GROUP 54C

SMART WIRING SYSTEM (SWS) USING SWS MONITOR

CONTENTS

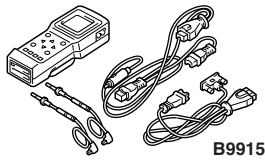
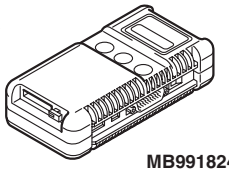
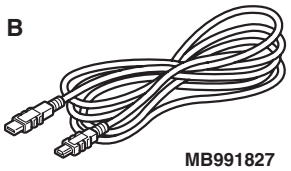
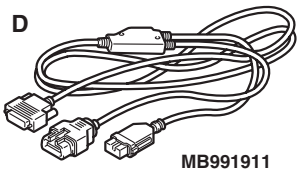
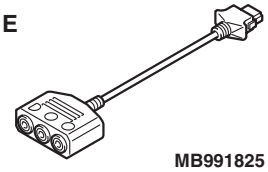
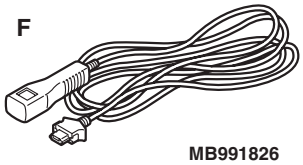
GENERAL INFORMATION

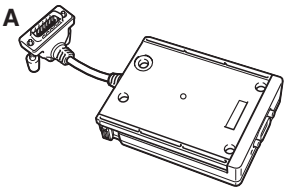
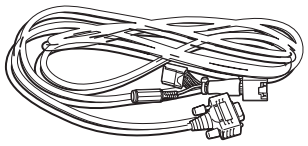
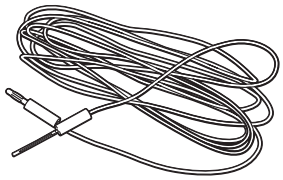
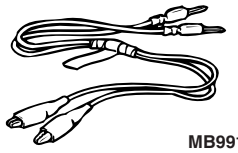
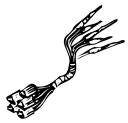
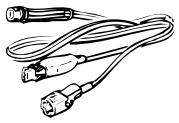
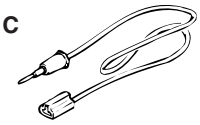
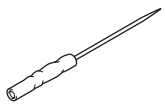
M1549000100760

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

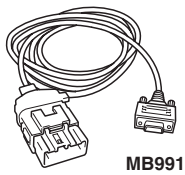
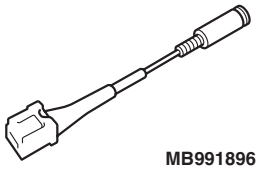
SPECIAL TOOLS

M1549000301358

Tool	Number	Name	Use
 B991502	MB991502	M.U.T.-II sub-assembly	Check the SWS (The M.U.T.-II displays diagnosis codes and pulse check)
A  MB991824 B  MB991827 C  DO NOT USE MB991910 D  MB991911 E  MB991825 F  MB991826 MB991955	MB991955 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991825 F: MB991826	M.U.T.-III sub-assembly A: Vehicle communication interface (V. C. I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (Vehicles with CAN communication system) D: M.U.T.-III main harness B (Vehicles without CAN communication system) E: M.U.T.-III 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  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Test 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

SPECIAL TOOLS

Tool	Number	Name	Use
 MB991854	MB991854	SWS monitor harness (for 13-pin connector)	SWS communication line check (ECU check and service data)
 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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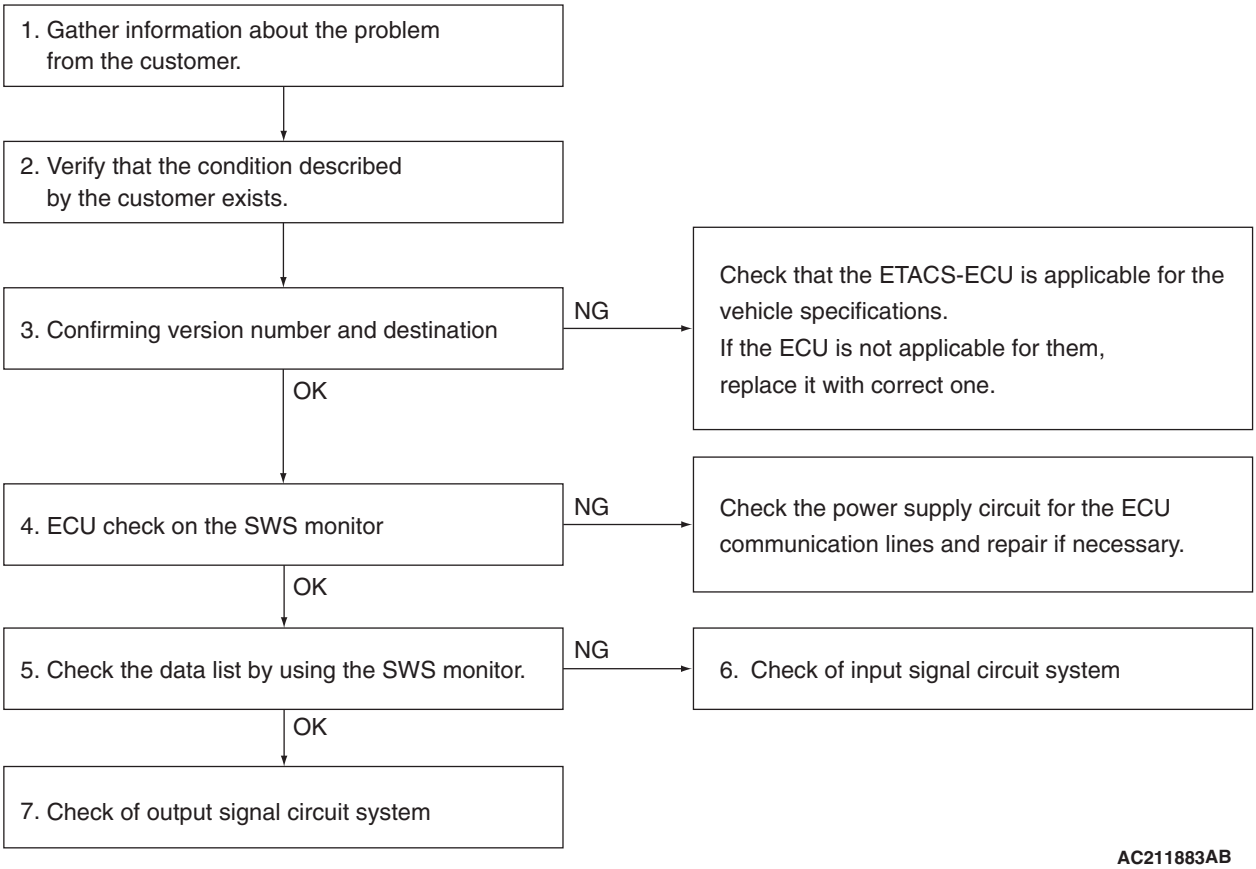

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1. Gather information about the problem from the customer.
2. Verify that the condition described by the customer exists.

   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 by using 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. SWS monitor data list

   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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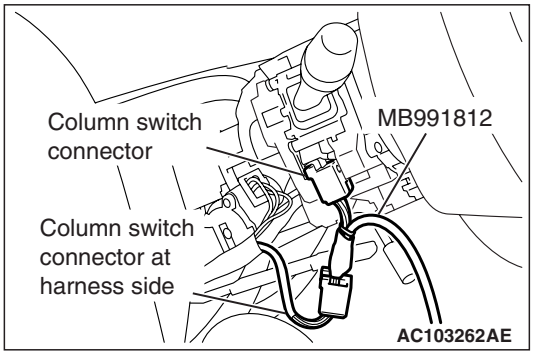
⚠ CAUTION

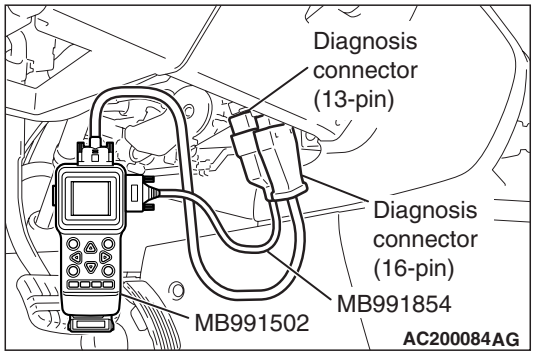
Always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting the SWS monitor and the M.U.T.-II/III.

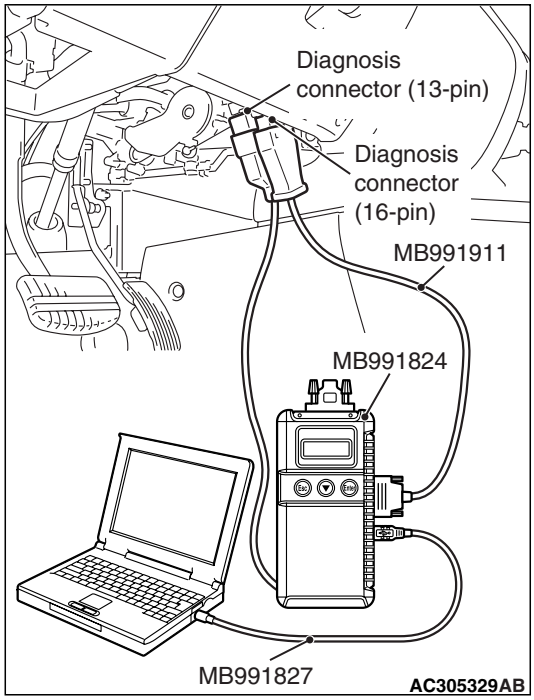
HOW TO CONNECT THE SWS COMMUNICATION LINE <SPECIAL TOOL SWS MONITOR HARNESS (FOR COLUMN-ECU) MB991812>



1. Remove the steering column cover.
2. Remove the steering column switch connector.
3. Connect special tool SWS monitor harness (for column-ECU) MB991812.

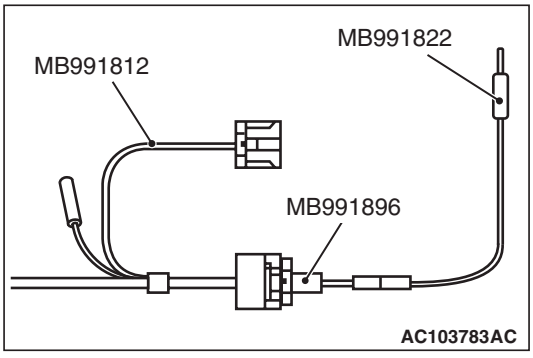
HOW TO CONNECT THE SWS COMMUNICATION LINE <SPECIAL TOOL SWS MONITOR HARNESS (FOR 13-PIN CONNECTOR) MB991854>





Connect special tool SWS monitor harness (for 13-pin connector) to the diagnosis connector (13-pin connector) MB991854.

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.

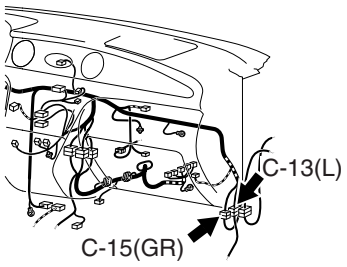
   NOTE: For the connectors and their terminal numbers on the door communication line for the probe to insert, refer to the reference table.

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

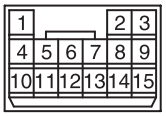
Insert the probe of the probe harness to each female connector terminal on the door communication line by backprobing.

Connector name		Connector number	Terminal No.
Intermediate connector	Instrument panel wiring harness and floor wiring harness (RH) combination	C-13 (Floor wiring harness (RH) side)	4
	Instrument panel wiring harness and front door wiring harness (RH) combination	C-15 (Front door wiring harness (RH) side)	17
	Instrument panel wiring harness and floor wiring harness (LH) combination	C-117 (Instrument panel wiring harness side)	10
	Instrument panel wiring harness and front door wiring harness (LH) combination	C-118 (Front door wiring harness (LH) side)	26
	Floor wiring harness (RH) and rear door wiring harness (RH) combination	D-02 (Floor wiring harness (RH) side)	7
	Floor wiring harness (LH) and rear door wiring harness (LH) combination	D-26 (Floor wiring harness (LH) side)	7
	Rear door wiring harness (LH) and rear door sub wiring harness (LH) combination	E-09 (Rear door wiring harness (LH) side)	6
	Front door wiring harness (RH) and front door sub wiring harness (RH) combination	E-24 (Front door wiring harness (RH) side)	6
	Rear door wiring harness (RH) and rear door sub wiring harness (RH) combination	E-27 (Rear door wiring harness (RH) side)	6
Power window main switch		E-05	11
Power window sub switch (front: RH)		E-17	6
Power window sub switch (rear: RH)		E-21	6
Power window sub switch (rear: LH)		E-01	6

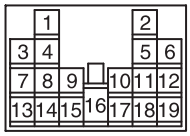
Connectors: C-13, C-15



C-13

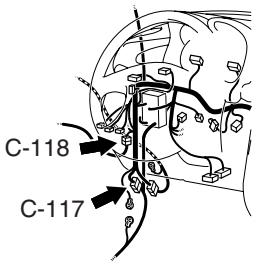


C-15

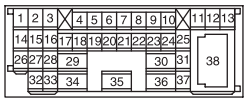


AC401023AV

Connector: C-117, C-118



C-117



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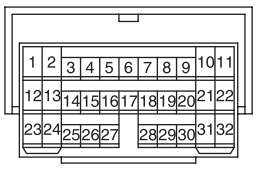
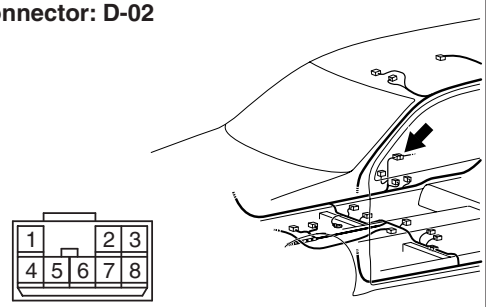


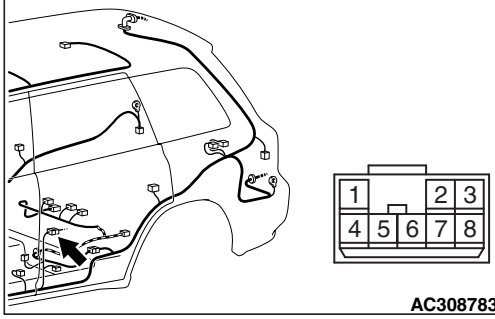
AC401021AH

Connector: D-02



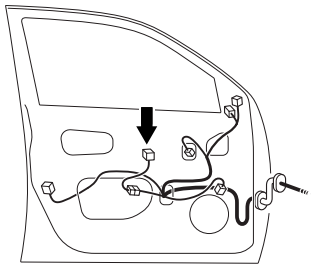
AC308781AI

Connector: D-26

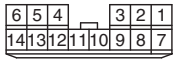


AC308783AI

Connector: E-05

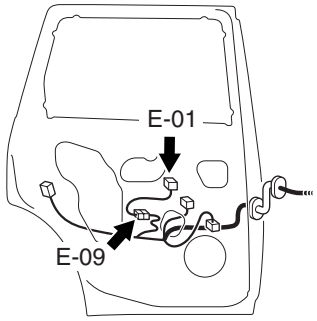


Harness side

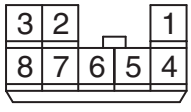


AC308791AF

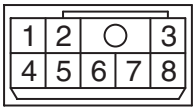
Connectors: E-01, E-09



Harness side
E-01

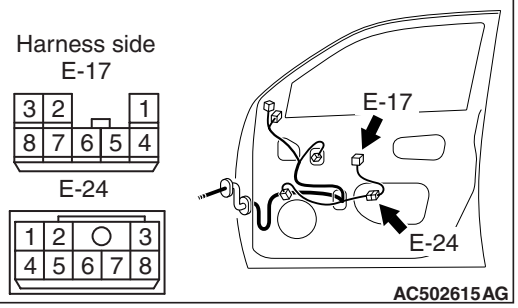


E-09

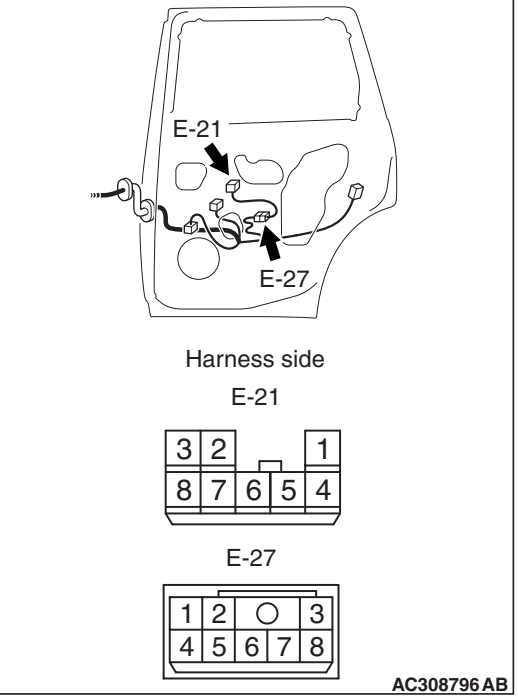


AC308790AD

Connectors: E-17, E-24



Connectors: E-21, E-27



ECU CHECK

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

NOTE: If a malfunction is found by the "ECU CHECK", proceed "Symptom Procedure" (Refer to P.54C-21).

SWS MONITOR-COMPATIBLE ECUS AND THEIR CONDITIONS

Item No.	ECUs to be checked	Display on M.U.T.-II/III	Normal condition	ECU conditions
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

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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 itch: OFF	OFF
02	Dimmer switch	DIMMER SW	Dimmer switch: ON	ON
			Dimmer switch: OFF	OFF
03	Passing lamp switch	PASSING SW	Passing lamp which: ON	ON
			Passing lamp which: OFF	OFF
05	Windshield intermittent wiper switch	INT WIPER SW	Wiper switch: INT	ON
			Wiper switch: Other than INT	OFF
06	Windshield low-speed wiper switch	LO WIPER SW	Wiper switch: LO	ON
			Wiper switch: Other than LO	OFF
07	Windshield high-speed wiper switch	HI WIPER SW	Wiper switch: HI	ON
			Wiper switch: Other than HI	OFF
08	Wind shield mist wiper switch	MIST WIPER SW	Wiper switch: Mist	ON
			Wiper switch: Other than mist	OFF
09	Windshield washer switch	FRONT WASH. SW	Windshield washer switch: ON	ON
			Windshield washer switch: OFF	OFF
10	Turn-signal lamp switch (RH)	TURN SIG. RH	Turn-signal lamp switch: RH	ON
			Turn-signal lamp switch: Other than RH	OFF
11	Turn-signal lamp switch (LH)	TURN SIG. LH	Turn-signal lamp switch: LH	ON
			Turn-signal lamp switch: Other than LH	OFF
13	Rear wiper switch	REAR WIPER SW	Rear wiper switch: INT	ON
			Rear wiper switch: Other than INT	OFF
14	Rear washer switch	REAR WASH. SW	Rear wiper switch: Washer	ON
			Rear wiper switch: Other than washer	OFF
15	With or without windshield intermittent wiper control	INT WIP KNOB	Vehicles with intermittent wiper control	EQUIP
			Vehicles without intermittent wiper control	NONE
16	Headlamp washer switch	HD WASHER SW	Headlamp washer switch: ON	ON
			Headlamp washer switch: OFF	OFF

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
36	Request of fog lamp illumination	F.FOG LAMP	1. Lighting switch: "TAIL" or "HEAD" 2. Fog lamp switch: ON	ON
			Other than the conditions above	OFF
37	Windshield intermittent wiper interval	INT WIPE TIME	1. Ignition switch: ACC or ON 2. Operate the intermittent wiper control, and change the wiper interval	The M.U.T.-II/III displays intermittent wiper interval in response to the intermittent wiper control positions
41	Back-up lamp switch	INHIBITOR SW	Back-up lamp switch <M/T> or inhibitor switch <A/T>: ON	ON
			Back-up lamp switch <M/T> or inhibitor switch <A/T>: 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 response	lighting switch: Other than OFF (excluding when high-beam is on) or the wiper switch is at position other than OFF	Normal response
			• Ignition switch: ON or START • Lighting switch: OFF • lightingr switch: OFF	SLEEP RESPONSE
			• Lamping switch: HEAD • Headlamps: at high beam	HI BEAM RESPONSE
			–	No response

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

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 multimode 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

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
HD WASHER	Headlamp washer switch	16	HD WASHER SW	ON
	Ignition switch (ACC)	31	IG SW(ACC)	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

REAR WIPER

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

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

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
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
PASSING LAMP	Passing lamp switch	03	PASSING SW	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK
F.FOG LAMP	Headlamp switch	00	HEADLAMP SW	Either of items is ON
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IG SW(IG1)	ON
	Headlamp automatic-shutdown function	35	HD AUTO-CUT	OFF
	Request of fog lamp illumination	36	F.FOG LAMP	ON
	Response by the front-ECU	70	FRONT ECU ACK	NORMAL ACK

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

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

BUZZER

Item	Input signal	Item No.	Display on M.U.T.-II/III	Normal condition
Lamping monitor buzzer	Headlamp switch	00	HEADLAMP SW	Either is on
	Tail lamp switch	01	TAIL LAMP SW	
	Ignition switch (IG1)	30	IGNITION SW IG1	OFF
	Driver's door switch	32	DRIVER DOOR SW	ON
	Headlamp automatic-shutdown function	35	HD LAMP AUTOCUT	OFF
	Buzzer	43	Buzzer	ON

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

PULSE CHECK

M1549015100625

⚠ 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.
Front fog lamp switch		
Rear fog lamp switch		
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.22.

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

M1549017800211

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 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/III drive recorder function, refer to M.U.T.-II reference manual or M.U.T.-III User's Manual.

TROUBLE SYMPTOM CHART

M1549000802550

Symptom	Inspection procedure number	Reference page
Communication with the SWS monitor is not possible.	A-1	P.54C-27
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-35
Communication with the front-ECU is not possible.	A-4	P.54C-40
Communication with the power window main switch (power window module) is not possible.	A-5	P.54C-44

<FUNCTION SYSTEM>

Symptom		Inspection procedure number	Reference page
Alarm Function	Lamp reminder buzzer function does not work normally.	B-1	P.54C-52
Central door locking	Central door locking system does not work.	C-1	P.54C-54
	A door or a tailgate can not be locked or unlocked by the central door locking system.	C-2	P.54C-57
	The Ignition Key Reminder Function does not Work Normally.	C-3	P.54C-63
	The impact detection door unlock function does not function.	C-4	P.54C-65
Power window	Power windows do not work at all.	D-1	P.54C-68
	Driver's power window does not work by means of the power window main switch.	D-2	P.54C-70
	Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.	D-3	P.54C-72
	Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	D-4	P.54C-84
	The window glass lowers automatically while it is rising.	D-5	P.54C-93
	Power window anti-trap function does not work normally.	D-6	P.54C-94

Symptom		Inspection procedure number	Reference page
Keyless entry system	Keyless entry system does not work.	E-1	P.54C-102
	Keyless entry hazard lamp answerback function or the room lamp answerback function does not work normally.	E-2	P.54C-104
	Encrypted code cannot be registered.	E-3	P.54C-105
	The timer lock function does not work after the doors have been unlocked by the keyless entry system.	E-4	P.54C-106
Windshield wiper and washer	The windshield wipers do not work at all.	F-1	P.54C-107
	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-112
	The windshield wipers do not stop at the specified park position.	F-3	P.54C-113
	The windshield wipers do not work normally.	F-4	P.54C-117
	The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control.	F-5	P.54C-120
	The intermittent wiper interval is not changed according to the vehicle speed.	F-6	P.54C-121
	The windshield washer does not work.	F-7	P.54C-122
Rear wiper and washer	The rear wiper does not work at all.	G-1	P.54C-126
	The rear wiper does not stop at the specified park position.	G-2	P.54C-130
	When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.	G-3	P.54C-134
	The rear washer does not work.	G-4	P.54C-135
Headlamp washer	The headlamp washer does not work.	H-1	P.54C-138
Ignition key cylinder illumination lamp	The ignition key cylinder illumination lamp does not illuminate/extinguish normally.	I-1	P.54C-142

Symptom		Inspection procedure number	Reference page
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.	J-1	P.54C-145
	The tail lamps do not illuminate normally.	J-2	P.54C-146
	The low-beam headlamps do not illuminate normally.	J-3	P.54C-148
	The high-beam headlamps do not illuminate normally.	J-4	P.54C-151
	The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.	J-5	P.54C-153
	The headlamp automatic-shutdown function does not work normally.	J-6	P.54C-154
	Any of tail lamps, position lamps or licence plate lamp does not illuminate.	J-7	P.54C-156
	The headlamp(s) do not illuminate. <Including high-beam indicator>	J-8	P.54C-163
	Daytime running lamp function does not work normally. <Vehicles with Daytime running lamp function>	J-9	P.54C-169
Flasher timer	The turn-signal lamps do not illuminate.	K-1	P.54C-172
	The hazard warning lamps do not illuminate.	K-2	P.54C-175
	Any of the turn-signal lamps does not illuminate.	K-3	P.54C-177
Fog lamp	The front fog lamps do not illuminate normally.	L-1	P.54C-186
	The rear fog lamps do not illuminate normally.	L-2	P.54C-190
	Any of the front fog lamps does not illuminate.	L-3	P.54C-195
	Any of the rear fog lamps does not illuminate.	L-4	P.54C-200

Symptom		Inspection procedure number	Reference page
Interior lamp	The front or rear room lamp does not illuminate or extinguish normally. <Vehicles without keyless entry system>	M-1	P.54C-205
	The front and rear room lamp does not illuminate or extinguish normally. <Vehicles with keyless entry system>	M-2	P.54C-209
	Interior lamp automatic shutoff function does not work normally. <Vehicles with keyless entry system>	M-3	P.54C-213
	The door-ajar warning lamp does not illuminate/extinguish normally.	M-4	P.54C-215

CHECK TROUBLE BY USING THE INPUT SIGNAL CHECK

M1549024201162

<PULSE CHECK>

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

Symptom		Inspection procedure number	Reference page
The ignition switch (ACC) signal is not received.		N-1	P.54C-218
The ignition switch (IG1) signal is not received.		N-2	P.54C-220
The back-up lamp switch signal is not received. <M/T>		N-3	P.54C-222
The inhibitor switch (reverse position) signal is not received. <A/T>.			P.54C-227
The front door switch (LH) signal is not received.		N-4	P.54C-231
Column switch (lighting and turn-signal lamp switch)	The tail lamp switch signal is not received.	N-5	P.54C-233
	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.		

Symptom		Inspection procedure number	Reference page
Column switch (windshield wiper/washer and rear wiper washer switch)	The windshield mist wiper switch signal is not received.	N-6	P.54C-235
	The windshield intermittent wiper switch signal is not received.		
	The windshield low-speed wiper switch signal is not received.		
	The windshield high-speed wiper switch signal is not received.		
	The windshield washer switch signal is not received.		
	The rear wiper switch signal is not received.		
	The rear washer switch signal is not received.		
	The windshield intermittent wiper volume signal is not received.	N-7	P.54C-237
Power window main switch	When the power window main switch is operated, the switch signals are not received.	N-8	P.54C-239
The front fog lamp switch signal is not received.		N-9	P.54C-247
The rear fog lamp switch signal is not received.		N-10	P.54C-244
The key reminder switch signal is not received.		N-11	P.54C-249
The hazard warning lamp switch signal is not received.		N-12	P.54C-252
All the door switch signals are not received.		N-13	P.54C-255
The driver's door lock actuator switch signal is not received.		N-14	P.54C-260
The vehicle speed signal is not received. <M/T>		N-15	P.54C-264
The vehicle speed signal is not received. <A/T>			P.54C-268
Each switch signal of the keyless entry transmitter is not received.		N-16	P.54C-271
The interior lamp loaded signal is not detected.		N-17	P.54C-272

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

M1549020300528

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).

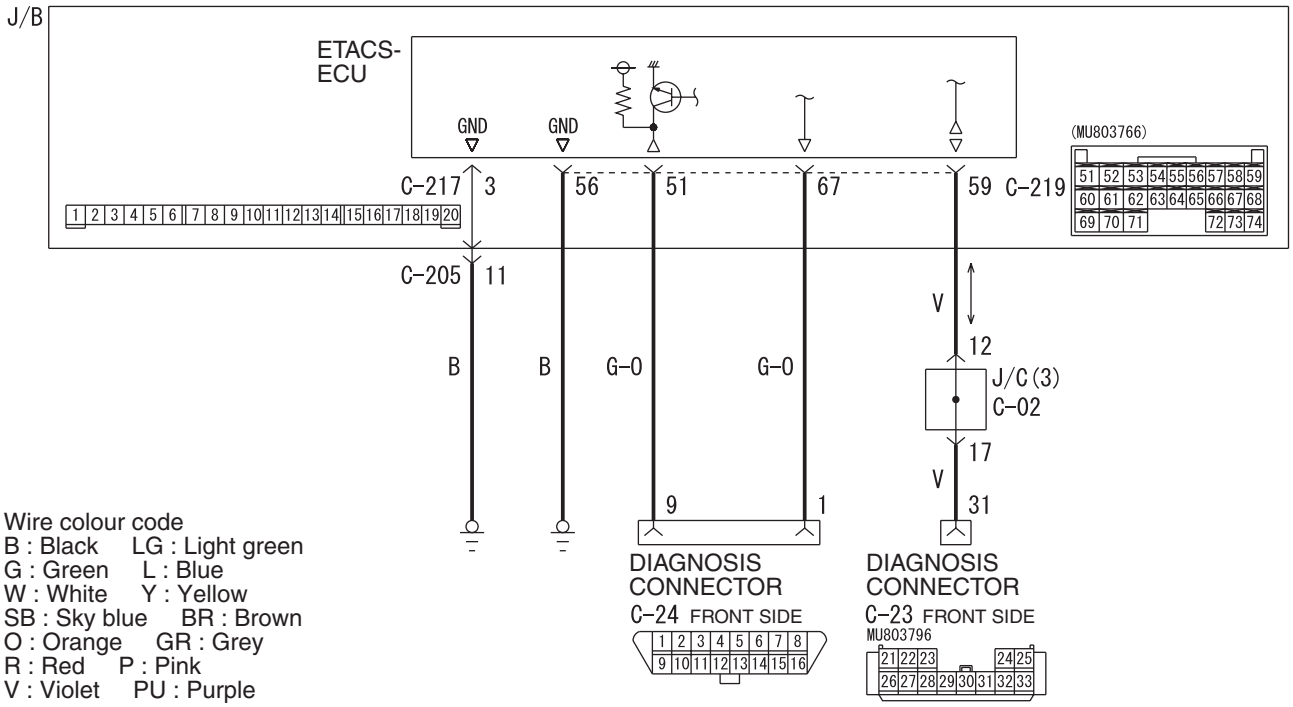
Function	N-1	N-2	N-4	N-5	N-6	N-11	N-13	N-14	N-15	N-17
Lamp reminder function	–	×	×	×	–	–	–	–	–	–
Control of central door locking	–	–	–	–	–	–	–	×	–	–
Key reminder function	–	–	×	–	–	×	–	×	–	–
Door locking released due to impact detection.	–	–	–	–	–	–	–	–	–	–
Keyless entry system	–	–	×	–	–	×	×	×	–	–
Keyless entry hazard warning lamp answerback	–	–	–	–	–	–	–	–	–	–
Power window control	–	×	–	–	–	–	–	–	–	–
Control of windshield wiper washer	×	–	–	–	×	–	–	–	×	–
Rear wiper washer control	×	–	–	–	×	–	–	–	–	–
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 and ETACS-ECU Earth Circuit



W6Z54E002A

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-182 <4G63-Non-Turbo>, GROUP 13B – Troubleshooting P.13B-252 <4G63-Turbo> or GROUP 13C – Troubleshooting P.13C-282 <4G69>.

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

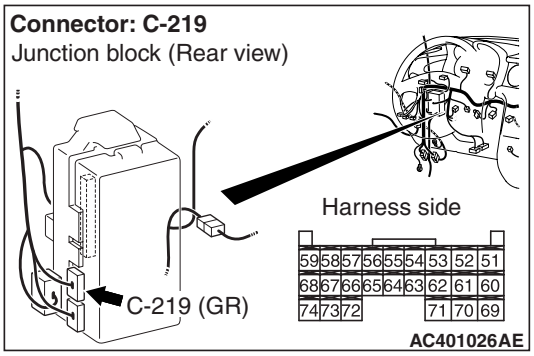
When the ignition switch is turned ON, check if the M.U.T.-II/III can communicate with the system.

Q: Is the check result normal?

YES : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."

NO : Go to Step 3.

Step 3. Connector check: C-219 ETACS-ECU connector

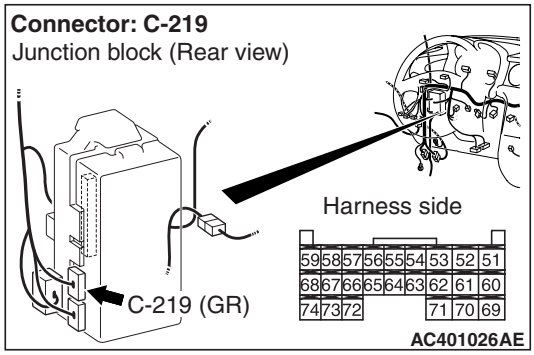


Q: Is the check result normal?

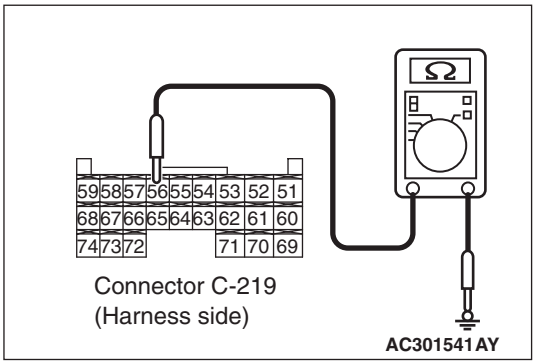
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Resistance measurement at the C-219 ETACS-ECU connector.



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



(2) Resistance between C-219 ETACS-ECU connector terminal No.56 and body earth

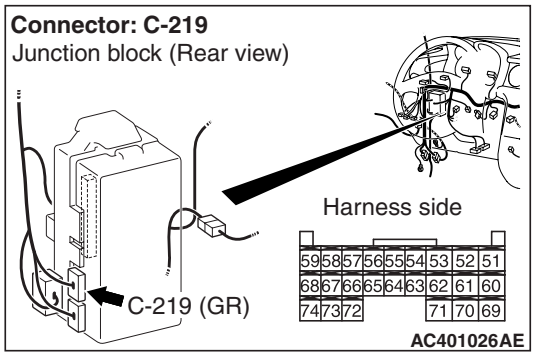
OK: Continuity (less than 2 Ω)

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

Step 5. Check the wiring harness between C-219 ETACS-ECU connector terminal No.56 and body earth.



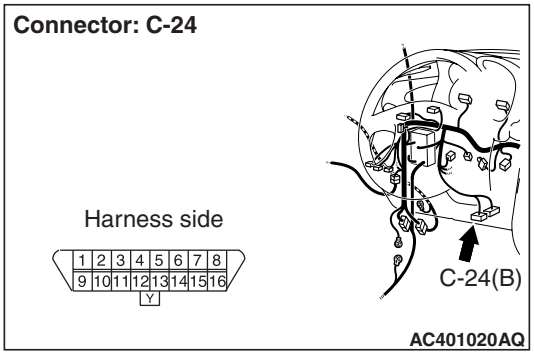
- Check the earth wires for open circuit.

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.00-6).

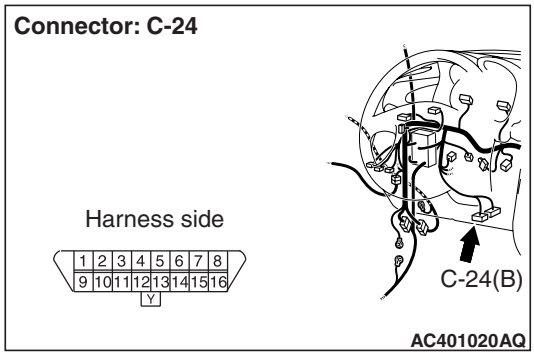
NO : Repair the wiring harness.

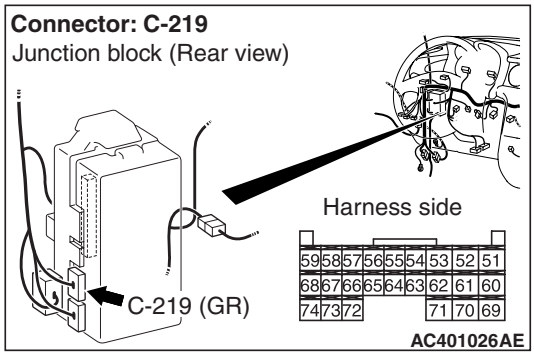
Step 6. Connector check: C-24 diagnosis connector



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

Step 7. Check the wiring harness from C-219 ETACS-ECU connector terminal Nos. 51 and 67 to C-24 diagnosis connector terminal Nos. 9 and 1.





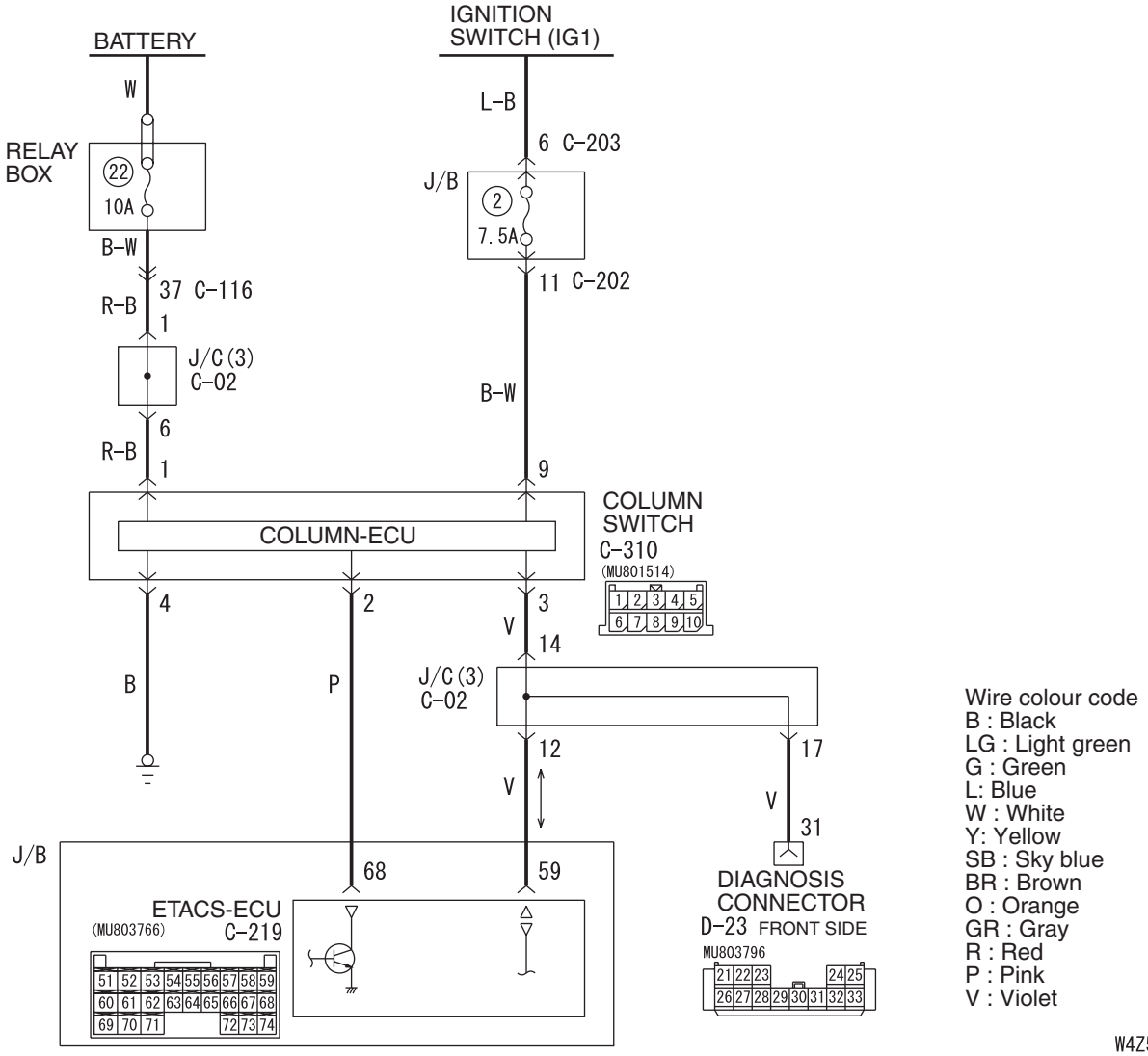
- Check the communication lines for open circuit.

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



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

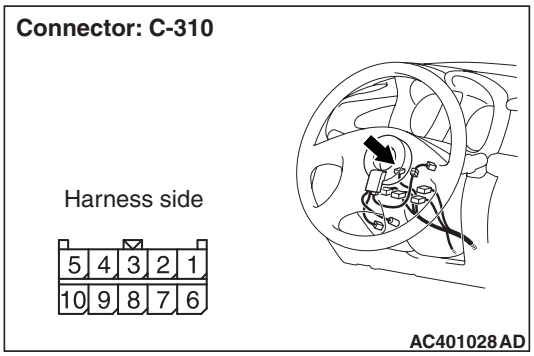
OK: "OK" is displayed on the "ETACS ECU" menu.

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-35."

Step 2. Connector check: C-310 column switch connector

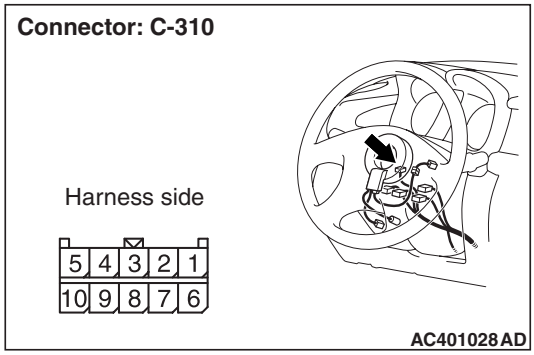


Q: Is the check result normal?

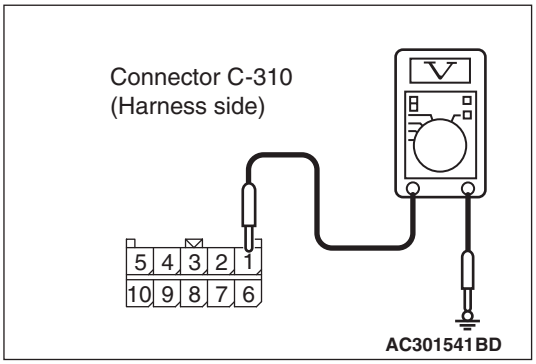
YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Voltage measurement at C-310 column switch connector.



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



(2) Voltage between C-310 column switch connector No.1 and body earth

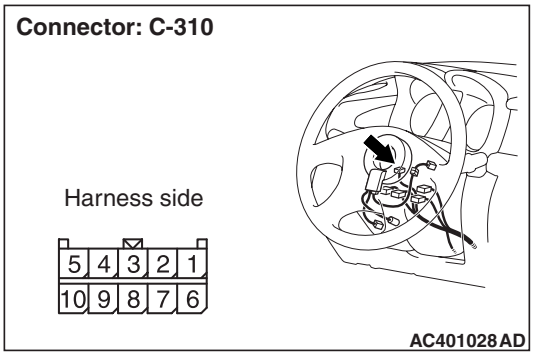
OK: System voltage

Q: Is the check result normal?

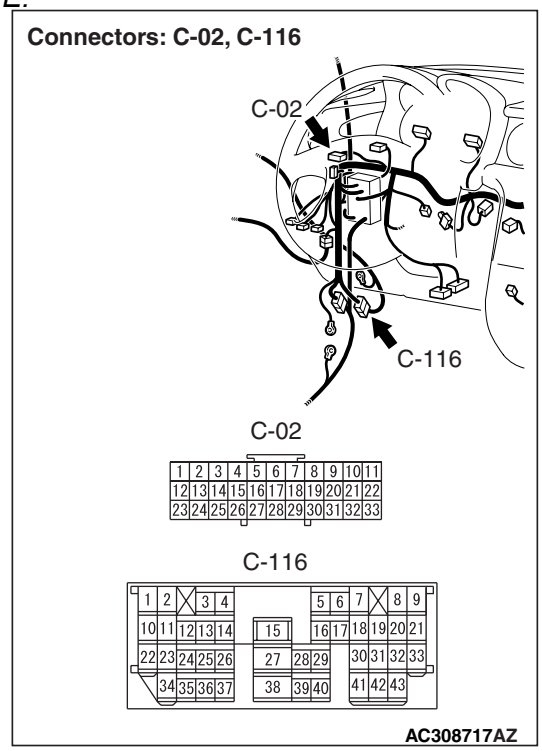
YES : Go to Step 5.

NO : Go to Step 4.

Step 4. Check the wiring harness between C-310 column switch connector terminal No.1 and battery.



NOTE:



Prior to the wiring harness inspection, check intermediate connectors C-116 and joint connector C-02, and repair if necessary.

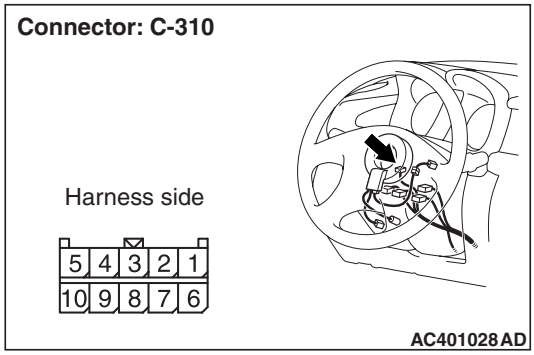
- Check the power supply line for open circuit.

Q: Is the check result normal?

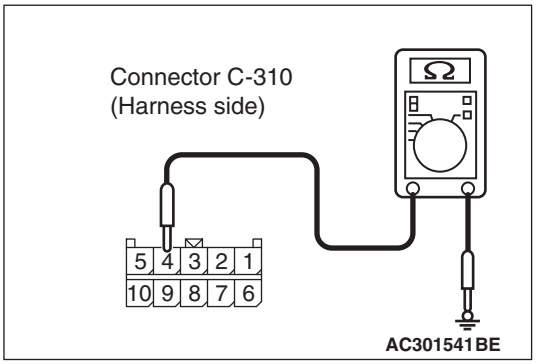
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

Step 5. Resistance measurement at C-310 column switch connector.



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



(2) Continuity between C-310 column switch connector No.4 and body earth

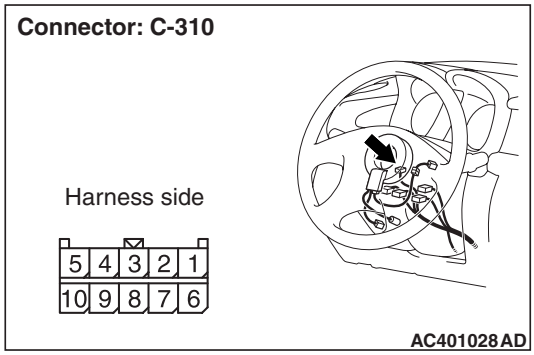
OK: Continuity (less than 2 Ω)

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

Step 6. Check the wiring harness between C-310 column switch connector No.4 and body earth



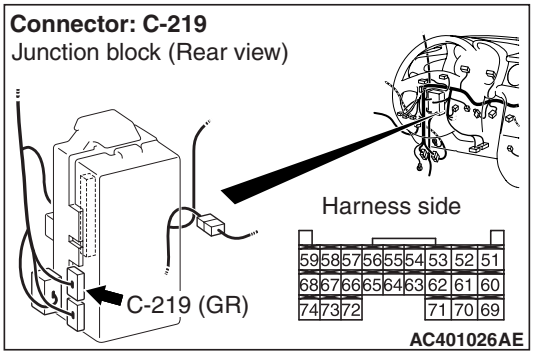
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

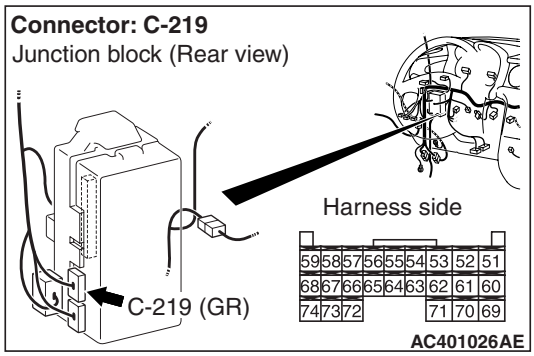
NO : Repair the wiring harness.

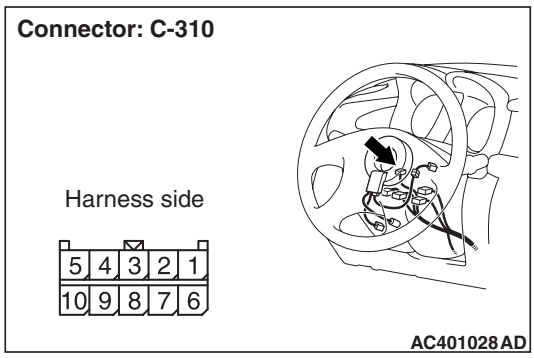
Step 7. Connector check: C-219 ETACS-ECU connector



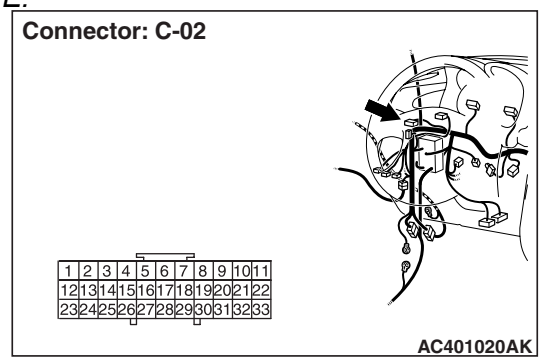
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

Step 8. Check the wiring harness from C-219 ETACS-ECU connector terminal Nos. 59 and 68 to C-310 column switch connector terminal Nos. 3 and 2.





NOTE:



Prior to the wiring harness inspection, check joint connector C-02, 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?

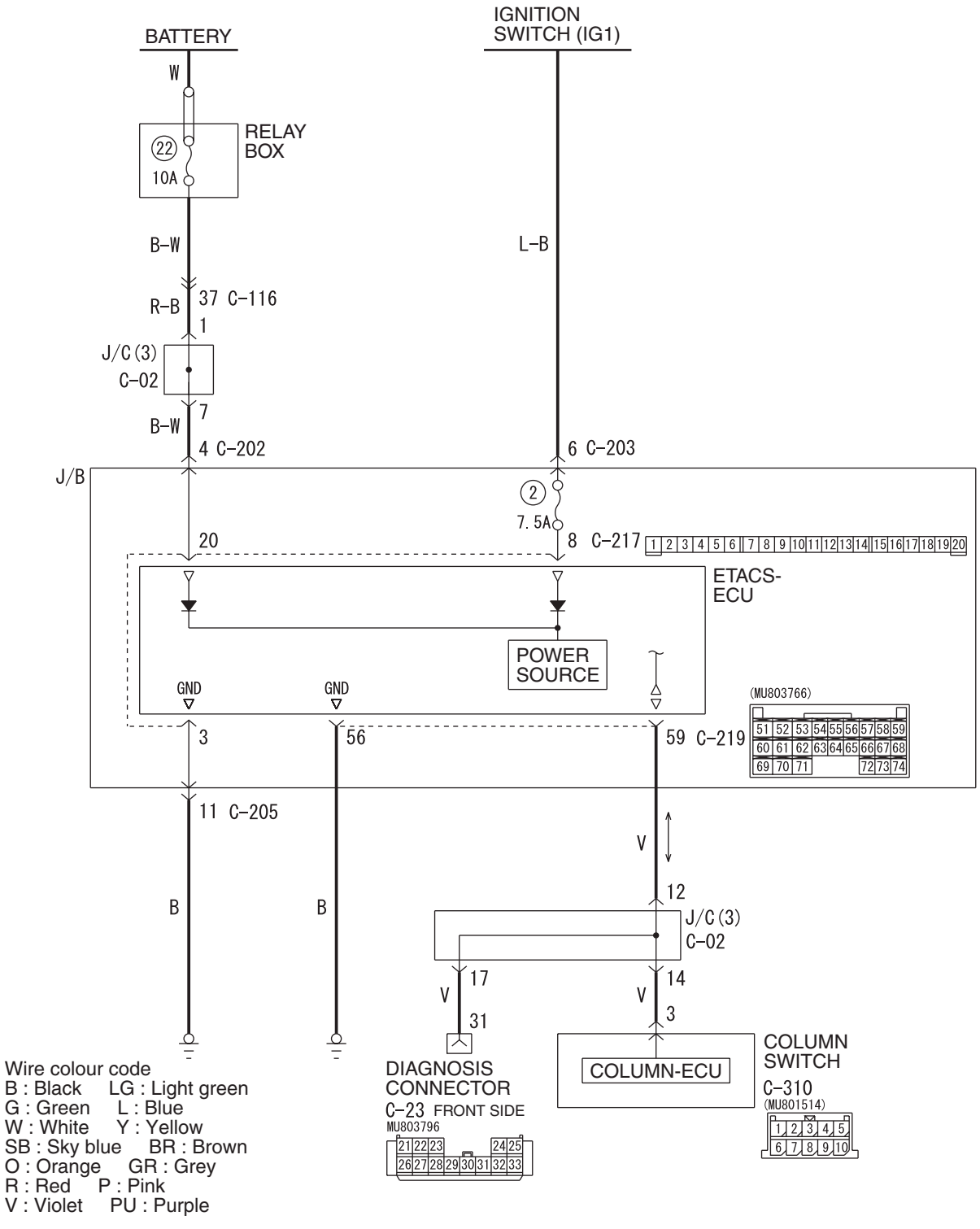
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

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



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COMMENTS ON TROUBLE SYMPTOM

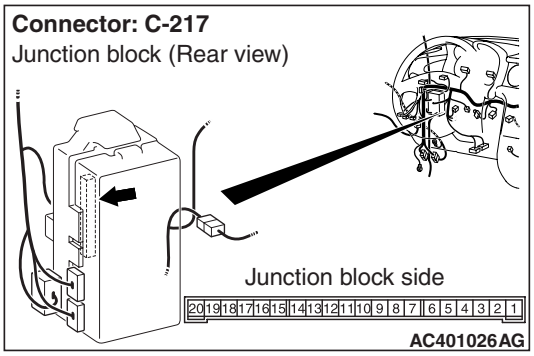
It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the SWS monitor and the ETACS-ECU or their connector(s) is damaged. If the battery power supply circuit to the ECU (terminal No.20 of the ETACS-ECU) is damaged, also check the power supply circuit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

TROUBLESHOOTING HINTS

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

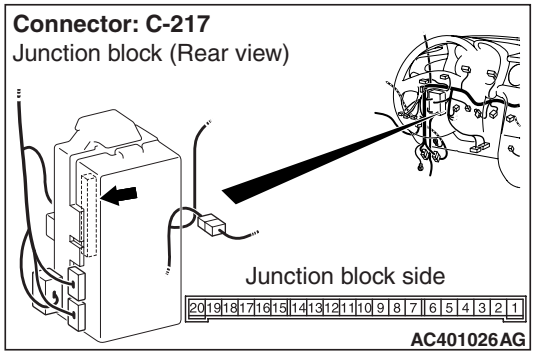
DIAGNOSIS PROCEDURE

Step 1. Connector check: C-217 ETACS-ECU connector

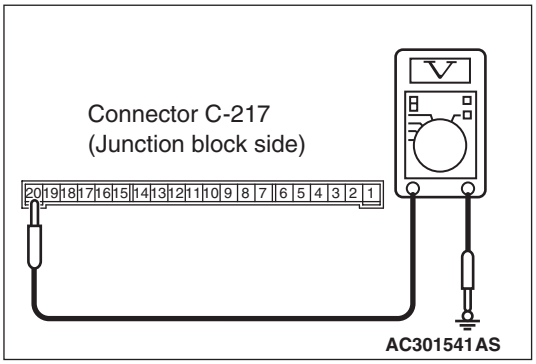


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-217 ETACS-ECU connector.



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

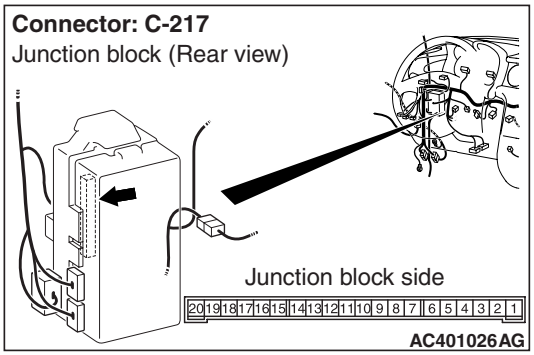


(2) Voltage between C-217 ETACS-ECU connector terminal No.20 and body earth

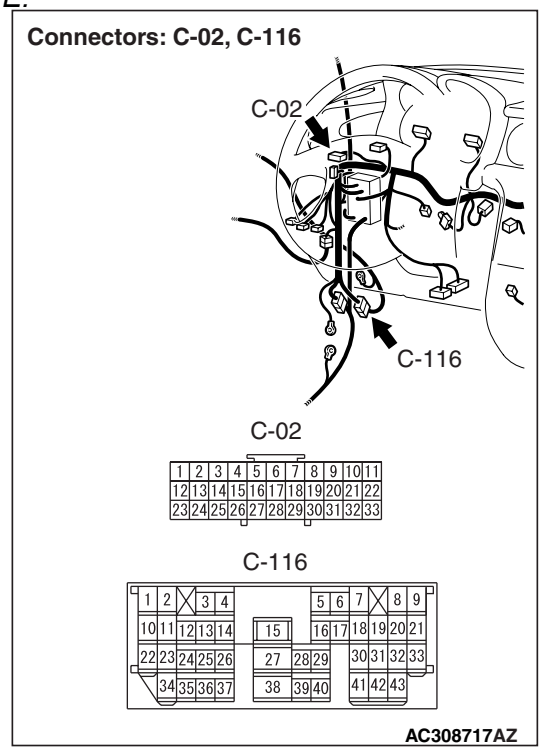
OK: System voltage

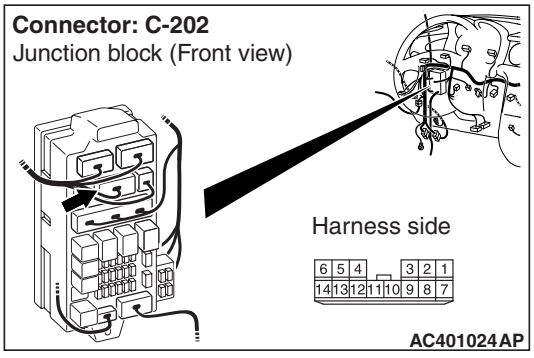
Q: Is the check result normal?
YES : Go to Step 4.
NO : Go to Step 3.

Step 3. Check the wiring harness between C-217 ETACS-ECU connector terminal No.20 and battery.



NOTE:



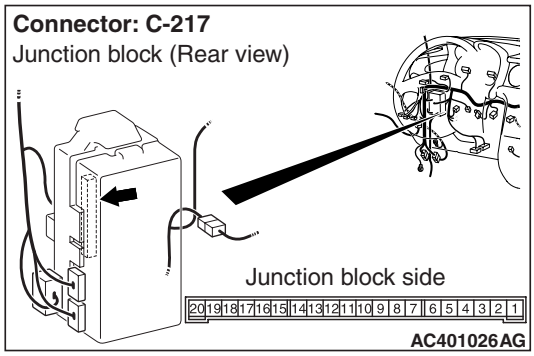


Prior to the wiring harness inspection, check intermediate connector C-116 and joint connector C-02 and junction block connector C-202, and repair if necessary.

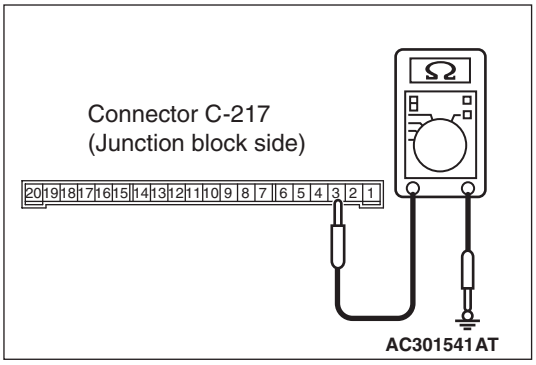
- Check the power supply line for open circuit.

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.00-6).
NO : Repair the wiring harness.

Step 4. Resistance measurement at the C-217 ETACS-ECU connector.



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

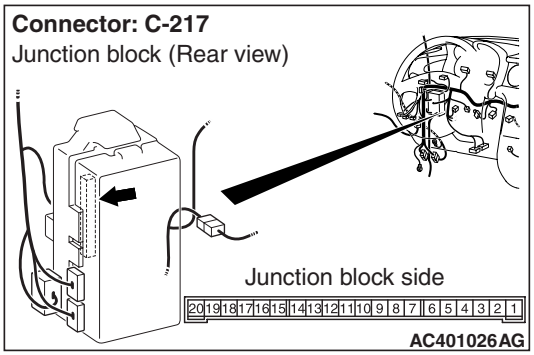


(2) Resistance between C-217 ETACS-ECU connector terminal No.3 and body earth

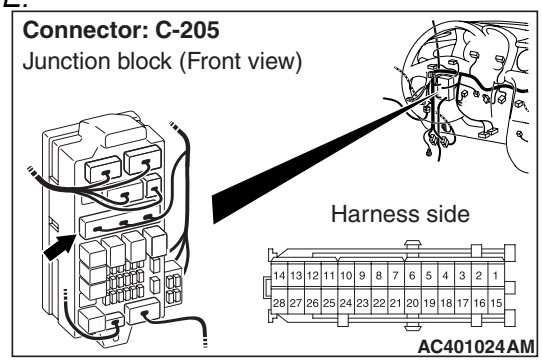
OK: Continuity (less than 2 Ω)

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

Step 5. Check the wiring harness between C-217 ETACS-ECU connector terminal No.3 and body earth.



NOTE:



Prior to the wiring harness inspection, check junction block connector C-205, and repair if necessary.

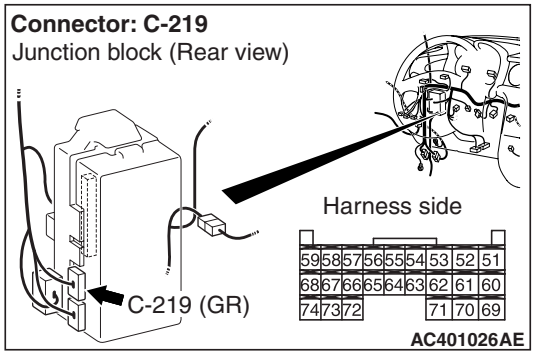
- Check the earth wires for open circuit.

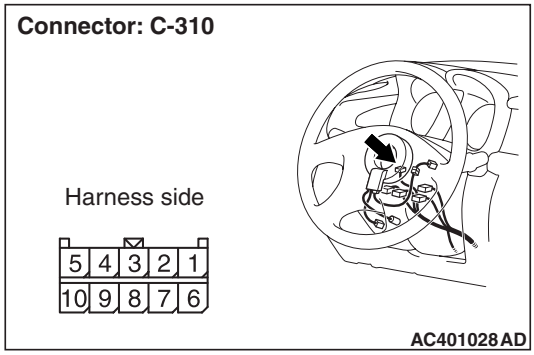
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

Step 6. Connector check: C-219 ETACS-ECU connector and C-310 column switch connector



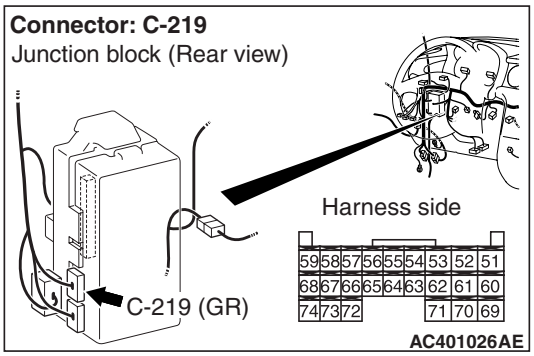


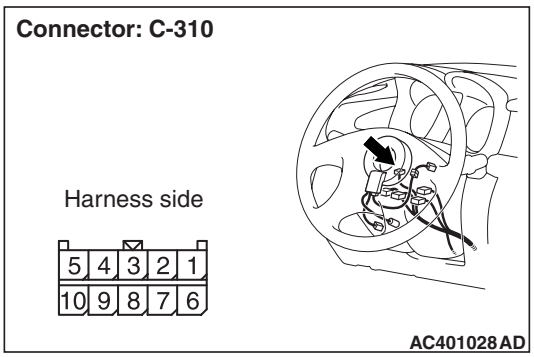
Q: Is the check result normal?

YES : Go to Step 7.

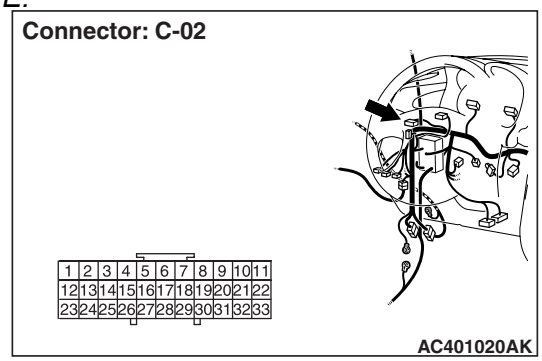
NO : Repair the defective connector.

Step 7. Check the wiring harness from C-219 ETACS-ECU connector terminal Nos. 59 and 68 to C-310 column switch connector terminal Nos. 3 and 2.





NOTE:



Prior to the wiring harness inspection, check joint connector C-02, 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?

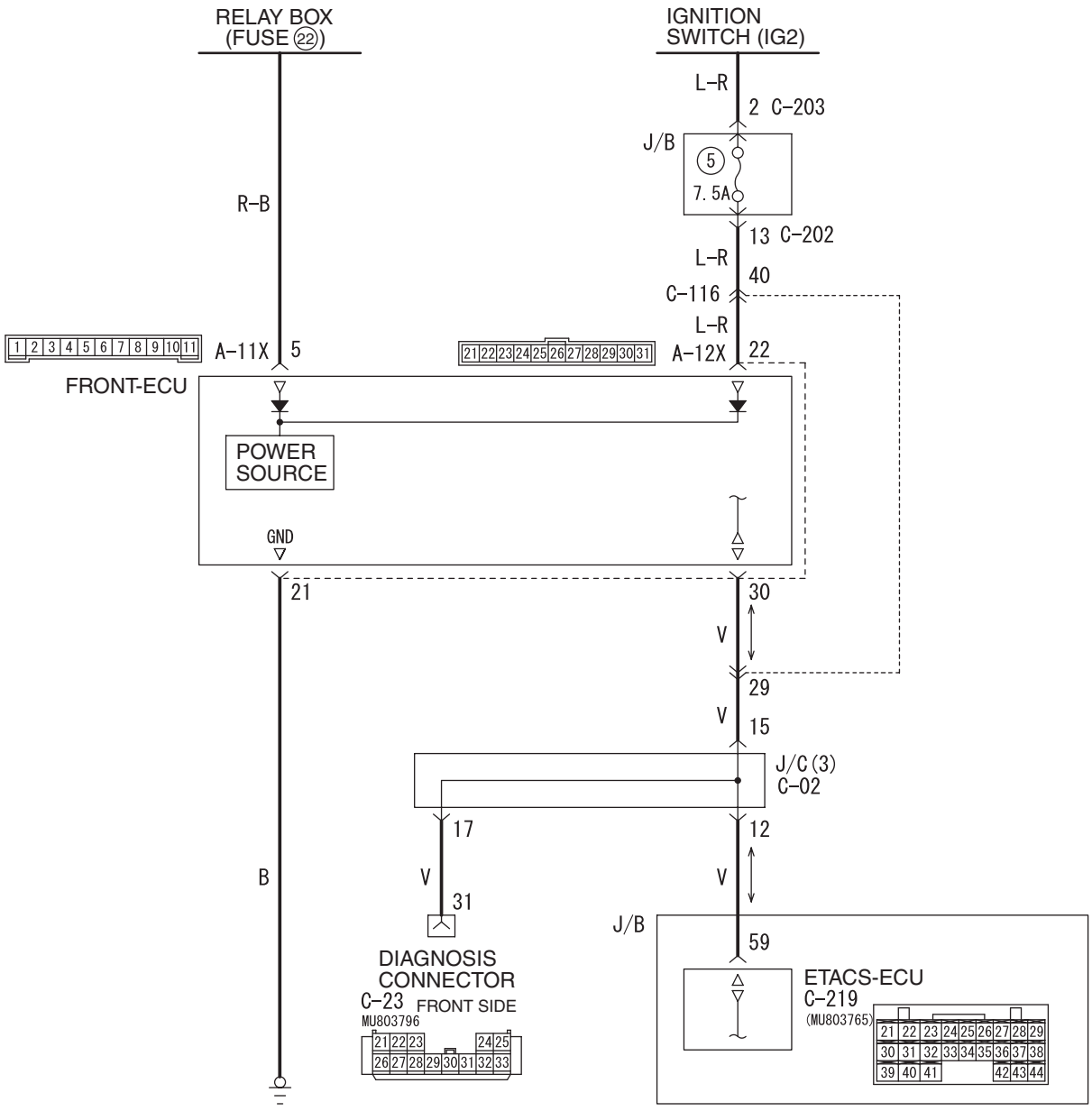
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

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

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COMMENTS ON TROUBLE SYMPTOM

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

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

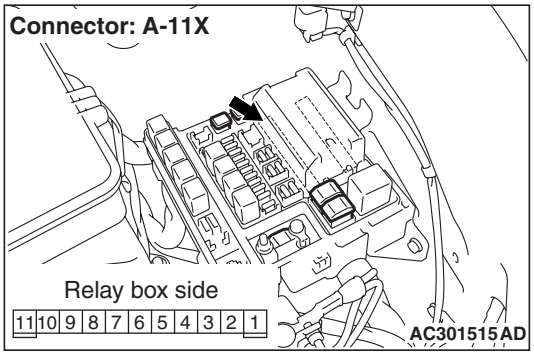
OK: "OK" is displayed on the "ETACS ECU" menu.

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-35."

Step 2. Connector check: A-11X front-ECU connector

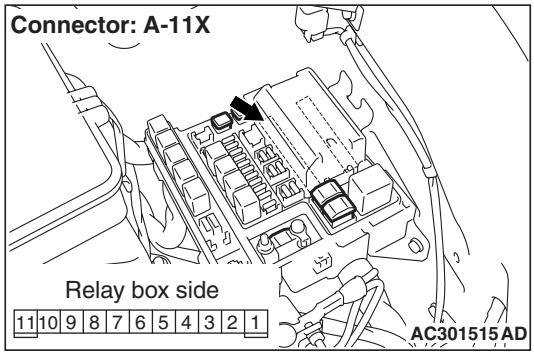


Q: Is the check result normal?

YES : Go to Step 3.

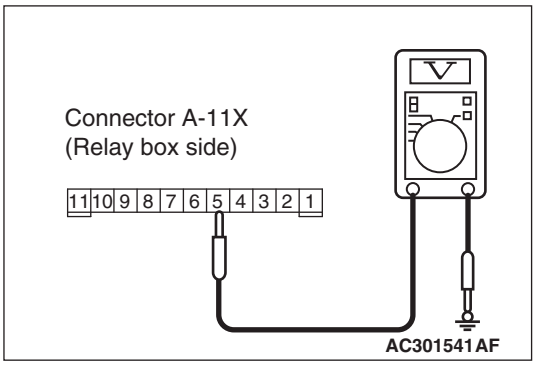
NO : Repair the defective connector.

Step 3. Voltage measurement at A-11X front-ECU connector.



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

(2) Ignition switch: ON



(3) Voltage between A-11X front-ECU connector No.5 and body earth

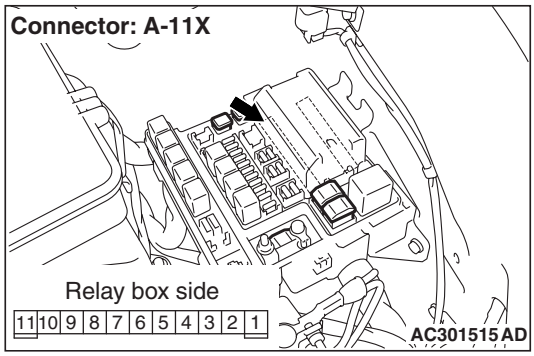
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 4.

Step 4. Check the wiring harness between A-11X front-ECU connector terminal No.5 and the battery.

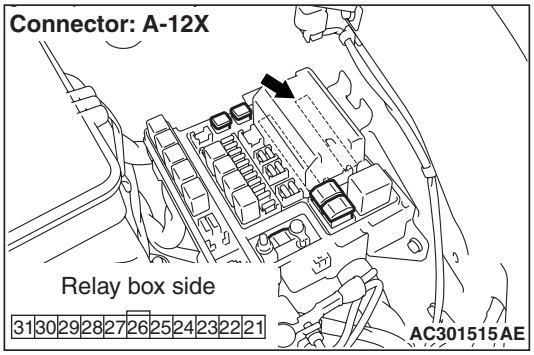


Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

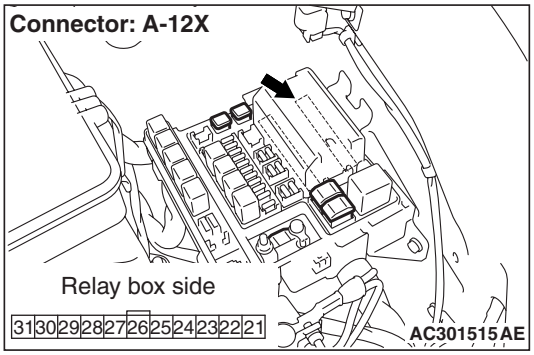
NO : Repair the wiring harness.

Step 5. Connector check: A-12X front-ECU connector

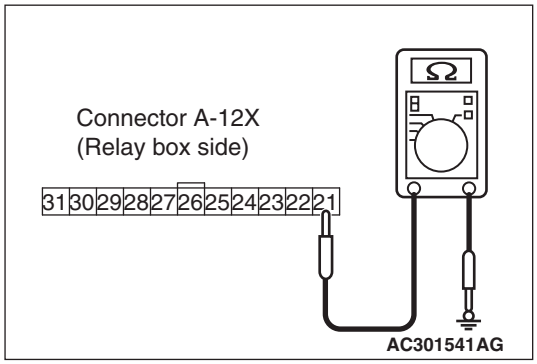


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Resistance measurement at A-12X front-ECU connector.



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

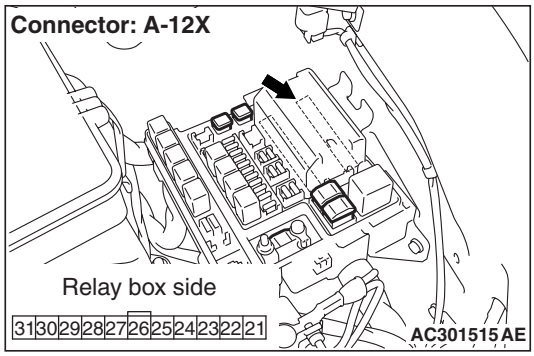


(2) Resistance between A-12X front-ECU connector terminal No.21 and body earth

OK: Continuity (less than 2 Ω)

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

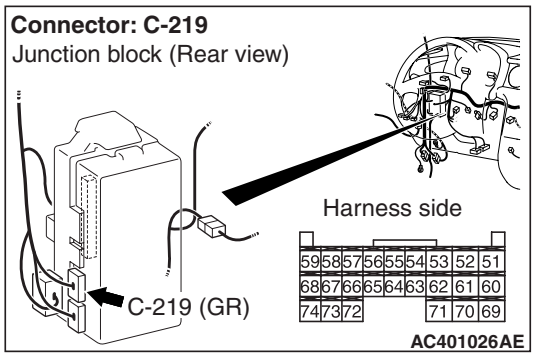
Step 7. Check the wiring harness between A-12X front-ECU terminal connector No.21 and body earth.



- Check the earth wires for open circuit.

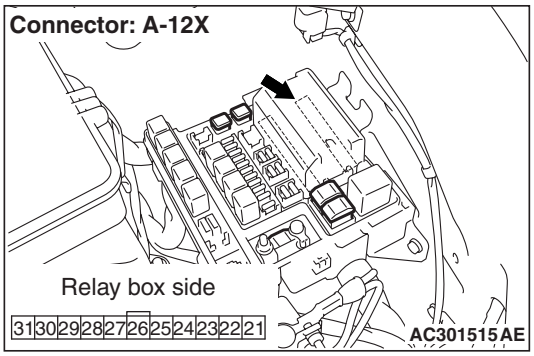
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

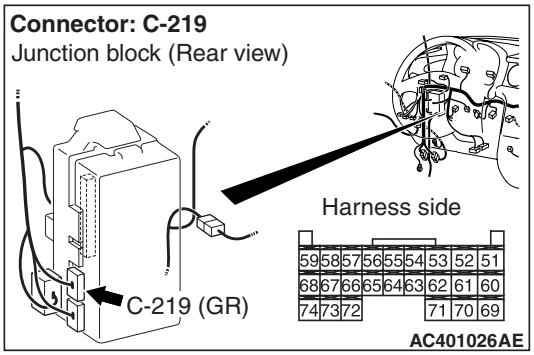
Step 8. Connector check: C-219 ETACS-ECU connector



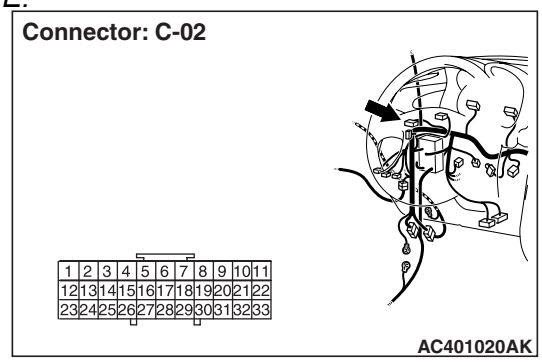
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

Step 9. Check the wiring harness between A-12X front-ECU connector terminal No.30 and C-219 ETACS-ECU connector terminal No.59.





NOTE:



Prior to the wiring harness inspection, check joint connector C-02, 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?

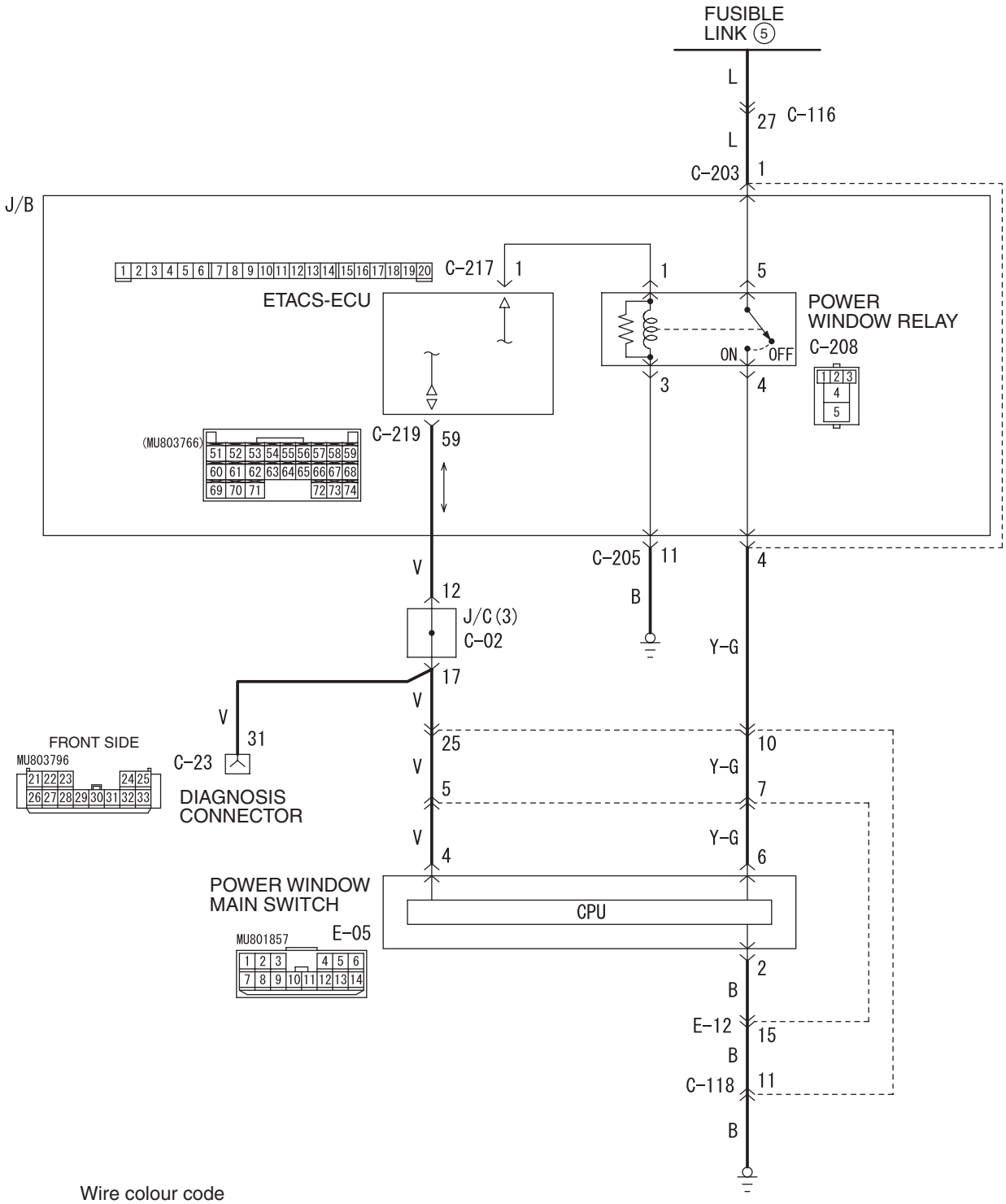
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

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

W3Z10E05AB

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-35."

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

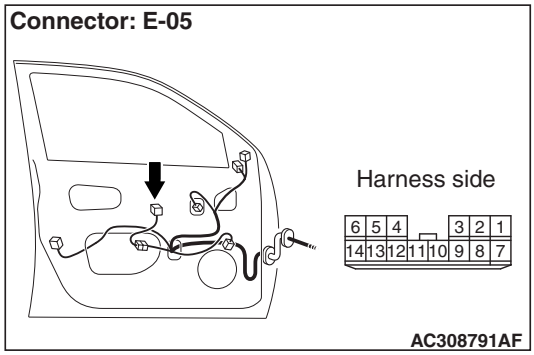
OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

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

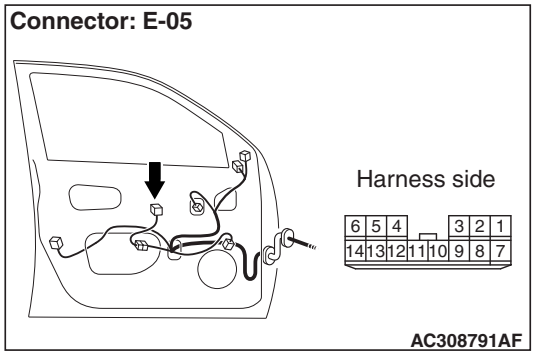


Q: Is the check result normal?

YES : Go to Step 4.

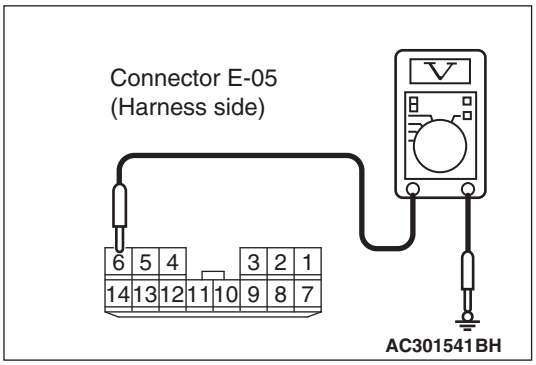
NO : Repair the defective connector.

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

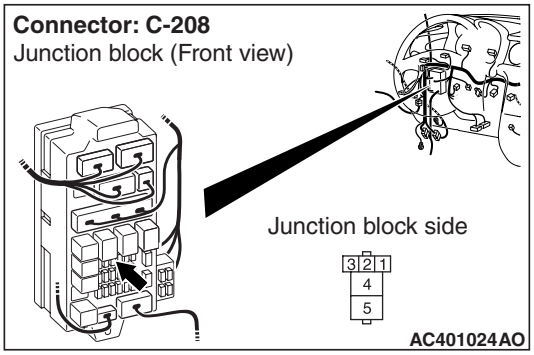
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 13.

NO : Go to Step 5.

Step 5. Connector check: C-208 power window relay connector



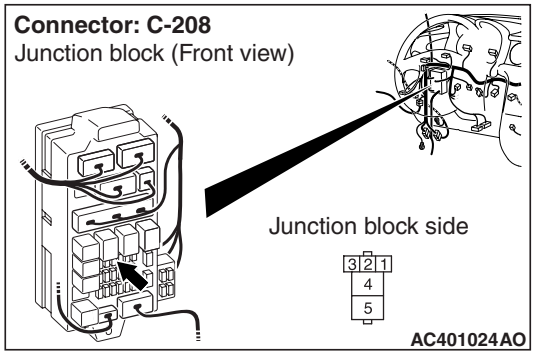
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the power window relay.

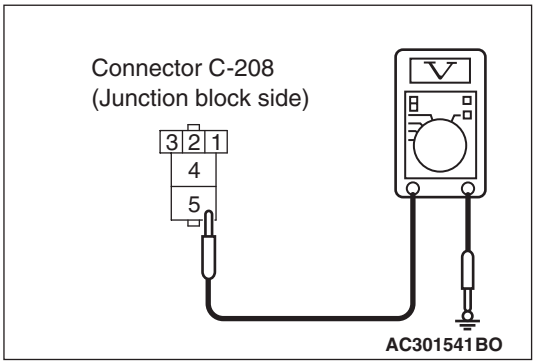
Refer to GROUP 42 – Door P.42-28.

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

Step 7. Voltage measurement at C-208 power window relay connector.



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

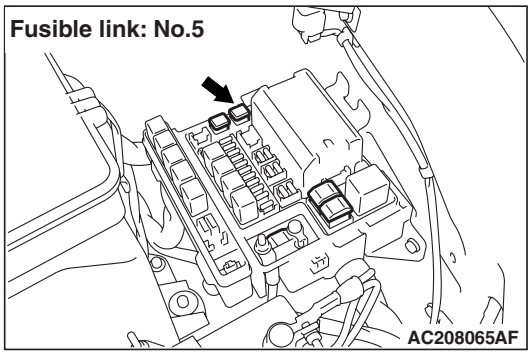


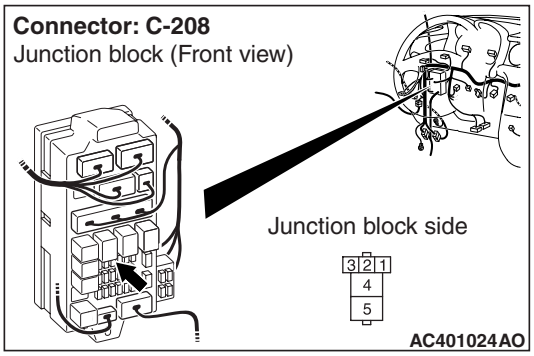
(2) Voltage between C-208 power window relay connector terminal No.5 and body earth

OK: System voltage

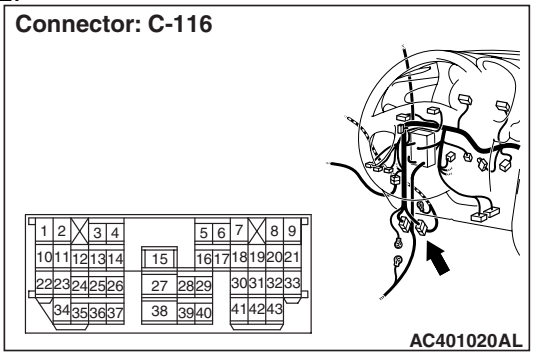
Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 8.

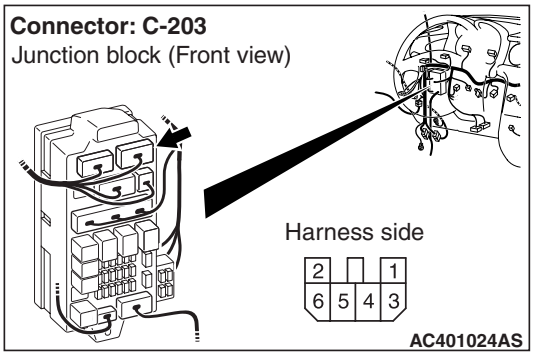
Step 8. Check the wiring harness between C-208 power window relay connector terminal No.5 and fusible link (5).





NOTE:



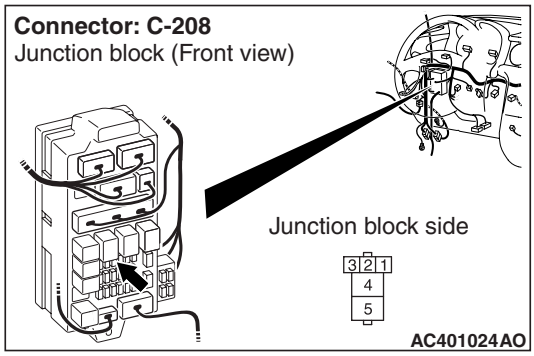


Prior to the wiring harness inspection, check intermediate connectors C-116 and junction block connector C-203, and repair if necessary.

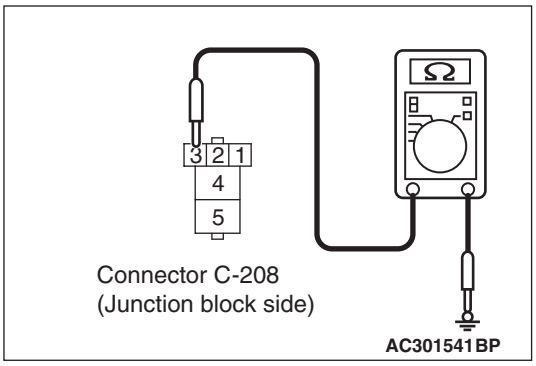
- Check the power supply line for open circuit.

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.00-6).
NO : Repair the wiring harness.

Step 9. Resistance measurement at C-208 power window relay connector.



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

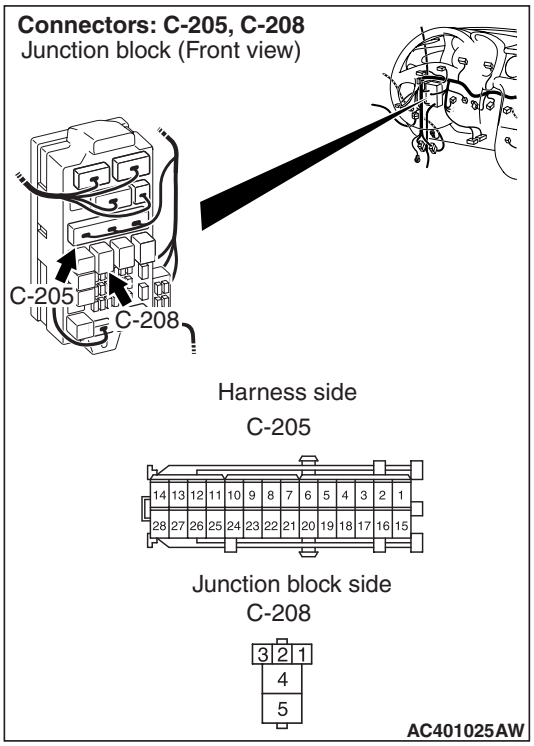


(2) Resistance between C-208 power window relay connector terminal No.3 and body earth

OK: Continuity (less than 2 Ω)

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

Step 10. Check the wiring harness between C-208 power window relay connector terminal No.3 and body earth.



NOTE: Prior to the wiring harness inspection, check junction block connector C-205, and repair if necessary.

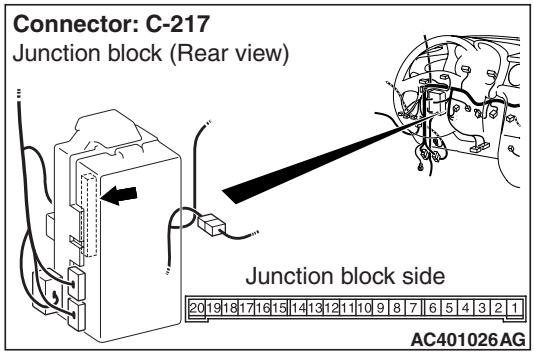
- Check the earth wires for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 11. Connector check: C-217 ETACS-ECU connector

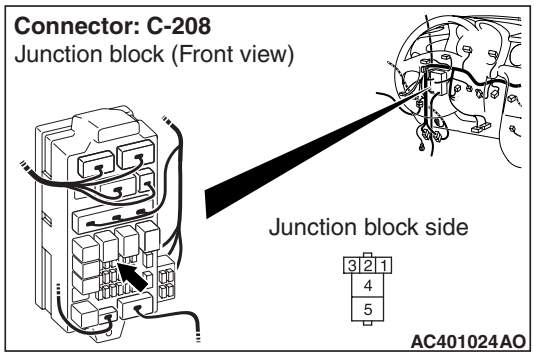


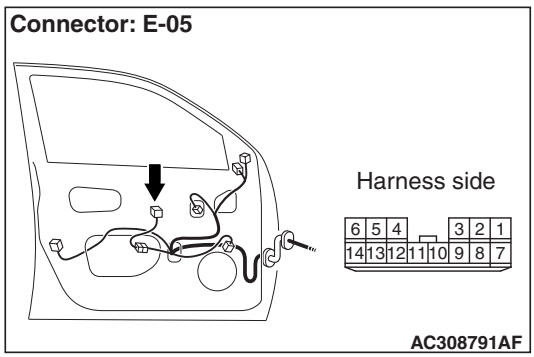
Q: Is the check result normal?

YES : Go to Step 12.

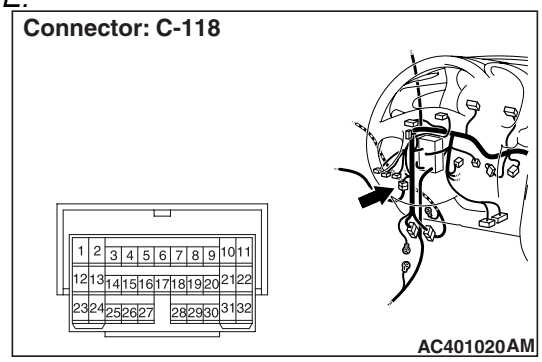
NO : Repair the defective connector.

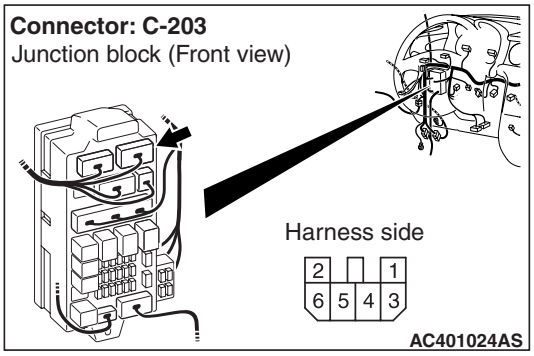
Step 12. Check the wiring harness between C-208 power window relay connector terminal No.4 and E-05 power window main switch connector terminal No.6.

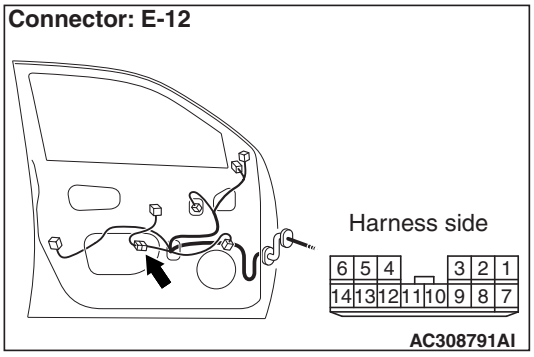




NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-118, E-12 and junction block connector C-203, and repair if necessary.

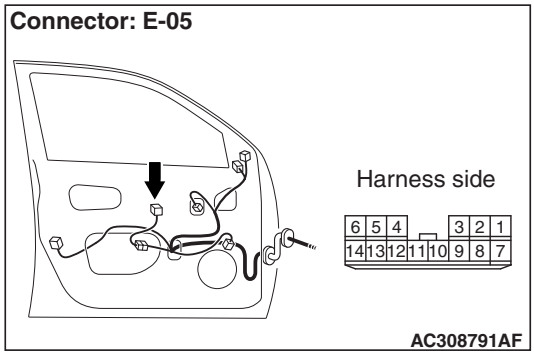
- Check the power supply line for open circuit.

Q: Is the check result normal?

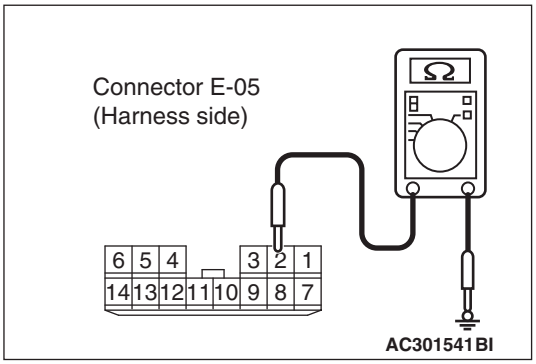
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

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

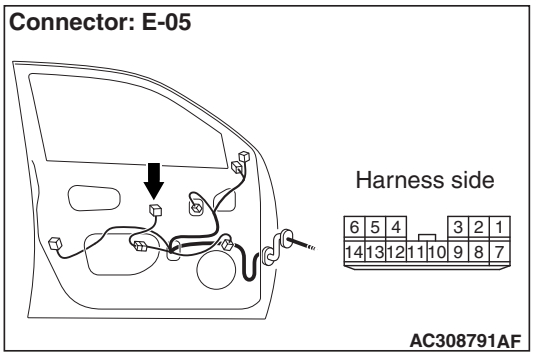
OK: Continuity (less than 2 Ω)

Q: Is the check result normal?

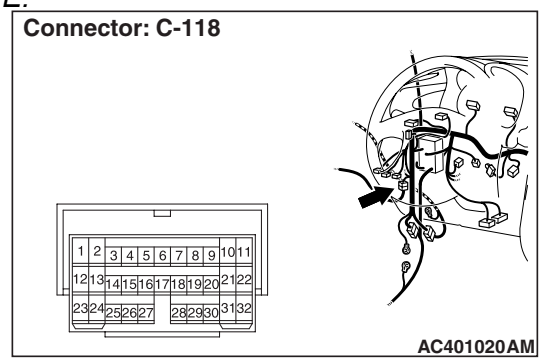
YES : Go to Step 15.

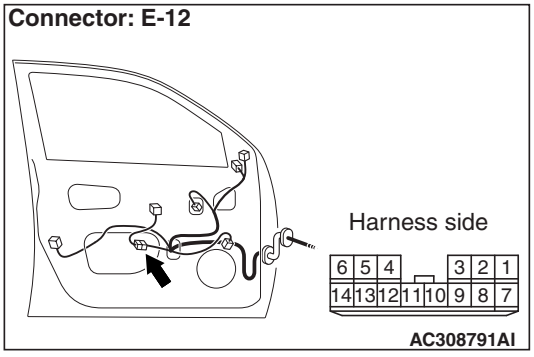
NO : Go to Step 14.

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-118 and E-12, and repair if necessary.

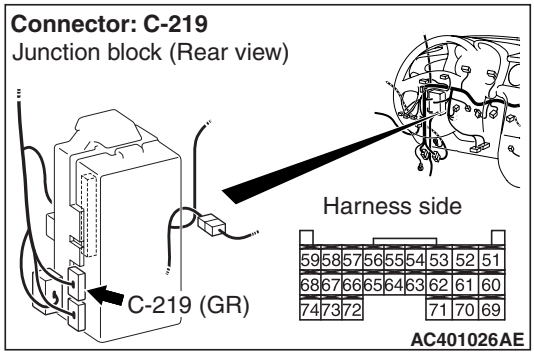
- Check the earth wires for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 15. Connector check: C-219 ETACS-ECU connector

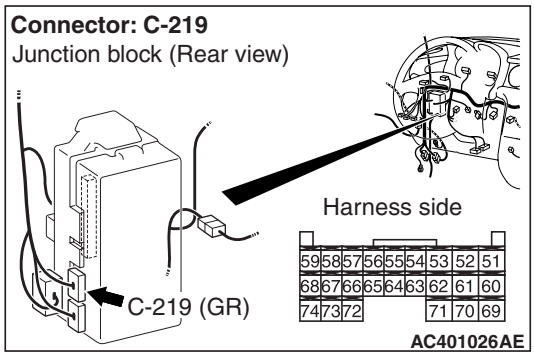


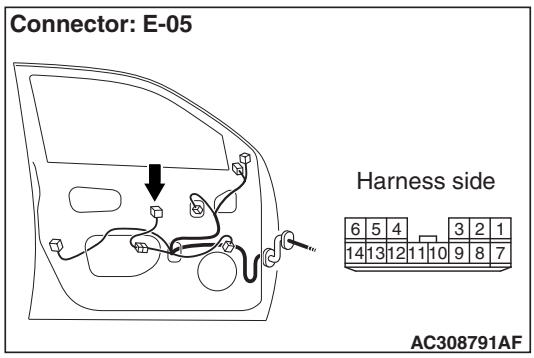
Q: Is the check result normal?

YES : Go to Step 16.

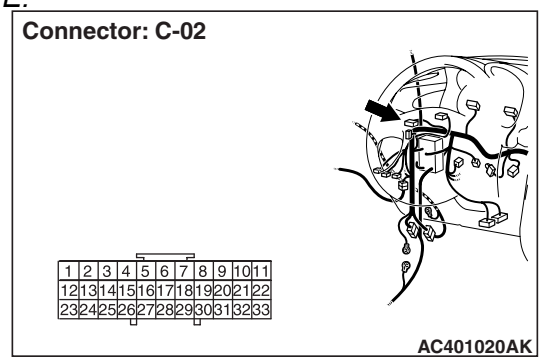
NO : Repair the defective connector.

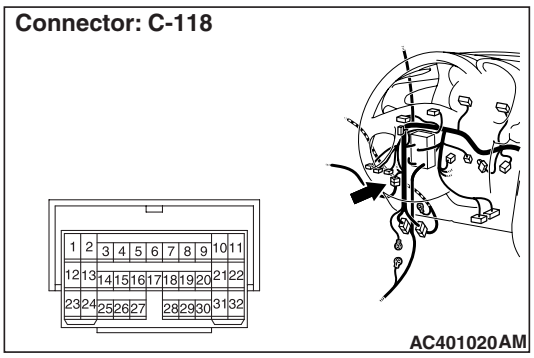
Step 16. Check the wiring harness between C-219 ETACS-ECU connector terminal No.59 and E-05 power window main switch connector terminal No.4.

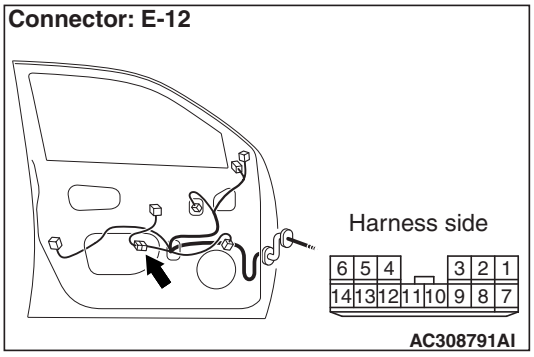




NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-118, E-12 and joint connector C-02, 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.00-6).

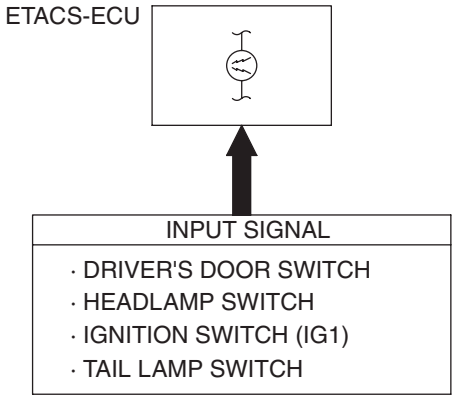
NO : Replace the power window main switch.

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



W3Z10E07AA

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" are displayed for all the items

Q: Are the check result normal?
"OK" are displayed for all the items : Go to Step 2.
"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."
"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: Are the check result normal?

Normal conditions are 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30 : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.32 : Refer to inspection procedure N-4 "The front door switch (LH) signal is not received P.54C-231."

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.00-6).

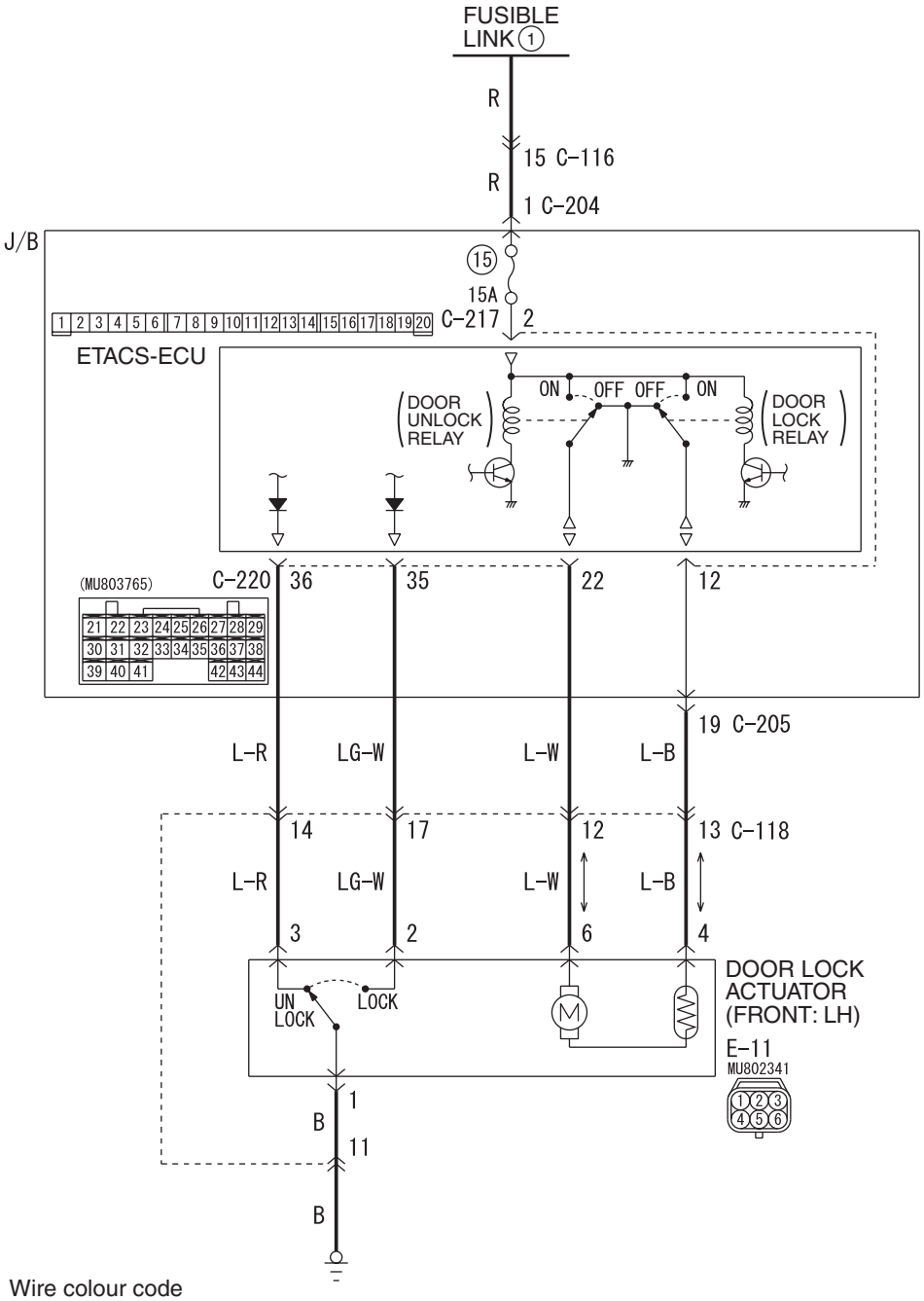
NO : Replace the ETACS-ECU.

CENTRAL DOOR LOCKING SYSTEM

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

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

Central Door Lock Power Supply Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : 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 door lock actuator (front: LH) or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the door lock actuator (front: LH)
- 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-35."

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

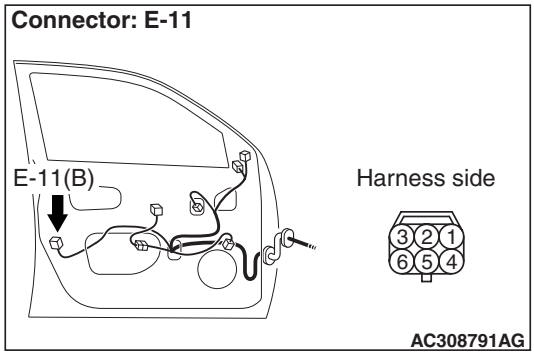
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure N-14 "The driver's door lock actuator switch signal is not received P.54C-260."

Step 3. Connector check: E-11 door lock actuator (front: LH) connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Check the door lock actuator (front: LH).

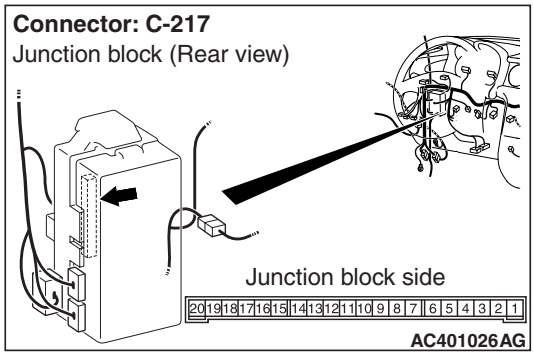
Check that the door lock actuator (front: LH) works normally. Refer to GROUP 42 – Door P.42-37.

Q: Is the check result normal?

YES : Go to Step 5.

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

Step 5. Connector check: C-217 ETACS-ECU connector

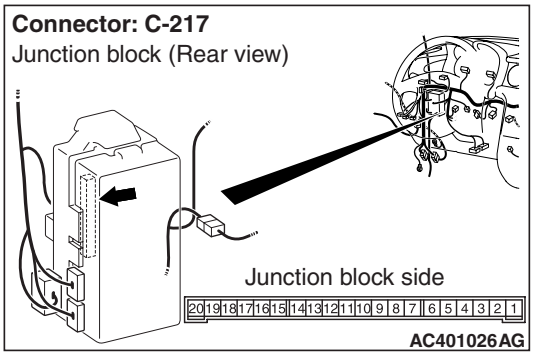


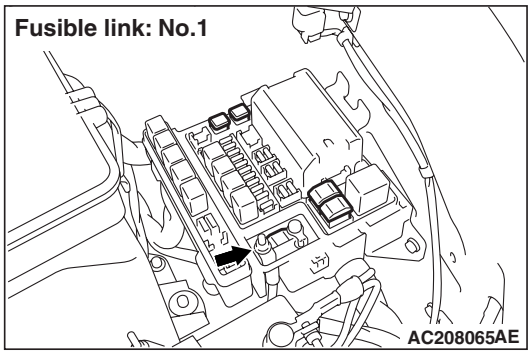
Q: Is the check result normal?

YES : Go to Step 6.

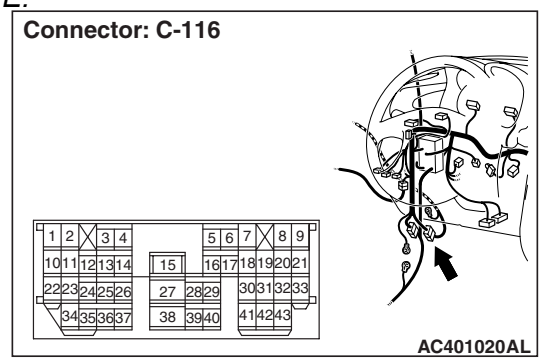
NO : Repair the defective connector.

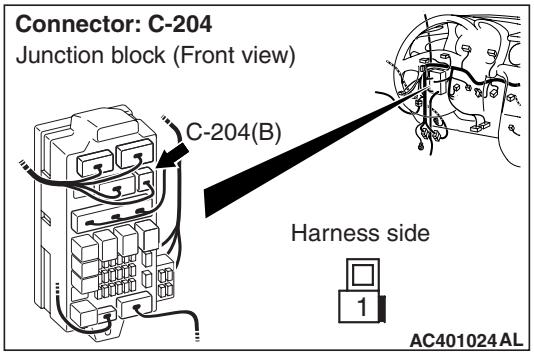
Step 6. Check the wiring harness between C-217 ETACS-ECU connector terminal No.2 and fusible link (1).





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-116 and junction block connector C-204, and repair if necessary.

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

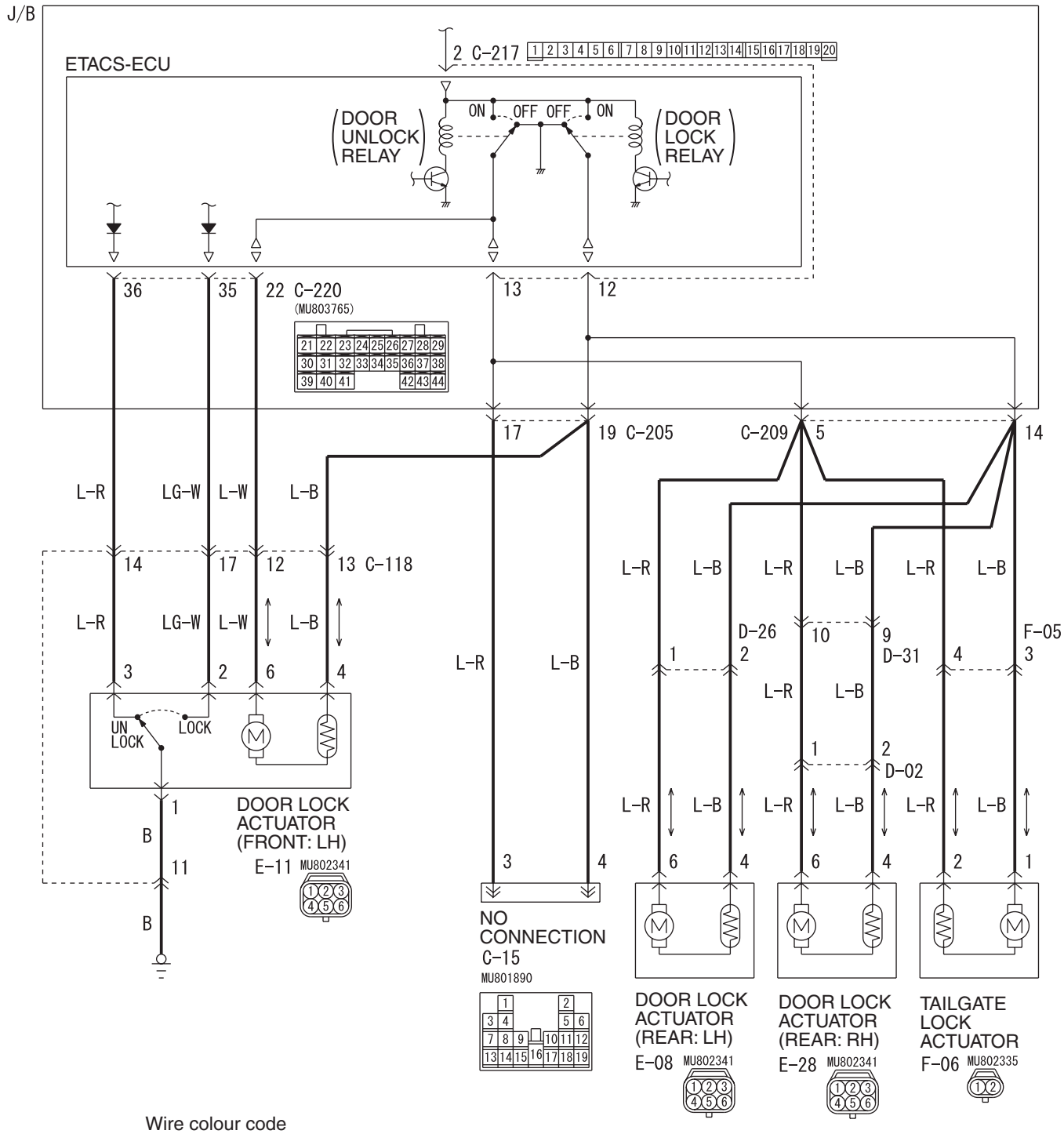
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

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.00-6).
NO : Replace the ETACS-ECU.

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

Central Door Lock Circuit



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

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COMMENT ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

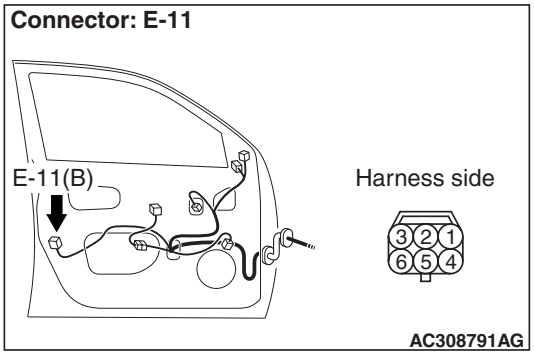
- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged harness wires and connectors

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.
Rear right door : Go to Step 6.
Rear left door : Go to Step 10.
Tailgate : Go to Step 14.

Step 2. Connector check: E-11 door lock actuator (front: LH)

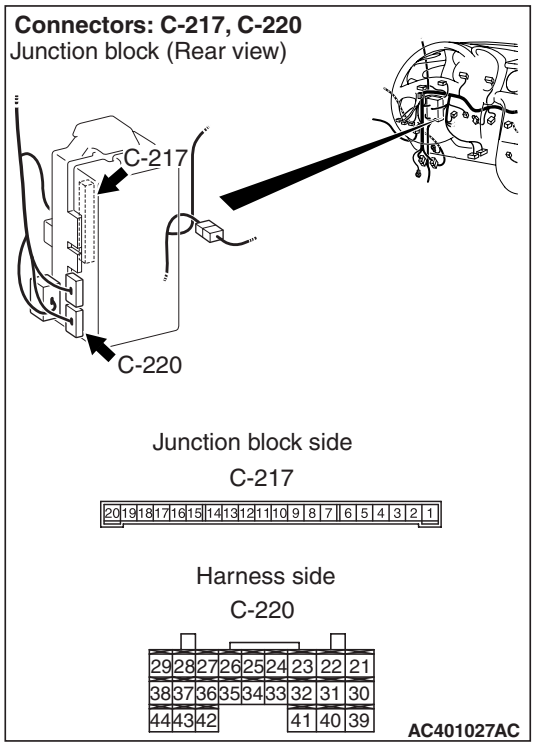


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the door lock actuator (front: LH).
Check that the door lock actuator (front: LH) works normally. Refer to GROUP 42 – Door P.42-37.

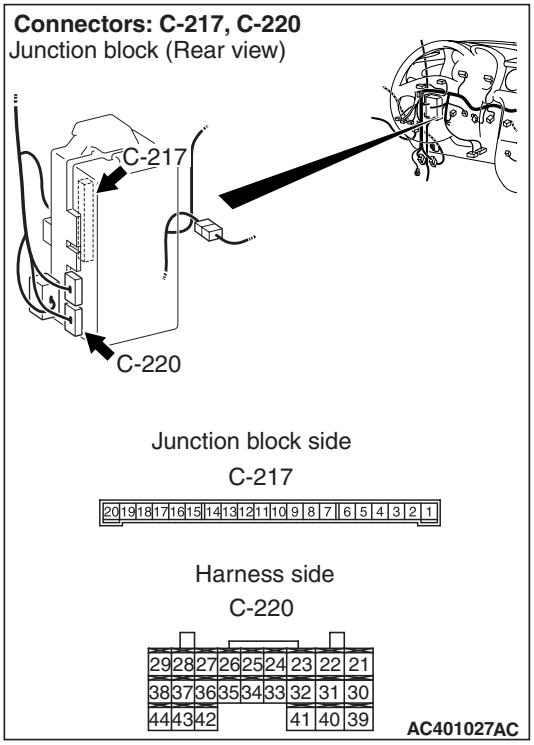
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the door lock actuator (front: LH).

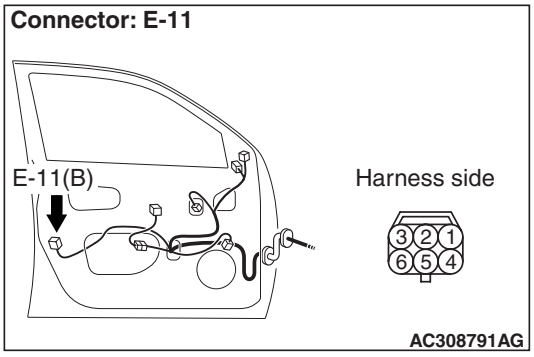
Step 4. Connector check: C-217, C-220 ETACS-ECU connector



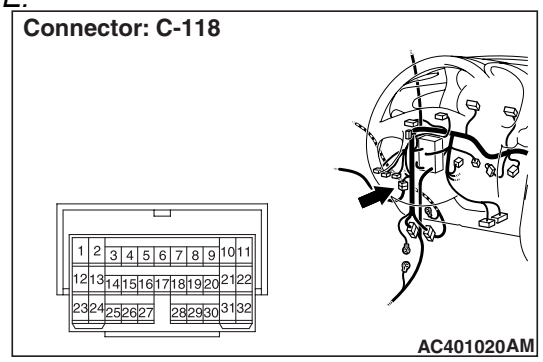
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

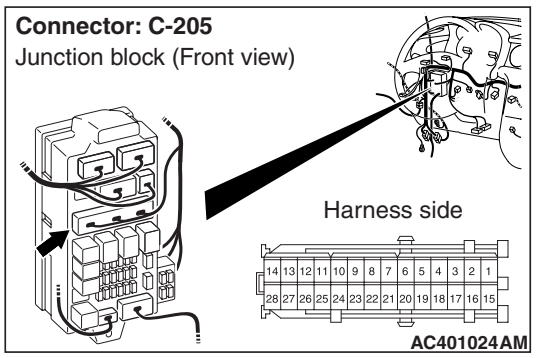
Step 5. Check the wiring harness from C-217 ETACS-ECU connector terminal No.12 and C-220 ETACS-ECU connector No.22 to E-11 door lock actuator (front: LH) terminal Nos. 4 and 6.





NOTE:





Prior to the wiring harness inspection, check intermediate connector C-118 and junction block connector C-205, and repair if necessary.

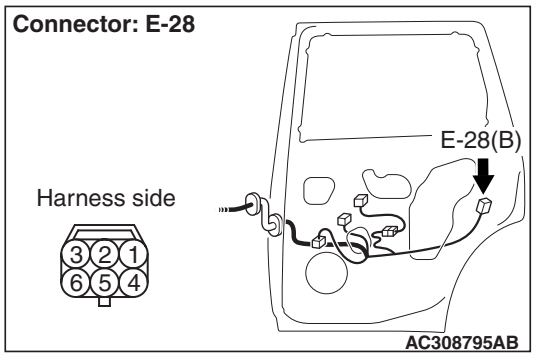
- Check the input and output lines for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 6. Connector check: E-28 door lock actuator (rear: RH) connector



Q: Is the check result normal?

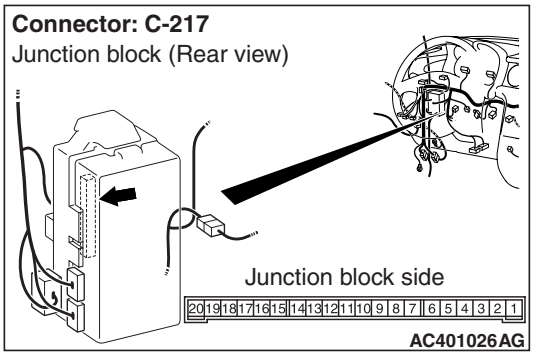
YES : Go to Step 7.

NO : Repair the defective connector.

Step 7. Check the door lock actuator (rear: RH).
Check that the door lock actuator (rear: RH) is in good condition. Refer to GROUP 42 – Door P.42-37.

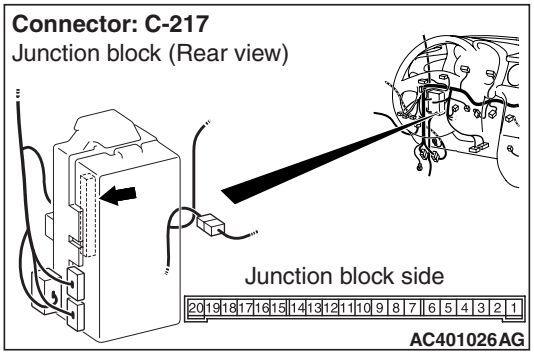
Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the door lock actuator (rear: RH).

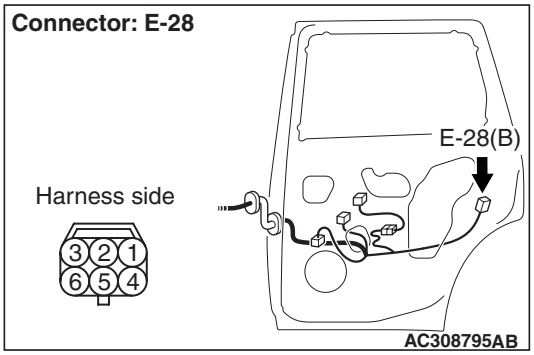
Step 8. Connector check: C-217 ETACS-ECU connector



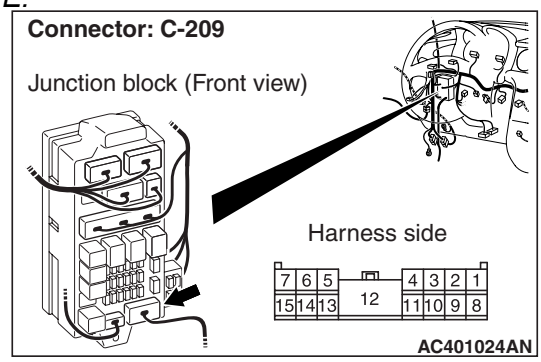
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

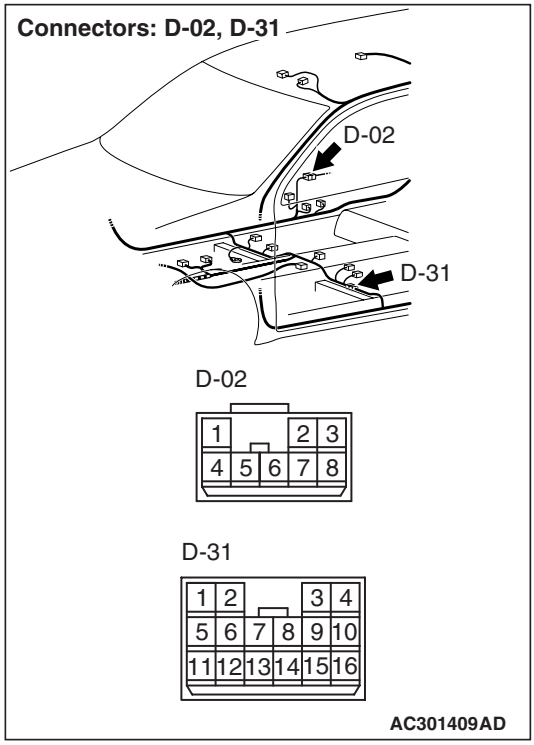
Step 9. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 12 and 13 to E-28 door lock actuator (rear: RH) connector terminal Nos. 4 and 6.





NOTE:



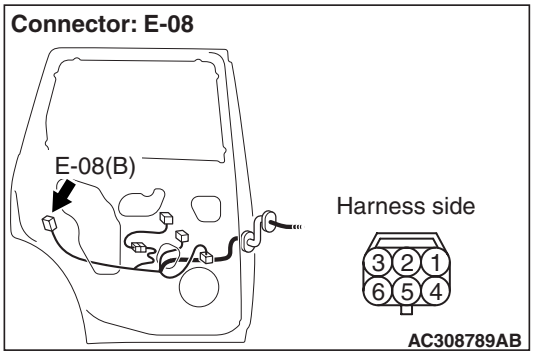


Prior to the wiring harness inspection, check intermediate connectors D-02, D-31 and junction block connector C-209, and repair if necessary.

- 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.00-6).
NO : Repair the wiring harness.

Step 10. Connector check: E-08 door lock actuator (rear: LH) connector

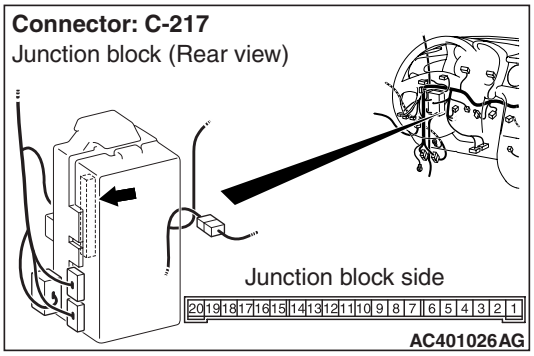


Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the defective connector.

Step 11. Check the door lock actuator (rear: LH).
Check that the door lock actuator (rear: LH) is in good condition. Refer to GROUP 42 – Door P.42-37.

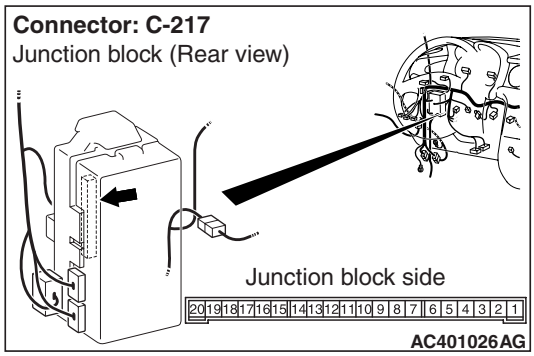
Q: Is the check result normal?
YES : Go to Step 12.
NO : Replace the door lock actuator (rear: LH).

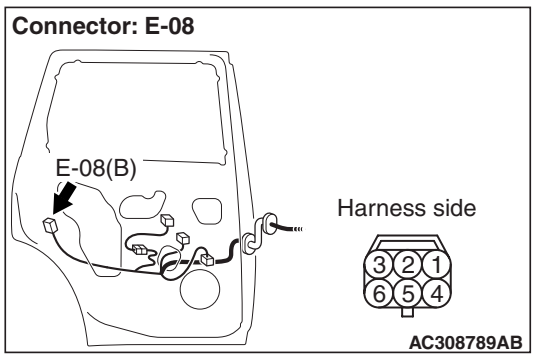
Step 12. Connector check: C-217 ETACS-ECU connector



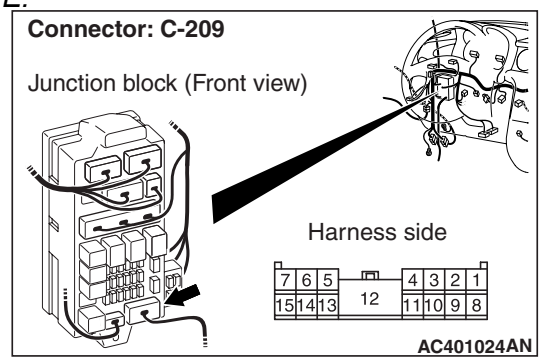
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the defective connector.

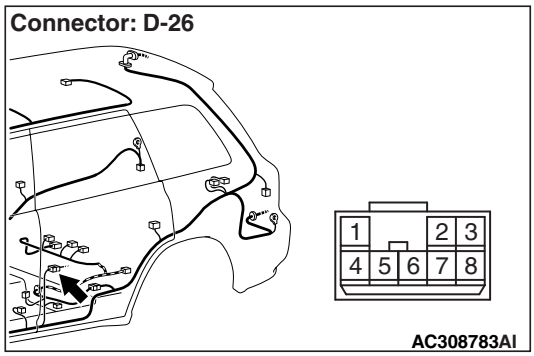
Step 13. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 12 and 13 to E-08 door lock actuator (rear: LH) connector terminal Nos. 4 and 6.





NOTE:



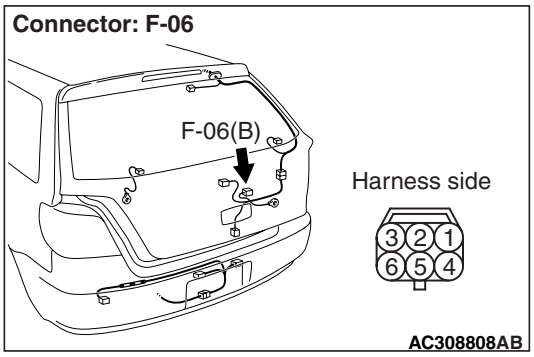


Prior to the wiring harness inspection, check intermediate connector D-26 and junction block connector C-209, and repair if necessary.

- 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.00-6).
NO : Repair the wiring harness.

Step 14. Connector check: F-06 tailgate lock actuator connector



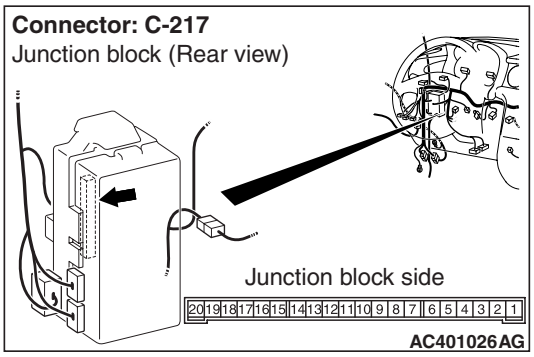
Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the defective connector.

Step 15. Check the tailgate lock actuator.

Check that the tailgate lock actuator is in good condition. Refer to GROUP 42 – Tailgate P.42-49.

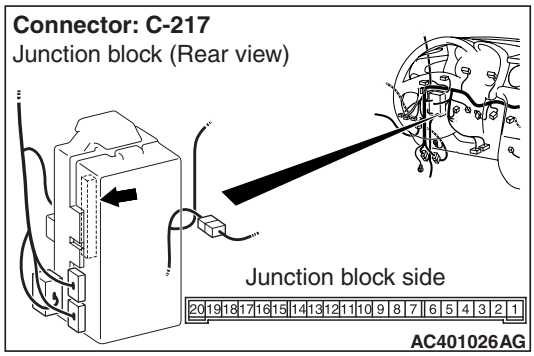
Q: Is the check result normal?
YES : Go to Step 16.
NO : Replace the tailgate lock actuator.

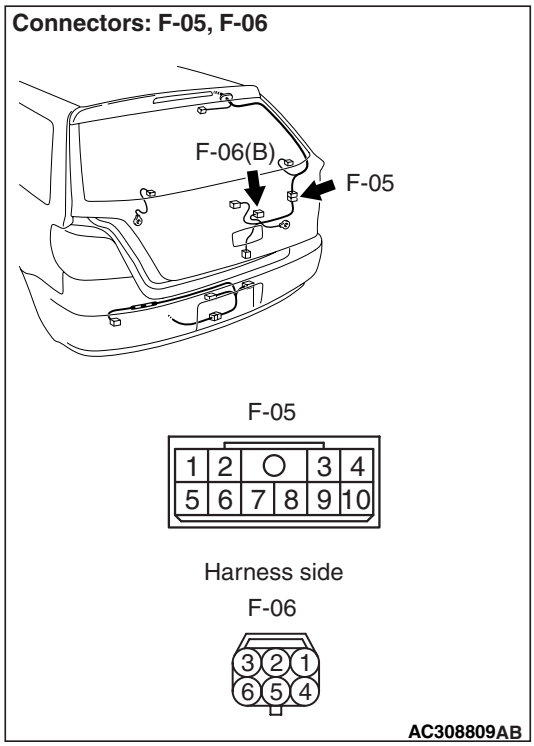
Step 16. Connector check: C-217 ETACS-ECU connector



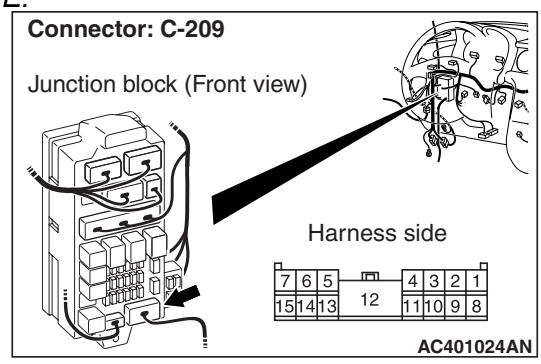
Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the defective connector.

Step 17. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 12 and 13 to F-06 tailgate lock actuator connector terminal Nos. 1 and 2.





NOTE:



Prior to the wiring harness inspection, check intermediate connector F-05 and junction block connector C-209, and repair if necessary.

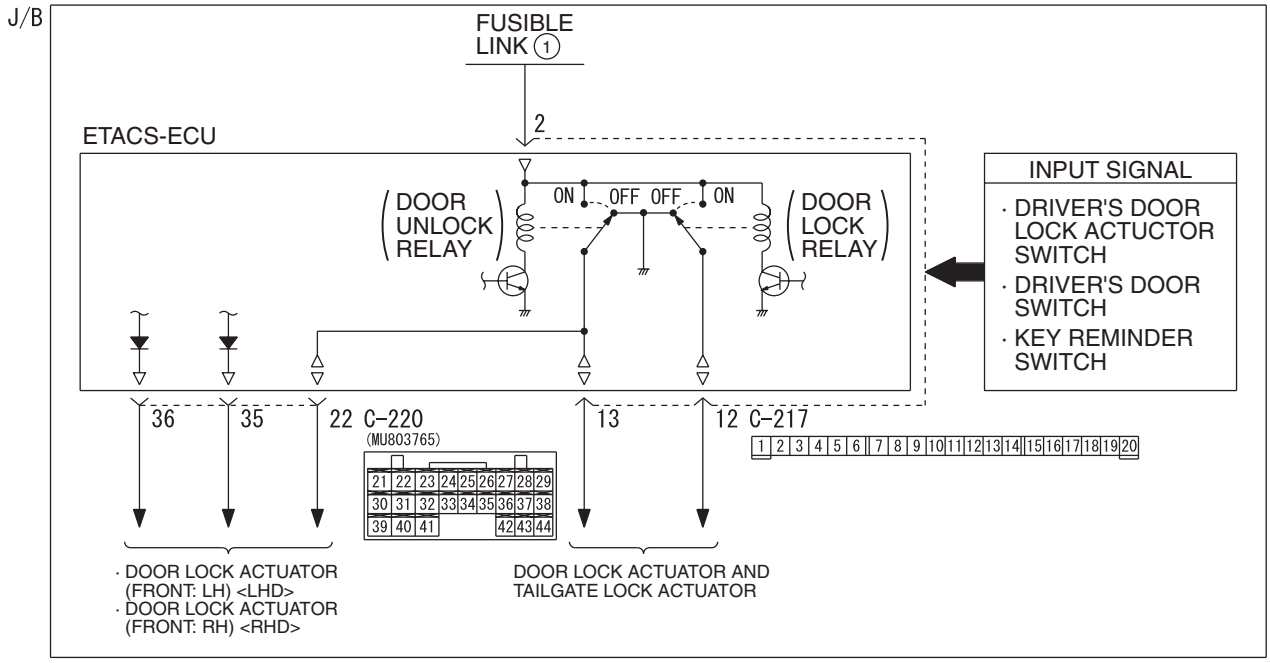
- Check the input and output lines for open circuit.

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.00-6).
NO : Repair the wiring harness.

INSPECTION PROCEDURE C-3: 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



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COMMENTS ON TROUBLE SYMPTOM

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

- Key reminder switch
- 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 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-35."

Step 2. SWS monitor data list

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 N-4 "The front door switch (LH) signal is not received P.54C-231."

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: Are 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 N-11 "The key reminder switch signal is not received P.54C-249."

The driver's door lock actuator switch signal is not received. : Refer to inspection procedure N-14 "The driver's door lock actuator switch signal is not received P.54C-260."

Step 4. Retest the system.

Q: Does the ignition key reminder function work normally?

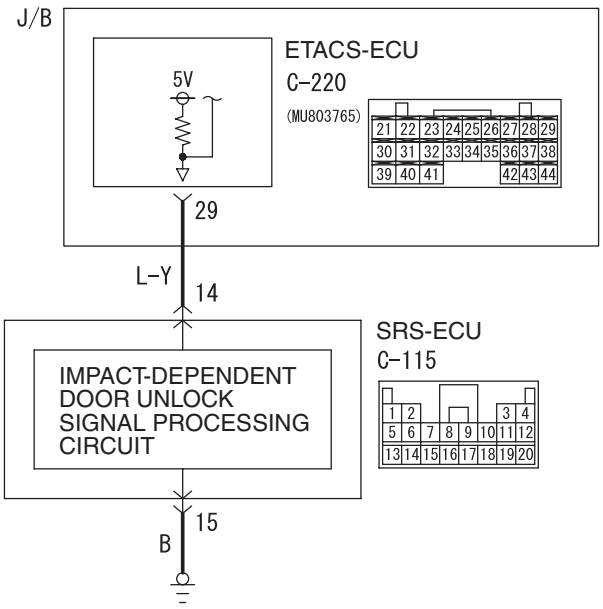
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE C-4: 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.

Impact Detection Door Unlock 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

W3Z16E03AA

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. Use the M.U.T.-II/III to confirm a diagnosis code. (M.U.T.-II/III 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-10.
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

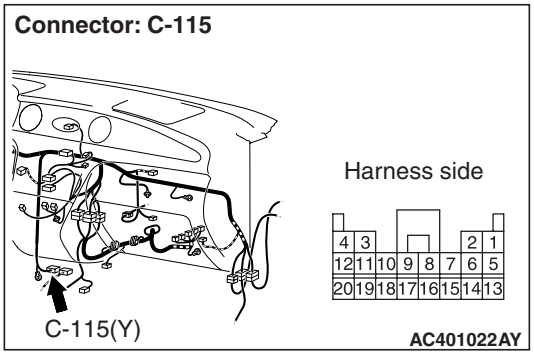
ECUS TO BE CHECKED

- 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-35."

Step 3. Connector check: C-115 SRS-ECU connector



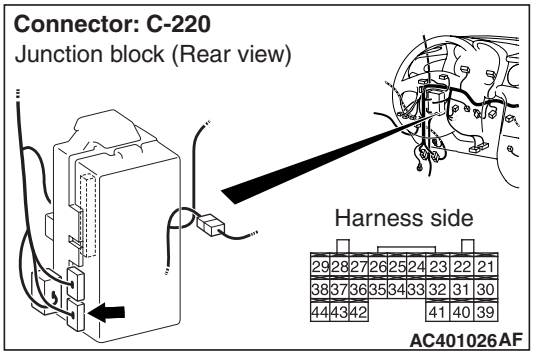
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

Step 4. Check the SRS-ECU.

Check that the SRS-ECU works normally. Refer to GROUP 52B – SRS Control Unit (SRS-ECU) P.52B-135.

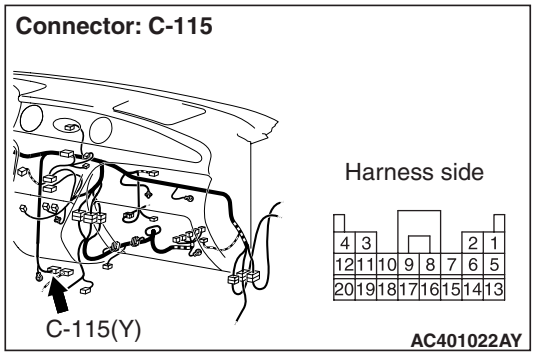
Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the SRS-ECU.

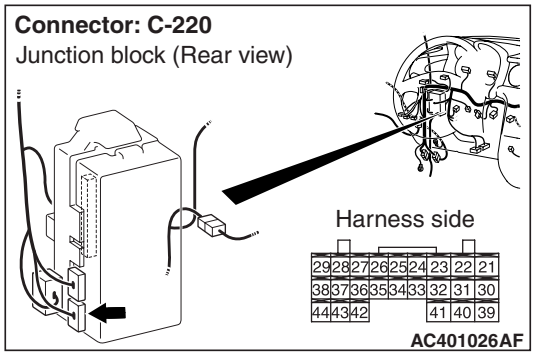
Step 5. Connector check: C-220 ETACS-ECU connector



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

Step 6. Check the wiring harness between C-115 SRS-ECU connector terminal No.14 and C-220 ETACS-ECU connector terminal No.29.

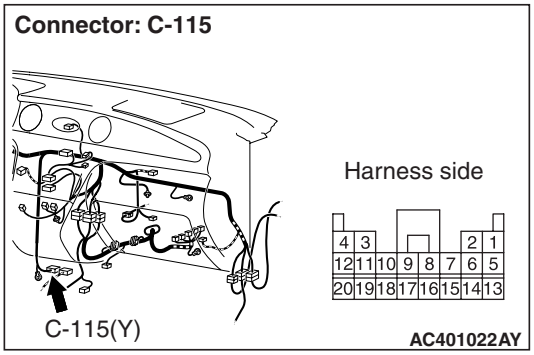




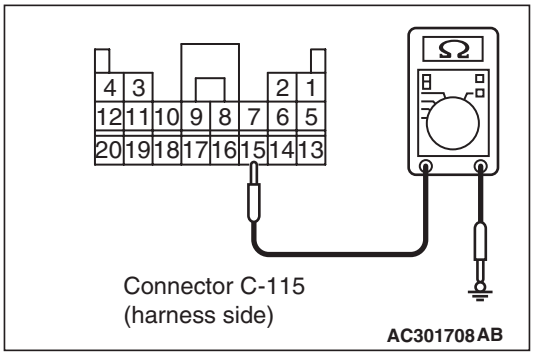
- Check the power supply line for open or short circuit.

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

Step 7. Resistance measurement at the C-115 SRS-ECU connector.



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

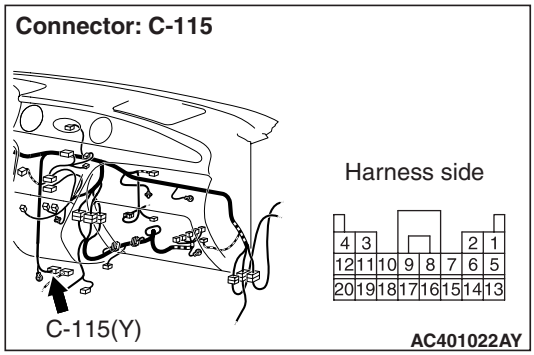


Resistance between C-115 SRS-ECU connector terminal No.15 and body earth

OK: Continuity (less than 2 Ω)

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

Step 8. Check the wiring harness between C-115 SRS-ECU connector terminal No.15 and body earth.



- Check the earth line for open or short circuit.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

Step 9. Retest the system.
Check that the impact detection door unlock function works normally.

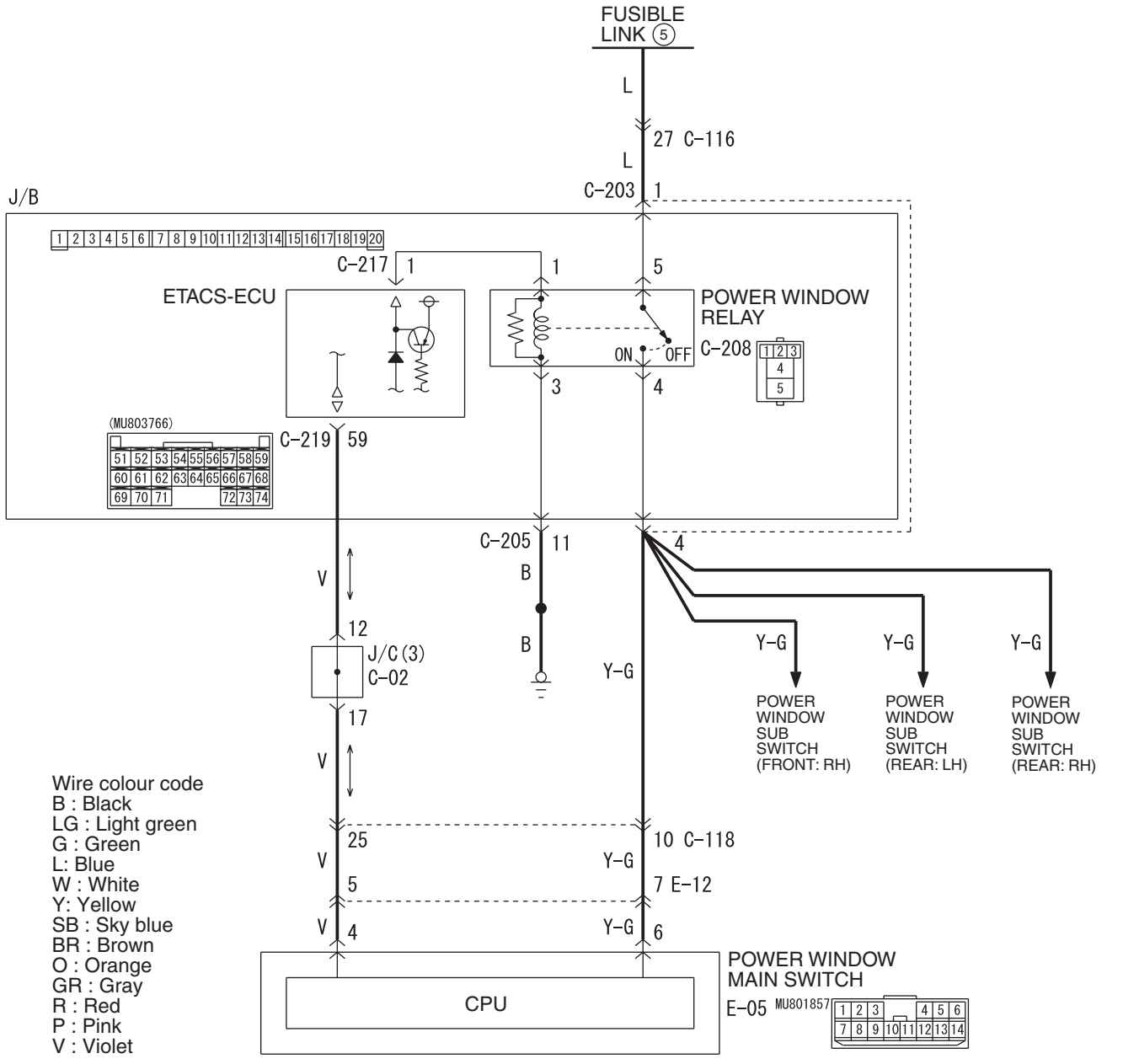
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

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



W5Z54E010A

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" are displayed for all the items

Q: Are the check result normal?

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

"NG" is displayed on the "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."

"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-44."

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
30	IG SW (IG1)	ON
33	P/W SW ACCEPT	PERMIT
71	P/W ECU ACK	INPUT CHECK (only momentarily when switch is operated)

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?

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

Normal condition is not displayed for item No.30 : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

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. SWS monitor data list

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-6).
- Turn the ignition switch to the ON position.
- Power window main switch: UP

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

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 4.

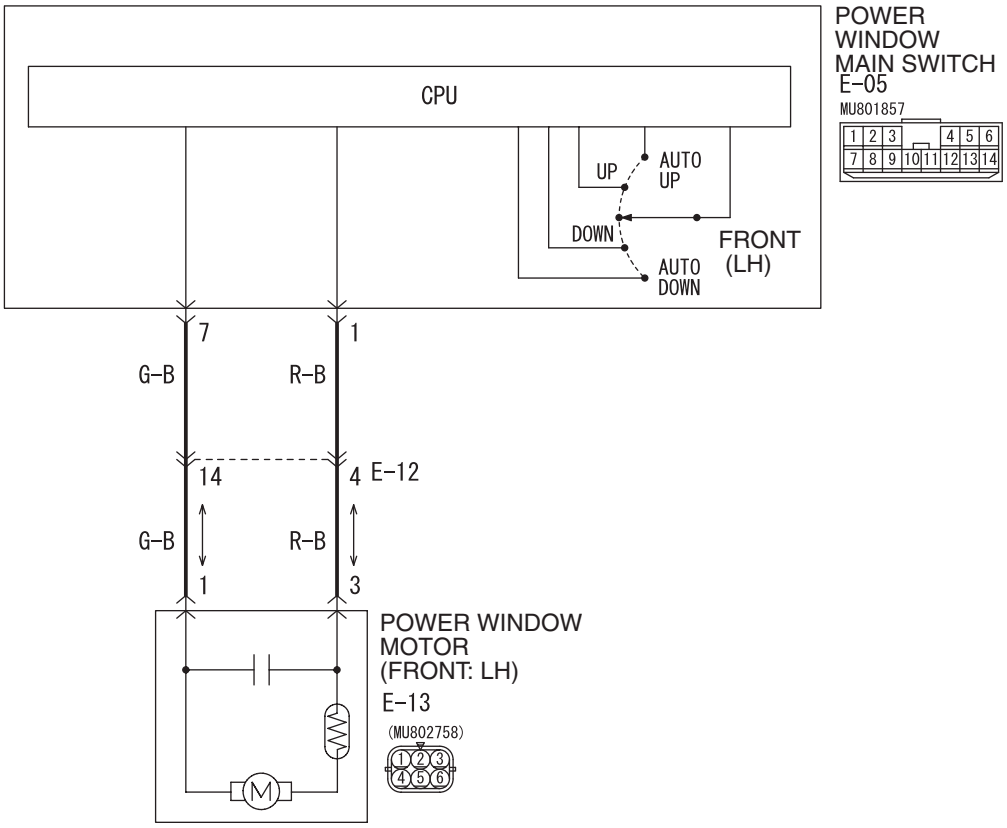
NO : Replace the power window main switch.

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.00-6).
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.

Power Window (front: LH) 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

W3Z09E02AA

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 door power window motor (front: LH) may be defective.

POSSIBLE CAUSES

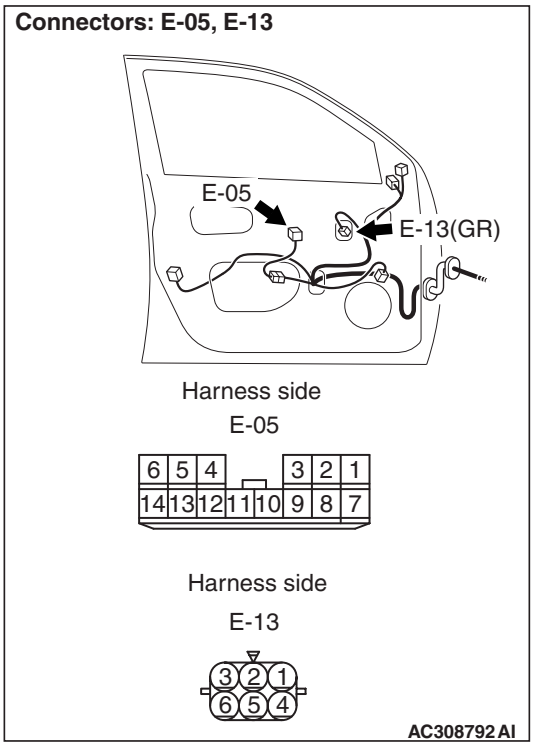
- Malfunction of the power window main switch
- Malfunction of the power window motor (front: LH)
- Damaged harness wires and connectors

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.

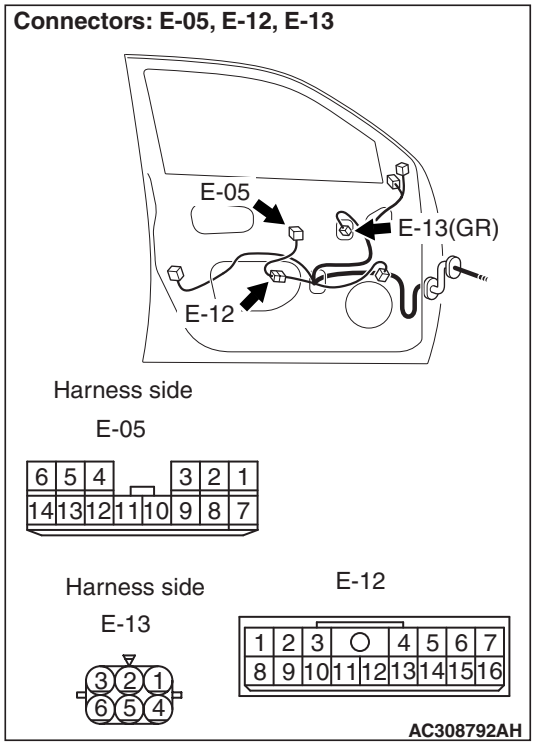
Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54C-68."

Step 2. Connector check: E-05 power window main switch connector and E-13 power window motor (front: LH) connector



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

Step 3. Check the wiring harness from E-13 power window motor (front: LH) connector terminal Nos. 1 and 3 to E-05 power window main switch connector terminal Nos. 7 and 1.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-12, and repair if necessary.
- Check the input and output lines for open or short circuit.

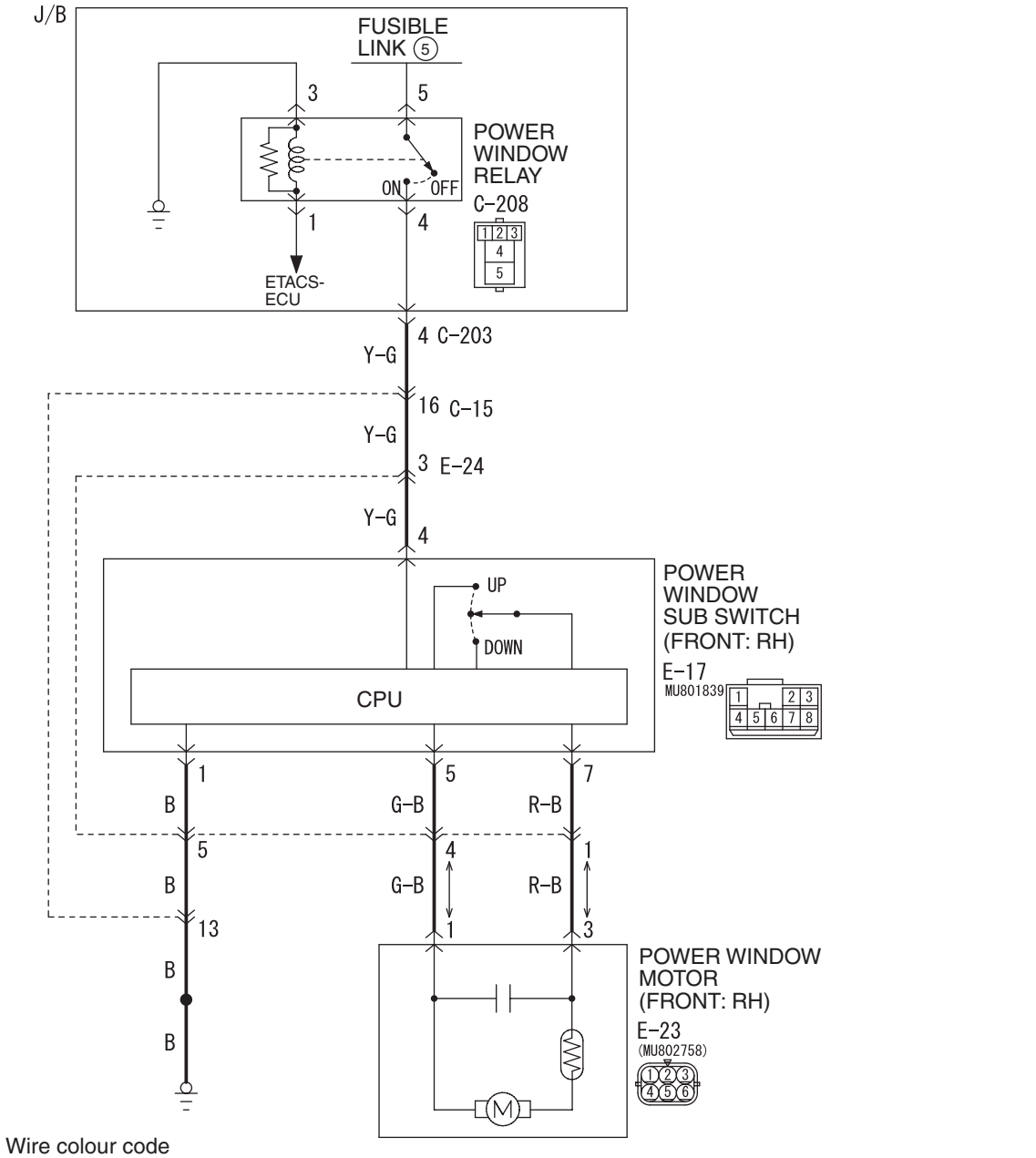
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the wiring harness.

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.00-6).
NO : Replace the power window motor assembly (front: LH).

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

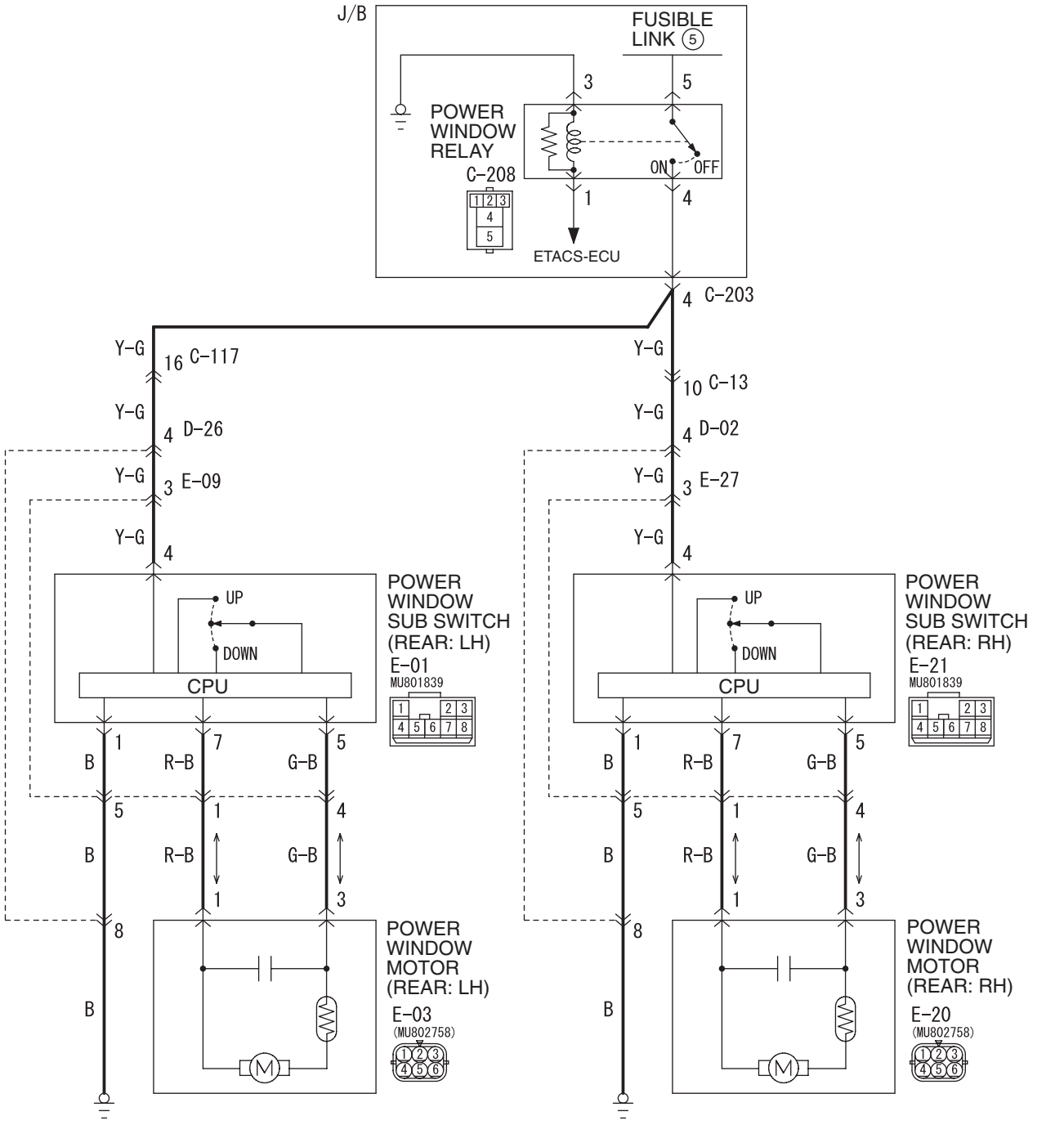
Power Window (front: RH) Circuit



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

W3Z17E01AB

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

W3Z17E02AA

COMMENTS ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

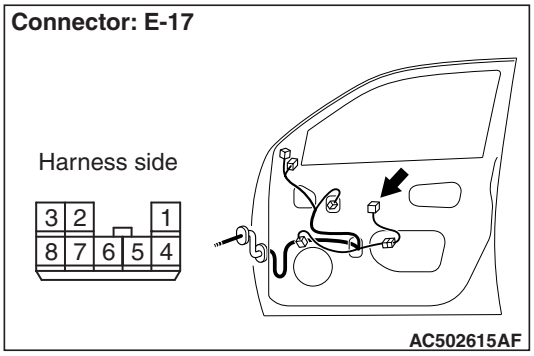
Step 1. Check the power window main switch.
Check that the power window lock switch is turned off.

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.

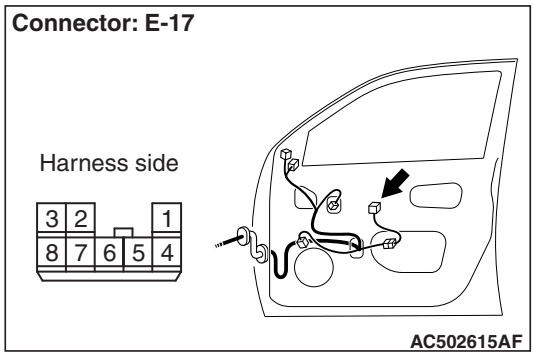
Q: Which power window does not work?
Front passenger's door : Go to Step 3.
Rear right door : Go to Step 12.
Rear left door : Go to Step 21.

Step 3. Connector check: E-17 power window sub switch (front: RH) connector.

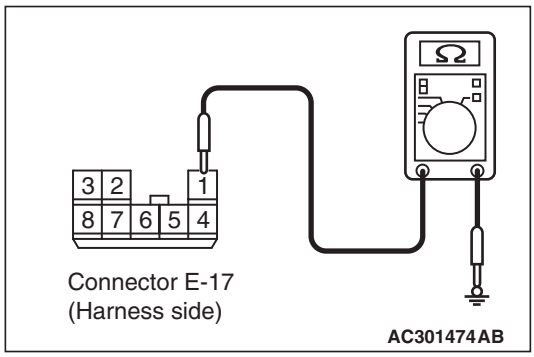


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

Step 4. Resistance measurement at E-17 power window sub switch (front: RH) connector <L.H. drive vehicles> or E-31 power window sub switch (front: LH) connector <R.H. drive vehicles>.



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

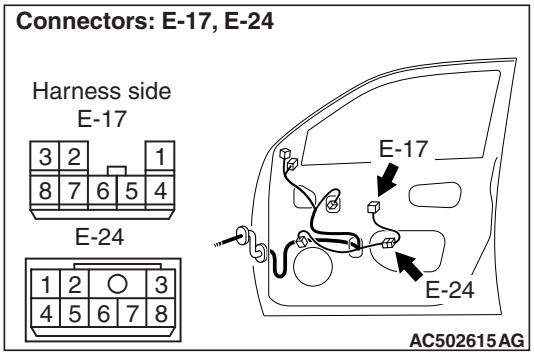


(2) Resistance between terminal 1 and body earth

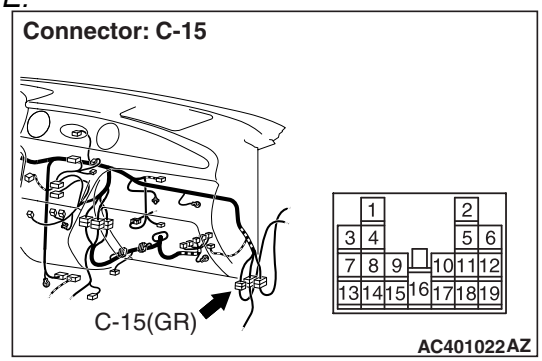
OK: Continuity (less than 2 Ω)

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

Step 5. Check the wiring harness from E-17 power window sub switch (front: RH) connector terminal No.1 to body earth.



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-15 and E-24, and repair if necessary.

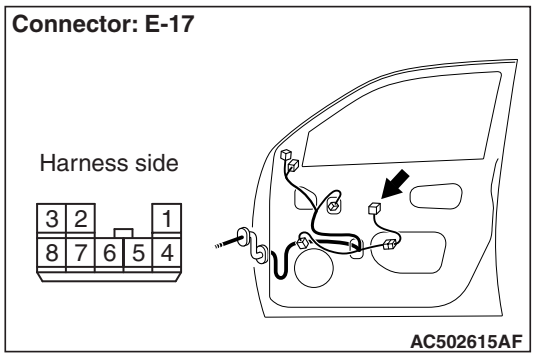
- Check the earth wires for open circuit.

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.00-6).

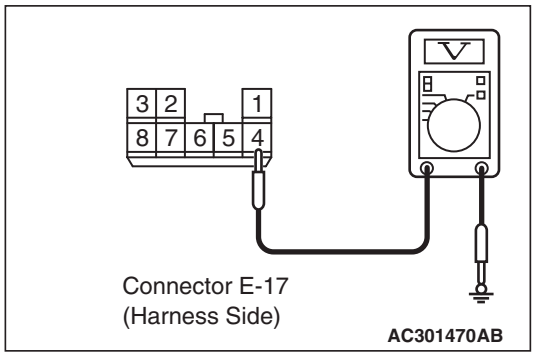
NO : Repair the wiring harness.

Step 6. Voltage measurement at E-17 power window sub switch (front: RH) connector.



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

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



(3) Voltage between terminal 4 and body earth

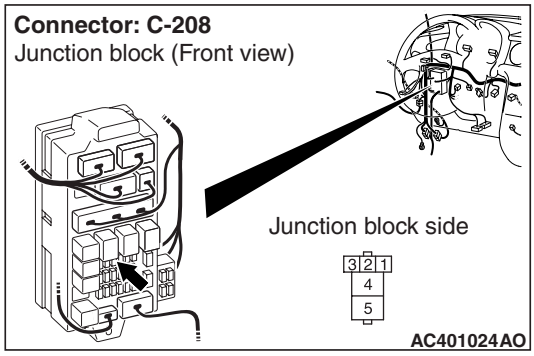
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 7.

Step 7. Connector check: C-208 power window relay connector

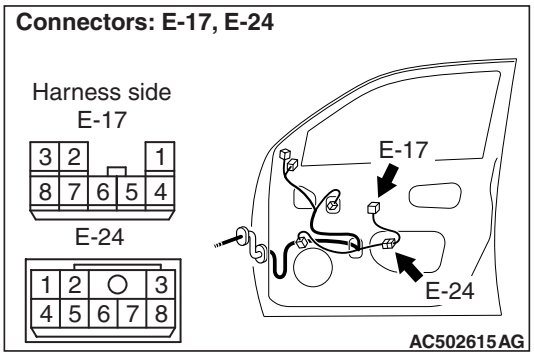


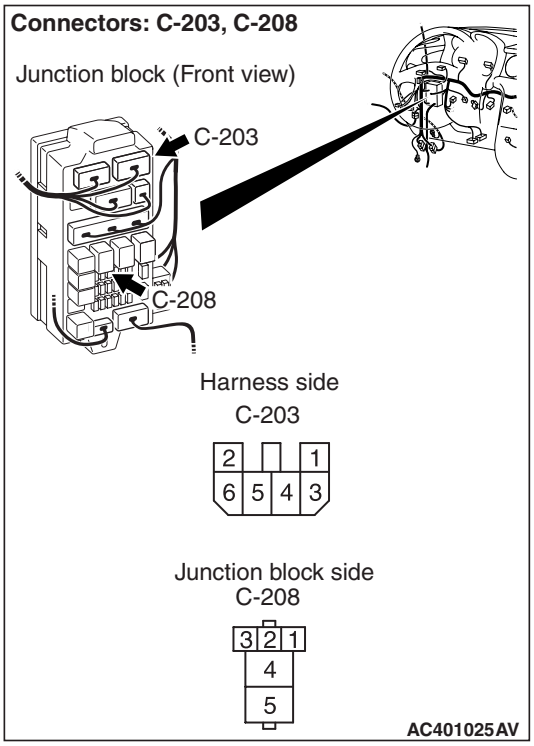
Q: Is the check result normal?

YES : Go to Step 8.

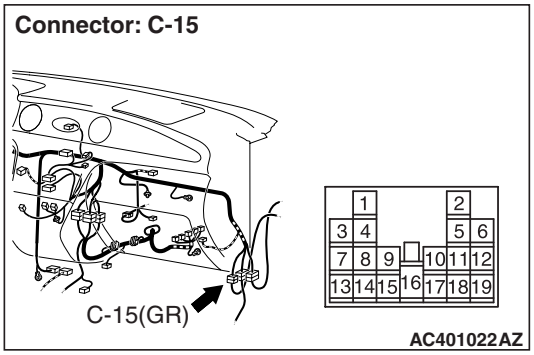
NO : Repair the connector.

Step 8. Check the wiring harness from E-17 power window sub switch (front: RH) connector terminal No.4 to C-208 power window connector terminal No.4.





NOTE:

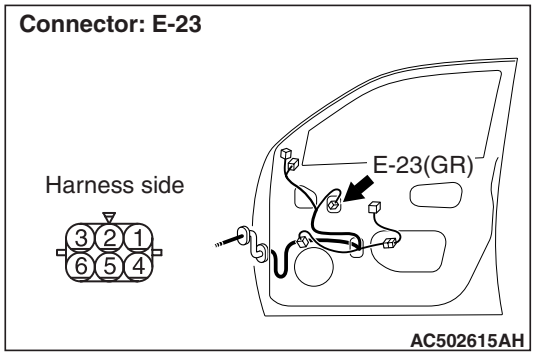


Prior to the wiring harness inspection, check intermediate connectors C-15, E-24 and junction block connector C-203, and repair if necessary.

- Check the power supply line for open circuit.

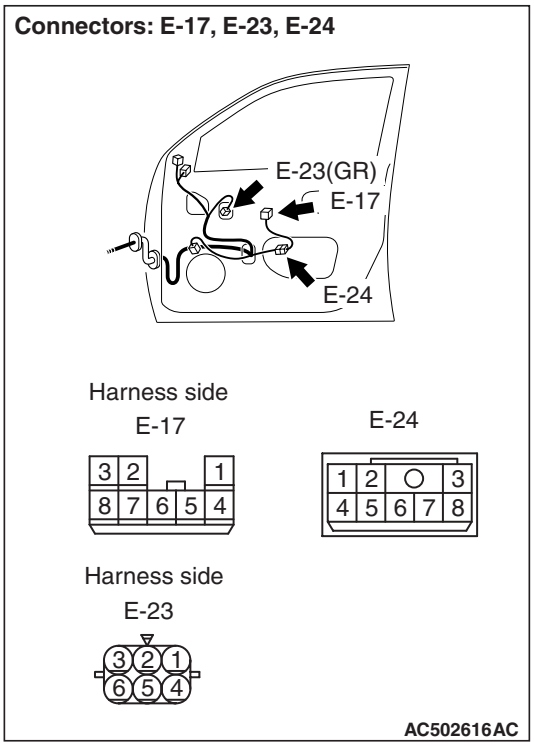
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

Step 9. Connector check: E-23 power window motor (front: 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-23 power window motor (front: RH) connector terminal Nos. 1 and 3 to E-17 power window sub switch (front: RH) connector terminal Nos. 5 and 7.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-24 and repair if necessary.

- 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.

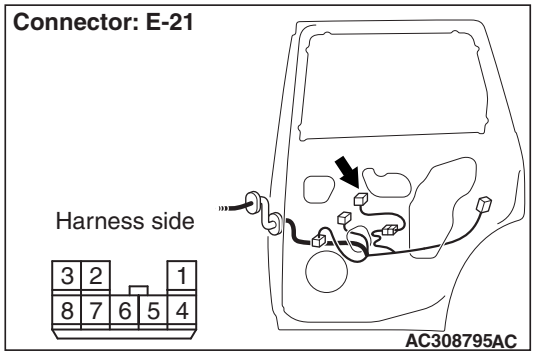
Step 11. Retest the system.

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

(1) Replace the power window sub switch (front: RH).
(2) Check that the front passenger's door power window can be operated by the power window sub switch (front: RH).

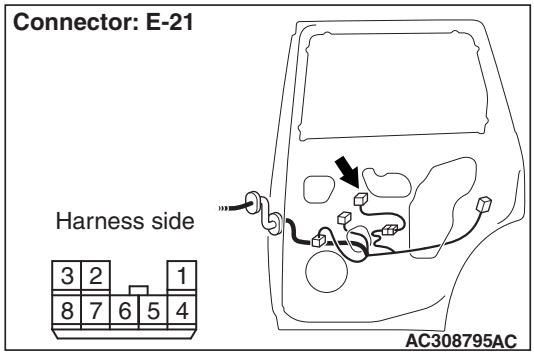
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window motor assembly (front: RH).

Step 12. Connector check: E-21 power window sub switch (rear: RH) connector

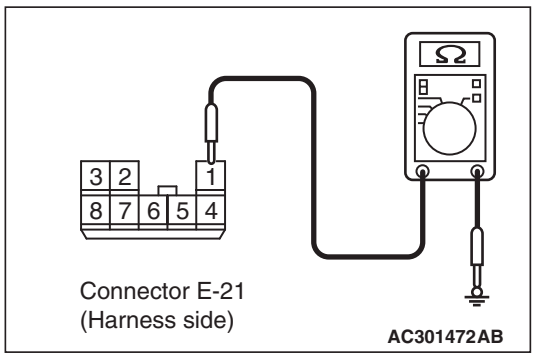


Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the connector.

Step 13. Resistance measurement at E-21 power window sub switch (rear: RH) connector.



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

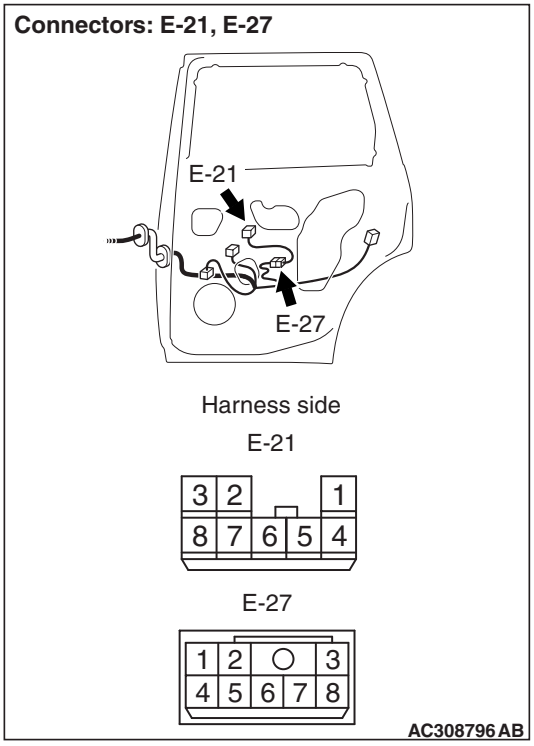


(2) Resistance between terminal 1 and body earth

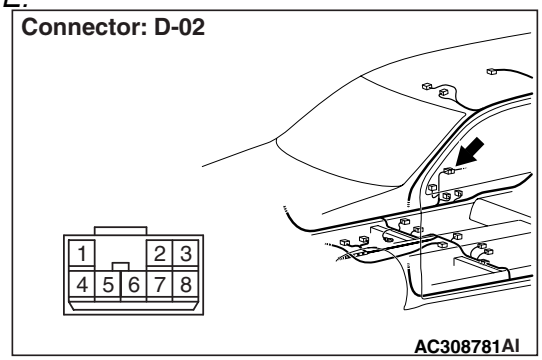
OK: Continuity (less than 2 Ω)

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

Step 14. Check the wiring harness from E-21 power window sub switch (rear RH) connector terminal No.1 to body earth.



NOTE:

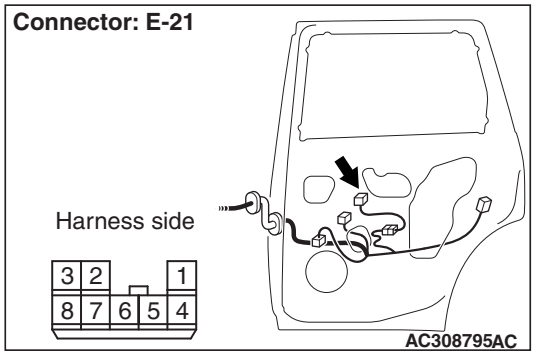


Prior to the wiring harness inspection, check intermediate connectors E-27 and D-02, and repair if necessary.

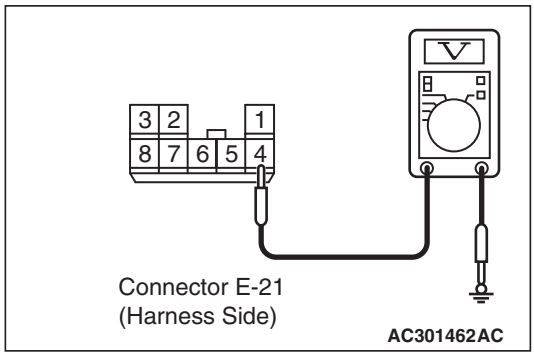
- Check the earth wires for open circuit.

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.00-6).
NO : Repair the wiring harness.

Step 15. Voltage measurement at E-21 power window sub switch (rear: RH) connector.



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

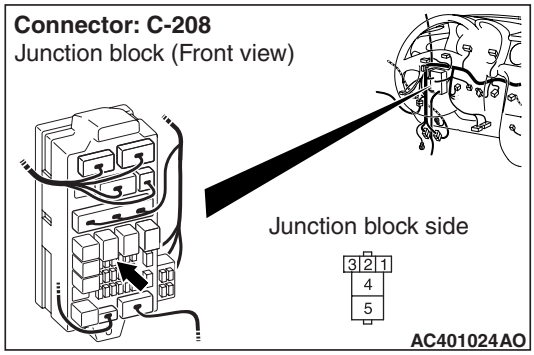


(3) Voltage between terminal 4 and body earth

OK: System voltage

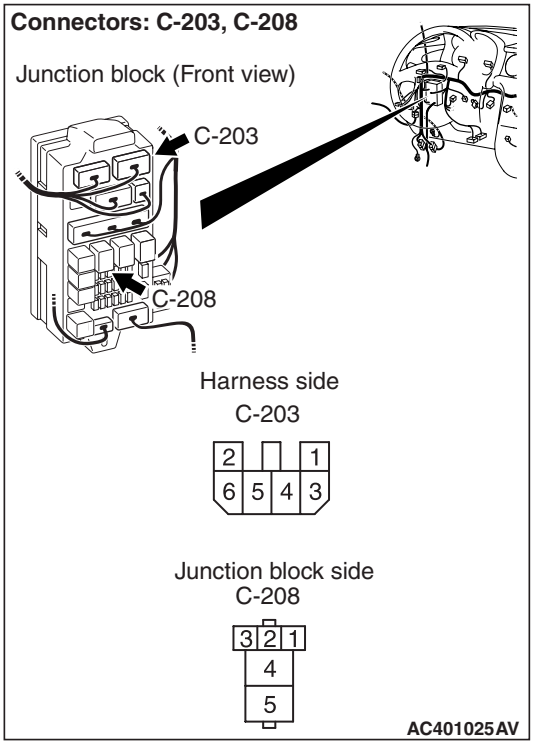
Q: Is the check result normal?
YES : Go to Step 18.
NO : Go to Step 16.

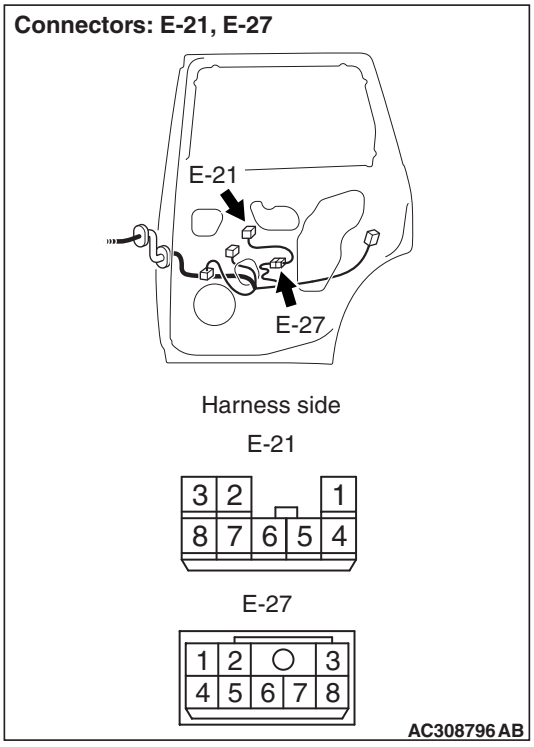
Step 16. Connector check: C-208 power window relay connector



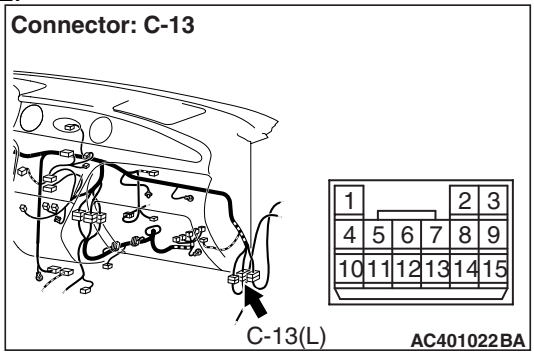
Q: Is the check result normal?
YES : Go to Step 17.
NO : Repair the connector.

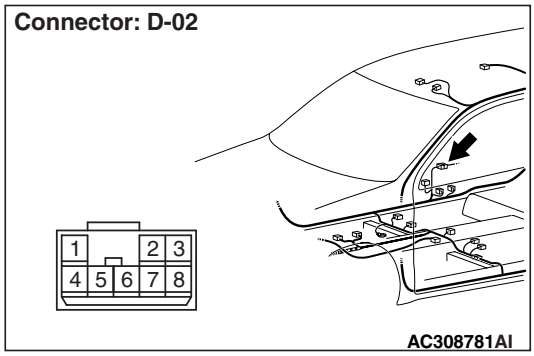
Step 17. Check the wiring harness from E-21 power window sub switch (rear: RH) connector terminal No.4 to C-208 power window connector terminal No.4.





NOTE:





Prior to the wiring harness inspection, check intermediate connectors C-13, D-02, E-27 and junction block connector C-203, and repair if necessary.

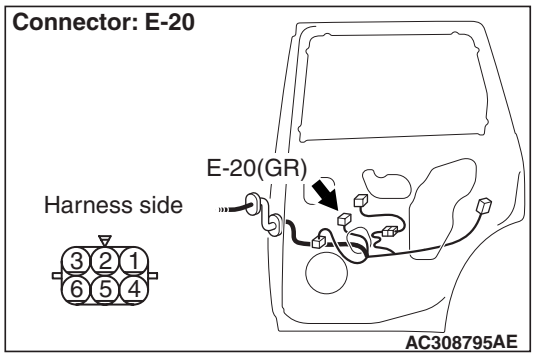
- Check the power supply line for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 18. Connector check: E-20 power window motor (rear: RH) connector

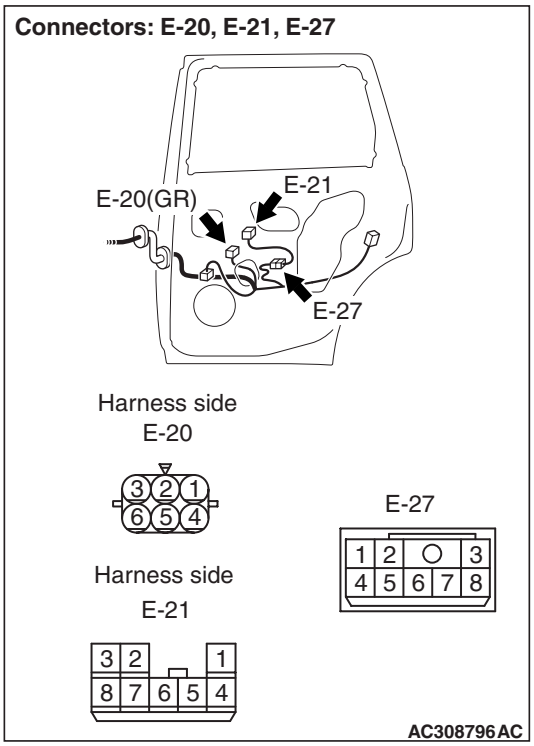


Q: Is the check result normal?

YES : Go to Step 19.

NO : Repair the connector.

Step 19. Check the wiring harness from E-20 power window motor (rear: RH) connector terminal Nos. 1 and 3 to E-21 power window sub switch (rear: RH) connector terminal Nos. 7 and 5.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-27, and repair if necessary.

- 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.

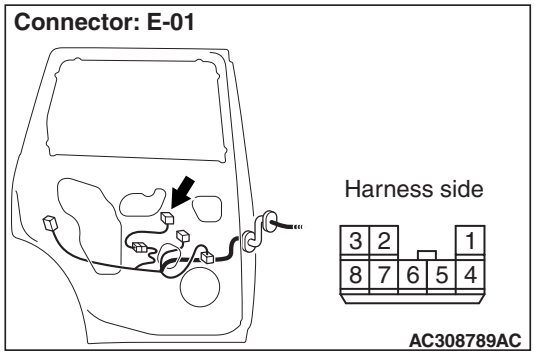
Step 20. Retest the system.

After the 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).

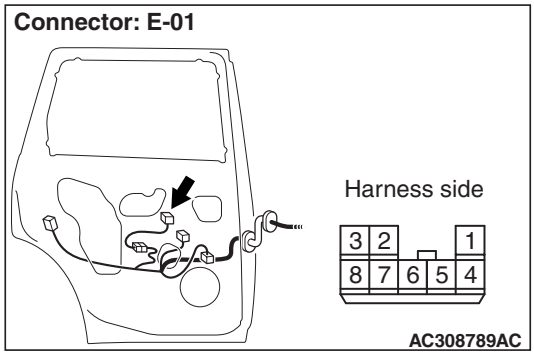
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window motor assembly (rear: RH).

Step 21. Connector check: E-01 power window sub switch (rear: LH) connector

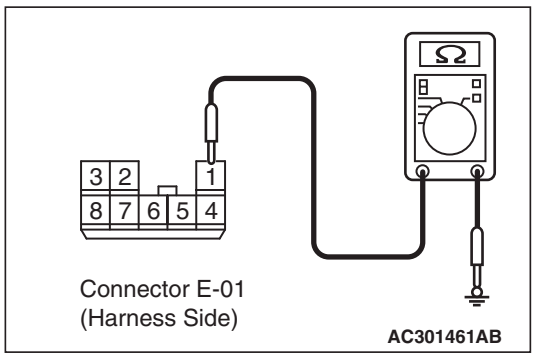


Q: Is the check result normal?
YES : Go to Step 22.
NO : Repair the connector.

Step 22. Resistance measurement at E-01 power window sub switch (rear: LH) connector.



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

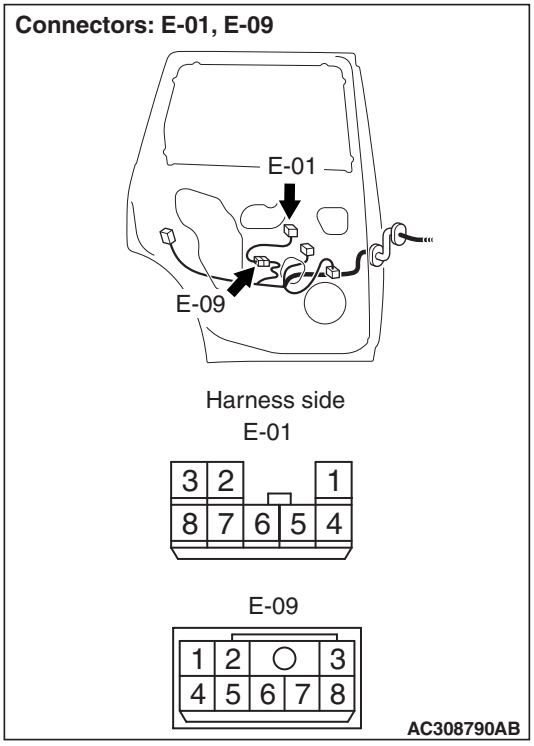


(2) Resistance between terminal 1 and body earth

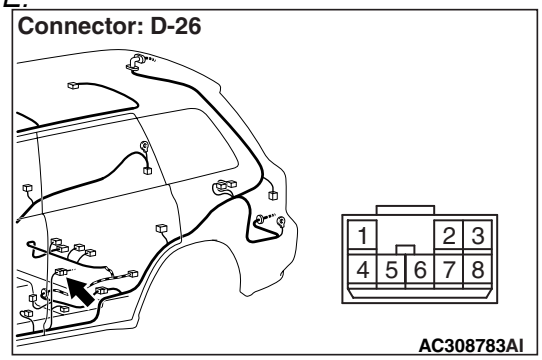
OK: Continuity (less than 2 Ω)

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

Step 23. Check the wiring harness from E-01 power window sub switch (rear: LH) connector terminal No.1 to body earth.



NOTE:



Prior to the wiring harness inspection, check intermediate connectors E-09 and D-26, and repair if necessary.

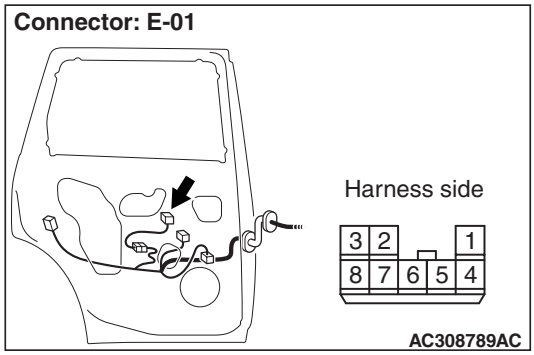
- Check the earth wires for open circuit.

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.00-6).

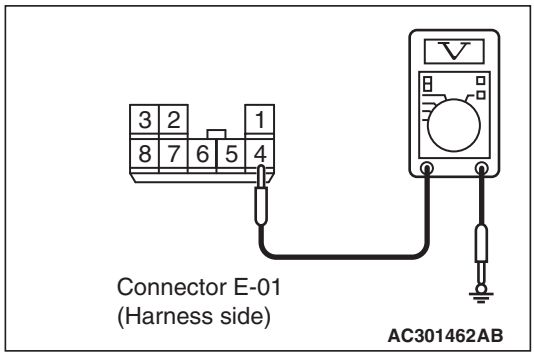
NO : Repair the wiring harness.

Step 24. Voltage measurement at E-01 power window sub switch (rear: LH) connector.



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

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



(3) Voltage between terminal 4 and body earth

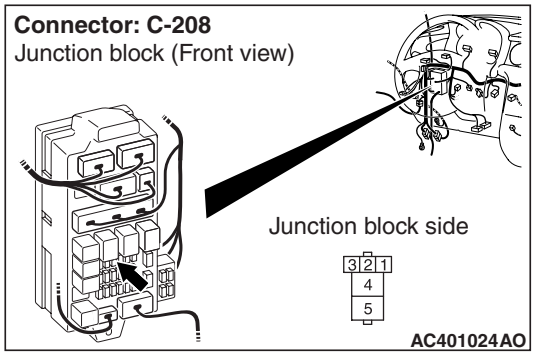
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 27.

NO : Go to Step 25.

Step 25. C-208 power window relay connector

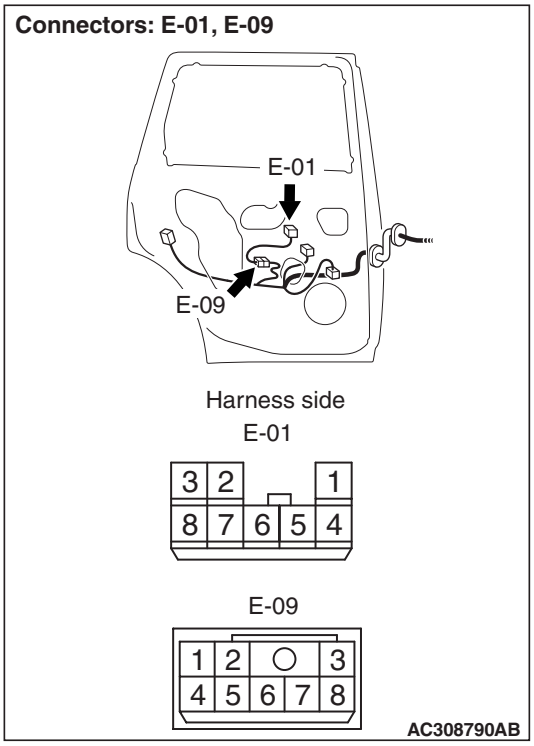


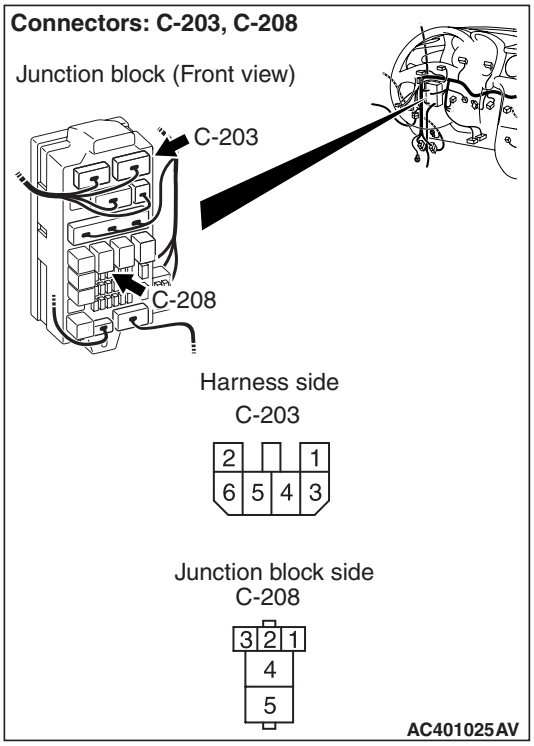
Q: Is the check result normal?

YES : Go to Step 26.

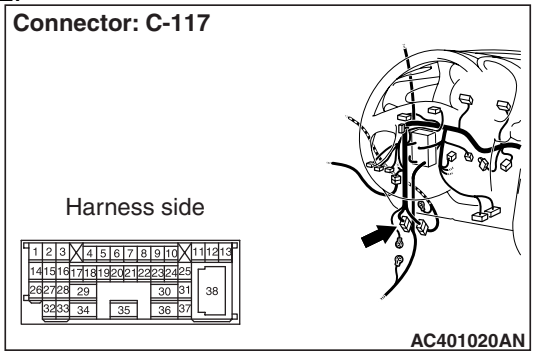
NO : Repair the connector.

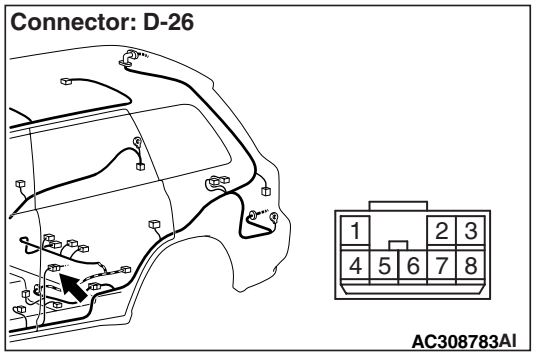
Step 26. Check the wiring harness from E-01 power window sub switch (rear: LH) connector terminal No.4 to C-208 power window connector terminal No.4.





NOTE:





Prior to the wiring harness inspection, check intermediate connectors C-117, D-26, E-09 and junction block connector C-203, and repair if necessary.

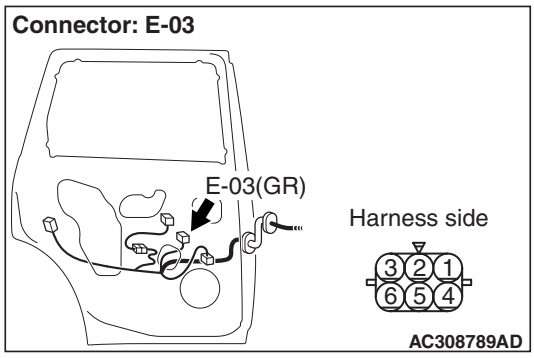
- Check the power supply line for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 27. Connector check: E-03 power window motor (rear: LH) connector

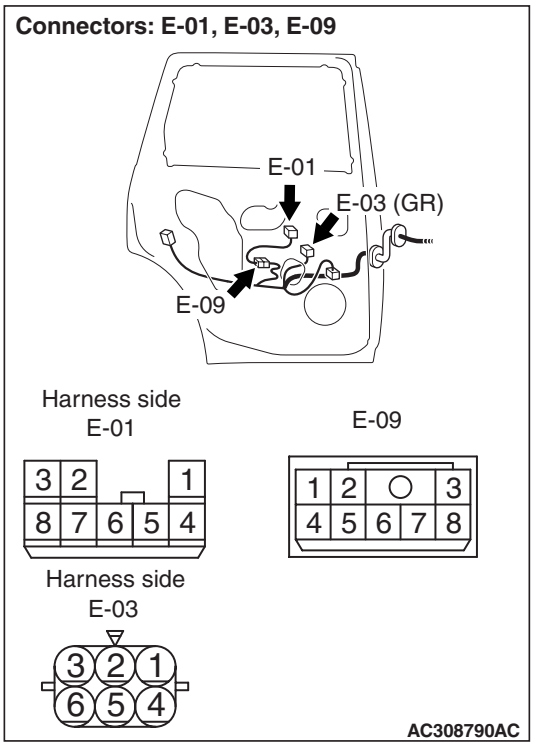


Q: Is the check result normal?

YES : Go to Step 28.

NO : Repair the connector.

Step 28. Check the wiring harness from E-03 power window motor (rear: LH) connector terminal Nos. 1 and 3 to E-01 power window sub switch (rear: LH) connector terminal Nos. 7 and 5.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-09, and repair if necessary.

- 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: 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).

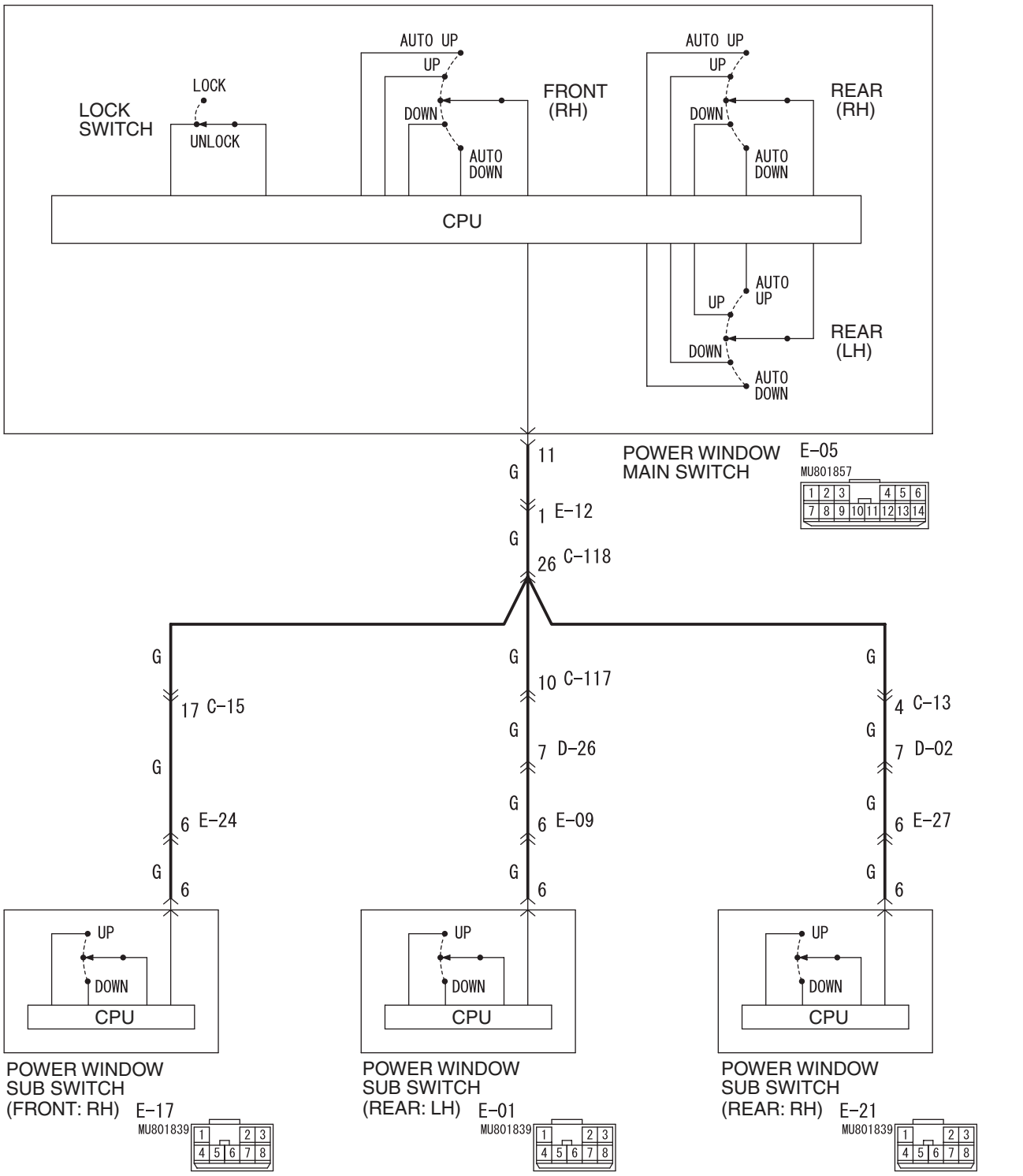
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the power window motor assembly (rear: 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



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

W3Z18E01AB

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 power window sub switch (front: RH), power window sub switch (rear: RH) or power window sub switch (rear: 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-44."

Step 2. SWS monitor data list

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-6).
- 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 3.

NO : Replace the power window main switch.

Step 3. SWS monitor data list

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-6).
- 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
C0	PASS DOR UP	ON
C1	PASS DOR DOWN	ON
C2	PASS DOR AUTO	ON
C4	REAR RH UP	ON
C5	REAR RH DOWN	ON
C6	REAR RH AUTO	ON
C8	REAR LH UP	ON
C9	REAR LH DOWN	ON
CA	REAR LH AUTO	ON

OK: Normal conditions are displayed for all the items.

Q: Are 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 6.

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 4.

Normal conditions are displayed for all of items C4, C5 and C6 when the rear right power window does not work. : Go to Step 12.

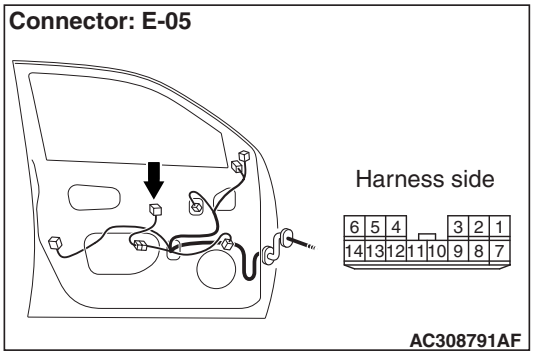
Normal conditions are displayed for none of items C4, C5 and C6 when the rear right power window does not work. : Go to Step 10.

Normal conditions are displayed for all of items C8, C9 and CA when the rear left power window does not work. : Go to Step 18.

Normal conditions are displayed for none of items C8, C9 and CA when the rear left power window does not work. : Go to Step 16.

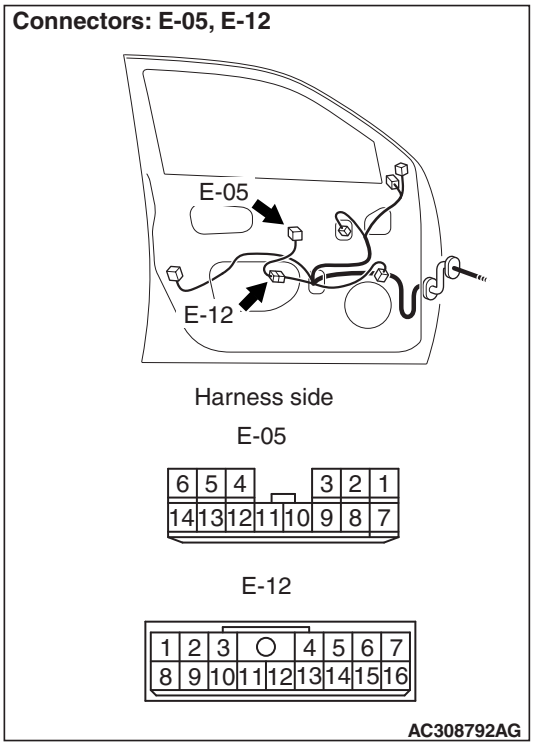
Normal condition are displayed for any of the items. : Replace the power window main switch.

Step 4. Connector check: E-05 power window main switch connector

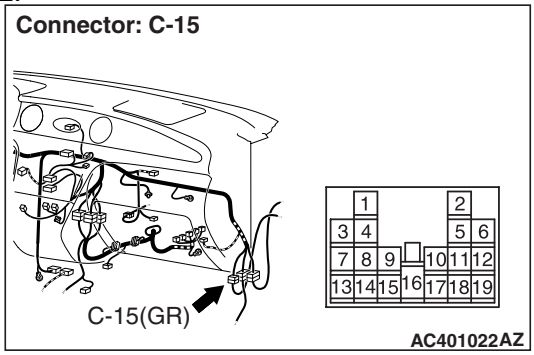


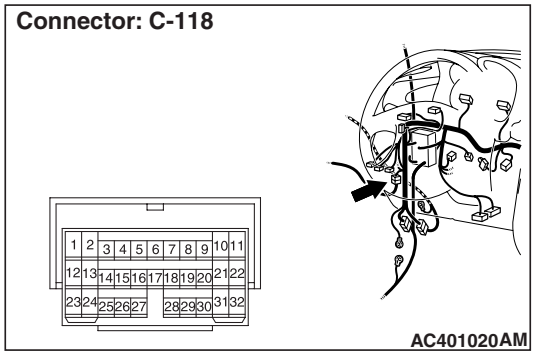
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

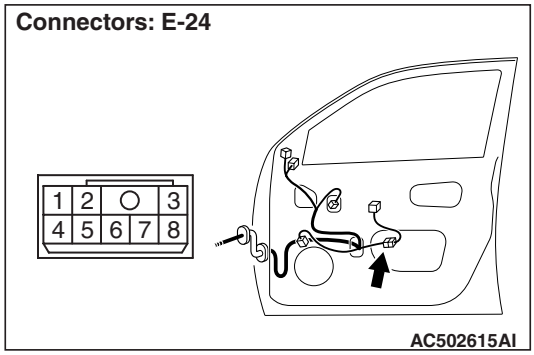
Step 5. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.



NOTE:





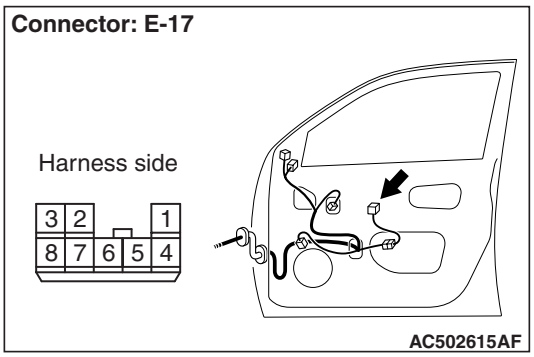


Prior to the wiring harness inspection, check intermediate connectors C-15, C-118, E-12 and E-24, and repair if necessary.

- Check the communication lines for open circuit.

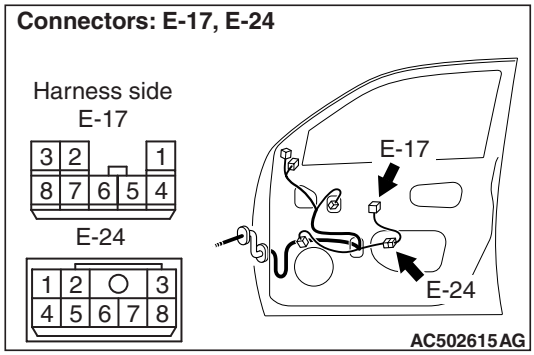
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

Step 6. Connector check: E-17 power window sub switch (front: RH) connector.

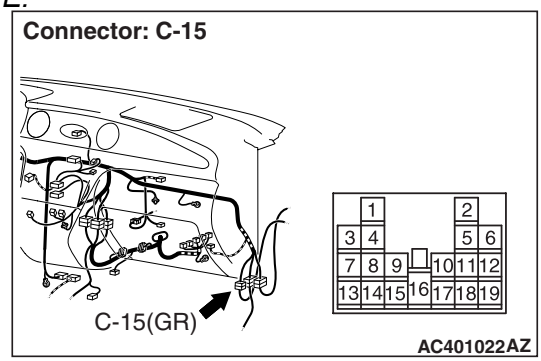


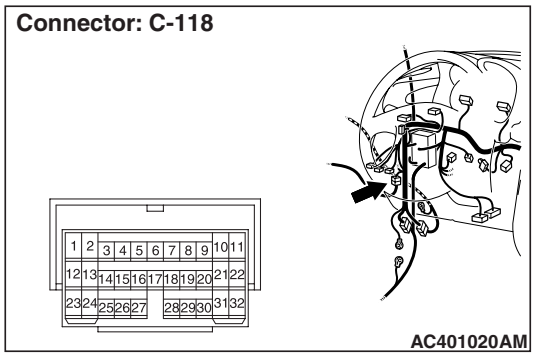
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the connector.

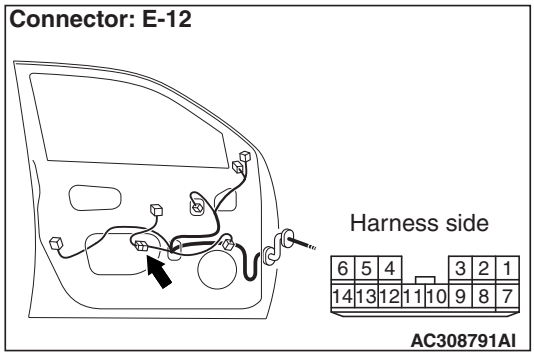
Step 7. Check the wiring harness from E-17 power window sub switch (front: RH) connector terminal No.6 to the inserted probe.



NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-15, C-118, E-12 and E-24, 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.

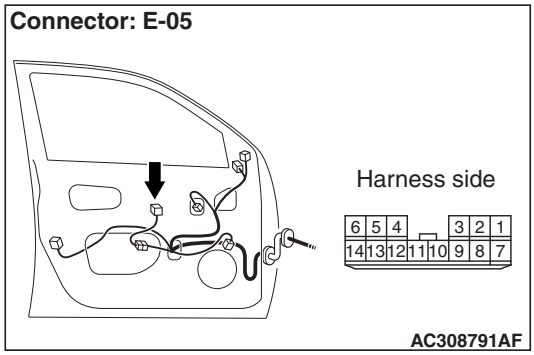
Step 8. Check the power window sub switch.
Check that the front passenger's power window works by means of the power window sub switch (front: RH) when the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 9.
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-72."

Step 9. Retest the system.
After the power window sub switch (front: RH) is replaced, check that the front passenger's door power window can be operated by the power window sub switch.
(1) Replace the power window sub switch (front: RH).
(2) Check that the front passenger's power window works by means of the power window main switch.

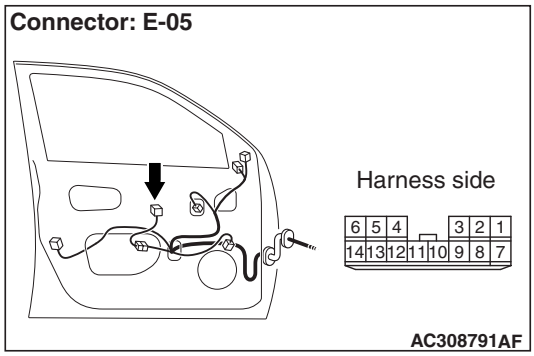
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window main switch.

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

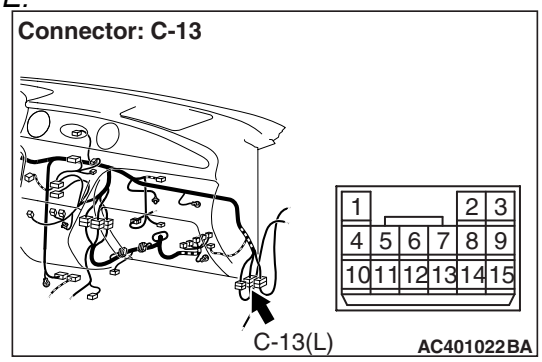


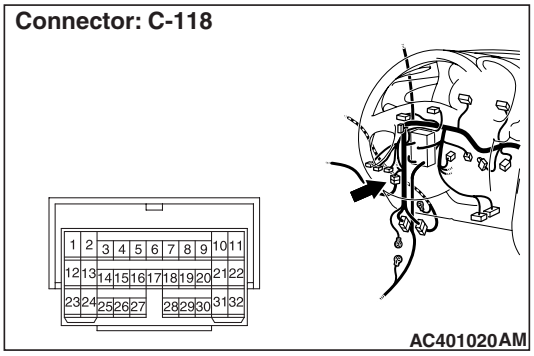
Q: Is the check result normal?
YES : Go to Step 11.
NO : Repair the connector.

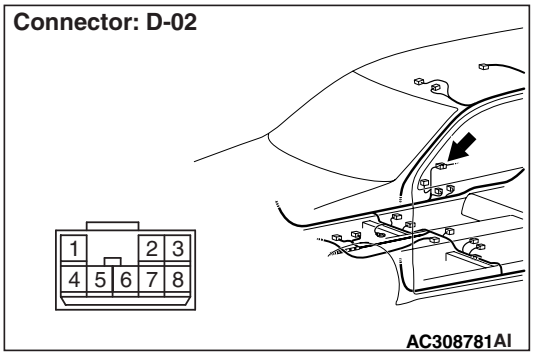
Step 11. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.

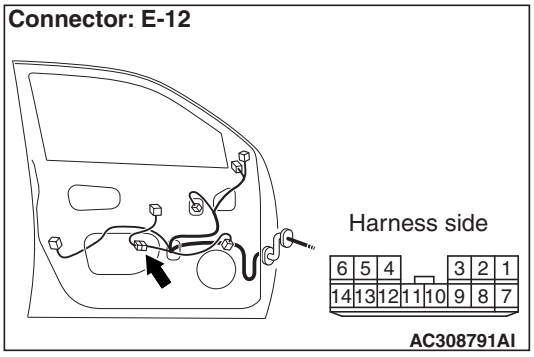


NOTE:







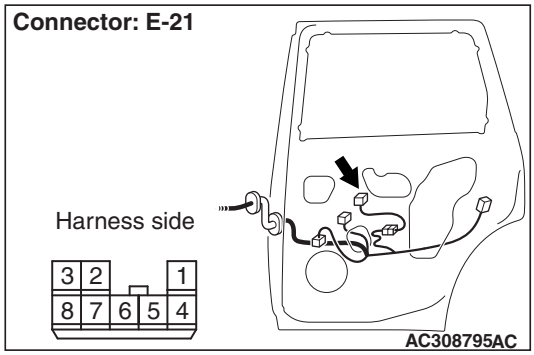


Prior to the wiring harness inspection, check intermediate connectors C-13, C-118, D-02, E-12 and E-27, and repair if necessary.

- Check the communication lines for open circuit.

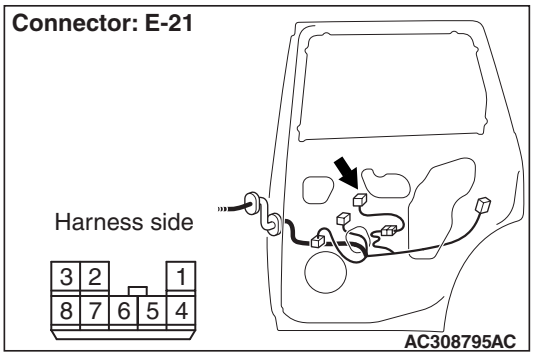
Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair the wiring harness.

Step 12. Connector check: E-21 power window sub switch (rear: RH) connector

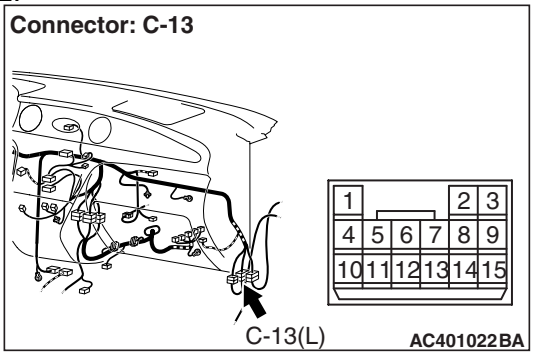


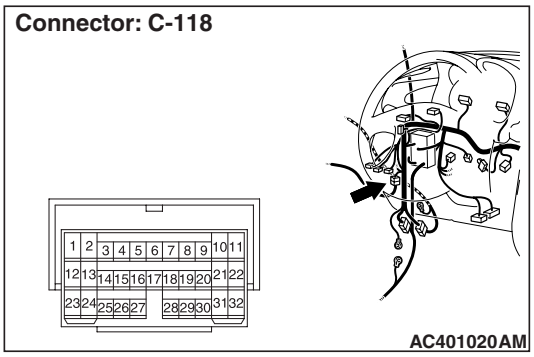
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the connector.

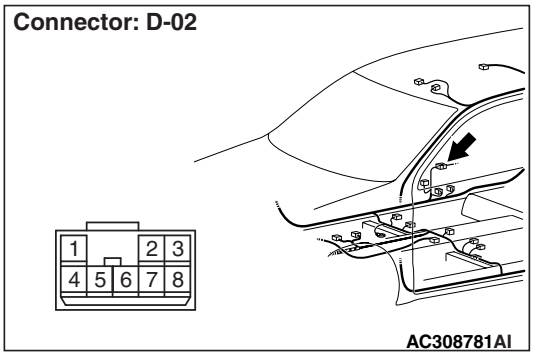
Step 13. Check the wiring harness from E-21 power window sub switch (rear: RH) connector terminal No.6 to the inserted probe.

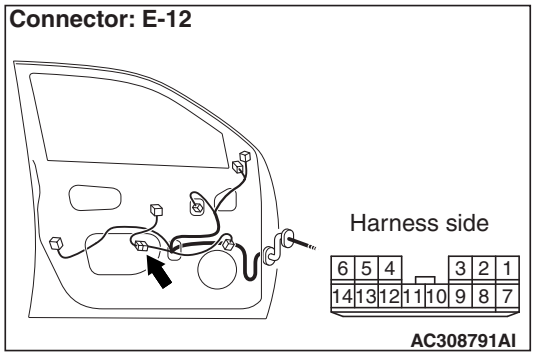


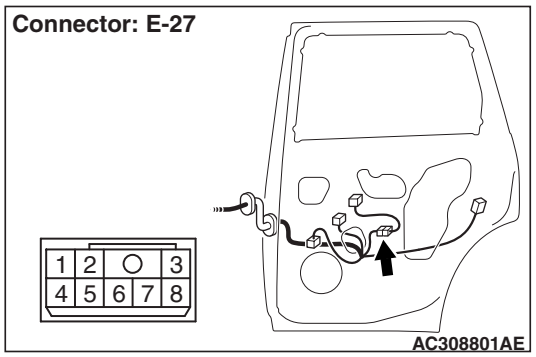
NOTE:











Prior to the wiring harness inspection, check intermediate connectors C-13, C-118, D-02, E-12 and E-27, 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. Check the power window sub switch.
Check that the rear right power window works by means of the power window sub switch (rear: RH) when the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 15.
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-72."

Step 15. 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.

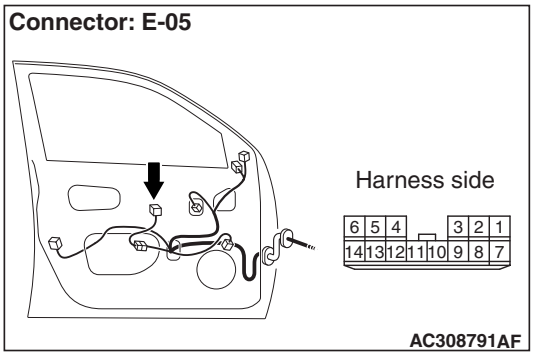
(1) Replace the power window sub switch (rear: RH).
(2) Check that the rear right power window works by means of the power window main switch.

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.00-6).

NO : Replace the power window main switch.

Step 16. Connector check: E-05 power window main switch connector

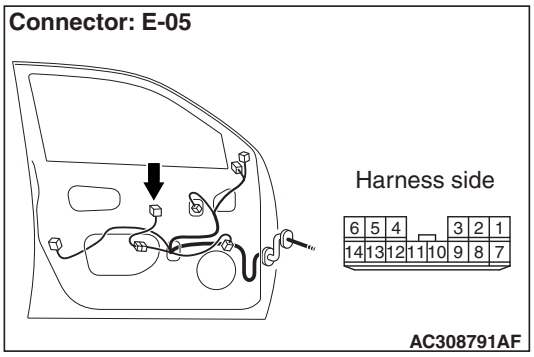


Q: Is the check result normal?

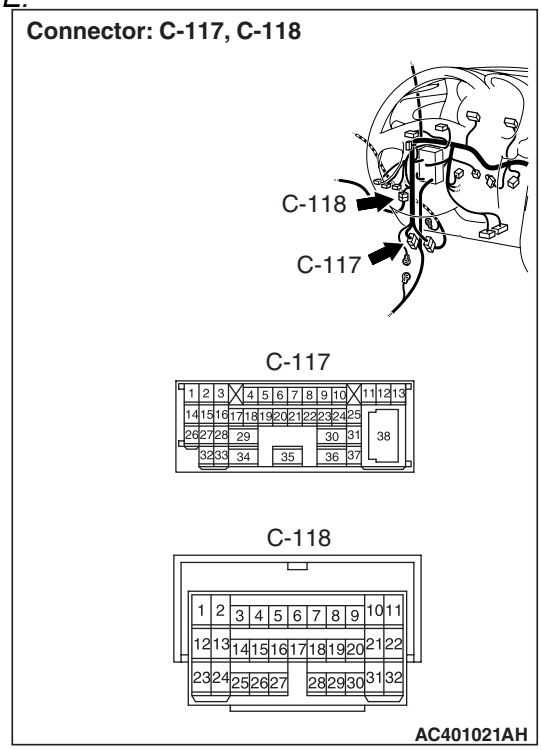
YES : Go to Step 17.

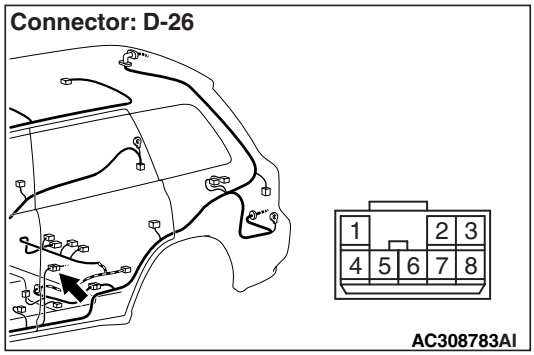
NO : Repair the connector.

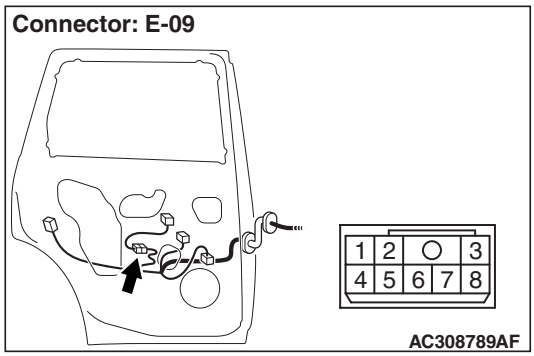
Step 17. Check the wiring harness from E-05 power window main switch connector terminal No.11 to the inserted probe.

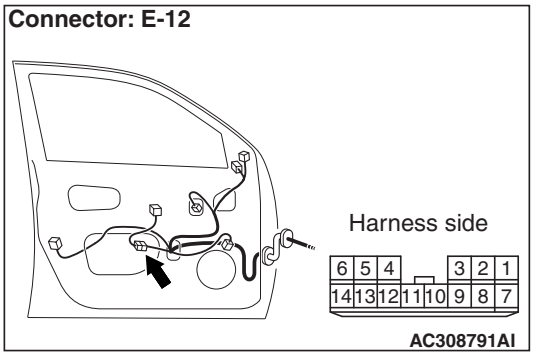


NOTE:







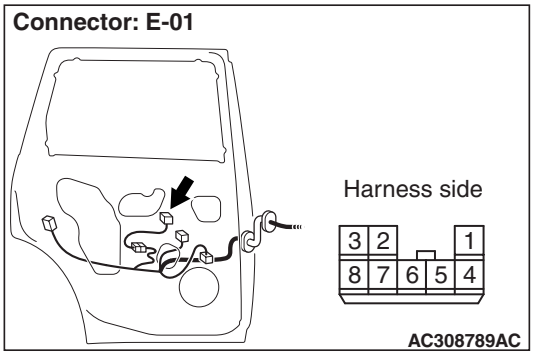


Prior to the wiring harness inspection, check intermediate connectors C-117, C-118, D-26, E-09 and E-12, and repair if necessary.

- Check the communication lines for open circuit.

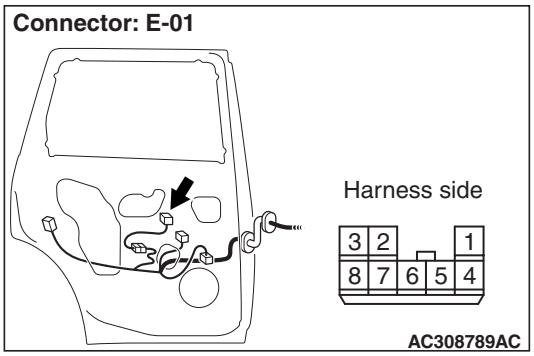
Q: Is the check result normal?
YES : Go to Step 20.
NO : Repair the wiring harness.

Step 18. Connector check: E-01 power window sub switch (rear: LH) connector

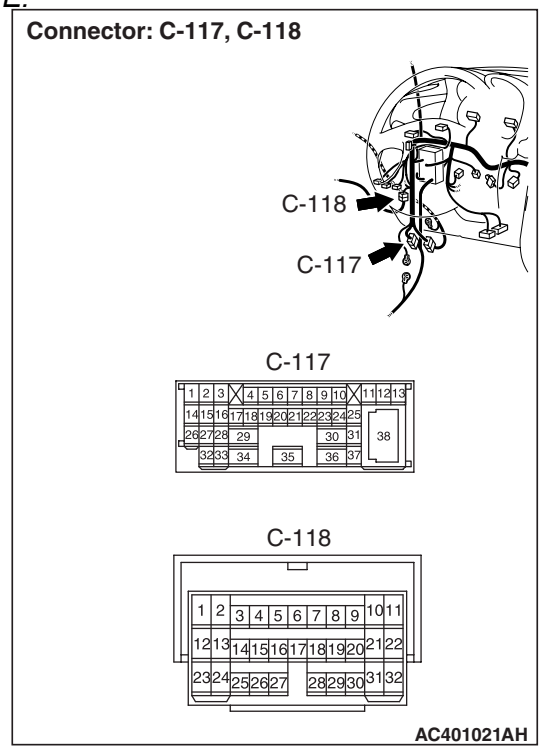


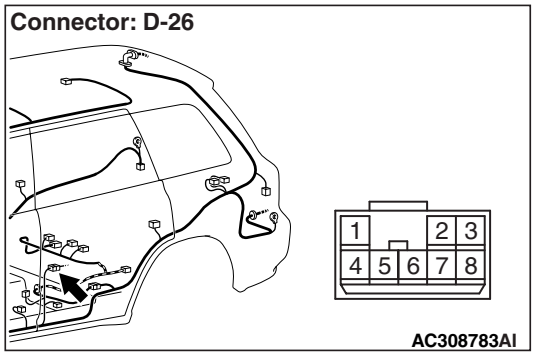
Q: Is the check result normal?
YES : Go to Step 19.
NO : Repair the connector.

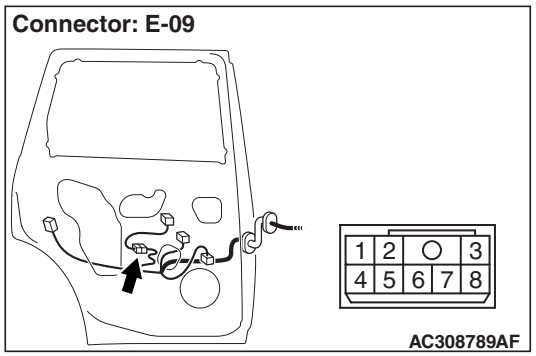
Step 19. Check the wiring harness from E-01 power window sub switch (rear: LH) connector terminal No.6 to the inserted probe.

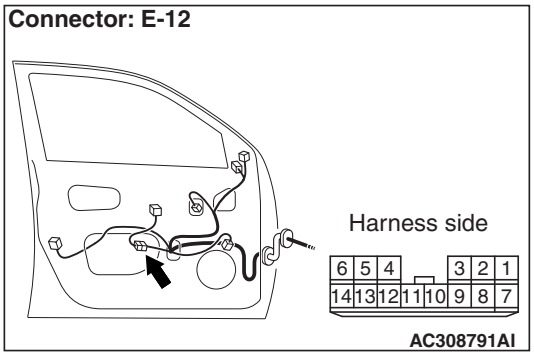


NOTE:









Prior to the wiring harness inspection, check intermediate connectors C-117, C-118, D-26, E-09 and E-12, and repair if necessary.

- Check the communication lines for open circuit.

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

Step 20. Check the power window sub switch.
Check that the rear left power window works by means of the power window sub switch (rear: LH) when the power window lock switch is turned off.

Q: Is the check result normal?
YES : Go to Step 21.
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-72."

Step 21. 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.
(1) Replace the power window sub switch (rear: 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.00-6).
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 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.42-27.

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-94."

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.42-28).

Q: Is the check result normal?
YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-27), and then go to Step 3.
NO : Replace the defective power window 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.42-27.

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.42-27).

Step 4. Retest the system.

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

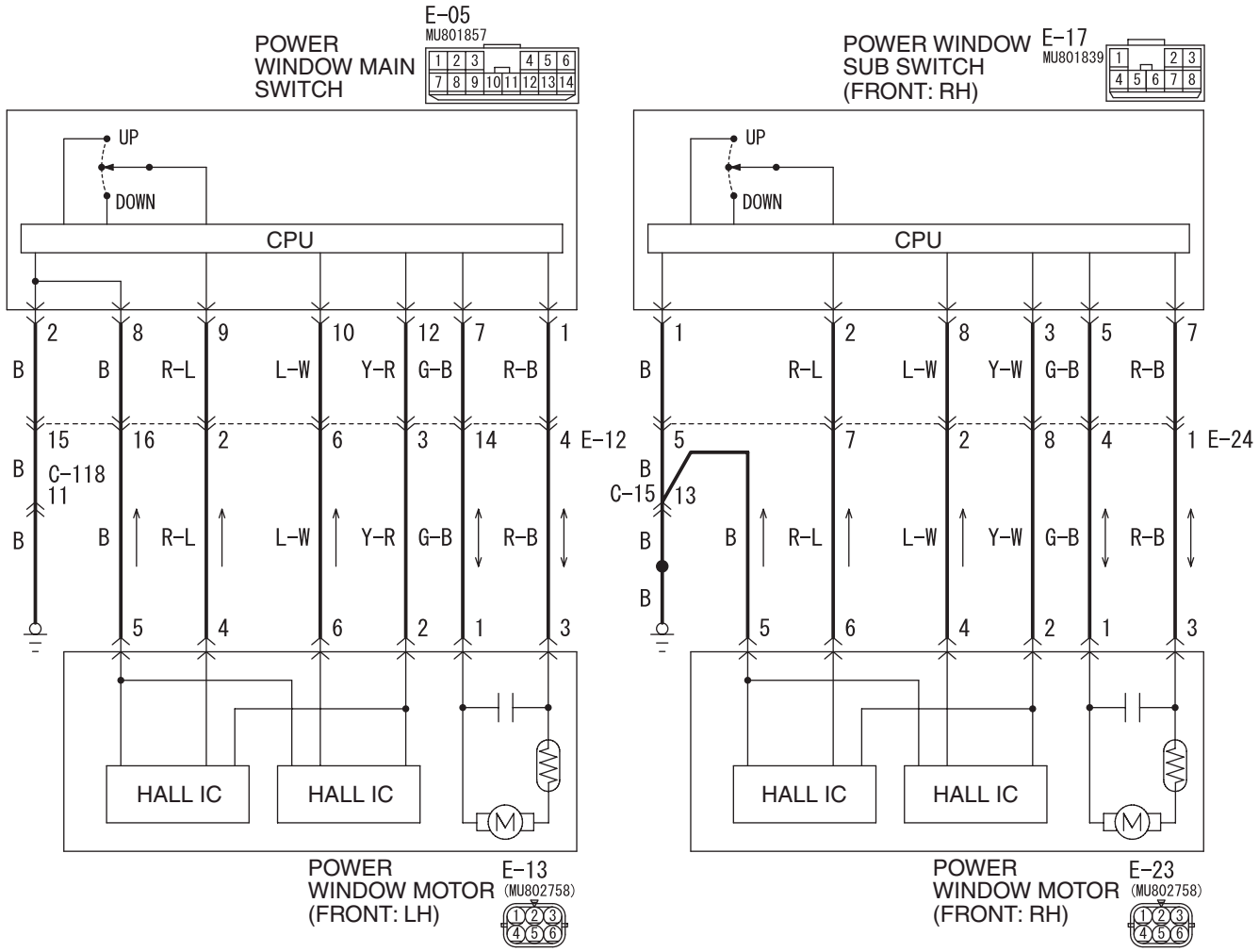
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

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

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

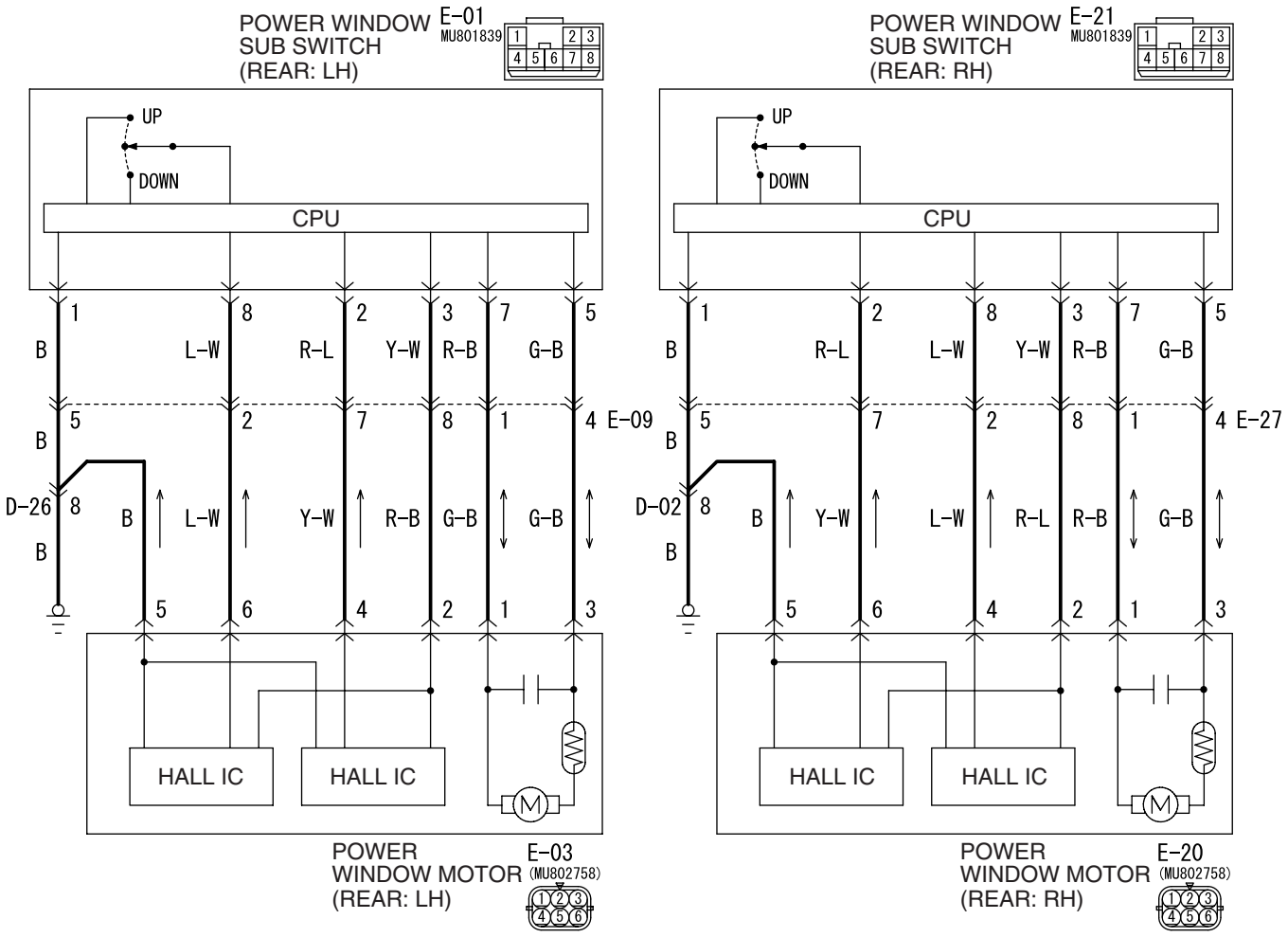
Power Window (front) Circuit



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

W3Z17E03AB

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

W3Z17E04AA

COMMENTS ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

- Malfunction of the power window motor

DIAGNOSIS PROCEDURE

Step 1. Check the power window operating current.

Check that the power window operating current is normal (Refer to GROUP 42 – Door – On-vehicle Service P.42-28).

Q: Is the check result normal?

YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-27), and then go to Step 2.

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

Step 2. Confirm the power window learning function.

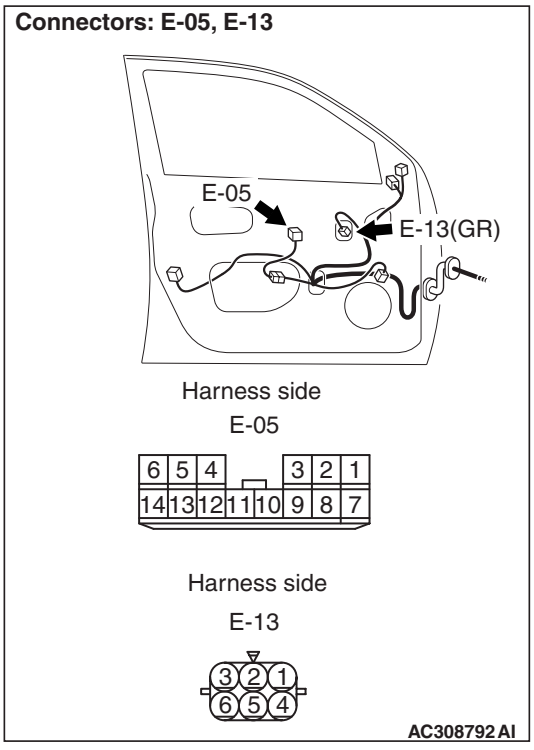
Check that the power window switch has learned the fully closed position of the windows (Refer to GROUP 42 – Door P.42-35).

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.42-35).

Step 3. Determine a trouble spot.

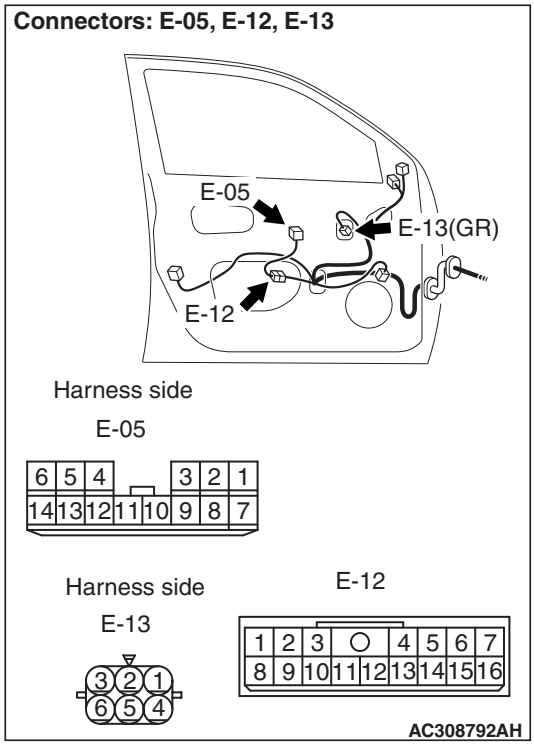
Q: Which door does the power window anti-trap function fail on?
Driver's door : Go to Step 4.
Front passenger's door : Go to Step 7.
Rear right door : Go to Step 13.
Rear left door : Go to Step 19.

Step 4. Connector check: E-05 power window main switch connector and E-13 power window motor (front: 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-13 power window motor (front: LH) connector terminal Nos. 5, 4, 6 and 2.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-12, 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 6.
NO : Repair the wiring harness.

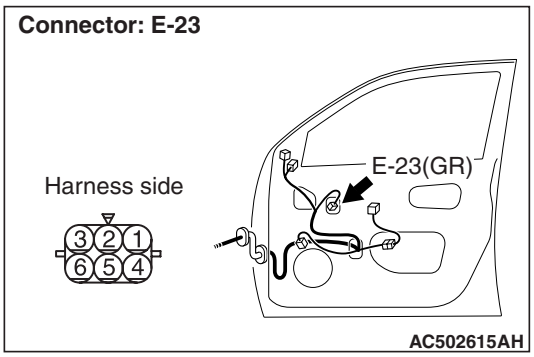
Step 6. Retest the system.

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.

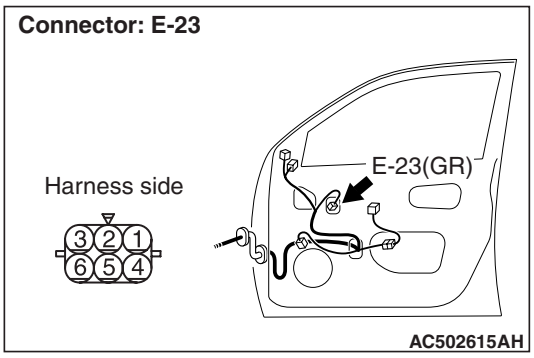
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window motor assembly (front LH).

Step 7. Connector check: E-23 power window motor (front: RH) connector.

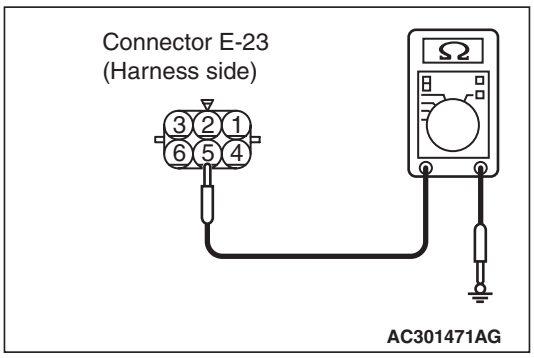


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

Step 8. Resistance measurement at E-23 power window motor (front: RH) connector.



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

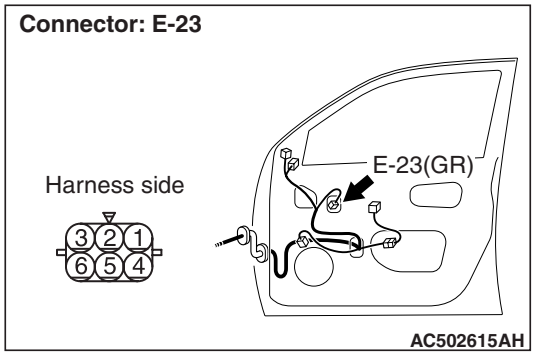


(2) Resistance between E-23 power window motor (front: RH) connector terminal No.5 and body earth.

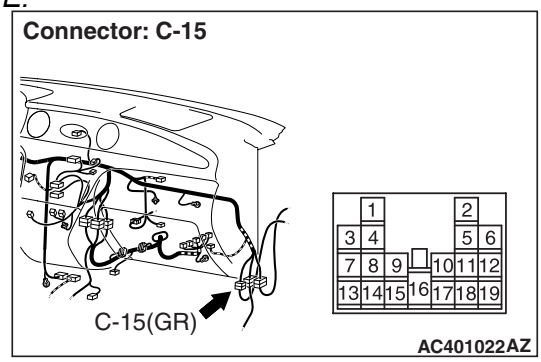
OK: Continuity (less than 2 Ω)

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

Step 9. Check the wiring harness E-23 power window motor (front: RH) connector terminal No.5 to body earth.



NOTE:

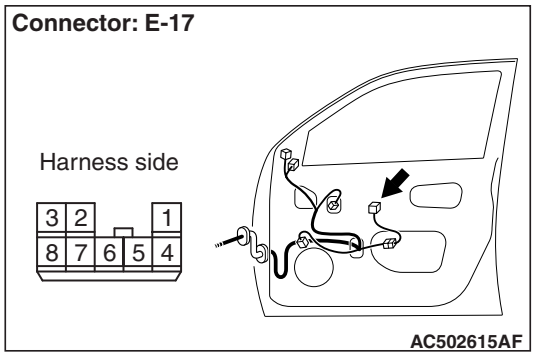


Prior to the wiring harness inspection, check intermediate connector C-15, and repair if necessary.

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

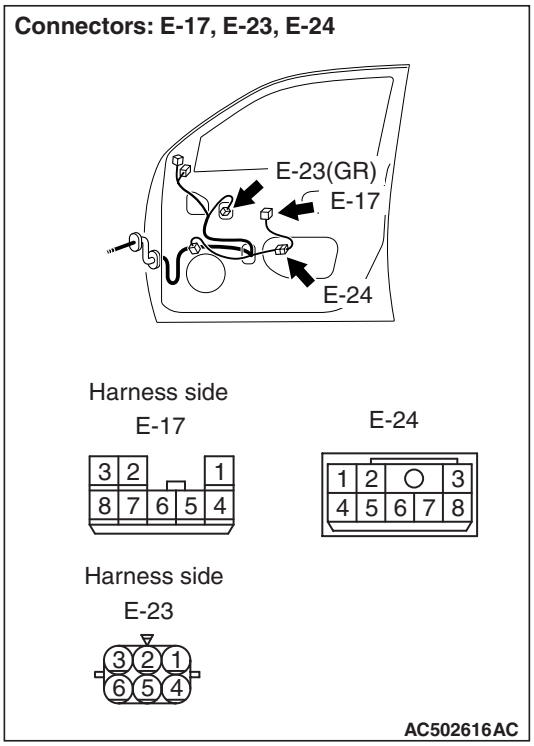
Q: Is the check result normal?
YES : Go to Step 10.
NO : Repair the wiring harness.

Step 10. Connector check: E-17 power window sub switch (front: RH) connector.



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

Step 11. Check the wiring harness from E-17 power window sub switch (front: RH) connector terminal Nos. 2, 8 and 3 to E-23 power window motor (front: RH) connector terminal Nos. 6, 4 and 2.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-24, 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 12.
NO : Repair the wiring harness.

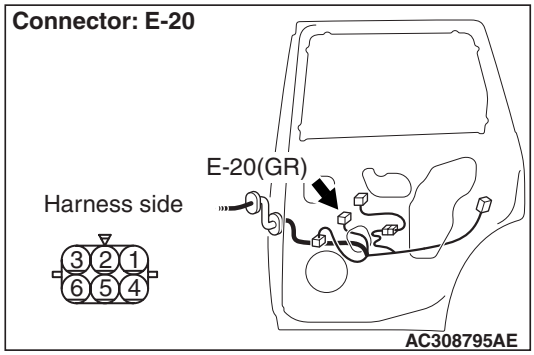
Step 12. Retest the system.

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

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

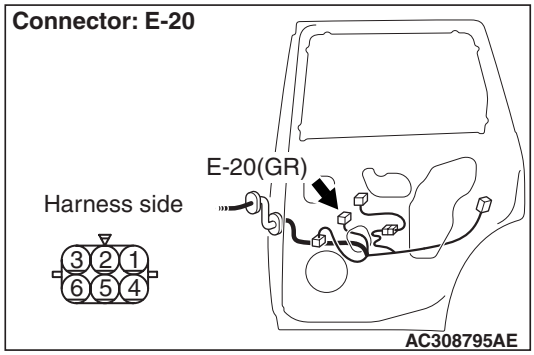
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window motor assembly (front: RH).

Step 13. Connector check: E-20 power window motor (rear: RH) connector

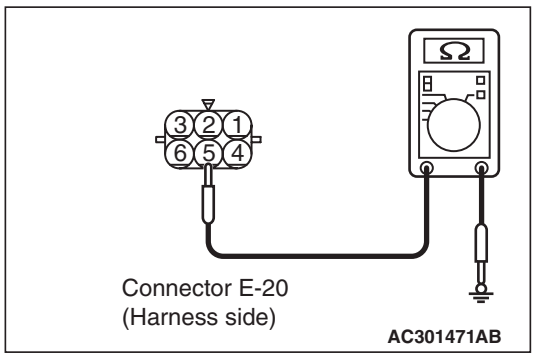


Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair the defective connector.

Step 14. Resistance measurement at E-20 power window motor (rear: RH) connector.



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

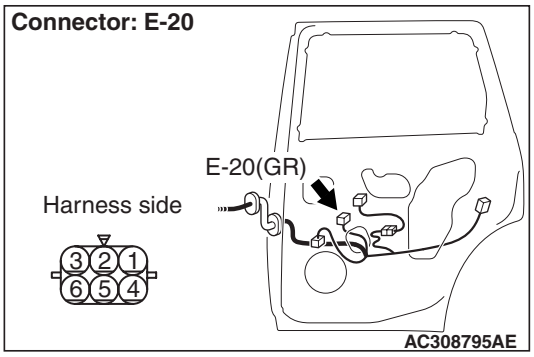


(2) Resistance between E-20 power window motor (rear: RH) connector terminal No.5 and body earth.

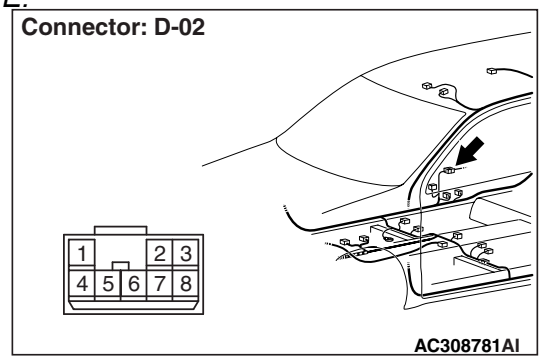
OK: Continuity (less than 2 Ω)

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

Step 15. Check the wiring harness from E-20 power window motor (rear: RH) connector terminal No.5 to body earth.



NOTE:

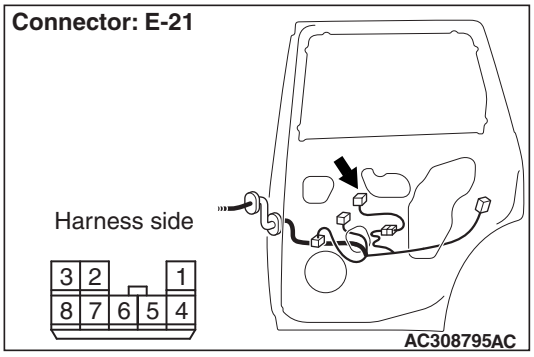


Prior to the wiring harness inspection, check intermediate connector D-02, and repair if necessary.

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

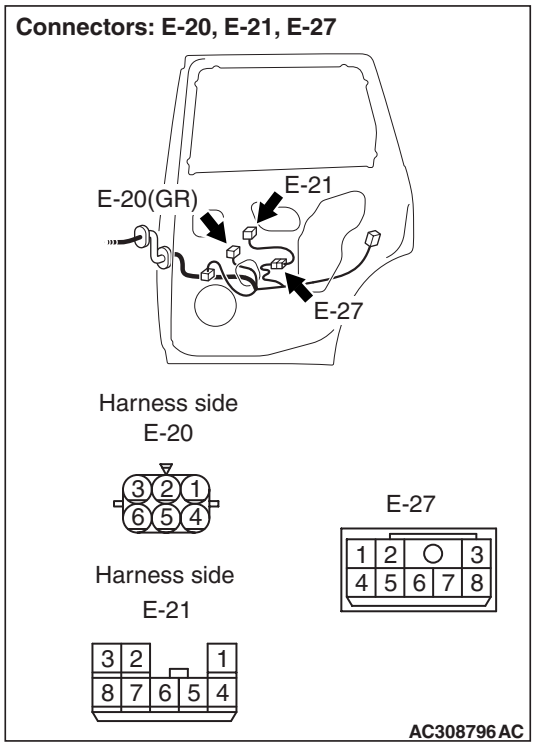
Q: Is the check result normal?
YES : Go to Step 16.
NO : Repair the wiring harness.

Step 16. Connector check: E-21 power window sub switch (rear: RH) connector



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

Step 17. Check the wiring harness from E-21 power window sub switch (rear: RH) connector terminal Nos. 2, 8 and 3 to E-20 power window motor (rear: RH) connector terminal Nos. 6, 4 and 2.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-27, 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 18.
NO : Repair the wiring harness.

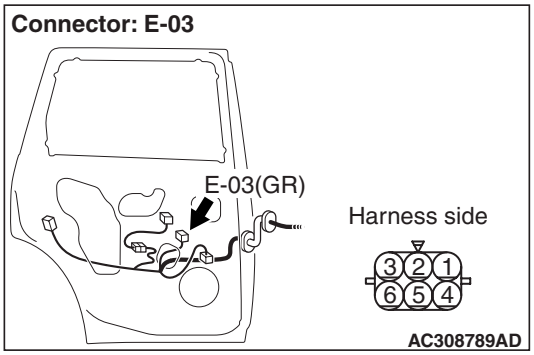
Step 18. Retest the system.

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

(1) Replace the power window sub switch (rear: RH).
(2) Check that the rear right power window anti-trap function works.

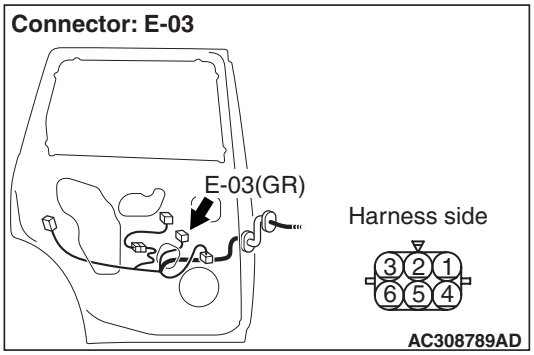
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the power window motor assembly (rear: RH).

Step 19. Connector check: E-03 power window motor (rear: LH) connector

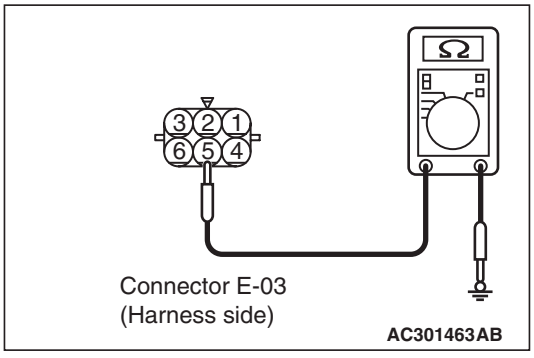


Q: Is the check result normal?
YES : Go to Step 20.
NO : Repair the defective connector.

Step 20. Resistance measurement at E-03 power window motor (rear: LH) connector.



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

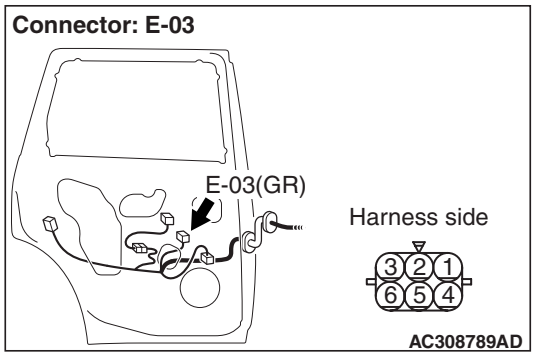


(2) Resistance between E-03 power window motor (rear: LH) connector terminal No.5 and body earth.

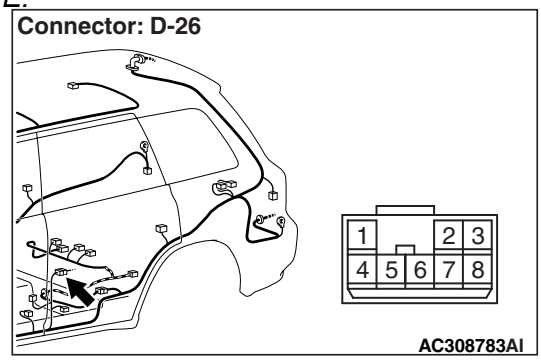
OK: Continuity (less than 2 Ω)

Q: Is the check result normal?
YES : Go to Step 22.
NO : Go to Step 21.

Step 21. Check the wiring harness from E-03 power window motor (rear: LH) connector terminal No.5 to body earth.



NOTE:

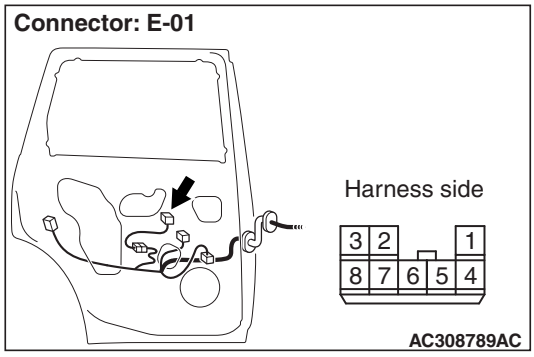


Prior to the wiring harness inspection, check intermediate connector D-26, and repair if necessary.

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

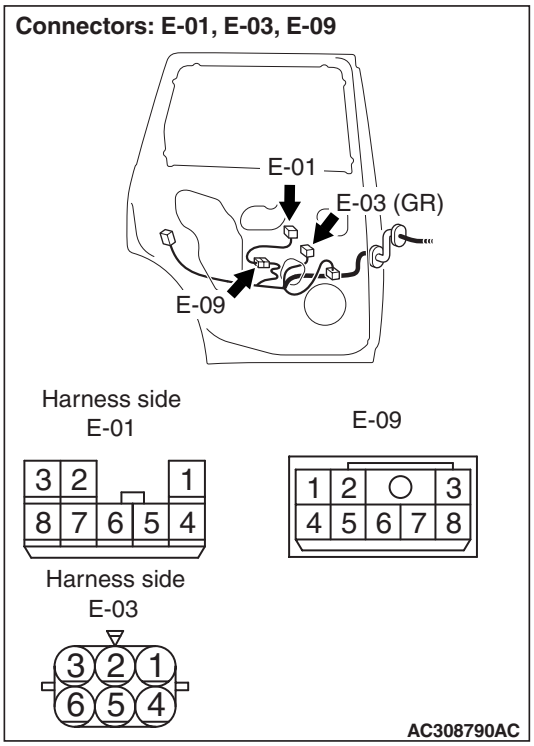
Q: Is the check result normal?
YES : Go to Step 22.
NO : Repair the wiring harness.

Step 22. Connector check: E-01 power window sub switch (rear: LH) connector



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

Step 23. Check the wiring harness from E-01 power window sub switch (rear: LH) connector terminal Nos. 8, 2 and 3 to E-03 power window motor (rear: LH) connector terminal Nos. 6, 4 and 2.



NOTE: Prior to the wiring harness inspection, check intermediate connector E-09, 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 24.

NO : Repair the wiring harness.

Step 24. Retest the system.

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

(1) Replace the power window sub switch (rear: 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.00-6).

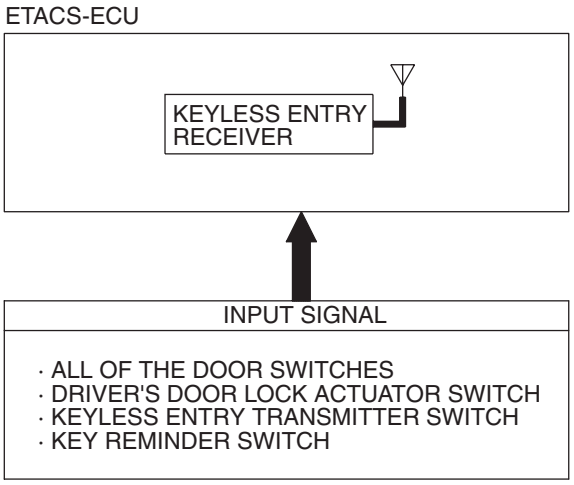
NO : Replace the power window motor assembly (rear: LH).

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



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COMMENTS ON TROUBLE SYMPTOM

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

- Key reminder switch
- All of the door switches
- Keyless entry transmitter
- 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 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-35."

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: Are 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 N-11 "The key reminder switch signal is not received P.54C-249."

All the door switch signals are not received. : Refer to inspection procedure N-13 "All the door switch signals are not received P.54C-255."

The driver's door lock actuator switch signal is not received. : Refer to inspection procedure N-14 "The driver's door lock actuator switch signal is not received P.54C-260."

The keyless entry transmitter switch signal is not received. : Refer to inspection procedure N-16 "Each switch signal of the keyless entry transmitter is not received P.54C-271."

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.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE E-2: Keyless entry hazard lamp answerback function or the room lamp aswerback 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 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 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 lamp answerback function by using the adjustment function (Refer to GROUP 54B – Adjustment function P.54B-265).

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 K-2 "The hazard warning lamps do not illuminate P.54C-175".

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 M-2 "The front and rear room lamp does not illuminate or extinguish normally <Vehicles with keyless entry system> P.54C-209."

Step 4. 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 5.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."

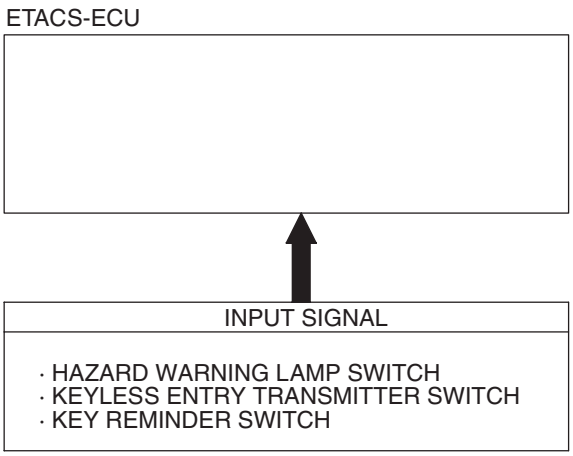
Step 5. Retest the system.
Check that the keyless entry hazard lamp answerback function or the room lamp answerback function work normally.

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.00-6).
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



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COMMENTS ON TROUBLE SYMPTOM

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

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: Are 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 N-11 "The key reminder switch signal is not received P.54C-249."
The hazard warning lamp switch signal is not received. : Refer to inspection procedure N-12 "The hazard warning lamp switch signal is not received P.54C-252."
The keyless entry transmitter switch signal is not received. : Refer to inspection procedure N-16 "Each switch signal of the keyless entry transmitter is not received P.54C-271."

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.00-6).
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-102."

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

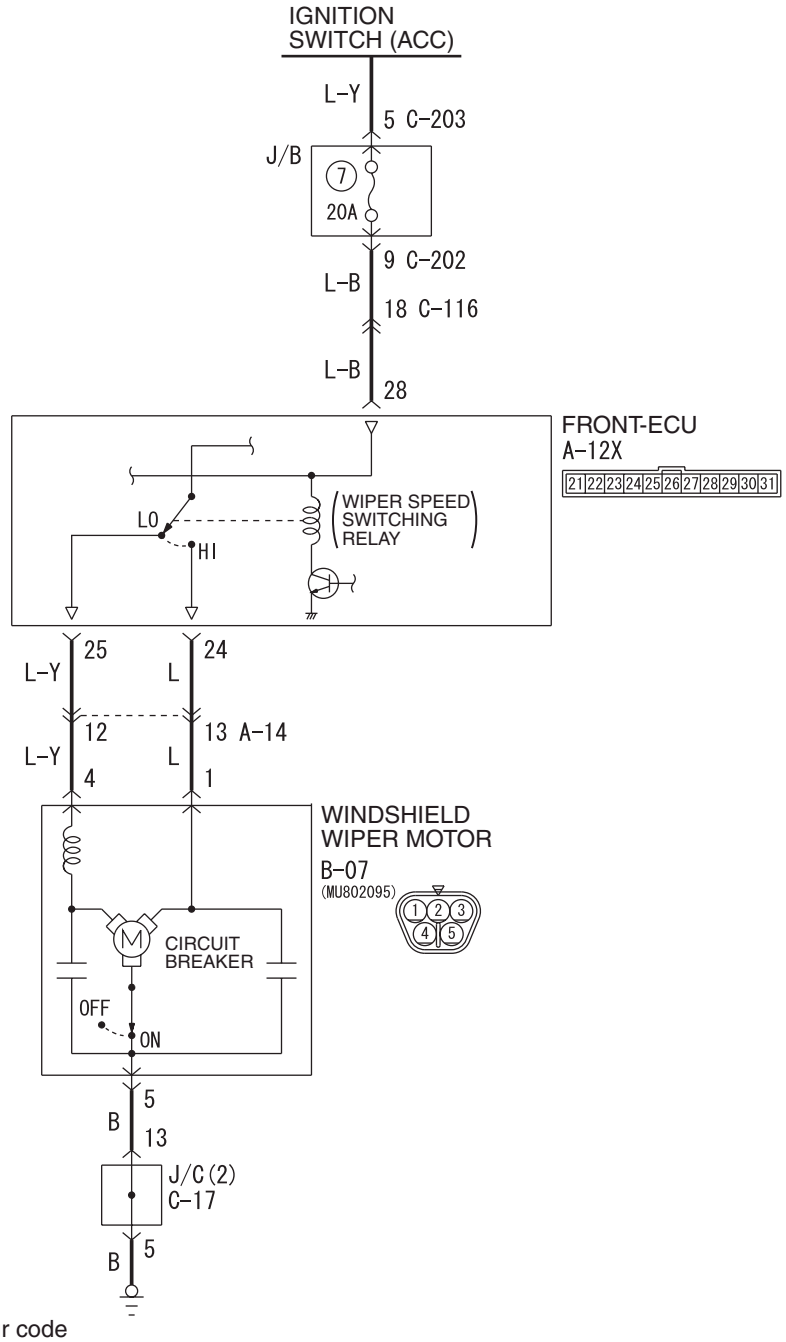
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

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 : Gray R : Red P : Pink V : Violet

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COMMENTS ON TROUBLE SYMPTOM

The windshield wiper motor, the column switch or the front-ECU may be defective. If a problem is found in the ECU check by using the SWS monitor, also check the wiper backup circuit (between C-310 column switch connector terminal No.8 and A-12X 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 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.

- Turn the ignition switch to the ON position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-40."

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: Are the check result normal?

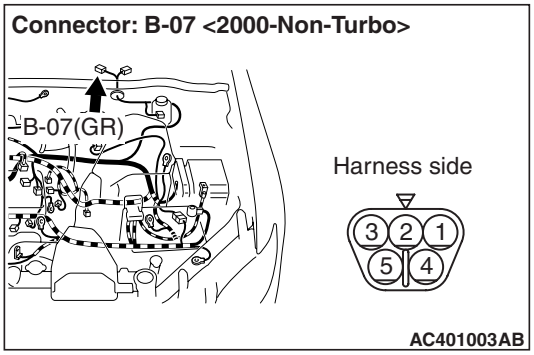
Normal conditions are displayed for all the items : Go to Step 3.

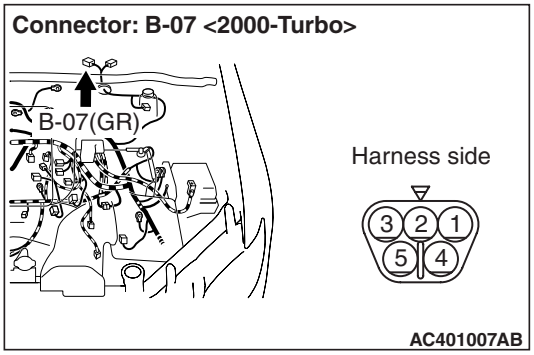
Normal condition is not displayed for item No.05 : Replace the column switch.

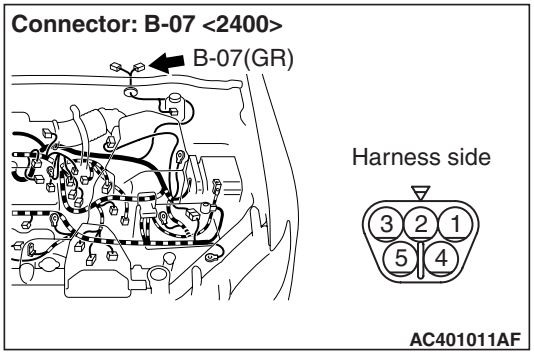
Normal condition is not displayed for item No.31 : Refer to inspection procedure N-1 "The ignition switch (ACC) signal is not received P.54C-218."

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

Step 3. Connector check: B-07 windshield wiper motor connector





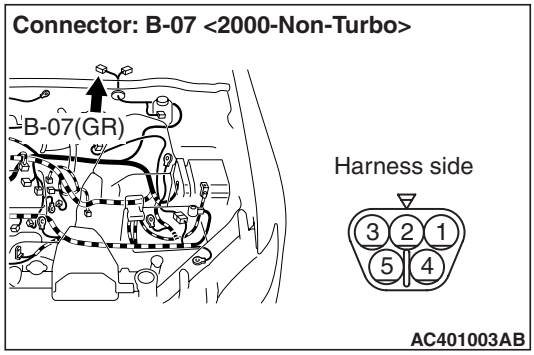


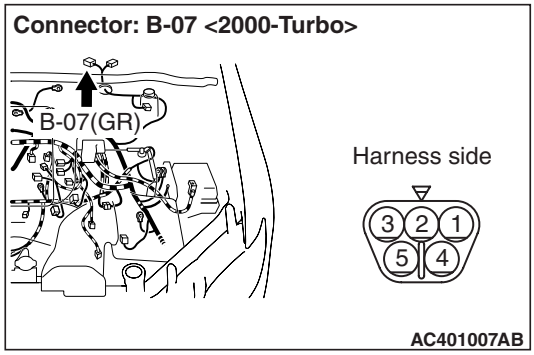
Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

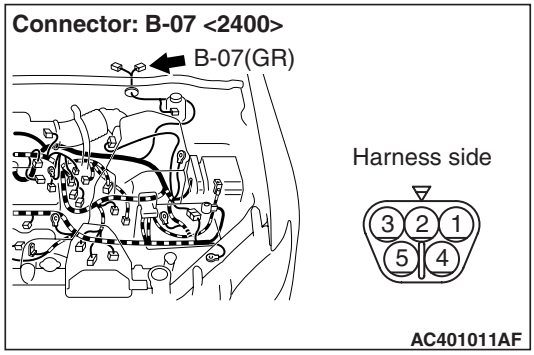
Step 4. Check the windshield wiper motor assembly.
Refer to GROUP 51 – Windshield wiper P.51-34.

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

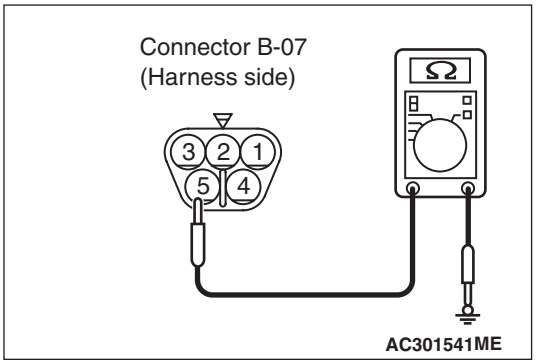
Step 5. Resistance measurement at the B-07 windshield wiper motor connector.







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

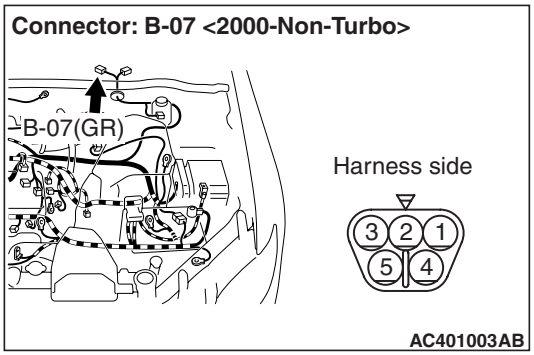


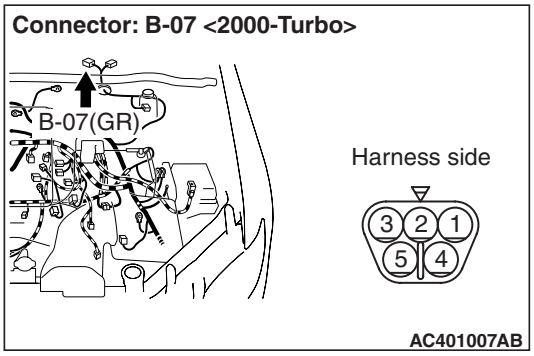
(2) Continuity between B-07 windshield wiper motor connector terminal No.5 and body earth

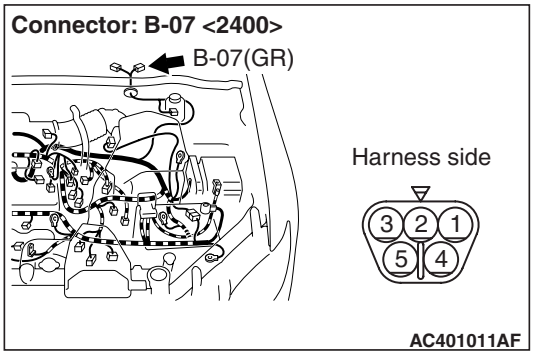
OK: Continuity (less than 2 Ω)

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

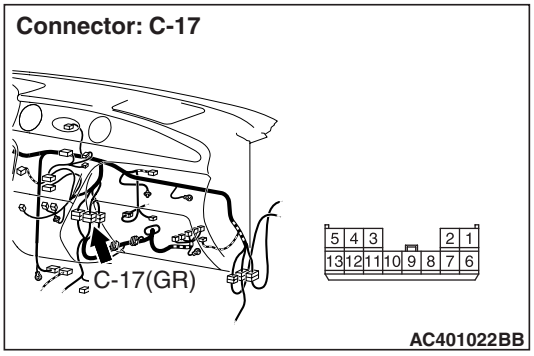
Step 6. Check the wiring harness between B-07 windshield wiper motor connector terminal No.5 and body earth.







NOTE:

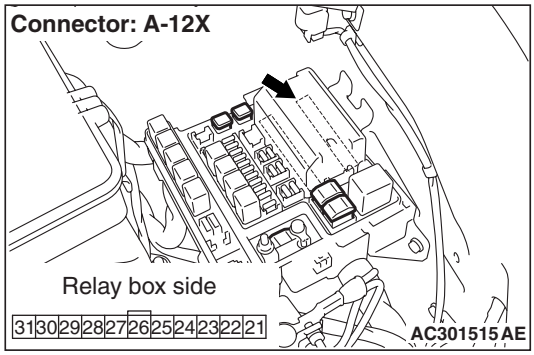


Prior to the wiring harness inspection, check the joint connector C-17, and repair if necessary.

- Check the earth wires for open circuit.

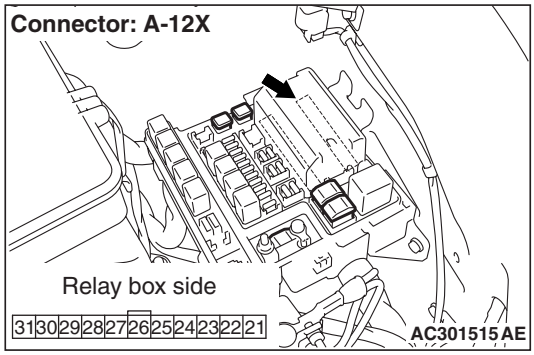
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

Step 7. Connector check: A-12X front-ECU connector

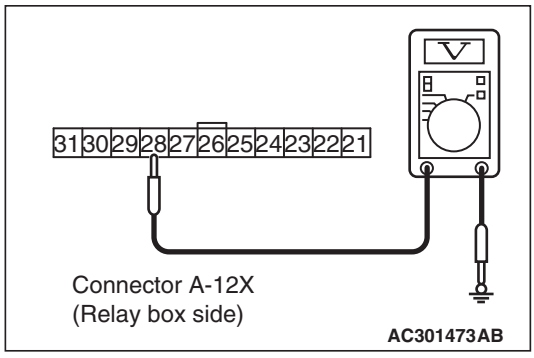


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

Step 8. Voltage measurement at the A-12X front-ECU connector.



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

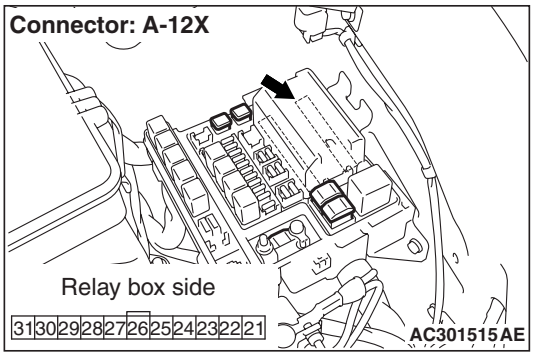


(3) Check the voltage between the A-12X front-ECU connector terminal No.28 and body earth.

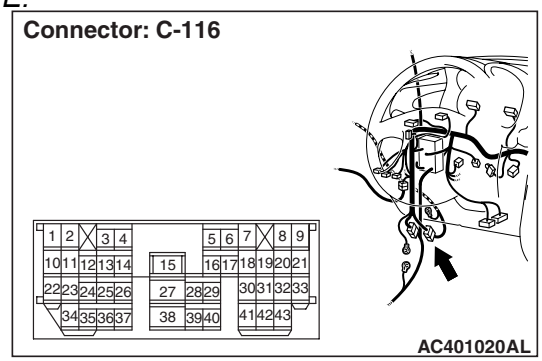
OK: System voltage

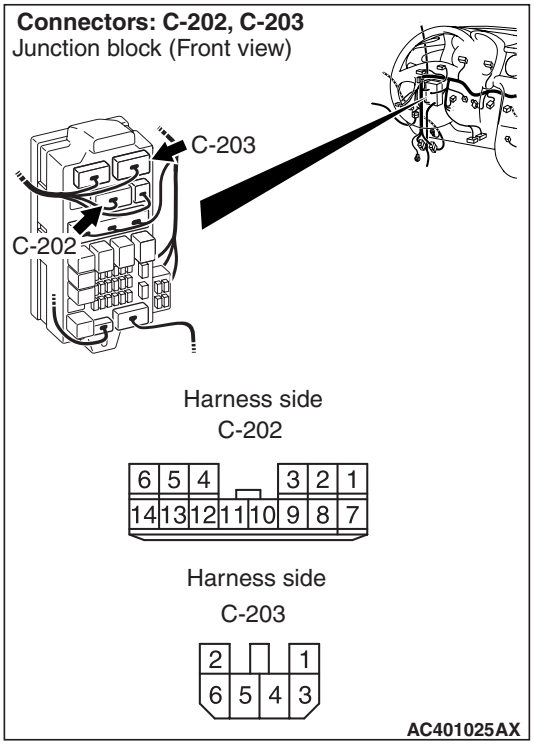
Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

Step 9. Check the wiring harness between A-12X front-ECU connector terminal No.28 and the ignition switch (ACC).



NOTE:





Prior to the wiring harness inspection, check the junction block connectors C-202, C-203 and intermediate connector C-116 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.

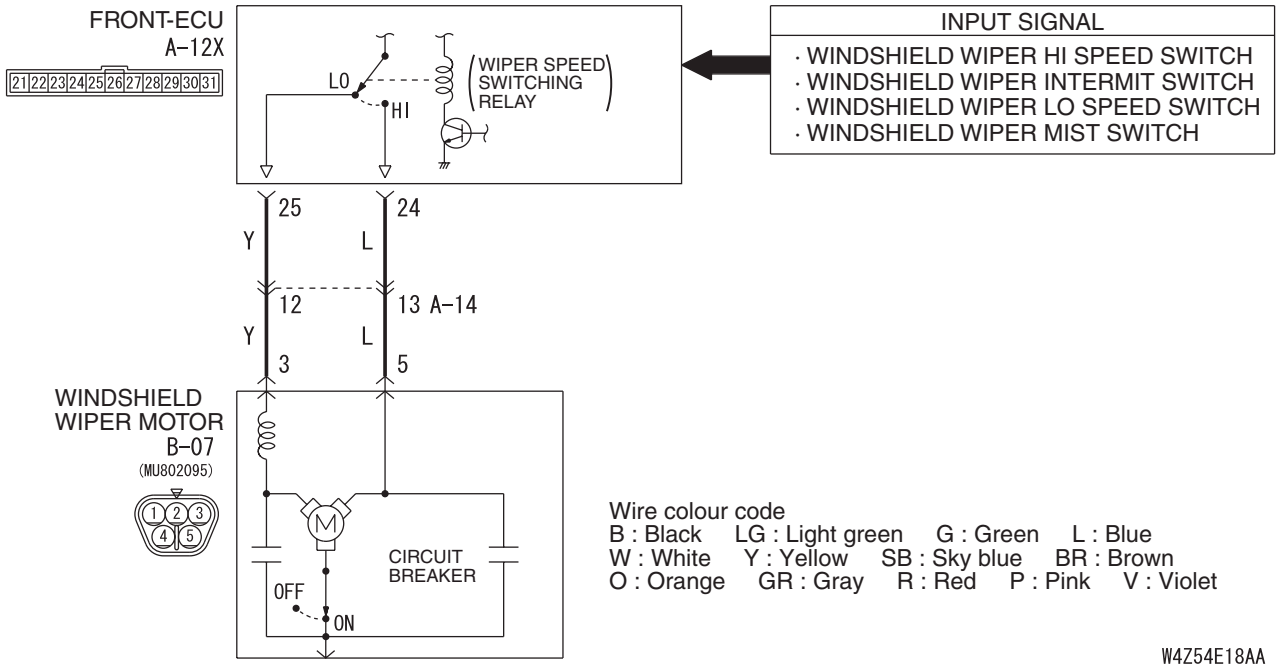
Step 10. Retest the system.
The windshield wiper should now work normally at all.

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.00-6).
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



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 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.

- Turn the ignition switch to the ACC position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?
"OK" are 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-40."

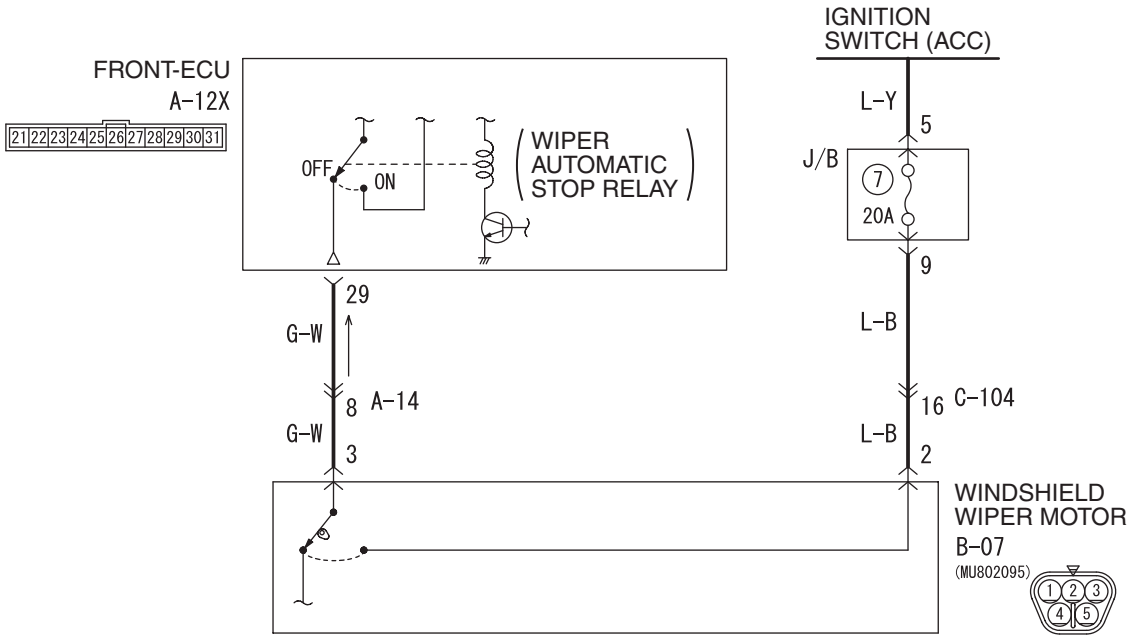
Step 2. Retest the system.
The windshield wiper should now work normally.

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.00-6).
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

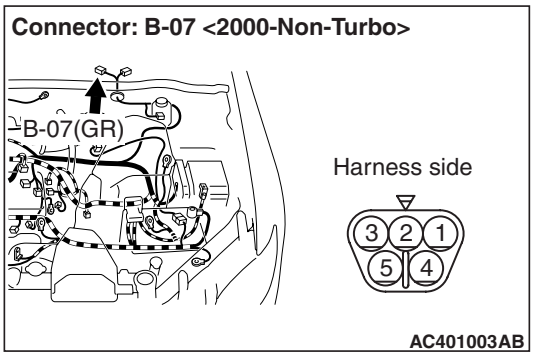
W3Z04E05AB

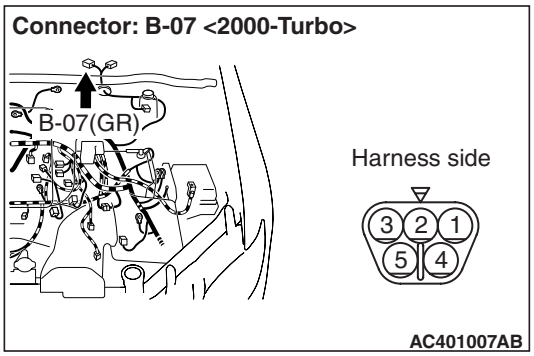
COMMENTS ON TROUBLE SYMPTOM
The windshield wiper motor or the front-ECU may be defective.

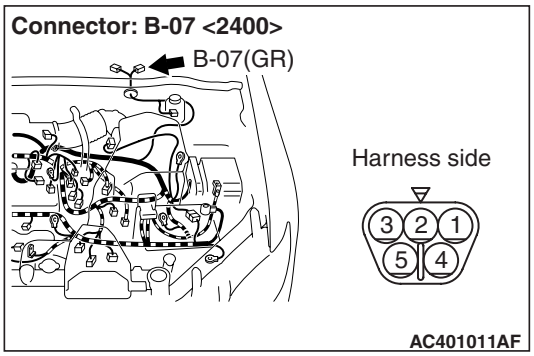
POSSIBLE CAUSES
- Malfunction of the windshield wiper motor
- Malfunction of the front-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: B-07 windshield wiper motor connector







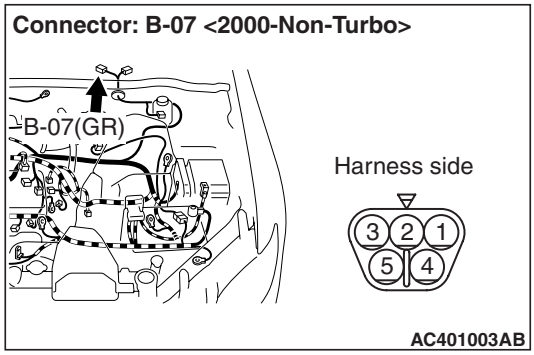
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

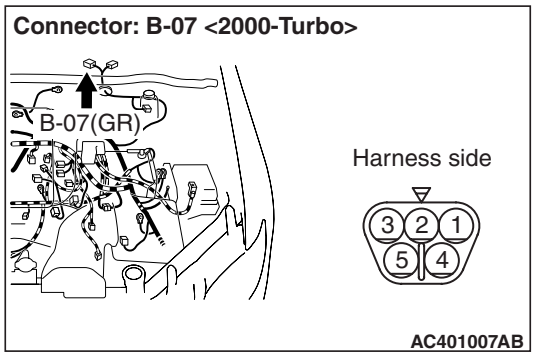
Step 2. Check the windshield wiper motor assembly.

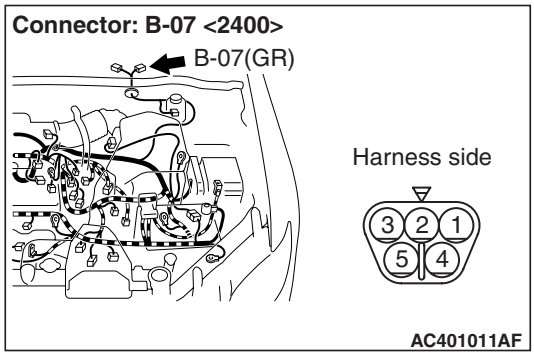
Refer to GROUP 51 – Windshield wiper P.51-34.

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

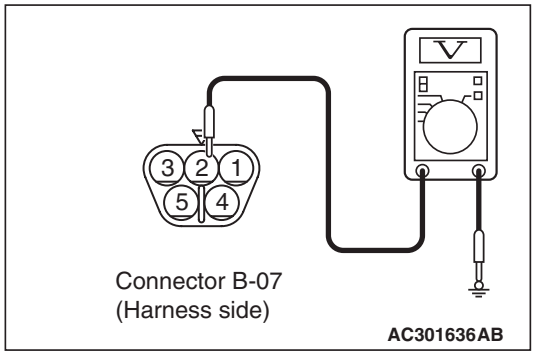
Step 3. Voltage measurement at the B-07 windshield wiper motor connector.







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



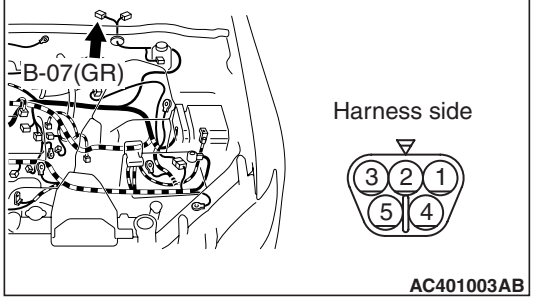
(3) Check the voltage between the B-07 windshield wiper motor connector terminal No.2 and body earth.

OK: System voltage

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

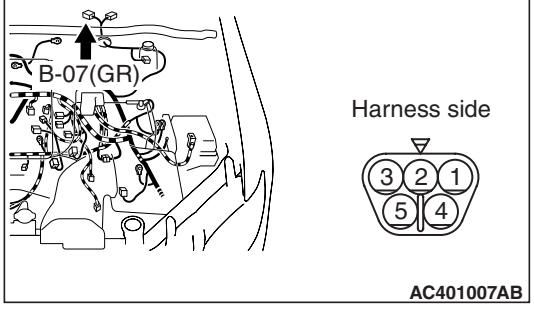
Step 4. Check the wiring harness between B-07 windshield wiper motor connector terminal No.2 and ignition switch (ACC).

Connector: B-07 <2000-Non-Turbo>



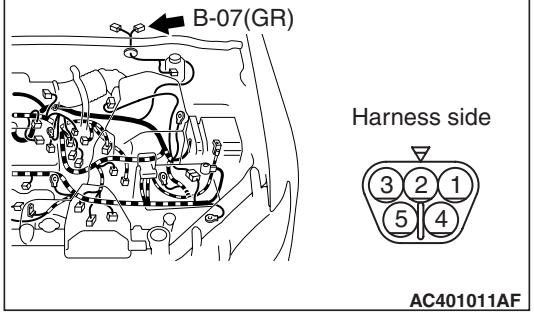
AC401003AB

Connector: B-07 <2000-Turbo>



AC401007AB

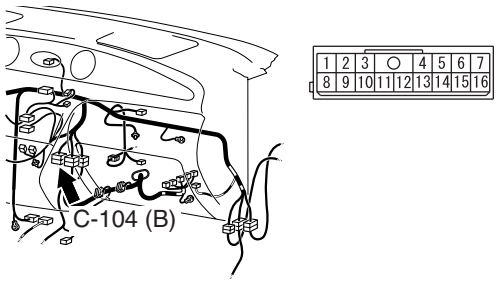
Connector: B-07 <2400>



AC401011AF

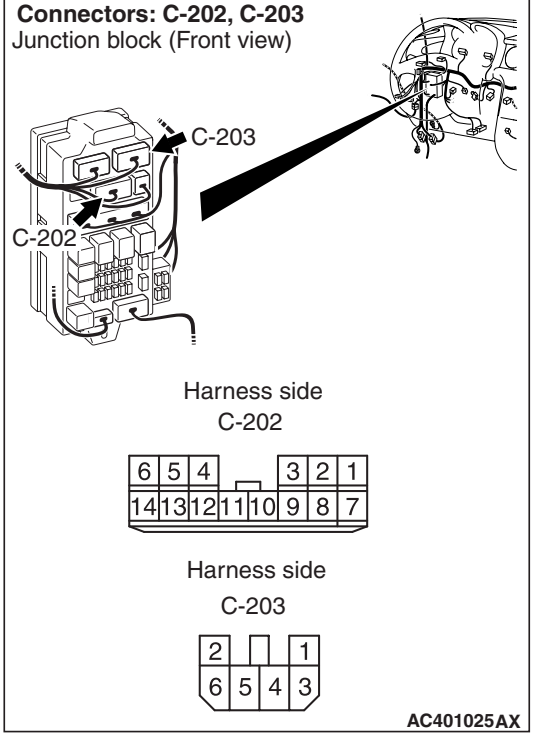
NOTE:

Connector: C-104



AC308718BH

Connectors: C-202, C-203
Junction block (Front view)



AC401025AX

Prior to the wiring harness inspection, check the junction connectors C-202, C-203, the intermediate connectors C-104, and repair if necessary.

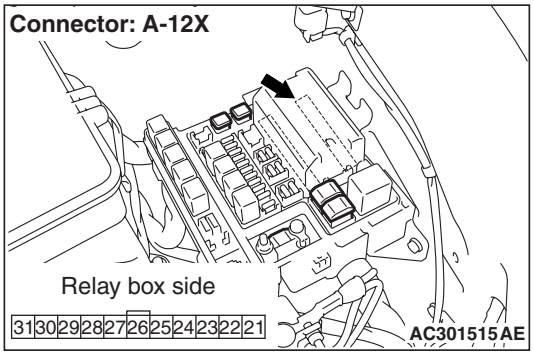
- Check the power supply line to ignition switch (ACC) for open circuit.

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.00-6).

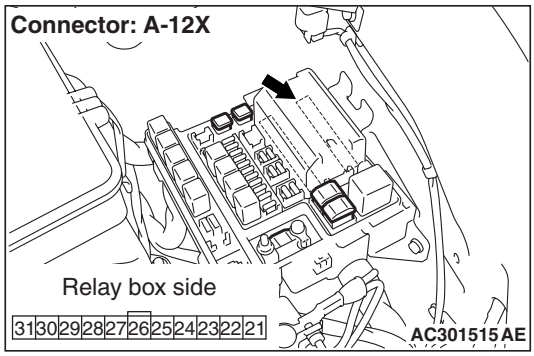
NO : Repair the wiring harness.

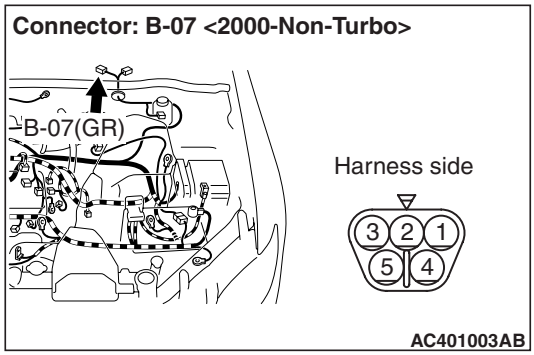
Step 5. Connector check: A-12X front-ECU connector

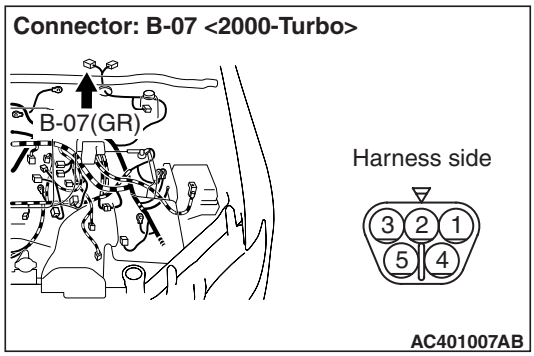


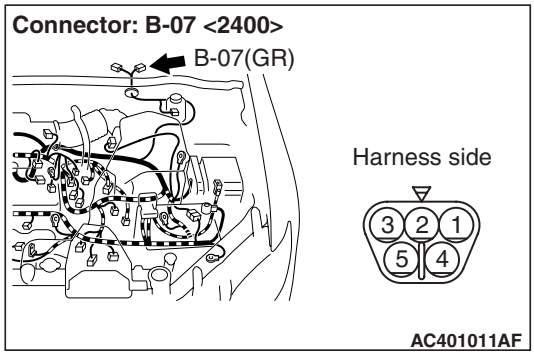
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

Step 6. Check the wiring harness between B-07 windshield wiper motor connector terminal No.3 and A-12X front-ECU connector terminal No.29.

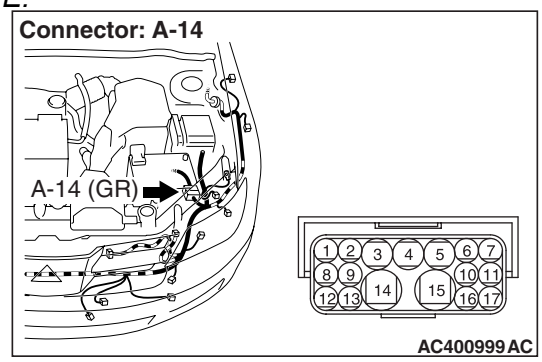








NOTE:



Prior to the wiring harness inspection, check the intermediate connector A-14 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.

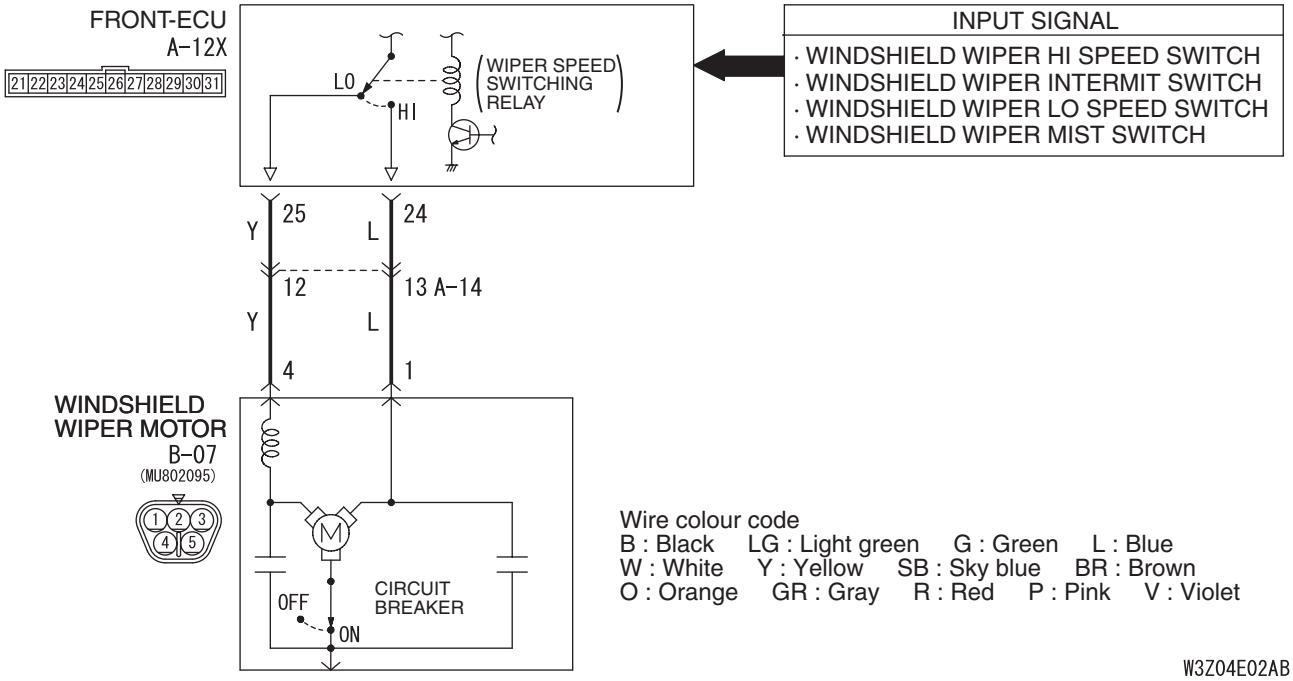
Step 7. Retest the system.
Check that the windshield wipers stop at the specified park position.

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.00-6).
NO : Replace the front-ECU.

INSPECTION PROCEDURE F-4: The windshield wipers does not work normally.

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

Windshield Wiper Motor Drive Circuit



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

W3Z04E02AB

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

Step 1. SWS monitor data list

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

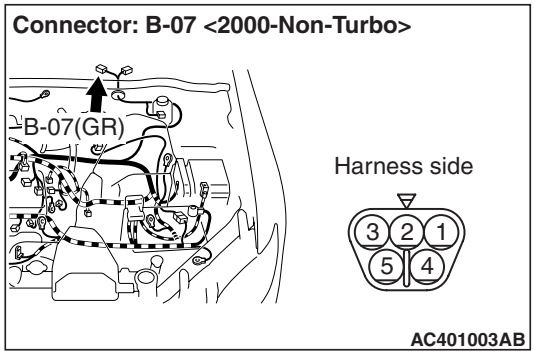
OK: Normal conditions are displayed for all the functions of the switch.

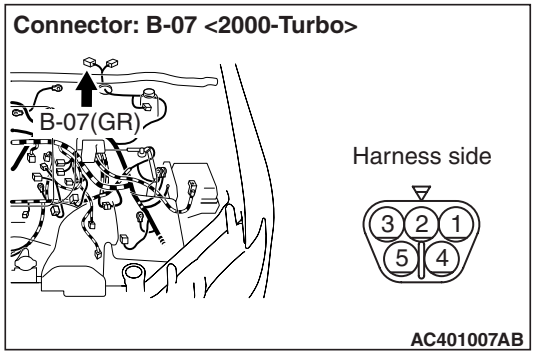
Q: Are the check result normal?

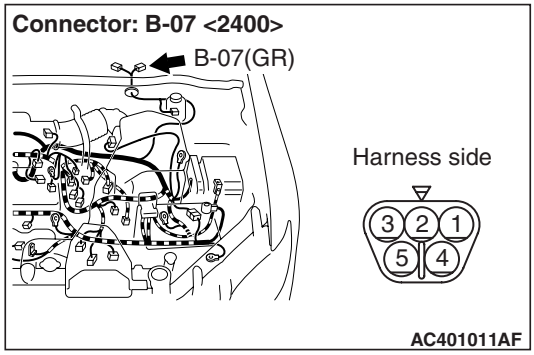
Normal conditions are displayed for all the items. : Go to Step 2.

NO : Replace the column switch

Step 2. Connector check: B-07 windshield wiper motor connector







Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the defective connector.

Step 3. Check the windshield wiper motor assembly.

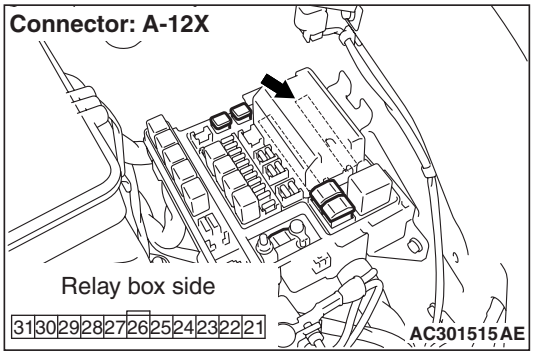
Refer to GROUP 51 – Windshield wiper P.51-34.

Q: Is the check result normal?

YES : Go to Step 4.

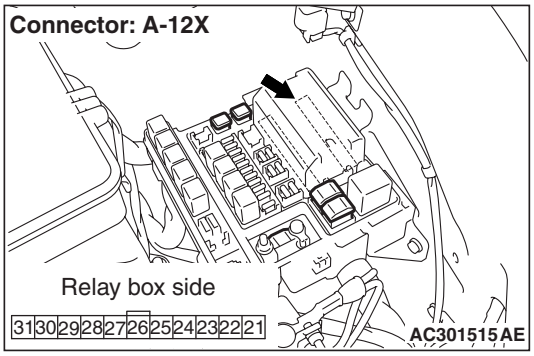
NO : Replace the windshield wiper motor assembly.

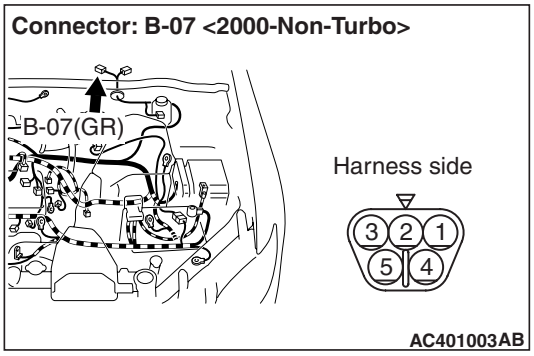
Step 4. Connector check: A-12X front-ECU connector

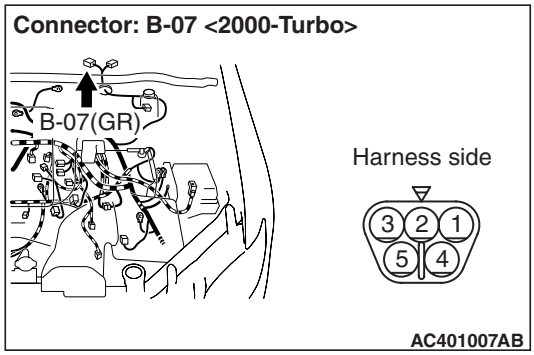


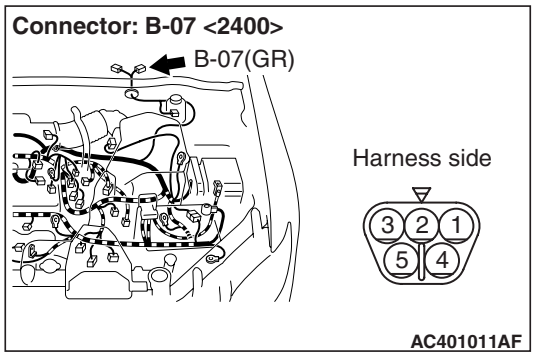
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between A-12X front-ECU connector terminal Nos. 24 and 25 and B-07 windshield wiper motor connector terminal No. 1 and 4.

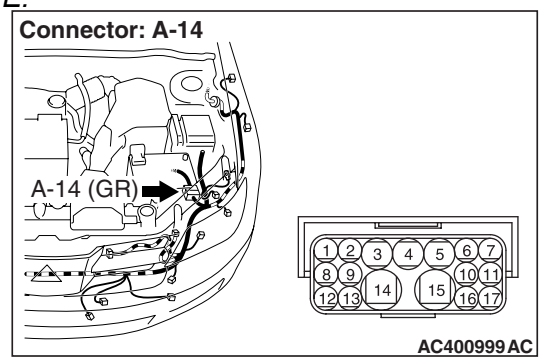








NOTE:



Prior to the wiring harness inspection, check the intermediate connector A-14, and repair if necessary.

- Check the output lines for open circuit.

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

Step 6. Retest the system.

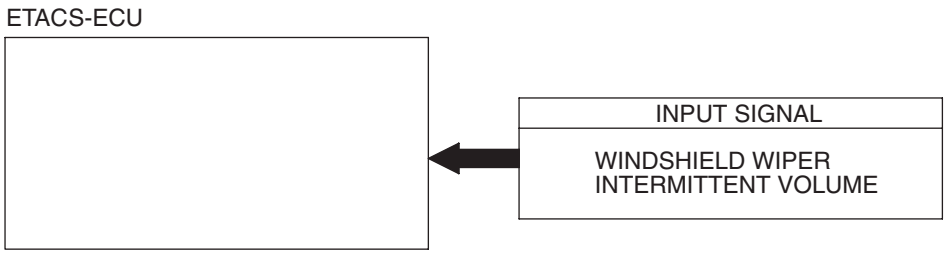
Check that the windshield wipers work normally by moving the switch to each position.

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.00-6).
NO : Replace the front-ECU.

INSPECTION PROCEDURE F-5: The intermittent wiper interval can not 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



W3Z04E03AA

COMMENTS ON TROUBLE SYMPTOM
The column switch 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. SWS monitor data list
- Rotate the windshield intermittent wiper volume when the vehicle is stoped.

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 N-7 "The windshield intermittent wiper volume signal is not received P.54C-237."

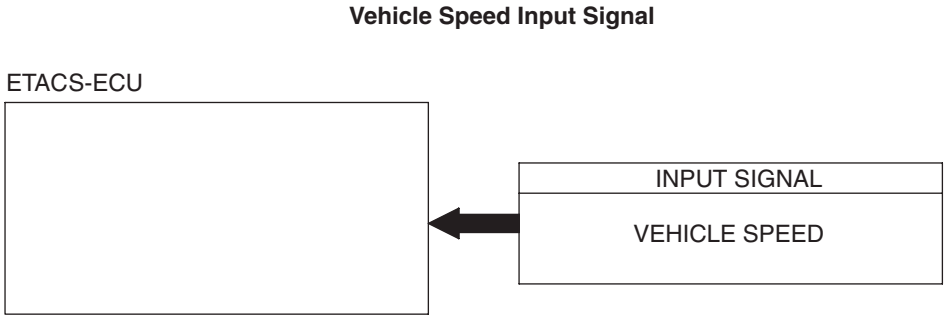
Step 2. Retest the system.
Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

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.00-6).
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.



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. 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 2.
NO : Refer to Inspection Procedure F-5 "The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control P.54C-120."

Step 2. Check the adjustment function.
Check that "SPEED SEN WIP" is set to "W.FUNCTION" by using the adjustment function.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Set "SPEED SEN WIP" to "W.FUNCTION" by using the adjustment function. (Refer to P.54B-265).

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 N-15 "The vehicle speed signal is not received P.54C-264 <M/T> or P.54C-268 <A/T>."

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.00-6).

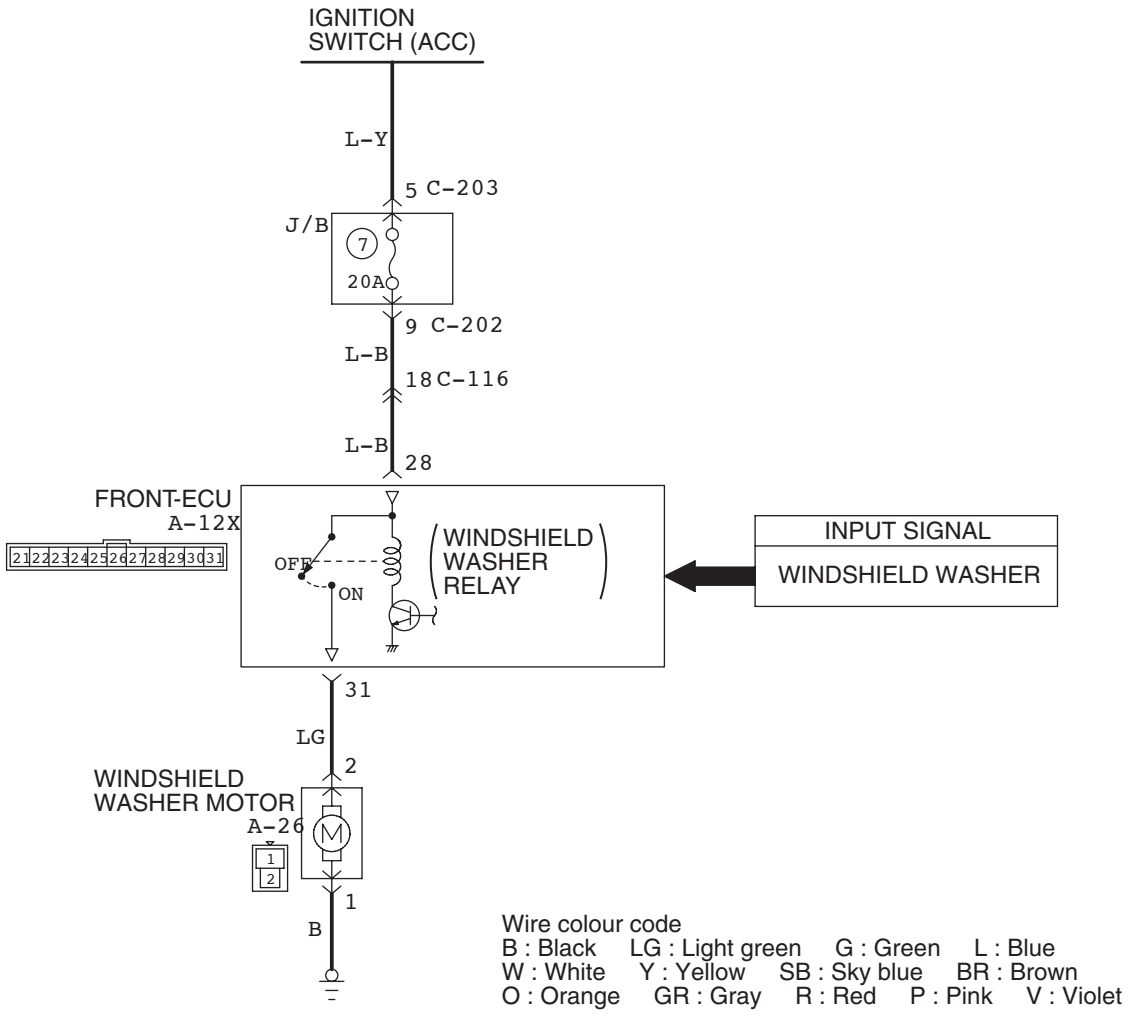
NO : Replace the ETACS-ECU.

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

W3Z04E04A

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-107."

Step 2. ECU check by using the SWS monitor

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

- Turn the ignition switch to the ACC position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-40."

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: Are the check result normal?

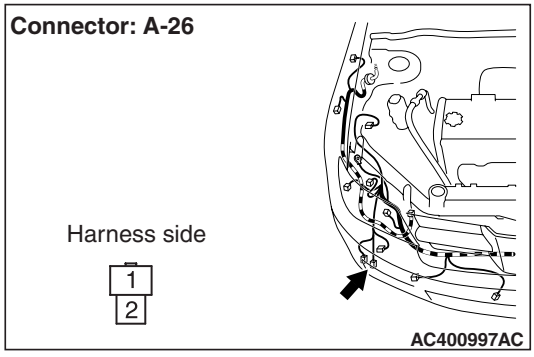
Normal conditions are displayed for all the items : Go to Step 4.

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

Normal condition is not displayed for item No.31 : Refer to inspection procedure N-1 "The ignition switch (ACC) signal is not received P.54C-218."

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

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



Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector.

Step 5. Check the windshield washer motor assembly.

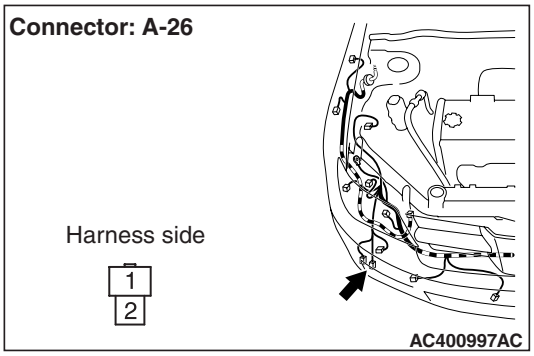
Refer to GROUP 51 – Windshield washer P.51-37.

Q: Is the check result normal?

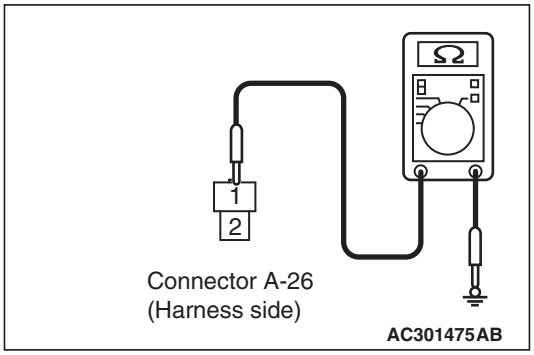
YES : Go to Step 6

NO : Replace the windshield washer motor.

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



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



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

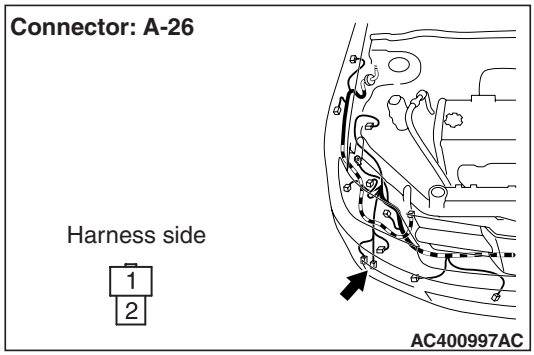
OK: Continuity (less than 2 Ω)

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

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



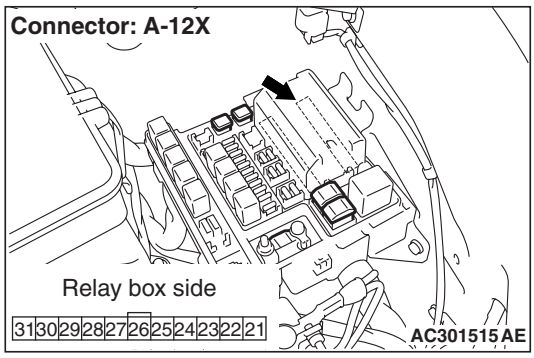
- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

Step 8. Connector check: A-12X front-ECU connector

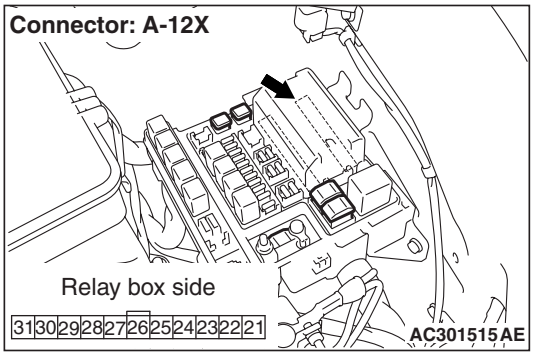


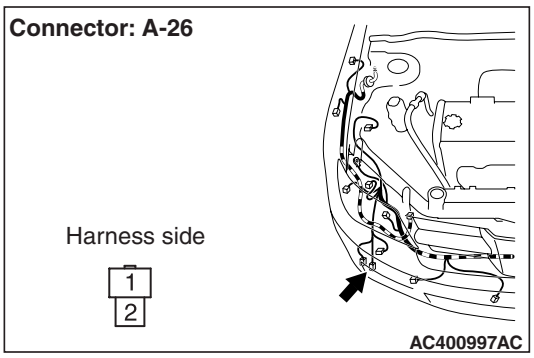
Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the connector.

Step 9. Check the wiring harness between A-26 windshield washer motor connector terminal No.2 and A-12X front-ECU connector terminal No.31.





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

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

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

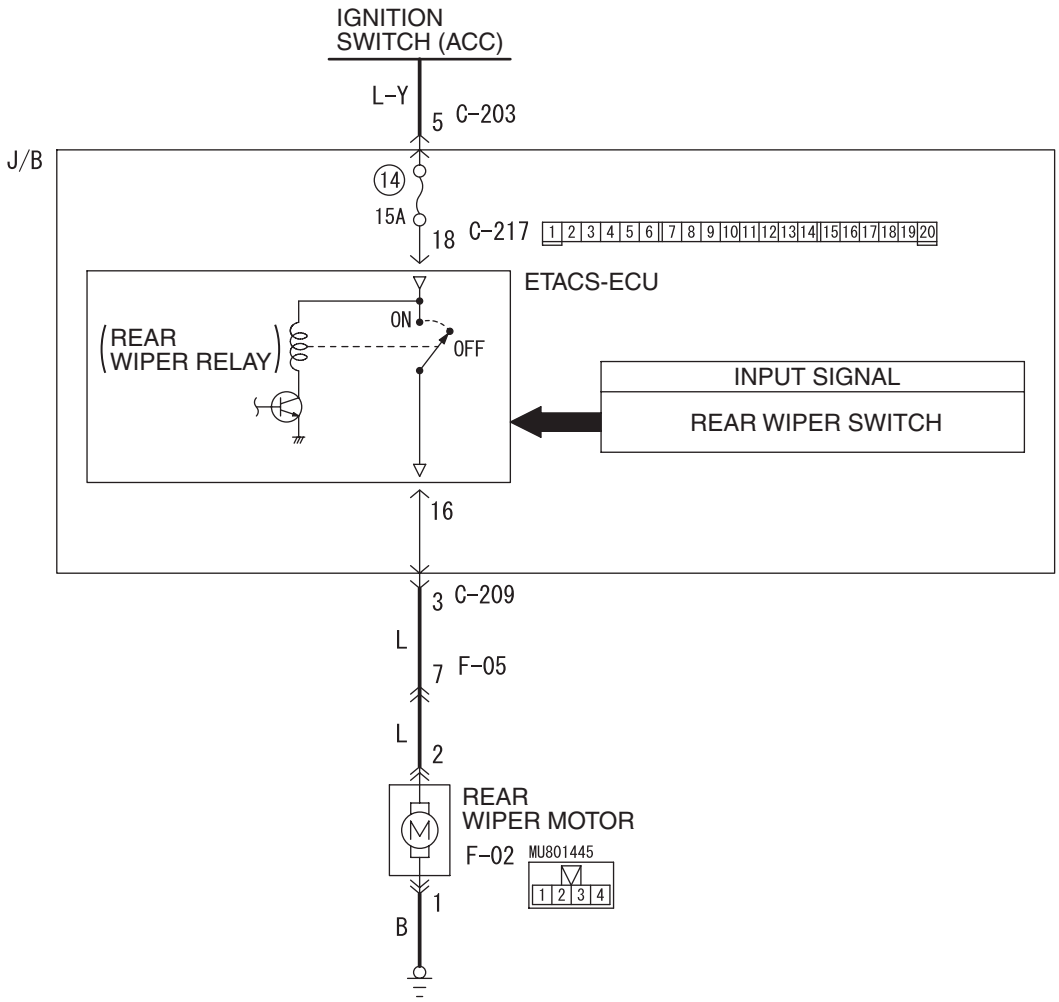
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the front-ECU.

REAR WIPER AND WASHER

INSPECTION PROCEDURE G-1: The rear wiper does not work at all.

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

Rear Wiper Drive Circuit



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

W3Z06E03AB

COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not work normally, the input signal circuits to the components below, the rear wiper motor or the ETACS-ECU may be defective.

- Ignition switch (ACC)
- Rear wiper switch

POSSIBLE CAUSES

- Malfunction of the rear wiper motor
- 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 column switch (column-ECU) and the ETACS-ECU and the SWS communication lines are normal.

- Ignition switch: ACC

ECUS TO BE CHECKED

- COLUMN ECU
- ETACS ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?

"OK" are 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 "ETACS ECU" menu. : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."

Step 2. Function diagnosis by using the SWS monitor

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

<Selected item> REAR WIPER

- Ignition switch: ACC
- Rear wiper switch: ON

Item No.	Item name	Normal condition
Item 13	REAR WIPER SW	ON
Item 31	IG SW (ACC)	ON

OK: Normal conditions are displayed for all the items.

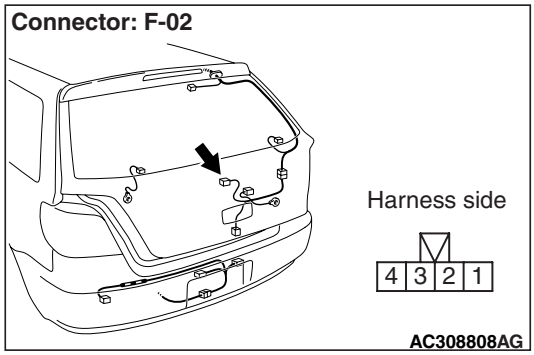
Q: Is the check result normal?

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

Normal condition is not displayed for item No.13 : Replace the column switch.

Normal condition is not displayed for item No.31 : Refer to inspection procedure N-1 "The ignition switch (ACC) signal is not received P.54C-218."

Step 3. Connector check: F-02 rear wiper motor connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the rear wiper motor.

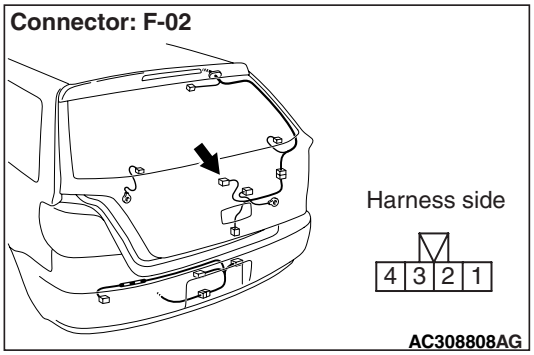
Refer to GROUP 51 – Rear wiper and washer P.51-40.

Q: Is the check result normal?

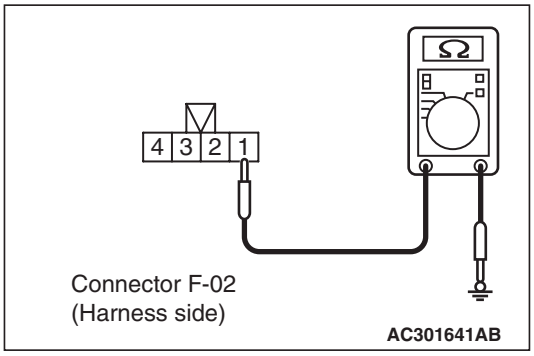
YES : Go to Step 5.

NO : Replace the rear wiper motor.

Step 5. Resistance measurement at the F-02 rear wiper motor connector.



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

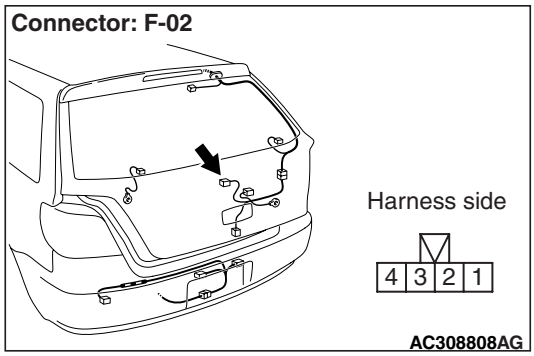


(2) Resistance between F-02 rear wiper motor connector terminal No.1 and body earth

OK: Continuity (less than 2 Ω)

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

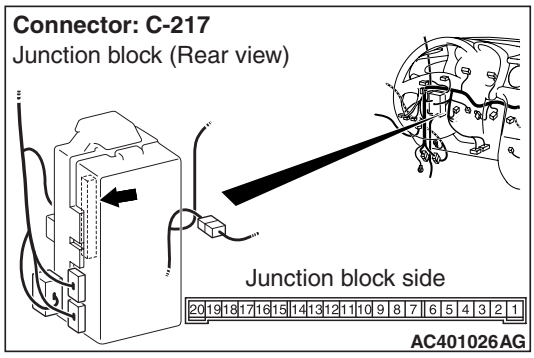
Step 6. Check the wiring harness between F-02 rear wiper motor connector terminal No.1 and body earth.



- Check the earth line for open or short circuit.

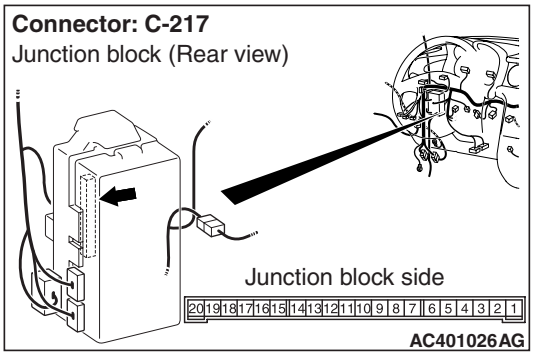
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

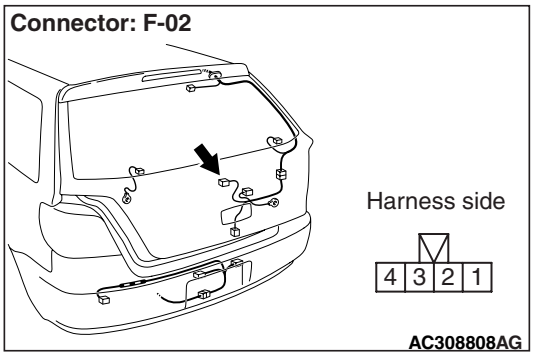
Step 7. Connector check: C-217 ETACS-ECU connector



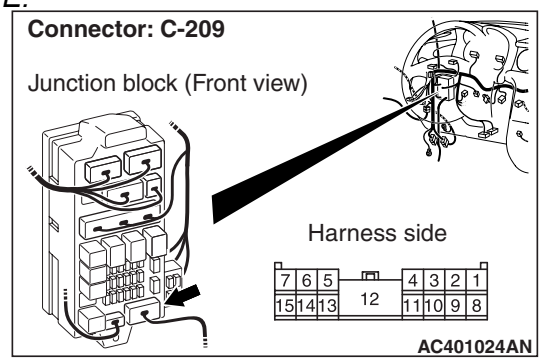
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

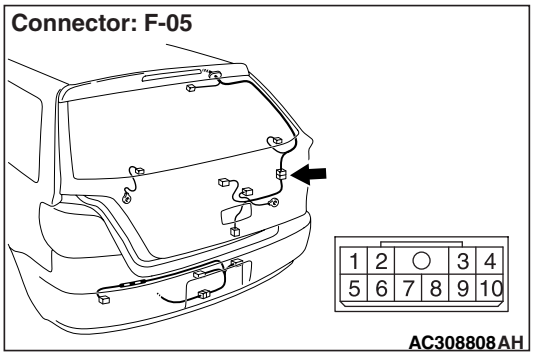
Step 8. Check the wiring harness between C-217 ETACS-ECU connector terminal No.16 and F-02 rear wiper motor connector terminal No.2.





NOTE:





Prior to the wiring harness inspection, check intermediate connector F-05 and junction block connectors C-209, and repair if necessary.

- Check the output line.

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

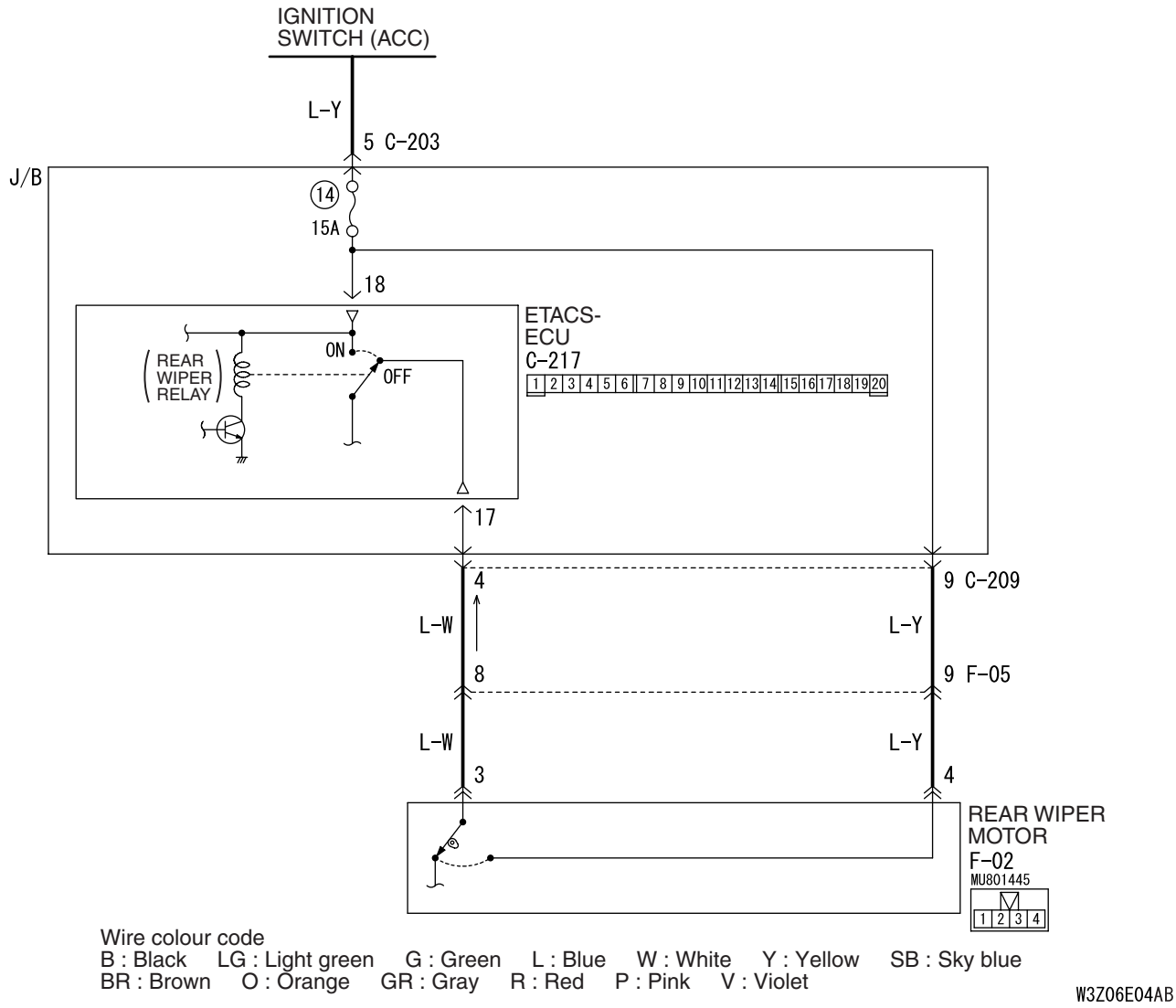
Step 9. Retest the system.
Check that the rear wiper works normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE G-2: The rear wiper does not stop at the specified park position.

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

Rear Wiper Auto-stop Signal Input



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

W3Z06E04AB

COMMENTS ON TROUBLE SYMPTOM

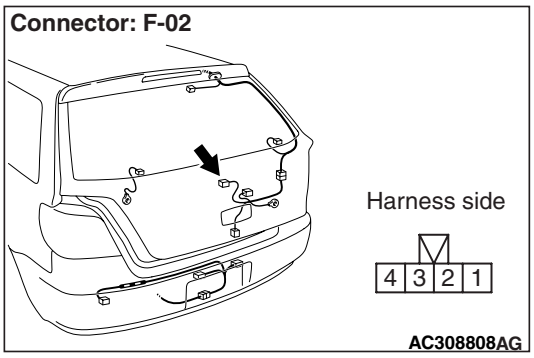
If the rear wiper does not stop normally within the predetermined range, the rear wiper motor or the ETACS-ECU may be defective.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: F-02 rear wiper motor connector



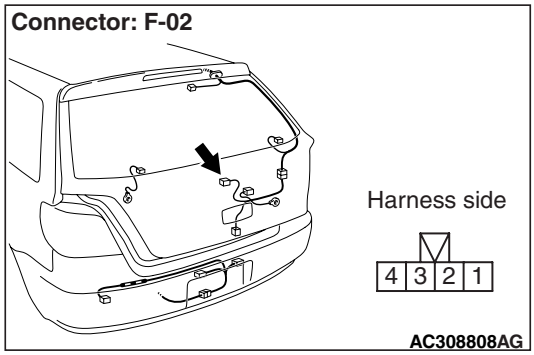
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

Step 2. Check the rear wiper motor.

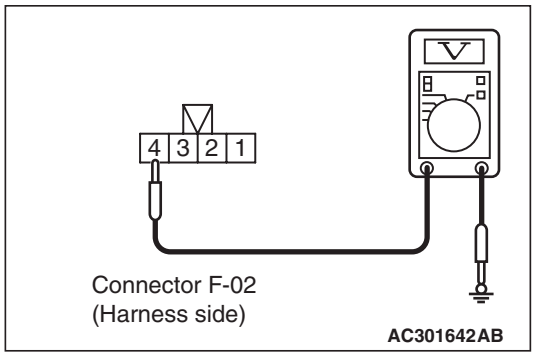
Refer to GROUP 51 – Rear wiper and washer P.51-40.

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

Step 3. Voltage measurement at the F-02 rear wiper motor connector.



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

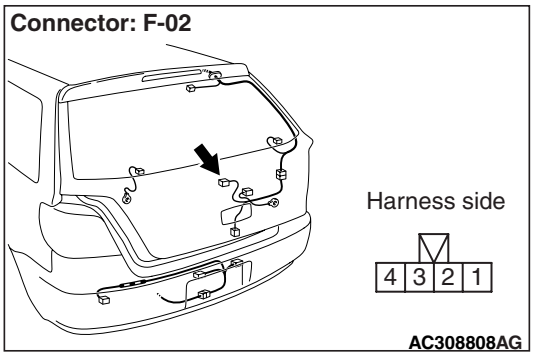


(3) Check the voltage between F-02 rear wiper motor connector terminal No.4 and body earth

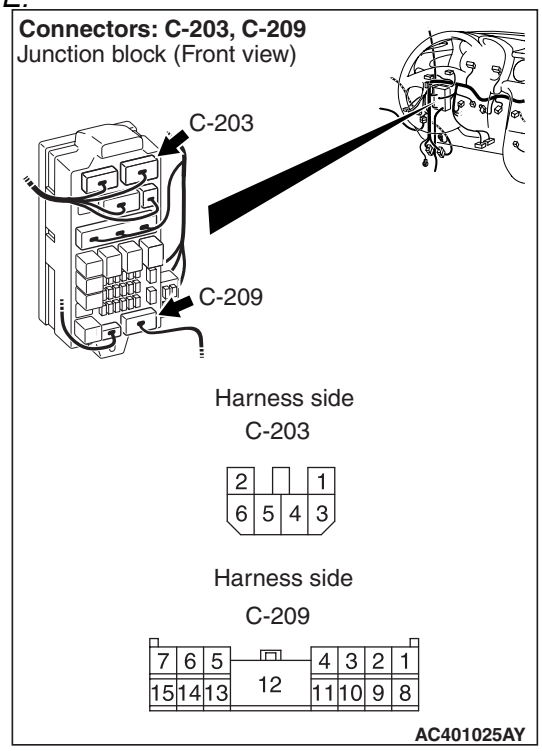
OK: System voltage

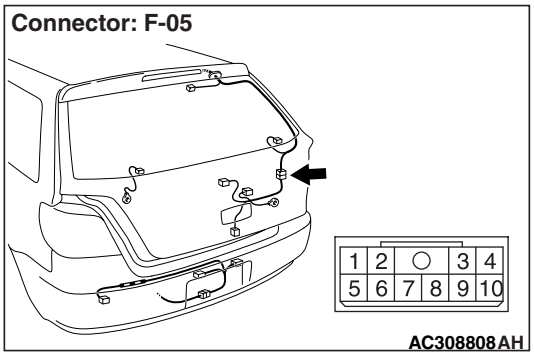
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness between ignition switch (ACC) and F-02 rear wiper motor connector terminal No.4.



NOTE:



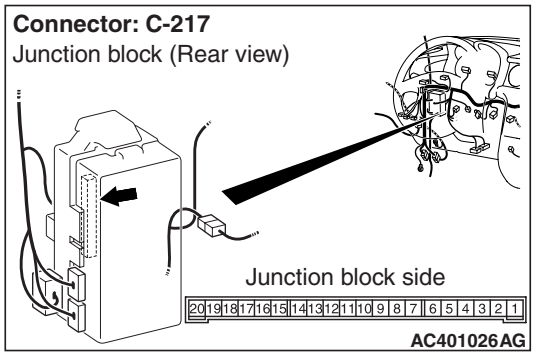


Prior to the wiring harness inspection, check intermediate connector F-05 and junction block connectors C-203 and C-209, and repair if necessary.

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

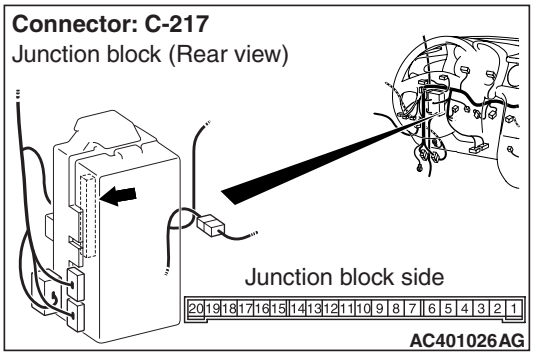
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

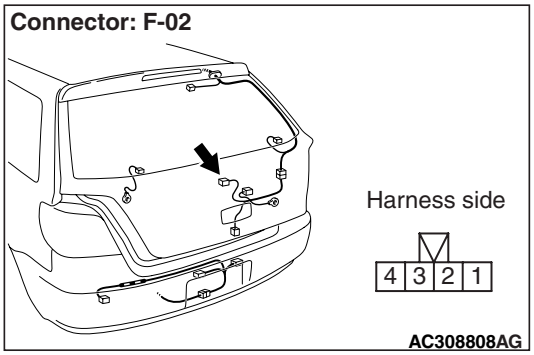
Step 5. Connector check: C-217 ETACS-ECU connector



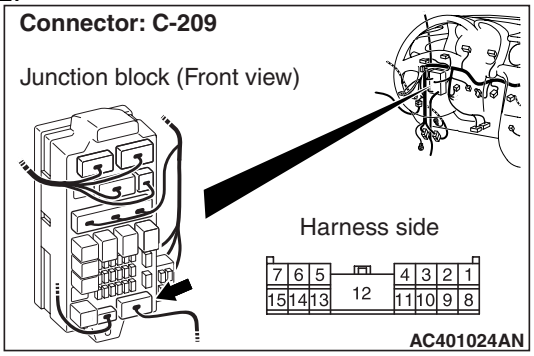
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

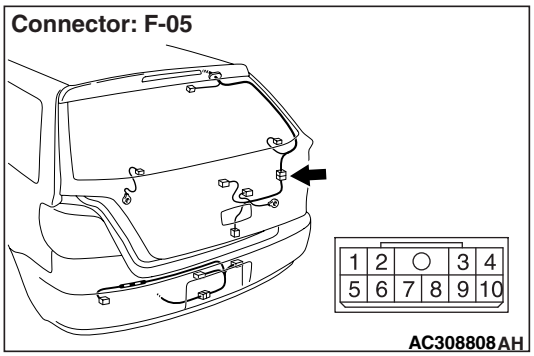
Step 6. Check the wiring harness between C-217 ETACS-ECU connector terminal No.17 and F-02 rear wiper motor connector terminal No.3.





NOTE:





Prior to the wiring harness inspection, check intermediate connector F-05, junction block connectors C-209, and repair if necessary.

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

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the rear wiper auto stop function works normally.

Q: Is the check result normal?

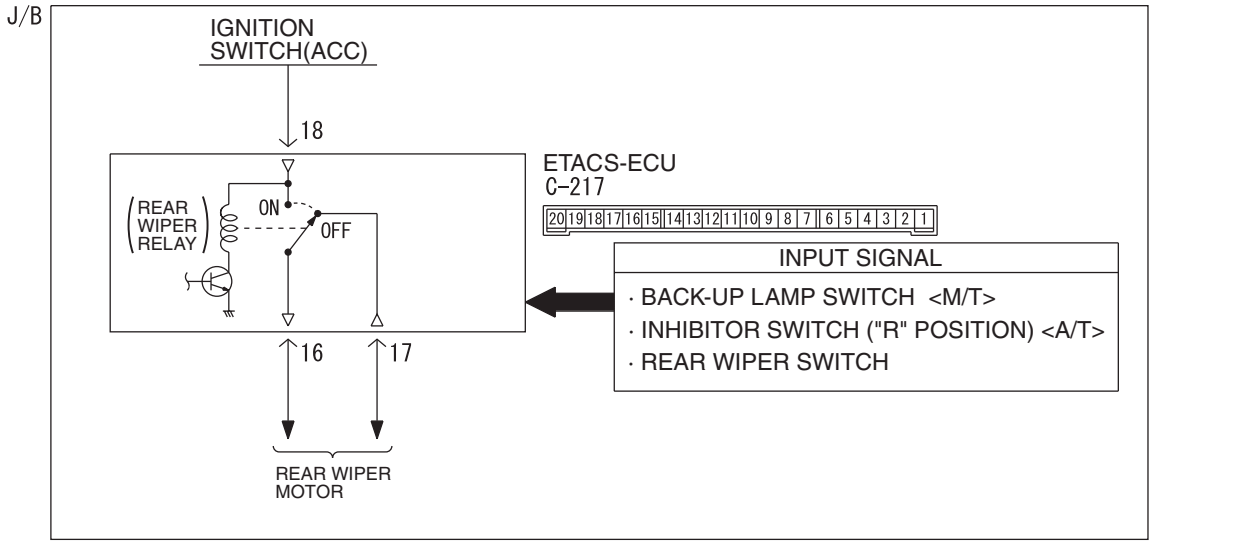
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE G-3: When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.

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

"R" Position During Rear Wiper Operation Circuit



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COMMENTS ON TROUBLE SYMPTOM

If the rear wiper does not operate consecutively when the shift lever is moved to the "R" position during the rear wiper operation, the input signal circuit to the back-up lamp switch ("R" position) <M/T>, the inhibitor switch ("R" position) <A/T> or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- Malfunction of the back-up lamp switch <M/T>
- Malfunction of the inhibitor switch <A/T>
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Function diagnosis by using the SWS monitor

Check the SWS communication signal, which are related to the R (reverse) gear-linked rear wiper operation.

<Selected item> REAR WIPER-REV. INTERLOCK

- Ignition switch: ON
- Rear wiper switch: ON
- Shift position: R position

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure N-3 "The back-up lamp switch signal is not received P.54C-222 <M/T>." Or "The inhibitor switch (reverse position) signal is not received P.54C-227 <A/T>."

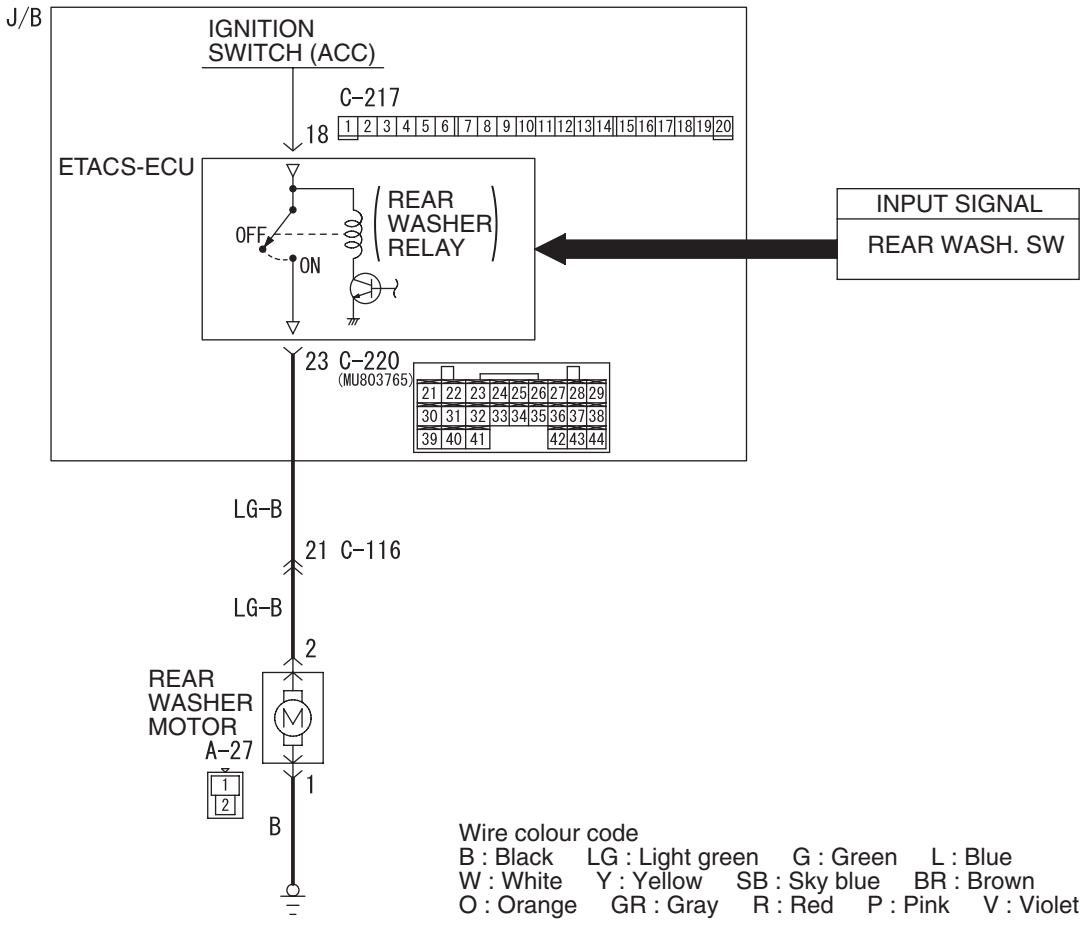
Step 2. Retest the system.
Check that the rear wiper operates consecutively when the shift lever <M/T> or selector lever <A/T> is moved to the "R" position during the rear wiper operation.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE G-4: The rear washer does not work.

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

Rear Washer Drive Circuit



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

W3Z06E01A

COMMENTS ON TROUBLE SYMPTOM

If the rear washer does not work normally, the input signal circuits to the rear washer switch, rear washer motor or the ETACS-ECU may be defective.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Confirm the operation of the rear wiper.
Check that the rear wiper work normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure G-1 "The rear wiper does not work at all P.54C-126."

Step 2. Function diagnosis by using the SWS monitor
Check the SWS communication signal, which are related to the rear washer function.

<Selected item> REAR WIPER-REAR WASHER

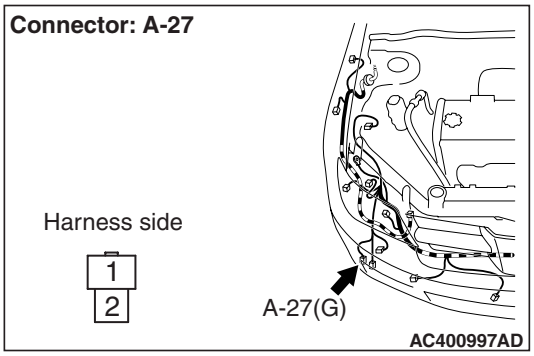
- Ignition switch: ACC
- Rear washer switch: ON

Item No.	Item name	Normal condition
Item 14	REAR WASH. SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure N-6 "The column switch (windshield wiper washer and rear wiper washer switch) signal is not received P.54C-235."

Step 3. Connector check: A-27 rear washer motor connector

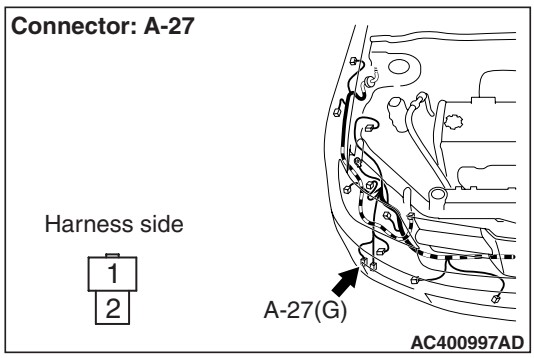


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

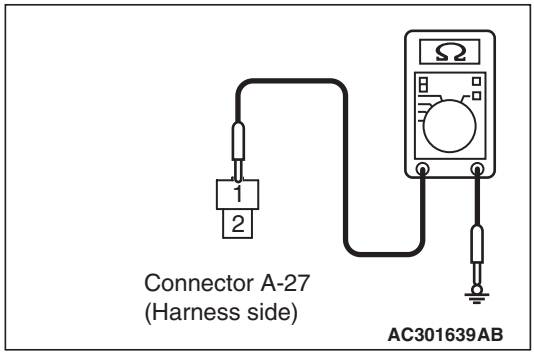
Step 4. Check the rear washer motor.
Refer to GROUP 51 – Rear wiper and washer P.51-40.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the rear washer motor.

Step 5. Resistance measurement at the A-27 rear washer motor connector.



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

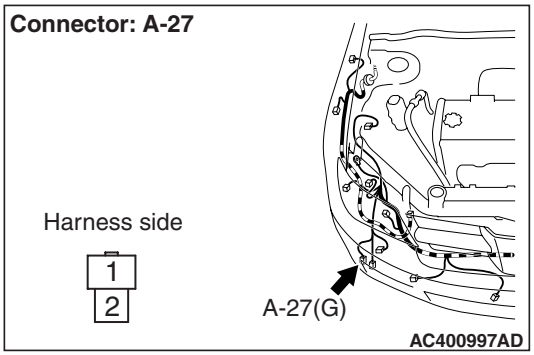


(2) Resistance between A-27 rear washer motor connector terminal No.1 and body earth

OK: Continuity (less than 2 Ω)

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

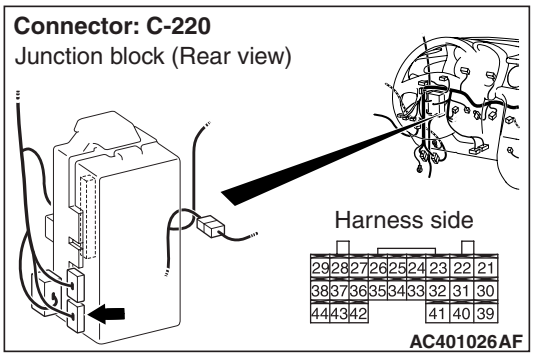
Step 6. Check the wiring harness between A-27 rear washer motor connector terminal No.1 and body earth.



- Check the earth line for open or short circuit.

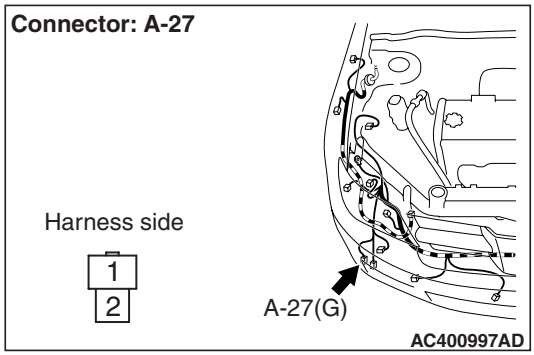
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

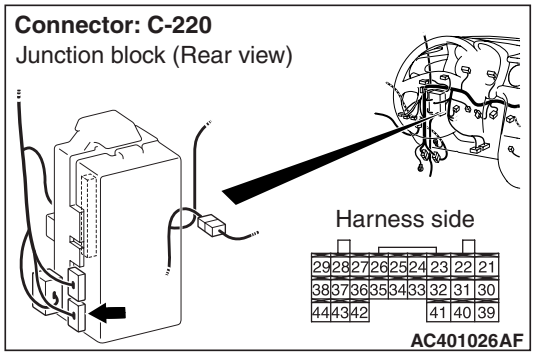
Step 7. Connector check: C-220 ETACS-ECU connector



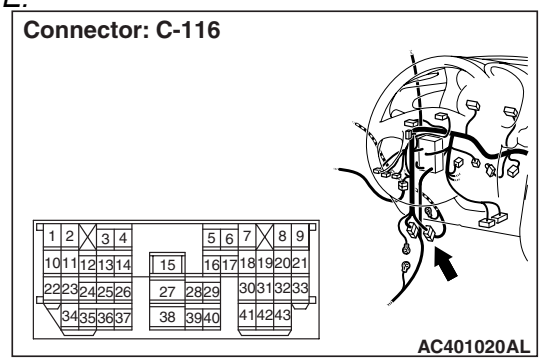
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

Step 8. Check the wiring harness between C-220 ETACS-ECU connector terminal No.23 and A-27 rear washer motor connector terminal No.2.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-116 and repair if necessary.

- Check the output signal line.

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

Step 9. Retest the system.
Check that the rear washer works normally.

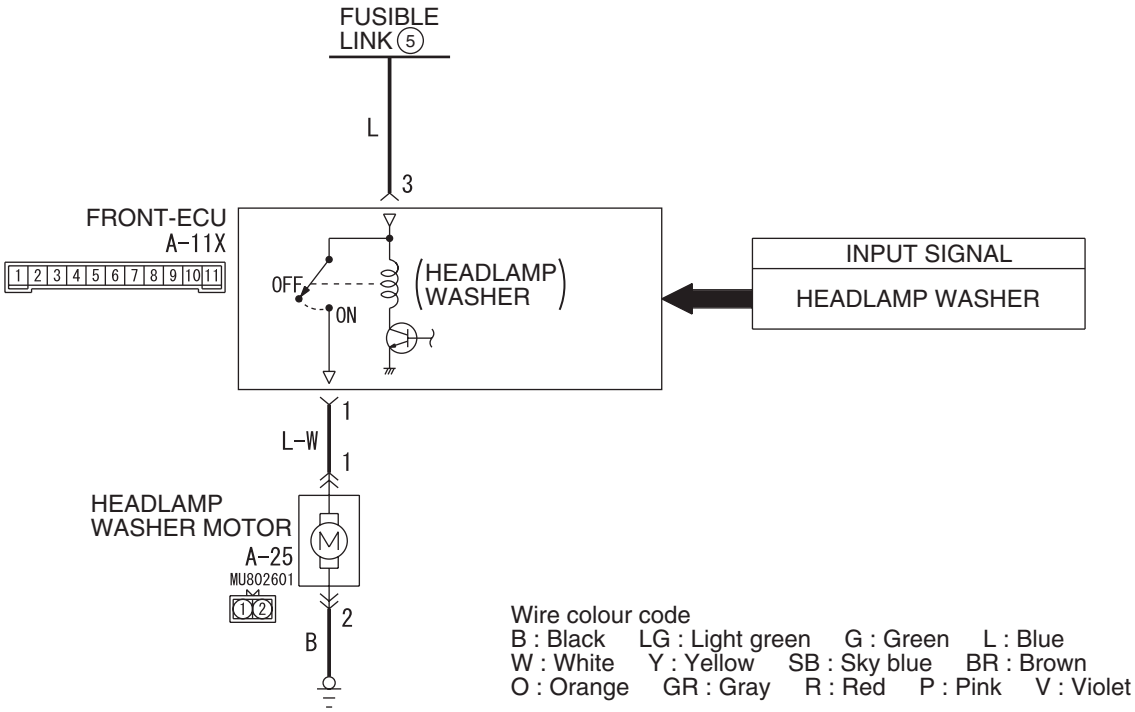
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

HEADLAMP WASHER

INSPECTION PROCEDURE H-1: The headlamp washer does not work.

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

Headlamp Washer Motor Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. ECU check by using the SWS monitor

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

- Turn the ignition switch to the ON position.

ECUS TO BE CHECKED

- COLUMN ECU
- FRONT ECU

OK: "OK" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-40."

Step 2. Function diagnosis by using the SWS monitor

Check the SWS communication signal, which are related to the headlamp washer function.

<Selected item> HD WASHER

- Turn the ignition switch to the ACC position.
- Headlamp washer switch: ON

Item No.	Item name	Normal condition
Item 16	HD WASHER 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: Are the check result normal?

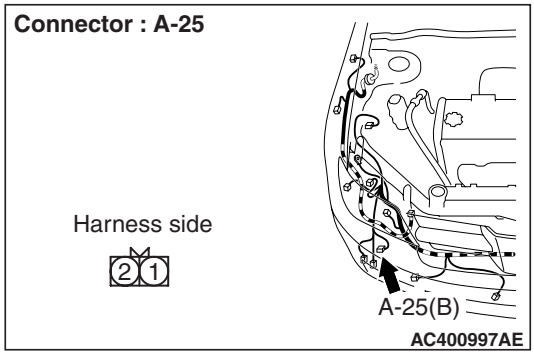
Normal conditions are displayed for all the items : Go to Step 3.

Normal condition is not displayed for item No.16 : Replace the column switch.

Normal condition is not displayed for item No.31 : Refer to inspection procedure N-1 "The ignition switch (ACC) signal is not received P.54C-218."

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

Step 3. Connector check: A-25 headlamp washer motor connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

Step 4. Check the headlamp washer motor assembly.

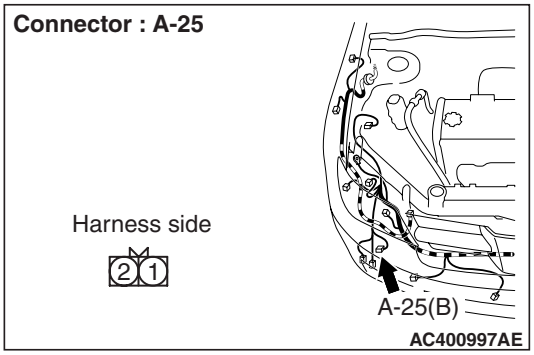
Refer to GROUP 51 – Headlamp washer P.51-53.

Q: Is the check result normal?

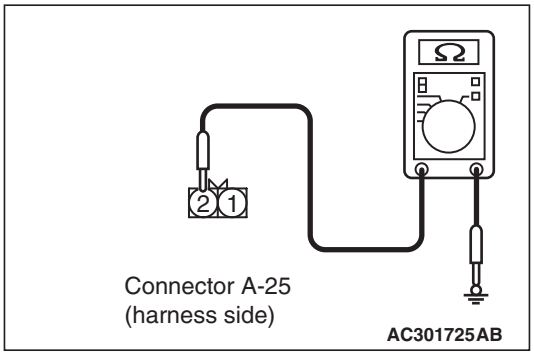
YES : Go to Step 5

NO : Replace the headlamp washer motor.

Step 5. Resistance measurement at the A-25 headlamp washer motor connector.



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

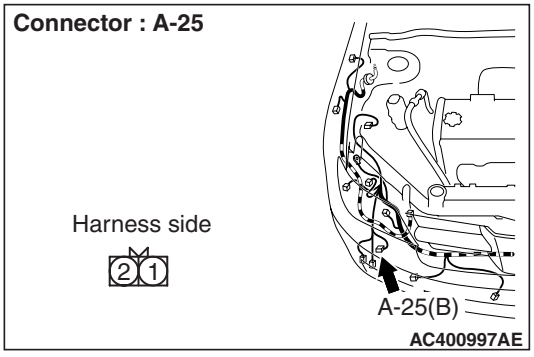


(2) Continuity between A-25 headlamp washer motor connector terminal No.2 and body earth

OK: Continuity (less than 2 Ω)

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

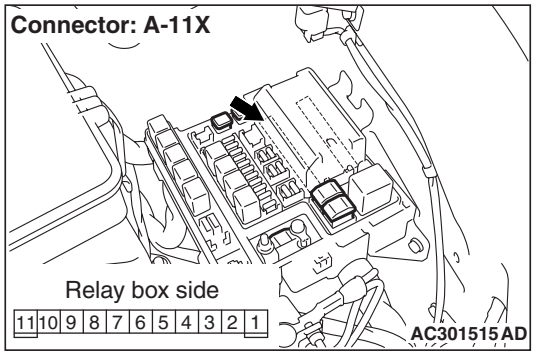
Step 6. Check the wiring harness between A-25 headlamp washer motor connector terminal No.2 and body earth.



- Check the earth wires for open circuit.

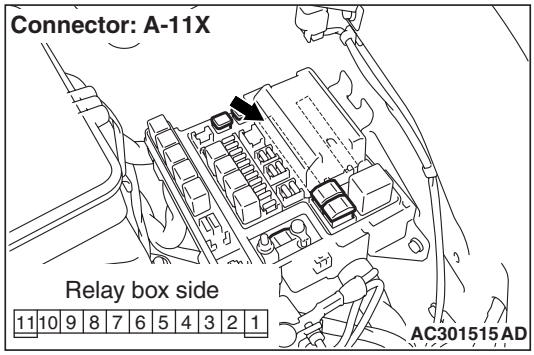
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

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

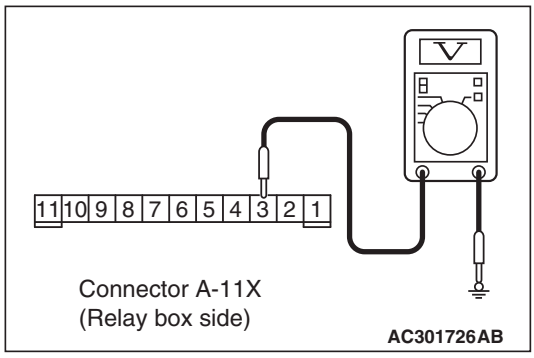


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

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



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

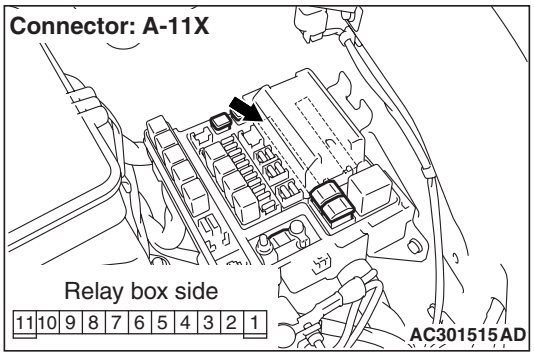


(3) Check the voltage between the A-11X front-ECU connector terminal No.3 and body earth.

OK: System voltage

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

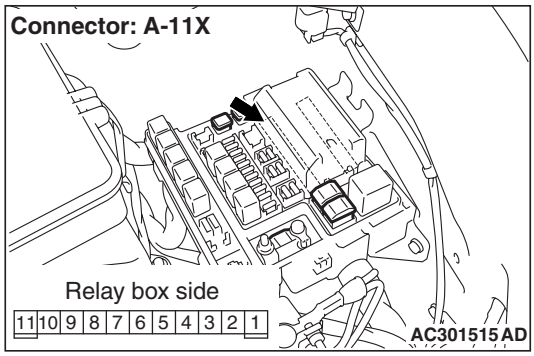
Step 9. Check the wiring harness between A-11X front-ECU connector terminal No.3 and the fusible link (5).

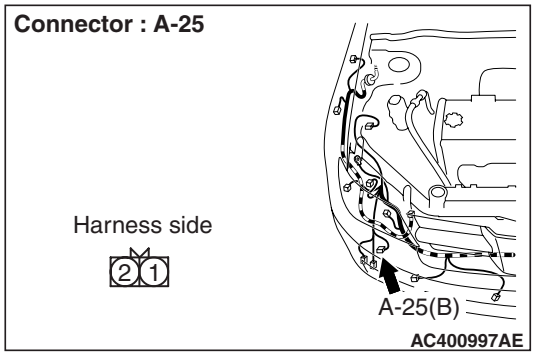


- Check the power supply line from the fusible link (5) for open circuit.

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.00-6).
NO : Repair the wiring harness.

Step 10. Check the wiring harness between A-25 headlamp washer motor connector terminal No.1 and A-11X front-ECU connector terminal No.1.





- Check the output line to headlamp washer motor for open circuit.

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

Step 11. Retest the system.
The headlamp washer should now work normally.

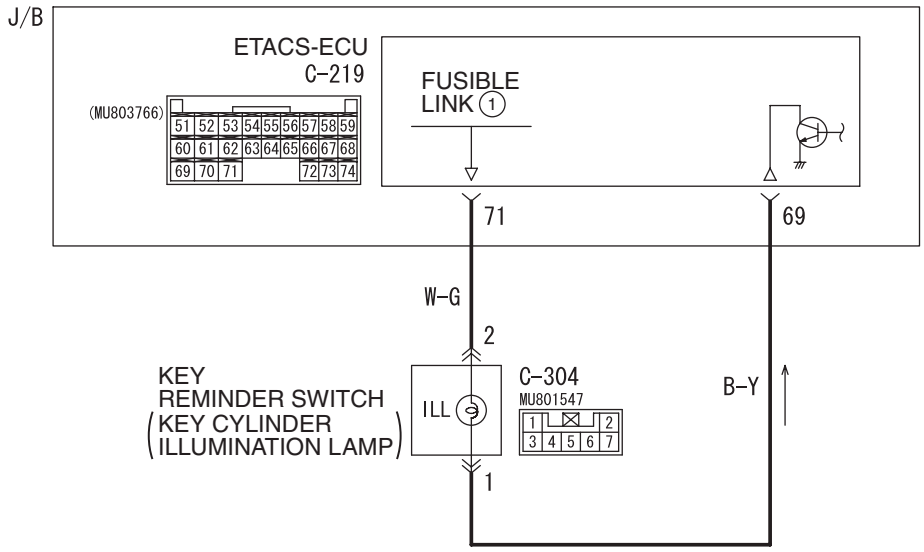
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the front-ECU.

IGNITION KEY CYLINDER ILLUMINATION LAMP

INSPECTION PROCEDURE I-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

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COMMENTS ON TROUBLE SYMPTOM

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

<Vehicles without keyless entry system>
- Ignition switch (IG1)
- Driver's door switch

<Vehicles with keyless entry system>
- 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

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 M-1 "The front or rear room lamp does not illuminate or extinguish normally. <vehicles without keyless entry system>P.54C-205 " Or refer to inspection procedure M-2 "The front and rear room lamp does not illuminate or extinguish normally. <vehicles with keyless entry system>P.54C-209 "

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-35."

Step 3. SWS monitor data list
Check the SWS communication signal, which are related to the ignition key cylinder illumination lamp.

<Selected item> ETACS ECU
- Ignition switch: OFF
- Driver's door: open

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

OK: Normal conditions are displayed for all the items

Q: Are the check result normal?
Normal conditions are displayed for all the items. <Vehicles without keyless entry system> : Go to Step 4.
Normal conditions are displayed for all the items. <Vehicles with keyless entry system> : Go to Step 5.
Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."
Normal condition is not displayed for item No.32. : Refer to inspection procedure N-4 "The front door switch (LH) signal is not received P.54C-231."

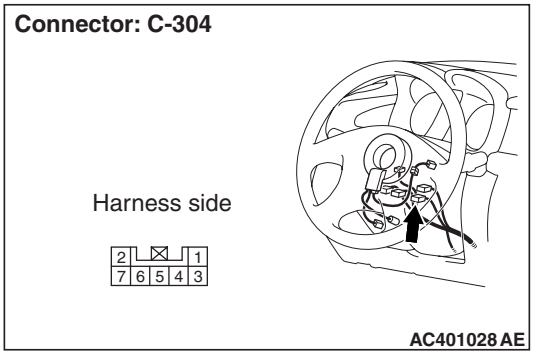
Step 4. Pulse check
Check the input signals below, which are related to the ignition key cylinder illumination lamp.

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 : Go to Step 5.
NO : Refer to inspection procedure N-11 "The key reminder switch signal is not received P.54C-249."

Step 5. Connector check: C-304 key reminder switch connector

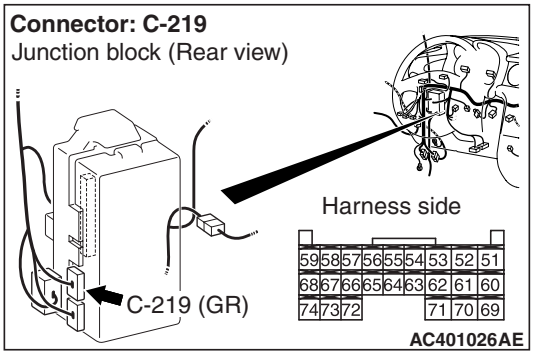


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the bulb of the ignition key cylinder illumination lamp.
Check the bulb of the ignition key cylinder illumination lamp.

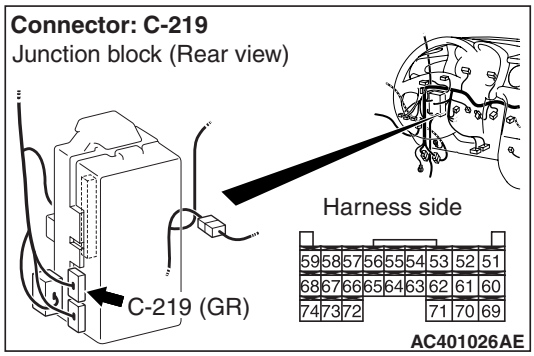
Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the bulb of the ignition key cylinder illumination lamp.

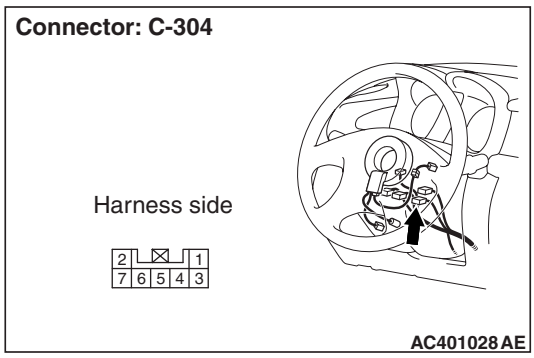
Step 7. Connector check: C-219 ETACS-ECU connector



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

Step 8. Check the wiring harness from C-219 ETACS-ECU connector terminal Nos. 69 and 71 to C-304 ignition key cylinder illumination lamp connector terminal Nos. 1 and 2.





- Check the input and output lines for open circuit.

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

Step 9. Retest the system.
Check that the 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.00-6).
NO : Replace the ETACS-ECU.

HEADLAMP AND TAIL LAMP

INSPECTION PROCEDURE J-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-40."

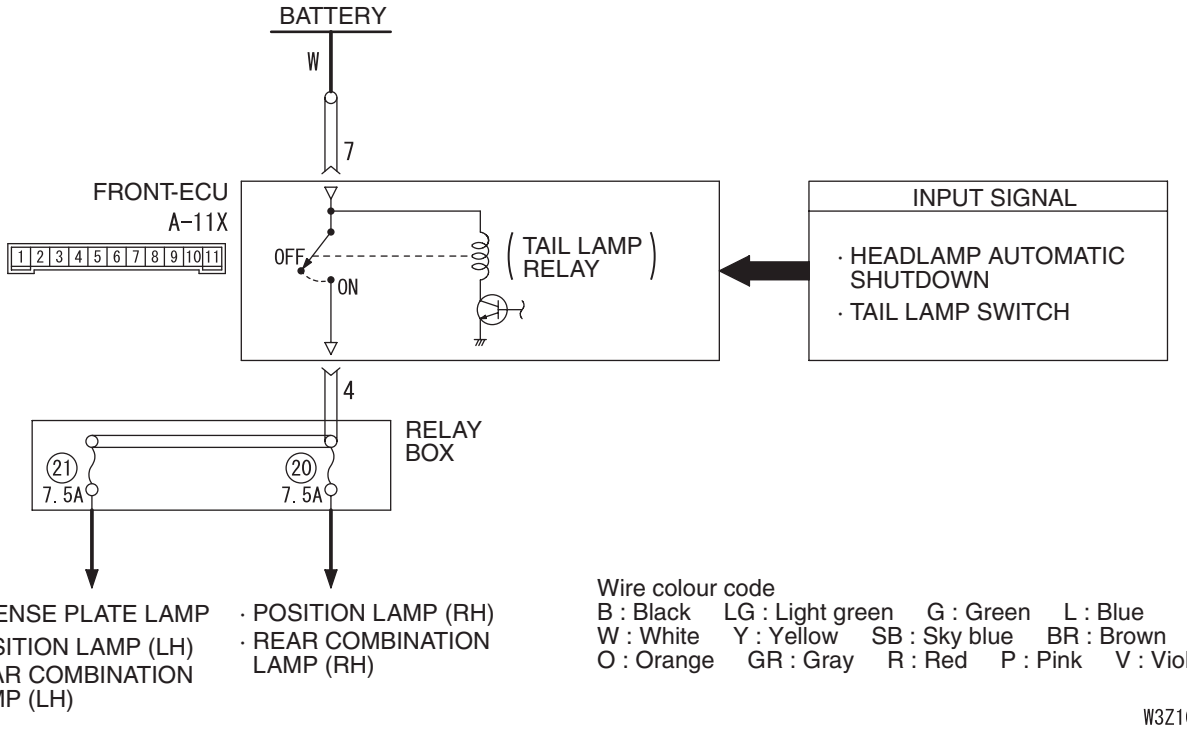
Step 2. Retest the system.
Check that the headlamps illuminate normally.

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.00-6).
NO : Replace the column switch.

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

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

Tail Lamp Relay Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

If all the tail lamps do not illuminate, the tail lamp switch input circuit or the front-ECU may be defective.

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" are displayed for all the items

Q: Are the check result normal?
"OK" are 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-40."

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: Are the check result normal?

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

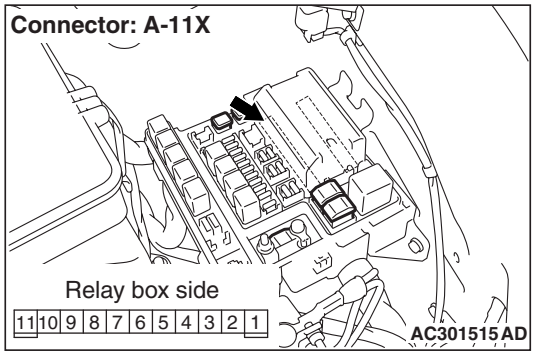
Normal condition is not displayed for item 00, 01 or 03. : Refer to inspection procedure N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.35. : Refer to Inspection Procedure J-6 "The headlamp automatic-shutdown function does not work normally P.54C-154."

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

Step 3. Connector check: A-11X front-ECU connector

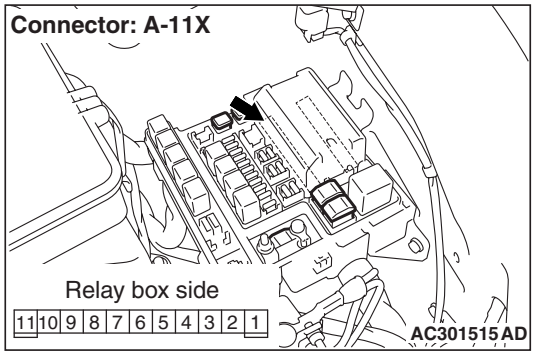


Q: Is the check result normal?

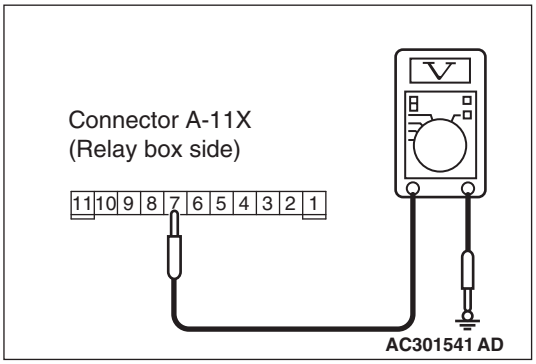
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Voltage measurement at A-11X front-ECU connector.



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



(2) Voltage between A-11X front-ECU connector terminal No.7 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

Step 5. Check the wiring harness between A-11X 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.00-6).

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.00-6).

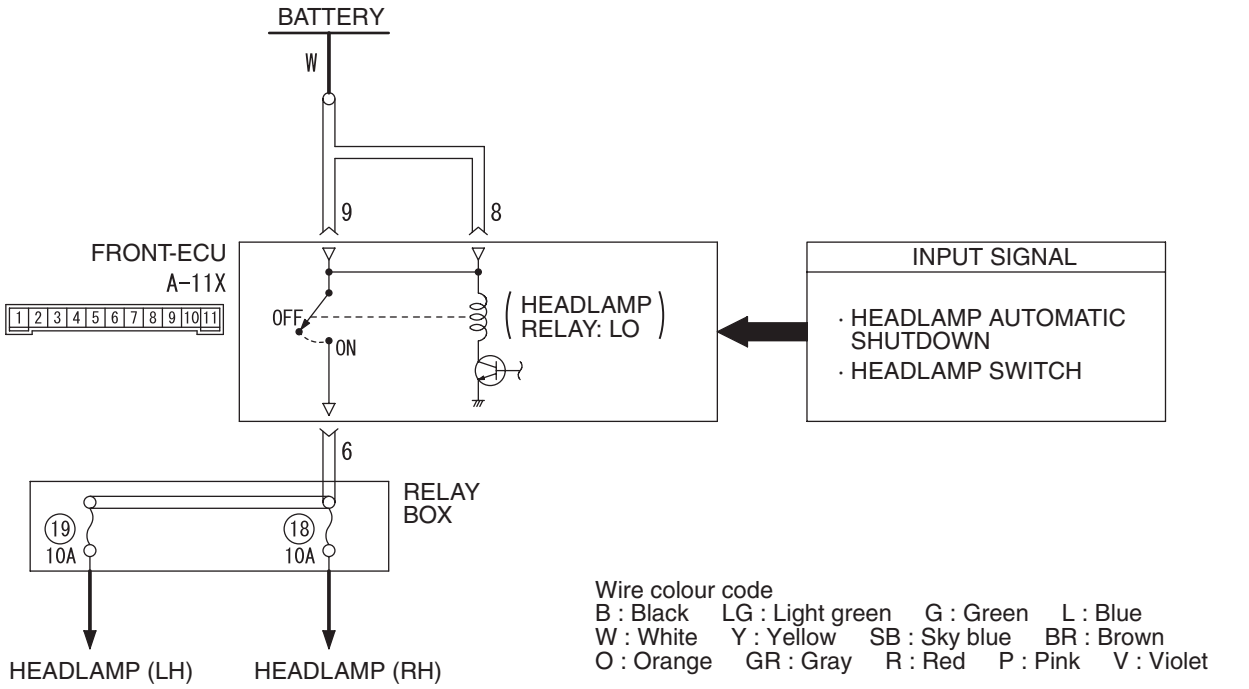
NO : Replace the front-ECU.

INSPECTION PROCEDURE J-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



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COMMENTS ON TROUBLE SYMPTOM

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

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" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-40."

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: Are the check result normal?

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

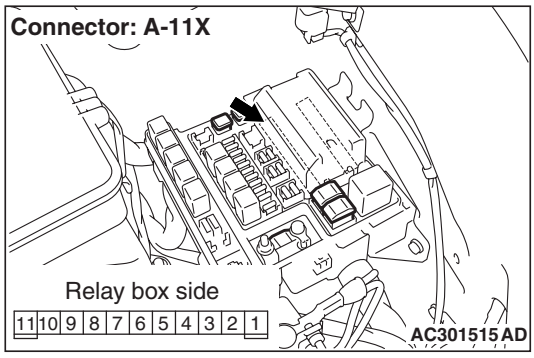
Normal condition is not displayed for item 00 or 03. : Refer to inspection procedure N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.35. : Refer to Inspection Procedure J-6 "The headlamp automatic-shutdown function does not work normally P.54C-154."

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

Step 3. Connector check: A-11X front-ECU connector

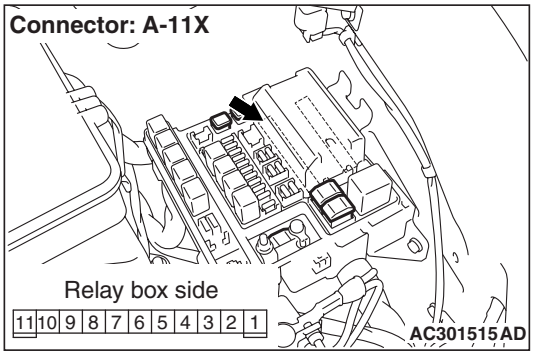


Q: Is the check result normal?

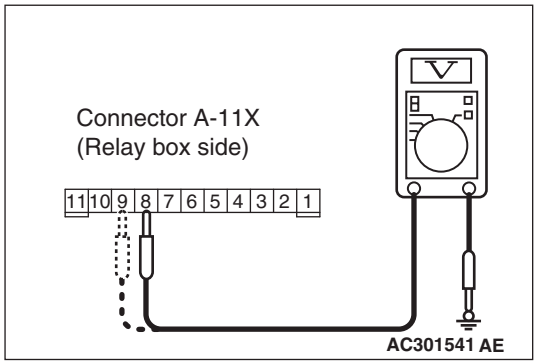
YES : Go to Step 4.

NO : Repair the defective connector.

Step 4. Voltage measurement at A-11X front-ECU connector.



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



(2) Voltage between A-11X front-ECU connector terminal Nos. 8, 9 and body earth

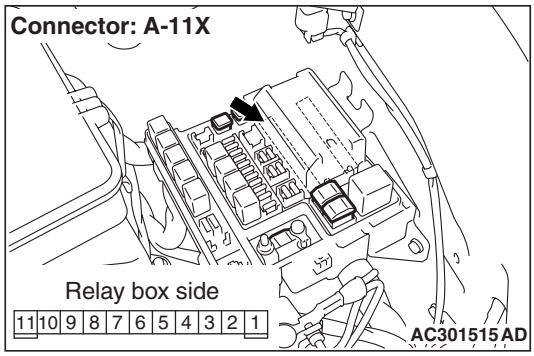
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

Step 5. Check the wiring harness between A-11X front-ECU connector terminal Nos. 8, 9 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.00-6).

NO : Repair the wiring harness.

Step 6. Retest the system.

Check that the low-beam headlamps illuminate normally.

Q: Is the check result normal?

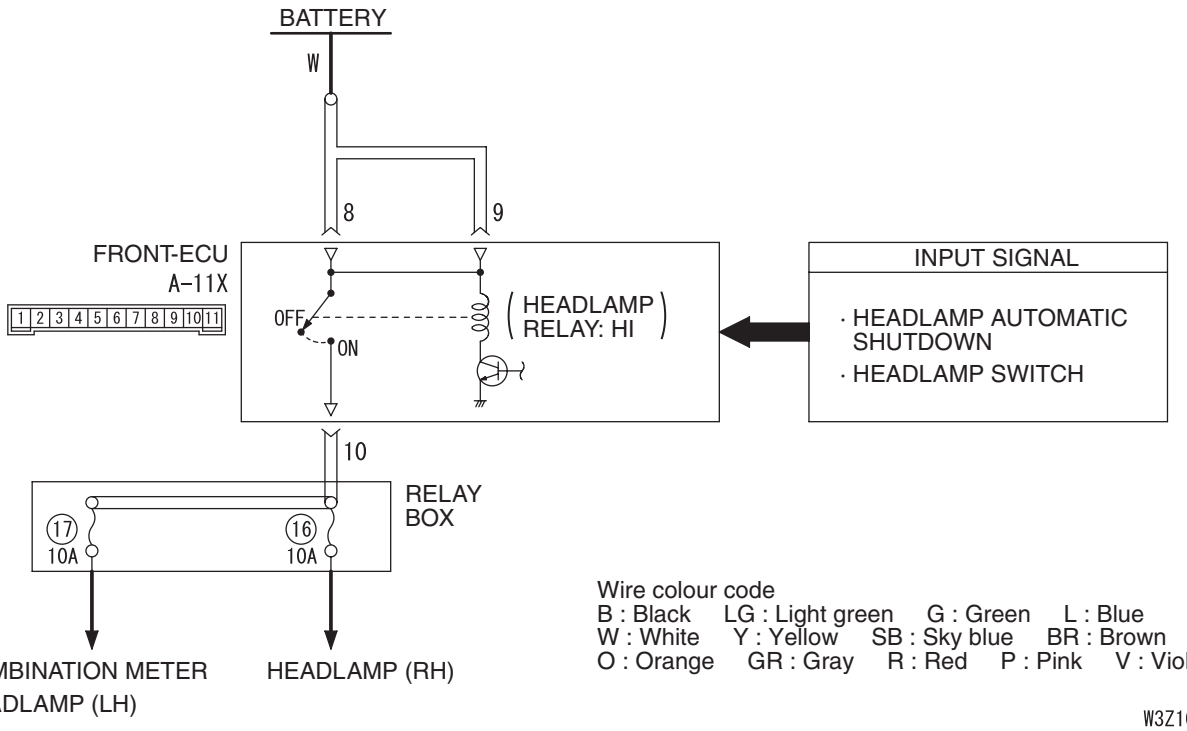
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the front-ECU.

INSPECTION PROCEDURE J-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



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 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" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-40."

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: Are 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.35. : Refer to Inspection Procedure J-6 "The headlamp automatic-shutdown function does not work normally P.54C-154."

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.00-6).

NO : Replace the front-ECU.

INSPECTION PROCEDURE J-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 J-3 "The low-beam headlamps do not illuminate normally P.54C-148." And refer to inspection procedure J-4 "The high-beam headlamps do not illuminate normally P.54C-151."

Step 2. 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

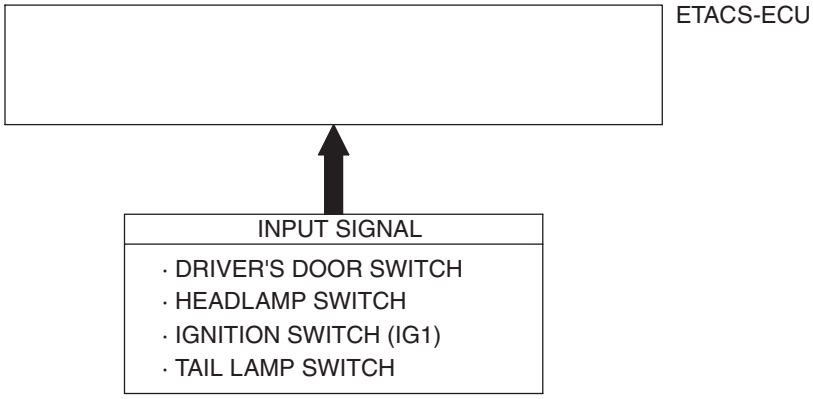
Step 3. Retest the system.
When the passing switch is turned on, check if the headlamps illuminate normally.

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.00-6).
NO : Replace the front-ECU.

INSPECTION PROCEDURE J-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



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COMMENTS ON TROUBLE SYMPTOM

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

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

If this function does not work normally, these input signal circuit(s), 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. Check the adjustment function.
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 – Adjustment Function P.54B-265.

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" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-35."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-40."

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: Are 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.32. : Refer to inspection procedure N-4 "The front door switch (LH) signal is not received P.54C-231."

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?

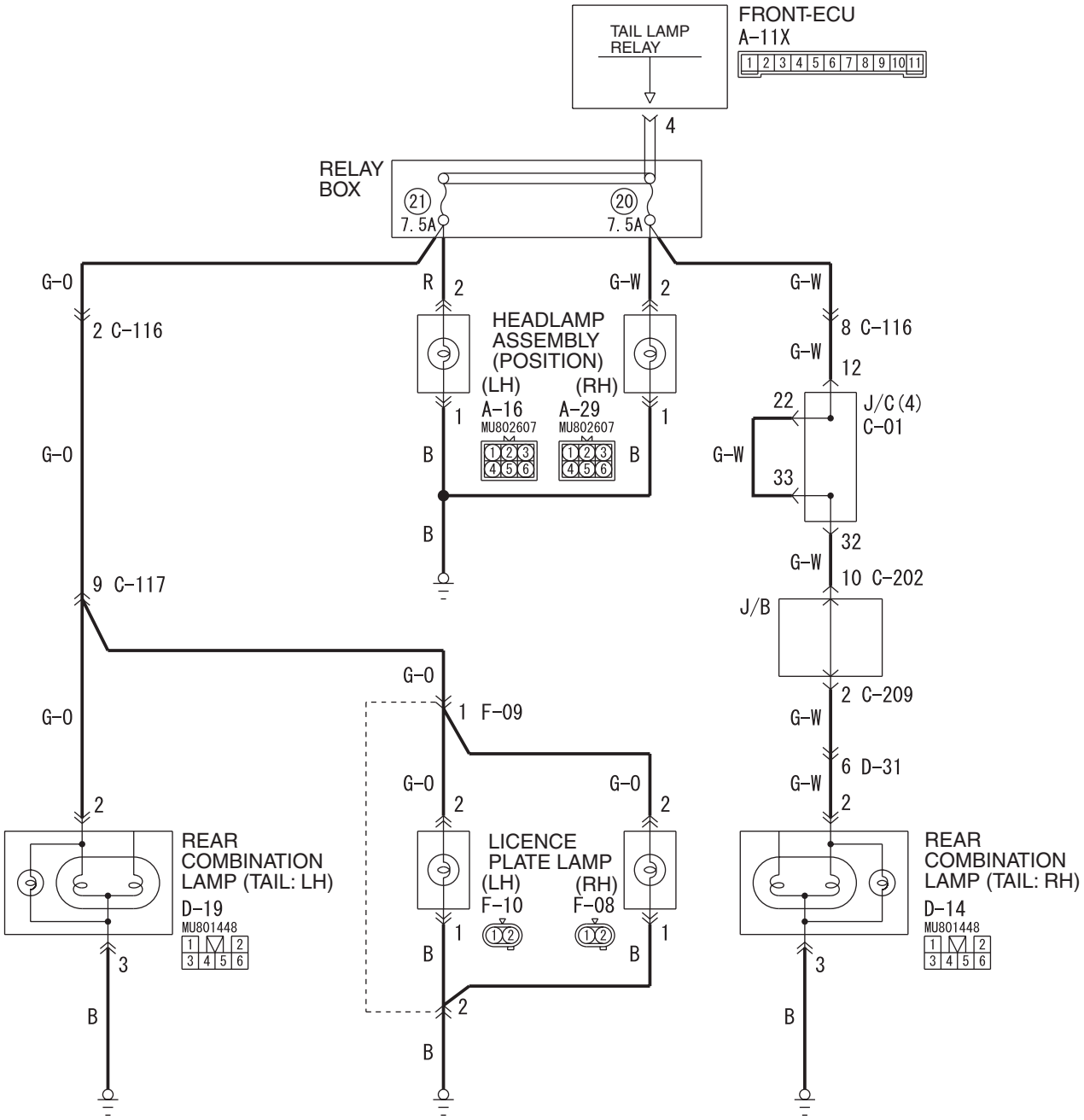
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE J-7: Any of tail lamps, position lamps or licence plate lamp does not illuminate.

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

Tail Lamps, Position Lamps and Licence Plate Lamps Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

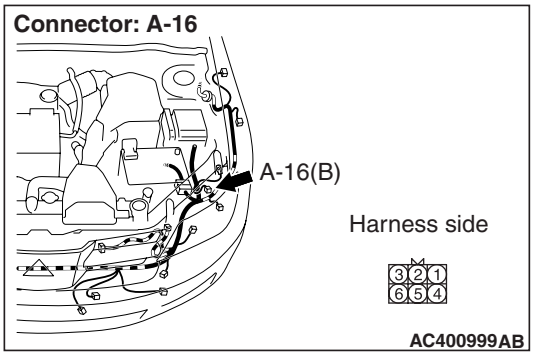
If the tail lamps, the position lamps or the licence plate lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

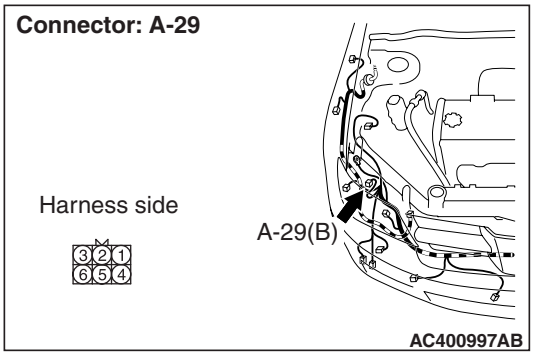
POSSIBLE CAUSES

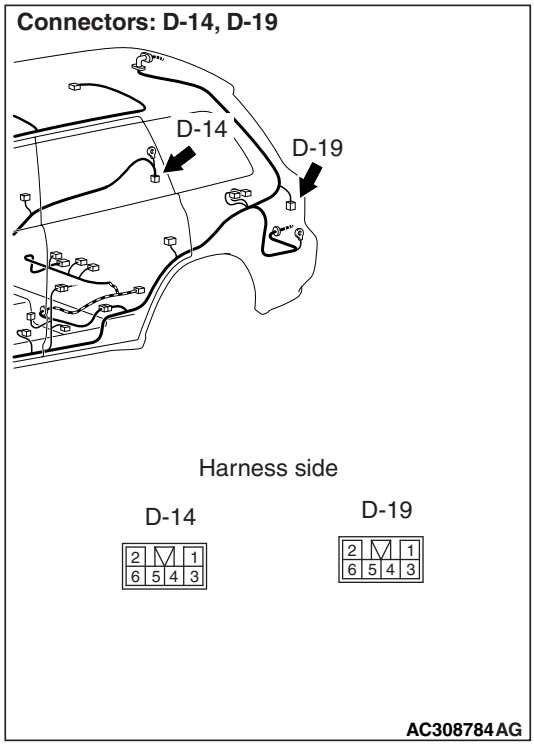
- Burned-out bulb
- Damaged harness wires and connectors

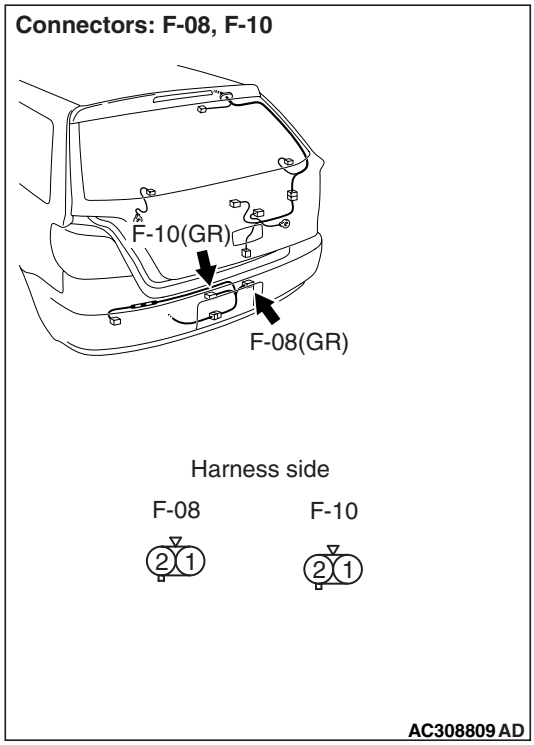
DIAGNOSIS PROCEDURE

Step 1. Connector check: D-14 <right tail lamp> or D-19 <left tail lamp> rear combination lamp connector, A-29 <right position lamp> or A-16 <left position lamp> headlamp assembly connector, F-08 <right licence plate lamp> or F-10 <left licence plate lamp> licence plate lamp connector







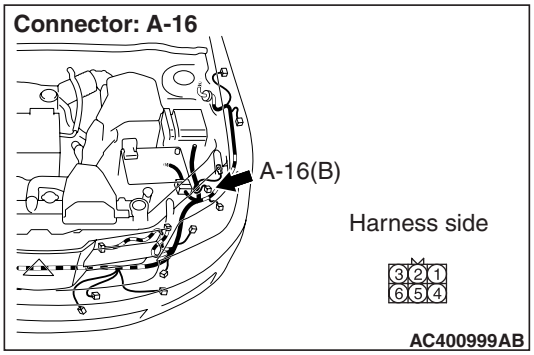


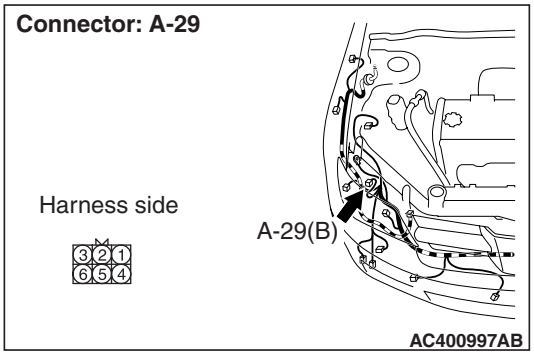
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

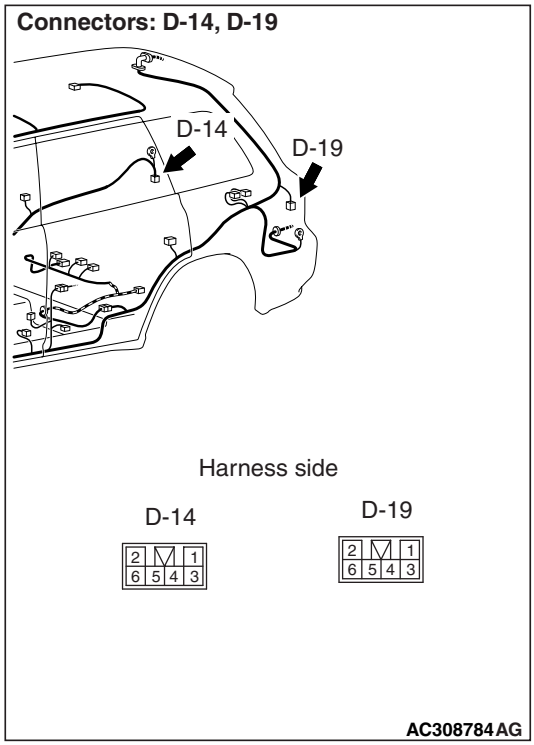
Step 2. Check the bulbs of the tail lamps, the position lamp or the licence plate lamp.
Check the bulb of the lamp which does not illuminate.

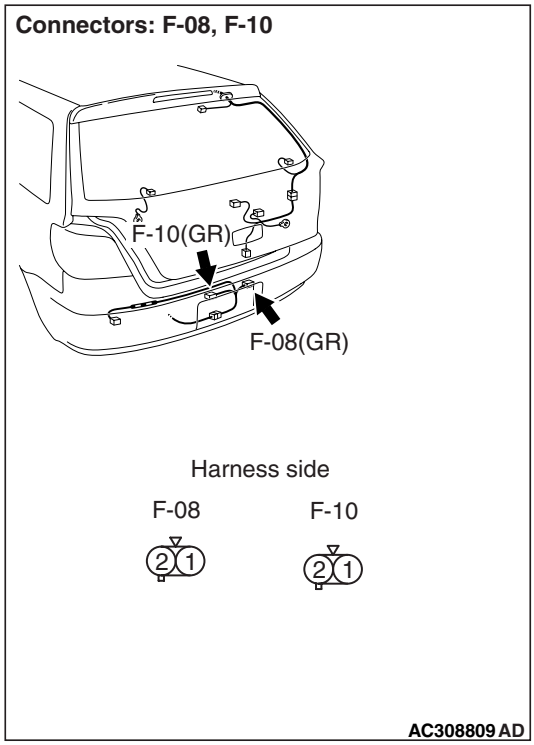
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb of the lamp which does not illuminate.

Step 3. Resistance measurement at the D-14 <right tail lamp> or D-19 <left tail lamp> rear combination lamp connector, the A-29 <right position lamp> or A-16 <left position lamp> headlamp assembly connector, the F-08 <right licence plate lamp> or F-10 <left licence plate lamp> licence plate lamp connector.

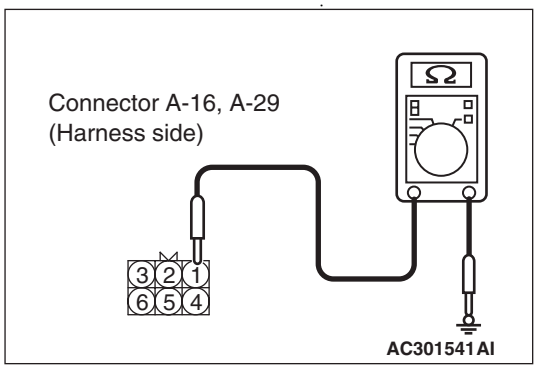






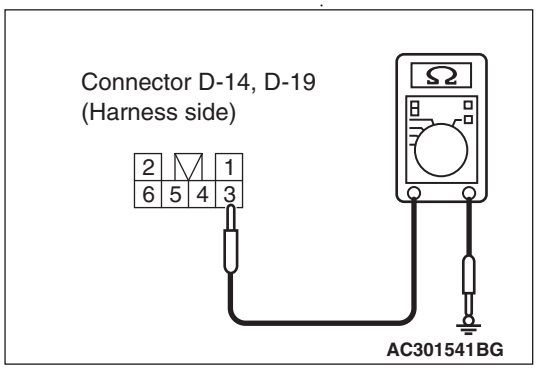


(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



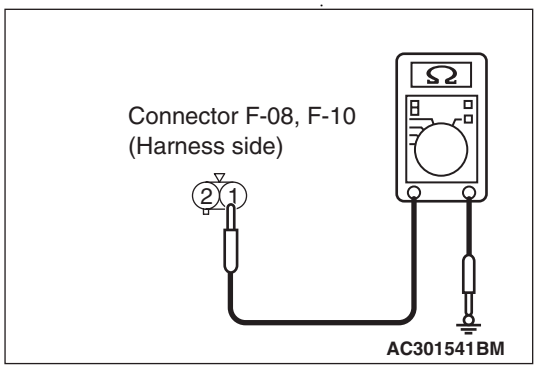
Resistance between A-16 <position LH> headlamp assembly connector terminal No.1 and body earth

- Resistance between A-29 <position RH> headlamp assembly connector terminal No.1 and body earth



Resistance between D-14 <right tail lamp> rear combination lamp connector terminal No.3 and body earth

- Resistance between D-19 <left tail lamp> rear combination lamp connector terminal No.3 and body earth



Resistance between F-08 <licence plate lamp, RH> licence plate lamp connector terminal No.1 and body earth

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

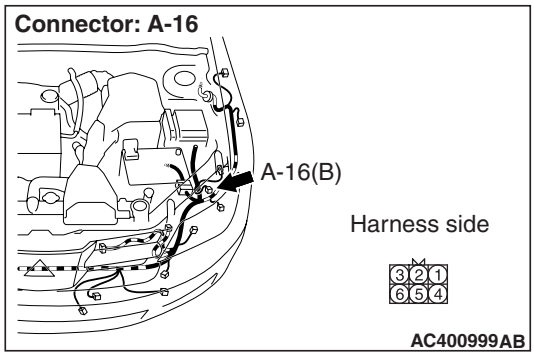
OK: Continuity (less than 2 Ω)

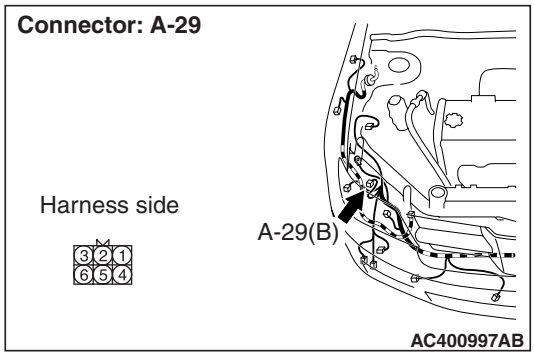
Q: Is the check result normal?

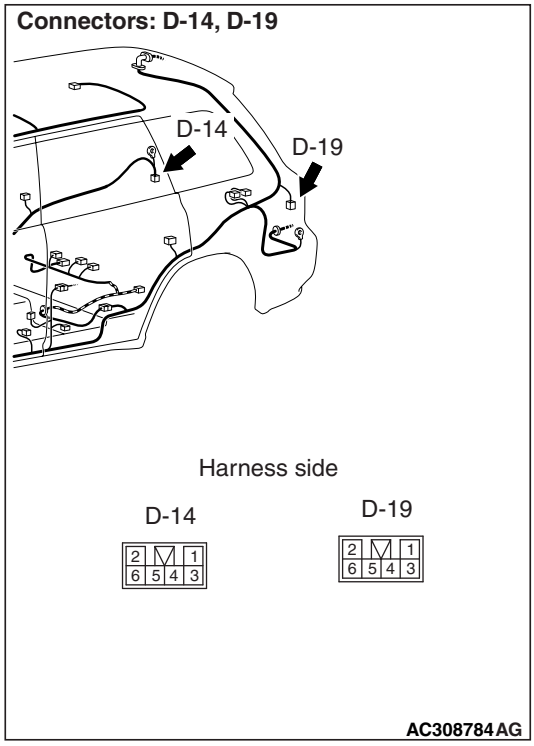
YES : Go to Step 5.

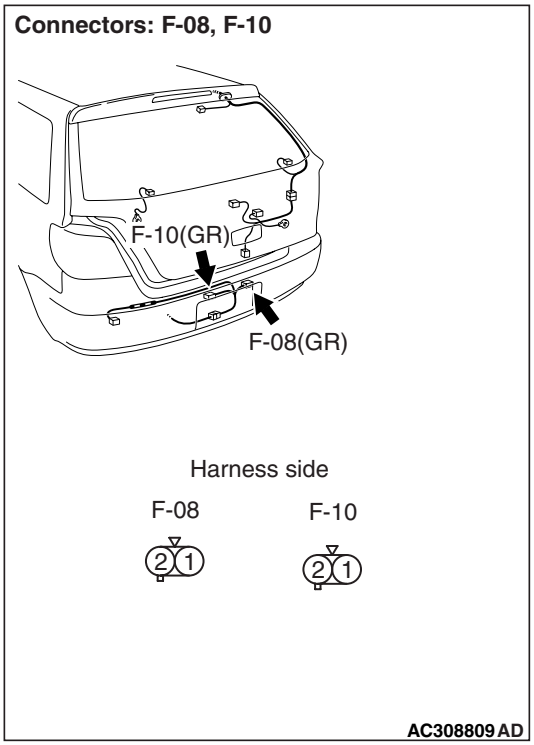
NO : Go to Step 4.

Step 4. Check the wiring harness from D-14 <right tail lamp> or D-19 <left tail lamp> rear combination lamp connector terminal No.3, A-29 <right position lamp> or A-16 <left position lamp> headlamp connector terminal No.1 or F-08 <right licence plate lamp> or F-10 <right licence plate lamp> licence plate lamp connector terminal No.1 to body earth.







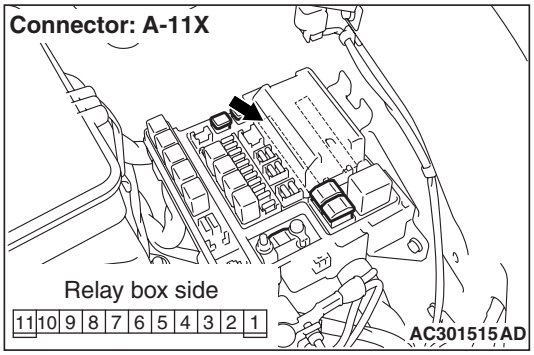


NOTE: Prior to the wiring harness inspection, check intermediate connector F-09 <licence plate lamp>, and repair if necessary.

- Check the earth wires for open circuit.

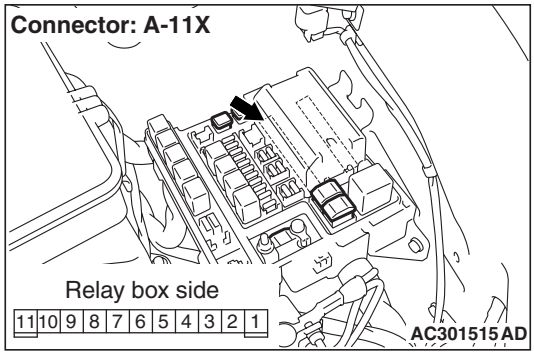
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

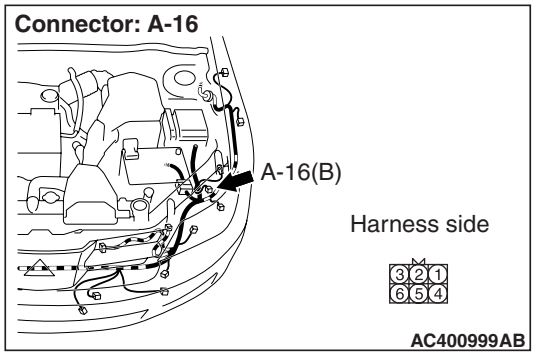
Step 5. Connector check: A-11X front-ECU connector

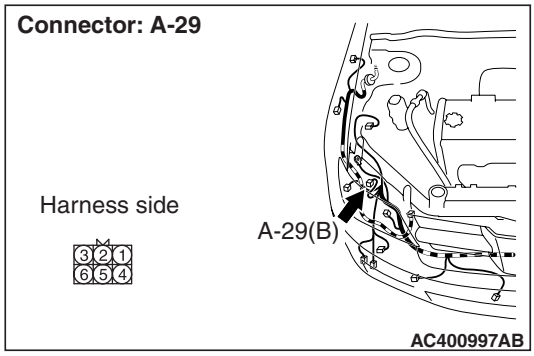


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

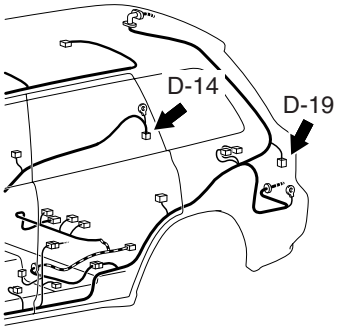
Step 6. Check the wiring harness from D-14 <right tail lamp> or D-19 <left tail lamp> rear combination lamp connector terminal No.2, A-29 <right position lamp> or A-16 <left position lamp> headlamp assembly connector terminal No.2, F-08 <right licence plate lamp> or F-10 <left licence plate lamp> licence plate lamp connector terminal No.2 to A-11X front-ECU connector terminal No.4.







Connectors: D-14, D-19



Harness side

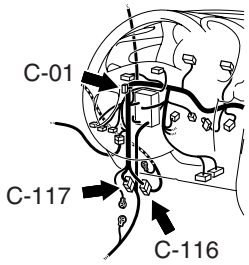
D-14

D-19

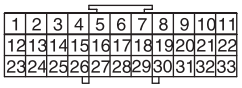
AC308784AG

NOTE:

Connectors: C-01, C-116, C-117

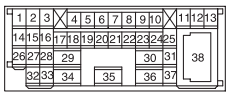


C-01



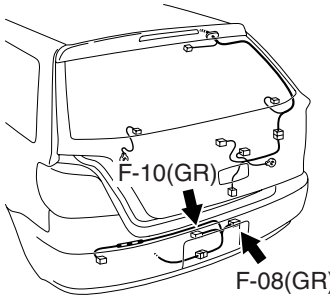
C-116

C-117



AC401021AQ

Connectors: F-08, F-10



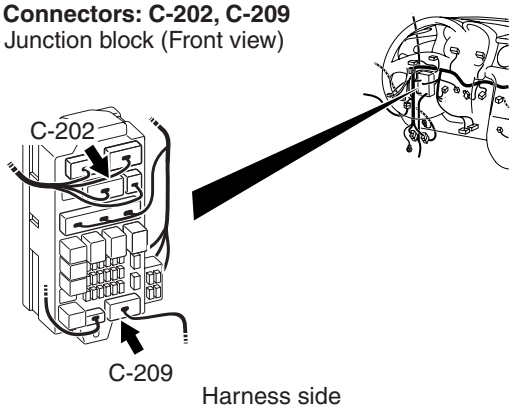
Harness side

F-08

F-10

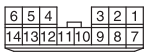
AC308809AD

Connectors: C-202, C-209
Junction block (Front view)



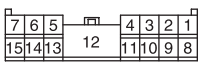
Harness side

C-202

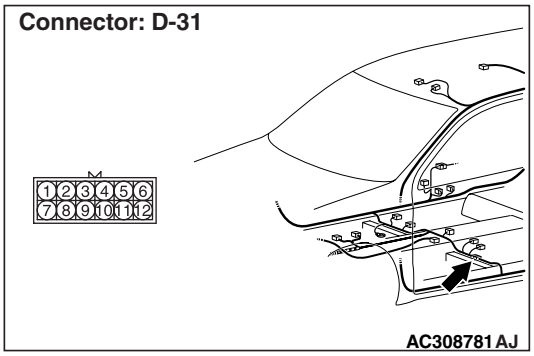


Harness side

C-209



AC401025AZ



Prior to the wiring harness inspection, check joint connector C-01 <right tail lamp>, intermediate connector C-116 <tail lamp and licence plate lamp>, C-117 <left tail lamp and licence plate lamp>, D-31 <right tail lamp>, F-09 <licence plate lamp>, junction block connector C-202 <right tail lamp> and C-209 <right tail 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 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.00-6).

When the tail lamps do not illuminate : Replace the rear combination lamp socket assembly.

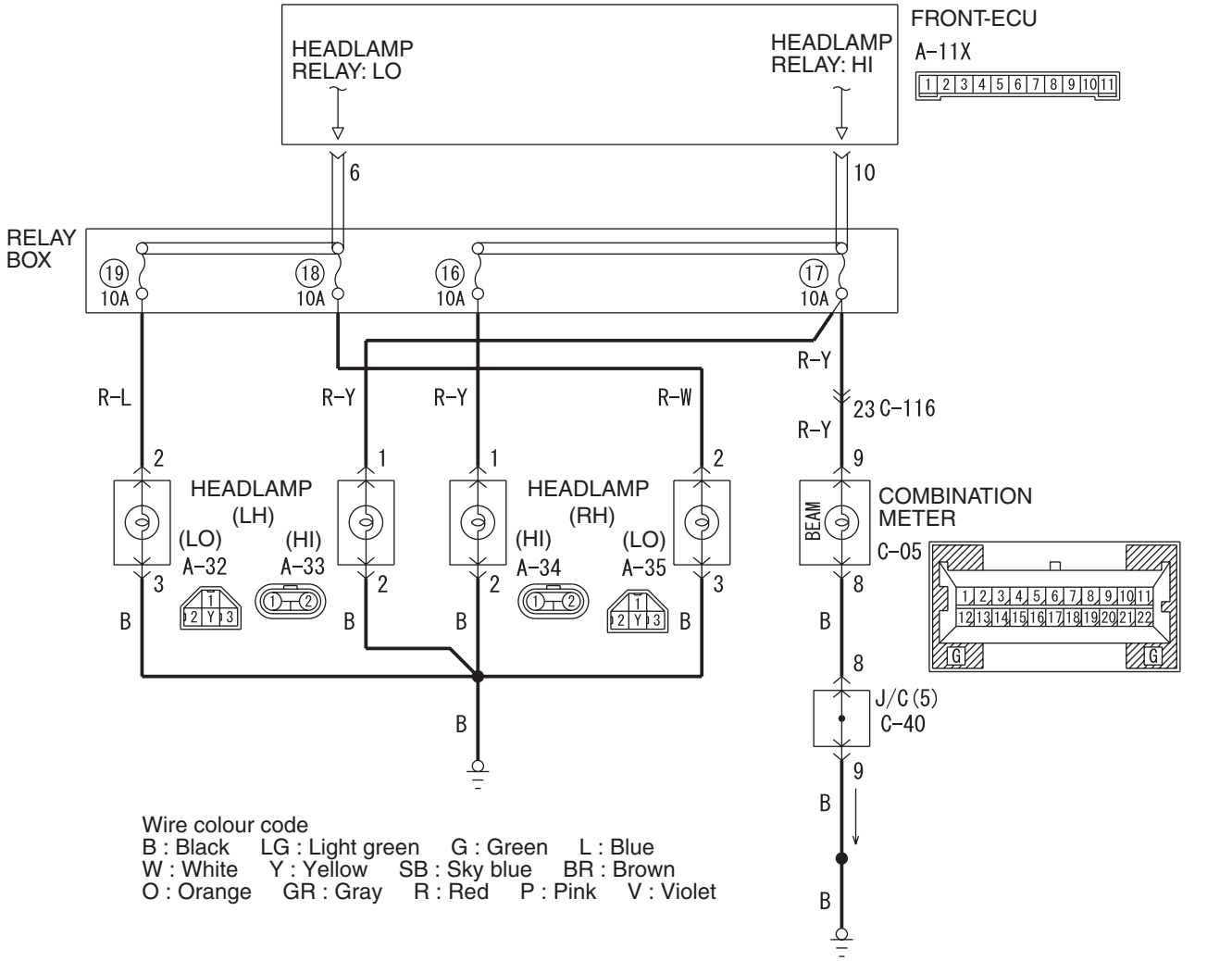
When the position lamps do not illuminate : Replace the position lamp socket.

When the licence plate lamps do not illuminate : Replace the licence plate lamp socket.

INSPECTION PROCEDURE J-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 (High-Beam Indicator Lamp) Circuit



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COMMENTS ON TROUBLE SYMPTOM

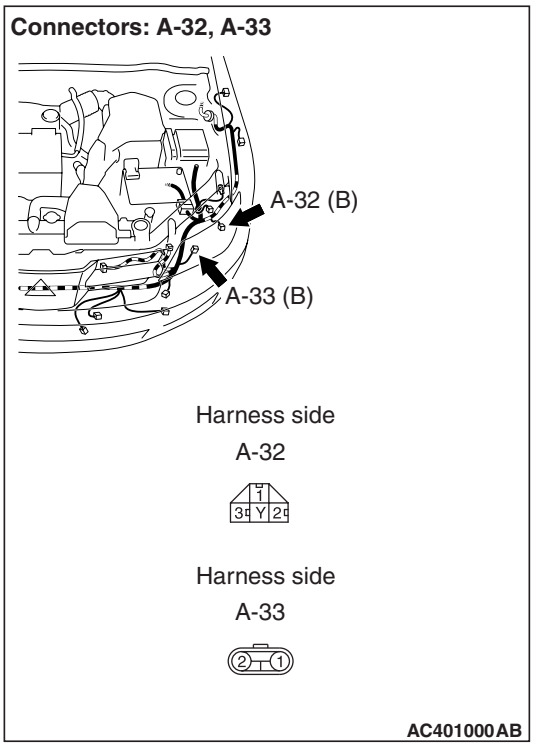
If any of the headlamps or the high-beam indicator does not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

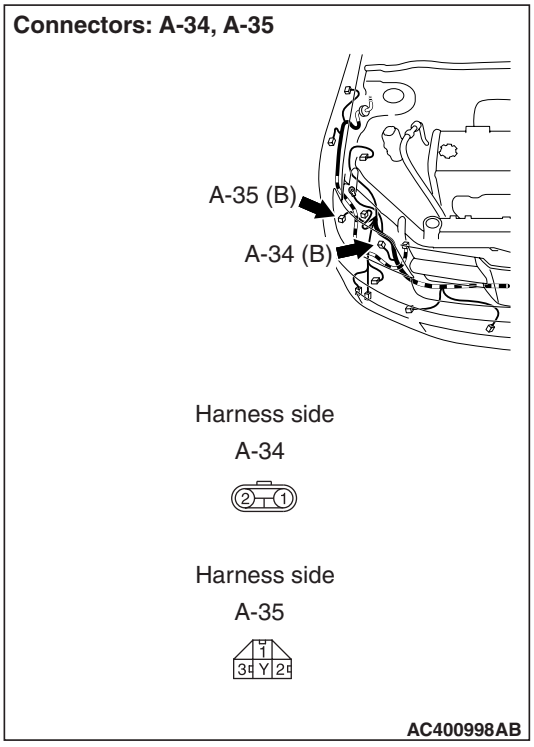
POSSIBLE CAUSES

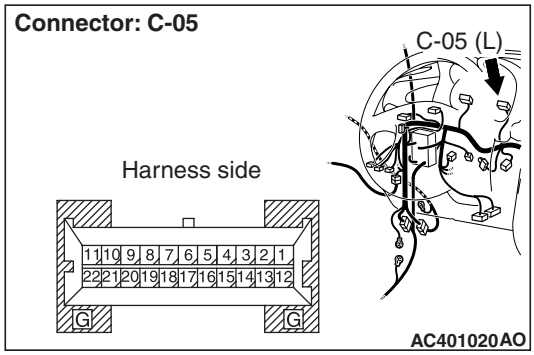
- Malfunction of the headlamp bulbs
- Malfunction of the high-beam indicator bulb
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: A-34 headlamp <HI: RH> connector or A-33 headlamp <HI: LH> connector, A-35 headlamp <LO: RH> connector or A-32 headlamp <LO: LH> connector, C-05 combination meter <high beam indicator lamp> connector.





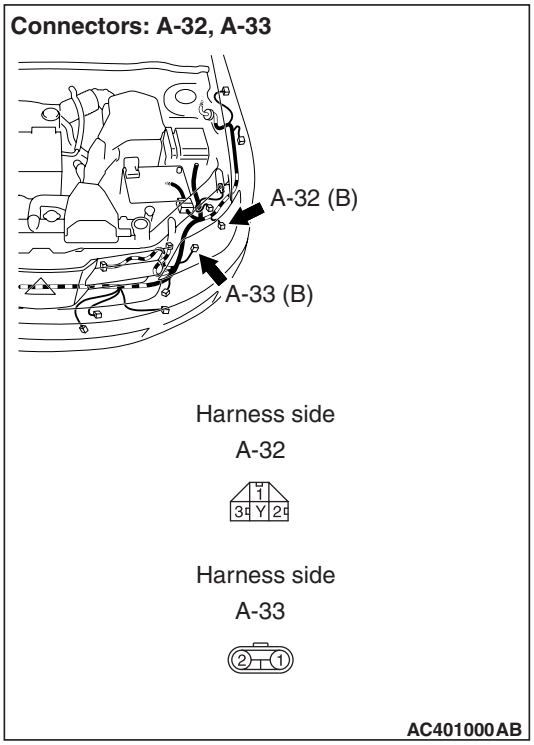


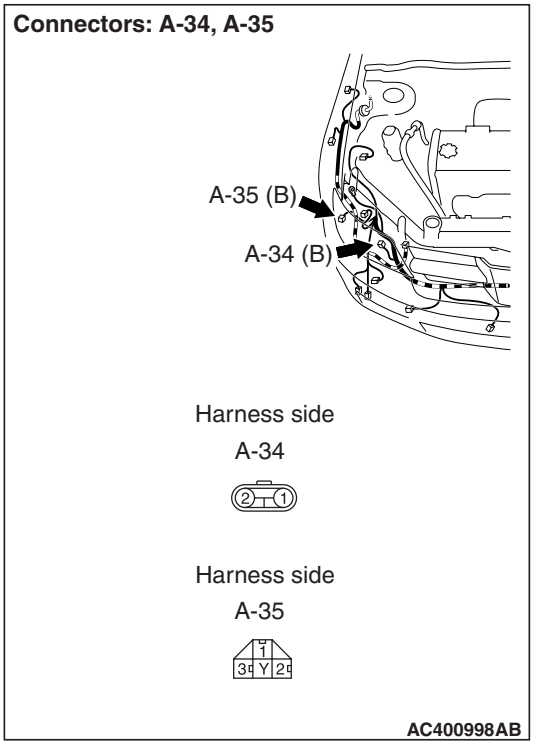
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

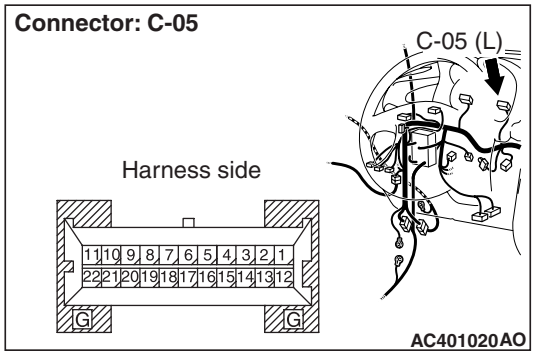
Step 2. Check the bulbs of the headlamp or the high beam indicator lamp.
Check the bulb of the lamp which does not illuminate.

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

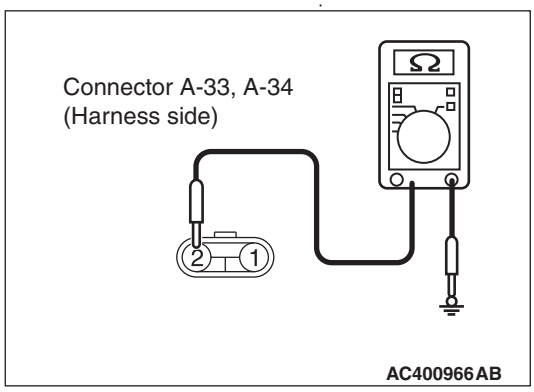
Step 3. Resistance measurement at the A-34 headlamp <HI: RH> connector or A-33 headlamp <HI: LH> connector, the A-35 headlamp <LO: RH> connector or A-32 headlamp <LO: LH> connector, the C-05 combination meter <high beam indicator lamp> connector.





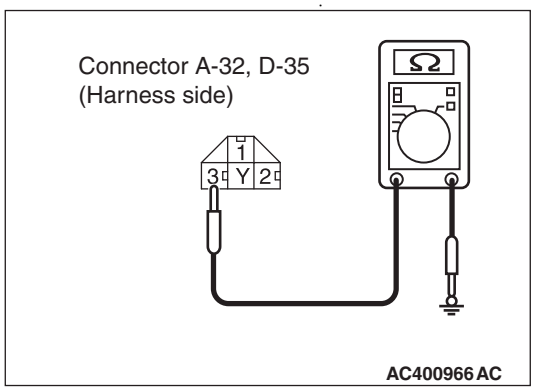


(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



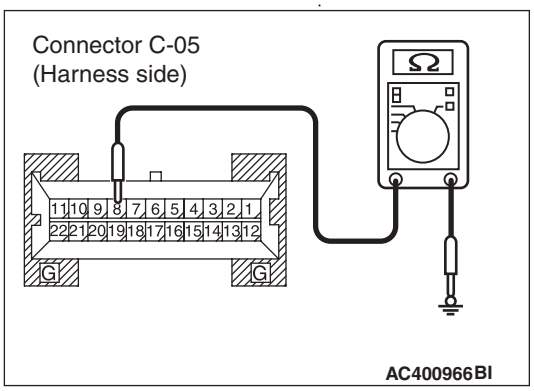
Resistance between A-34 headlamp <HI: RH> connector terminal No.2 and body earth

- Resistance between A-33 headlamp <HI: LH> connector terminal No.2 and body earth



Resistance between A-35 headlamp <LO: RH> connector terminal No.3 and body earth

- Resistance between A-32 headlamp <LO: LH> connector terminal No.3 and body earth



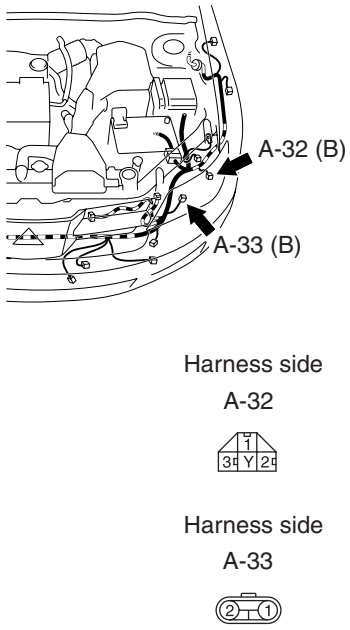
Resistance between C-05 combination meter <high beam indicator lamp> connector terminal No.8 and body earth

OK: Continuity (less than 2 Ω)

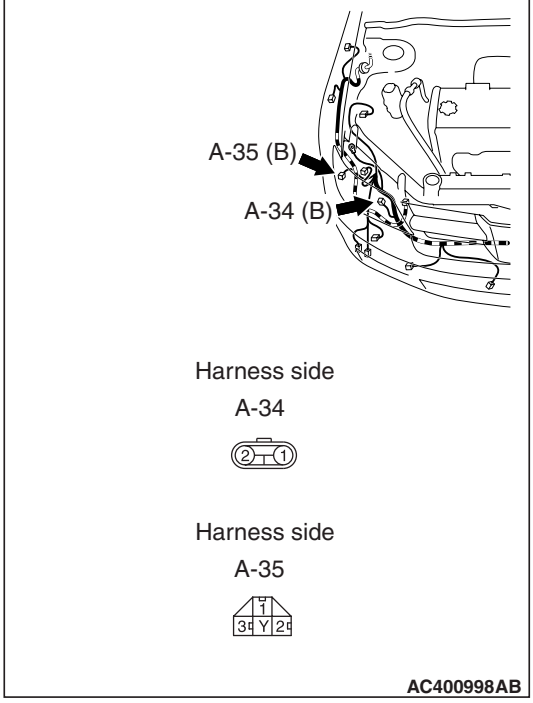
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

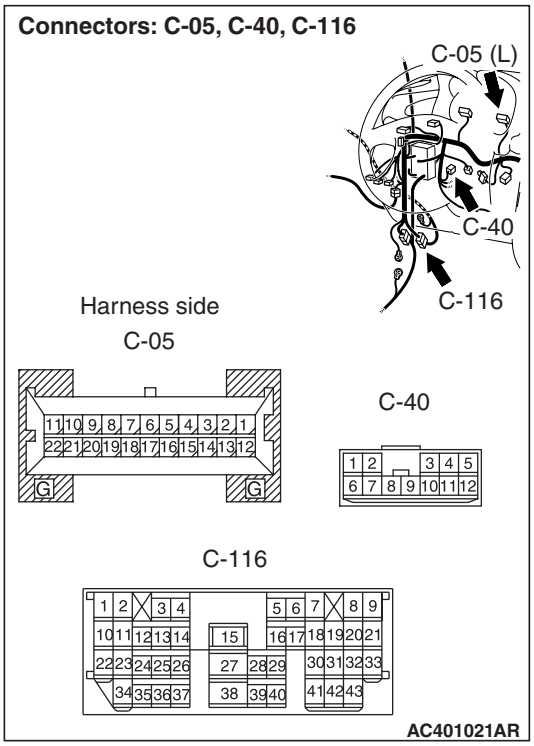
Step 4. Check the wiring harness from A-34 headlamp <HI: RH> connector terminal No.2 or A-33 headlamp <HI: LH> connector terminal No.2, A-35 headlamp <LO: RH> connector terminal No.3 or A-32 headlamp <LO: LH> connector terminal No.3 or C-05 combination meter <high beam indicator lamp> connector terminal No.8 to body earth.

Connectors: A-32, A-33



Connectors: A-34, A-35



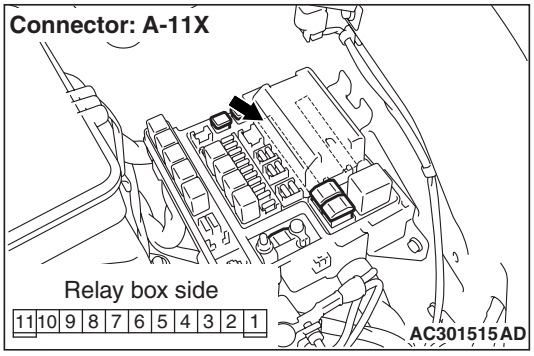


NOTE: Prior to the wiring harness inspection, check intermediate connector C-116 and joint connector C-40 <high beam indicator lamp>, and repair if necessary.

- Check the earth wires for open circuit.

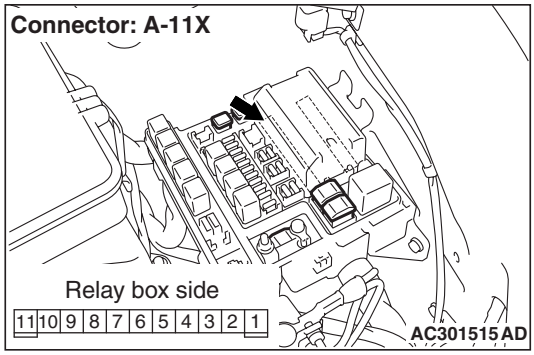
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

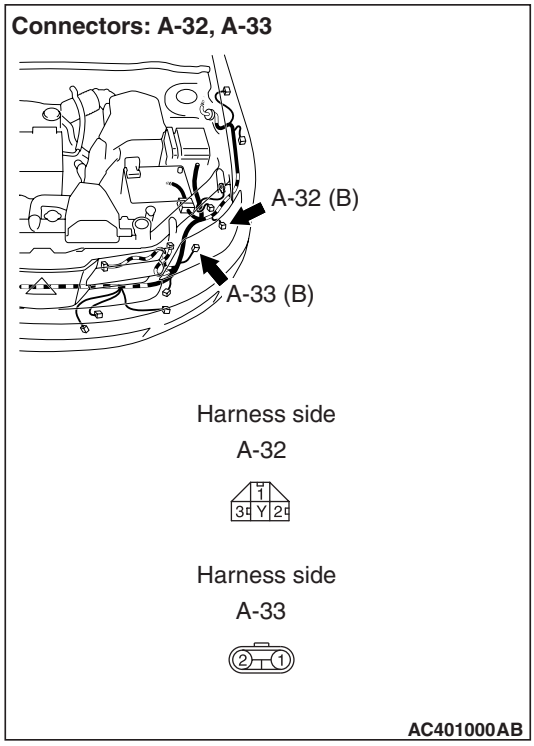
Step 5. Connector check: A-11X front-ECU connector

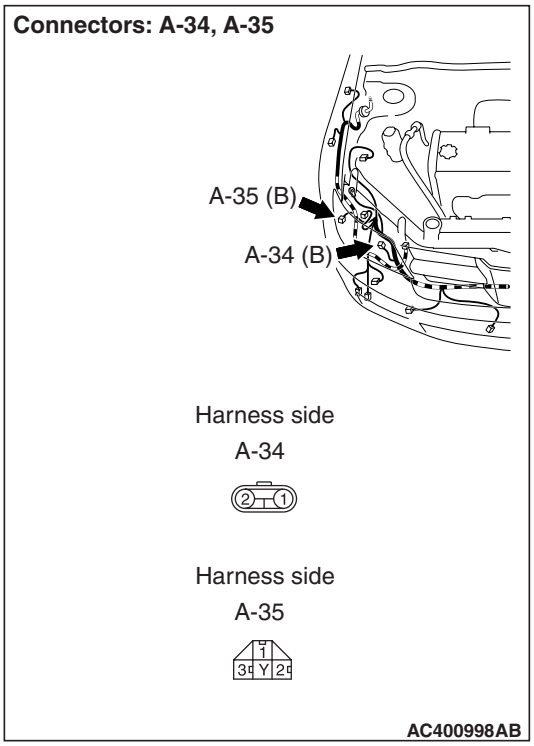


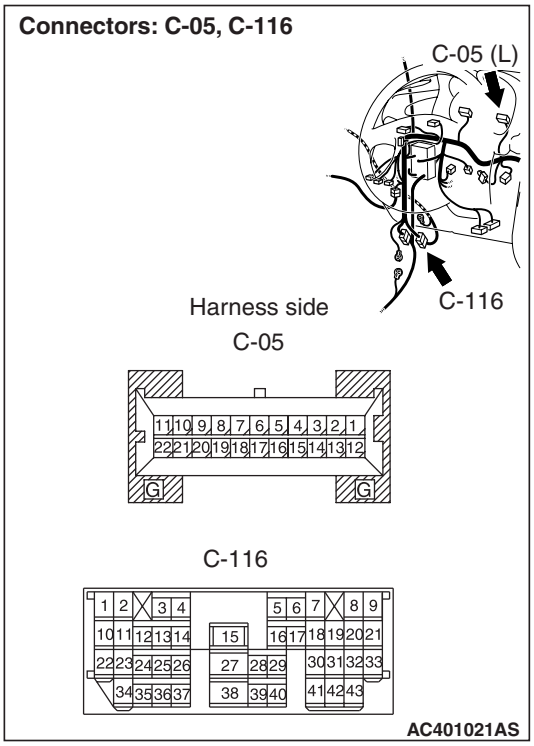
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness from A-34 headlamp <HI: RH> connector terminal No.1 or A-33 headlamp <HI: LH> connector terminal No.1 or C-05 combination meter <high beam indicator> connector terminal No.9, A-35 headlamp <LO: RH> connector terminal No.2 or A-32 headlamp <LO: LH> connector terminal No.2 to A-11X front-ECU connector terminal Nos.10 and 4.









NOTE: Prior to the wiring harness inspection, check intermediate connector C-116 <high beam 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 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.00-6).

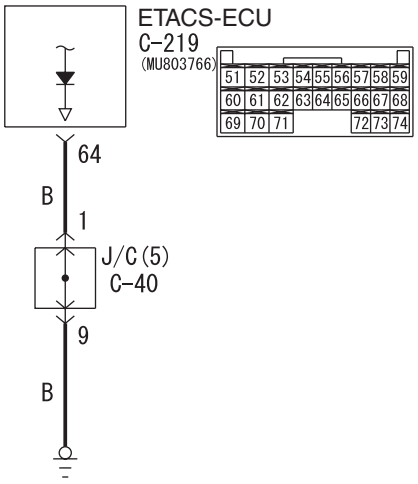
When the headlamps do not illuminate : Replace the headlamp socket.

When the high-beam indicator lamp does not illuminate : Replace the combination meter.

Inspection Procedure J-9:Daytime running lamp function does not work normally. <Vehicles with daytime running lamp function>

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

Daytime Running Lamp 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

If the daytime running lamp function is not operating normally the ETACS-ECU power circuit may be defective or the ETACS-ECU may be defective.

POSSIBLE CAUSES

- The ETACS-ECU may be defective
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check that the headlamps operate.
Do the low-beam headlamps illuminate when the lighting switch is turned to the HEAD position?

Q: Is the check result normal?
YES : Go to Step 2.
NO : First, repair the headlamps. Refer to Inspection Procedure J-3 "The low-beam headlamps do not illuminate normally P.54C-148."

Step 2. 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: 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 N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Step 3. 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 4.
NO : Refer to Inspection Procedure A-3 "Communication with the ETACS-ECU is not possible P.54C-35."

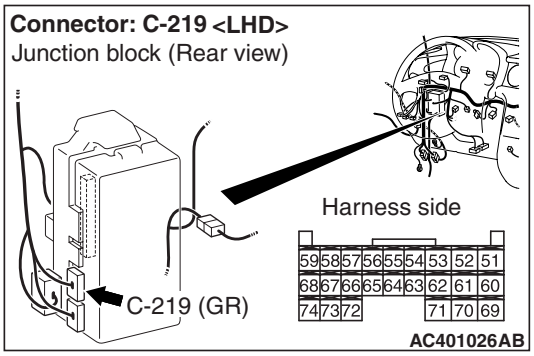
Step 4. ETACS switch data by using the SWS monitor
Check the ETACS-ECU signal related to the daytime running lamp operation.

Item No.	Item name	Normal condition
Item 35	DRL	ON

OK: Normal condition is displayed.

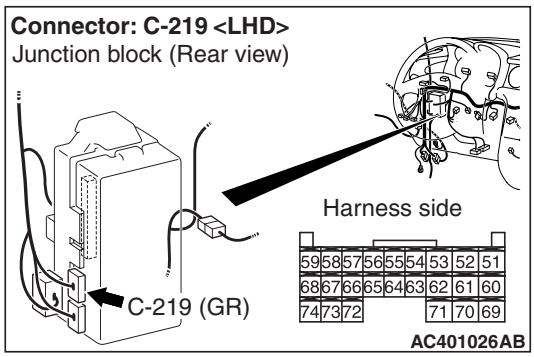
Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 5.

Step 5. Connector check: C-219 ETACS-ECU connector.

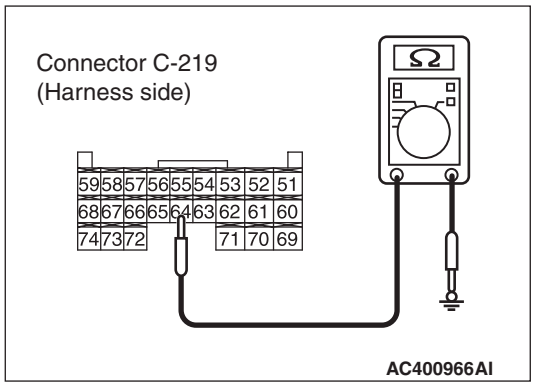


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Resistance measurement at the C-219 ETACS-ECU connector.



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

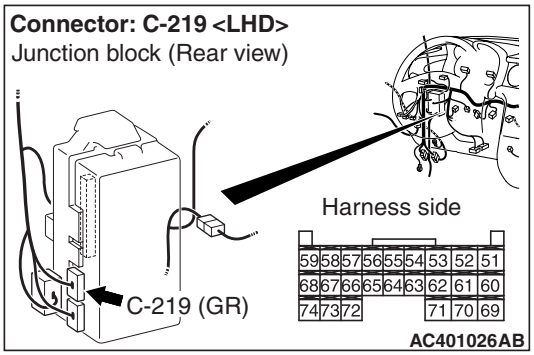


(2) Check the resistance between the ETACS-ECU connector and body earth.
- Resistance between C-219 ETACS-ECU connector terminal No.64 and body earth

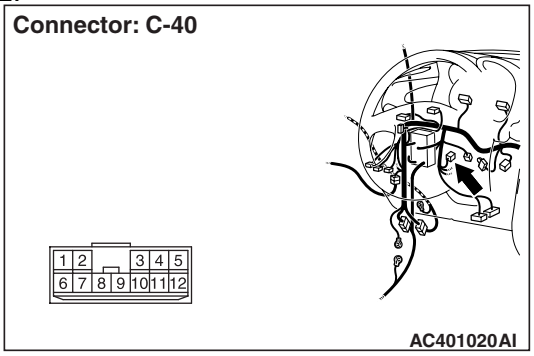
OK: Continuity (less than 2 Ω)

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.00-6).
NO : Go to Step 7.

Step 7. Check the wiring harness from C-219 ETACS-ECU connector terminal No.64 to body earth.



NOTE:



Prior to the wiring harness inspection, check joint connector C-40, and repair if necessary.

- Check the earth wires for open circuit.

Q: Is the check result normal?

YES : Replace the ETACS-ECU.

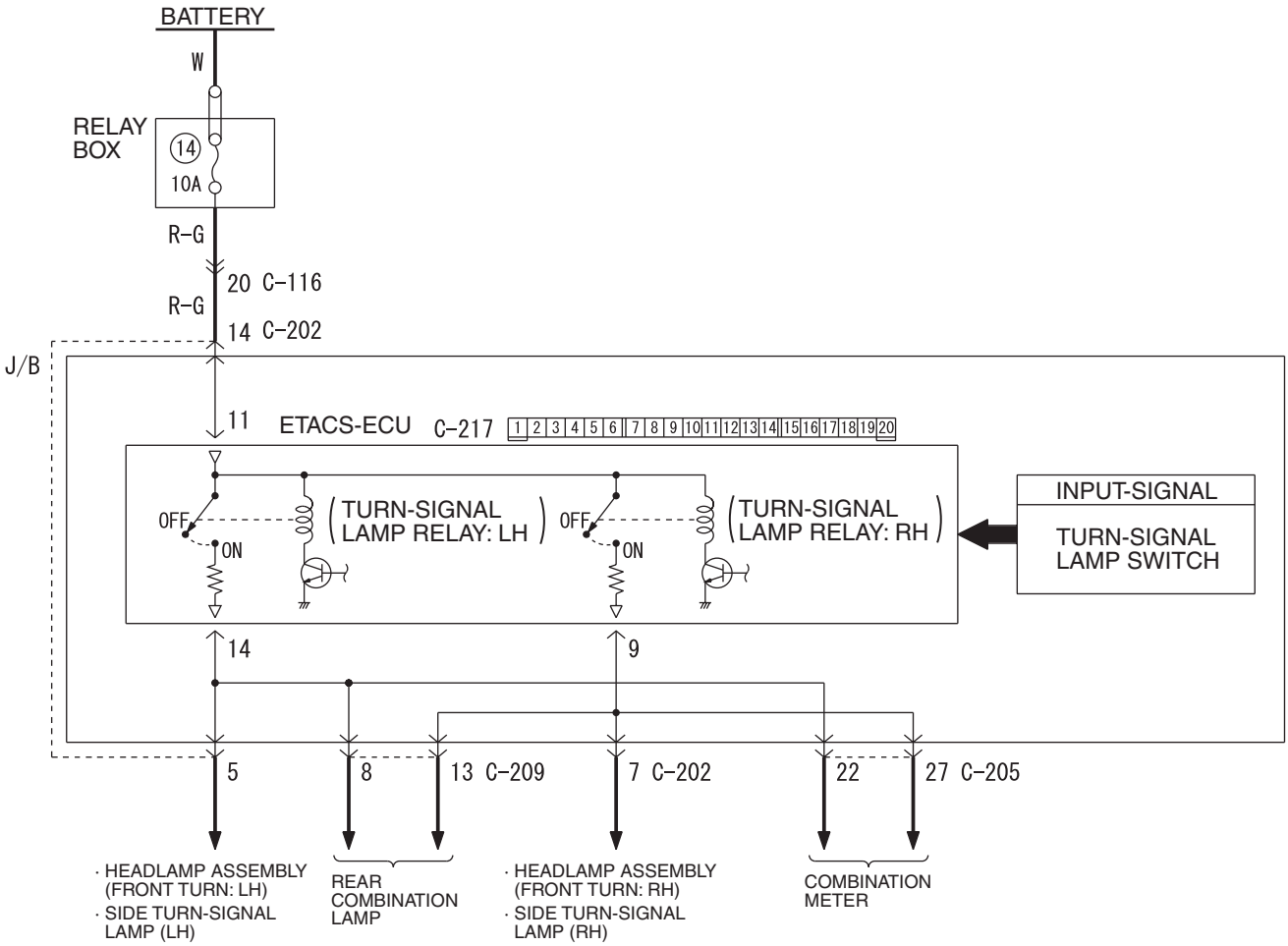
NO : Repair the wiring harness.

FLASHER TIMER

INSPECTION PROCEDURE K-1: The turn-signal lamps do not illuminate.

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

Turn-Signal Lamp Power Supply Circuit



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

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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

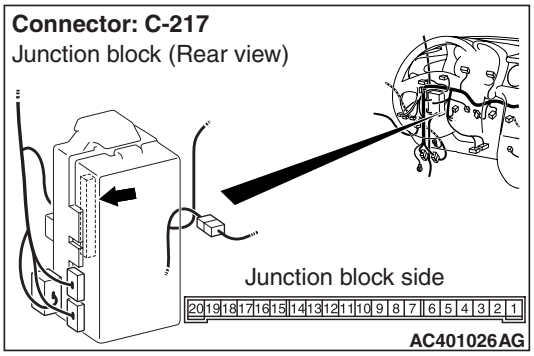
DIAGNOSIS PROCEDURE

Step 1. Check that the hazard warning lamps operate.

Check that the hazard warning lamps illuminate normally.

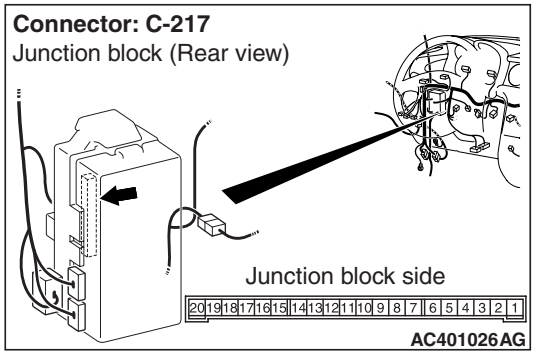
Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 2.

Step 2. Connector check: C-217 ETACS-ECU connector

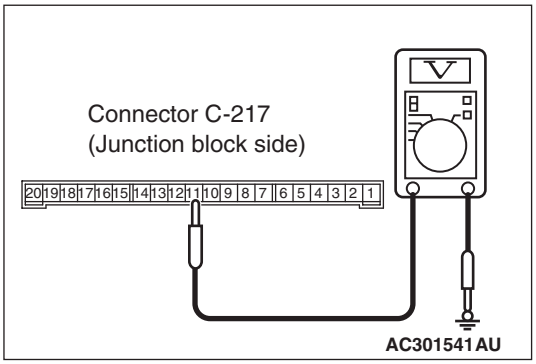


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Voltage measurement at the C-217 ETACS-ECU connector.



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

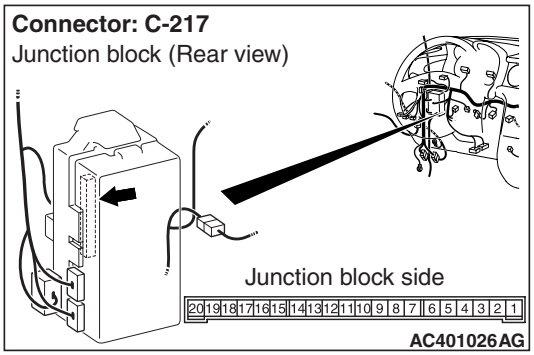


(2) Voltage between C-217 ETACS-ECU connector terminal No.11 and body earth

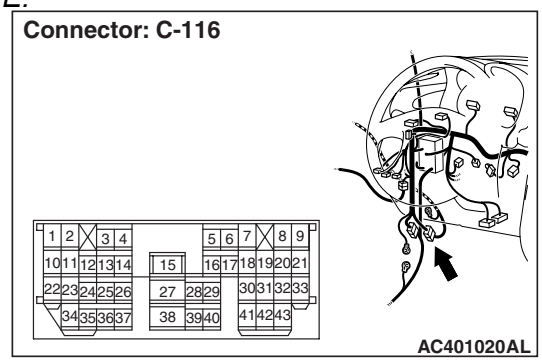
OK: System voltage

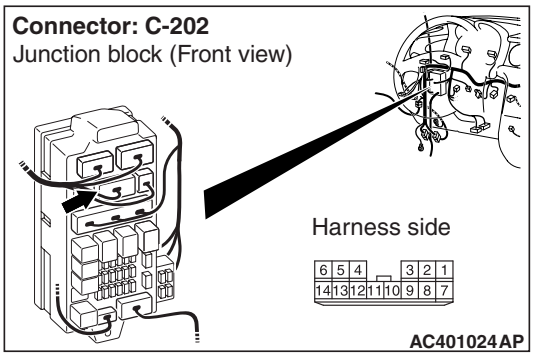
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

Step 4. Check the wiring harness between C-217 ETACS-ECU connector terminal No.11 and the battery.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-116 and junction block connector C-202, 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.00-6).

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.00-6).

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 are displayed for all the items

Q: Are 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

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 conditions are displayed for all the items

Q: Are 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 N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

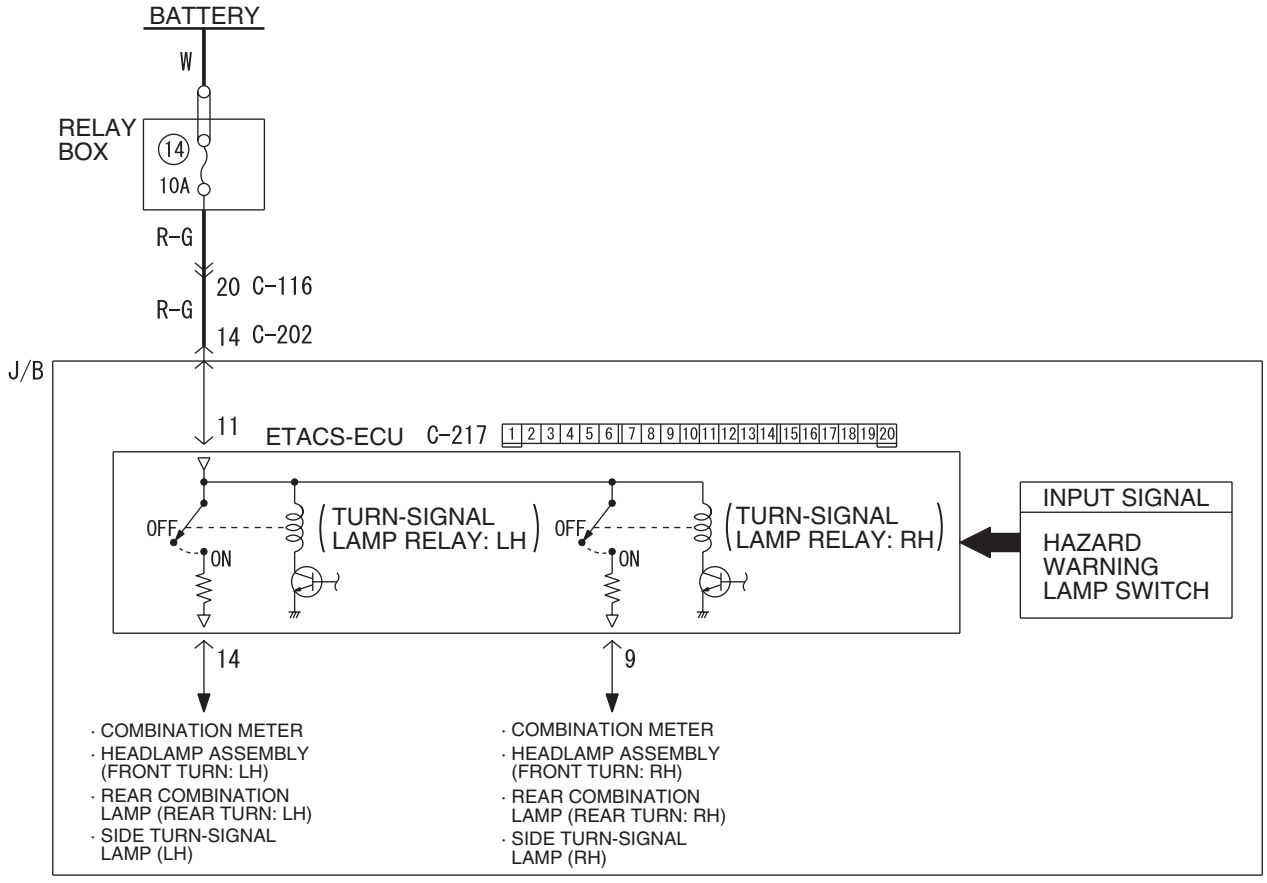
Step 8. Retest the system.
Check that the turn-signal lamps illuminate.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE K-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

W5Z54E014A

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 K-1 "The turn-signal lamps do not illuminate P.54C-172."

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 N-12 "The hazard warning lamp switch signal is not received P.54C-252."

Step 3. Retest the system.
Check that the hazard warning lamps illuminate.

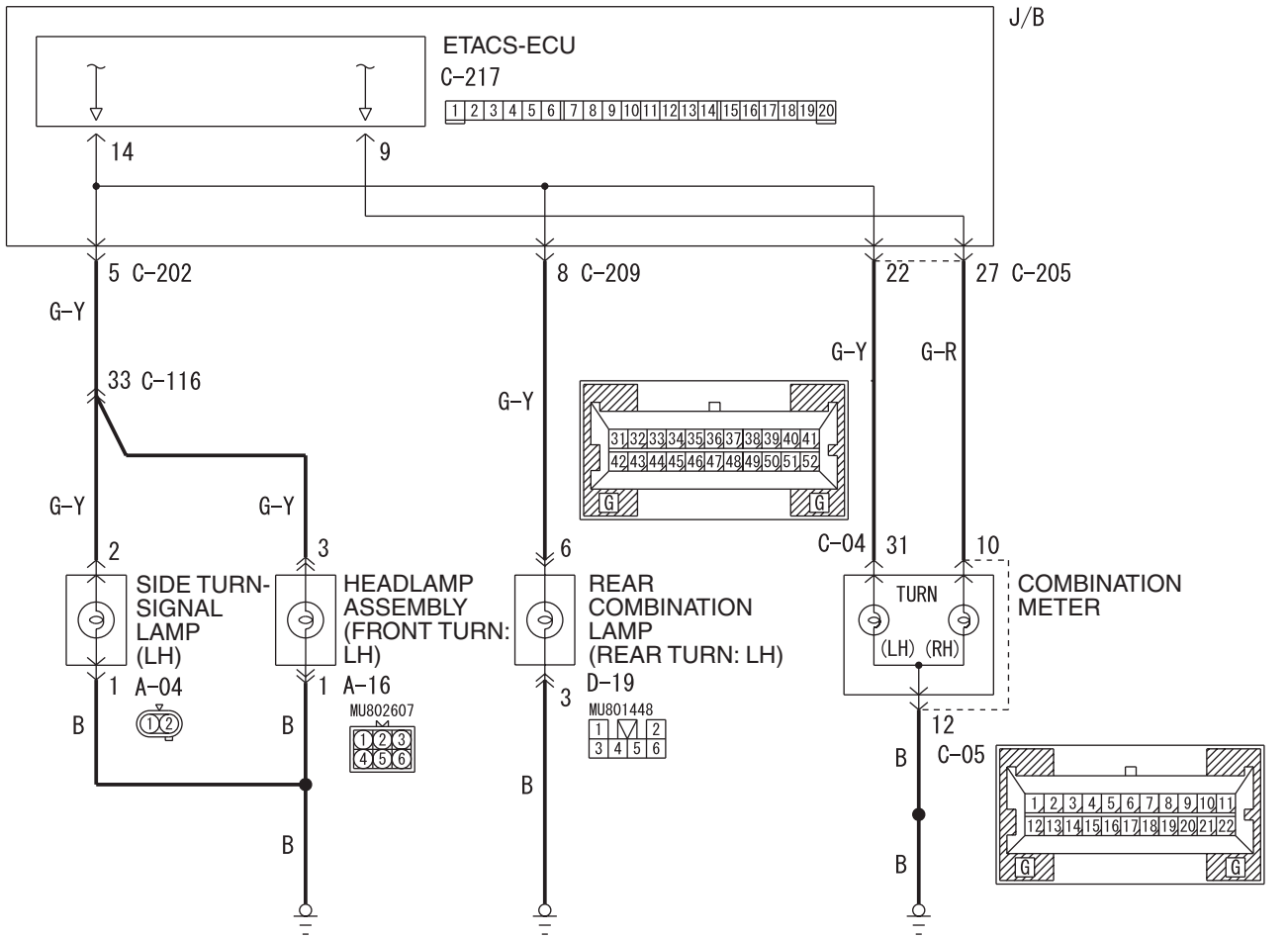
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE K-3: Any of the turn-signal lamps does not illuminate.

⚠ CAUTION

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

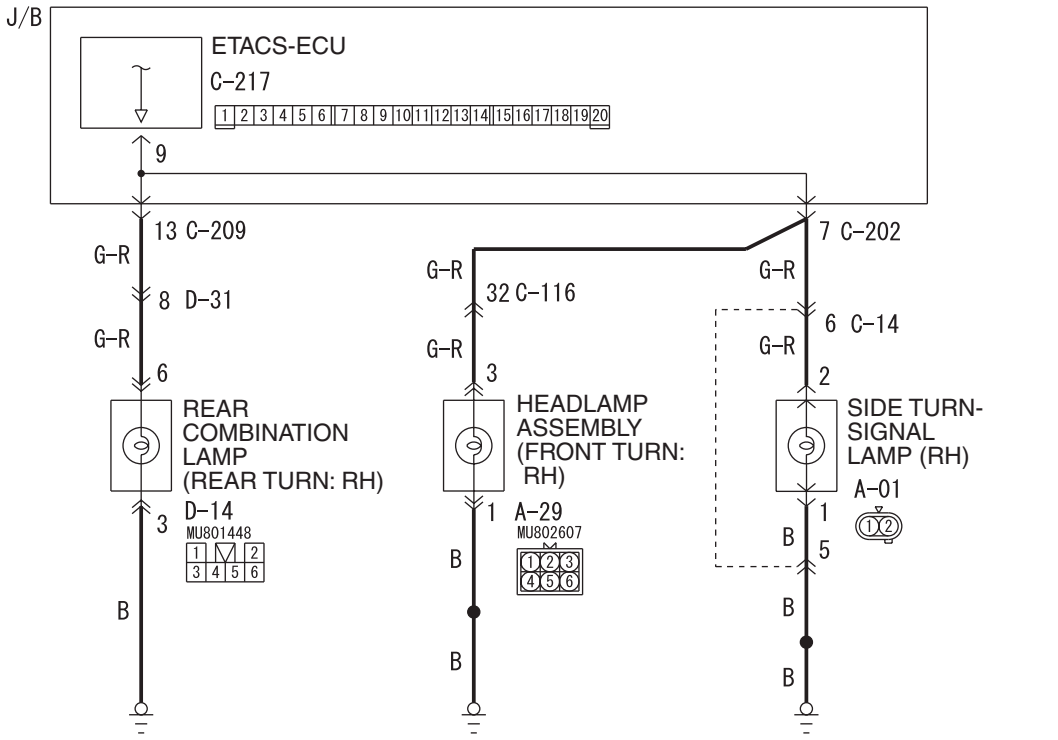
Turn-Signal Lamps Circuit



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

W5Z54E015A

Turn-Signal Lamps Circuit



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

W5Z54E016A

COMMENTS ON TROUBLE SYMPTOM

If any of the turn-signal lamp does not illuminate normally, wiring harness connector(s) or the bulb may be defective.

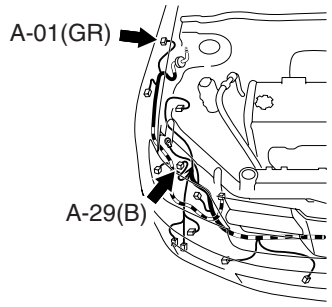
POSSIBLE CAUSES

- Defective turn-signal lamp bulb
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: A-29 <front turn: RH> or A-16 <front turn: LH> headlamp assembly connector, A-01 <side: RH> or A-04 <side: LH> side turn-signal lamp connector, D-14 <rear turn: RH> or D-19 <rear turn: LH> rear combination lamp connector, C-05 <turn-signal indicator lamp> and C-04 <turn-signal indicator lamp (LH)> combination meter connector

Connectors: A-01, A-29

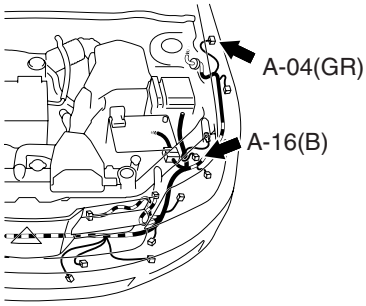


Harness side
A-01

Harness side
A-29

AC400998AC

Connectors: A-04, A-16

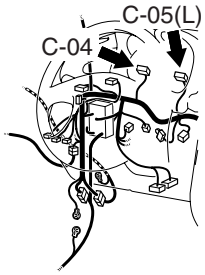


Harness side
A-04

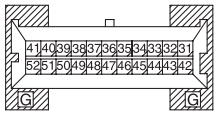
Harness side
A-16

AC401000AC

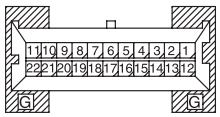
Connectors: C-04, C-05



Harness side
C-04

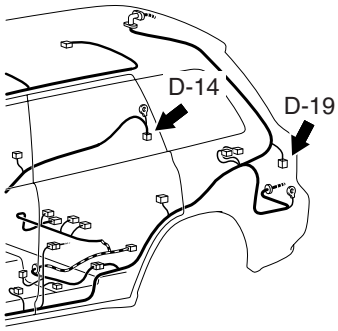


Harness side
C-05



AC401021AT

Connectors: D-14, D-19



Harness side

D-14

D-19

AC308784AG

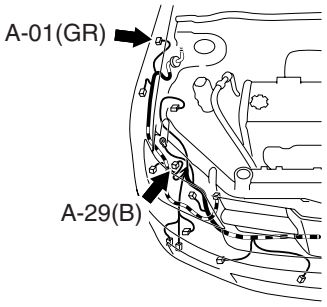
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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-29 <front turn: RH> or A-16 <front turn: LH> headlamp assembly connector, the A-01 <side: RH> or A-04 <side: LH> side turn-signal lamp connector, the D-14 <rear turn: RH> or D-19 <rear turn: LH> rear combination lamp connector, the C-05 <turn-signal indicator lamp (RH)> combination meter connector.

Connectors: A-01, A-29

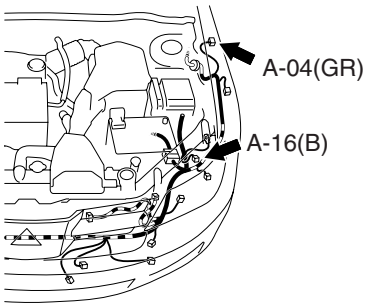


Harness side
A-01

Harness side
A-29

AC400998AC

Connectors: A-04, A-16

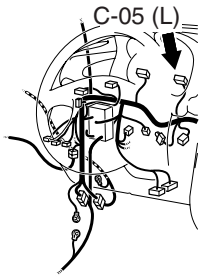


Harness side
A-04

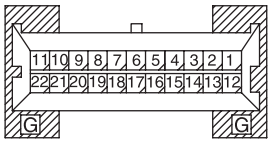
Harness side
A-16

AC401000AC

Connector: C-05

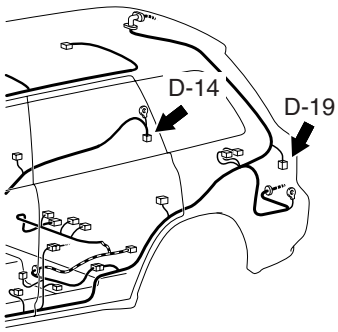


Harness side



AC401020AO

Connectors: D-14, D-19



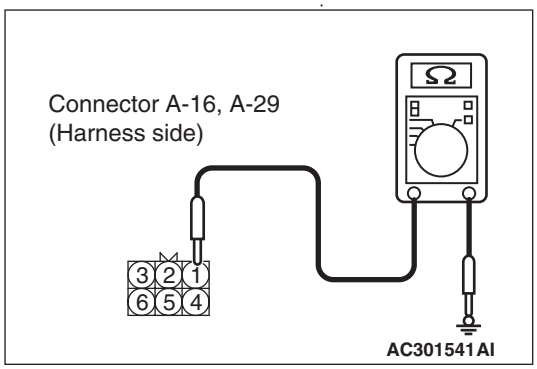
Harness side

D-14

D-19

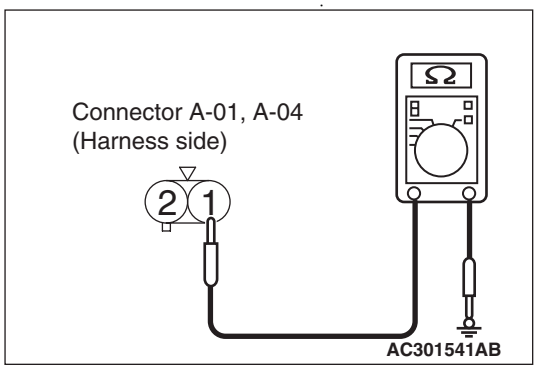
AC308784AG

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



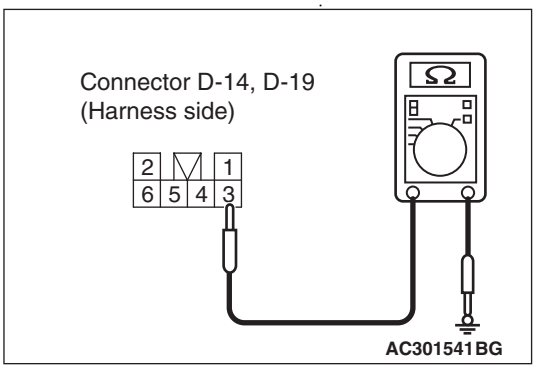
Resistance between A-29 <front turn: RH> headlamp assembly connector terminal No.1 and body earth

- Resistance between A-16 <front turn: LH> headlamp assembly connector terminal No.1 and body earth



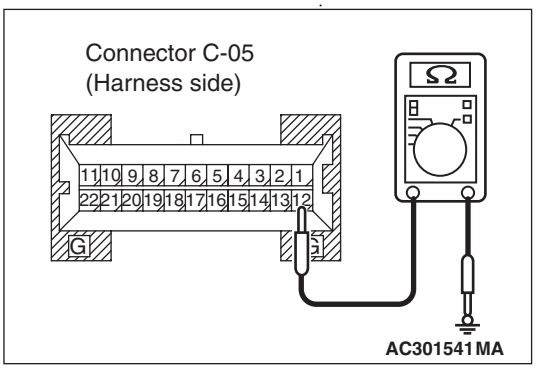
Resistance between A-01 <side: RH> side turn-signal lamp connector terminal No.1 and body earth

- Resistance between A-04 <side: LH> side turn-signal lamp connector terminal No.1 and body earth



Resistance between D-14 <rear turn: RH> rear combination lamp connector terminal No.3 and body earth

- Resistance between D-19 <rear turn: LH> rear combination lamp connector terminal No.3 and body earth



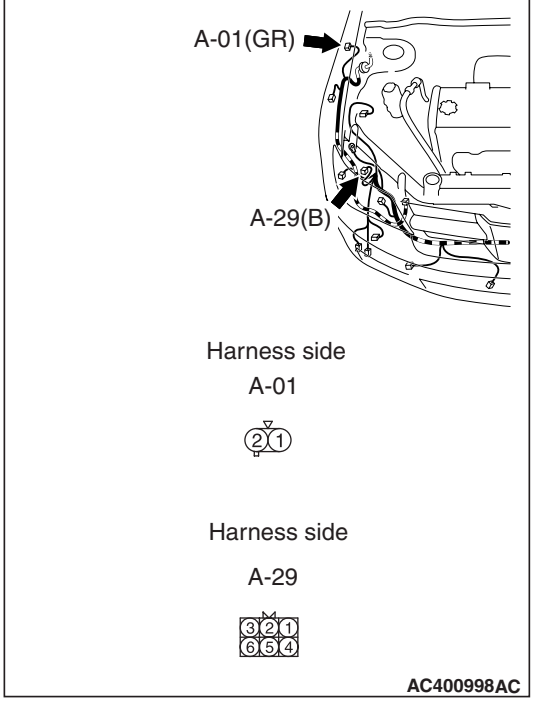
Resistance between C-05 <turn-signal indicator lamp (RH)> combination meter terminal No.12 and body earth

OK: Continuity (less than 2 Ω)

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

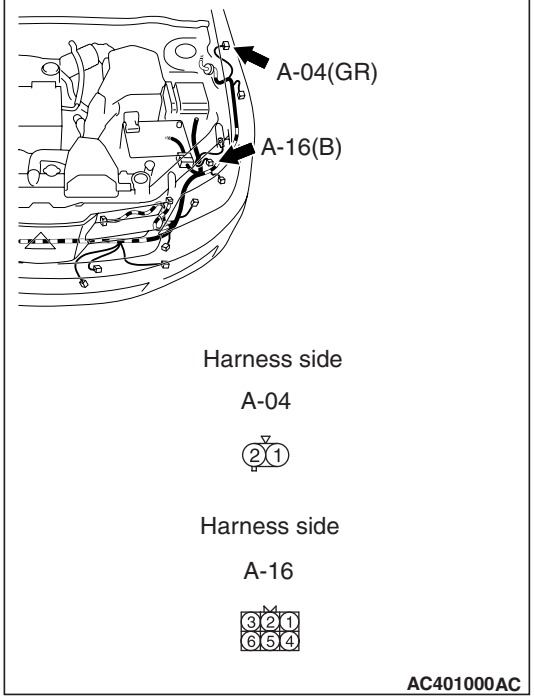
Step 4. Check the wiring harness from A-29 <front turn: RH> or A-16 <front turn: LH> headlamp assembly connector terminal No.1, A-01 <side: RH> or A-04 <side: LH> side turn-signal lamp connector terminal No.1, D-14 <rear turn: RH> or D-19 <rear turn: LH> rear combination lamp connector terminal No.3, or C-05 <turn-signal indicator lamp (RH)> combination meter connector terminal No.12 to body earth.

Connectors: A-01, A-29



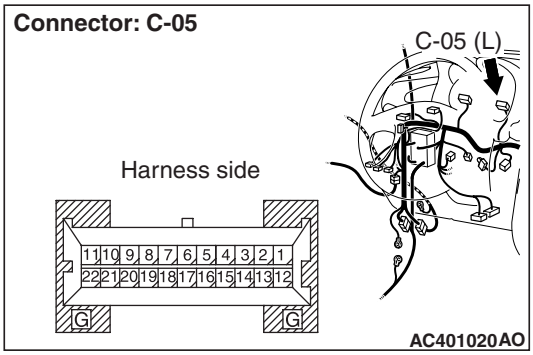
AC400998AC

Connectors: A-04, A-16



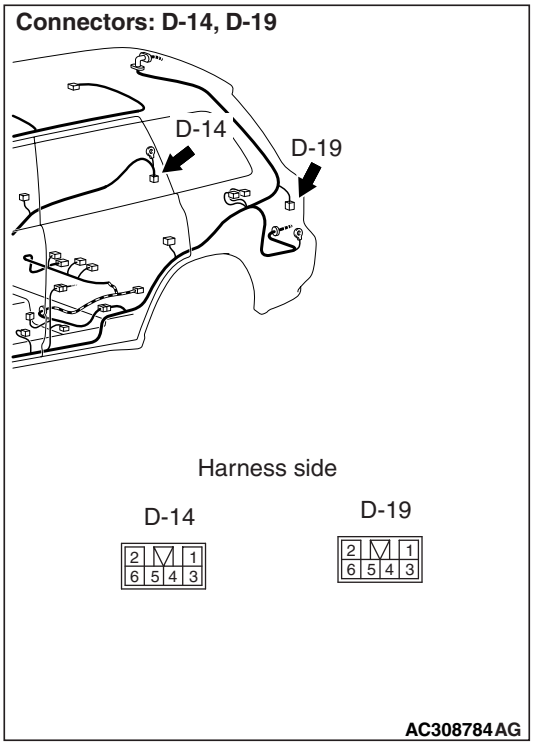
AC401000AC

Connector: C-05



AC401020AO

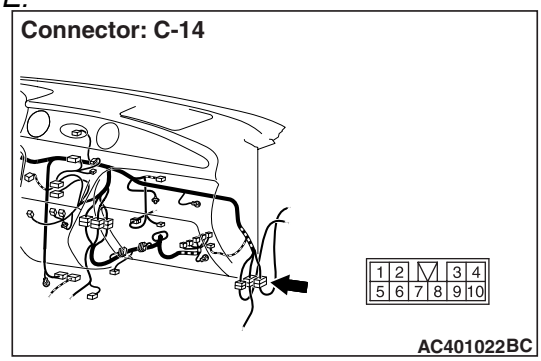
Connectors: D-14, D-19



AC308784AG

NOTE:

Connector: C-14



AC401022BC

Prior to the wiring harness inspection, check intermediate connector C-14 <side: RH>, and repair if necessary.

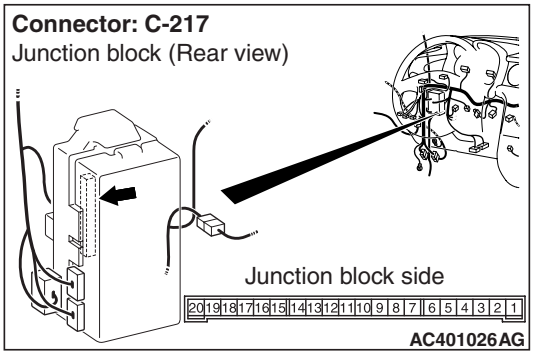
- Check the earth wires for open circuit.

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.00-6).

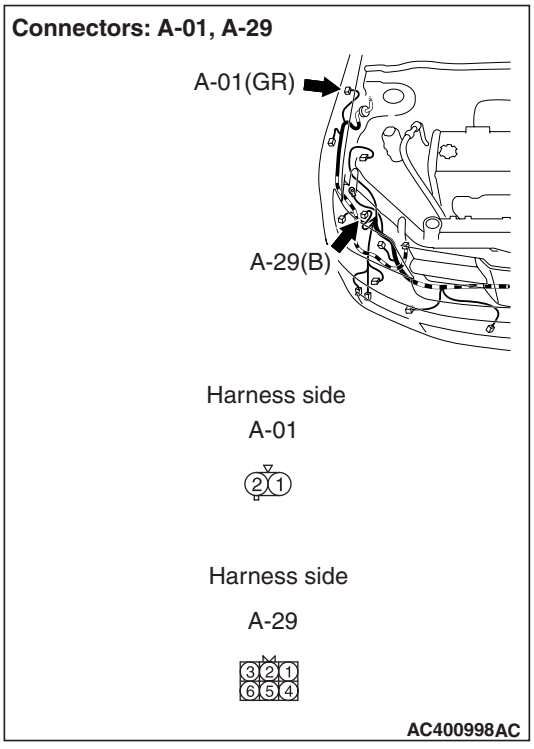
NO : Repair the wiring harness.

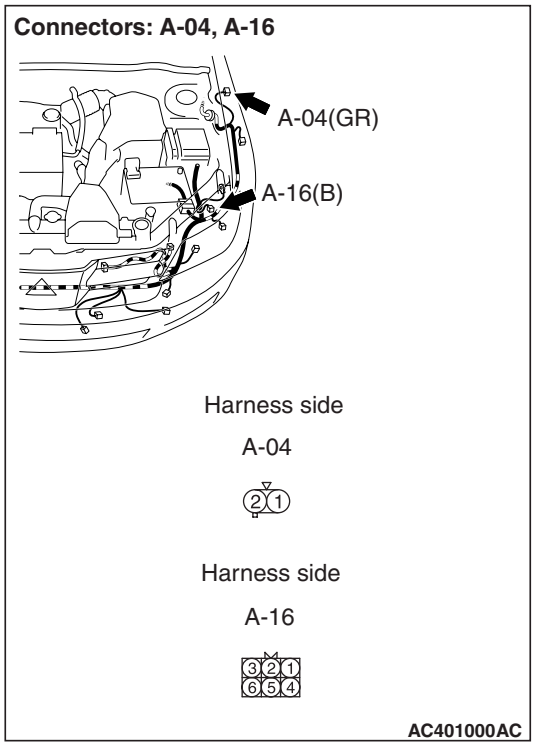
Step 5. Connector check: C-217 ETACS-ECU connector

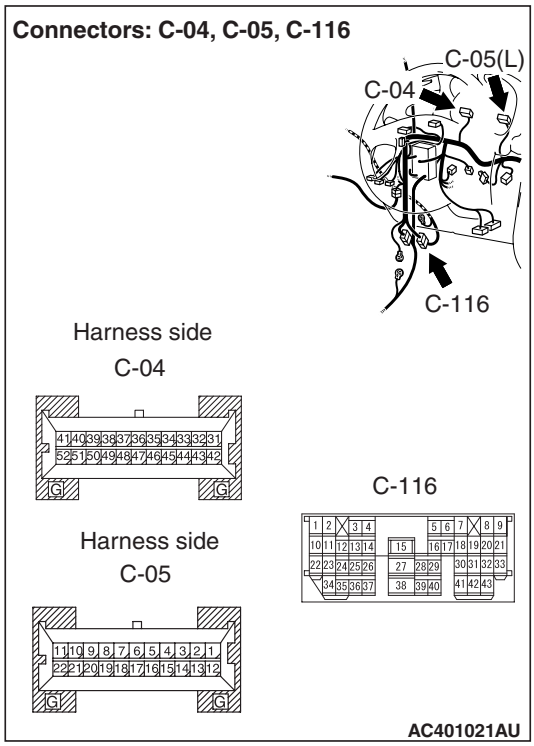


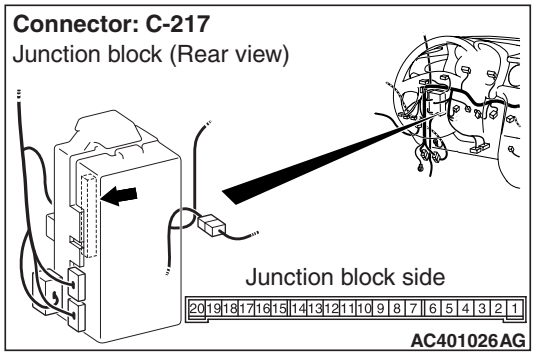
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness from the A-29 <front turn: RH> or A-16 <front turn: LH> headlamp assembly connector terminal No.3, the A-01 <side: RH> or A-04 <side: LH> side turn-signal lamp connector terminal No.2, the D-14 <rear turn: RH> or D-19 <rear turn: LH> rear combination lamp connector terminal No.6, the C-05 <turn-signal indicator lamp (RH)> combination meter connector terminal No.10 or C-04 <turn-signal indicator lamp (LH)> combination lamp connector terminal No.31 to C-217 ETACS-ECU connector terminal No.9 <RH> or 14 <LH>.

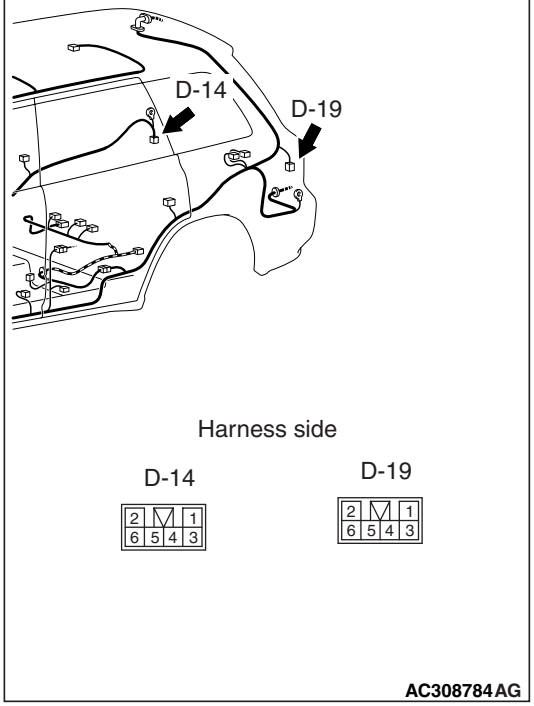






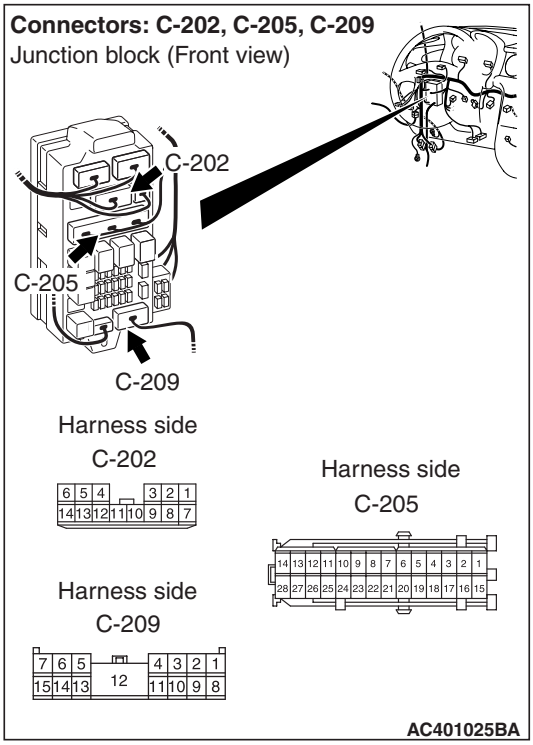


Connectors: D-14, D-19



AC308784AG

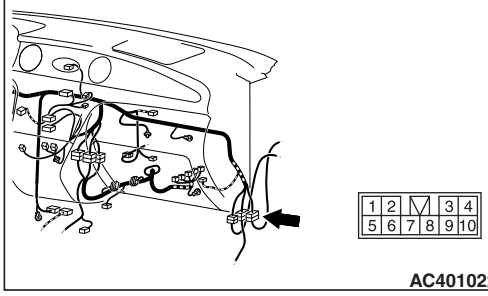
Connectors: C-202, C-205, C-209
Junction block (Front view)



AC401025BA

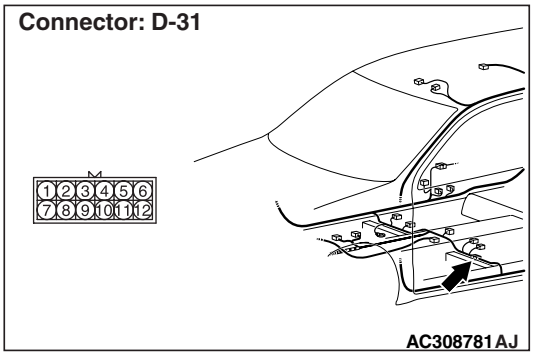
NOTE:

Connector: C-14



AC401022BC

Connector: D-31



AC308781AJ

Prior to the wiring harness inspection, check intermediate connector C-14 <side RH>, C-116 <front or side LH> or D-31 <rear turn: RH> and C-209 <rear> or C-205 <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.00-6).

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.

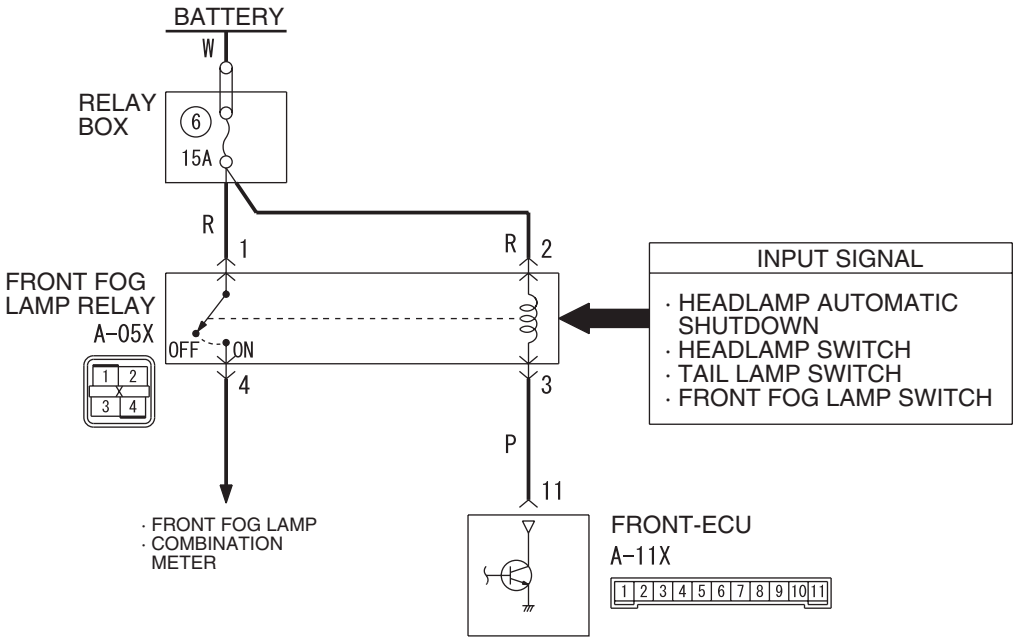
The turn-signal indicator lamps do not illuminate. :
Replace the combination meter.

FOG LAMP

INSPECTION PROCEDURE L-1: The front fog lamps do not illuminate normally.

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

Front Fog Lamp Circuit



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

W5Z54E004A

OPERATION

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

- Tail lamp switch
- Headlamp switch
- Fog lamp switch

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

DIAGNOSIS PROCEDURE

Step 1. Check that the tail lamps and headlamps operate.

Check that the tail lamps and headlamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the tail lamp(s) and headlamp(s). Refer to trouble symptom chart P.54C-21.

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" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-35."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-40."

Step 3. Function diagnosis by using the SWS monitor

Check the SWS communication signal, which are related to the fog lamps.

<Selected item> LIGHTING - F.FOG LAMP

- Ignition switch: ON
- Lighting switch: "TAIL" or "HEAD"
- Front 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 or HEAD
Item 30	IG SW(IG1)	ON
Item 36	F.FOG LAMP	ON
Item 70	FRONT ECU ACK	NORMAL ACK or HI-BEAM ACK

OK: Normal conditions are displayed for all the items.

Q: Are the check result normal?

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

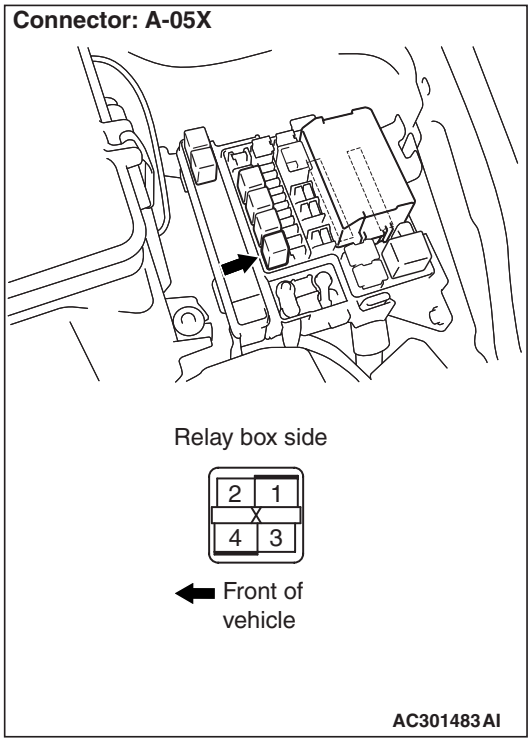
Normal condition is not displayed for item 00 or 01. : Refer to inspection procedure N-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54C-233."

Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Normal condition is not displayed for item No.36. : Refer to inspection procedure N-9 "The front fog lamp switch signal is not received P.54C-244."

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

Step 4. Connector check: A-05X fog lamp relay connector

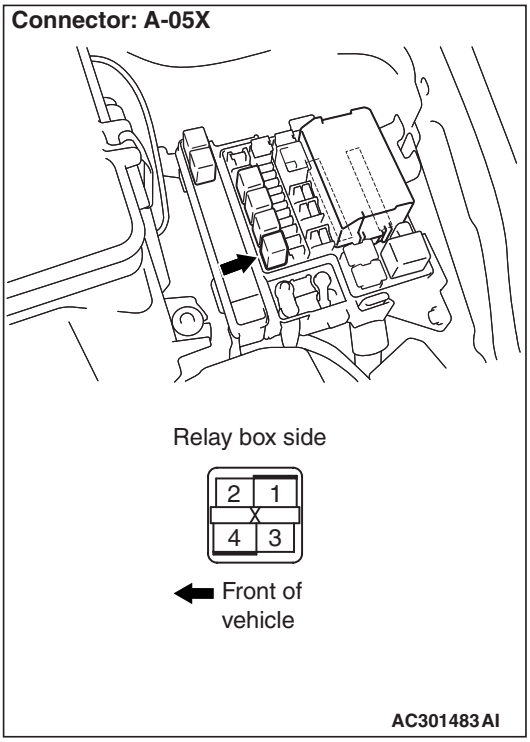


Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

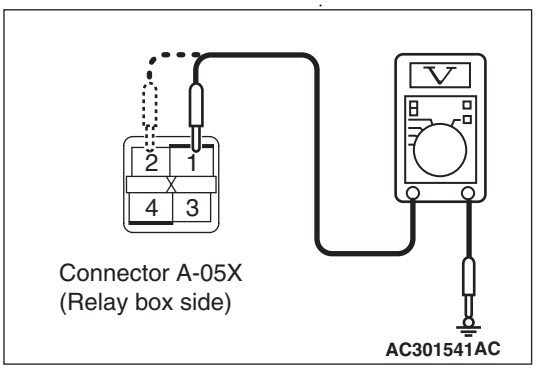
Step 5. Check the fog lamp relay.
Refer to GROUP 54A – Fog Lamp P.54A-74.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the fog lamp relay.

Step 6. Voltage measurement at the A-05X fog lamp relay connector.



(1) Remove the fog lamp relay, and measure at the relay box side.
(2) Check the voltage between the fog lamp relay connector and body earth.

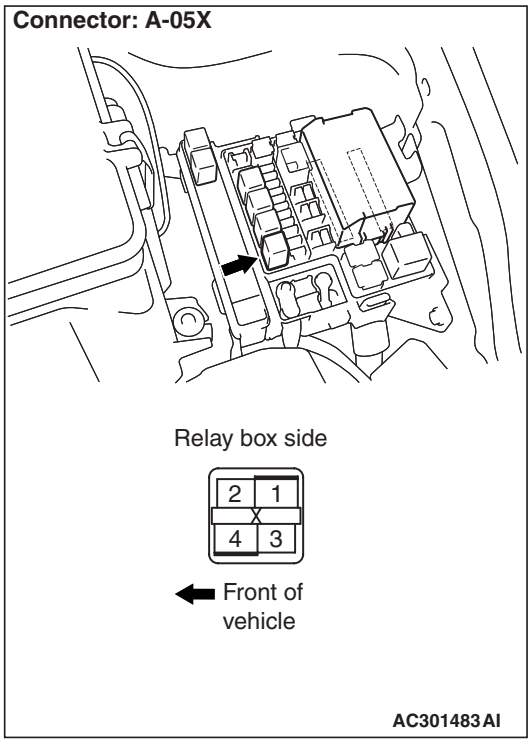


Voltage between A-05X fog lamp relay connector terminal No.1 and body earth
- Voltage between A-05X fog lamp relay connector terminal No.2 and body earth

OK: System voltage

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

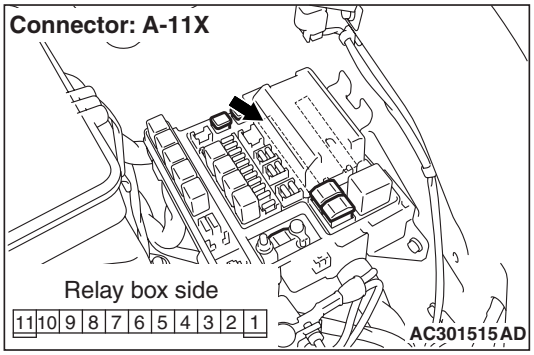
Step 7. Check the wiring harness between A-05X fog lamp relay connector (terminal Nos. 1 and 2) and the battery.



- Check the power supply line for open circuit.

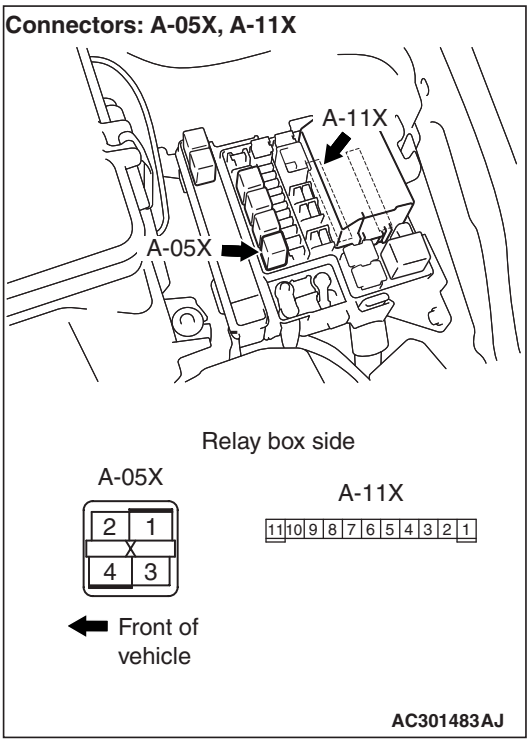
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

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



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

Step 9. Check the wiring harness between A-05X fog lamp relay connector terminal No.3 and A-11X front-ECU connector terminal No.11.



- Check the output lines for open circuit.

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

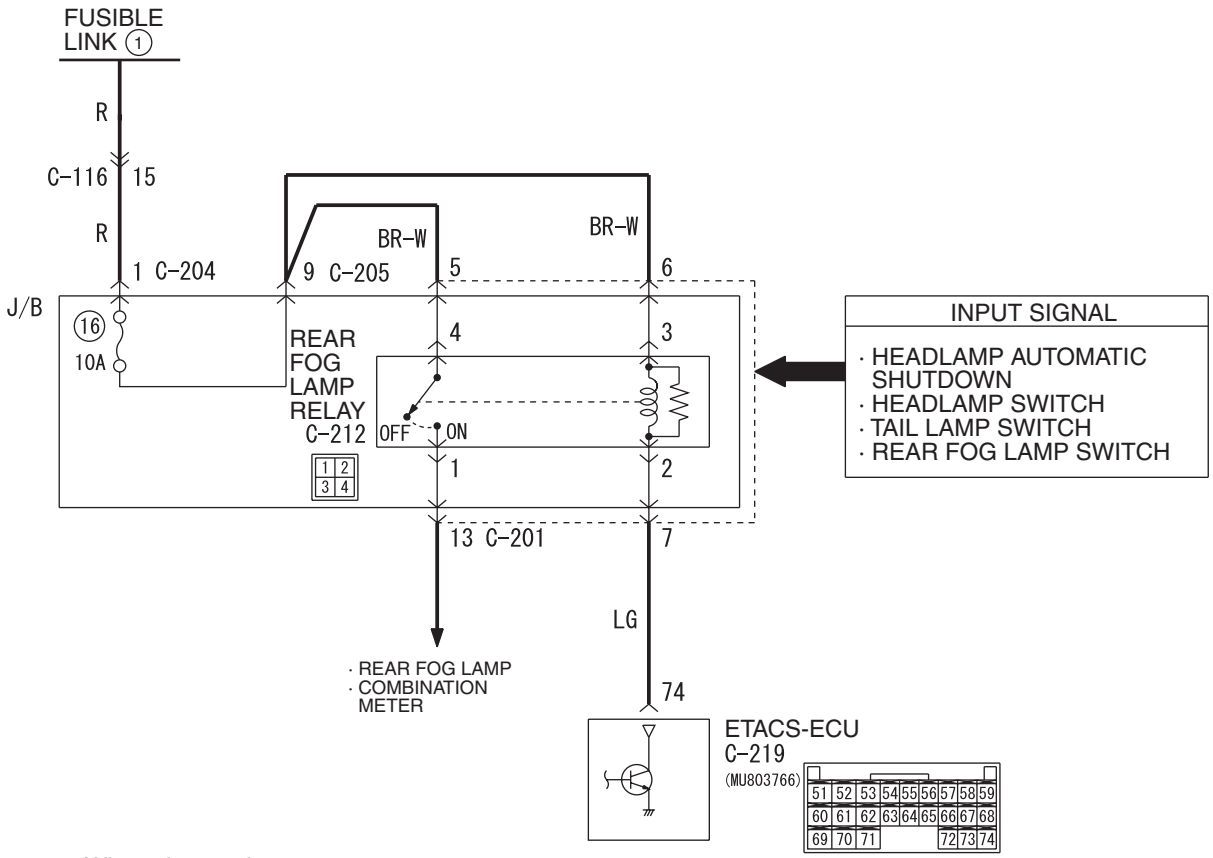
Step 10. Retest the system.
Check that the fog lamps illuminate normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-2: The rear fog lamps do not illuminate normally.

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

Rear Fog Lamp Circuit



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

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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-21).

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" are displayed for all the items

Q: Are the check result normal?

"OK" are 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-35."

"NG" is displayed on the "FRONT ECU" menu. : Refer to Inspection Procedure A-4 "Communication with the front-ECU is not possible P.54C-40."

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: Are 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 N-5 "The column switch (Lighting and turn-signal lamp switch) signal is not received P.54C-233."

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.

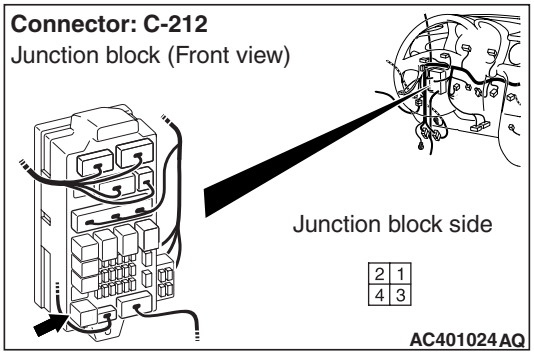
Q: Are the check result normal?

All the signals are received normally. : Go to Step 5.

The ignition switch (IG1) signal is not received. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

The rear fog lamp switch signal is not received. : Refer to inspection procedure N-10 "The rear fog lamp switch signal is not received P.54C-247."

Step 5. Connector check: C-212 rear fog lamp relay connector



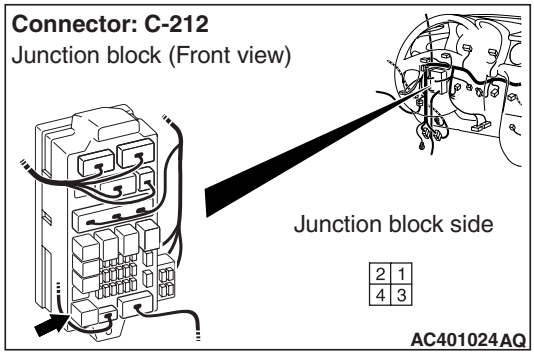
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the rear fog lamp relay.

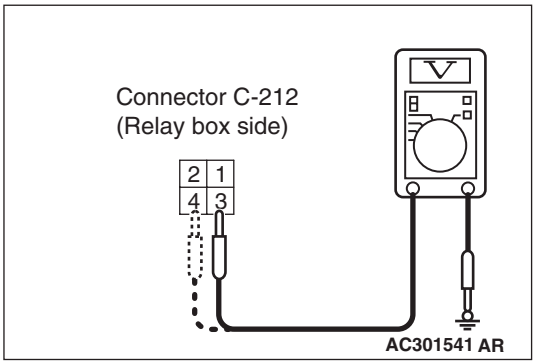
Refer to GROUP 54A – Rear fog lamp P.54A-77.

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-212 rear fog lamp relay connector.



(1) Remove the rear fog lamp relay, and measure at the relay box side.

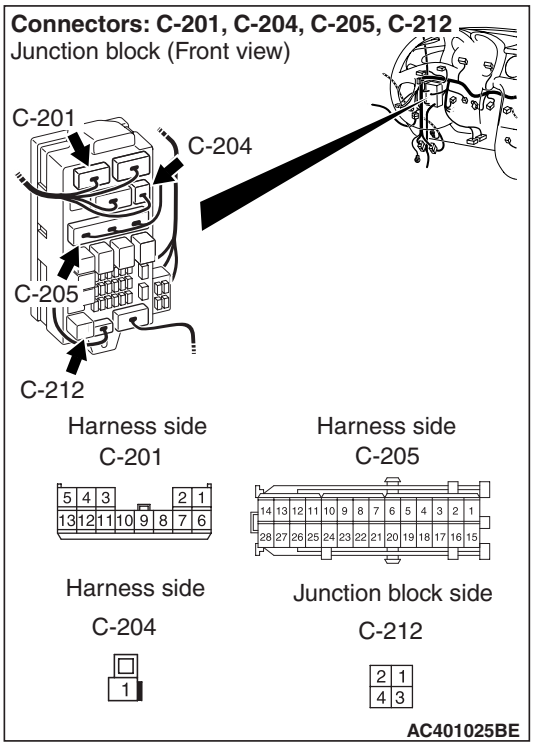


(2) Check the voltage between the rear fog lamp relay connector and body earth.
- Voltage between C-212 rear fog lamp relay connector terminal No.3 and body earth
- Voltage between C-212 rear fog lamp relay connector terminal No.4 and body earth

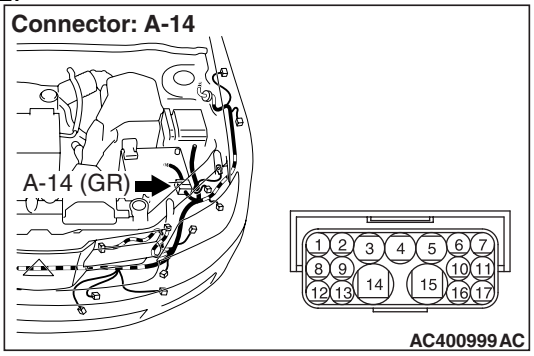
OK: System voltage

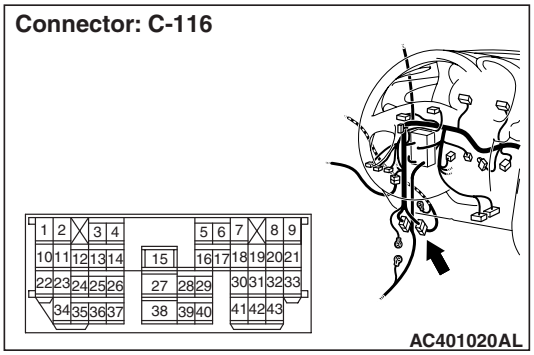
Q: Is the check result normal?
YES : Go to Step 9.
NO : Go to Step 8.

Step 8. Check the wiring harness between C-212 rear fog lamp relay connector (terminal Nos. 3 and 4) and the fusible link (1).



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-116 and junction block connectors C-201, C-204 and C-205, and repair if necessary.

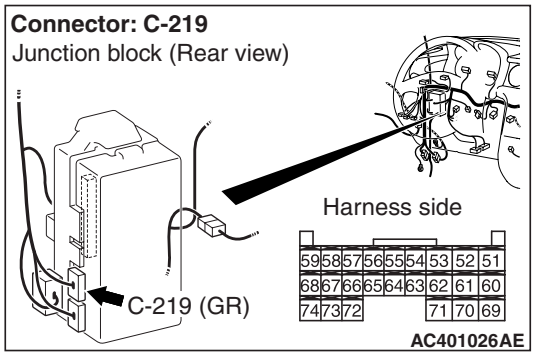
- Check the power supply line for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 9. Connector check: C-219 ETACS-ECU connector

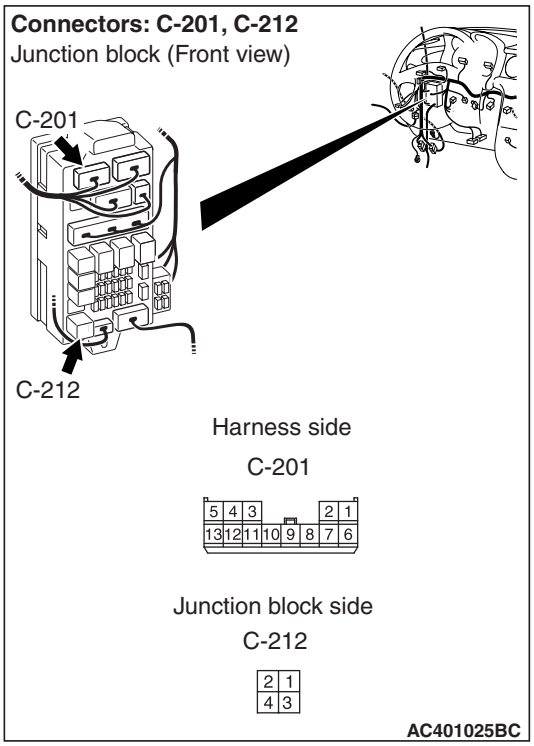


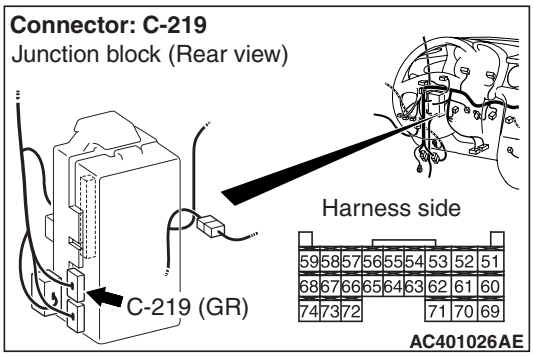
Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the defective connector.

Step 10. Check the wiring harness between C-212 rear fog lamp relay connector terminal No.2 and C-219 ETACS-ECU connector terminal No.74.





NOTE: Prior to the wiring harness inspection, check junction block connector C-201, 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?

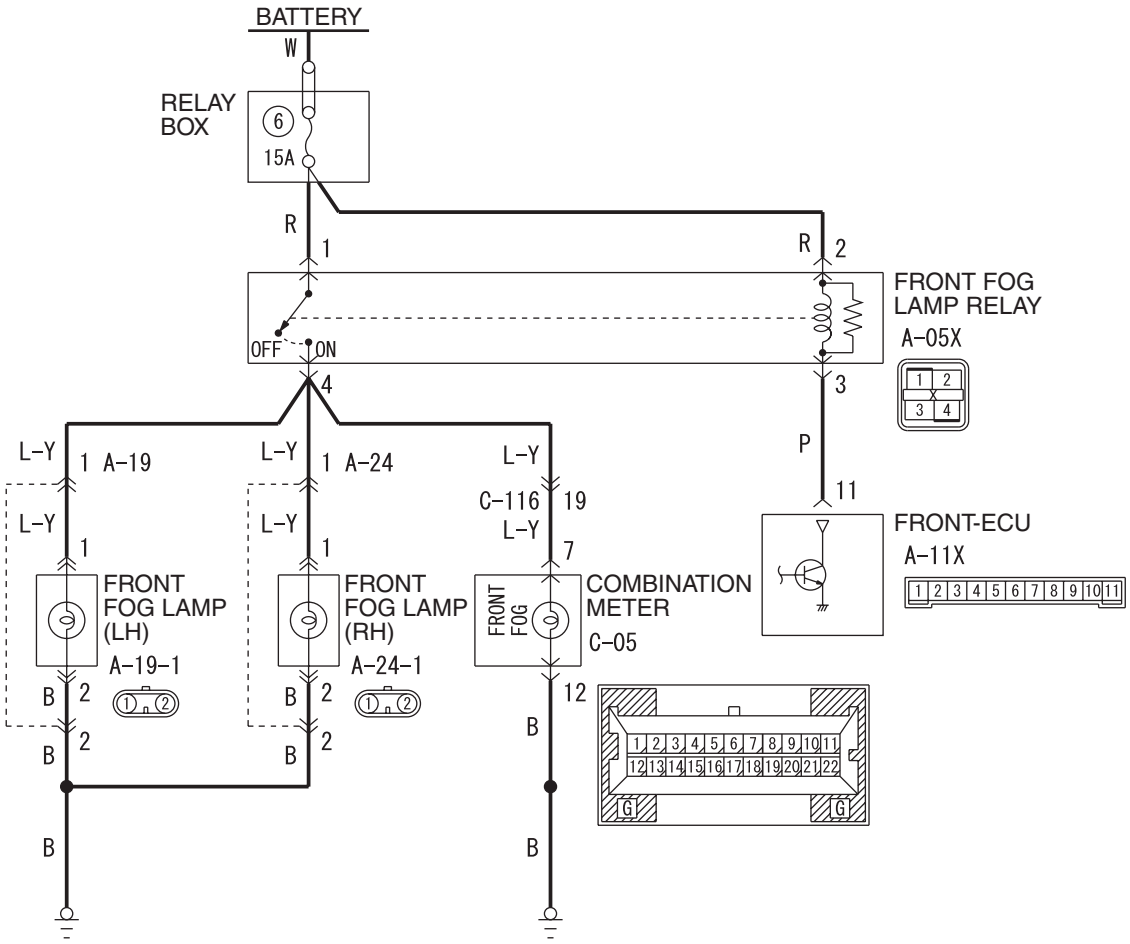
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE L-3: Any of the front fog lamps does not illuminate.

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

Front Fog Lamp Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

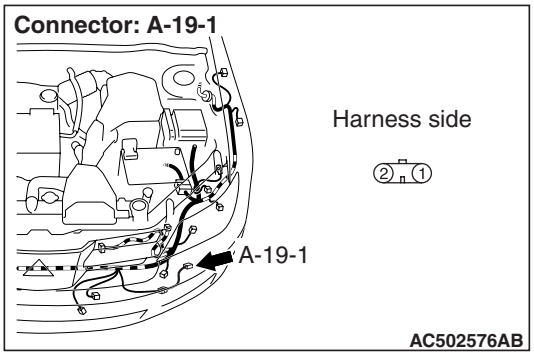
If any of the front fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

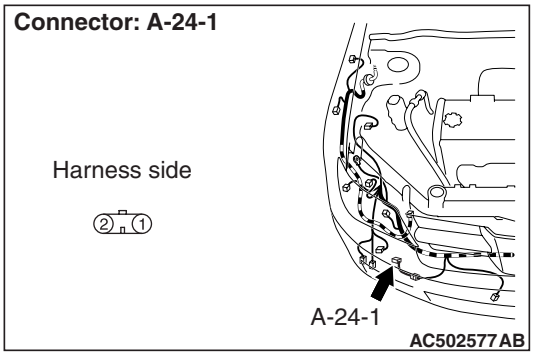
POSSIBLE CAUSES

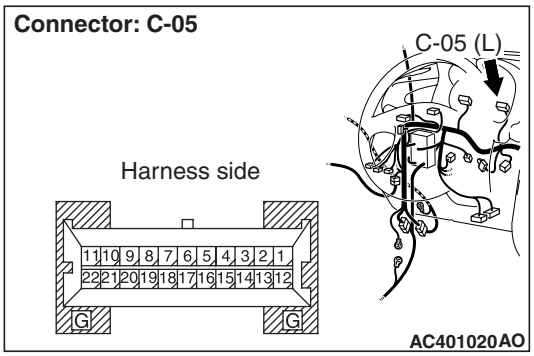
- Burned-out front fog lamp bulb
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: A-24-1 <RH> or A-19-1 <LH> front fog lamp connector, or C-05 <front fog lamp indicator lamp> combination meter connector





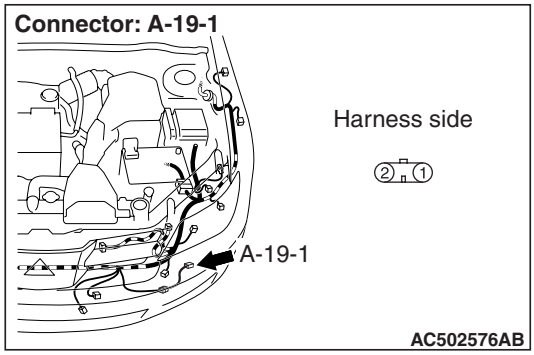


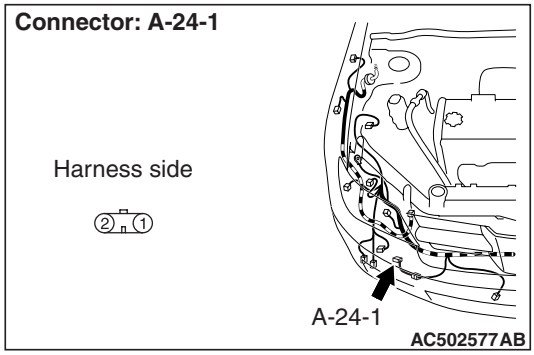
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

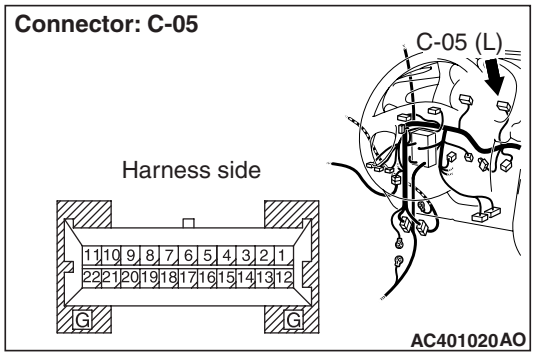
Step 2. Check the bulbs of the front fog lamps or the front fog lamp indicator lamp.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

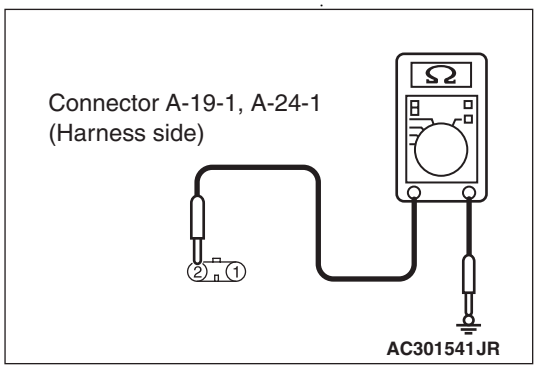
Step 3. Resistance measurement at A-24-1 <RH> or A-19-1 <LH> front fog lamp connector, or C-05 <front fog lamp indicator lamp> combination meter connector.





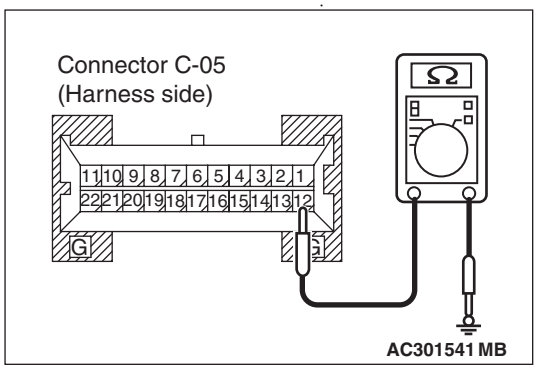


(1) Disconnect the connector, and measure at the wiring harness side.
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-24-1 <RH> front fog lamp connector terminal No.2 and body earth

- Resistance between A-19-1 <LH> front fog lamp connector terminal No.2 and body earth



Resistance between C-05 <front fog lamp indicator lamp> combination meter connector terminal No.12 and body earth

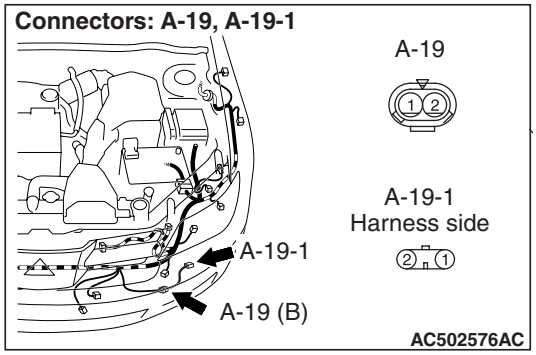
OK: Continuity (less than 2 Ω)

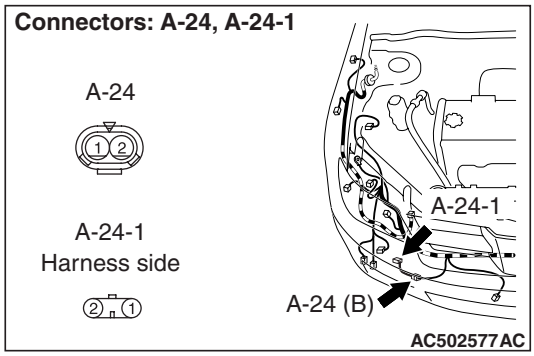
Q: Is the check result normal?

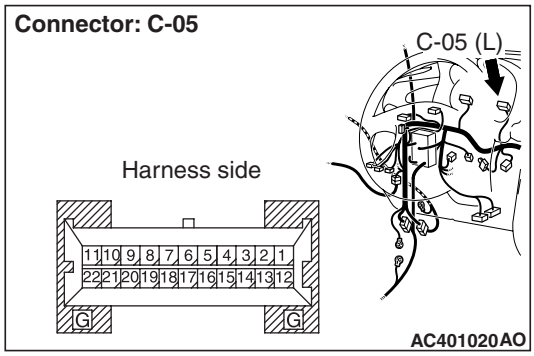
YES : Go to Step 5.

NO : Go to Step 4.

Step 4. Check the wiring harness from A-24-1 <RH> or A-19-1 <LH> front fog lamp connector terminal No.2 or C-05 <front fog lamp indicator lamp> combination meter connector terminal No.12 to body earth.







NOTE: Prior to the wiring harness inspection, check intermediate connector A-19 and A-24, and repair if necessary.

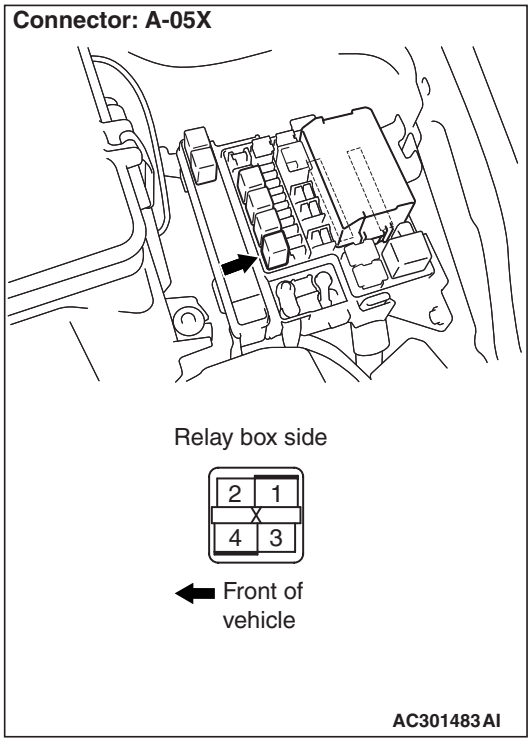
- Check the earth wires for open circuit.

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.00-6).

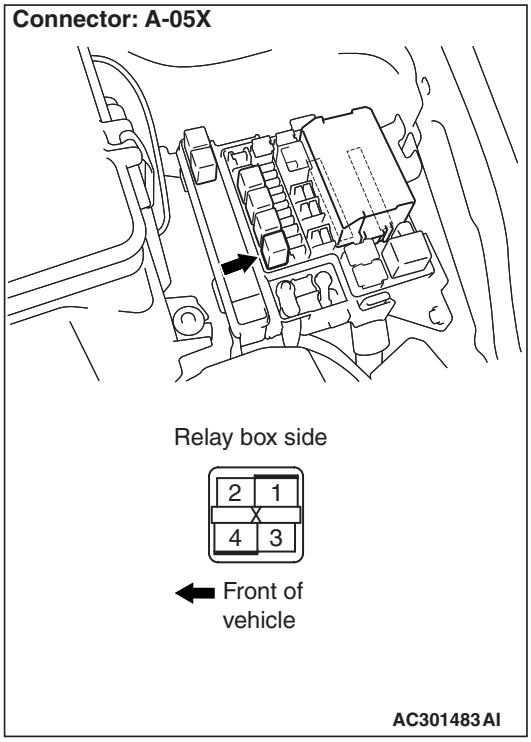
NO : Repair the wiring harness.

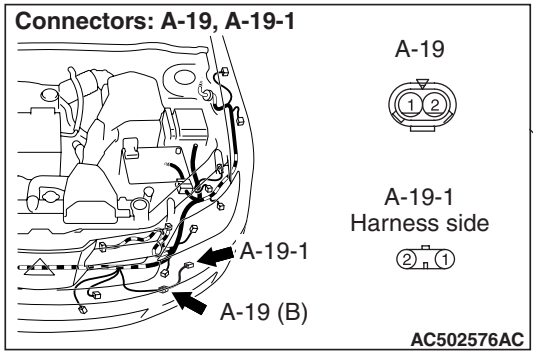
Step 5. Connector check: A-05X fog lamp relay connector

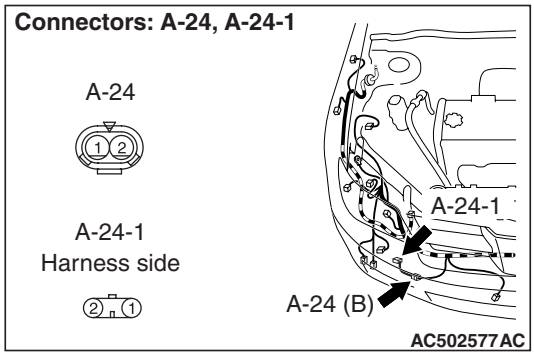


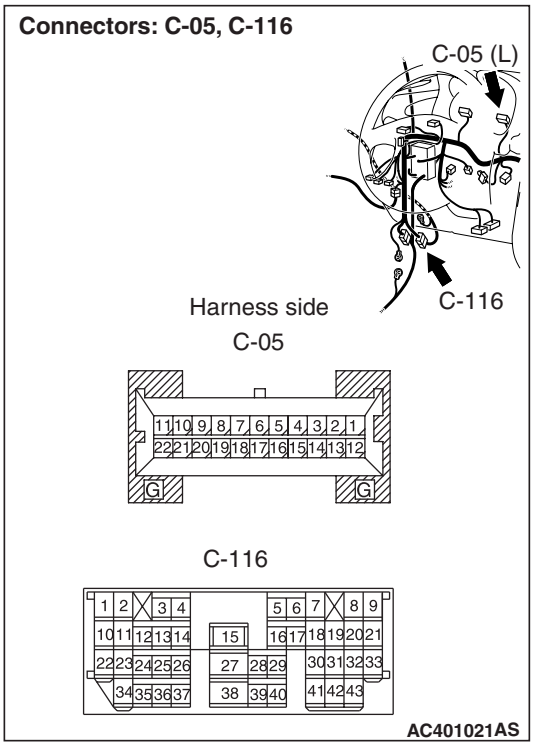
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the wiring harness from A-24-1 <RH> or A-19-1 <LH> front fog lamp connector terminal No.1 or C-05 <front fog lamp indicator lamp> combination meter connector terminal No.7 to A-05X fog lamp relay connector terminal No.4.









NOTE: Prior to the wiring harness inspection, check intermediate connectors A-19, A-24 and C-116 <front fog lamp indicator lamp>, and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

Step 7. Retest the system.

Check that the front fog lamp and the front 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.00-6).

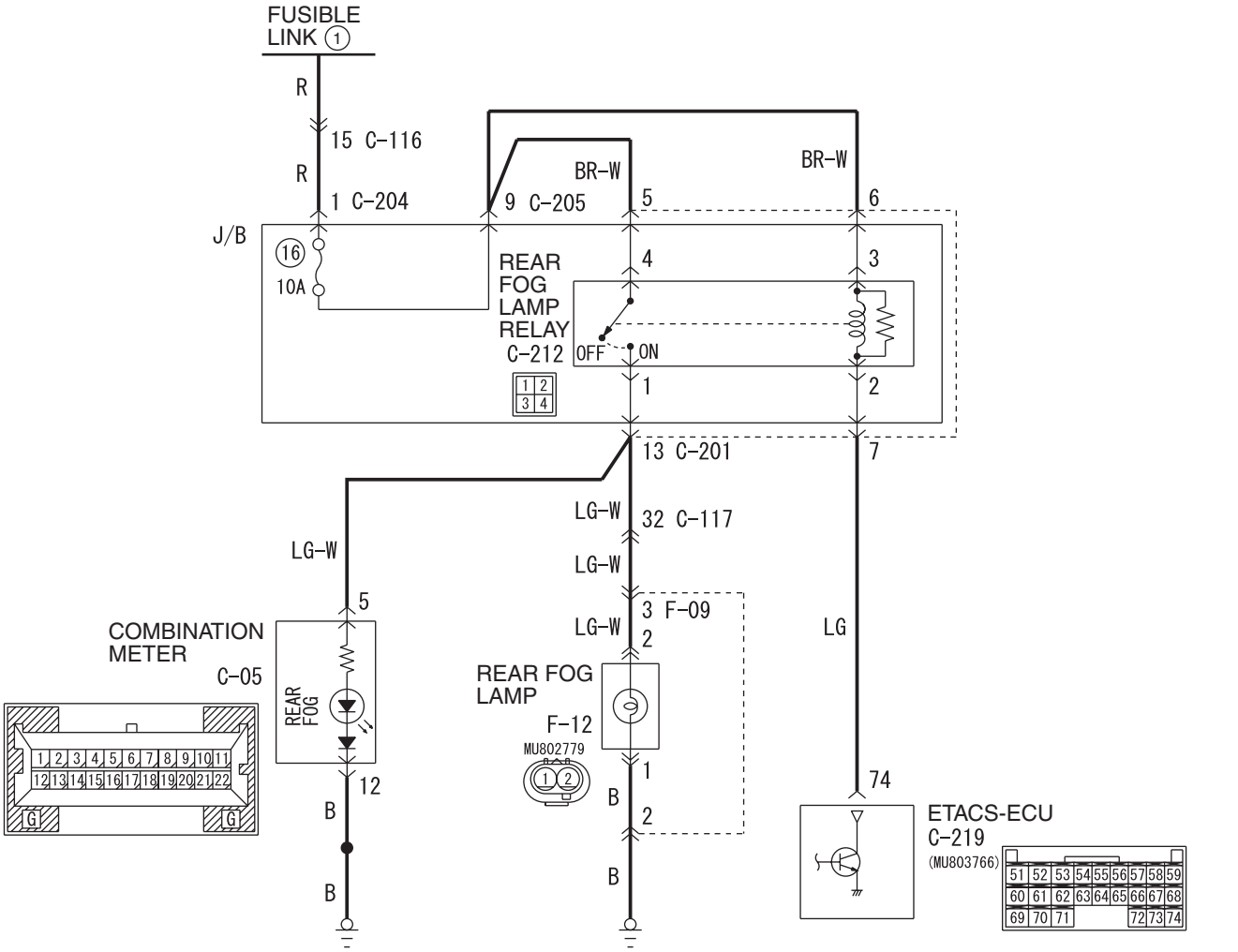
The front fog lamps do not illuminate. : Replace the front fog lamp(s).

The front fog lamp indicator lamp does not illuminate. : Replace the combination meter.

INSPECTION PROCEDURE L-4: Any of the rear fog lamps does not illuminate.

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

Rear Fog Lamp Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

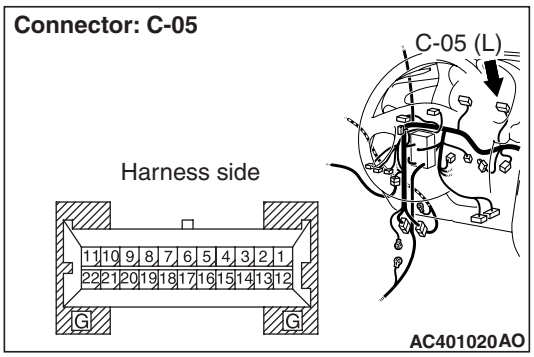
If any of the rear fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

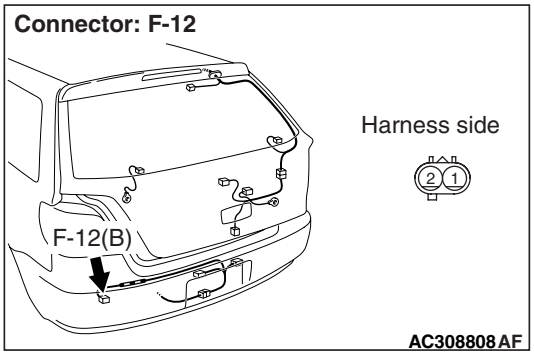
POSSIBLE CAUSES

- Burned-out rear fog lamp bulb
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Connector check: F-12 rear fog lamp connector or C-05 <rear fog lamp indicator lamp> combination meter connector



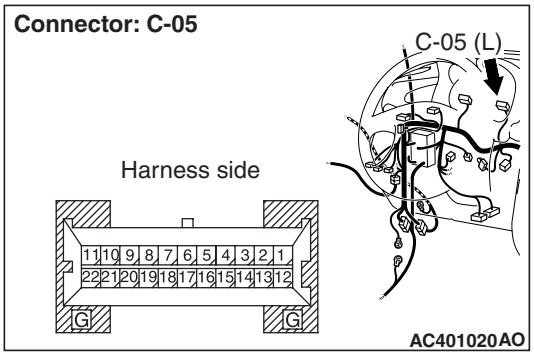


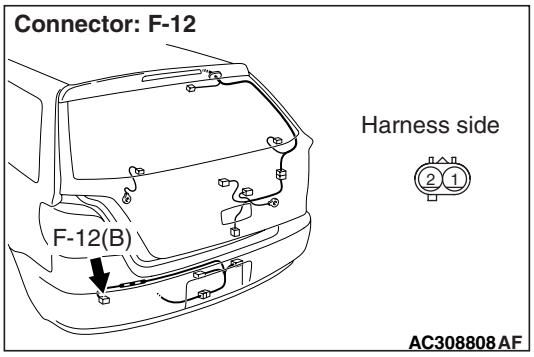
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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.

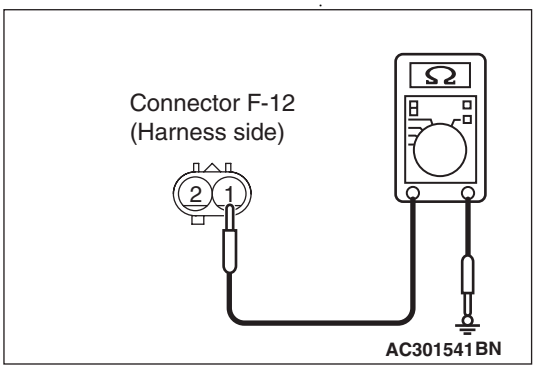
Step 3. Resistance measurement at the F-12 rear fog lamp connector or C-05 <fog lamp indicator lamp> combination meter connector.



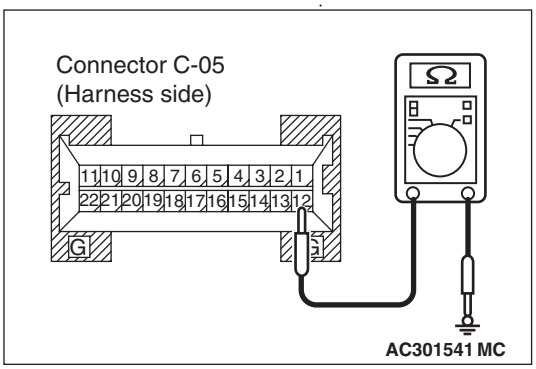


(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the lamp connector and body earth.



Resistance between F-12 rear fog lamp relay connector terminal No.1 and body earth

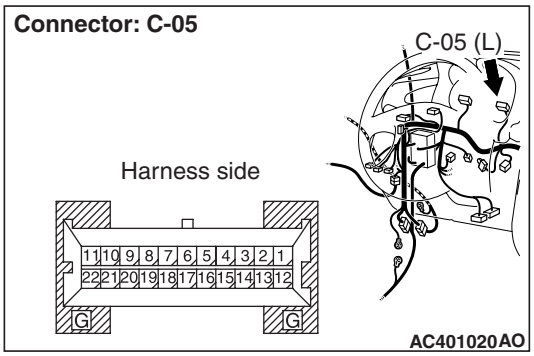


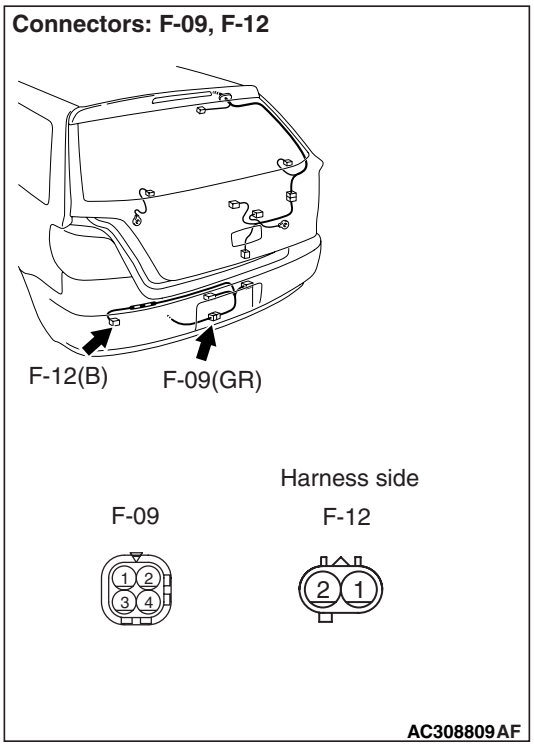
Resistance between C-05 <rear fog lamp indicator lamp> combination meter connector terminal No.12 and body earth

OK: Continuity (less than 2 Ω)

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

Step 4. Check the wiring harness from F-12 rear fog lamp connector terminal No.1, C-05 <rear fog lamp indicator lamp> combination meter connector terminal No.12 to body earth.





NOTE: Prior to the wiring harness inspection, check intermediate connector F-09 <rear fog lamp>, and repair if necessary.

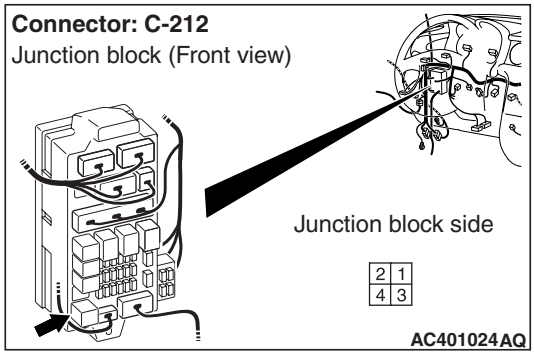
- Check the earth wires for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 5. Connector check: C-212 rear fog lamp relay connector

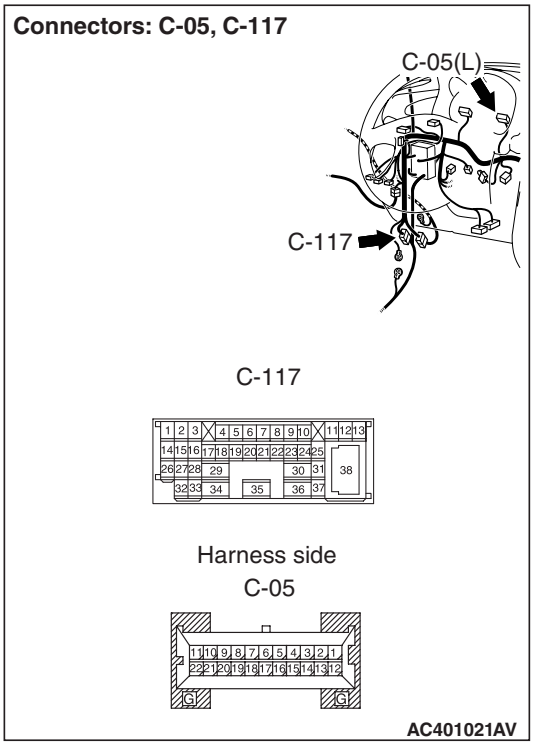


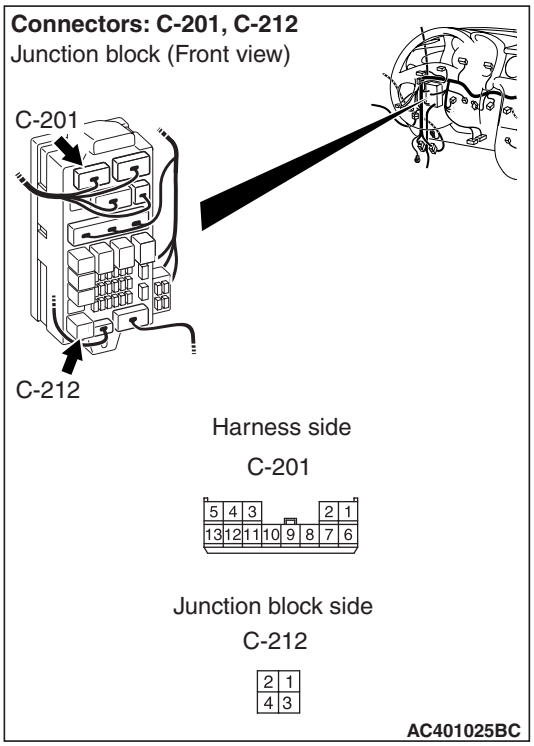
Q: Is the check result normal?

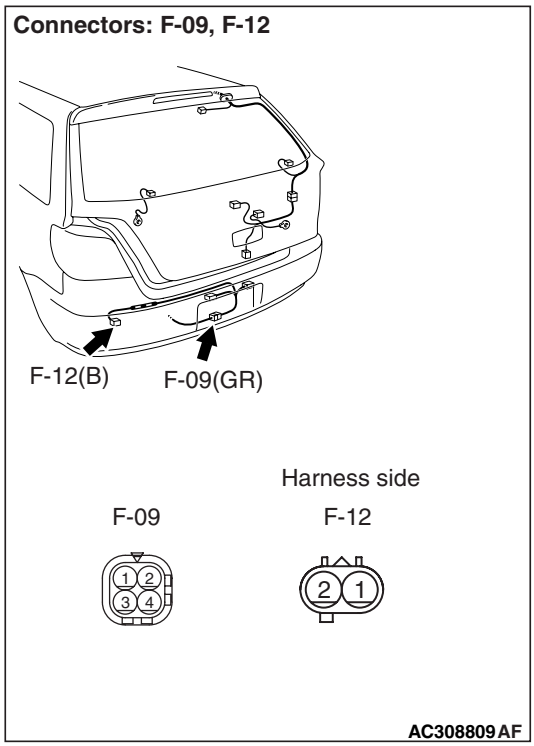
YES : Go to Step 6.

NO : Repair the defective connector.

Step 6. Check the wiring harness from F-12 rear fog lamp connector terminal No.2, C-05 <rear fog lamp indicator lamp> combination meter connector terminal No.5 to C-212 rear fog lamp relay connector terminal No.1.







NOTE: Prior to the wiring harness inspection, check intermediate connector C-117 <rear fog lamp>, F-09 <rear fog lamp> and junction block connector C-201 <rear fog lamp and rear fog lamp indicator lamp>, and repair if necessary.

- Check the output lines for open circuit.

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

Step 7. Retest the system.

Check that the rear fog lamp and the rear fog lamp indicator lamp illuminate normally.

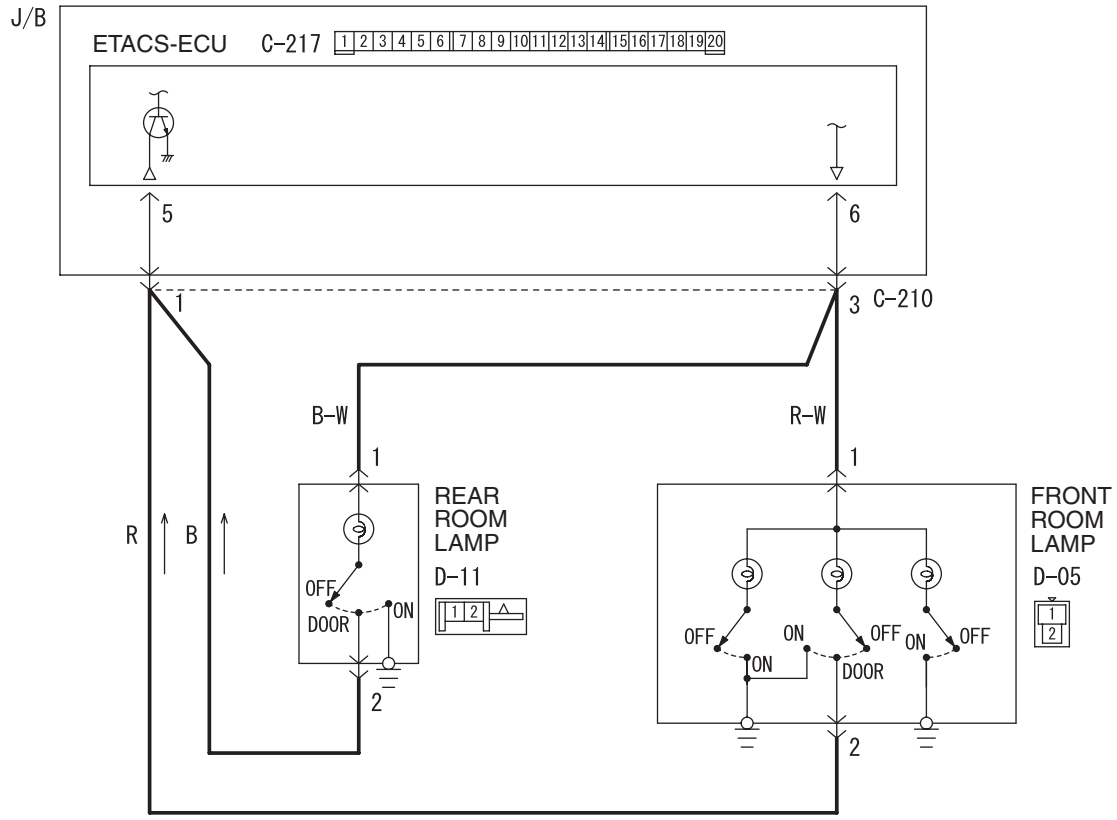
Q: Is the check result normal?
The lamps illuminate normally at both high and low beams. : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
The rear fog lamps do not illuminate. : Replace the rear fog lamp(s).
The rear fog lamp indicator lamp does not illuminate. : Replace the combination meter.

INTERIOR LAMP

INSPECTION PROCEDURE M-1: The front or rear room lamp does not illuminate or extinguish normally. <Vehicles without keyless entry system>

⚠ 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

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COMMENTS ON TROUBLE SYMPTOM

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

- Ignition switch (IG1)
- All of the door switches
- Key reminder switch
- Driver's door lock actuator

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

POSSIBLE CAUSES

- 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. 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-35."

Step 2. 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 3.

NO : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."

Step 3. 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

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

Q: Are the check result normal?

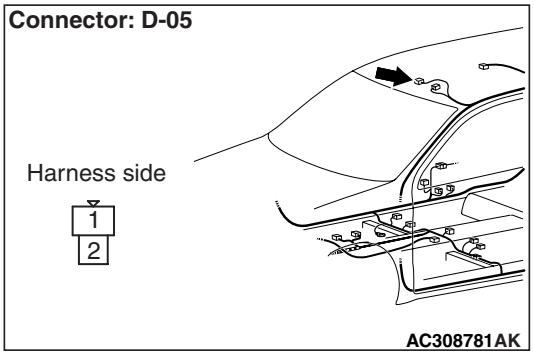
All the signals are received normally. : Go to Step 4.

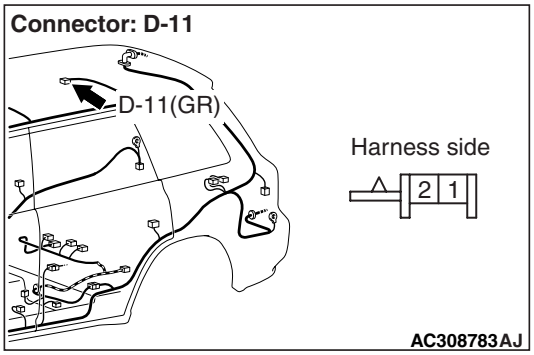
The key reminder switch signal is not received. : Refer to inspection procedure N-11 "The key reminder switch signal is not received P.54C-249."

All the door switch signals are not received. : Refer to inspection procedure N-13 "All the door switch signals are not received P.54C-255."

The driver's door lock actuator switch signal is not received. : Refer to inspection procedure N-14 "The driver's door lock actuator switch signal is not received P.54C-260."

Step 4. Connector check: D-05 front room lamp connector, D-11 rear room lamp connector



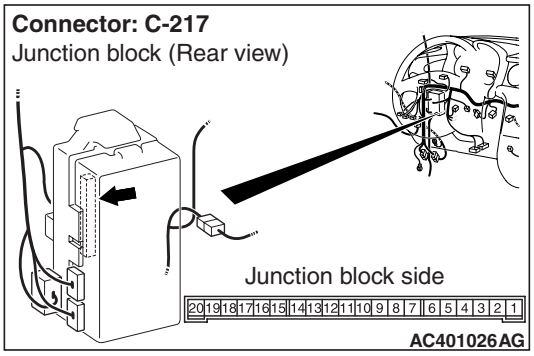


Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the bulbs of the front or rear room lamps.
Check that the front or rear room lamp bulbs are not burned out.

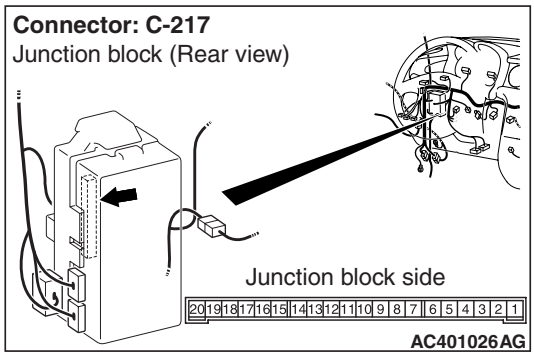
Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the front or rear room lamp bulb.

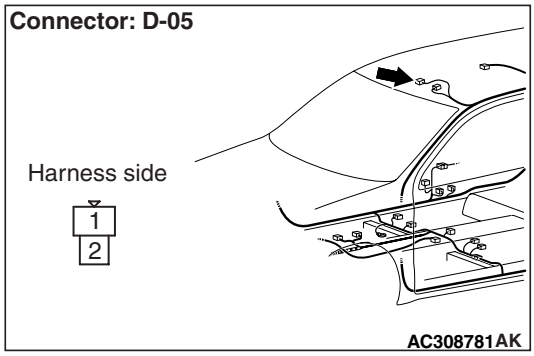
Step 6. Connector check: C-217 ETACS-ECU connector



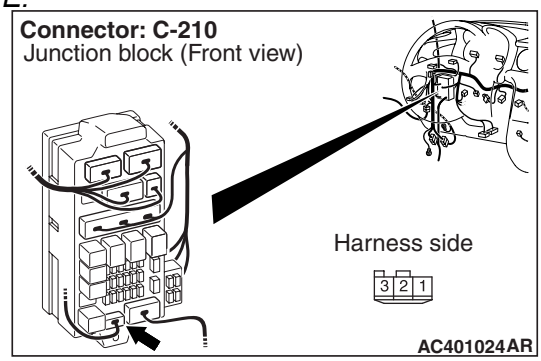
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

Step 7. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 5 and 6 to D-05 front room lamp connector terminal Nos. 2 and 1.





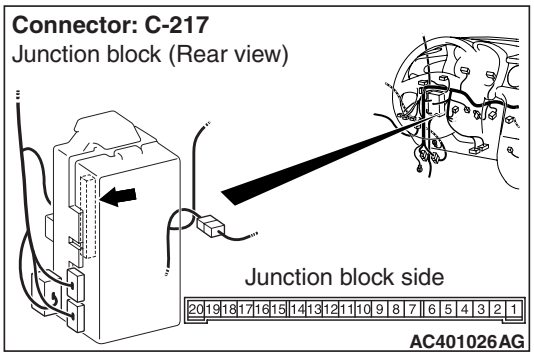
NOTE:

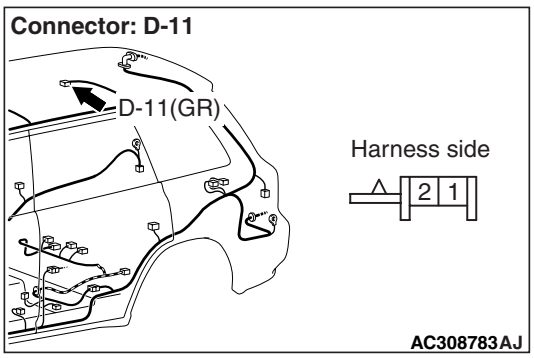


Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

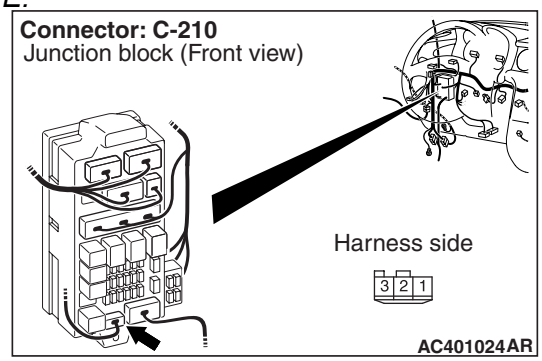
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the wiring harness.

Step 8. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 5 and 6 to D-11 rear room lamp connector terminal Nos. 2 and 1.





NOTE:



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

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

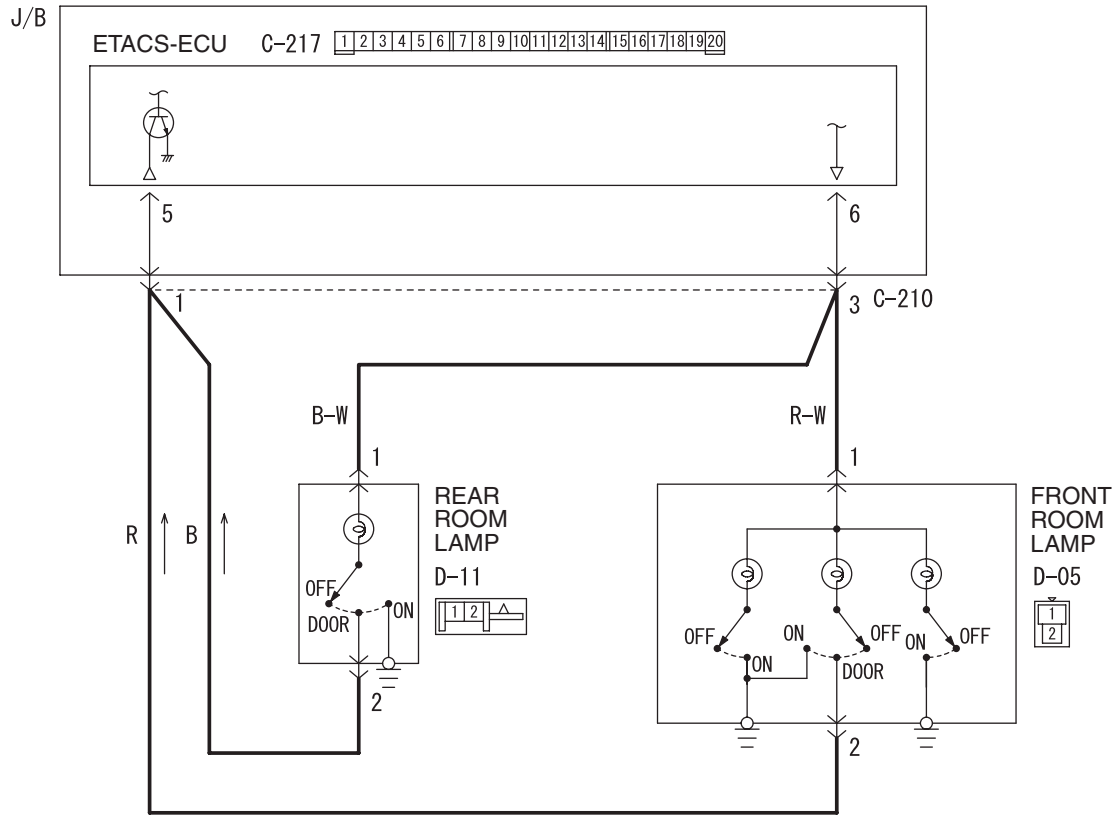
Step 9. Retest the system.
Check that the front or rear room lamp illuminates and extinguishes normally.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-2: The front and rear room lamp does not illuminate or extinguish normally. <Vehicles with keyless entry system>

⚠ 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

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COMMENTS ON TROUBLE SYMPTOM

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

- Ignition switch (IG1)
- Key reminder switch
- All of the door switches
- 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-265).

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-35."

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 N-2 "The ignition switch (IG1) signal is not received P.54C-220."

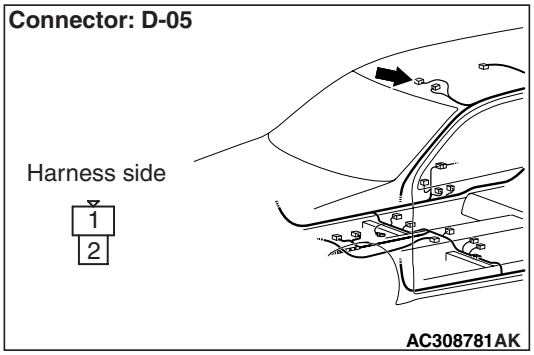
Step 4. Pulse check
Check the input signals below, which are related to the front or rear dome lamps.

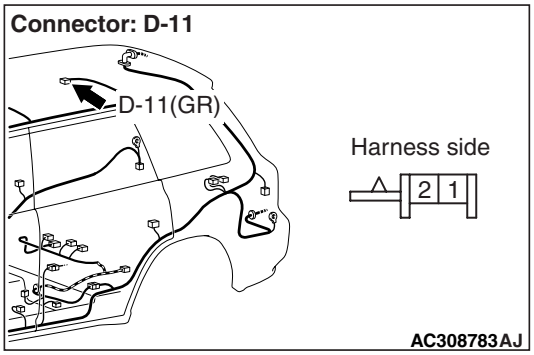
System switch	Check condition
Key reminder switch	When the inserted ignition key is pulled out
All of the door switches	A door is opened when all the doors are closed
Driver's door lock actuator switch	When the driver's door is unlocked or locked
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.22

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

Q: Are 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 N-11 "The key reminder switch signal is not received P.54C-249."
All the door switch signals are not received. : Refer to inspection procedure N-13 "All the door switch signals are not received P.54C-255."
The driver's door lock actuator switch signal is not received. : Refer to inspection procedure N-14 "The driver's door lock actuator switch signal is not received P.54C-260."
The interior lamp loaded signal is not received. : Refer to inspection procedure N-17 "The interior lamp loaded signal is not detected P.54C-272."

Step 5. Connector check: D-05 front room lamp connector, D-11 rear room lamp connector



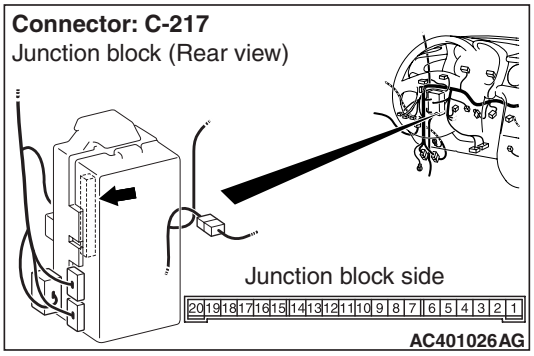


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

Step 6. Check the bulbs of the front or rear room lamps.
Check that the front or rear room lamp bulbs are not burned out.

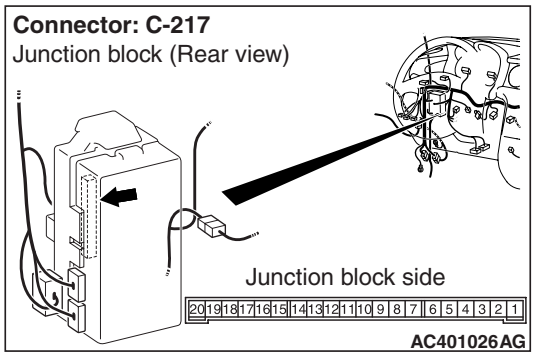
Q: Is the check result normal?
YES : Go to Step 7.
NO : Replace the front or rear room lamp bulb.

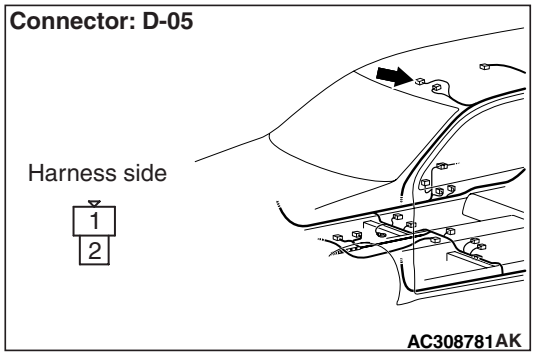
Step 7. Connector check: C-217 ETACS-ECU connector



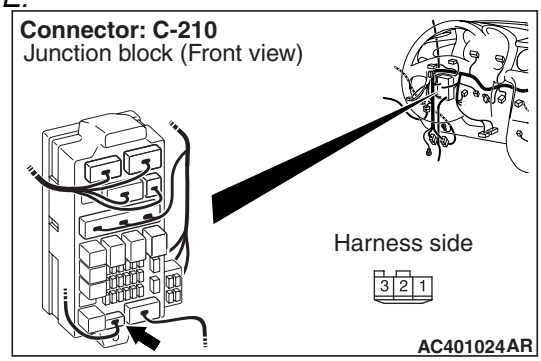
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

Step 8. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 5 and 6 to D-05 front room lamp connector terminal Nos. 2 and 1.





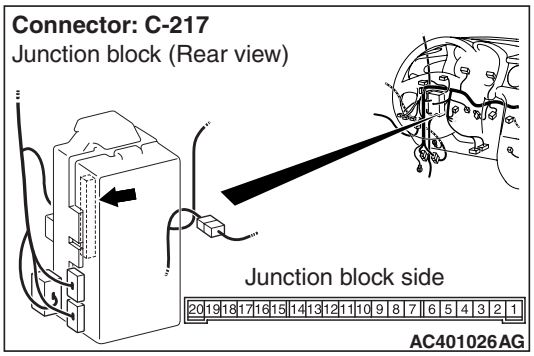
NOTE:

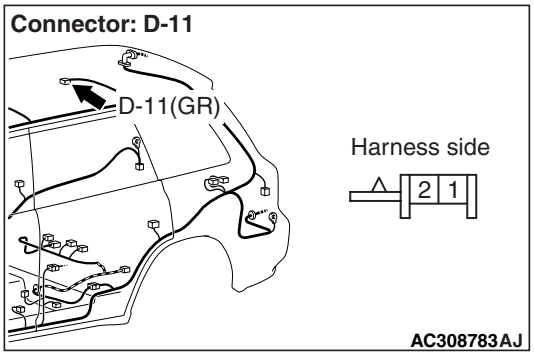


Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

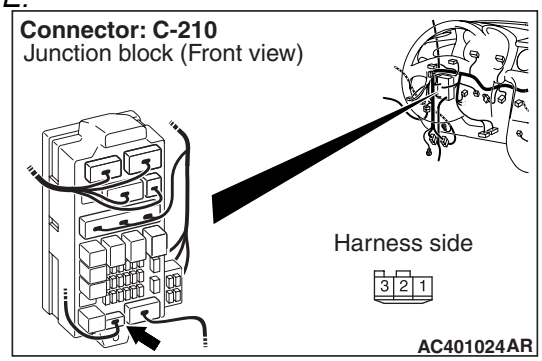
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

Step 9. Check the wiring harness from C-217 ETACS-ECU connector terminal Nos. 5 and 6 to D-11 rear room lamp connector terminal Nos. 2 and 1.





NOTE:



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

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

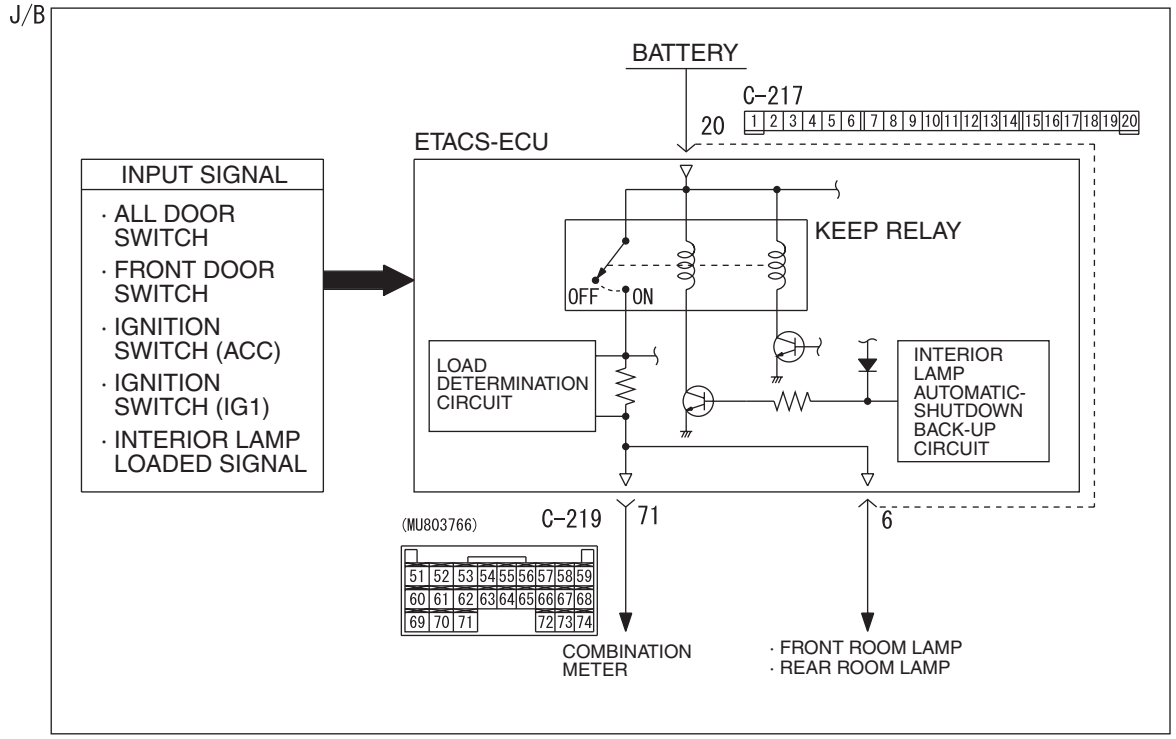
Step 10. Retest the system.
Check that the front or rear room lamp illuminates and extinguishes normally.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-3: Interior lamp automatic shutoff function does not work normally. <Vehicles with keyless entry system>

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

Interior Lamp Automatic Shut-off Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates the interior lamp automatic-shutdown function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Driver's door switch
- All of the door switches
- Interior lamp loaded signal

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Note that this function can be disabled/enabled by the adjustment function (default setting; enabled).

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-265).

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-35."

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 conditions are displayed for all the items.

Q: Are the check result normal?
Normal conditions are displayed for all the items. : Go to Step 4.
Normal condition is not displayed for item No.30. : Refer to inspection procedure N-2 "The ignition switch (IG1) signal is not received P.54C-220."
Normal condition is not displayed for item No.31. : Refer to inspection procedure N-1 "The ignition switch (ACC) signal is not received P.54C-218."
Normal condition is not displayed for item No.32. : Refer to inspection procedure N-4 "The front door switch (LH) signal is not received P.54C-231."

interior lamp loaded signal is not detected P.54C-272."

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.22

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

Q: Are 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 N-13 "All the door switch signals are not received P.54C-255."
The interior lamp loaded signal is not received. : Refer to inspection procedure N-17 "The

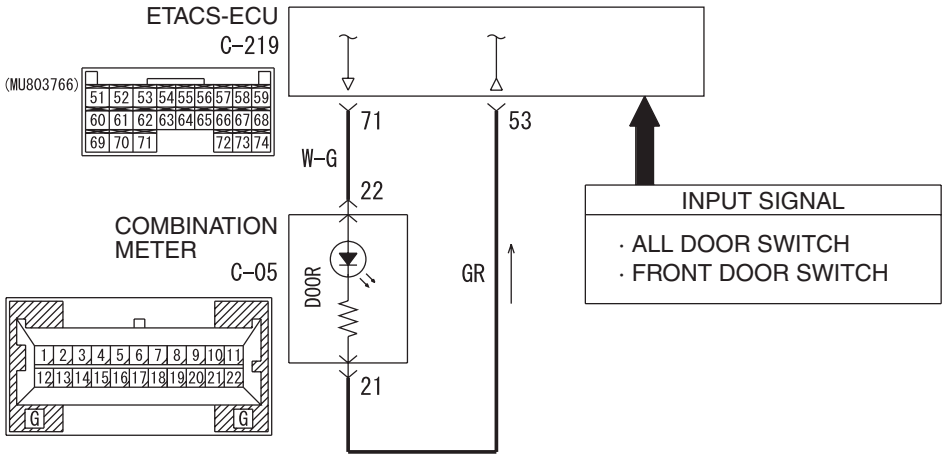
Step 5. Retest the system.
Check that the interior lamp automatic-shutdown function works normally.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-4: 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

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OPERATION

The ETACS-ECU operates this function in accordance with all the door switch signals. If the door-ajar warning lamp does not work normally, the input signal circuits from all the door switches or the ETACS-ECU may be defective.

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 M-1 "The front or rear room lamp does not illuminate or extinguish normally <vehicles without keyless entry system>P.54C-205 ." Or refer to inspection procedure M-2 "The front and rear room lamp does not illuminate or extinguish normally <vehicles with keyless entry system>P.54C-209 ."

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 N-4 "The front door switch (LH) signal is not received P.54C-231."

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

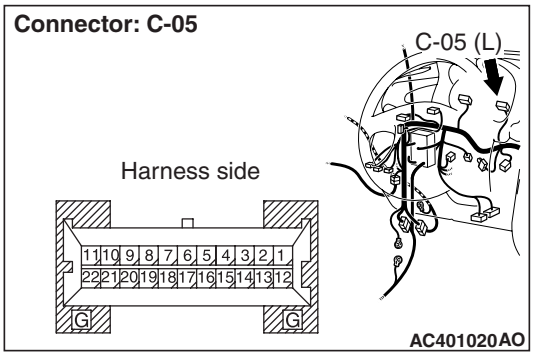
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Refer to inspection procedure N-13 "All the door switch signals are not received P.54C-255 ."

Step 4. Connector check: C-05 combination meter connector



Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the defective connector.

Step 5. Check the door-ajar warning lamp bulb.

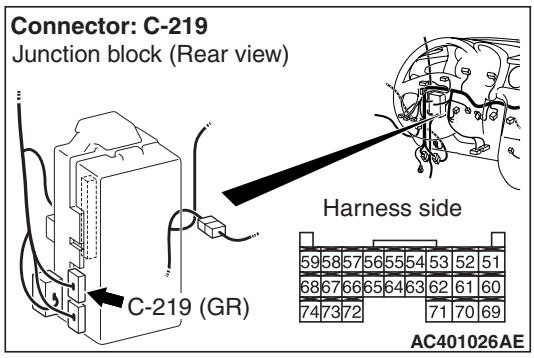
Check the door-ajar warning lamp bulb.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Replace the door-ajar warning lamp bulb.

Step 6. Connector check: C-219 ETACS-ECU connector

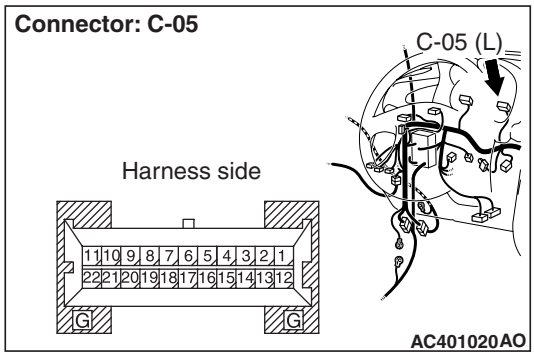


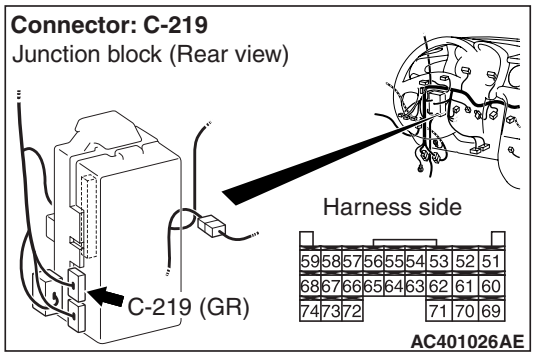
Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the defective connector.

Step 7. Check the wiring harness from C-219 ETACS-ECU connector terminal Nos. 53 and 71 to C-05 combination meter connector terminal Nos. 21 and 22.





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.00-6).

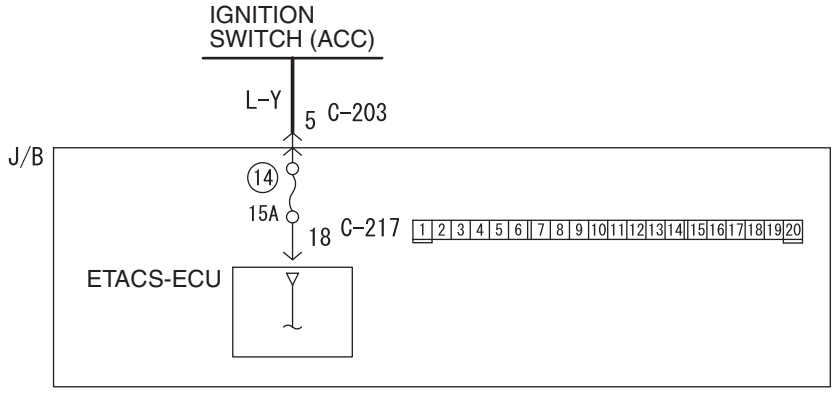
NO : Replace the combination meter.

INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE N-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

W3Z10E25AA

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.

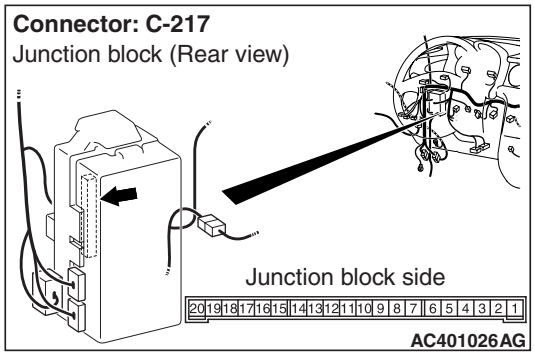
- Windshield wiper and washer
- Rear wiper and washer
- Interior lamp automatic-shutdown function

POSSIBLE CAUSES

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

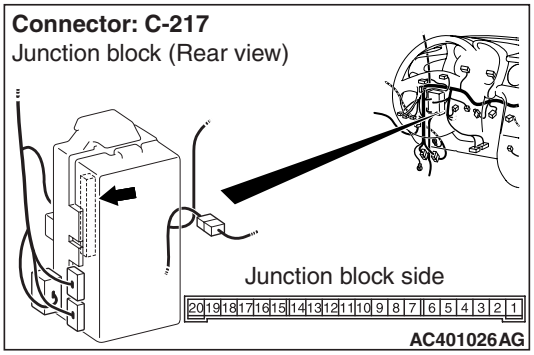
DIAGNOSIS PROCEDURE

Step 1. Connector check: C-217 ETACS-ECU connector

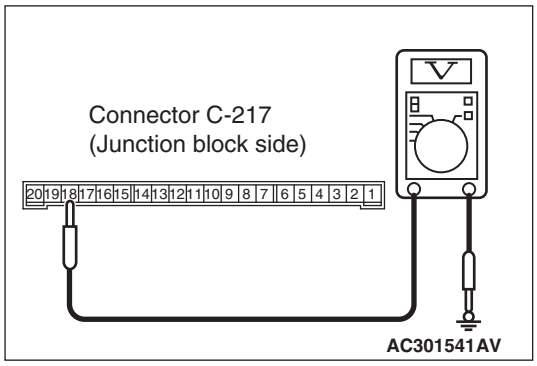


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-217 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ACC position

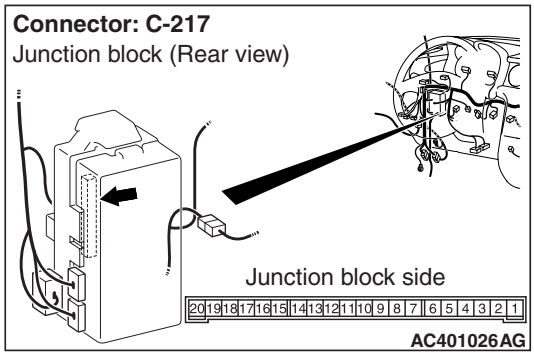


(3) Voltage between C-217 ETACS-ECU connector terminal No.18 and body earth

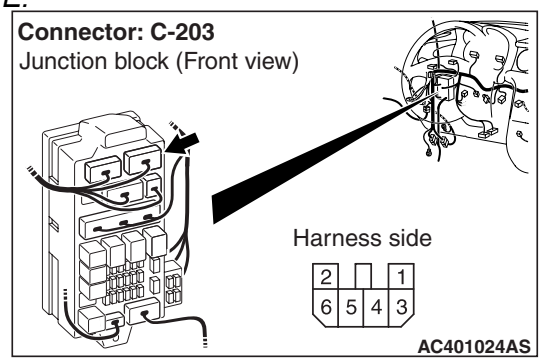
OK: System voltage

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

Step 3. Check the wiring harness between C-217 ETACS-ECU connector terminal No.18 and the ignition switch (ACC).



NOTE:



Prior to the wiring harness inspection, check junction block connector C-203, 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.00-6).
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

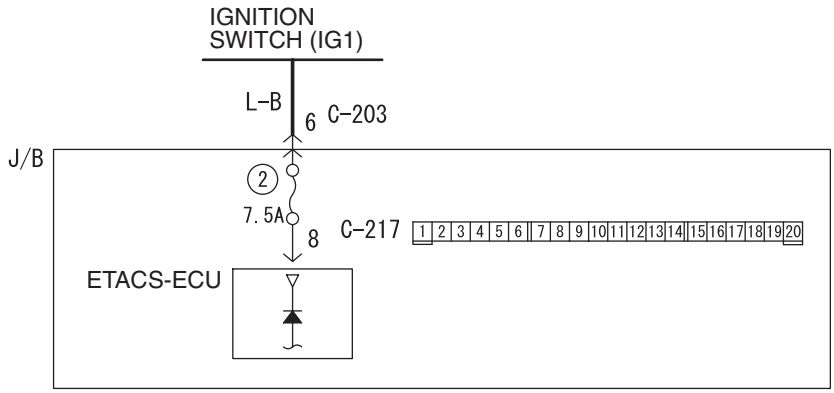
OK: Normal condition is displayed.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-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

W3Z10E24AA

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.

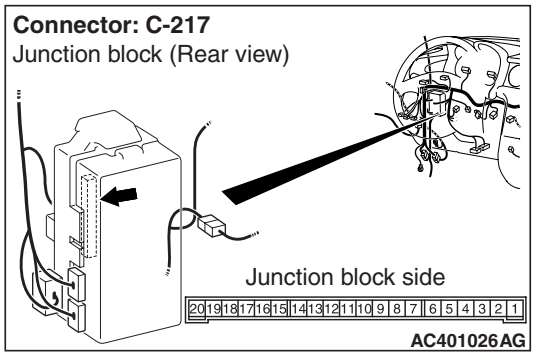
- Lamp reminder function
- Ignition key cylinder illumination lamp
- Headlamp automatic-shutdown function
- Turn signal lamp
- Room lamps

POSSIBLE CAUSES

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

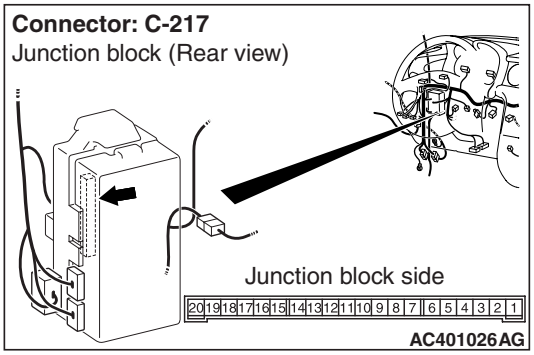
DIAGNOSIS PROCEDURE

Step 1. Connector check: C-217 ETACS-ECU connector

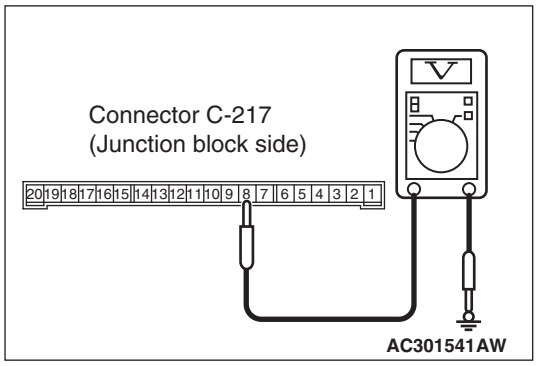


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Voltage measurement at the C-217 ETACS-ECU connector.



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Ignition switch: ON position

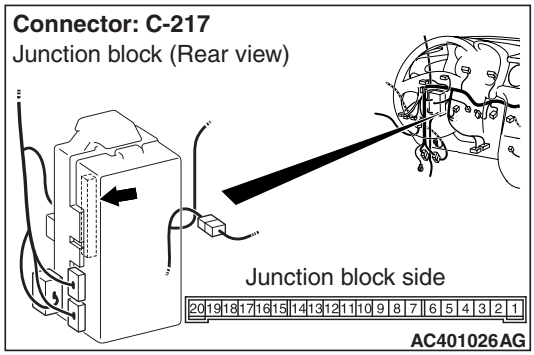


(3) Voltage between C-217 ETACS-ECU connector terminal No.8 and body earth

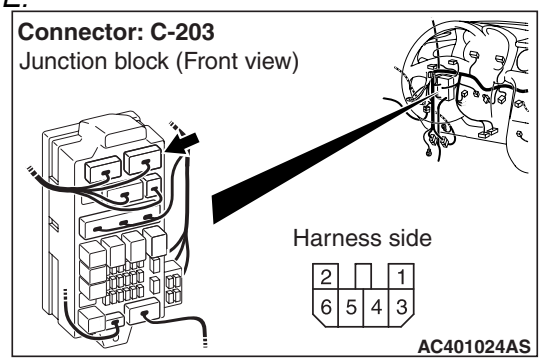
OK: System voltage

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

Step 3. Check the wiring harness between C-217 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



NOTE:



Prior to the wiring harness inspection, check junction block connector C-203, 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.00-6).
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

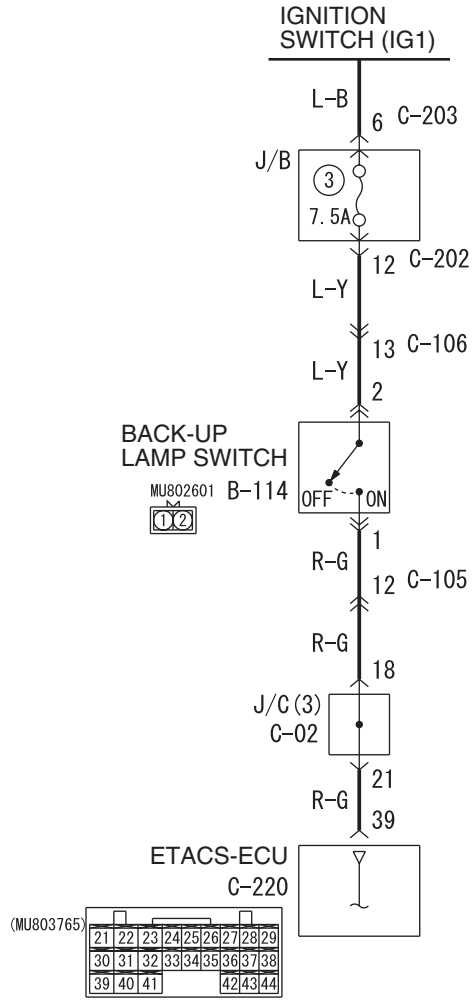
OK: Normal condition is displayed.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-3: The back-up lamp switch signal is not received. <M/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Back-up Lamp Switch Input Circuit



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

W5Z54E034A

COMMENTS ON TROUBLE SYMPTOM

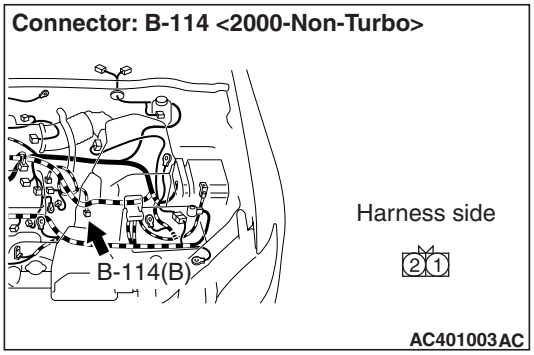
Input signal from the back-up lamp switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

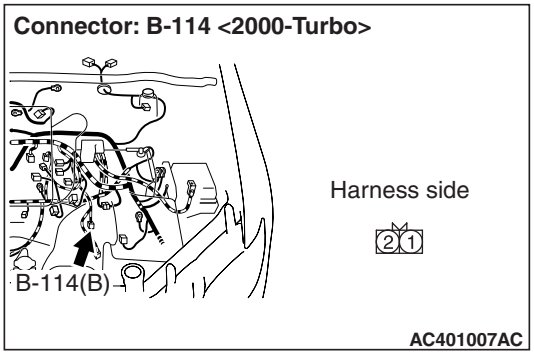
POSSIBLE CAUSES

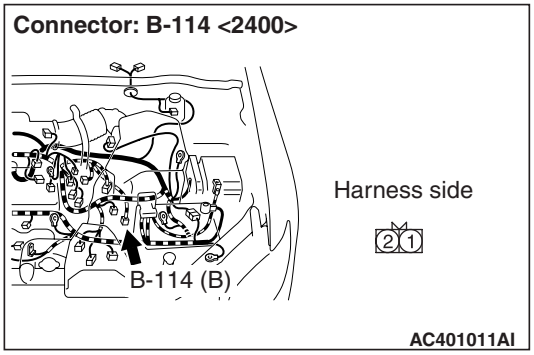
- Malfunction of the back-up lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

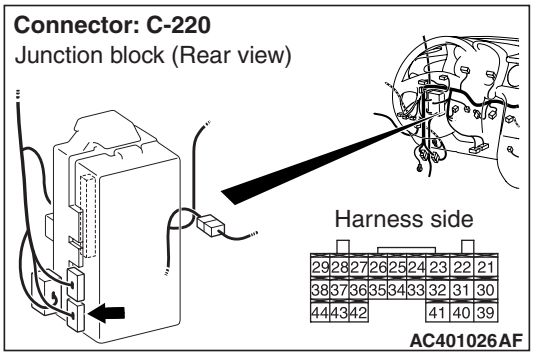
DIAGNOSIS PROCEDURE

Step 1. Connector check: B-114 <2000 or 2400> back-up lamp switch connector and C-220 ETACS-ECU connector







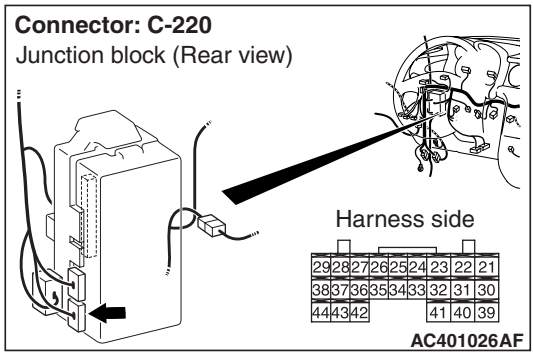


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

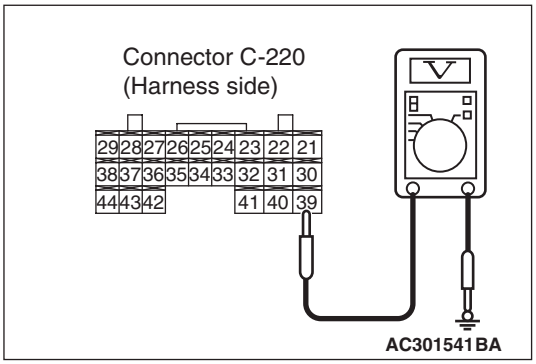
Step 2. Check the back-up lamp switch
Check the back-up lamp switch (Refer to GROUP 22B – Transmission P.22B-24).

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

Step 3. Voltage measurement at the C-220 ETACS-ECU connector.



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ON
(3) Shift position: R position

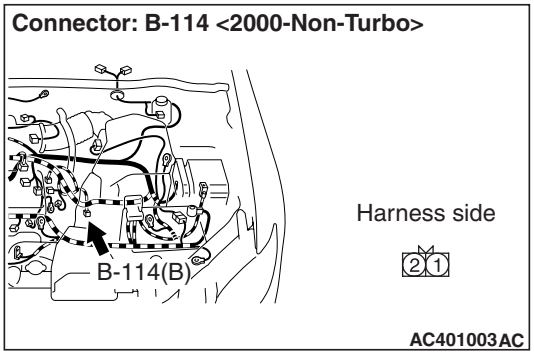


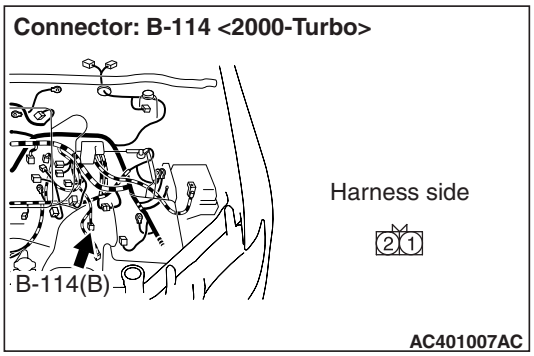
(4) Voltage between C-220 ETACS-ECU connector terminal No.39 and body earth

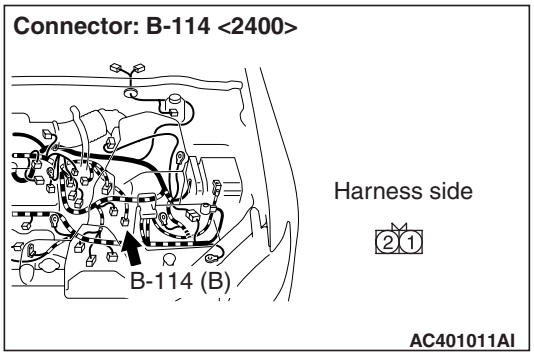
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

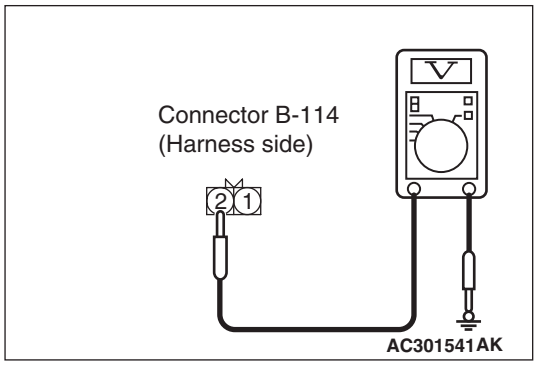
Step 4. Voltage measurement at the B-114 <2000 or 2400> back-up lamp switch connector.







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

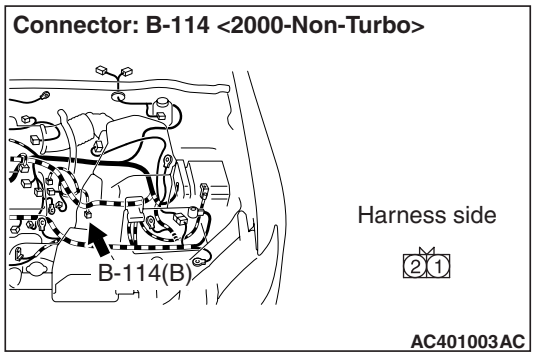


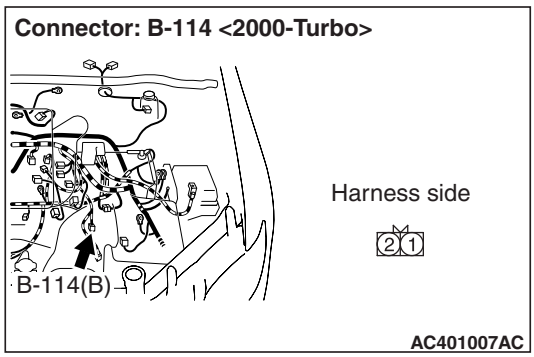
(3) Voltage between B-114 back-up lamp switch connector terminal No.2 and body earth

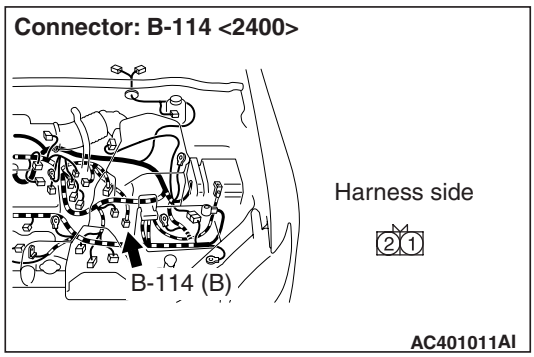
OK: System voltage

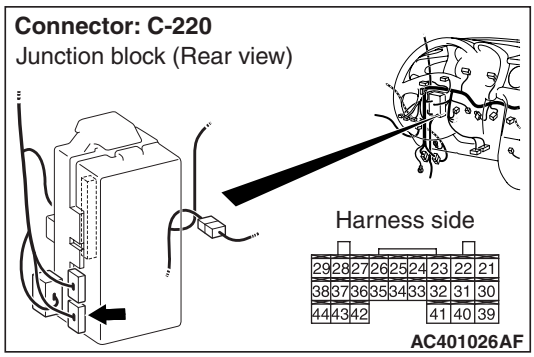
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 6.

Step 5. Check the wiring harness between B-114 <2000 or 2400> back-up lamp switch connector terminal No.1 and C-220 ETACS-ECU connector terminal No.39.

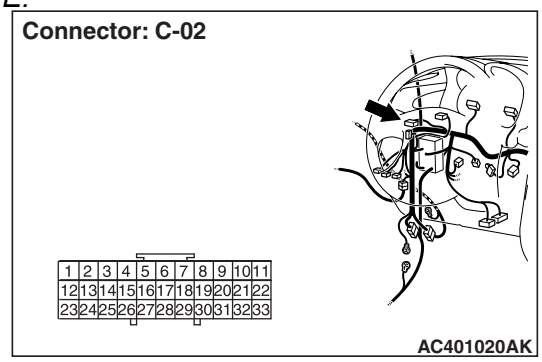


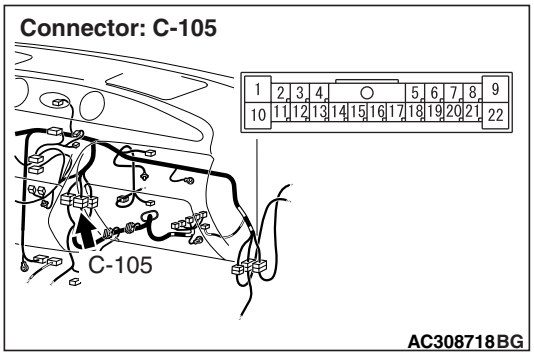






NOTE:



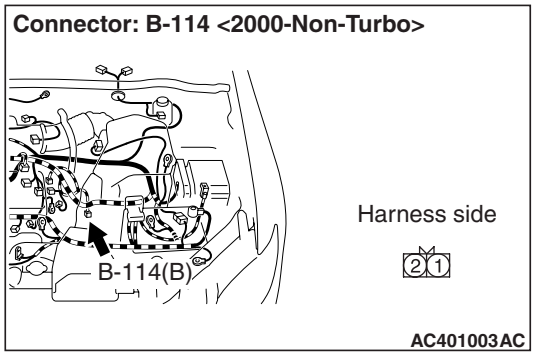


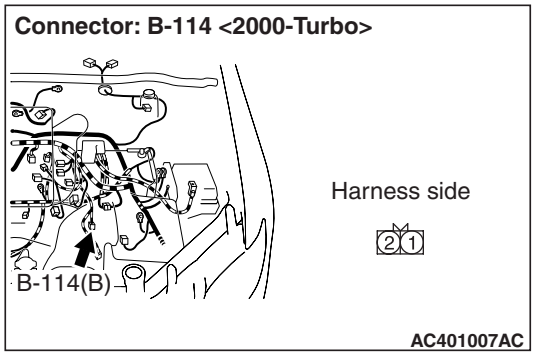
Prior to the wiring harness inspection, check joint connector C-02 and intermediate connector C-105, and repair if necessary.

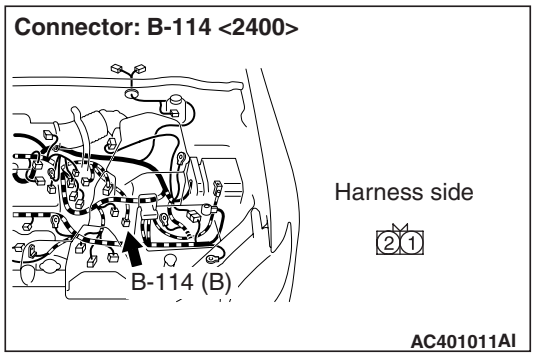
- Check the input line for open circuit.

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

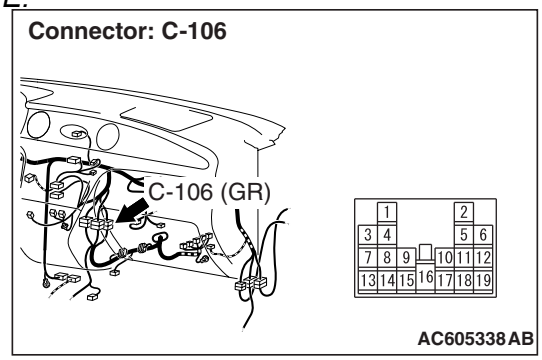
Step 6. Check the wiring harness between B-114 <2000 or 2400> back-up lamp switch connector terminal No.2 and the ignition switch (IG1).

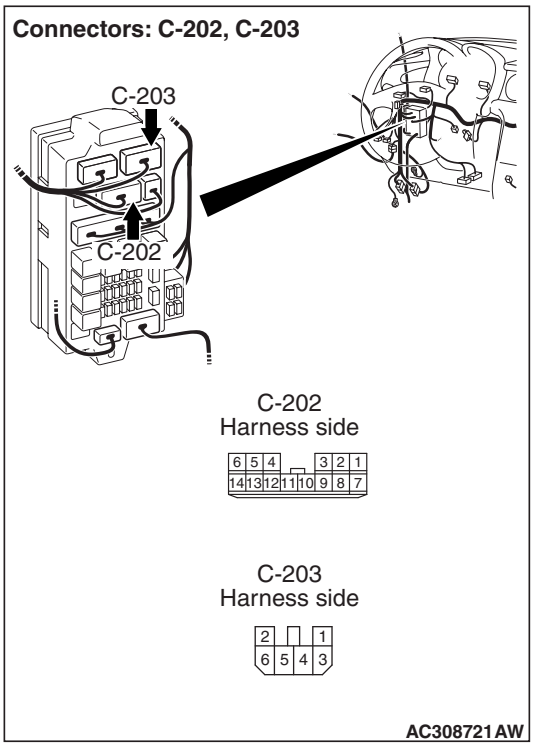






NOTE:





Prior to the wiring harness inspection, check intermediate connector C-106, junction block connectors C-202 and C-203, 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.00-6).

NO : Repair the wiring harness.

Step 7. SWS monitor data list.

<Selected item> ETACS ECU

- Ignition switch: ON
- Shift lever: R position

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

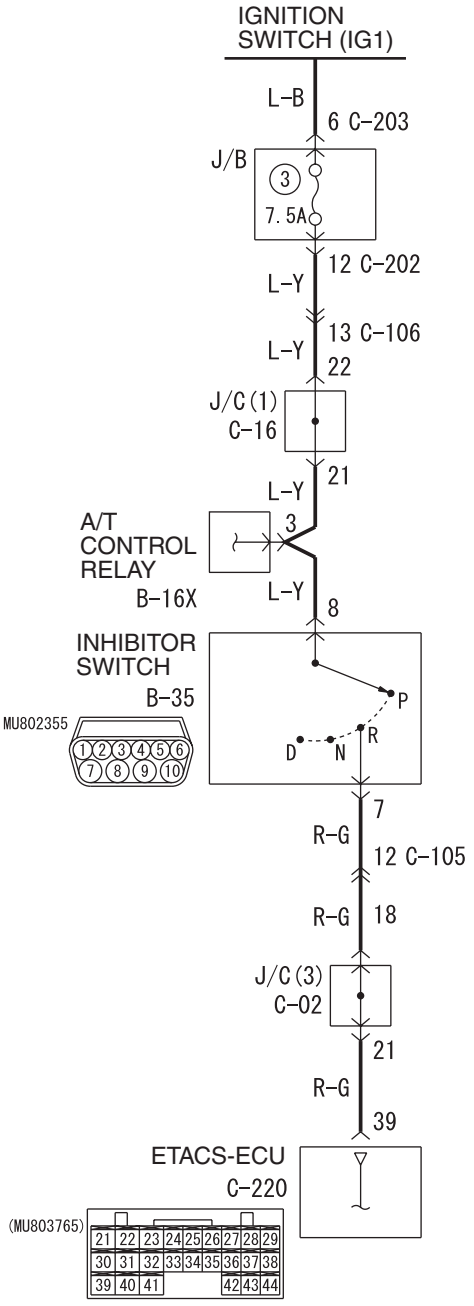
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE M-3: The inhibitor switch (reverse position) signal is not received. <A/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Inhibitor Switch Input Circuit



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

W5Z54E035A

COMMENTS ON TROUBLE SYMPTOM

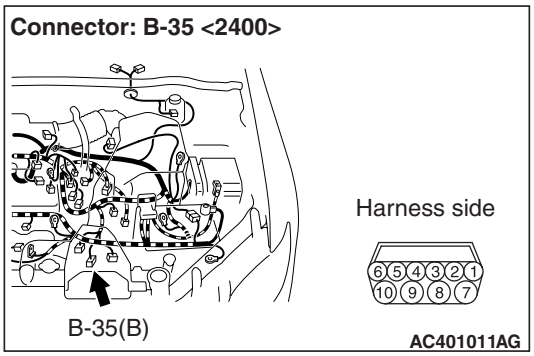
Input signal from the back-up lamp switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

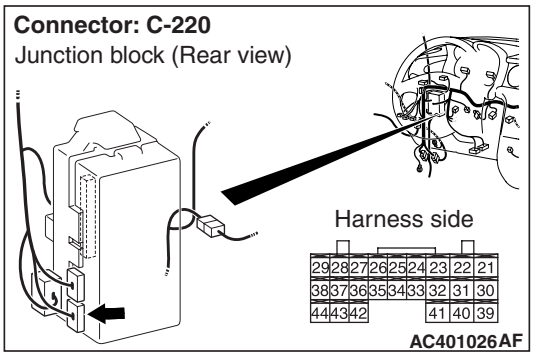
POSSIBLE CAUSES

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

DIAGNOSTIC PROCEDURE

Step 1. Connector check: B-35 inhibitor switch connector and C-220 ETACS-ECU connector





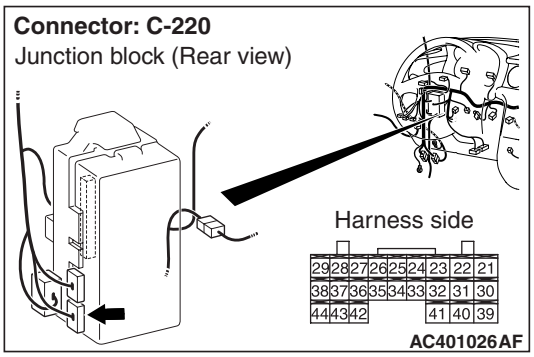
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

Step 2. Check the inhibitor switch

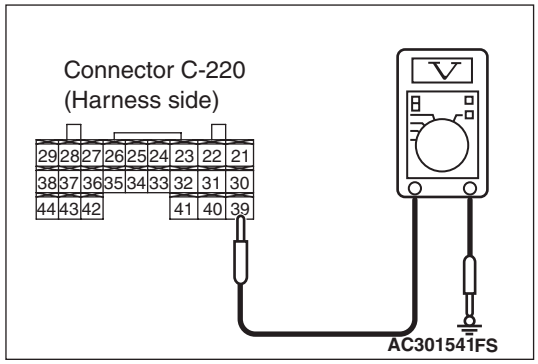
Refer to GROUP 23A – On-vehicle Service P.23A-126.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

Step 3. Voltage measurement at the C-220 ETACS-ECU connector



(1) Disconnect the connector, and measure at the wiring harness side.
(2) Ignition switch: ON
(3) Selector lever: R position

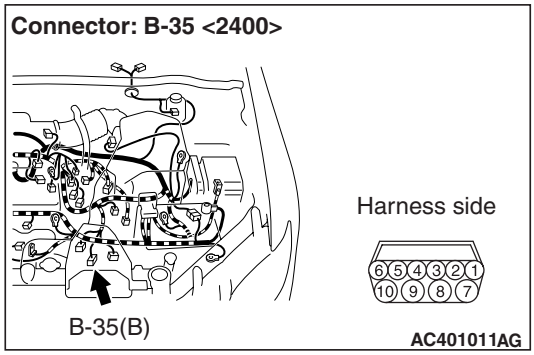


(4) Voltage between C-220 ETACS-ECU connector terminal No.39 and body earth

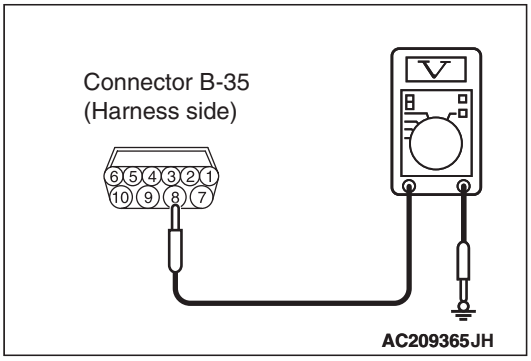
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

Step 4. Voltage measurement at the B-35 inhibitor switch connector



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

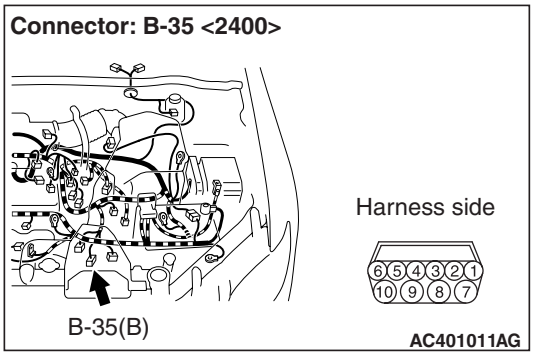


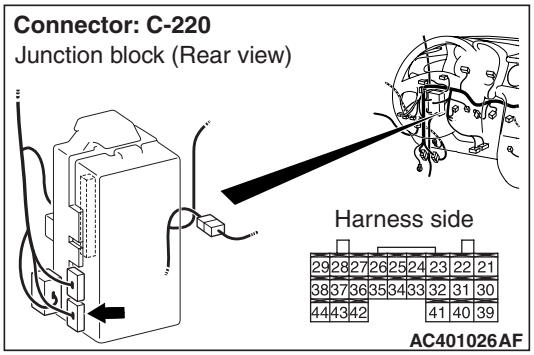
(3) Voltage between B-35 inhibitor switch connector terminal No.8 and body earth

OK: System voltage

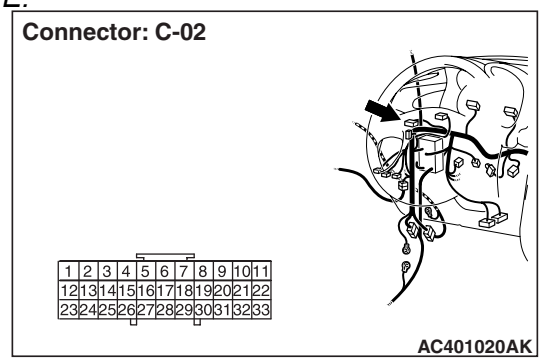
Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 6.

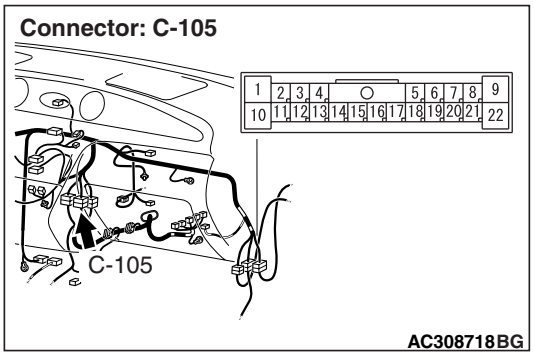
Step 5. Check the wiring harness between B-35 inhibitor switch connector terminal No.7 and C-220 ETACS-ECU connector terminal No.39.





NOTE:



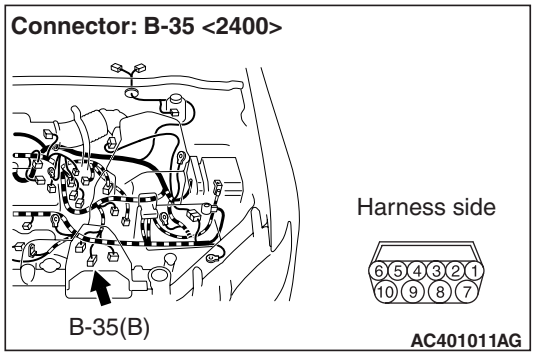


Prior to the wiring harness inspection, check joint connector C-02 and intermediate connector C-105, and repair if necessary.

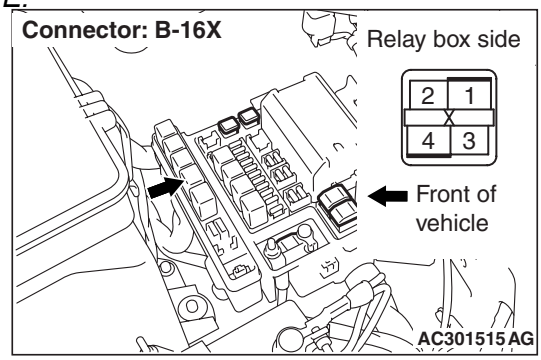
- Check the input line for open circuit.

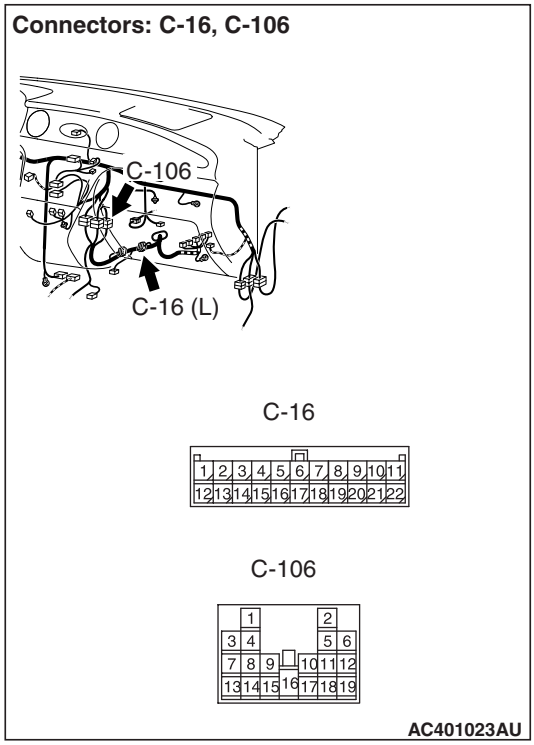
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

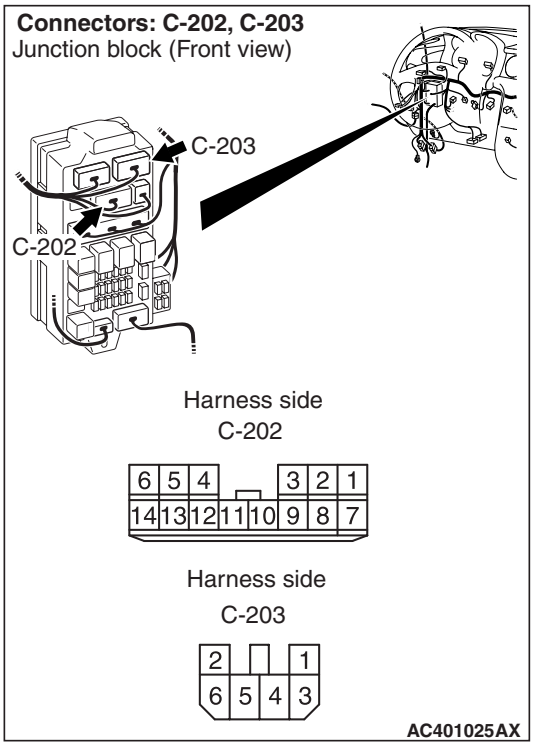
Step 6. Check the wiring harness between B-35 inhibitor switch connector terminal No.8 and the ignition switch (IG1).



NOTE:







Prior to the wiring harness inspection, check A/T control relay connector B-16X, joint connector C-16, intermediate connector C-106 and junction block connectors C-202 and C-203, 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.00-6).

NO : Repair the wiring harness.

Step 7. SWS monitor data list.

<Selected item> ETACS ECU

- Ignition switch: ON
- Selector lever: R position

Item No.	Item name	Normal condition
Item 41	INHIBITOR SW	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

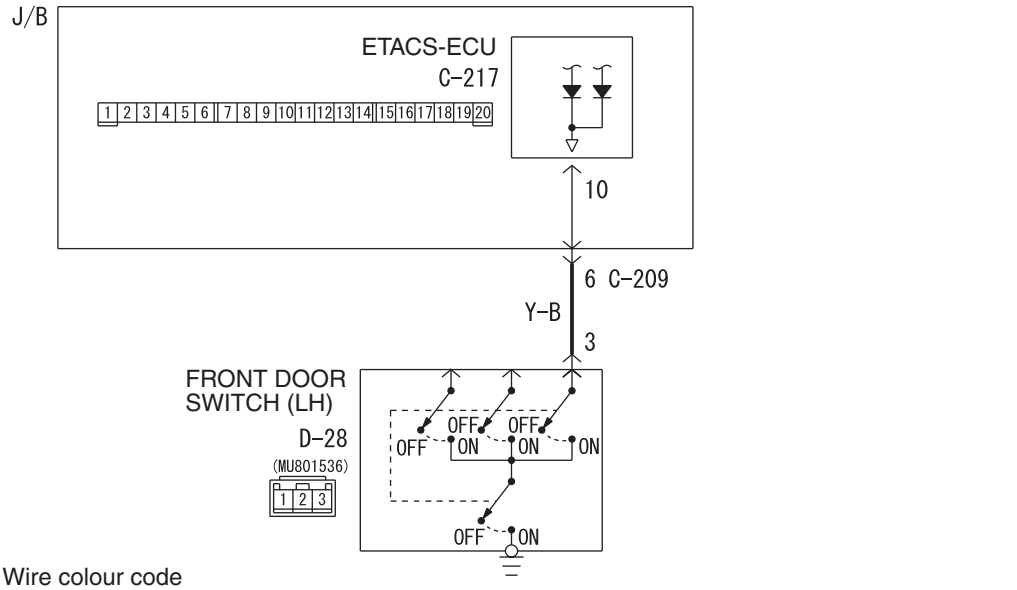
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-4: The front door switch (LH) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Driver's Door Switch Input Circuit



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

W5Z54E027A

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
- Key reminder function
- Ignition key cylinder illumination lamp
- Headlamp automatic-shutdown function
- Room lamps
- Door-ajar indicator lamp

POSSIBLE CAUSES

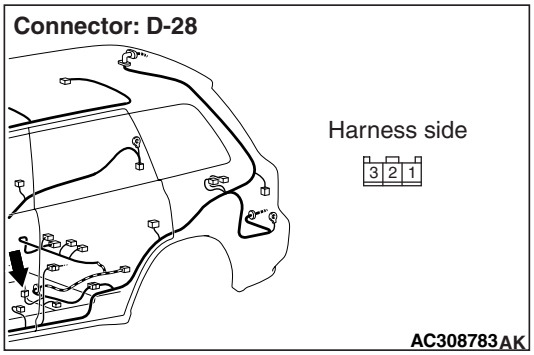
- Malfunction of the driver's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

Step 1. Check the installation condition.
Check that the front door switch (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-28 front door switch (LH) connector

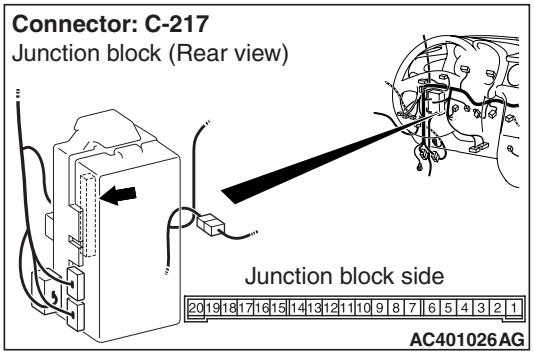


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

Step 3. Check the front door switch (LH).
Refer to GROUP 42 – Door P.42-32.

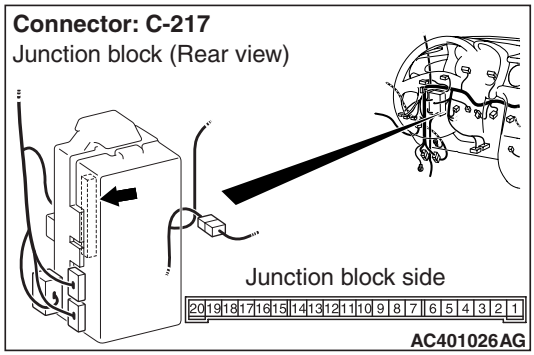
Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the front door switch (LH).

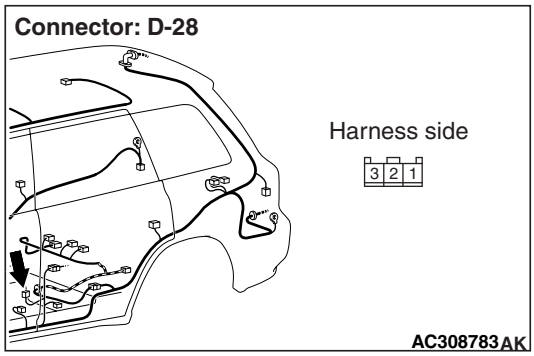
Step 4. Connector check: C-217 ETACS-ECU connector



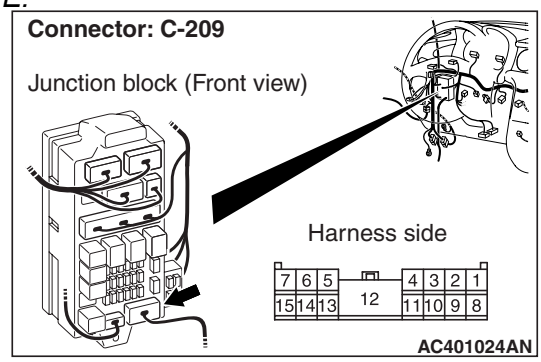
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the defective connector.

Step 5. Check the wiring harness between D-28 front door switch (LH) connector terminal No.3 and C-217 ETACS-ECU connector terminal No.10.





NOTE:



Prior to the wiring harness inspection, check junction block connector C-209, 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.00-6).

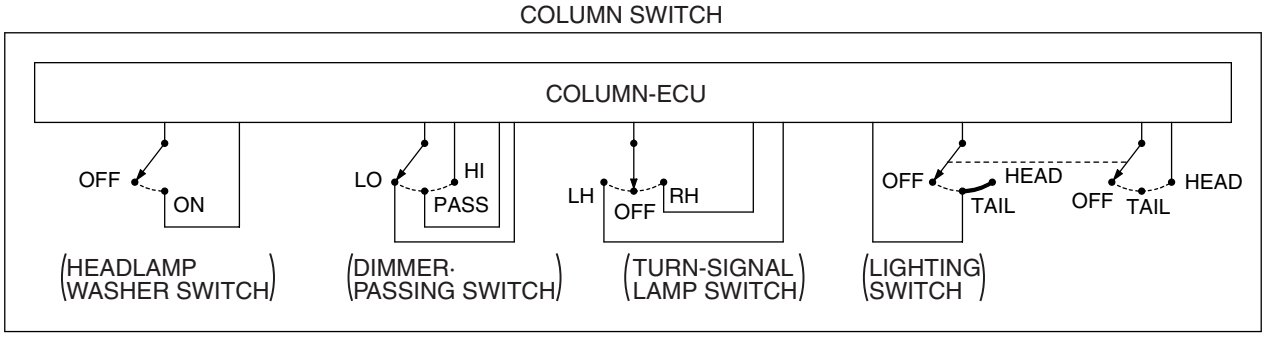
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-5: 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



W3Z10E28AB

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-87.

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
Item 16	HD WASHER SW	ON

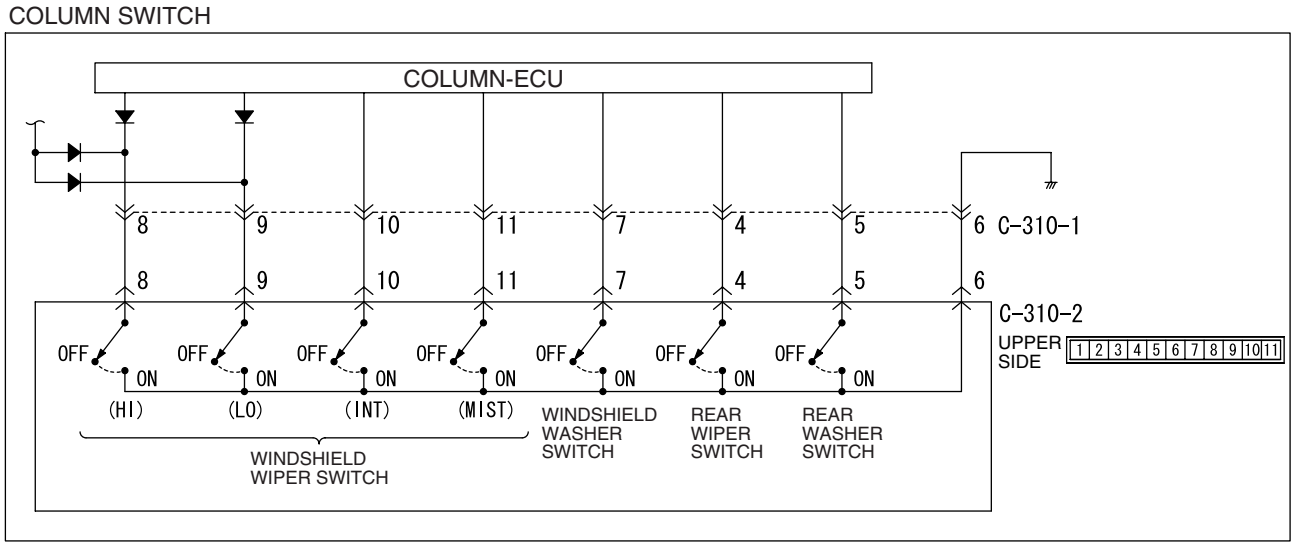
OK: Normal conditions are displayed for all the functions of the switch.

Q: Are the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the column switch.

INSPECTION PROCEDURE N-6: The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Windshield Wiper and Washer Switch Input Circuit



W3Z10E29AA

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
Item 13	REAR WIPER SW	ON
Item 14	REAR WASH.SW	ON

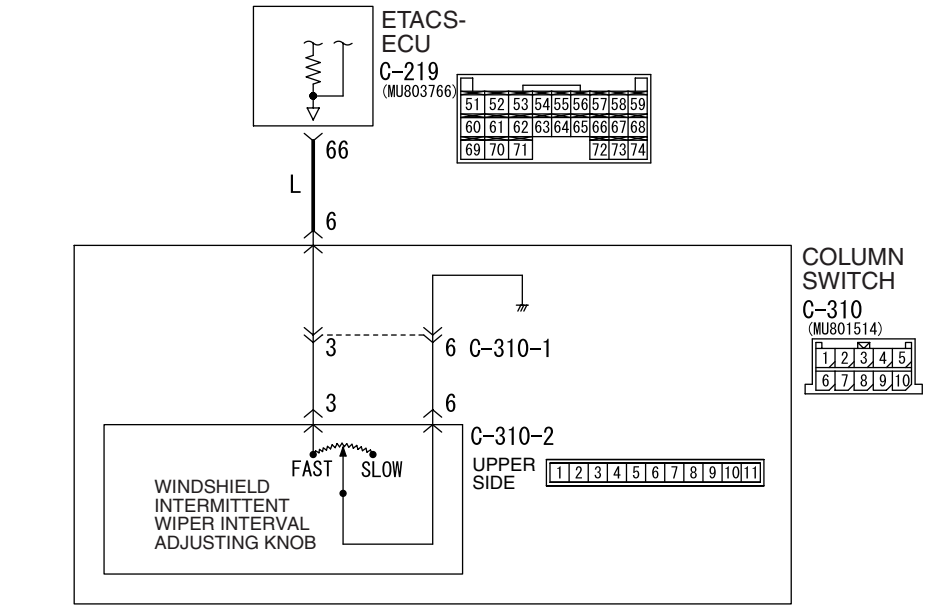
OK: Normal conditions are displayed for all the functions of the switch.

Q: Are the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the column switch.

INSPECTION PROCEDURE N-7: The windshield intermittent wiper volume signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



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

W3Z10E30AA

COMMENTS ON TROUBLE SYMPTOM

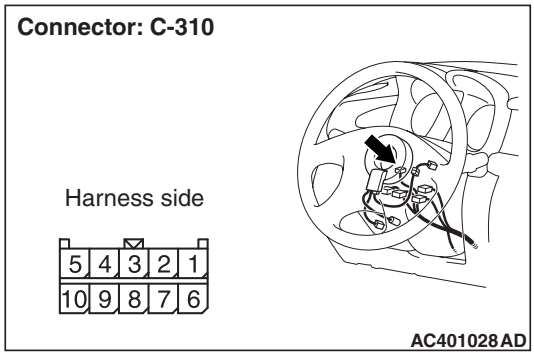
The intermittent wiper interval is calculated in accordance with the input signal from the windshield intermittent wiper volume. If this signal is abnormal, the wiper interval can not be adjusted.

POSSIBLE CAUSES

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

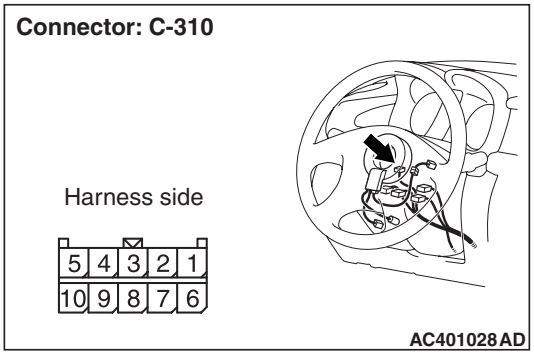
DIAGNOSIS PROCEDURE

Step 1. Connector check: C-310 column switch connector

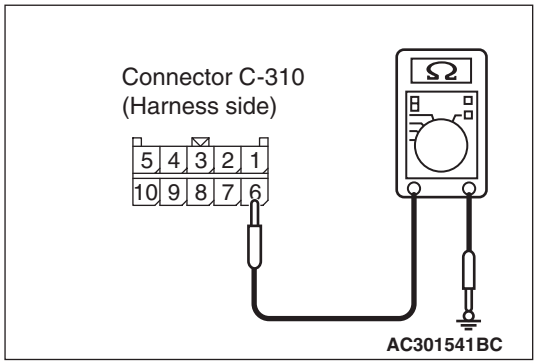


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Resistance measurement at the C-310 column switch connector.



(1) Disconnect the connector, and measure at the column switch side.

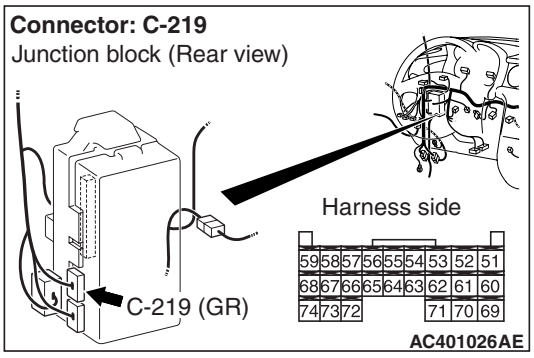


(2) Resistance between C-310 column switch connector terminal No.6 and body earth

OK: The resistance should rise from 0 to 1 kΩ when the windshield intermittent wiper volume is rotated from "Fast" to "Slow".

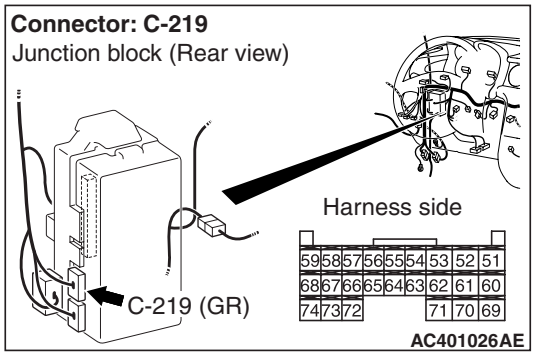
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the column switch.

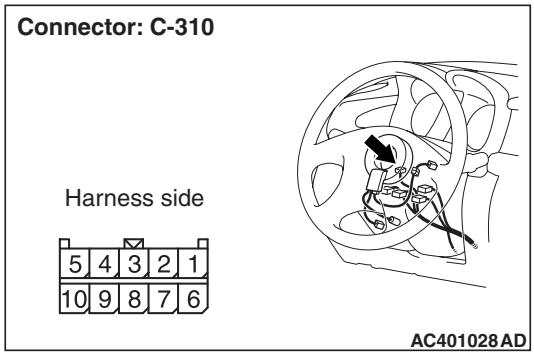
Step 3. Connector check: C-219 ETACS-ECU connector



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

Step 4. Check the wiring harness between C-310 column switch connector terminal No.6 and C-219 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

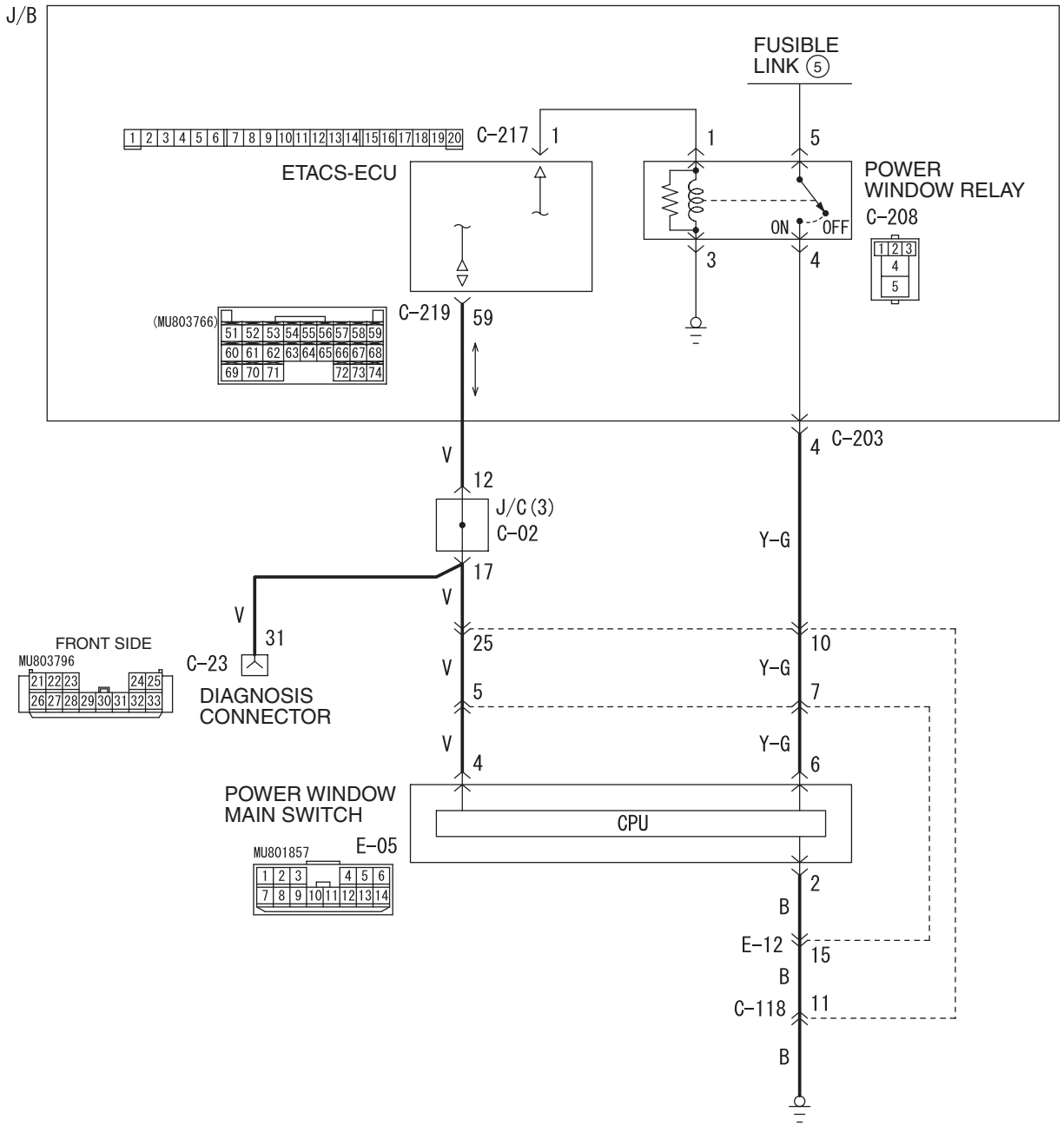
OK: The display will be changed as the intermittent wiper volume is rotated.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-8: 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 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

W3Z10E46AB

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

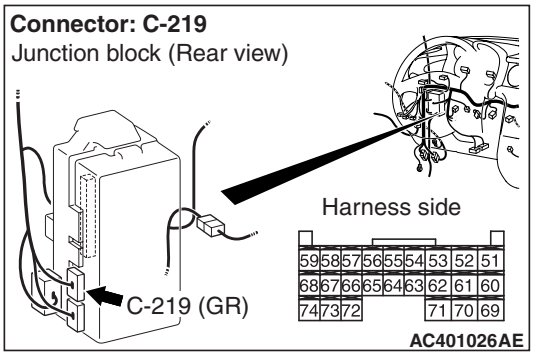
DIAGNOSIS PROCEDURE

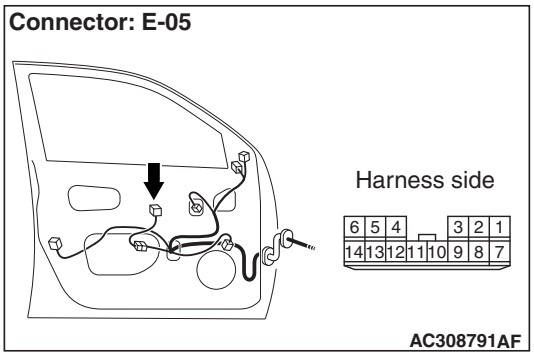
Step 1. Check the operation by using the power window main switch.

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 : Go to Step 5.

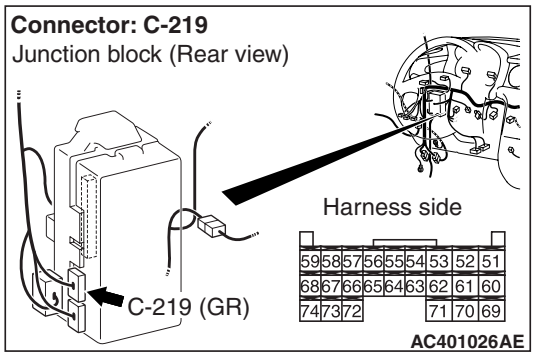
Step 2. Connector check: C-219 ETACS-ECU connector and E-05 power window main switch connector

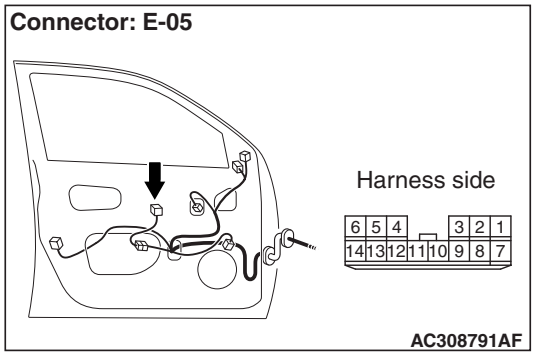




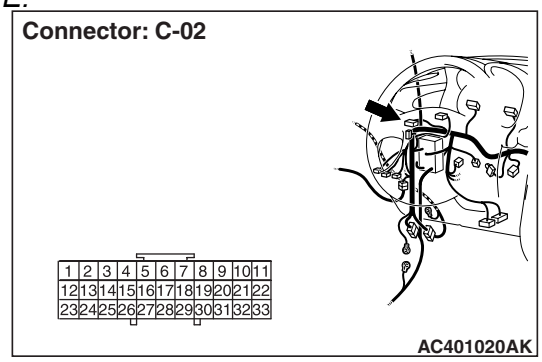
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

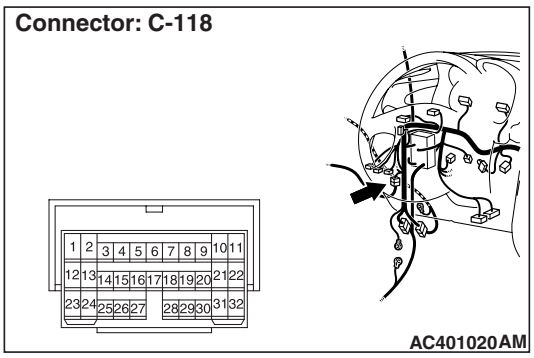
Step 3. Check the wiring harness between C-219 ETACS-ECU connector terminal No.59 and E-05 power window main switch connector terminal No.4.

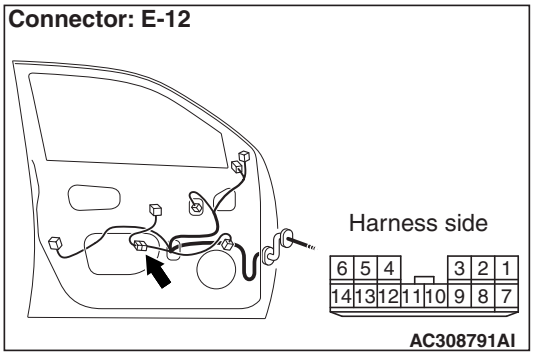




NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-118, E-12, and joint connector C-02, 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.

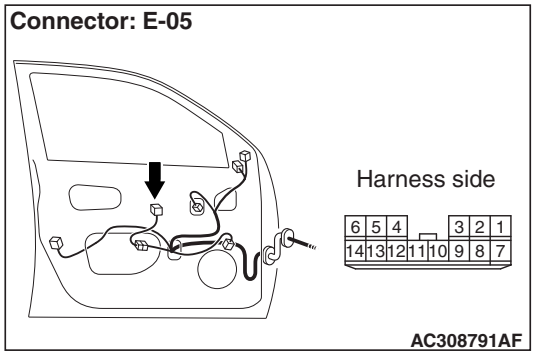
Step 4. Replace the power window main switch, and then retest the system.

Replace the power window main switch, and check that the power window main switch signal is received.

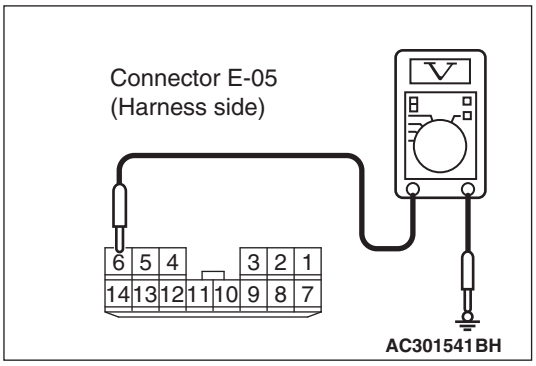
(1) Replace the power window main switch.
(2) Check that the power window main switch signal is received.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the ETACS-ECU.

Step 5. Voltage measurement at the E-05 power window main switch connector.



(1) Remove the power window main switch, and measure at the wiring harness side.
(2) Ignition switch: ON position

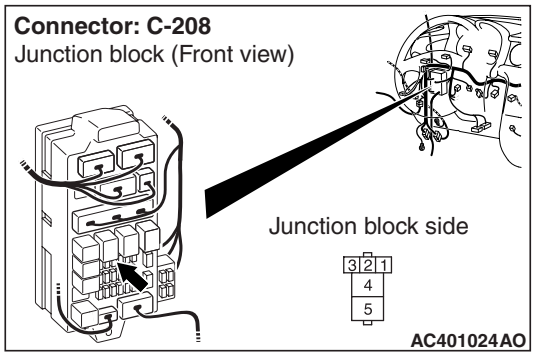


(3) Voltage between E-05 power window main switch connector terminal No.6 and body earth

OK: System voltage

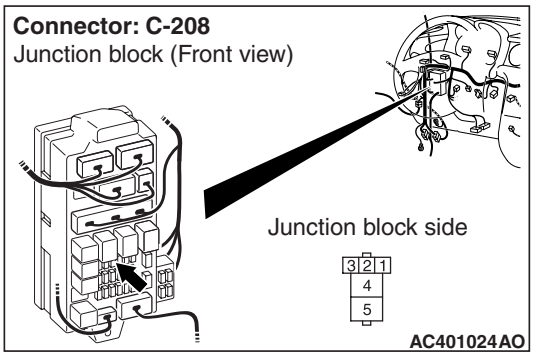
Q: Is the check result normal?
YES : Go to Step 8.
NO : Go to Step 6.

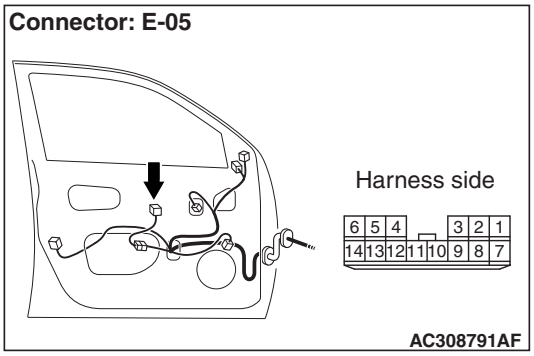
Step 6. Connector check: C-208 power window relay connector



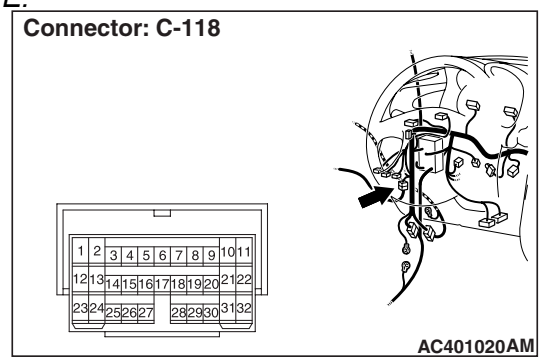
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

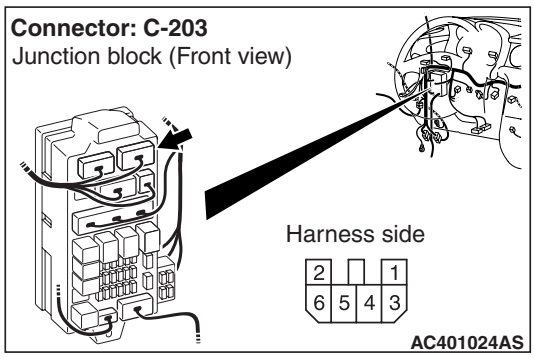
Step 7. Check the wiring harness between C-208 power window relay connector terminal No.4 and E-05 power window main switch connector terminal No.6.

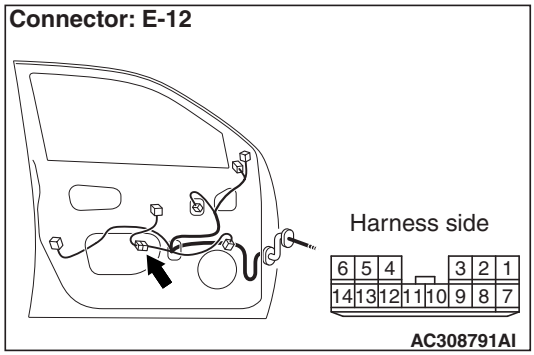




NOTE:







Prior to the wiring harness inspection, check intermediate connectors C-118, E-12 and junction block connector C-203, and repair if necessary.

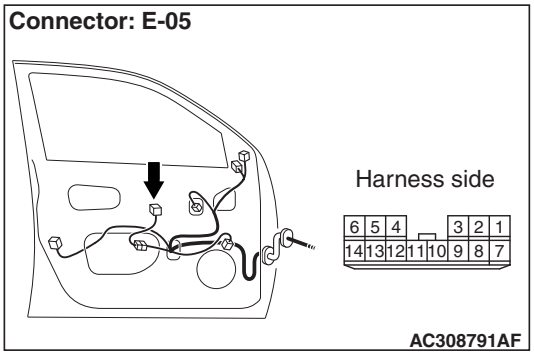
- Check the power supply line for open circuit.

Q: Is the check result normal?

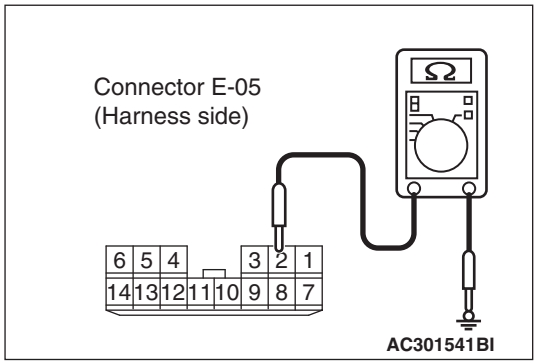
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Repair the wiring harness.

Step 8. Resistance measurement at the E-05 power window main switch connector.



(1) Remove the power window main switch, and measure at the wiring harness side.

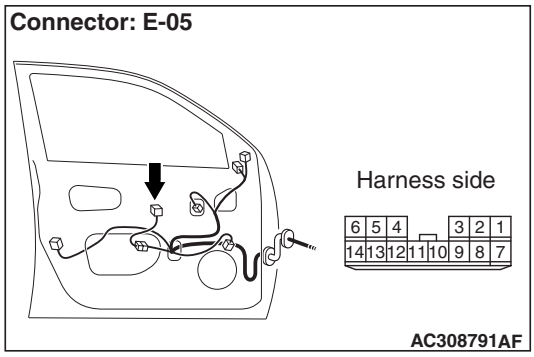


(2) Resistance between E-05 power window main switch connector terminal No.2 and body earth

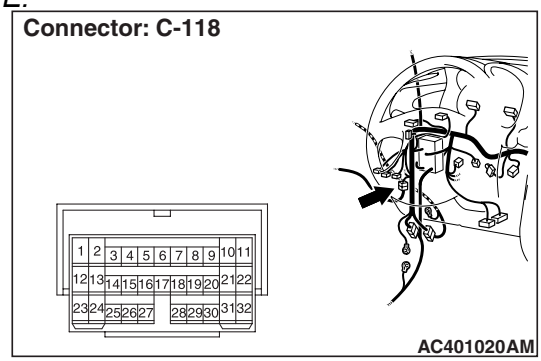
OK: Continuity (less than 2 Ω)

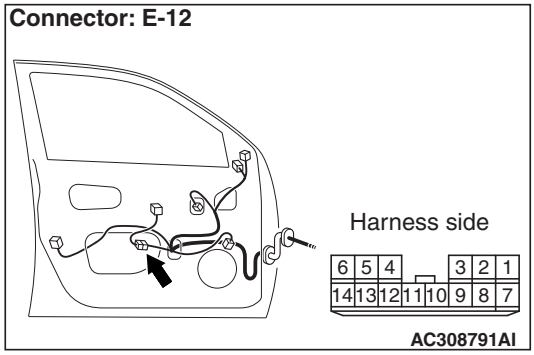
Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 9.

Step 9. 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-118 and E-12, 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.00-6).
NO : Repair the wiring harness.

Step 10. SWS monitor data list

<Selected item> Fr-ECU, P/W, S/R

- Ignition switch: ON

Item No.	Item name	Normal condition
Item 71	P/W ECU ACK	INPUT CHECK

OK: Normal conditions are displayed for all the positions 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.00-6).

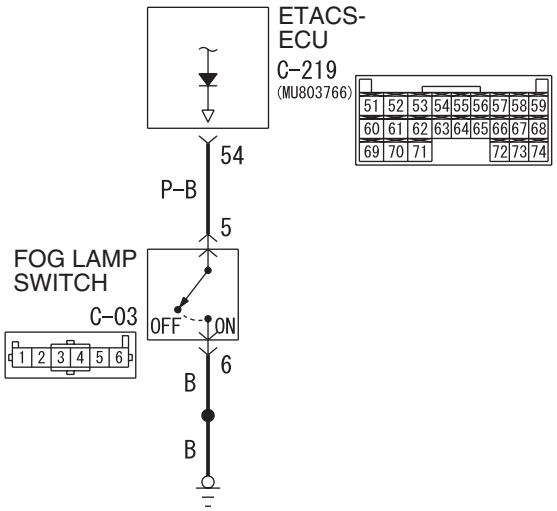
NO : Replace the power window main switch.

INSPECTION PROCEDURE N-9: The front fog lamp switch signal is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Front 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

W5Z54E025A

COMMENTS ON TROUBLE SYMPTOM

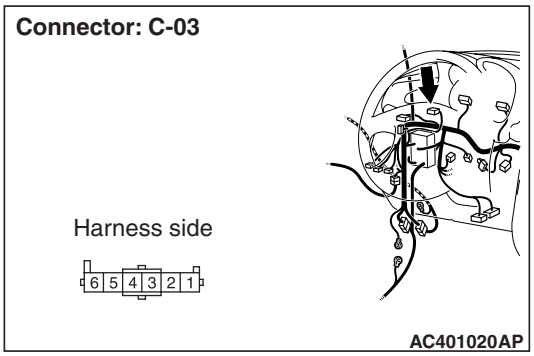
Input signal from the front fog lamp switch is used to operate the front fog lamps. If the signal is abnormal, the front fog lamps will not illuminate and extinguish normally.

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: C-03 fog lamp switch connector



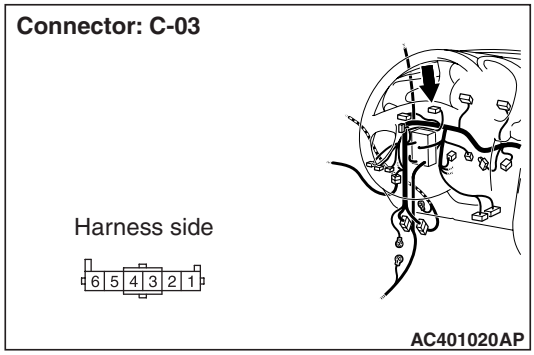
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the front fog lamp switch.

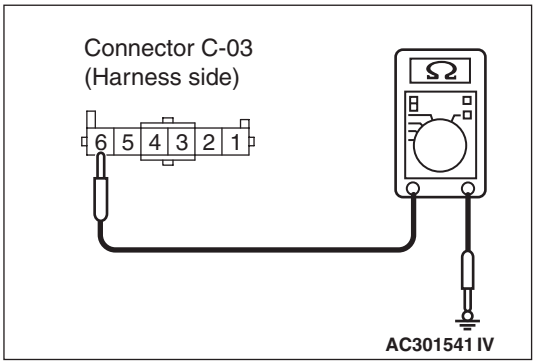
Refer to GROUP 54A – Front fog lamp P.54A-74.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

Step 3. Resistance measurement at the C-03 fog lamp switch connector.



(1) Remove the fog lamp switch, and measure at the wiring harness side.

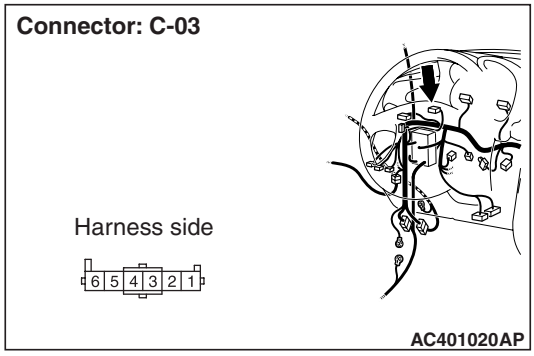


(2) Resistance between C-03 fog lamp switch connector terminal No.6 and body earth

OK: Continuity (less than 2 Ω)

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

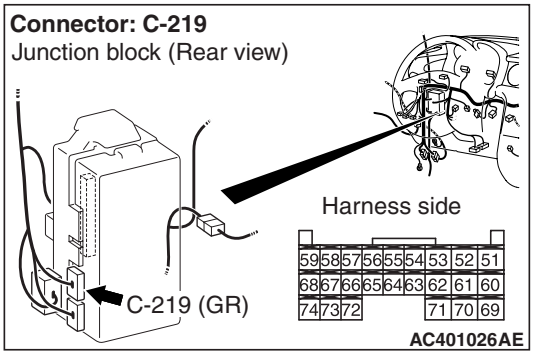
Step 4. Check the wiring harness from C-03 fog lamp switch connector terminal No.6 to body earth.



- Check the earth wires for open circuit.

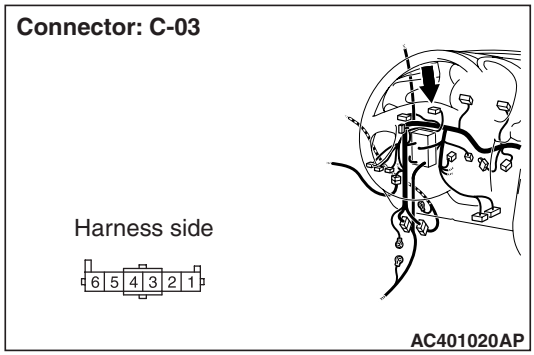
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

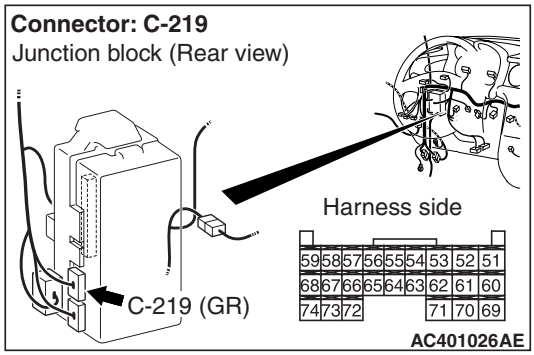
Step 5. Connector check: C-219 ETACS-ECU connector



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

Step 6. Check the wiring harness from C-219 ETACS-ECU connector No.54 to C-03 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. SWS monitor data list

<Selected item> ETACS ECU

- Ignition switch: ON
- Lighting switch: "TAIL" or "HEAD"
- Front fog lamp switch: ON

Item No.	Item name	Normal condition
Item 36	F.FOG LAMP	ON

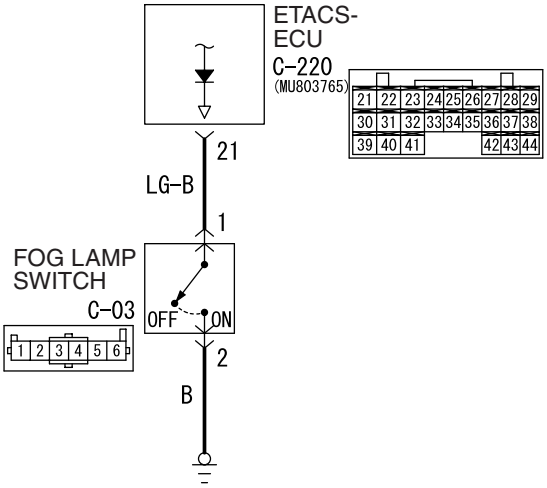
OK: Normal condition is displayed.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-10: 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

W3Z10E33AA

COMMENTS ON TROUBLE SYMPTOM

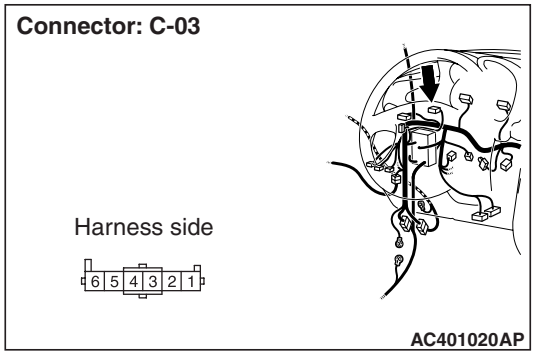
Input signal from the rear fog lamp switch is used to operate the rear fog lamps. If the signal is abnormal, the rear fog lamps will not illuminate and extinguish normally.

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-03 fog lamp switch connector



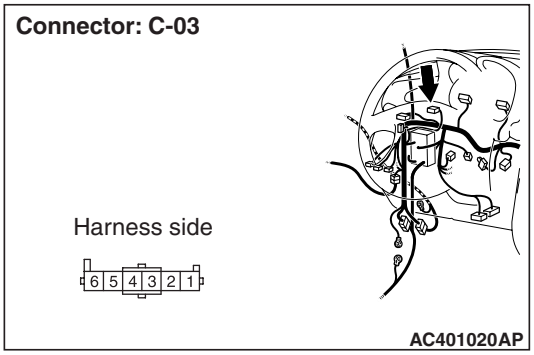
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the rear fog lamp switch.

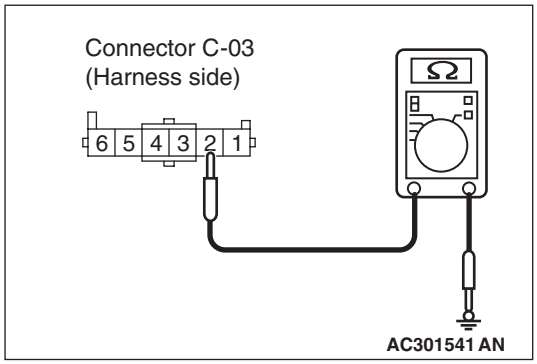
Refer to GROUP 54A – Rear fog lamp P.54A-77.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

Step 3. Resistance measurement at the C-03 fog lamp switch connector.



(1) Remove the fog lamp switch, and measure at the wiring harness side.

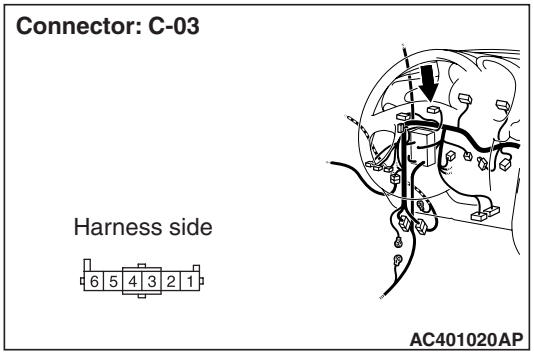


(2) Continuity between C-03 fog lamp switch connector terminal No.2 and body earth

OK: Continuity (less than 2 Ω)

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

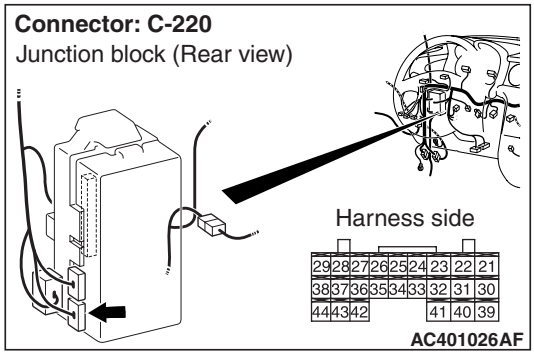
Step 4. Check the wiring harness between C-03 fog lamp switch connector terminal No.2 and body earth.



- Check the earth wires for open circuit.

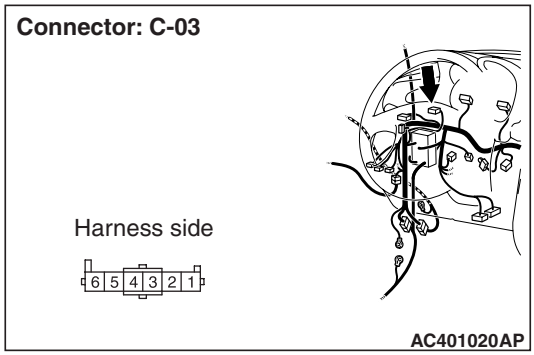
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

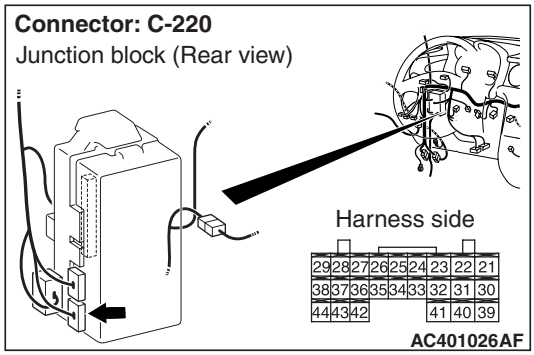
Step 5. Connector check: C-220 ETACS-ECU connector



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

Step 6. Check the wiring harness between C-220 ETACS-ECU connector terminal No.21 and C-03 fog 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 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.00-6).

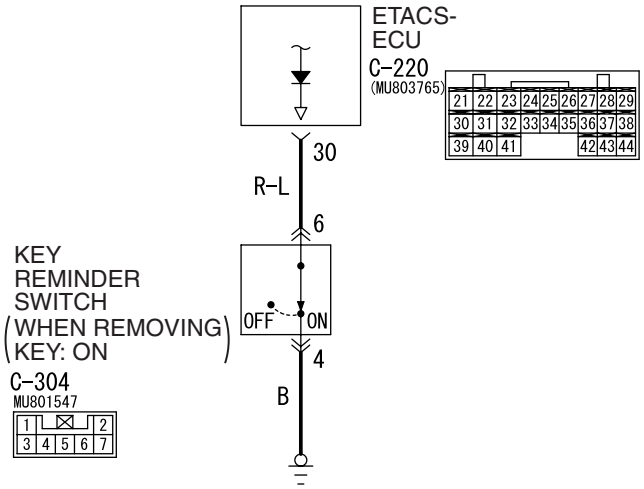
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-11: The key reminder switch signal is not received.

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Key Reminder Switch Input Circuit



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

W3Z10E34AA

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.

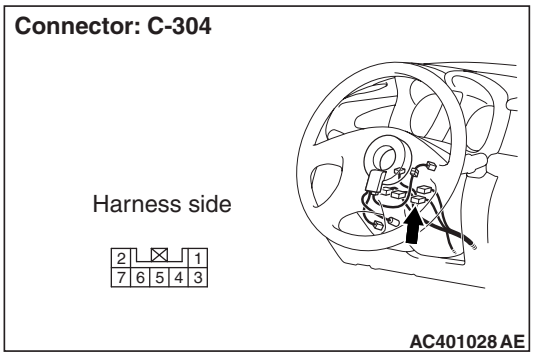
- Key reminder function
- Keyless entry system
- Ignition key cylinder illumination lamp
- Room lamps

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-304 key reminder switch connector



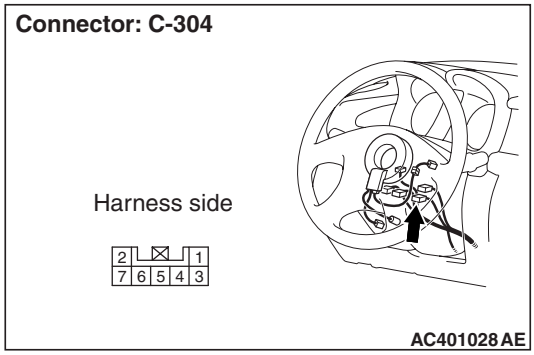
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the key reminder switch.

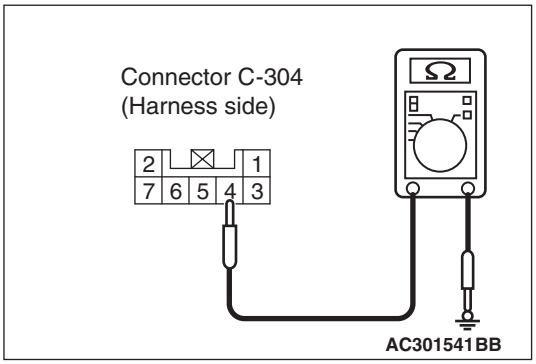
Refer to GROUP 54A – Ignition switch P.54A-30.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the key reminder switch.

Step 3. Resistance measurement at the C-304 key reminder switch connector.



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

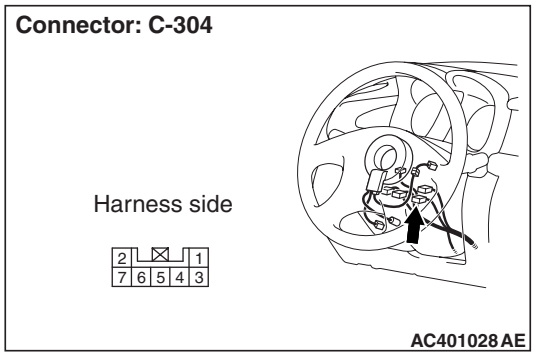


(2) Resistance between C-304 key reminder switch connector terminal No.4 and body earth

OK: Continuity (less than 2 Ω)

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

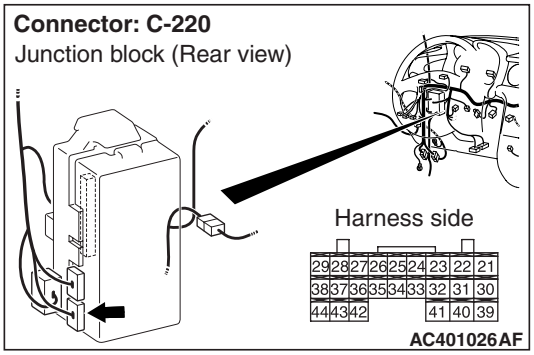
Step 4. Check the wiring harness between C-304 key reminder switch connector terminal No.4 and the body earth.



- Check the earth wires for open circuit.

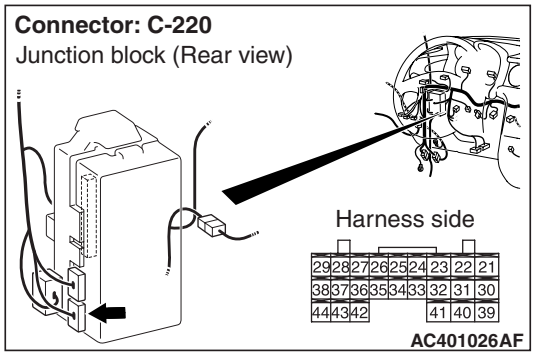
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

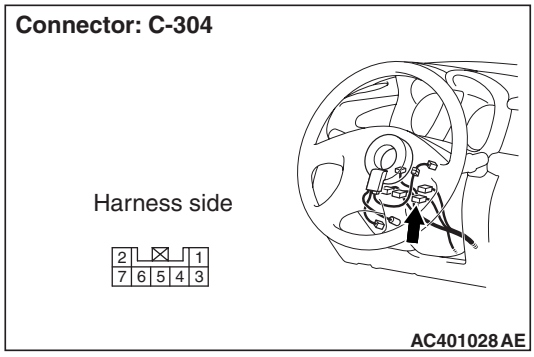
Step 5. Connector check: C-220 ETACS-ECU connector



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

Step 6. Check the wiring harness between C-304 key reminder switch connector terminal No.6 and C-220 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

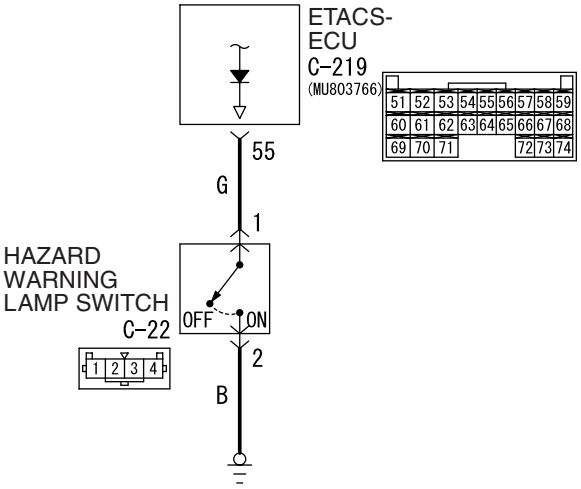
OK: The M.U.T.-II/III sounds or the voltmeter needle fluctuates.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-12: 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

W3Z10E35AA

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.

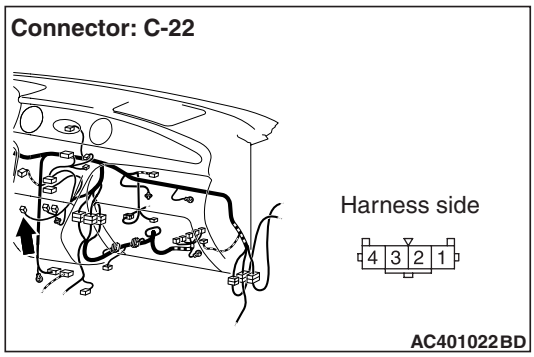
- Keyless entry system (encrypted code registration)
- Hazard warning lamp

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-22 hazard warning lamp switch connector



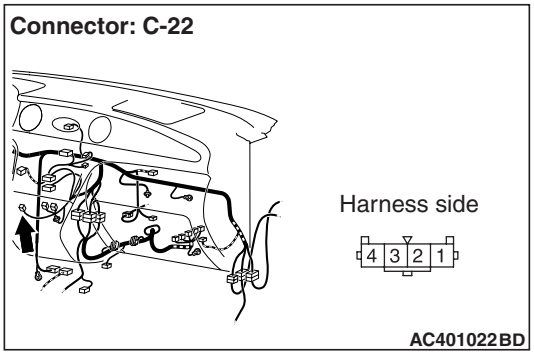
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

Step 2. Check the hazard warning lamp switch.

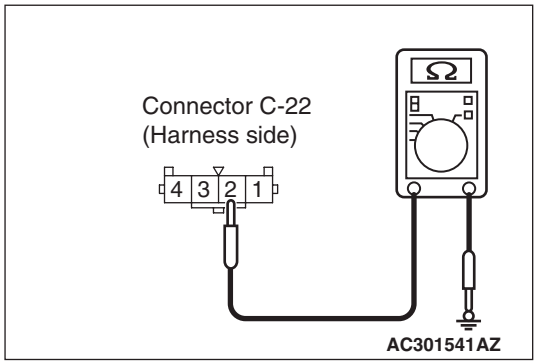
Refer to GROUP 54A – Hazard warning lamp switch P.54A-85.

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-22 hazard warning lamp switch connector.



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

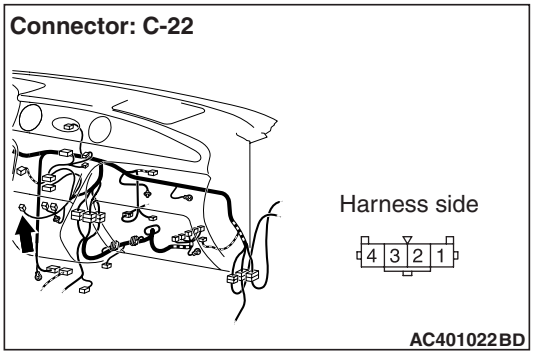


(2) Resistance between C-22 hazard warning lamp switch connector terminal No.2 and body earth

OK: Continuity (less than 2 Ω)

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

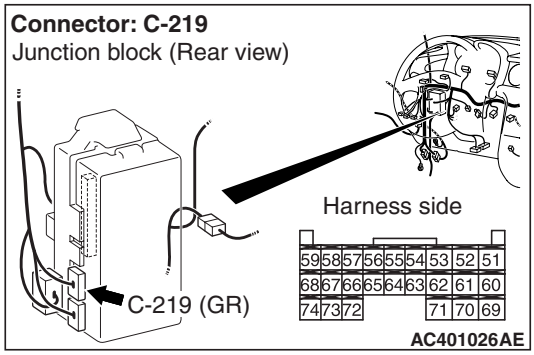
Step 4. Check the wiring harness between C-22 hazard warning lamp switch connector terminal No.2 and the body earth.



- Check the earth wires for open circuit.

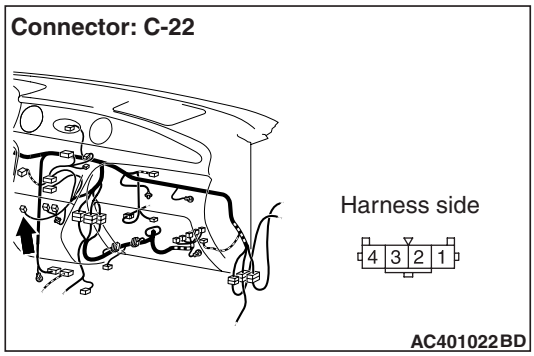
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).
NO : Repair the wiring harness.

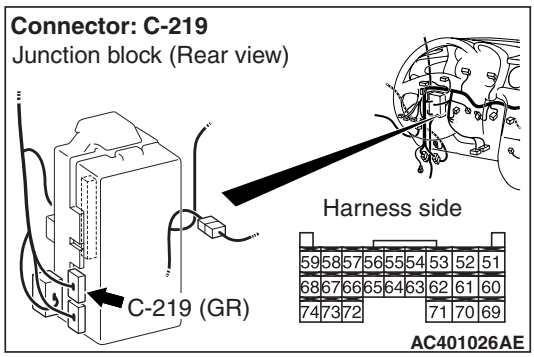
Step 5. Connector check: C-219 ETACS-ECU connector



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

Step 6. Check the wiring harness between C-219 ETACS-ECU connector terminal No.55 and C-22 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?

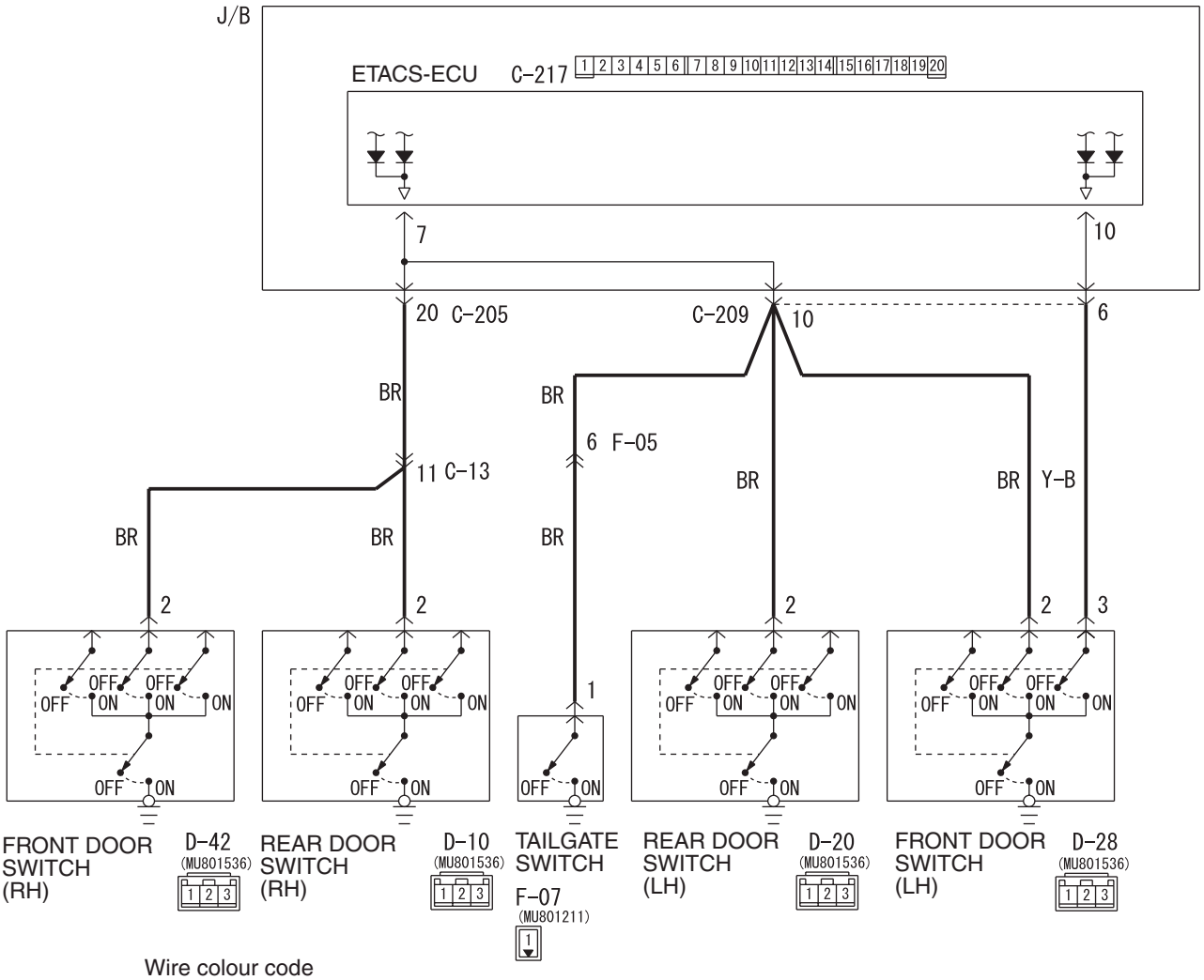
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-13: All the door switch signals are not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

All Door Switches Input Circuit



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

W5Z54E029A

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

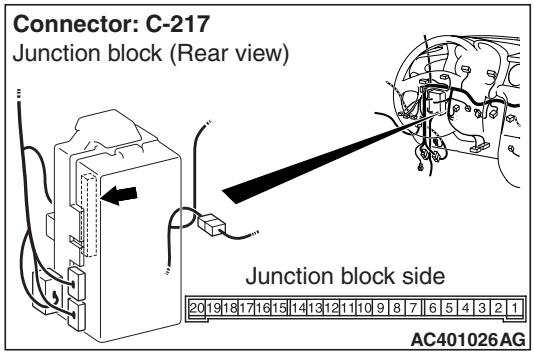
OK: Normal condition is displayed.

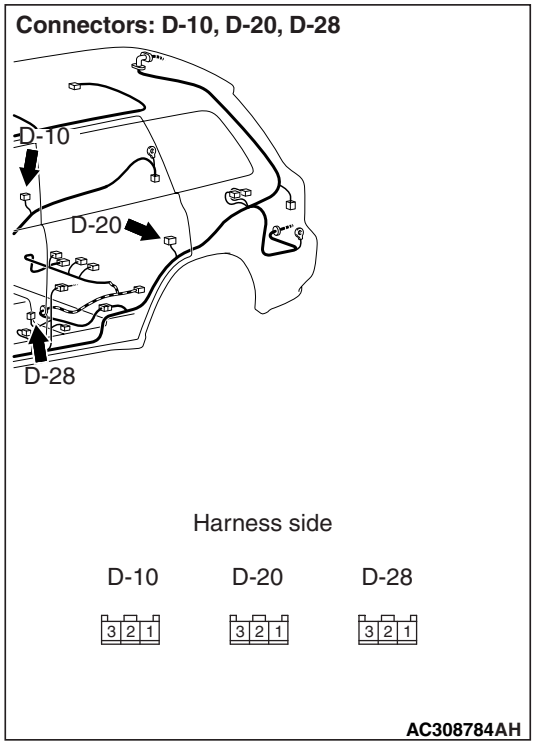
Q: Is the check result normal?

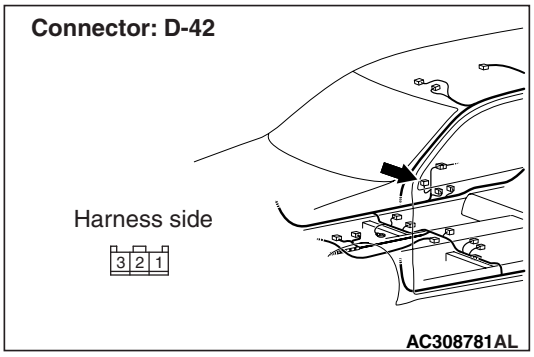
YES : Go to Step 2.

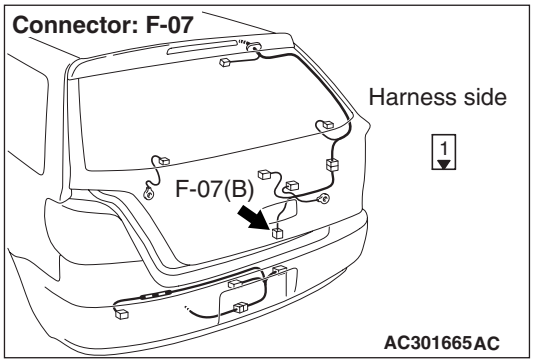
NO : Refer to inspection procedure N-4 "The front door switch (LH) signal is not received P.54C-231."

Step 2. Connector check: D-28 <front: LH> D-42 <front: RH>, D-10 <rear: RH> or D-20 <rear: LH> door switch connectors or F-07 <tailgate> tailgate switch connector, and C-217 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.

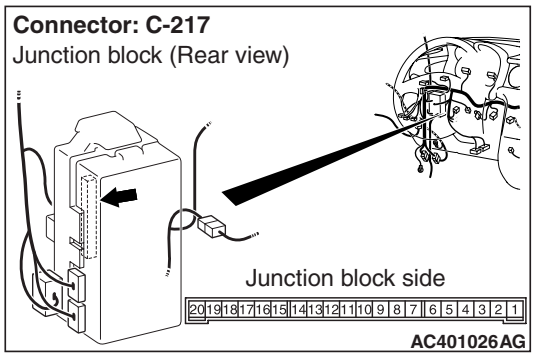
Q: Is the check result normal?
YES : Go to Step 4.
NO : Correct the installation condition.

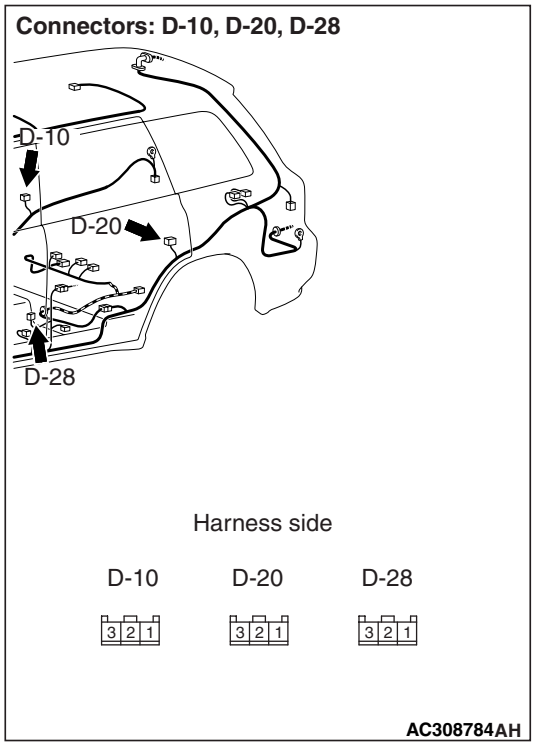
Step 4. Check the door switch.

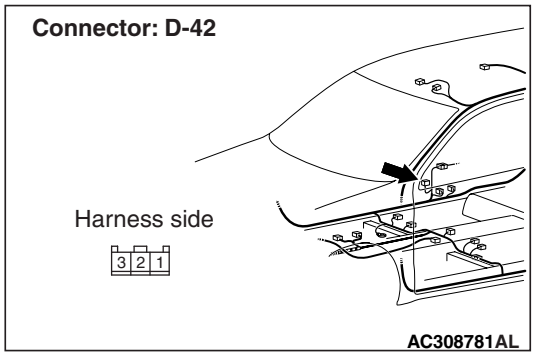
Refer to GROUP 42 – Door P.42-32.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the door switch.

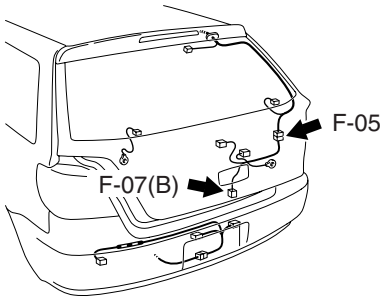
Step 5. Check the wiring harness from terminal No.2 of the D-28 <front: LH>, D-42 <front: RH>, D-10 <rear: RH> or D-20 <rear LH> door switch connector or terminal No.1 of the F-07 <tailgate> tailgate switch connector to terminal No.7 of the C-217 ETACS-ECU connector.



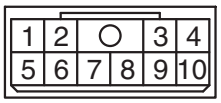




Connectors: F-05, F-07



F-05



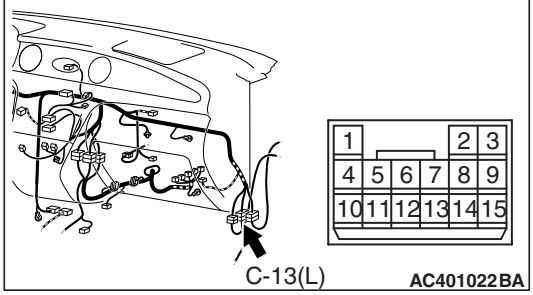
Harness side

F-07

AC308809AH

NOTE:

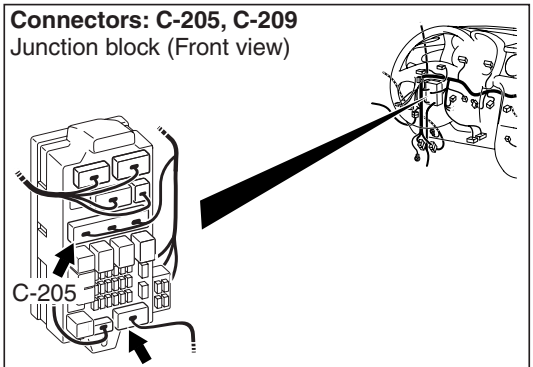
Connector: C-13



AC401022BA

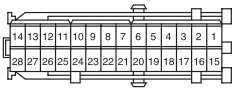
Connectors: C-205, C-209

Junction block (Front view)



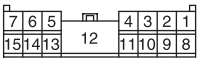
Harness side

C-205



Harness side

C-209



AC401025BD

Prior to the wiring harness inspection, check intermediate connector F-05 <tailgate> or C-13 <RH> and junction block connector C-205 <RH> or C-209 <LH and tailgate>, 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?

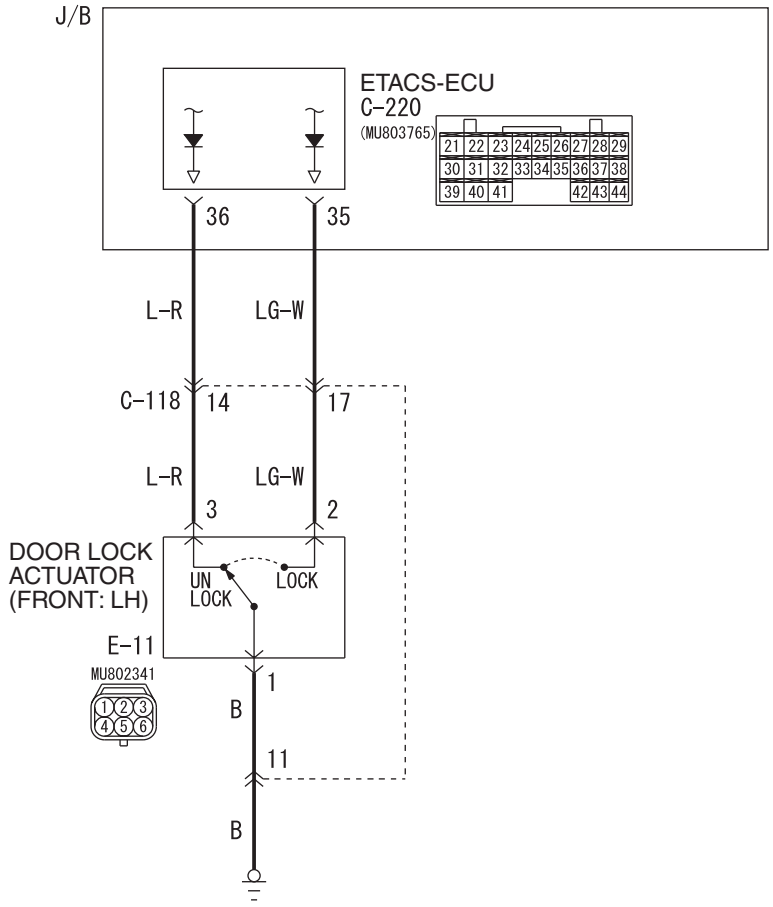
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-14: The driver's door lock actuator switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Door Lock Actuator Input Circuit



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

W5Z54E031A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the door lock actuator (front: LH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

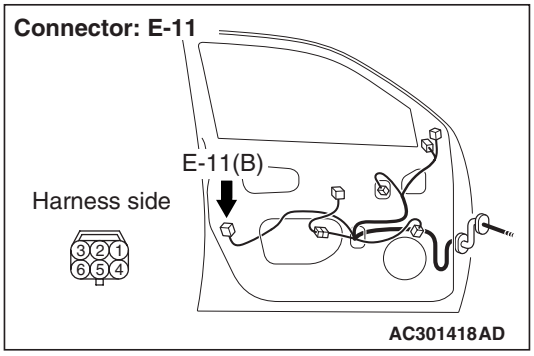
- Key reminder function
- Central door locking
- Keyless entry system
- Room lamps

POSSIBLE CAUSES

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

DIAGNOSIS PROCEDURE

Step 1. Connector check: E-11 door lock actuator (front: LH) connector

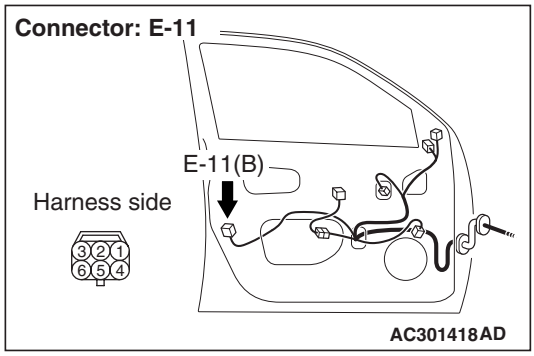


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

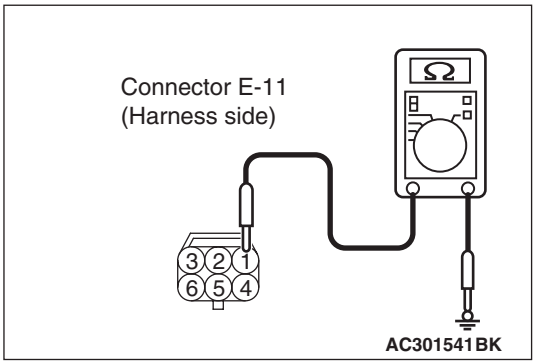
Step 2. Check the door lock actuator (front: LH).
Refer to GROUP 42 – Door P.42-37.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the door lock actuator (front: LH).

Step 3. Resistance measurement at the E-11 door lock actuator (front: LH) connector.



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

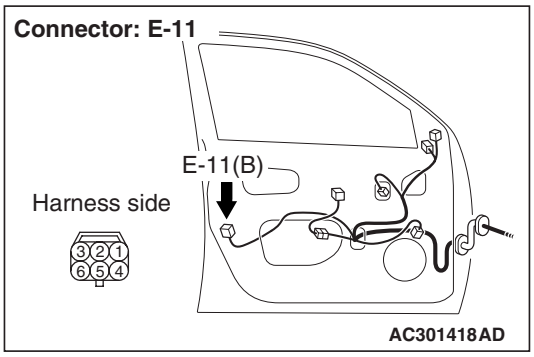


(2) Resistance between E-11 door lock actuator (front: LH) connector terminal No.1 and body earth

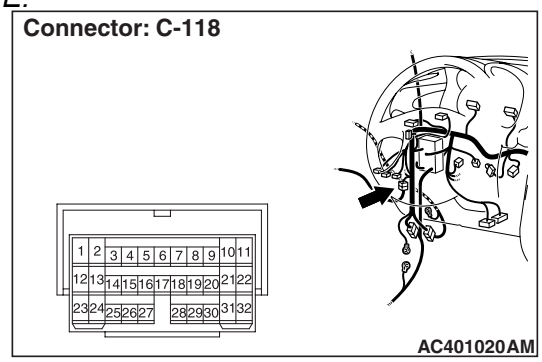
OK: Continuity (less than 2 Ω)

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

Step 4. Check the wiring harness between E-11 door lock actuator (front: LH) connector terminal No.1 and body earth



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-118, and repair if necessary.

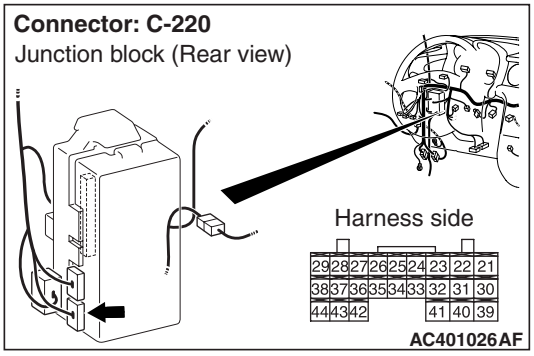
- Check the earth wires for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 5. Connector check: C-220 ETACS-ECU connector

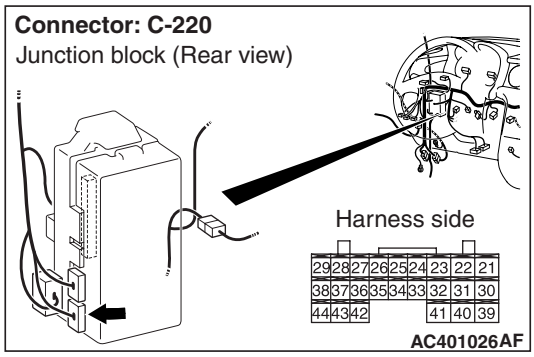


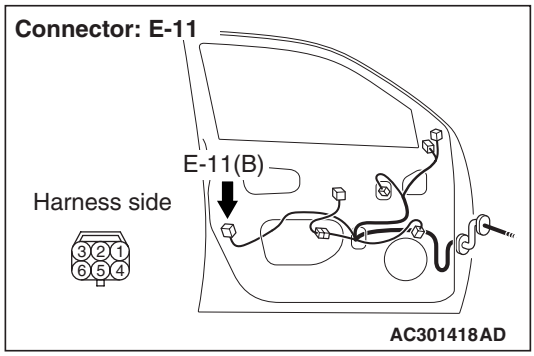
Q: Is the check result normal?

YES : Go to Step 6.

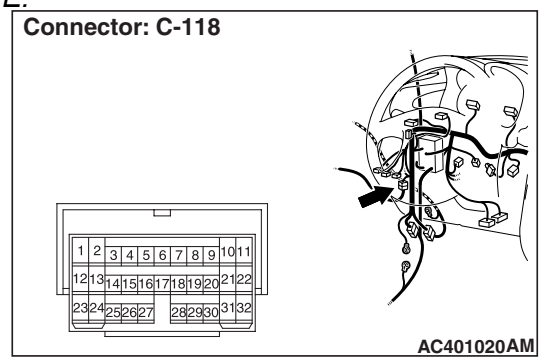
NO : Repair the defective connector.

Step 6. Check the wiring harness from E-11 door lock actuator (front: LH) connector terminal Nos. 2 and 3 to C-220 ETACS-ECU connector terminal Nos. 35 and 36.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-118, 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 driver's door lock actuator switch.

System switch	Check condition
Driver's door lock actuator 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?

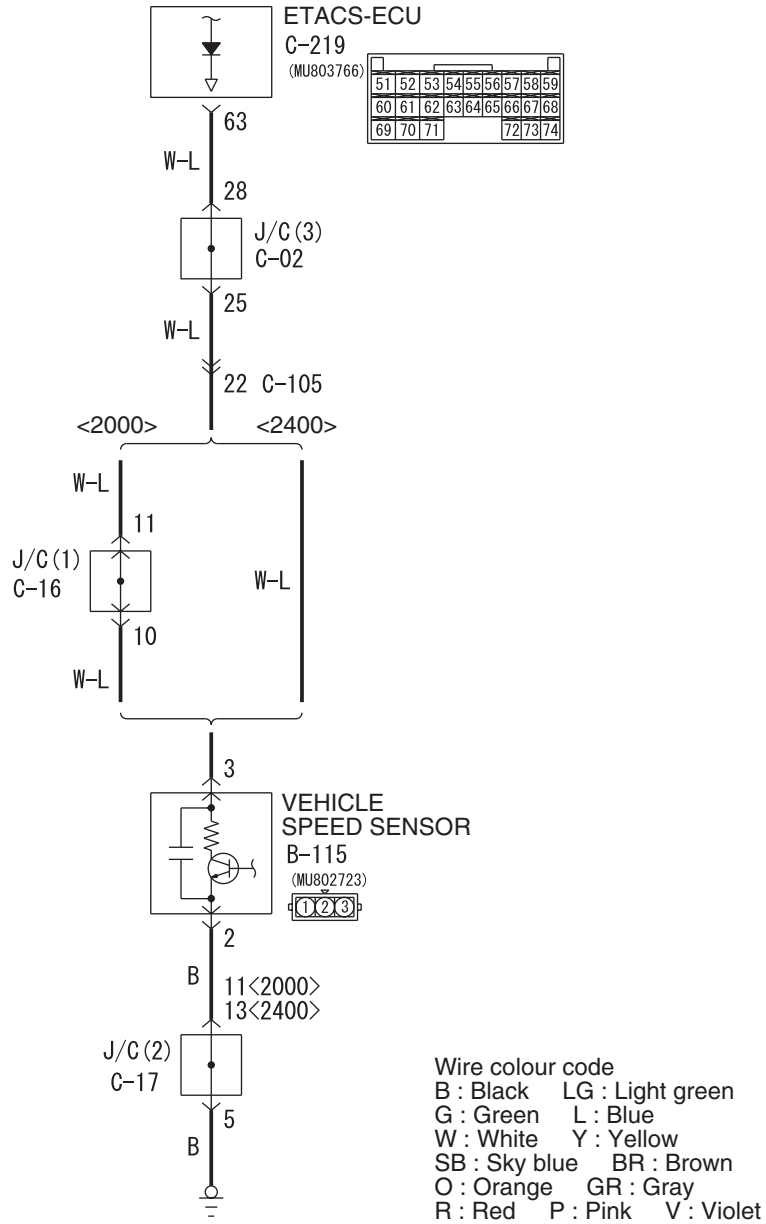
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-15: The vehicle speed signal is not received. <M/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Vehicle Speed Sensor Input Circuit <M/T>



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COMMENTS ON TROUBLE SYMPTOM

Vehicle speed signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

POSSIBLE CAUSES

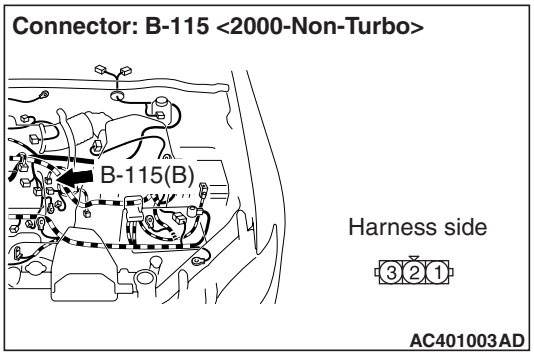
- Malfunction of the vehicles speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

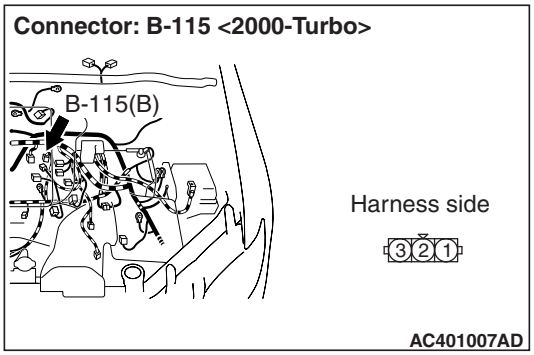
DIAGNOSIS PROCEDURE

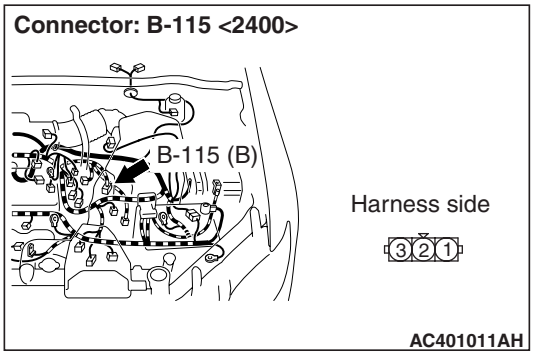
Step 1. Check the speedometer.
Check that the speedometer works normally.

Q: Is the diagnosis code set?
YES : Go to Step 2.
NO : Diagnose the combination meter (Refer to GROUP 54A – Combination meter P.54A-33).

Step 2. Connector check: B-115 vehicles speed sensor connector

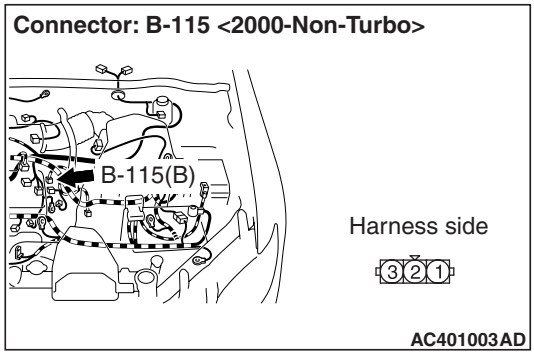


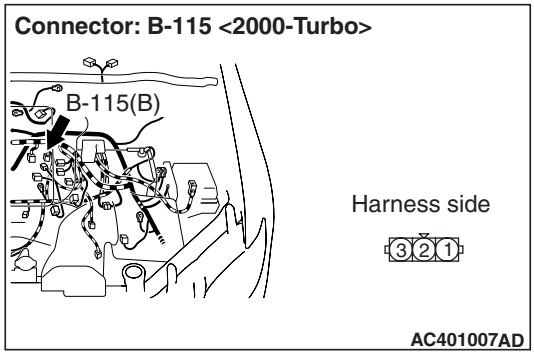


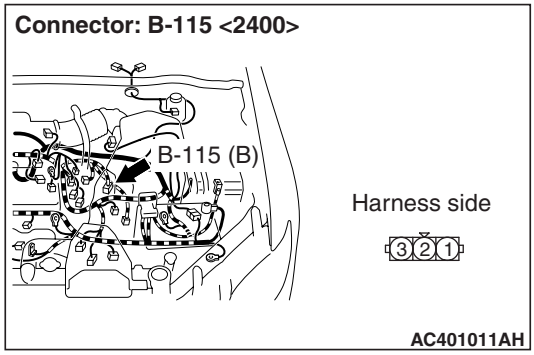


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

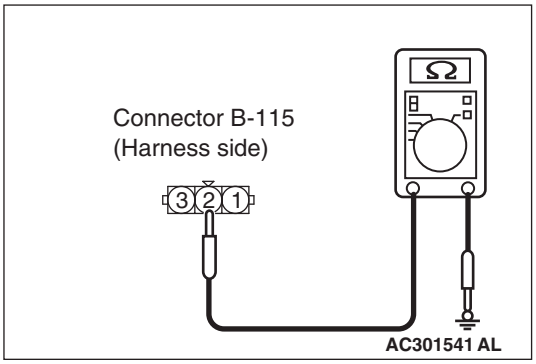
Step 3. Resistance measurement at the B-115 vehicles speed sensor connector.







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

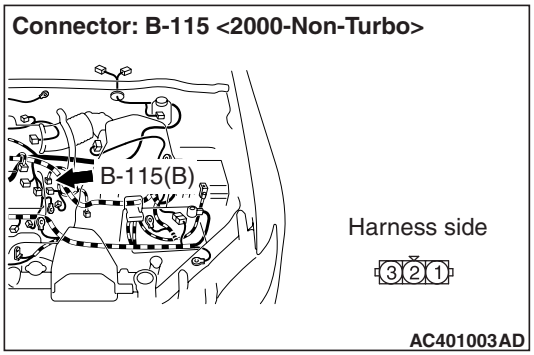


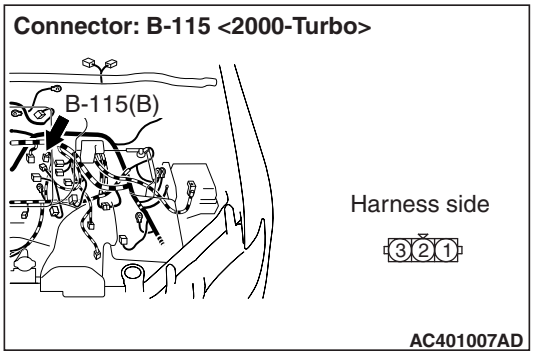
(2) Resistance between B-115 vehicles speed sensor connector terminal No.2 and body earth

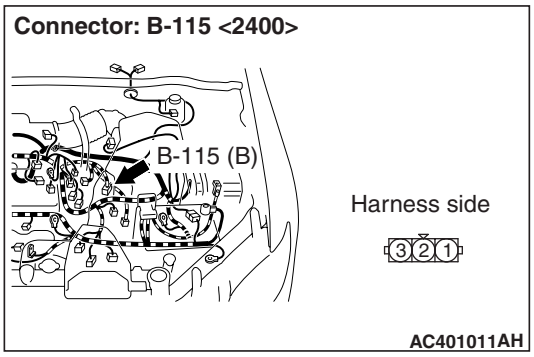
OK: Continuity (less than 2 Ω)

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

Step 4. Check the wiring harness between B-115 vehicles speed sensor connector terminal No.2 and the body earth.







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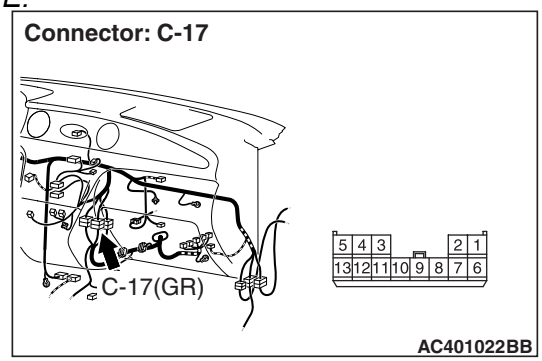


Prior to the wiring harness inspection, check joint connector C-17, and repair if necessary.

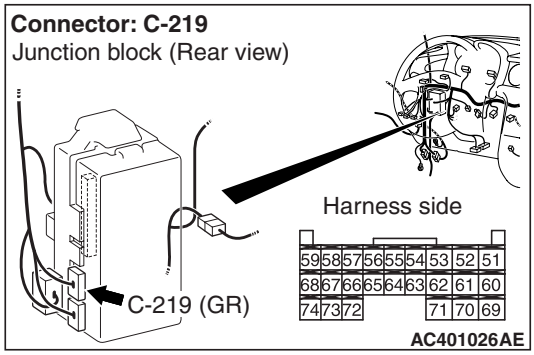
- Check the earth wires for open circuit.

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.00-6).

NO : Repair the wiring harness.

Step 5. Connector check: C-219 ETACS-ECU connector



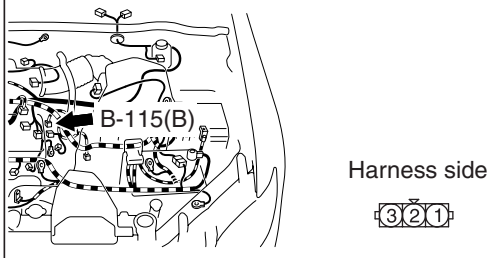
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

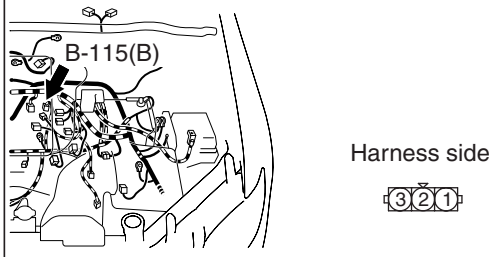
Step 6. Check the wiring harness between B-115 vehicles speed sensor connector terminal No.3 and C-219 ETACS-ECU connector terminal No.63.

Connector: B-115 <2000-Non-Turbo>



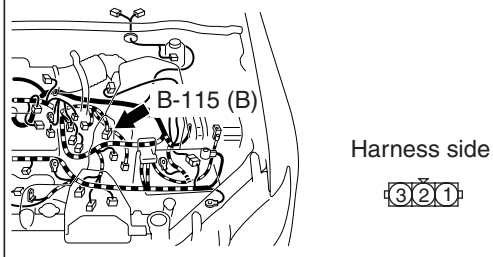
AC401003AD

Connector: B-115 <2000-Turbo>



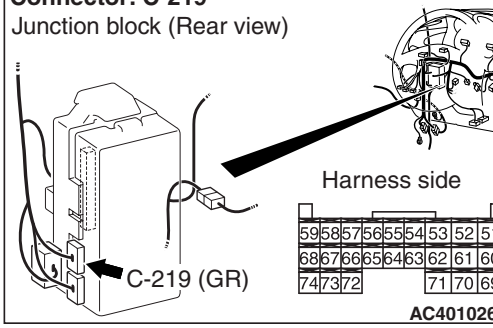
AC401007AD

Connector: B-115 <2400>



AC401011AH

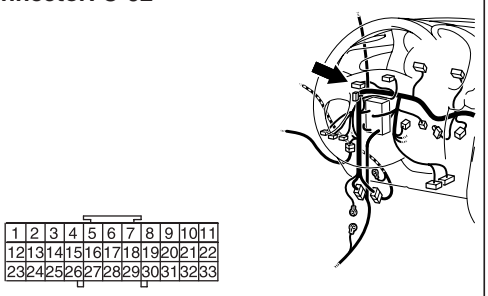
Connector: C-219
Junction block (Rear view)



AC401026AE

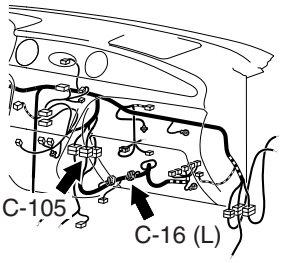
NOTE:

Connector: C-02

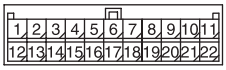


AC401020AK

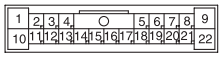
Connectors: C-16, C-105



C-16



C-105



AC401023AW

Prior to the wiring harness inspection, check joint connector C-02, C-16 <2000> and intermediate connector C-105, and repair if necessary.

- Check the input line for open circuit.

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

Step 7. Pulse check

Check the vehicle speed signal.

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

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

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

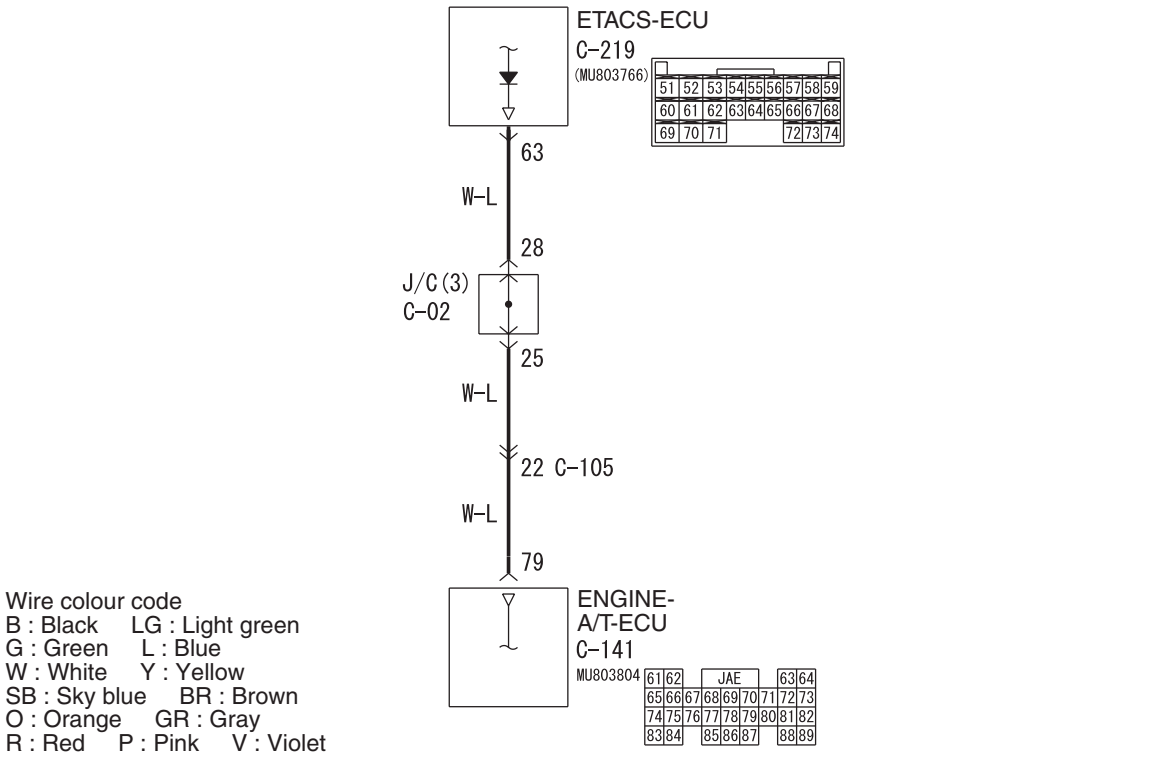
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-15: The vehicle speed signal is not received. <A/T>

⚠ CAUTION

Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Vehicle Speed Sensor Input Circuit <A/T>



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COMMENTS ON TROUBLE SYMPTOM

Vehicle speed signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

POSSIBLE CAUSES

- Malfunction of the output shaft speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

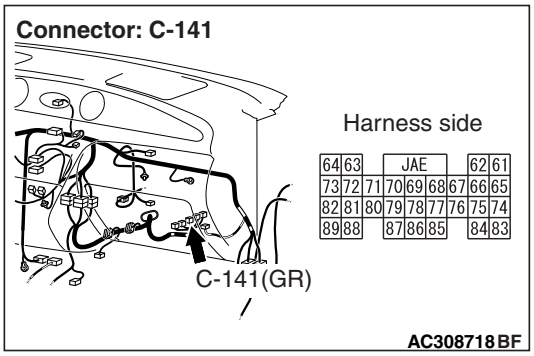
Step 1. Check if the A/T related diagnosis code is set. (M.U.T.-II/III diagnosis code)

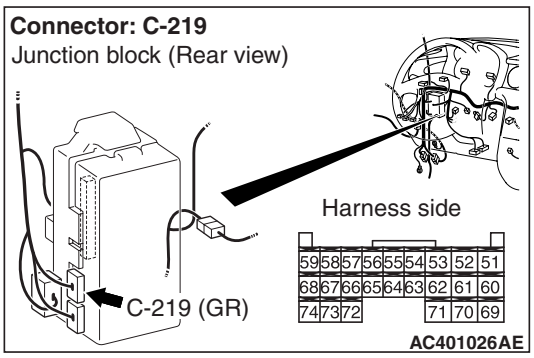
Q: Is the diagnosis code set?

YES : Diagnose the automatic transmission control system. (Refer to GROUP 23 – Troubleshooting P.23A-18)

NO : Go to Step 2.

Step 2. Connector check: C-141 engine-A/T-ECU connector and C-219 ETACS-ECU connector



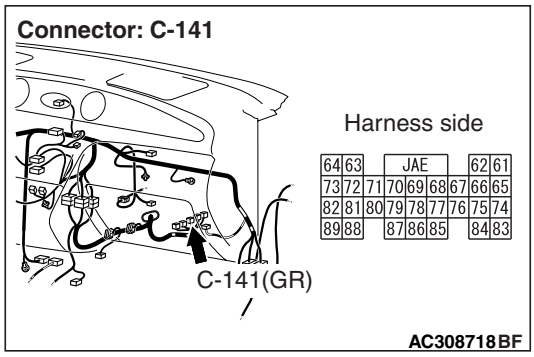


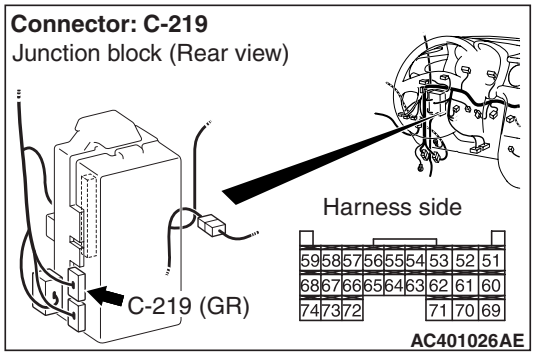
Q: Is the check result normal?

YES : Go to Step 3.

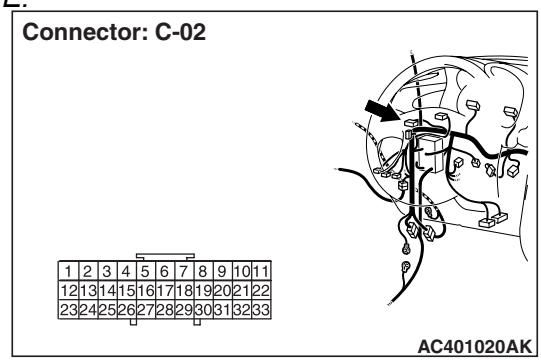
NO : Repair the defective connector.

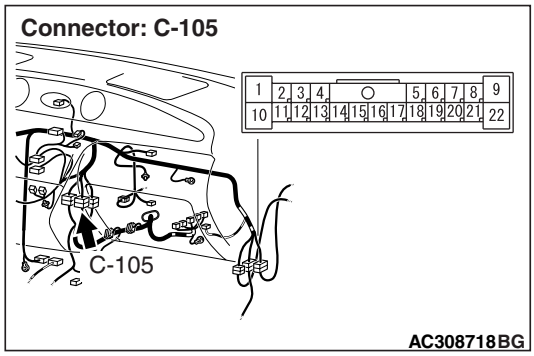
Step 3. Check the wiring harness between C-141 engine-A/T-ECU connector terminal No.79 and C-219 ETACS-ECU connector terminal No.63.





NOTE:





Prior to the wiring harness inspection, check joint connector C-02 and intermediate connector C-105, 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. Check the speedometer.

Check that the speedometer works normally.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the engine-A/T-ECU.

Step 5. Pulse check

Check the vehicle speed signal.

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

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

Q: Is the check result normal?

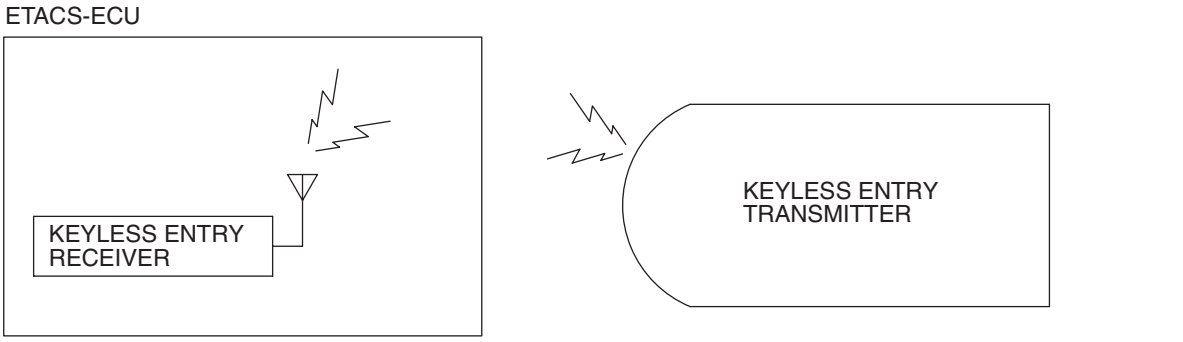
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-6).

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-16: 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.42-54.

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.42-59.

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.00-6).
NO : Replace the keyless entry transmitter.

Step 4. Retest the system.

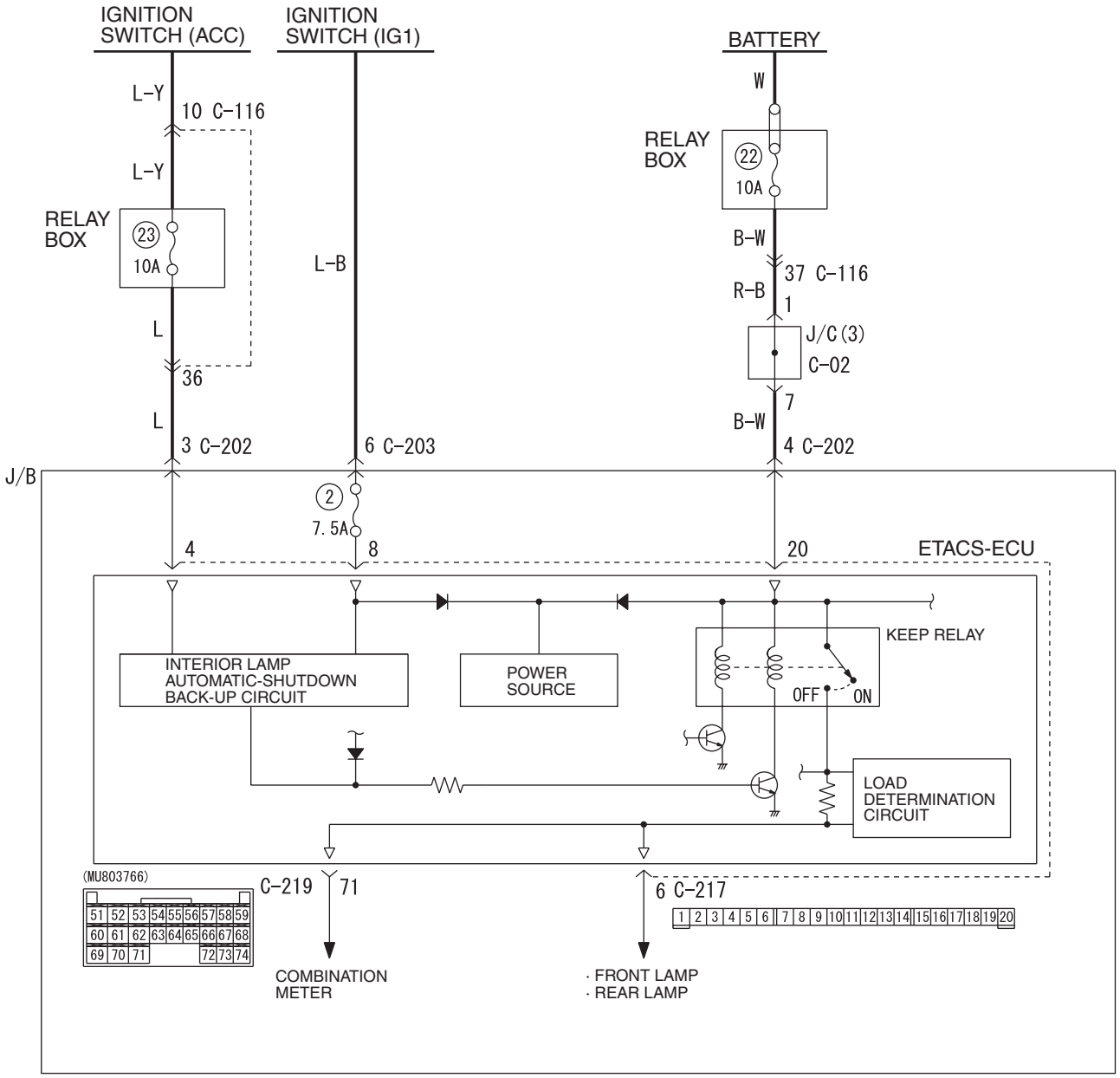
Check that each signal is received from the keyless entry transmitter.

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.00-6).
NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE N-17: The interior lamp loaded signal is not detected.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Interior Lamp Automatic Shut-off 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

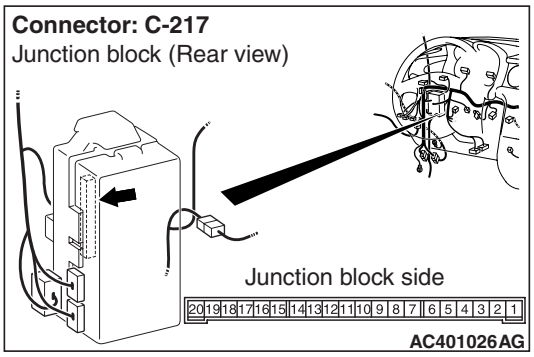
OK: "OK" is displayed on the "ETACS ECU" menu.

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-35."

Step 2. Connector check: C-217 ETACS-ECU connector

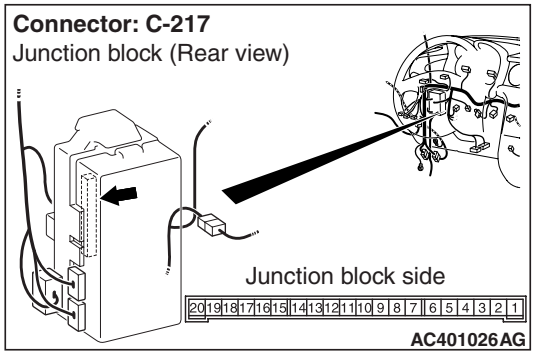


Q: Is the check result normal?

YES : Go to Step 3.

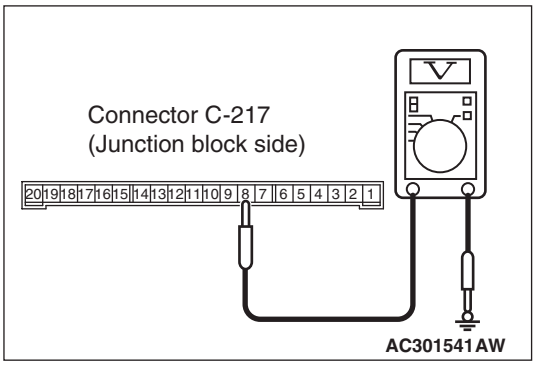
NO : Repair the defective connector.

Step 3. Voltage measurement at the C-217 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-217 ETACS-ECU connector terminal No.8 and body earth

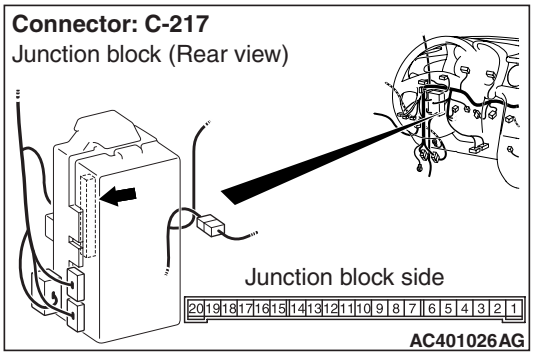
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

Step 4. Check the wiring harness between C-217 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



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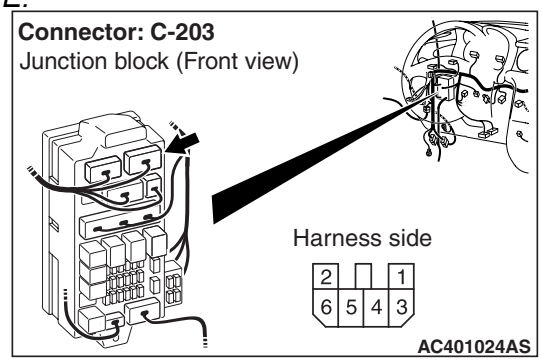


Prior to the wiring harness inspection, check junction block connector C-203, and repair if necessary.

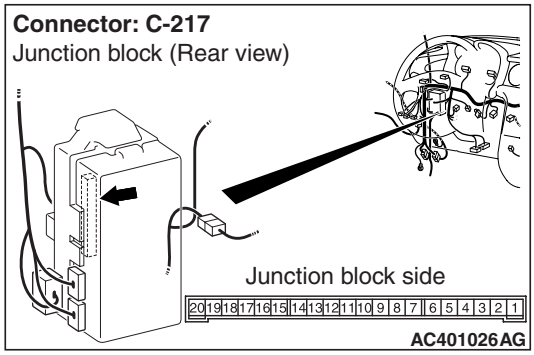
- Check the power supply line to the ignition switch (IG1) for open circuit.

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.00-6).

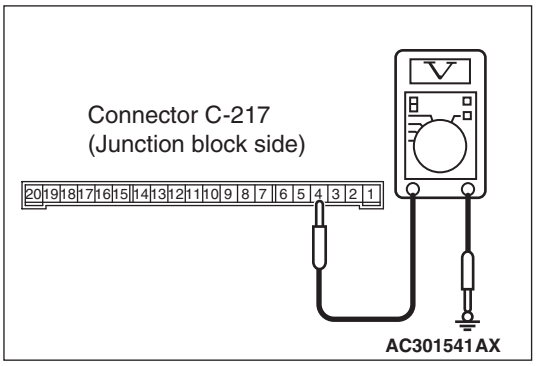
NO : Repair the wiring harness.

Step 5. Voltage measurement at the C-217 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 terminal 4 and body earth

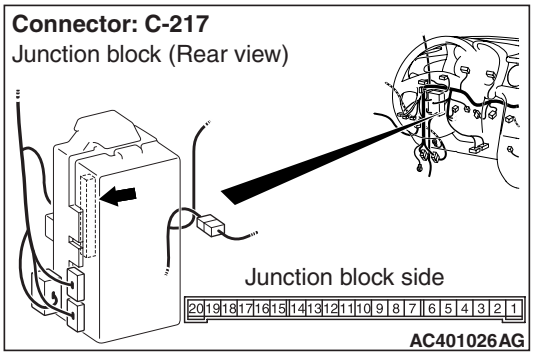
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

Step 6. Check the wiring harness between C-217 ETACS-ECU connector terminal No.4 and the ignition switch (ACC).



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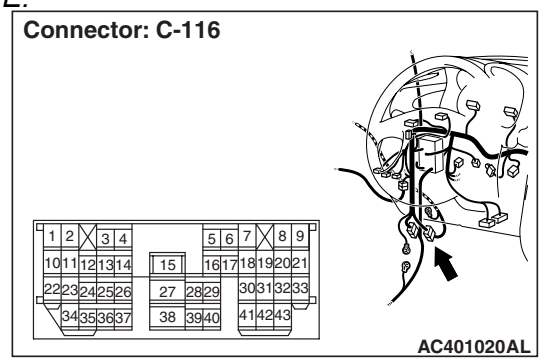

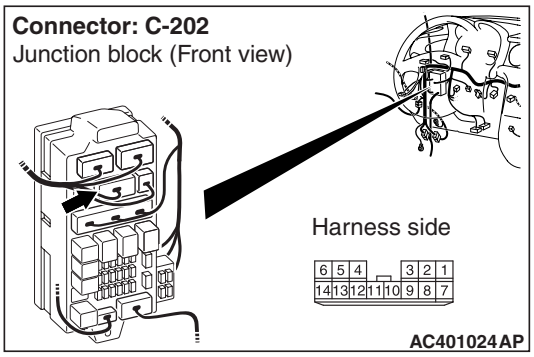

Prior to the wiring harness inspection, check junction block connector C-202 or intermediate connector C-116, and repair if necessary.

- 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.00-6).

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.00-6).

NO : Replace the ETACS-ECU.

CHECK AT ECU TERMINAL

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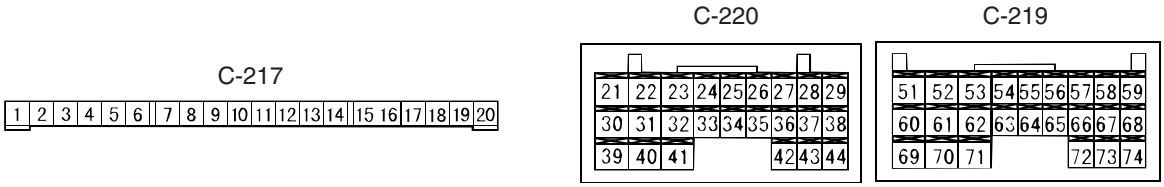
ETACS-ECU



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NOTE: Terminal numbers 1 to 20 can not be measured as the ETACS-ECU is mounted on the junction block directly. The values are for reference only.

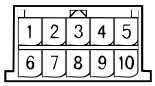
Terminal No.	Check item	Check condition	Normal condition
1	Output to the power window relay	When the power windows are operative	System voltage
2	Power supply to the central door locking system (battery positive voltage)	Always	System voltage
3	Earth (for ECU)	Always	0 V
4	Ignition switch (ACC)	Ignition 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 hazard warning lamp (battery positive voltage)	Always	System voltage
12	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	System voltage
13	Output to central door locking (for unlocking the doors other than the driver's door)	When the door lock actuators unlock the doors	System voltage
14	Output to left turn-signal lamps	When the left turn-signal lamps are on	System voltage
15	–	–	–
16	Output to rear wiper	When rear wiper is operating	System voltage
17	Input of rear wiper automatic stop signal	When rear wiper is operating	System voltage
18	Power supply from ignition switch (ACC)	Ignition switch: ACC	System voltage

Terminal No.	Check item	Check condition	Normal condition
19	–	–	–
20	Battery power supply (for ECU)	Always	System voltage
21	Input from rear fog lamp switch	Rear fog lamp switch: ON	0 V
22	Output to central door locking (for unlocking the driver's door)	When the door lock actuators unlock the doors	System voltage
23	Rear washer output	When rear washer is operating	System voltage
24 to 28	–	–	–
29	Input of collision signal	–	–
30	Input to key reminder switch	Key reminder switch: ON (ignition key removed)	0 V
31 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, 38	–	–	–
39	Input to back-up lamp switch	Sift lever: R Ignition switch: ON	System voltage
	Input to inhibitor switch ("R" position)	Selector lever: R Ignition switch: ON	
40 to 44	–	–	–
51	Setting diagnosis code or sending input check signal	When diagnosis code is set (the M.U.T.-II/III is connected or the diagnosis connector No.1 is earthed)	0 to 12 V (pulse signal)
		When input check signal is sent	0 V, 12 V (input signal is fluctuating)
52	–	–	–
53	Output to door-ajar indicator lamp	When door-ajar indicator lamp is on	0 V
54	Input from front fog lamp switch	Front fog lamp switch: ON	0 V
55	Input from hazard warning lamp switch	Hazard warning lamp switch: ON	0 V
56	Earth (for sensor)	Always	0 V
57, 58	–	–	–
59	SWS communication line	Always	0 to 12 V (pulse signal)
60 to 62	–	–	–
63	Input of vehicle speed signal	When the vehicle is being driven	0 to 12 V (pulse signal)
64	Earth (for daytime running lamp function)	Always	0 V
65	-	-	-

Terminal No.	Check item	Check condition	Normal condition
66	Input from windshield intermittent wiper volume	Turn the ignition switch to the ACC position, and move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
67	Input from diagnosis control	When M.U.T.-II/III is connected	0 V
68	Input of SWS request signal	Always	0 to 12 V (pulse signal)
69	Output to ignition key cylinder illumination lamp	When ignition key cylinder illumination is on	2 V or less
70	–	–	–
71	Power supply to interior lamp	Always (when the interior lamp off function is off)	System voltage
72	–	–	–
73	Output to seat belt warning lamp	When seat belt warning lamp is on	0 V
74	Output to rear fog lamp	When rear fog lamp is on	System voltage

COLUMN SWITCH

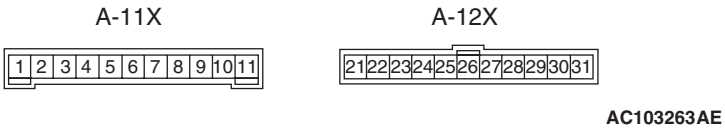
C-310



AC005555AF

Terminal No.	Check item	Check condition	Normal condition
1	System voltage	Always	System voltage
2	Input of SWS request signal	Always	0 to 12 V (pulse signal)
3	SWS communication line	Always	0 to 12 V (pulse signal)
4	Earth	Always	0 V
5	–	–	–
6	Output to windshield intermittent wiper volume	Ignition switch: ACC Move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
7	–	–	–
8	Back-up output to windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
10	Back-up output to headlamp switch	Headlamp switch: ON	0 V

FRONT-ECU

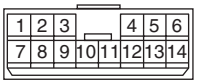


NOTE: Measurement is not possible as the front-ECU is mounted on the relay box directly. The values are for reference only.

Terminal No.	Check item	Check condition	Normal condition
1	Output to headlamp washer	When headlamp washer is operating	System voltage
2	–	–	–
3	Battery power supply (for headlamp washer)	Always	System voltage
4	Output to tail lamps	When the tail lamps are on	System voltage
5	Battery power supply (for ECU)	Always	System voltage
6	Output to low-beam headlamps	When low-beam headlamps are on	System voltage
7	Battery power supply (for tail lamps)	Always	System voltage
8, 9	Battery power supply (for headlamps)	Always	System voltage
10	Output to high-beam headlamps	When high-beam headlamps are on	System voltage
11	Output to front fog lamps	When front fog lamps are on	System voltage
21	Earth	Always	0 V
22	Power supply to the ignition switch (IG2)	Ignition switch: ON	System voltage
23	–	–	–
24	Output to windshield wiper (high speed operation)	When windshield wipers are operating at high speed	System voltage
25	Output to windshield wiper (low speed operation)	When windshield wipers are operating at low speed	System voltage
26	Back-up input from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
27	Back-up input from headlamp switch	Headlamp switch: ON	0 V
28	Power supply from ignition switch (ACC)	Ignition switch: ACC	System voltage
29	Input of windshield wiper automatic stop signal	When windshield wipers are operating	System voltage
30	SWS communication line	Always	0 to 12 V (pulse signal)
31	Output to windshield washer	When windshield washer is operating	System voltage

POWER WINDOW MAIN SWITCH

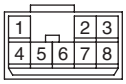
E-05



AC103264AH

Terminal No.	Check item	Check condition	Normal condition
1	Output to power window 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 motor	–	–
8	Input from power window motor (pulse sensor earth)	–	0 V
9	Input from power window motor (pulse sensor signal)	When the power windows are operating	0 to 5 V (pulse signal)
10	Input from power window 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 motor (power supply to pulse sensor)	When the power windows are operating	5 V
13, 14	–	–	–

POWER WINDOW SUB SWITCH



E-17 (front: RH), E-01 (rear: LH), E-21 (rear: RH) <LHD>
E-31 (front: LH), E-01 (rear: LH), E-21 (rear: RH) <RHD>

AC103265AH

Terminal No.	Check item	Check condition	Normal condition
1	Earth	Always	0 V
2	Input from power window motor	–	–
3	Input from power window motor	–	–
4	Power supply	Power window relay: ON	System voltage
5	Output to power window motor	–	–
6	SWS communication line	Power window relay: ON	0 to 12 V (pulse signal)
7	Output to power window motor	–	–
8	Input from power window motor	–	–

NOTES