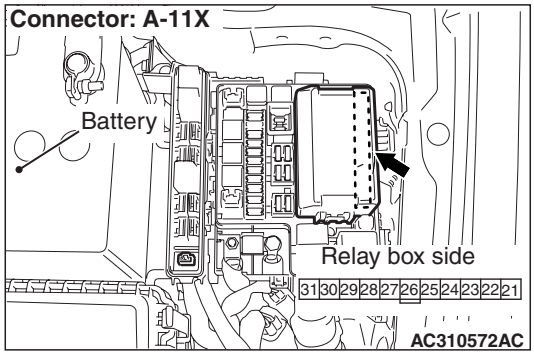
Step 10. Connector check: C-206 column switch connector

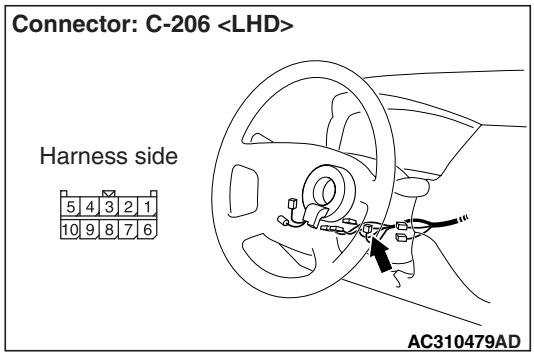


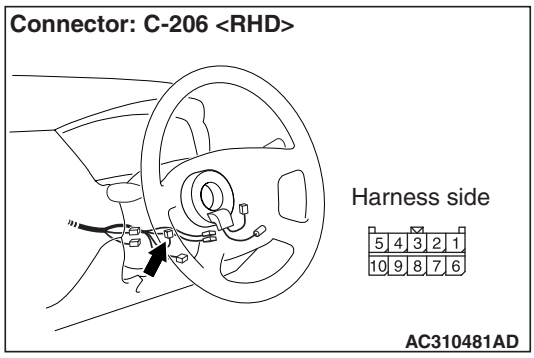


Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the connector.

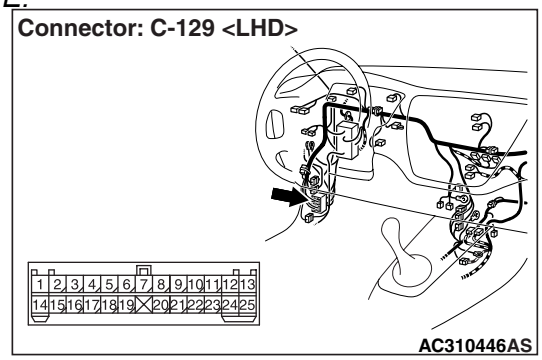
Step 11. Check the wiring harness between C-206 column switch connector terminal No.8 and A-11X front-ECU connector terminal No.26.

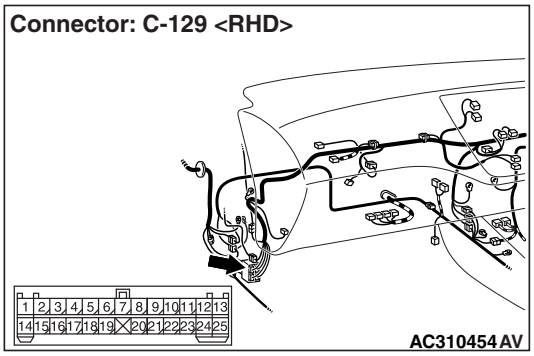






NOTE:





Prior to the wiring harness inspection, check the intermediate connector C-129 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.

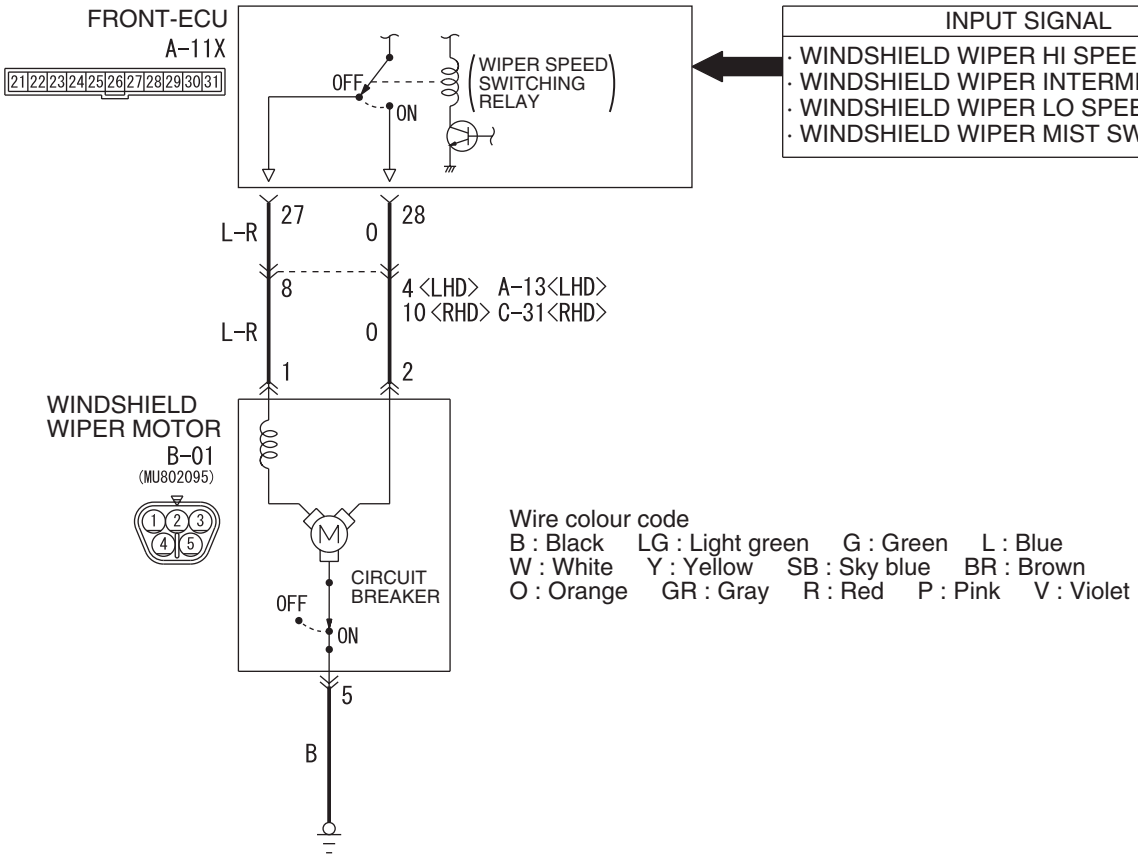
Step 12. Retest the system.
The windshield wiper should now work normally at all.

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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE F-2: The windshield wipers do 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



W4J54E112A

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.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. ECU check on 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.

- Turn the ignition switch to the ACC position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?

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

"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-30."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

Step 2. Retest the system.

The windshield wiper should now work normally.

Q: Is the check result normal?

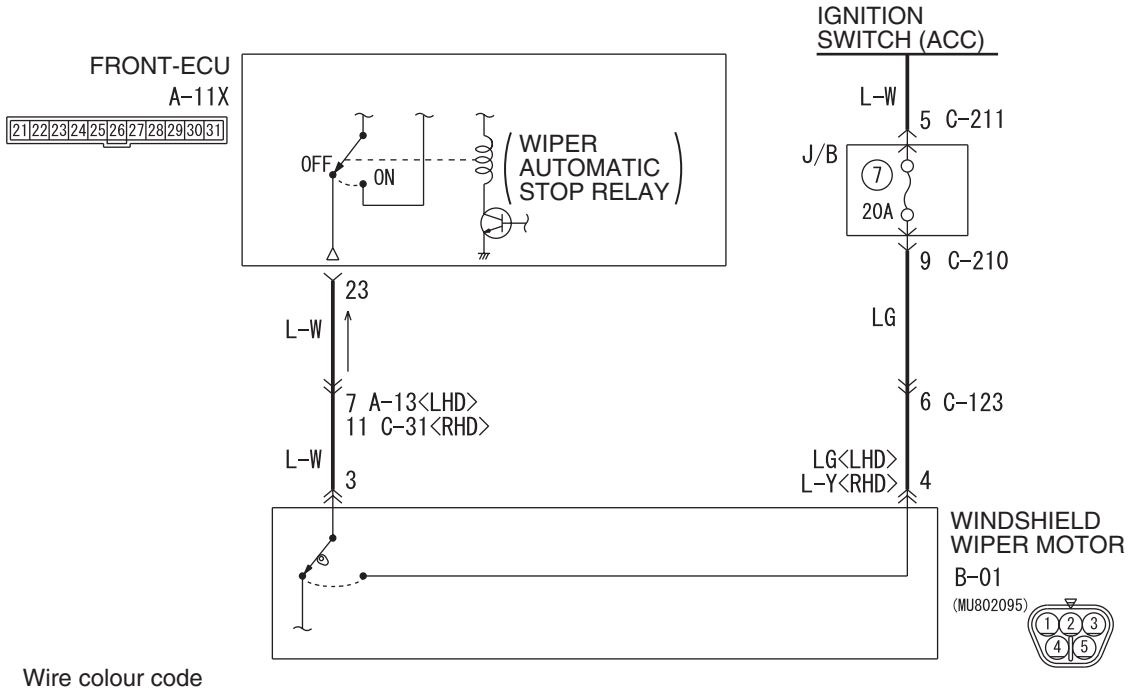
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the front-ECU.

INSPECTION PROCEDURE F-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 : Gray R : Red P : Pink V : Violet

W4J54E113A

COMMENTS ON TROUBLE SYMPTOM

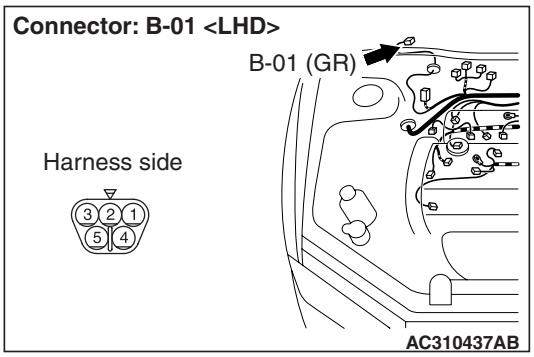
The windshield wiper motor or the front-ECU may be defective.

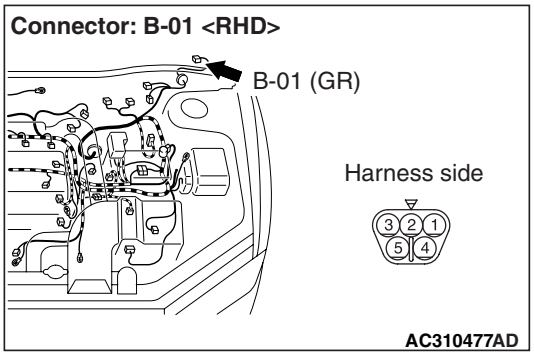
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

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





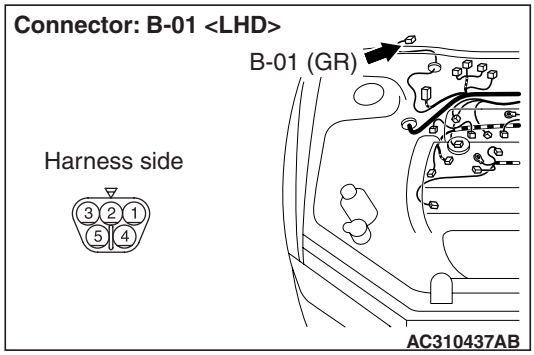
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

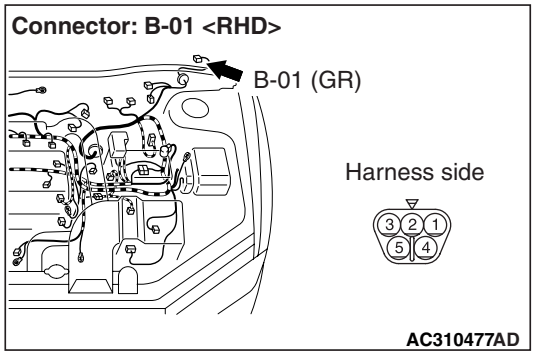
Step 2. Check the windshield wiper motor assembly.

Refer to GROUP 51 – Windshield wiper P.51-21.

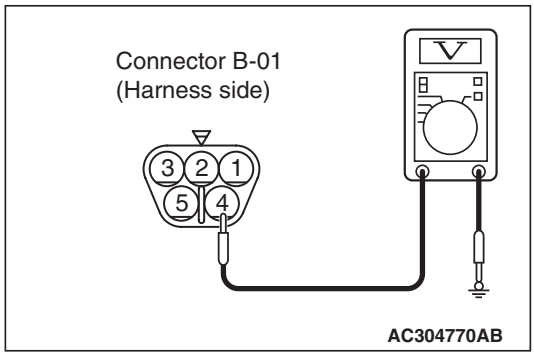
Q: Is the check result normal?
YES : Go to Step 3
NO : Replace the windshield wiper motor assembly.

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





(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ACC

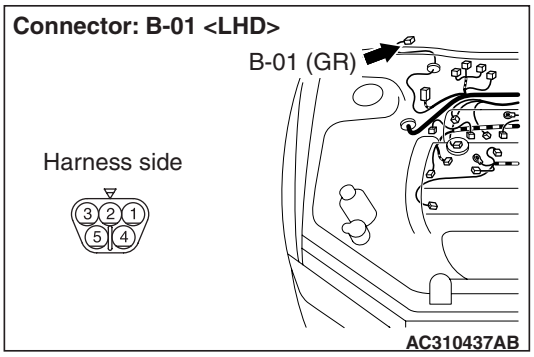


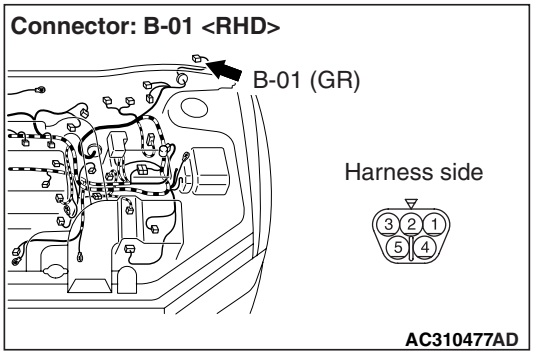
(3) Check the voltage between the B-01 windshield wiper motor connector terminal No.4 and body earth.

OK: System voltage

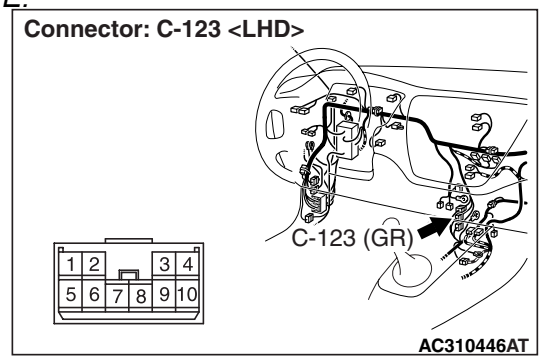
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

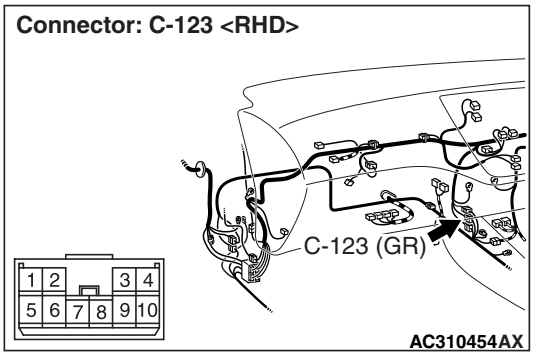
Step 4. Check the wiring harness between B-01 windshield wiper motor connector terminal No.4 and ignition switch (ACC).

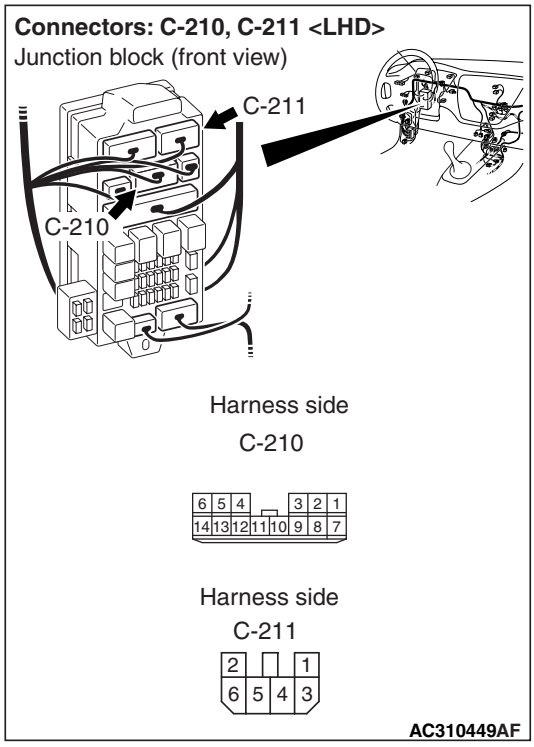


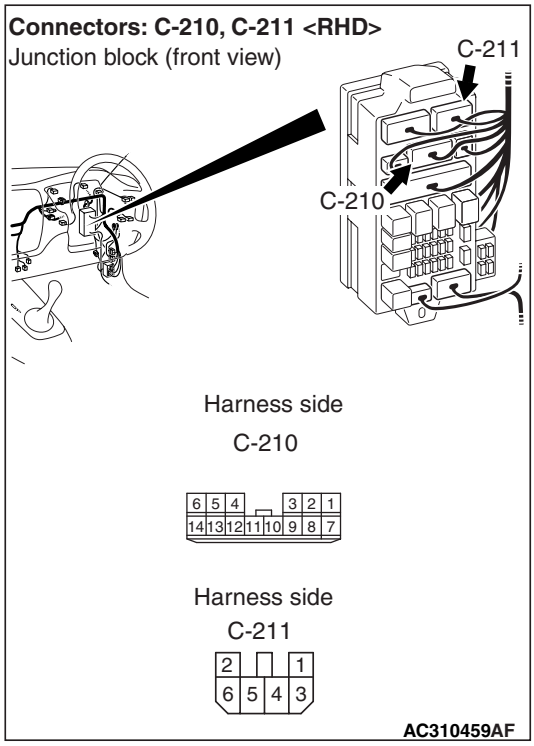


NOTE:









Prior to the wiring harness inspection, check the junction connectors C-210, C-211 and the intermediate connector C-123 and repair if necessary.

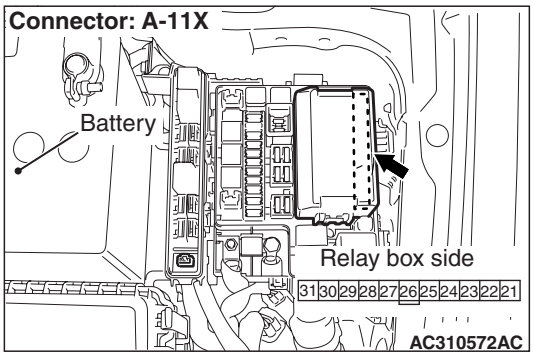
- Check the power supply line to ignition switch (ACC) for open circuit.

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.00-5).

NO : Repair the wiring harness.

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

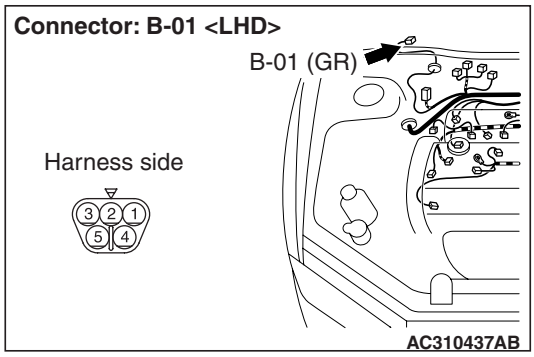


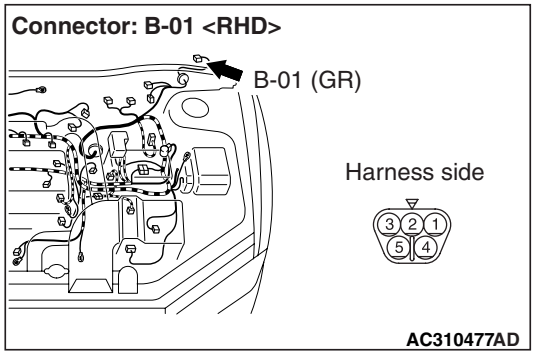
Q: Is the check result normal?

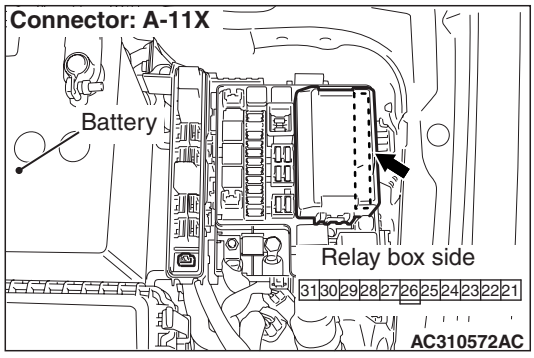
YES : Go to Step 6.

NO : Repair the connector.

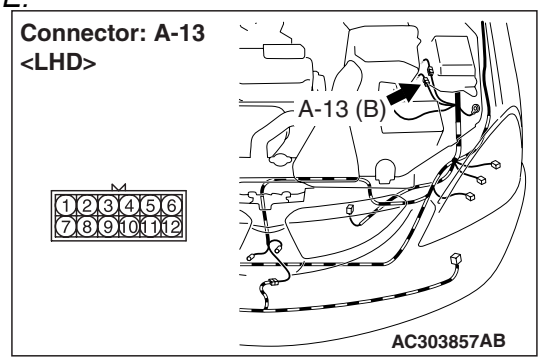
Step 6. Check the wiring harness between B-01 windshield wiper motor connector terminal No.3 and A-11X front-ECU connector terminal No.23.

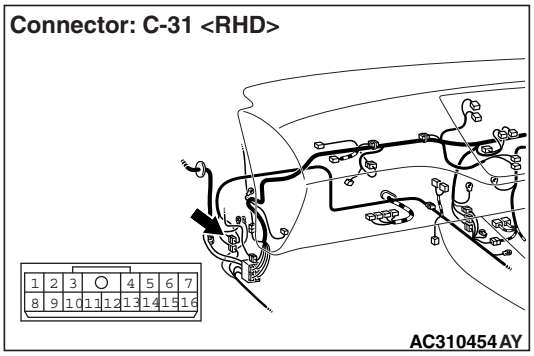






NOTE:





Prior to the wiring harness inspection, check the intermediate connector A-13 <LH drive vehicles>, C-31 <RH drive vehicles> 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?

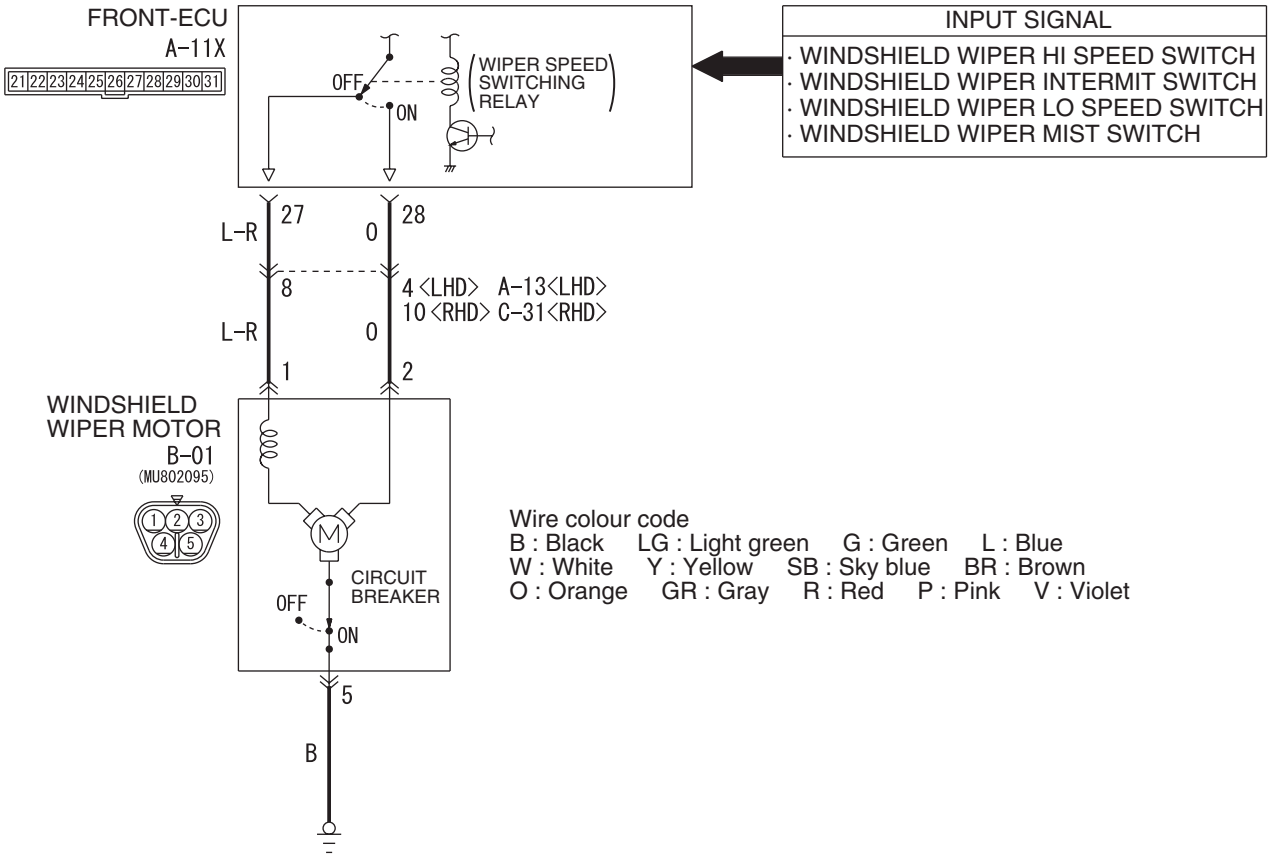
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the front-ECU.

INSPECTION PROCEDURE F-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



W4J54E112A

COMMENTS ON TROUBLE SYMPTOM

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

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

<Selected item> Column switch (column-ECU)
- Ignition switch: ON
- 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

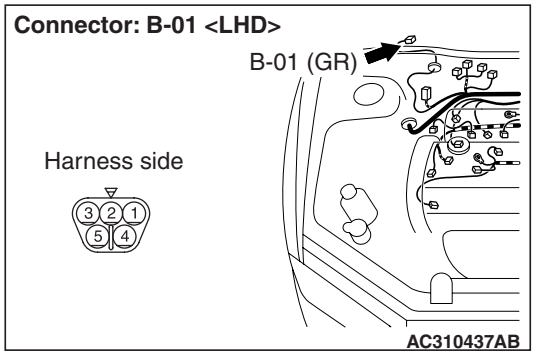
OK: Normal conditions are displayed for all the functions of the switch.

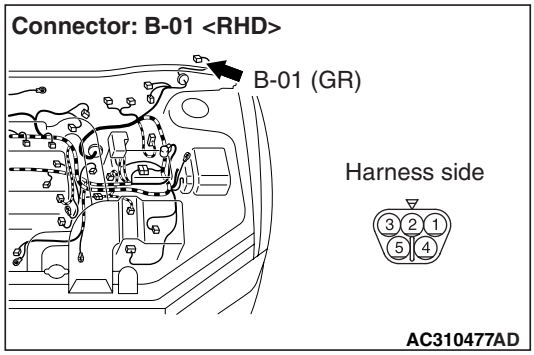
Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 2.
NO : Replace the column switch

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



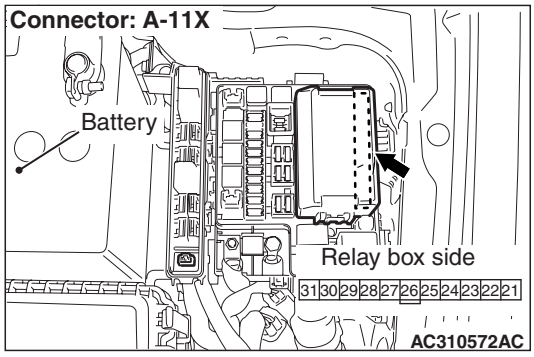


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the windshield wiper motor assembly.
Refer to GROUP 51 – Windshield wiper P.51-21.

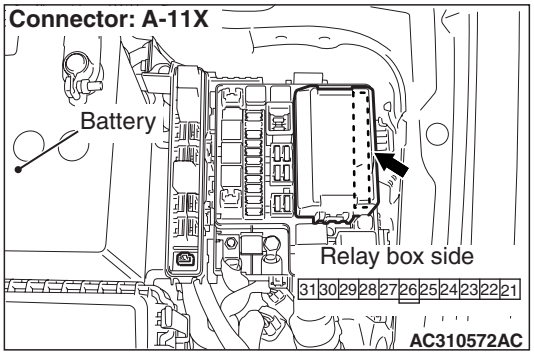
Q: Is the check result normal?
YES : Go to Step 5
NO : Replace the windshield wiper motor assembly.

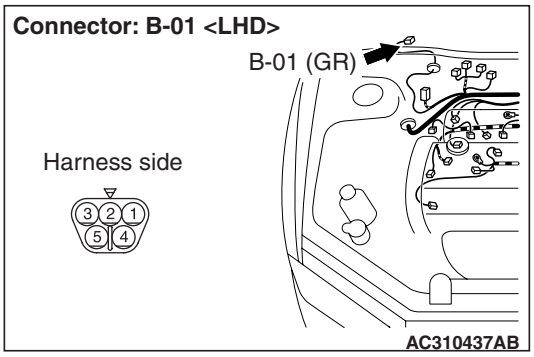
Step 5. Connector check: A-11X front-ECU connector

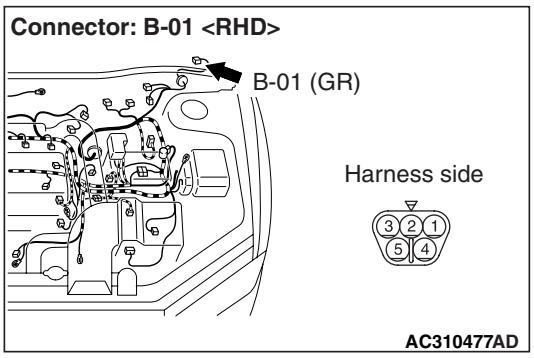


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

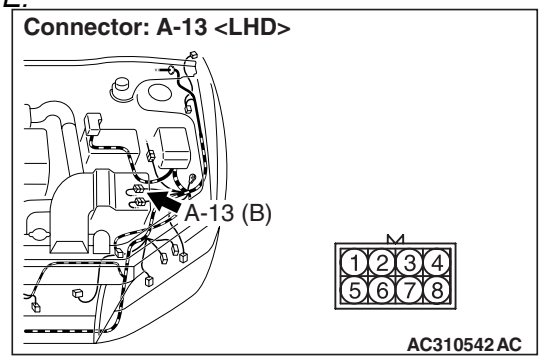
Step 6. Check the wiring harness between A-11X front-ECU connector terminal No.27 and B-01 windshield wiper motor connector terminal No.1.

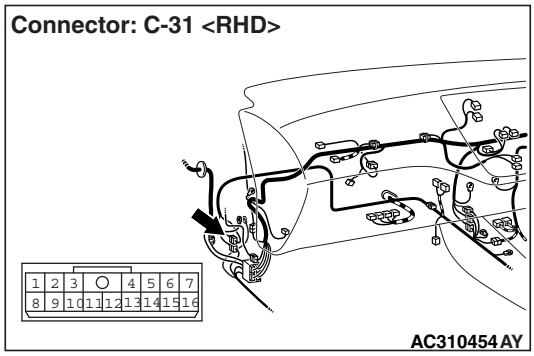






NOTE:





Prior to the wiring harness inspection, check the intermediate connector A-13 <LH drive vehicles>, C-31 <RH drive vehicles>, and repair if necessary.

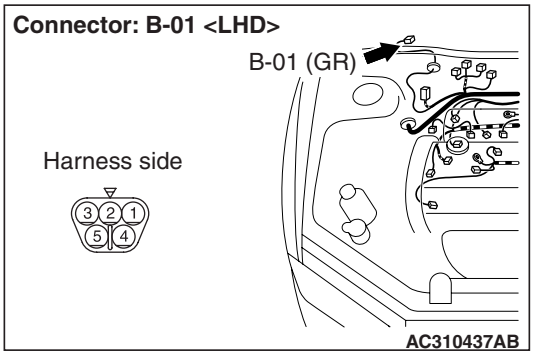
- Check the power supply line to front-ECU for open circuit.

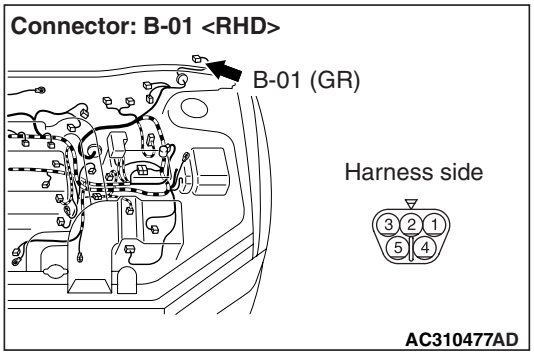
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

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.00-5).
NO : Replace the front-ECU.

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



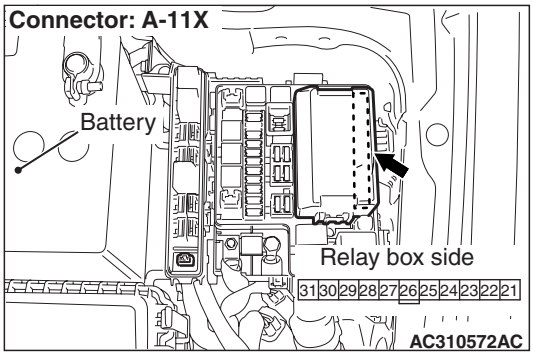


Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

Step 9. Check the windshield wiper motor assembly.
Refer to GROUP 51 – Windshield wiper P.51-21.

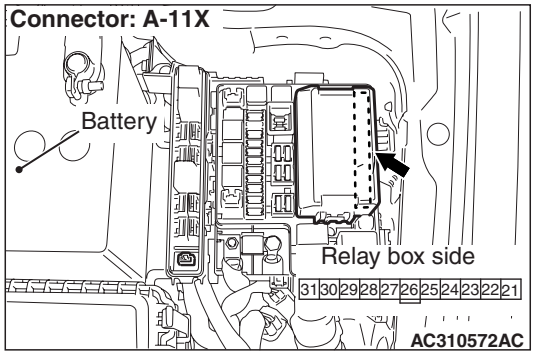
Q: Is the check result normal?
YES : Go to Step 10
NO : Replace the windshield wiper motor assembly.

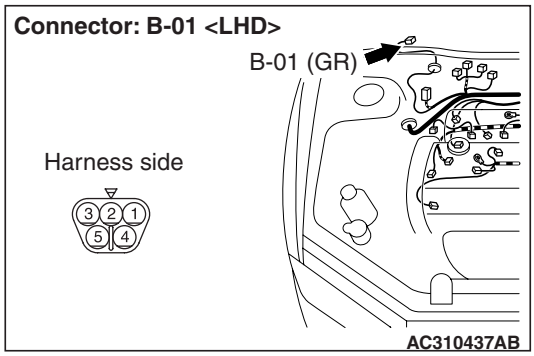
Step 10. Connector check: A-11X front-ECU connector

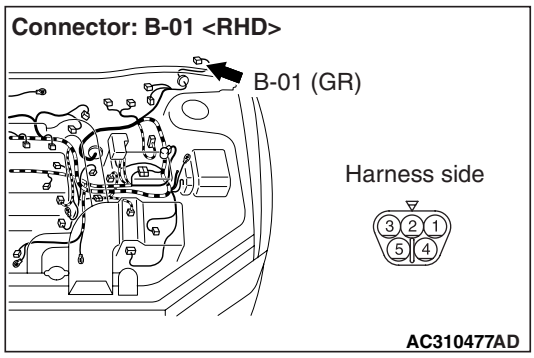


Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

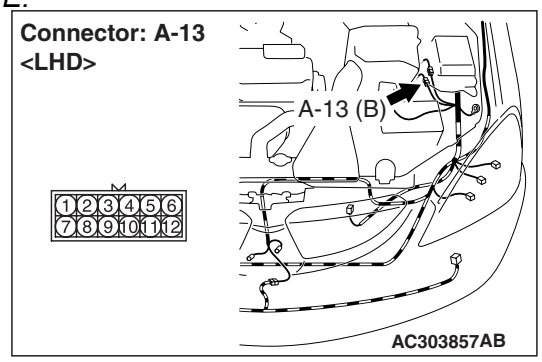
Step 11. Check the wiring harness between A-11X front-ECU connector terminal No.28 and B-01 windshield wiper motor connector terminal No.2.

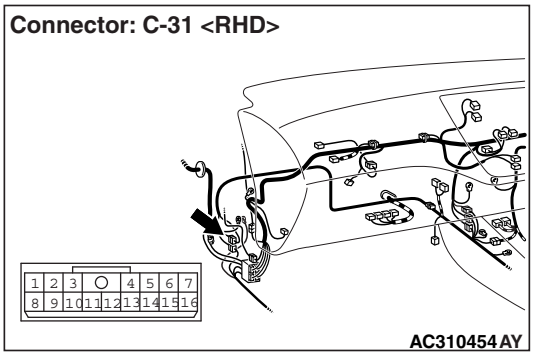






NOTE:





Prior to the wiring harness inspection, check the intermediate connector A-13 <LH drive vehicles>, C-31 <RH drive vehicles>, 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?

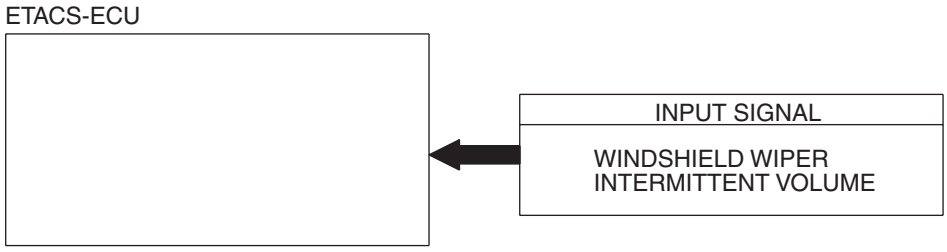
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the front-ECU.

INSPECTION PROCEDURE F-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



W4J54E114A

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

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

DIAGNOSIS PROCEDURE

Step 1. SWS monitor data list
- Rotate the windshield intermittent wiper volume when the vehicle is stopped.

NOTE: Also check that the windshield wiper interval changes smoothly when the windshield intermittent wiper interval adjusting knob is rotated from "SLOW" to "FAST" positions.

Item No.	Item name	Normal condition
Item 37	INT WIPER TIME	2.4 – 18.0 s

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure L-6 "The windshield intermittent wiper volume signal is not received P.54C-270."

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

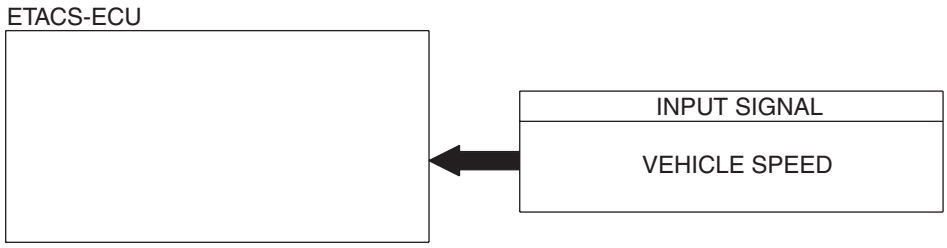
OK: The intermittent wiper interval is changed as the intermittent wiper volume is rotated.

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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE F-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.

Vehicles Speed Input Signal



W4J54E115A

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-302).

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 F-5 "The intermittent wiper interval cannot be adjusted by operating the windshield intermittent wiper volume control P.54C-161."

Step 3. SWS monitor data list

- Enter a simulated vehicle speed when the windshield intermittent wiper interval adjusting knob position is slow side.

NOTE: Also check that the wiper interval changes smoothly when the vehicle is accelerated from 0 km/h to 25 km/h.

Item No.	Item name	Normal condition
ITEM 37	INT WIPER TIME	18.0 – 12.0 s

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to Inspection Procedure L-13 "The vehicle speed sensor signal is not received P.54C-302."

Step 4. Retest the system.

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

Q: Is the check result normal?

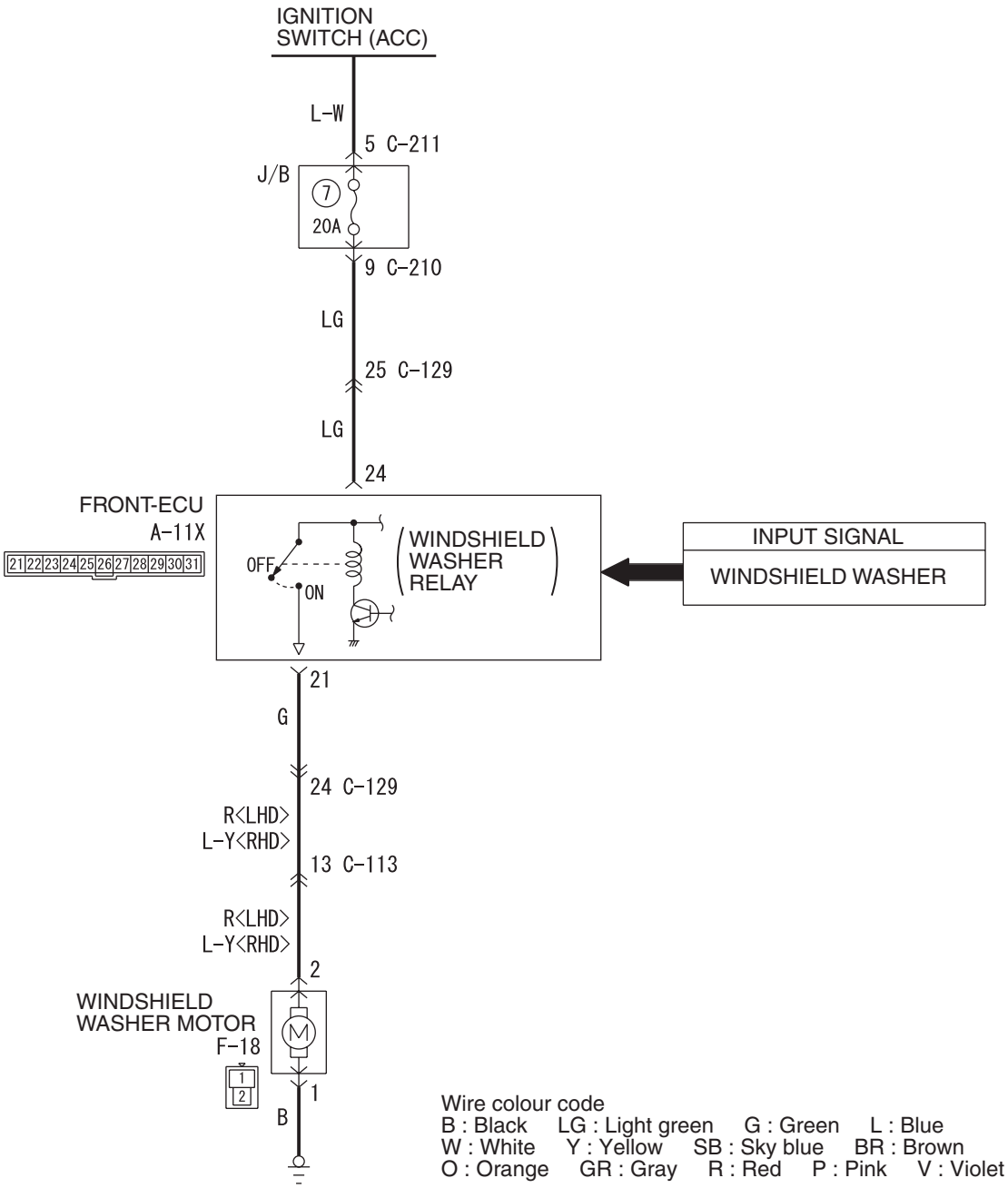
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE F-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



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

W4J54E116A

COMMENTS ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

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

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 F-1 "The windshield wipers do not work at all P.54C-142."

Step 2. ECU check on 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.

- Turn the ignition switch to the ACC position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?

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

"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-30."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

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?

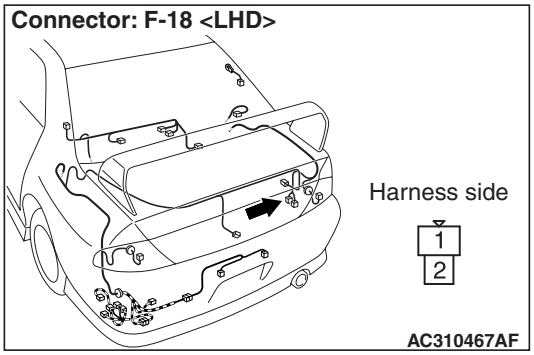
Normal conditions are displayed for all the items : Go to Step 4.

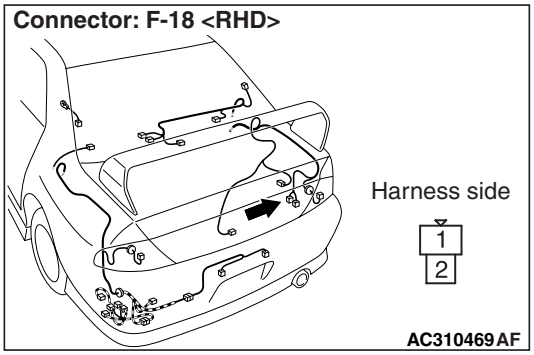
Normal condition is not displayed for item No.09 : Replace the column switch.

Normal condition is not displayed for item No.31 : Refer to Inspection Procedure L-1 "The ignition switch (ACC) signal is not received P.54C-258."

Normal condition is not displayed for item No.70 : Replace the front-ECU.

Step 4. Connector check: F-18 windshield washer motor connector



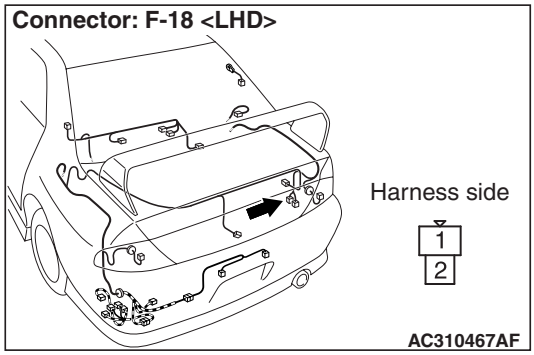


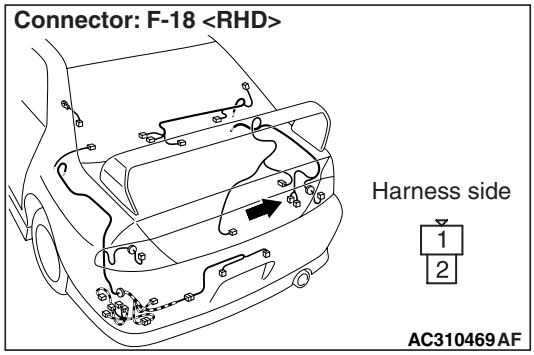
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

Step 5. Check the windshield washer motor assembly.
Refer to GROUP 51 – Windshield washer P.51-24.

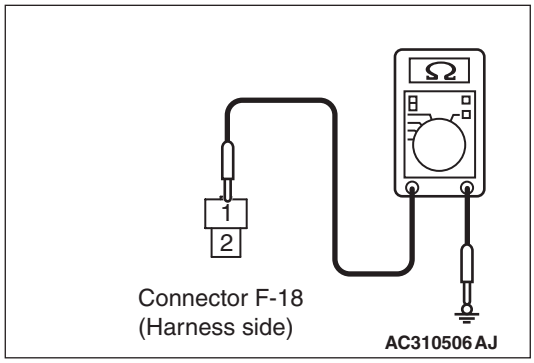
Q: Is the check result normal?
YES : Go to Step 6
NO : Replace the windshield washer motor.

Step 6. Resistance measurement at the F-18 windshield washer motor connector





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

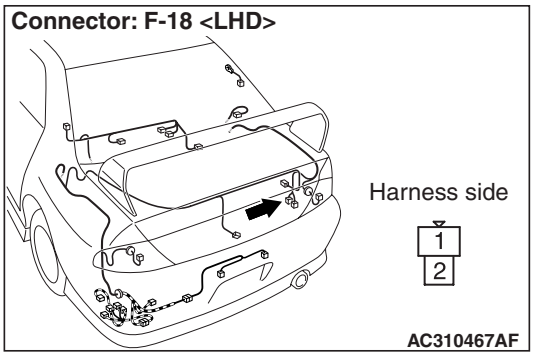


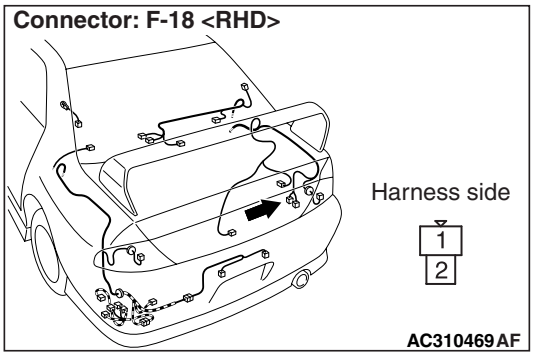
(2) Continuity between F-18 windshield washer motor connector terminal No.1 and body earth

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 F-18 windshield washer motor connector terminal No.1 and body earth.

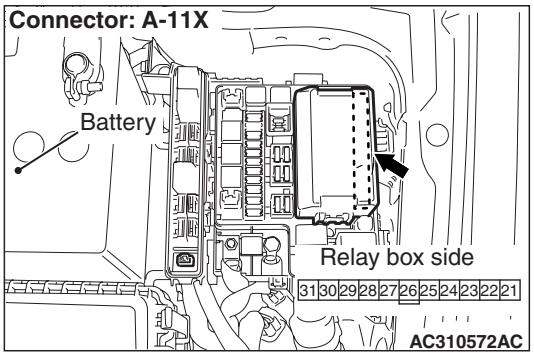




- Check the earth wires for open circuit.

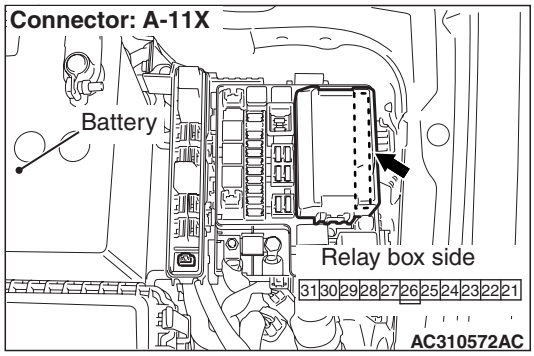
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

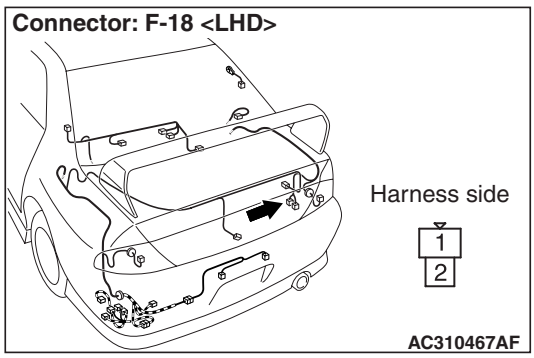
Step 8. Connector check: A-11X front-ECU connector

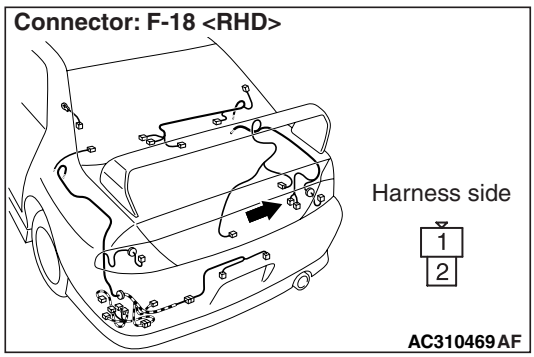


Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector.

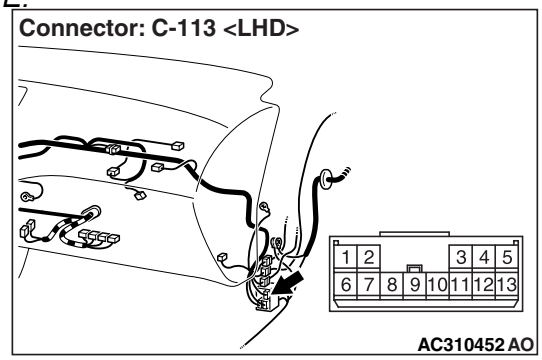
Step 9. Check the wiring harness between F-18 windshield washer motor connector terminal No.2 and A-11X front-ECU connector terminal No.21.

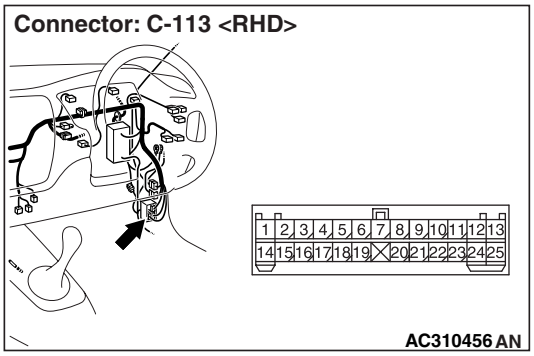


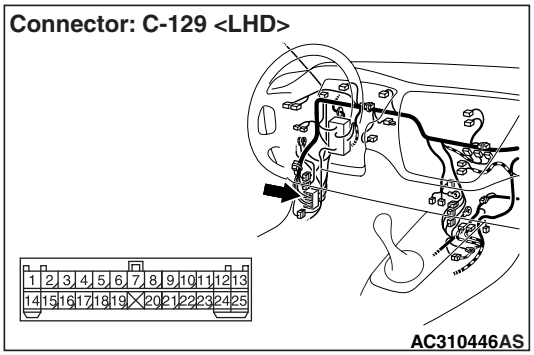


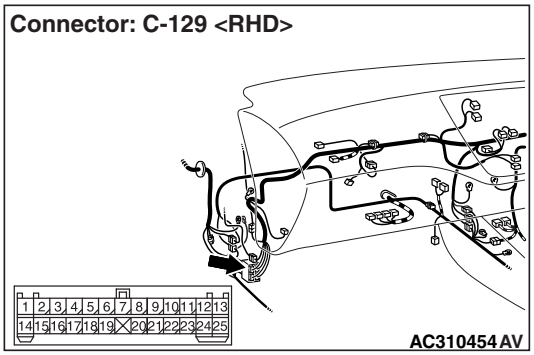


NOTE:









Prior to the wiring harness inspection, check the intermediate connector C-113, C-129 and repair if necessary.

- Check the power supply line to 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.

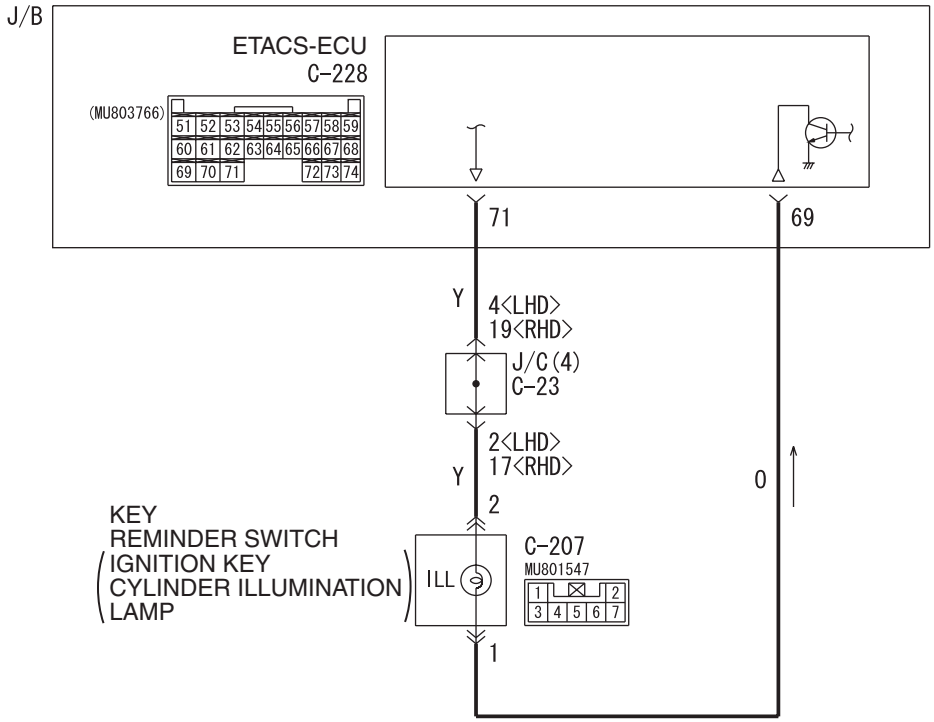
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the front-ECU.

IGNITION KEY CYLINDER ILLUMINATION LAMP

INSPECTION PROCEDURE G-1: The ignition key cylinder illumination lamp does not illuminate/extinguish normally.

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

Ignition Key Cylinder Illumination 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 : Gray R : Red P : Pink V : Violet

W4J54E134A

COMMENTS ON TROUBLE SYMPTOM

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

- Ignition switch (IG1)
- Key reminder switch
- Driver's door switch
- Interior lamp loaded signal

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

POSSIBLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the driver's door switch
- Malfunction of the ignition key cylinder illumination lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the operation of the room lamp.
Check that the room lamps illuminate and extinguish normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure K-1 "The front or rear room lamp does not illuminate or extinguish P.54C-244."

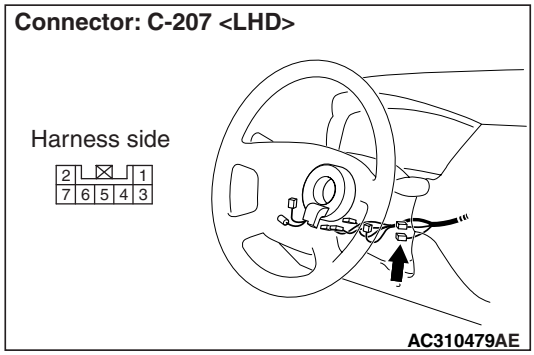
Step 2. Pulse check
Check the input signals below, which are related to the ignition key cylinder illumination lamp.

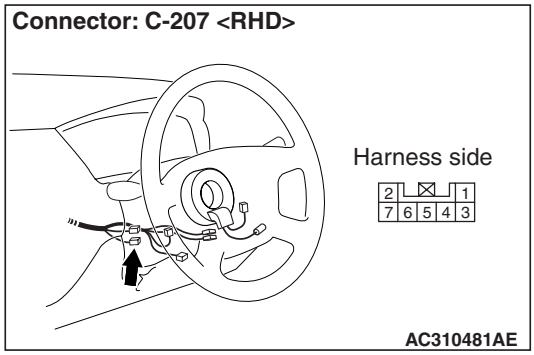
System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Key reminder switch	When the inserted ignition key is pulled out
Driver's door switch	When the driver's door is opened

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

Q: Is the check result normal?
All the signals are received normally. : Go to Step 3.
The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
The key reminder switch signal is not received. : Refer to Inspection Procedure L-9 "The key reminder switch signal is not received P.54C-281."
The driver's door switch signal is not received. : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ," or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."

Step 3. Connector check: C-207 key reminder switch connector



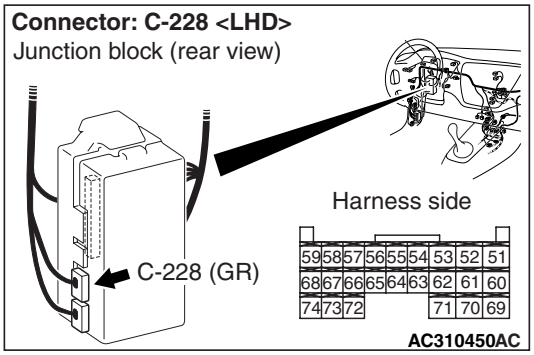


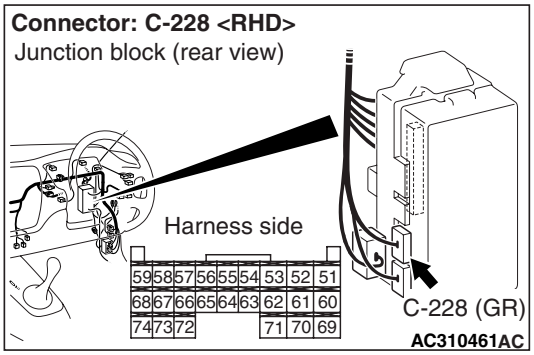
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the bulb of the ignition key cylinder illumination lamp.
Check the bulb of the ignition key cylinder illumination lamp.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the bulb of the ignition key cylinder illumination lamp.

Step 5. Connector check: C-228 ETACS-ECU connector



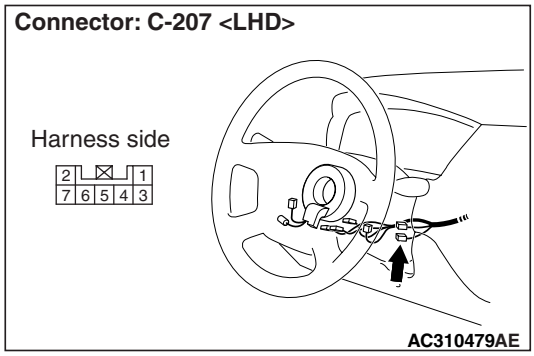


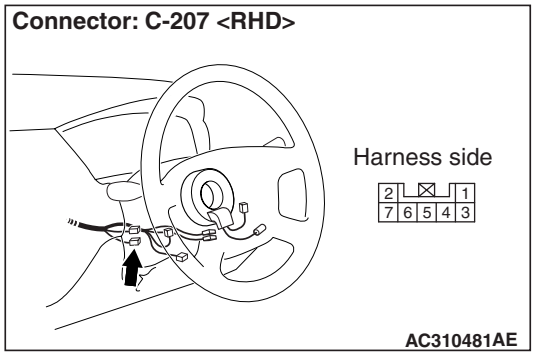
Q: Is the check result normal?

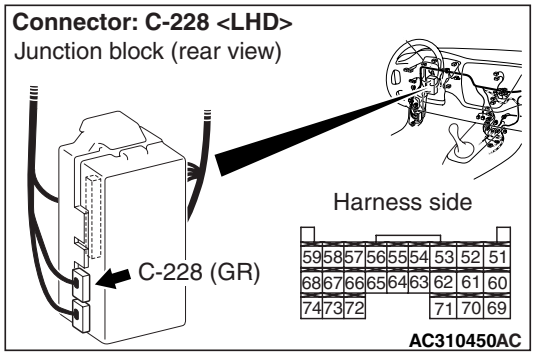
YES : Go to Step 6.

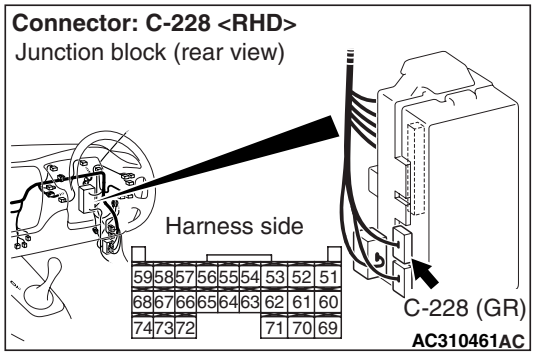
NO : Repair the defective connector.

Step 6. Check the wiring harness from C-228 ETACS-ECU connector terminal Nos.69 and 71 to C-207 ignition key cylinder illumination lamp connector terminal Nos.1 and 2.

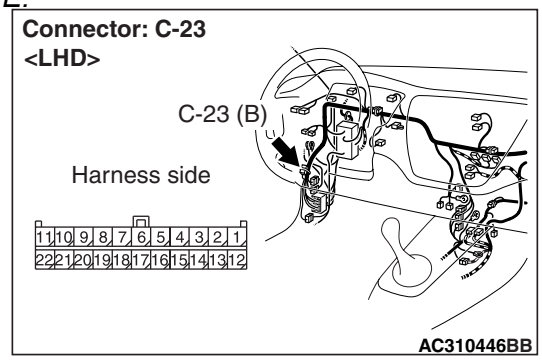


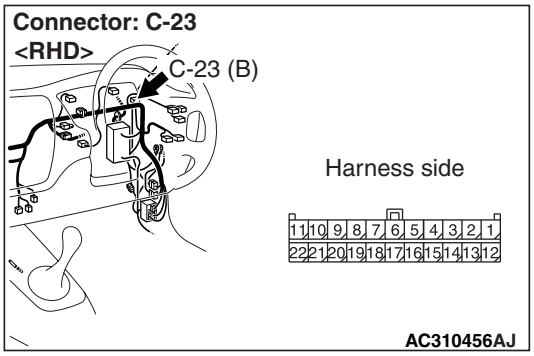






NOTE:





Prior to the wiring harness inspection, check joint connector C-23, and repair if necessary.

- Check the input and 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 ignition key cylinder illumination 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.00-5).
NO : Replace the ETACS-ECU.

HEADLAMP AND TAIL LAMP

INSPECTION PROCEDURE H-1: The headlamps do not illuminate when the lighting 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.

POSSIBLE 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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"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-30."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

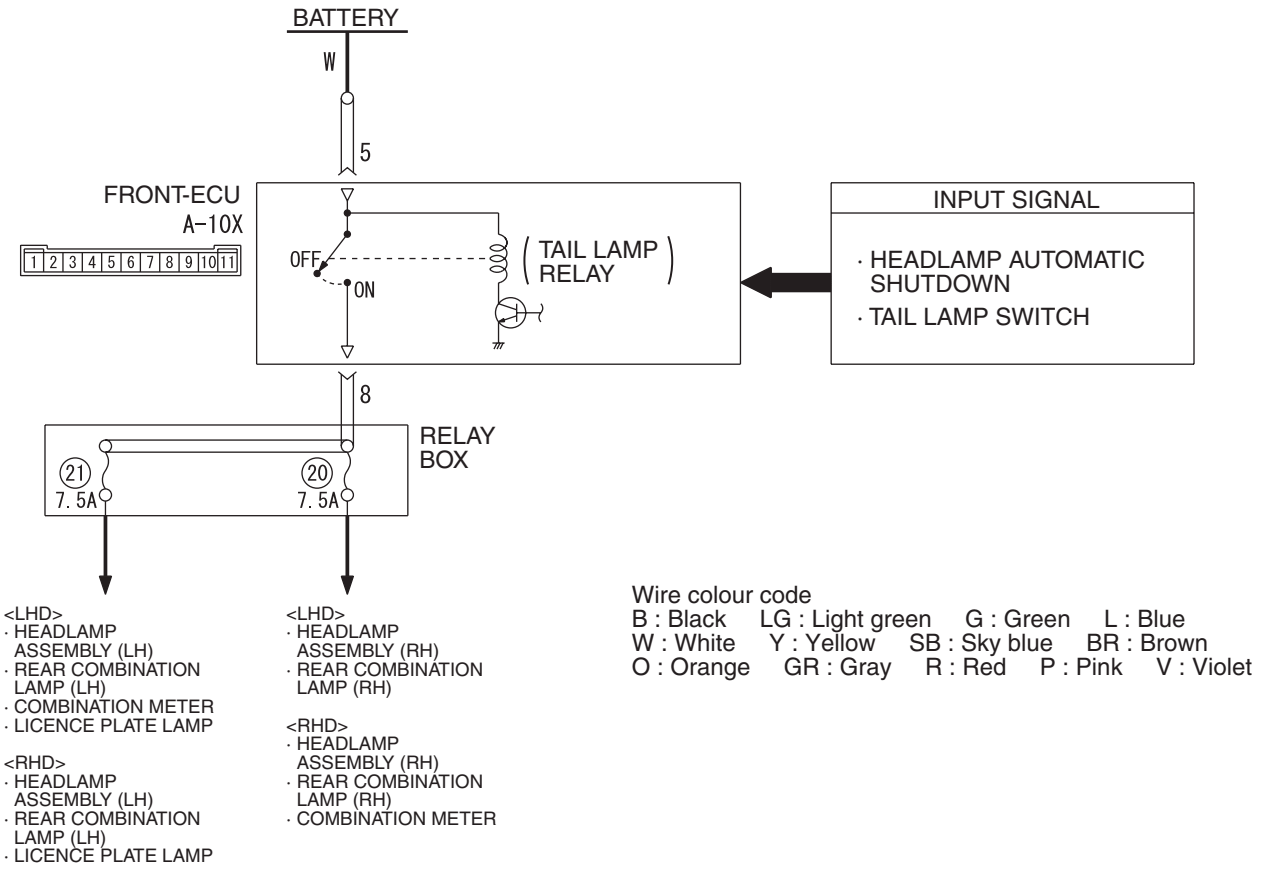
Step 2. Retest the system.
Check that the headlamps illuminate normally.

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.00-5).
NO : Replace the column switch.

INSPECTION PROCEDURE H-2: The tail lamps do not illuminate normally.

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

Taillamp Relay Circuit



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.

POSSIBLE 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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"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-30."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

Step 2. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the tail lamps.

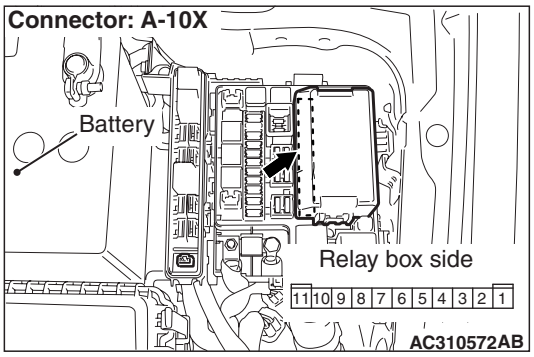
<Selected item> LIGHTING - TAIL LAMP
- Ignition switch: ON
- Lighting switch: TAIL

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 35	HD AUTO-CUT	OFF
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

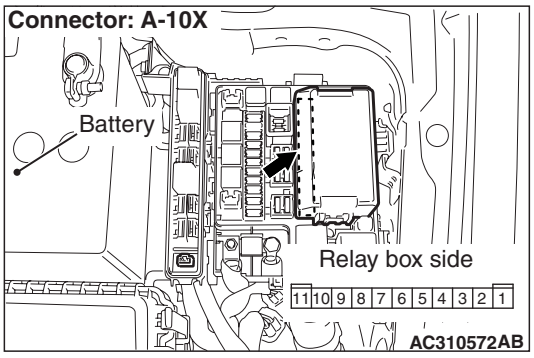
Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 3.
Normal condition is not displayed for item 00, 01 or 03. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.35. : Refer to Inspection Procedure H-6 "The headlamp automatic shutdown function does not work normally P.54C-183."
Normal condition is not displayed for item No.70. : Replace the front-ECU.

Step 3. Connector check: A-10X front-ECU connector

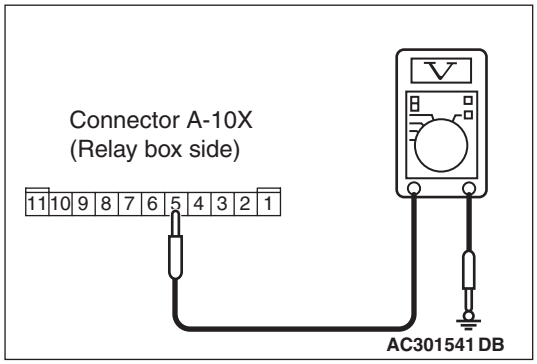


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Voltage measurement at A-10X front-ECU connector



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

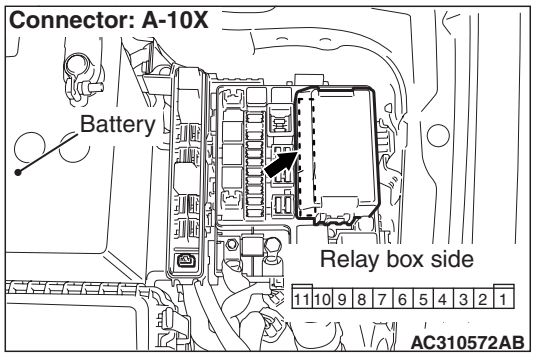


(2) Voltage between A-10X front-ECU connector terminal No.5 and body earth

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 A-10X front-ECU connector terminal No.5 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.00-5).
NO : Repair the wiring harness.

Step 6. Retest the system.

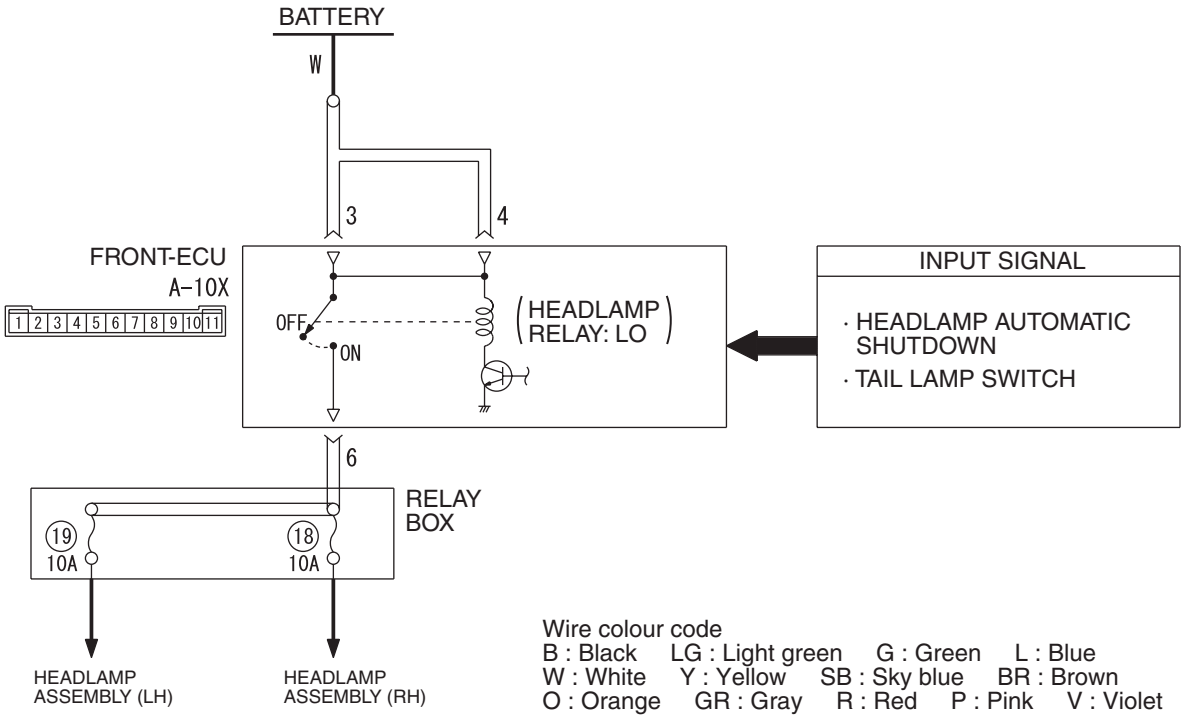
Check that the tail lamps illuminate normally.

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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE H-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



W4J54E118A

COMMENTS ON TROUBLE SYMPTOM

If the low-beam headlamps do not illuminate, the headlamp switch input circuit or the front-ECU may be defective.

POSSIBLE 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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"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-30."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

Step 2. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the low-beam headlamps.

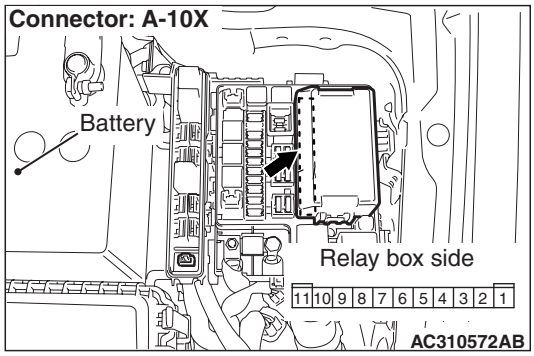
<Selected item> LIGHTING - HEADLAMP LO
- Ignition switch: ON
- Lighting switch: HEAD

Item No.	Item name	Normal condition
Item 00	HEADLAMP SW	ON
Item 03	PASSING SW	OFF
Item 30	IG SW(IG1)	ON
Item 35	HD AUTO-CUT	OFF
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

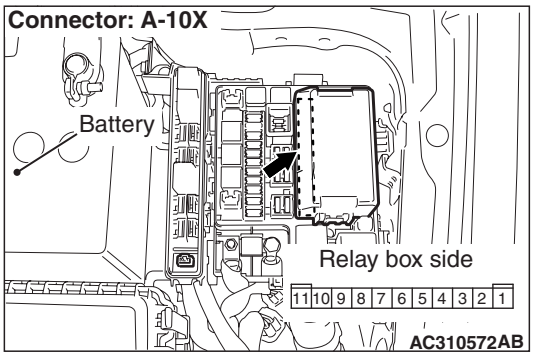
Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 3.
Normal condition is not displayed for item 00 or 03. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.35. : Refer to Inspection Procedure H-6 "The headlamp automatic shutdown function does not work normally P.54C-183."
Normal condition is not displayed for item No.70. : Replace the front-ECU.

Step 3. Connector check: A-10X front-ECU connector

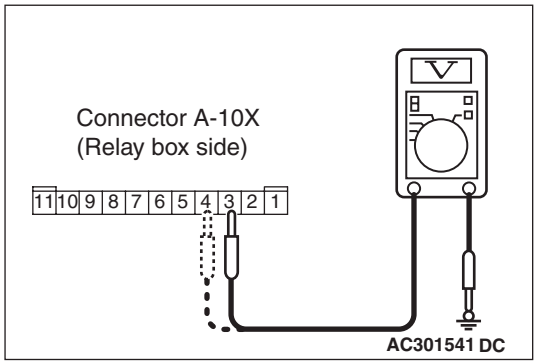


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Voltage measurement at A-10X front-ECU connector



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

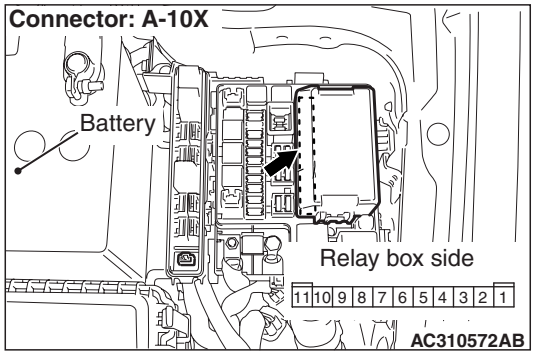


(2) Voltage between A-10X front-ECU connector terminal Nos.3, 4 and body earth

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 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.00-5).
NO : Repair the wiring harness.

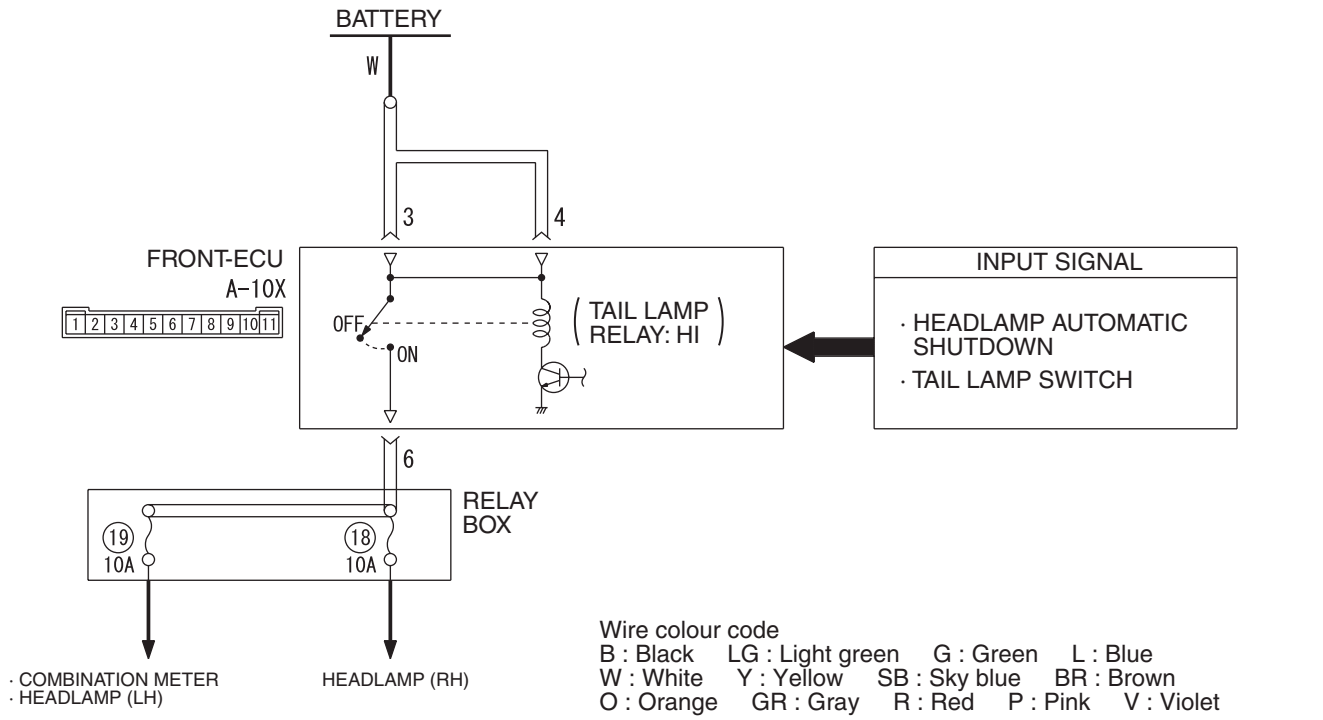
Step 6. Retest the system.
Check that the low-beam headlamps illuminate normally.

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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE H-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



W4J54E119A

COMMENTS ON TROUBLE SYMPTOM

If the high-beam headlamps do not illuminate, the dimmer switch input circuit or the front-ECU may be defective.

POSSIBLE 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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- COLUMN ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 2.
"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-30."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

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
- Ignition switch: ON
- Lighting switch: HEAD
- 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 35	HD AUTO-CUT	OFF
Item 70	FRONT ECU ACK	NORMAL ACK

OK: Normal conditions displayed for all the items

Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 3.
Normal condition is not displayed for item 00, 02 or 03. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.35. : Refer to Inspection Procedure H-6 "The headlamp automatic shutdown function does not work normally P.54C-183."
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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE H-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.

POSSIBLE 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 H-3 "The low-beam headlamps do not illuminate normally P.54C-177." And refer to Inspection Procedure H-4 "The high-beam headlamps do not illuminate normally P.54C-180."

Step 2. Check the SWS monitor data list.
Check the ETACS-ECU signals which are related to the headlamps.

<Selected item> COLUMN ECU
- Passing lamp switch: ON

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 L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."

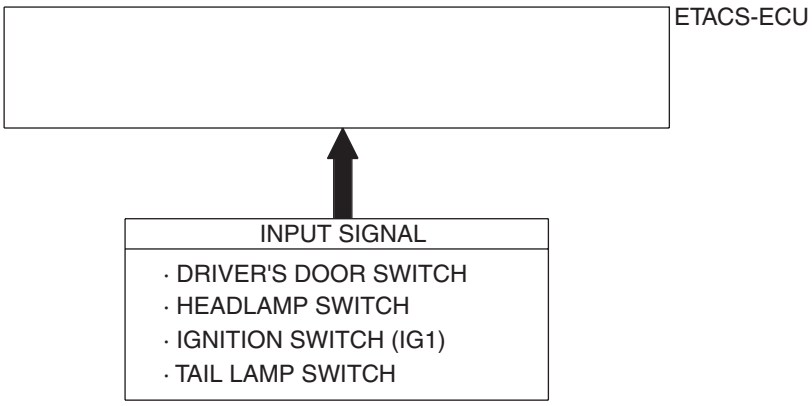
Step 3. Retest the system.
When the passing switch is turned on, check if the headlamps illuminate normally.

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.00-5).
NO : Replace the front-ECU.

INSPECTION PROCEDURE H-6: The headlamp automatic shutdown function does not work normally.

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

Headlamp Automatic Shutdown Function



W4J54E120A

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), the front-ECU or the ETACS-ECU may be defective. On vehicles with keyless entry system, note that this function can be disabled/enabled by the customize function (default setting; enabled).

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Customize function by using the SWS monitor.

Check that the headlamp 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 headlamp automatic shutdown function by using the adjustment function. Refer to GROUP 54B – Configuration Function P.54B-302.

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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- COLUMN ECU
- ETACS ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 3.
"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-30."
"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

Step 3. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the headlamp automatic shutdown function.

<Selected item> LIGHTING - HD AUTO-CUT
- Ignition switch: from ON to OFF
- Lighting switch: "TAIL" or "HEAD"

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)	from ON to OFF
Item 70	FRONT ECU ACK	SLEEP ACK or NORMAL ACK

- Driver's door: open

Item No.	Item name	Normal condition
Item 32	DR DOOR SW	ON
Item 35	HD AUTO-CUT	OFF

OK: Normal conditions displayed for all the items

Q: Is the check result normal?
Normal conditions displayed for all the items : Go to Step 4.
Normal condition is not displayed for item 00 or 01. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.32. : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ," or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."
Normal condition is not displayed for item 35 or 70. : Replace the front-ECU.

Step 4. Retest the system.
Check that the headlamp automatic shutdown function works normally.

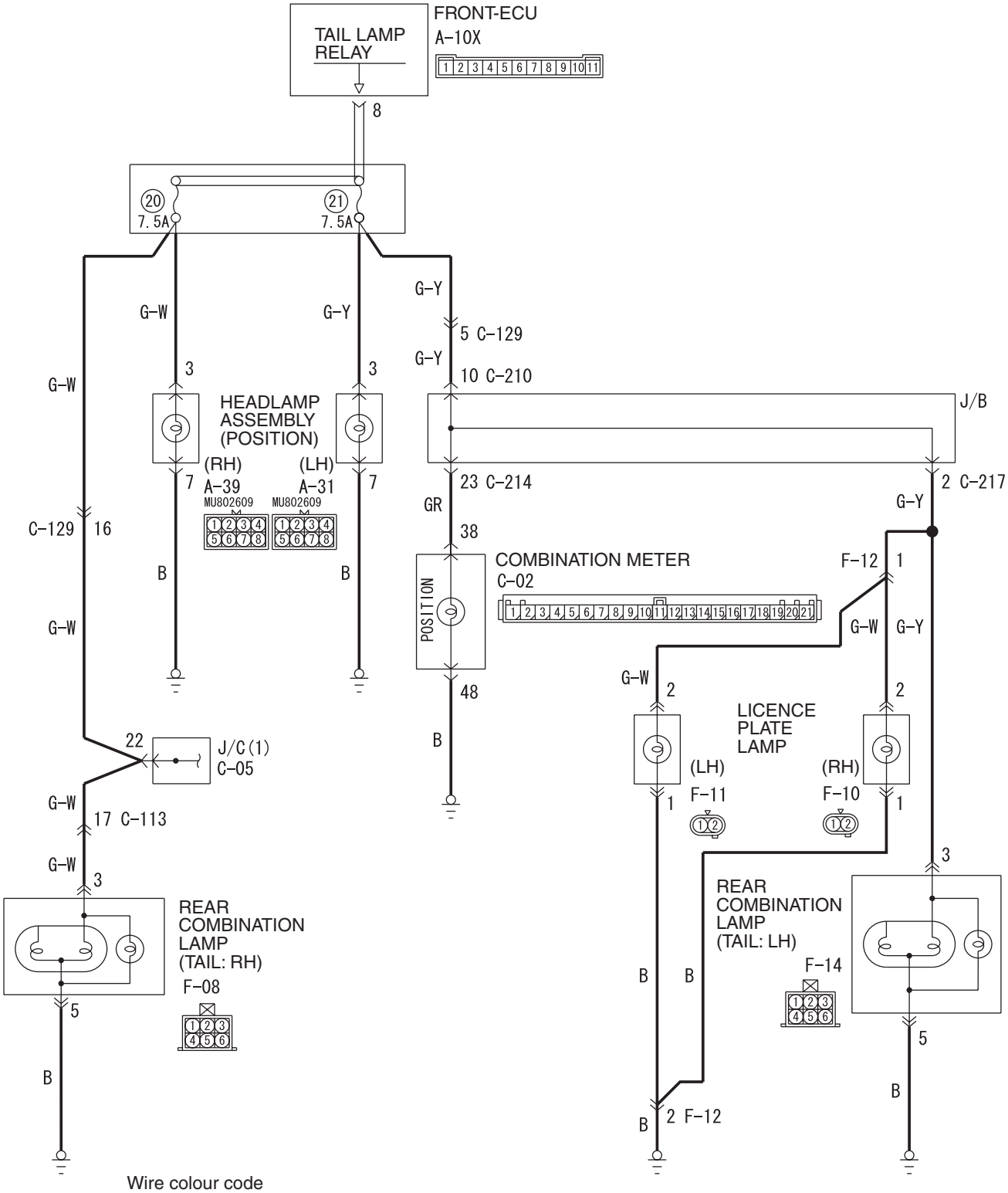
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE H-7: Any of tail lamps, position lamps or licence plate lamps does not illuminate. <LH drive vehicles>

⚠ CAUTION

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

Taillamps, Position Lamps and License Plate Lamps Circuit <LHD>



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

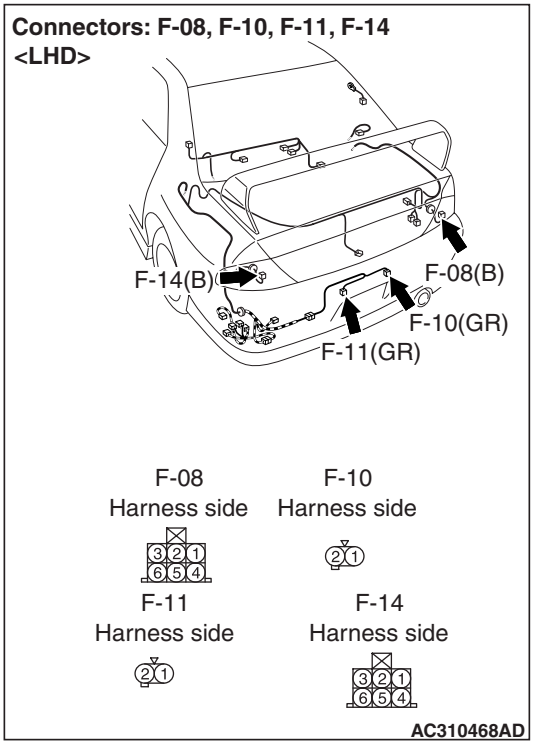
If the tail lamps, the position lamps or the licence plate lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

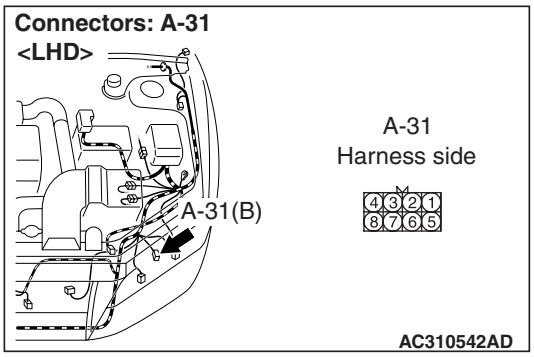
POSSIBLE CAUSES

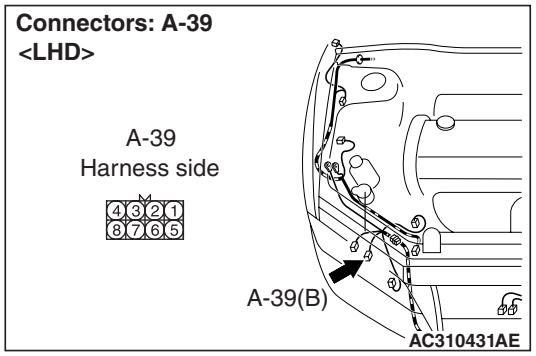
- Burned-out bulb
- Damaged harness wires and connectors

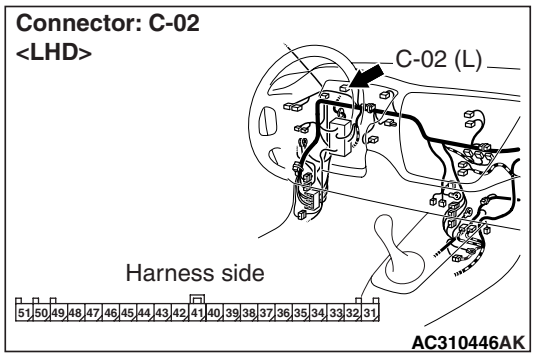
DIAGNOSTIC PROCEDURE

Step 1. Connector check: F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector, C-02 <tail lamp indicator> combination meter connector









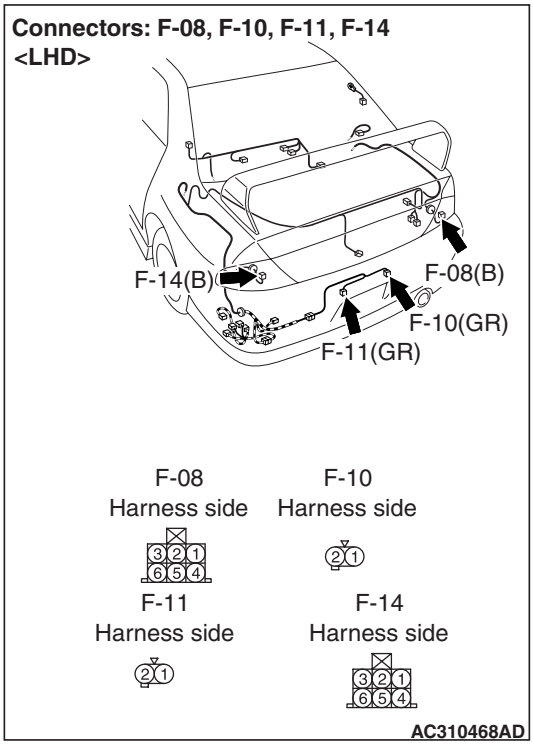
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

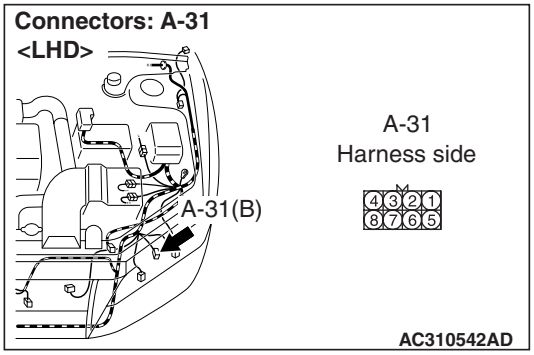
Step 2. Check the bulbs of the tail lamps, the position lamp, the licence plate lamp or tail lamp indicator.

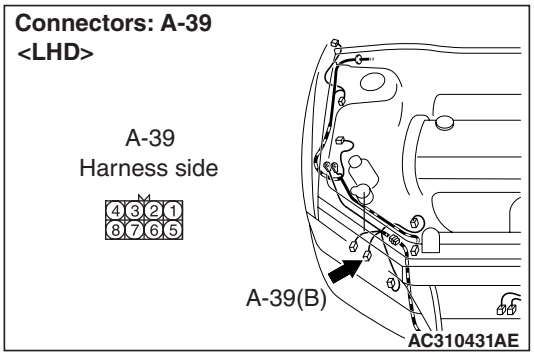
Check the bulb of the lamp which does not illuminate.

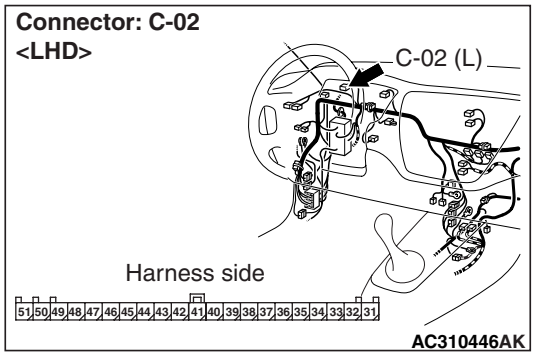
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb of the lamp which does not illuminate.

Step 3. Resistance measurement at the F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector, the A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector, the F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector or C-02 <tail lamp indicator> combination meter connector

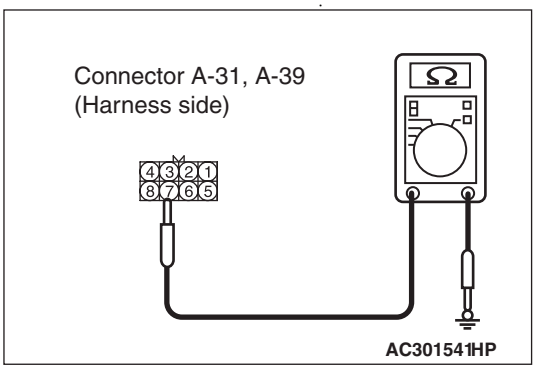






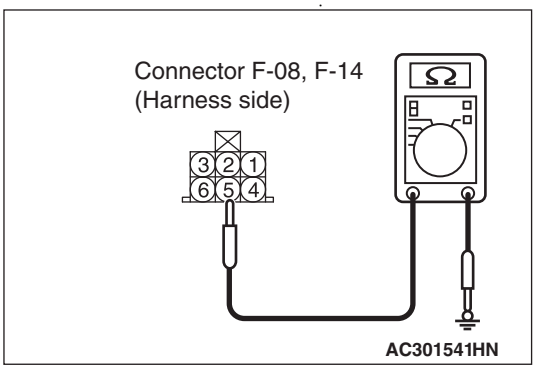


(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



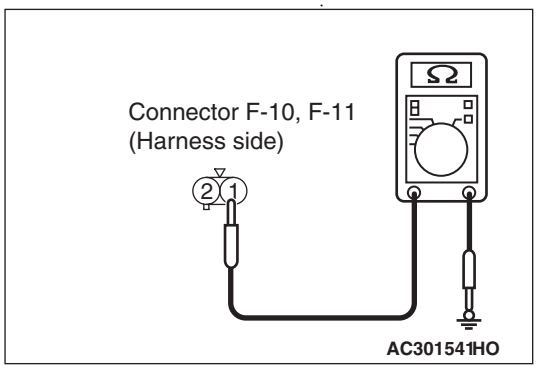
Resistance between A-31 <position lamp LH> headlamp assembly connector terminal No.7 and body earth

- Resistance between A-39 <position lamp RH> headlamp assembly connector terminal No.7 and body earth



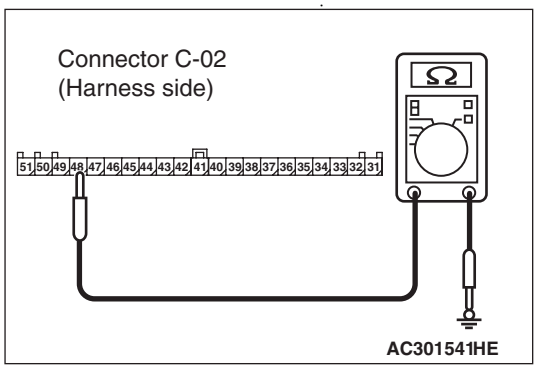
Resistance between F-14 <tail lamp LH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-08 <tail lamp RH> rear combination lamp connector terminal No.5 and body earth



Resistance between F-11 <licence plate lamp LH> licence plate lamp connector terminal No.1 and body earth

- Resistance between F-10 <licence plate lamp RH> licence plate lamp connector terminal No.1 and body earth



Resistance between C-02 <tail lamp indicator> combination meter connector terminal No.48 and body earth

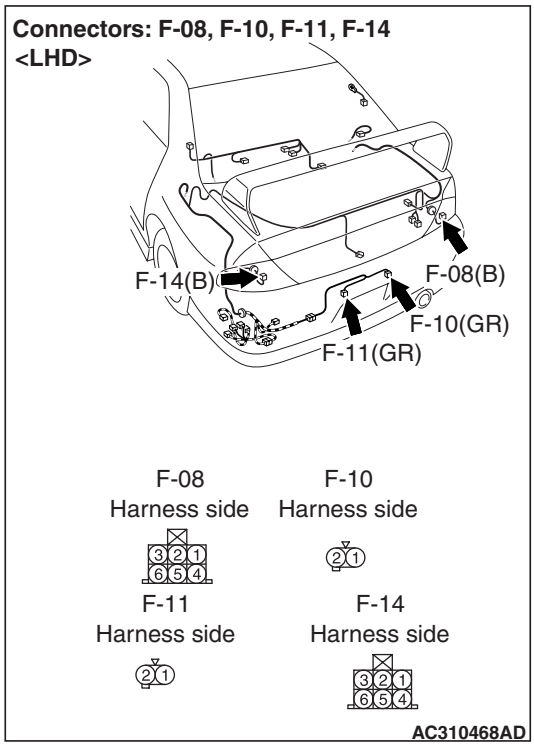
OK: 2 Ω or less

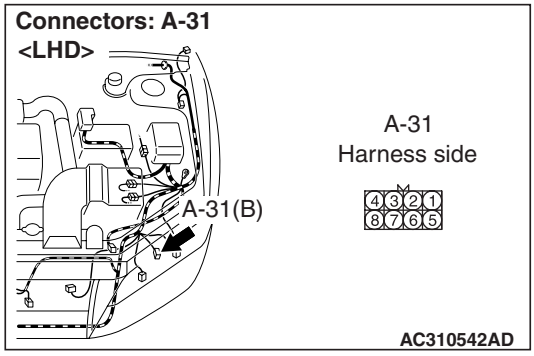
Q: Is the check result normal?

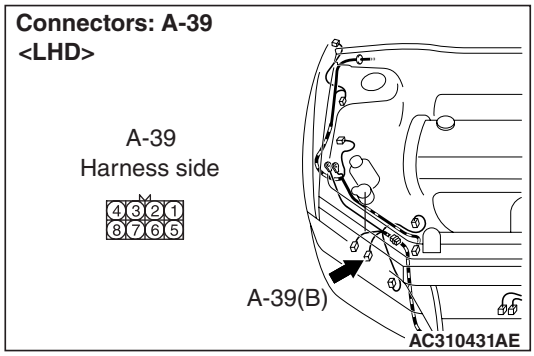
YES : Go to Step 5.

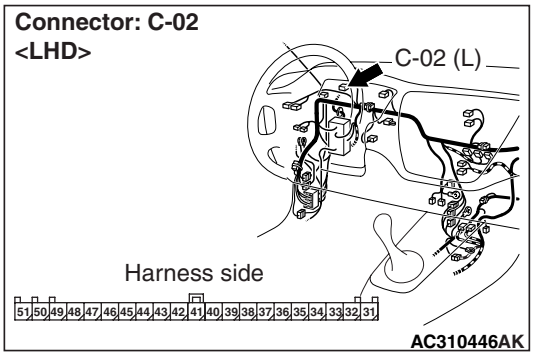
NO : Go to Step 4.

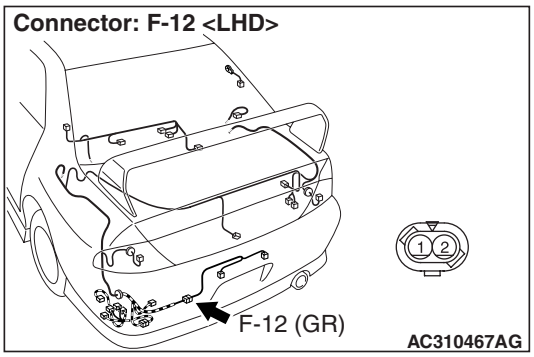
Step 4. Check the wiring harness from F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector terminal No.5, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector terminal No.7, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector terminal No.1 or C-02 <tail lamp indicator> combination meter connector terminal No.48 to body earth.











NOTE: Prior to the wiring harness inspection, check intermediate connector F-12 <licence plate lamp> and repair if necessary.

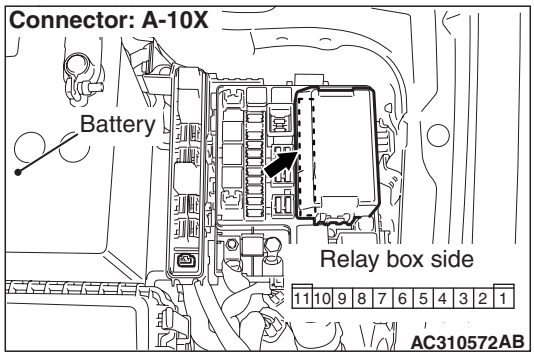
- Check the earth wires for open circuit.

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.00-5).

NO : Repair the wiring harness.

Step 5. Connector check: A-10X front-ECU connector

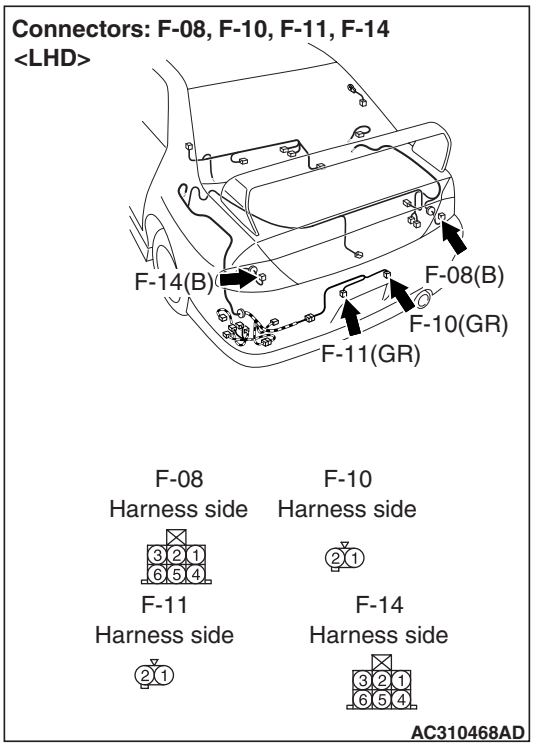


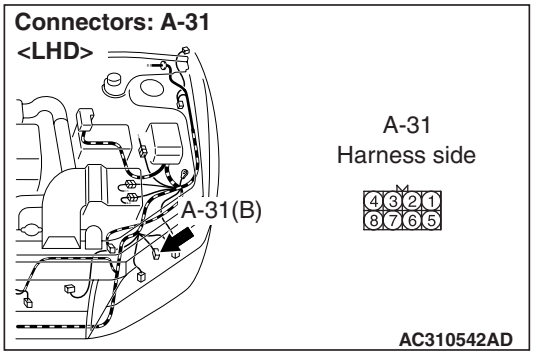
Q: Is the check result normal?

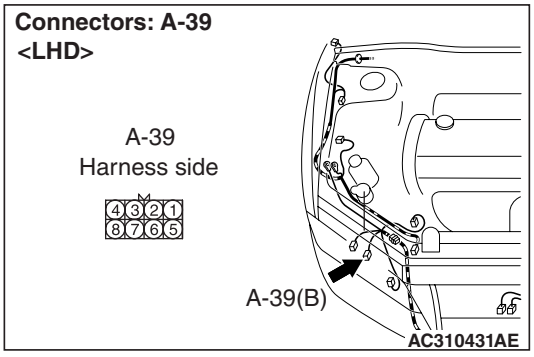
YES : Go to Step 6.

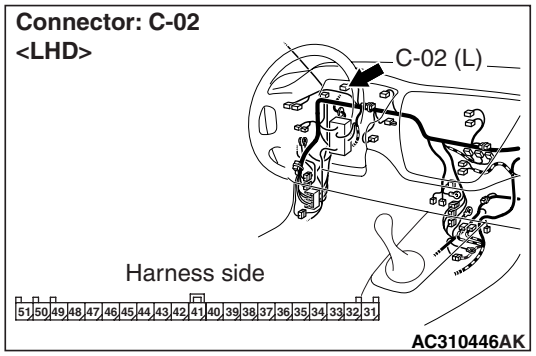
NO : Repair the defective connector.

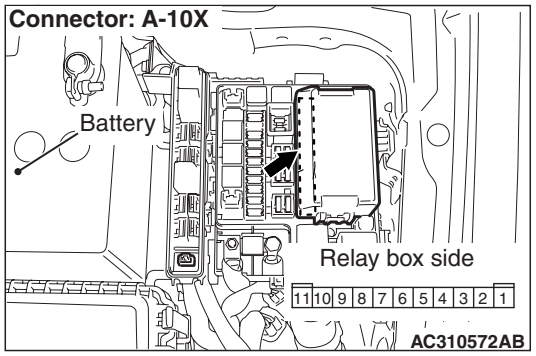
Step 6. Check the wiring harness from F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector terminal No.3, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector terminal No.3, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector terminal No.2, C-02 <tail lamp indicator> combination meter connector terminal No.38 to A-10X front-ECU connector terminal No.8.



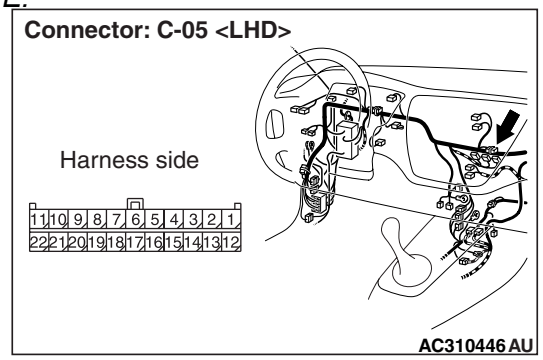


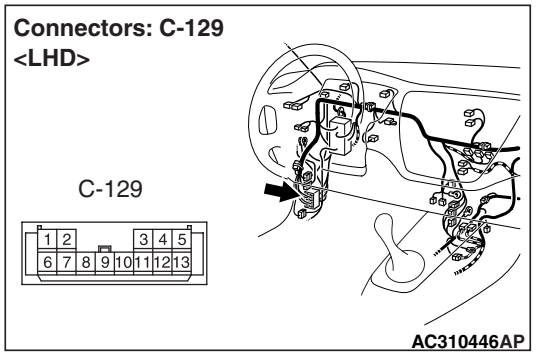


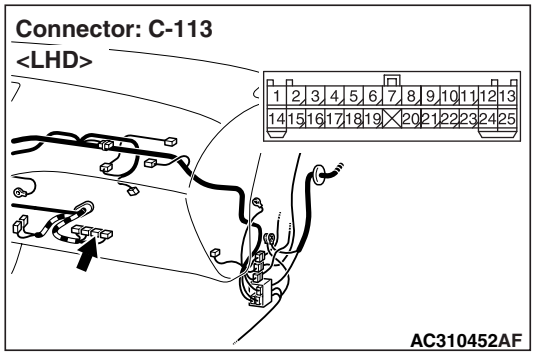


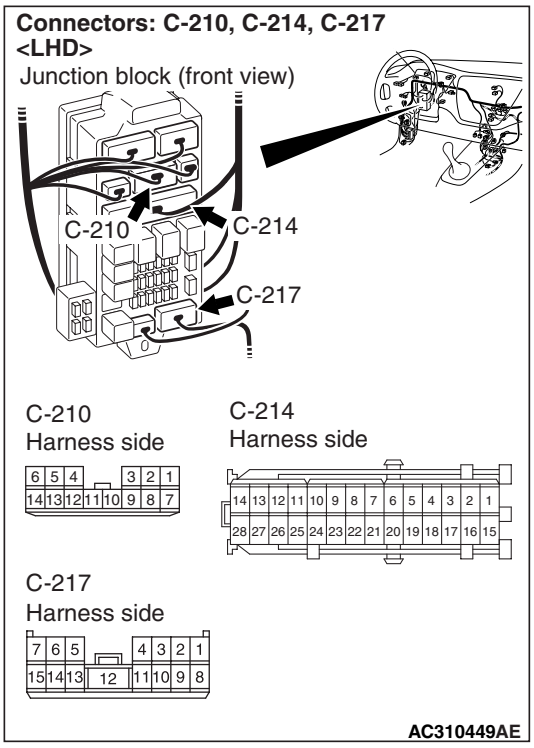


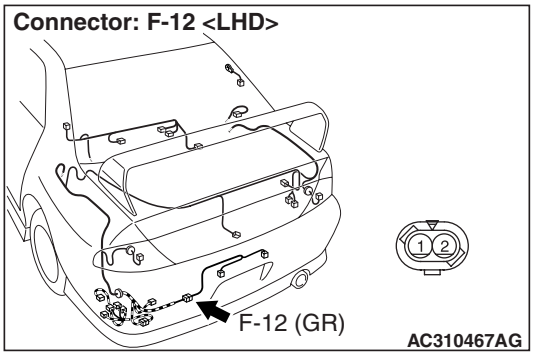
NOTE:











Prior to the wiring harness inspection, check intermediate connector C-129 <tail lamp LH, licence plate lamp or tail lamp indicator>, C-113 <tail lamp RH> or F-12 <licence plate lamp>, joint connector C-05 <tail lamp RH>, junction block connector C-210 <tail lamp LH, licence plate lamp or tail lamp indicator>, C-214 <tail lamp indicator> or C-217 <tail lamp LH or licence plate 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 tail lamps, the position lamps and the licence plate lamps illuminate normally.

Q: Is the check result normal?

The all lamps illuminate normally : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

When the tail lamps do not illuminate : Replace the rear combination lamp socket assembly.

When the position lamps do not illuminate : Replace the position lamp socket.

When the licence plate lamps do not illuminate : Replace the licence plate lamp socket.

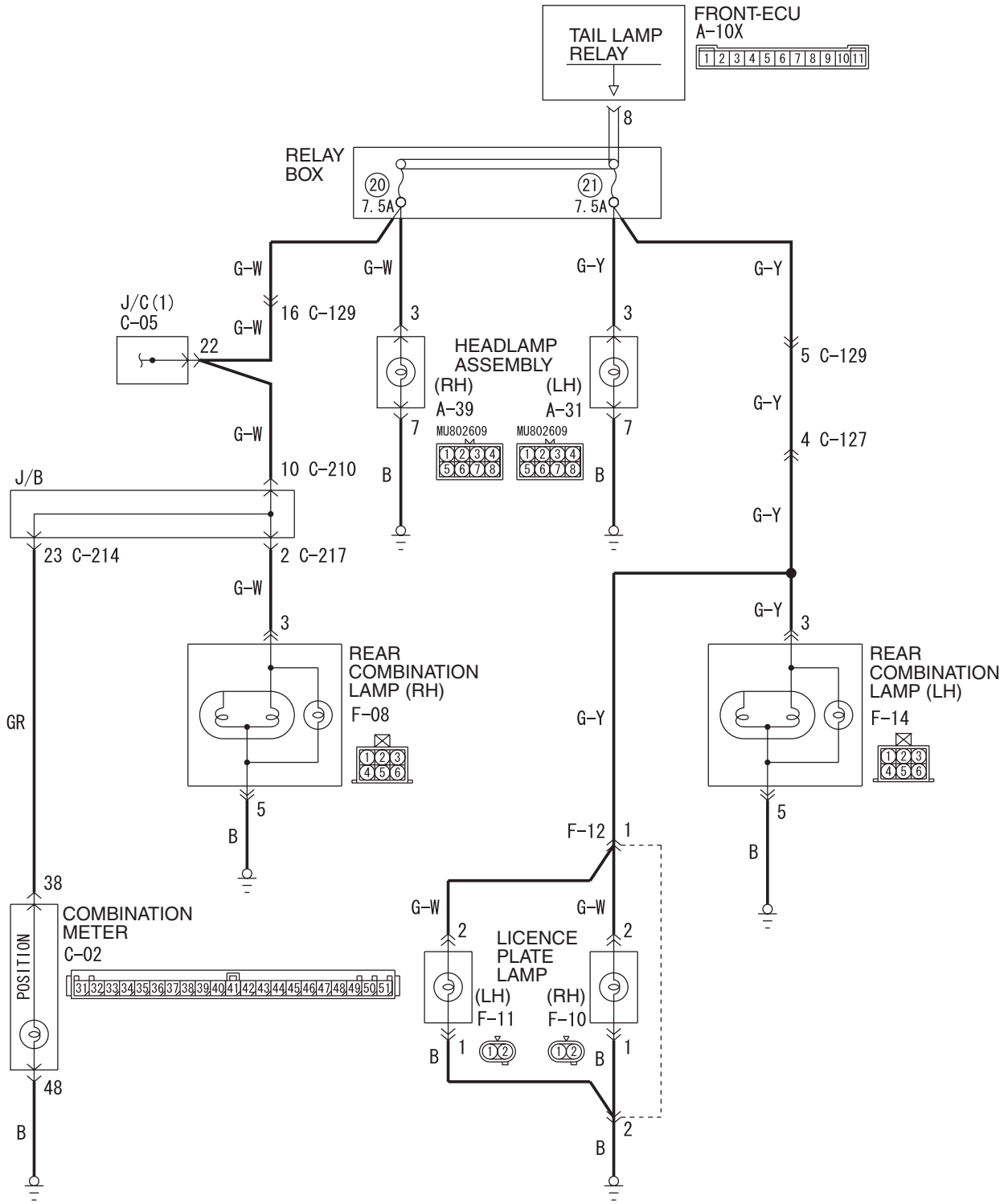
When the tail lamp indicator do not illuminate : Replace the combination meter assembly.

INSPECTION PROCEDURE H-7: Any of tail lamps, position lamps or licence plate lamps does not illuminate. <RH drive vehicles>

⚠ CAUTION

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

Taillamps, Position Lamps and License Plate Lamps Circuit <RHD>



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

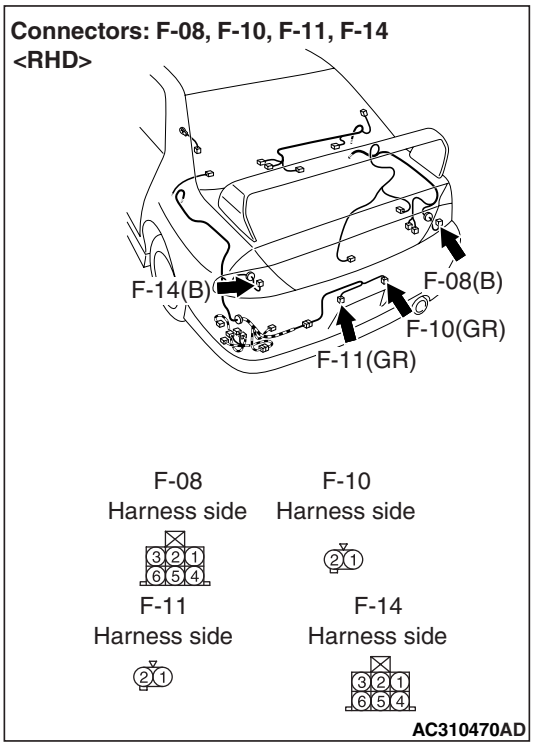
If the tail lamps, the position lamps or the licence plate lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

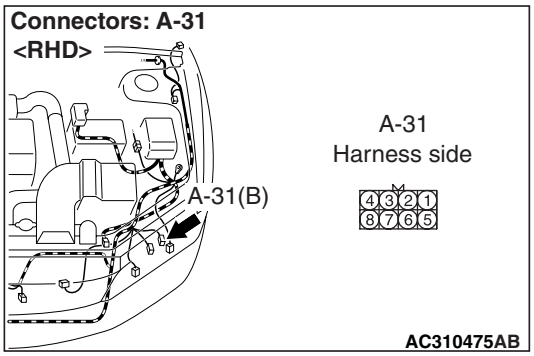
POSSIBLE CAUSES

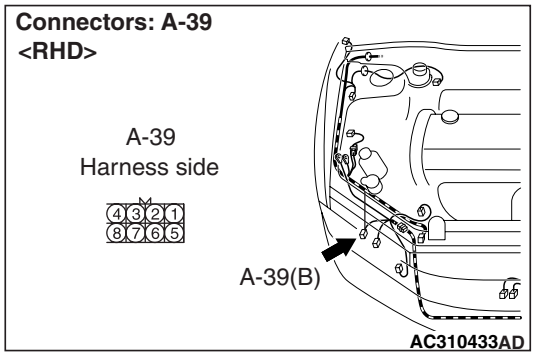
- Burned-out bulb
- Damaged harness wires and connectors

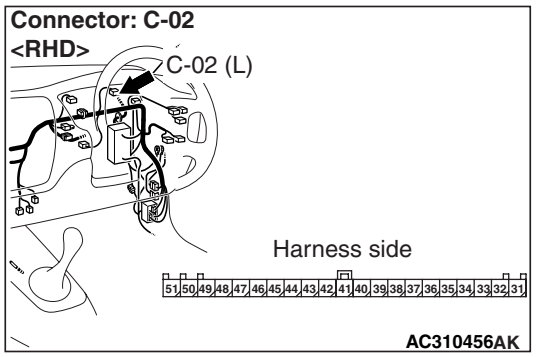
DIAGNOSTIC PROCEDURE

Step 1. Connector check: F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector, C-02 <tail lamp indicator> combination meter connector









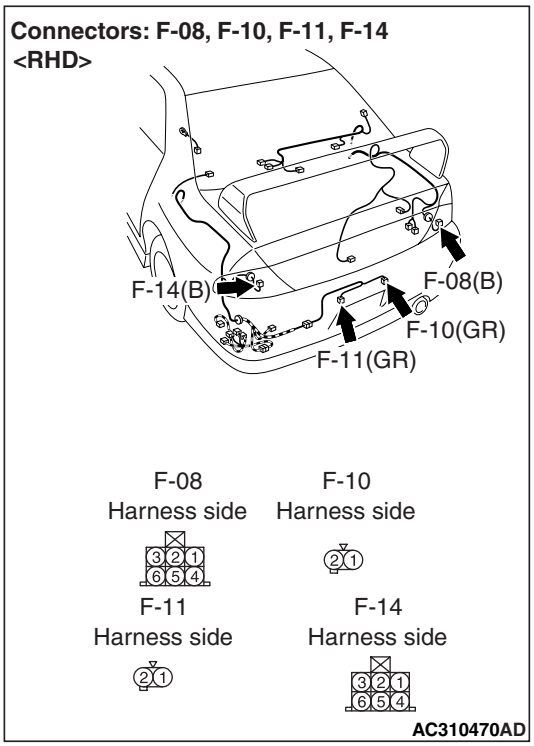
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

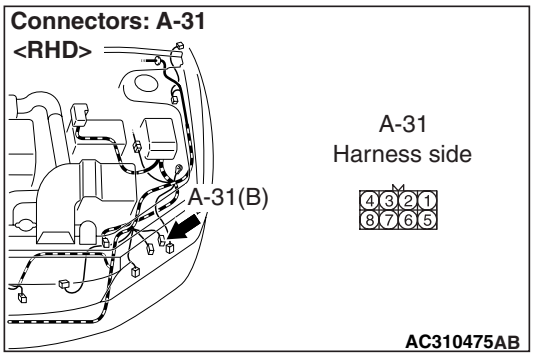
Step 2. Check the bulbs of the tail lamps, the position lamp, the licence plate lamp or tail lamp indicator.

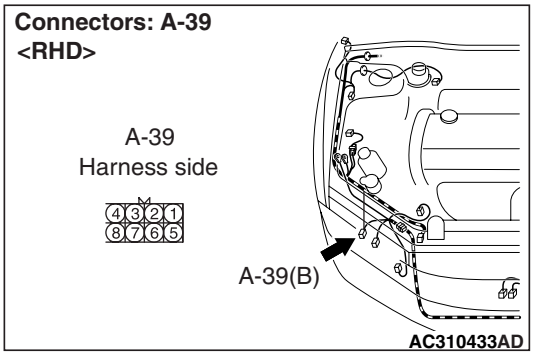
Check the bulb of the lamp which does not illuminate.

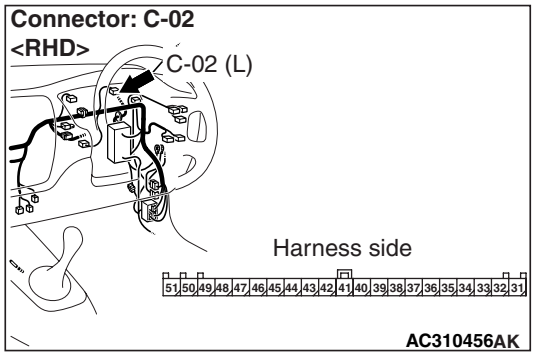
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb of the lamp which does not illuminate.

Step 3. Resistance measurement at the F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector, the A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector, the F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector or C-02 <tail lamp indicator> combination meter connector

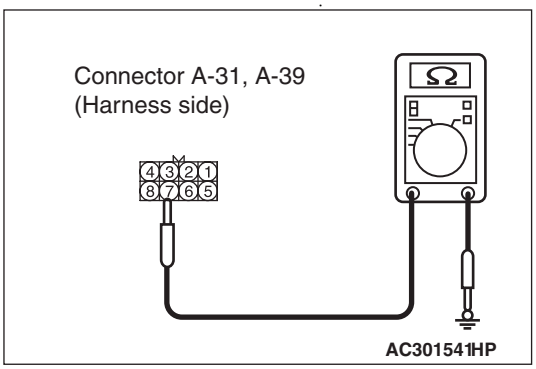






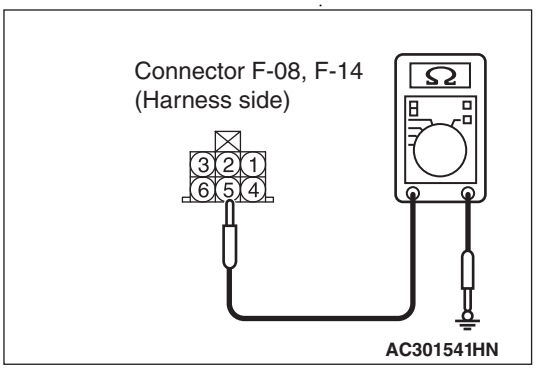


(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



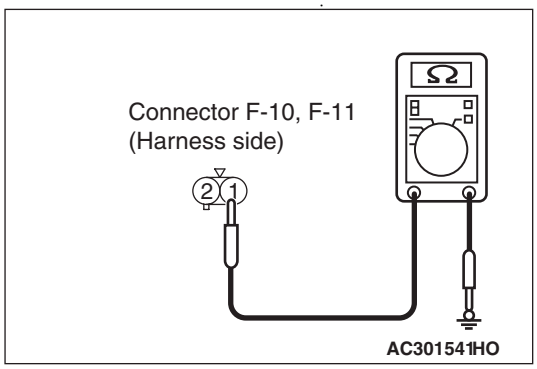
Resistance between A-31 <position lamp LH> headlamp assembly connector terminal No.6 and body earth

- Resistance between A-39 <position lamp RH> headlamp assembly connector terminal No.6 and body earth



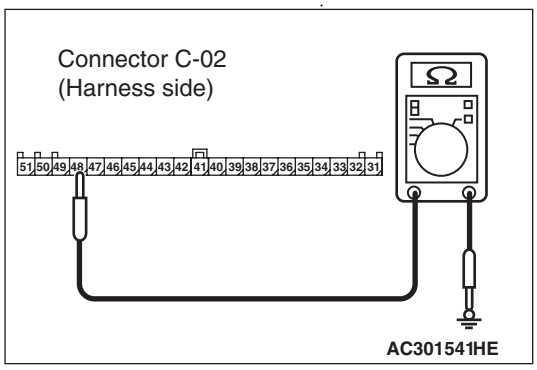
Resistance between F-14 <tail lamp LH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-08 <tail lamp RH> rear combination lamp connector terminal No.5 and body earth



Resistance between F-11 <licence plate lamp LH> licence plate lamp connector terminal No.1 and body earth

- Resistance between F-10 <licence plate lamp RH> licence plate lamp connector terminal No.1 and body earth



Resistance between C-02 <tail lamp indicator> combination meter connector terminal No.48 and body earth

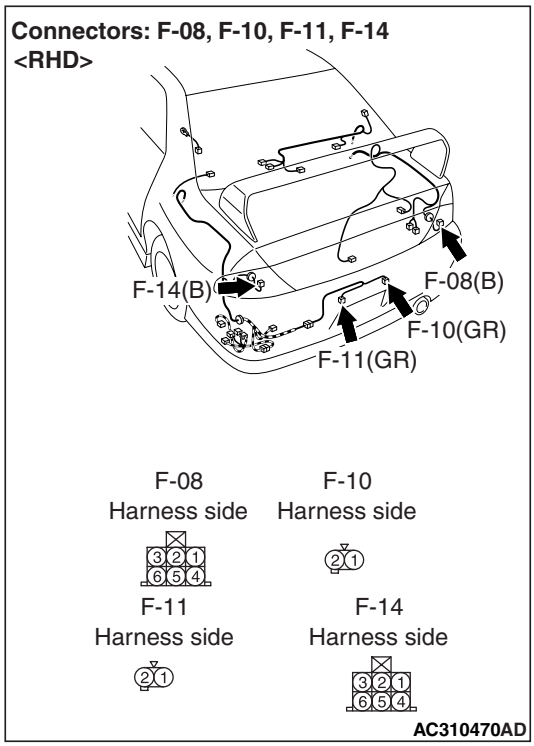
OK: 2 Ω or less

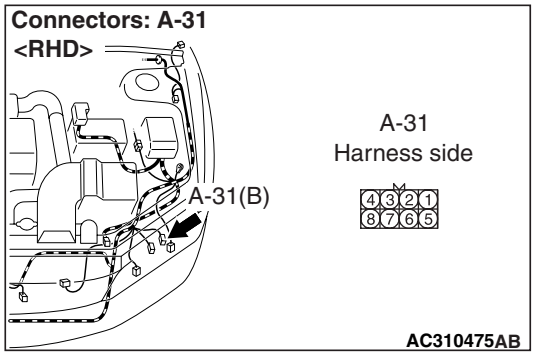
Q: Is the check result normal?

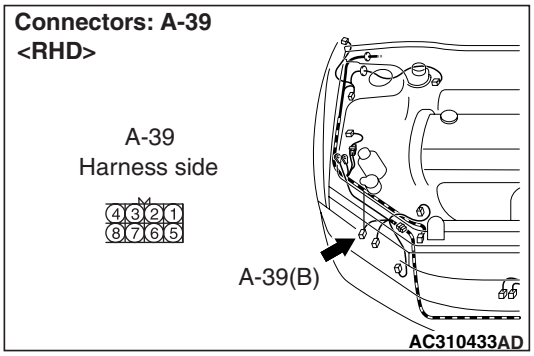
YES : Go to Step 5.

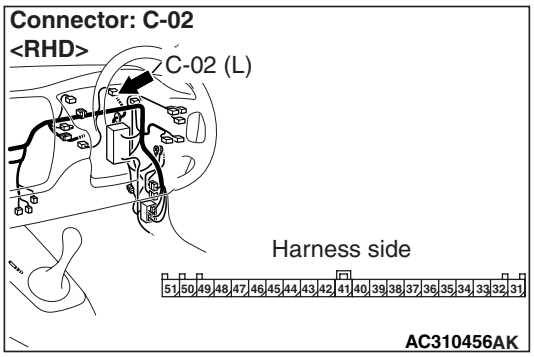
NO : Go to Step 4.

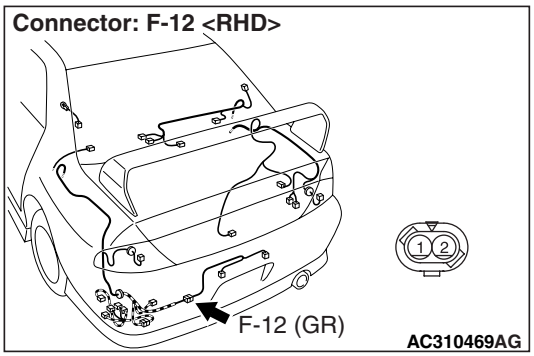
Step 4. Check the wiring harness from F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector terminal No.5, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector terminal No.7, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector terminal No.1 or C-02 <tail lamp indicator> combination meter connector terminal No.48 to body earth.











NOTE: Prior to the wiring harness inspection, check intermediate connector F-12 <licence plate lamp> and repair if necessary.

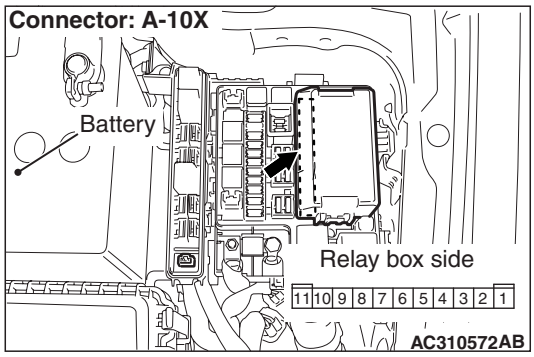
- Check the earth wires for open circuit.

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.00-5).

NO : Repair the wiring harness.

Step 5. Connector check: A-10X front-ECU connector

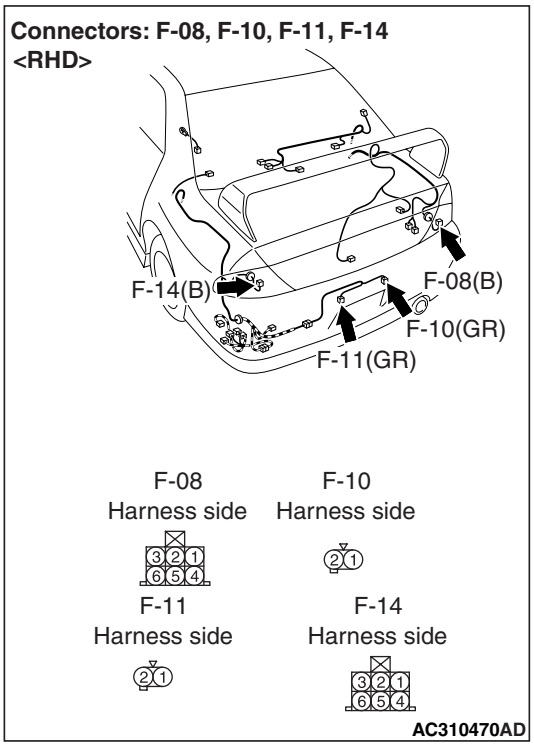


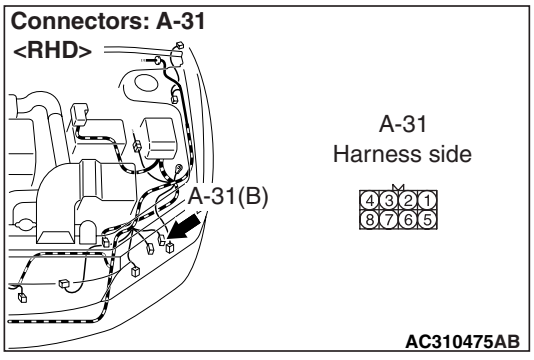
Q: Is the check result normal?

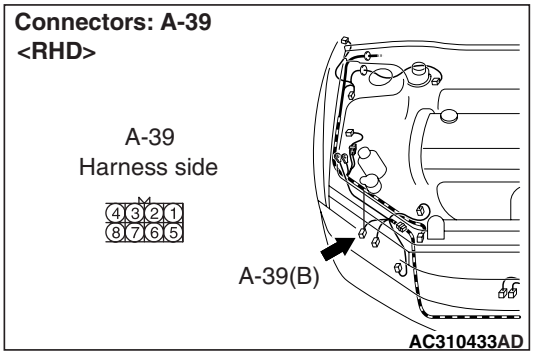
YES : Go to Step 6.

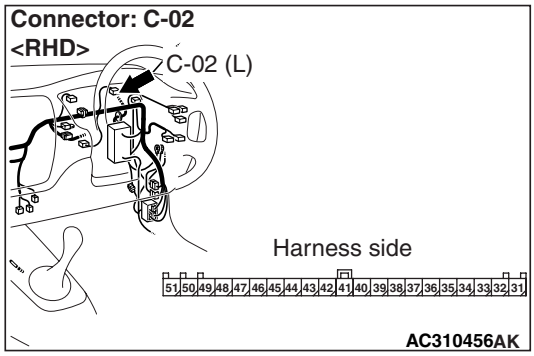
NO : Repair the defective connector.

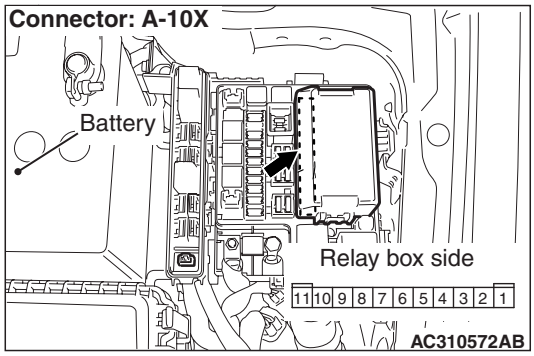
Step 6. Check the wiring harness from F-14 <tail lamp LH> or F-08 <tail lamp RH> rear combination lamp connector terminal No.3, A-31 <position lamp LH> or A-39 <position lamp RH> headlamp assembly connector terminal No.3, F-11 <licence plate lamp LH> or F-10 <licence plate lamp RH> licence plate lamp connector terminal No.2, C-02 <tail lamp indicator> combination meter connector terminal No.38 to A-10X front-ECU connector terminal No.8.



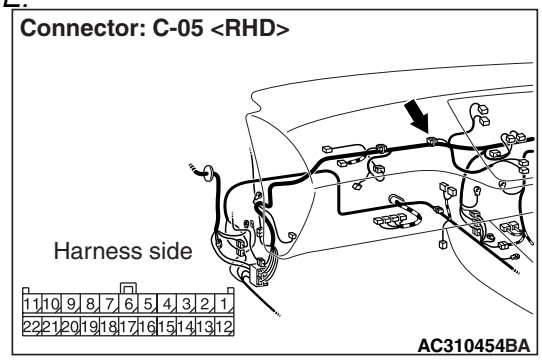


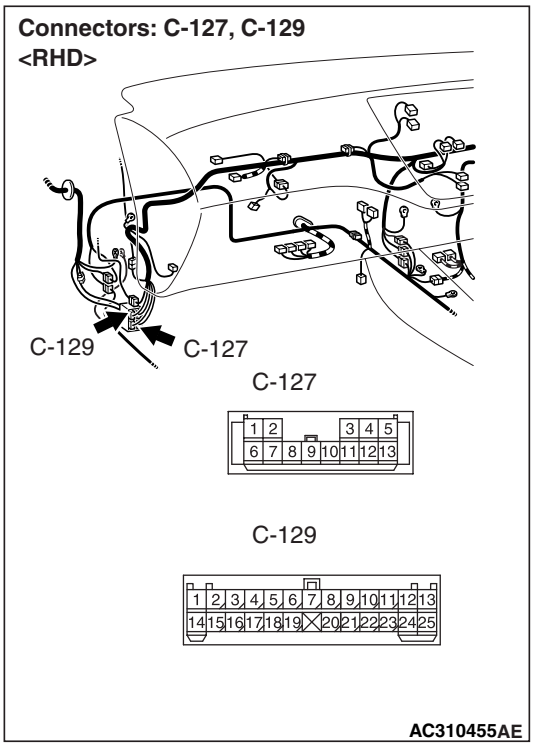






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-129 <tail lamp, licence plate lamp or tail lamp indicator>, C-127 <tail lamp LH or licence plate lamp> or F-12 <licence plate lamp>, joint connector C-05 <tail lamp RH, or tail lamp indicator>, junction block connector C-210 <tail lamp RH, or tail lamp indicator>, C-214 <tail lamp indicator> or C-217 <tail lamp RH> 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 tail lamps, the position lamps and the licence plate lamps illuminate normally.

Q: Is the check result normal?

The all lamps illuminate normally : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

When the tail lamps do not illuminate : Replace the rear combination lamp socket assembly.

When the position lamps do not illuminate : Replace the position lamp socket.

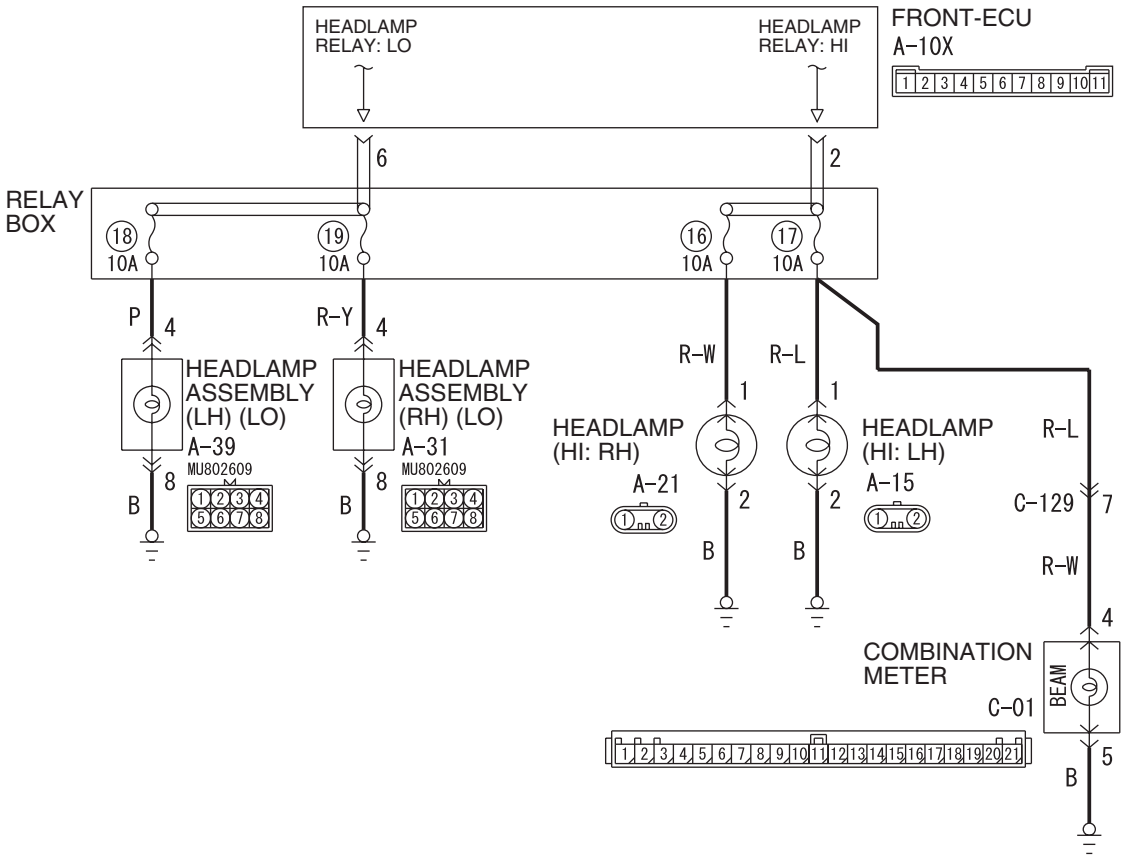
When the licence plate lamps do not illuminate : Replace the licence plate lamp socket.

When the tail lamp indicator do not illuminate : Replace the combination meter assembly.

INSPECTION PROCEDURE H-8: 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 : Gray R : Red P : Pink V : Violet

W4J54E123A

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.

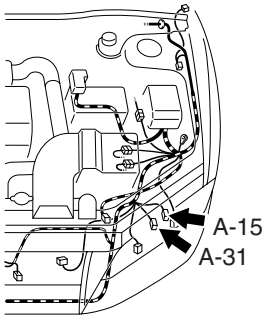
POSSIBLE CAUSES

- Malfunction of the headlamp bulbs
- Malfunction of the high-beam indicator bulb
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Connector check: A-31 <headlamp (LO) RH>, A-39 <headlamp (LO) LH>, A-21 <headlamp (HI) RH>, A-15 <headlamp (HI) LH> headlamp assembly connector or C-01 <high-beam indicator> combination meter connector

Connectors: A-15, A-31
<LHD>



A-15
Harness side

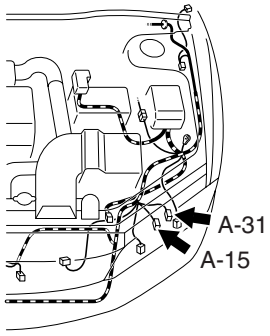


A-31
Harness side



AC310543AC

Connectors: A-15, A-31
<RHD>



A-15
Harness side

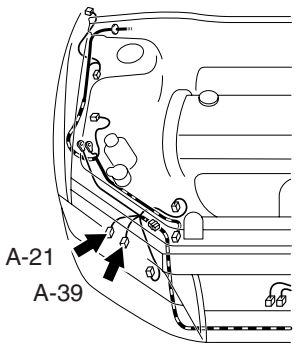


A-31
Harness side



AC310476AC

Connectors: A-21, A-39
<LHD>



A-21
Harness side

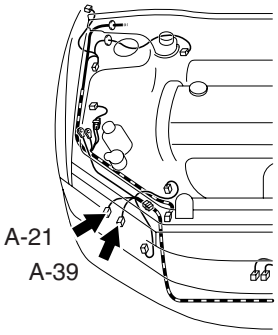


A-39
Harness side



AC310432AC

Connectors: A-21, A-39
<RHD>



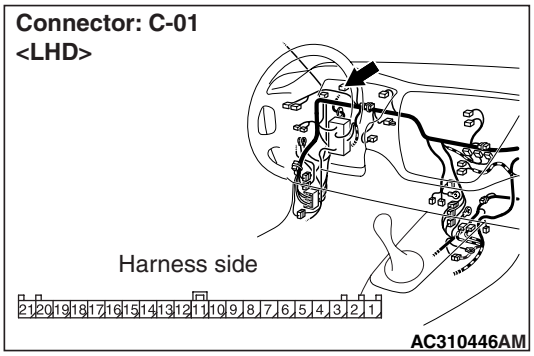
A-21
Harness side

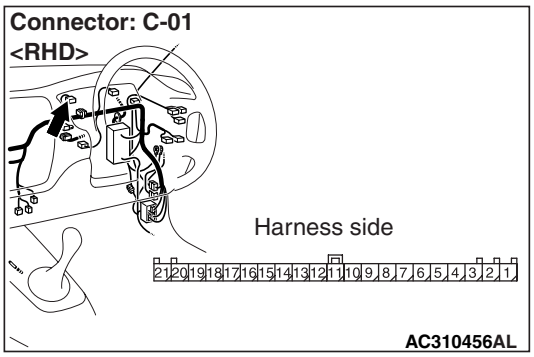


A-39
Harness side



AC310434AC





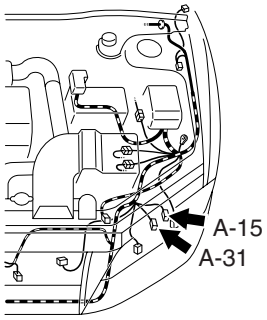
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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-31 <headlamp (LO) RH>, A-39 <headlamp (LO) LH>, A-21 <headlamp (HI) RH>, A-15 <headlamp (HI) LH> headlamp assembly connector or C-01 <high-beam indicator> combination meter connector

Connectors: A-15, A-31
<LHD>



A-15
Harness side

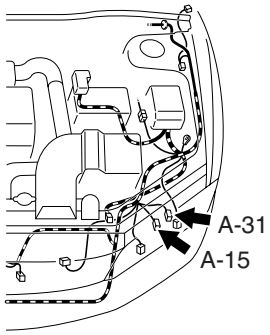


A-31
Harness side



AC310543AC

Connectors: A-15, A-31
<RHD>



A-15
Harness side

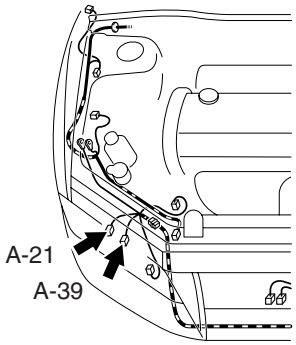


A-31
Harness side



AC310476AC

Connectors: A-21, A-39
<LHD>



A-21
Harness side

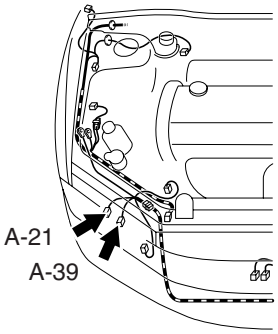


A-39
Harness side



AC310432AC

Connectors: A-21, A-39
<RHD>



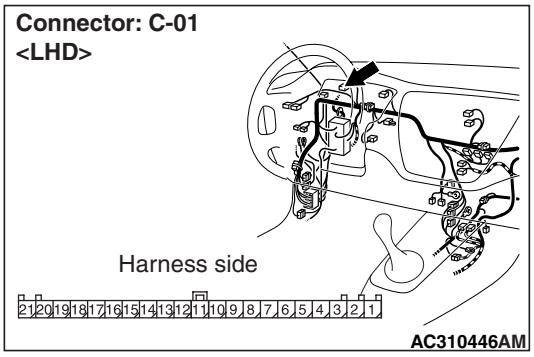
A-21
Harness side

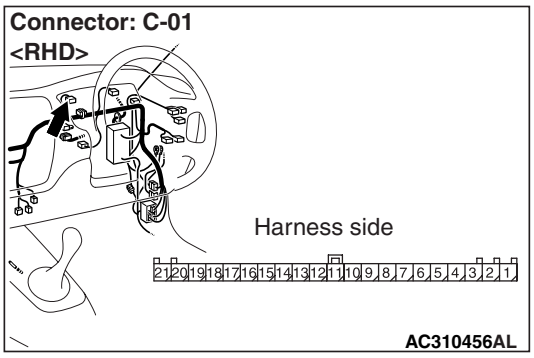


A-39
Harness side

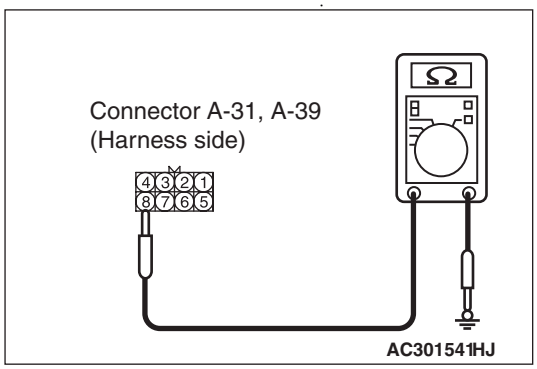


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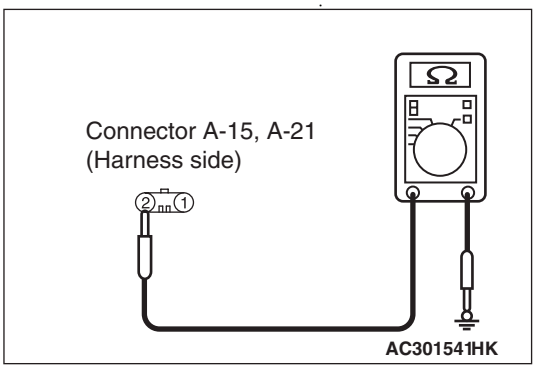




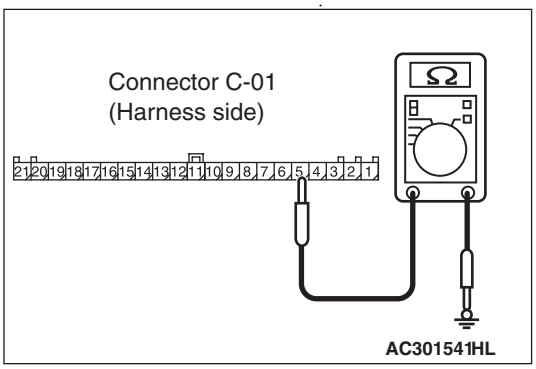
(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-31 <headlamp (LO) RH> headlamp assembly connector terminal No.8 and body earth
- Resistance between A-39 <headlamp (LO) LH> headlamp assembly connector terminal No.8 and body earth



Resistance between A-21 <headlamp (HI) RH> headlamp assembly connector terminal No.2 and body earth
- Resistance between A-15 <headlamp (HI) LH> headlamp assembly connector terminal No.2 and body earth



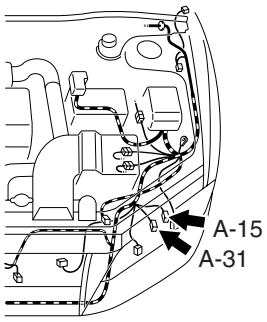
Resistance between C-01 <high-beam indicator> combination meter connector terminal No.5 and body earth

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-31 <headlamp (LO) RH> or A-39 <headlamp (LO) LH> headlamp connector terminal No.8, or A-21 <headlamp (HI) RH> or A-15 <headlamp (HI) LH> headlamp connector terminal No.2, or C-01 <high-beam indicator> combination meter connector terminal No.5 to body earth.

Connectors: A-15, A-31
<LHD>



A-15
Harness side

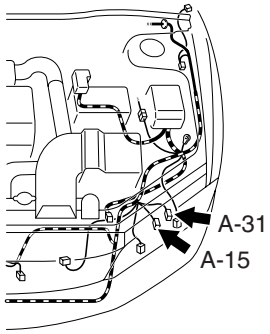


A-31
Harness side



AC310543AC

Connectors: A-15, A-31
<RHD>



A-15
Harness side

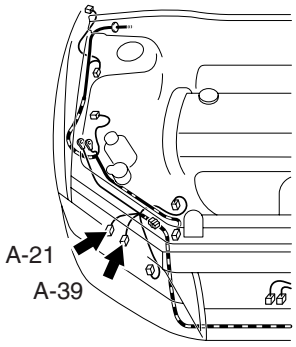


A-31
Harness side



AC310476AC

Connectors: A-21, A-39
<LHD>



A-21
Harness side

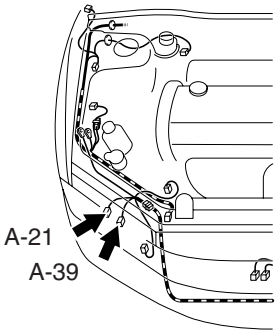


A-39
Harness side



AC310432AC

Connectors: A-21, A-39
<RHD>



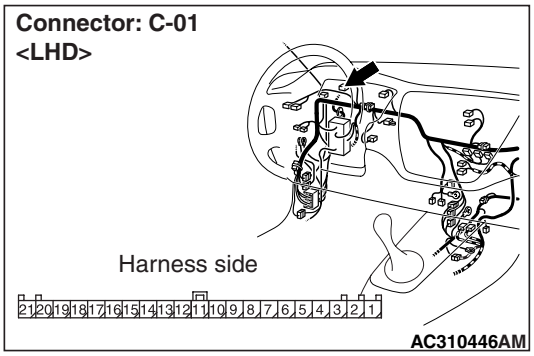
A-21
Harness side

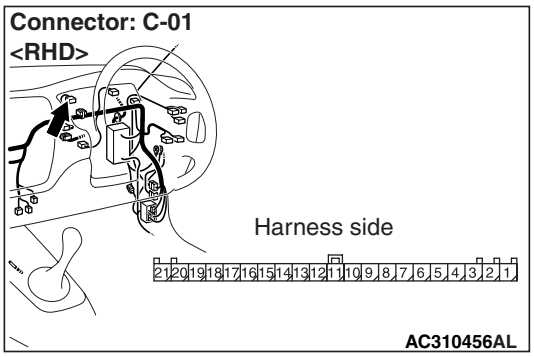


A-39
Harness side



AC310434AC

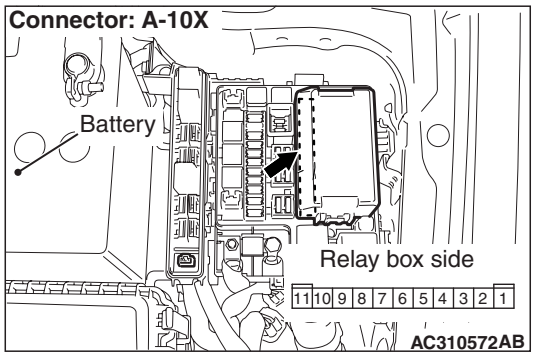




- Check the earth wires for open circuit.

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

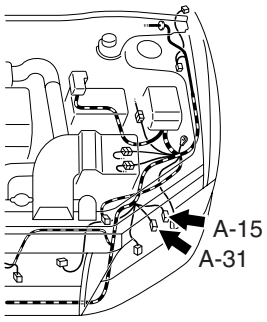
Step 5. Connector check: A-10X front-ECU connector



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

Step 6. Check the wiring harness from A-31 <headlamp (LO) RH> or A-39 <headlamp (LO) LH> headlamp connector terminal No.4, or A-21 <headlamp (HI) RH> or A-15 <headlamp (HI) LH> headlamp connector terminal No.1, or C-01 <high-beam indicator> combination meter connector terminal No.5 to A-10X front-ECU connector terminal No.6 <low-beam> or No.2 <high-beam>.

Connectors: A-15, A-31
<LHD>



A-15
Harness side

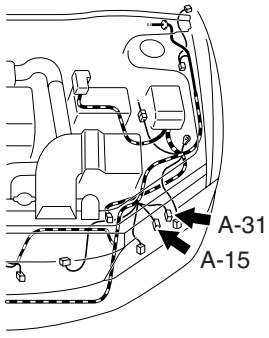


A-31
Harness side



AC310543AC

Connectors: A-15, A-31
<RHD>



A-15
Harness side

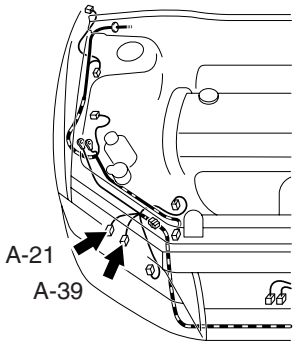


A-31
Harness side



AC310476AC

Connectors: A-21, A-39
<LHD>



A-21
Harness side

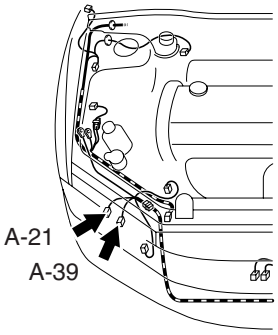


A-39
Harness side



AC310432AC

Connectors: A-21, A-39
<RHD>



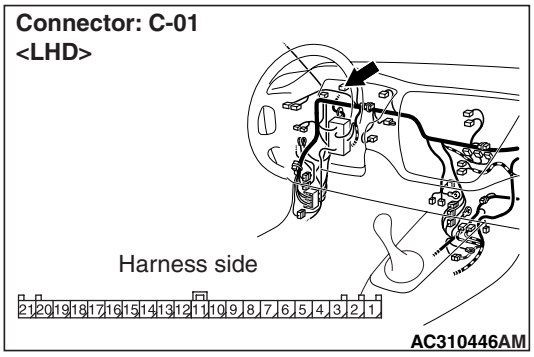
A-21
Harness side

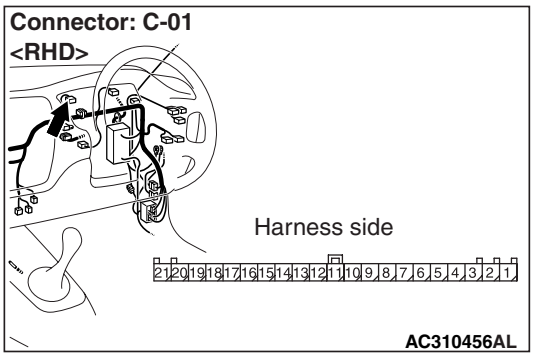


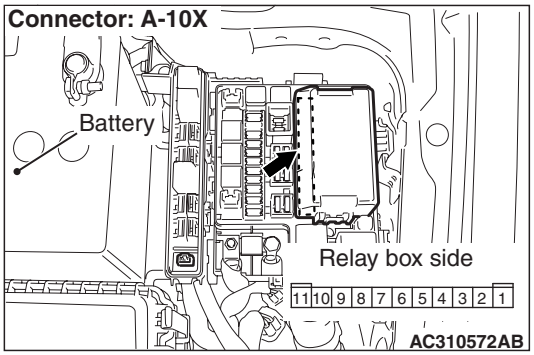
A-39
Harness side



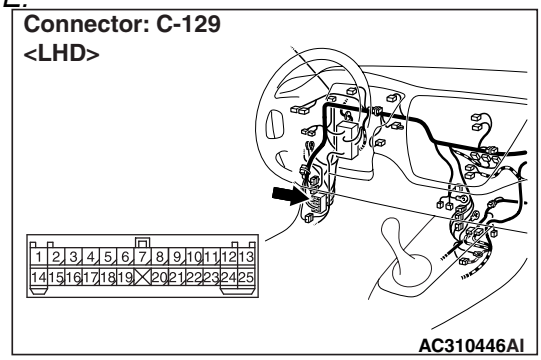
AC310434AC

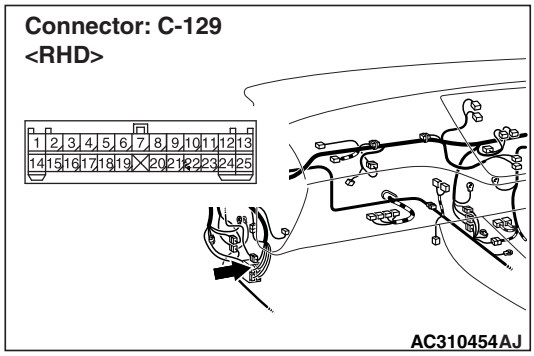






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-129 <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.

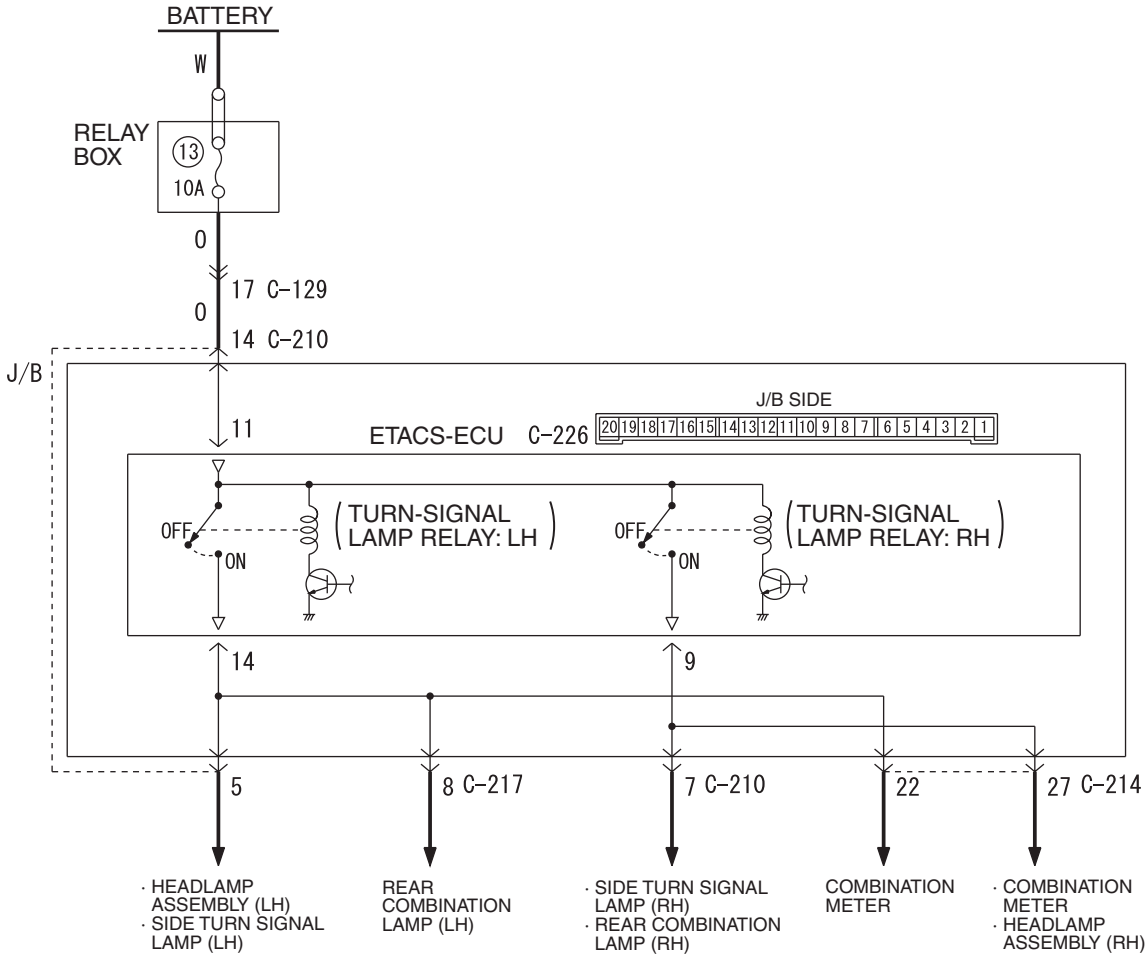
Q: Is the check result normal?
The lamps illuminate normally at both high and low beams. : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
When the headlamps do not illuminate : Replace the headlamp socket.
When the high-beam indicator lamp does not illuminate : Replace the combination meter.

FLASHER TIMER

INSPECTION PROCEDURE I-1: The turn-signal lamps do not illuminate.

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

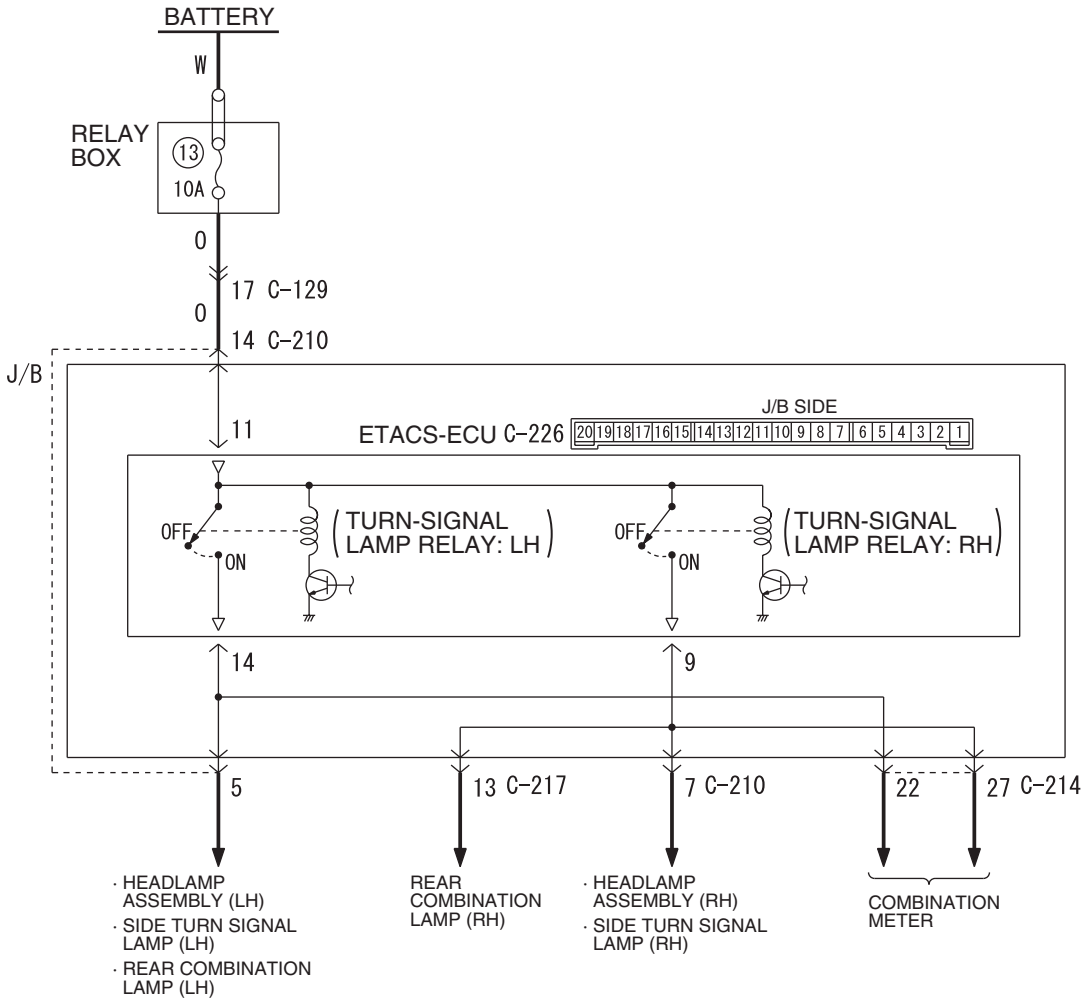
Turn-Signal Lamp Power Supply Circuit <LHD>



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

W4J54E124A

Turn-Signal Lamp Power Supply Circuit <RHD>



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

W4J54E125A

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.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Check that the hazard warning lamps operate.

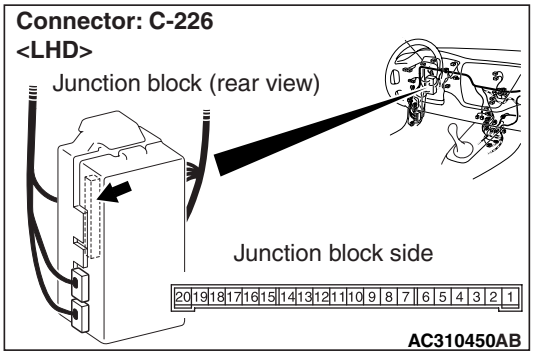
Check that the hazard warning lamps illuminate normally.

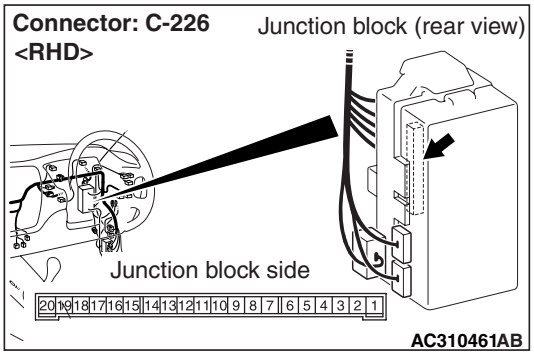
Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 2.

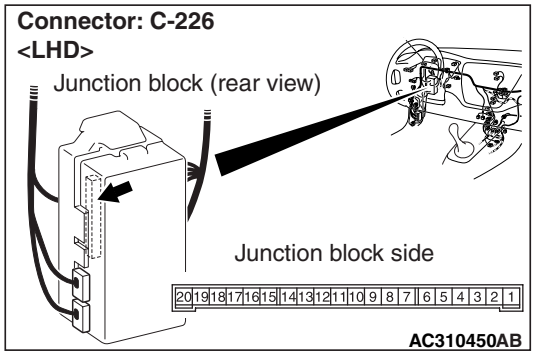
Step 2. Connector check: C-226 ETACS-ECU connector

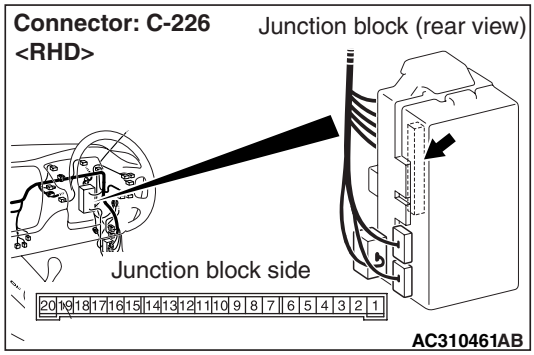




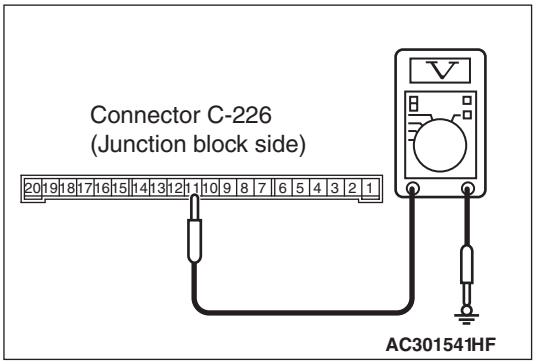
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Voltage measurement at the C-226 ETACS-ECU connector





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

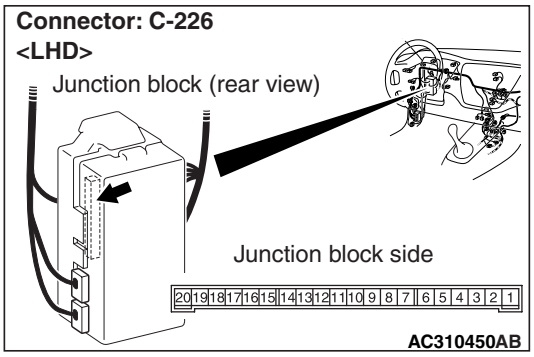


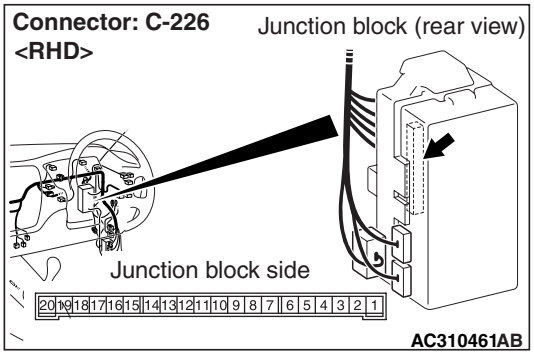
(2) Voltage between C-226 ETACS-ECU connector terminal No.11 and body earth

OK: System voltage

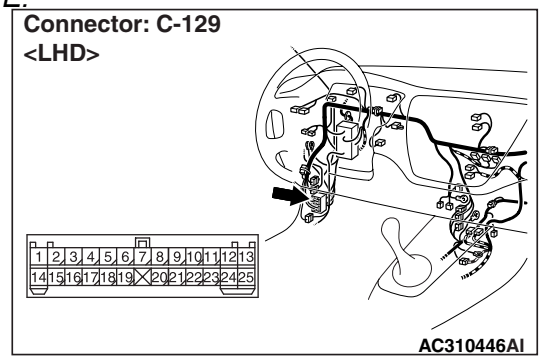
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

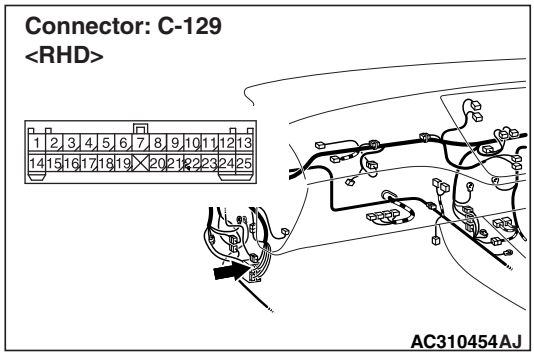
Step 4. Check the wiring harness between C-226 ETACS-ECU connector terminal No.11 and the battery.

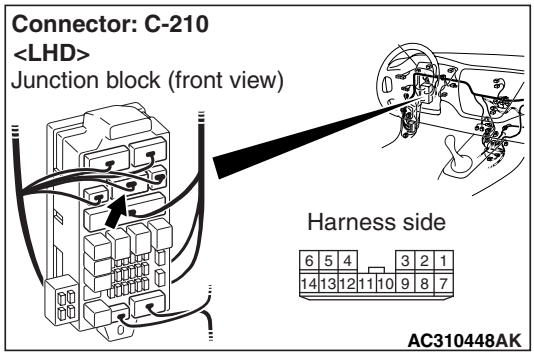


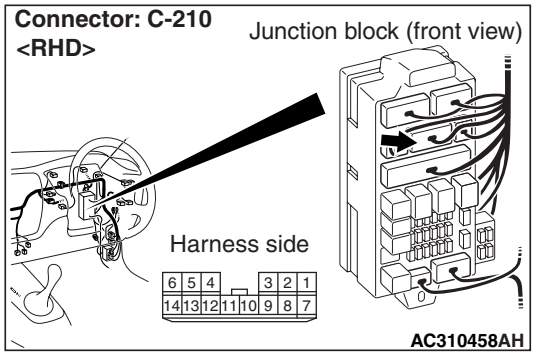


NOTE:









Prior to the wiring harness inspection, check intermediate connector C-129 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.00-5).

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.00-5).
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
- Turn-signal lamp switch: RH
- Ignition switch: ON

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?
Normal conditions are displayed for all the items. : Go to Step 7.
Normal condition is not displayed for item 10 or 11. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."
Normal condition is not displayed for item No.30. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."

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
- Turn-signal lamp switch: LH
- Ignition switch: ON

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?
Normal conditions are displayed for all the items. : Go to Step 8.
Normal condition is not displayed for item 10 or 11. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."

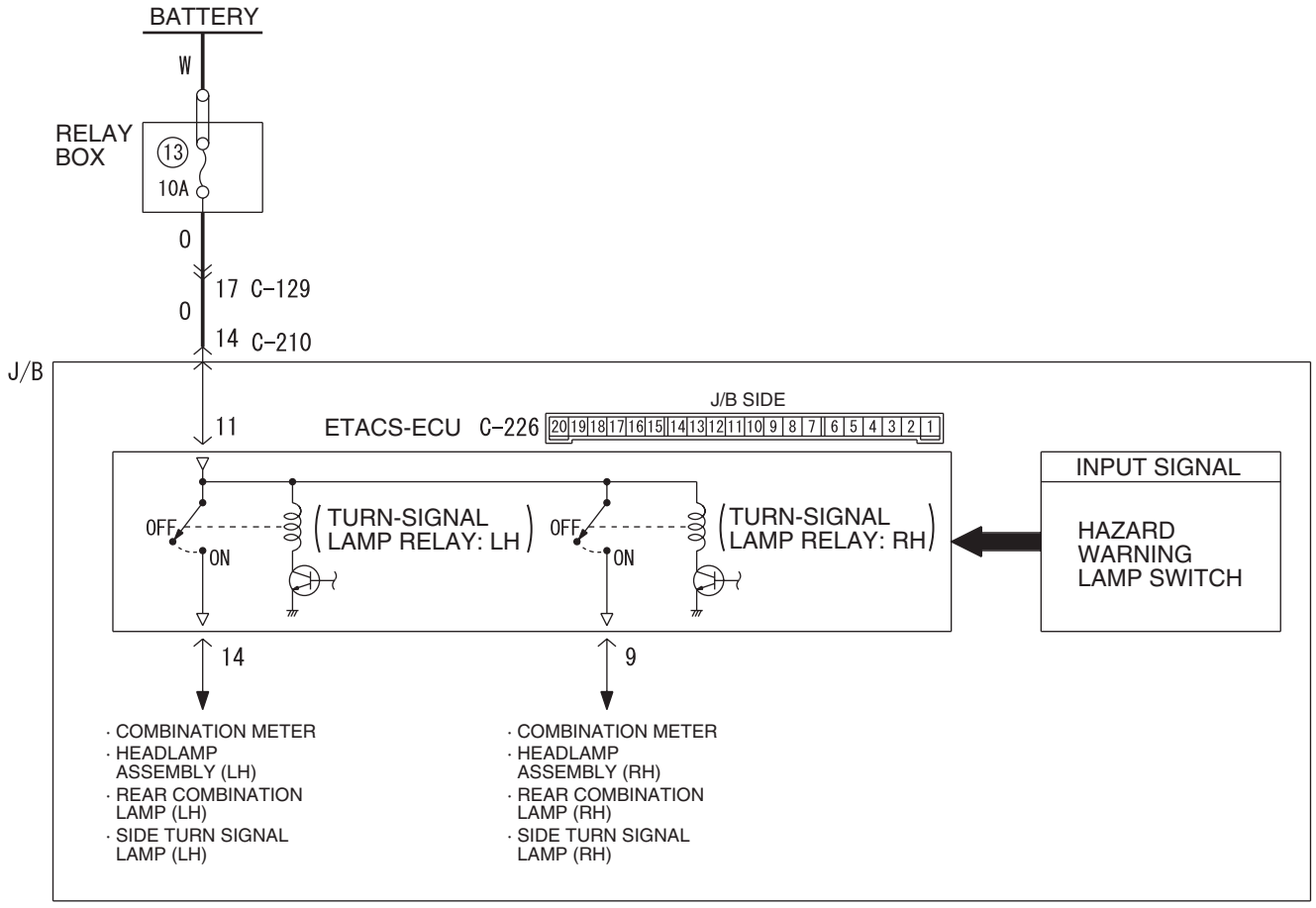
Step 8. Retest the system.
Check that the turn-signal lamps illuminate.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE I-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 : Gray R : Red P : Pink V : Violet

W4J54E126A

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.

POSSIBLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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 I-1 "The turn signal lamps do not illuminate P.54C-208."

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 L-10 "The hazard warning lamp switch signal is not received P.54C-285."

Step 3. Retest the system.
Check that the hazard warning lamps illuminate.

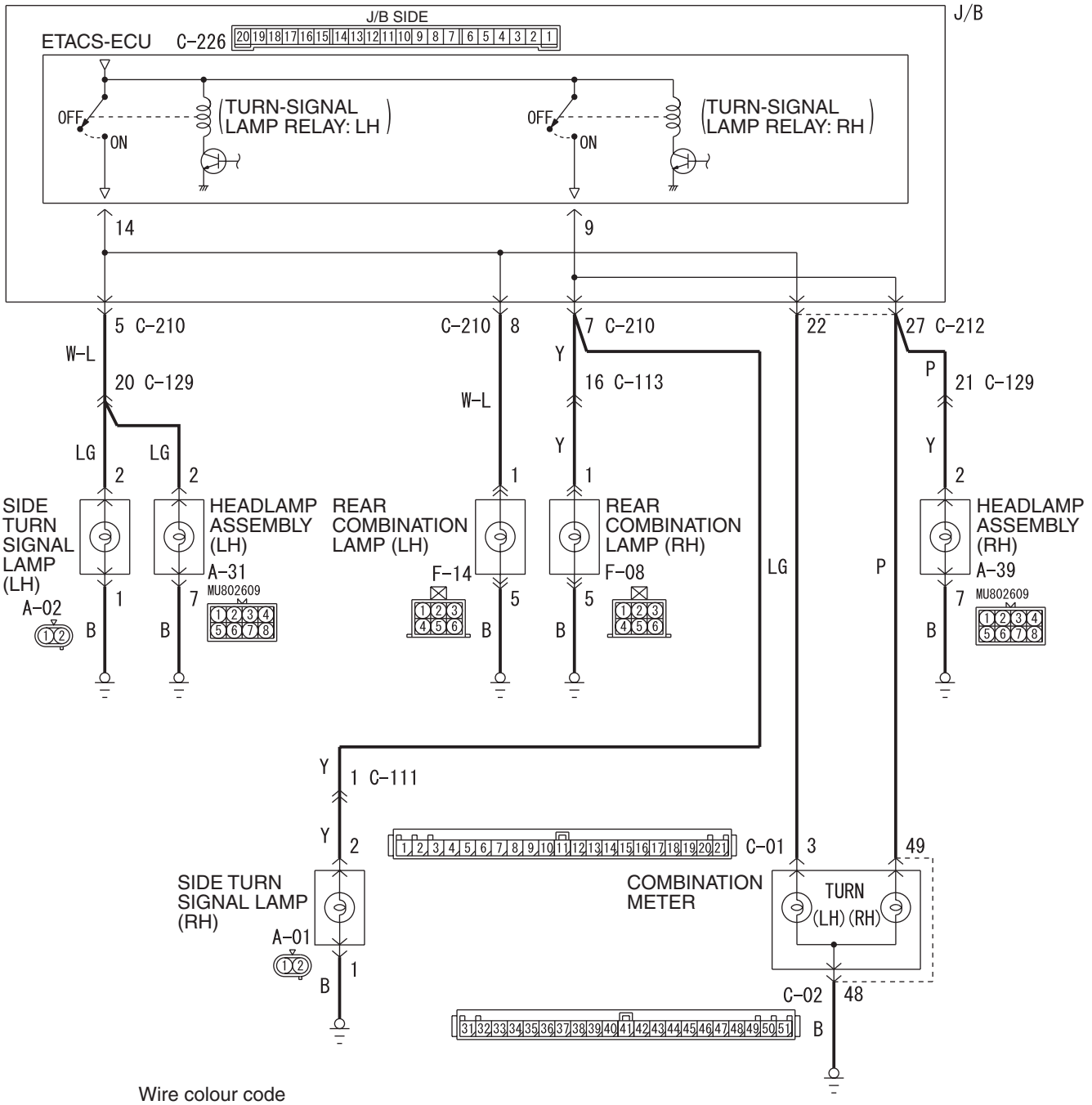
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE I-3: Any of the turn-signal lamps does not illuminate. <LH drive vehicles>

⚠ CAUTION

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

Turn-Signal Lamps Circuit <LHD>



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

W6J54E026A

COMMENTS ON TROUBLE SYMPTOM

If any of the turn-signal lamps does not illuminate normally, wiring harness connector(s) or the bulb may be defective.

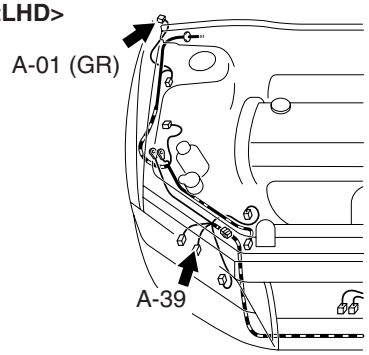
POSSIBLE CAUSES

- Defective turn-signal lamp bulb
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Connector check: A-39 <front RH> or A-31 <front LH> headlamp assembly connector, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector, C-02 <turn-signal indicator lamp> and C-01 <turn-signal indicator lamp (LH)> combination meter connector

Connectors: A-01, A-39
<LHD>



A-01
Harness side

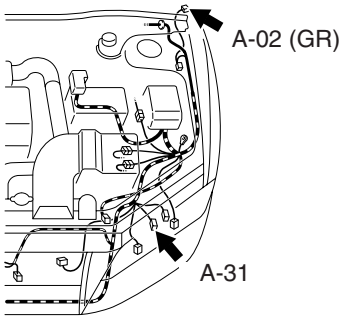


A-39
Harness side



AC310432AB

Connectors: A-02, A-31
<LHD>



A-02
Harness side

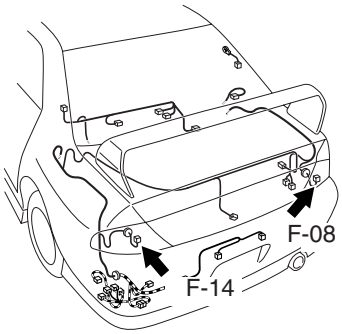


A-31
Harness side



AC310543AB

Connectors: F-08, F-14
<LHD>



F-08
Harness side

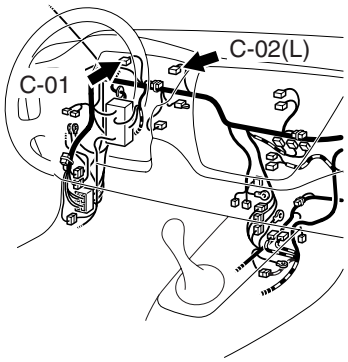


F-14
Harness side

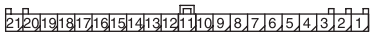


AC310468AC

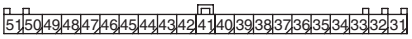
Connectors: C-01, C-02
<LHD>



C-01
Harness side



C-02
Harness side



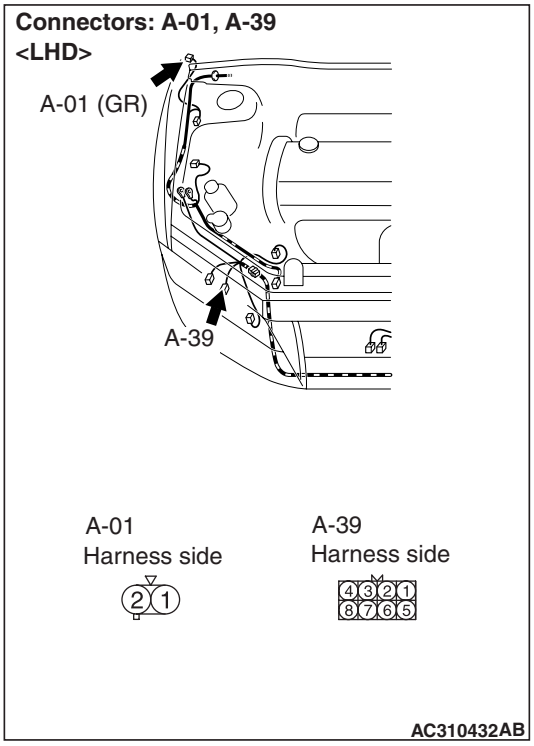
AC310447AE

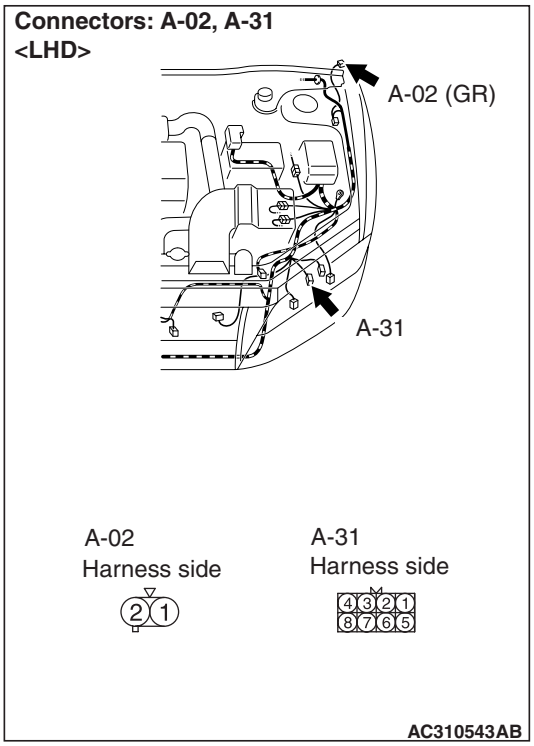
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

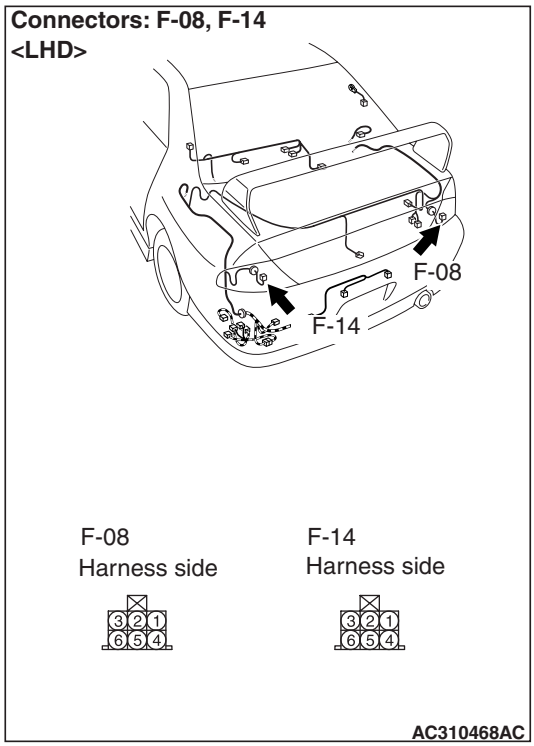
Step 2. Check the bulb(s) of the turn-signal lamps or the turn-signal indicator lamps.
Check the bulb(s) of the defective lamp.

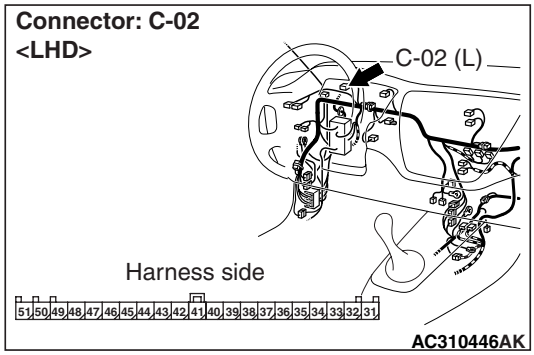
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

Step 3. Resistance measurement at the A-39 <front RH> or A-31 <front LH> headlamp assembly connector, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, the F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector, the C-02 <turn-signal indicator lamp> combination meter connector



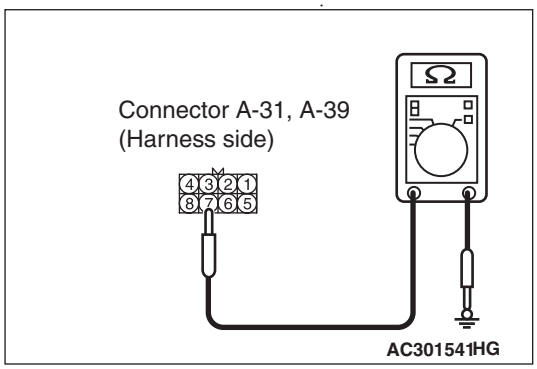






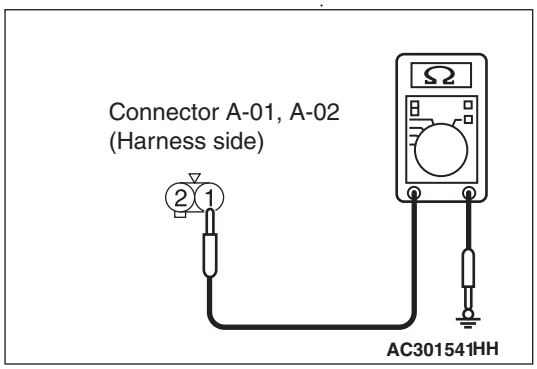
(1) Disconnect the connector, and measure at the wiring harness side.

(2) Measure the resistance between the defective lamp connector terminal and body earth.



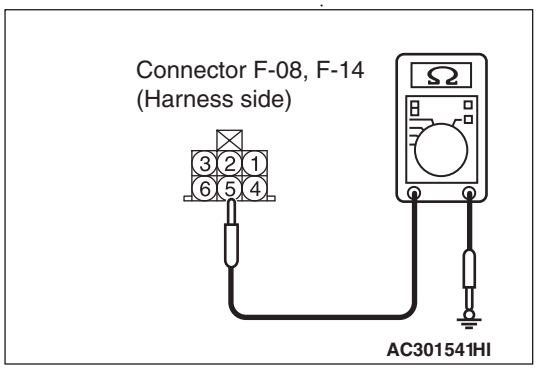
Resistance between A-39 <front RH> headlamp assembly connector terminal No.7 and body earth

- Resistance between A-31 <front LH> headlamp assembly connector terminal No.7 and body earth



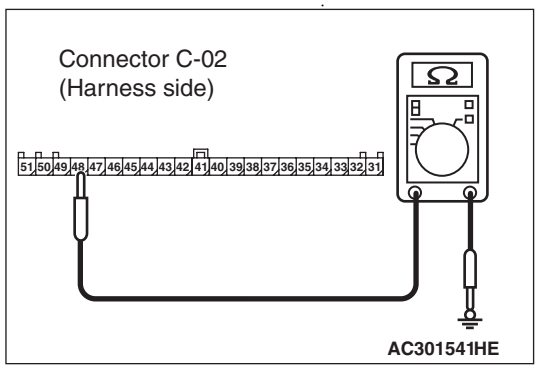
Resistance between A-01 <side RH> side turn-signal lamp connector terminal No.1 and body earth

- Resistance between A-02 <side LH> side turn-signal lamp connector terminal No.1 and body earth



Resistance between F-08 <rear RH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-14 <rear LH> rear combination lamp connector terminal No.5 and body earth

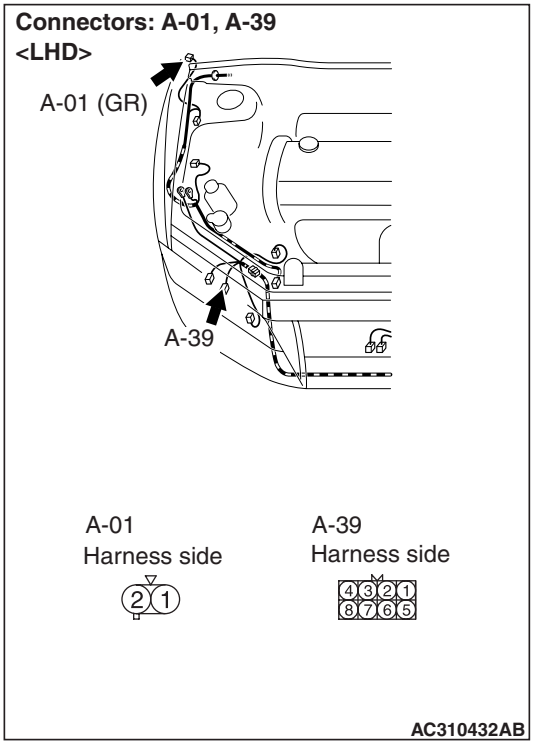


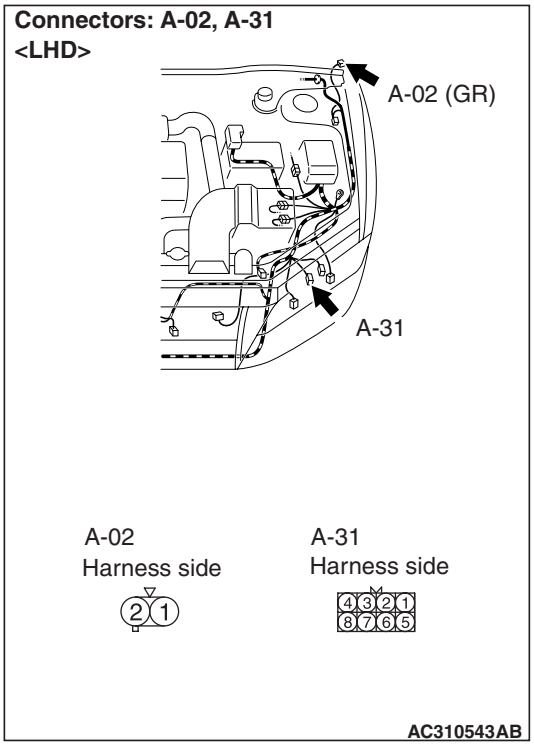
Resistance between C-02 <turn-signal indicator lamp> combination meter terminal No.48 and body earth

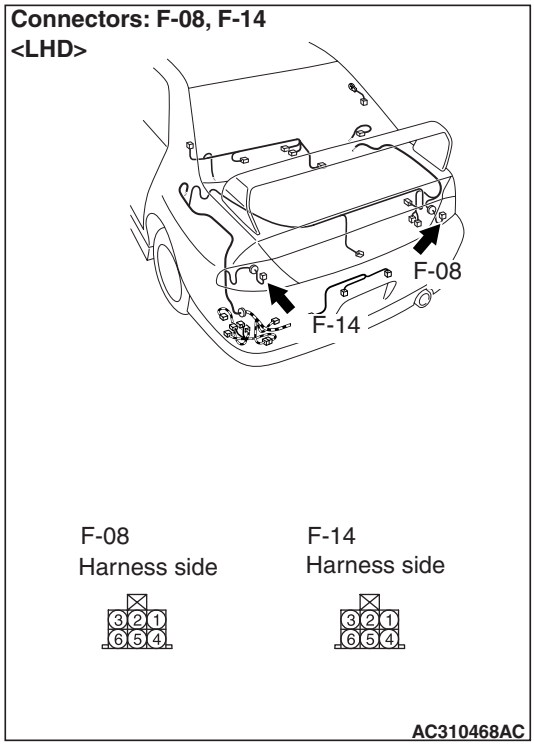
OK: 2 Ω or less

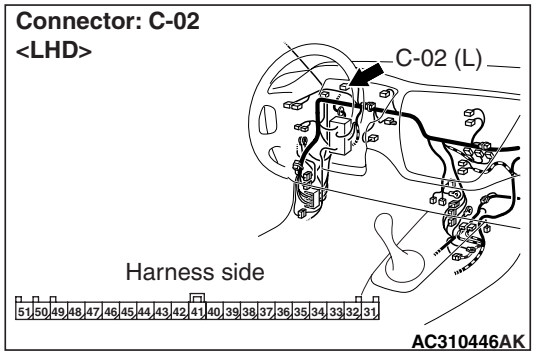
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness from A-39 <front RH> or A-31 <front LH> headlamp assembly connector terminal No.7, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.1, F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector terminal No.5, or C-02 <turn-signal indicator lamp> combination meter connector terminal No.48 to body earth.









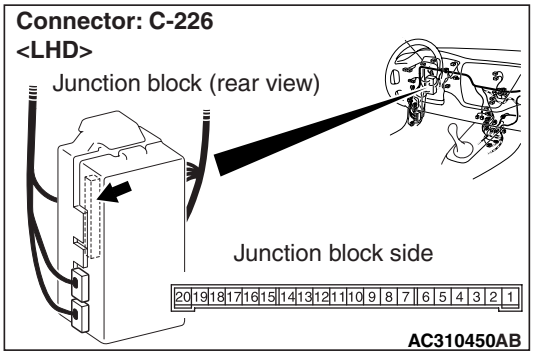
- Check the earth wires for open circuit.

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.00-5).

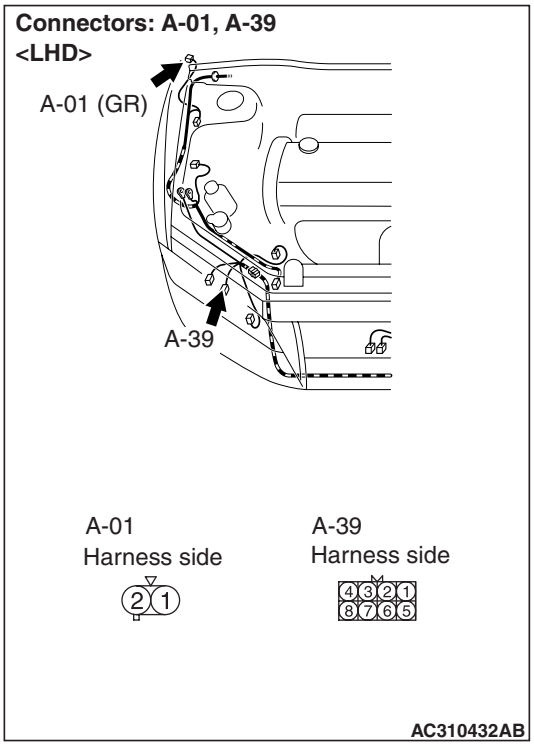
NO : Repair the wiring harness.

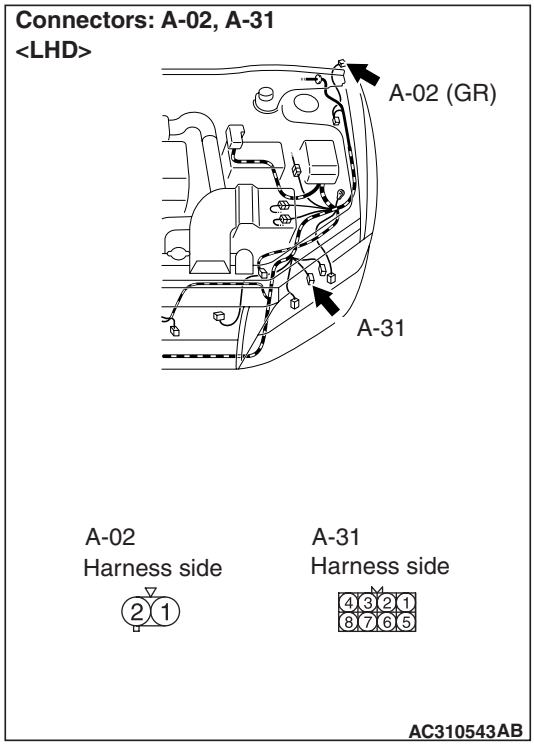
Step 5. Connector check: C-226 ETACS-ECU connector

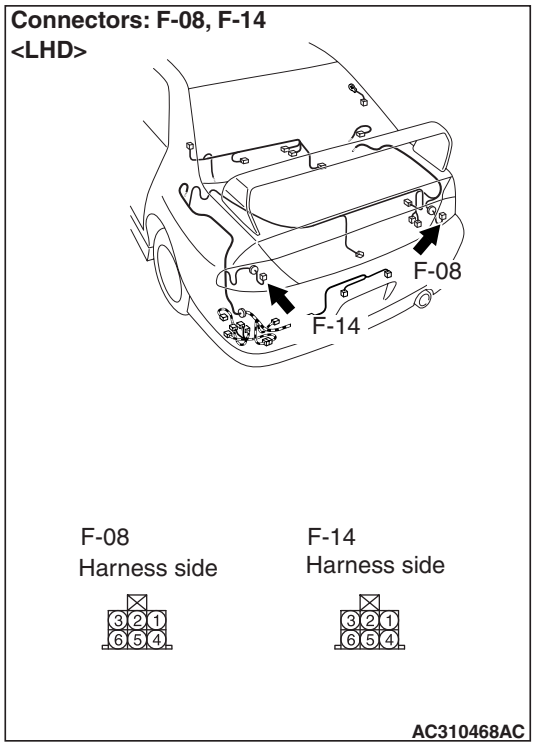


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

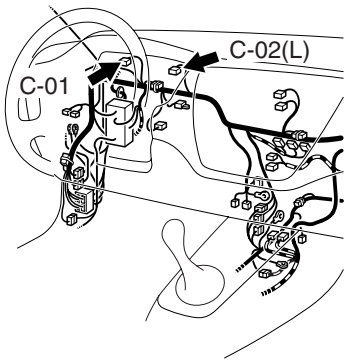
Step 6. Check the wiring harness from the A-39 <front RH> or A-31 <front LH> headlamp assembly connector terminal No.2, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.2, the F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector terminal No.1, the C-02 <turn-signal indicator lamp RH> combination meter connector terminal No.49 or C-01 <turn-signal indicator lamp LH> combination lamp connector terminal No.3 to C-226 ETACS-ECU connector terminal No.9 <RH> or 14 <LH>.



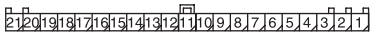




Connectors: C-01, C-02
<LHD>



C-01
Harness side

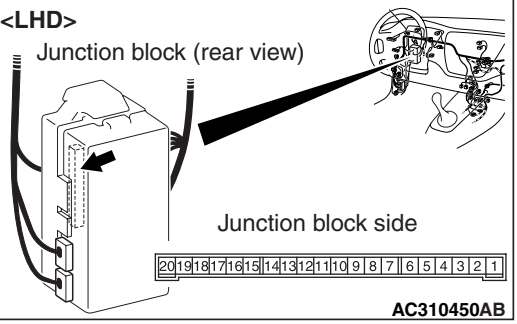


C-02
Harness side



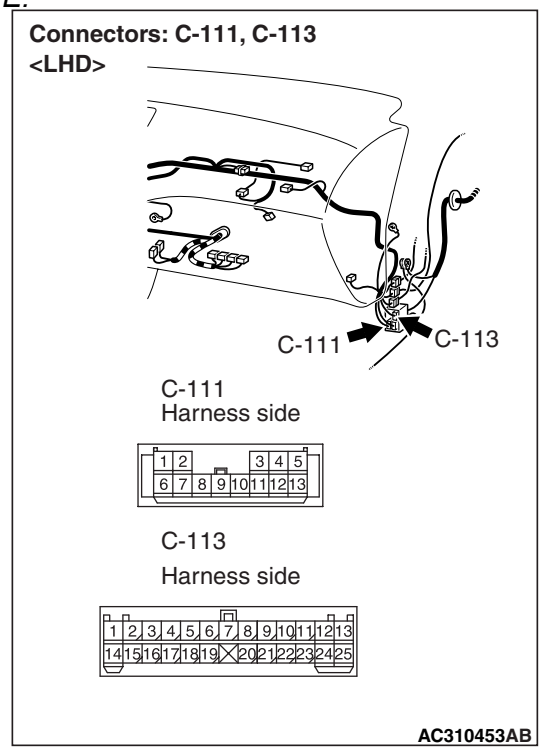
AC310447AE

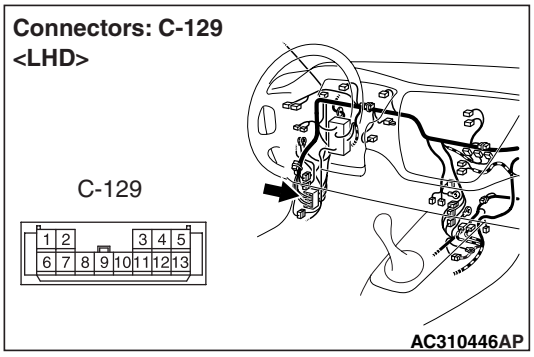
Connector: C-226
<LHD>

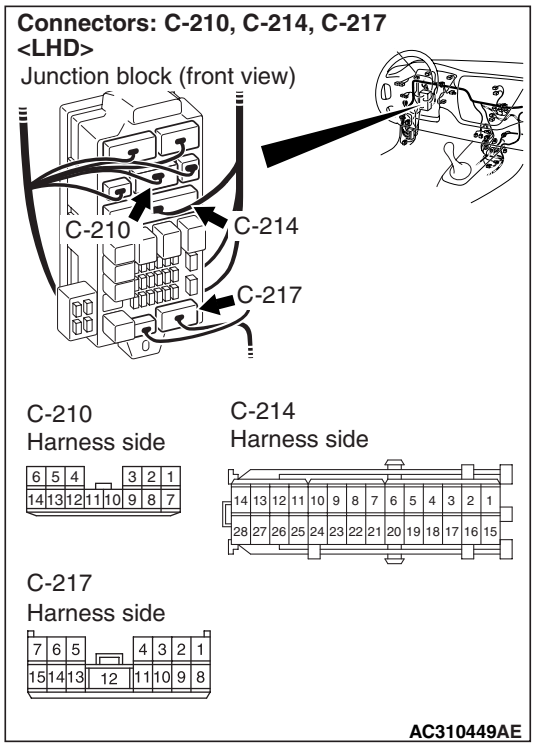


AC310450AB

NOTE:







Prior to the wiring harness inspection, check intermediate connector C-129 <front or side LH>, C-113 <rear RH> or C-111 <side RH> and junction block connector C-210 <front LH, side or rear RH>, C-217 <rear LH> or C-214 <front RH or 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.

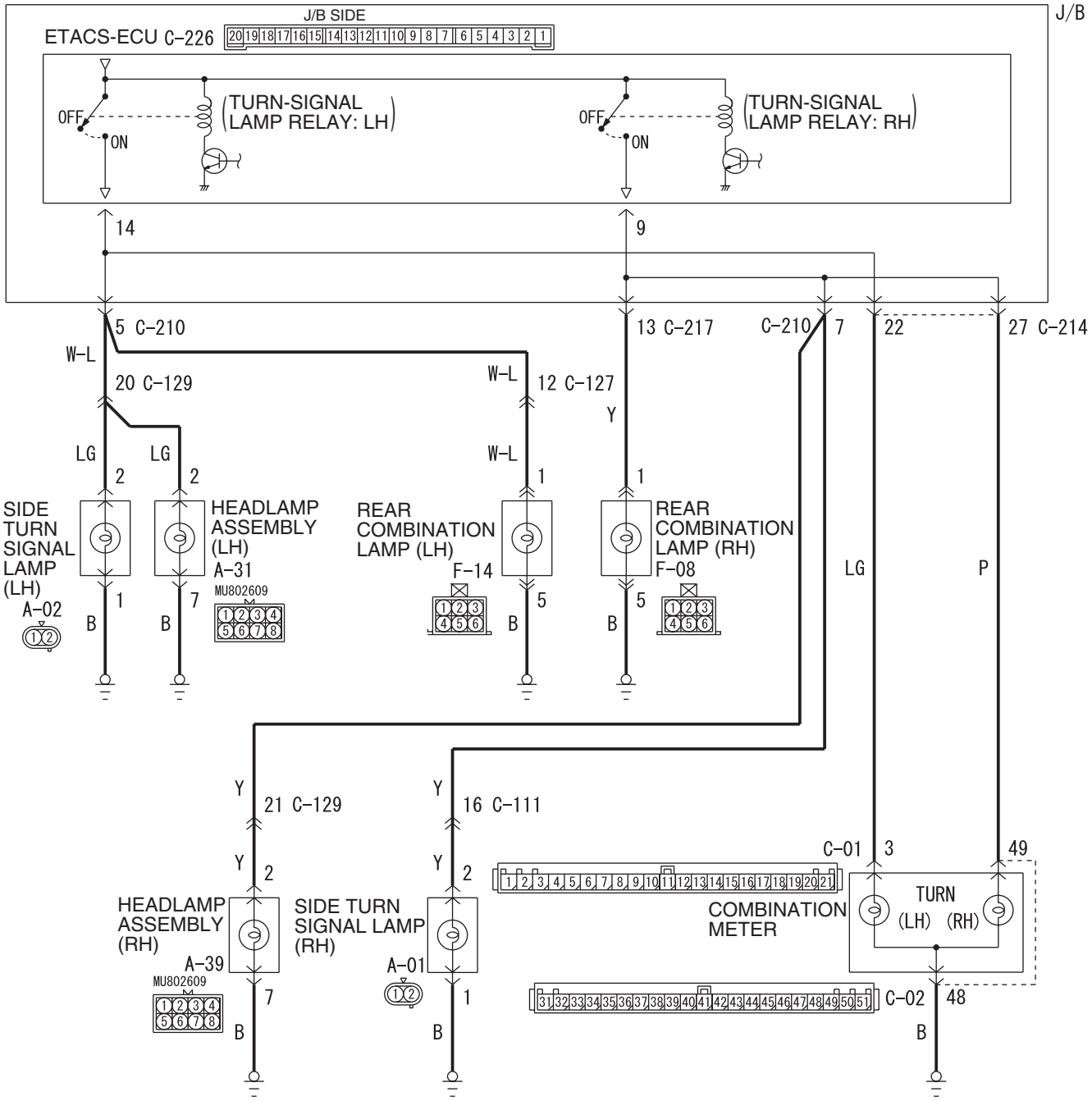
Check that the turn-signal lamps and the indicator lamps illuminate normally.

Q: Is the check result normal?
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.00-5).
The front turn-signal lamps do not illuminate. : Replace the socket.
The side turn-signal lamps do not illuminate. : Replace the socket.
The rear turn-signal lamps do not illuminate. : Replace the socket assembly.
The turn-signal indicator lamps do not illuminate. : Replace the combination meter.

INSPECTION PROCEDURE I-3: Any of the turn-signal lamps does not illuminate. <RH drive vehicles>

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

Turn-Signal Lamps Circuit <RHD>



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

W4J54E128A

COMMENTS ON TROUBLE SYMPTOM

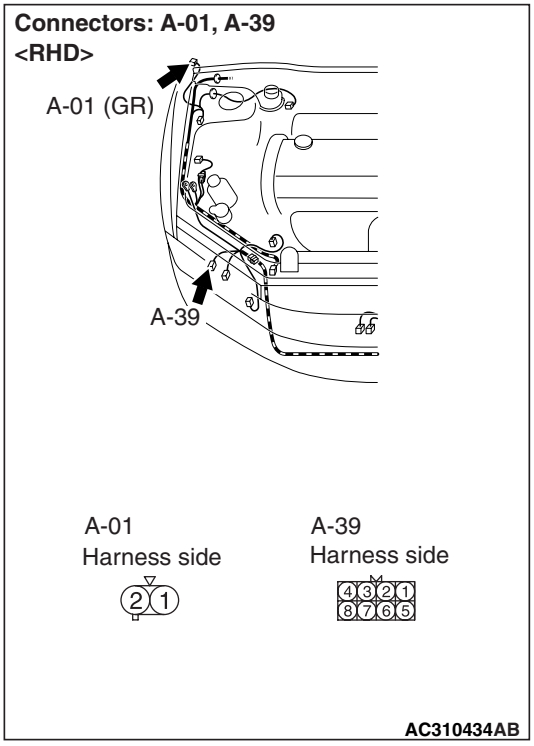
If any of the turn-signal lamps does not illuminate normally, wiring harness connector(s) or the bulb may be defective.

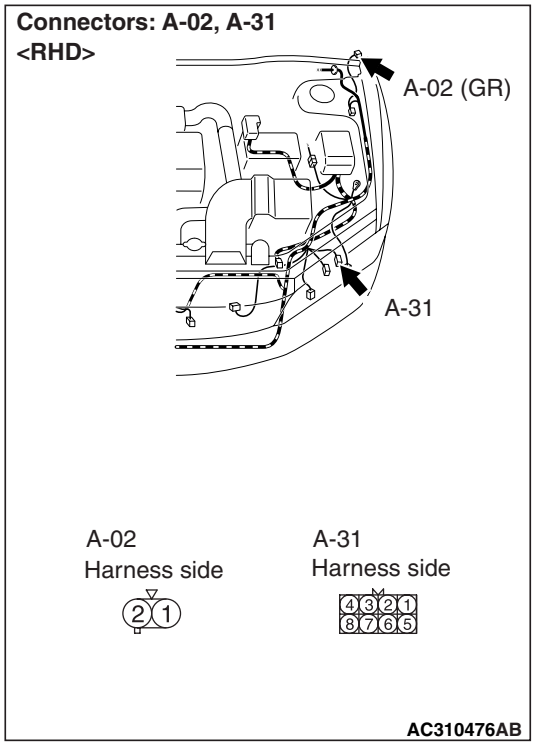
POSSIBLE CAUSES

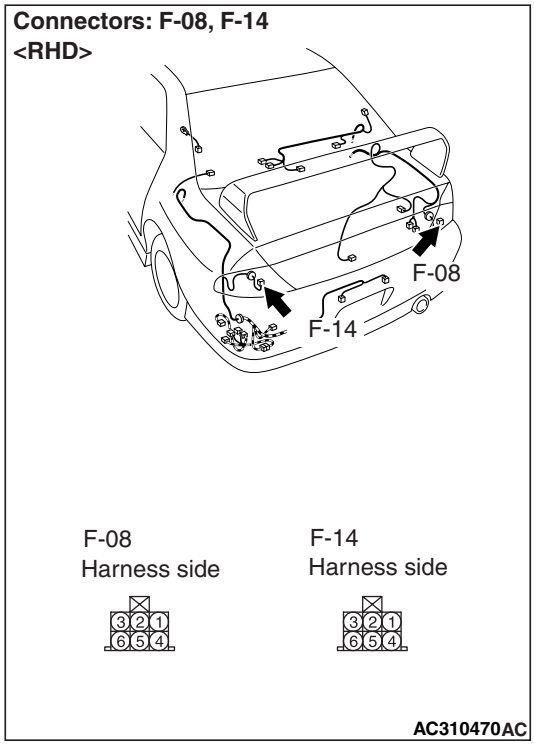
- Defective turn-signal lamp bulb
- Damaged harness wires and connectors

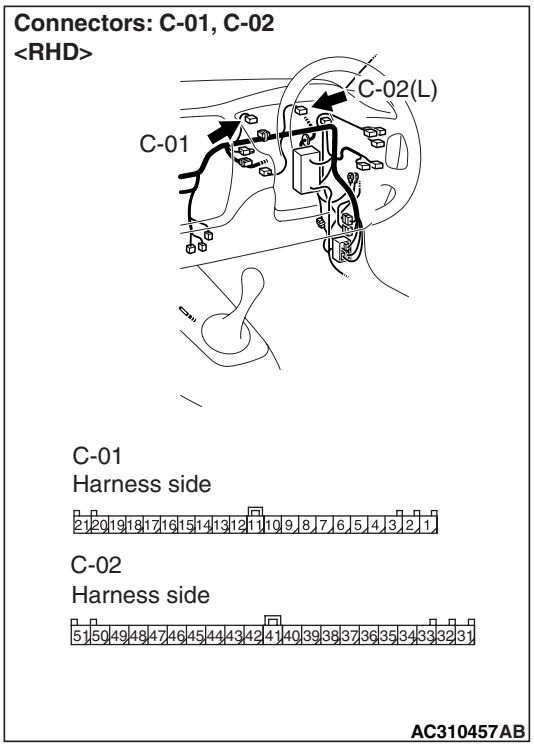
DIAGNOSTIC PROCEDURE

Step 1. Connector check: A-39 <front RH> or A-31 <front LH> headlamp assembly connector, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector, C-02 <turn-signal indicator lamp> and C-01 <turn-signal indicator lamp (LH)> combination meter connector







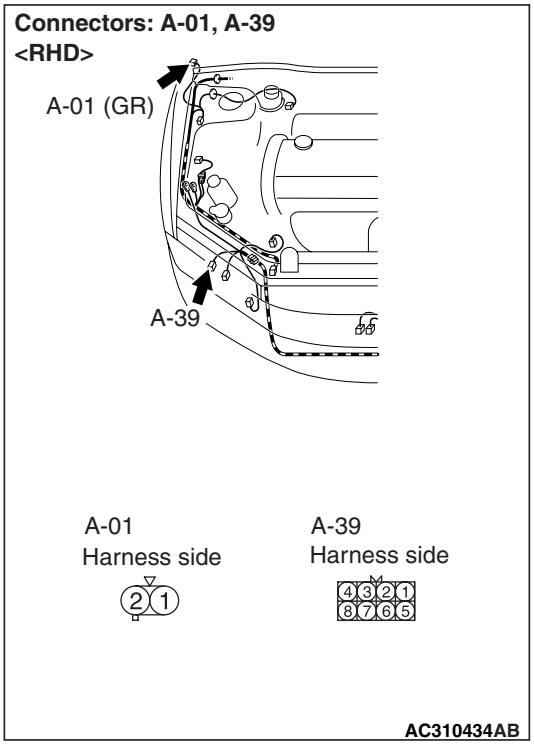


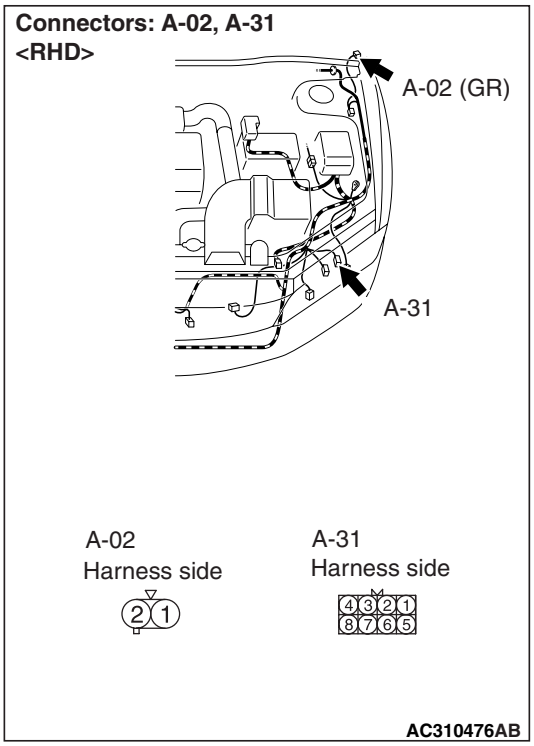
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

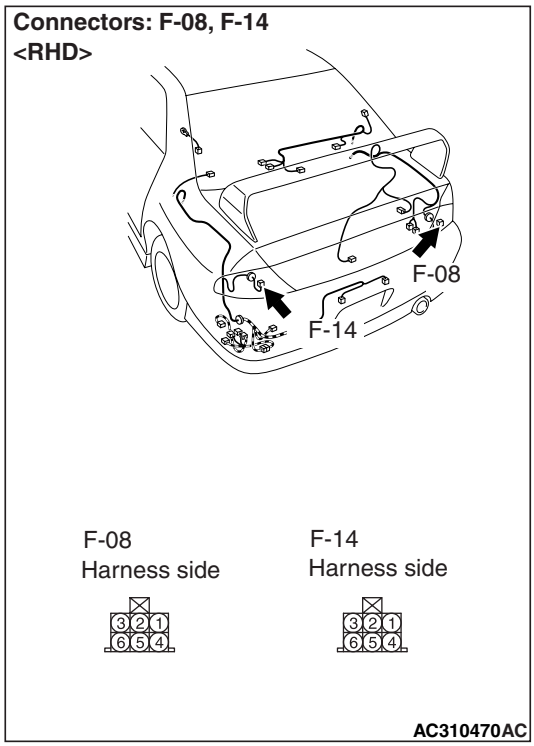
Step 2. Check the bulb(s) of the turn-signal lamps or the turn-signal indicator lamps.
Check the bulb(s) of the defective lamp.

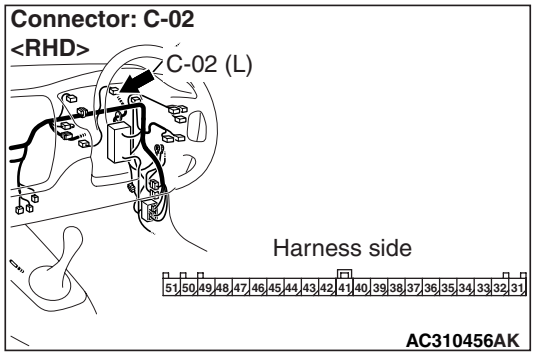
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

Step 3. Resistance measurement at the A-39 <front RH> or A-31 <front LH> headlamp assembly connector, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector, the F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector, the C-02 <turn-signal indicator lamp> combination meter connector



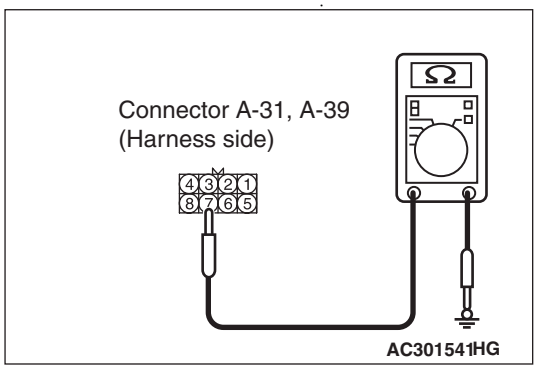






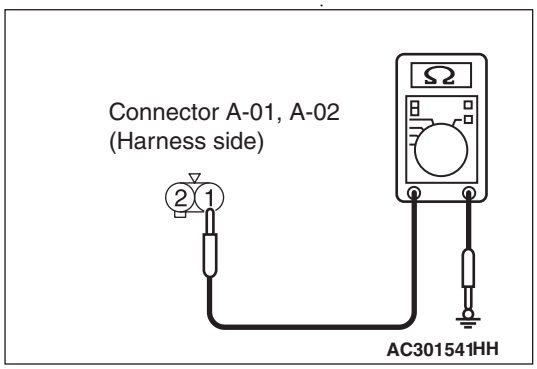
(1) Disconnect the connector, and measure at the wiring harness side.

(2) Measure the resistance between the defective lamp connector terminal and body earth.



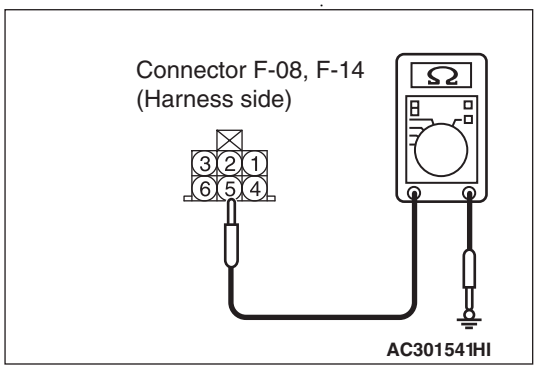
Resistance between A-39 <front RH> headlamp assembly connector terminal No.7 and body earth

- Resistance between A-31 <front LH> headlamp assembly connector terminal No.7 and body earth



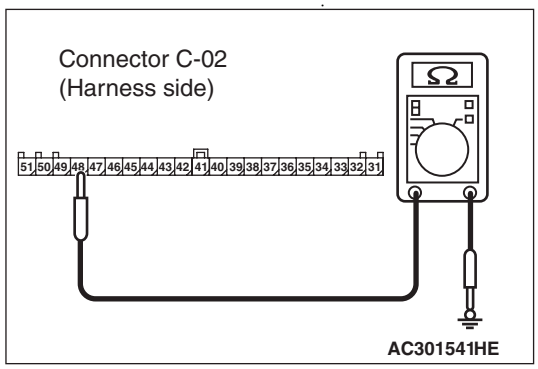
Resistance between A-01 <side RH> side turn-signal lamp connector terminal No.1 and body earth

- Resistance between A-02 <side LH> side turn-signal lamp connector terminal No.1 and body earth



Resistance between F-08 <rear RH> rear combination lamp connector terminal No.5 and body earth

- Resistance between F-14 <rear LH> rear combination lamp connector terminal No.5 and body earth

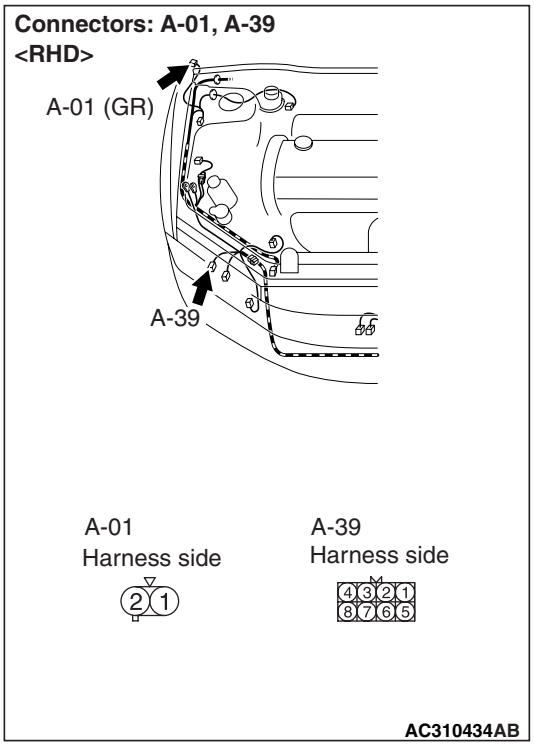


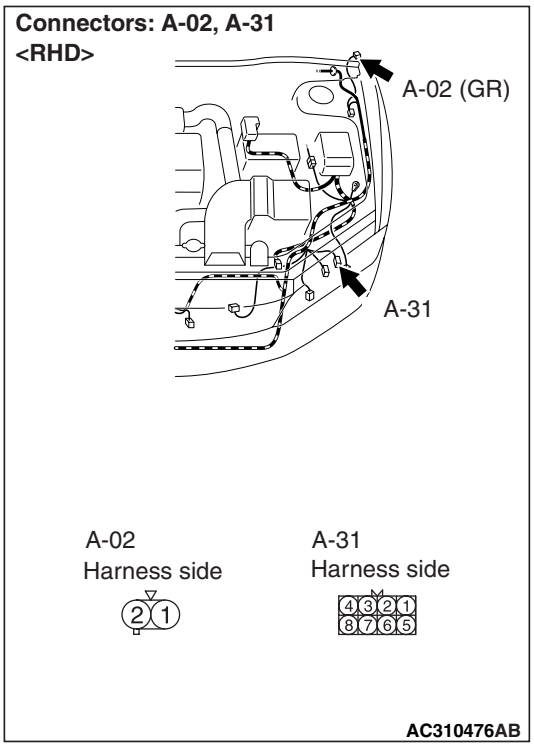
Resistance between C-02 <turn-signal indicator lamp> combination meter terminal No.48 and body earth

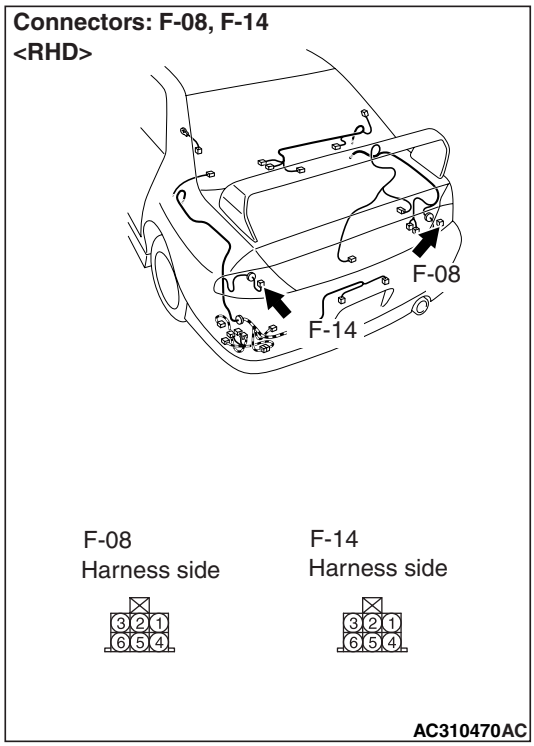
OK: 2 Ω or less

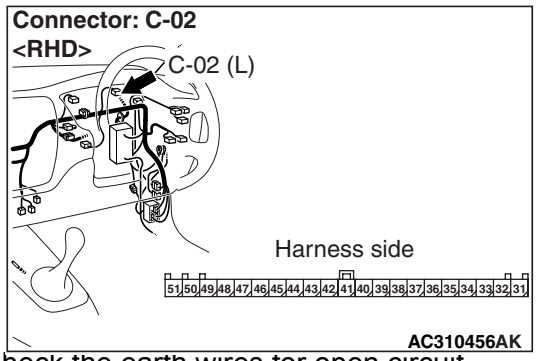
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness from A-39 <front RH> or A-31 <front LH> headlamp assembly connector terminal No.7, A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.1, F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector terminal No.5, or C-02 <turn-signal indicator lamp> combination meter connector terminal No.48 to body earth.





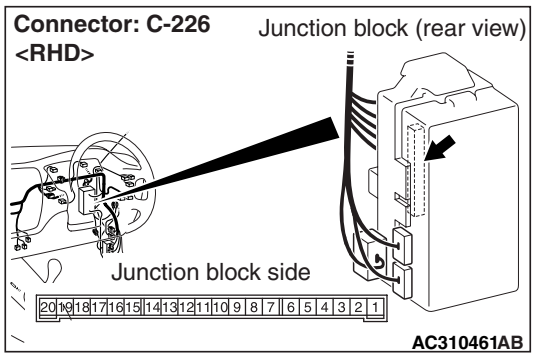




- Check the earth wires for open circuit.

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.00-5).
NO : Repair the wiring harness.

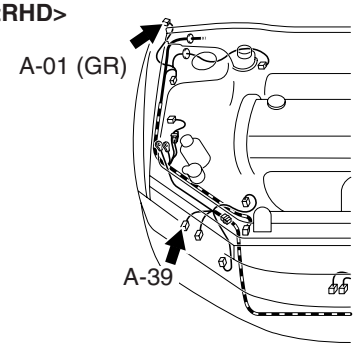
Step 5. Connector check: C-226 ETACS-ECU connector



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

Step 6. Check the wiring harness from the A-39 <front RH> or A-31 <front LH> headlamp assembly connector terminal No.2, the A-01 <side RH> or A-02 <side LH> side turn-signal lamp connector terminal No.2, the F-08 <rear RH> or F-14 <rear LH> rear combination lamp connector terminal No.1, the C-02 <turn-signal indicator lamp RH> combination meter connector terminal No.49 or C-01 <turn-signal indicator lamp LH> combination lamp connector terminal No.3 to C-226 ETACS-ECU connector terminal No.9 <RH> or 14 <LH>.

Connectors: A-01, A-39
<RHD>



A-01
Harness side

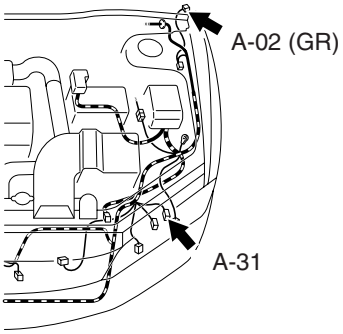


A-39
Harness side



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Connectors: A-02, A-31
<RHD>



A-02
Harness side

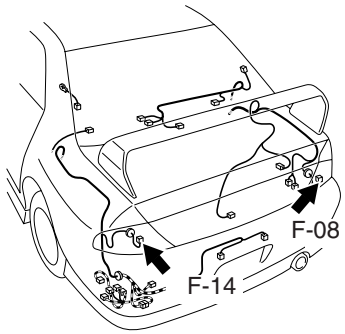


A-31
Harness side



AC310476AB

Connectors: F-08, F-14
<RHD>



F-08
Harness side

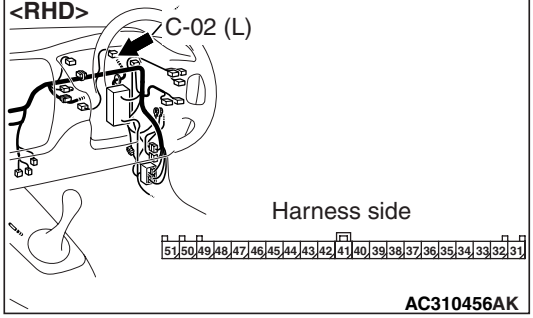


F-14
Harness side



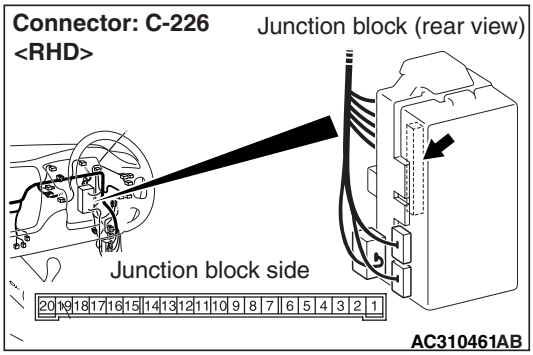
AC310470AC

Connector: C-02
<RHD>



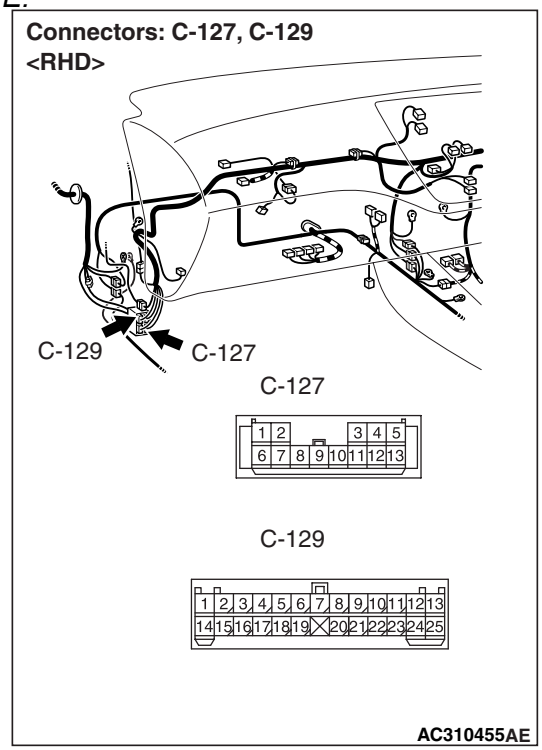
AC310456AK

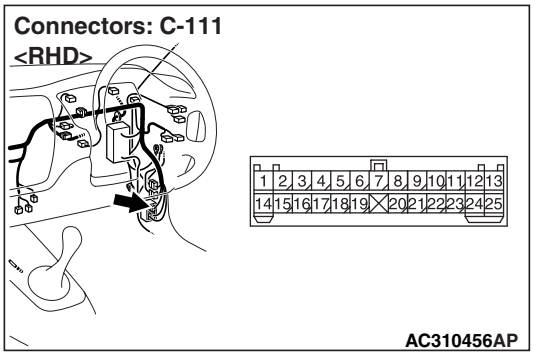
Connector: C-226
<RHD>

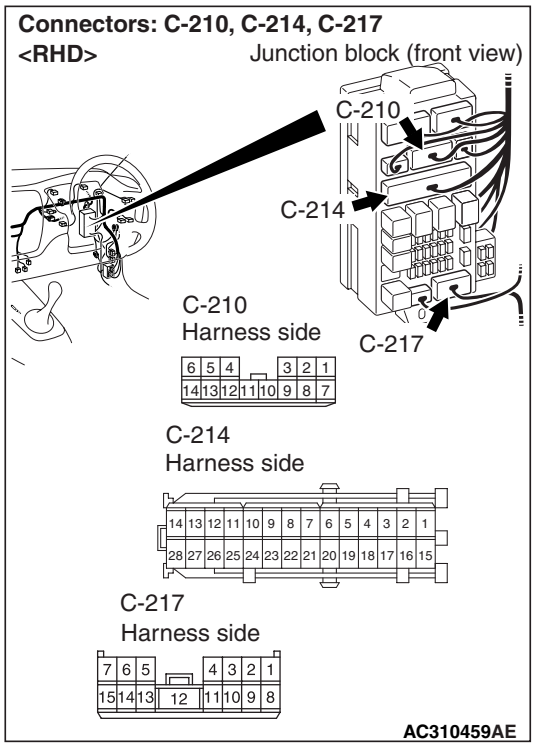


AC310461AB

NOTE:







Prior to the wiring harness inspection, check intermediate connector C-129 <front or side LH>, C-127 <rear LH> or C-111 <side RH> and junction block connector C-210 <front, side or rear LH>, C-217 <rear RH> or C-214 <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?

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.00-5).

The front turn-signal lamps do not illuminate. : Replace the socket.

The side turn-signal lamps do not illuminate. : Replace the socket.

The rear turn-signal lamps do not illuminate. : Replace the socket assembly.

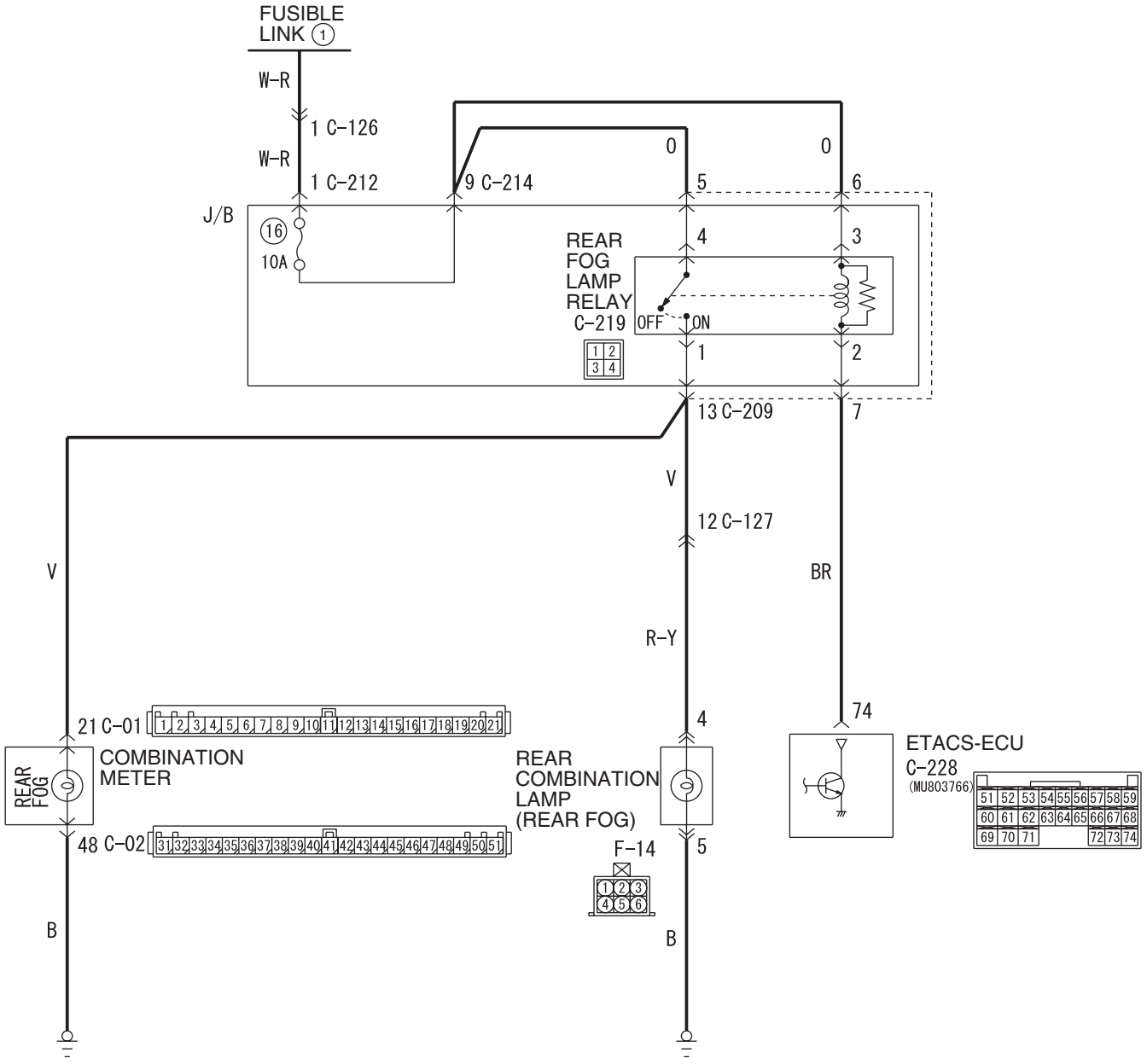
The turn-signal indicator lamps do not illuminate. : Replace the combination meter.

FOG LAMP

INSPECTION PROCEDURE J-1: The rear fog lamp do not illuminate normally.

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

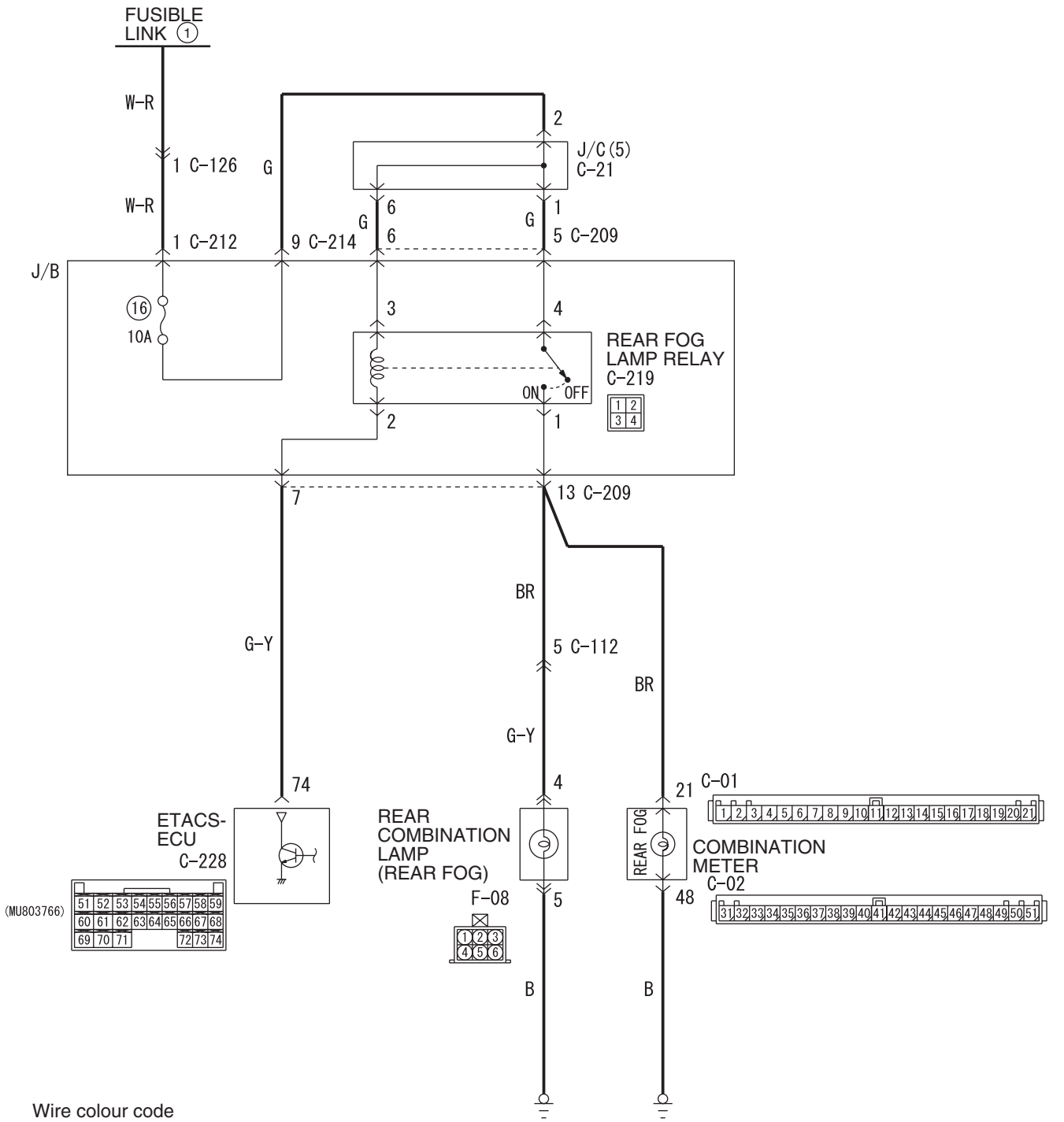
Rear Fog Lamp Circuit <LHD>



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

W4J54E129A

Rear Fog Lamp Circuit <RHD>



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

W4J54E130A

OPERATION

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

- Tail lamp switch
- Headlamp switch
- Rear fog lamp switch

If the rear fog lamps do not illuminate normally, these input signal circuit(s) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the column switch
- Malfunction of the fog lamp switch
- 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 : Check the tail lamps and the headlamps (Refer to trouble symptom chart P.54C-20).

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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- COLUMN ECU
- ETACS ECU
- FRONT ECU

OK: "OK" is displayed for all the items

Q: Is the check result normal?
"OK" is displayed for all the items : Go to Step 3.
"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-30."
"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."
"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-42."

Step 3. Function diagnosis by using the SWS monitor.
Check the SWS communication signal, which are related to the fog lamps.

<Selected item> LIGHTING - REAR FOG LAMP

- Ignition switch: ON
- Lighting switch: "TAIL" or "HEAD"
- Rear fog lamp switch: ON

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

OK: Normal conditions are displayed for all the items.

Q: Is the check result normal?
Normal conditions are displayed for all the items. : Go to Step 4.
Normal condition is not displayed for item 00 or 01. : Refer to Inspection Procedure L-4 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-267."

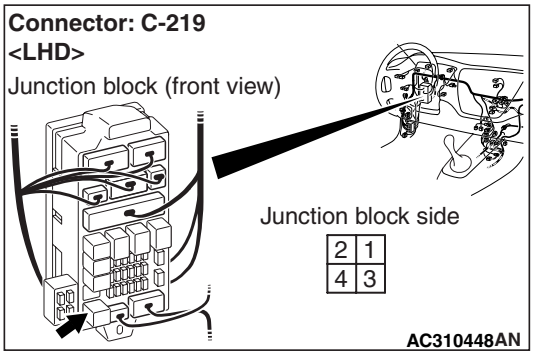
Step 4. Pulse check.
Check the input signals below, which are related to the rear fog lamps.

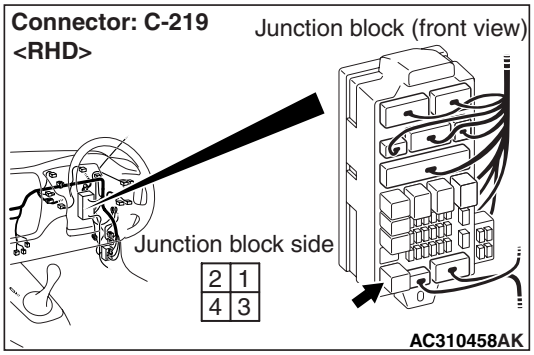
System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Rear fog lamp switch	When the rear fog lamp switch is turned from off to on

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

Q: Is the check result normal?
All the signals are received normally. : Go to Step 5.
The ignition switch (IG1) signal is not received. : Refer to Inspection Procedure L-2 "The ignition switch (IG1) signal is not received P.54C-261."
The rear fog lamp switch signal is not received. : Refer to Inspection Procedure L-8 "The rear fog lamp switch signal is not received P.54C-277."

Step 5. Connector check: C-219 rear fog lamp relay connector





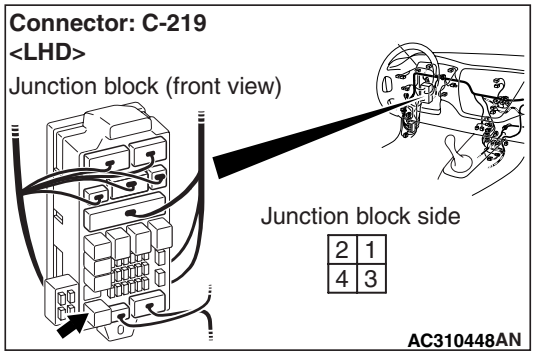
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

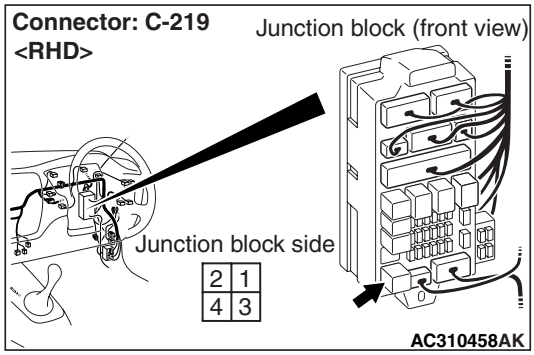
Step 6. Check the rear fog lamp relay.

Refer to GROUP 54A – Rear fog lamp P.54A-64.

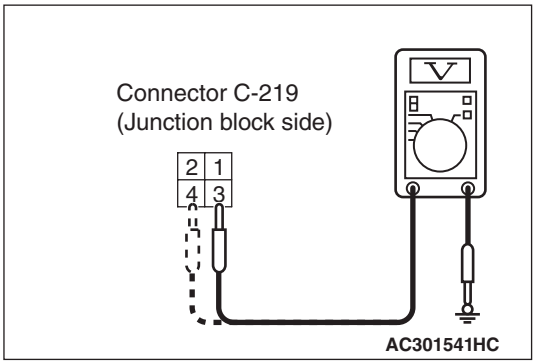
Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the rear fog lamp relay.

Step 7. Voltage measurement at the C-219 rear fog lamp relay connector





(1) Remove the rear fog lamp relay, and measure at the junction block side.

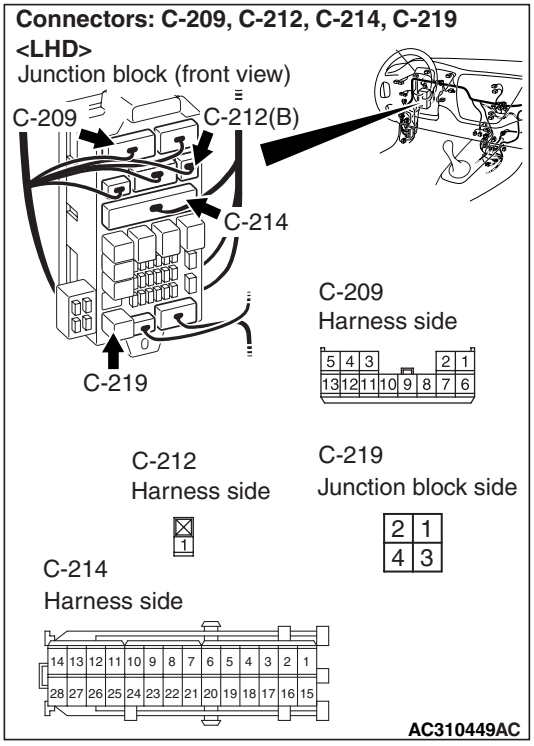


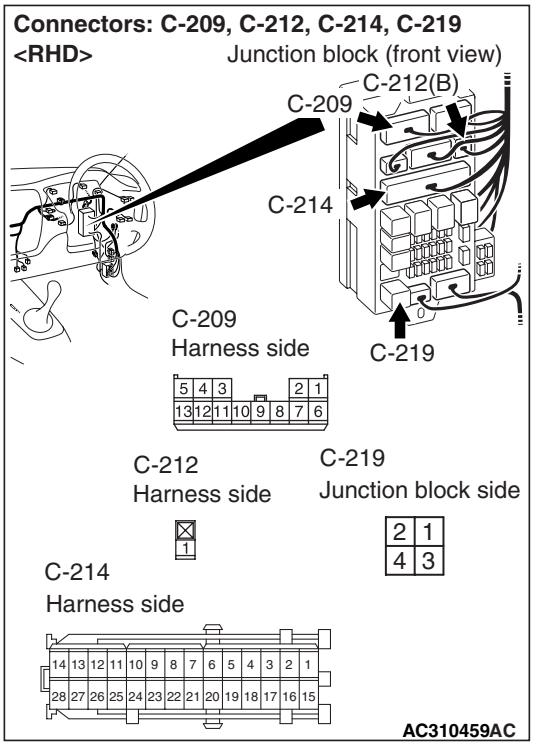
(2) Check the voltage between the rear fog lamp relay connector and body earth.
- Voltage between C-219 rear fog lamp relay connector terminal No.3 and body earth
- Voltage between C-219 rear fog lamp relay connector terminal No.4 and body earth

OK: System voltage

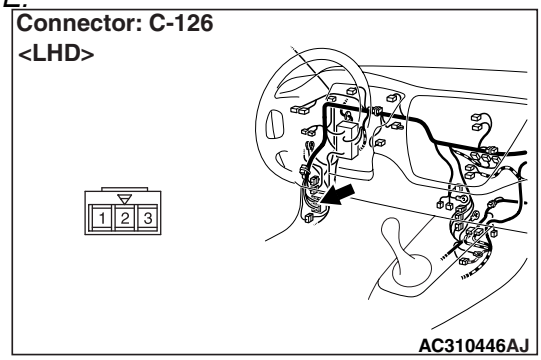
Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 8.

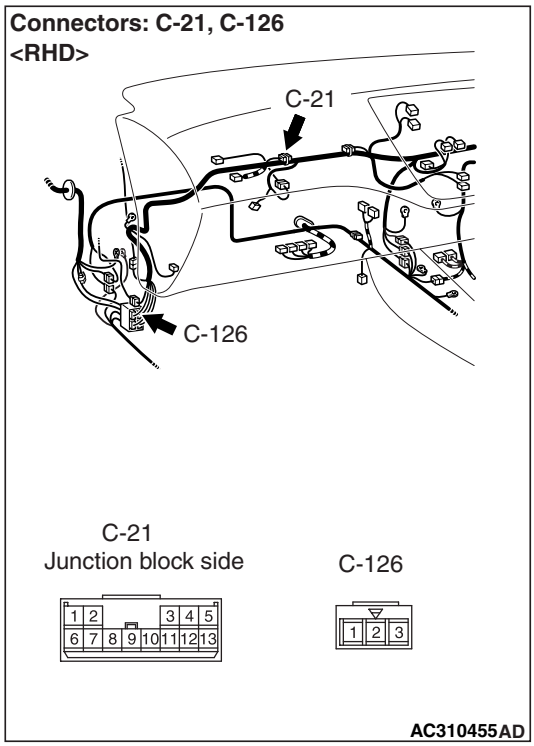
Step 8. Check the wiring harness between C-219 rear fog lamp relay connector (terminal Nos.3 and 4) and the battery.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-126, joint connector C-21 <RH drive vehicles> and junction block connectors C-209, C-212 and C-214, and repair if necessary.

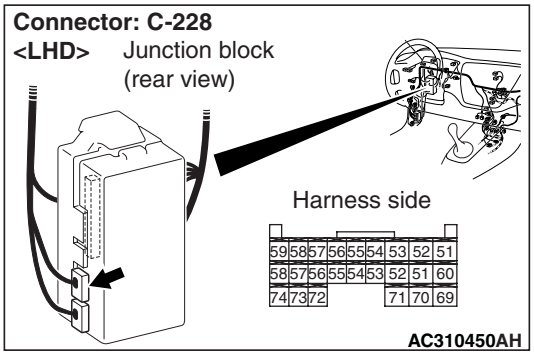
- Check the power supply line for open circuit.

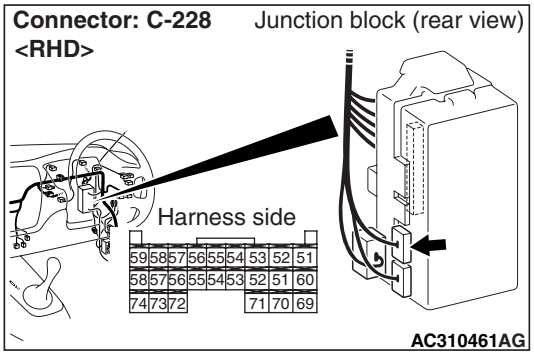
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

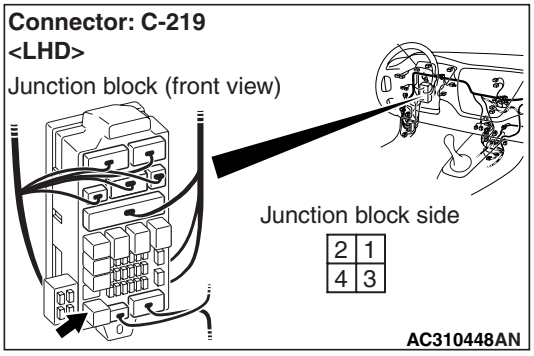
Step 9. Connector check: C-228 ETACS-ECU connector

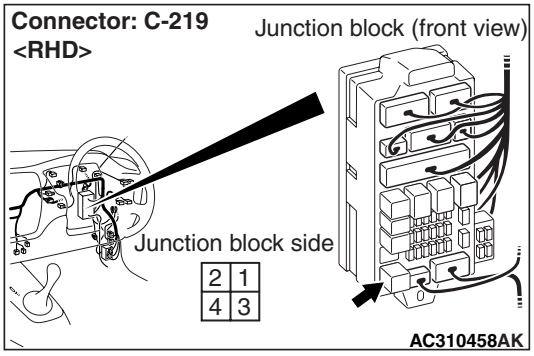


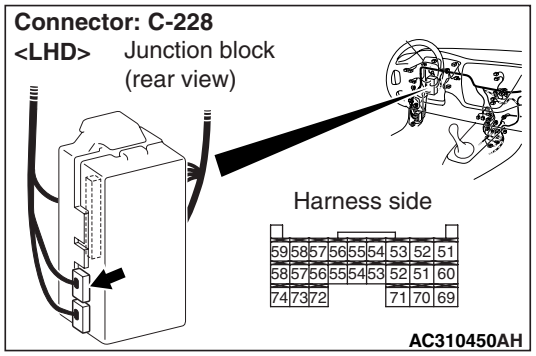


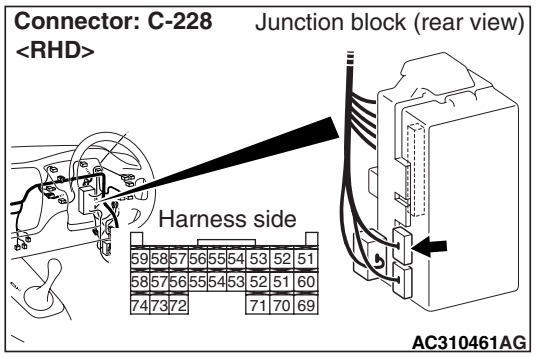
Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the defective connector.

Step 10. Check the wiring harness between C-219 rear fog lamp relay connector terminal No.2 and C-228 ETACS-ECU connector terminal No.74.









NOTE: Prior to the wiring harness inspection, check junction block connector C-209, and repair if necessary.

- Check the output lines for open circuit.

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

Step 11. Retest the system.

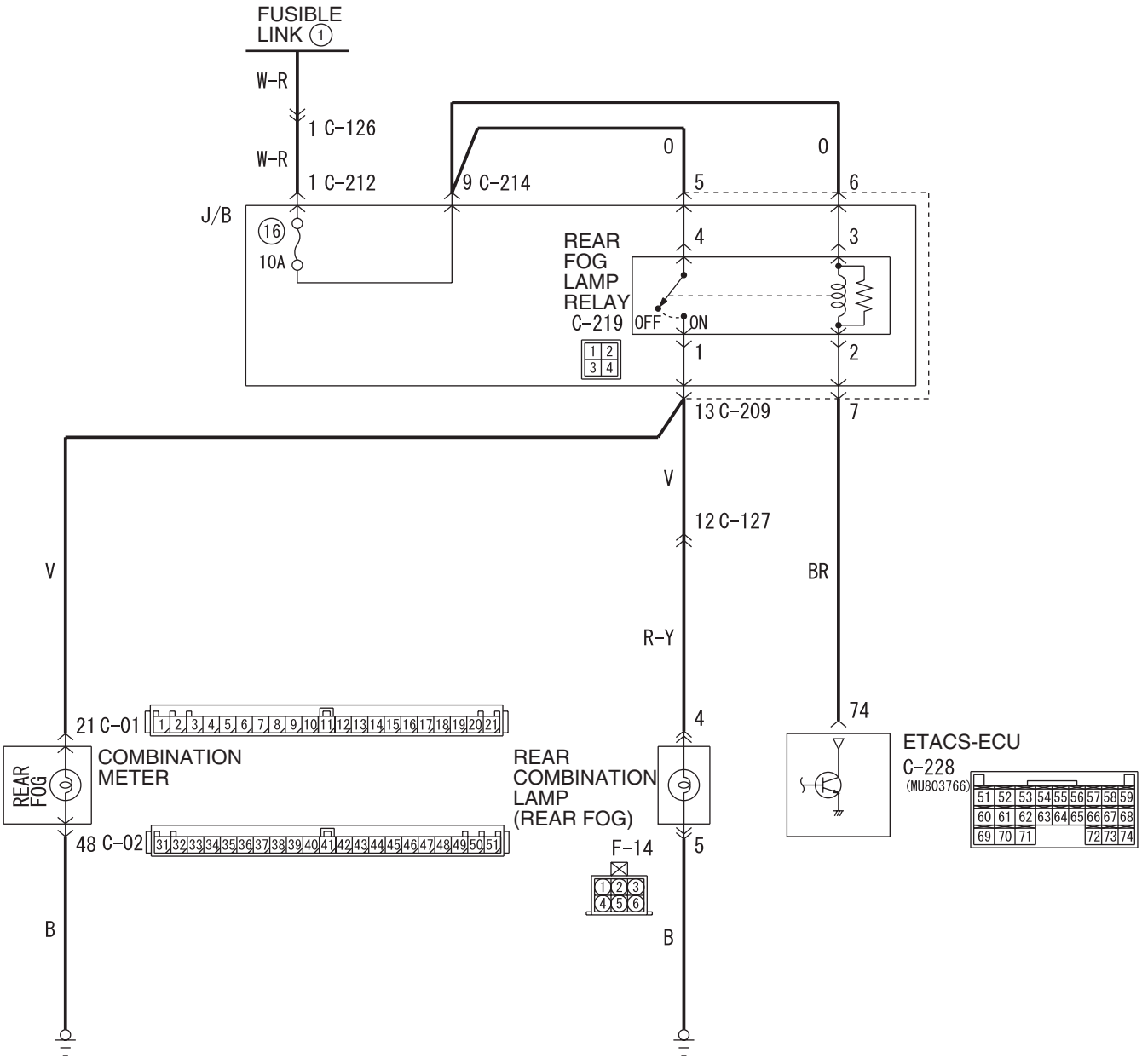
Check that the rear fog lamps illuminate normally.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE J-2: The rear fog lamp or the rear fog lamp indicator does not illuminate normally.

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

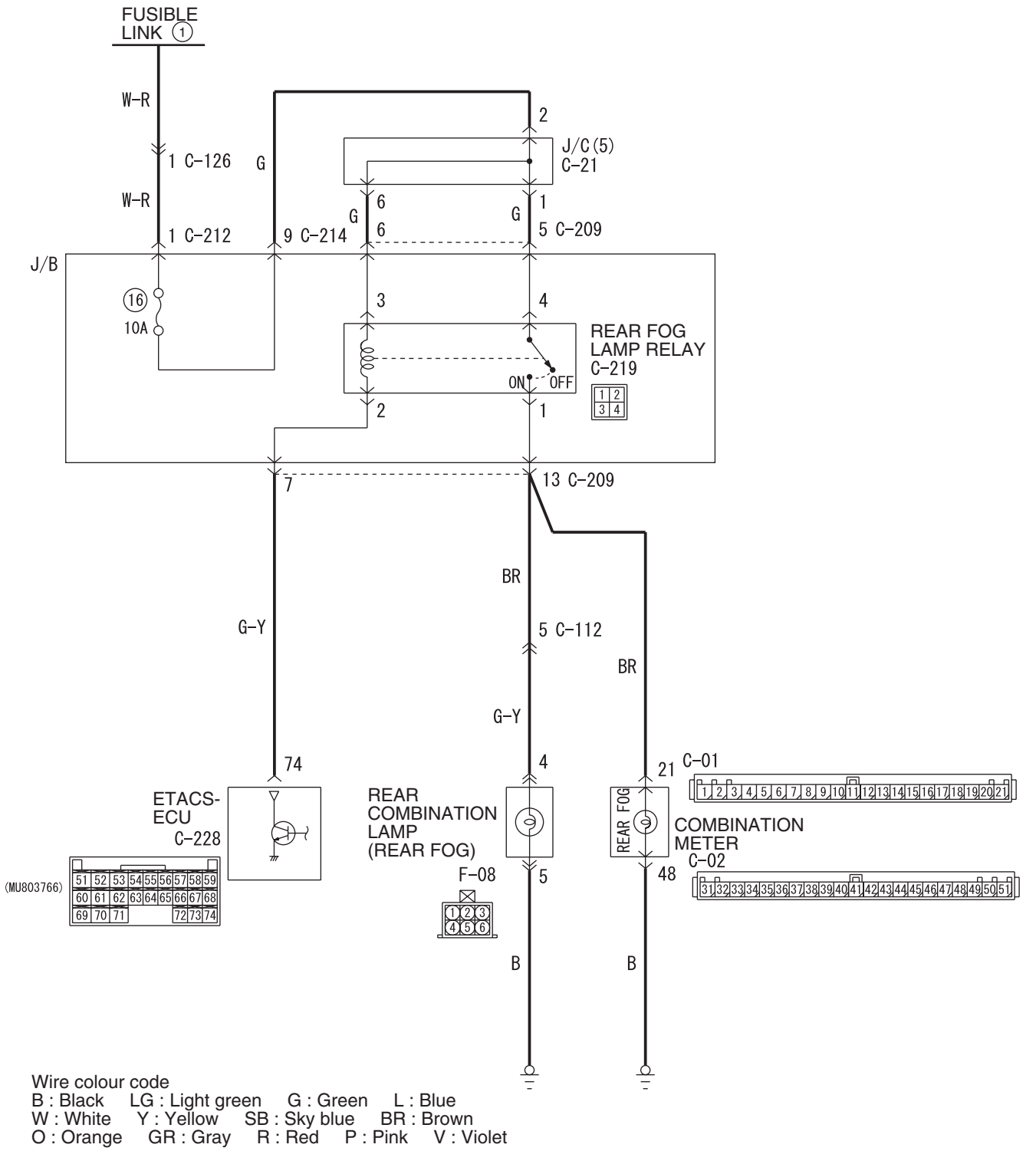
Rear Fog Lamp Circuit <LHD>



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

W4J54E129A

Rear Fog Lamp Circuit <RHD>



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

W4J54E130A

COMMENTS ON TROUBLE SYMPTOM

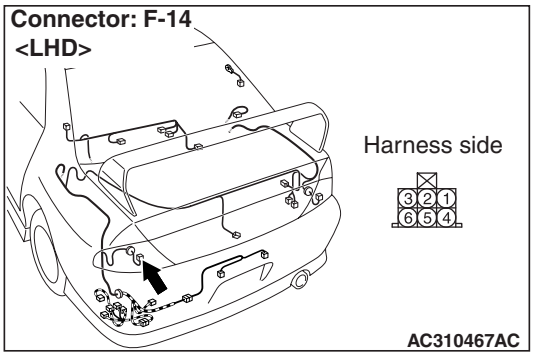
If any of the rear fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

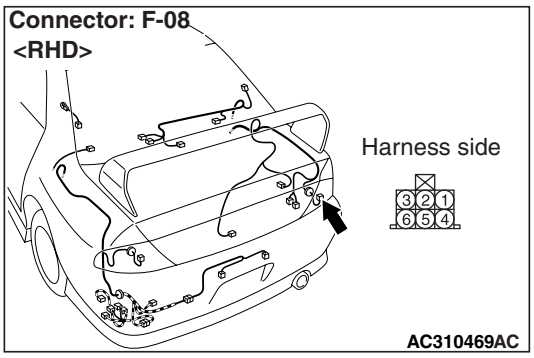
POSSIBLE CAUSES

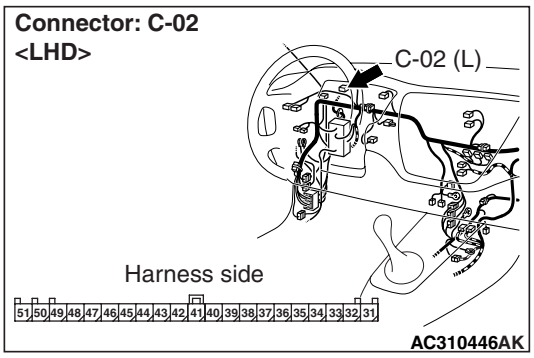
- Burned-out rear fog lamp bulb
- Damaged harness wires and connectors

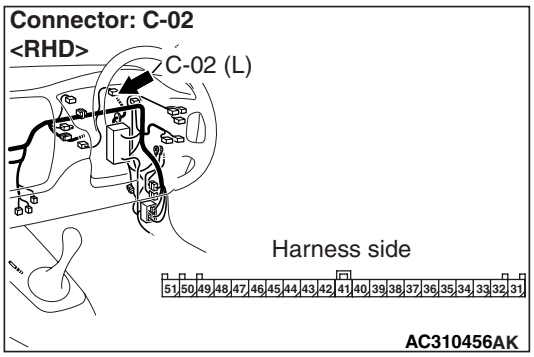
DIAGNOSIS PROCEDURE

Step 1. Connector check: F-14 <LH drive vehicles>, F-08 <RH drive vehicles> rear fog lamp connector or C-02 <rear fog lamp indicator lamp> combination meter connector







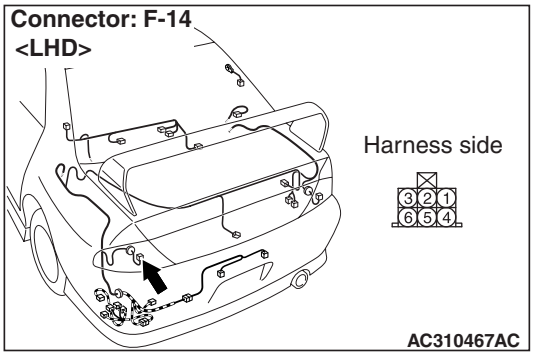


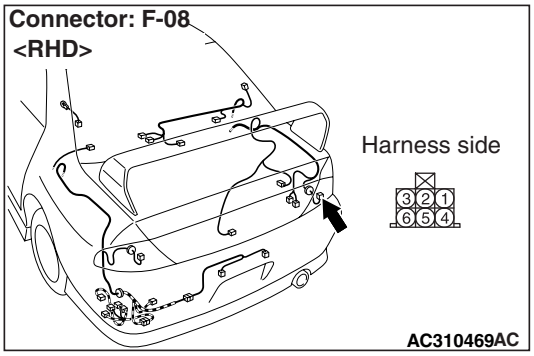
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

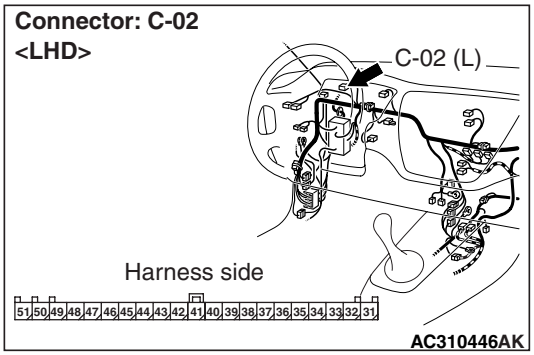
Step 2. Check the bulbs of the rear fog lamps or the rear fog lamp indicator lamp.
Check the bulb(s) of the defective lamp.

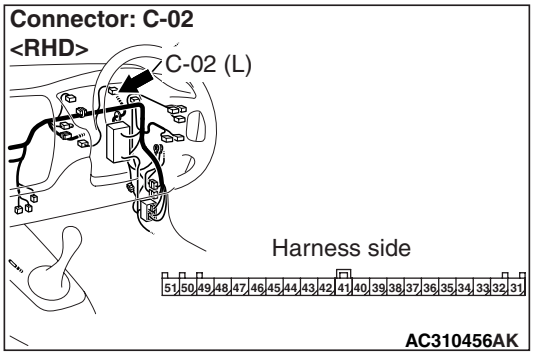
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

Step 3. Resistance measurement at the F-14 <LH drive vehicles>, F-08 <RH drive vehicles> rear fog lamp connector or C-02 <fog lamp indicator lamp> combination meter connector



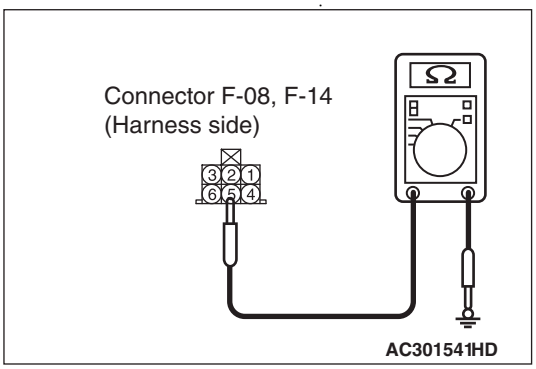




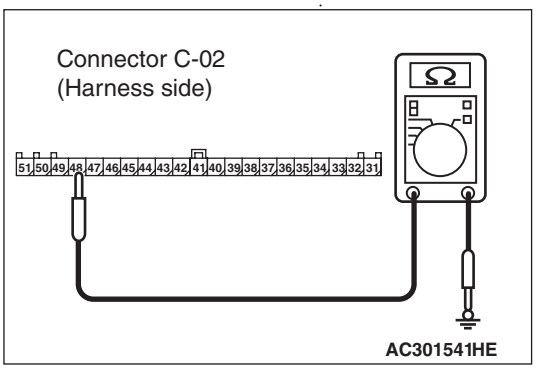


(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the lamp connector and body earth.



Resistance between F-14 <LH drive vehicles>, F-08 <RH drive vehicles> rear fog lamp relay connector terminal No.5 and body earth

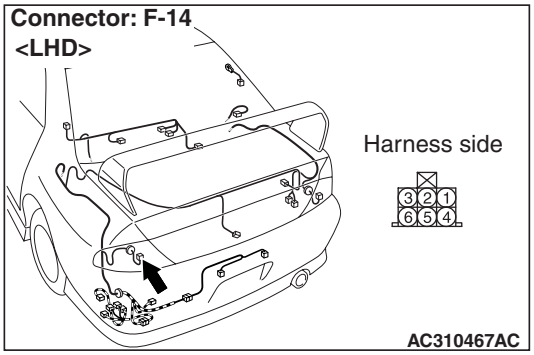


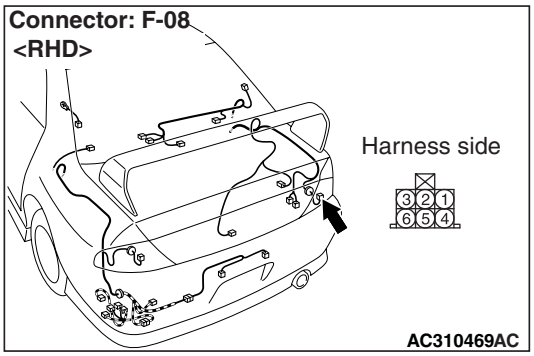
Resistance between C-02 <rear fog lamp indicator lamp> combination meter connector terminal No.48 and body earth

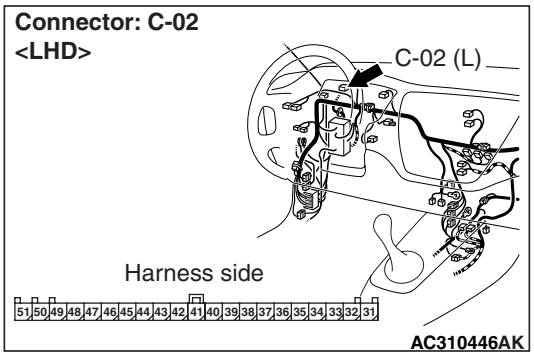
OK: 2 Ω or less

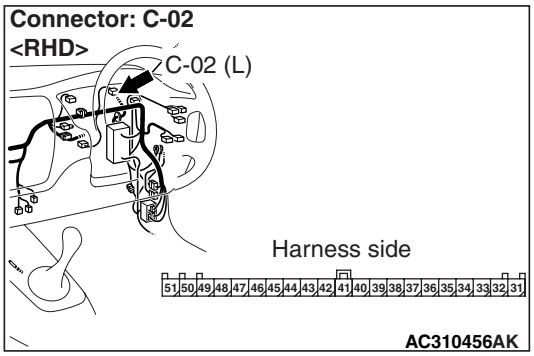
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness from F-14 <LH drive vehicles>, F-08 <RH drive vehicles> rear fog lamp connector terminal No.5, C-02 <rear fog lamp indicator lamp> combination meter connector terminal No.48 to body earth.









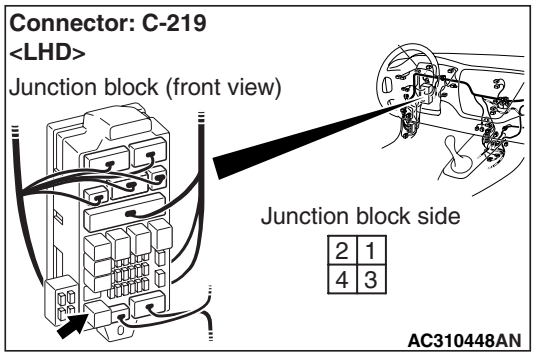
- Check the earth wires for open circuit.

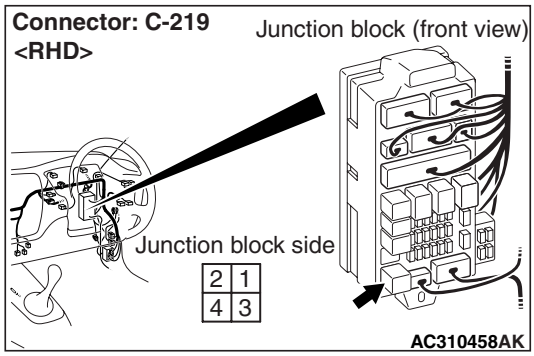
Q: Is the check result normal?

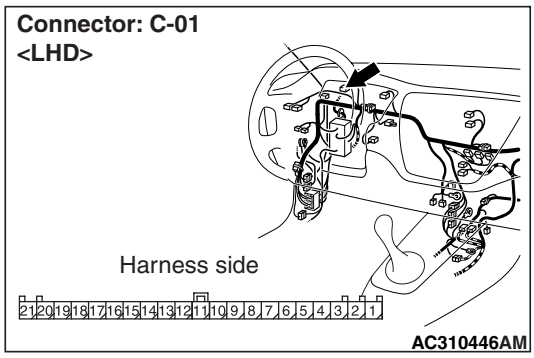
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

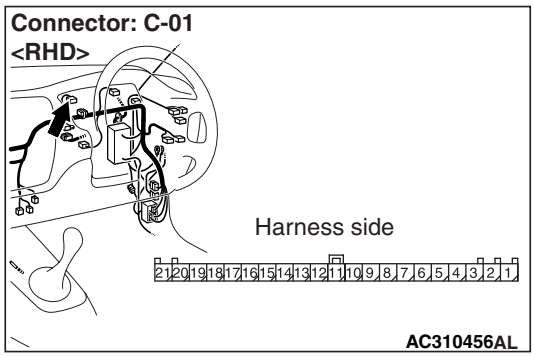
NO : Repair the wiring harness.

Step 5. Connector check: C-219 rear fog lamp relay connector, C-01 <rear fog lamp indicator lamp> combination meter connector







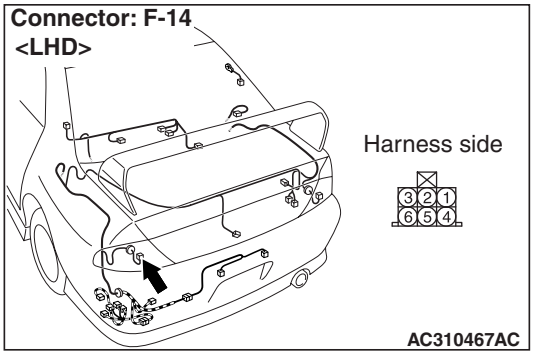


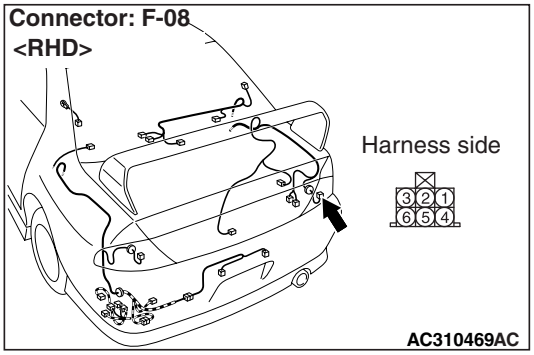
Q: Is the check result normal?

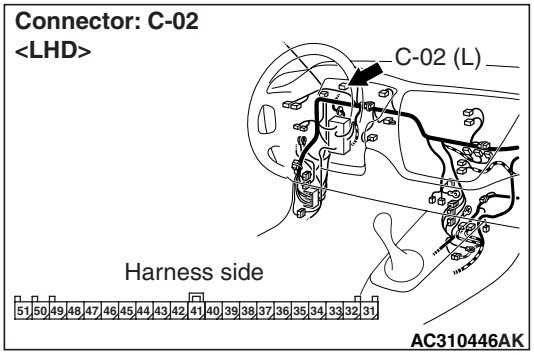
YES : Go to Step 6.

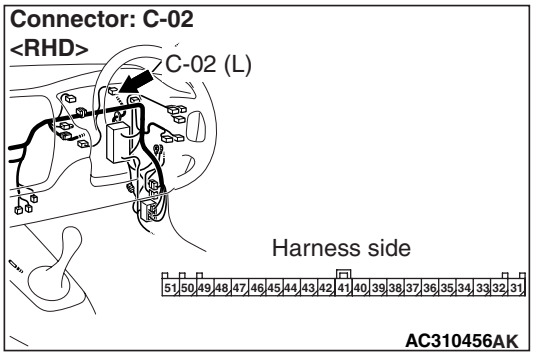
NO : Repair the defective connector.

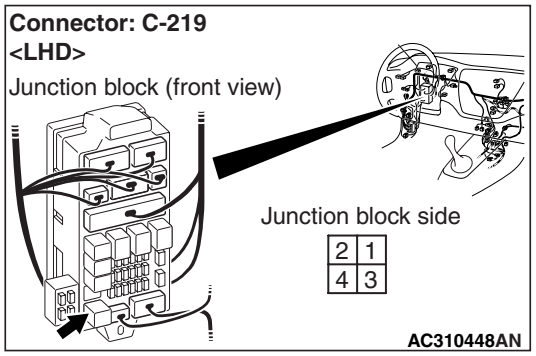
Step 6. Check the wiring harness from F-14 <LH drive vehicles>, F-08 <RH drive vehicles> rear fog lamp connector terminal No.4, C-01 <rear fog lamp indicator lamp> combination meter connector terminal No.21 to C-219 rear fog lamp relay connector terminal No.1.

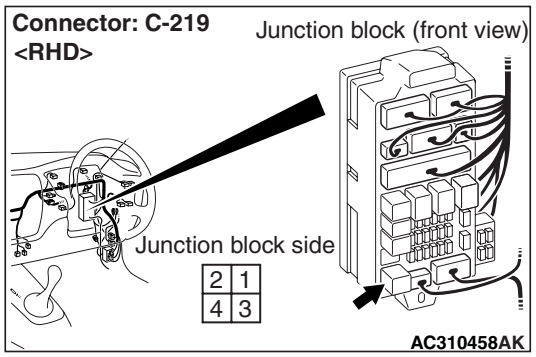




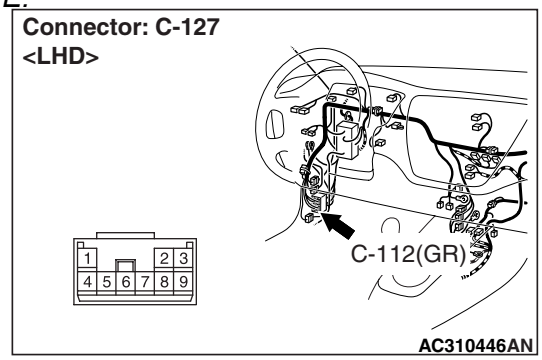


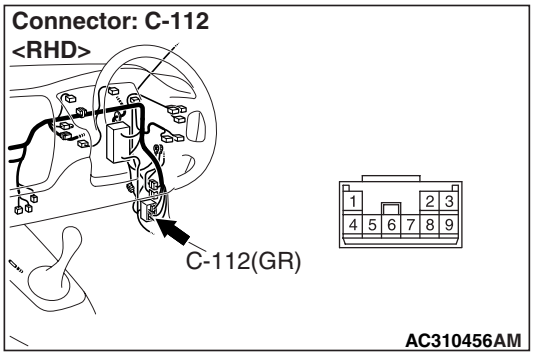


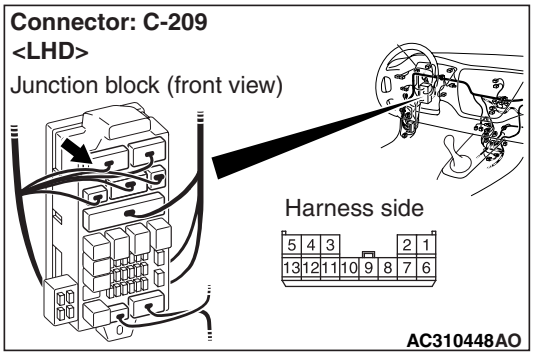


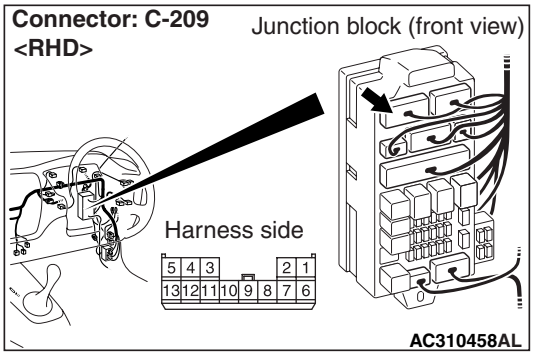


NOTE:









Prior to the wiring harness inspection, check intermediate connector C-127 <LH drive vehicles - rear fog lamp>, C-112 <RH drive vehicles - rear fog lamp> and junction block connector C-209, 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 rear fog lamp and the rear fog lamp indicator lamp illuminate normally.

Q: Is the check result normal?

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.00-5).

The rear fog lamps do not illuminate. : Replace the rear fog lamp(s).

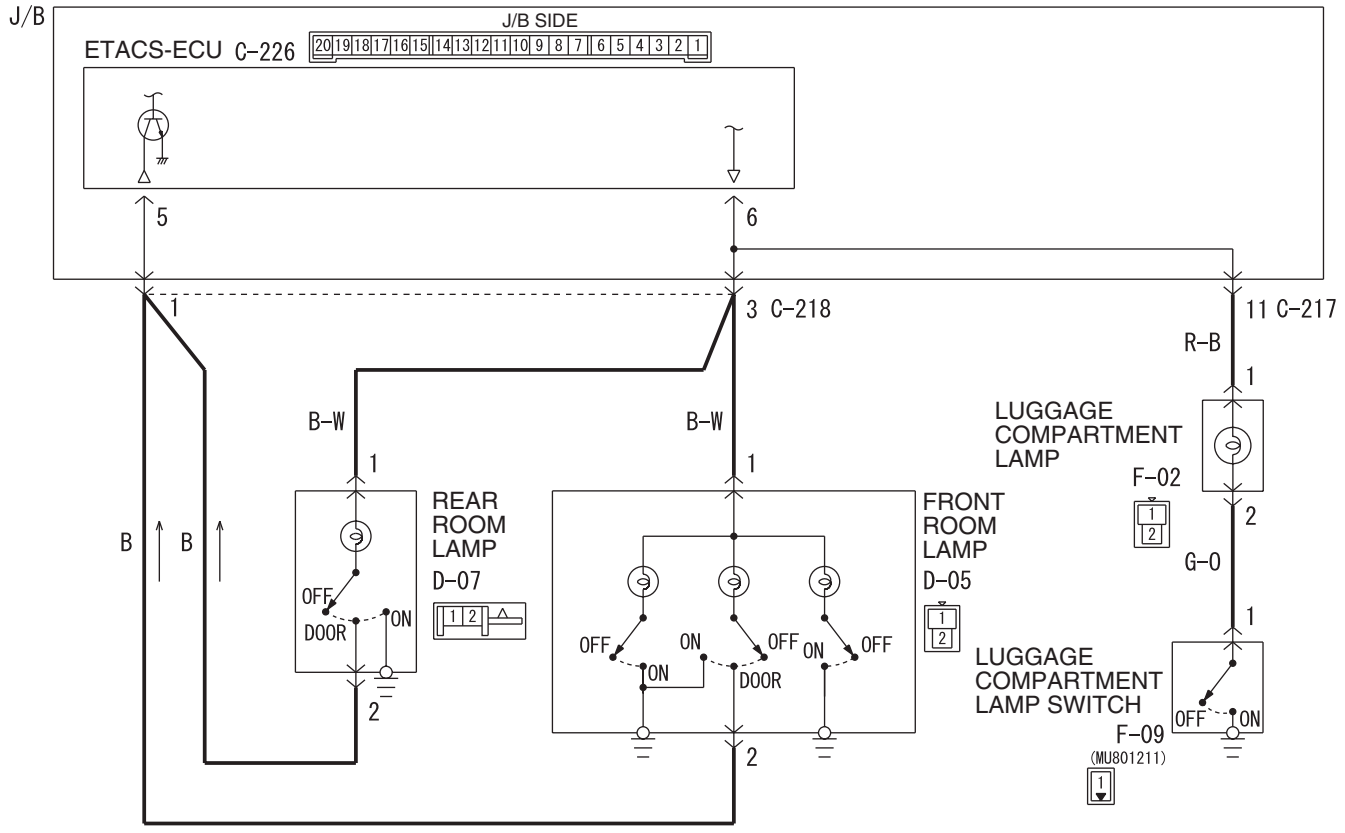
The rear fog lamp indicator lamp does not illuminate. : Replace the combination meter.

INTERIOR LAMP

INSPECTION PROCEDURE K--1: The front or rear room 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



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

W4J54E131A

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
- Driver's door lock actuator
- Interior lamp loaded signal

If this function does not work normally, these input signal circuit(s), the interior lamp automatic shutdown 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).

POSSIBLE CAUSES

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

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-302).

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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- 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-36."

Step 3. SWS monitor data list.
Check the input signals below, which are related to the front and rear dome lamps.

<Selected item> ETACS ECU
- Ignition switch: OFF

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 L-2 "The ignition switch (IG1) signal is not received P.54C-261."

Step 4. Pulse check
Check the input signals below, which are related to the front or rear dome 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
Driver's door lock actuator switch	When the driver's door is unlocked or locked
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

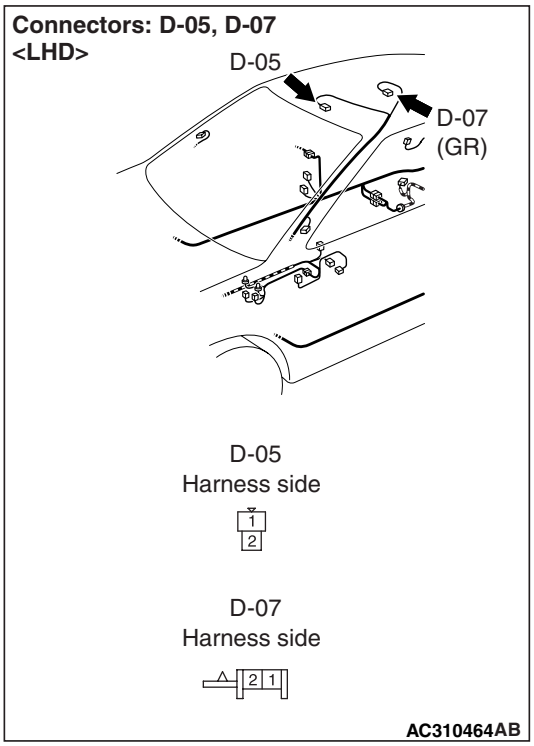
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

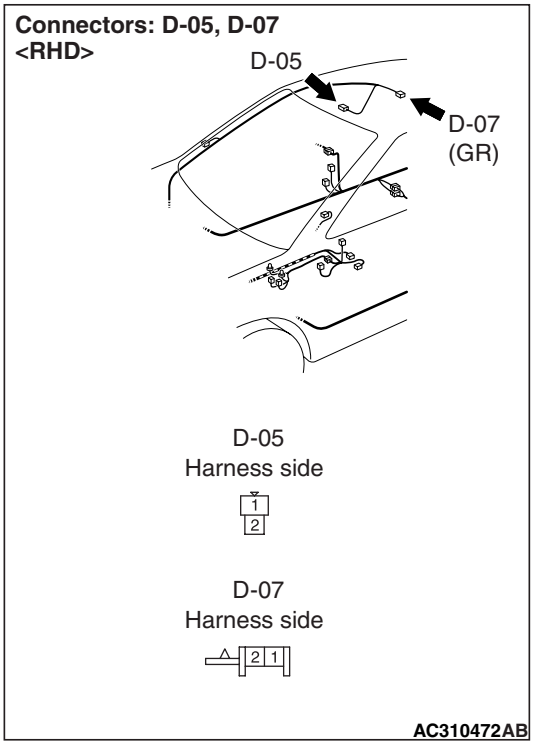
Q: Is the check result normal?
All the signals are received normally. : Go to Step 5.
The key reminder switch signal is not received. : Refer to Inspection Procedure L-9 "The key reminder switch signal is not received P.54C-281."
All the door switch signals are not received. : Refer to Inspection Procedure L-11 "All the door switch signals are not received <LH drive vehicles>P.54C-289 ," or refer to Inspection Procedure L-11 "All the door switch signals are not received <RH drive vehicles>P.54C-292 ."
The driver's door lock actuator switch signal is not received. : Refer to Inspection Procedure L-12 "The front door lock actuator (LH) switch signal is not received <LH drive vehicles>P.54C-296 ," or refer to Inspection Procedure L-12 "The front door lock actuator (RH) switch signal is not received <RH drive vehicles>P.54C-299 ."
The interior lamp loaded signal is not received. : Refer to Inspection Procedure L-15 "The interior lamp loaded signal is not detected P.54C-307."

Step 5. Determine a trouble spot.

Q: Which lamp does not illuminate?
No lamp illuminates. : Replace the ETACS-ECU.
The front room lamp or the rear room lamp does not illuminate. : Go to Step 6.
The luggage compartment lamp does not illuminate. : Go to Step 11.

Step 6. Connector check: D-05 front room lamp connector, D-07 rear room lamp connector



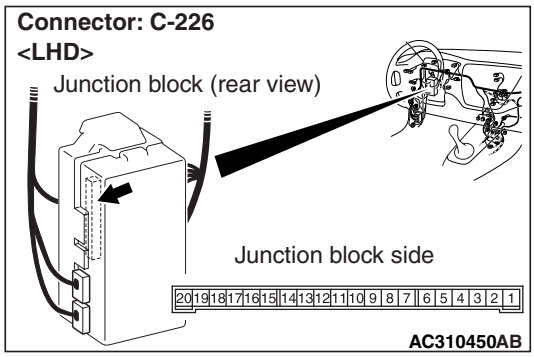


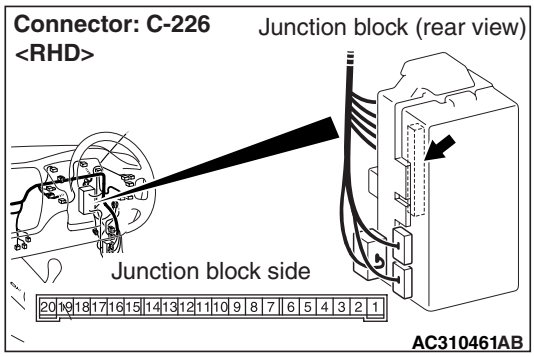
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

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.

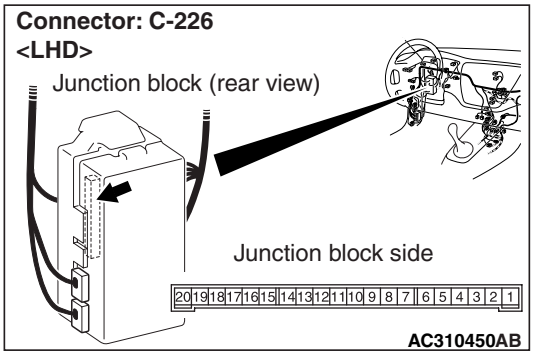
Step 8. Connector check: C-226 ETACS-ECU connector

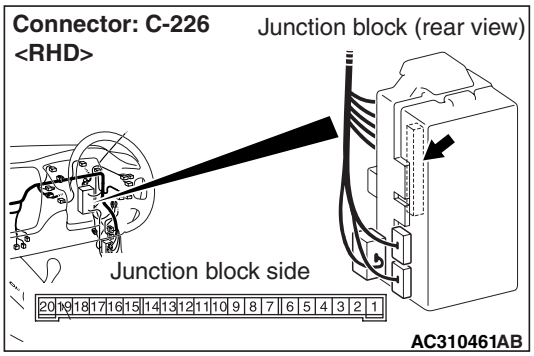


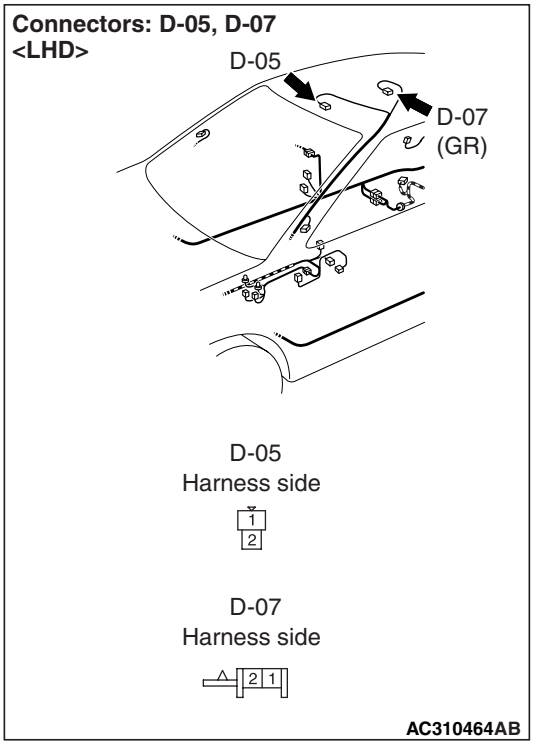


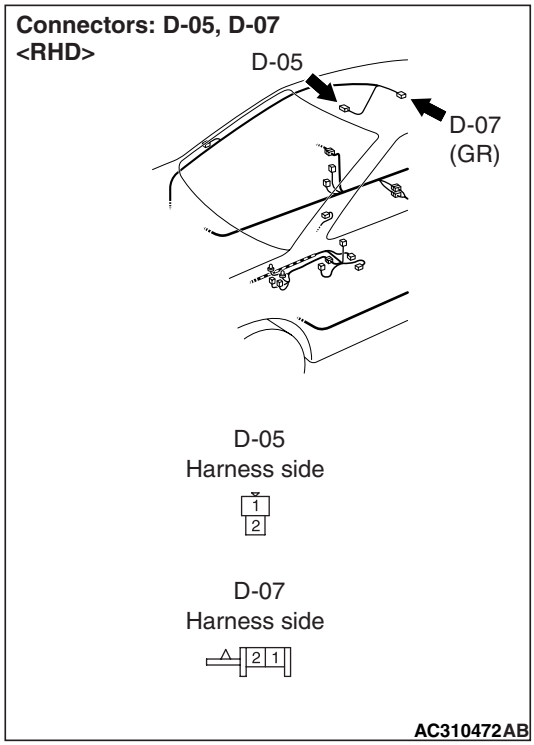
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

Step 9. Check the wiring harness from C-226 ETACS-ECU connector terminal Nos.5 and 6 to D-05 front room lamp connector terminal Nos.2 and 1 or D-07 rear room lamp connector terminal Nos.2 and 1.

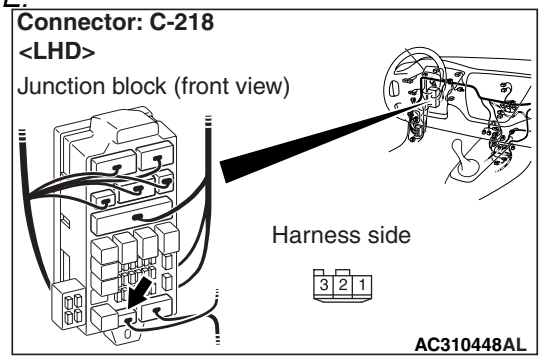


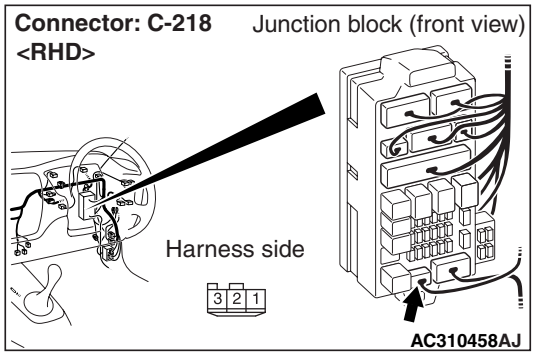






NOTE:





Prior to the wiring harness inspection, check junction block connector C-218, 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.

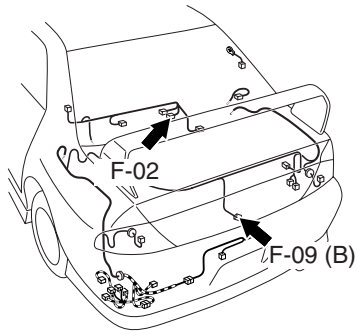
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

Step 11. Connector check: F-02 luggage compartment lamp connector, F-09 luggage compartment lamp switch connector

Connectors: F-02, F-09
<LHD>

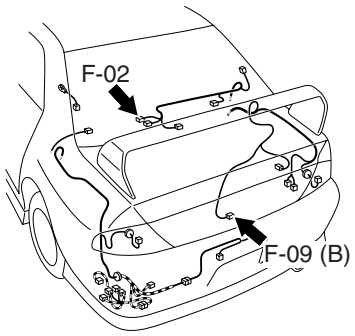


F-02
Harness side
1
2

F-09
Harness side
1

AC310468AB

Connectors: F-02, F-09
<RHD>



F-02
Harness side
1
2

F-09
Harness side
1

AC310470AB

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the defective connector.

Step 12. Check the bulbs of the luggage compartment lamp.

Check that the luggage compartment lamp bulb are not burned out.

Q: Is the check result normal?

YES : Go to Step 13.

NO : Replace the luggage compartment lamp bulb.

Step 13. Check the luggage compartment lamp switch.

Check the luggage compartment lamp switch. Refer to GROUP 42 – Trunk lid P.42-39.

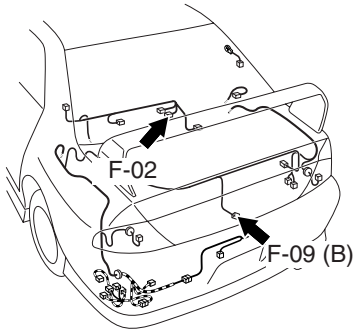
Q: Is the check result normal?

YES : Go to Step 14.

NO : Replace the luggage compartment lamp switch.

Step 14. Check the wiring harness from F-02 luggage compartment lamp connector terminal No.2 to F-09 luggage compartment lamp switch connector terminal No.1.

Connectors: F-02, F-09
<LHD>



F-02
Harness side

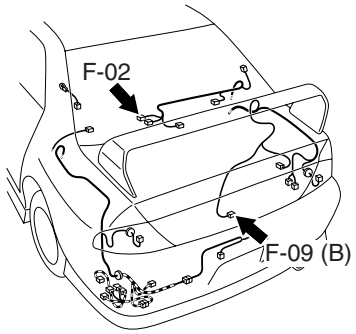


F-09
Harness side



AC310468AB

Connectors: F-02, F-09
<RHD>



F-02
Harness side



F-09
Harness side



AC310470AB

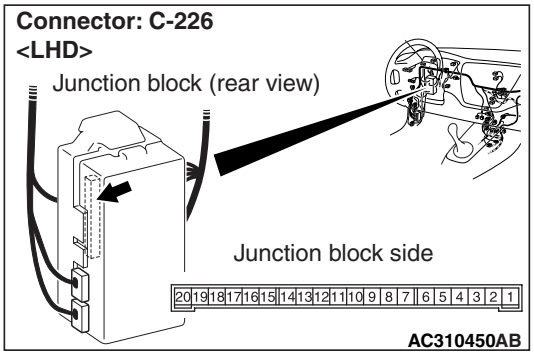
- Check the earth wires for open circuit.

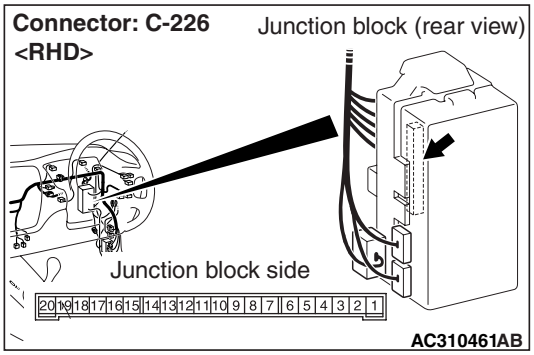
Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

Step 15. Connector check: C-226 ETACS-ECU connector



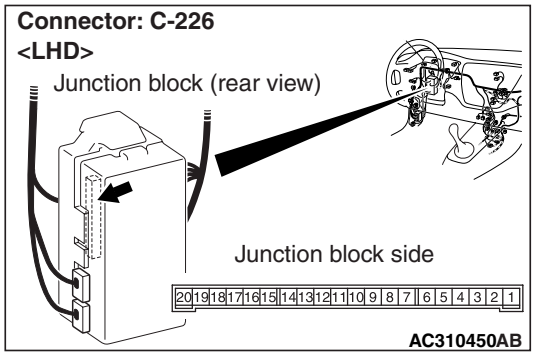


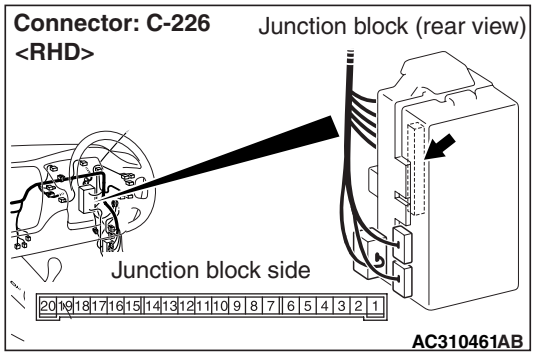
Q: Is the check result normal?

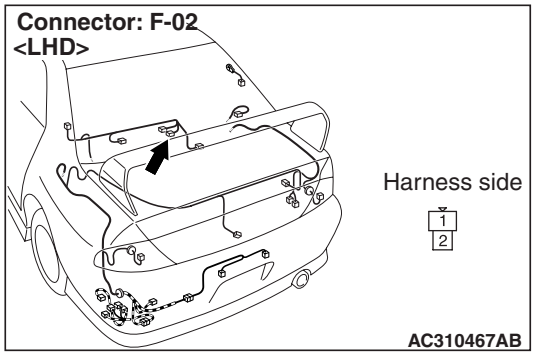
YES : Go to Step 16.

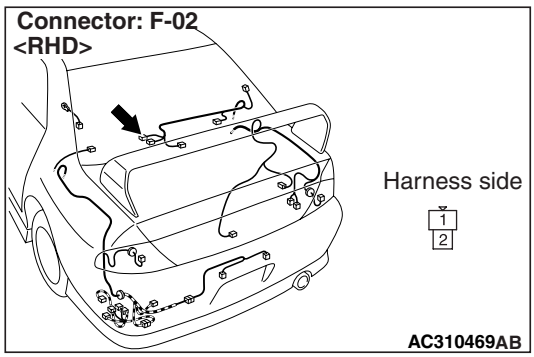
NO : Repair the defective connector.

Step 16. Check the wiring harness from C-226 ETACS-ECU connector terminal No.6 to F-02 luggage compartment lamp connector terminal No.1.

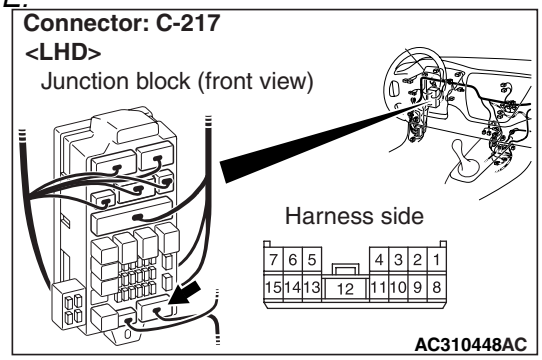


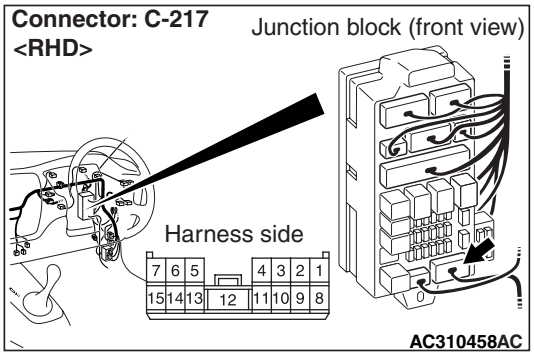






NOTE:





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 17.
NO : Repair the wiring harness.

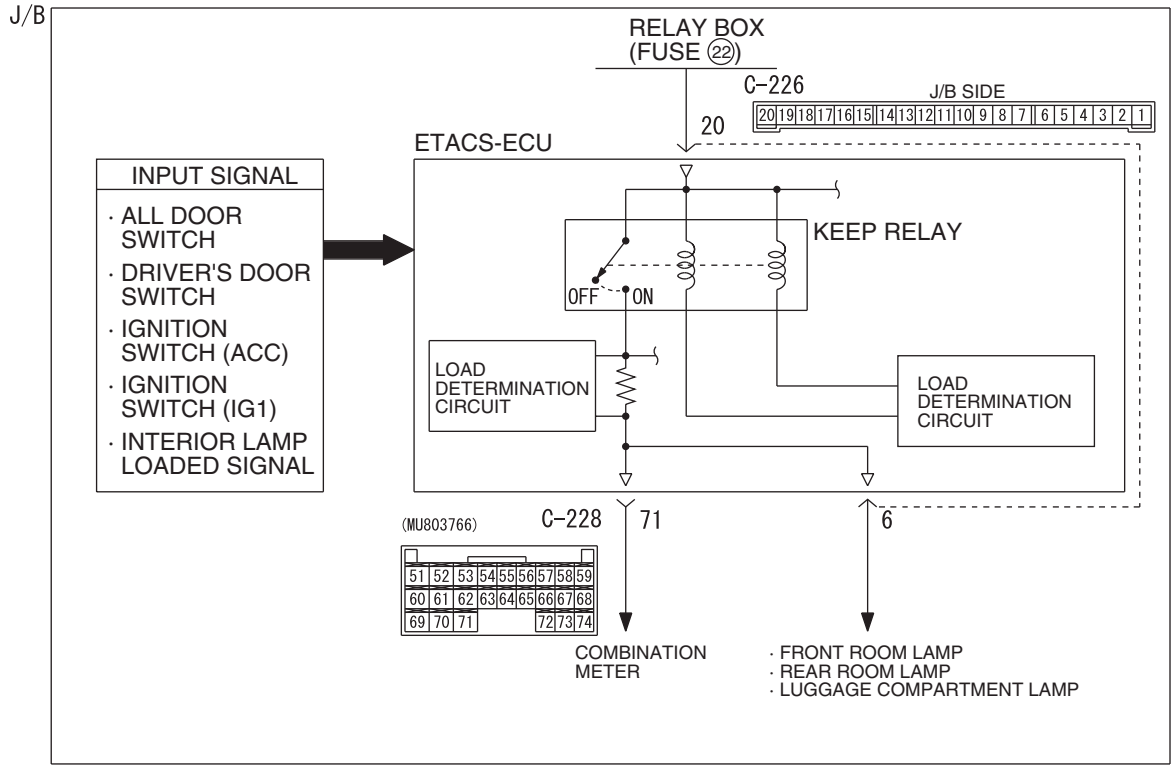
Step 17. Retest the system.
Check that the luggage compartment lamp illuminates and extinguishes normally.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE K--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



W4J54E132A

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).

POSSIBLE 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-302).

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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- 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-36."

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
- Ignition switch: OFF
- Driver's door: open

Item No.	Item name	Normal condition
Item 30	IG SW(IG1)	OFF
Item 31	IG SW(ACC)	OFF
Item 32	DR DOOR SW	ON

OK: Normal condition is displayed.

Q: Is 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 L-2 "The ignition switch (IG1) signal is not received P.54C-261."
Normal condition is not displayed for item No.31. : Refer to Inspection Procedure L-1 "The ignition switch (ACC) signal is not received P.54C-258."
Normal condition is not displayed for item No.32. : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ," or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."

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?
All the signals are received normally. : Go to Step 5.
All the door switch signals are not received. : Refer to Inspection Procedure L-11 "All the door switch signals are not received <LH drive vehicles>P.54C-289 ." or refer to Inspection Procedure L-11 "All the door switch signals are not received <RH drive vehicles>P.54C-292 ."
The interior lamp loaded signal is not received. : Refer to Inspection Procedure L-15 "The interior lamp loaded signal is not detected P.54C-307."

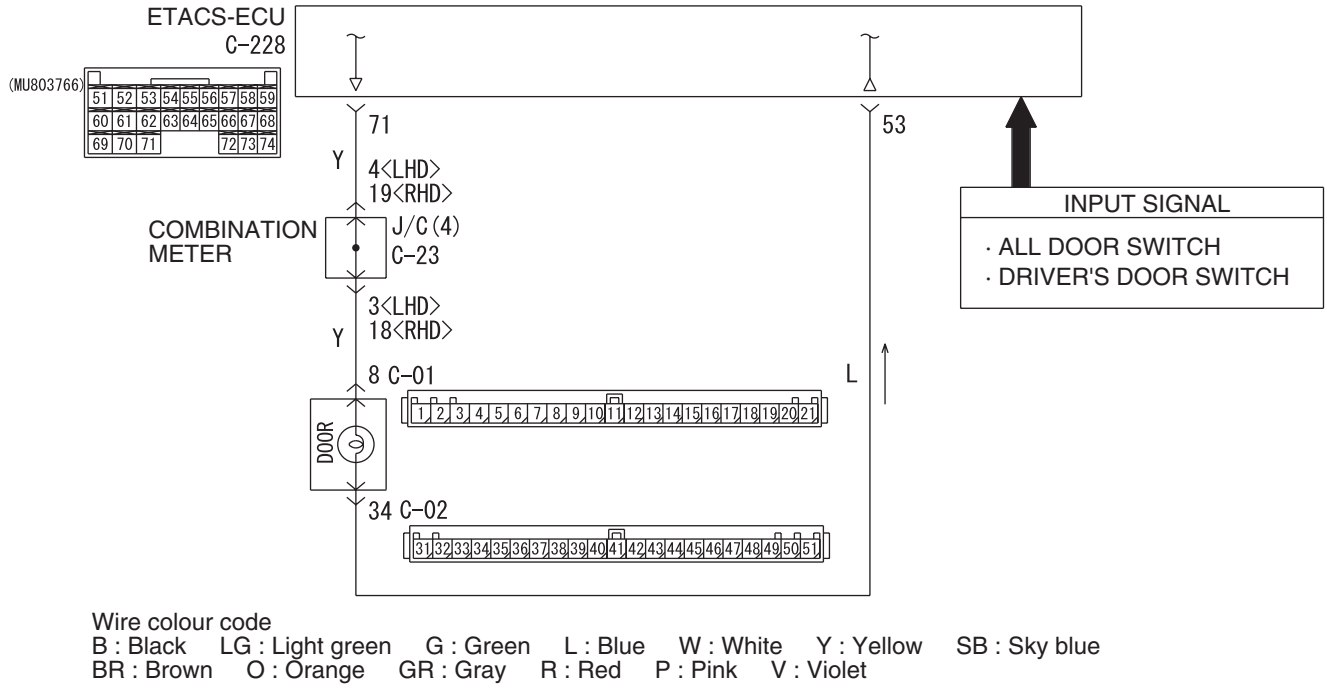
Step 5. Retest the system.
Check that the interior lamp automatic shutdown function works normally.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE K--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 : Gray R : Red P : Pink V : Violet

W4J54E133A

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.

POSSIBLE 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 room lamp.
Check that the dome lamps illuminate and extinguish normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure K-1 "The front or rear room lamp does not illuminate or extinguish normally P.54C-244."

Step 2. SWS monitor data list.

Check the input signals below, which are related to the door-ajar warning lamp.

<Selected item> ETACS ECU

- Driver's door: open

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

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ," or refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."

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.

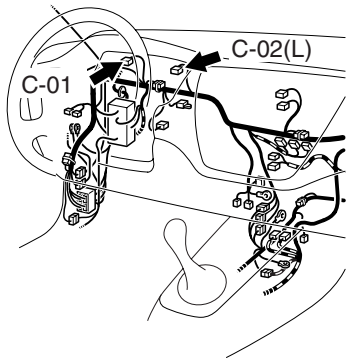
Q: Is the check result normal?

YES : Go to Step 4.

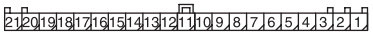
NO : Refer to Inspection Procedure L-11 "All the door switch signals are not received <LH drive vehicles>P.54C-289 ," or refer to Inspection Procedure L-11 "All the door switch signals are not received <RH drive vehicles>P.54C-292 ."

Step 4. Connector check: C-01 and C-02 combination meter connector

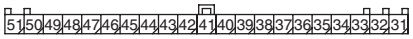
Connectors: C-01, C-02
<LHD>



C-01
Harness side

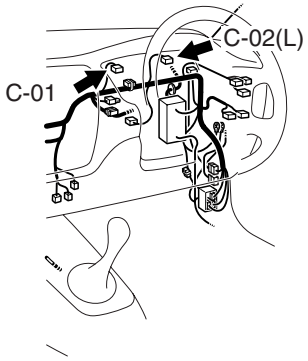


C-02
Harness side

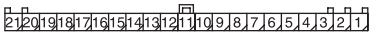


AC310447AE

Connectors: C-01, C-02
<RHD>



C-01
Harness side



C-02
Harness side



AC310457AB

Q: Is the check result normal?

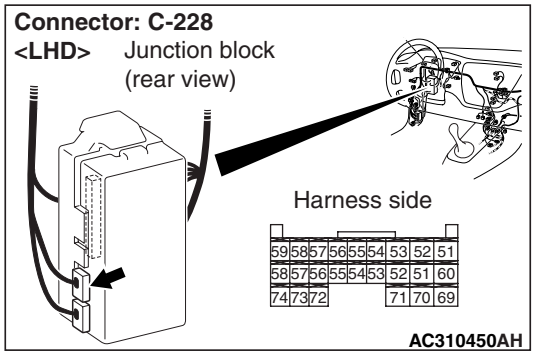
YES : Go to Step 5.

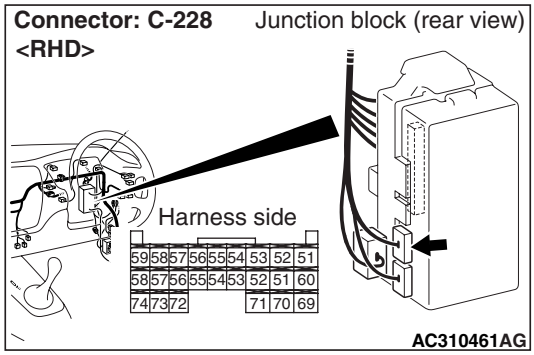
NO : Repair the defective connector.

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.

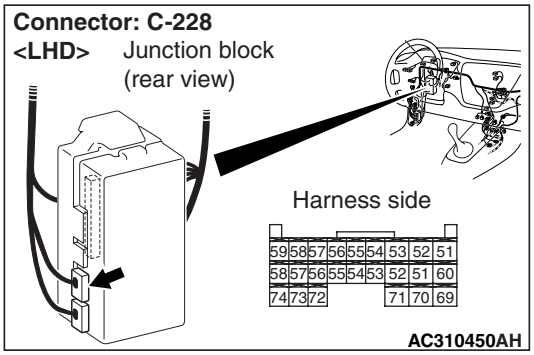
Step 6. Connector check: C-228 ETACS-ECU connector

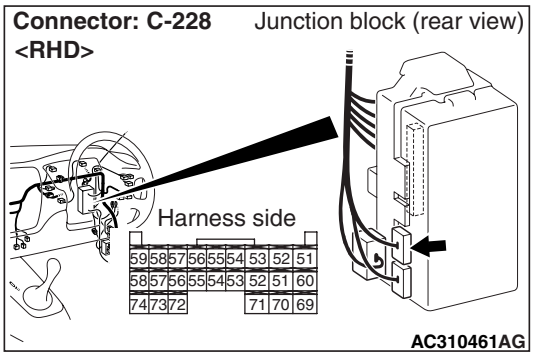


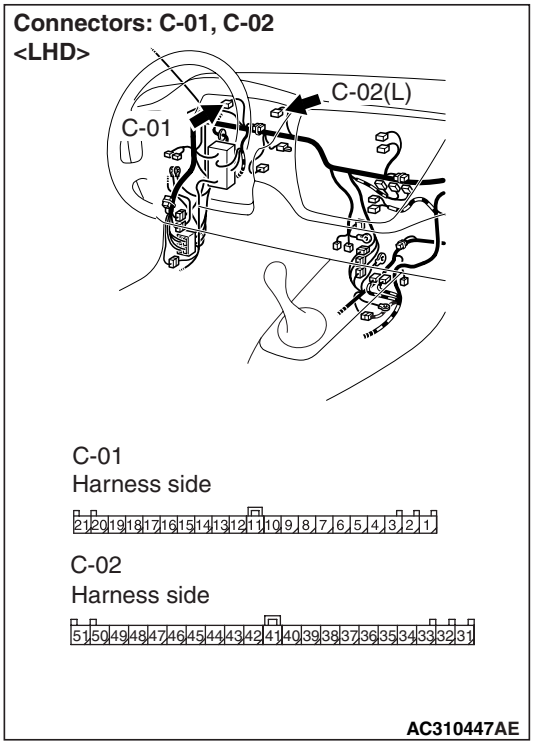


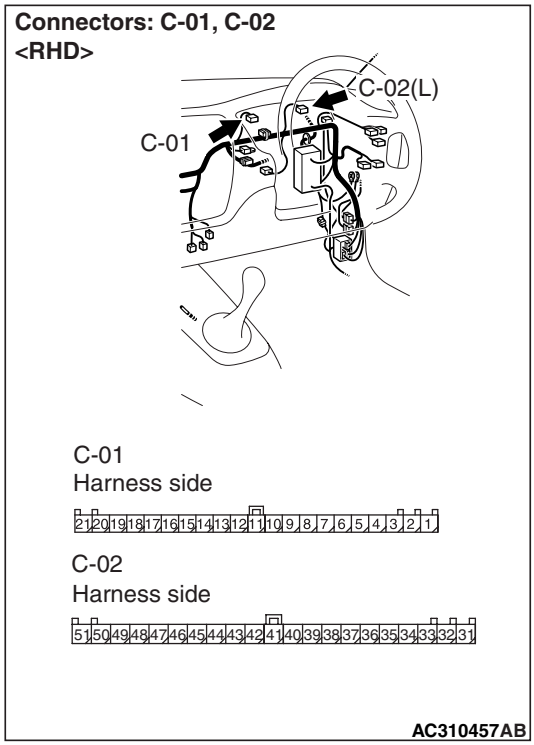
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

Step 7. Check the wiring harness from C-228 ETACS-ECU connector terminal Nos.53 and 71 to C-02 combination meter connector terminal No.34 and C-01 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.

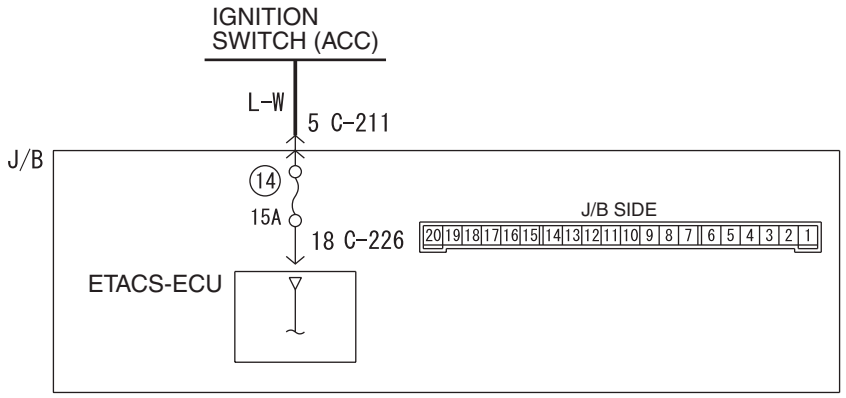
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the combination meter.

INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE L-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 : Gray R : Red P : Pink V : Violet

W4J54E155A

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.

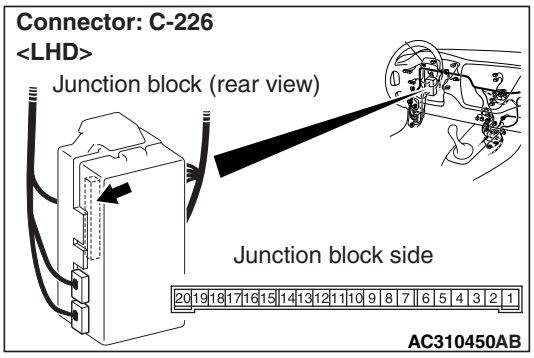
- Windshield wiper and washer
- Rear wiper and washer
- Interior lamp automatic shutdown function

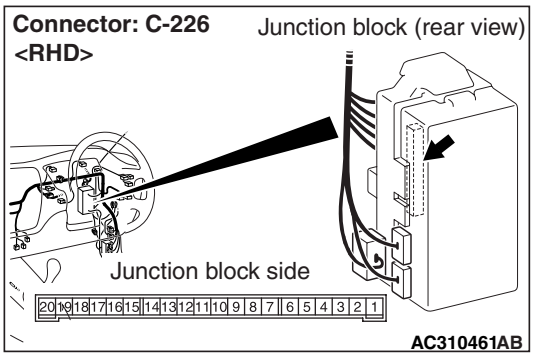
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

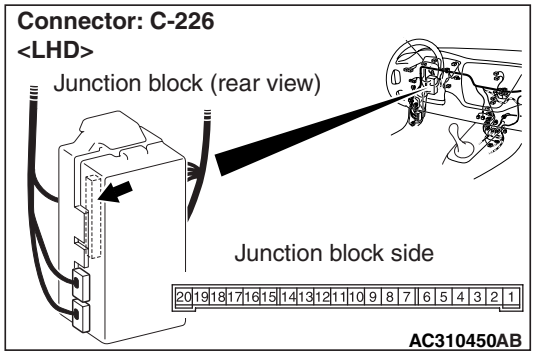
Step 1. Connector check: C-226 ETACS-ECU connector

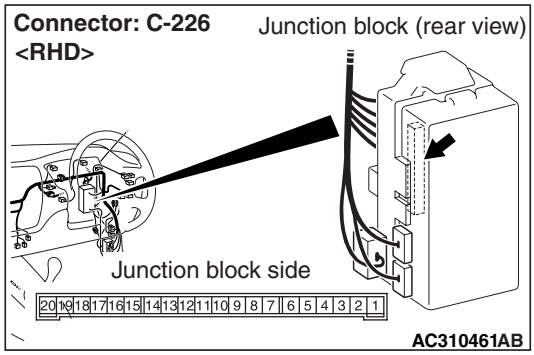




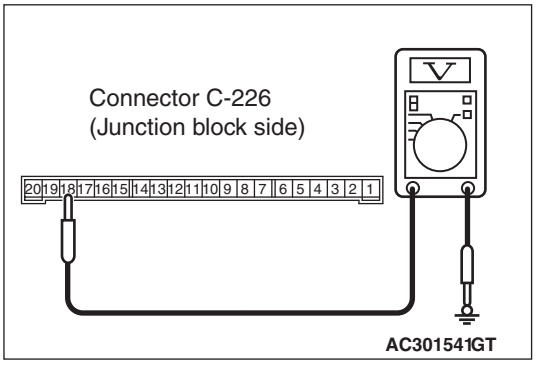
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-226 ETACS-ECU connector





(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ACC position

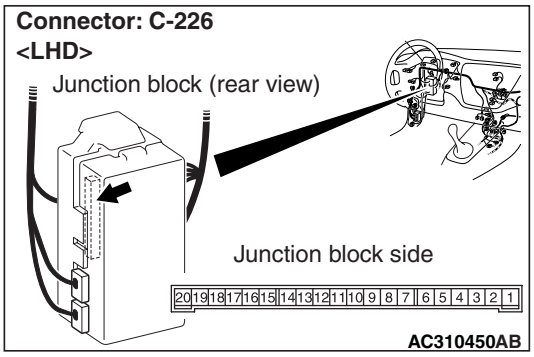


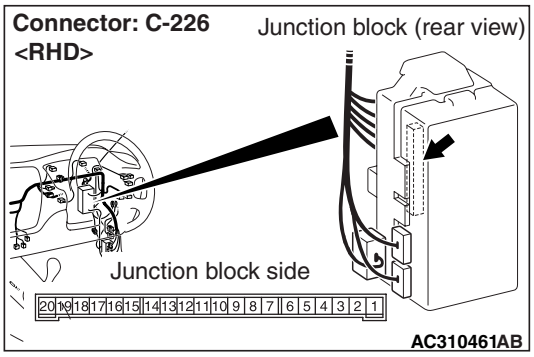
(3) Voltage between C-226 ETACS-ECU connector terminal No.18 and body earth

OK: System voltage

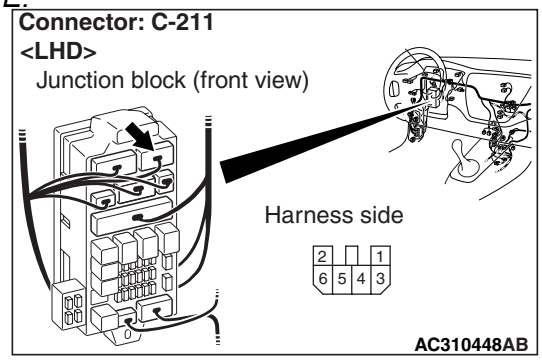
Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

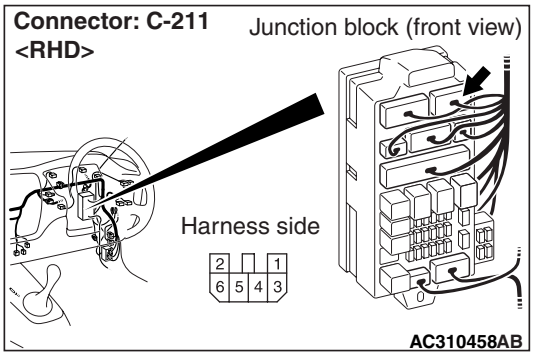
Step 3. Check the wiring harness between C-226 ETACS-ECU connector terminal No.18 and the ignition switch (ACC).





NOTE:





Prior to the wiring harness inspection, check junction block connector C-211, 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.00-5).

NO : Repair the wiring harness.

Step 4. SWS monitor data list.

<Selected item> ETACS ECU

- Ignition switch: ACC

Item No.	Item name	Normal condition
Item 31	IG SW(ACC)	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

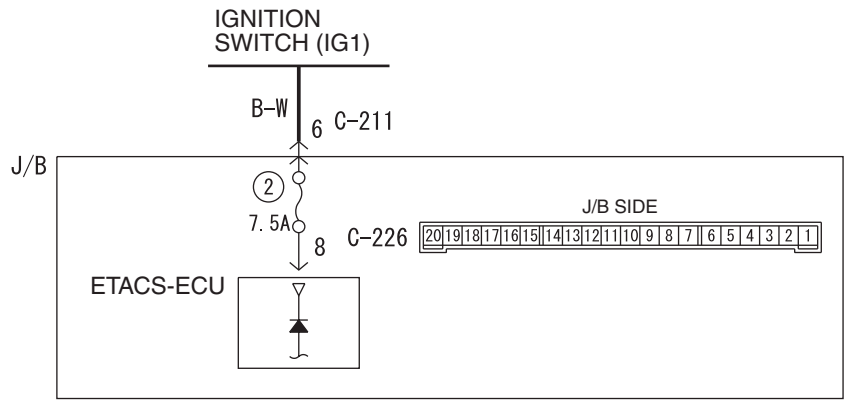
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-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 : Gray R : Red P : Pink V : Violet

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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.

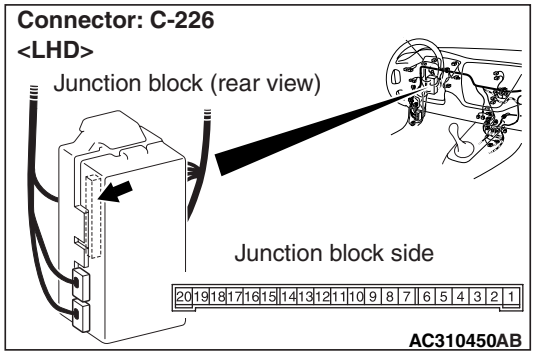
- Lamp reminder function
- Headlamp automatic shutdown function
- Turn signal lamp
- Room lamps

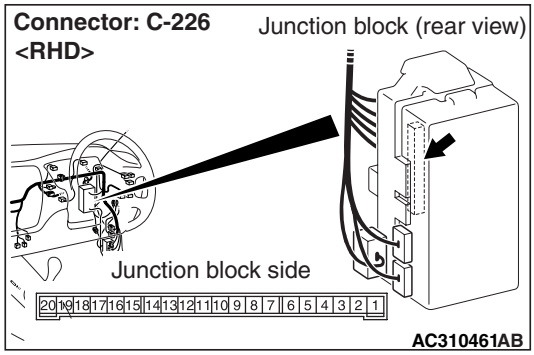
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

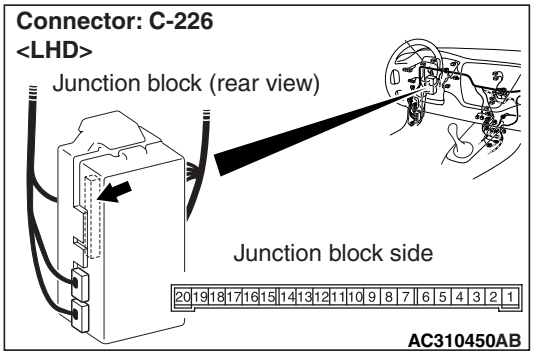
Step 1. Connector check: C-226 ETACS-ECU connector

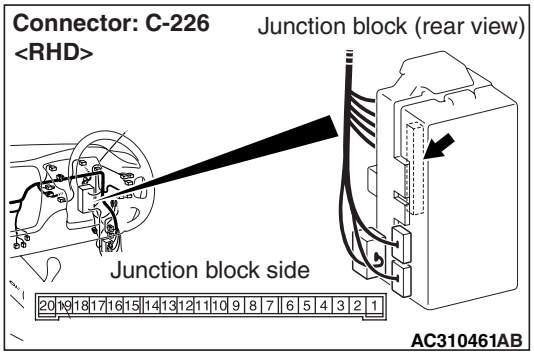




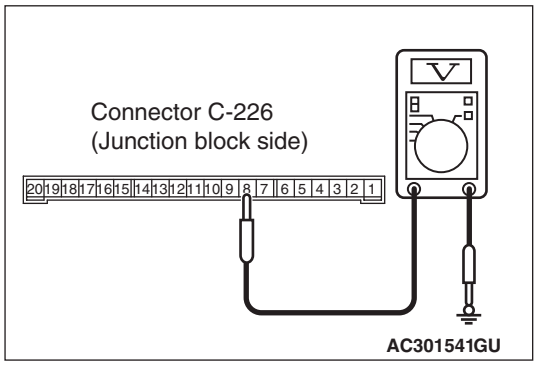
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-226 ETACS-ECU connector





(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ON position

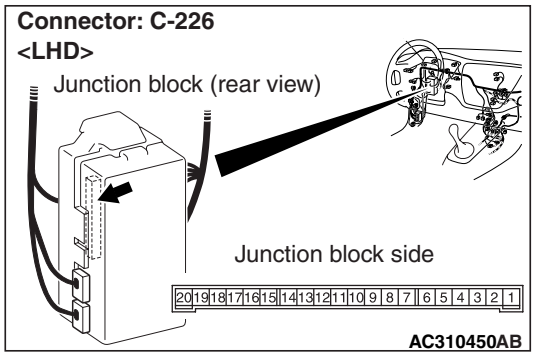


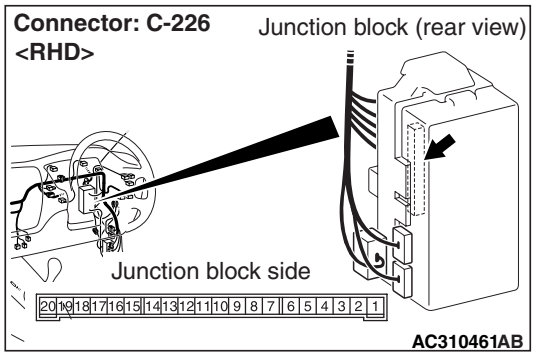
(3) Voltage between C-226 ETACS-ECU connector terminal No.8 and body earth

OK: System voltage

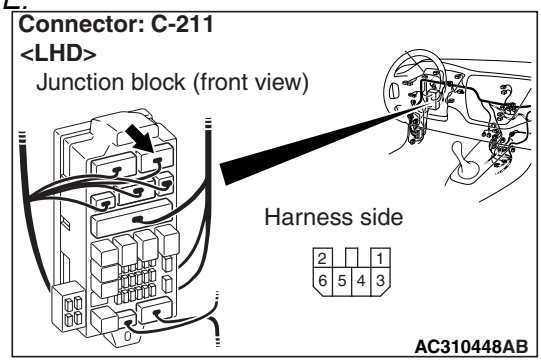
Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

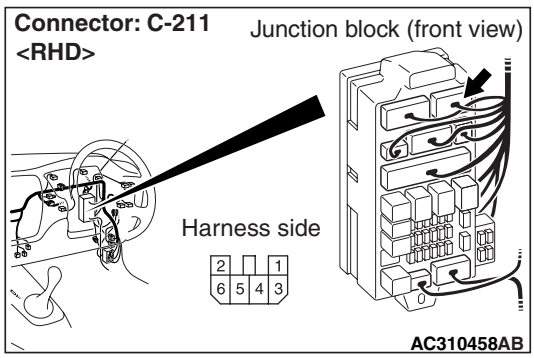
Step 3. Check the wiring harness between C-226 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).





NOTE:





Prior to the wiring harness inspection, check junction block connector C-211, 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.00-5).
NO : Repair the wiring harness.

Step 4. SWS monitor data list.

<Selected item> ETACS ECU
- Ignition switch: ON

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

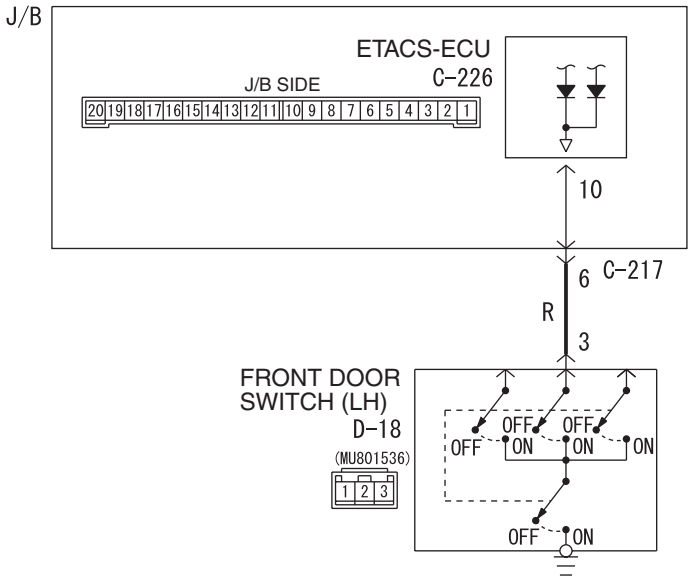
OK: Normal condition is displayed.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-3: The door switch (front: LH) signal is not received. <LH drive vehicles>

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

Door Switch Input Circuit <LHD>



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

W4J54E157A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the driver's door switch 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
- Room lamps
- Door-ajar indicator lamp

POSSIBLE CAUSES

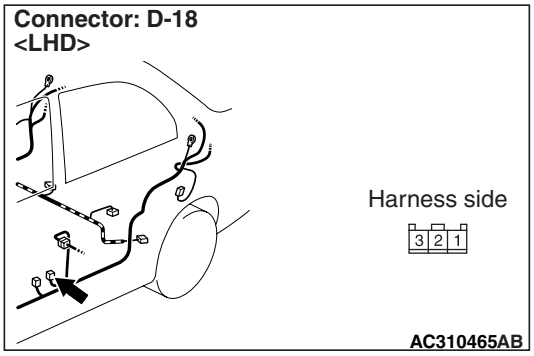
- Malfunction of the driver's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the installation condition.
Check that the door switch (front: LH) is installed on the body correctly.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Correct the installation condition.

Step 2. Connector check: D-18 door switch (front: LH) connector

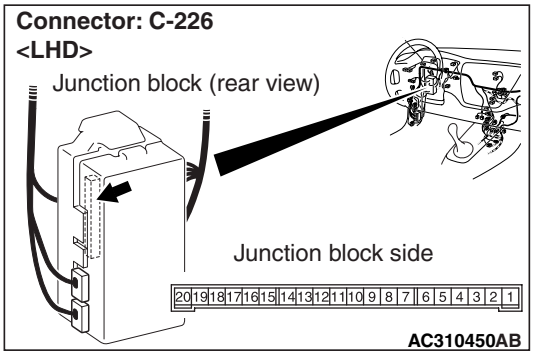


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the door switch (front: LH).
Refer to GROUP 42 – Door P.42-27.

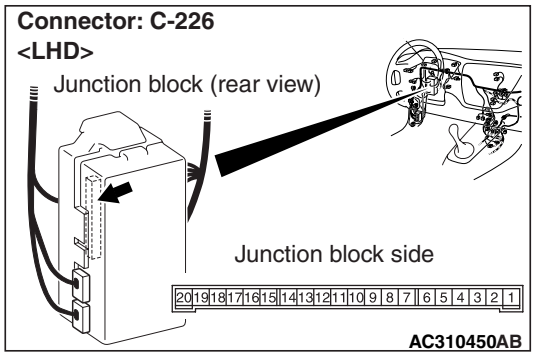
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the door switch (front: LH).

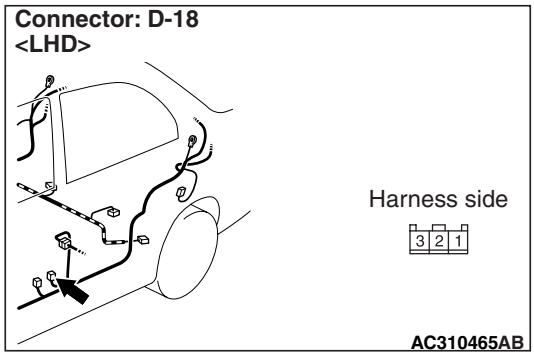
Step 4. Connector check: C-226 ETACS-ECU connector



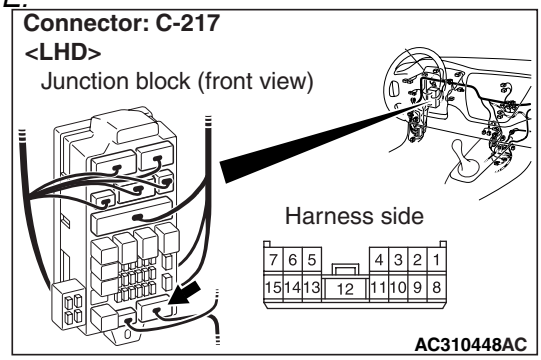
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between D-18 door switch (front: LH) connector terminal No.3 and C-226 ETACS-ECU connector terminal No.10.





NOTE:



Prior to the wiring harness inspection, check joint connector C-217, 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.

Step 6. SWS monitor data list.

<Selected item> ETACS ECU

- Driver's door: open

Item No.	Item name	Normal condition
Item 32	DR 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.00-5).

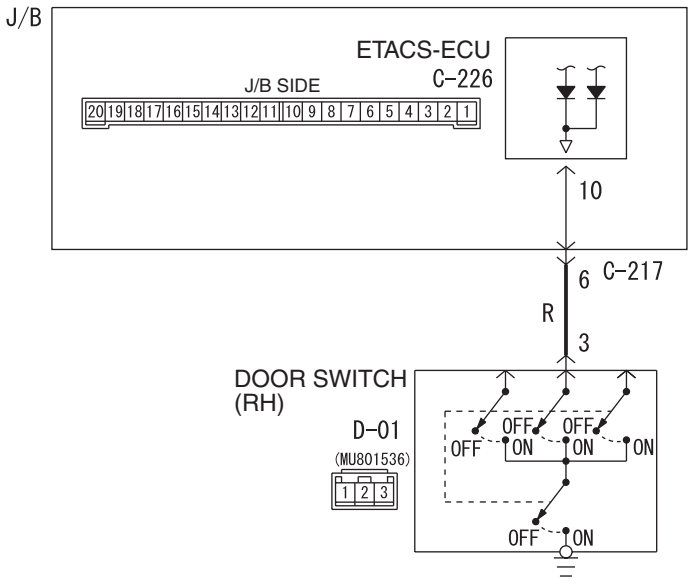
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-3: The door switch (front: RH) signal is not received. <RH drive vehicles>

⚠ CAUTION

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

Door Switch Input Circuit <RHD>



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

W4J54E158A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the door switch (front: RH) 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
- Room lamps

POSSIBLE CAUSES

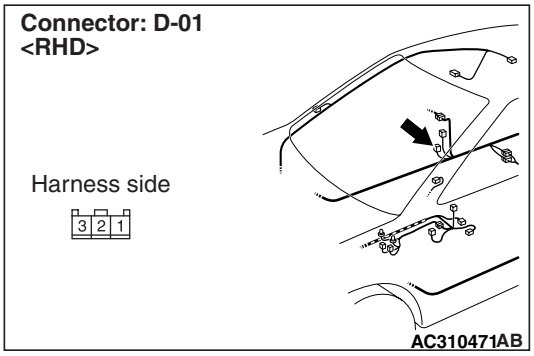
- Malfunction of the door switch (front: RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSTIC PROCEDURE

Step 1. Check the installation condition.
Check that the door switch (front: RH) is installed on the body correctly.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Correct the installation condition.

Step 2. Connector check: D-01 door switch (front: RH) connector

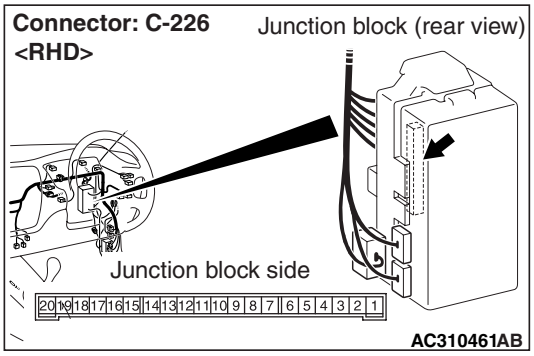


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the door switch (front: RH).
Refer to GROUP 42 – Door P.42-27.

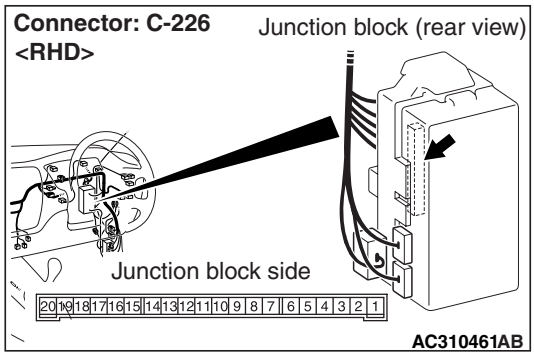
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the door switch (front: RH).

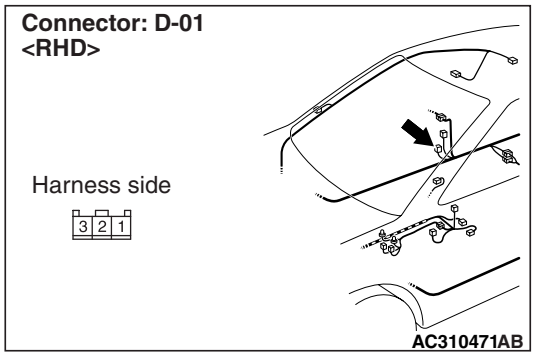
Step 4. Connector check: C-226 ETACS-ECU connector



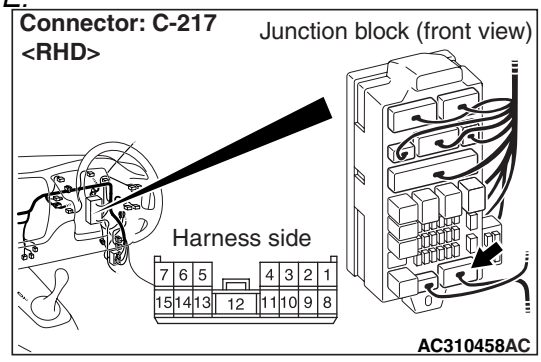
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between D-01 door switch (front: RH) connector terminal No.3 and C-226 ETACS-ECU connector terminal No.10.





NOTE:



Prior to the wiring harness inspection, check joint connector C-217, 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.

Step 6. SWS monitor data list.

<Selected item> ETACS ECU

- Driver's door: open

Item No.	Item name	Normal condition
Item 32	DR 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.00-5).

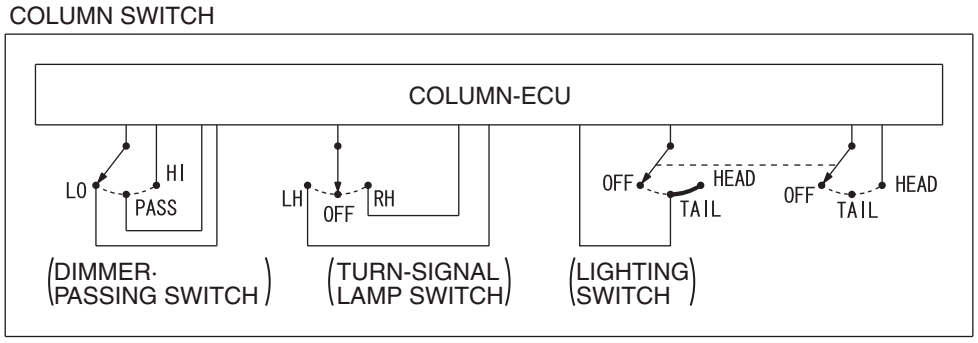
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-4: The column switch (lighting, turn-signal lamp and headlamp washer switch) signal is not received.

⚠ CAUTION

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

Lighting Switch Input Circuit



W4J54E159A

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

POSSIBLE 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.

Step 2. Check the column switch (lighting switch and switch body).
Refer to GROUP 54A – Column switch P.54A-74.

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.
- Ignition switch: OFF

ECUS TO BE CHECKED
- 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-30."

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

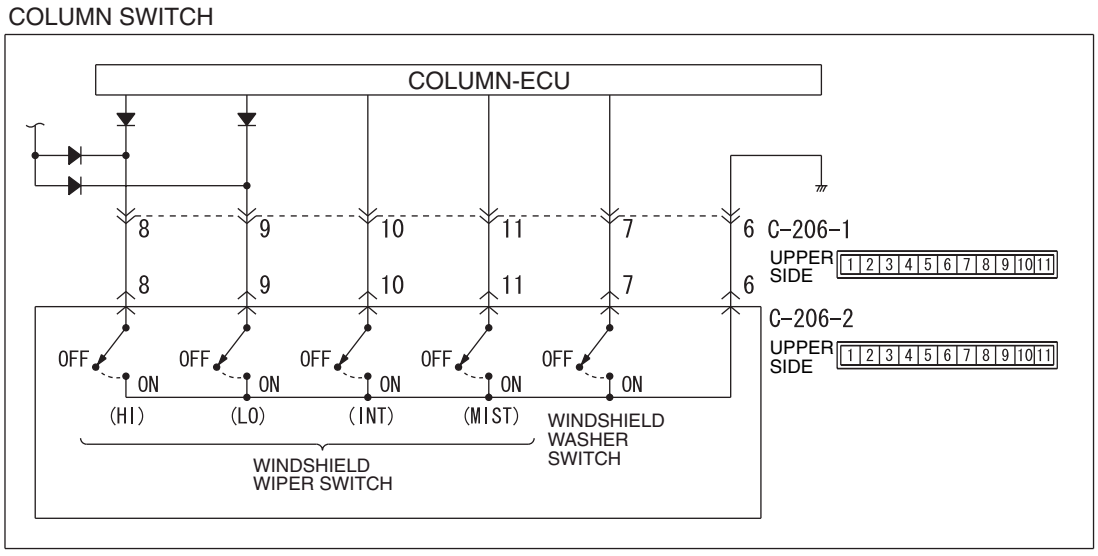
OK: Normal conditions are displayed for all the functions of the switch.

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.00-5).
NO : Replace the column switch.

INSPECTION PROCEDURE L-5: The column switch (windshield wiper and 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



W4J54E160A

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

POSSIBLE 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- 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-30."

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

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

Q: Is the check result normal?

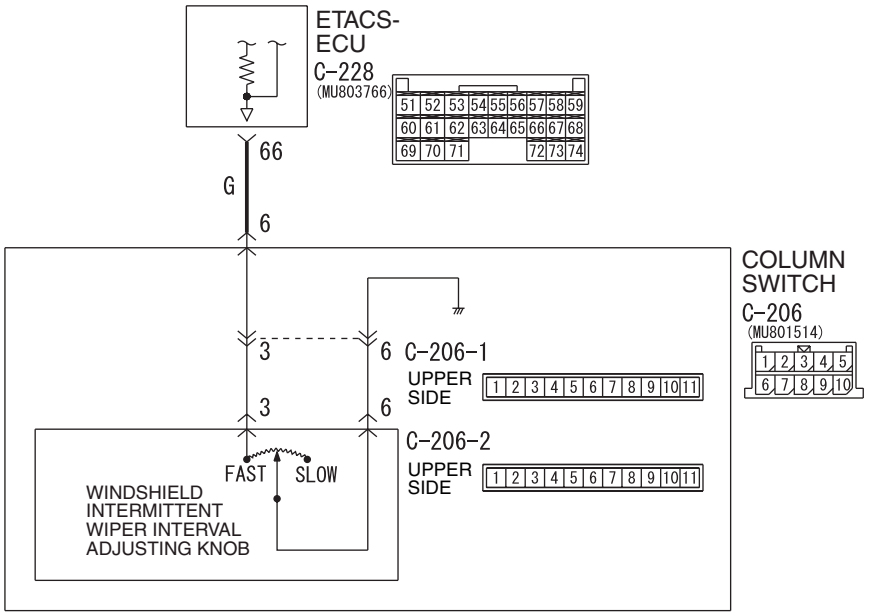
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the column switch.

INSPECTION PROCEDURE L-6: 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 : Gray R : Red P : Pink V : Violet

W4J54E161A

COMMENTS ON TROUBLE SYMPTOM

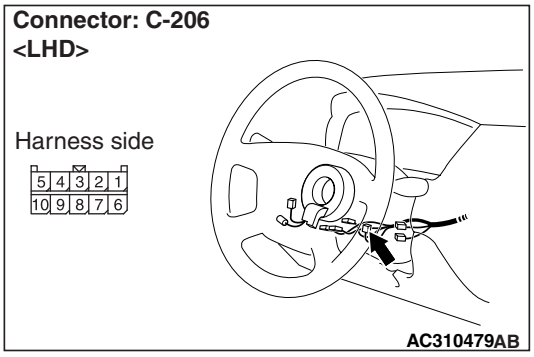
The intermittent wiper interval is calculated in accordance with the input signal from the windshield intermittent wiper volume. If this signal is abnormal, the wiper interval can not be adjusted.

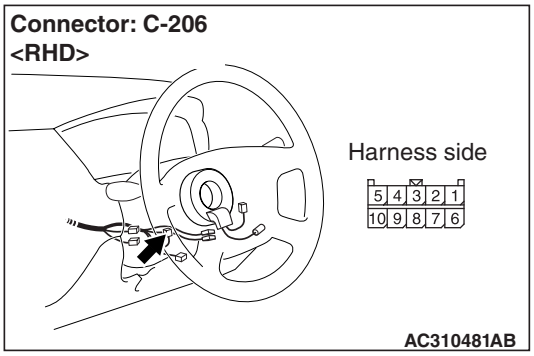
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

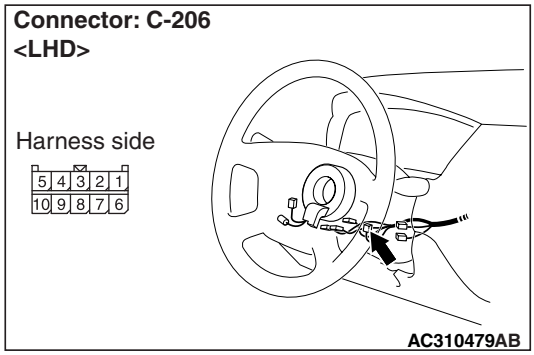
Step 1. Connector check: C-206 column switch connector

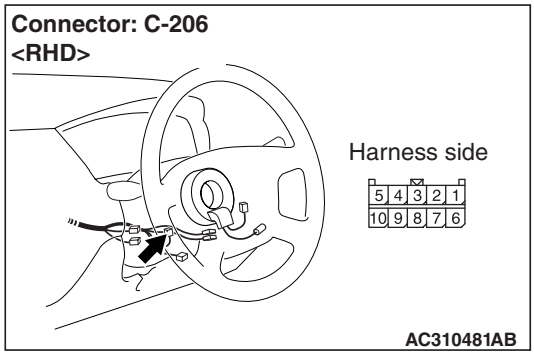




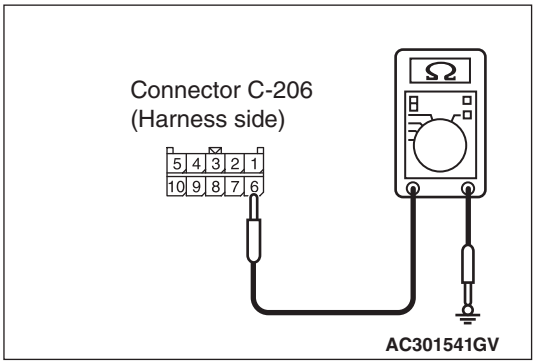
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Resistance measurement at the C-206 column switch connector





(1) Disconnect the connector, and measure at the column switch side.

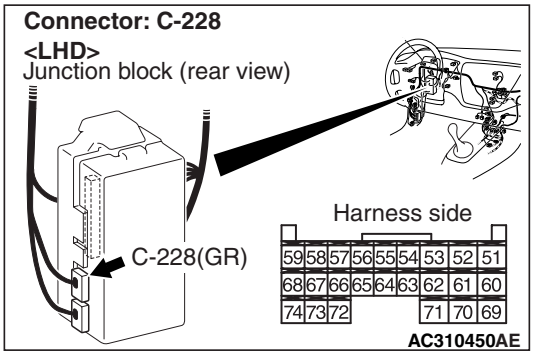


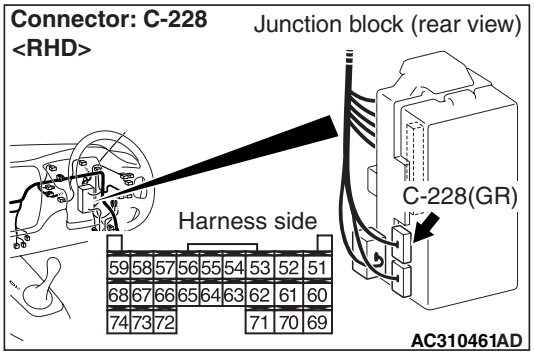
(2) Resistance between C-206 column switch connector terminal No.6 and body earth

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.

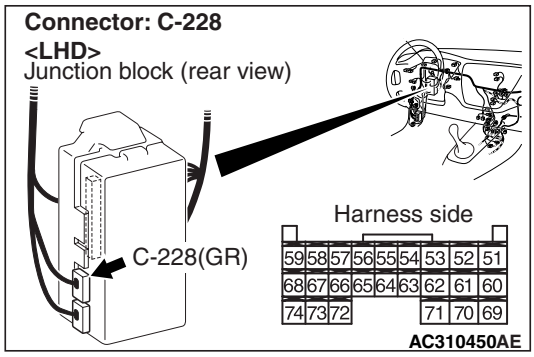
Step 3. Connector check: C-228 ETACS-ECU connector

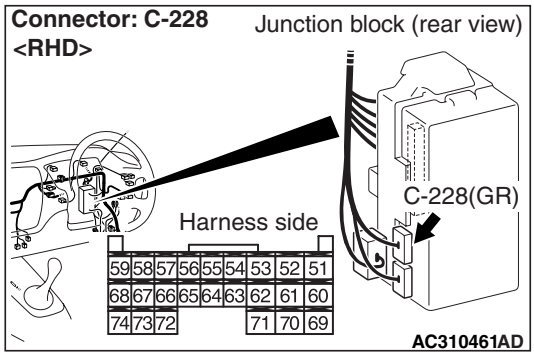


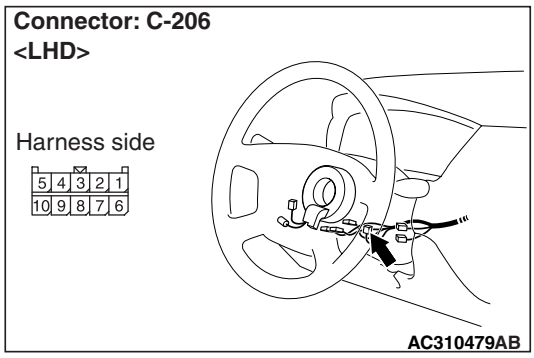


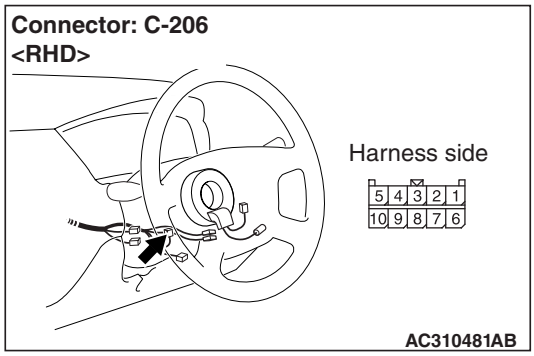
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the wiring harness between C-206 column switch connector terminal No.6 and C-228 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

- Ignition switch: ACC
- Wiper switch: INT

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?

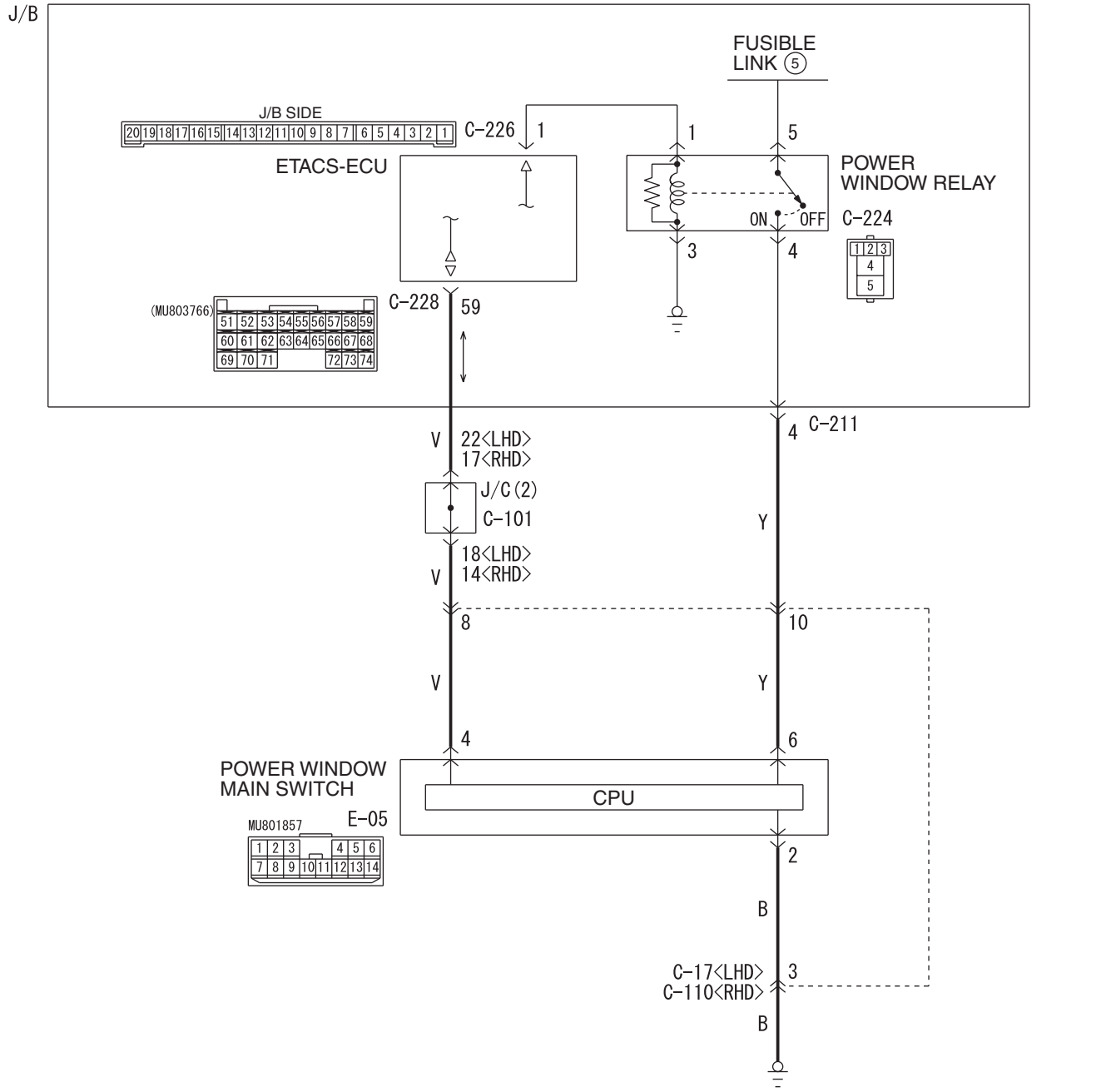
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-7: When the power window main switch is operated, the switch signals are not received.

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

Power Window Main 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 : Gray R : Red P : Pink V : Violet

W4J54E162A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the power window main switch is used in order to check the power window main switch and confirm how the system is communicating with the ETACS-ECU. If the communication line is defective, the power windows will not work normally.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Check the operation by using the power window main switch.

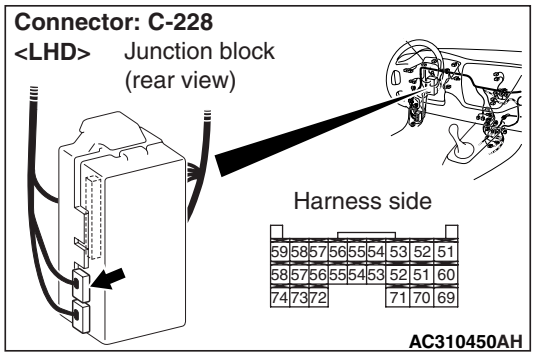
Check if each window can be operated by means of the power window main switch.

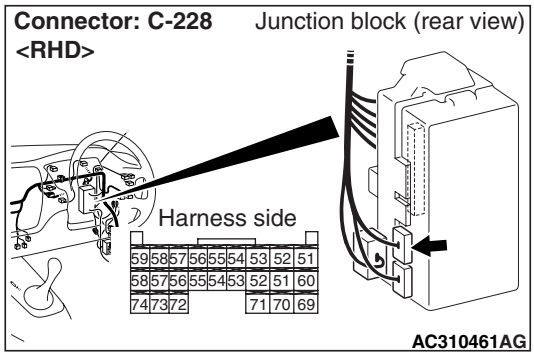
Q: Can each power window be operated by means of the power window main switch?

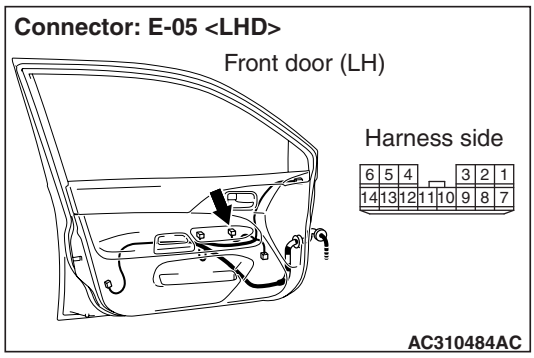
YES : Go to Step 2.

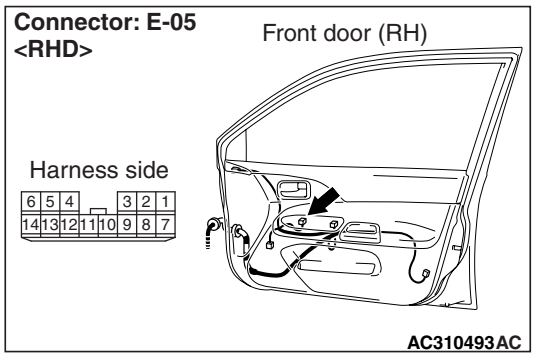
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-86."

Step 2. Connector check: C-228 ETACS-ECU connector and E-05 power window main switch connector







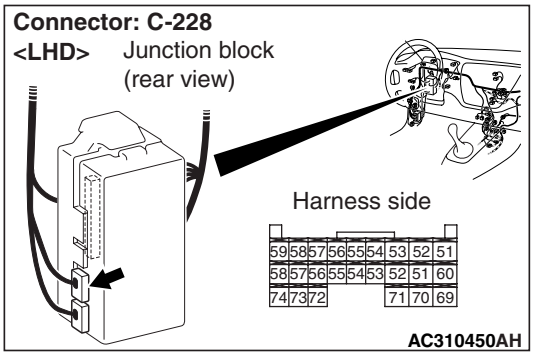


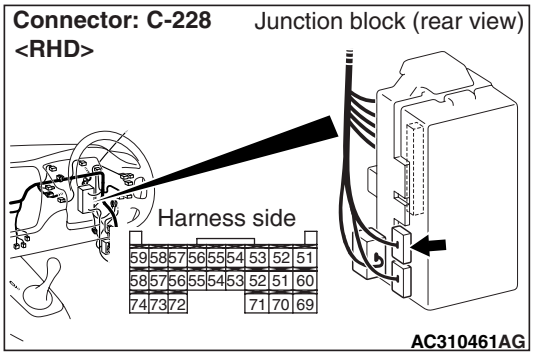
Q: Is the check result normal?

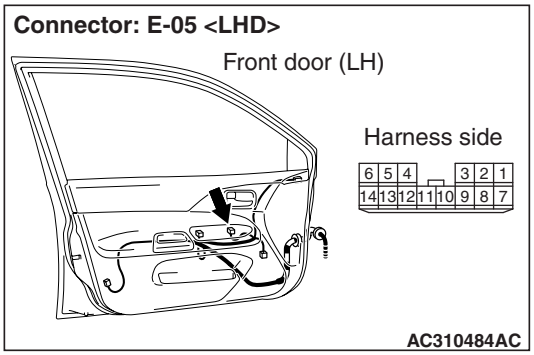
YES : Go to Step 3.

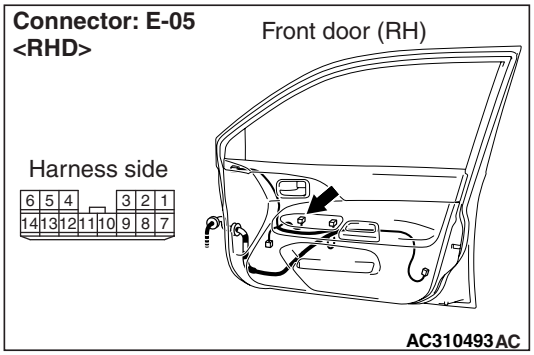
NO : Repair the defective connector.

Step 3. Check the wiring harness between C-228 ETACS-ECU connector terminal No.59 and E-05 power window main switch connector terminal No.4.

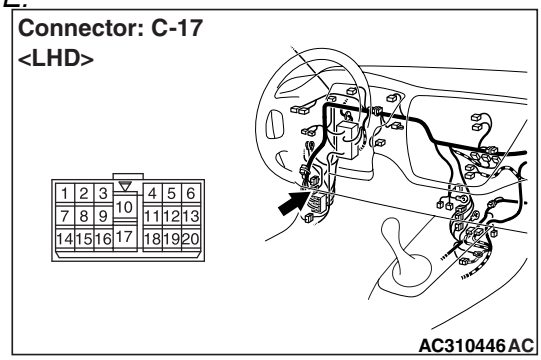


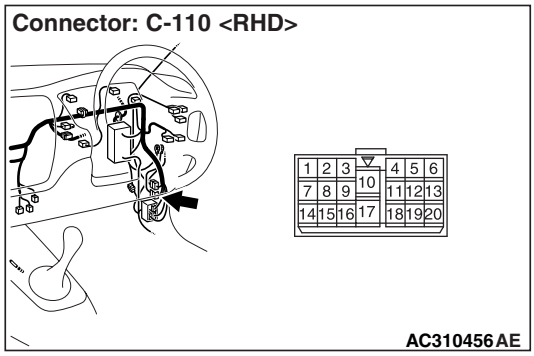


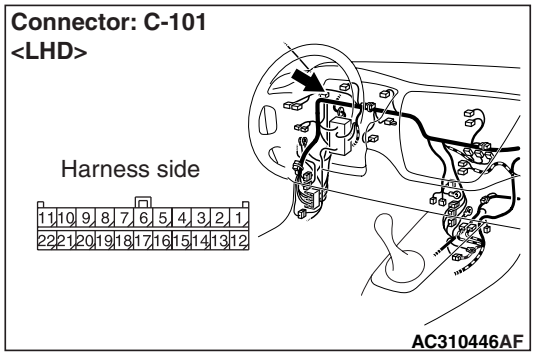


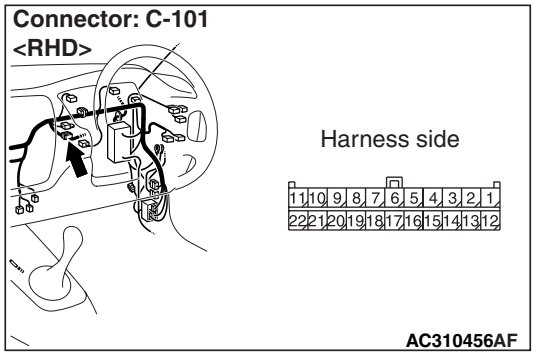


NOTE:









Prior to the wiring harness inspection, check intermediate connector C-17 <LH drive vehicles> or C-110 <RH drive vehicles> and joint connector C-101, and repair if necessary.

- Check the communication lines for open circuit.

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

Step 4. Replace the power window main switch, and then retest the system.

Replace the power window main switch, and check that the power window main switch signal is received.

(1) Replace the power window main switch.

(2) Check that the power window main switch signal is received.

Q: Is the check result normal?

YES : The procedure is complete.

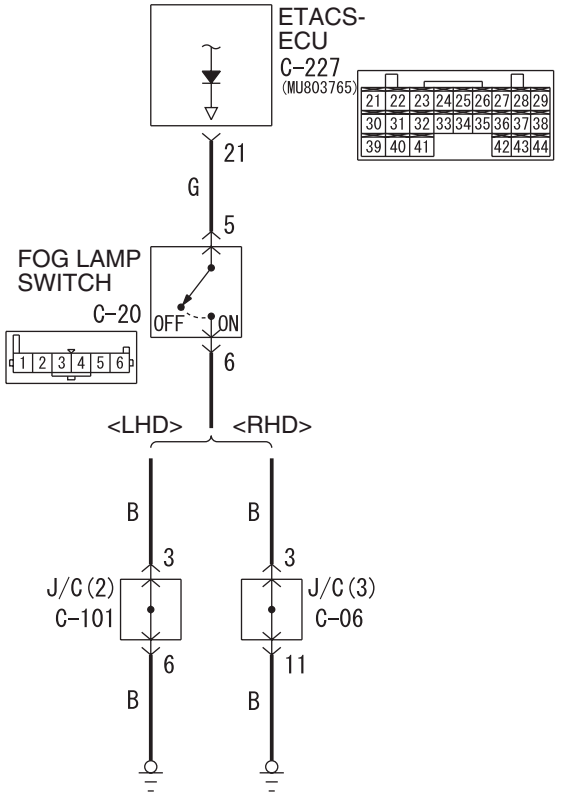
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-8: The rear fog lamp switch signal is not received.

⚠ CAUTION

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

Rear 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 : Gray R : Red P : Pink V : Violet

W4J54E151A

COMMENTS ON TROUBLE SYMPTOM

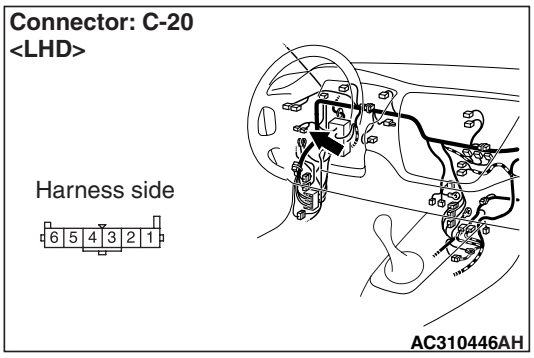
Input signal from the rear fog lamp switch is used to operate the rear fog lamps. If the signal is abnormal, the rear fog lamps will not illuminate and extinguish normally.

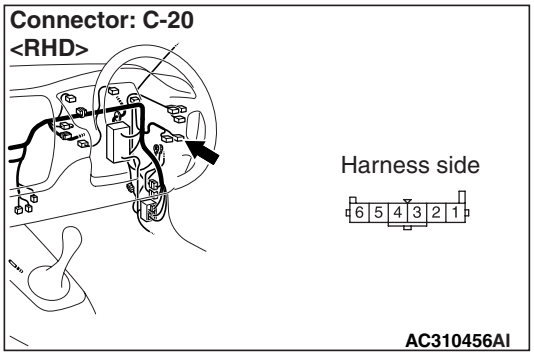
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: C-20 fog lamp switch connector





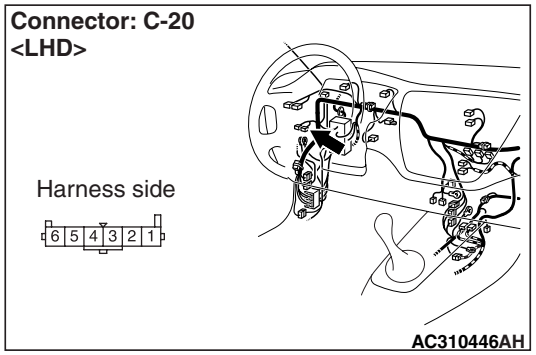
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

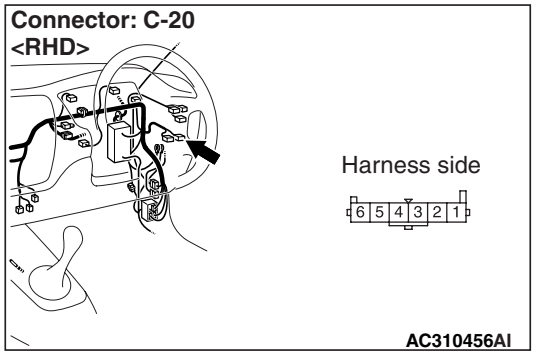
Step 2. Check the rear fog lamp switch.

Refer to GROUP 54A – Rear fog lamp P.54A-64.

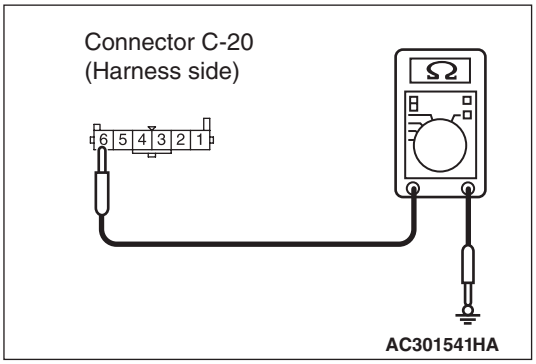
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

Step 3. Resistance measurement at the C-20 fog lamp switch connector





(1) Remove the fog lamp switch, and measure at the wiring harness side.

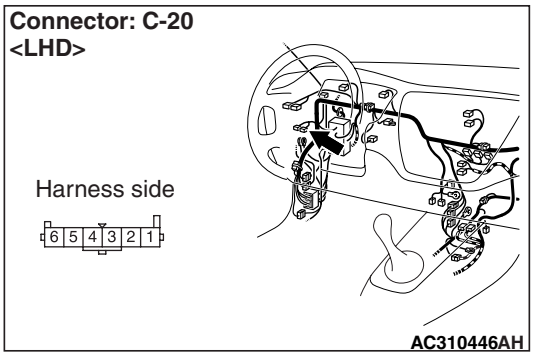


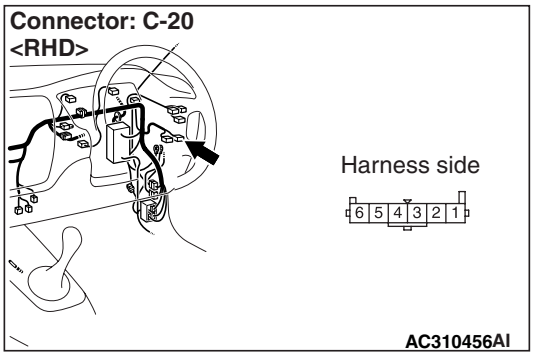
(2) Continuity between C-20 fog lamp switch connector terminal No.6 and body earth

OK: 2Ω or less

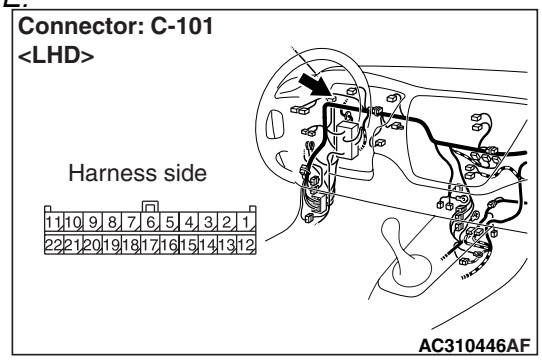
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

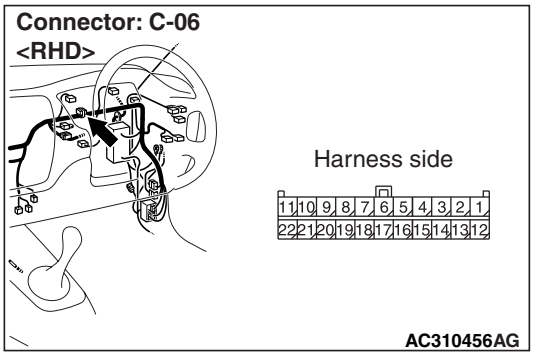
Step 4. Check the wiring harness between C-20 fog lamp switch connector terminal No.6 and body earth.





NOTE:





Prior to the wiring harness inspection, check joint connector C-101 <LH driver vehicles> or C-06 <RH drive vehicles>, and repair if necessary.

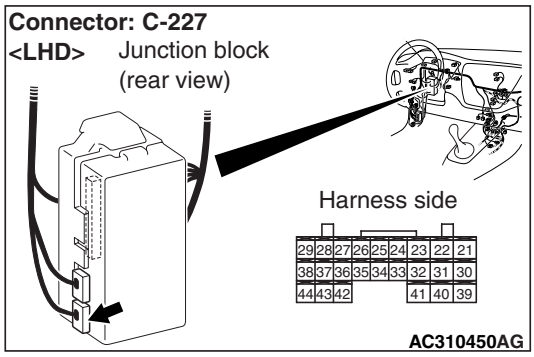
- Check the earth wires for open circuit.

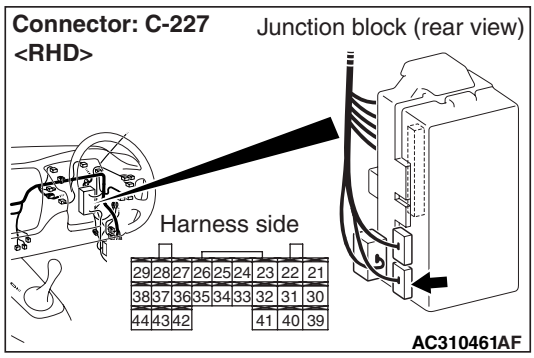
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 5. Connector check: C-227 ETACS-ECU connector



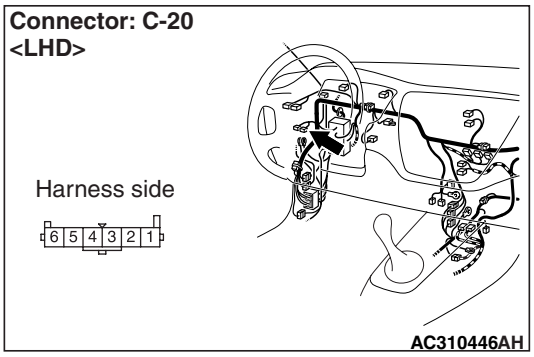


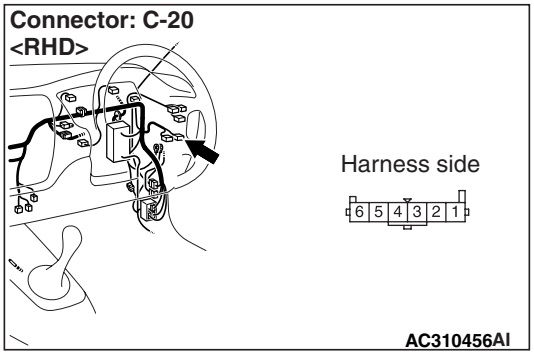
Q: Is the check result normal?

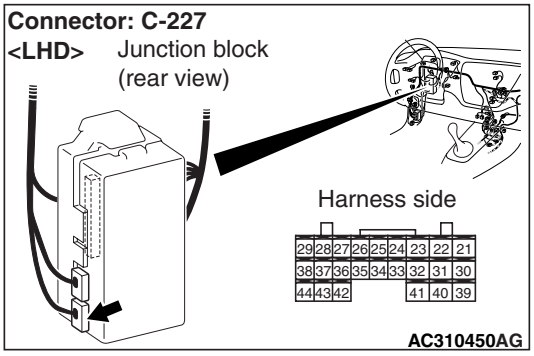
YES : Go to Step 6.

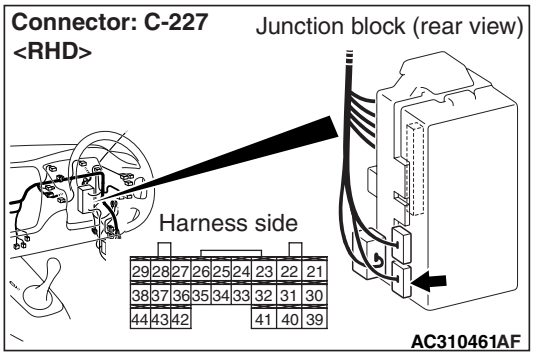
NO : Repair the defective connector.

Step 6. Check the wiring harness between C-227 ETACS-ECU connector terminal No.21 and C-20 fog lamp switch connector terminal No.5.









- 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 rear fog lamp switch.

System switch	Check condition
Rear fog lamp switch	When the switch is turned from off to on

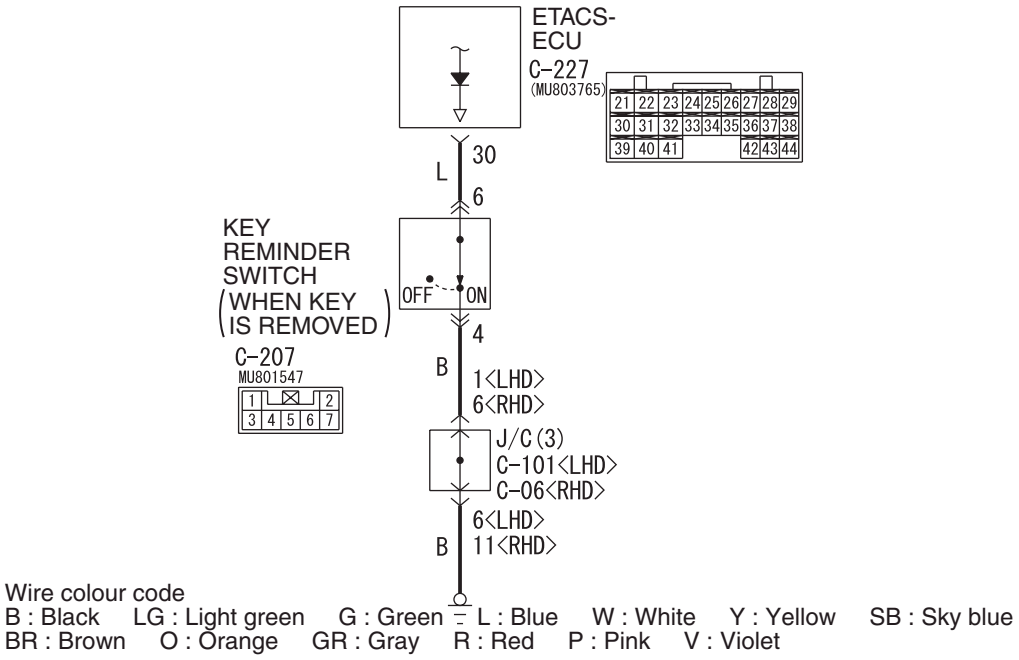
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-9: 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



W4J54E163A

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.

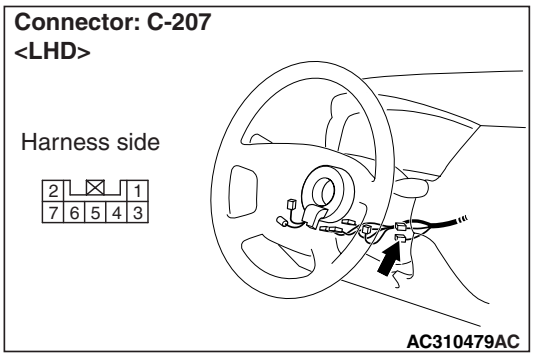
- Key reminder function
- Keyless entry system
- Room lamps

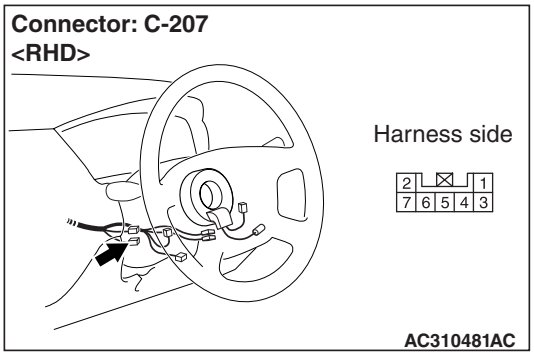
POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: C-207 key reminder switch connector





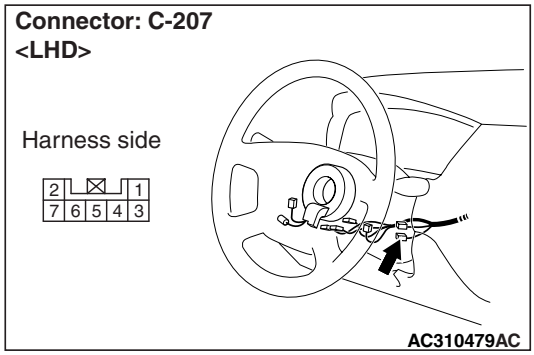
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

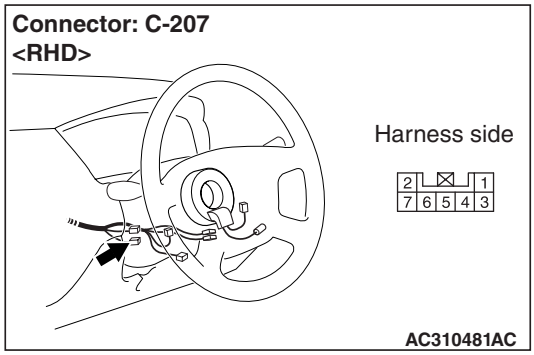
Step 2. Check the key reminder switch.

Refer to GROUP 54A – Ignition switch P.54A-30.

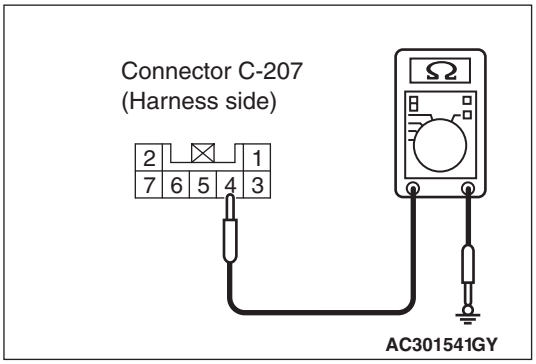
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the key reminder switch.

Step 3. Resistance measurement at the C-207 key reminder switch connector





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

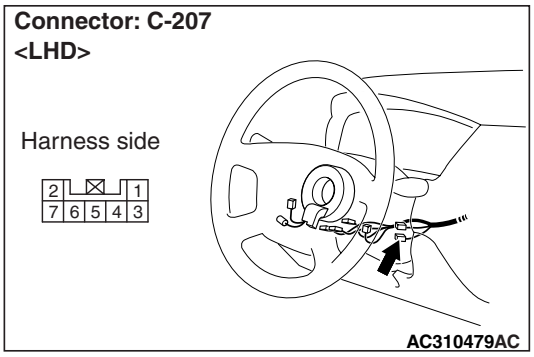


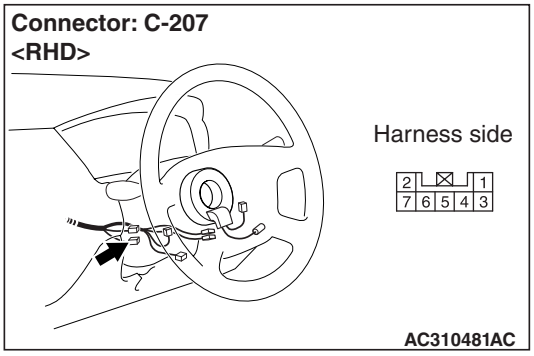
(2) Resistance between C-207 key reminder switch connector terminal No.4 and body earth

OK: 2 Ω or less

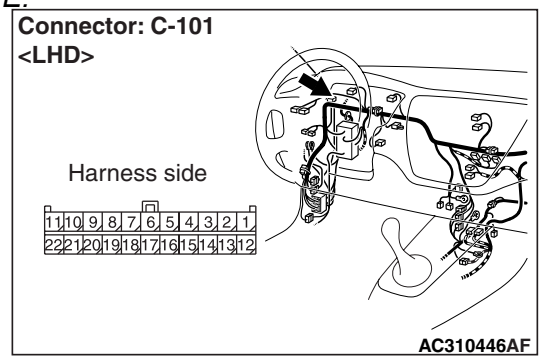
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

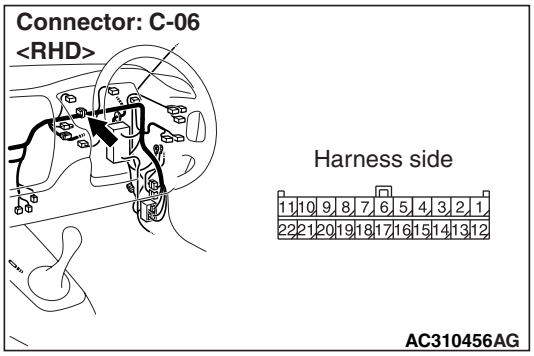
Step 4. Check the wiring harness between C-207 key reminder switch connector terminal No.4 and the body earth.





NOTE:



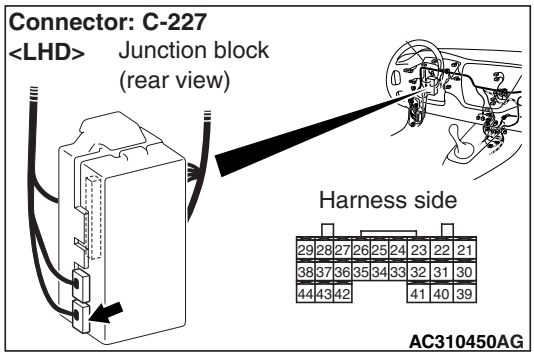


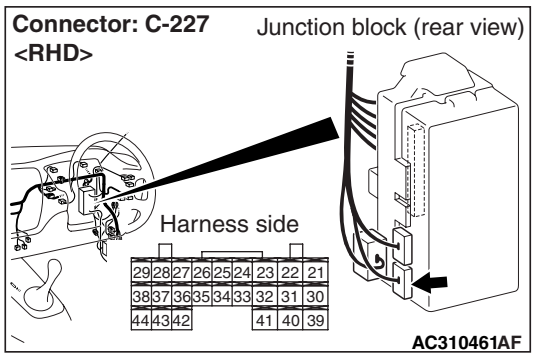
Prior to the wiring harness inspection, check joint connector C-101 <LH drive vehicles> or C-06 <RH drive vehicles>, and repair if necessary.

- 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.00-5).
NO : Repair the wiring harness.

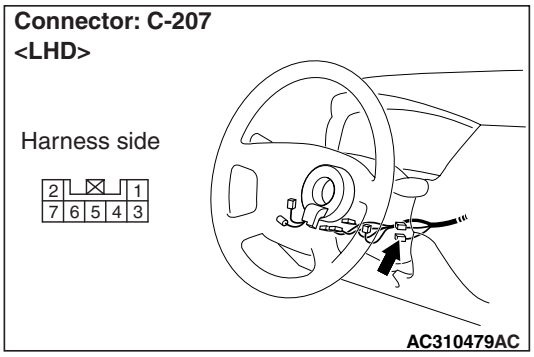
Step 5. Connector check: C-227 ETACS-ECU connector

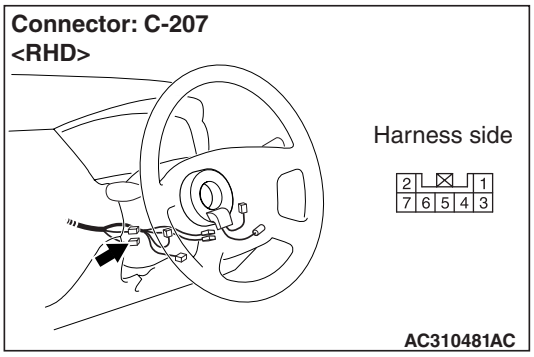


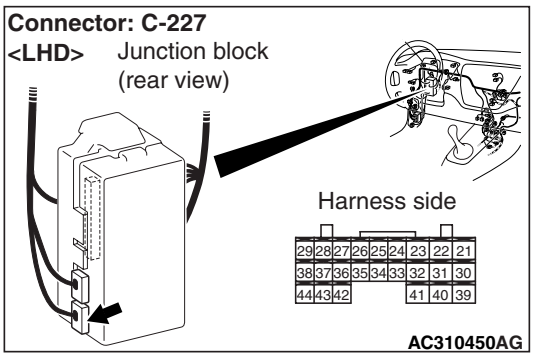


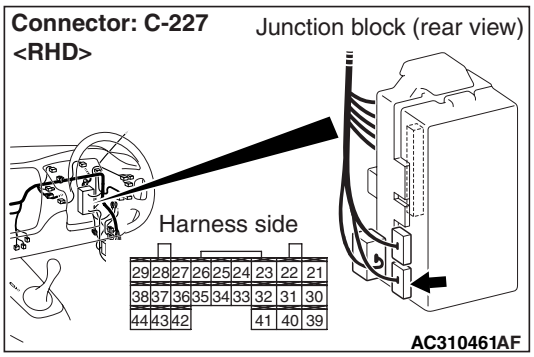
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness between C-207 key reminder switch connector terminal No.6 and C-227 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

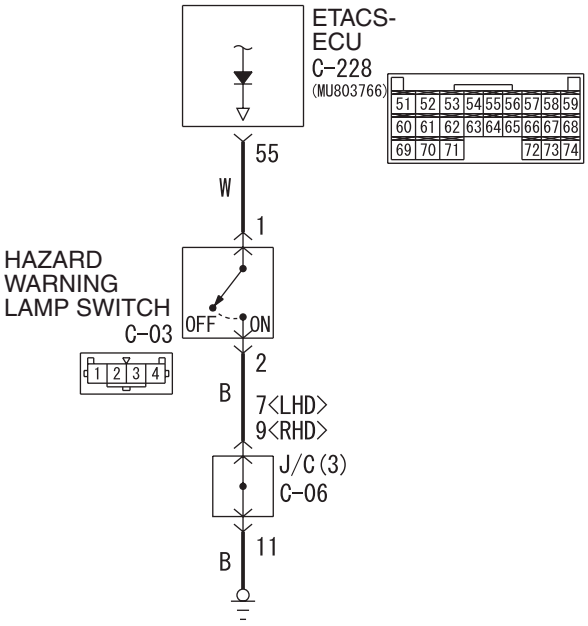
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-10: 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 : Gray R : Red P : Pink V : Violet

W4J54E164A

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.

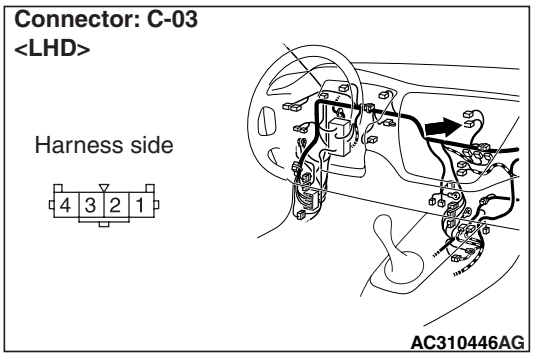
- Keyless entry system (encrypted code registration)
- Hazard warning lamp

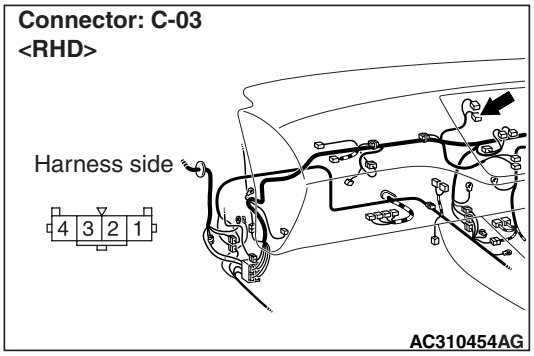
POSSIBLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: C-03 hazard warning lamp switch connector





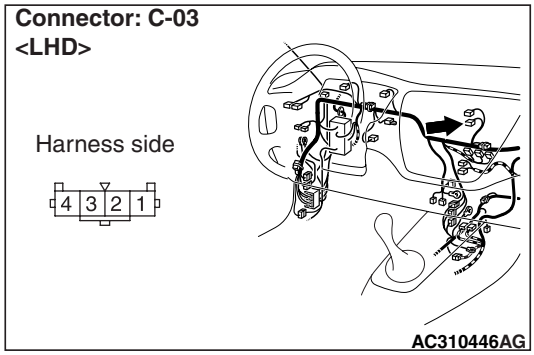
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

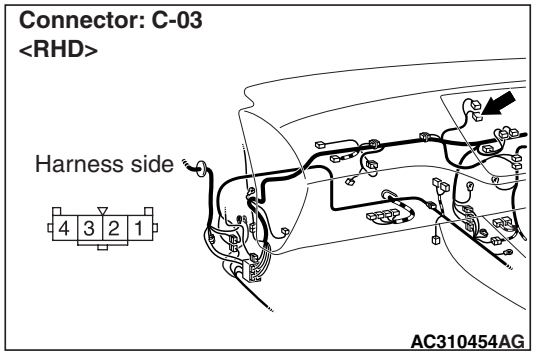
Step 2. Check the hazard warning lamp switch.

Refer to GROUP 54A – Hazard warning lamp switch P.54A-72.

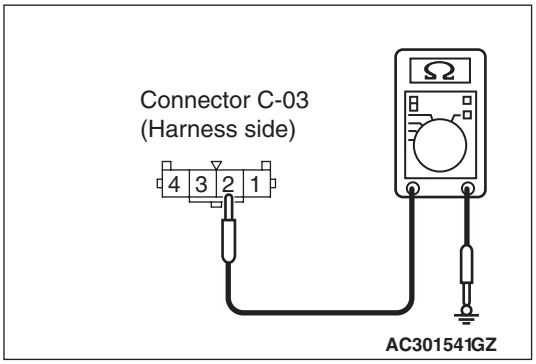
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the hazard warning lamp switch.

Step 3. Resistance measurement at the C-03 hazard warning lamp switch connector





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

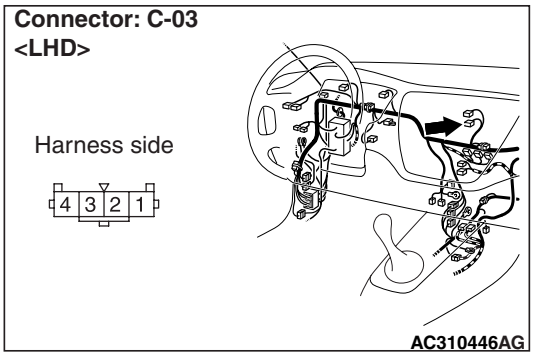


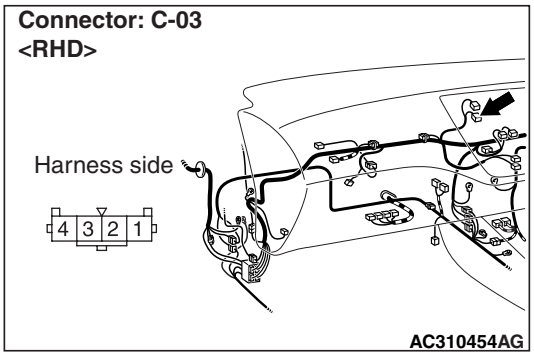
(2) Resistance between C-03 hazard warning lamp switch connector terminal No.2 and body earth

OK: 2 Ω or less

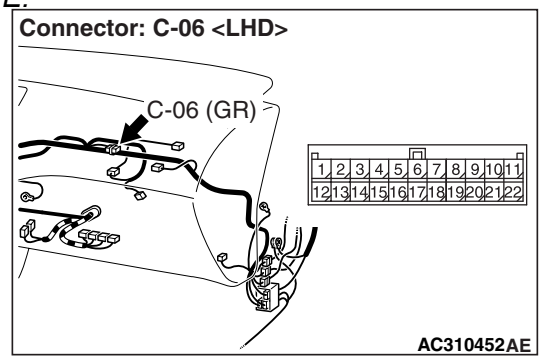
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

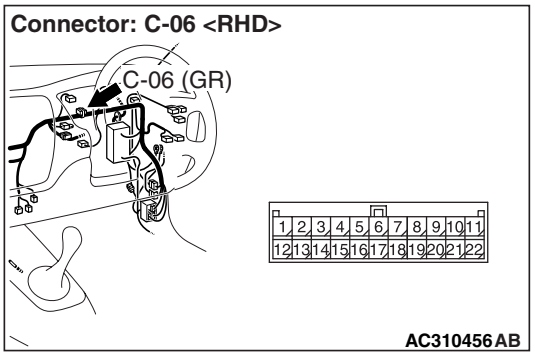
Step 4. Check the wiring harness between C-03 hazard warning lamp switch connector terminal No.2 and the body earth.





NOTE:





Prior to the wiring harness inspection, check joint connector C-06, and repair if necessary.

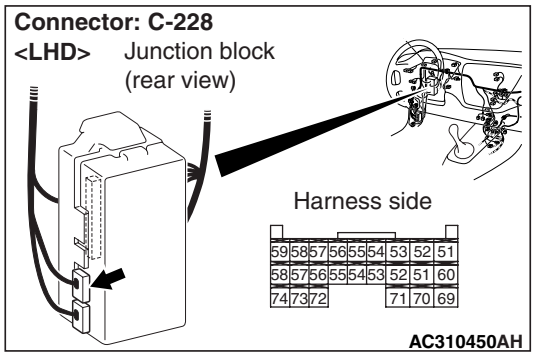
- Check the earth wires for open circuit.

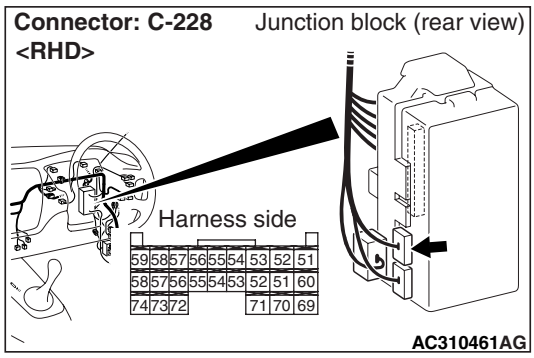
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 5. Connector check: C-228 ETACS-ECU connector



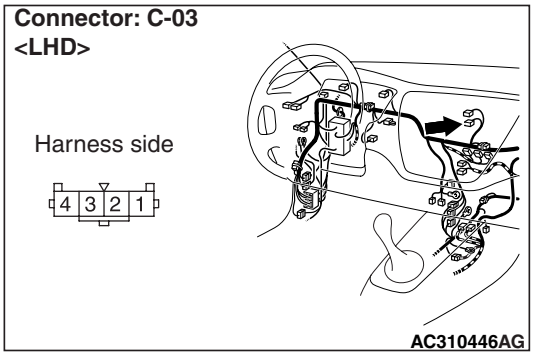


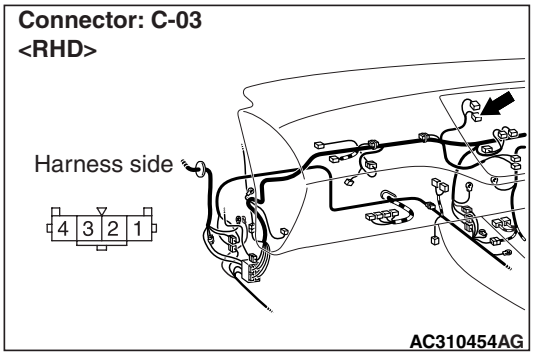
Q: Is the check result normal?

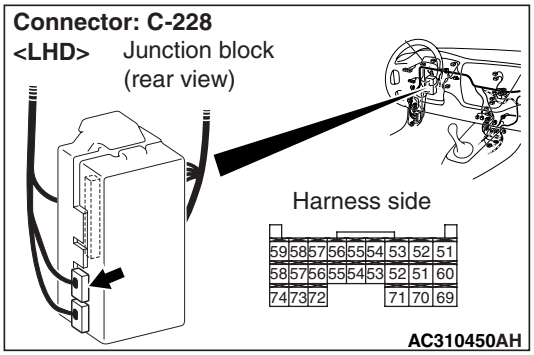
YES : Go to Step 6.

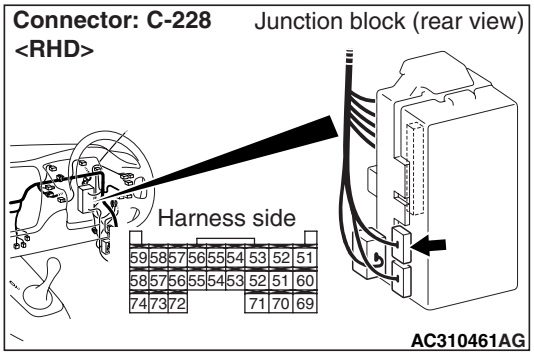
NO : Repair the defective connector.

Step 6. Check the wiring harness between C-228 ETACS-ECU connector terminal No.55 and C-03 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

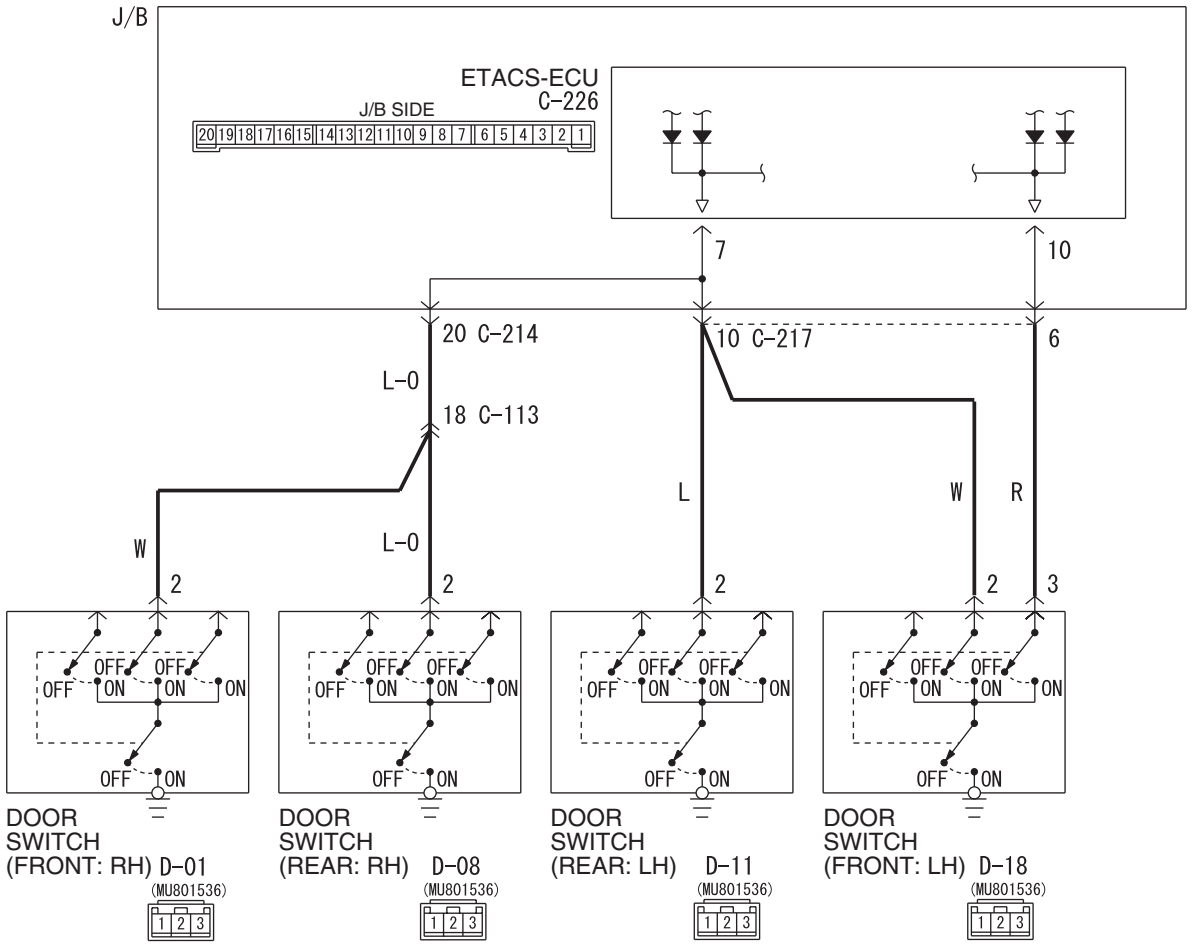
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-11: All the door switch signals are not received. <LH drive vehicles>

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

All Door Switches Input Circuit <LHD>



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

W4J54E145A

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

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. SWS monitor data list.

<Selected item> ETACS ECU

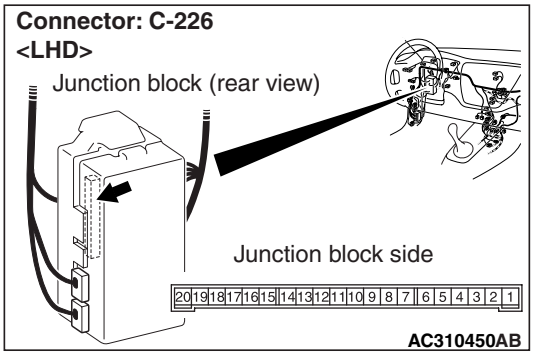
- Driver's door is open

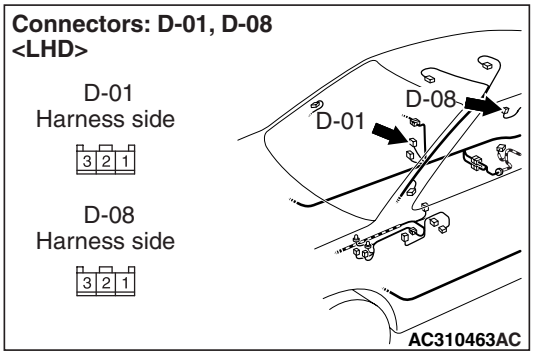
Item No.	Item name	Normal condition
Item 32	DR DOOR SW	ON

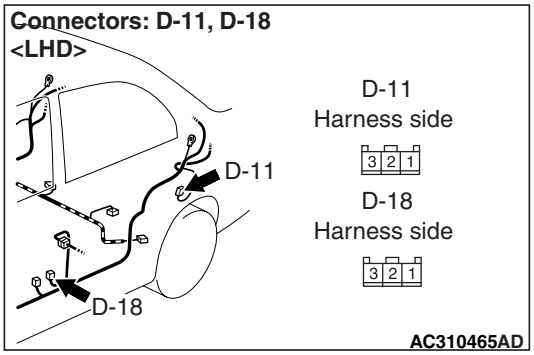
OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure L-3 "The door switch (front: LH) signal is not received <LH drive vehicles>P.54C-263 ."

Step 2. Connector check: D-18 <front: LH>, D-01 <front: RH>, D-08 <rear: RH> or D-11 <rear: LH> door switch connectors, and C-226 ETACS-ECU connector







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

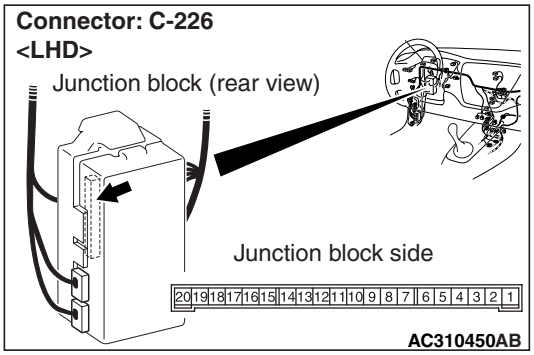
Step 3. Check the installation condition.
Check that the door switch is installed on the body correctly.

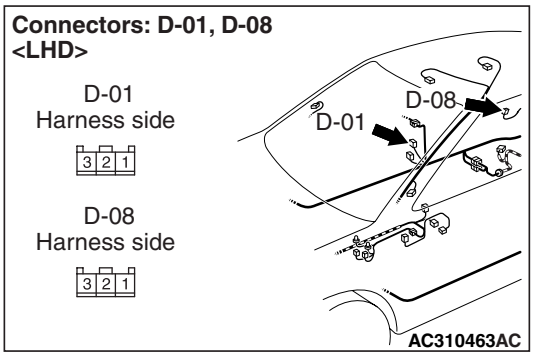
Q: Is the check result normal?
YES : Go to Step 4.
NO : Correct the installation condition.

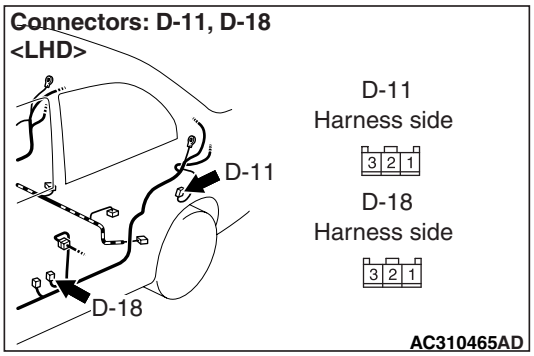
Step 4. Check the door switch.
Refer to GROUP 42 – Door P.42-27.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the door switch.

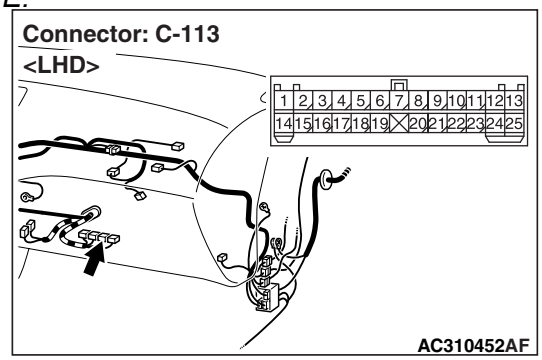
Step 5. Check the wiring harness from terminal No.2 of the D-18 <front: LH>, D-01 <front: RH>, D-08 <rear: RH> or D-11 <rear: LH> door switch connector to terminal No.7 of the C-226 ETACS-ECU connector.

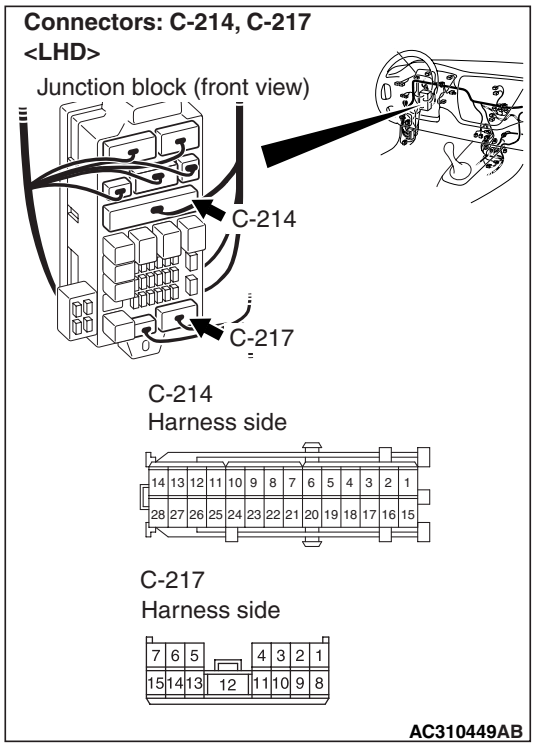






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-113 <RH> and junction block connector C-214 <RH> or C-217 <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.

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?

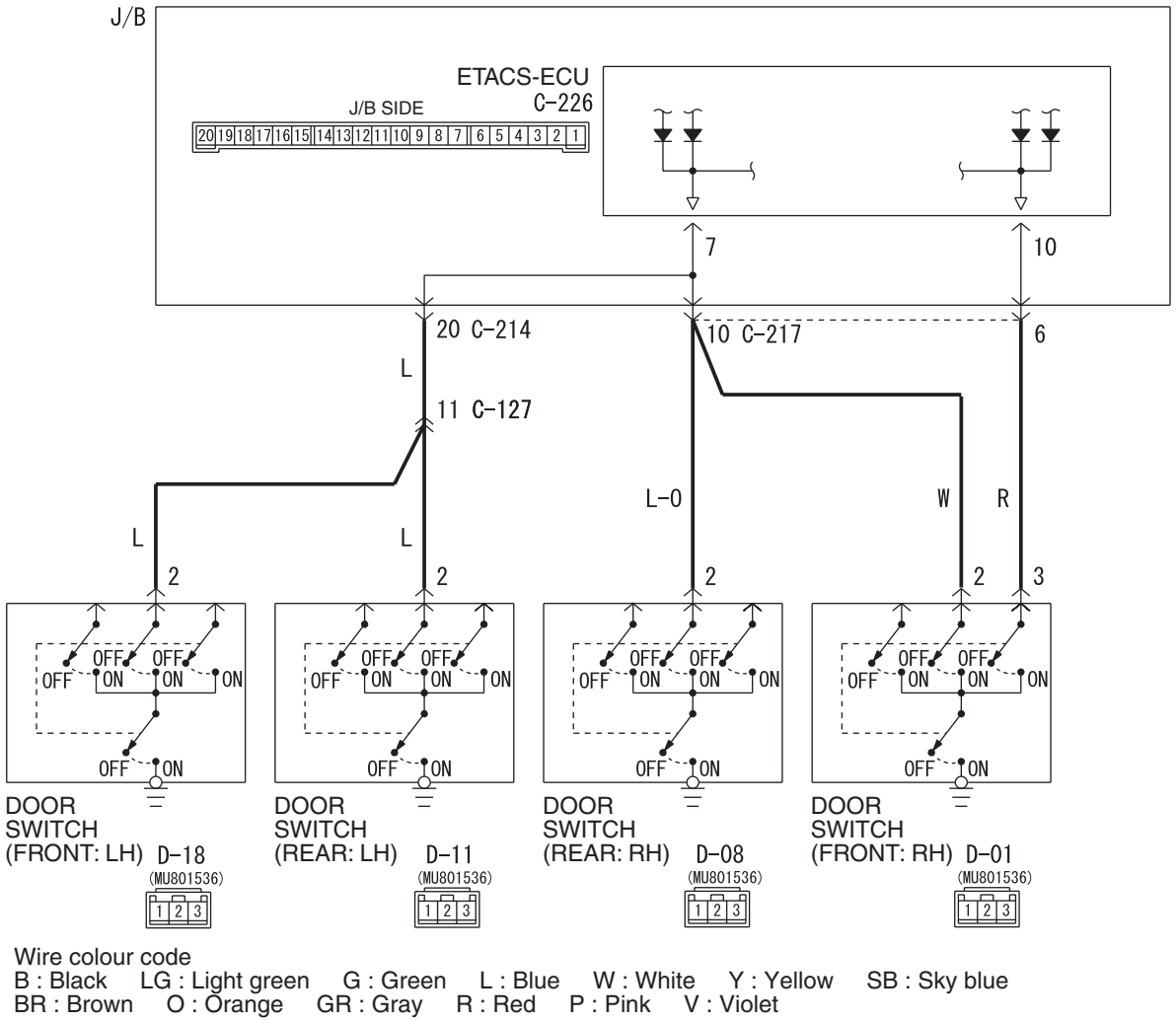
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-11: All the door switch signals are not received. <RH drive vehicles>

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

All Door Switches Input Circuit <RHD>



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

W4J54E146A

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

POSSIBLE CAUSES

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

DIAGNOSTIC PROCEDURE

Step 1. SWS monitor data list.

<Selected item> ETACS ECU

- Driver's door is open

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

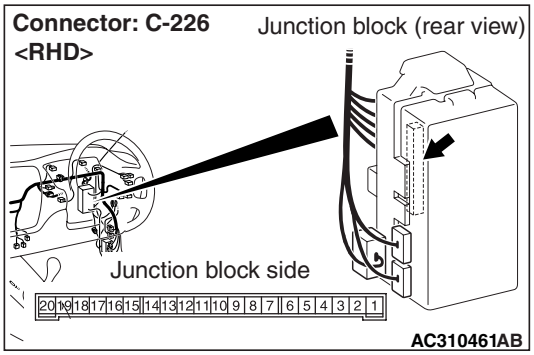
OK: Normal condition is displayed.

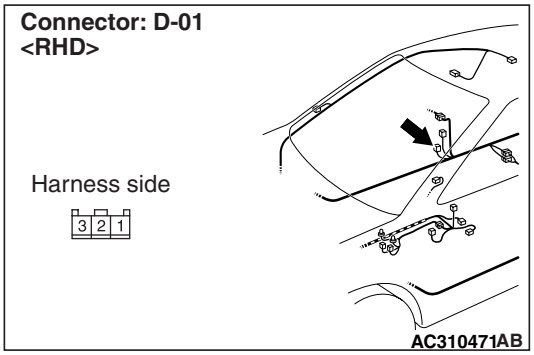
Q: Is the check result normal?

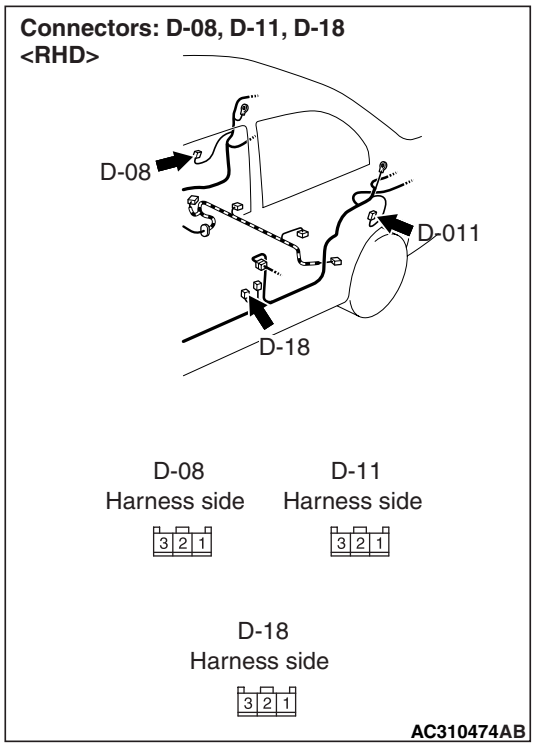
YES : Go to Step 2.

NO : Refer to Inspection Procedure L-3 "The door switch (front: RH) signal is not received <RH drive vehicles>P.54C-265 ."

Step 2. Connector check: D-18 <front: LH>, D-01 <front: RH>, D-08 <rear: RH> or D-11 <rear: LH> door switch connectors, and C-226 ETACS-ECU connector







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.

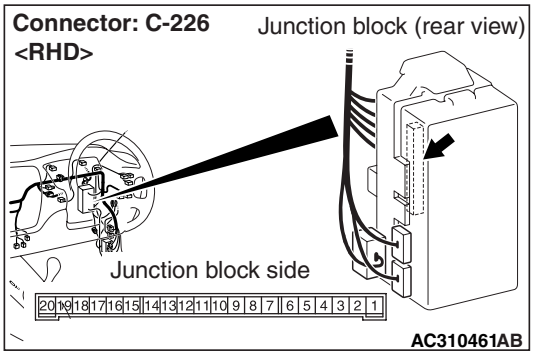
Refer to GROUP 42 – Door P.42-27.

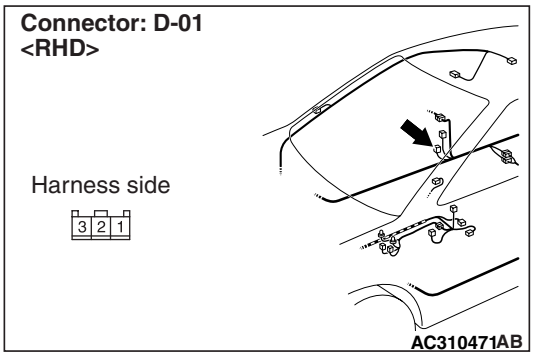
Q: Is the check result normal?

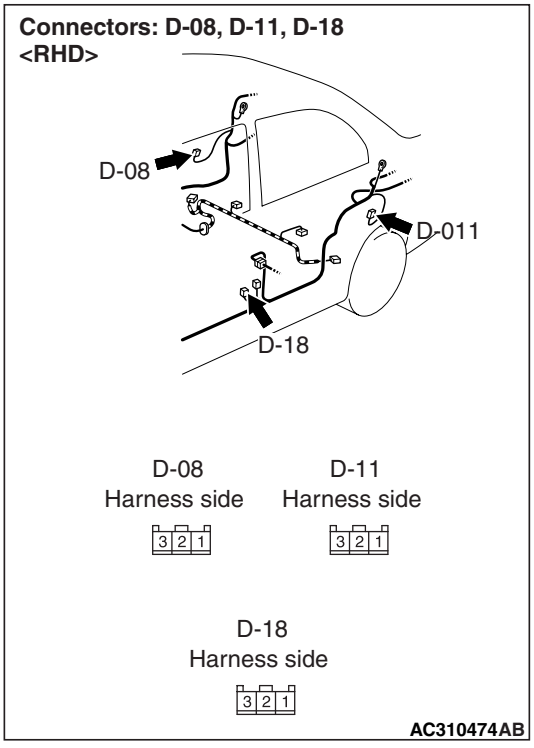
YES : Go to Step 5.

NO : Replace the door switch.

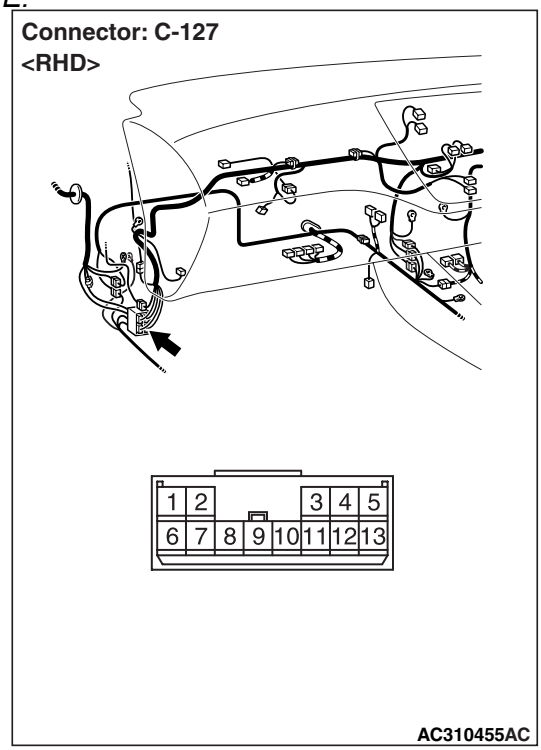
Step 5. Check the wiring harness from terminal No.2 of the D-18 <front: LH>, D-01 <front: RH>, D-08 <rear: RH> or D-11 <rear: LH> door switch connector to terminal No.7 of the C-226 ETACS-ECU connector.

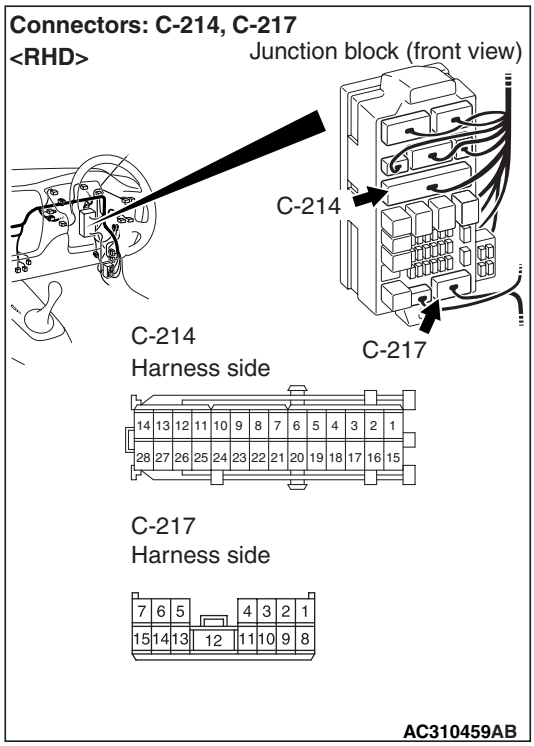






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-127 <LH> and junction block connector C-217 <RH> or C-214 <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.

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?

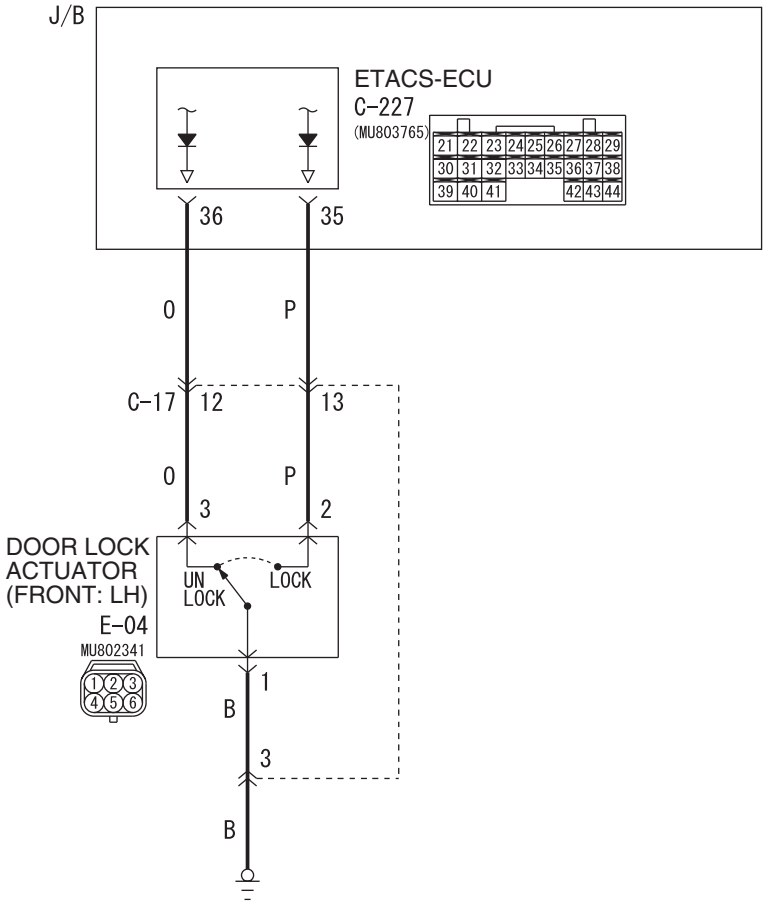
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-12: The front door lock actuator (LH) switch signal is not received. <LH drive vehicles>

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

Front Door Lock Actuator Input Circuit <LHD>



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

W4J54E147A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the front door lock actuator (LH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

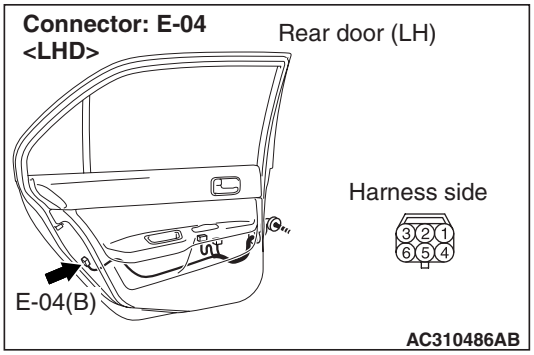
- Key reminder function
- Central door locking
- Keyless entry system
- Room lamps

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: E-04 front door lock actuator (LH) connector



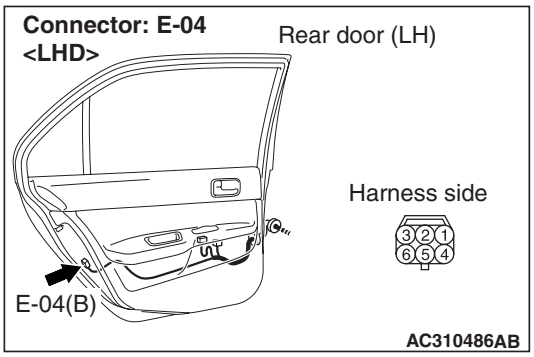
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the front door lock actuator (LH).

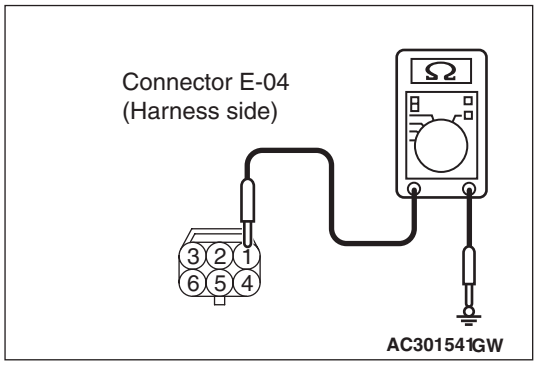
Refer to GROUP 42 – Door P.42-31.

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-04 front door lock actuator (LH) connector



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

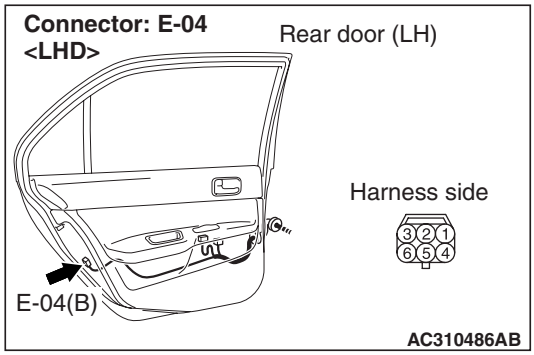


(2) Resistance between E-04 front door lock actuator (LH) connector terminal No.1 and body earth

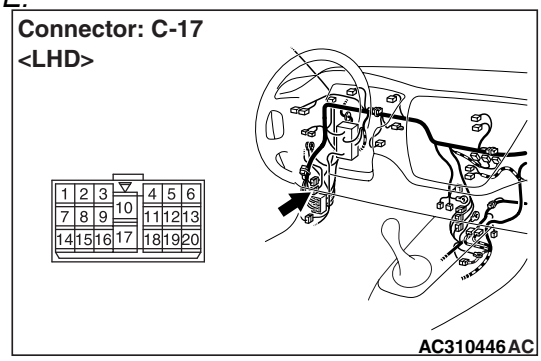
OK: 2 Ω or less

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

Step 4. Check the wiring harness between E-04 front door lock actuator (LH) connector terminal No.1 and body earth



NOTE:

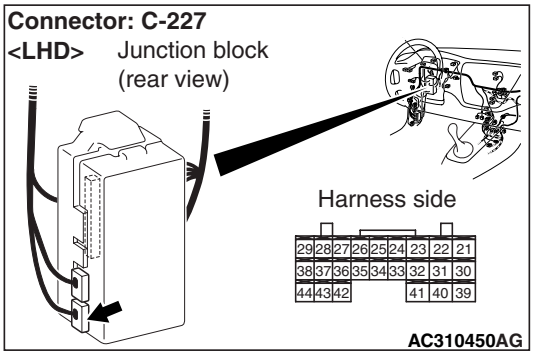


Prior to the wiring harness inspection, check intermediate connector C-17, and repair if necessary.

- Check the earth wires for open circuit.

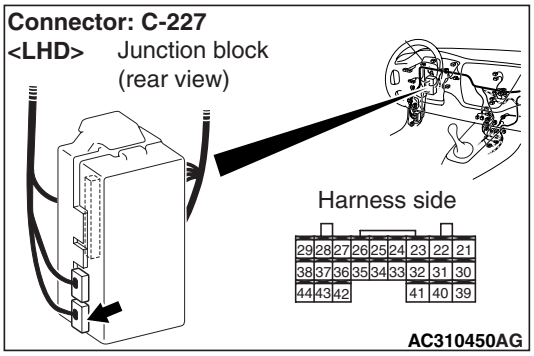
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

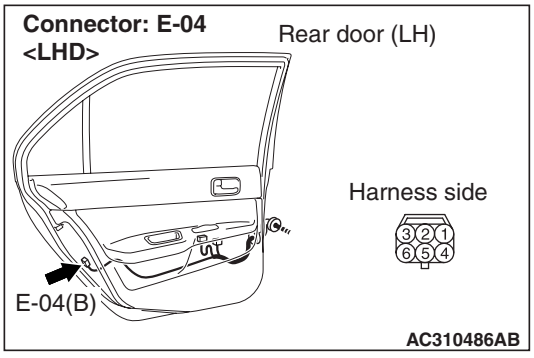
Step 5. Connector check: C-227 ETACS-ECU connector



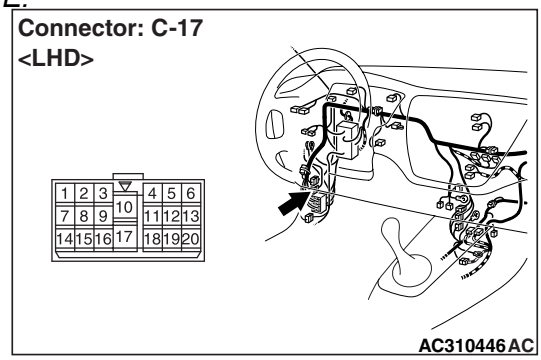
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness from E-04 front door lock actuator (LH) connector terminal Nos.2 and 3 to C-227 ETACS-ECU connector terminal Nos.35 and 36.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-17, 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 input signal from the front door lock actuator (LH) switch.

System switch	Check condition
Front door lock actuator (LH) switch	When the driver's door is unlocked or locked

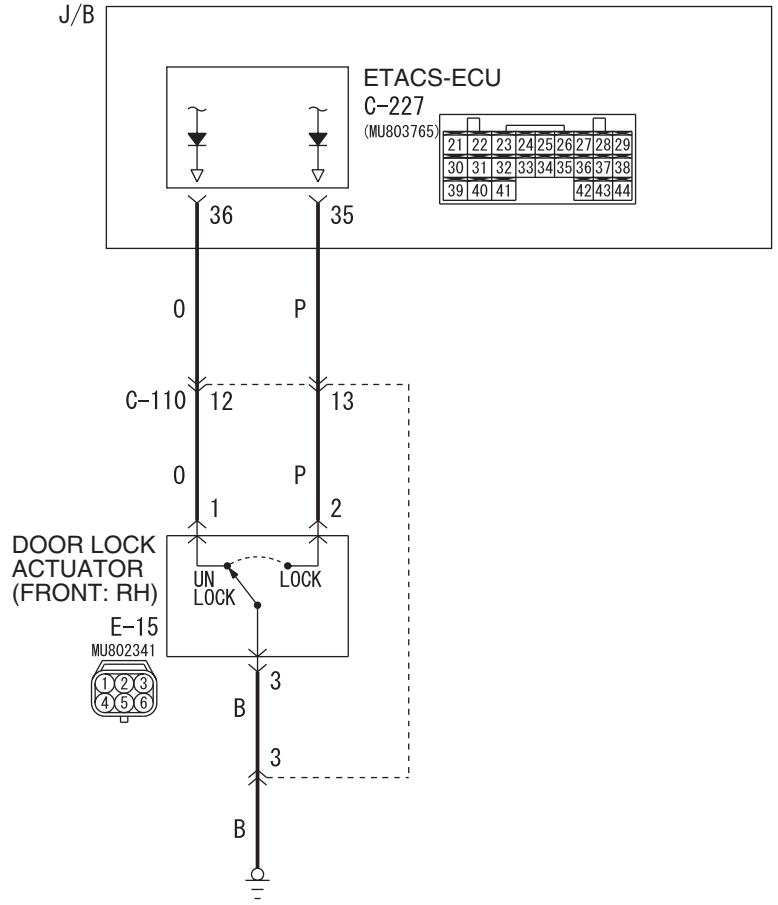
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-12: The front door lock actuator (RH) switch signal is not received. <RH drive vehicles>

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

Front Door Lock Actuator Input Circuit <RHD>



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

W4J54E148A

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.

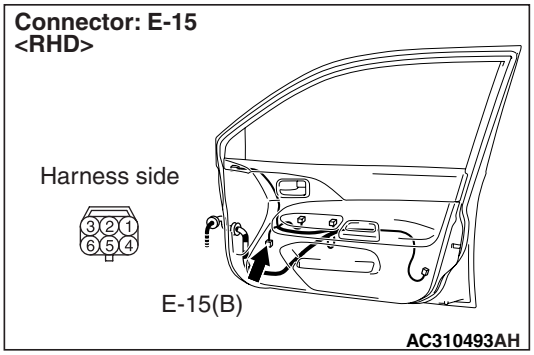
- Key reminder function
- Central door locking
- Keyless entry system
- Room lamps

POSSIBLE CAUSES

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

DIAGNOSTIC PROCEDURE

Step 1. Connector check: E-15 front door lock actuator (RH) connector



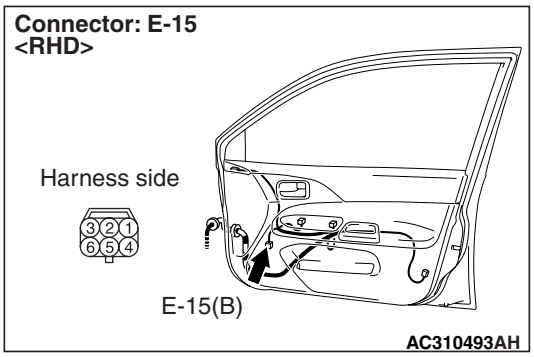
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the front door lock actuator (RH).

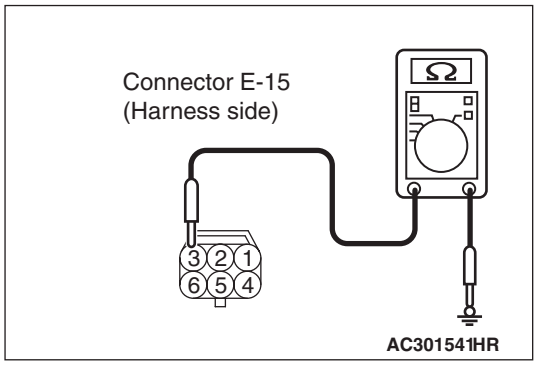
Refer to GROUP 42 – Door P.42-31.

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-15 front door lock actuator (RH) connector



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

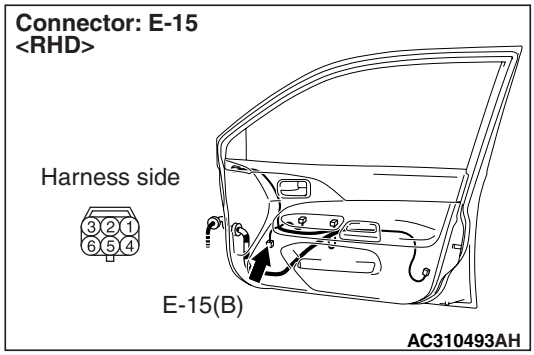


(2) Resistance between E-15 front door lock actuator (RH) connector terminal No.3 and body earth

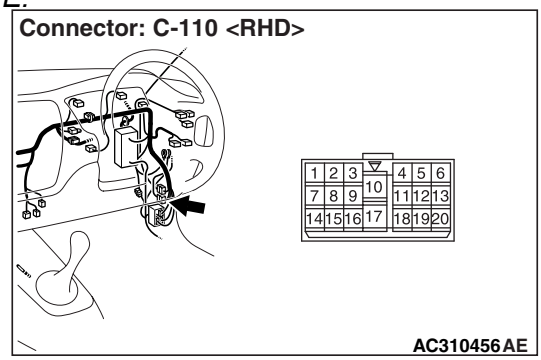
OK: 2 Ω or less

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

Step 4. Check the wiring harness between E-15 front door lock actuator (RH) connector terminal No.3 and body earth



NOTE:

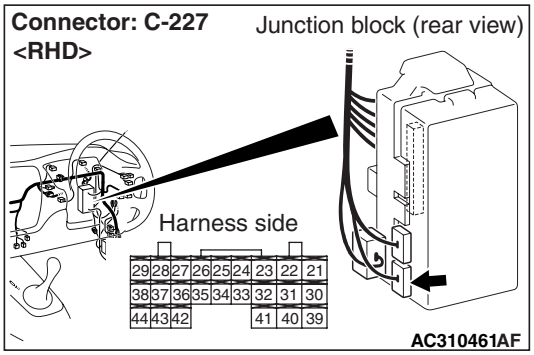


Prior to the wiring harness inspection, check intermediate connector C-110, and repair if necessary.

- Check the earth wires for open circuit.

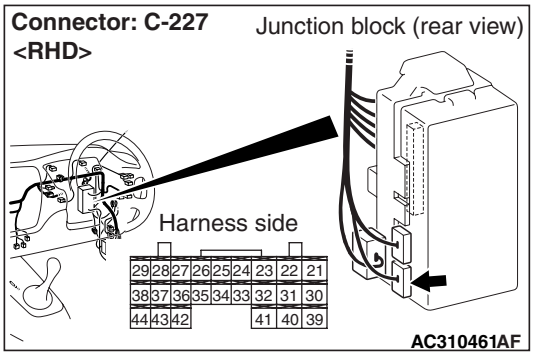
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

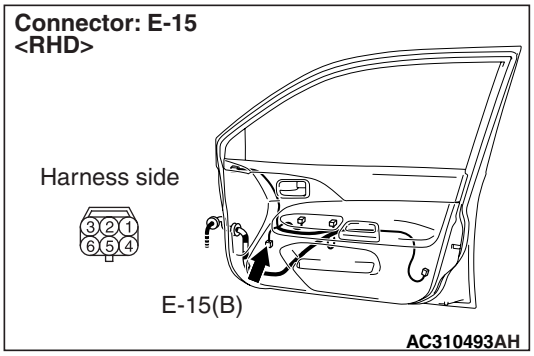
Step 5. Connector check: C-227 ETACS-ECU connector



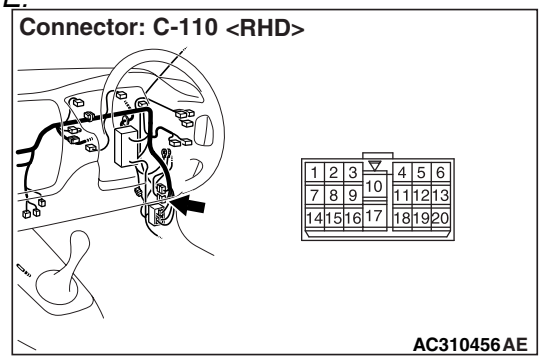
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness from E-15 front door lock actuator (RH) connector terminal Nos.1 and 2 to C-227 ETACS-ECU connector terminal Nos.36 and 35.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-110, 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. Retest the system.

Check that the front door lock actuator (RH) switch signal is received normally.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the ETACS-ECU.

Step 8. 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.

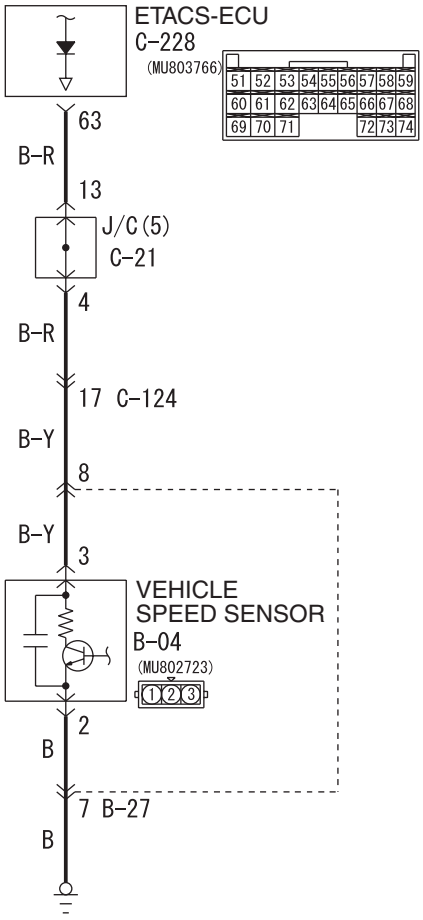
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-13: The vehicle speed sensor signal is not received.

⚠ CAUTION

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

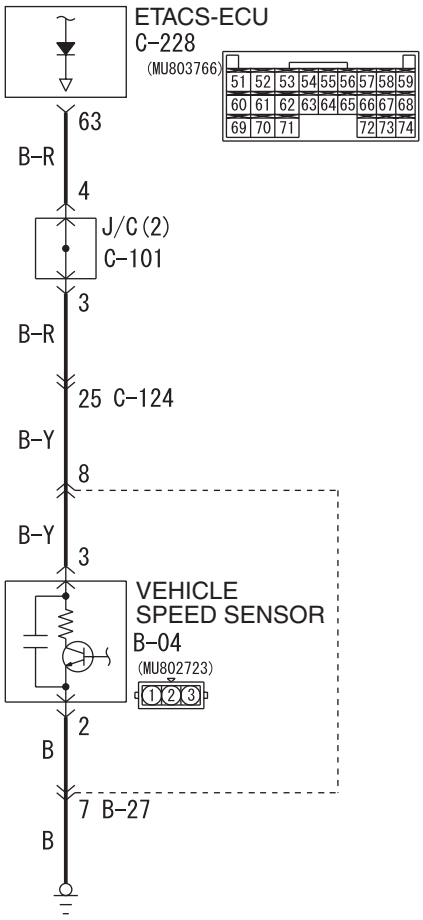
Vehicle Speed Sensor Input Circuit <LHD>



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

W6J54E031A

Vehicle Speed Signal Input Circuit <RHD>



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

W6J54E030A

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.

POSSIBLE CAUSES

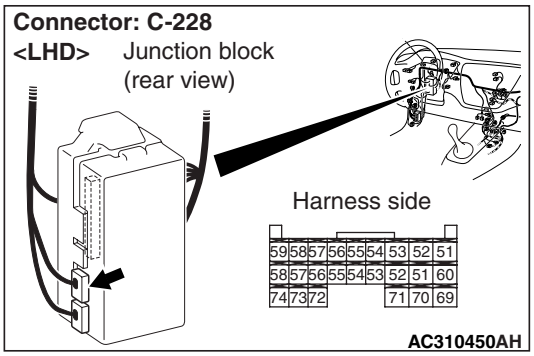
- Malfunction of the vehicles speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

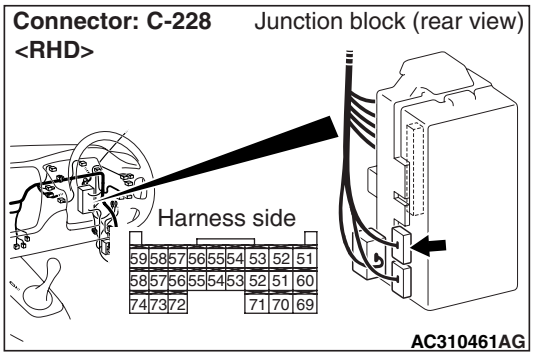
DIAGNOSIS PROCEDURE

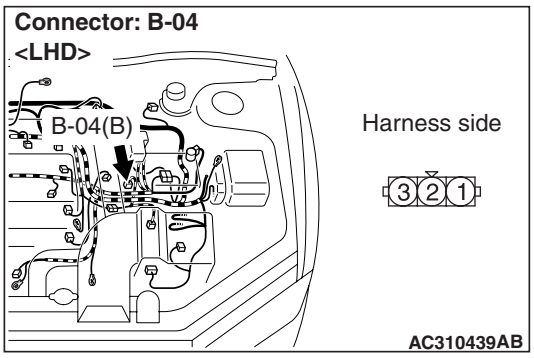
Step 1. Check the speedometer.
Check that the speedometer works normally.

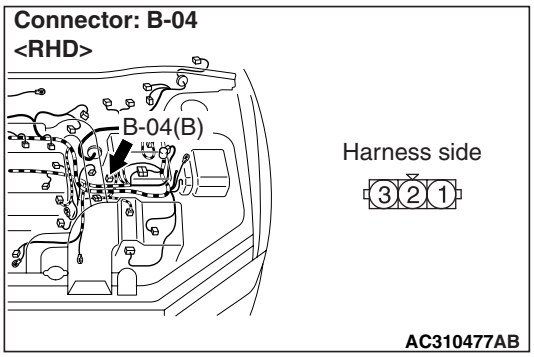
Q: Is the check result normal?
YES : Go to Step 2.
NO : Diagnose the combination meter (Refer to GROUP 54A – Combination meter P.54A-34).

Step 2. Connector check: B-04 vehicles speed sensor connector and C-228 ETACS-ECU connector

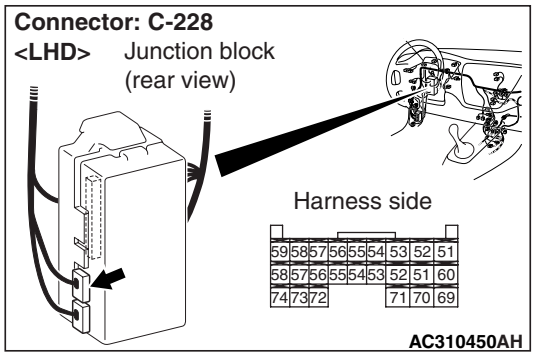


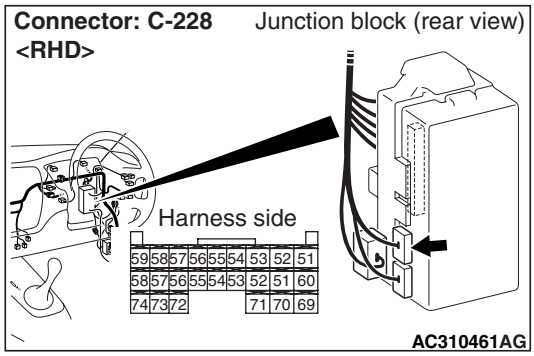


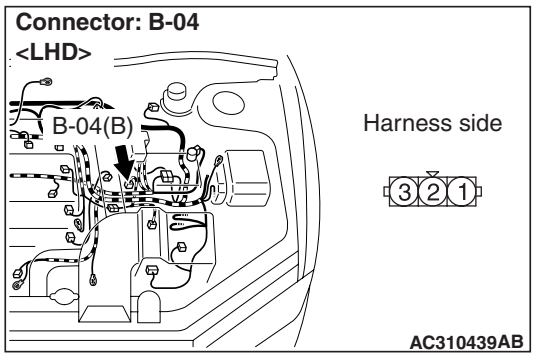


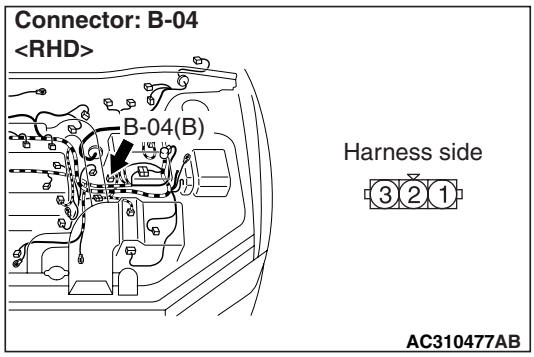


Step 3. Check the wiring harness between B-04 vehicles speed sensor connector terminal No.3 and C-228 ETACS-ECU connector terminal No.63.







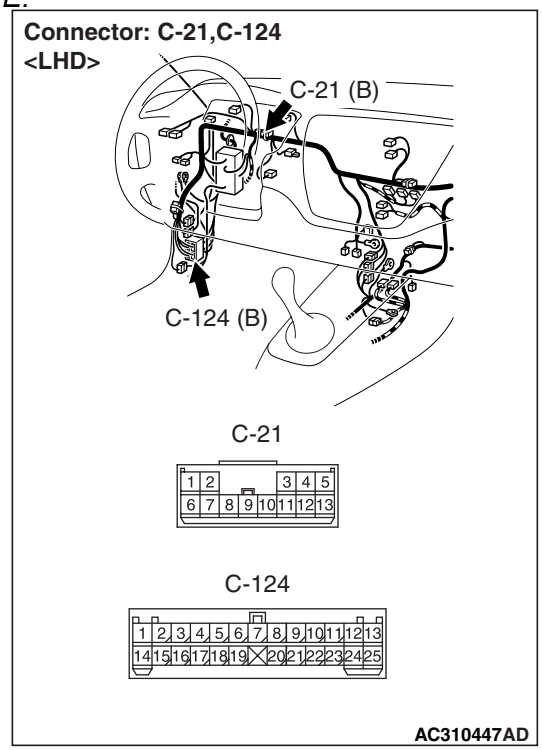


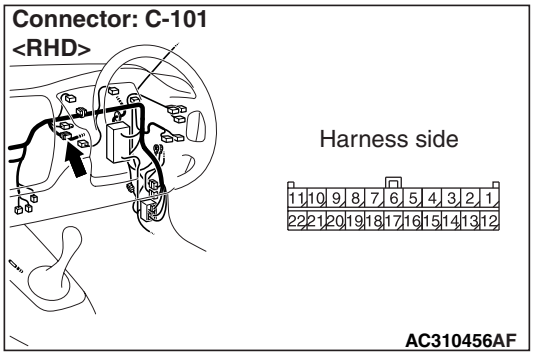
Q: Are the check result normal?

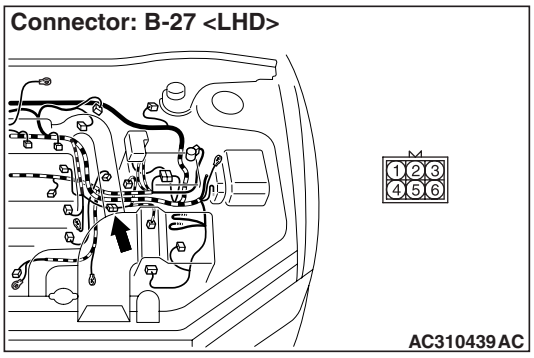
YES : Go to Step 3.

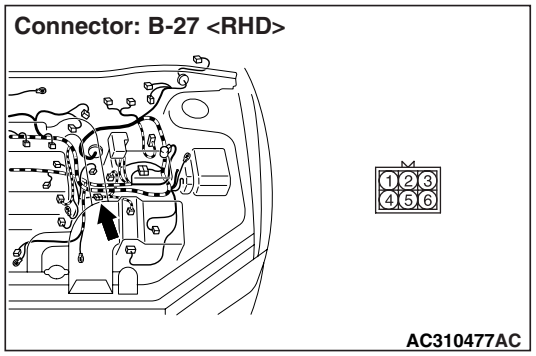
NO : Repair the defective connector.

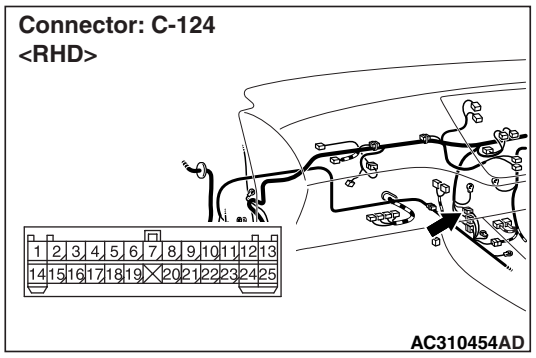
NOTE:











Prior to the wiring harness inspection, check joint connector C-21 <LH driver vehicles>, combination meter connector C-101 <RH drive vehicles> and intermediate connector B-27 and C-124, 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.

Step 4. 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

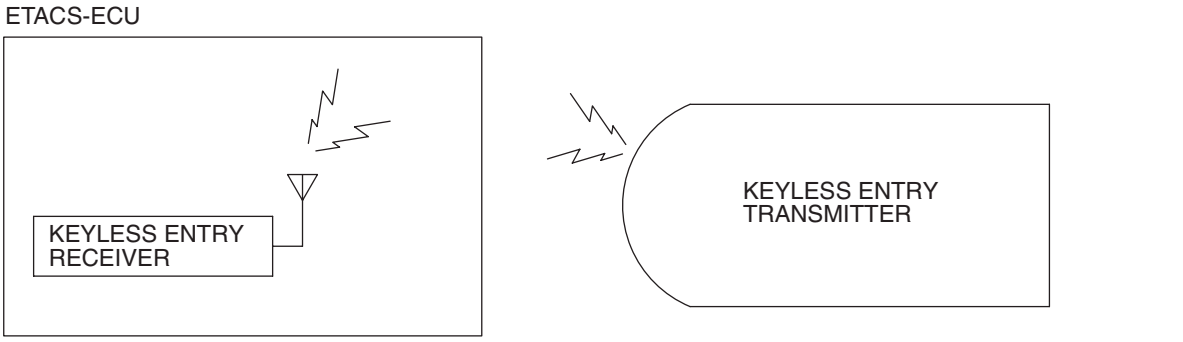
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

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.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-14: 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



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.

POSSIBLE CAUSES

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

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.42-43.

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.42-46.

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.00-5).
NO : Replace the keyless entry transmitter.

Step 4. Retest the system.

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

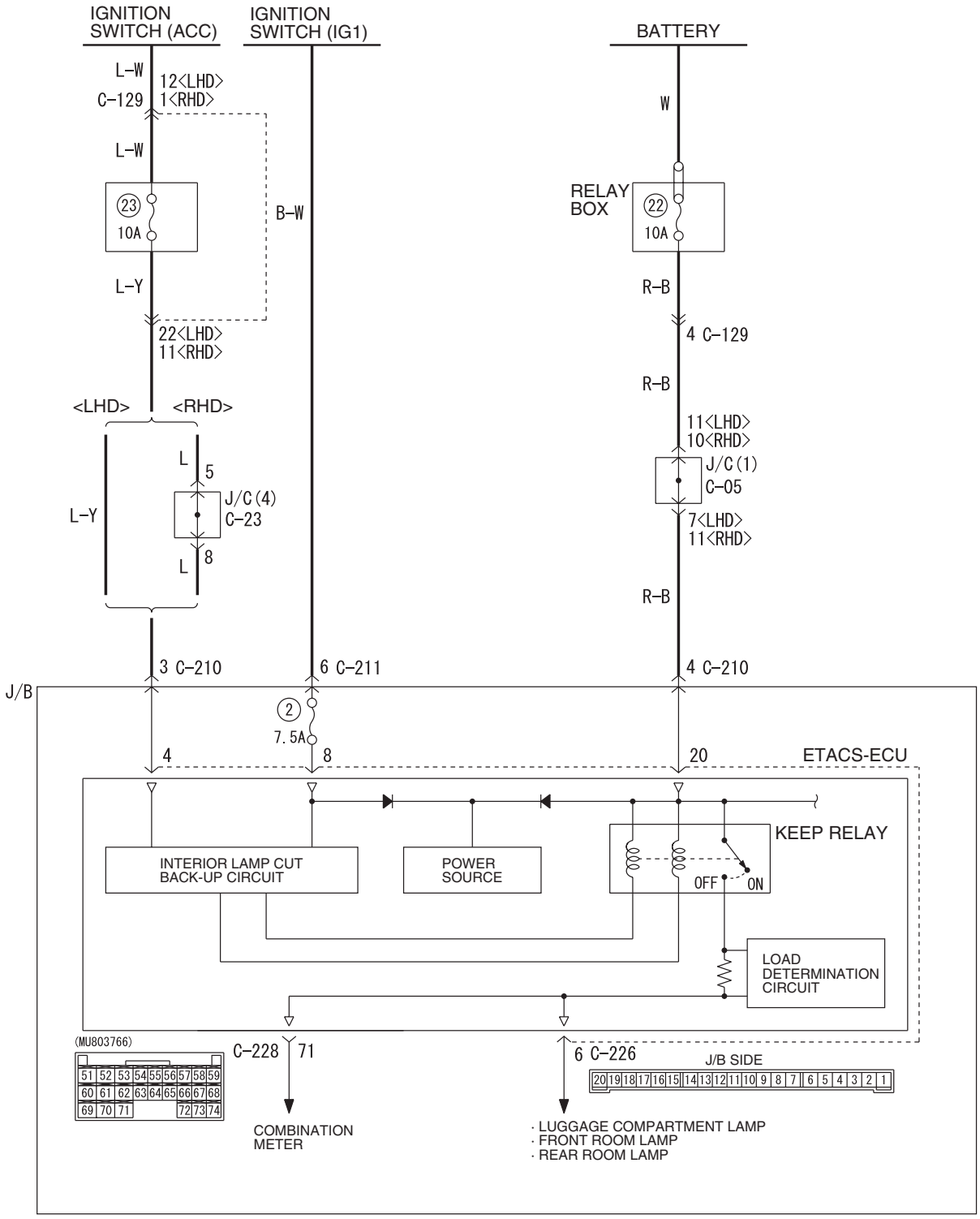
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-15: Interior lamp loaded signal is not detected.

⚠ 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 : Gray R : Red P : Pink V : Violet

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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

POSSIBLE 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.

- Ignition switch: OFF

ECUS TO BE CHECKED

- ETACS ECU

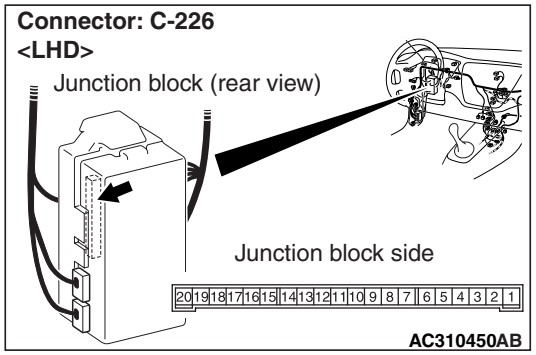
OK: "OK" is displayed on the "ETACS ECU" menu.

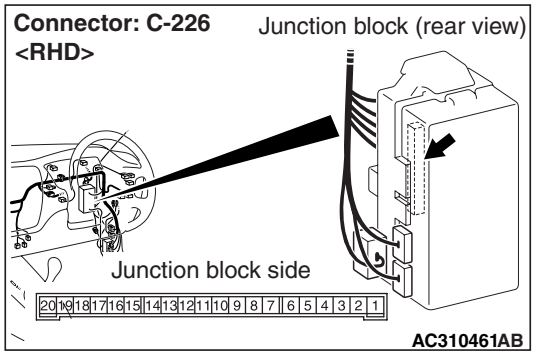
Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-36."

Step 2. Connector check: C-226 ETACS-ECU connector



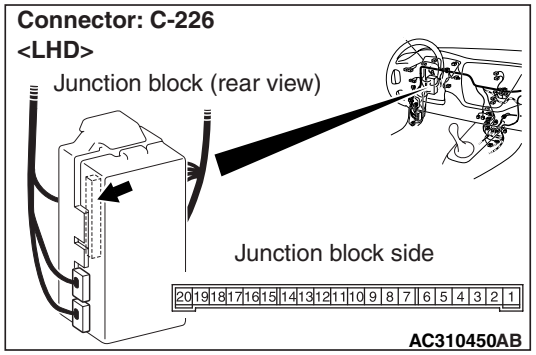


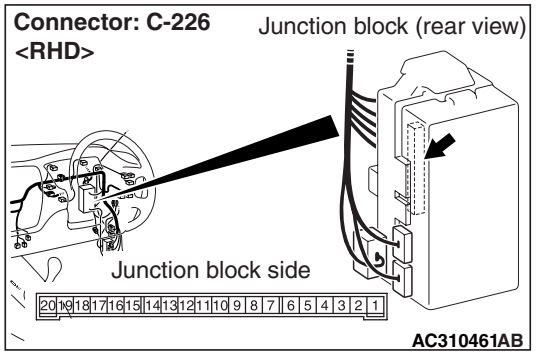
Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

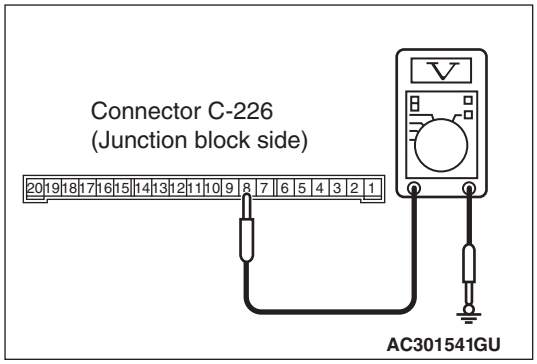
Step 3. Voltage measurement at the C-226 ETACS-ECU connector





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

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

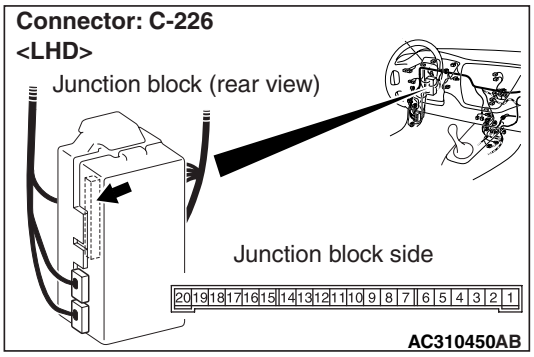


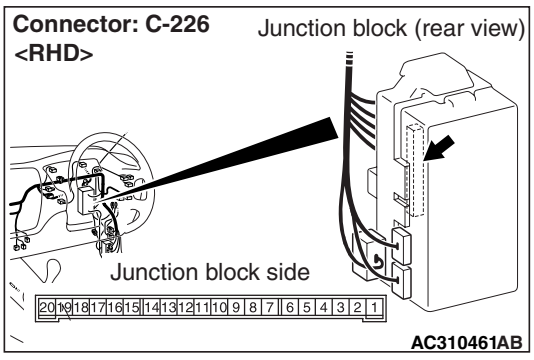
(3) Voltage between C-226 ETACS-ECU connector terminal No.8 and body earth

OK: System voltage

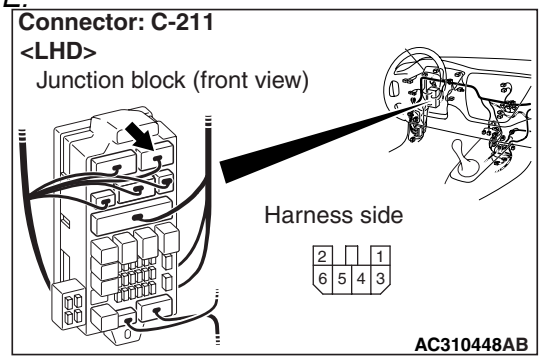
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

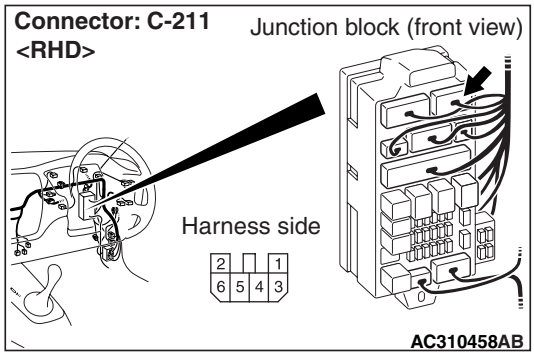
Step 4. Check the wiring harness between C-226 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).





NOTE:



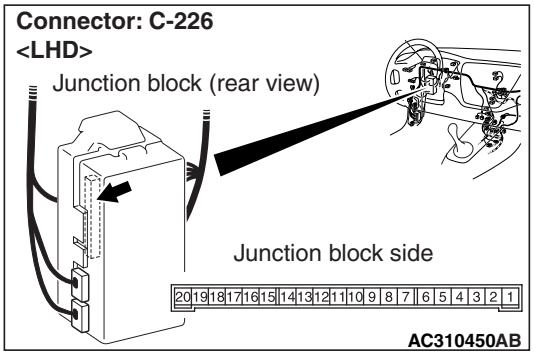


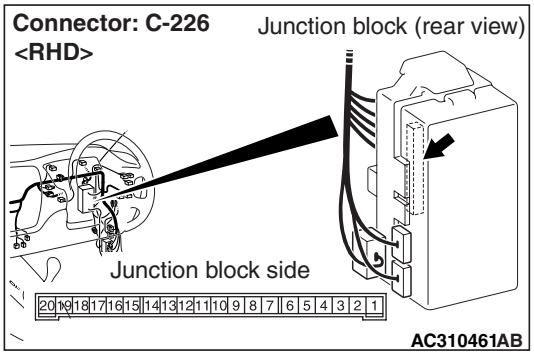
Prior to the wiring harness inspection, check junction block connector C-211, and repair if necessary.

- Check the power supply line to the ignition switch (IG1) for open circuit.

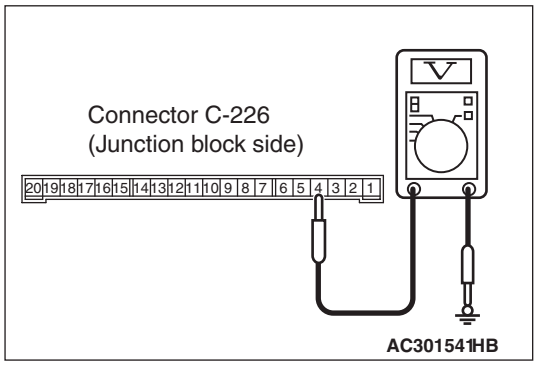
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Repair the wiring harness.

Step 5. Voltage measurement at the C-226 ETACS-ECU connector





(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the ACC position.

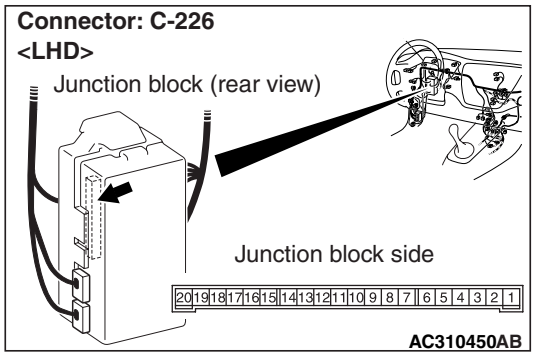


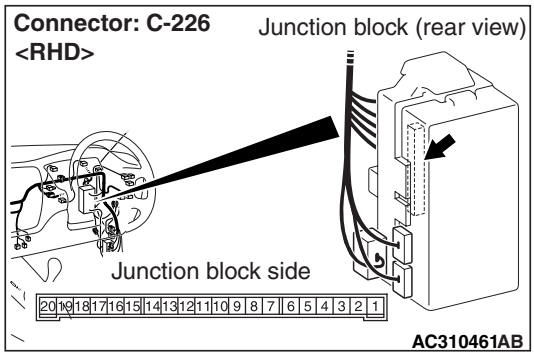
(3) Voltage between C-226 ETACS-ECU connector terminal No.4 and body earth

OK: System voltage

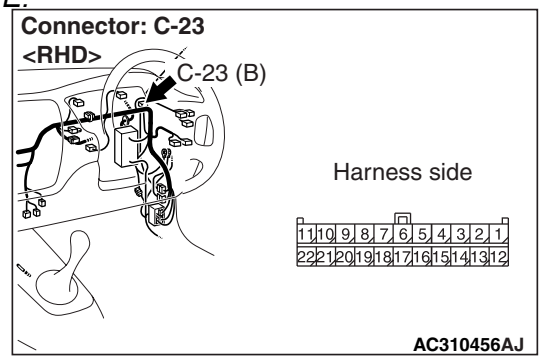
Q: Is the check result normal?
YES : Go to Step 7.
NO : Go to Step 6.

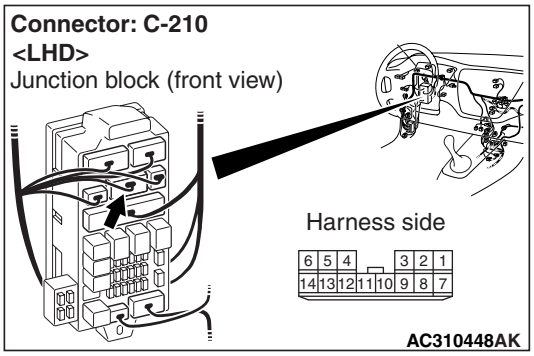
Step 6. Check the wiring harness between C-226 ETACS-ECU connector terminal No.4 and the ignition switch (ACC).

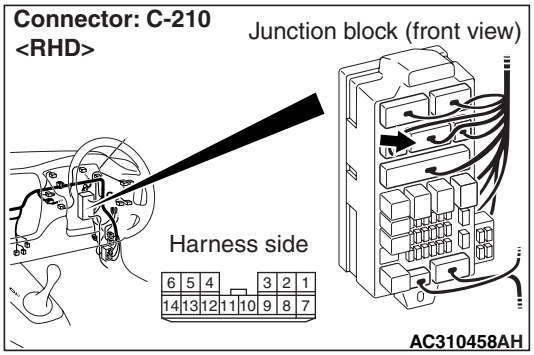


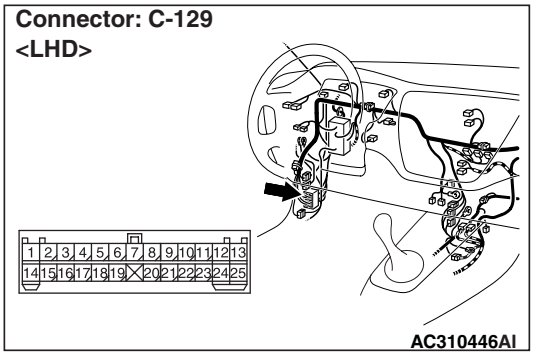


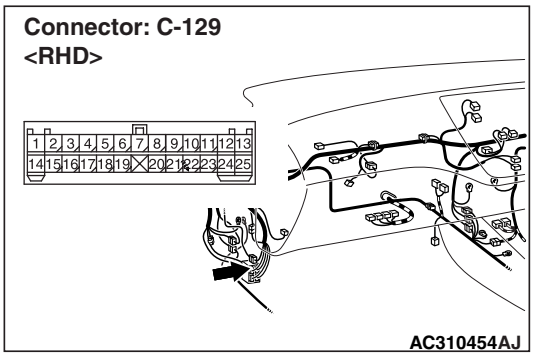
NOTE:











Prior to the wiring harness inspection, check joint connector C-23 <RH drive vehicles>, junction block connector C-210 or intermediate connector C-129, 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.00-5).

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?

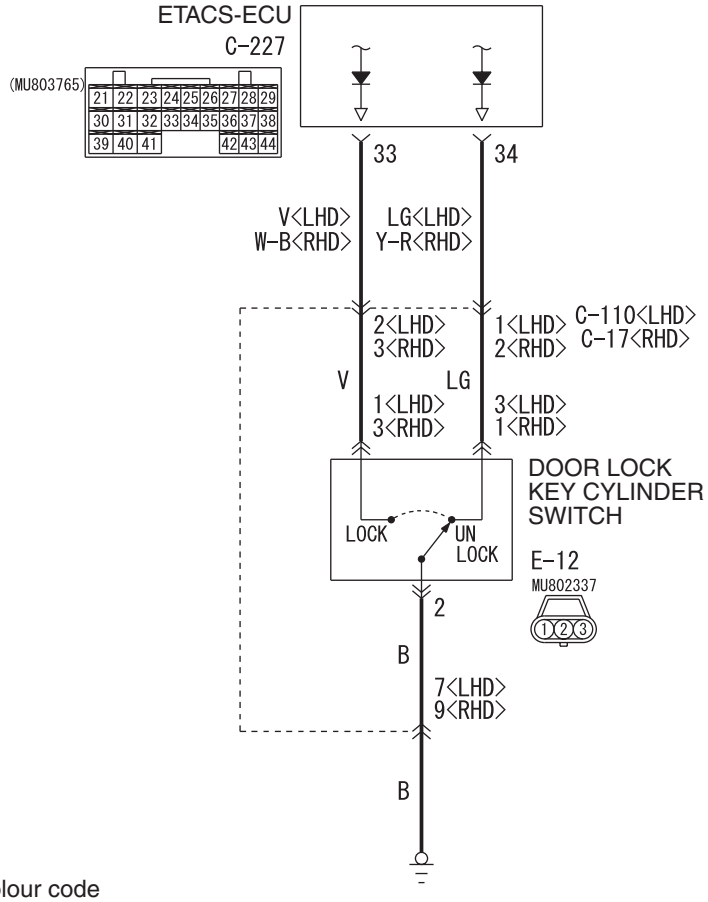
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-16: The door lock key cylinder switch signal is not detected.

⚠ 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

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COMMENTS ON TROUBLE SYMPTOM

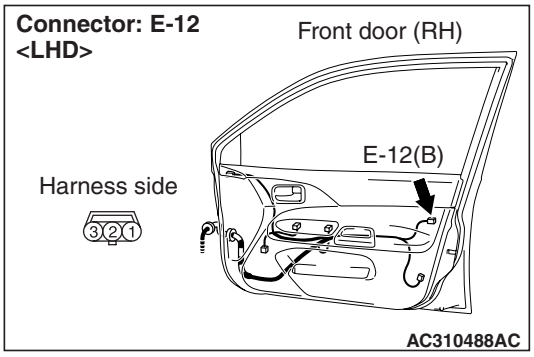
Input signal from the door lock key cylinder switch is used to operate the central door locking function. If the signal is abnormal, the central door locking function will not work normally.

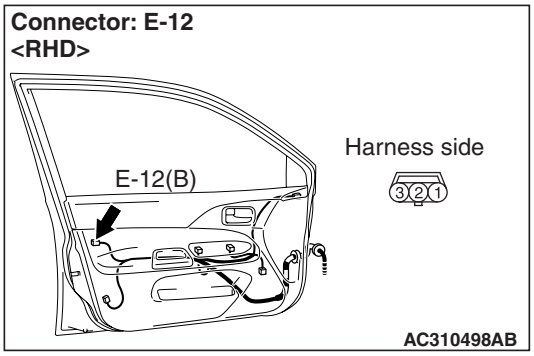
POSSIBLE CAUSES

- Malfunction of the door lock key cylinder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: E-12 door lock key cylinder switch connector





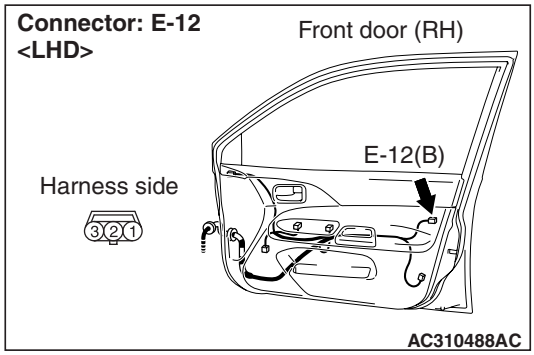
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

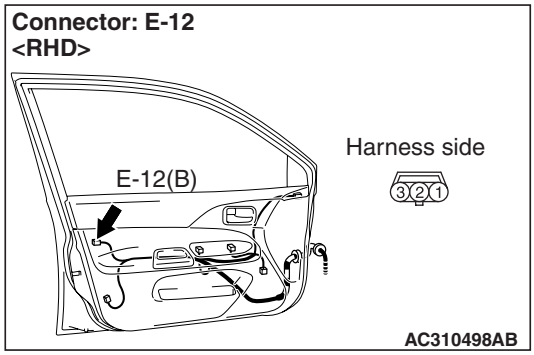
Step 2. Check the door lock key cylinder switch.

Refer to GROUP 42 – Door P.42-31.

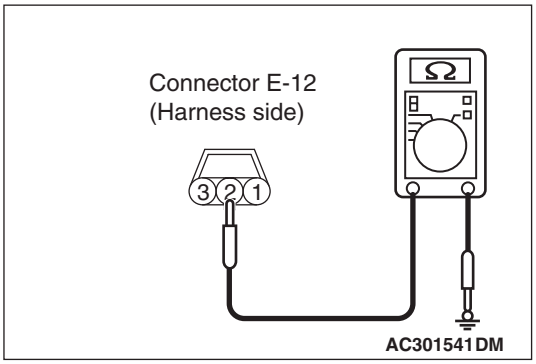
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the door lock key cylinder switch.

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.

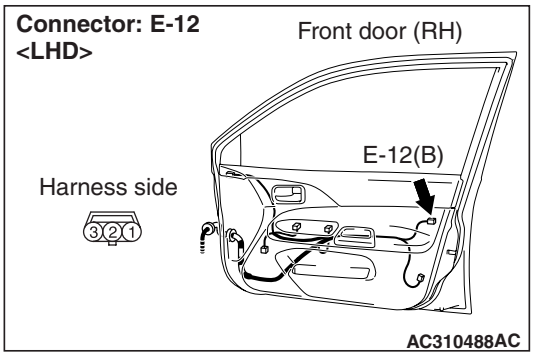


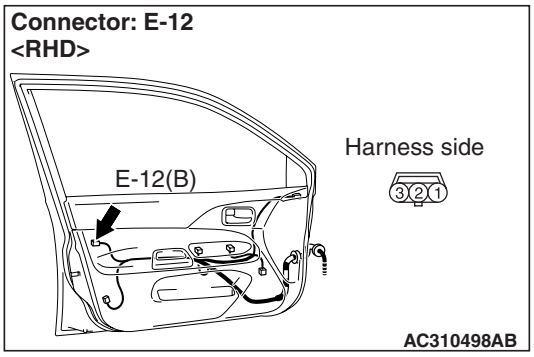
(2) Resistance between E-12 door lock key cylinder switch connector terminal No.2 and body earth

OK: 2 Ω or less

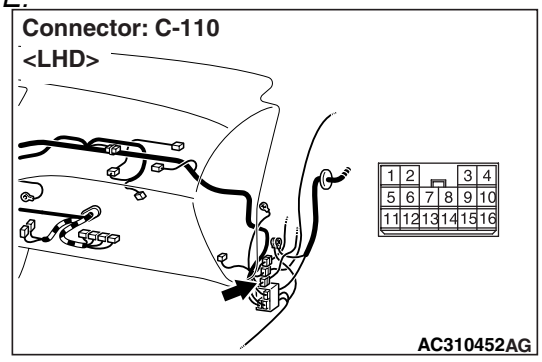
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

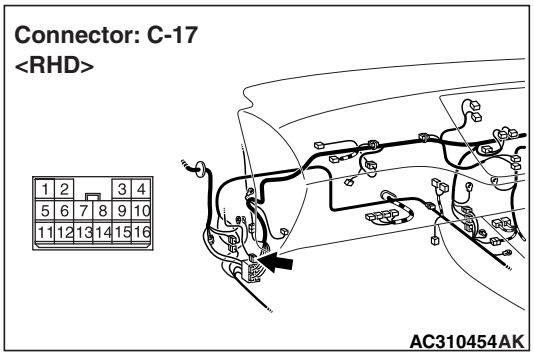
Step 4. Check the wiring harness between E-12 door lock key cylinder switch connector terminal No.2 and body earth.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-110 <LH drive vehicles> or C-17 <RH drive vehicles>, and repair if necessary.

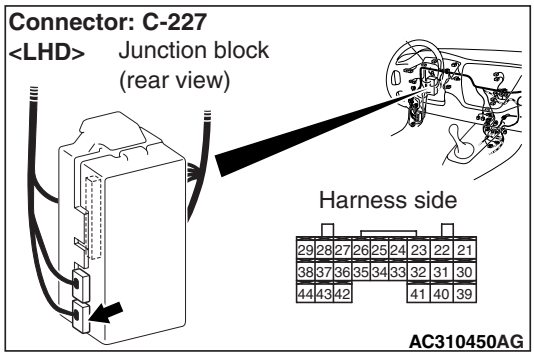
- Check the earth wires for open circuit.

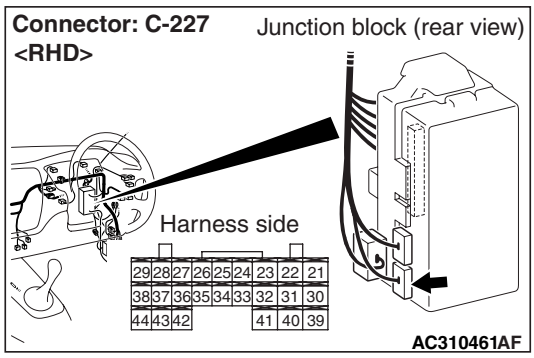
Q: Is the check result normal?

YES : Intermittent malfunction. (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).

NO : Repair the wiring harness.

Step 5. Connector check: C-227 ETACS-ECU connector



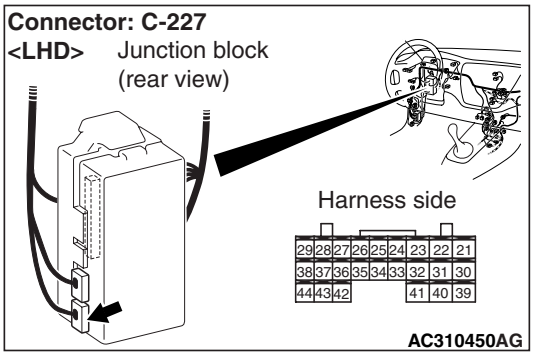


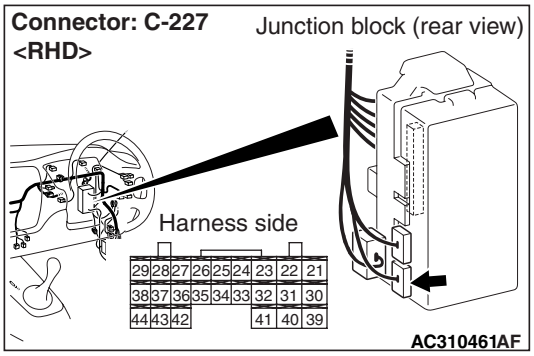
Q: Is the check result normal?

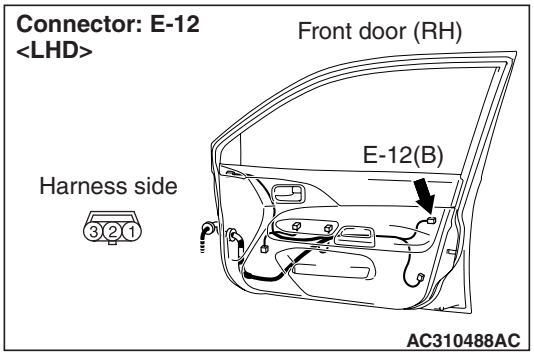
YES : Go to Step 6.

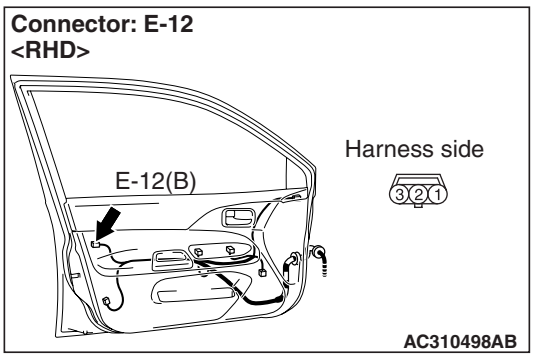
NO : Repair the defective connector.

Step 6. Check the wiring harness from E-12 door lock key cylinder switch connector terminal Nos.1 and 3 <LHD> or 3 and 1 <RHD> to C-227 ETACS-ECU connector terminal Nos.33 and 34.

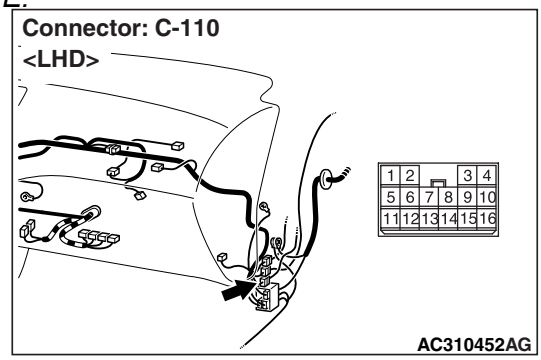


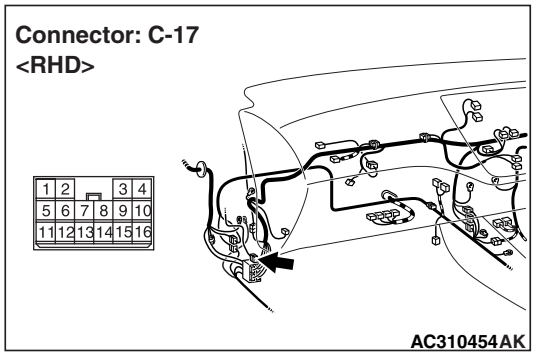






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-110 <LH drive vehicles> or C-17 <RH drive vehicles>, 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 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.

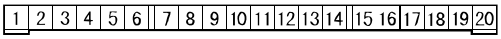
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-5).
NO : Replace the ETACS-ECU.

CHECK AT ECU TERMINAL

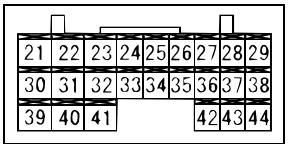
M1549001200823

ETACS-ECU

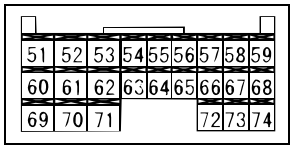
C-226



C-227



C-228



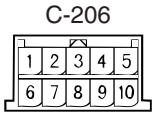
AC005554AI

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 item	Check condition	Normal condition
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 turn-signal lamps (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 to 17	–	–	–
18	Power supply from ignition switch (ACC)	Ignition switch: ACC	System voltage
19	–	–	–
20	Battery power supply (for ECU)	Always	System voltage
21	Input from rear fog lamp switch	Rear fog lamp switch: ON	0 V

Terminal No.	Check item	Check condition	Normal condition
22	Output to central door locking (for unlocking the driver's door)	When the door lock actuators unlock the doors	System voltage
23 to 28	–	–	–
29	Input of collision signal	–	–
30	Input to key reminder switch	Key reminder switch: ON (ignition key removed)	0 V
31 to 34	–	–	–
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 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 terminal 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	Output to door-ajar indicator lamp	When door-ajar indicator lamp is on	0 V
54	–	–	–
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	–	–	–
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	–	–	–
74	Output to rear fog lamp	When rear fog lamp is on	System voltage

COLUMN SWITCH



AC005555AG

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	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

FRONT-ECU



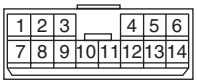
AC305097AB

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	–	–	–
2	Output to headlamp (high-beam)	When headlamps (high-beam) are on	System voltage
3, 4	Battery power supply (for headlamp)	Always	System voltage
5	Battery power supply (for tail lamp)	Always	System voltage
6	Output to headlamp (low-beam)	When headlamps (low-beam) are on	System voltage
7	Battery power supply (for ECU)	Always	System voltage
8	Output to tail lamps	When tail lamps are on	System voltage
9 to 11	–	–	–
21	Output to windshield washer	When windshield washer is on	System voltage
22	SWS communication line	Always	0 – 12 V (pulse signal)
23	Input of automatic stop signal to windshield wiper	When windshield wiper is on	System voltage
24	Power supply to ignition switch (ACC)	Ignition switch: "ACC"	System voltage
25	Input of backup signal from headlamp switch	Headlamp switch: ON	0 V
26	Input of backup signal to windshield wiper	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
27	Output to windshield wiper (low-speed)	When windshield wiper is on (at low speed)	System voltage
28	Output to windshield wiper (high-speed)	When windshield wiper is on (at high speed)	System voltage
29	–	–	–
30	Power supply to ignition switch (IG2)	Ignition switch: "ON"	System voltage
31	Earth	Always	0 V

POWER WINDOW MAIN SWITCH

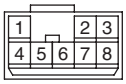
E-05



AC103264AG

Terminal No.	Check item	Check condition	Normal condition
1	Output to power window regulator motor	–	–
2	Earth	Always	0 V
3	–	–	–
4	SWS communication line (to ETACS-ECU)	Always	0 to 12 V (pulse signal)
5	–	–	–
6	Power supply	Power window relay: ON	System voltage
7	Output to power window regulator motor	–	–
8	Input from power window regulator motor (pulse sensor earth)	–	0 V
9	Input from power window regulator motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
10	Input from power window regulator motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
11	SWS communication line (power window sub switch)	Power window relay: ON	0 to 12 V (pulse signal)
12	Input from power window regulator motor (power supply to pulse sensor)	When the power windows are operating	5 V
13, 14	–	–	–

POWER WINDOW SUB SWITCH



E-14 (front), E-08 (rear: LH), E-17 (rear: RH)

AC103265AI

Terminal No.	Check item	Check condition	Normal condition
1	Earth	Always	0 V
2	Input from power window regulator motor	–	–
3	Input from power window regulator motor	–	–
4	Power supply	Power window relay: ON	System voltage
5	Output to power window regulator motor	–	–
6	SWS communication line	Power window relay: ON	0 to 12 V (pulse signal)
7	Output to power window regulator motor	–	–
8	Input from power window regulator motor	–	–

NOTES