GROUP 54B

SMART WIRING SYSTEM (SWS) NOT USING SWS MONITOR

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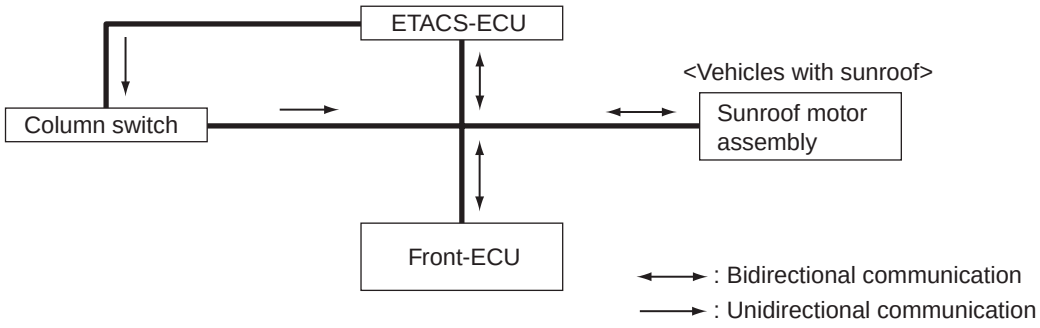
GENERAL INFORMATION

M1549000101064

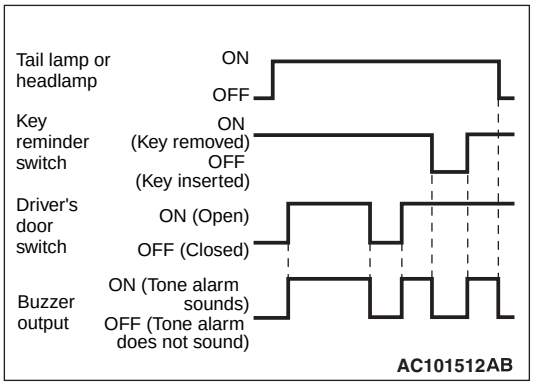
The exclusive signal lines for transmitting the multi-distribution data are connected as follows between the ETACS-ECU, column switch (incorporated inside the column-ECU) and front-ECU, sunroof motor assembly (incorporated inside the sunroof-ECU) for internal communication.



AC403280

BUZZER

LAMP REMINDER BUZZER FUNCTION

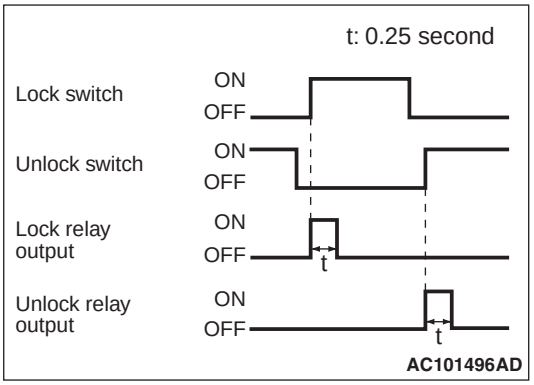


AC101512AB

When the ignition key is removed and then the driver's door is opened with turning ON the tail lamp or the headlamp, the buzzer sounds continuously to alert the driver that the lamp is still ON.
However, if the tail lamp or the headlamp is turned off, the buzzer does not sound.

CENTRAL DOOR LOCKING SYSTEM

CENTRAL DOOR LOCKING CONTROL FUNCTION



AC101496AD

When the front door is locked (when the lock switch turns ON after turning OFF the unlock switch in the driver's door lock actuator or front passenger's door lock key cylinder switch), ETACS-ECU turns ON the lock relay output for 0.25 second, and locks all doors (including the tailgate).
When the front door is unlocked (when the unlock switch turns ON after turning OFF the lock switch on the driver's door lock actuator or front passenger's door lock key cylinder switch), ETACS-ECU turns ON the unlock relay output for 0.25 second, and unlocks all doors (including the tailgate).

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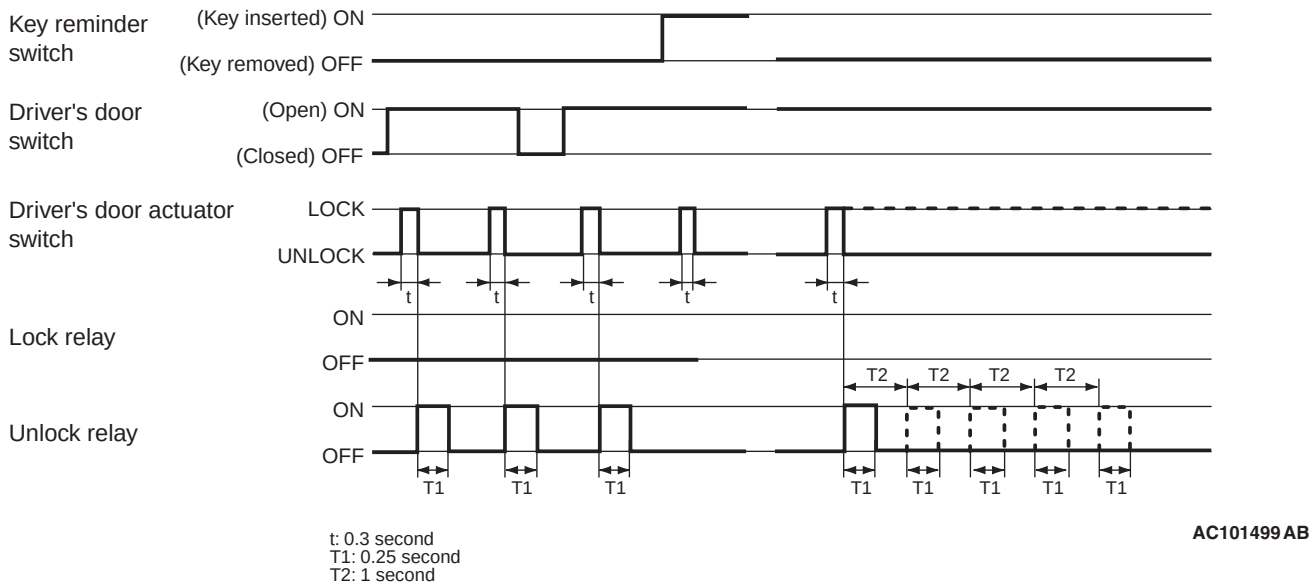
KEY REMINDER FUNCTION



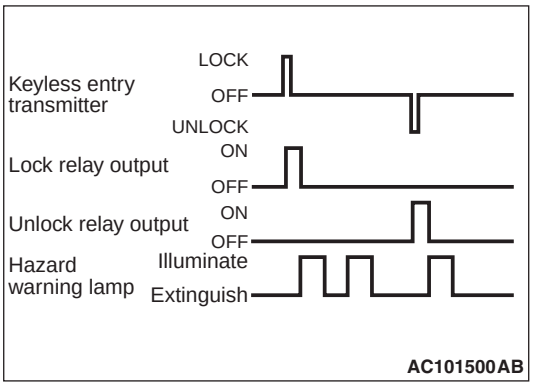
t: 0.3 second
T1: 0.25 second
T2: 1 second

When the driver's door is opened with the ignition key inserted to the ignition cylinder and the door is locked (when the lock switch turns ON after turning OFF the unlock switch in the driver's door lock actuator), after approximately 0.3 second, ETACS-ECU turns ON the unlock relay output for 0.25 second to discourage the door lock operation so that the ignition key left in the ignition cylinder is prevented.
If the discouraging the door lock operation fails, the current supply will be retried (The unlock relay output is turned ON for 0.25 second up to five times with 1 second interval).

NOTE: The broken line in the graph indicates the current supply retry state if the discouraging door lock operation fails.

KEYLESS ENTRY SYSTEM

KEYLESS ENTRY HAZARD LAMP ANSWERBACK FUNCTION (THE INITIAL CONDITION: WITH FUNCTION OF LOCK/UNLOCK)



The hazard answerback function that allows checking the lock/unlock state of the door easily even in the daytime is adopted. When the lock signal from the keyless entry transmitter is received into ETACS-ECU, all doors (including the tailgate) are locked, and the hazard warning lamps blink twice. When the unlock signal is received, all doors (including the tailgate) are unlocked, and the hazard warning lamps blink once.

NOTE: The answerback blink time can be adjusted by the configuration function.

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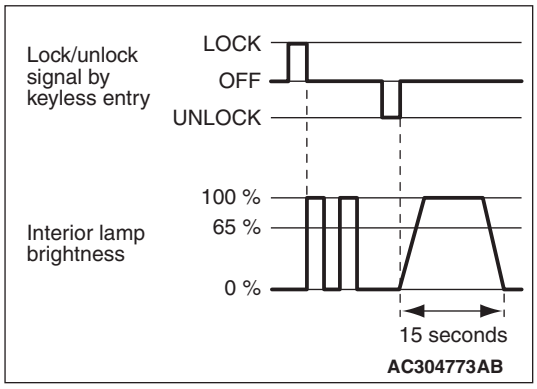
KEYLESS ENTRY INTERIOR LAMP ANSWERBACK FUNCTION

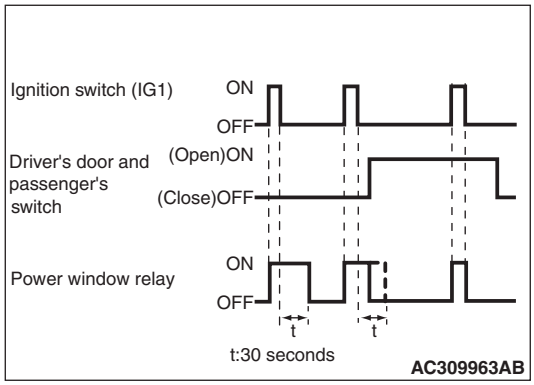


The interior lamp blinks two times while locking the door for easy checking the keyless entry function. When the door is unlocked, the interior lamps on for 15 seconds (100%), and turns off.

TIMED LOCKING MECHANISM

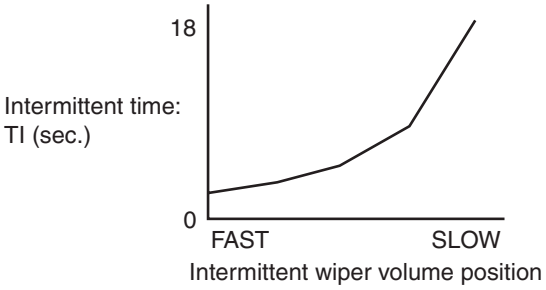
After unlocking the doors with the keyless entry transmitter, if no doors are opened, if the ignition key is not inserted or if the locking function is not operated, the ETACS-ECU automatically locks the doors in 30 seconds.

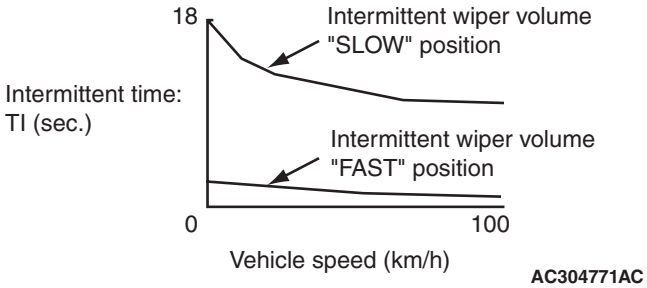
POWER WINDOW POWER WINDOW TIMER FUNCTION



When the power window relay is turned ON with the ignition switch ON, the power window relay is kept ON for 30 seconds even after the ignition switch is turned OFF, enabling the door window to be opened and closed with the power window switch.
If the driver's or the front passenger door is opened during timer operation, the power window relay is turned OFF at the same time.

WINDSHIELD WIPER AND WASHER INTERMITTENT CONTROL (THE INITIAL CONDITION: WITH FUNCTION)





ETACS-ECU calculates the intermittent time TI from the windshield intermittent wiper volume of the column switch and the vehicle speed calculated from the vehicle speed signals (vehicle speed sensor <M/T> or engine-A/T-ECU <A/T>), and sends it to the front ECU as SWS data.

NOTE: The vehicle speed-dependent wiper function can be invalidated by the configuration function.

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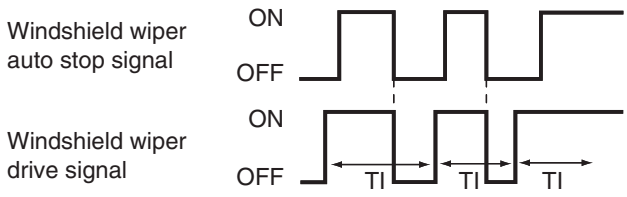


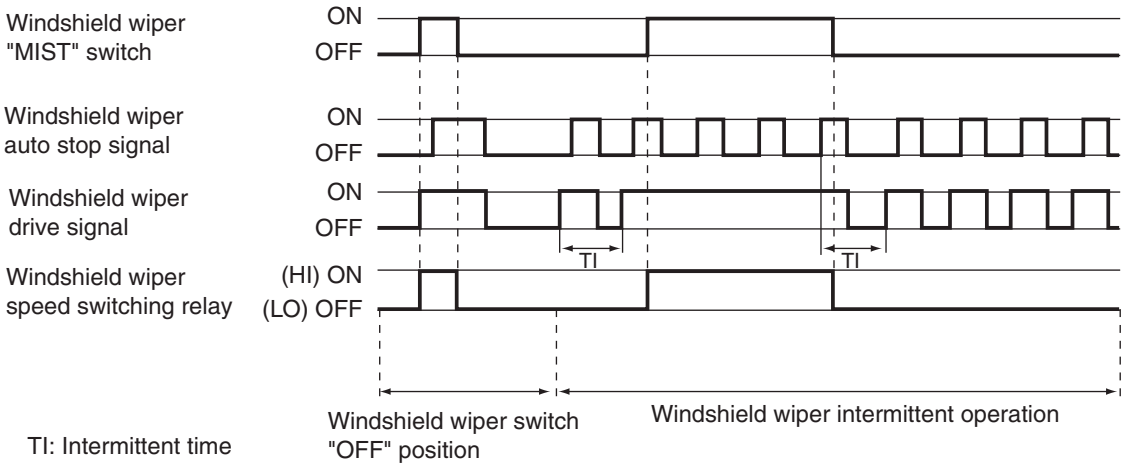
TI: Intermittent time

AC304772AB

The front ECU determines the intermittent time TI from the input SWS data, and turns ON the windshield wiper drive signal. When the wiper comes to the stop position, the windshield wiper auto-stop signal is turned OFF, and the windshield wiper drive signal turns OFF.

When the intermittent time TI is elapsed after being turned ON the windshield wiper drive signal, the windshield wiper drive signal is turned ON again, and the above-mentioned operation is repeated.

MIST WIPER CONTROL



TI: Intermittent time

AC300283AD

When the windshield wiper mist switch of the column switch is turned ON while the ignition switch is ACC or ON, the column switch turns ON the windshield wiper drive signal. At the same time, the wiper speed switching relay turns to ON (HI). When the windshield mist wiper switch is ON, the windshield wipers operate at the high speed.

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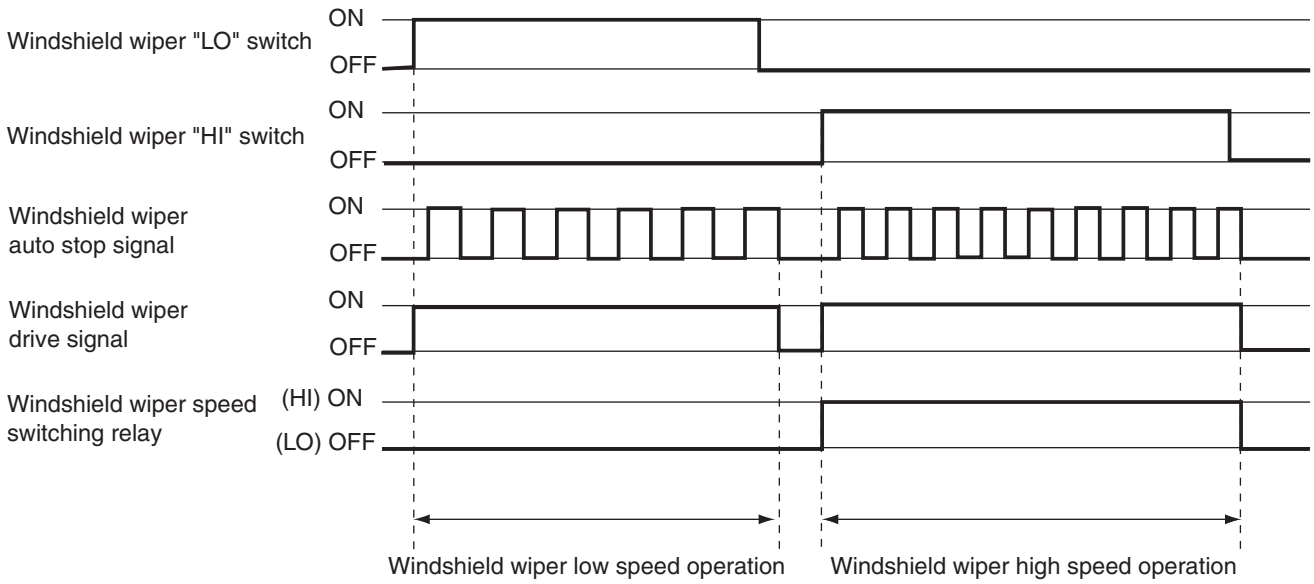
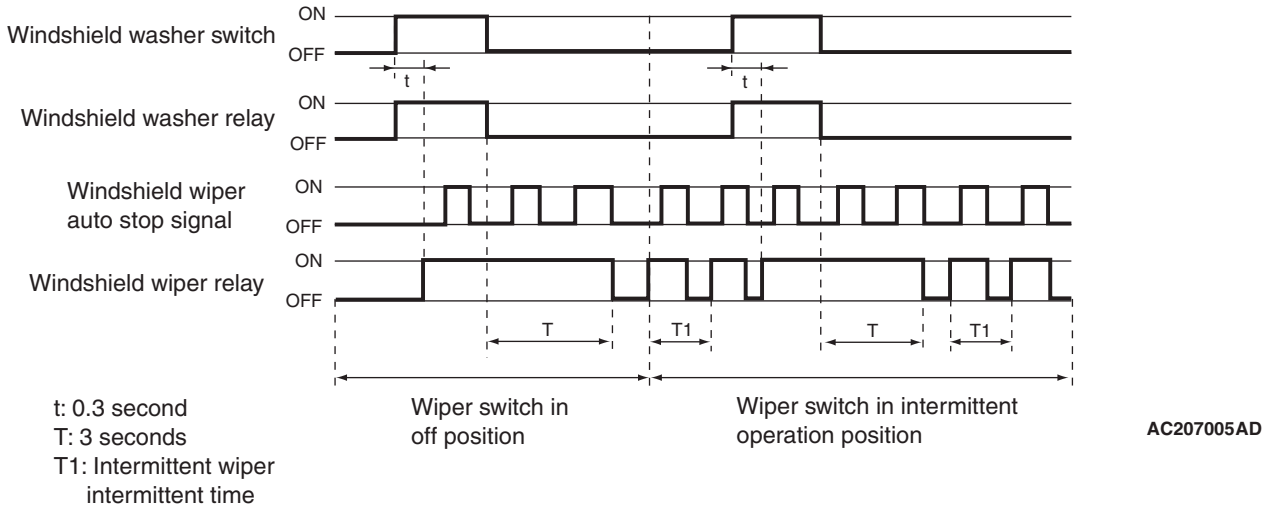
LOW SPEED WIPER AND HIGH SPEED WIPER CONTROL



When the windshield low speed wiper switch of the column switch is turned ON while the ignition switch is ACC or ON, the column switch turns ON the windshield wiper drive signal. Also, the wiper speed switching relay turns to OFF (LO), and the windshield wipers operate at the low speed.

When the windshield high speed wiper switch is turned ON, the windshield wiper drive signal turns ON. Also, the wiper speed switching relay turns ON (HI), and the windshield wipers operate at the high speed.

WINDSHIELD WIPER LINKED WITH WASHER FUNCTION (INITIAL CONDITION: FUNCTION AVAILABLE)



t: 0.3 second
T: 3 seconds
T1: Intermittent wiper intermittent time

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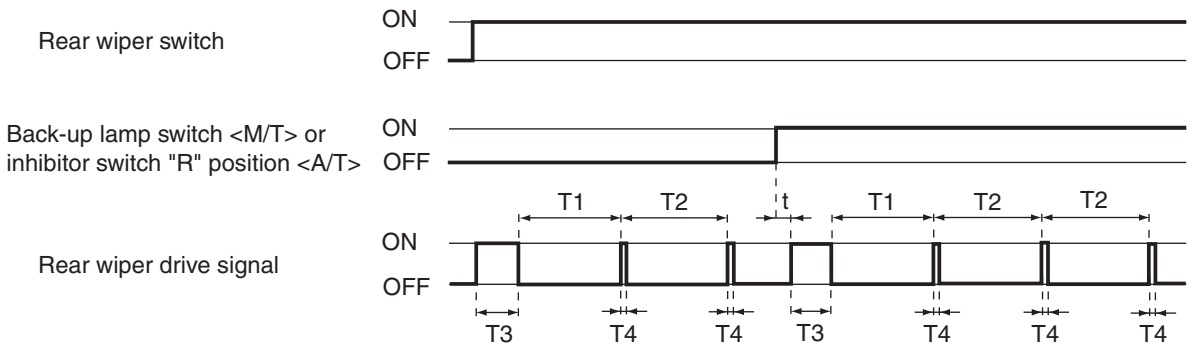
Wiper switch	OFF position				Intermittent operation position				Low speed or high speed operation position
Washer switch ON time	0.3 second or less	0.3 to 0.5 second	0.5 to 0.7 second	0.7 second or more	0.2 second or less	0.2 to 0.5 second	0.5 to 0.7 second	0.7 second or more	-
T1	0 second	1 second	2 seconds	3 seconds	0 second	1 second	2 seconds	3 seconds	3 seconds

- When the front-ECU receives a windshield washer switch signal from the column switch with the ignition switch in the ACC or the ON position, the ECU turns on the windshield washer relay. When the windshield washer relay becomes ON, the windshield washer motor starts to run to spray the washer fluid in the washer tank onto the windshield through the washer nozzles. When the windshield washer switch signal remains on for 0.3 second or more, the signal turns on the windshield wiper relay (The wiper interval depends. For details, see the list) to operate the windshield wiper at high speed. Turning off the windshield washer switch causes the front-ECU to turn off the windshield wiper relay "T" seconds later, thus operating the wiper to the auto stop position at low speed.
- When the windshield washer switch is turned ON during the intermittent operation of the windshield wiper, the windshield wiper switches to continuous operation and then resumes intermittent operation.

NOTE: The function to interlock the washer with windshield wiper operation can be enabled or disabled with its adjustment function.

REAR WIPER AND WASHER

REAR WIPER CONTROL [THE INITIAL CONDITION: 8 SECONDS (WITHOUT SUCCESSIVE OPERATIONS)]



t: 1.0 second
T1: 7.4 seconds
T2: 8.0 seconds
T3: 3.0 seconds
T4: 0.6 second

AC301877AC

1. When the rear wiper switch on the column switch is turned ON with the ignition switch at the ACC or ON position, ETACS-ECU turns ON the rear wiper drive signal for 3 seconds (approximately 2 operations) and performs the intermittent action at 8 seconds intervals.

When the shift lever <M/T> or selector lever <A/T> is moved to R position during the rear wiper operation, the back-up lamp switch <M/T> or inhibitor switch R position <A/T> turns ON 1 second after that, ETACS-ECU sends the rear wiper drive signal for 3 seconds (approximately 2 operations), and operates the intermittent action in 8 seconds interval.

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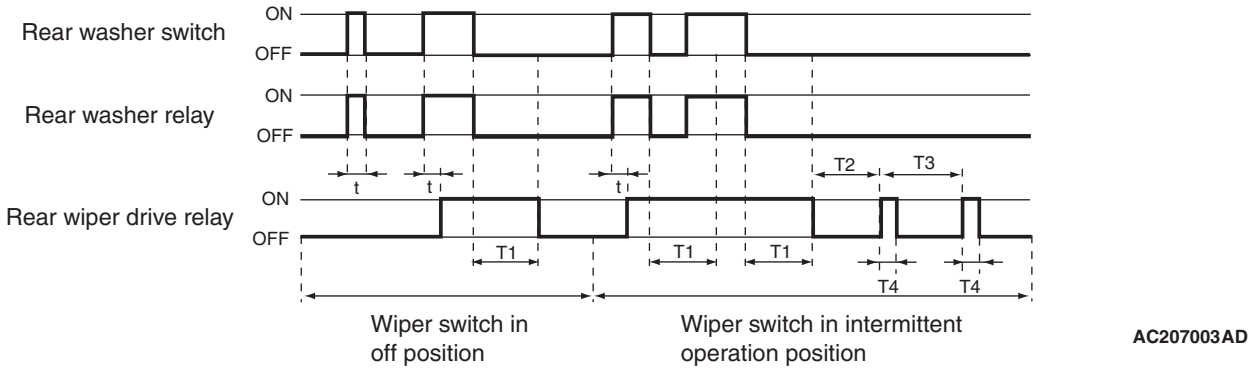
2. By the special operation of the rear wiper switch on the column switch (successive 2-time operations), the rear wiper operates continuously regardless of the set intermittent time.

NOTE: The rear wiper intermittent time can be adjusted or cancelled for continuous operation by the configuration function.

REAR WIPER LINKED WITH WASHER FUNCTION (INITIAL CONDITION: FUNCTION AVAILABLE)

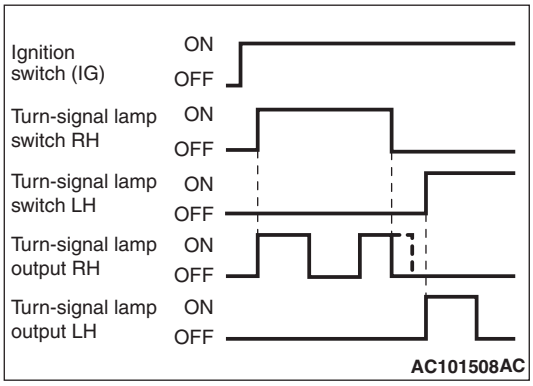


t: 0.3 second
T1: 3 seconds T3: 8 seconds
T2: 7.4 seconds T4: 0.6 second

When the rear washer switch on the column switch is turned on with the ignition switch ACC or ON, ETACS-ECU turns on the rear washer relay. When the rear washer switch signal from the column switch remains on for 0.3 second or more, ETACS-ECU turns on the rear wiper relay to operate the rear wiper continuously. Turning off the rear washer switch turns off the rear wiper relay 3 seconds later, thus operating the wiper to the auto stop position and parking it in the position.
Even turning on the rear washer switch during rear wiper operation causes the rear wiper relay to switch the operation to continuous operation, and then the rear wiper resumes intermittent operation at intervals of 8 seconds, 7.4 seconds after the completion of the continuous operation.

NOTE: The function to interlock the washer with rear wiper operation can be enabled or disabled with its adjustment function.

FLASHER TIMER FUNCTION
TURN-SIGNAL LAMP



When the turn-signal lamp switch is ON (LH or RH) with the ignition switch ON, the turn-signal lamp output (flash signal) is turned ON.
If the lamp bulb of the front or rear turn-signal lamp has burned out, the flashing speed becomes faster to alert the driver that the lamp bulb has burned out.

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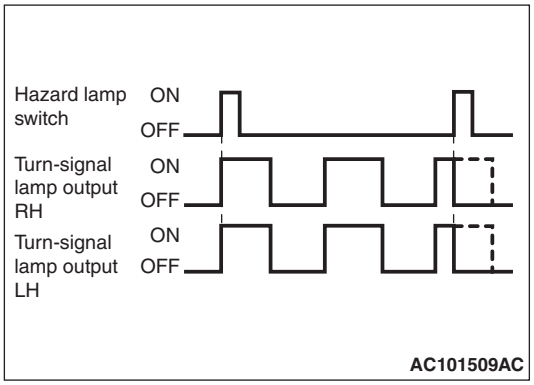
HAZARD WARNING LAMP



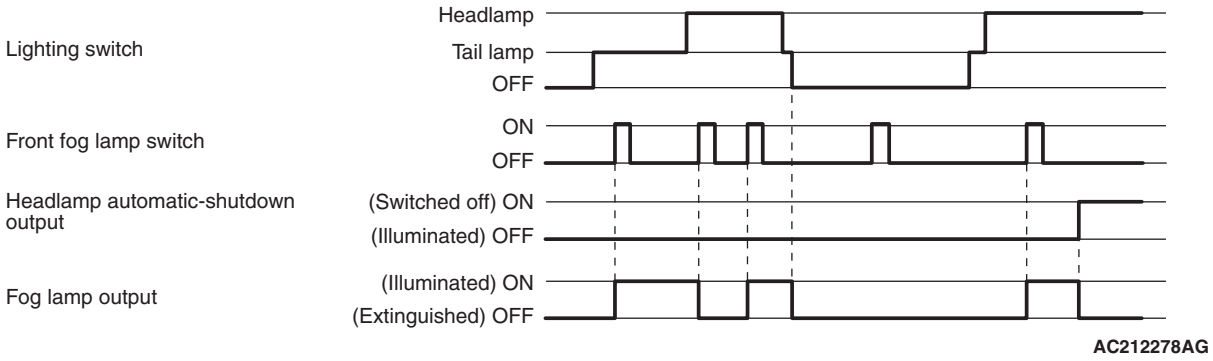
When the hazard lamp switch input signal turning from OFF to ON is detected, the flashing states turns over by the signal (When the hazard lamp is not blinking, it blinks. If it is blinking, it turns off).

NOTE:

1. *The push-return-switch is adopted for the hazard lamp switch.*
2. *Even if the lamp bulb has burned out, the flashing speed of the hazard lamp is not changed.*

FOG LAMP

FOG LAMP CONTROL FUNCTION



When the fog lamp switch is turned to ON with the tail lamp or the headlamp lit (the tail lamp switch or the headlamp switch is ON), the fog lamp relay turns ON, and the fog lamps are illuminated.

If the tail lamp or the headlamp is turned off with the lighting switch OFF while the fog lamps lit, the fog lamps turn off at the same time to prevent unattended operation.

If the tail lamp is turned off, the fog lamps turn off at the same time. However, if the tail lamps are illuminated again, the fog lamps are not.

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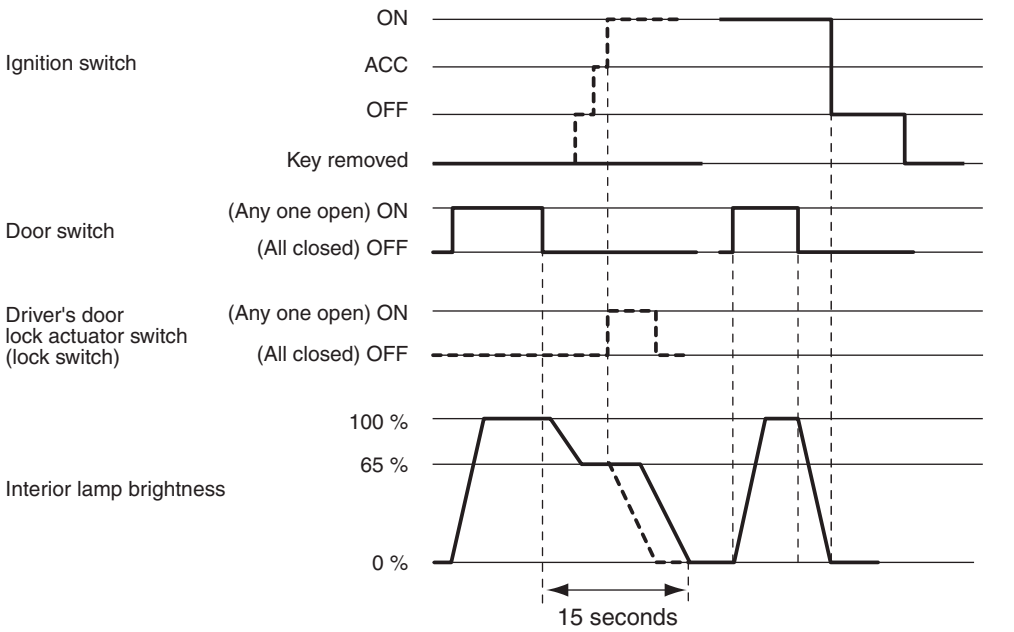
INTERIOR LAMP

DIMMER INTERIOR LAMP CONTROL FUNCTION (THE INITIAL CONDITION: FUNCTION AVAILABLE)



When the interior lamp switch is on the door position, ETACS-ECU controls the interior lamp illuminates as follows.

1. When the ignition switch is OFF:

By opening any door or tailgate, the lamp turns ON (100%), and dims (65%) when the door or tailgate is closed, then and turns off after 15 seconds.

However, when the ignition switch is turned ON or the door lock is operated, the lamps turn off at that time.

2. When the ignition switch is ON:

By opening any door or tailgate, the lamp (100%) turns ON and OFF when the door or tailgate is closed.

3. When all doors and the tailgate are closed, and the ignition key is removed <Vehicles with keyless entry system>:

By removing the ignition key with all doors and the tailgate closed, the lamp turns ON 100%, and turns off after 15 seconds.

By inserting the ignition key again or operating the door lock with the lamp lit, the lamps turns off.

NOTE: For the vehicles with the keyless entry system, the delayed interior lamp turning off duration can be changed by the configuration function.

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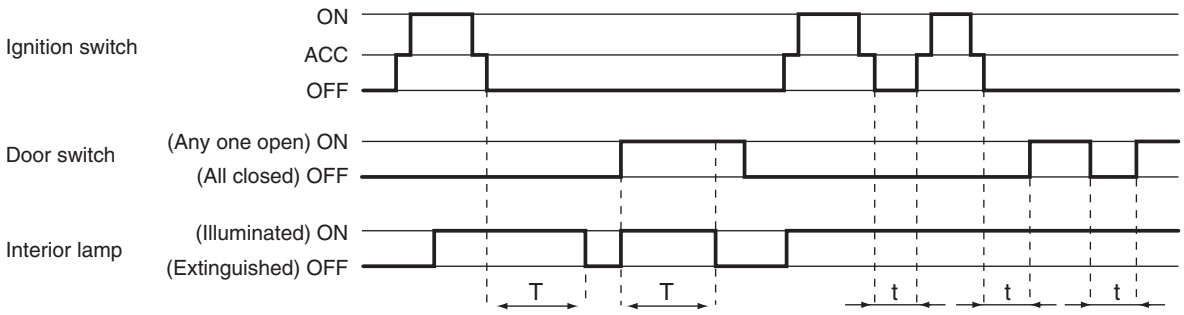
INTERIOR LAMP AUTOMATIC-SHUTDOWN FUNCTION (THE INITIAL CONDITION: FUNCTION AVAILABLE)



When the interior lamp such as the interior lamp [all interior lamps connecting to the interior lamp fuse (the front room lamp, the map lamp, the rear room lamp, the rear personal lamp and the luggage room lamp)] is lit, but either one of the conditions is met, the interior lamp is turned off automatically for preventing the battery discharge caused by the unattended operation or the door-ajar.

- After 30 minutes with the interior lamp lit while the ignition switch is OFF, the lamp turns off automatically.
- After 30 minutes with any door opened while the ignition switch is OFF, the lamp turns off automatically.

After automatic-shutdown function, the interior lamp turns ON when any of the following condition is met.

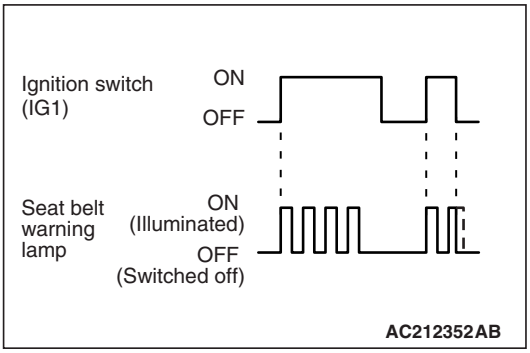
- Open and close doors.
- Operate the keyless entry transmitter.
- Turn the ignition switch to ACC or ON.

NOTE:

1. *The interior lamp automatic-shutdown function can be disabled or enabled by the configuration function.*
2. *After illuminating again, the lamp turns off after 30 minutes, when the interior lamp automatic-shutdown function is met.*

SEAT BELT WARNING LAMP

SEAT BELT WARNING LAMP FUNCTION



When the ignition switch is turned to ON, the seat belt warning lamp flashes 4 times (over 6 seconds).

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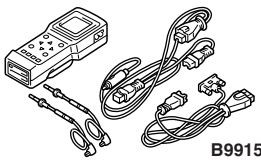
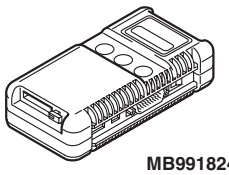
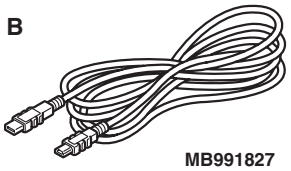
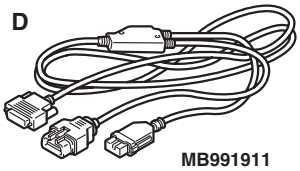
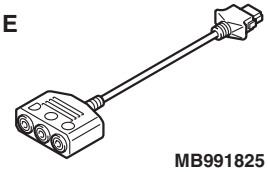
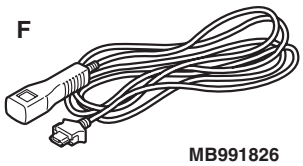
SPECIAL TOOLS

M1549000301198

Tool	Number	Name	Use
 B991502	MB991502	M.U.T.-II sub assembly	Check the SWS (The M.U.T.-II displays diagnosis codes and input signals)
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** **If you connect M.U.T.-III main harness A to a vehicle without CAN communication system to use the M.U.T.-III, a pulse signal may interfere with the simulated vehicle speed lines, thus causing the M.U.T.-III inoperative. Therefore, use the M.U.T.-III main harness B (MB991911) instead.**

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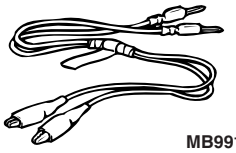
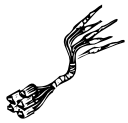
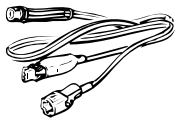
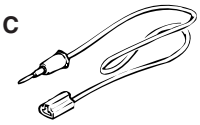
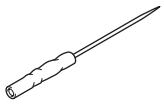
Tool	Number	Name	Use
 MB991529	MB991529	Diagnosis code check harness	Input signal check by using a voltmeter
A  B  C  D MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Check harness B: LED harness C: LED harness adapter D: Probe	Continuity check and voltage measurement at harness wire or connector A: For checking connector pin contact pressure B: For checking power supply circuit C: For checking power supply circuit D: For connecting a locally sourced tester
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

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TROUBLESHOOTING

PRIOR TO TROUBLESHOOTING

M1549014700884

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

M1549000501084

Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points P.00-5.

DIAGNOSIS FUNCTION

M1549028900320

HOW TO READ DIAGNOSIS CODE

Use the M.U.T.-II/III to read diagnosis code (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points P.00-6.)

NOTE: Connect the M.U.T.-II/III to the 16-pin diagnosis connector (black).

NOTE: A diagnosis code can not be read when the ETACS-ECU is defective or the power supply voltage has risen. In this case, refer to inspection procedure A-1 "Communication with the M.U.T.-II/III is not possible P.54B-38."

HOW TO CHECK INPUT SIGNALS

1. Use the M.U.T.-II/III or a voltmeter to check input signals (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points P.00-6.)
2. The input signals below can be checked by connecting the M.U.T.-II/III or a voltmeter to the diagnosis connector.

NOTE: If a fault is found at the input signal check, refer to trouble symptom chart P.54B-35.

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

Input signal		Requirements for sounding buzzer
Ignition switch (ACC)		When turned from the LOCK (OFF) position to the ACC position.
Ignition switch (IG1)		When turned from ACC to ON.
Back-up lamp switch <M/T>		When the ignition switch is turned ON and the shift lever is moved to the R position.
Inhibitor switch ("R" position) <A/T>		When the ignition switch is turned ON and the selector lever is moved to the R position.
Key reminder switch		When the inserted ignition key is pulled out.
Hazard warning lamp switch		When the switch is turned from off to on.
Fog lamp switch		
Front door switches		When the driver's door or passenger's door is opened.
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.
Door lock key cylinder switch		Turn the key to the lock or unlock position.
Vehicle speed signal		When the vehicle speed has reached 10 km/h or more.
Column switch	Tail lamp switch	When the lighting switch is moved from the off position to the tail lamp position.
	Headlamp switch	When the lighting switch is moved from the tail lamp position to the headlamp position.
	Dimmer switch	When the switch is turned from off to on.
	Passing lamp switch	
	Turn-signal lamp switch (LH)	
	Turn-signal lamp switch (RH)	
	Wind shield mist wiper switch	
	Windshield intermittent wiper switch	
	Windshield low-speed wiper switch	
	Windshield high-speed wiper switch	
	Windshield intermittent wiper volume	When the windshield intermittent wiper volume is rotated from "FAST" to "SLOW" (a pulse is sent around the volume middle position).
	Windshield washer switch	When the switch is turned from off to on.
	Rear wiper switch	
	Rear washer switch	

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Input signal		Requirements for sounding buzzer
Keyless entry transmitter	Switches	When the switch is turned from off to on.
Interior lamp loaded signal		When a load is applied through multi-purpose fuse No.18.
Sunroof switch		When the sunroof switch is opened or closed.

DIAGNOSIS CODE CHART

M1549000700591

⚠ CAUTION

Although the ETACS-ECU can deal with impact detection door unlock function, the vehicles is not equipped with the function. Therefore, the SRS-ECU and vehicles harness are not provided as part of the function in the vehicle. Consequently, whenever inspection of the ETACS-ECU is carried out with diagnosis codes, code No.31 and No.32 (communication system with the SRS-ECU) are output. Since display of there diagnosis codes do not mean any abnormality in the ETACS-ECU, check the code numbers only and do not replace the ETACS-ECU.

Code No.	Diagnosis Details	Reference page
11	Trouble related to the ETACS-ECU	P.54B-18
12	Trouble related to the column switch or improper connection with the ETACS-ECU	P.54B-19
13	Trouble related to the front-ECU or improper connection with the ETACS-ECU	P.54B-24
21	Short circuit in SWS communication line	P.54B-28
31	Open circuit in the signal line between the SRS-ECU and the ETACS-ECU (impact detection signal)	–
32	Short circuit in the signal line between the SRS-ECU and the ETACS-ECU (impact detection signal)	

DIAGNOSTIC TROUBLE CODE PROCEDURES

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Diagnosis code 11: Trouble related to the ETACS-ECU

DIAGNOSIS CODE SET CONDITIONS

The ETACS-ECU monitors the data, which the ECU itself sends. If errors occur consecutively 15 times (for 0.6 seconds), a diagnosis code will be set. Then, if the data does not contain any errors consecutively 15 times (for 0.6 seconds), the ECU will stop sending the diagnosis code.

PROBABLE CAUSE

Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

Check whether the diagnosis code is reset.
(1) Erase the diagnosis code.
(2) Again check that diagnosis code No.11 is set.

Q: Is diagnosis code No.11 set?
YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).

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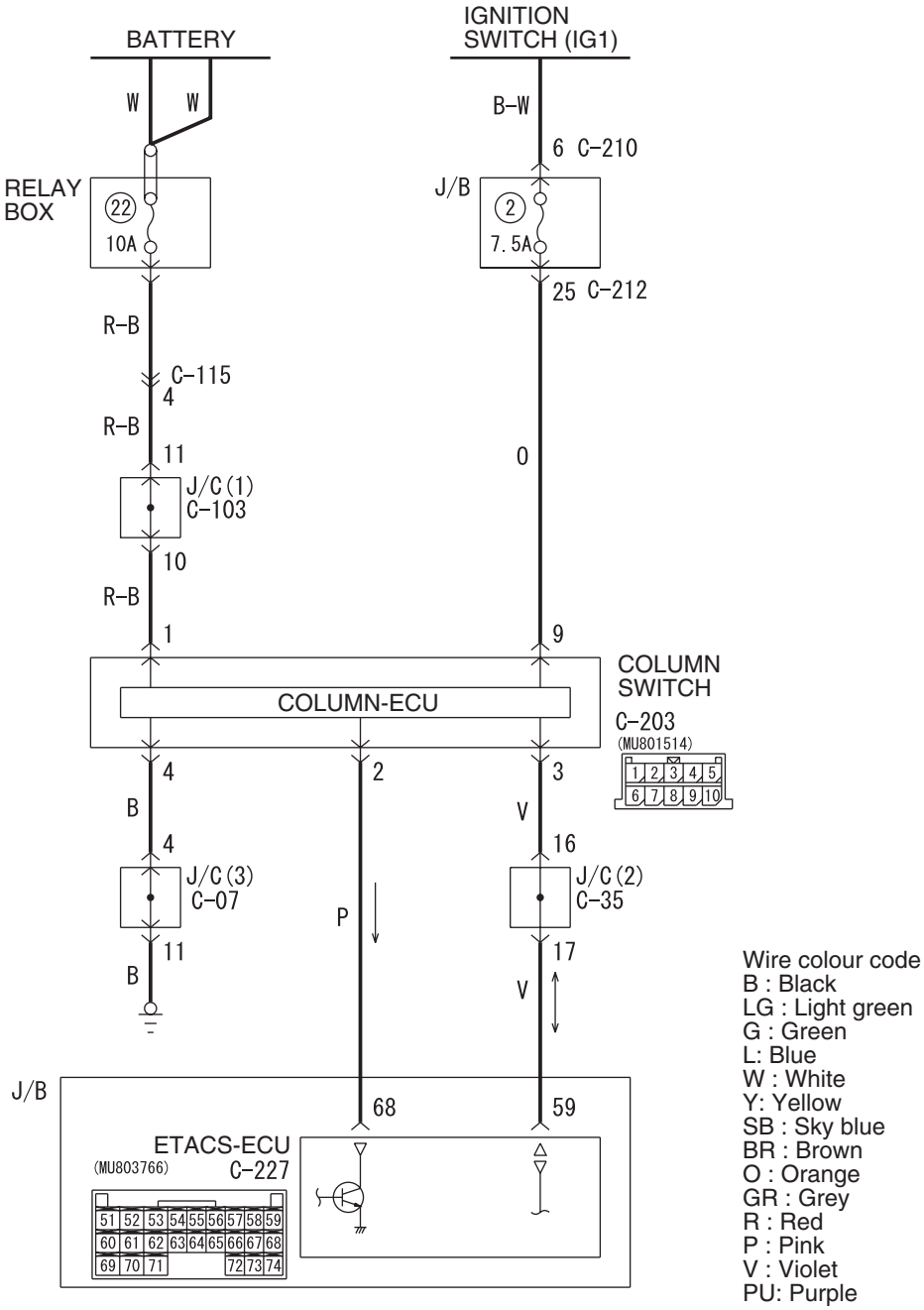
Diagnosis code 12: Trouble related to the column switch or improper connection with the ETACS-ECU

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

Column Switch Power Supply and SWS Communication Circuit



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DIAGNOSIS CODE SET CONDITIONS

If the column switch ignores the data request signal sent by the ETACS-ECU (three times or more for one second), this diagnosis code will be set. Then, when the column switch observes the request signal for one second, the ECU will stop sending the diagnosis code.

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PROBABLE CAUSES

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

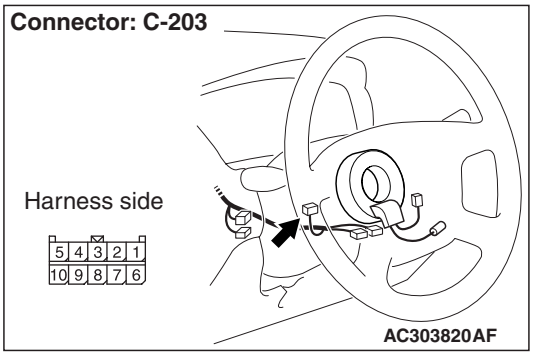
DIAGNOSIS PROCEDURE

STEP 1. Use the M.U.T.-II/III to confirm a diagnosis code.

(1) Turn the ignition switch to the "ON" position.
(2) On completion, check that diagnosis code No.12 is not reset.

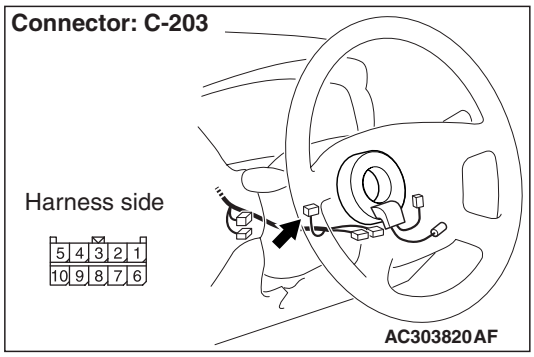
Q: Is diagnosis code No.12 set?
YES : Go to Step 5.
NO : Go to Step 2.

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

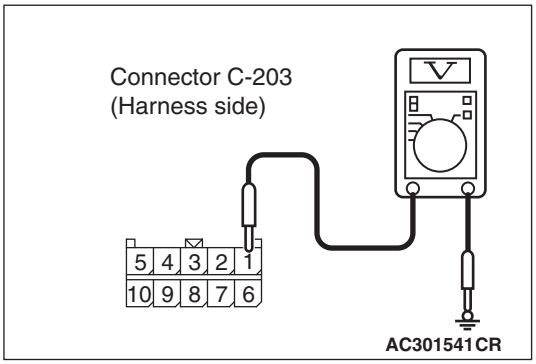


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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



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



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

OK: System voltage

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

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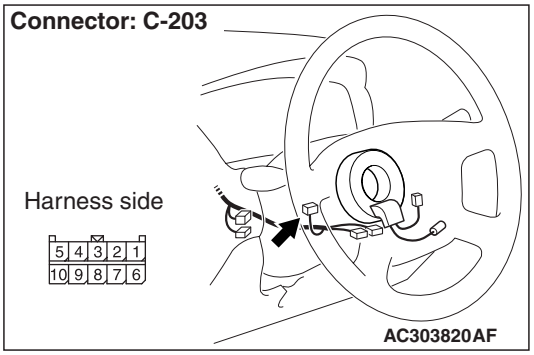
STEP 4. Check the wiring harness between C-203 column switch connector terminal No.1 and the battery.



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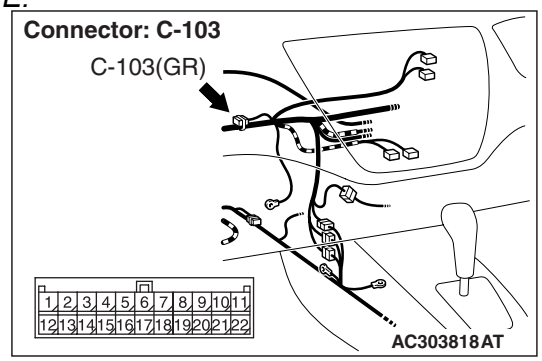
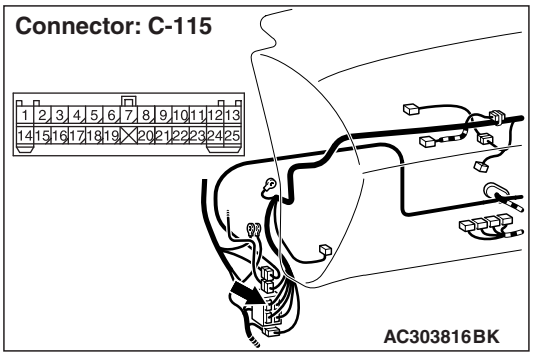


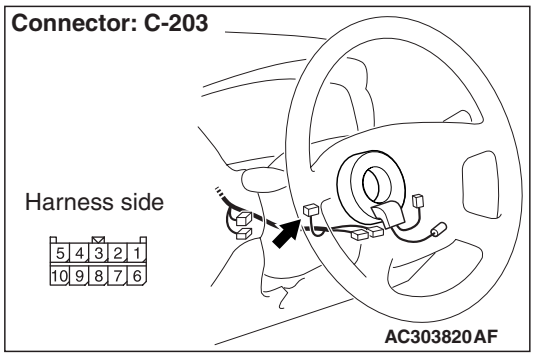


Prior to the wiring harness inspection, check intermediate connector C-115 and joint connector C-103, and repair if necessary.

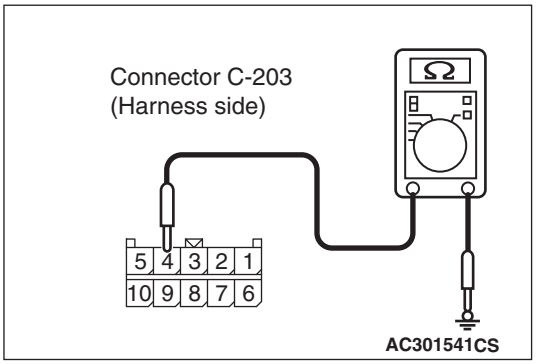
- Check the power supply line for open circuit.

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

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



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



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

OK: 2 Ω or less

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

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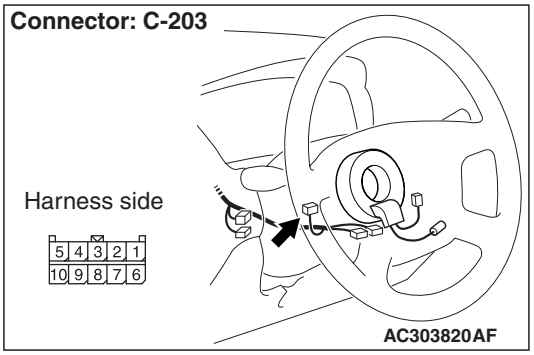
STEP 6. Check the wiring harness between C-203 column switch connector terminal No.4 and the body earth.



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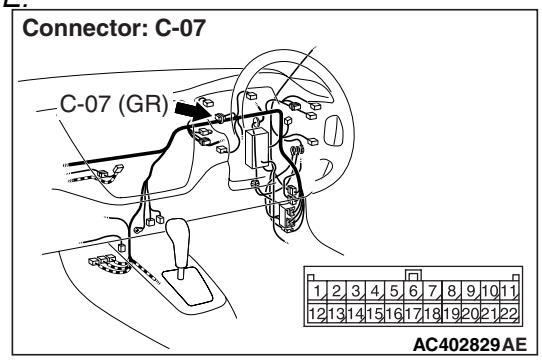
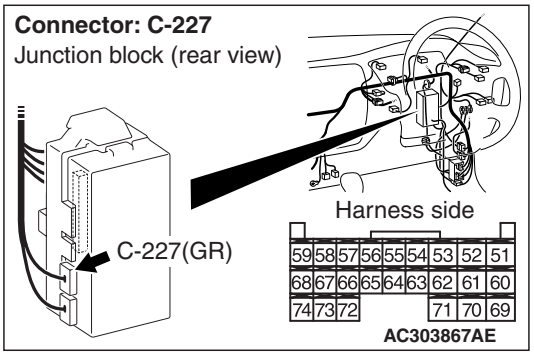


Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.
Check the earth wires for open circuit.

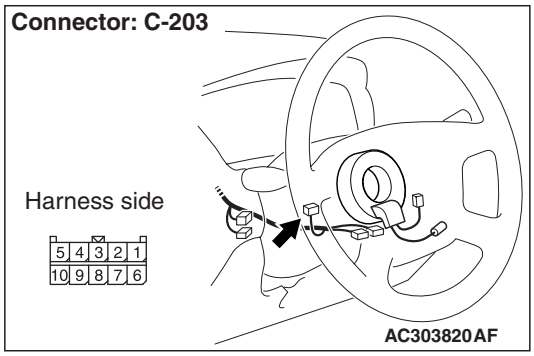
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

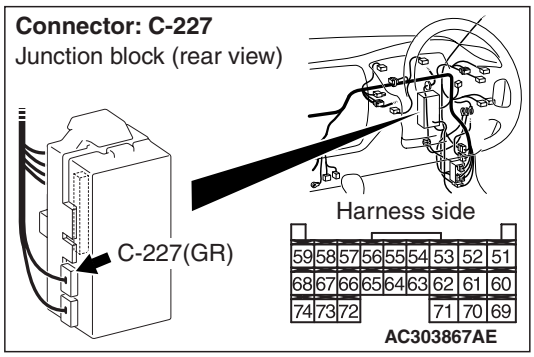
STEP 7. Connector check: C-227 ETACS-ECU connector



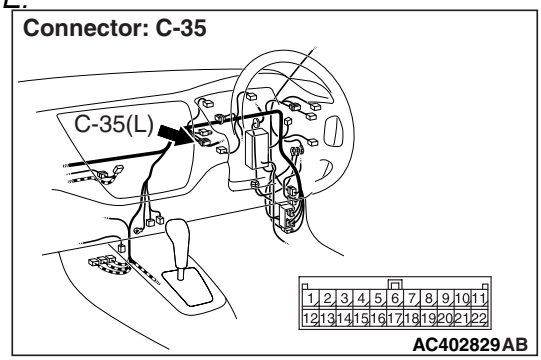
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the defective connector.

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





NOTE:



Prior to the wiring harness inspection, check joint connector C-35, and repair if necessary.
Check the communication lines for open circuit.

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

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STEP 9. Check whether the diagnosis code is reset.

Replace the column switch, and then check that the diagnosis code is not reset.

(1) Replace the column switch.
(2) Turn the ignition switch to the "ON" position.
(3) On completion, check that diagnosis code No.12 is not reset.

Q: Is diagnosis code No.12 set?
YES : Replace the ETACS-ECU.
NO : The procedure is complete.

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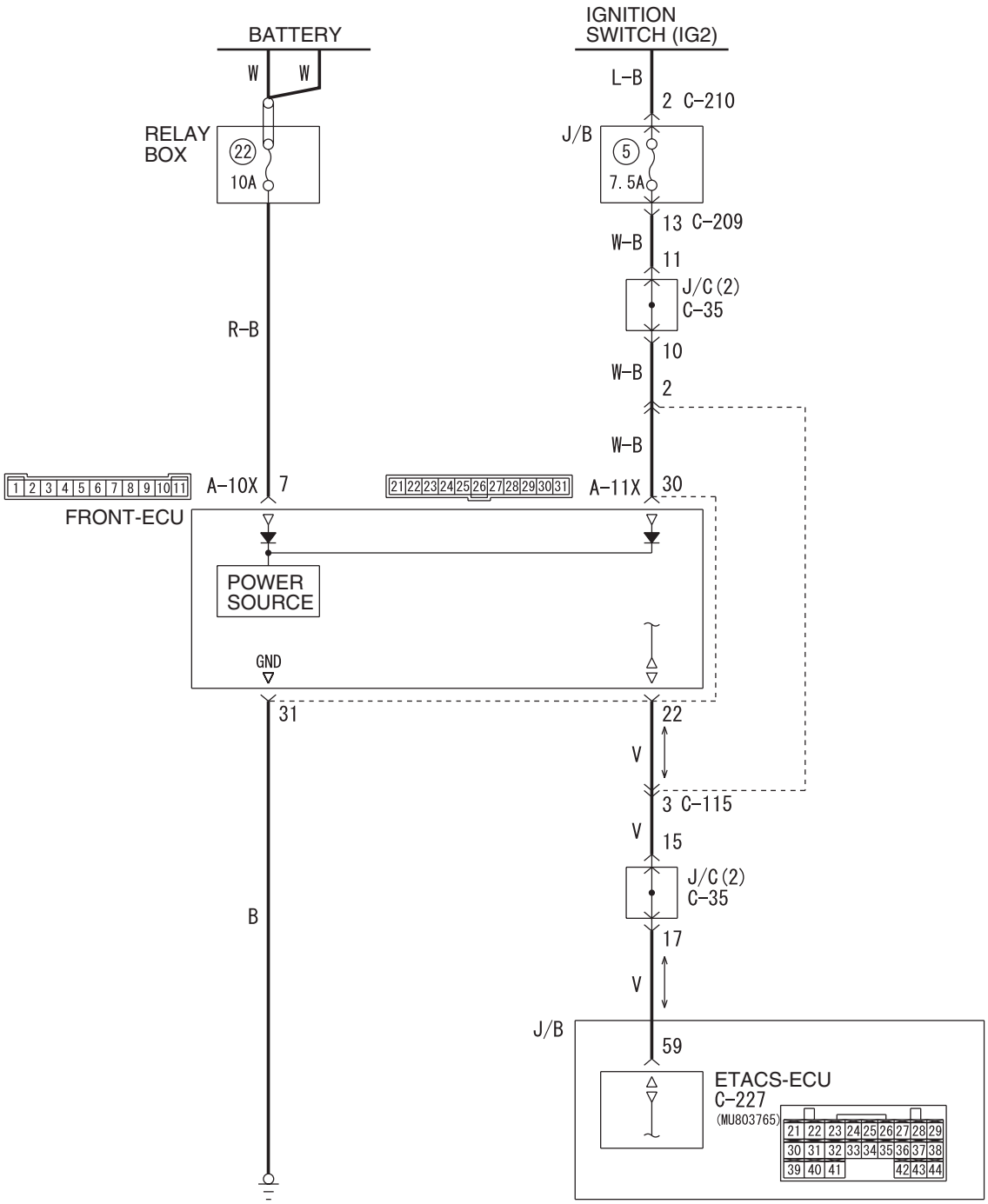
Diagnosis code 13: Trouble related to the front-ECU or improper connection with the ETACS-ECU

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

Front-ECU Power Supply and SWS Communication Circuit



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

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DIAGNOSIS CODE SET CONDITIONS

If the front-ECU has sent abnormal signal to the ETACS-ECU for consecutively 15 communication cycles (0.6 second), the diagnosis code will be set. If the front-ECU has sent normal signal to the ETACS-ECU for consecutively 15 communication cycles (0.6 second), the ETACS-ECU will stop sending the diagnosis code.

PROBABLE CAUSES

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

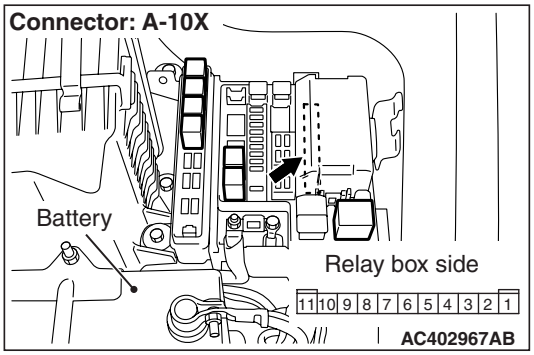
DIAGNOSIS PROCEDURE

STEP 1. Use the M.U.T.-II/III to confirm a diagnosis code.

(1) Turn the ignition switch to the "ON" position.
(2) On completion, check that diagnosis code No.13 is not reset.

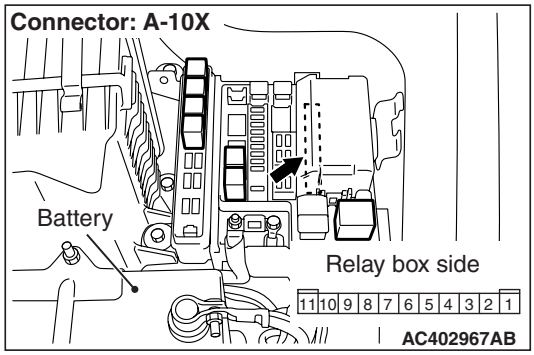
Q: Is diagnosis code No.13 set?
YES : Go to Step 5.
NO : Go to Step 2.

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

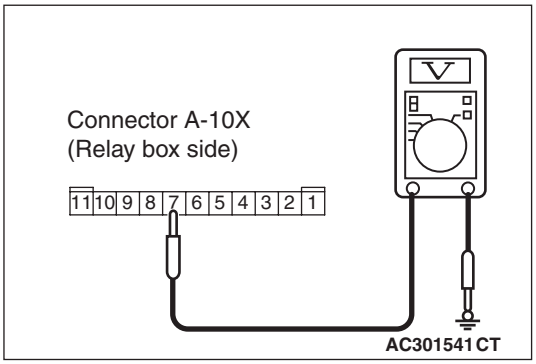


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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



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

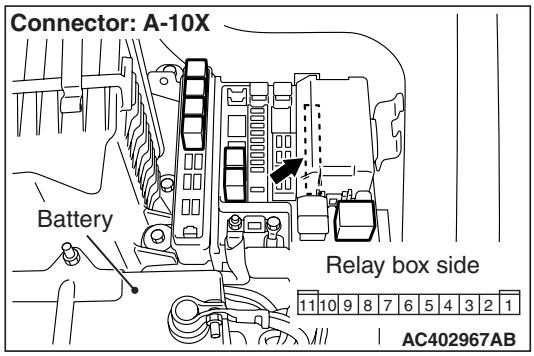


(2) Voltage between A-10X front-ECU connector terminal No.7 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Replace the front-ECU.
NO : Go to Step 4.

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



Check the power supply line for open circuit.

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

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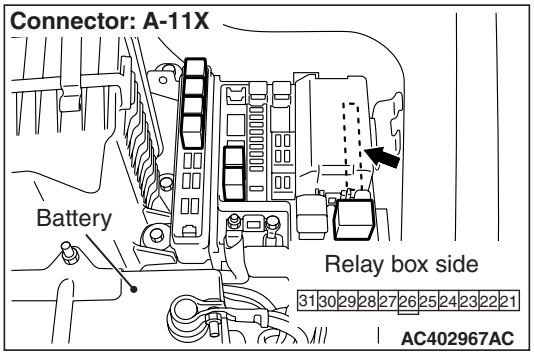
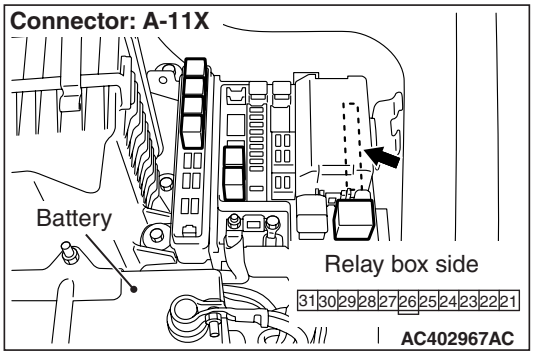
STEP 5. Connector check: A-11X front-ECU connector

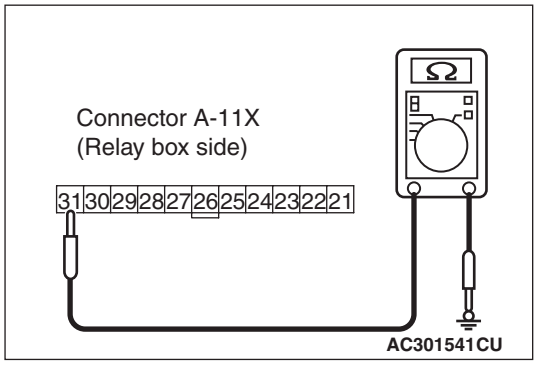


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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



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

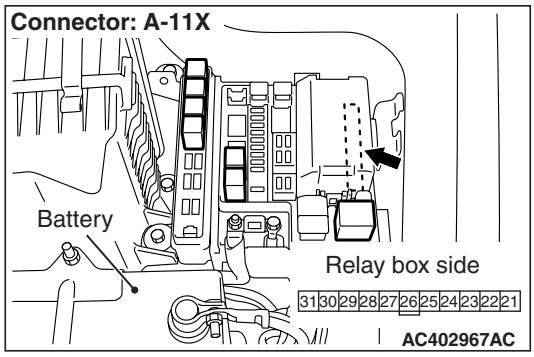


(2) Resistance between A-11X front-ECU connector terminal No.31 and body earth

OK: 2 Ω or less

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

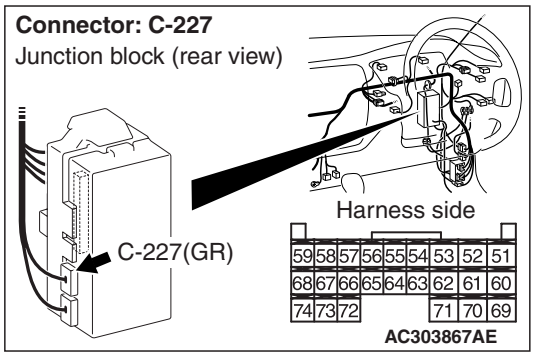
STEP 7. Check the wiring harness between A-11X front-ECU connector terminal No.31 and the body earth.



- Check the earth wires for open circuit.

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

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



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

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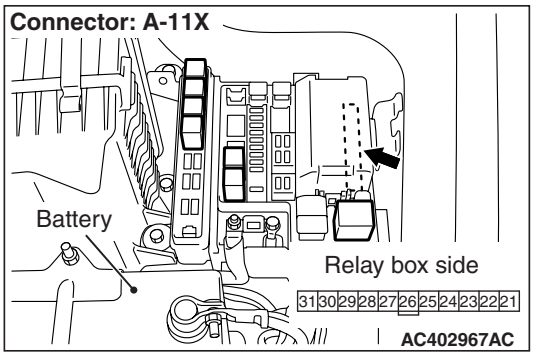
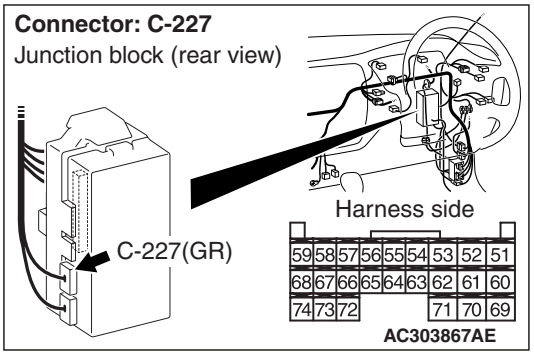
STEP 9. Check the wiring harness between C-227 ETACS-ECU connector terminal No.59 and A-11X front-ECU connector terminal No.22.





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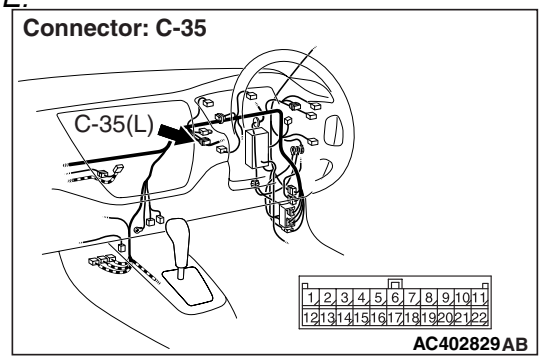

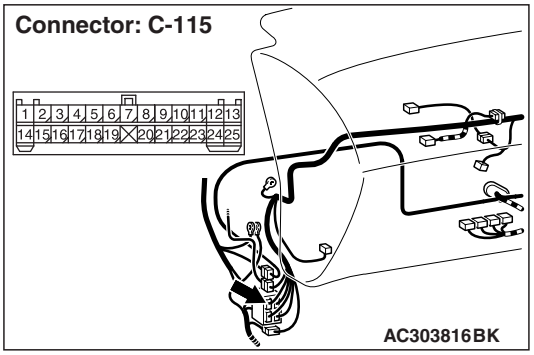

Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-115, and repair if necessary.

Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness.

STEP 10. Check whether the diagnosis code is reset.

Replace the column switch, and then check that the diagnosis code is not reset.

(1) Replace the column switch.
(2) Turn the ignition switch to the "ON" position.
(3) On completion, check that diagnosis code No.13 is not reset.

Q: Is diagnosis code No.13 set?

YES : Replace the ETACS-ECU.

NO : The procedure is complete.

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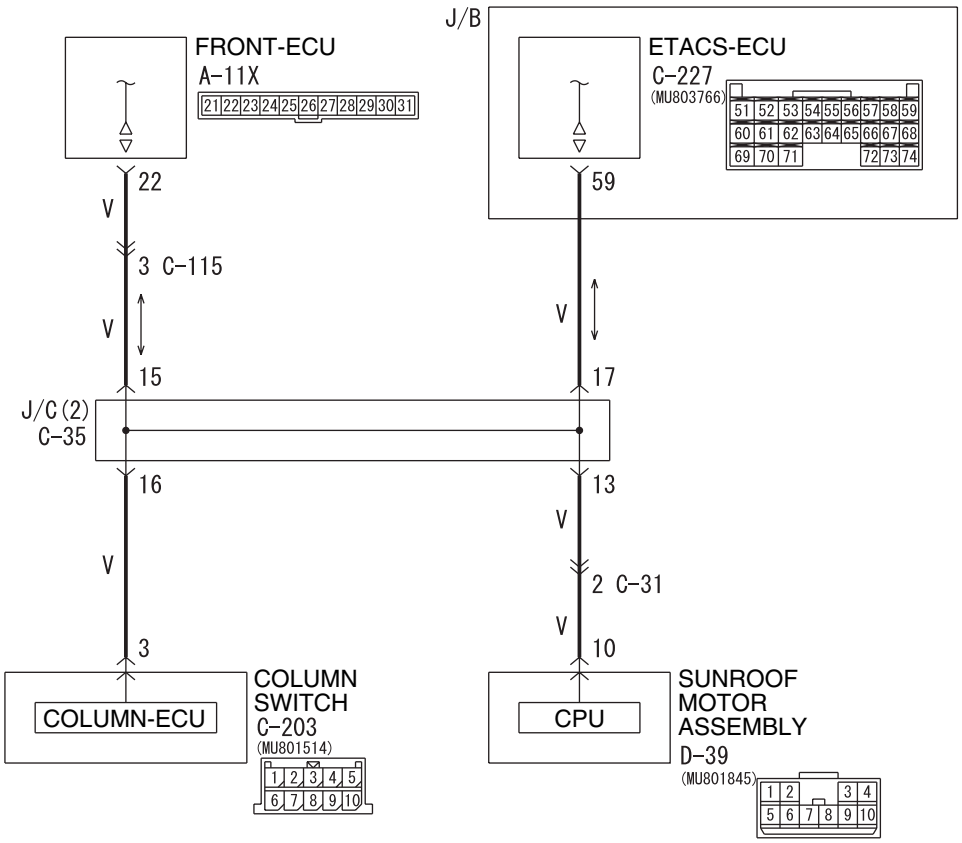
Diagnosis code 21: Short circuit in SWS communication line

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

SWS Communication Line



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

W5J54L056A

DIAGNOSIS CODE SET CONDITIONS

If the SWS communication line voltage is kept at low level for 0.3 second, the diagnosis code will be set. If the ETACS-ECU data line voltage is kept at high level for 0.3 second, or the ETACS-ECU has received normal signal from the other ECUs or switches, the ETACS-ECU will stop sending the diagnosis code. While this code is set, the other codes will not be set.

PROBABLE CAUSES

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

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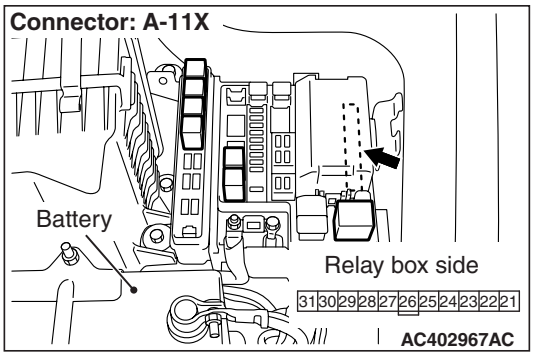
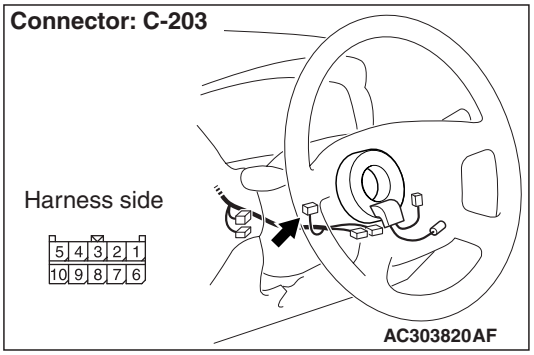
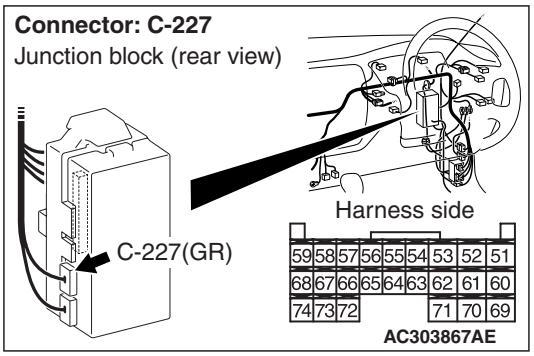
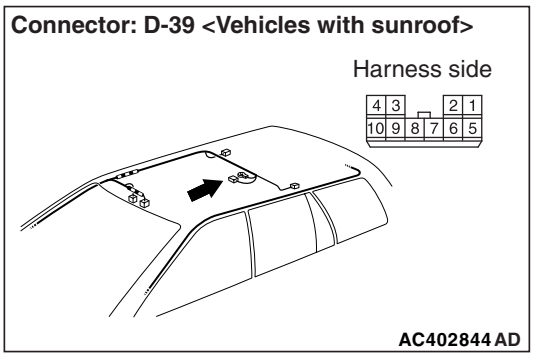
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-11X front-ECU connector, C-203 column switch connector, C-227 ETACS-ECU connector and D-39 sunroof motor assembly connector

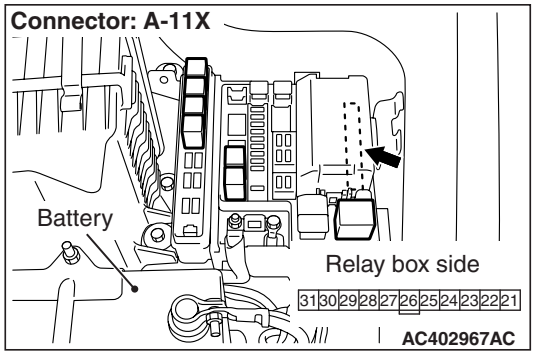


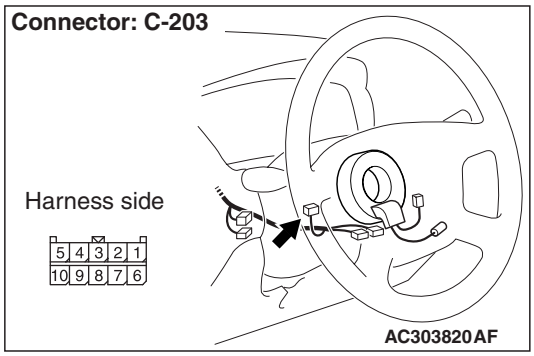


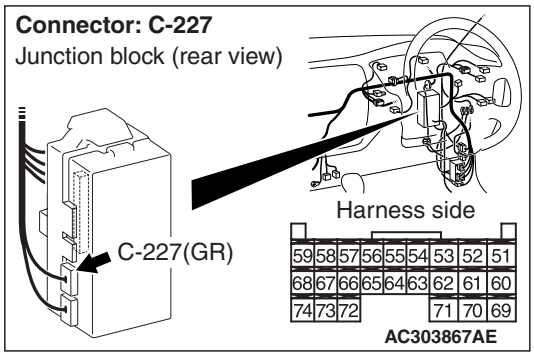


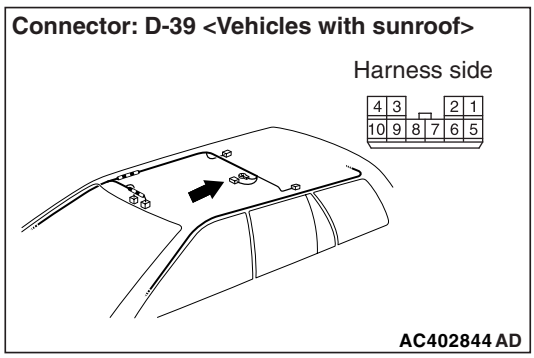


STEP 2. Check the wiring harness from each of A-11X front-ECU connector terminal No.22, C-203 column switch connector terminal No.3 and D-39 sunroof motor assembly connector terminal No.10 to C-227 ETACS-ECU connector terminal No.59.









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

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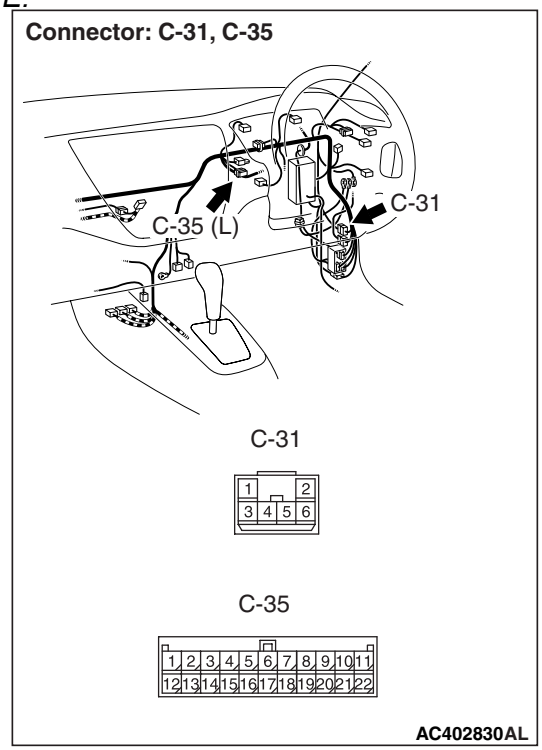
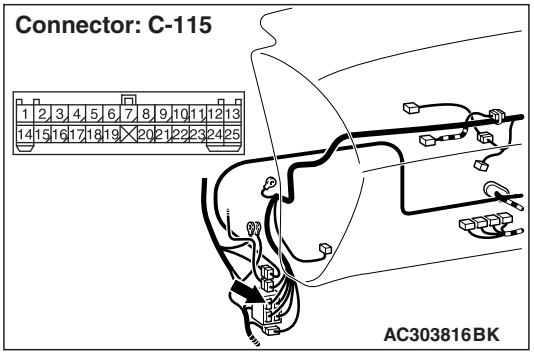
NOTE:





Prior to the wiring harness inspection, check joint connector C-31, C-35 and intermediate connector C-115, and repair if necessary.

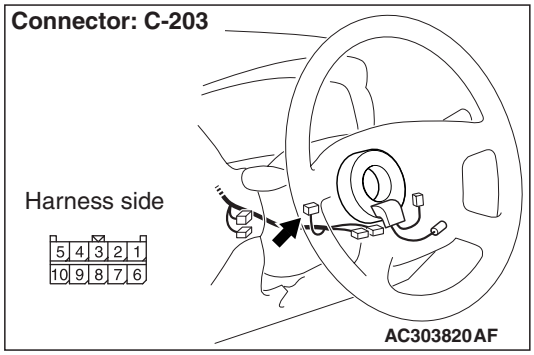
Check the communication lines for open circuit.

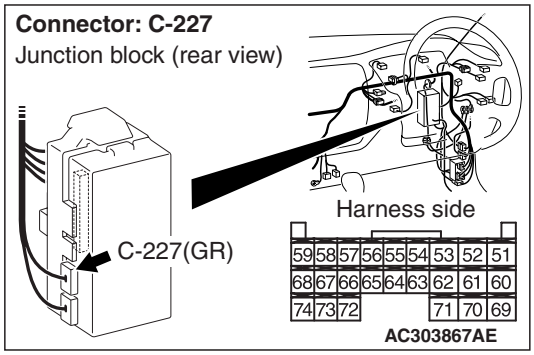
Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the wiring harness.

STEP 3. Check the wiring harness between C-203 column switch connector terminal No.2 and C-227 ETACS-ECU connector terminal No.68.





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. Check whether the diagnosis code is reset.

When A-11X front-ECU connector is disconnected, check that diagnosis code No.21 is not reset. However, diagnosis code No.13 will be set at this time.

Q: Is diagnosis code No.21 set?

YES : Replace the front-ECU.

NO : Go to Step 5.

STEP 5. Check whether the diagnosis code is reset.

When D-39 sunroof motor assembly connector is disconnected, check that diagnosis code No.21 is not reset.

Q: Is diagnosis code No.21 set?

YES : Replace the sunroof motor assembly.

NO : Go to Step 6.

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STEP 6. Check that the hazard warning lamps illuminate.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Refer to diagnosis code No.12 "Trouble related to the column switch or improper connection to the ETACS-ECU P.54B-19."

NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

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TROUBLE SYMPTOM CHART

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Symptom	Inspection procedure number	Reference page
Communication with the M.U.T.-II/III is not possible.	A-1	P.54B-38
When the ignition switch is at the LOCK (OFF) position, the functions do not work normally.	A-2	P.54B-41
Check the battery power supply circuit to the ETACS-ECU.		

<FUNCTION SYSTEM>

Symptom		Inspection procedure number	Reference page
Buzzer	Lamp reminder buzzer function does not work normally.	B-1	P.54B-44
Central door locking system	Central door locking system does not work.	C-1	P.54B-46
	A door or a tailgate can not be locked or unlocked by the central door locking system.	C-2	P.54B-49
	The central door locking system can not be operated by means of the front passenger's door lock key cylinder.	C-3	P.54B-57
	The ignition key reminder function does not work normally.	C-4	P.54B-59
Power window	Power windows do not work at all.	D-1	P.54B-61
	Driver's power window does not work by means of the power window main switch.	D-2	P.54B-68
	Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.	D-3	P.54B-70
	Front and/or rear passenger's power window(s) do not work by means of the power window main switch.	D-4	P.54B-84
	The power window timer function does not work normally.	D-5	P.54B-86
	Power windows lowers automatically while it is rising.	D-6	P.54B-87
Keyless entry system	Keyless entry system does not work.	E-1	P.54B-89
	Keyless entry hazard warning lamp answerback function or the room lamp answerback function does not work normally.	E-2	P.54B-91
	Encrypted code cannot be registered.	E-3	P.54B-92
	The timer lock function does not work after the doors have been unlocked by the keyless entry system.	E-4	P.54B-93
Sunroof	The sunroof does not work at all.	F-1	P.54B-94
	Any of the sunroof switch positions is defective.	F-2	P.54B-99
	Sunroof timer function does not work normally.	F-3	P.54B-102
	Sunroof anti-trap function does not work normally.	F-4	P.54B-105

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Symptom		Inspection procedure number	Reference page
Windshield wiper and washer	The windshield wipers does not work at all.	G-1	P.54B-106
	The windshield wipers does not work when the wiper switch is at "INT", "WASHER" or "MIST" position. However, the wipers work at low speed when the switch is at "LO" and "HI" position.	G-2	P.54B-111
	The windshield wipers do not stop at the specified park position.	G-3	P.54B-113
	The windshield wipers do not work normally.	G-4	P.54B-116
	The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control.	G-5	P.54B-120
	The intermittent wiper interval is not changed according to the vehicle speed.	G-6	P.54B-121
	The windshield washer does not work.	G-7	P.54B-123
Rear wiper and washer	The rear wiper does not work at all.	H-1	P.54B-127
	The rear wiper does not stop at the specified park position.	H-2	P.54B-131
	When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.	H-3	P.54B-135
	The rear washer does not work.	H-4	P.54B-136
Headlamp and tail lamp	The tail lamps do not illuminate normally.	I-1	P.54B-139
	The low-beam headlamps do not illuminate normally.	I-2	P.54B-141
	The high-beam headlamps do not illuminate normally.	I-3	P.54B-143
	The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.	I-4	P.54B-144
	Any of tail lamps, position lamps or licence plate lamps does not illuminate.	I-5	P.54B-145
	The headlamp(s) do not illuminate. <including high-beam indicator>	I-6	P.54B-152
Flasher timer	The turn-signal lamps do not illuminate.	J-1	P.54B-157
	The hazard warning lamps do not illuminate.	J-2	P.54B-160
	Any of the turn-signal lamps does not illuminate.	J-3	P.54B-162
Fog lamp	The fog lamps do not illuminate normally.	K-1	P.54B-172
	The fog lamps or the fog lamp indicator do not illuminate normally.	K-2	P.54B-176

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Symptom		Inspection procedure number	Reference page
Interior lamp	The front or rear room lamp does not illuminate or extinguish normally.	L-1	P.54B-181
	Interior lamp automatic shutdown function does not work normally.	L-2	P.54B-193
	The door-ajar warning lamp does not illuminate/extinguish normally.	L-3	P.54B-195
	The seat belt warning lamp does not flash normally.	L-4	P.54B-198

CHECK TROUBLE BY USING THE INPUT SIGNAL CHECK.

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<PULSE CHECK>

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

Symptom		Inspection procedure number	Reference page
The ignition switch (ACC) signal is not received.		M-1	P.54B-201
The ignition switch (IG1) signal is not received.		M-2	P.54B-203
The back-up lamp switch signal is not received. <M/T>		M-3	P.54B-205
The inhibitor switch (reverse position) signal is not received. <A/T>			P.54B-209
The front door switch signal is not received.		M-4	P.54B-213
The column switch (lighting and turn-signal lamp switch) signal is not received.	The tail lamp switch signal is not received.	M-5	P.54B-216
	The headlamp switch signal is not received.		
	The dimmer switch signal is not received.		
	The passing switch signal is not received.		
	The turn-signal lamp switch (LH) signal is not received.		
	The turn-signal lamp switch (RH) signal is not received.		
The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.	The windshield mist wiper switch signal is not received.	M-6	P.54B-217
	The windshield intermittent wiper switch signal is not received.		
	The windshield low-speed wiper switch signal is not received.		
	The windshield high-speed wiper switch signal is not received.		
	The windshield washer switch signal is not received.		
	The rear wiper switch signal is not received.		
	The rear washer switch signal is not received.		
	The windshield intermittent wiper volume signal is not received.	M-7	P.54B-218
When the sunroof switch is operated, the switch signals are not received.		M-8	P.54B-220
The key reminder switch signal is not received.		M-9	P.54B-224
The hazard warning lamp switch signal is not received.		M-10	P.54B-227
All the door switch signals are not received.		M-11	P.54B-230
The front door lock actuator (RH) switch signal is not received.		M-12	P.54B-235
The vehicle speed sensor signal is not received. <M/T>		M-13	P.54B-238
The vehicle speed signal is not received. <A/T>			P.54B-241
Each switch signal of the keyless entry transmitter is not received.		M-14	P.54B-243

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Symptom	Inspection procedure number	Reference page
The fog lamp switch signal is not received.	M-15	P.54B-245
The interior lamp loaded signal is not received.	M-16	P.54B-248
The door lock key cylinder switch signal is not received.	M-17	P.54B-252

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

M1549020300595

If troubles have occurred in the functions which use the SWS simultaneously, observe the table below to check input signals.

(This table shows only the input signals which will cause troubles in at least two functions simultaneously).

Function	M-1	M-2	M-4	M-5	M-6	M-9	M-11	M-12	M-13	M-14	M-17
Lamp reminder function	–	•	•	•	–	–	–	–	–	–	–
Control of central door locking	–	–	–	–	–	–	–	•	–	–	–
Key reminder function	–	–	•	•	–	•	–	–	–	–	–
Keyless entry system	–	–	•	–	–	•	•	•	•	–	–
Sunroof timer function	–	•	•	–	–	–	–	–	–	–	–
Control of windshield wiper washer	•	–	–	–	•	–	–	–	•	–	–
Rear wiper washer control	•	•	–	–	•	–	–	–	–	–	–
Headlamp control	–	•	–	•	–	–	–	–	–	–	–
Tail lamp control	–	•	–	•	–	–	–	–	–	–	–
Fog lamp control	–	–	–	•	–	–	–	–	–	–	–
Turn-signal lamp control	–	•	–	•	–	–	–	–	–	–	–
Interior lamp control	–	•	•	–	–	–	•	•	•	•	•
Interior lamp automatic shutdown function	•	•	•	–	–	–	–	–	•	•	•
Door-ajar indicator lamp	–	–	•	–	–	–	•	–	–	–	–

NOTE: • indicates the applicable points.

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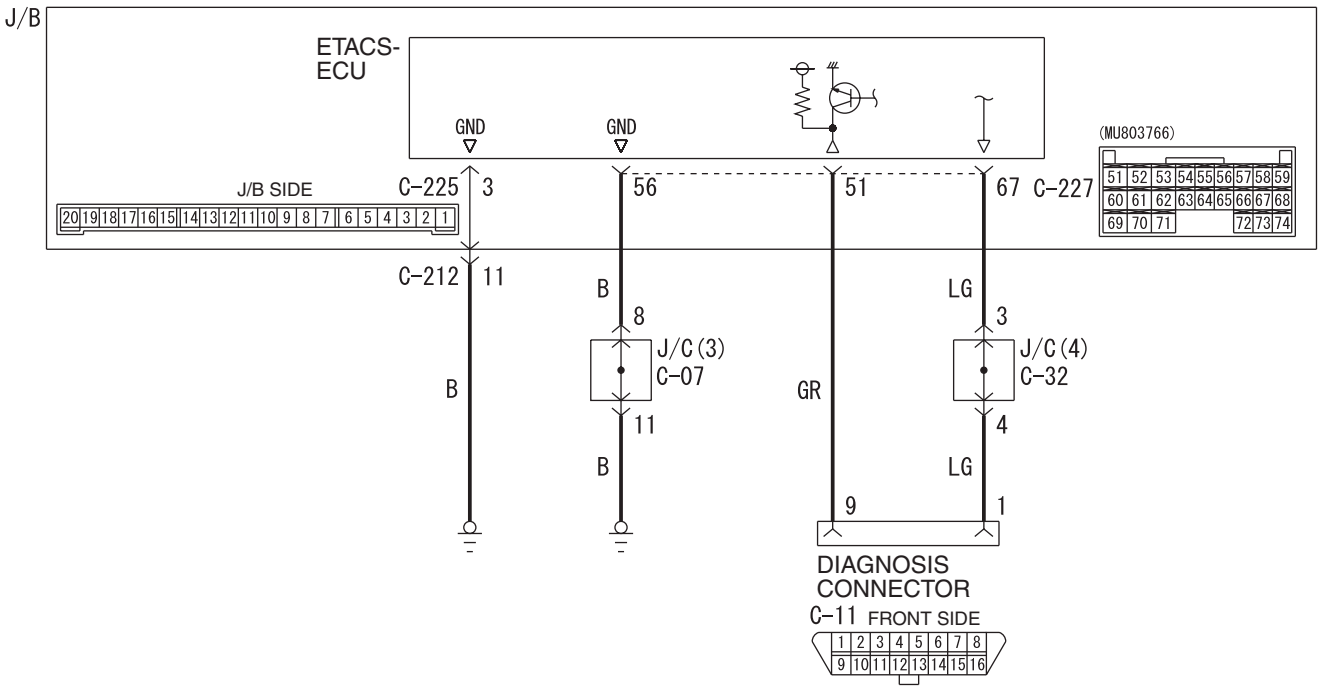
SYMPTOM PROCEDURES

INSPECTION PROCEDURE A-1: Communication with the M.U.T.-II/III is not possible.

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

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



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

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COMMENTS ON TROUBLE SYMPTOM

It is suspected that the power supply circuit to the ETACS-ECU is defective, or the wiring harness between the diagnosis connector and the ETACS-ECU or their connector(s) is damaged.

NOTE: If the wiring harness between the ETACS-ECU and body earth is defective, also check C-225 ETACS-ECU connector terminal No.3, and repair if necessary.

PROBABLE CAUSES

- 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 by referring to P.13A-209.

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

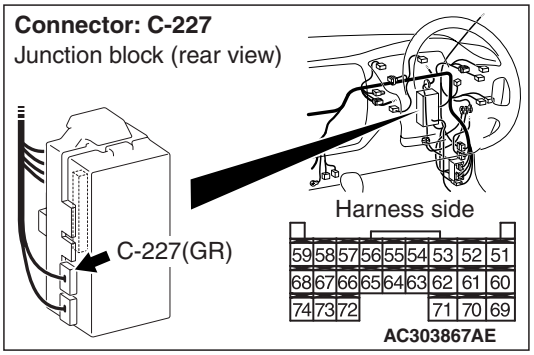
When the ignition switch is turned ON, check if the M.U.T.-II/III can communicate with the system.

Q: Is the check result normal?

YES : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

NO : Go to Step 3.

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

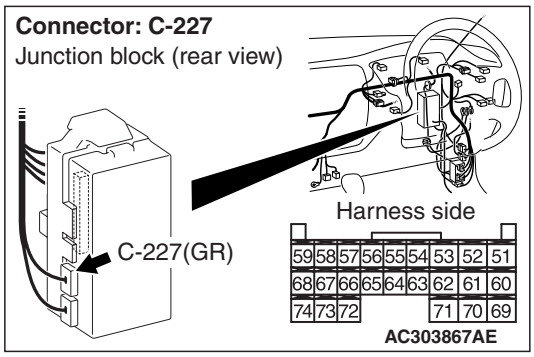


Q: Is the check result normal?

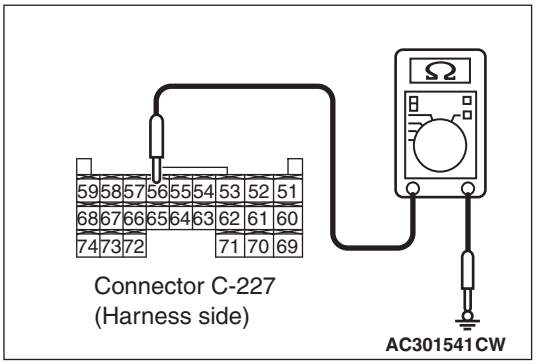
YES : Go to Step 4.

NO : Repair the defective connector.

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



(1) Disconnect the connector, and measure at the junction block side.



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

OK: 2 Ω or less

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

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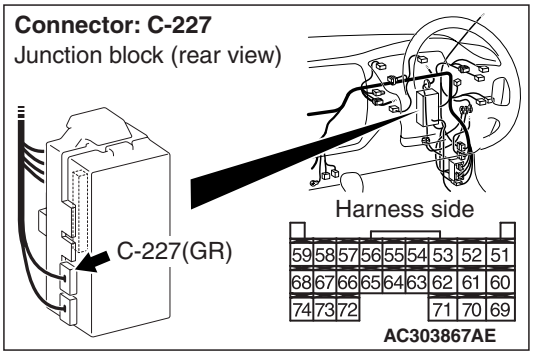
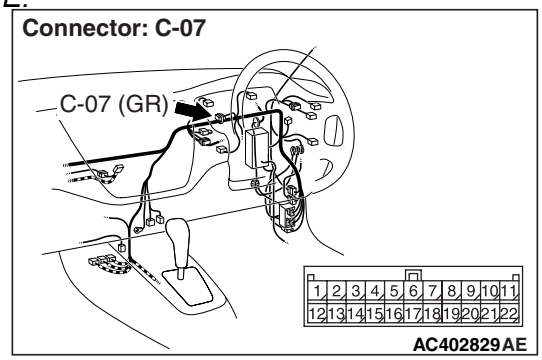
STEP 5. Check the wiring harness between C-227 ETACS-ECU connector terminal No.56 and body earth.



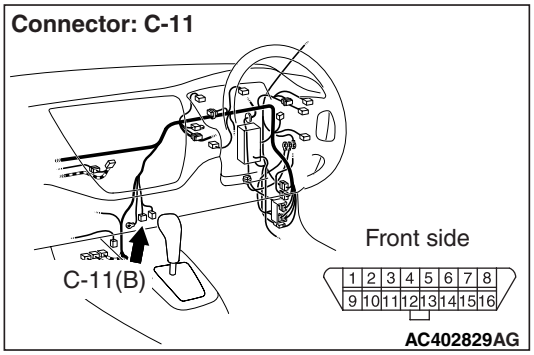
NOTE:



Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.
Check the earth wires for open circuit.

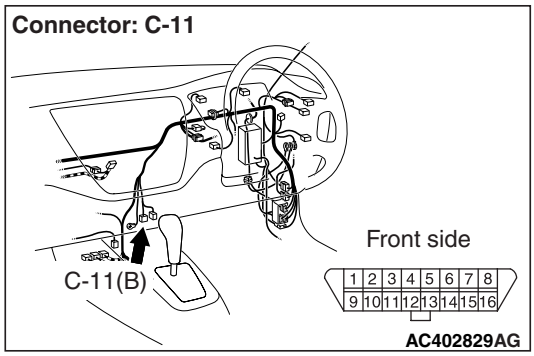
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

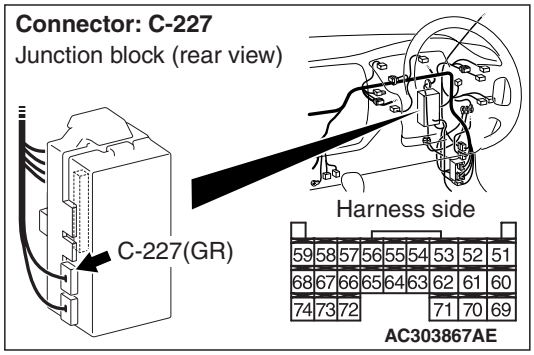
STEP 6. Connector check: C-11 diagnosis connector



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

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





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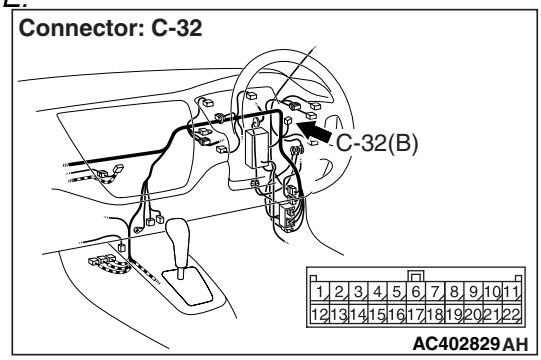

Prior to the wiring harness inspection, check joint connector C-32, and repair if necessary.
- Check the communication lines for open circuit.

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

STEP 8. Retest the system.
Check whether the communication with the M.U.T.-II/III is possible.

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

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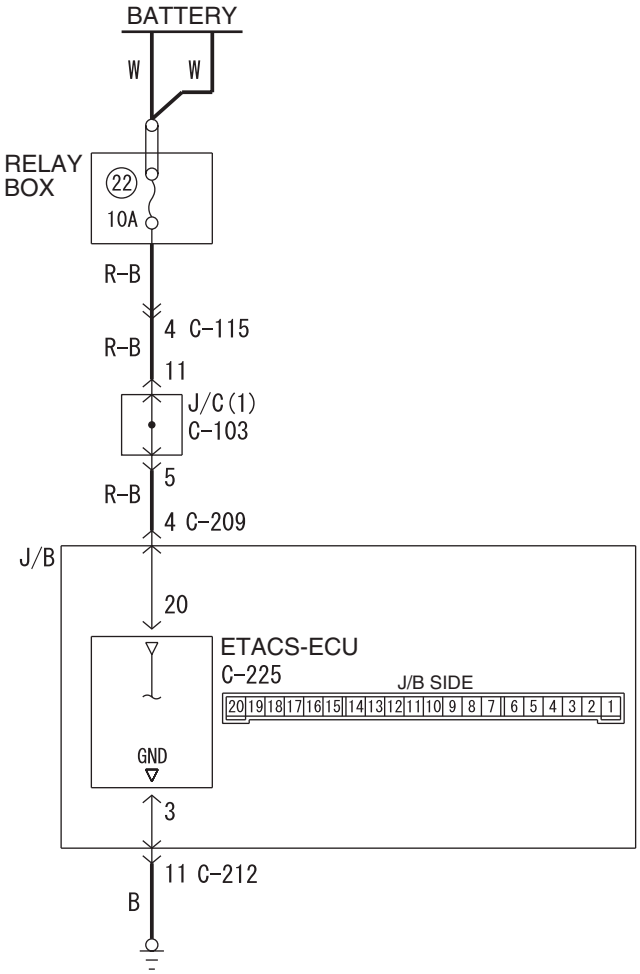
INSPECTION PROCEDURE A-2: When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU.

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

ETACS-ECU Power Supply Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

If this circuit is defective and the ignition switch is at the LOCK (OFF) position, the ETACS-ECU does not work. In this case, the functions below will be suspended.

- Lamp reminder function
- Keyless entry system

However, when the ignition switch is at the ON position, the functions below will work.

- Reading diagnosis code and checking input signal by M.U.T.-II/III.
- Central door locking
- Headlamp and tail lamp
- Hazard warning lamp
- Room lamps

PROBABLE CAUSES

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

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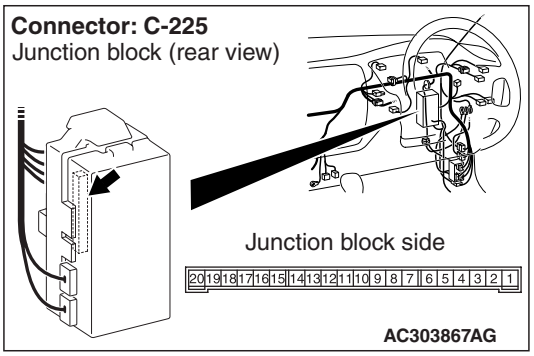
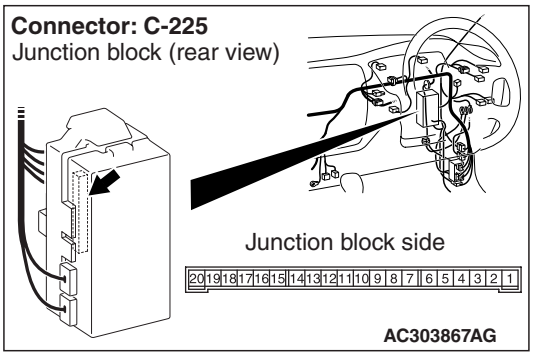
DIAGNOSIS PROCEDURE

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

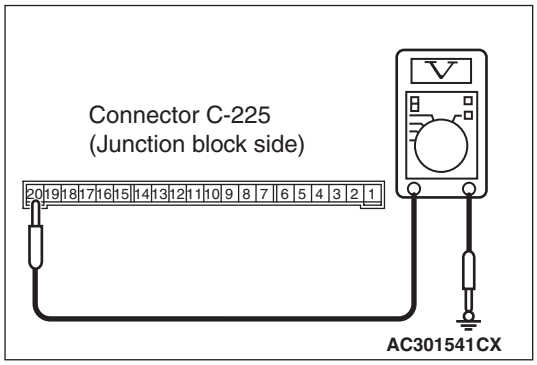


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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



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

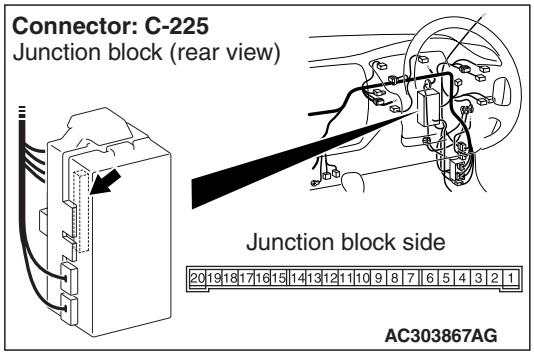


(2) Voltage between C-225 ETACS-ECU connector terminal No.20 and body earth.

OK: System voltage

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

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



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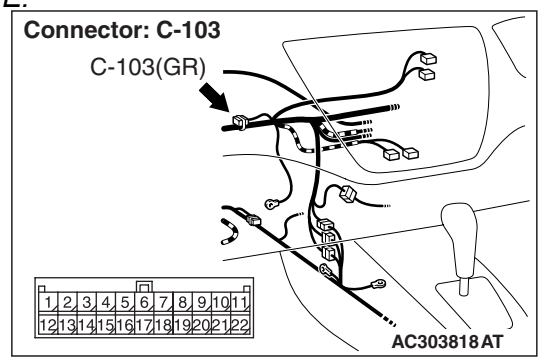

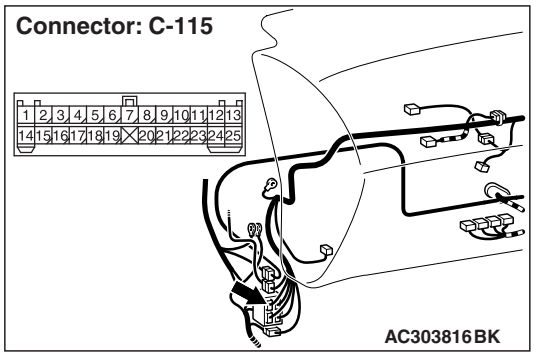

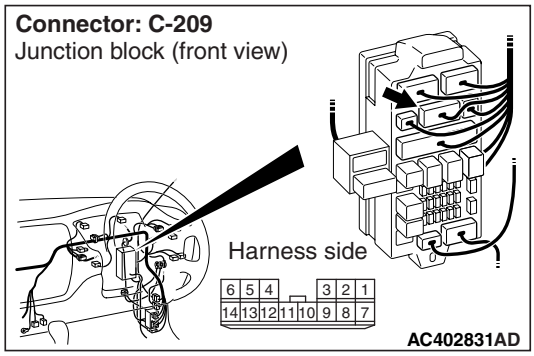

Prior to the wiring harness inspection, check joint connector C-103, intermediate connector C-115 and junction block connector C-209, and repair if necessary.

- Check the power supply line for open circuit.

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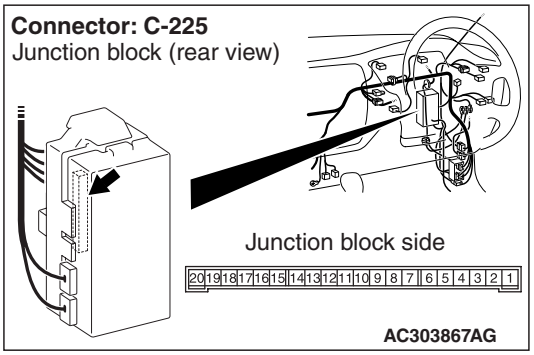
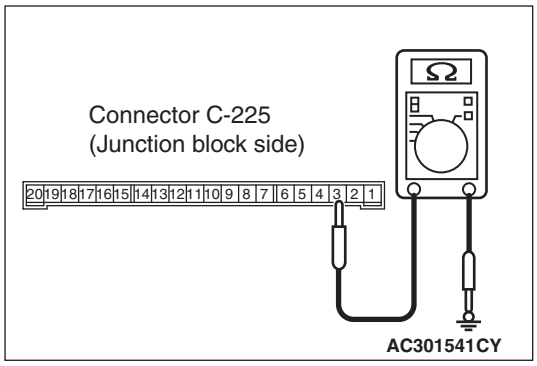
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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



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

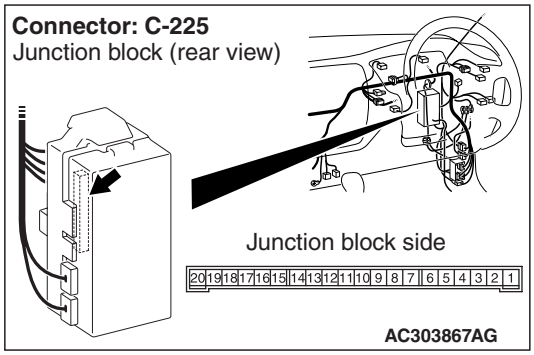


(2) Continuity between C-225 ETACS-ECU connector terminal No.3 and body earth.

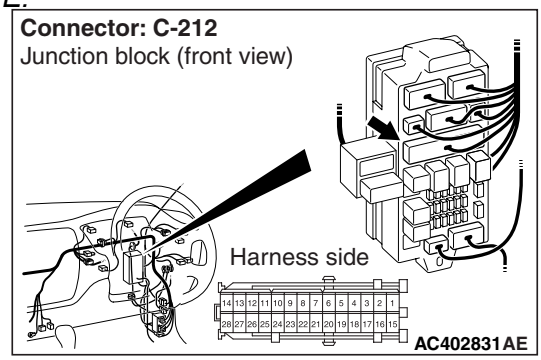
OK: 2Ω or less

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

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



NOTE:



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

- Check the earth wires for open circuit.

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

STEP 6. Retest the system.

Check that the battery power supply circuit to the ETACS-ECU is normal.

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

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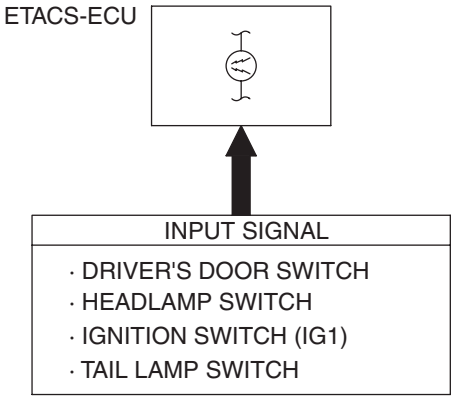
BUZZER

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

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

Lamp Reminder Buzzer Function



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COMMENTS ON TROUBLE SYMPTOM

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

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

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

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STEP 2. Pulse check

Check the input signals below, which are related to the lamp reminder buzzer function.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Driver's door switch	When the driver's door is opened
Tail lamp switch	When the lighting switch is turned to the TAIL position
Headlamp switch	When the lighting switch is turned to the HEADLAMP position

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

Q: Is the check result normal?

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

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The driver's door switch signal is not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213."

NO <The tail lamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

NO <The headlamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

STEP 3. Retest the system.

The lamp reminder buzzer function should work normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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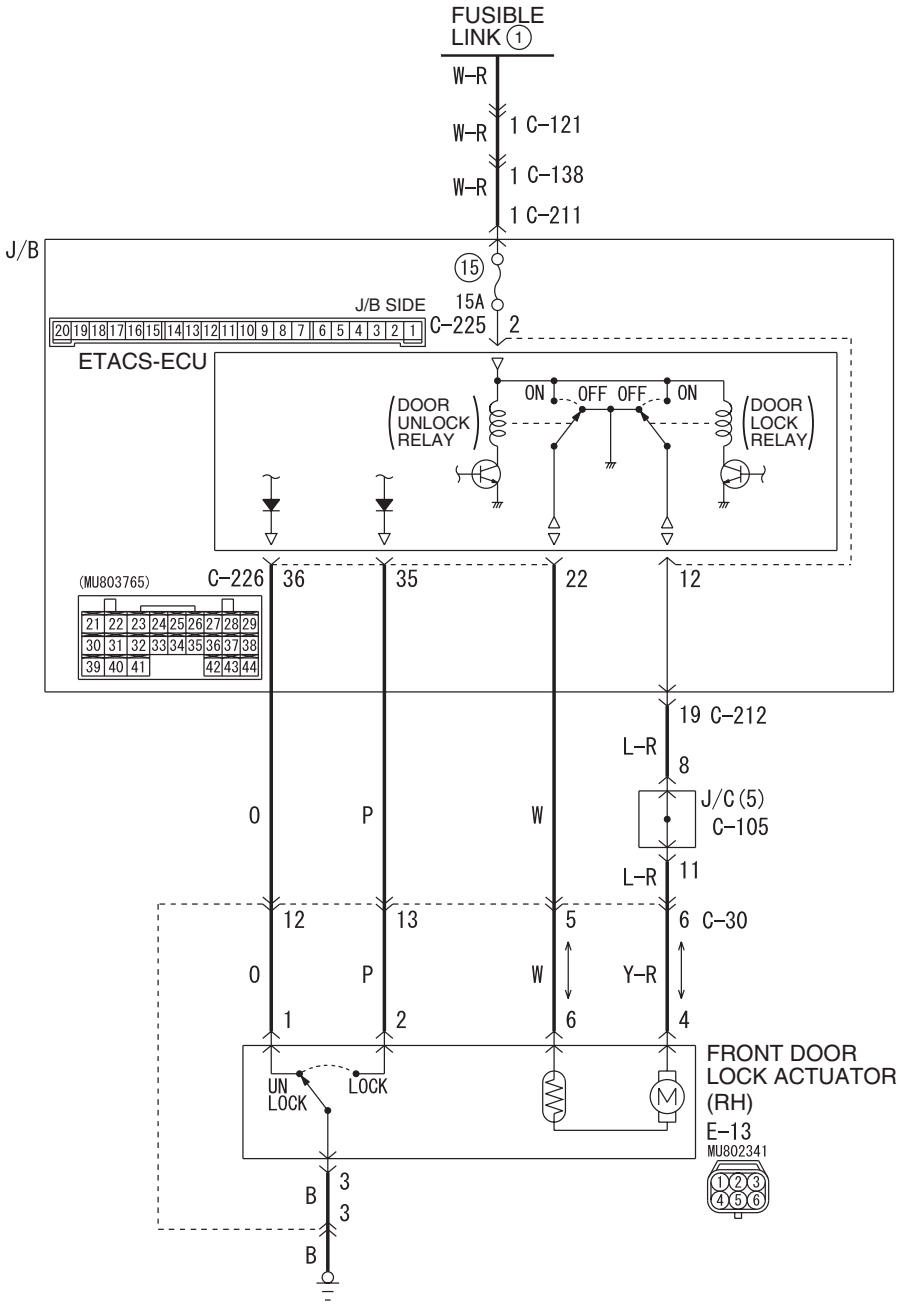
CENTRAL DOOR LOCKING SYSTEM

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

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

Central Door Lock Power Supply Circuit



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

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COMMENT ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure A-2 "Check the ETACS-ECU battery power supply circuit" P.54B-41.

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

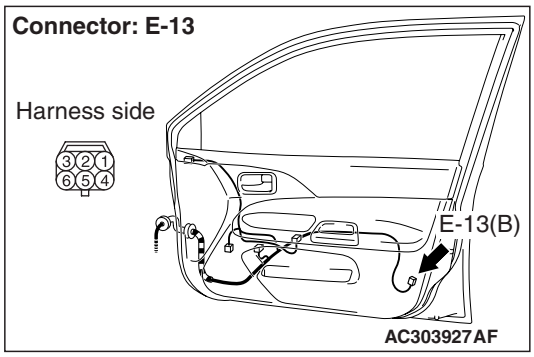
OK: The M.U.T.-II/III sound or the voltmeter needle fluctuate.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure M-12 "The front door lock actuator (RH) switch signal is not received" P.54B-235.

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



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

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

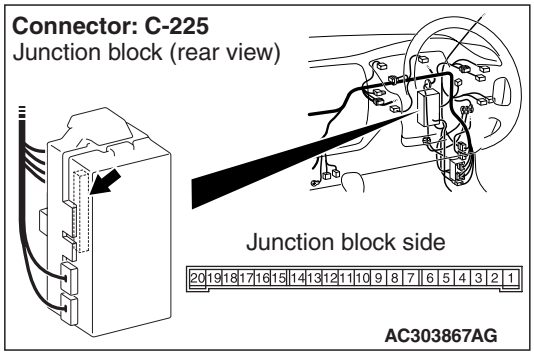
Check that the front door lock actuator (RH) works normally. Refer to GROUP 42 – Door P.42-34.

Q: Is the check result normal?

YES : Go to Step 5.

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

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



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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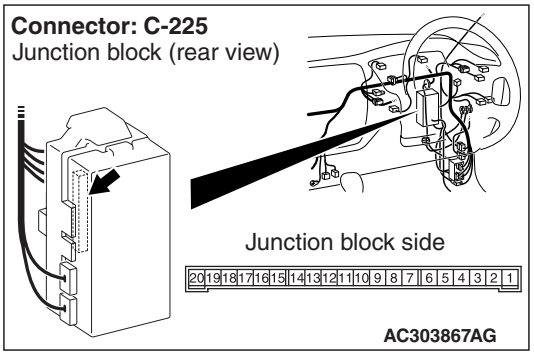
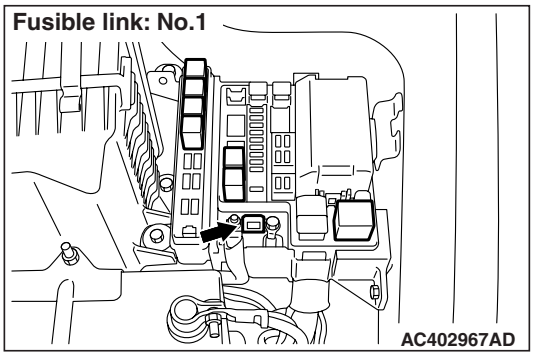
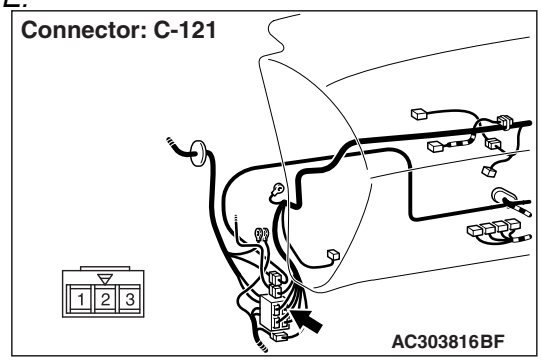
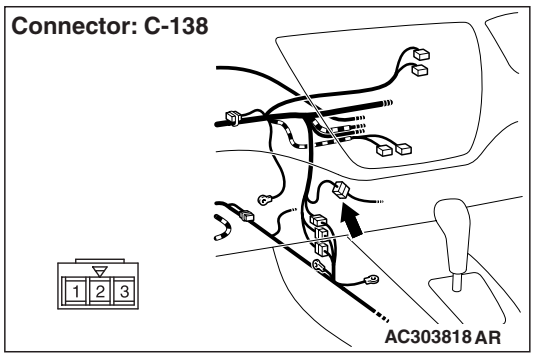
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.2 and fusible link (1).

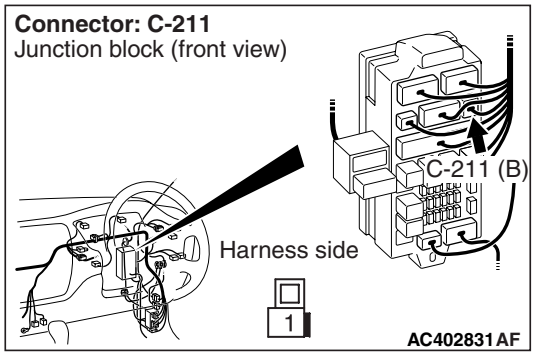




NOTE:







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

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

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

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

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

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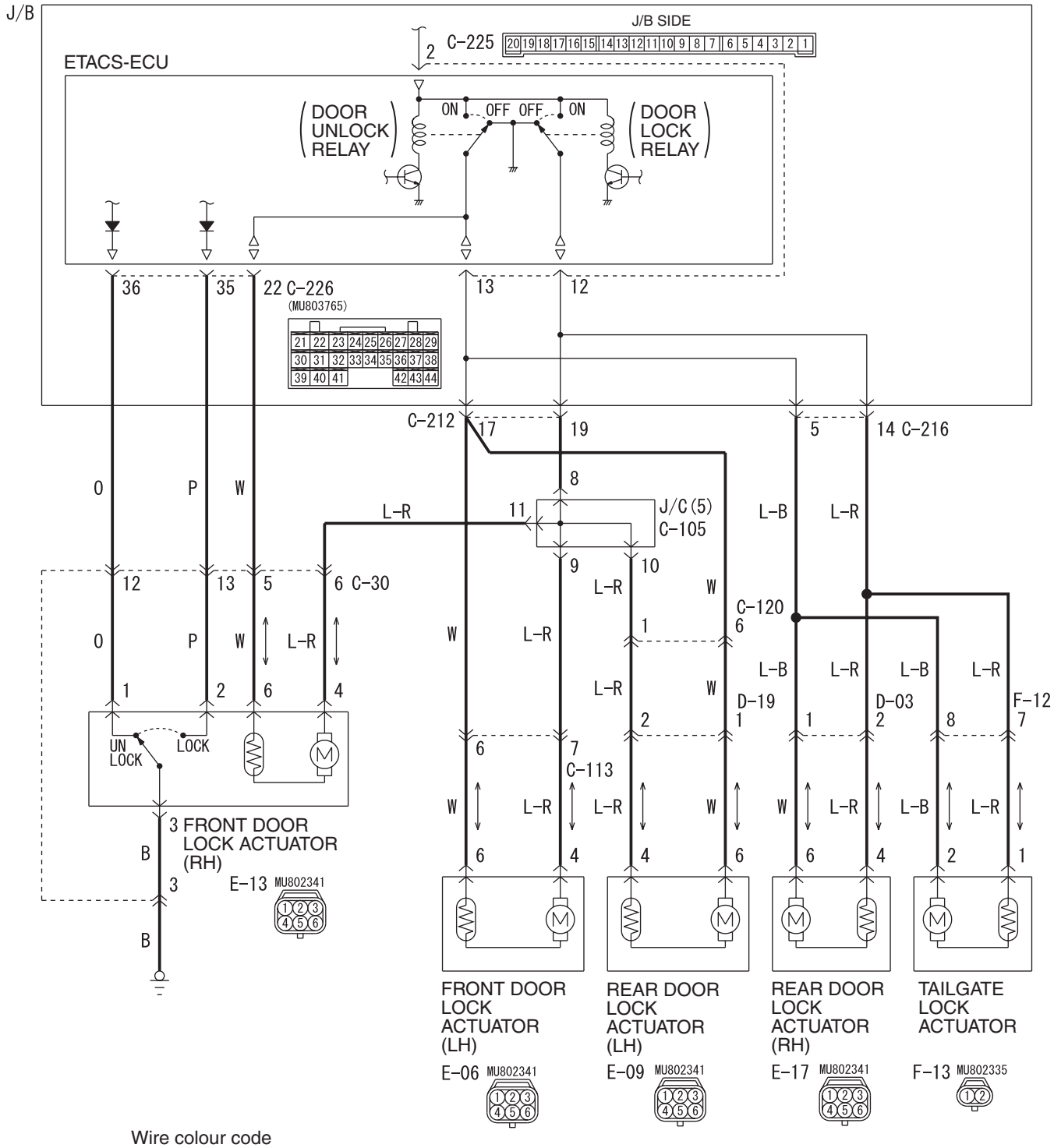
INSPECTION PROCEDURE C-2: A door or a tailgate can not be locked or unlocked by the central door locking system.

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.

PROBABLE CAUSES

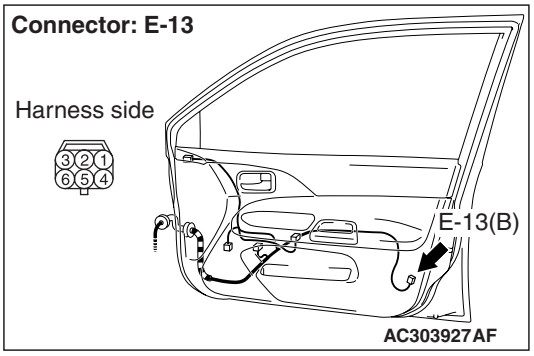
- Malfunction of the door lock actuator
- Malfunction of the tailgate lock actuator
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Confirm which door lock actuator is defective.

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

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



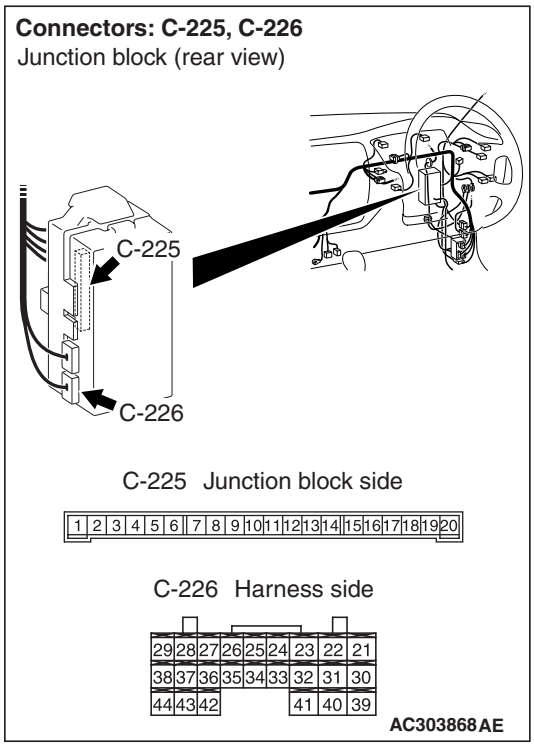
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

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

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

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

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



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

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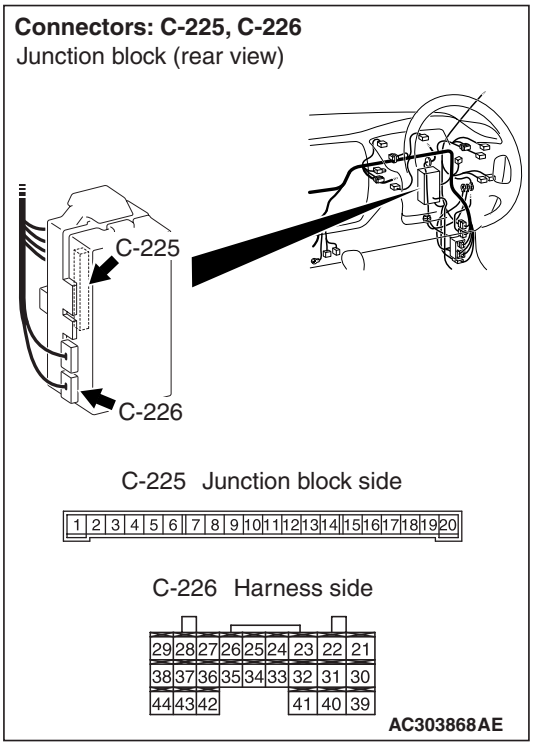
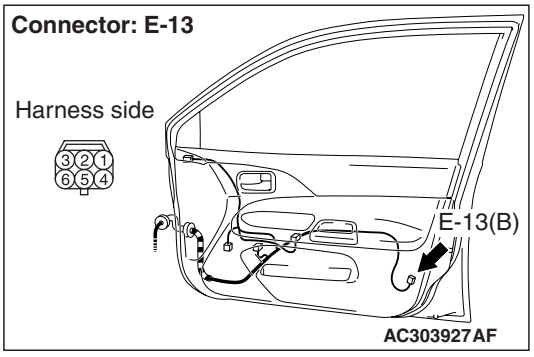
STEP 5. Check the wiring harness from C-225 ETACS-ECU connector terminal No.12 and C-226 ETACS-ECU connector No.22 to E-13 front door lock actuator (RH) connector terminal Nos. 4 and 6.





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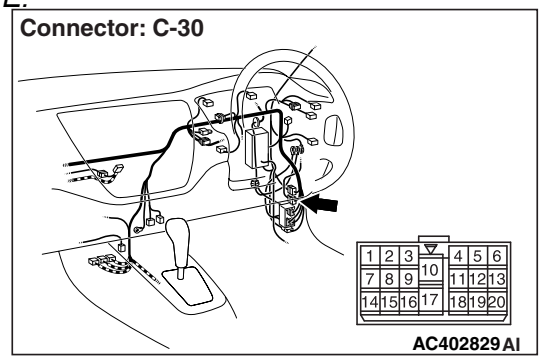

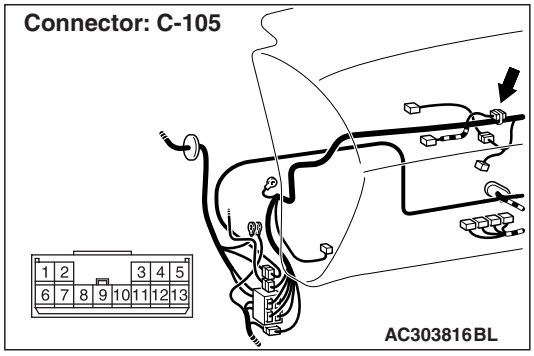

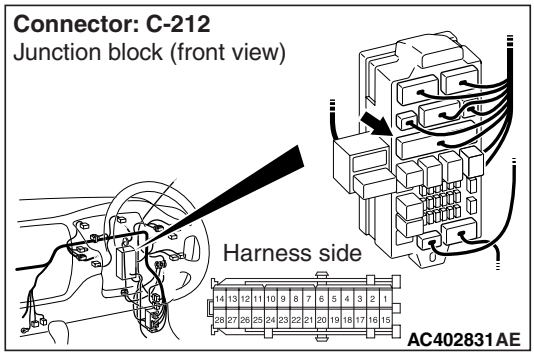

Prior to the wiring harness inspection, check intermediate connector C-30 and joint connector C-105, junction block connector C-212, and repair if necessary.

Check the input and output lines for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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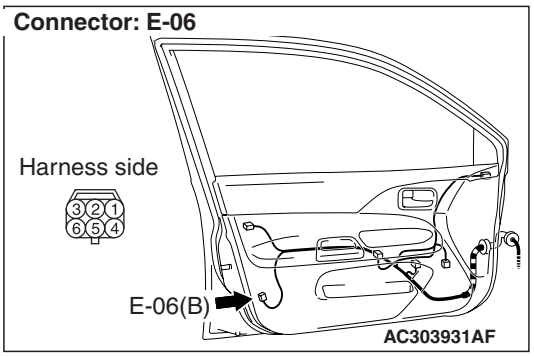
STEP 6. Connector check: E-06 front door lock actuator (LH) connector

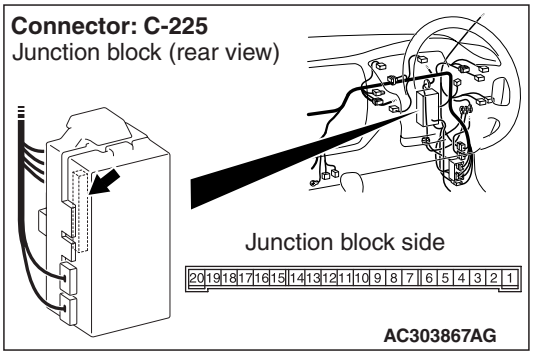


Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the defective connector.

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

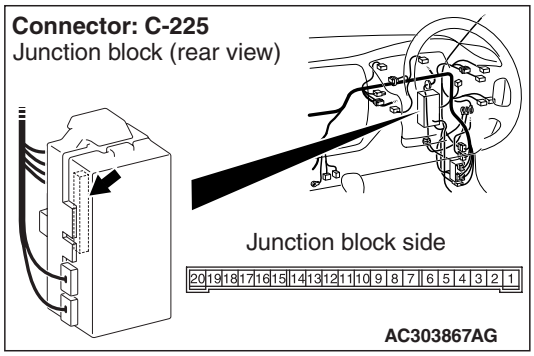
Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the front door lock actuator (LH).

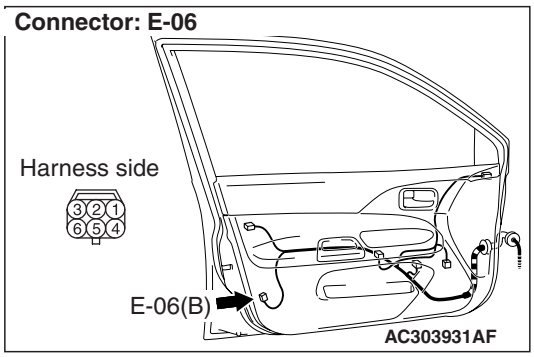
STEP 8. Connector check: C-225 ETACS-ECU connector



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

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





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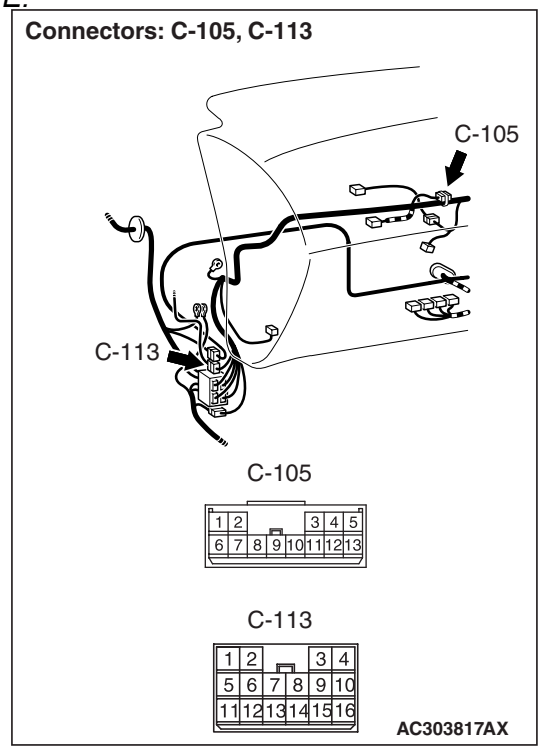
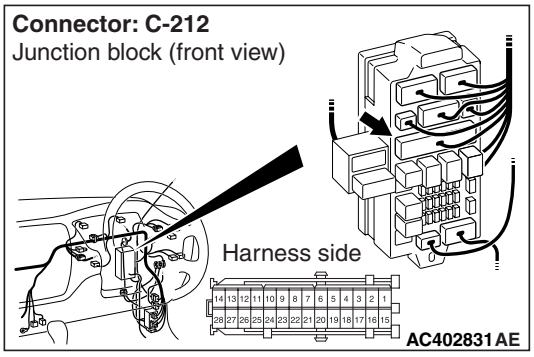
NOTE:





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

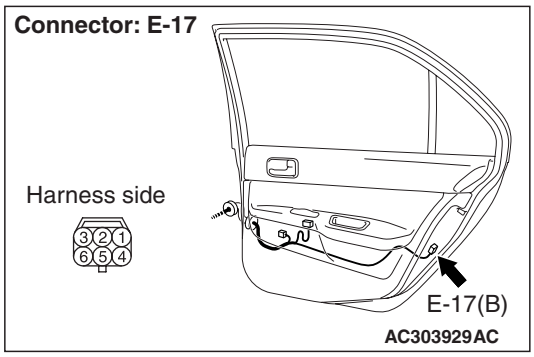
Check the input and output lines for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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



Q: Is the check result normal?

YES : Go to Step 11.

NO : Repair the defective connector.

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

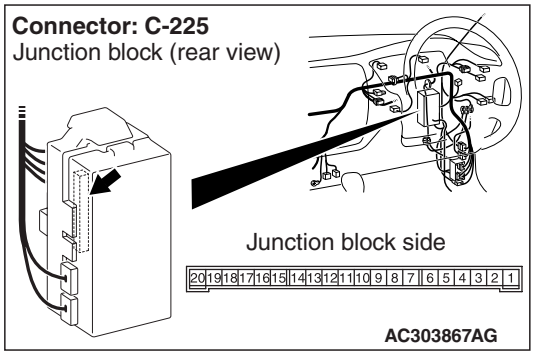
Check that the rear door lock actuator (RH) is in good condition. Refer to GROUP 42 – Door P.42-34.

Q: Is the check result normal?

YES : Go to Step 12.

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

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



Q: Is the check result normal?

YES : Go to Step 13.

NO : Repair the defective connector.

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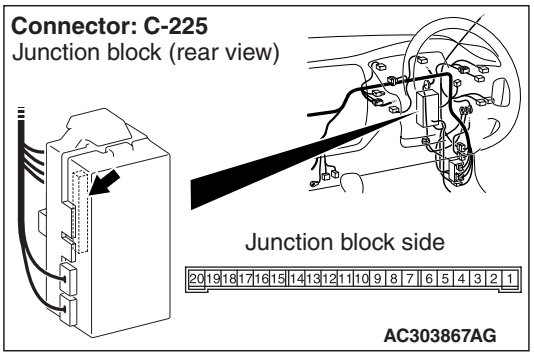
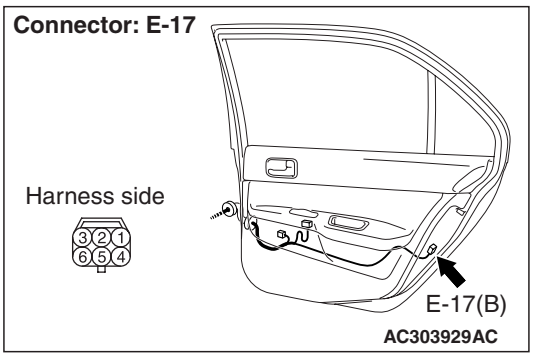
STEP 13. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to E-17 rear door lock actuator (RH) connector terminal Nos. 4 and 6.





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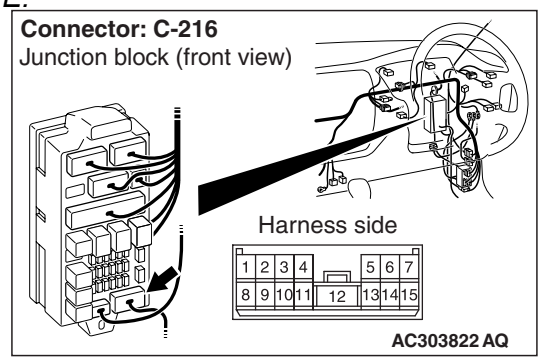
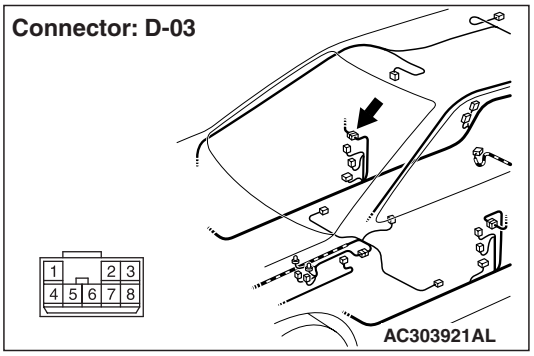


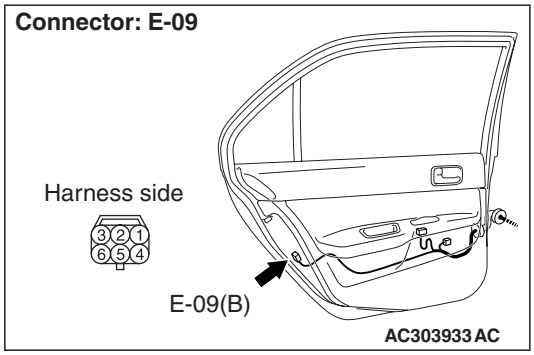


Prior to the wiring harness inspection, check intermediate connector D-03 and junction block connector C-216, and repair if necessary.

- Check the input and output lines for open circuit.

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

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

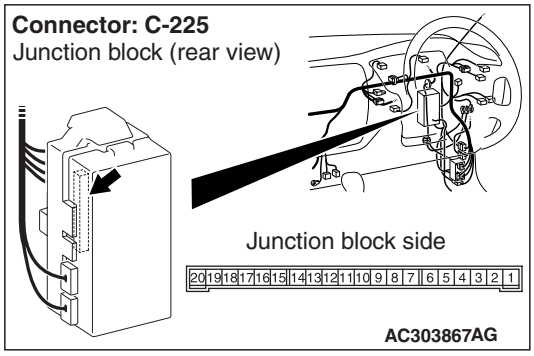


Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the defective connector.

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

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

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



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

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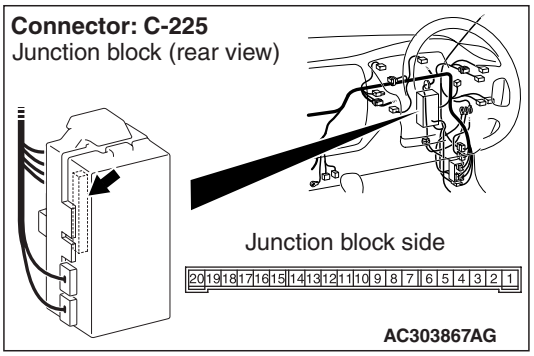
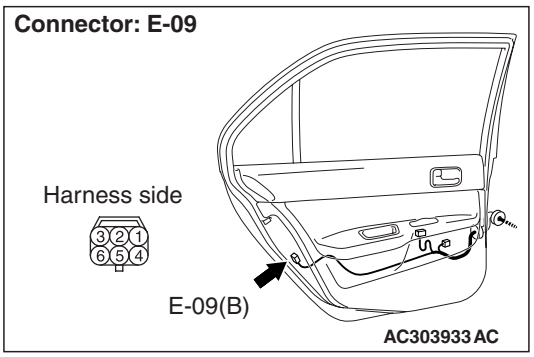
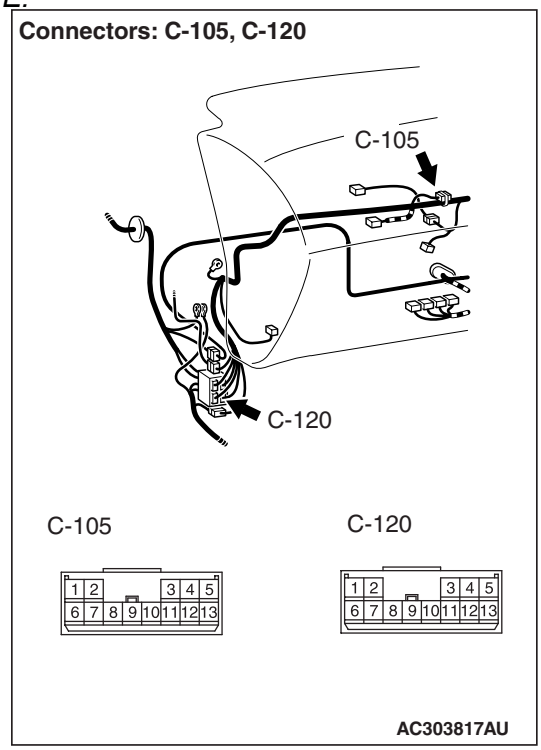
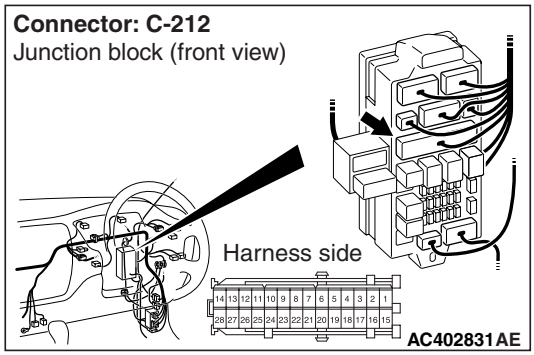
STEP 17. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 12 and 13 to E-09 rear door lock actuator (LH) connector terminal Nos. 4 and 6.

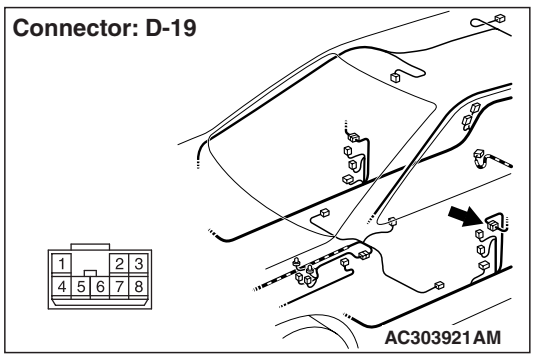




NOTE:







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

Check the input and output lines for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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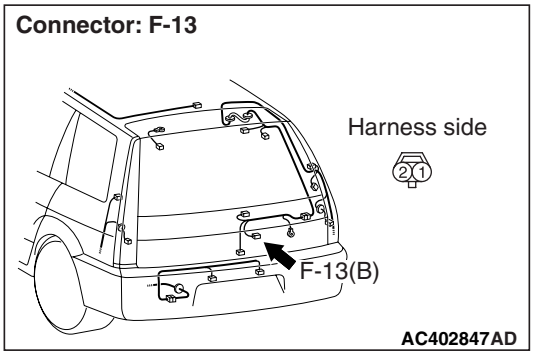
STEP 18. Connector check: F-13 tailgate lock actuator connector



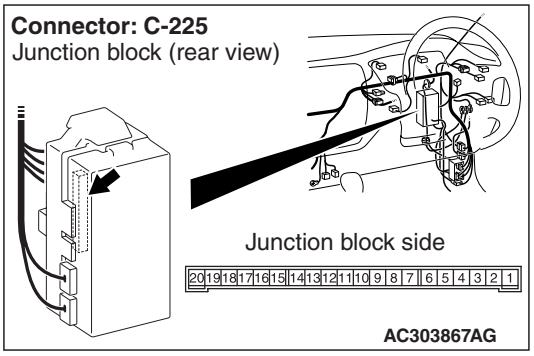
Q: Is the check result normal?
YES : Go to Step 19.
NO : Repair the defective connector.

STEP 19. Check the tailgate lock actuator.

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

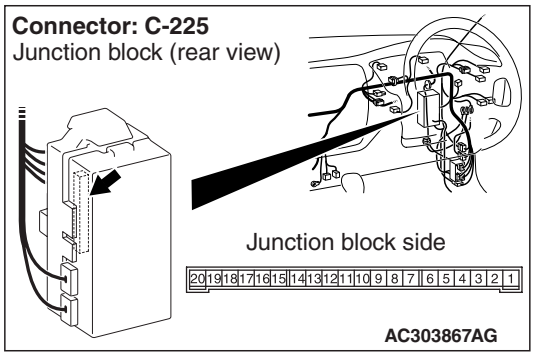
Q: Is the check result normal?
YES : Go to Step 20.
NO : Replace the tailgate lock actuator.

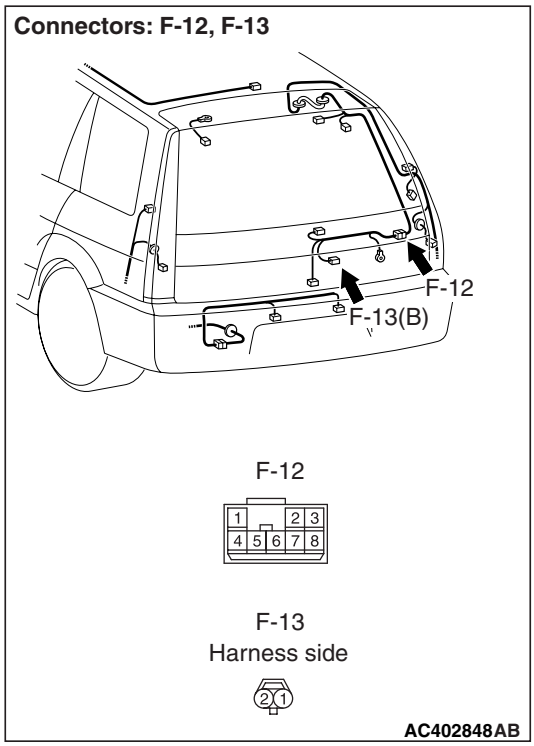
STEP 20. Connector check: C-225 ETACS-ECU connector



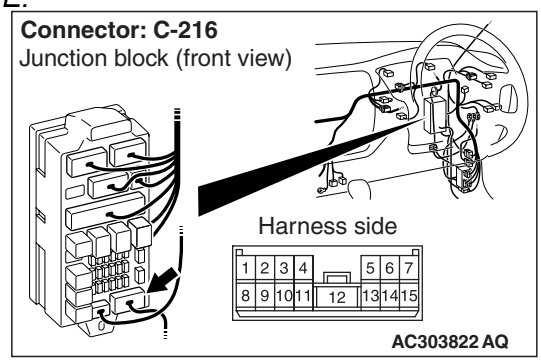
Q: Is the check result normal?
YES : Go to Step 21.
NO : Repair the defective connector.

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





NOTE:



Prior to the wiring harness inspection, check intermediate connector F-12 and junction block connector C-216, and repair if necessary.
Check the input and output lines for open circuit.

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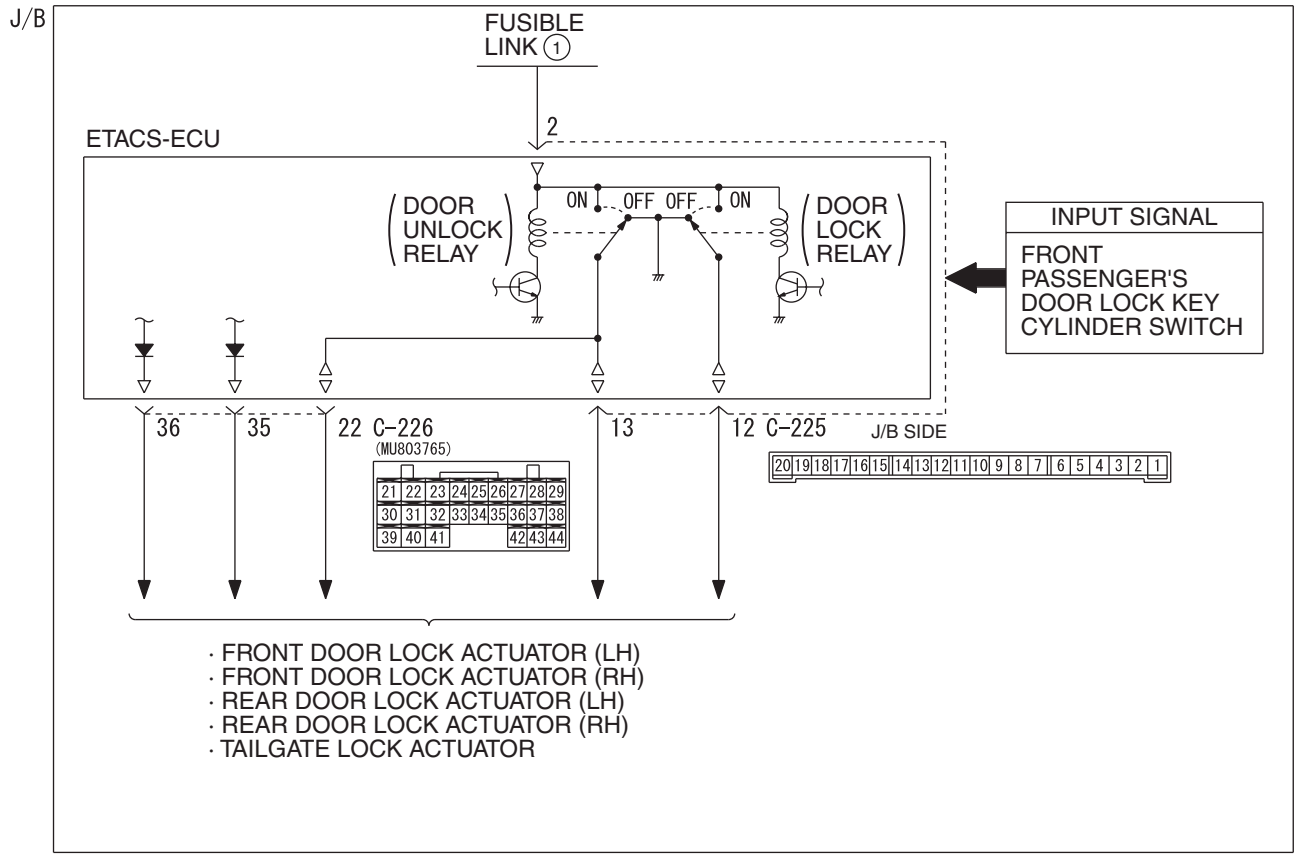
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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

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

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



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the central door locking system.
Check that the central door locking system works normally by means of the driver's door lock key cylinder and inside lock knob.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure C-1 "Central door locking system does not work at all P.54B-46."

STEP 2. Pulse check
Check the input signal from the front passenger's door lock key cylinder switch.

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

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-17 "The door lock key cylinder switch signal is not received" P.54B-252.

STEP 3. Retest the system.
Check that the central door locking system works normally by means of the front passenger's door lock key cylinder.

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

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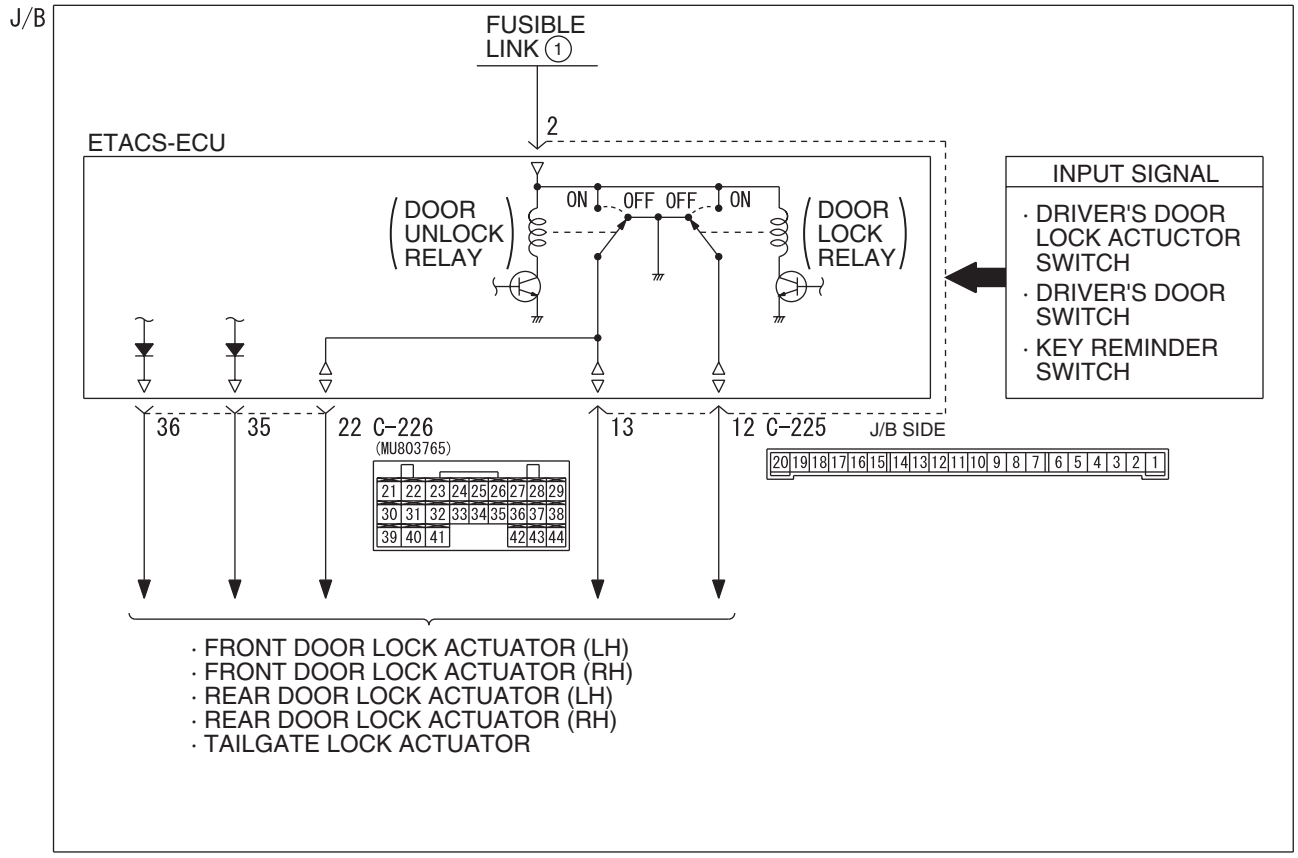
INSPECTION PROCEDURE C-4: The ignition key reminder function does not work normally.

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

Ignition Key Reminder Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

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

PROBABLE 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. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure A-2 "Check the ETACS-ECU battery power supply circuit" P.54B-41.

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STEP 2. Pulse check

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

System switch	Check conditions
Driver's door switch	When the driver's door is opened
Key reminder switch	When the inserted ignition key is pulled out
Driver's door lock actuator switch	When the driver's key cylinder or inside lock knob is unlocked or locked

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

Q: Is the check result normal?

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

NO <The driver's door switch signal is not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213."

NO <The key reminder switch signal is not received> : Refer to inspection procedure M-9 "The key reminder switch signal is not received P.54B-224."

NO <The driver's door lock actuator switch signal is not received> : Refer to inspection procedure M-12 "The front door lock actuator (RH) switch signal is not received P.54B-235."

STEP 3. Retest the system.

Q: Does the ignition key reminder function work normally?

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

NO : Replace the ETACS-ECU.

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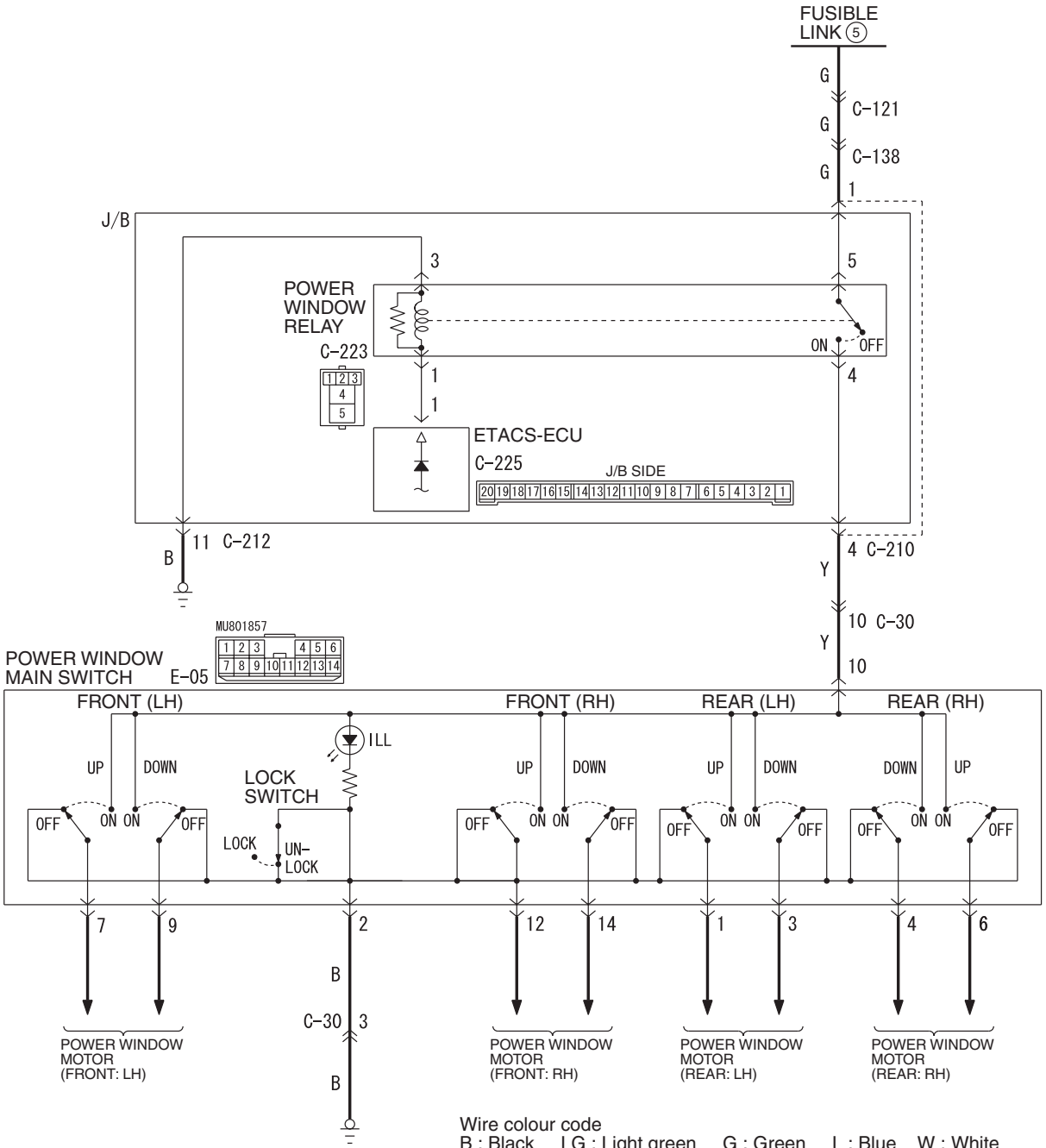
POWER WINDOW

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

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

Power Window Relay Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Pulse check

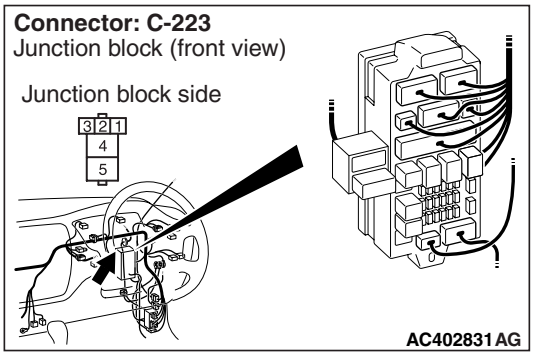
Check the input signal from the ignition switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC 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 : Refer to inspection procedure A-2 "When the ignition switch is at the LOCK (OFF) position, the functions do not work normally. Check the battery power supply circuit to the ETACS-ECU P.54B-41."

STEP 2. Connector check: C-223 power window relay connector



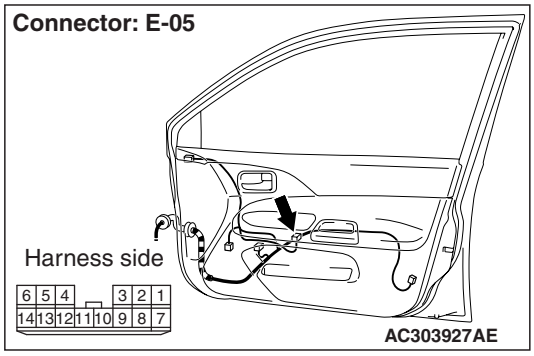
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

STEP 3. Check the power window relay.

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

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

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



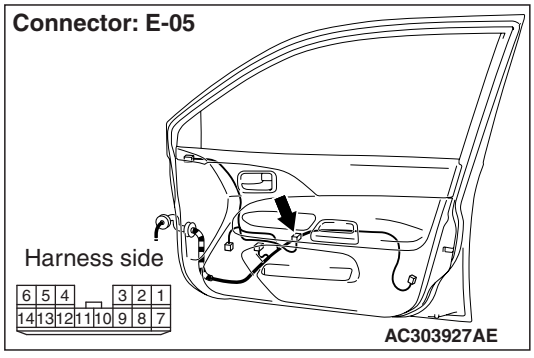
Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

STEP 5. Check the power window main switch.

Refer to GROUP 42 – Door P.42-25.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the power window main switch.

STEP 6. Voltage measurement at the E-05 power window main switch connector



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

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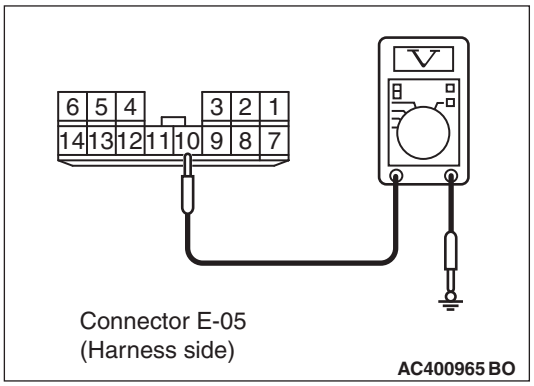
(2) Turn the ignition switch to the "ON" position.

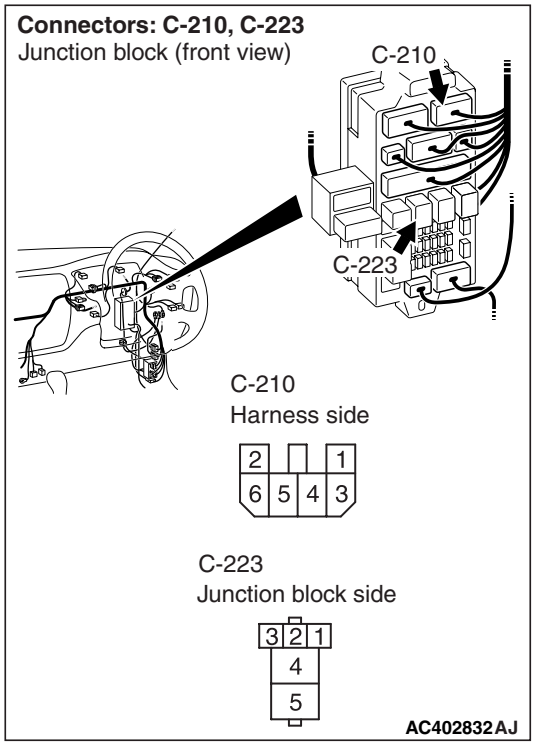


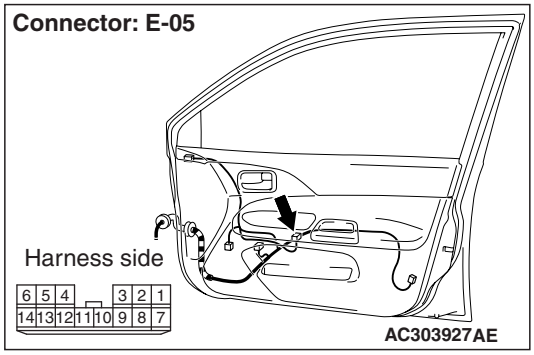
(3) Voltage between terminal 10 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 10.
NO : Go to Step 7.

STEP 7. Check the wiring harness between C-223 power window relay connector terminal No.4 and E-05 power window main switch connector terminal No.10.





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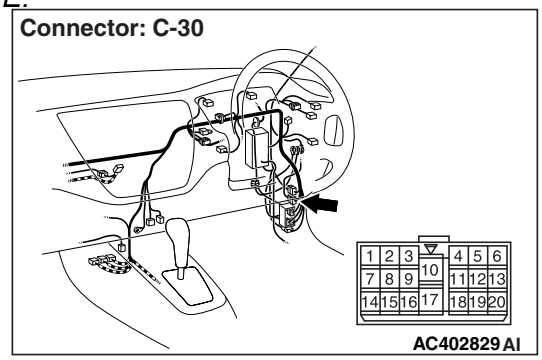
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30 and junction block connector C-210, and repair if necessary.

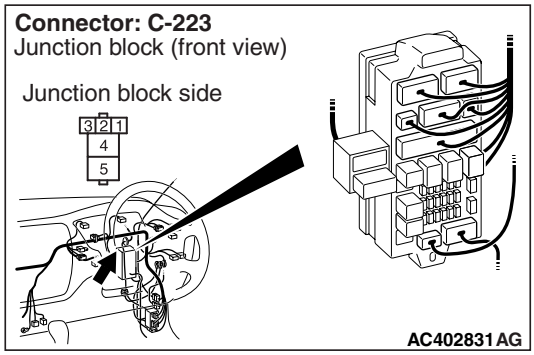
- Check the power supply line for open circuit.

Q: Is the check result normal?

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

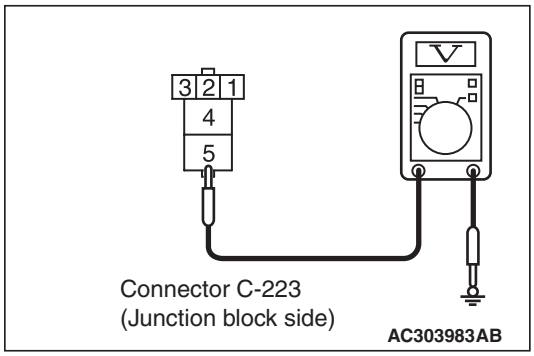
NO : Repair the harness wire, and then go to Step 7.

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



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

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



(3) Voltage between terminal 5 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

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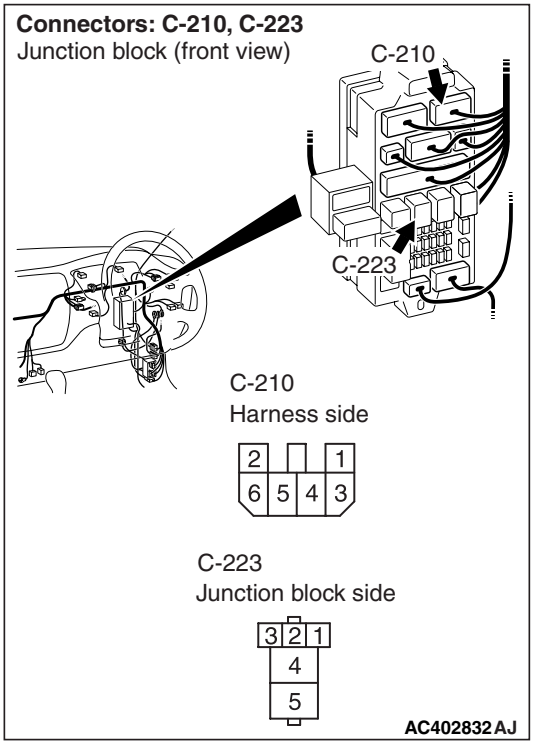
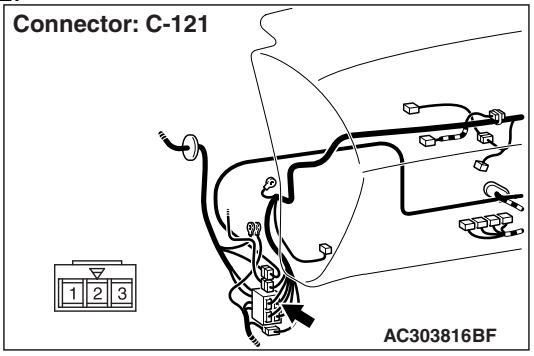
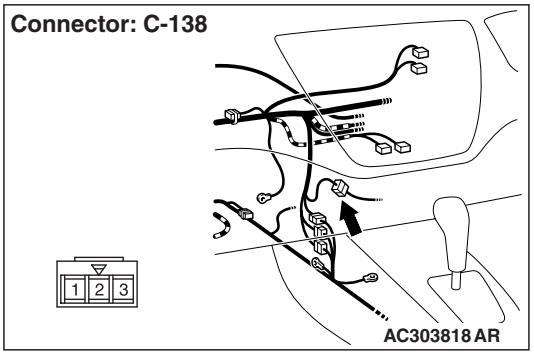
STEP 9. Check the wiring harness between C-223 power window relay connector terminal No.5 and fusible link (5).



NOTE:

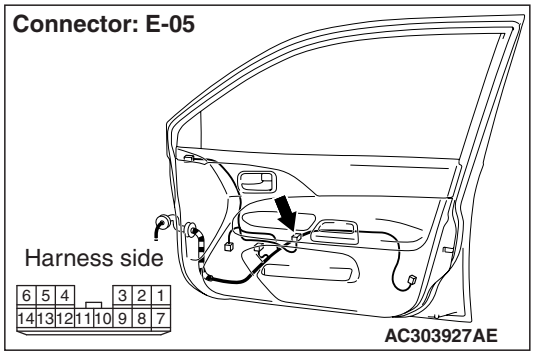




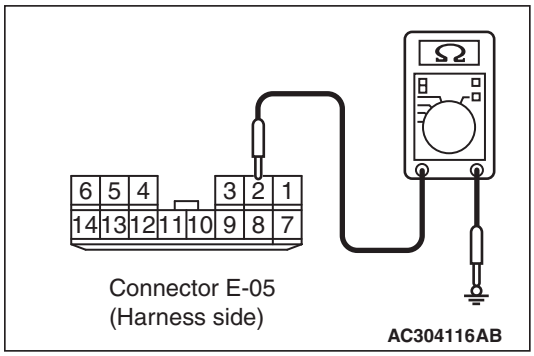
Prior to the wiring harness inspection, check intermediate connector C-121, C-138 and junction block connector C-210, and repair if necessary.
Check the power supply line for open circuit.

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

STEP 10. Resistance measurement at the E-05 power window main switch connector



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



(2) Resistance between terminal 2 and body earth

OK: 2Ω or less

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

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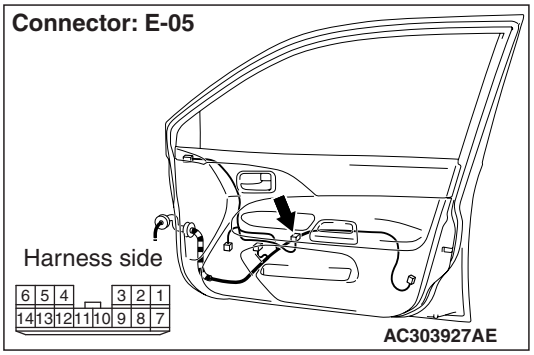
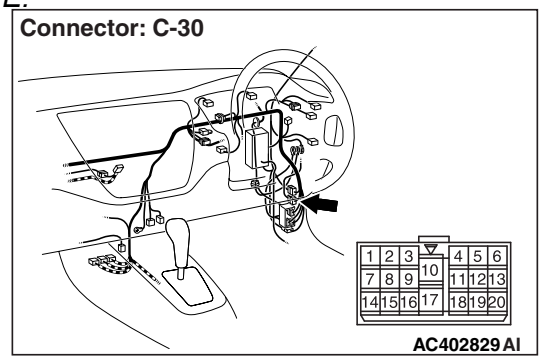
STEP 11. Check the wiring harness between E-05 power window main switch connector terminal No.2 and body earth.



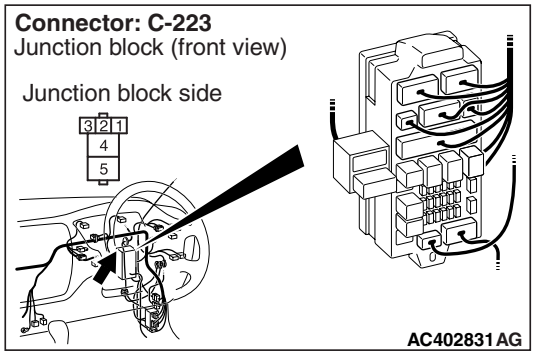
NOTE:



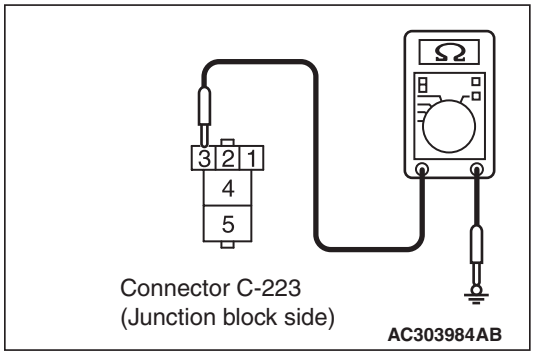
Prior to the wiring harness inspection, check intermediate connector C-30 and repair if necessary.
Check the earth wires for open circuit.

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

STEP 12. Resistance measurement at C-223 power window relay connector



(1) Disconnect the connector, and measure at the junction block side.



(2) Resistance between terminal 3 and body earth
OK: 2Ω or less

Q: Is the check result normal?
YES : Go to Step 14.
NO : Go to Step 13.

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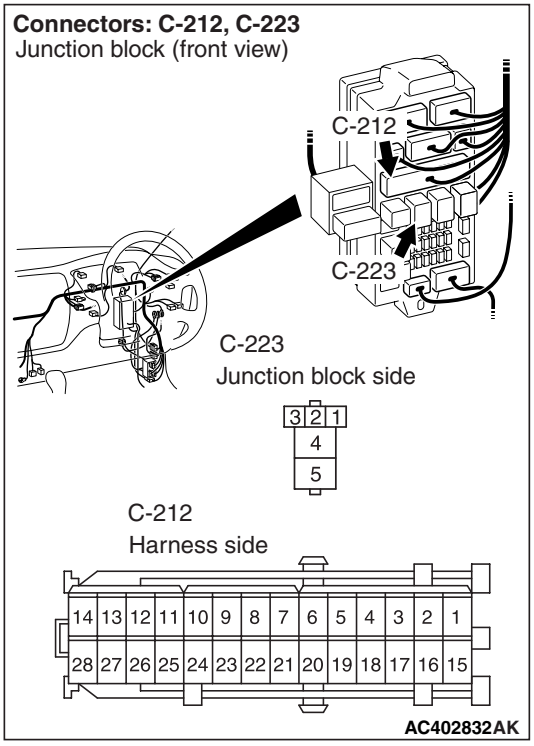
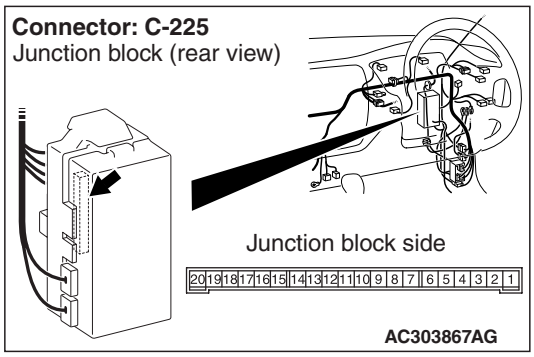
STEP 13. Check the wiring harness between C-223 power window relay connector terminal No.3 and body earth.



NOTE: Prior to the wiring harness inspection, check junction block connector C-212, and repair if necessary.
Check the earth wires for open circuit.

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

STEP 14. Connector check: C-225 ETACS-ECU connector



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

STEP 15. Retest the system.
Check that all the power windows work.

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

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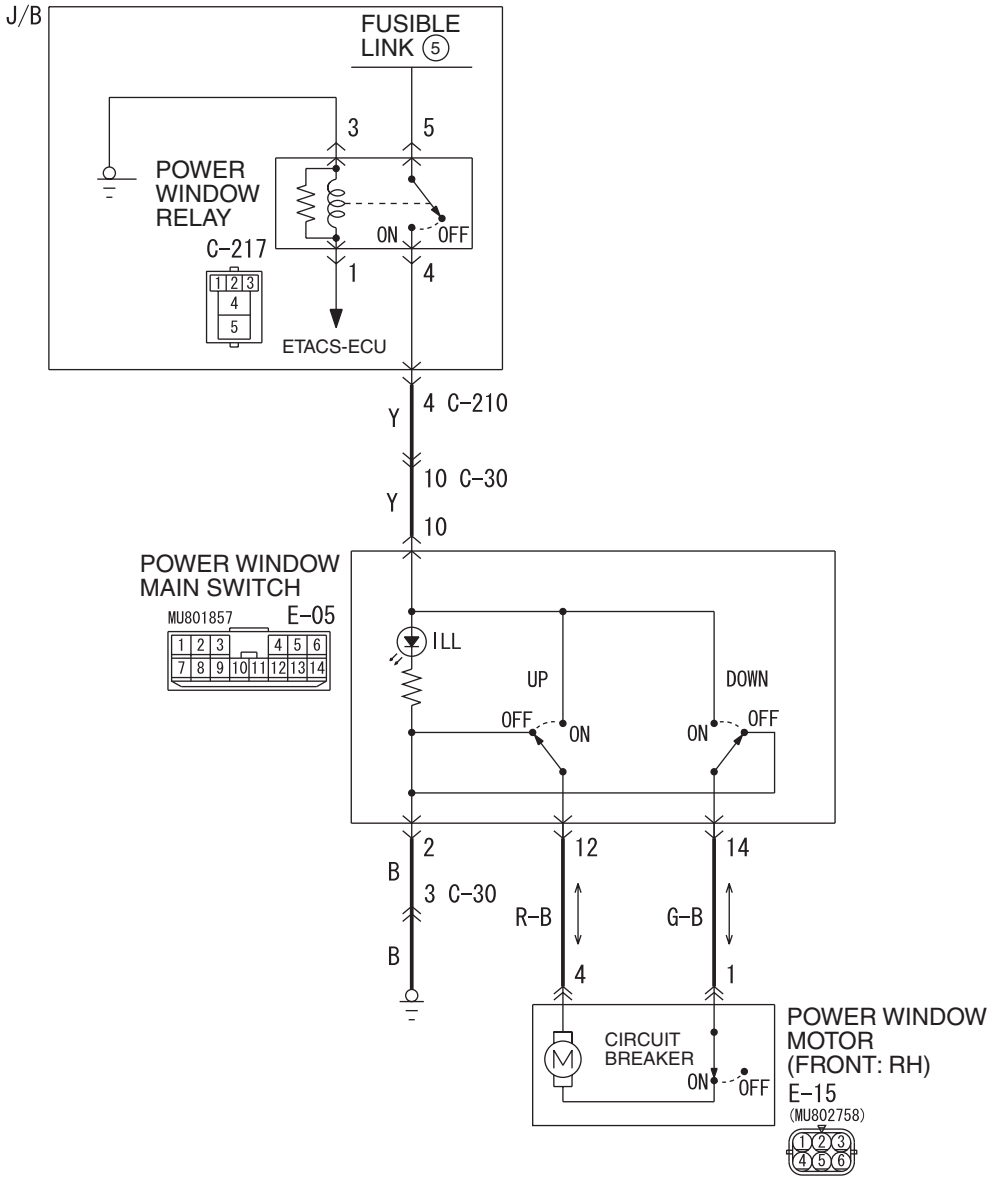
INSPECTION PROCEDURE D-2: Driver's power window does not work by means of the power window main switch.

Power Window (Front: RH) Circuit



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

W5J54L047A

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 power window motor (front: RH) may be defective.

PROBABLE CAUSES

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

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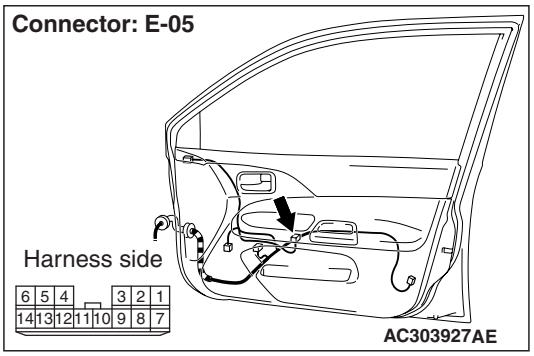
DIAGNOSIS PROCEDURE

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

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54B-61."

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

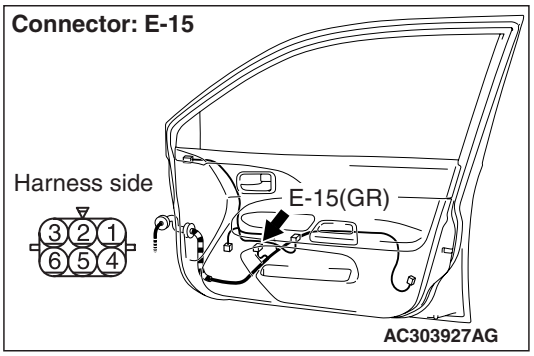


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

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

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

STEP 4. Connector check: E-15 power window motor (front: RH) connector

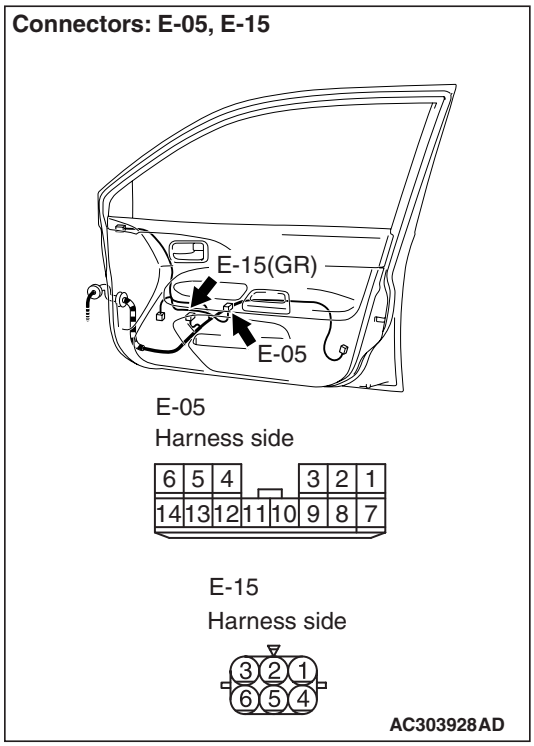


Q: Is the check result normal?
YES : Go to Step 5.
NO : Repair the connector.

STEP 5. Check the power window motor (front: RH).
Refer to GROUP 42 – Door P.42-30.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the power window motor (front: RH).

STEP 6. Check the wiring harness from E-15 power window motor (front: RH) connector terminal Nos. 1 and 4 to E-05 power window main switch connector terminal Nos. 14 and 12.



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

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

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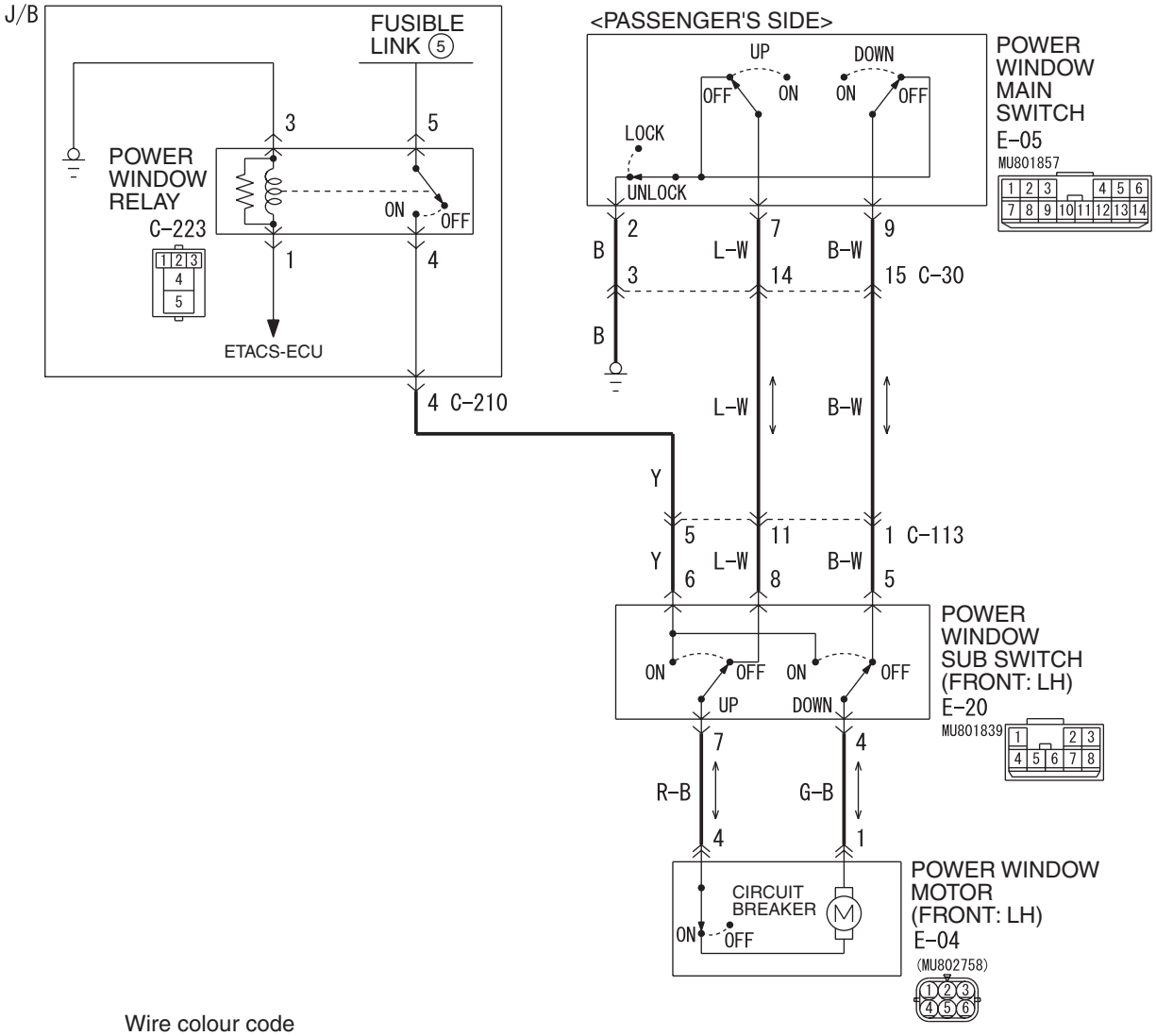
INSPECTION PROCEDURE D-3: Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches.

Power Window Sub Switch Circuit



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

W5J54L048A

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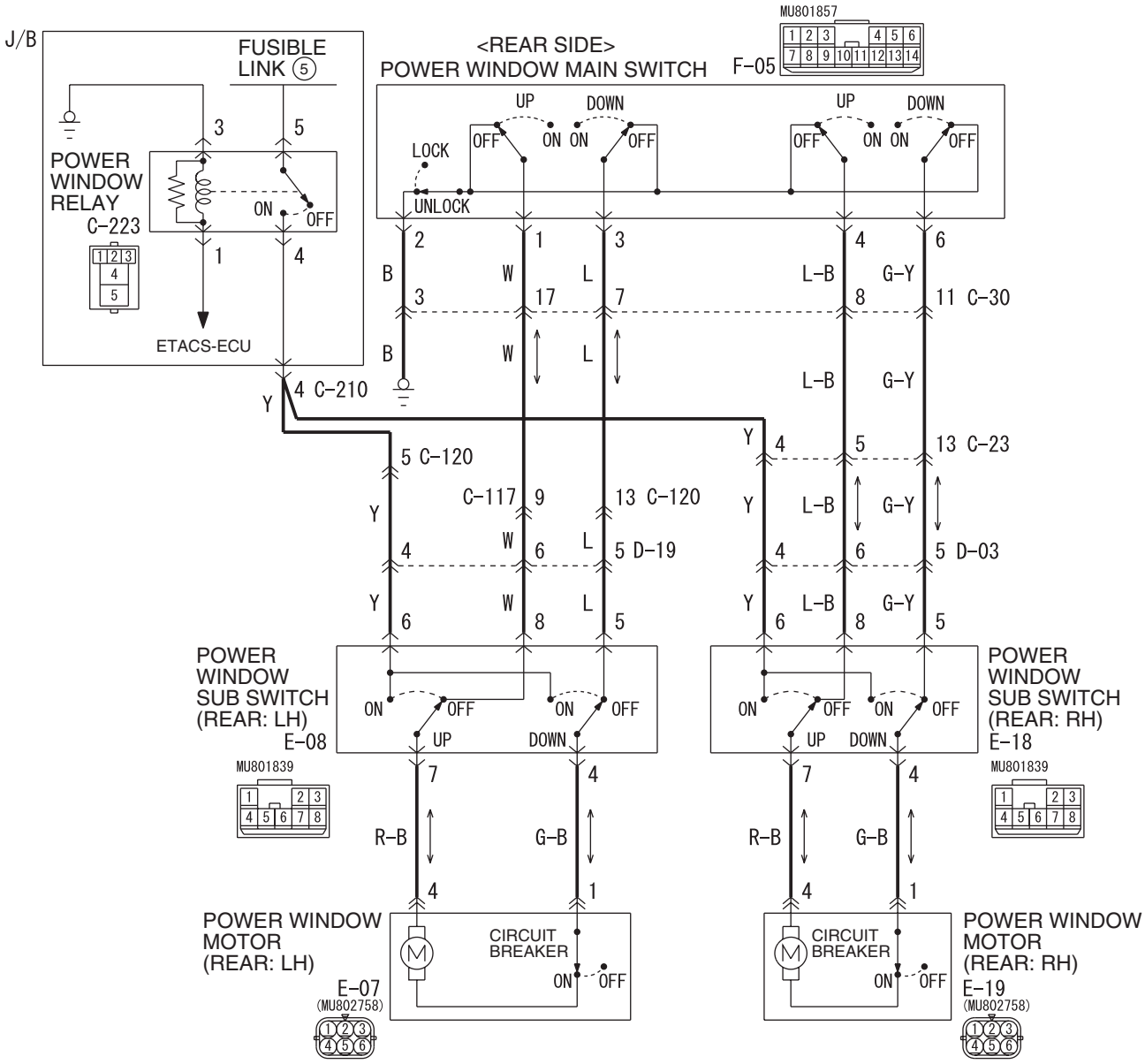
Power Window Sub Switch Circuit



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

W5J54L066A

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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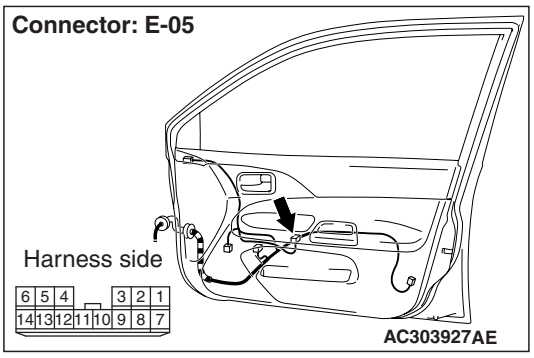
DIAGNOSIS PROCEDURE

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

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

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



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

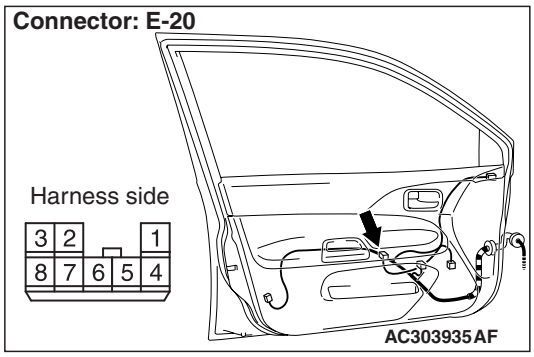
STEP 3. Check the power window main switch.
Refer to GROUP 42 – Door P.42-30.

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

STEP 4. Determine a trouble spot.

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

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

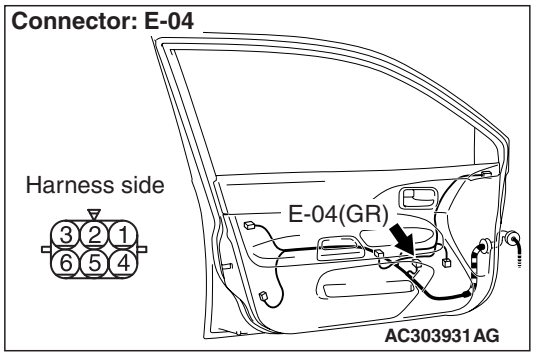


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

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

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

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



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

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

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

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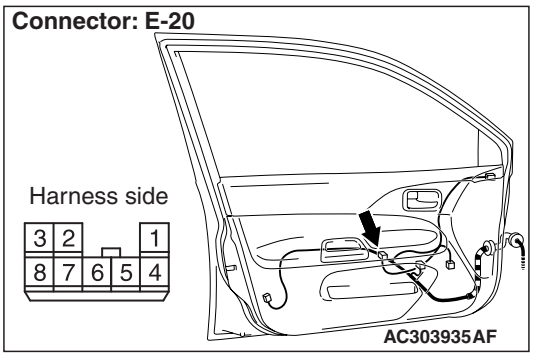
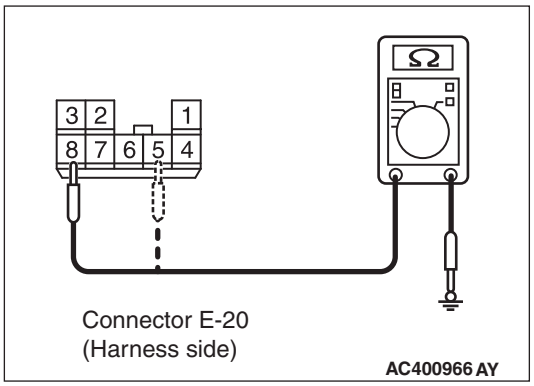
STEP 9. Resistance measurement at E-20 power window sub switch (front: LH) connector



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



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

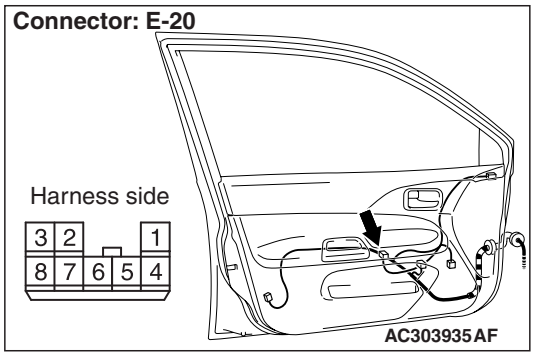
OK: 2Ω or less

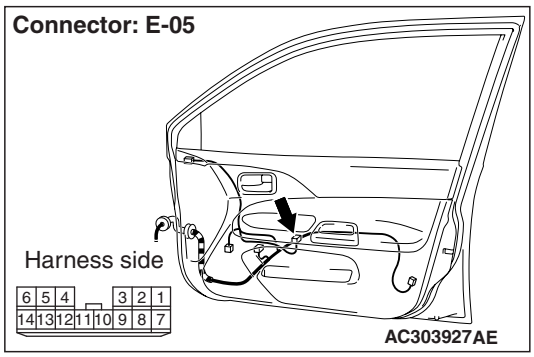
Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.

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





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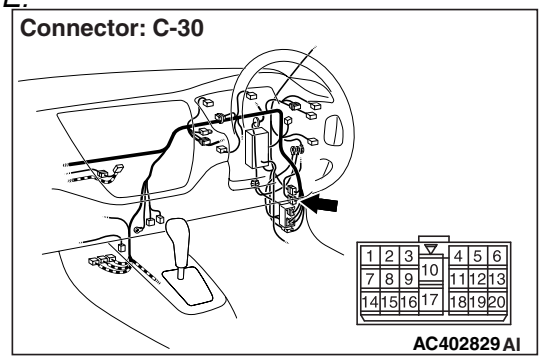
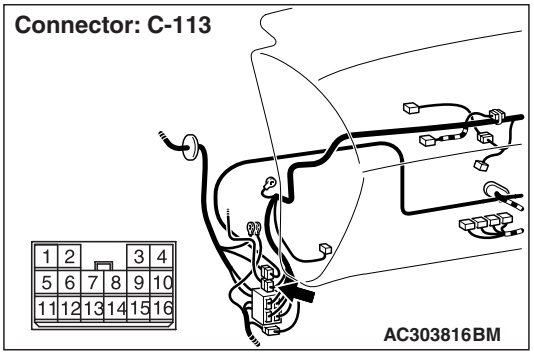
NOTE:

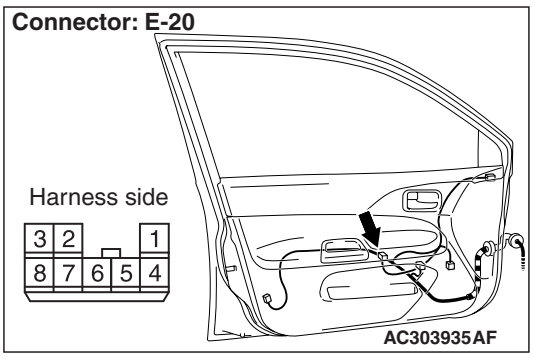




Prior to the wiring harness inspection, check intermediate connector C-30, C-113, and repair if necessary.
Check the earth wires for open circuit.

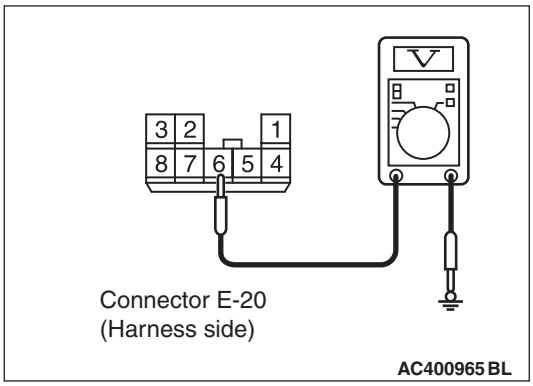
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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



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

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

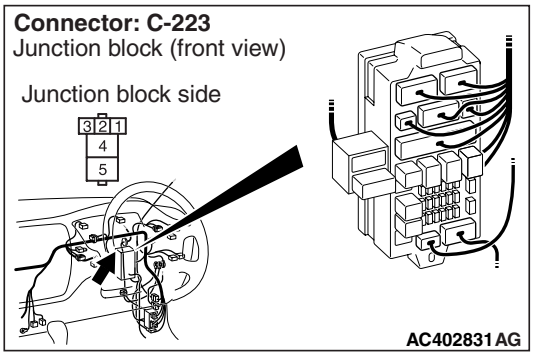


(3) Voltage between terminal 6 and body earth

OK: System voltage

Q: Is the check result normal?
YES : Go to Step 14.
NO : Go to Step 12.

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



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

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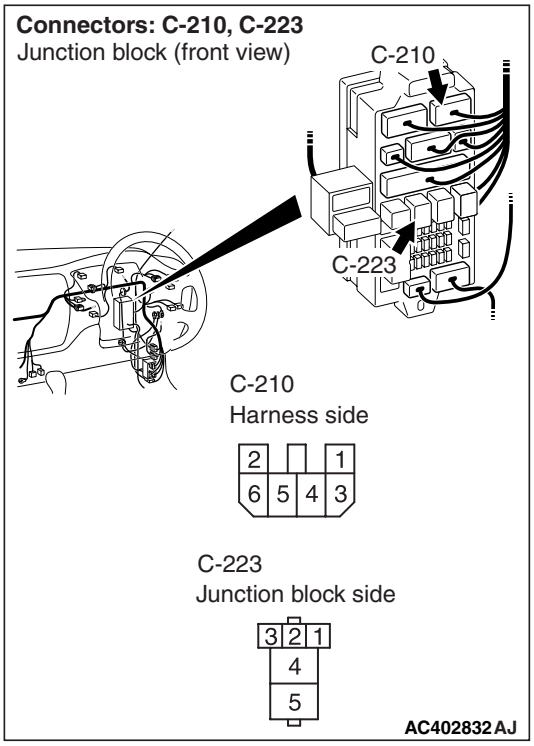
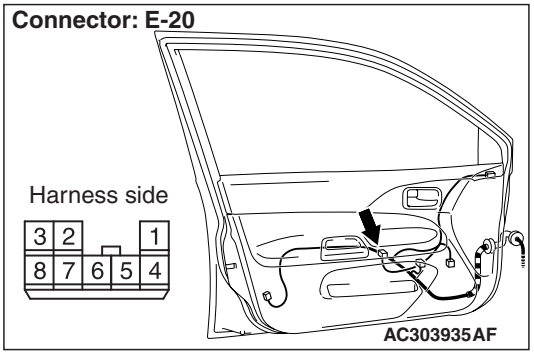
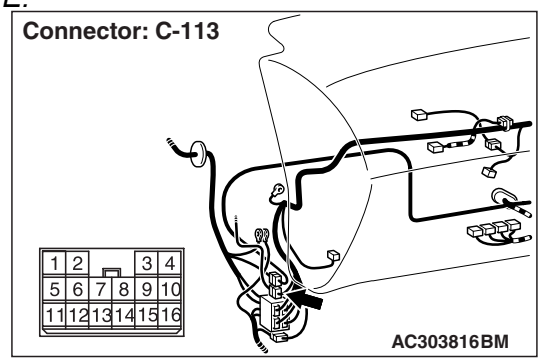
STEP 13. Check the wiring harness from E-20 power window sub switch (front: LH) connector terminal No. 6 to C-223 power window relay connector terminal No. 4.





NOTE:



Prior to the wiring harness inspection, check intermediate connectors C-113 and junction block connector C-210, and repair if necessary.

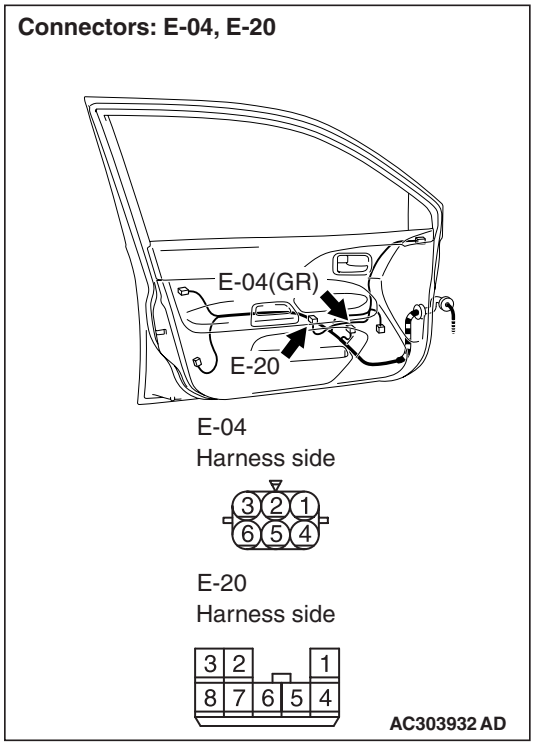
Check the power supply line for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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



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

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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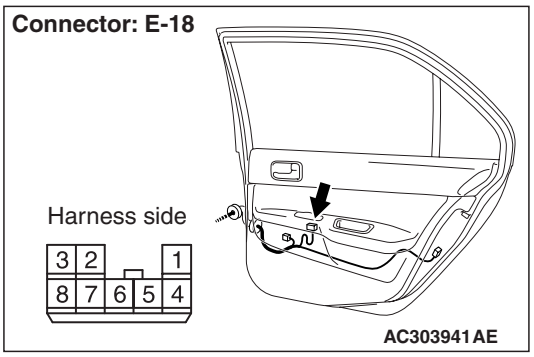
STEP 15. Connector check: E-18 power window sub switch (rear: RH) connector

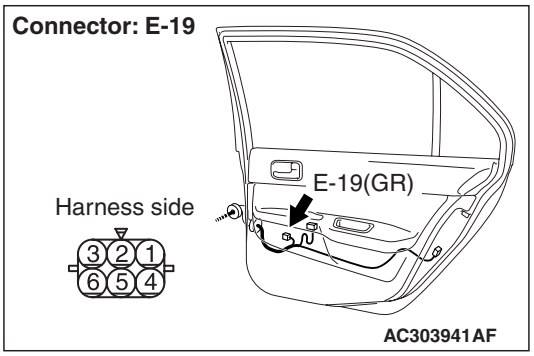


Q: Is the check result normal?
YES : Go to Step 16.
NO : Repair the connector.

STEP 16. Check the power window sub switch (rear: RH).
Refer to GROUP 42 – Door P.42-30.

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

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

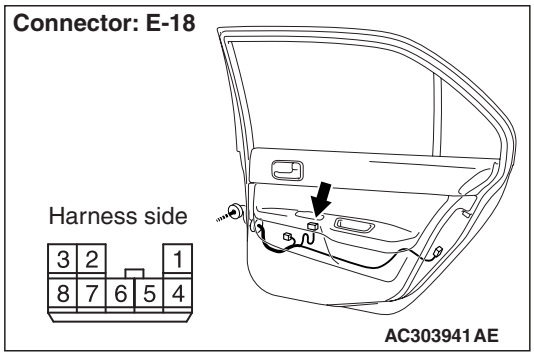


Q: Is the check result normal?
YES : Go to Step 18.
NO : Repair the connector.

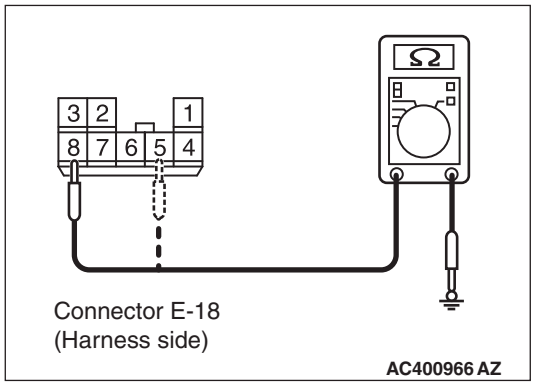
STEP 18. Check the power window motor (rear: RH).
Refer to GROUP 42 – Door P.42-30.

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

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



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



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

OK: 2Ω or less

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

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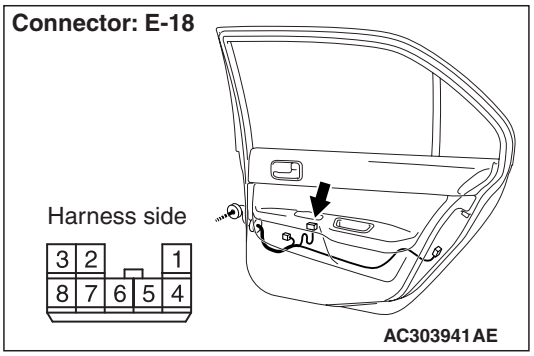
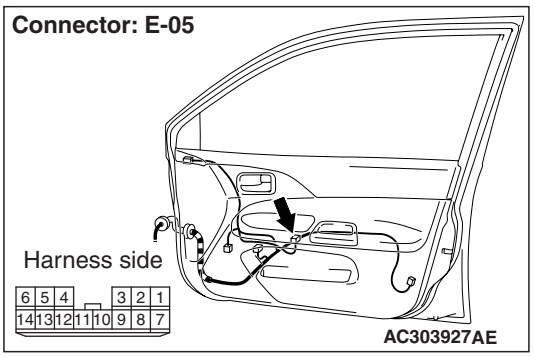
STEP 20. Check the wiring harness from E-18 power window sub switch (rear: RH) connector terminal Nos. 5 and 8 to E-05 power window main switch connector terminal Nos. 6 and 4.





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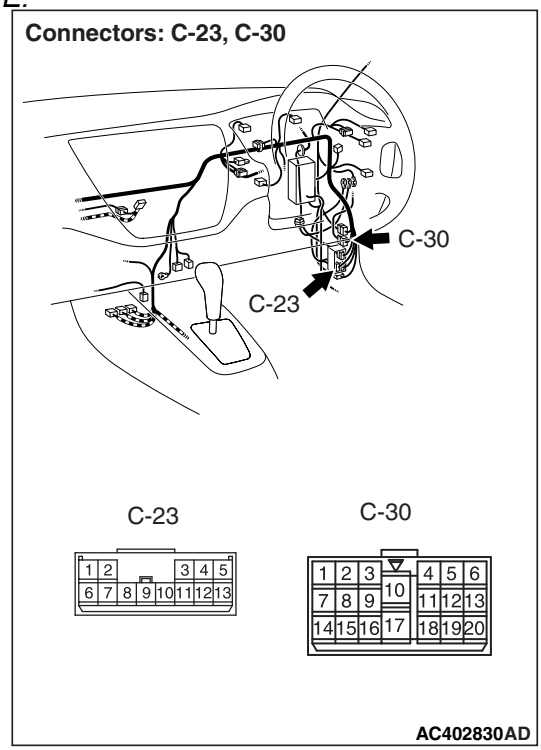

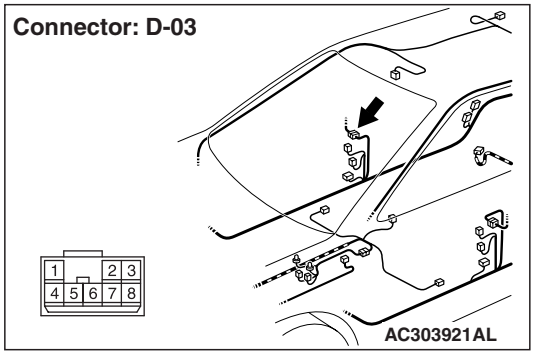

Prior to the wiring harness inspection, check intermediate connectors C-23, C-30, D-03, and repair if necessary.

Check the earth wires for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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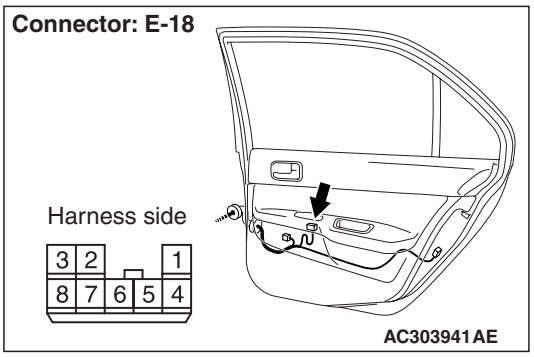
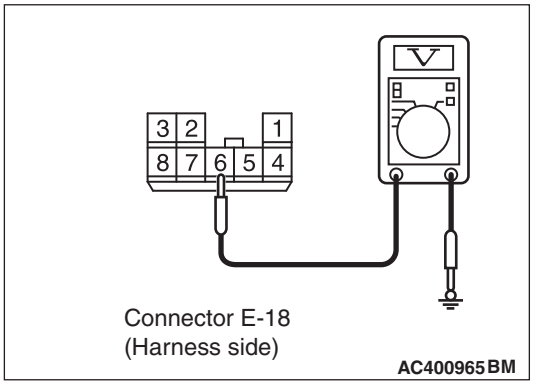
STEP 21. Voltage measurement at E-18 power window sub switch (RH) connector



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

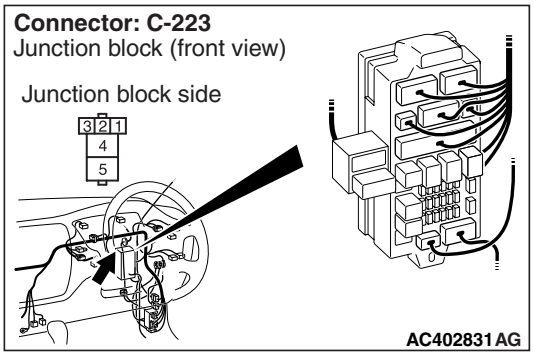


(3) Voltage between terminal 6 and body earth

OK: System voltage

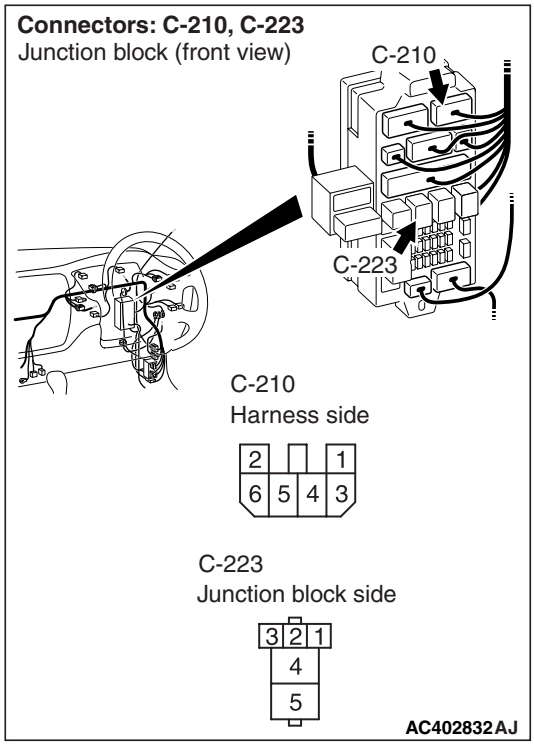
Q: Is the check result normal?
YES : Go to Step 24.
NO : Go to Step 22.

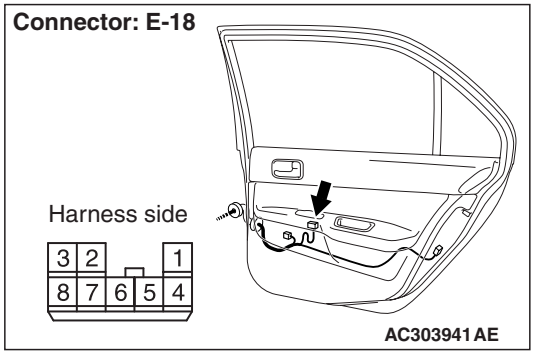
STEP 22. Connector check: C-223 power window relay connector



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

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





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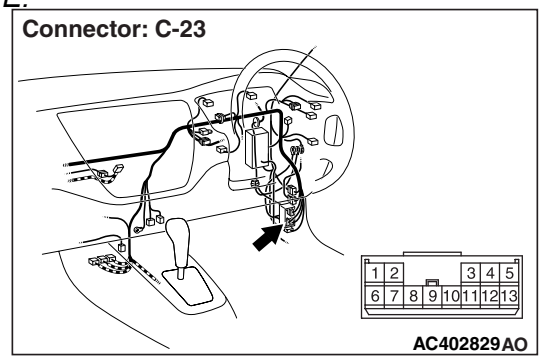
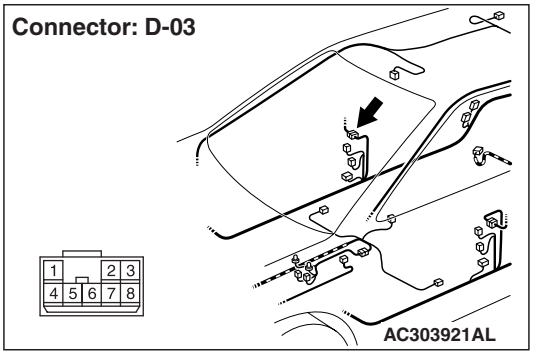
NOTE:

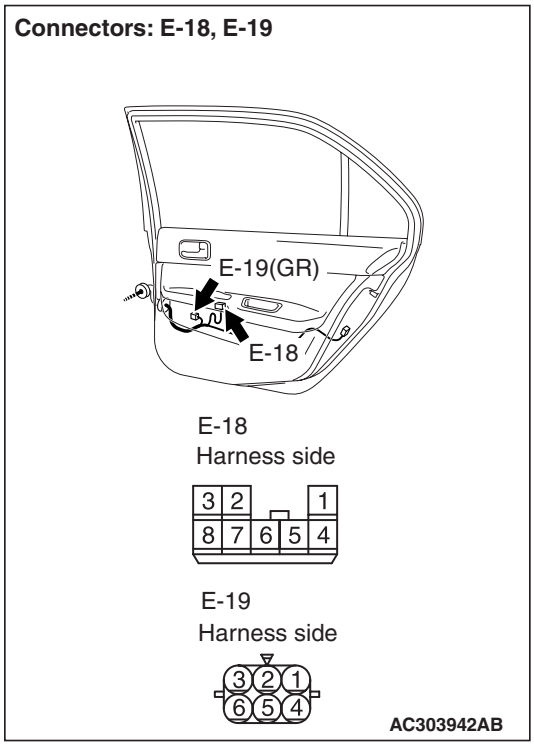




Prior to the wiring harness inspection, check intermediate connector C-23, D-03 and junction block connector C-210, and repair if necessary.
Check the power supply line for open circuit.

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

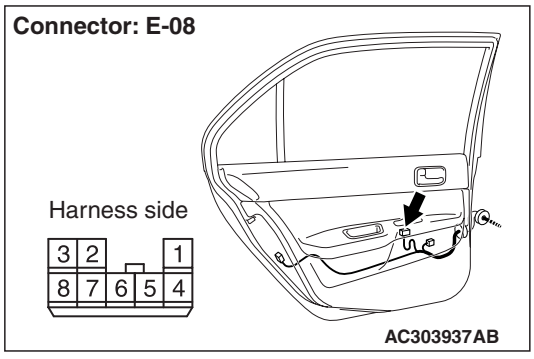
STEP 24. Check the wiring harness from E-19 power window motor (rear: RH) connector terminal Nos. 1 and 4 to E-18 power window sub switch (rear: RH) connector terminal Nos. 4 and 7.



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

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

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



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

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

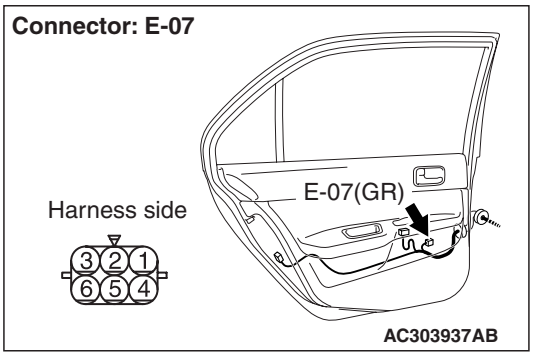
Refer to GROUP 42 – Door P.42-30.

Q: Is the check result normal?

YES : Go to Step 27.

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

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



Q: Is the check result normal?

YES : Go to Step 28.

NO : Repair the connector.

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

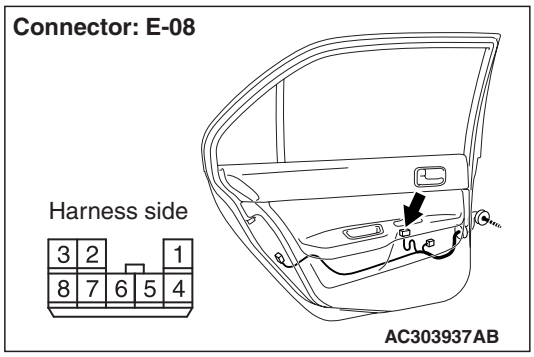
Refer to GROUP 42 – Door P.42-30.

Q: Is the check result normal?

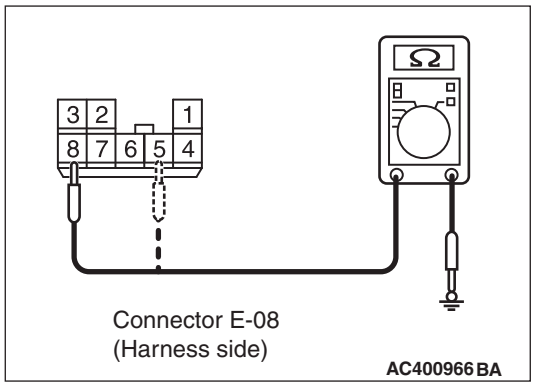
YES : Go to Step 29.

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

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



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



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

OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 31.

NO : Go to Step 30.

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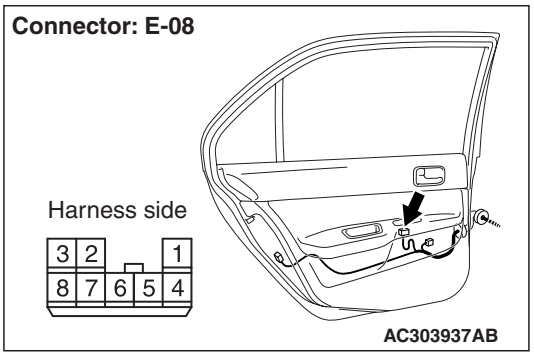
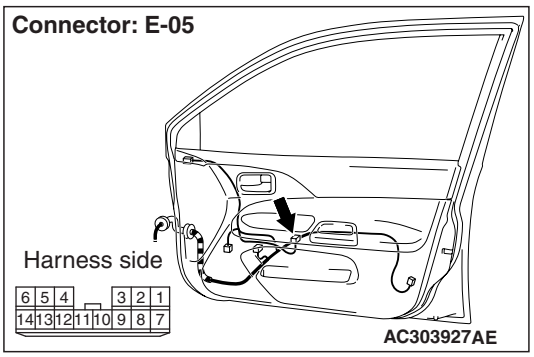
STEP 30. Check the wiring harness from E-08 power window sub switch (rear: LH) connector terminal Nos. 5 and 8 to E-05 power window main switch connector terminal Nos. 3 and 1.





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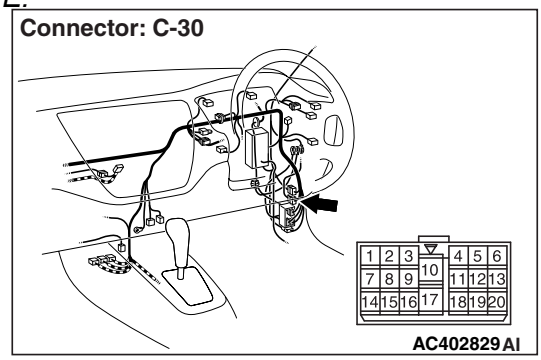

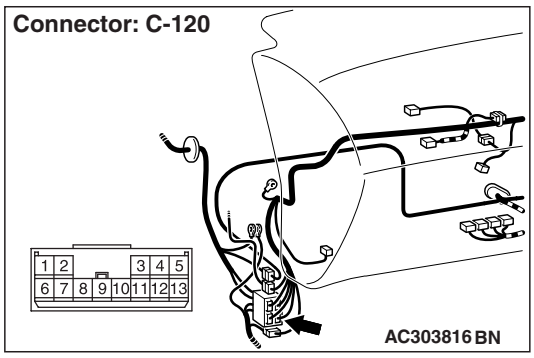

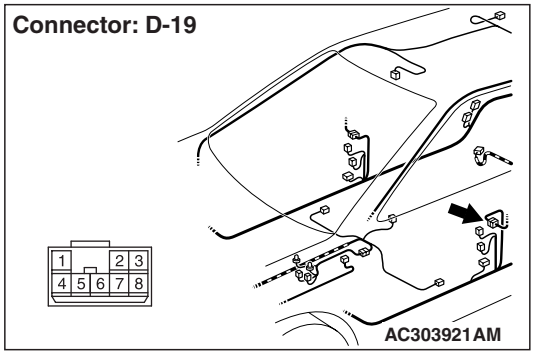

Prior to the wiring harness inspection, check intermediate connectors C-30, C-120, D-19, and repair if necessary.

Check the earth wires for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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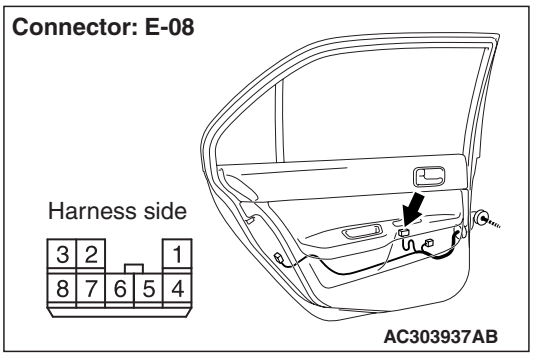
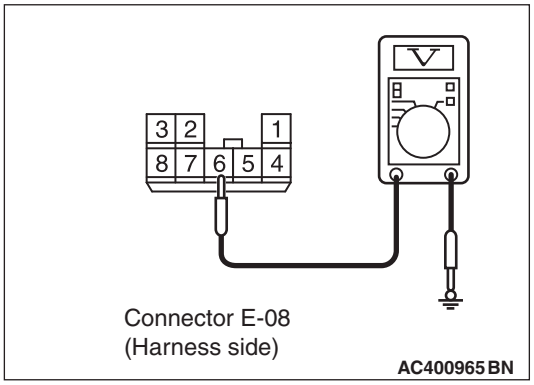
STEP 31. Voltage measurement at E-08 power window sub switch (rear: LH) connector



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

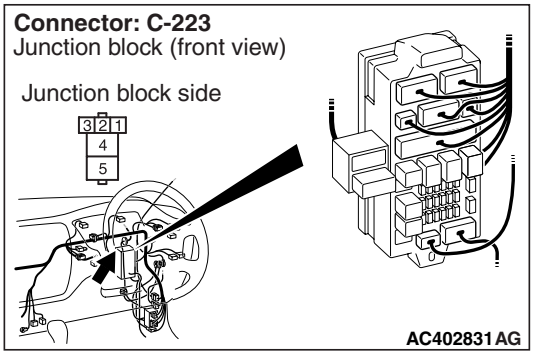


(3) Voltage between terminal 6 and body earth

OK: System voltage

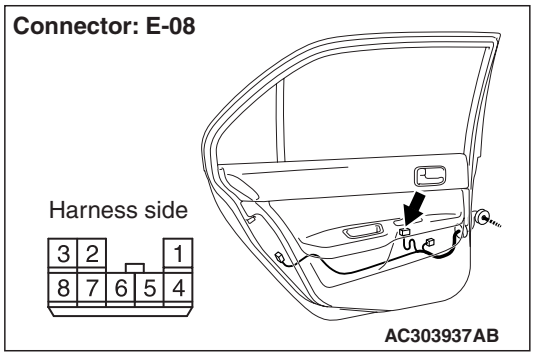
Q: Is the check result normal?
YES : Go to Step 34.
NO : Go to Step 32.

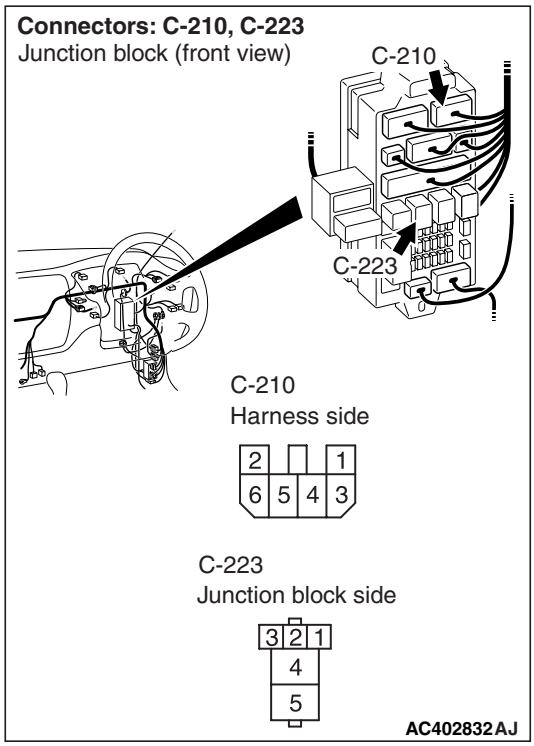
STEP 32. C-223 power window relay connector



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

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





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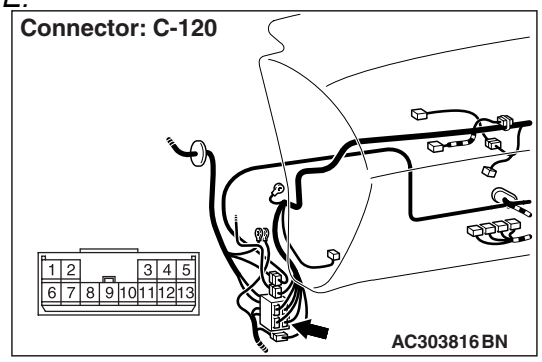
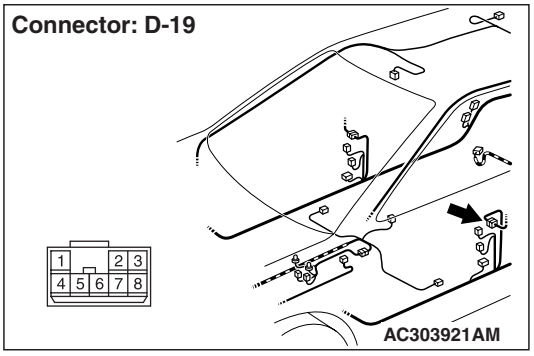
NOTE:

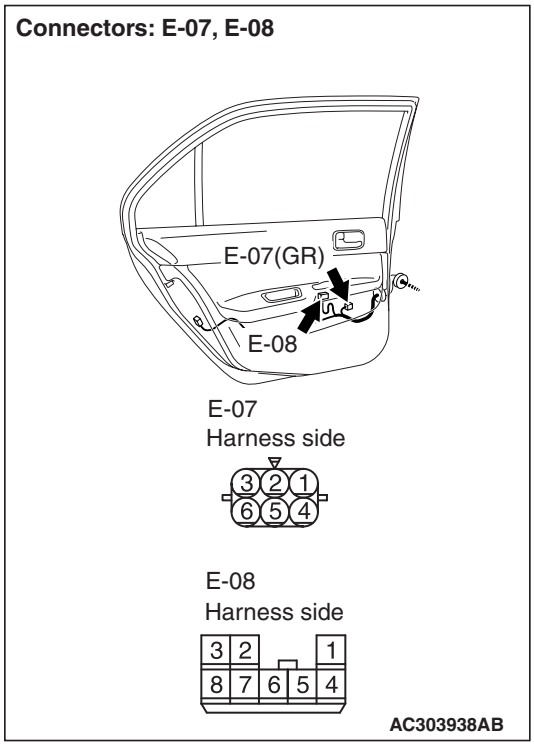




Prior to the wiring harness inspection, check intermediate connectors C-120, D-19 and junction block connector C-210, and repair if necessary.
Check the power supply line for open circuit.

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

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



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

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

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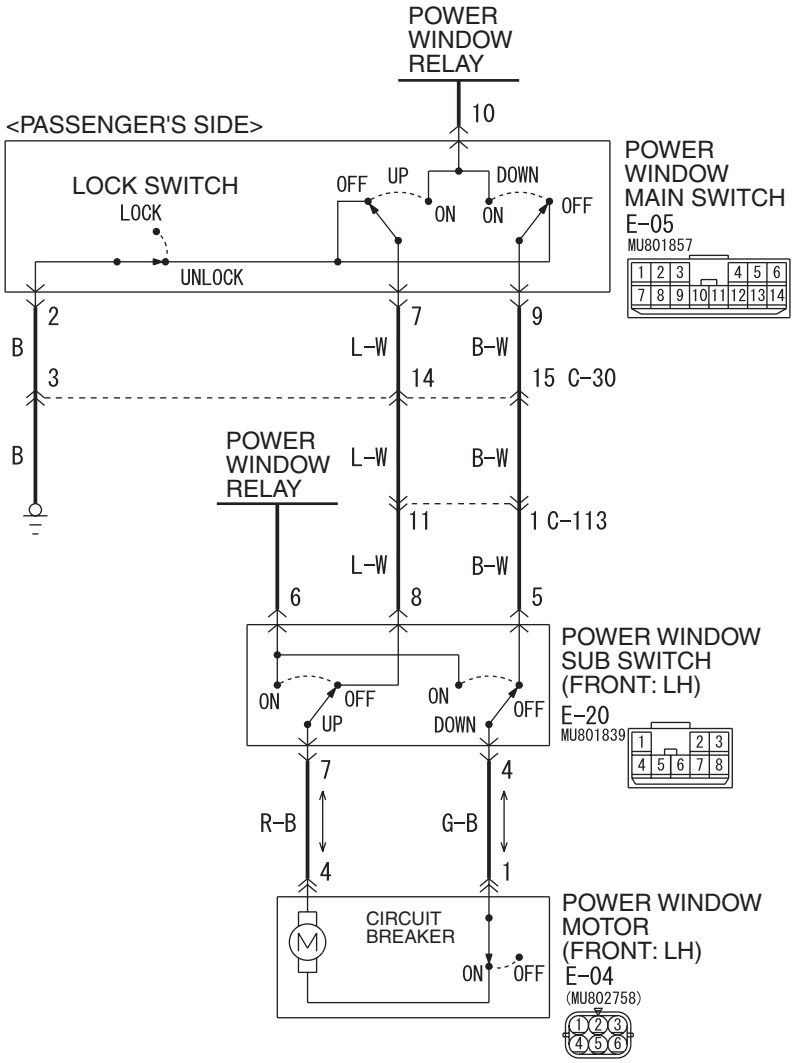
INSPECTION PROCEDURE D-4: Front and/or rear passenger's power window(s) do not work by means of the power window main switch.

Power Window (Front: RH) Circuit



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

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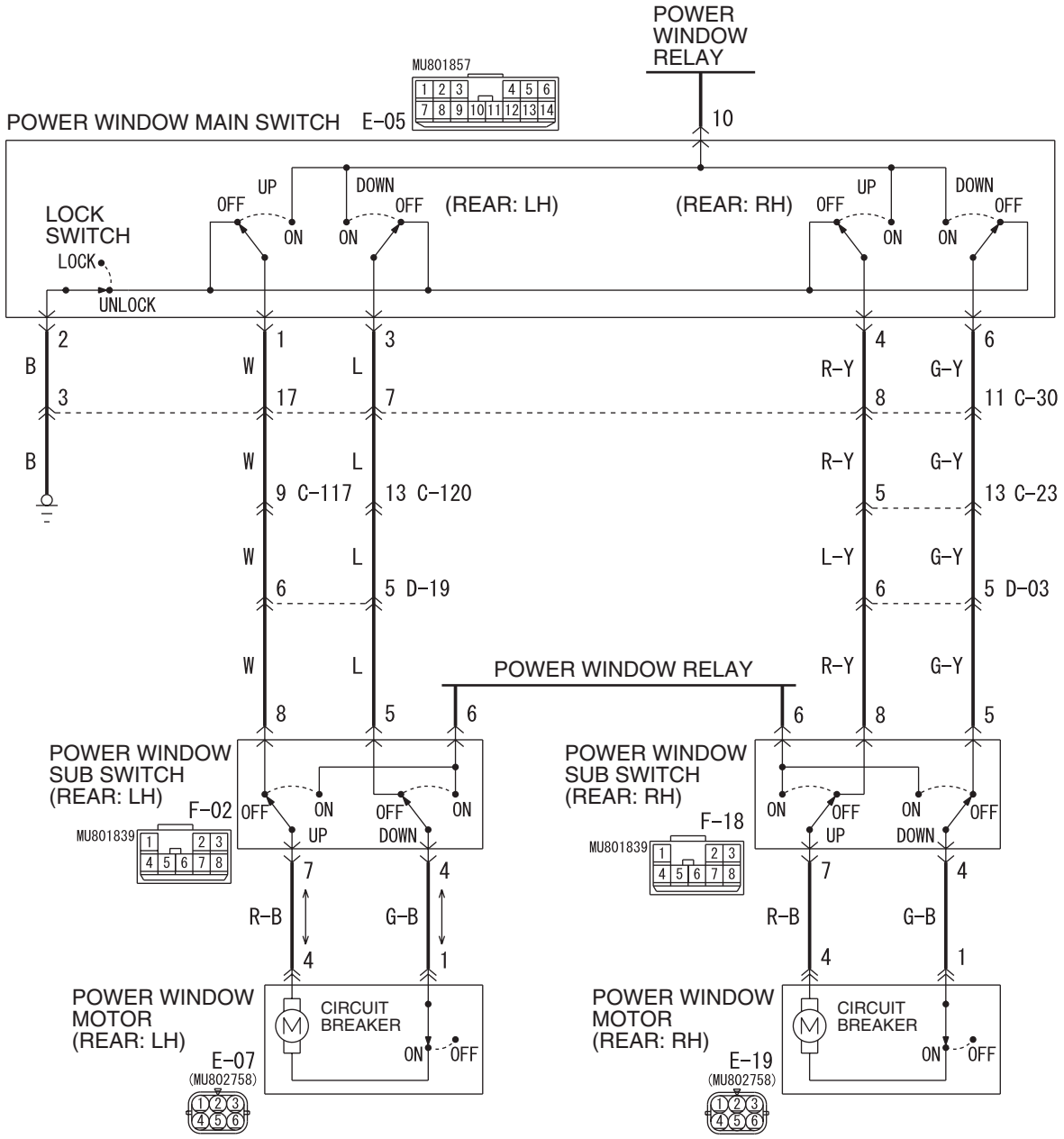
Power Window (Rear) Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

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

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure D-2 "Driver's power window does not work by means of the power window main switch P.54B-68."

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure D-3 "Relevant power window(s) do not work by means of the front and rear passenger's power window sub switches P.54B-70."

STEP 3. Retest the system.
Replace the power window sub switch of the door (except driver's door) that allows no power window operation with the power window main switch. Then use the power window main switch to check the operation of the door, for which the power window sub switch has been replaced.
(1) Replace the power window sub switch of the door (except driver's door), which allows no power window operation with the power window main switch.
(2) Check that the power window main switch can control the power window of the door for which you have replaced the power window sub switch.

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

INSPECTION PROCEDURE D-5: The power window timer function does not work normally.

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

OPERATION

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Malfunction of the driver’s door switch
- Malfunction of the passenger’s door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

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

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure D-1 "Power windows do not work at all P.54B-61."

STEP 2. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure A-2 "Check the ETACS-ECU battery power supply circuit P.54B-41."

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STEP 3. Pulse check

Check the input signals below, which are related to the power window timer function.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Driver's door switch	When the driver's door is opened
Passenger's door switch	When the passenger's door is opened

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

Q: Are the check result normal?

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

The ignition switch (IG1) signal is not received. : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

The driver's door switch signals are not received. : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213."

The passenger's door switch signals are not received. : Refer to inspection procedure M-11 "All the door switch signals are not received P.54B-230."

STEP 4. Retest the system.

Check that the power window timer function works normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

INSPECTION PROCEDURE D-6: Power windows lowers automatically while it is rising.

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the power window operating current.

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

Q: Is the check result normal?

YES : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-24), and then go to Step 2.

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

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STEP 2. Check that the door window glasses are installed correctly.

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

Q: Is the check result normal?

YES : Go to Step 3.

NO : Adjust the door window glass (Refer to GROUP 42 – Door – On-vehicle service P.42-24).

STEP 3. Retest the system.

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

Q: Is the check result normal?

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

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

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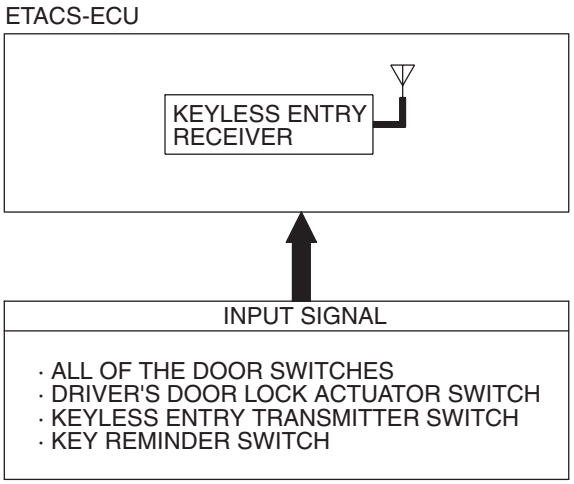
KEYLESS ENTRY SYSTEM

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

PROBABLE 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. Check the power supply circuit.

When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure A-2 "Check the ETACS-ECU battery power supply circuit P.54B-41."

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STEP 2. Pulse check

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

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

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

Q: Is the check result normal?

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

NO <The key reminder switch signal is not received> : Refer to inspection procedure M-9 "The key reminder switch signal is not received P.54B-224."

NO <All the door switch signals are not received> : Refer to inspection procedure M-11 "All the door switch signals are not received P.54B-230 ."

NO <The driver's door lock actuator switch signal is not received> : Refer to inspection procedure M-12 "The front door lock actuator (RH) switch signal is not received P.54B-235 ."

NO <The keyless entry transmitter switch signal is not received> : Refer to inspection procedure M-14 "Each switch signal of the keyless entry transmitter is not received P.54B-243."

STEP 3. Retest the system.

Check the keyless entry system works normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

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

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

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure J-2 "The hazard warning lamps do not illuminate P.54B-160 ."

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

Q: Is the check result normal?
YES : Go to Step 4.
NO : Refer to inspection procedure L-2 "The front or rear room lamp does not illuminate or extinguish normally P.54B-193 ."

STEP 4. Retest the system.
Check that the keyless entry hazard warning lamp answerback function or the room lamp answerback function work normally.

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

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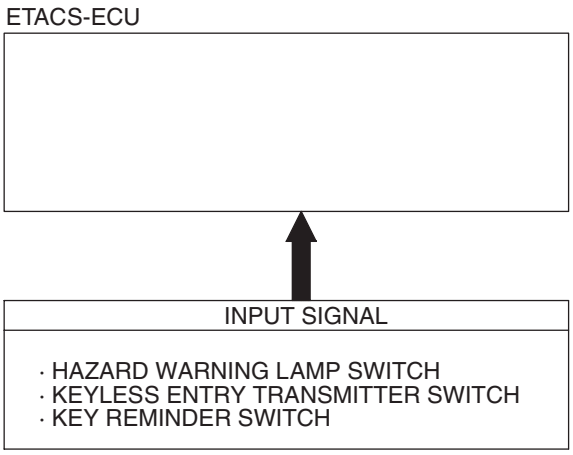
INSPECTION PROCEDURE E-3: Encrypted code cannot be registered.

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

Encrypted Transmitter Code Register Mode



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

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

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

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

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

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 3.
NO <The key reminder switch signal is not received> : Refer to inspection procedure M-9 "The key reminder switch signal is not received P.54B-224."
NO <The hazard warning lamp switch signal is not received> : Refer to inspection procedure M-10 "The hazard warning lamp switch signal is not received P.54B-227."
NO <The keyless entry transmitter switch signal is not received> : Refer to inspection procedure M-14 "Each switch signal of the keyless entry transmitter is not received P.54B-243."

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

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

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

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

COMMENT ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

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

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

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

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

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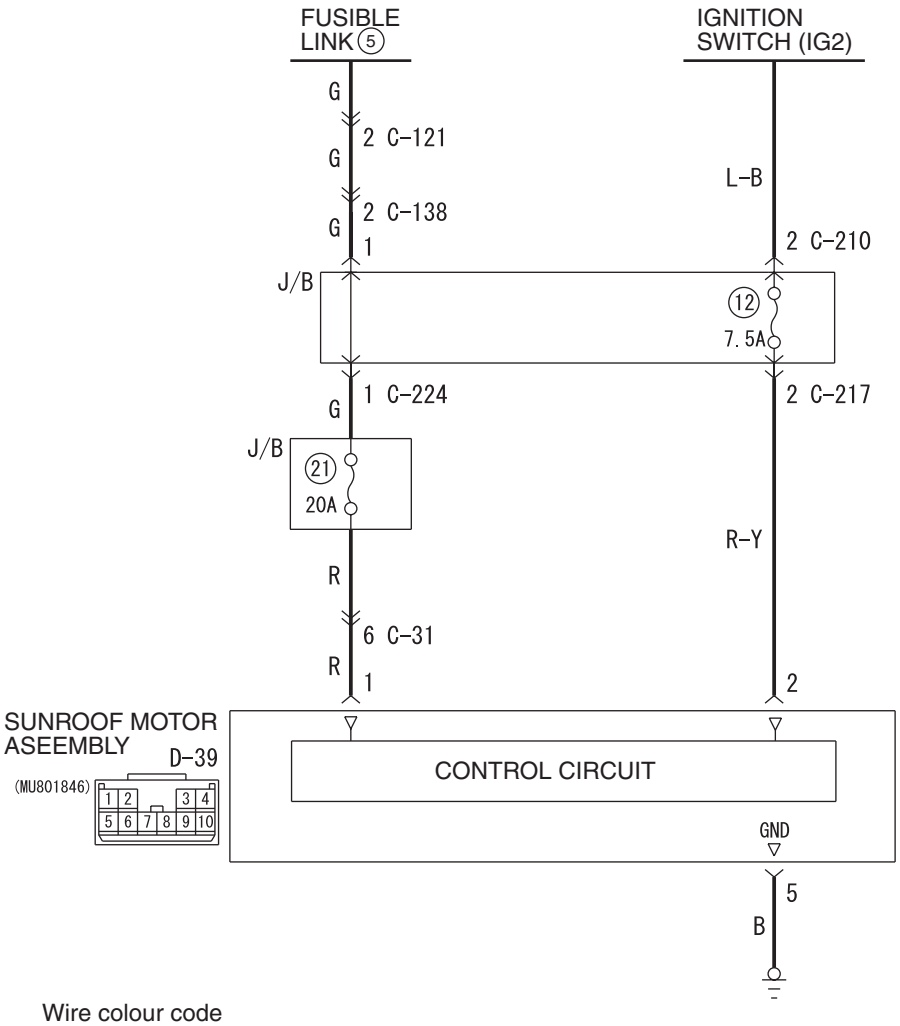
SUNROOF

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

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

Sunroof Motor Assembly Power Supply Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signals from the ignition switch (IG1) and the sunroof switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Sunroof switch	When the sunroof switch is opened or closed

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

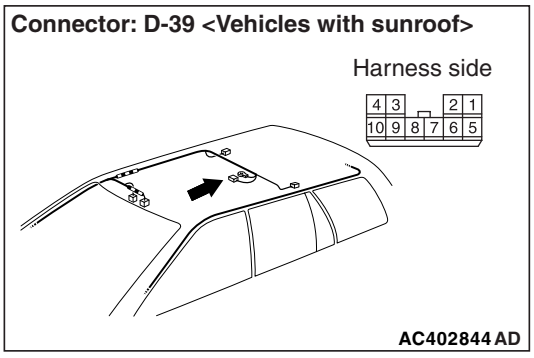
Q: Are the check result normal?

YES <All the signals are received normally> : Go to Step 2.

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The sunroof switch signal is not received> : Refer to inspection procedure M-8 "When the sunroof switch is operated, the switch signals are not received P.54B-220."

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

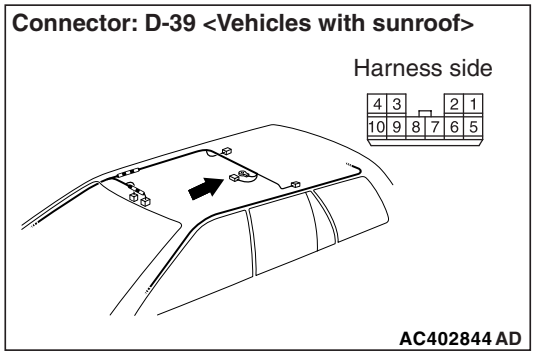


Q: Is the check result normal?

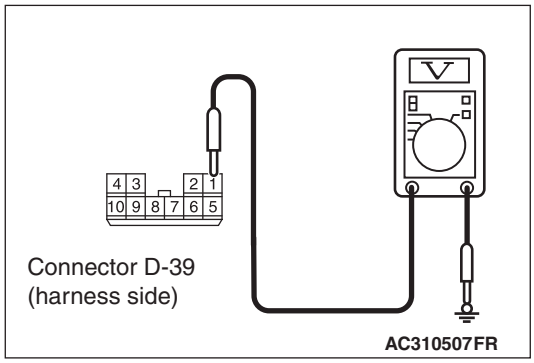
YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Voltage measurement at the D-39 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.



(2) Check the voltage between the D-39 sunroof motor assembly connector terminal No.1 and body earth.

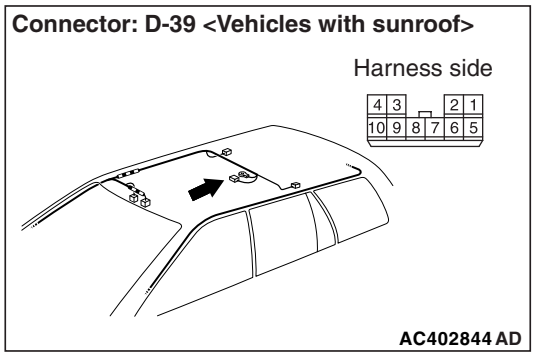
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

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



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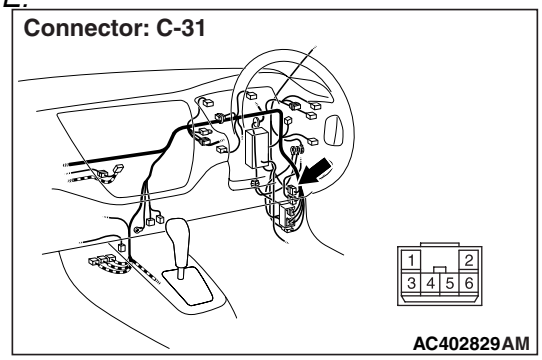
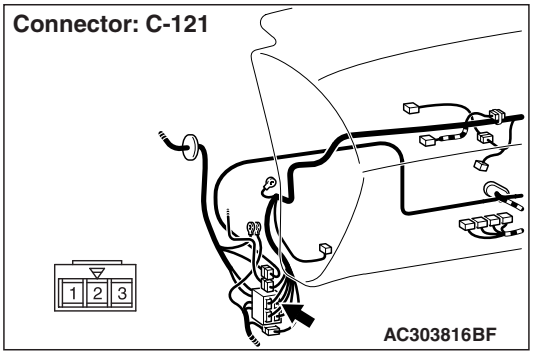
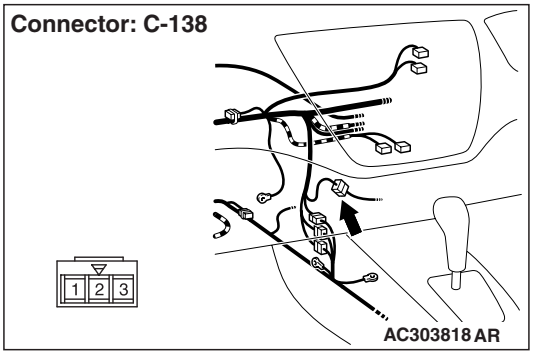
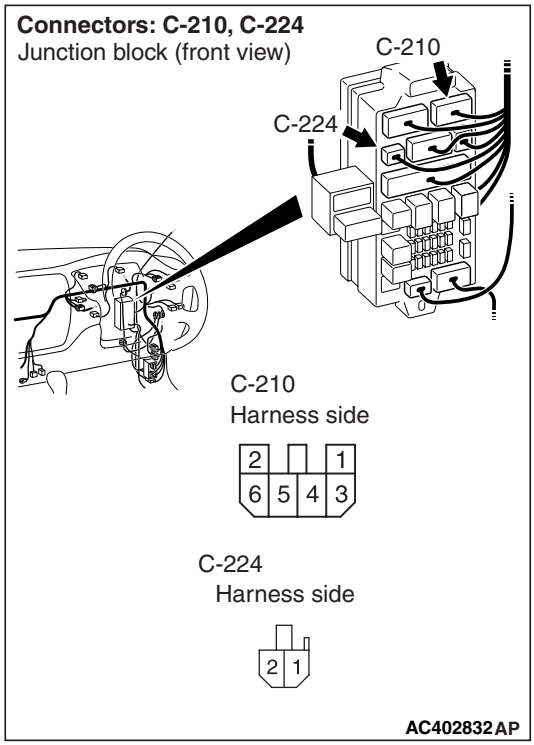
NOTE:









Prior to the wiring harness inspection, check intermediate connector C-31, C-121, C-138 and junction block connectors C-210, C-224 and repair if necessary.

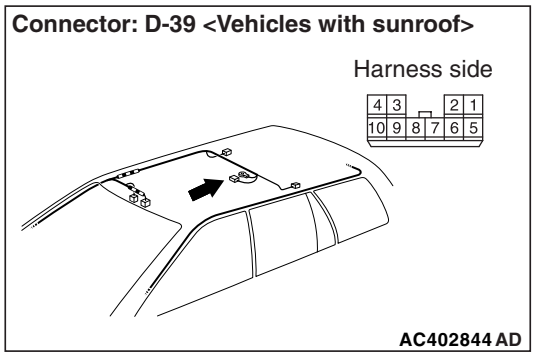
Check the power supply line for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

STEP 5. Voltage measurement at the D-39 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.

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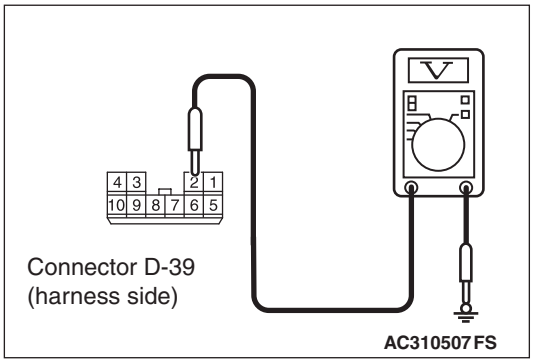
(2) Turn the ignition switch to the "ON" position.

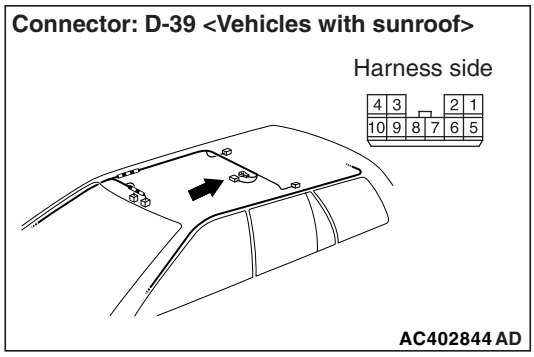


(3) Check the voltage between the D-39 sunroof motor assembly connector terminal No.2 and body earth.

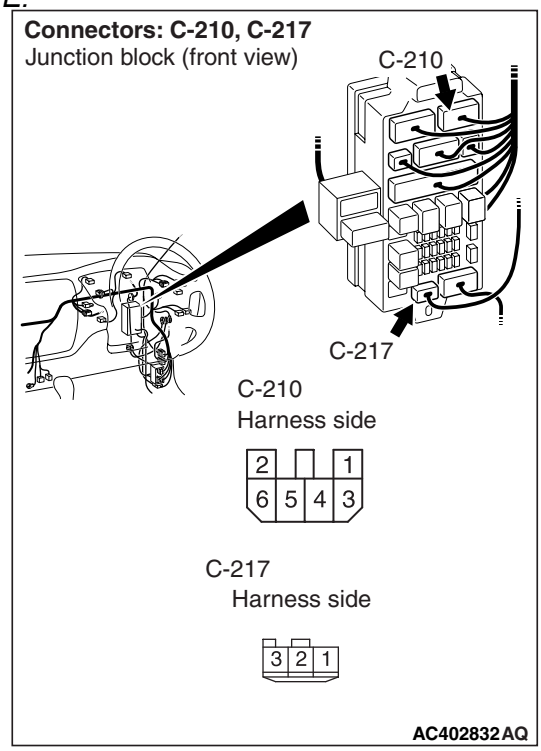
OK: System voltage

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

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



NOTE:



Prior to the wiring harness inspection, check junction block connectors C-210, C-217 and repair if necessary.
Check the power supply line for open circuit.

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

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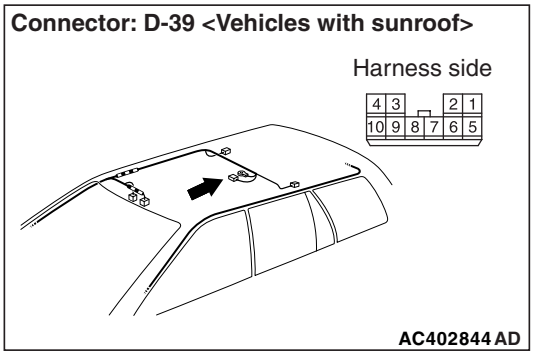
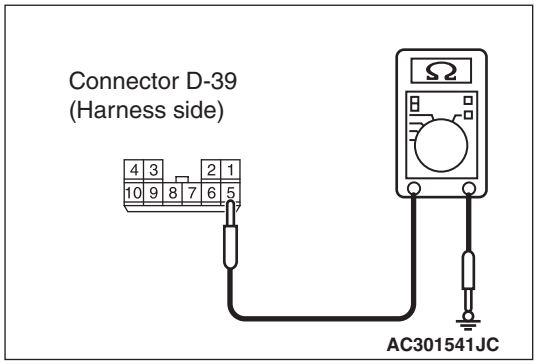
STEP 7. Resistance measurement at the D-39 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.

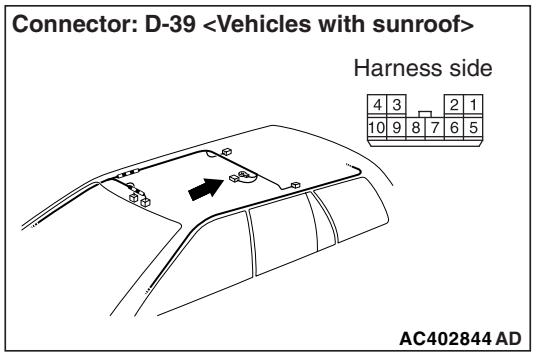


(2) Check the resistance between D-39 sunroof motor assembly connector terminal No.5 and body earth.

OK: 2 Ω or less

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

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



Check body earth line for open circuit.

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

STEP 9. Retest the system.
The sunroof assembly should now work normally.

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

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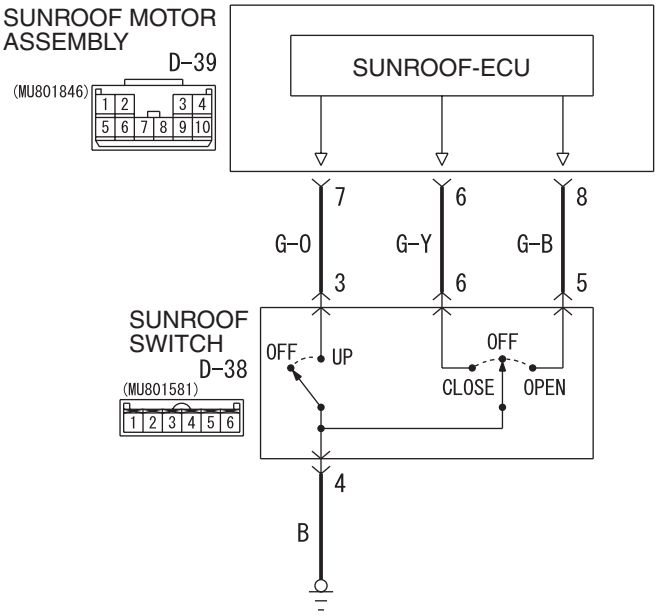
INSPECTION PROCEDURE F-2: Any of the sunroof switch positions is defective.

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

Sunroof Switch Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

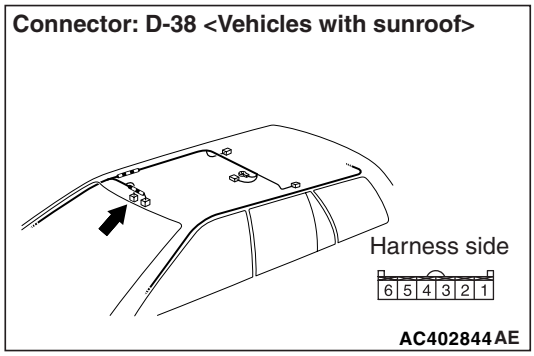
If any of the sunroof switch positions is defective, the communication line between the sunroof switch and the sunroof motor assembly (sunroof-ECU) may be defective.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: D-38 sunroof switch connector



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

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STEP 2. Check the sunroof switch.

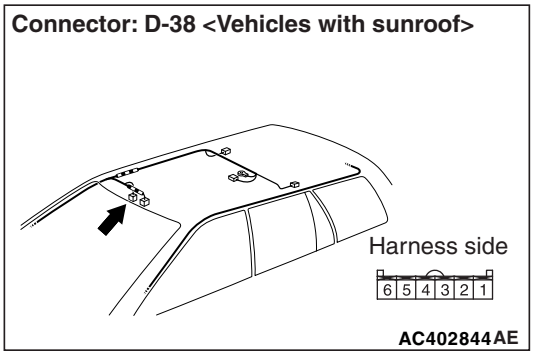
Refer to GROUP 42 – Sunroof P.42-60.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the sunroof switch.

STEP 3. Connector check: D-38 sunroof motor assembly connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

STEP 4. Retest the system.

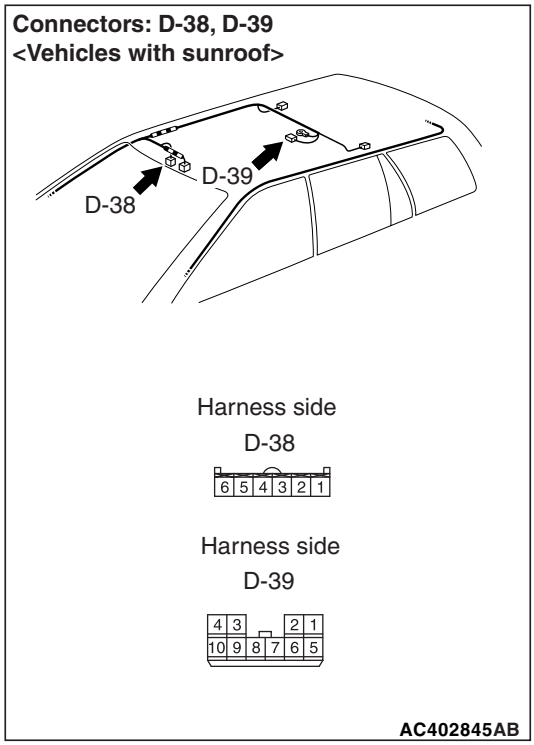
Q: Which switch position is defective?

"OPEN" : Go to Step 5.

"CLOSE/ DOWN" : Go to Step 6.

"UP" : Go to Step 7.

STEP 5. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.8 and D-38 sunroof switch connector terminal No.5.



Check the communication line for open circuit.

Q: Is the check result normal?

YES : Replace the sunroof motor assembly.

NO : Repair the wiring harness.

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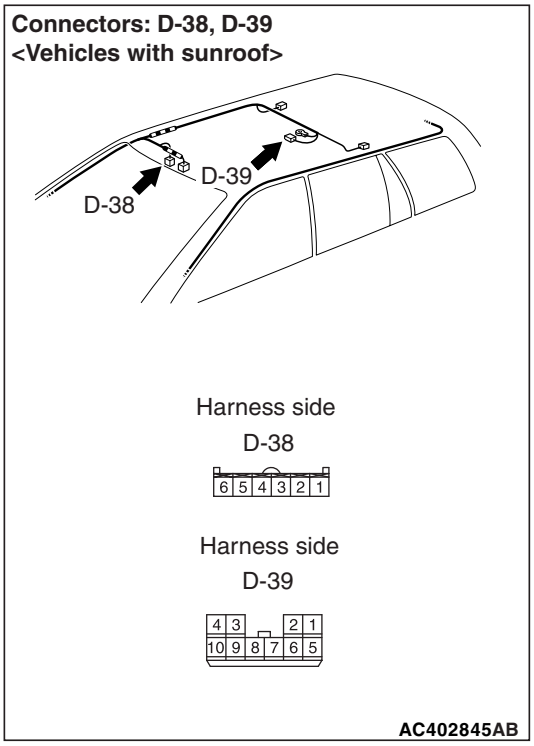
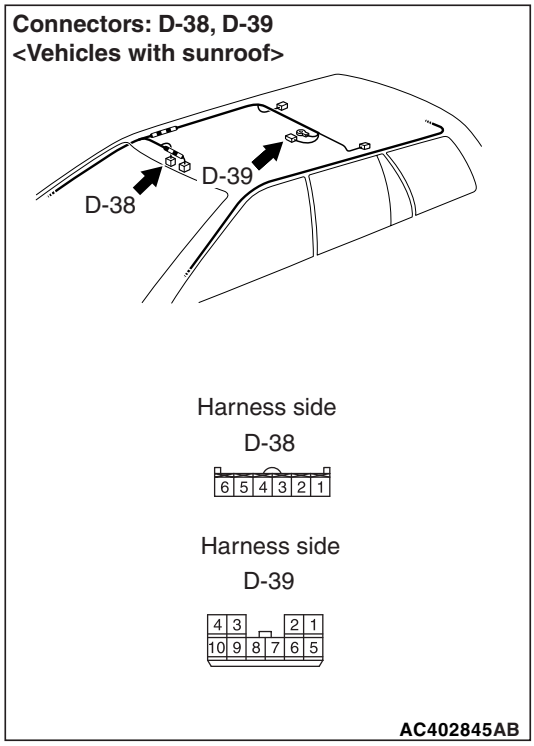
STEP 6. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.6 and D-38 sunroof switch connector terminal No.6.



Check the communication line for open circuit.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Repair the wiring harness.

STEP 7. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.7 and D-38 sunroof switch connector terminal No.3.



Check the communication line for open circuit.

Q: Is the check result normal?
YES : Replace the sunroof motor assembly.
NO : Repair the wiring harness.

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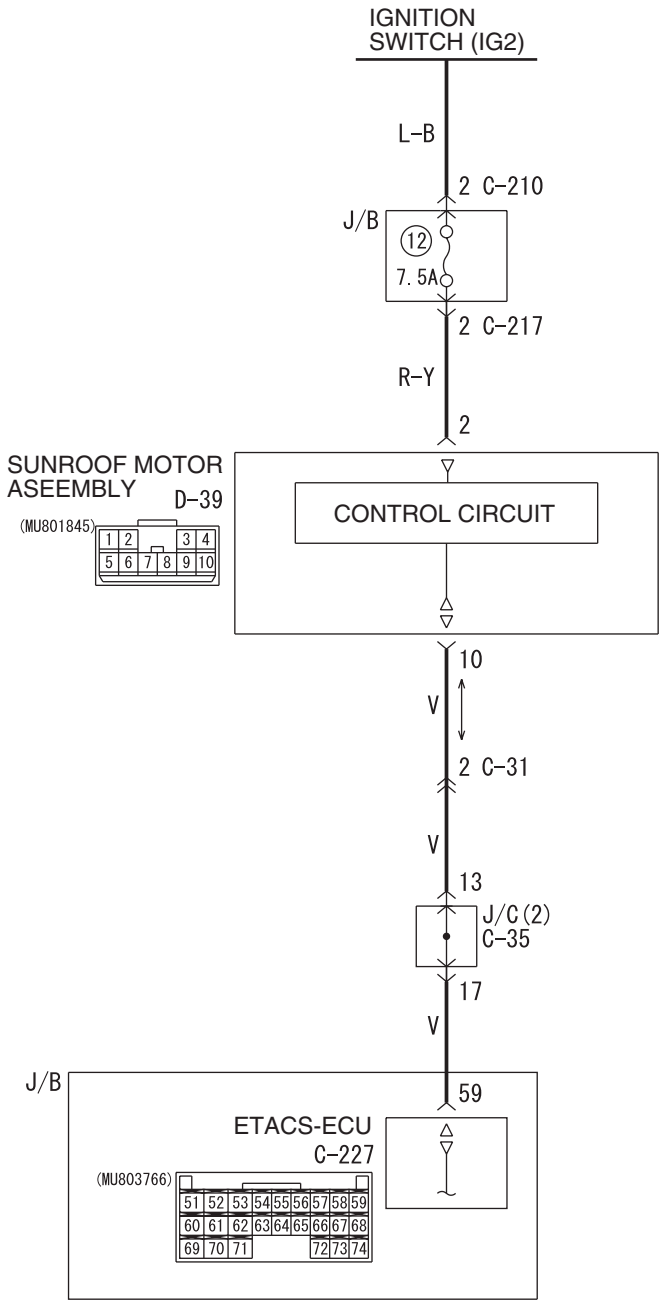
INSPECTION PROCEDURE F-3: Sunroof timer function does not work normally.

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

Sunroof Timer Function



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signals below, which are related to the sunroof timer function.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Driver's door switch	When the driver's door is opened
Front passenger's door switch	When the front passenger's door is opened

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

Q: Are the check result normal?

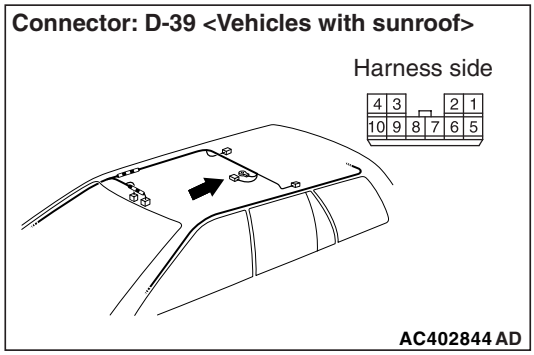
YES <All the signals are received normally> : Go to Step 2.

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The driver's door switch signals are not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213 ."

NO <The front passenger's door switch signals are not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213 ."

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

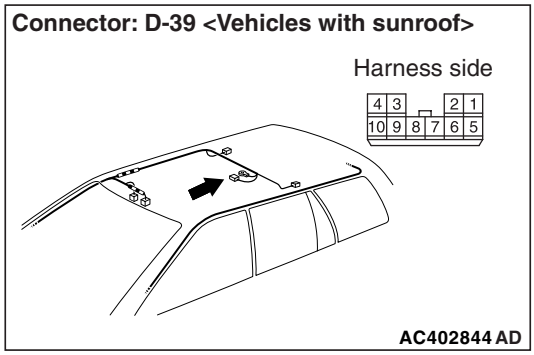


Q: Is the check result normal?

YES : Go to Step 3.

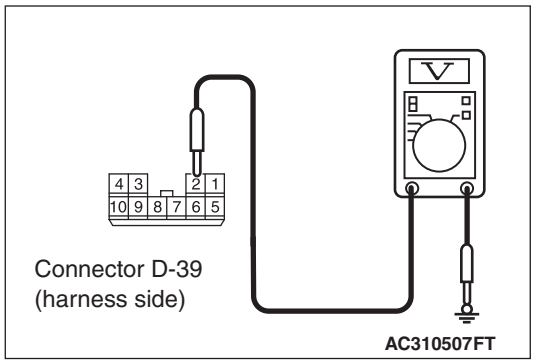
NO : Repair the connector.

STEP 3. Voltage measurement at the D-39 sunroof motor assembly connector.



(1) Disconnect the sunroof motor assembly connector, and measure at the harness side.

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



(3) Check the voltage between D-39 sunroof motor assembly 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.

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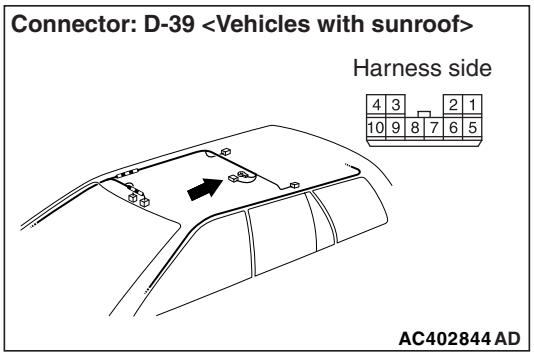
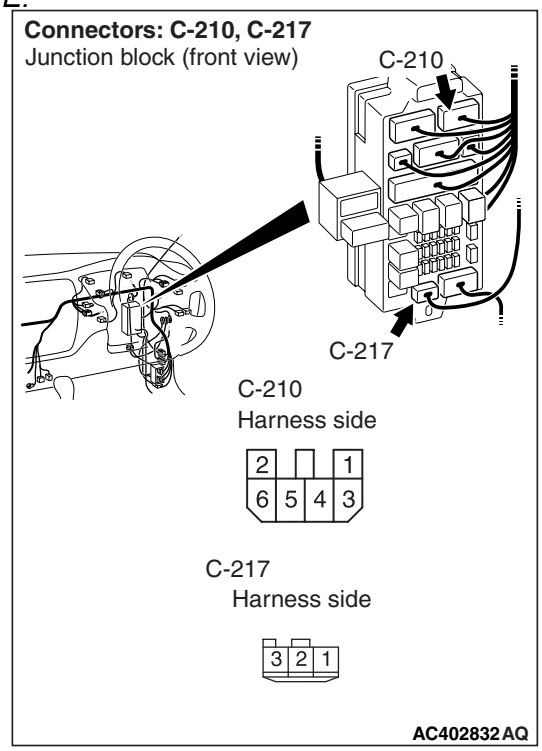
STEP 4. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.2 and the ignition switch (IG2).



NOTE:



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

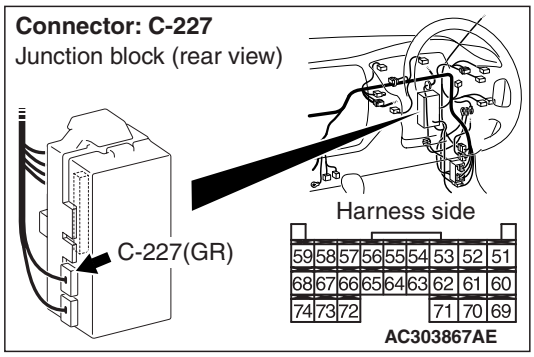
Check the power supply line for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

STEP 5. Connector check: C-227 ETACS-ECU connector

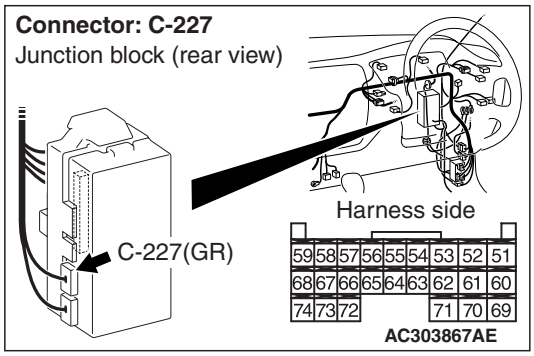


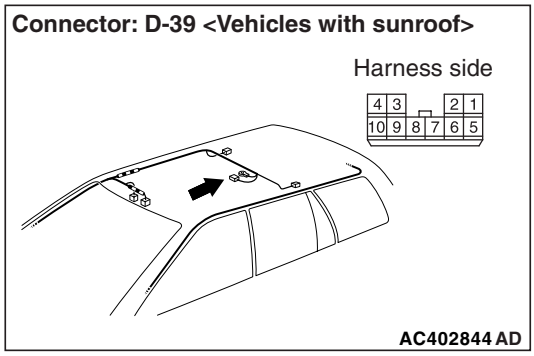
Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

STEP 6. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.10 and C-227 ETACS-ECU connector terminal No.59.





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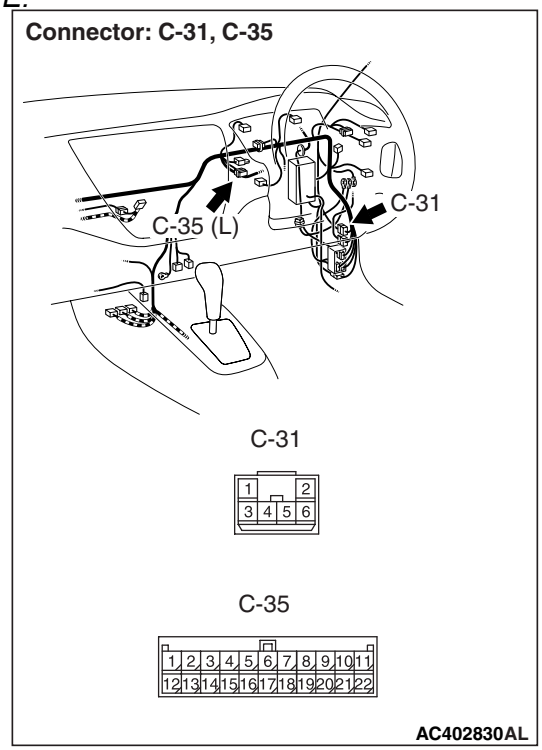
NOTE:



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

Check the communication lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

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

(1) Replace the sunroof motor assembly.

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

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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

⚠ CAUTION

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

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

Malfunction of the sunroof motor assembly (sunroof-ECU)

DIAGNOSIS PROCEDURE

Retest the system.

Check that the sunroof anti-trap function work normally.

Q: Is the check result normal?

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

NO : Replace the sunroof motor assembly.

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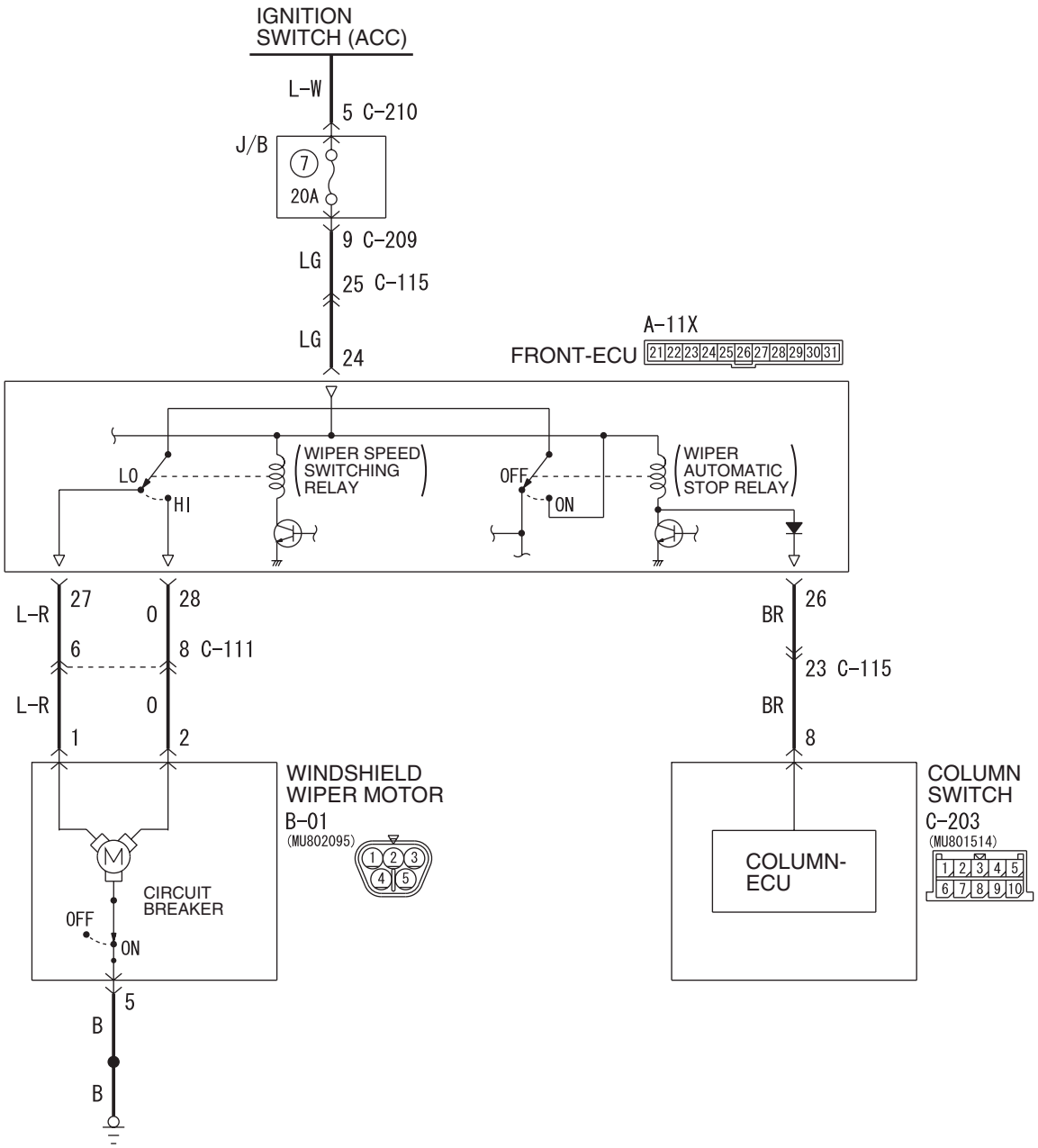
WINDSHIELD WIPER AND WASHER

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

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

Windshield Wiper Power Supply Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III diagnosis code.

When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?

YES : Refer to diagnosis code chart P.54B-17.

NO : Go to Step 2.

STEP 2. Pulse check

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.

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

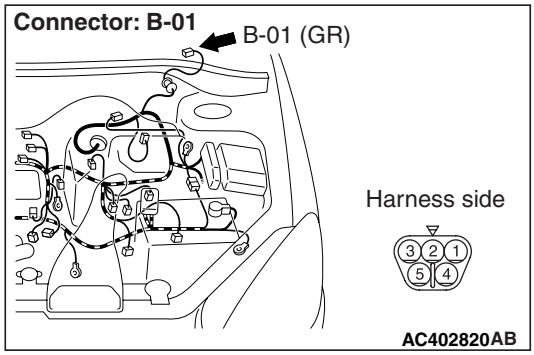
Q: Is the check result normal?

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

NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."

NO <Windshield mist wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

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



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

STEP 4. Check the windshield wiper motor assembly.

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

Q: Is the check result normal?

YES : Go to Step 5

NO : Replace the windshield wiper motor assembly.

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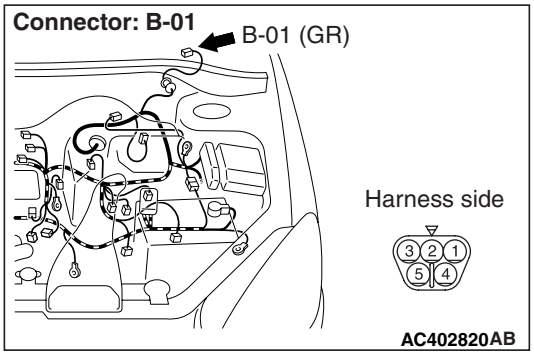
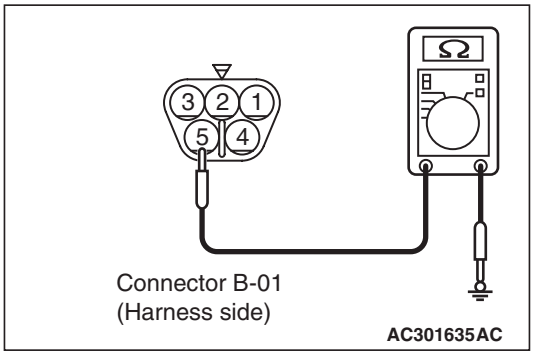
STEP 5. Resistance measurement at the B-01 windshield wiper motor connector



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

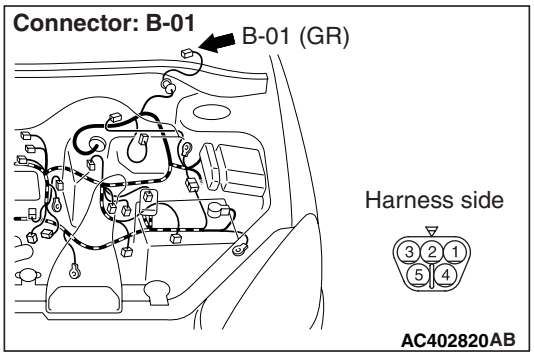


(2) Continuity between B-01 windshield wiper motor connector terminal No.5 and body earth

OK: 2Ω or less

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

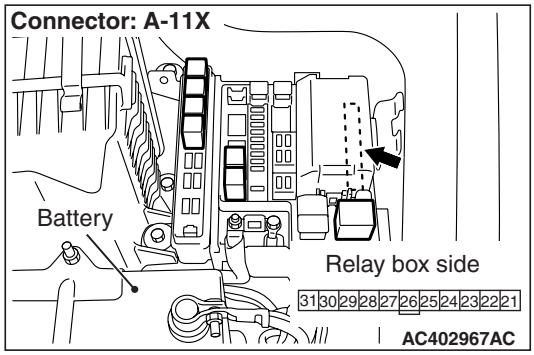
STEP 6. Check the wiring harness between B-01 windshield wiper motor connector terminal No.5 and body earth.



Check the earth wires for open circuit.

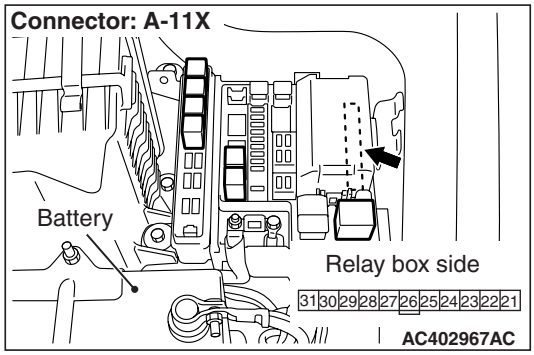
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

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

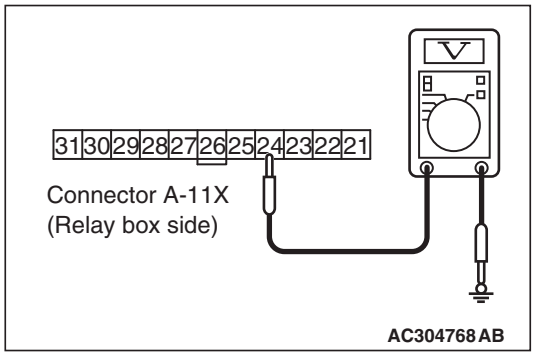


Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

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



(1) Remove the front-ECU, and measure at the relay box side.
(2) Turn the ignition switch to the "ON" position.



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

OK: System voltage

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

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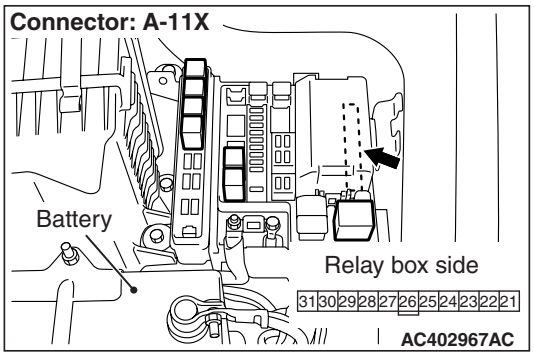
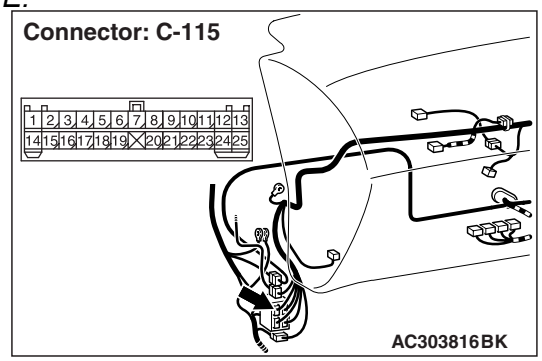
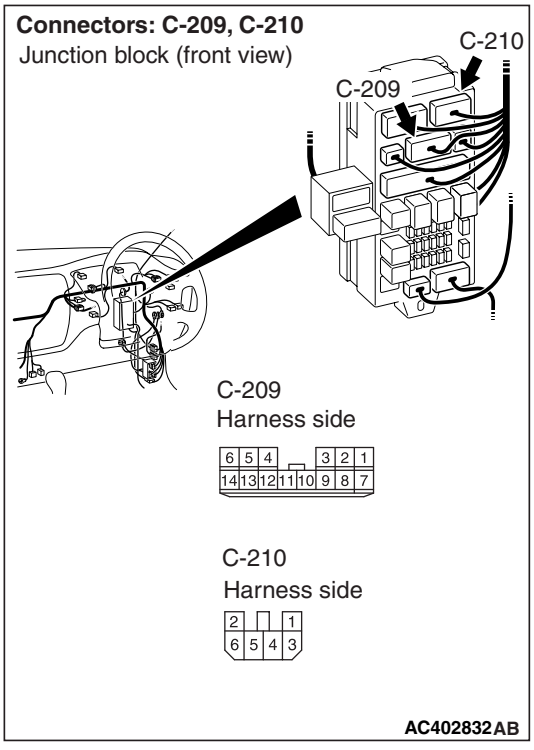
STEP 9. Check the wiring harness between A-11X front-ECU connector terminal No.24 and the ignition switch (ACC).



NOTE:

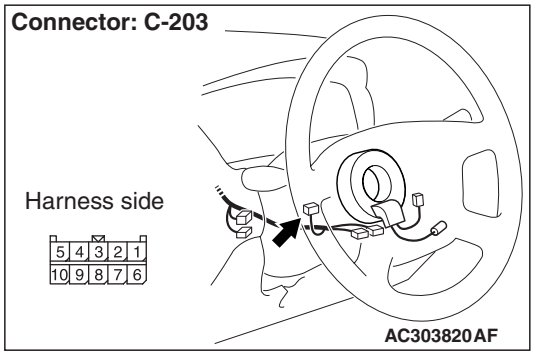




Prior to the wiring harness inspection, check the junction block connectors C-209, C-210 and intermediate connector C-115 and repair if necessary.
Check the power supply line to the ignition switch (ACC) for open circuit.

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

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



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

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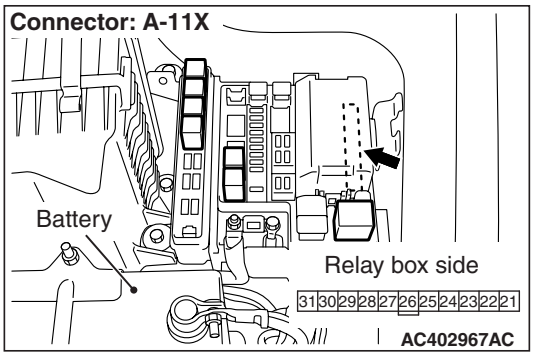
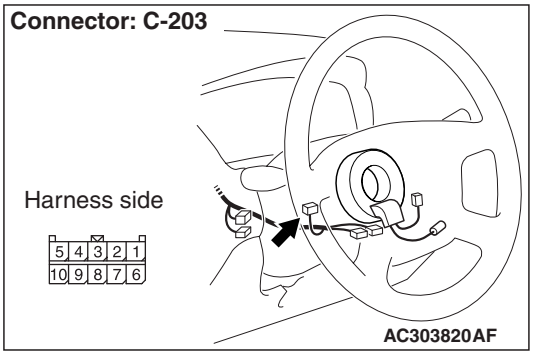
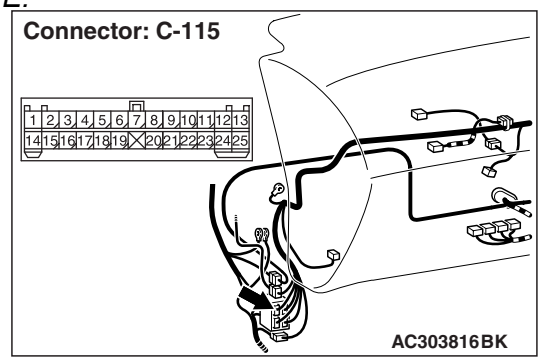
STEP 11. Check the wiring harness between C-203 column switch connector terminal No.8 and A-11X front-ECU connector terminal No.26.





NOTE:



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

Check the wiper backup circuit.

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the wiring harness.

STEP 12. Retest the system.

The windshield wiper should now work normally at all.

Q: Is the check result normal?

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

NO : Replace the front-ECU.

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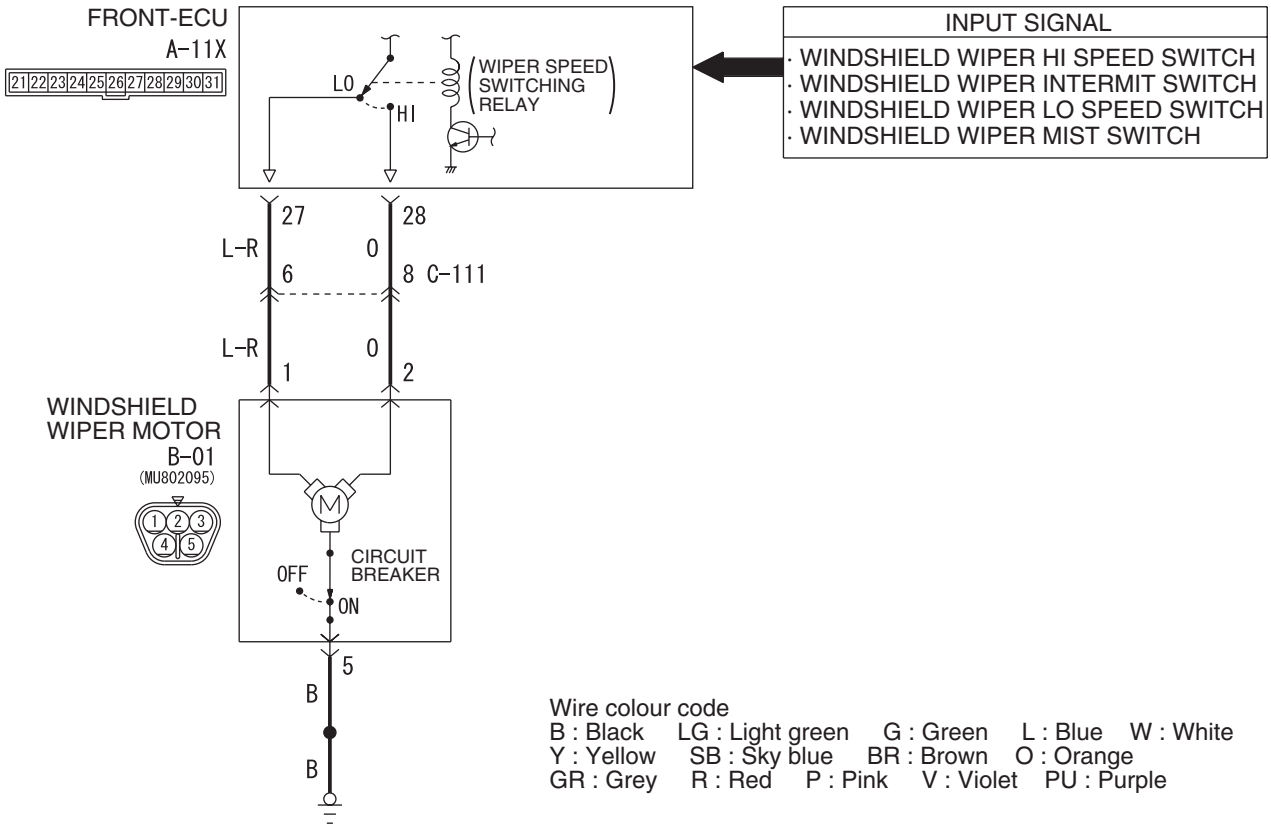
INSPECTION PROCEDURE G-2: The windshield wipers does not work when the wiper switch is at "INT", "WASHER" or "MIST" position. However, the wipers work at low speed when the switch is at "LO" and "HI" position.

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

Windshield Wiper Motor Drive Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III diagnosis code.
When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 2.

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STEP 2. Pulse check

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.

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

Q: Is the check result normal?

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

NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."

NO <Windshield mist wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

STEP 3. Retest the system.

The windshield wiper should now work normally.

Q: Is the check result normal?

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

NO : Replace the front-ECU.

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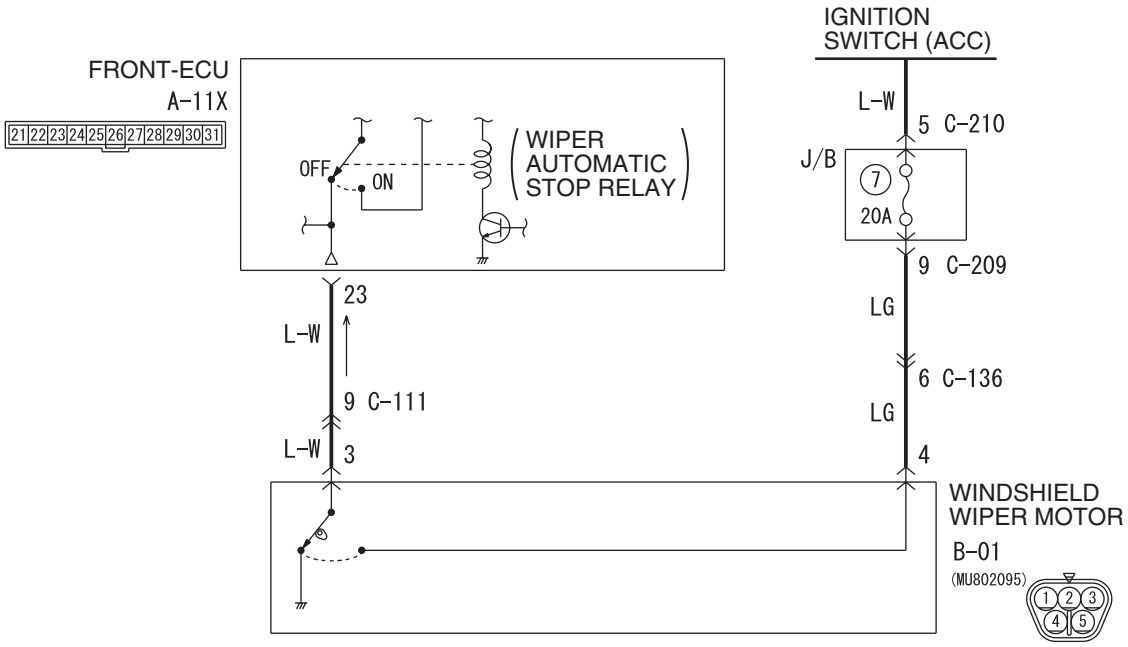
INSPECTION PROCEDURE G-3: The windshield wipers do not stop at the specified park position

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

Windshield Wiper Automatic Stop Relay Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

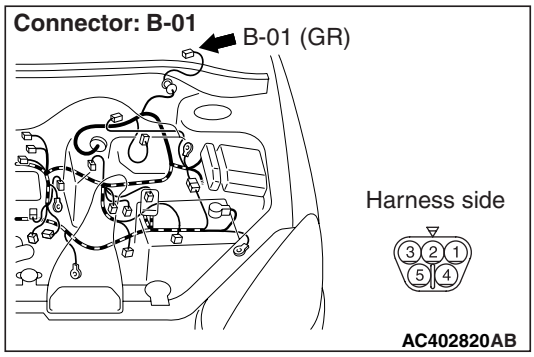
The windshield wiper motor or the front-ECU may be defective.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

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



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

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STEP 2. Check the windshield wiper motor assembly.

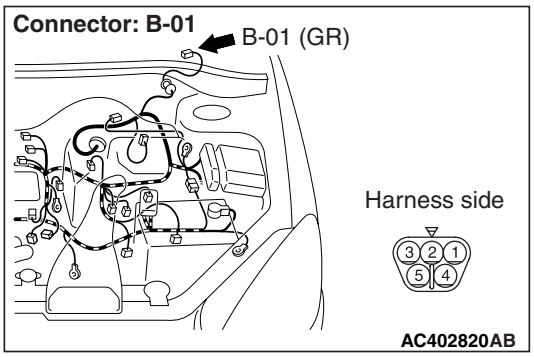
Refer to GROUP 51 – Windshield wiper P.51-25.

Q: Is the check result normal?

YES : Go to Step 3

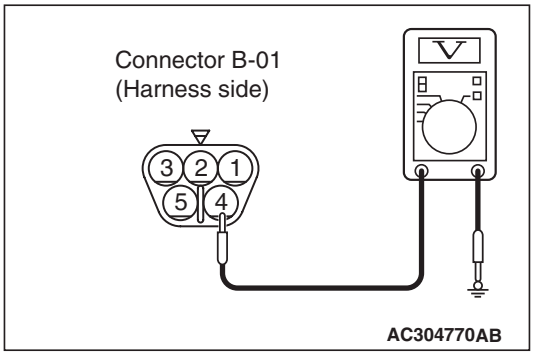
NO : Replace the windshield wiper motor assembly.

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



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

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



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

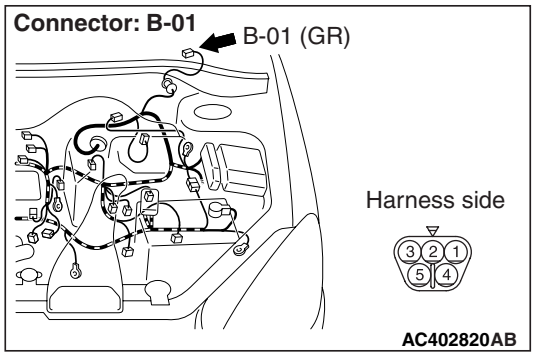
OK: System voltage

Q: Is the check result normal?

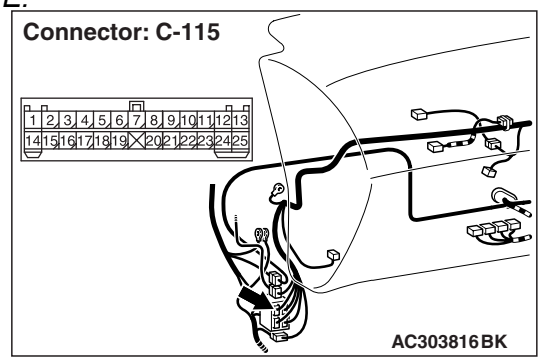
YES : Go to Step 5.

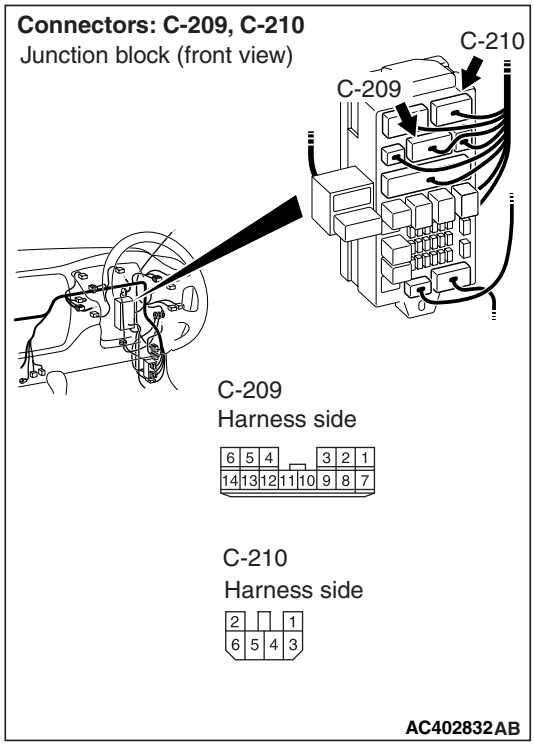
NO : Go to Step 4.

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



NOTE:





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

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

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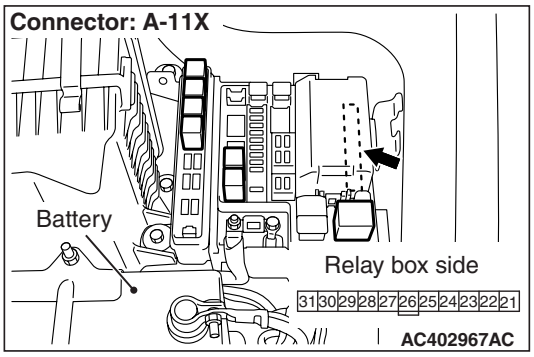
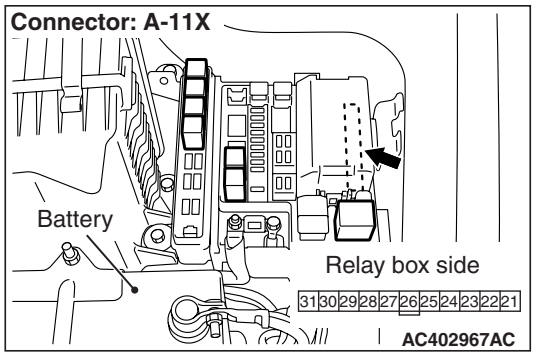
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

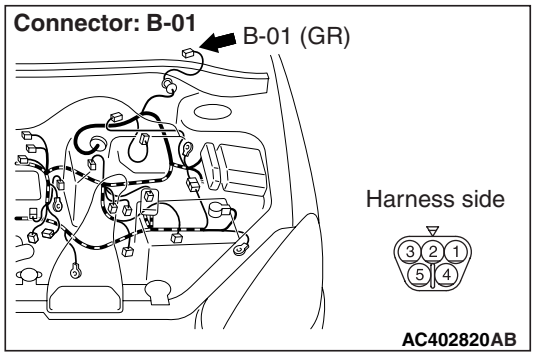
STEP 5. Connector check: A-11X front-ECU connector



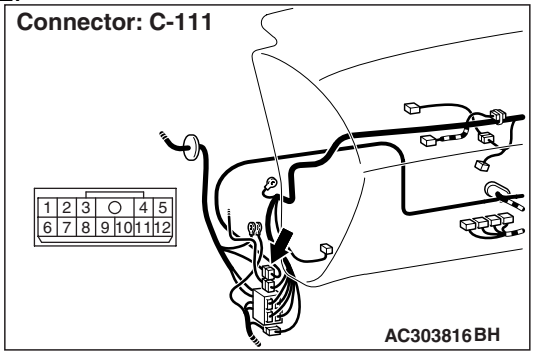
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the connector.

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





NOTE:



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

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

STEP 7. Retest the system.

Check that the windshield wipers stop at the specified park position.

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

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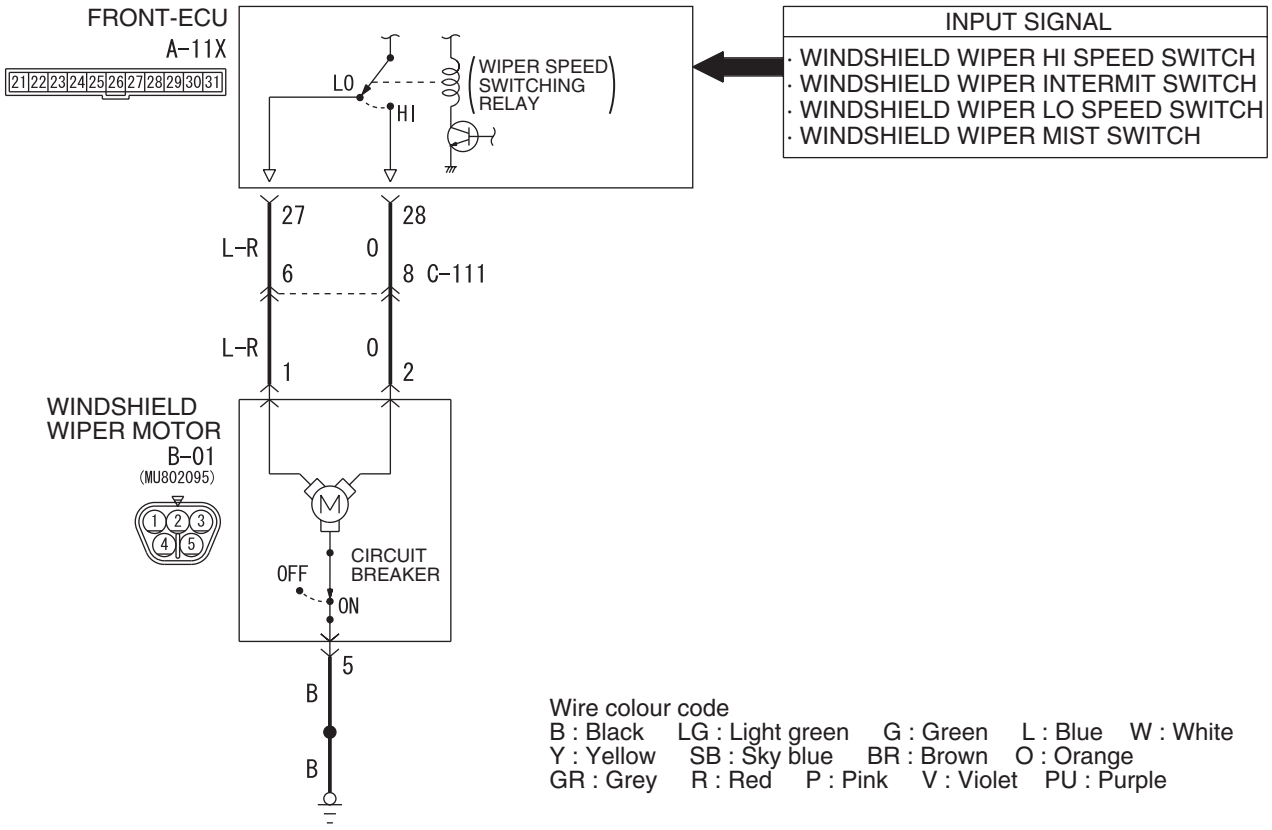
INSPECTION PROCEDURE G-4: The windshield wipers do not work normally.

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

Windshield Wiper Motor Drive Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield mist wiper switch	When the switch is turned from off to on.
Windshield intermittent wiper switch	When the switch is turned from off to on.
Windshield low-speed wiper switch	When the switch is turned from off to on.
Windshield high-speed wiper switch	When the switch is turned from off to on.

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

Q: Is the check result normal?

YES <All the signals are received normally> : Go to Step 2.

NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."

NO <Windshield mist wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

NO <Windshield intermittent wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

NO <Windshield low-speed wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

NO <Windshield high-speed wiper switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

STEP 2. Check the operation of the windshield wipers.

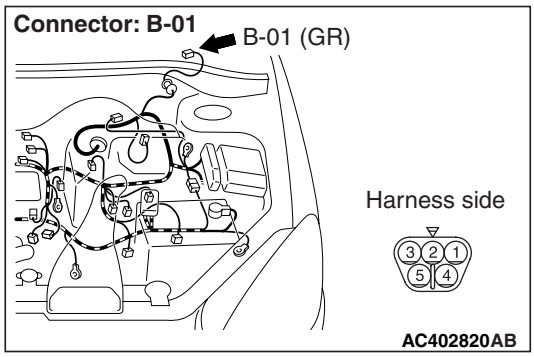
Check that the windshield wipers work at high speed and the mist mode.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Go to Step 8.

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



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

STEP 4. Check the windshield wiper motor assembly.

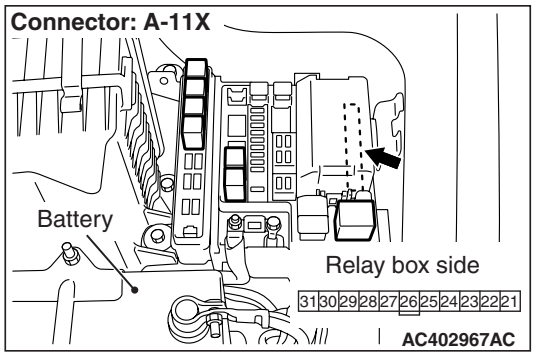
Refer to GROUP 51 – Windshield wiper P.51-25.

Q: Is the check result normal?

YES : Go to Step 5

NO : Replace the windshield wiper motor assembly.

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



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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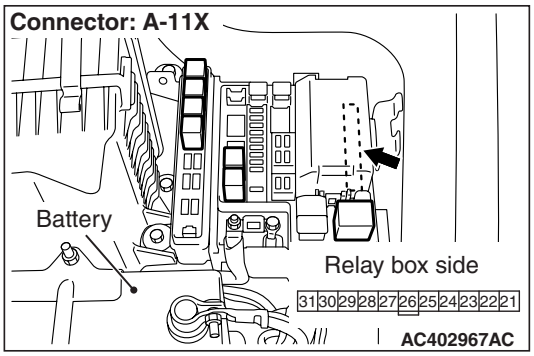
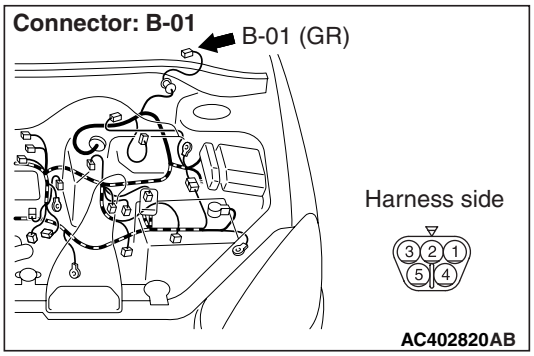
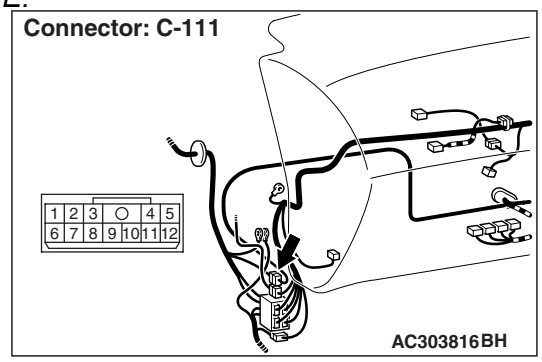
STEP 6. Check the wiring harness between A-11X front-ECU connector terminal No.27 and B-01 windshield wiper motor connector terminal No.1.





NOTE:



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

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

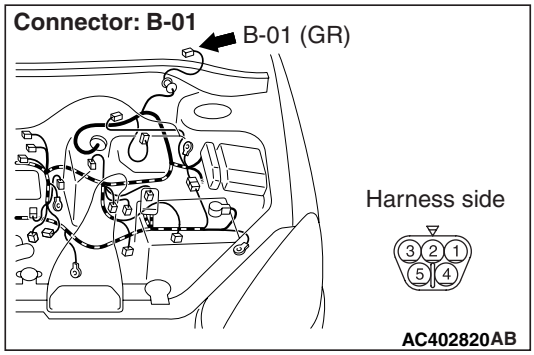
Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.

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

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

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



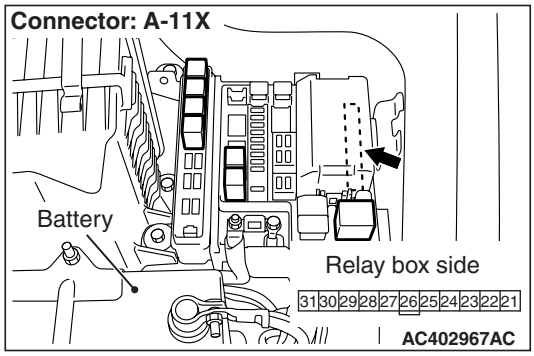
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the defective connector.

STEP 9. Check the windshield wiper motor assembly.

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

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

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



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

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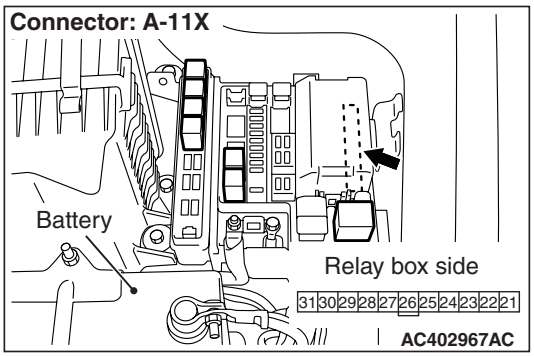
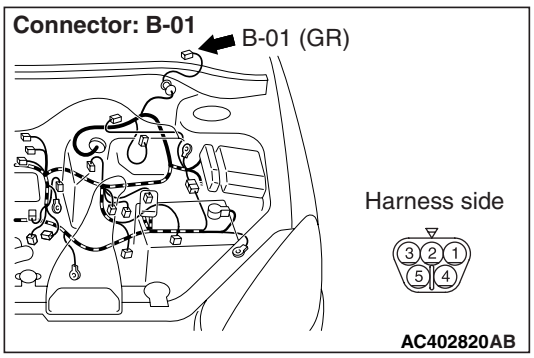
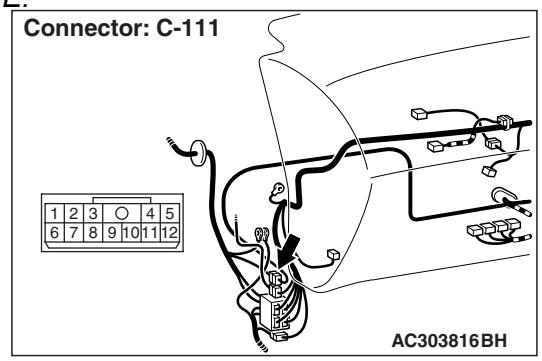
STEP 11. Check the wiring harness between A-11X front-ECU connector terminal No.28 and B-01 windshield wiper motor connector terminal No.2.





NOTE:



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

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

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the wiring harness.

STEP 12. Retest the system.

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

Q: Is the check result normal?

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

NO : Replace the front-ECU.

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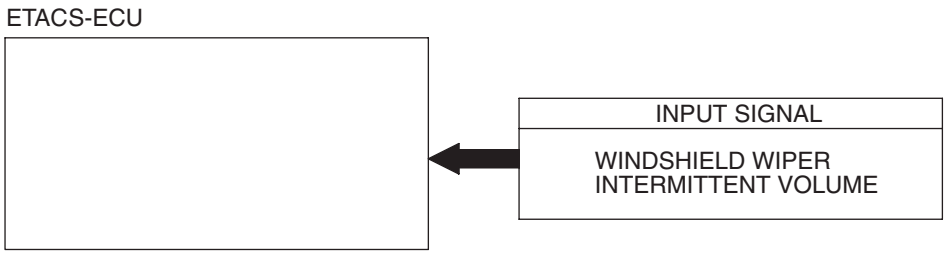
INSPECTION PROCEDURE G-5: The intermittent wiper interval can not be adjusted by operating the windshield intermittent wiper volume control.

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

Windshield Wiper Intermittent Volume Input Signal



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COMMENTS ON TROUBLE SYMPTOM

The column switch or the front-ECU may be defective.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signals below which are related to the windshield intermittent wiper function.

System switch	Check condition
Ignition switch (ACC)	When turned from LOCK (OFF) position to the ACC position
Windshield intermittent wiper volume	When the windshield intermittent wiper volume is rotated from "FAST" to "SLOW" (a pulse is sent around the volume middle position)

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

Q: Is the check result normal?

YES <All the signals are received normally> : Go to Step 2.

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."

NO <The windshield wiper volume signal is not received> : Refer to inspection procedure M-7 "The windshield wiper volume signal is not received P.54B-218."

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

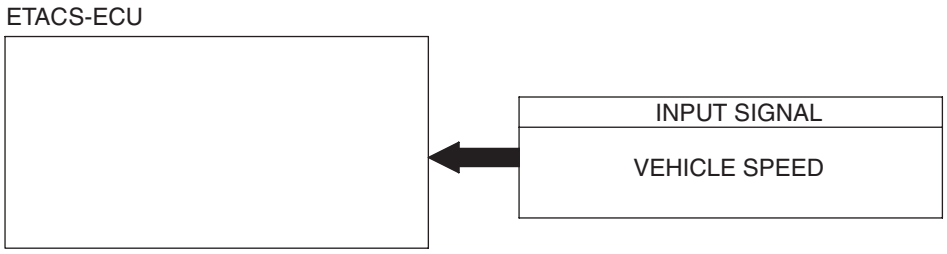
OK: The intermittent wiper interval is changed as the intermittent wiper volume is rotated.

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

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

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

Vehicle Speed Input Signal



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COMMENTS ON TROUBLE SYMPTOM
The ETACS-ECU calculates the intermittent wiper interval according to the vehicle speed signal which is sent by the vehicle speed sensor <M/T> or engine-A/T-ECU <A/T>.
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.

PROBABLE CAUSES
- Malfunction of the vehicle speed signal (vehicle speed sensor) <M/T>
- Malfunction of the vehicle speed signal (engine-ECU) <A/T>
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

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

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

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STEP 2. Retest the system.

Check that the windshield intermittent wiper interval can be adjusted by operating the windshield intermittent wiper volume control.

Q: Is the check result normal?

YES : Go to Step 3.

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

STEP 3. Pulse check

Check the input signals below which are related to the vehicle speed-dependent intermittent wiper.

System switch	Check conditions
Ignition switch (ACC)	When turned from LOCK (OFF) position to the ACC position
Vehicle speed signal (engine-ECU)	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 <All the signals are received normally> : Go to Step 4.

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."

NO <The vehicle speed signal (engine-ECU) is not received> : Refer to inspection procedure M-13 "The vehicle speed sensor signal is not received P.54B-238. <M/T>" Refer to inspection procedure M-13 "The vehicle speed signal is not received P.54B-241. <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.00-13).

NO : Replace the ETACS-ECU.

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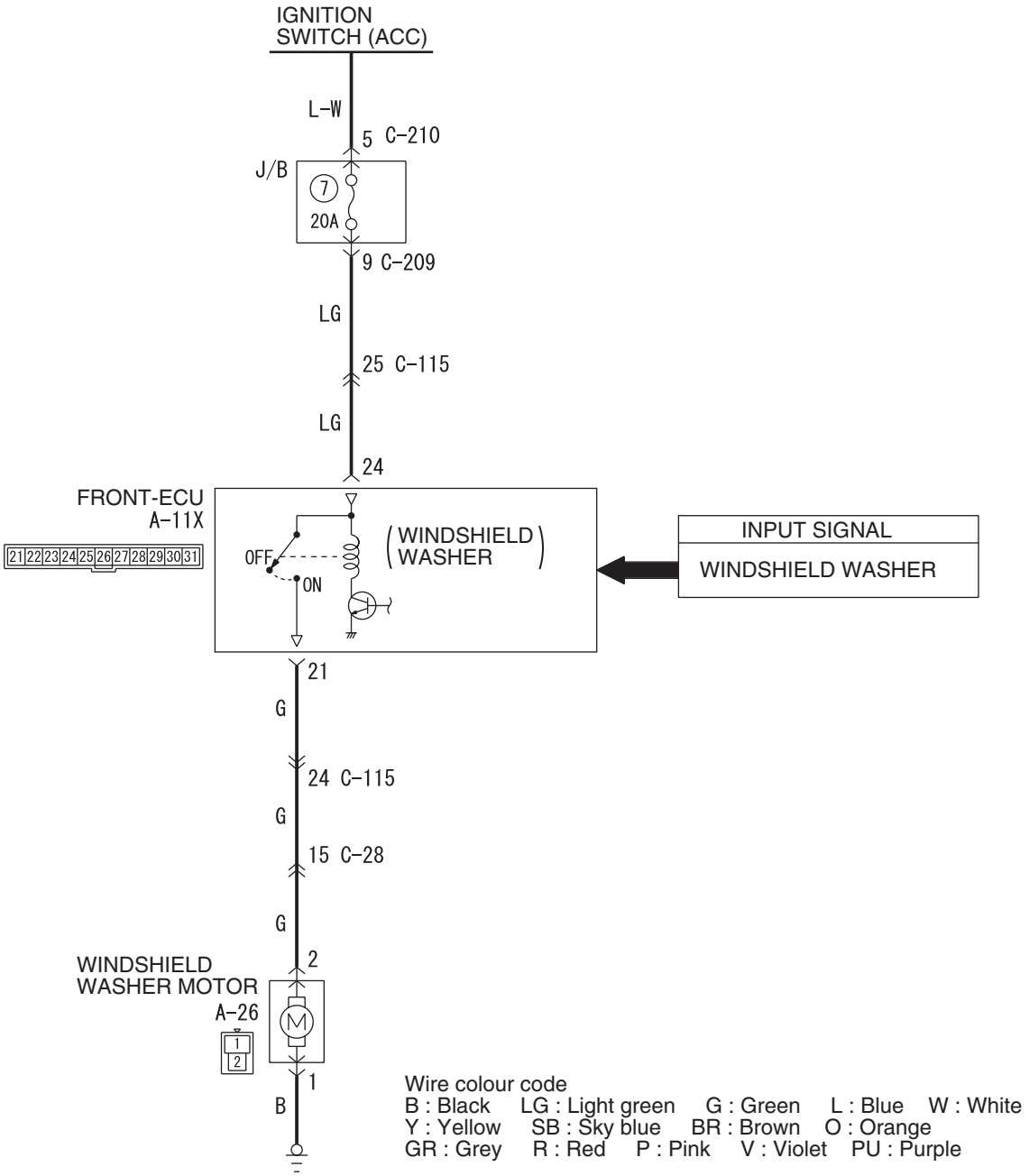
INSPECTION PROCEDURE G-7: The windshield washer does not work.

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

Windshield Washer Motor Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

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

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure G-1 "The windshield wipers does not work at all P.54B-106."

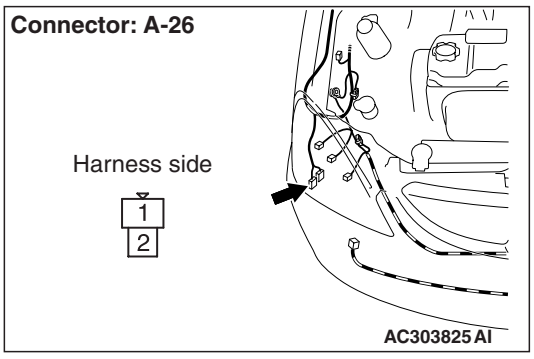
STEP 2. Pulse check
Check the input signals below which are related to the windshield wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position.
Windshield washer switch	When the switch is turned from off to on.

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 3.
NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."
NO <Windshield washer switch signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

STEP 3. Connector check: A-26 windshield washer motor connector

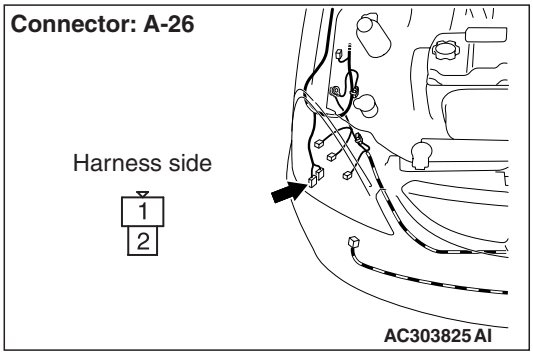


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

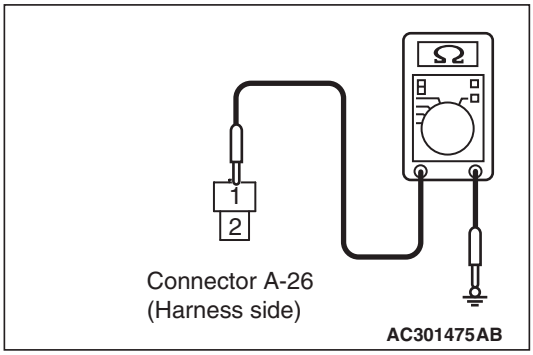
STEP 4. Check the windshield washer motor assembly.
Refer to GROUP 51 – Windshield washer P.51-25.

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

STEP 5. Resistance measurement at the A-26 windshield washer motor connector



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



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

OK: 2Ω or less

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

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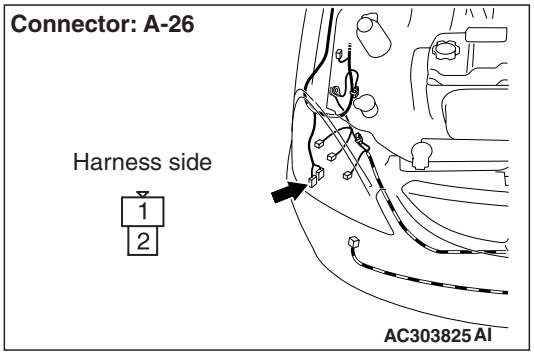
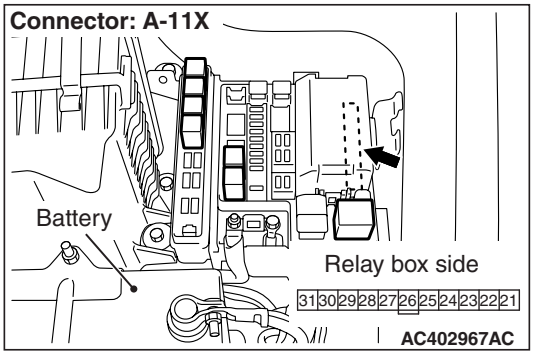
STEP 6. Check the wiring harness between A-26 windshield washer motor connector terminal No. 1 and body earth.



Check the earth wires for open circuit.

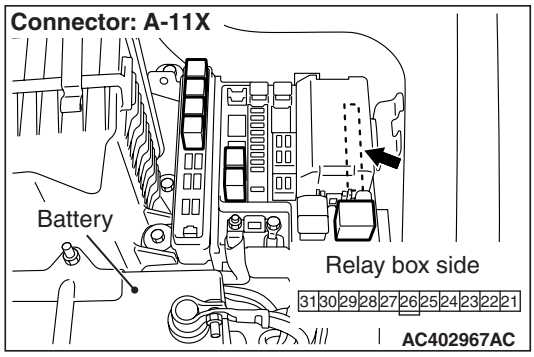
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

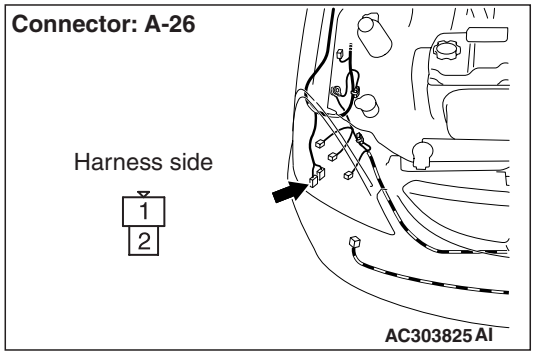
STEP 7. Connector check: A-11X front-ECU connector



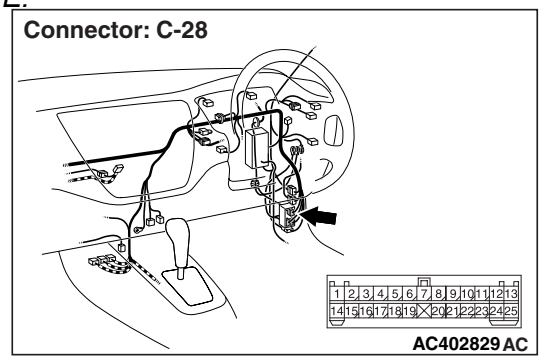
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

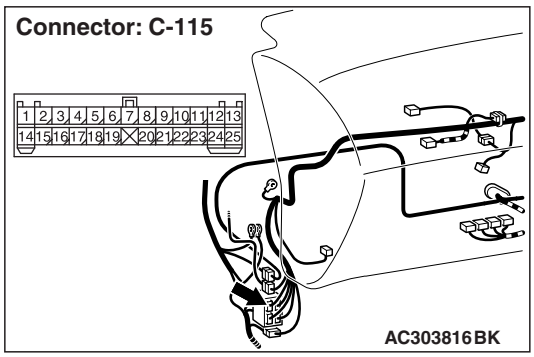
STEP 8. Check the wiring harness between A-26 windshield washer motor connector terminal No. 2 and A-11X front-ECU connector terminal No. 21.





NOTE:





Prior to the wiring harness inspection, check the intermediate connector C-28, C-115 and repair if necessary.
Check the power supply line to the ignition switch (ACC) for open circuit.

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

STEP 9. Retest the system.
The windshield washer should now work normally.

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

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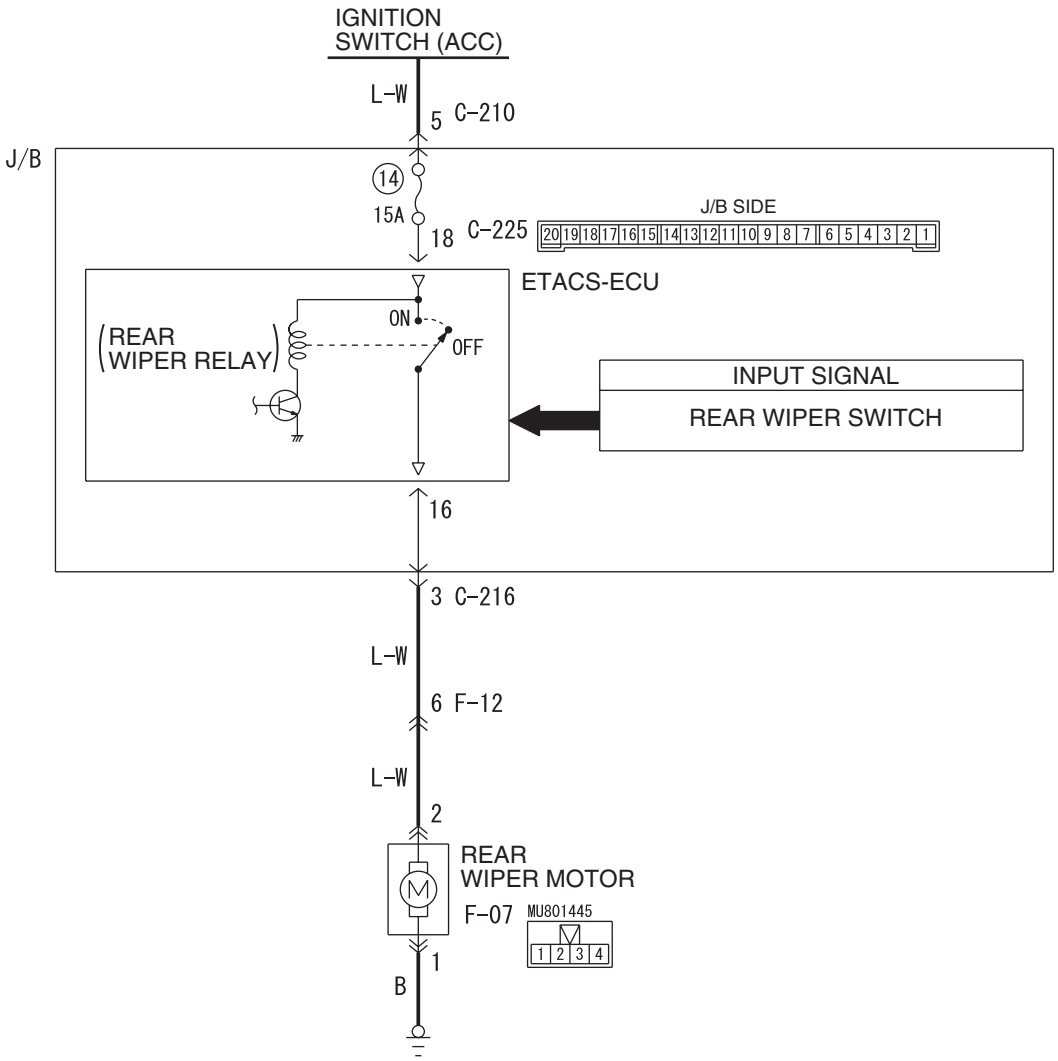
REAR WIPER AND WASHER

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

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

Rear Wiper Drive Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

- Ignition switch (ACC)
- Rear wiper switch

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III diagnosis code.
Check that the ETACS-ECU sets a diagnosis code.

Q: Is diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 2.

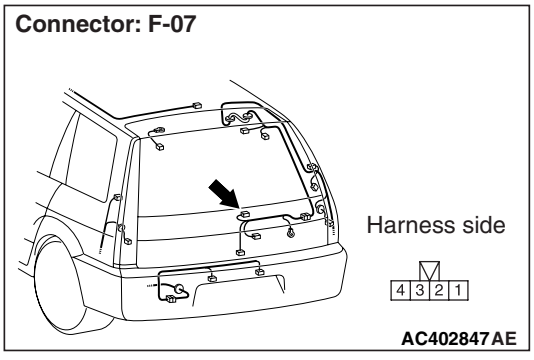
STEP 2. Pulse check
Check the input signals below which are related to the rear wiper.

System switch	Check condition
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Column switch (rear wiper switch)	When the switch is turned from off to on

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 3.
NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."
NO <The column switch (rear wiper switch) signal is not received> : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

STEP 3. Connector check: F-07 rear wiper motor connector

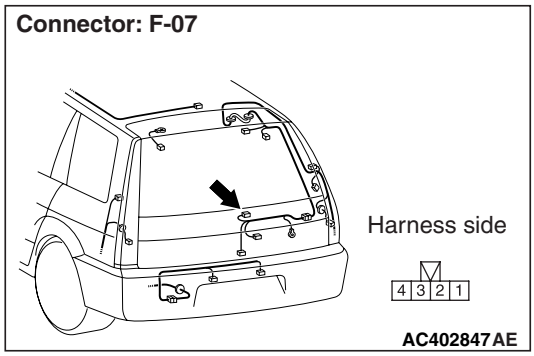


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

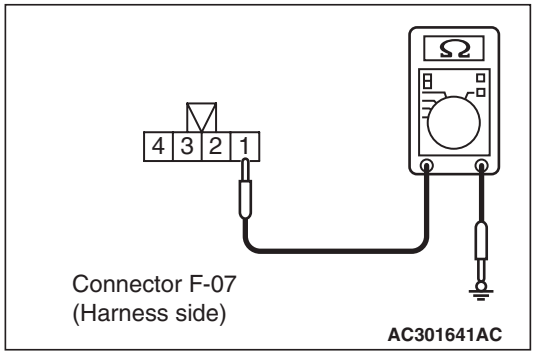
STEP 4. Check the rear wiper motor.
Refer to GROUP 51 – Rear wiper and washer P.51-30.

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

STEP 5. Resistance measurement at the F-07 rear wiper motor connector



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



(2) Resistance between F-07 rear wiper motor connector terminal No.1 and body earth

OK: 2 Ω or less

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

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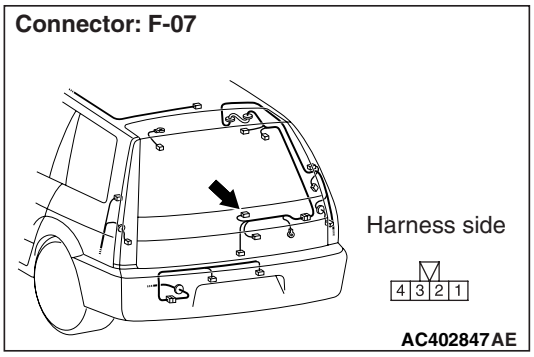
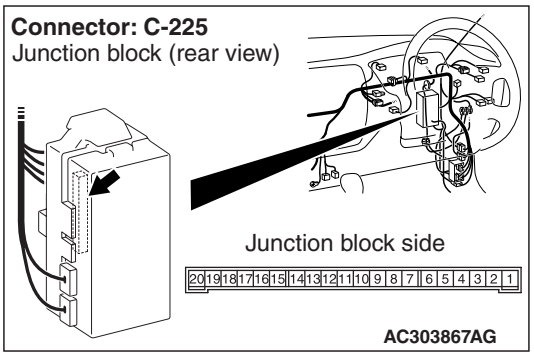
STEP 6. Check the wiring harness between F-07 rear wiper motor connector terminal No.1 and body earth.



Check the earth line for open or short circuit.

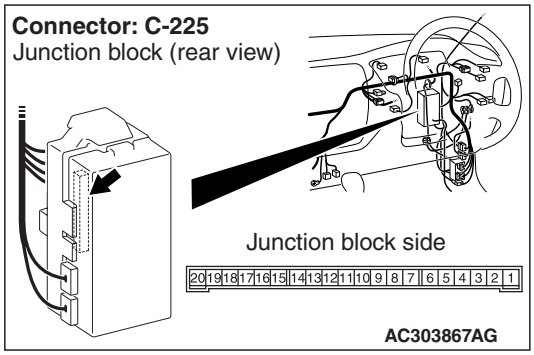
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

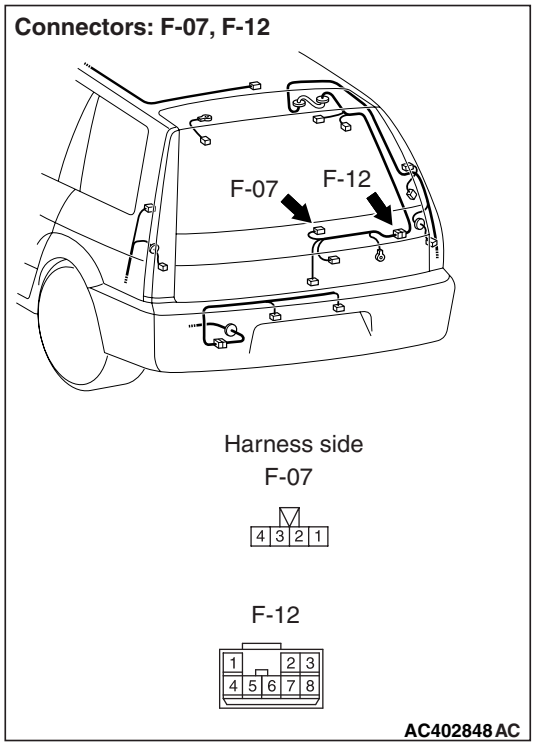
STEP 7. Connector check: C-225 ETACS-ECU connector



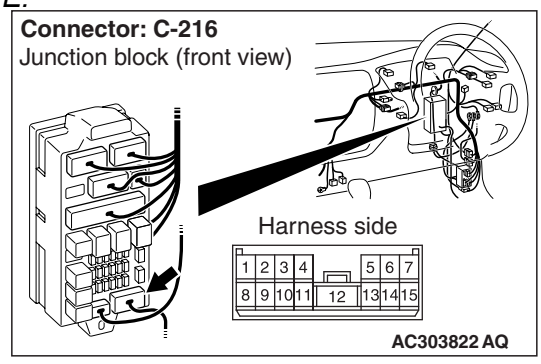
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

STEP 8. Check the wiring harness between C-225 ETACS-ECU connector terminal No.16 and F-07 rear wiper motor connector terminal No.2.





NOTE:



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

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Q: 1Is the check result normal?
YES : Go to Step 9.
NO : Repair the wiring harness.

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

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

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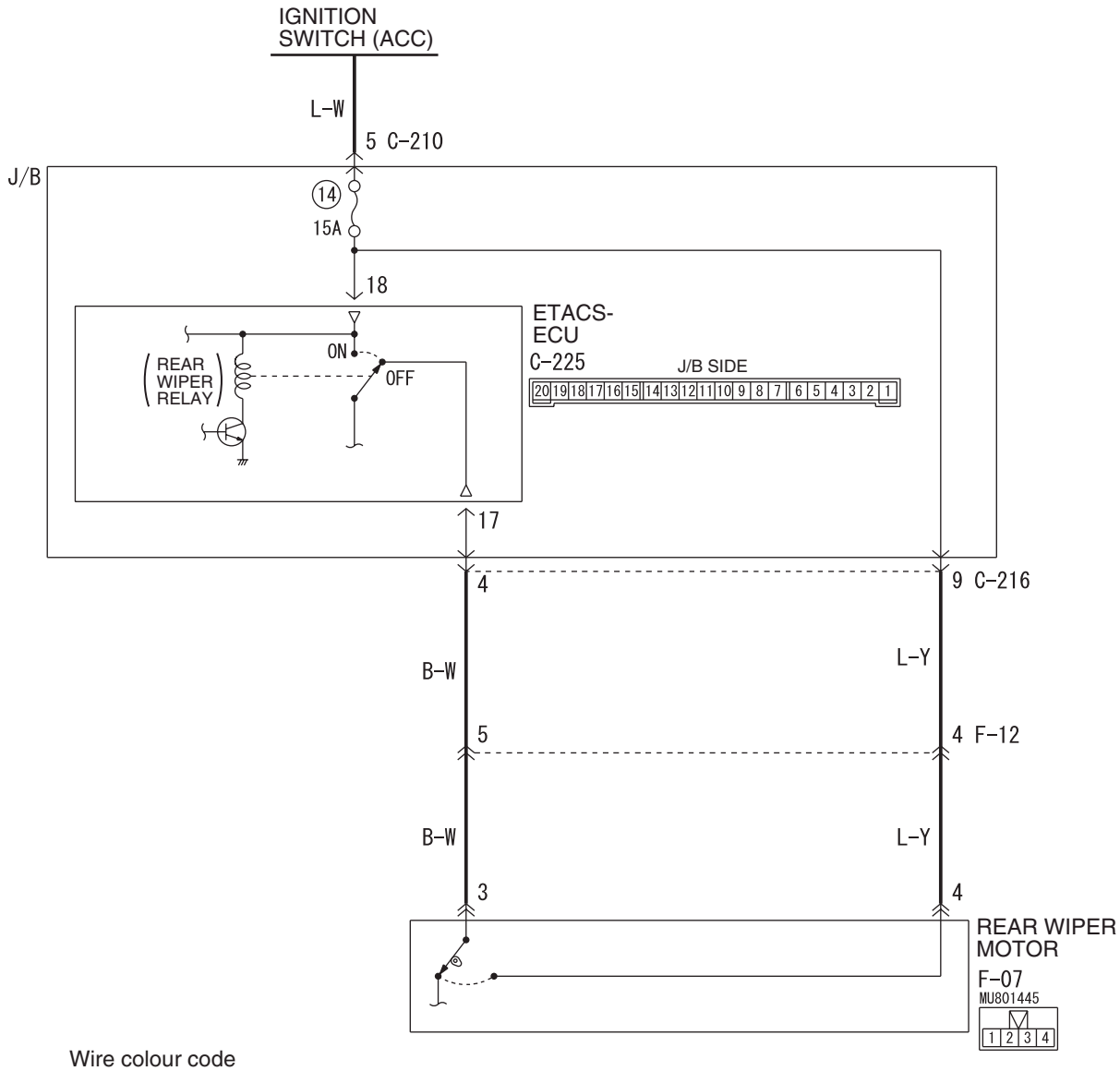
INSPECTION PROCEDURE H-2: The rear wiper does not stop at the specified park position.

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

Rear Wiper Auto-stop Signal Input



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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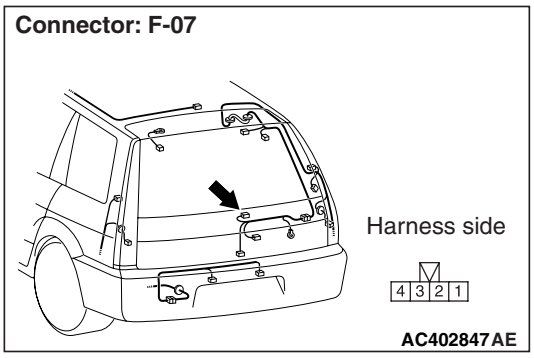
DIAGNOSIS PROCEDURE

STEP 1. Connector check: F-07 rear wiper motor connector



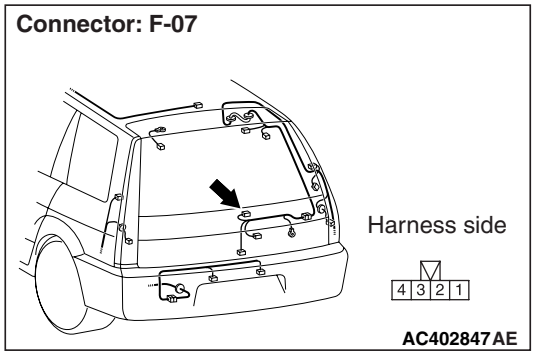
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the rear wiper motor.

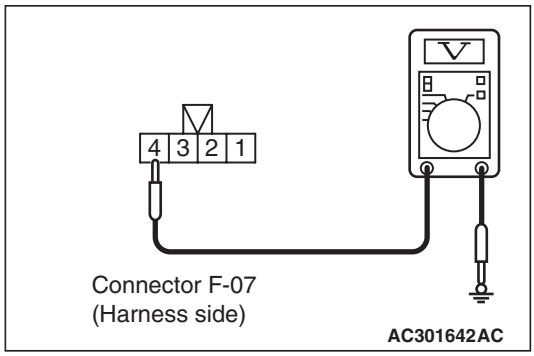
Refer to GROUP 51 – Rear wiper and washer P.51-30.

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

STEP 3. Voltage measurement at the F-07 rear wiper motor connector



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



(3) Check the voltage between F-07 rear wiper motor connector terminal No.4 and body earth.

OK: System voltage

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

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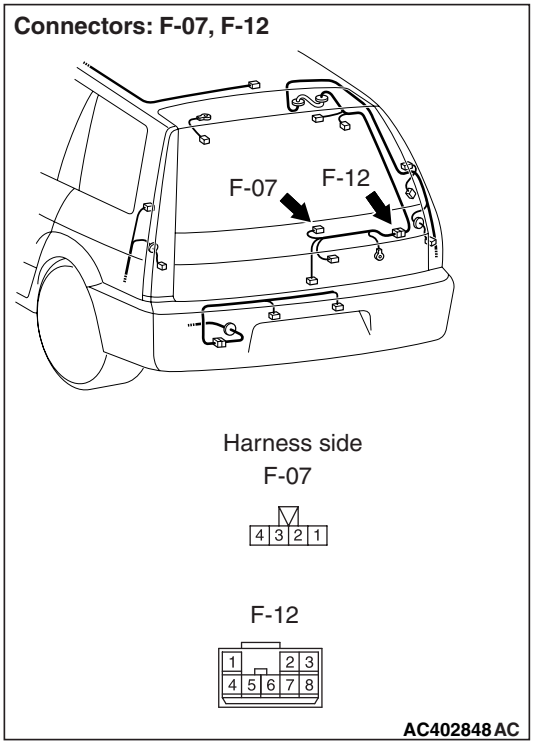
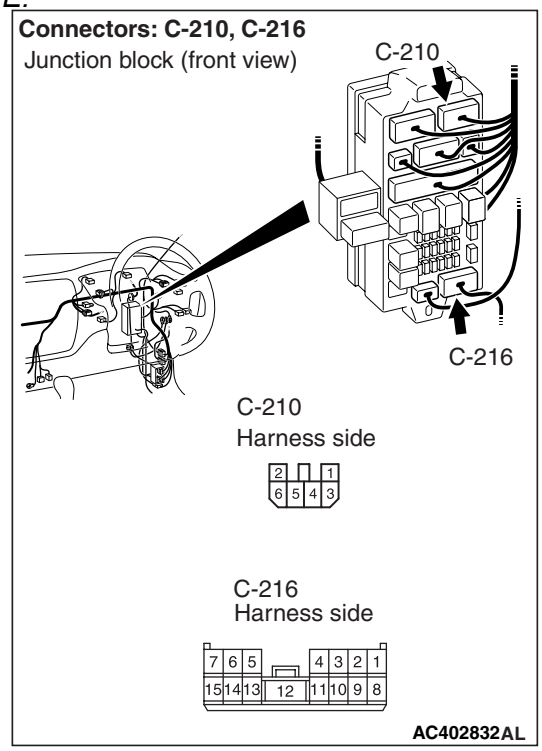
STEP 4. Check the wiring harness between ignition switch (ACC) and F-07 rear wiper motor connector terminal No.4.



NOTE:



Prior to the wiring harness inspection, check intermediate connector F-12 and junction block connectors C-210, C-216 and repair if necessary.

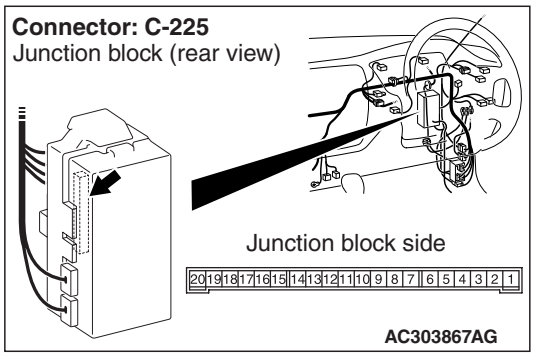
Check the power supply line for open or short circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

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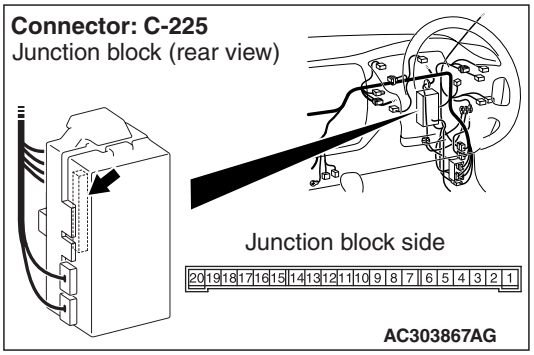
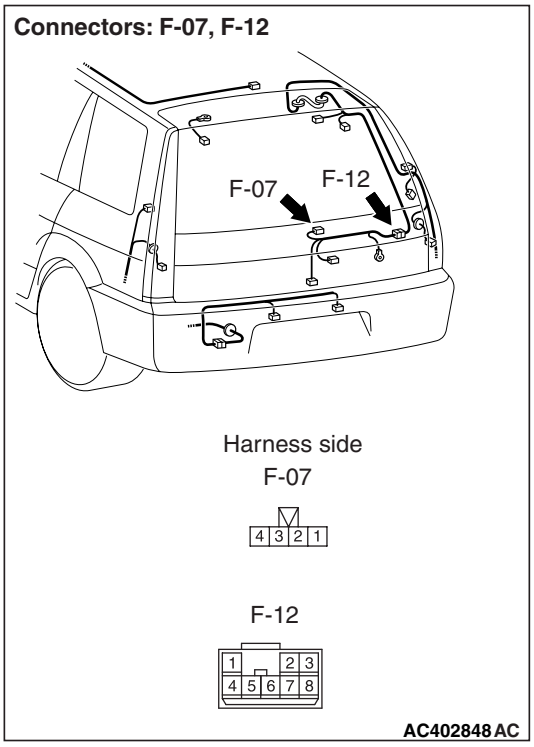
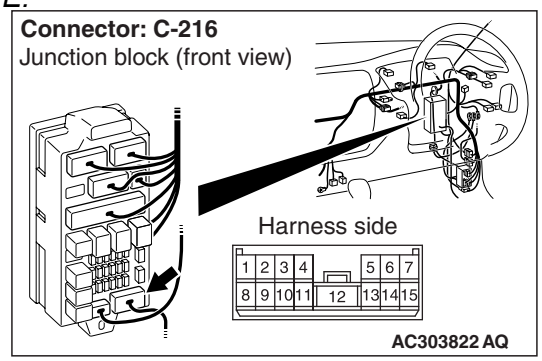
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.17 and F-07 rear wiper motor connector terminal No.3.





NOTE:



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

Check the power supply line for open or short circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the rear wiper auto stop function works normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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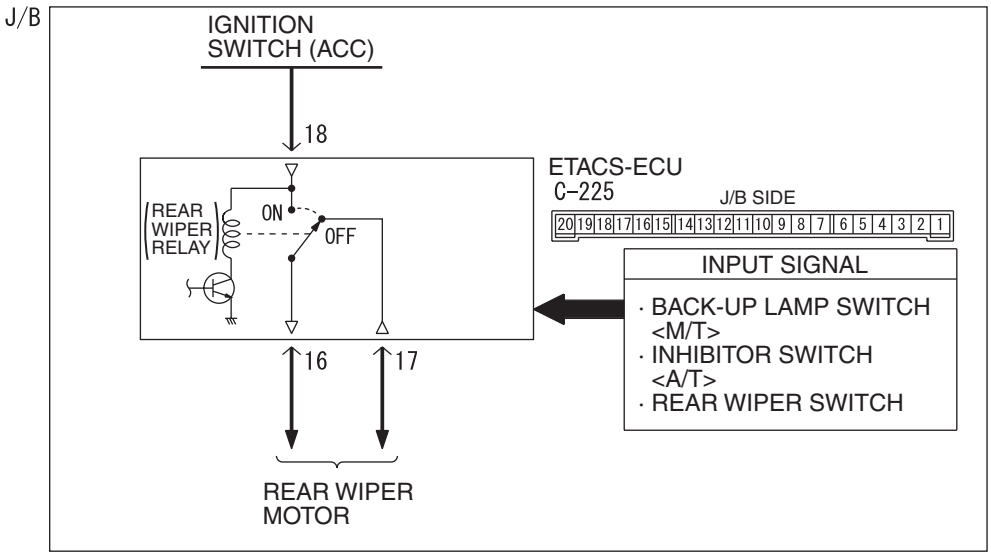
INSPECTION PROCEDURE H-3: When the shift lever <M/T> or selector lever <A/T> is moved to "R" position during the rear wiper operation, the rear wiper does not operate at the continuous mode.

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

"R" Position During Rear Wiper Operation Circuit



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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Malfunction of the back-up lamp switch
- Malfunction of the inhibitor 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 H-1 "The rear wiper does not work at all P.54B-127."

STEP 2. Pulse check
Check the input signal, which are related to the "R" (reverse) gear-linked rear wiper operation.

System switch	Check condition
Back-up lamp switch <M/T>	When the ignition switch is turned ON and the shift lever is moved to the R position.
Inhibitor switch <A/T>	When the ignition switch is turned ON and the selector lever is moved to the R position.

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-3 "The back-up lamp switch signal is not received P.54B-205. <M/T>" Refer to inspection procedure M-3 "The inhibitor switch (reverse position) signal is not received P.54B-209. <A/T>"

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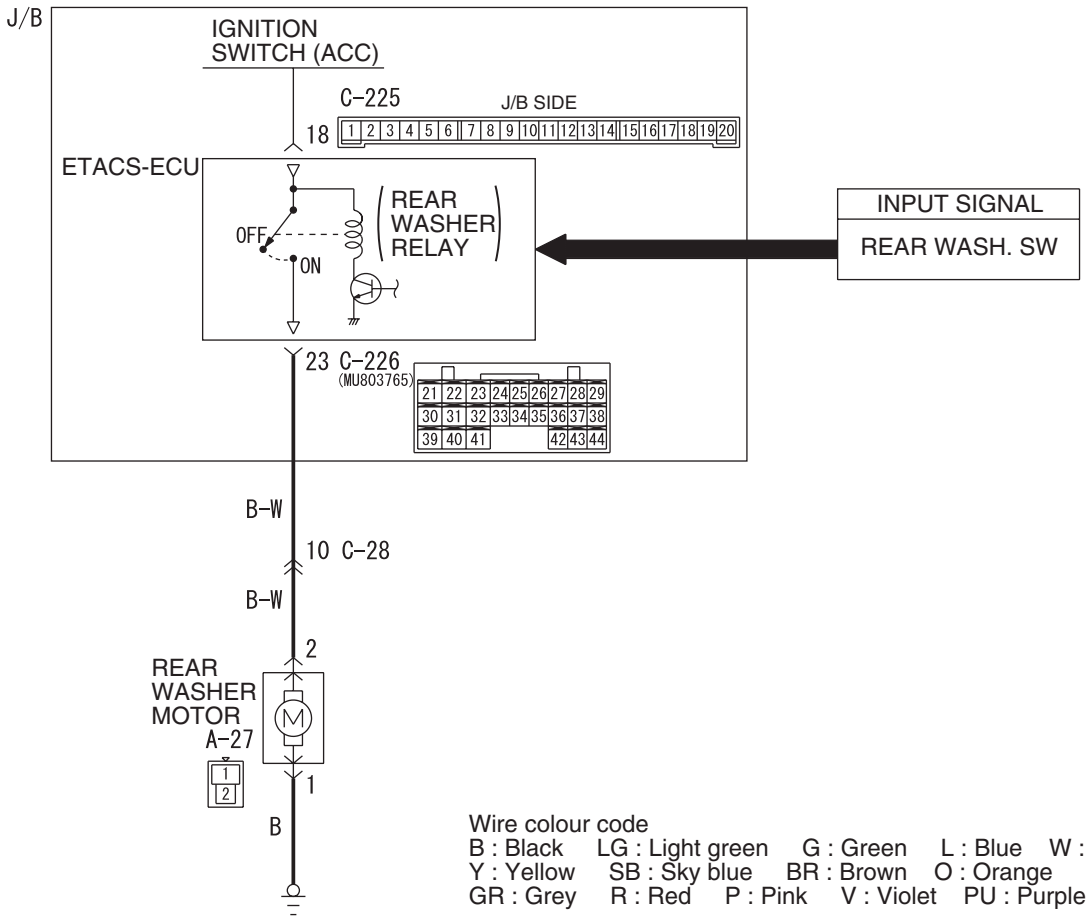
STEP 3. Retest the system.
Check that the rear wiper operates consecutively when the shift lever <M/T> or selector lever <A/T> is moved to the "R" position during the rear wiper operation.

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.00-13).
NO : Replace the ETACS-ECU.

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

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

Rear Washer Drive Circuit



W5J54L062A

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.

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PROBABLE 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 H-1 "The rear wiper does not work at all P.54B-127."

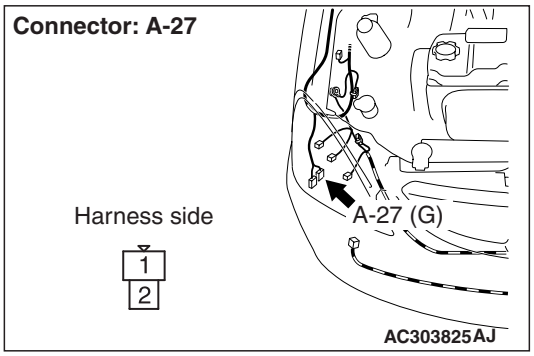
STEP 2. Pulse check
Check the input signals below which are related to the rear washer.
Turn the ignition switch to the "ACC" position.

System switch	Check condition
Column switch (rear washer 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 3.
NO : Refer to inspection procedure M-6 "The column switch (windshield wiper/washer and rear wiper/washer switch) signal is not received P.54B-217."

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

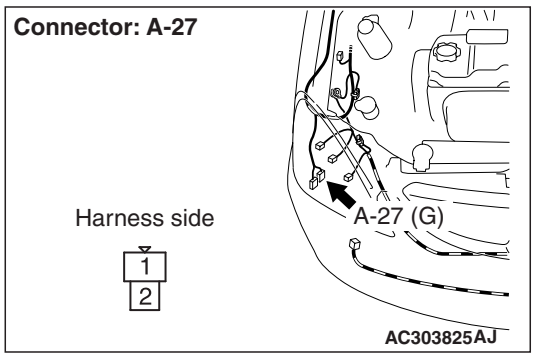


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the connector.

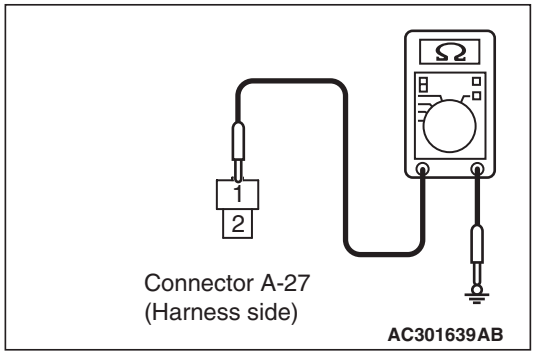
STEP 4. Check the rear washer motor.
Refer to GROUP 51 – Rear wiper and washer P.51-30.

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

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



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



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

OK: 2 Ω or less

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

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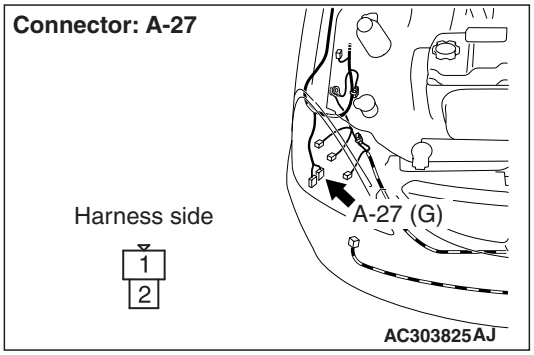
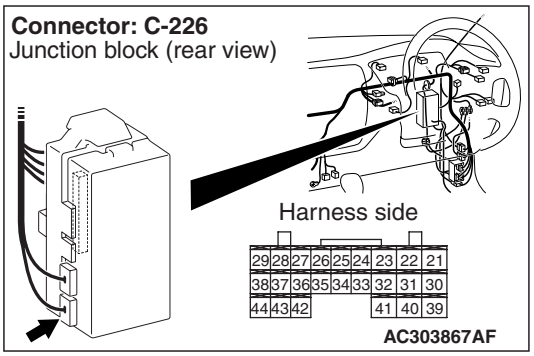
STEP 6. Check the wiring harness between A-27 rear washer motor connector terminal No.1 and body earth.



Check the earth line for open or short circuit.

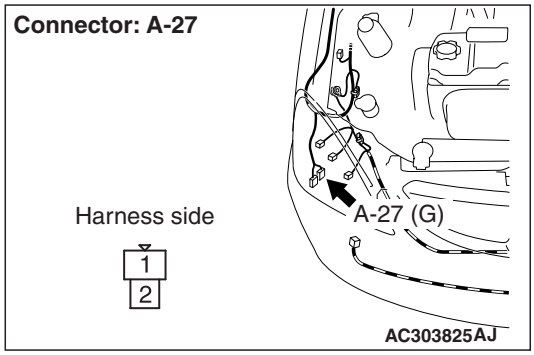
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

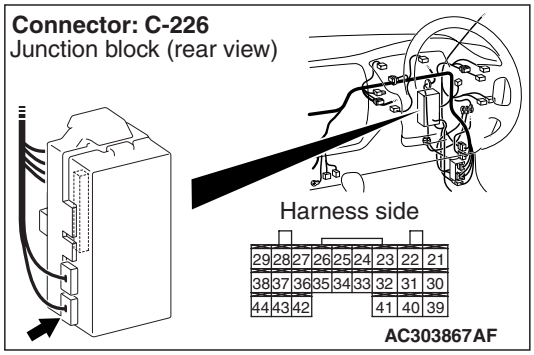
STEP 7. Connector check: C-226 ETACS-ECU connector



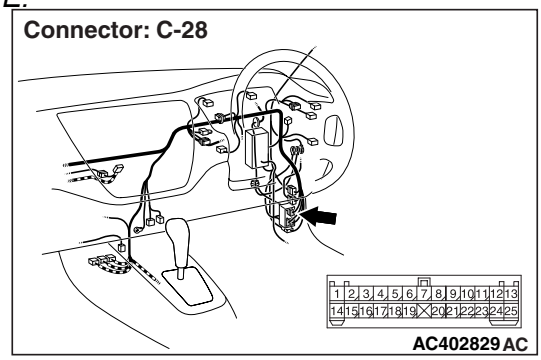
Q: Is the check result normal?
YES : Go to Step 8.
NO : Repair the connector.

STEP 8. Check the wiring harness between C-226 ETACS-ECU connector terminal No.23 and A-27 rear washer motor connector terminal No.2.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-28 and repair if necessary.
Check the output signal line.

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

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

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

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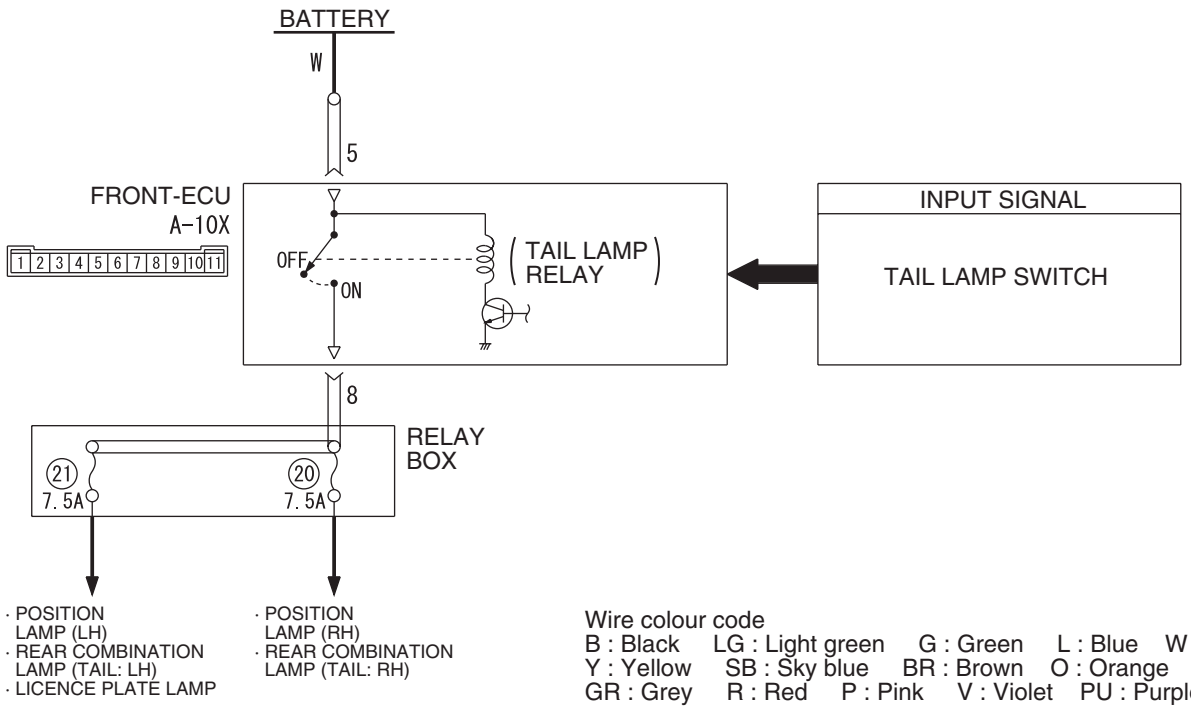
HEADLAMP AND TAIL LAMP

INSPECTION PROCEDURE I-1: The tail lamps do not illuminate normally.

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

Tail Lamp Relay Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III diagnosis code.
When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 2.

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STEP 2. Pulse check

Check the input signal from the tail lamp switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Tail lamp switch	When the lighting switch is turned to the TAIL position

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

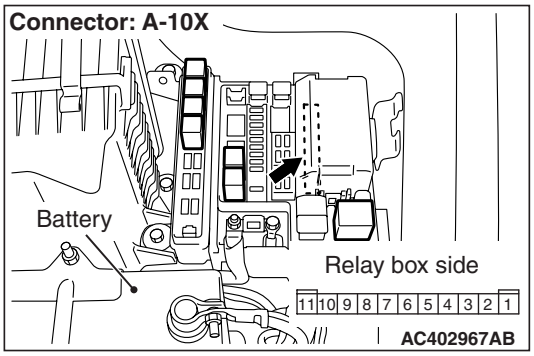
Q: Is the check result normal?

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

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The tail lamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

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

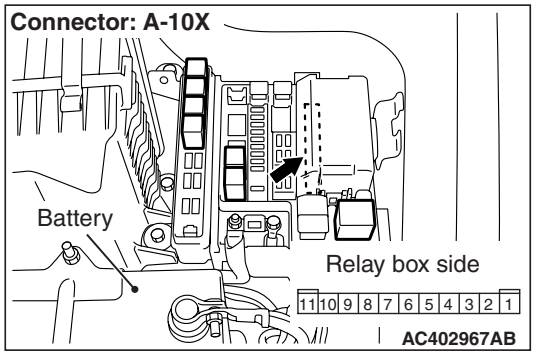


Q: Is the check result normal?

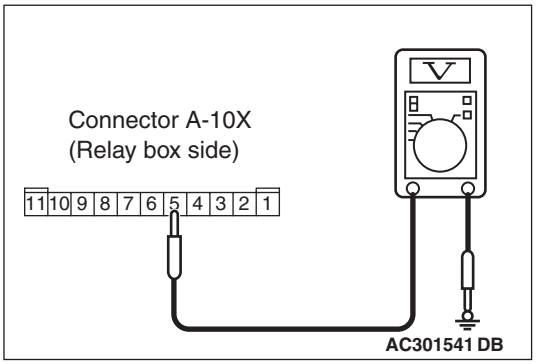
YES : Go to Step 4.

NO : Repair the defective connector.

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



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



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

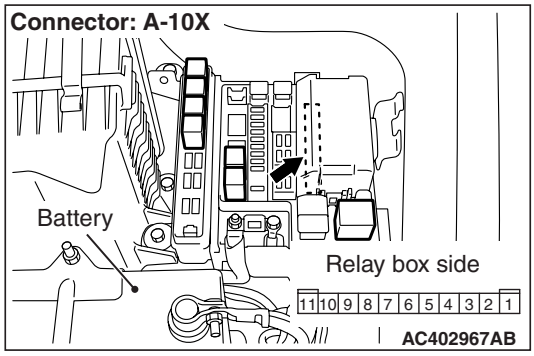
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between A-10X front-ECU connector terminal No.5 and the battery.



Check the power supply line for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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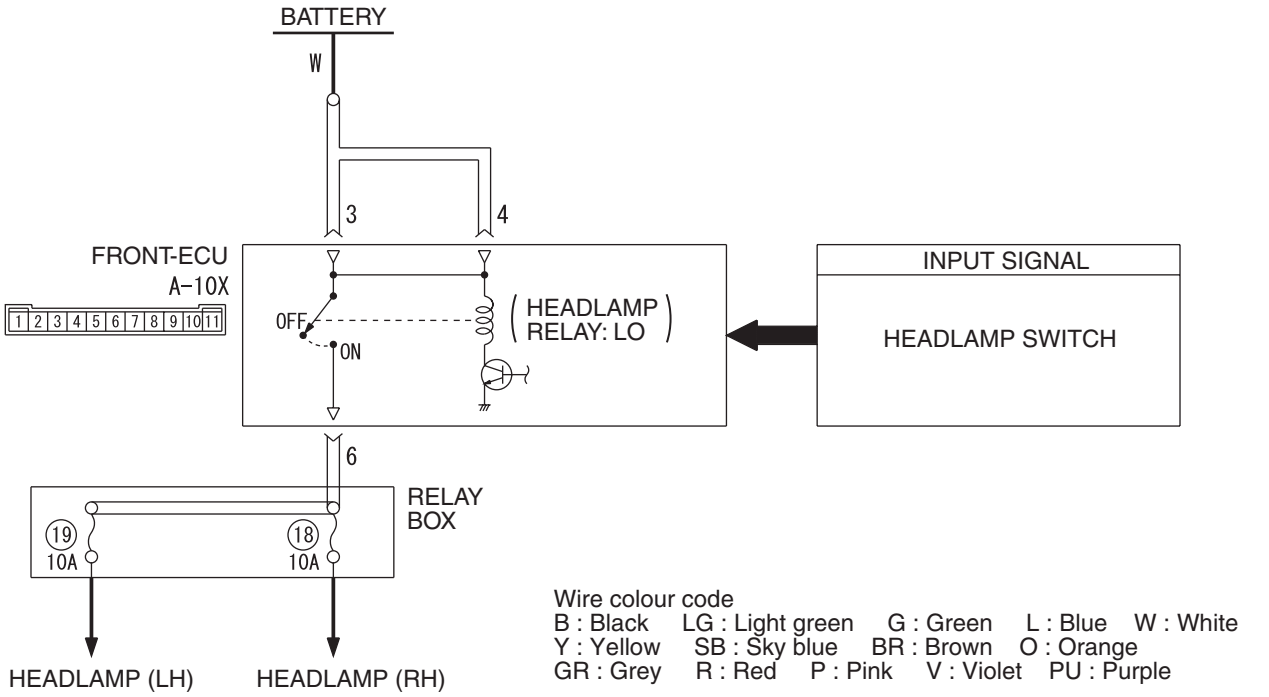
STEP 6. Retest the system.
Check that the tail lamps illuminate normally.

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

INSPECTION PROCEDURE I-2: The low-beam headlamps do not illuminate normally.

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

Headlamp Relay (Low-Beam) Circuit



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

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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.

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

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III diagnosis code.
When the ignition switch is turned to the LOCK (OFF) position, check that the ETACS-ECU does not set the diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 2.

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STEP 2. Pulse check

Check the input signal from the headlamp switch.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Headlamp switch	When the lighting switch is turned to the HEADLAMP position

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

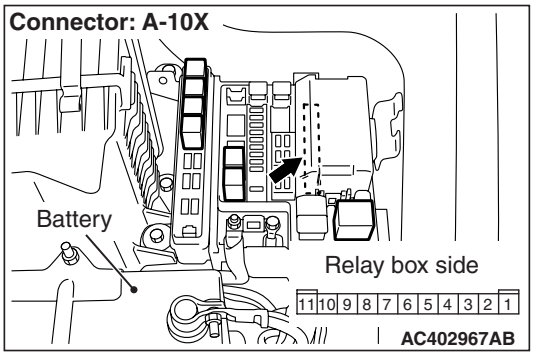
Q: Is the check result normal?

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

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The headlamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

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

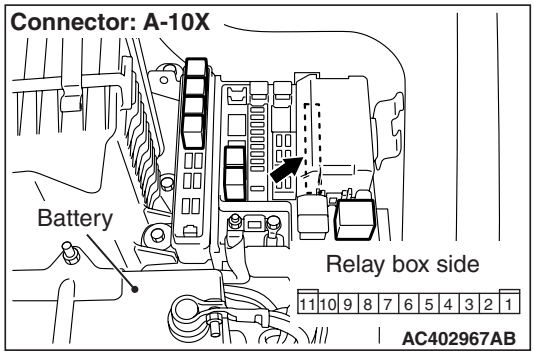


Q: Is the check result normal?

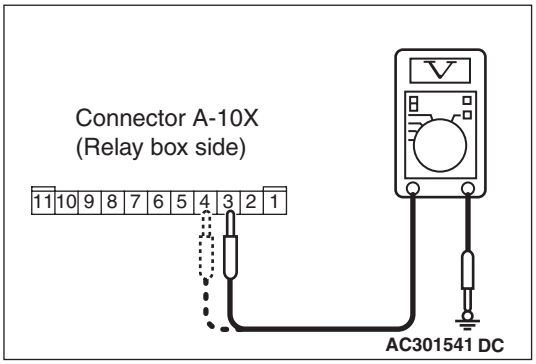
YES : Go to Step 4.

NO : Repair the defective connector.

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



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



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

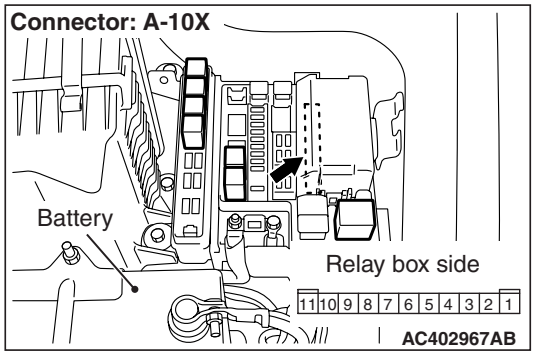
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between A-10X front-ECU connector terminal Nos. 3, 4 and the battery.



Check the power supply line for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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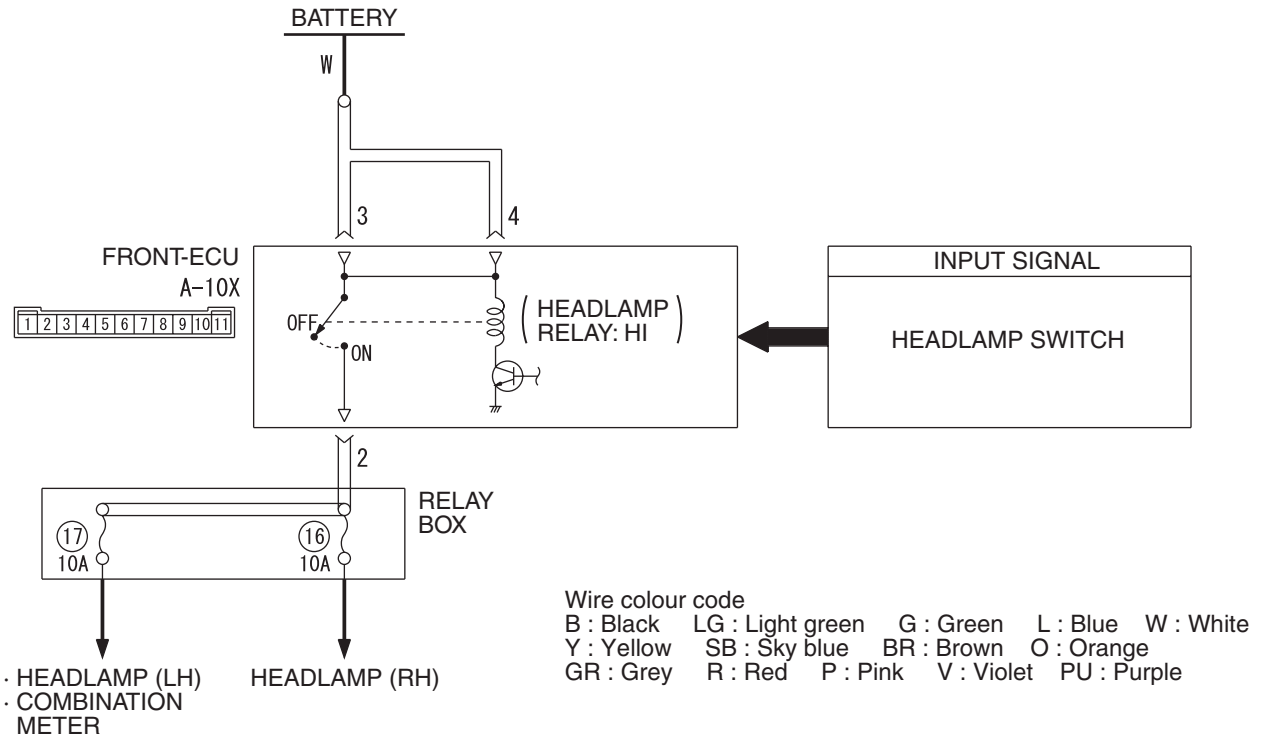
STEP 6. Retest the system.
Check that the low-beam headlamps illuminate normally.

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

INSPECTION PROCEDURE I-3: 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 : Grey R : Red P : Pink V : Violet PU : Purple

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

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

DIAGNOSIS PROCEDURE

STEP 1. Check that the headlamps operate.
Check that the low-beam headlamps illuminate and extinguish normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure I-2 "The low-beam headlamps do not illuminate normally P.54B-141."

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STEP 2. Pulse check
Check the input signal from the dimmer switch.

System switch	Check condition
Dimmer switch	When the dimmer switch is turned from off to on

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

STEP 3. Retest the system.
Check that the high-beam headlamps illuminate normally.

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

INSPECTION PROCEDURE I-4: The high-beam and low-beam headlamps do not illuminate when the passing switch is operated.

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

COMMENTS ON TROUBLE SYMPTOM
If the low-beam and high-beam headlamps are normal, the passing switch input signal circuit or the front-ECU may be defective.

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

DIAGNOSIS PROCEDURE

STEP 1. Check that the headlamps operate.
Check that the low-beam and high-beam headlamps work normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the headlamps. Refer to trouble symptom chart P.54B-32.

STEP 2. Pulse check
Check the input signal from the passing switch.

System switch	Check condition
Passing lamp switch	When the passing switch is turned from off to on

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

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

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

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

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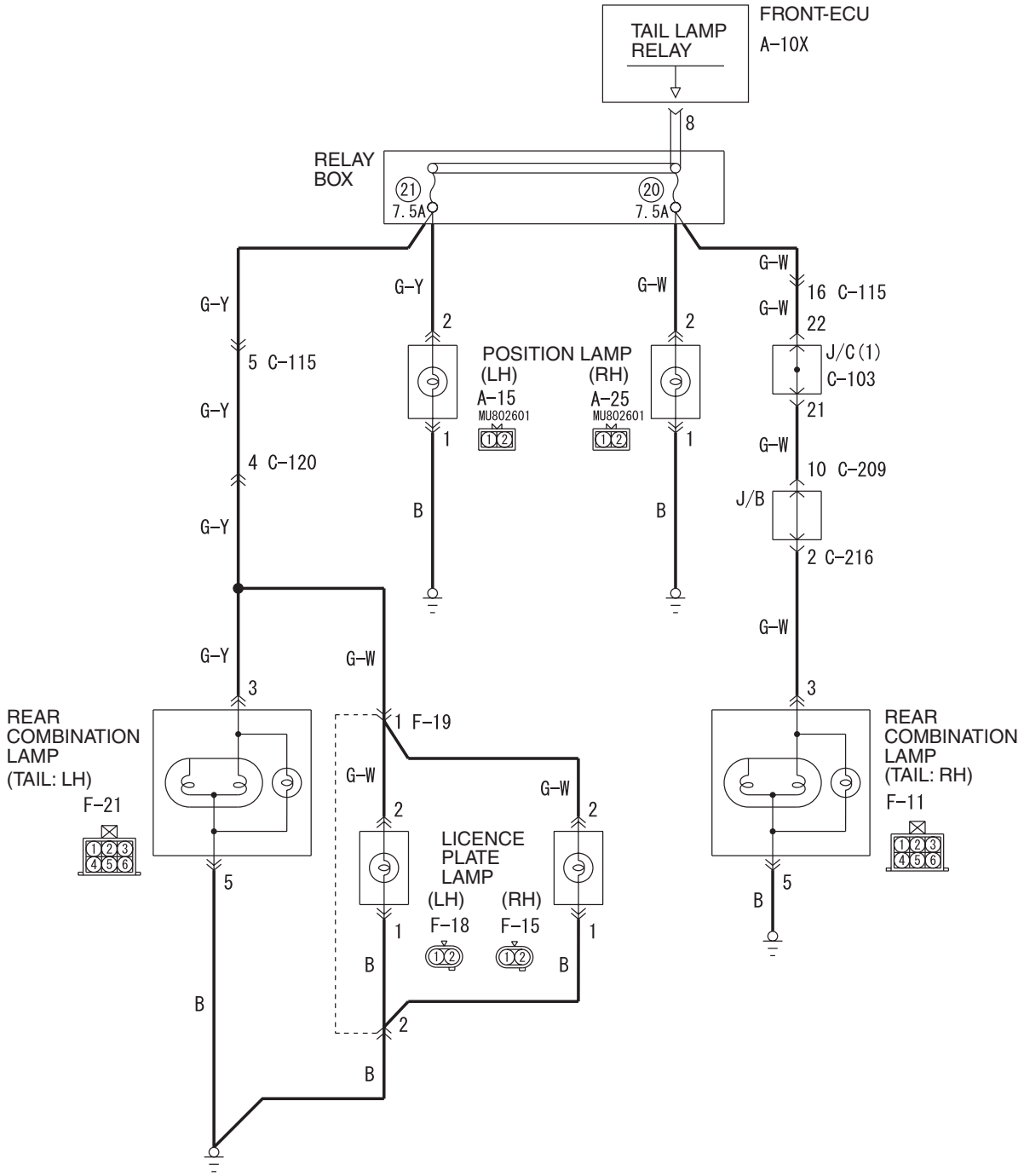
INSPECTION PROCEDURE I-5: Any of tail lamps, position lamps or licence plate lamps does not illuminate.

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

Tail Lamps, Position Lamps and Licence Plate Lamps Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

- Burned-out bulb
- Damaged harness wires and connectors

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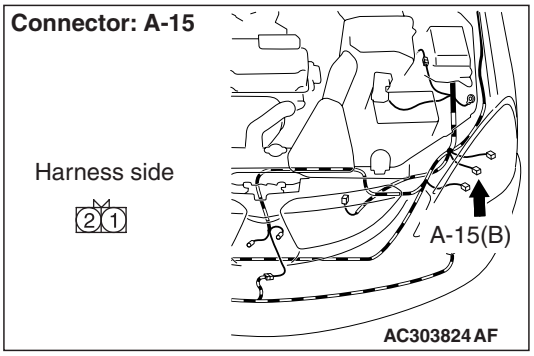
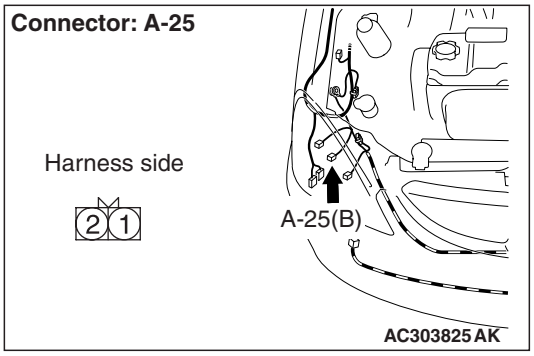
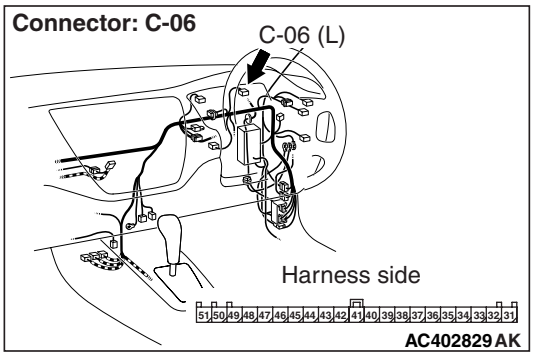
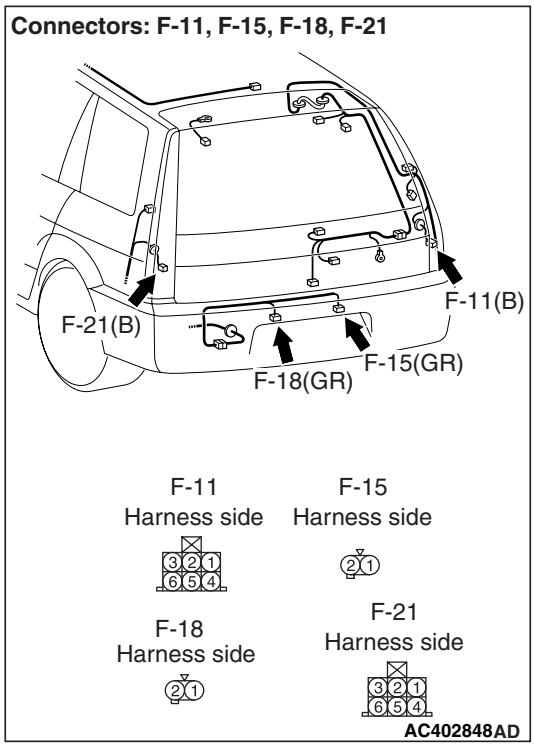
DIAGNOSIS PROCEDURE

STEP 1. Connector check: F-21 rear combination lamp (tail: LH) or F-11 rear combination lamp (tail: RH) connector, A-15 position lamp (LH) or A-25 position lamp (RH) connector, F-18 licence plate lamp (LH) or F-15 licence plate lamp (RH) 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.

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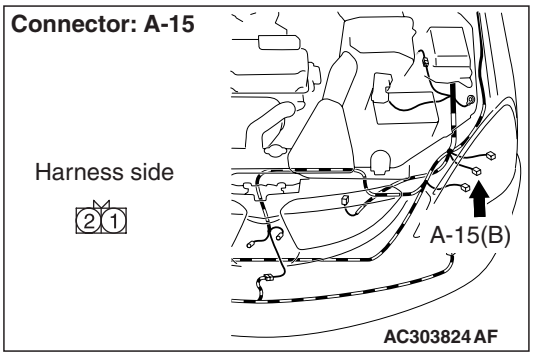
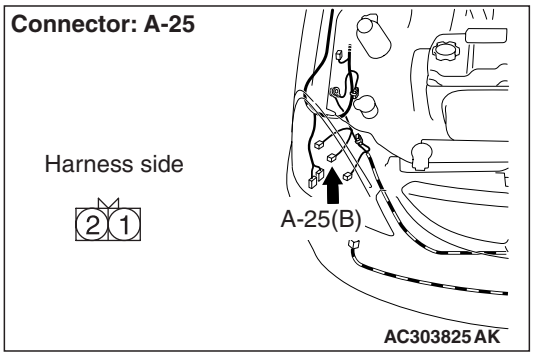
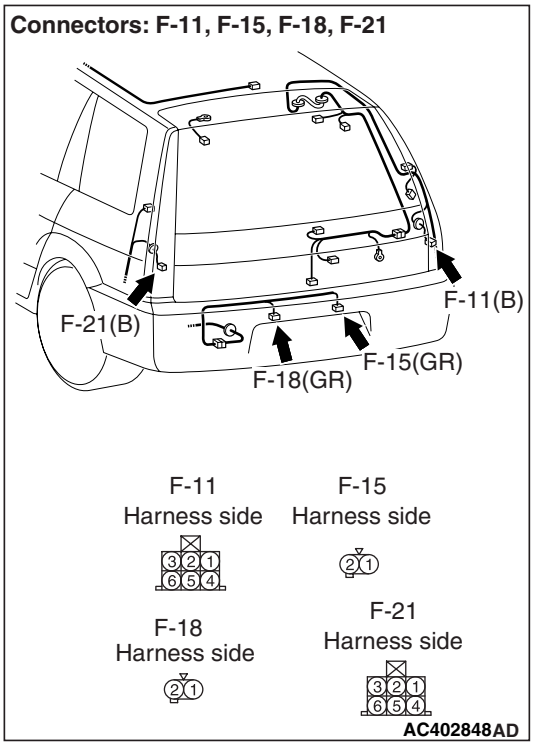
STEP 3. Resistance measurement at the F-21 rear combination lamp (tail: LH) or F-11 rear combination lamp (tail: RH) connector, the A-15 position lamp (LH) or A-25 position lamp (RH) connector, the F-18 licence plate lamp (LH) or F-15 licence plate lamp (RH) connector

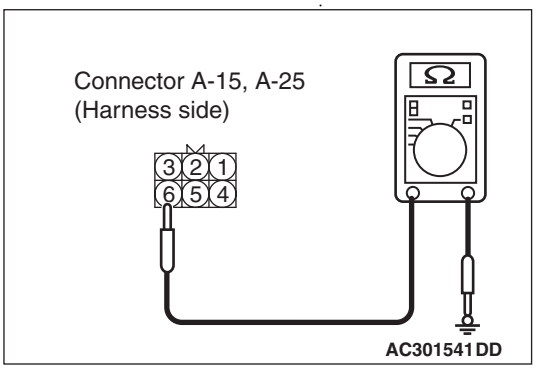






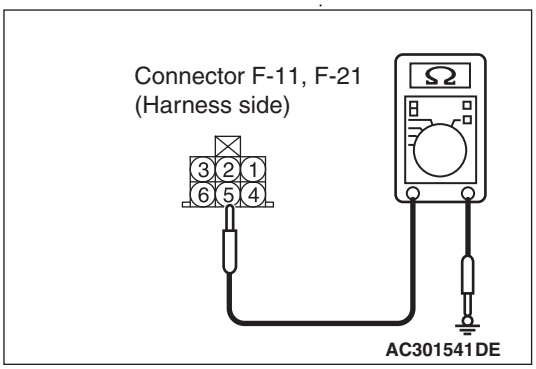
(1) Disconnect the connector, and measure at the wiring harness side.

(2) Check the resistance between the lamp connector and body earth.



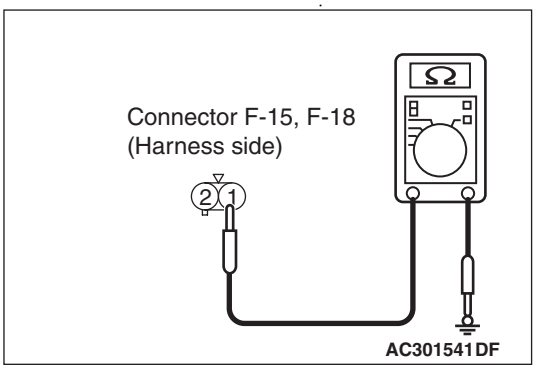
Resistance between A-15 position lamp (LH) connector terminal No.6 and body earth

- Resistance between A-25 position lamp (RH) position lamp connector terminal No.6 and body earth



Resistance between F-21 rear combination lamp (tail: LH) connector terminal No.5 and body earth

- Resistance between F-11 rear combination lamp (tail: RH) connector terminal No.5 and body earth



Resistance between F-18 licence plate lamp (LH) connector terminal No.1 and body earth

- Resistance between F-15 licence plate lamp (RH) connector terminal No.1 and body earth

OK: 2 Ω or less

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

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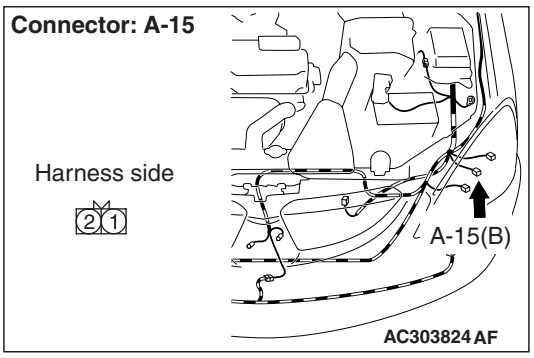
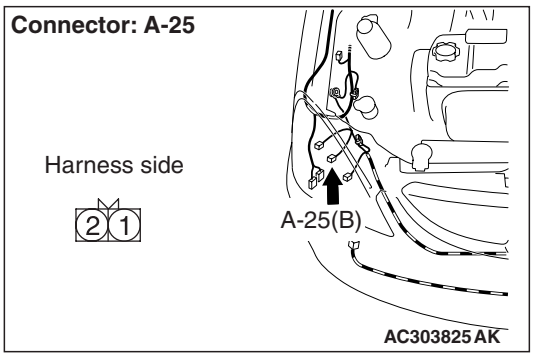
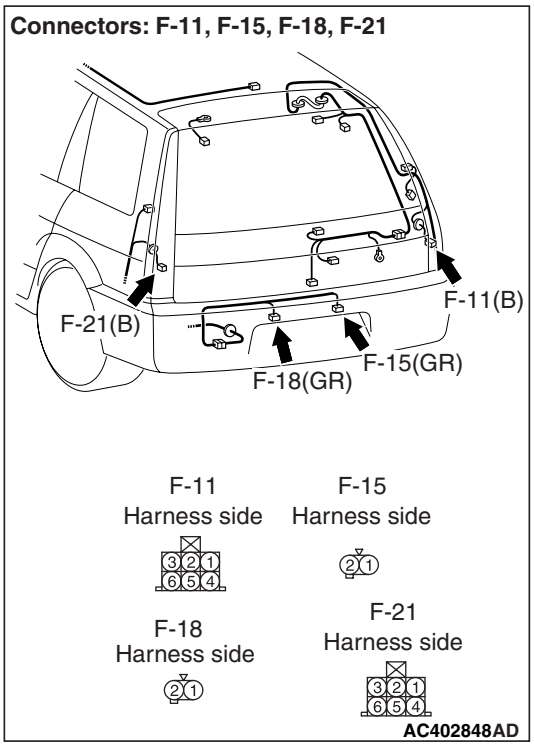
STEP 6. Check the wiring harness from F-21 rear combination lamp (tail: LH) or F-11 rear combination lamp (tail: RH) connector terminal No.5, A-15 position lamp (LH) or A-25 position lamp (RH) connector terminal No.1, F-18 licence plate lamp (LH) or F-15 licence plate lamp (RH) connector terminal No.1 to body earth.



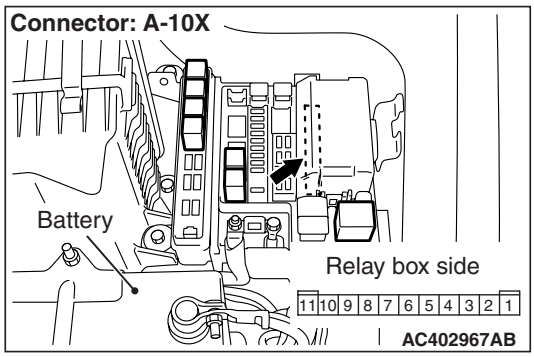




- Check the earth wires for open circuit.

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

STEP 7. Connector check: A-10X front-ECU connector



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

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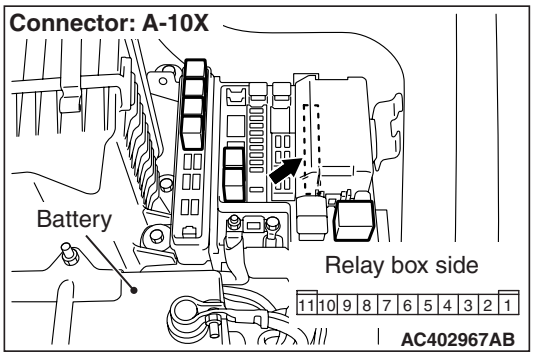
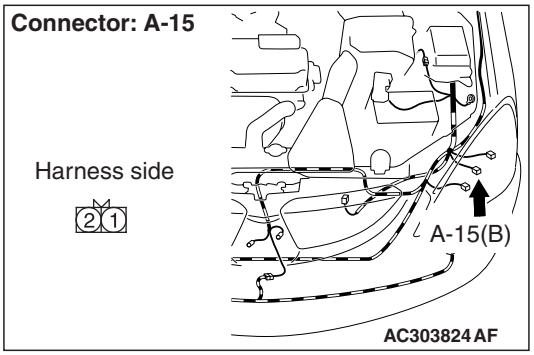
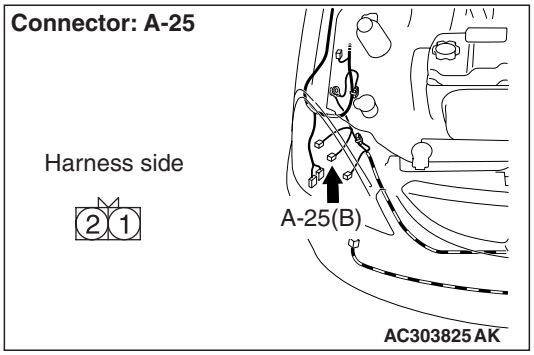
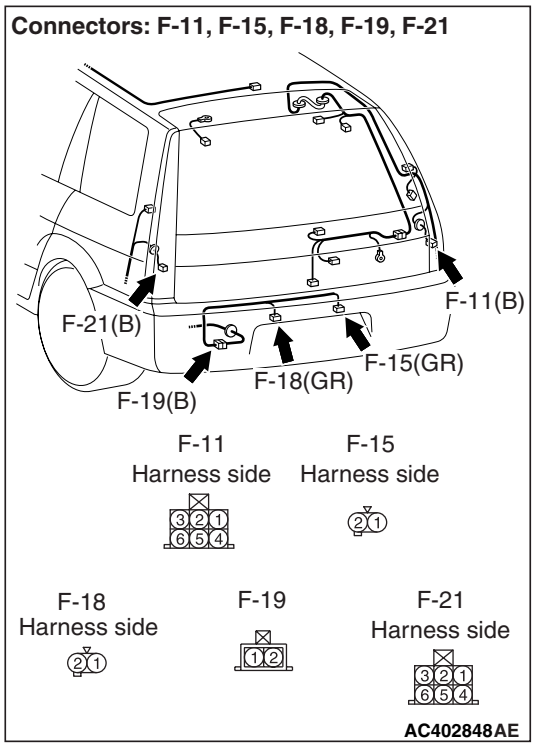
STEP 8. Check the wiring harness from F-21 rear combination lamp (tail: LH) or F-11 rear combination lamp (tail: RH) connector terminal No.3, A-15 position lamp (LH) or A-25 position lamp (RH) connector terminal No.2, F-18 licence plate lamp (LH) or F-15 licence plate lamp (RH) connector terminal No.2 to A-10X front-ECU connector terminal No.8.









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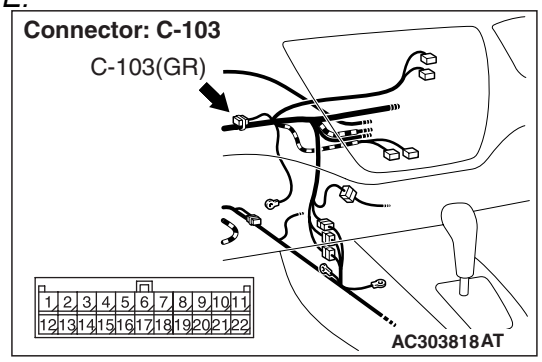
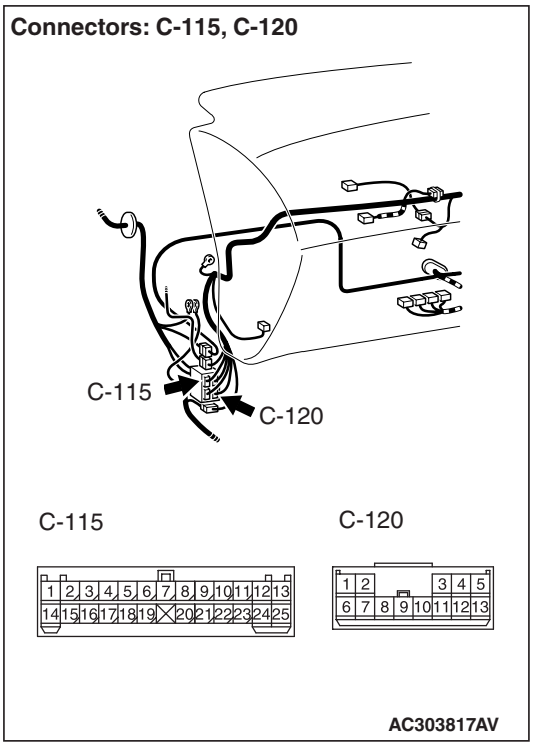
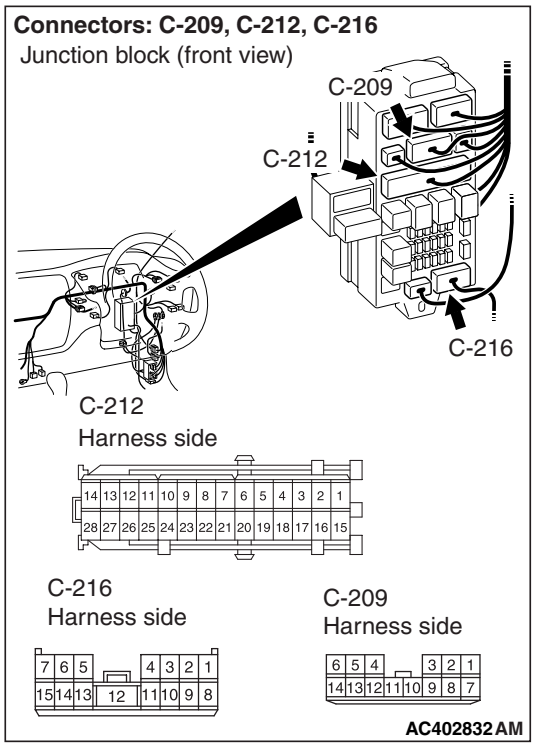
NOTE:







Prior to the wiring harness inspection, check intermediate connector C-115 <rear combination lamp (tail), licence plate lamp>, C-120 <rear combination lamp (tail: LH) and licence plate lamp> or F-19 <licence plate lamp>, joint connector C-103 <tail lamp RH>, junction block connector C-209 <rear combination lamp (tail: RH)> or C-216 <rear combination lamp (tail: RH)> and repair if necessary.

- Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the wiring harness.

STEP 9. Retest the system.

Check that the tail lamps, the position lamps and the licence plate lamps illuminate normally.

Q: Is the check result normal?

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

When the rear combination lamps (tail) 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.

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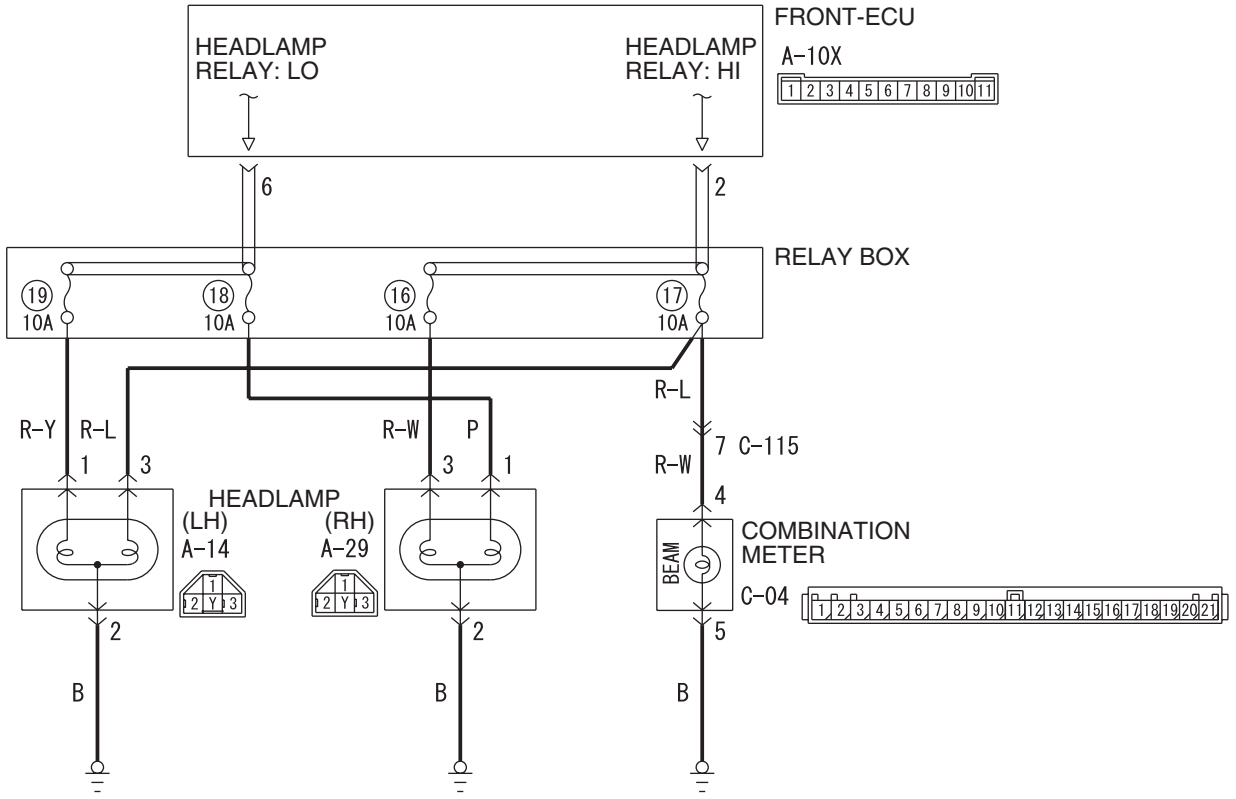
INSPECTION PROCEDURE I-6: The headlamp(s) do not illuminate. <including high-beam indicator>

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

Headlamps Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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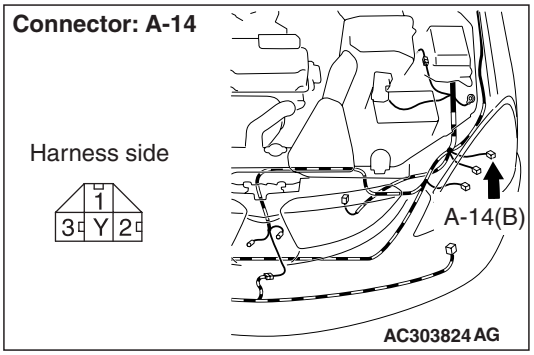
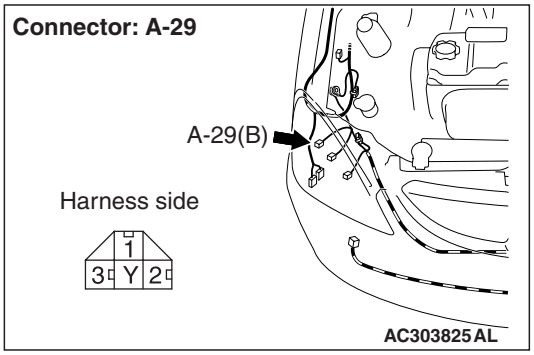
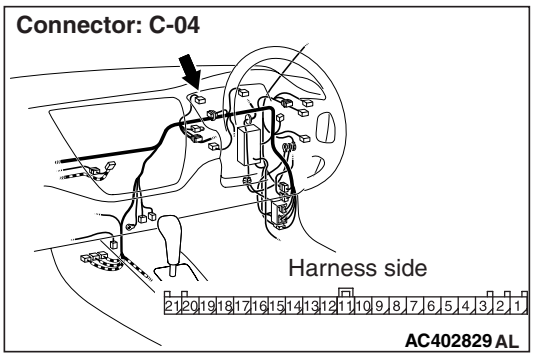
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-29 headlamp assembly (RH), A-14 headlamp assembly (LH) connector or C-04 combination meter (high-beam indicator) connector





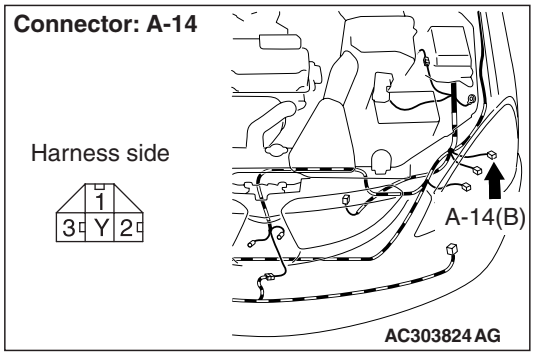


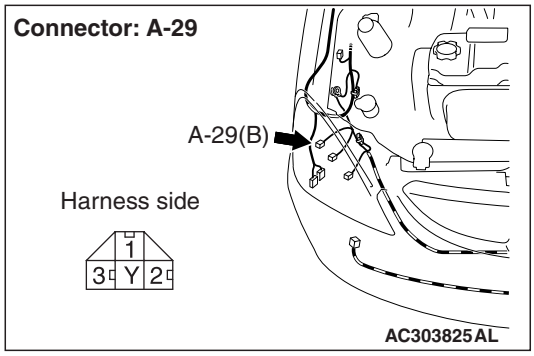
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

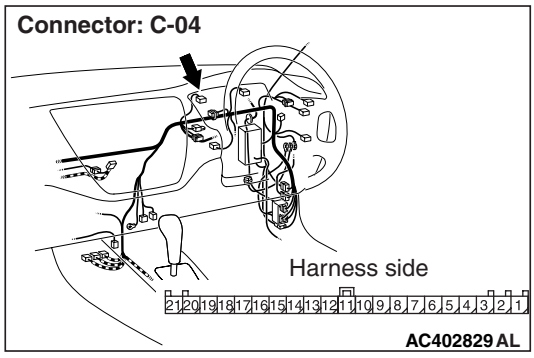
STEP 2. Check the bulb(s) of the headlamps or the high-beam indicator lamp.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

STEP 3. Resistance measurement at A-29 headlamp assembly (RH), A-14 headlamp assembly (LH) connector or C-04 combination meter (high-beam indicator) connector







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

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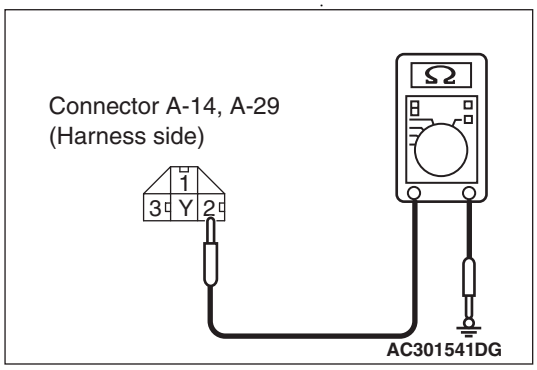
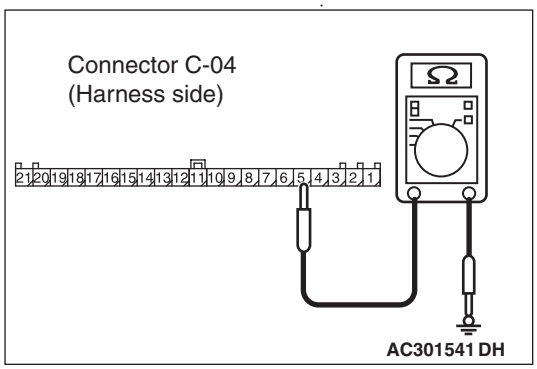
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-29 headlamp assembly (RH) connector terminal No.2 and body earth

- Resistance between A-14 headlamp assembly (LH) connector terminal No.2 and body earth

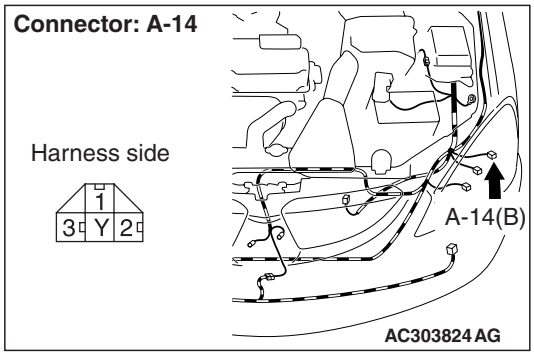


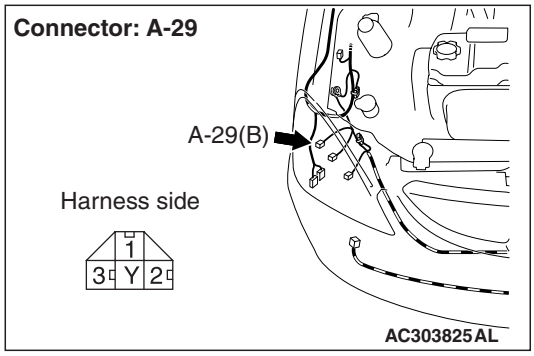
Resistance between C-04 combination meter (high-beam indicator) connector terminal No.5 and body earth

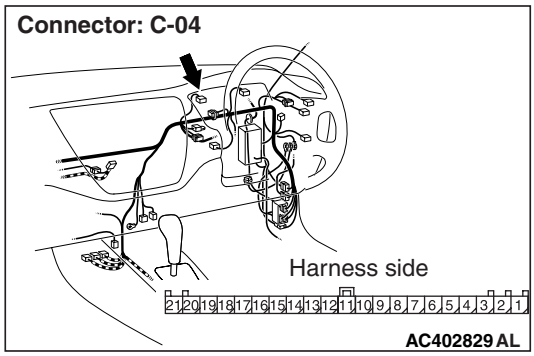
OK: 2 Ω or less

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

STEP 4. Check the wiring harness from A-29 headlamp assembly (RH) or A-14 headlamp assembly (LH) connector terminal No.2, or C-04 combination meter (high-beam indicator) connector terminal No.5 to body earth.







Check the earth wires for open circuit.

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

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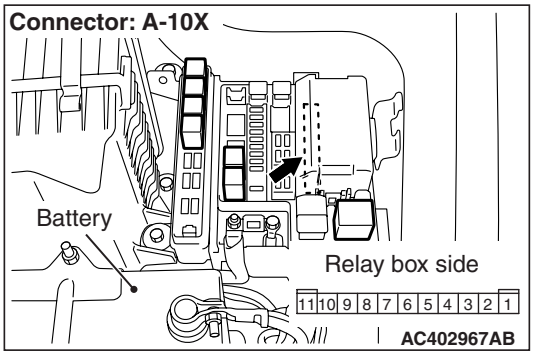
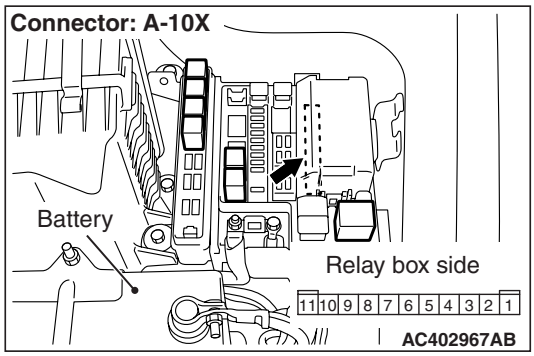
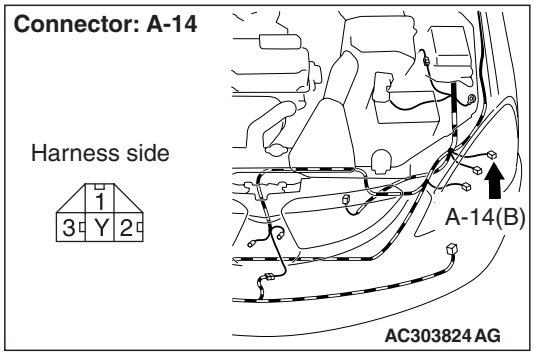
STEP 5. Connector check: A-10X front-ECU connector

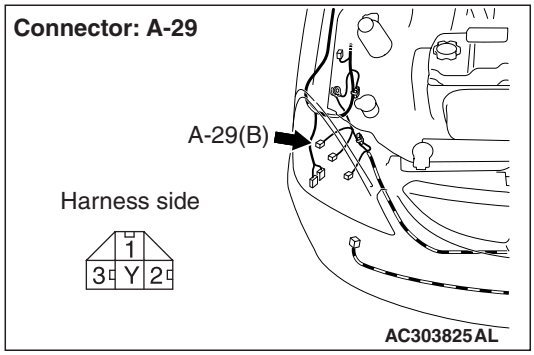


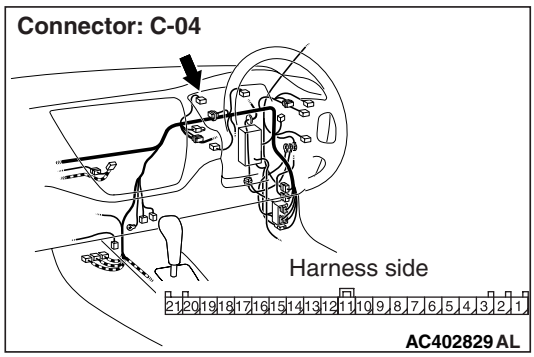
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Check the wiring harness from A-29 headlamp assembly (RH) or A-14 headlamp assembly (LH) connector terminal No.1 <low-beam>, No.3 <high-beam>, C-04 combination meter connector terminal No.4 <high-beam indicator> to A-10X front-ECU connector terminal No.6 <low-beam> or No.2 <high-beam>.









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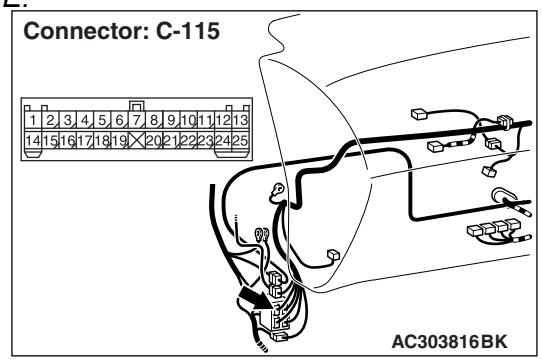
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-115 <combination meter>, 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.00-13).

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

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

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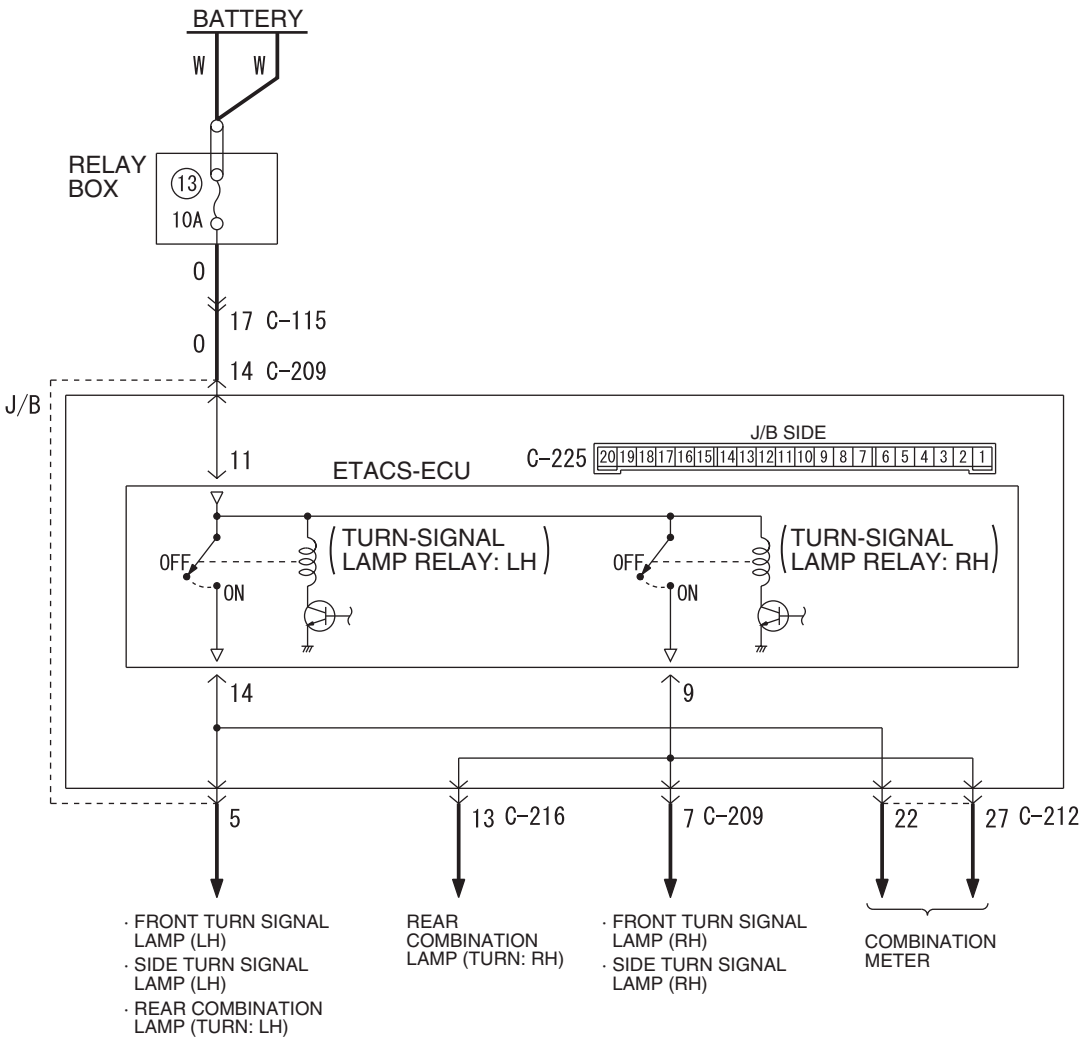
FLASHER TIMER

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

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

Turn-Signal Lamp Power Supply Circuit



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

W5J54L024A

COMMENTS ON TROUBLE SYMPTOM

If all the turn-signal lamps do not illuminate, the ignition switch (IG1), the turn-signal lamp switch input circuit or the ETACS-ECU may be defective.

PROBABLE CAUSES

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

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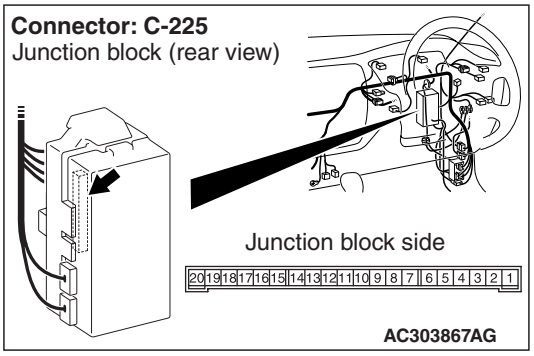
DIAGNOSIS PROCEDURE

STEP 1. Check that the hazard warning lamps operate.

Check that the hazard warning lamps illuminate normally.

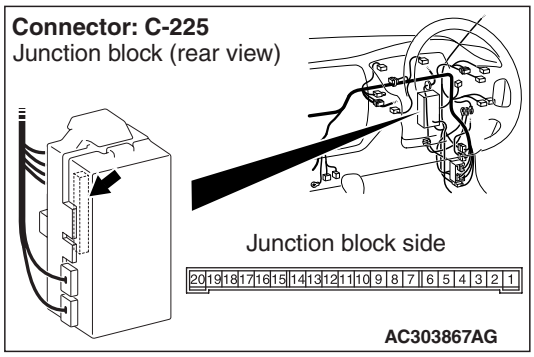
Q: Is the check result normal?
YES : Go to Step 6.
NO : Go to Step 2.

STEP 2. Connector check: C-225 ETACS-ECU connector

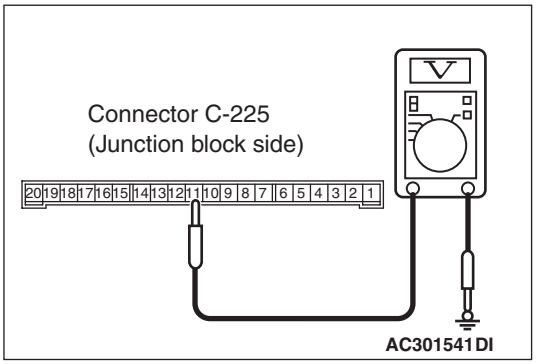


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Voltage measurement at the C-225 ETACS-ECU connector



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



(2) Voltage between C-225 ETACS-ECU connector terminal No.11 and body earth

OK: System voltage

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

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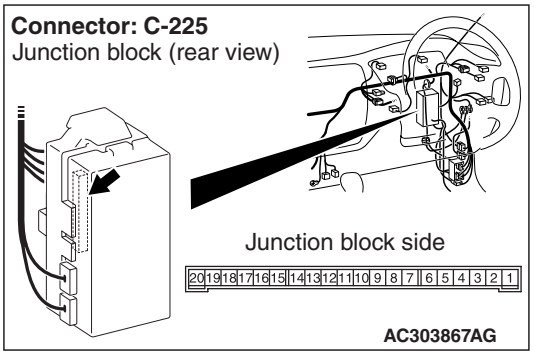
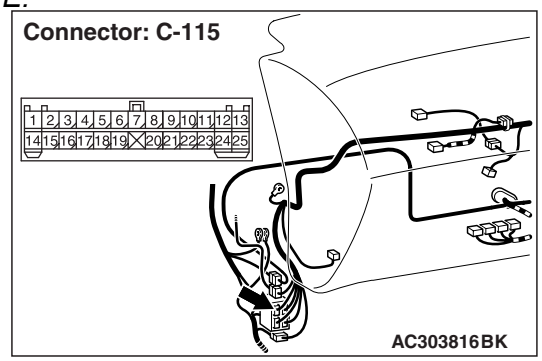
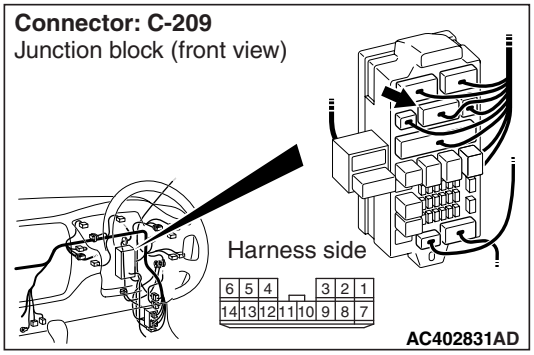
STEP 4. Check the wiring harness between C-225 ETACS-ECU connector terminal No.11 and the battery.



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-115 and junction block connector C-209, and repair if necessary.
Check the power supply line for open circuit.

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

STEP 5. Retest the system.
Check that the turn-signal lamps illuminate normally.

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

STEP 6. Pulse check
Check the input signals below, which are related to the turn-signal lamp illumination.

System switch	Check condition
Turn-signal lamp switch (RH)	When the turn-signal lamp switch (RH) is turned from off to on
Turn-signal lamp switch (LH)	When the turn-signal lamp switch (LH) is turned from off to on

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 7.
NO <The turn-signal lamp switch (RH) signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."
NO <The turn-signal lamp switch (LH) signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

STEP 7. Retest the system.
Check that the turn-signal lamps illuminate.

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

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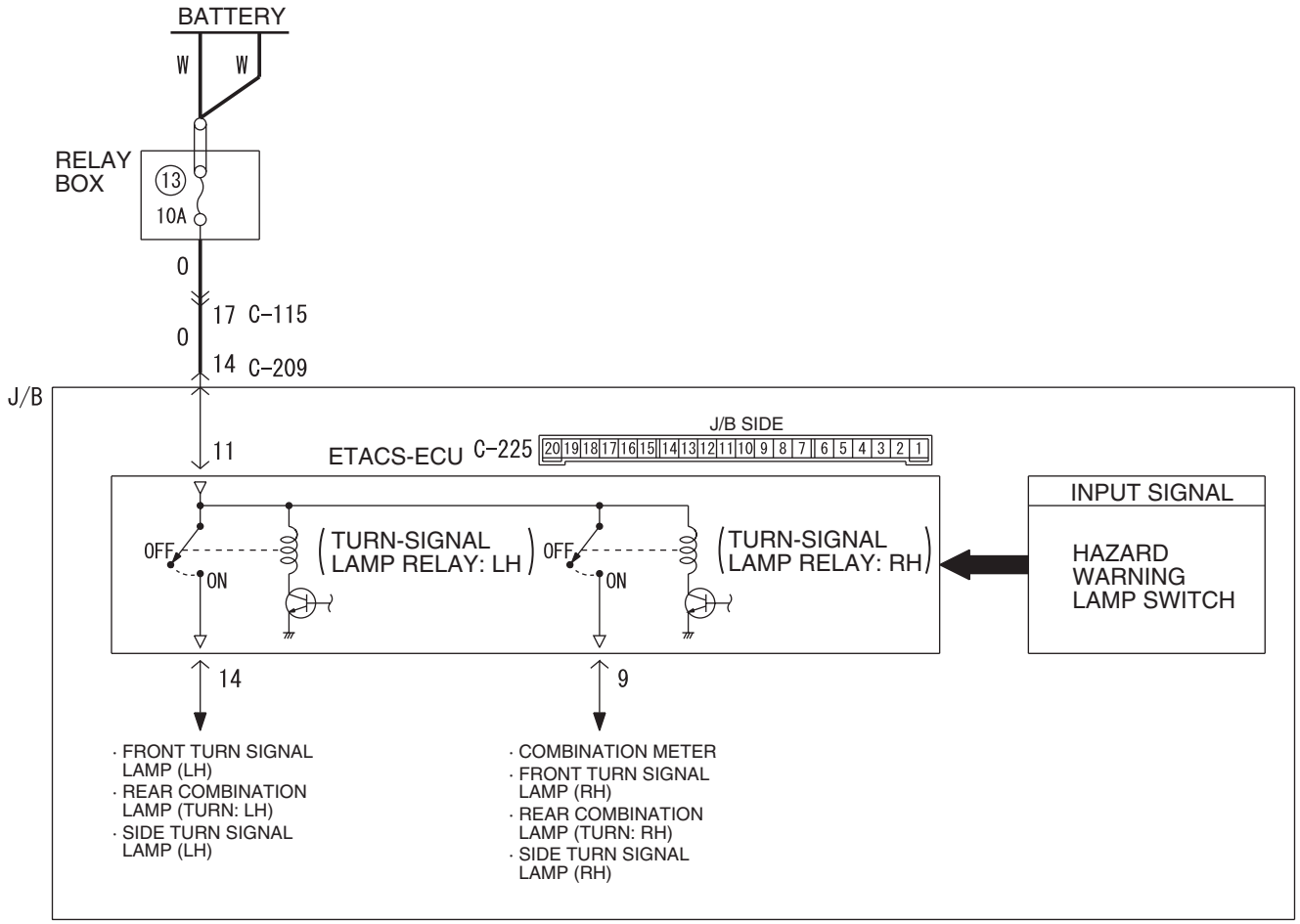
INSPECTION PROCEDURE J-2: The hazard warning lamps do not illuminate.

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

Hazard Warning Lamp Circuit



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

W5J54L025A

COMMENTS ON TROUBLE SYMPTOM

If the hazard warning lamps do not illuminate, the hazard warning lamp input signal circuit or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check that the turn-signal lamps operate.

Check that the turn-signal lamps illuminate normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to inspection procedure J-1 "The turn-signal lamps do not illuminate P.54B-157."

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STEP 2. Check the power supply circuit.

When the ignition switch is at the LOCK (OFF) position, check that the functions below work normally.

- Lamp reminder function
- Central door locking system
- Room lamp and personal lamp (excluding interior lamp automatic shutdown function)

Q: Is the check result normal?

YES : Go to Step 3.

NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

STEP 3. 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 4.

NO : Refer to inspection procedure M-10 "The hazard warning lamp switch signal is not received P.54B-227."

STEP 4. Retest the system.

Check that the hazard warning lamps illuminate.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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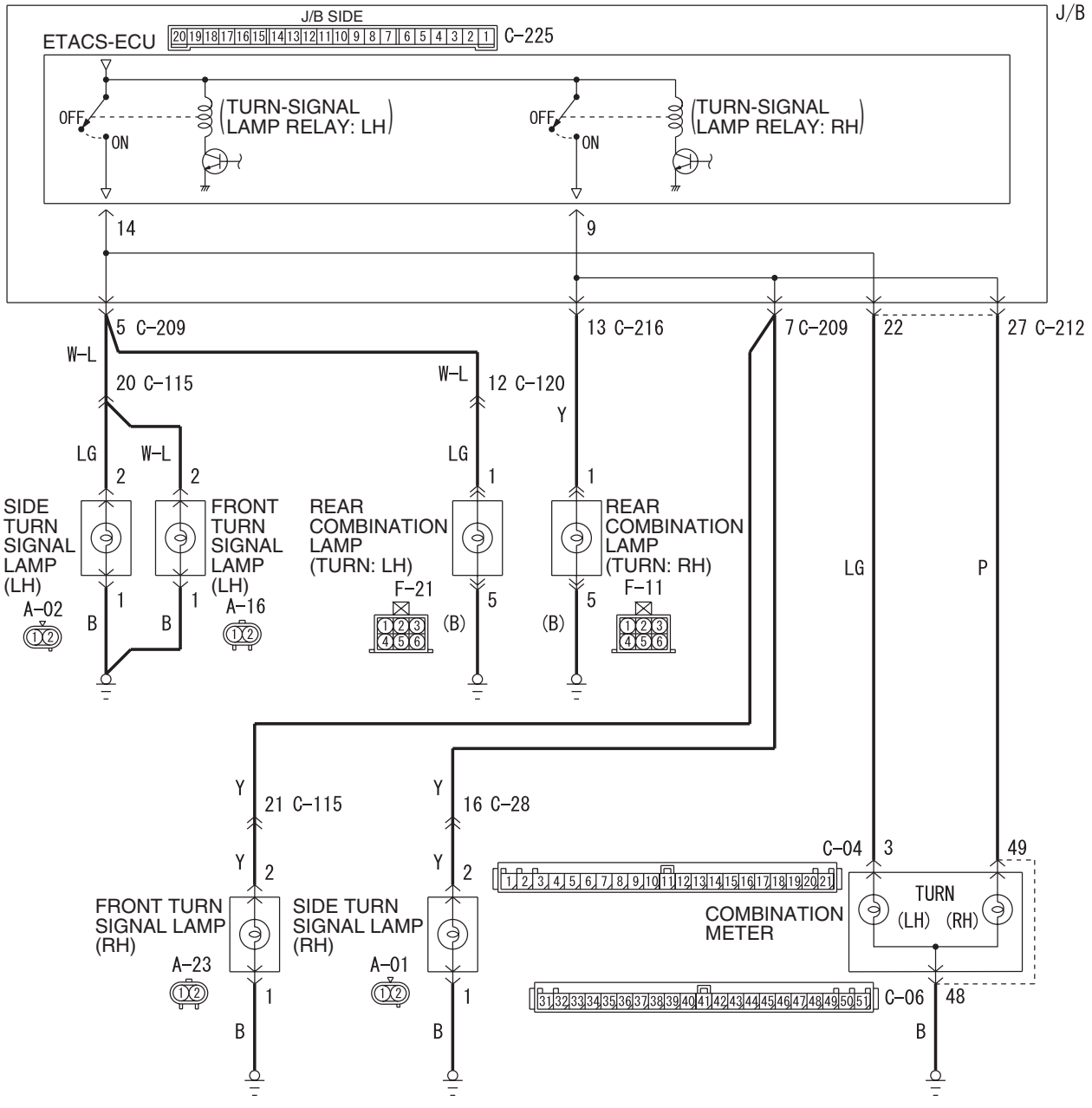
INSPECTION PROCEDURE J-3: Any of the turn-signal lamps does not illuminate.

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

Turn-Signal Lamp Circuit



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

W5J54L026A

COMMENTS ON TROUBLE SYMPTOM

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

PROBABLE CAUSES

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

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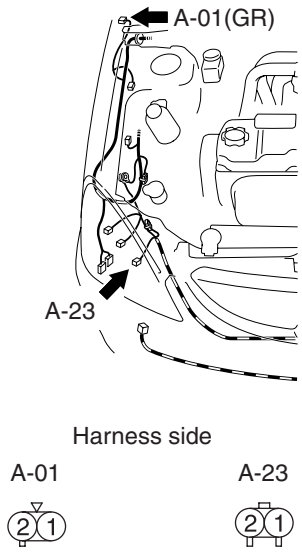
DIAGNOSIS PROCEDURE

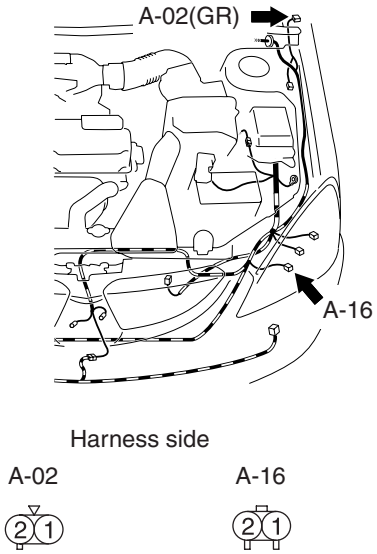
STEP 1. Connector check: A-23 front turn-signal lamp (RH) connector or A-16 front turn-signal lamp (LH) connector, A-01 side turn-signal lamp (RH) or A-02 side turn-signal lamp (RH) connector, F-11 rear combination lamp (turn: RH) connector or F-21 rear combination lamp (turn: LH) connector, C-06 combination meter <turn-signal indicator lamp (RH) and (LH)> connector and C-04 combination meter <turn-signal indicator lamp (LH)> connector

Connectors: A-01, A-23



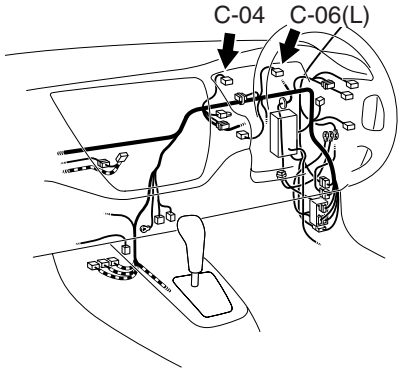
AC303779AC

Connectors: A-02, A-16



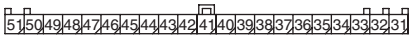
AC303781AC

Connectors: C-04, C-06



C-04
Harness side

C-06
Harness side



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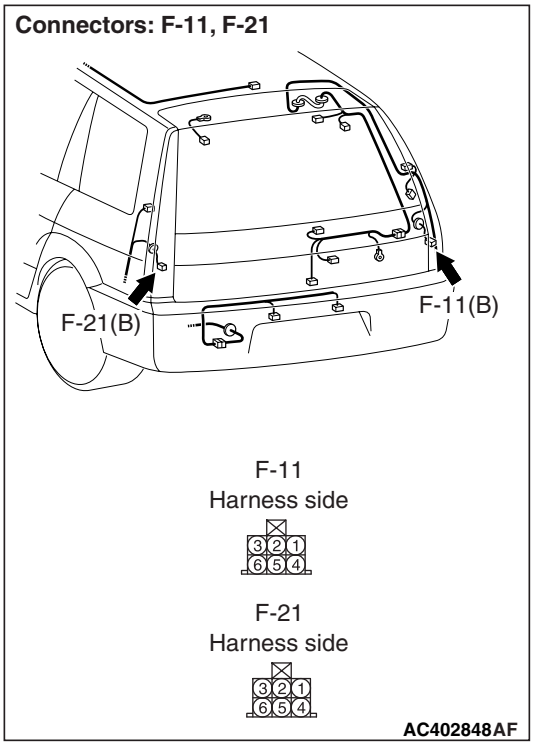

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the bulb(s) of the turn-signal lamps or the turn-signal indicator lamps.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

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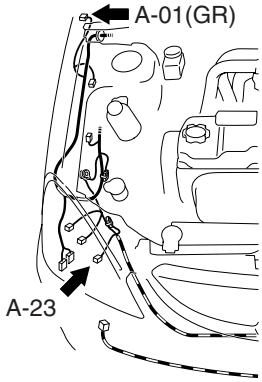
STEP 3. Resistance measurement at the A-23 front turn-signal lamp (RH) connector or A-16 front turn-signal lamp (LH) connector, the A-01 side turn-signal lamp (RH) connector or A-02 side turn-signal lamp (RH) connector, the F-11 rear combination lamp (turn: RH) connector or F-21 rear combination lamp (turn: LH) connector, the C-06 combination meter <turn-signal indicator lamp (RH) and (LH)> connector.

Connectors: A-01, A-23

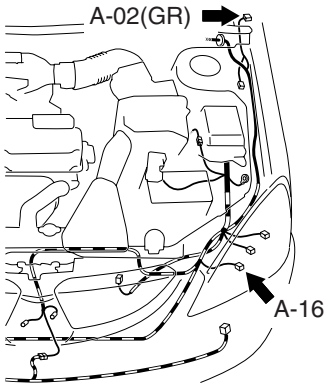


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

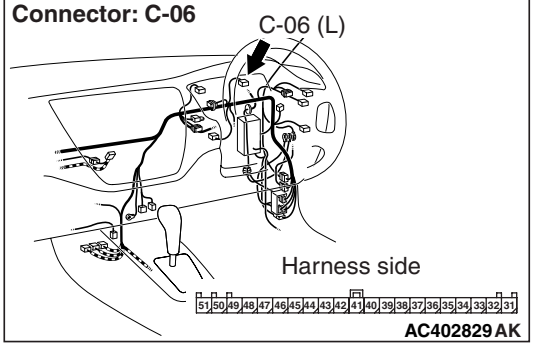


Harness side

A-02 A-16

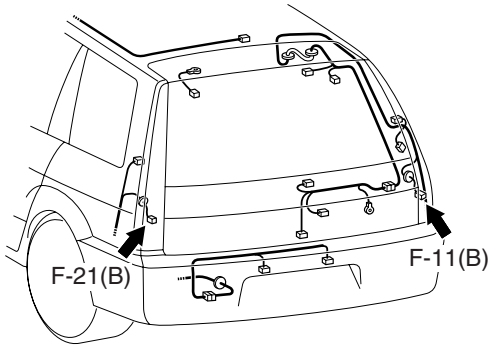
AC303781AC

Connector: C-06



AC402829AK

Connectors: F-11, F-21



F-11
Harness side

F-21
Harness side

AC402848AF

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

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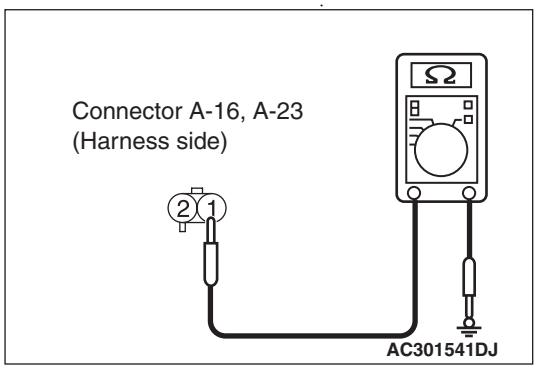
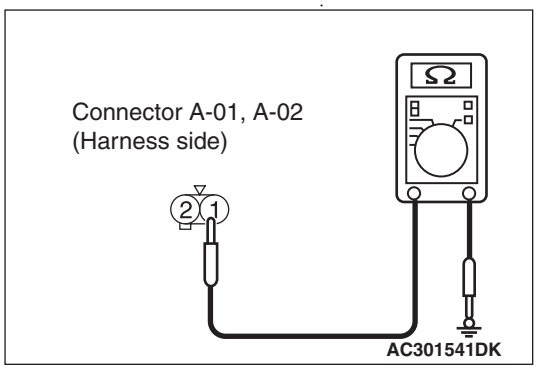
(2) Measure the resistance between the defective lamp connector terminal and body earth.



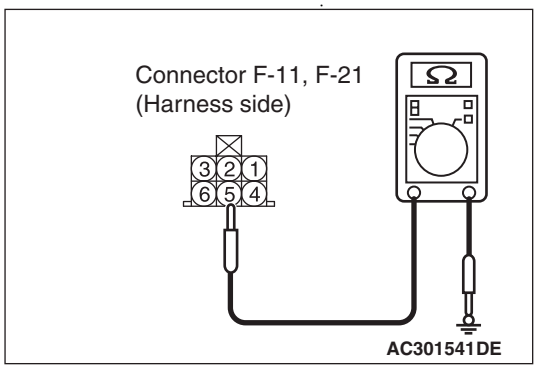
Resistance between A-23 front turn-signal lamp (RH) connector terminal No.1 and body earth

- Resistance between A-16 front turn-signal lamp (LH) connector terminal No.1 and body earth



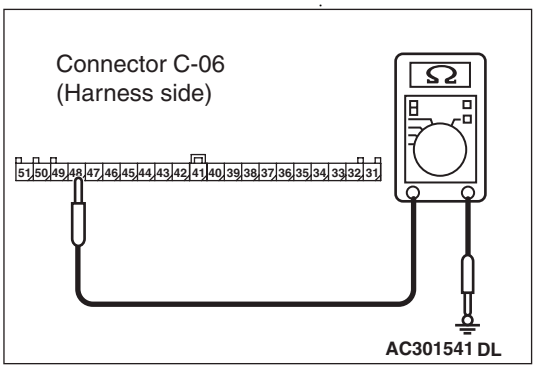
Resistance between A-01 side turn-signal lamp (RH) connector terminal No.1 and body earth

- Resistance between A-02 side turn-signal lamp (LH) connector terminal No.1 and body earth



Resistance between F-11 rear combination lamp (turn: RH) connector terminal No.5 and body earth

- Resistance between F-21 rear combination lamp (turn: LH) connector terminal No.5 and body earth



Resistance between C-06 combination meter <turn-signal indicator lamp (RH) and (LH)> connector terminal No.48 and body earth

OK: 2 Ω or less

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

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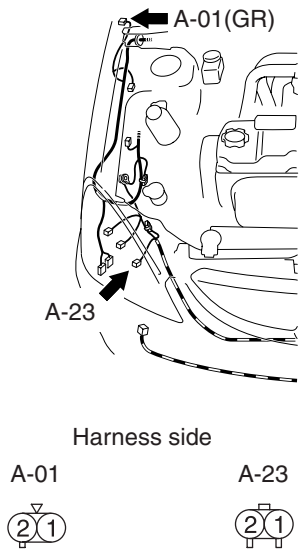
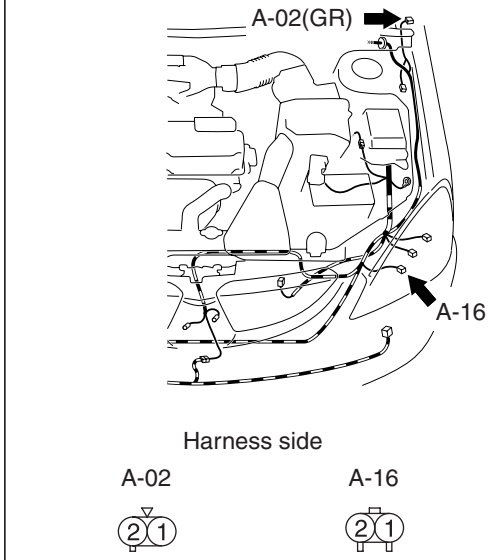
STEP 4. Check the wiring harness from A-23 front turn-signal lamp (RH) connector or A-16 front turn-signal lamp (LH) connector terminal No.1, A-01 side turn-signal lamp (RH) connector or A-02 side turn-signal lamp (RH) connector terminal No.1, F-11 rear combination lamp (turn: RH) connector or F-21 rear combination lamp (turn: LH) connector terminal No.5, or C-06 combination meter <turn-signal indicator lamp (RH) and (LH)> connector terminal No.48 to body earth.

Connectors: A-01, A-23



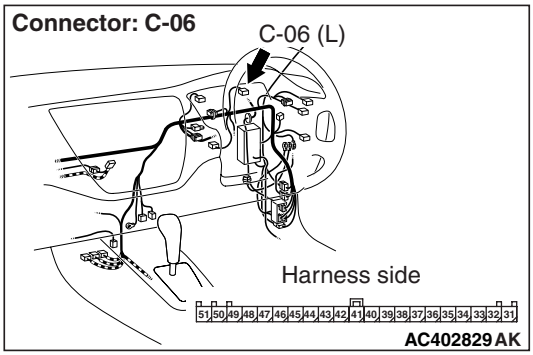
AC303779AC

Connectors: A-02, A-16



AC303781AC

Connector: C-06



AC402829AK

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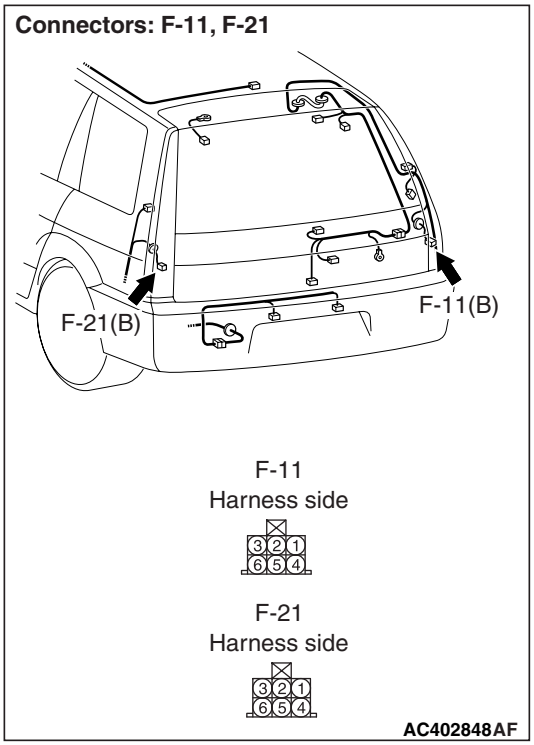


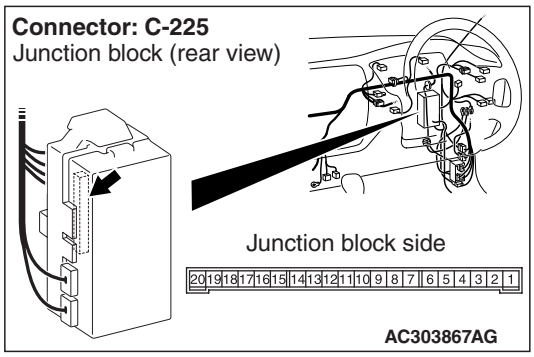
Check the earth wires for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

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



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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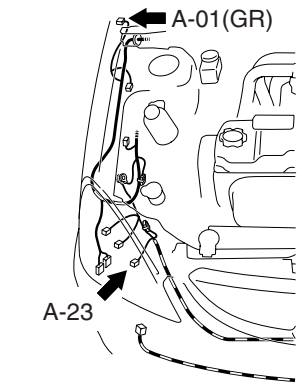
STEP 6. Check the wiring harness from the A-23 front turn-signal lamp (RH) connector or A-16 front turn-signal lamp (LH) connector terminal No.2, the A-01 side turn-signal lamp (RH) connector or A-02 side turn-signal lamp (RH) connector terminal No.2, the F-11 rear combination lamp (turn: RH) connector or F-21 rear combination lamp (turn: LH) connector terminal No.1, the C-06 combination meter <turn-signal indicator lamp (RH) and (LH)> connector terminal No.49 or C-04 combination meter <turn-signal indicator lamp (LH)> connector terminal No.3 to C-225 ETACS-ECU connector terminal No.9 <turn: RH> or 14 <turn: LH>.

Connectors: A-01, A-23

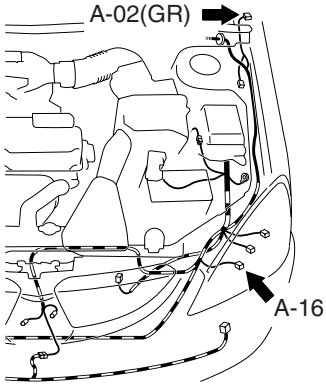


Harness side

A-01 A-23

AC303779AC

Connectors: A-02, A-16

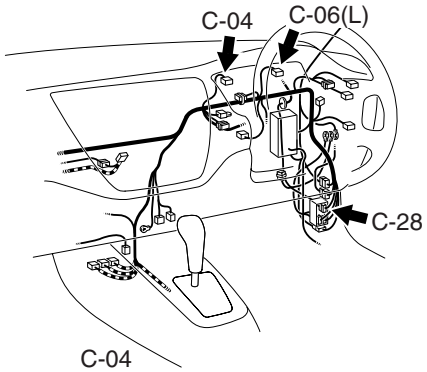


Harness side

A-02 A-16

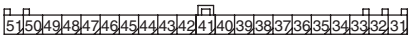
AC303781AC

Connectors: C-04, C-06, C-28

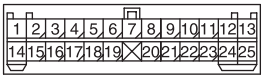


C-04
Harness side

C-06
Harness side



C-28



AC402830AG

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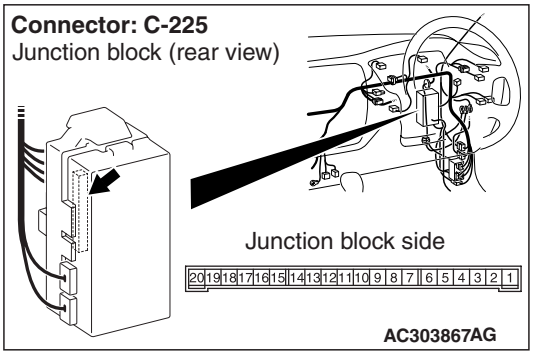
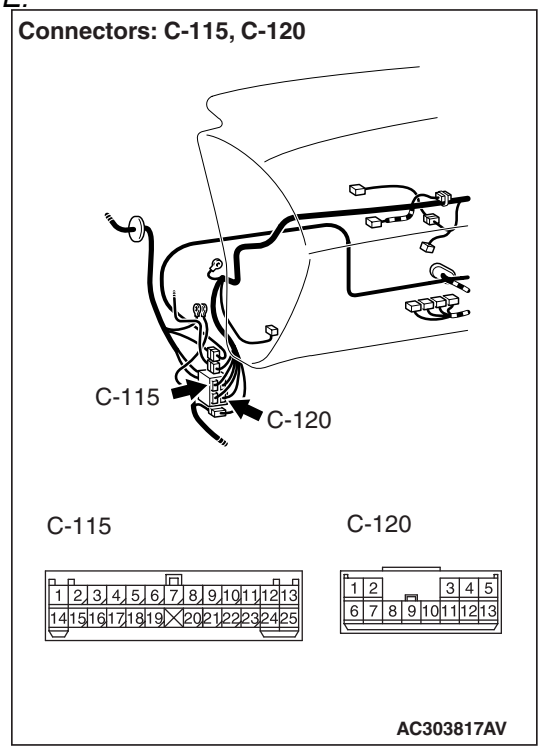
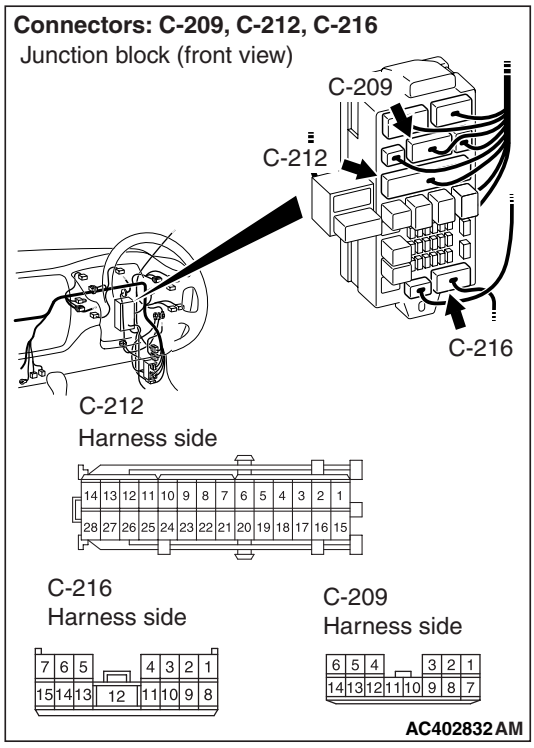


NOTE:





Prior to the wiring harness inspection, check intermediate connector C-115 <side turn-signal lamp (RH) and (LH) or front turn-signal lamp (LH)>, C-120 <rear combination lamp (turn: LH)> or C-28 <side turn-signal lamp (RH)> and junction block connector C-209

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<front turn-signal lamp (RH) and (LH), side turn-signal lamp (RH) and (LH) or rear combination lamp (turn: LH)>, C-216 <rear combination lamp (turn: RH)> or C-212 <combination meter (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.00-13).
The front turn-signal lamps do not illuminate. : Replace the socket.
The side turn-signal lamps do not illuminate. : Replace the socket.
The rear combination lamps (turn-signal lamp) do not illuminate. : Replace the socket assembly.
The combination meter (turn-signal indicator lamps) do not illuminate. : Replace the combination meter.

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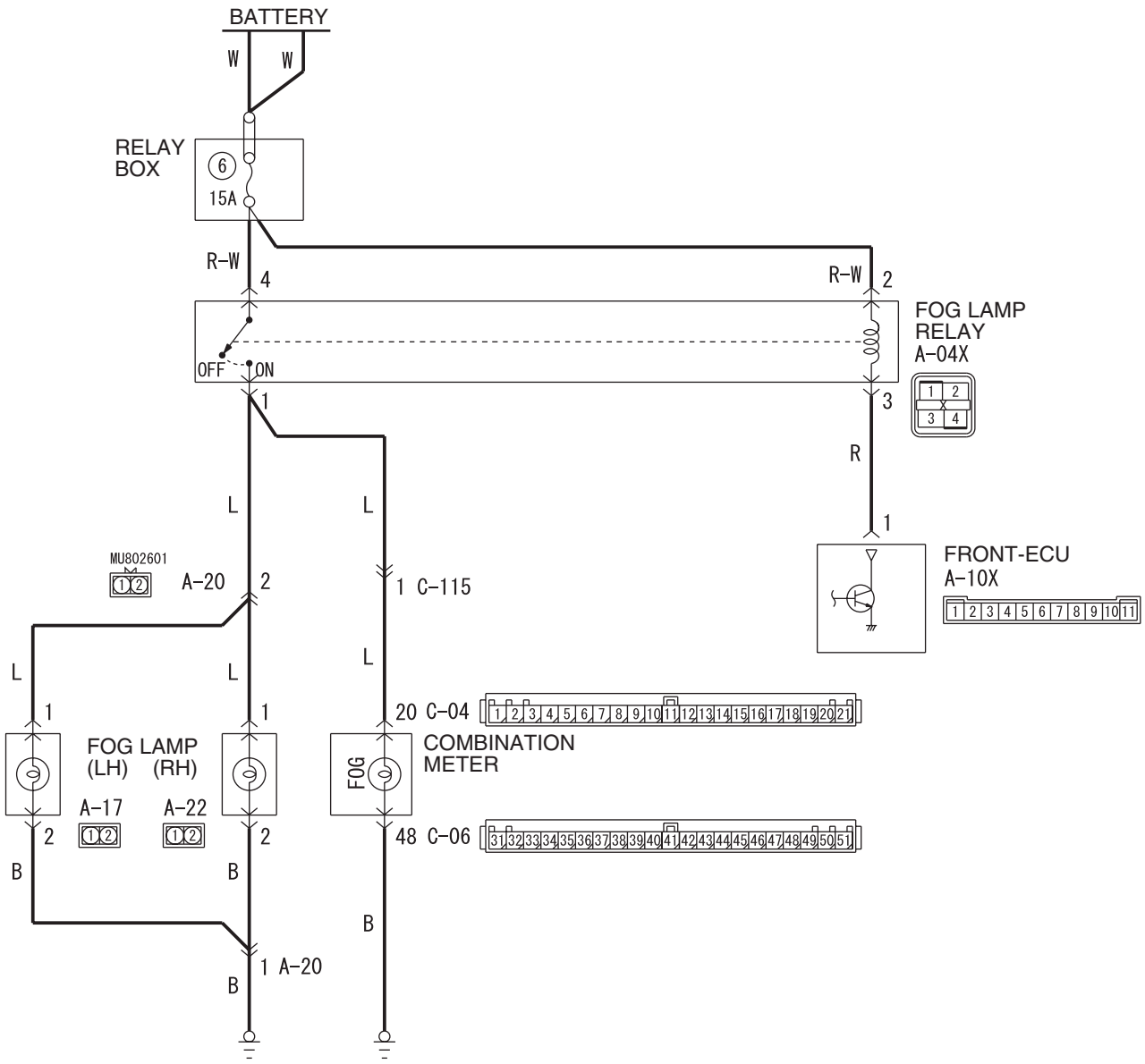
FOG LAMP

INSPECTION PROCEDURE K-1: The fog lamps do not illuminate normally.

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

Fog Lamp Circuit



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

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OPERATION

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

- Tail lamp switch
- Headlamp switch
- Fog lamp switch

If the fog lamps do not illuminate normally, these input signal circuit(s) or the ETACS-ECU may be defective.

PROBABLE CAUSES

- Malfunction of the column switch
- Malfunction of the fog lamp switch
- Malfunction of the 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.54B-32).

STEP 2. Pulse check

Check the input signals below, which are related to the fog lamps.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
Tail lamp switch	When the lighting switch is turned to the TAIL position
Headlamp switch	When the lighting switch is turned to the HEADLAMP position
Fog lamp switch	When the fog lamp switch is turned from off to on

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

Q: Is the check result normal?

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

NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

NO <The tail lamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

NO <The headlamp switch signal is not received> : Refer to inspection procedure M-5 "The column switch (lighting and turn-signal lamp switch) signal is not received P.54B-216."

NO <The fog lamp switch signal is not received> : Refer to inspection procedure M-15 "The fog lamp switch signal is not received P.54B-245."

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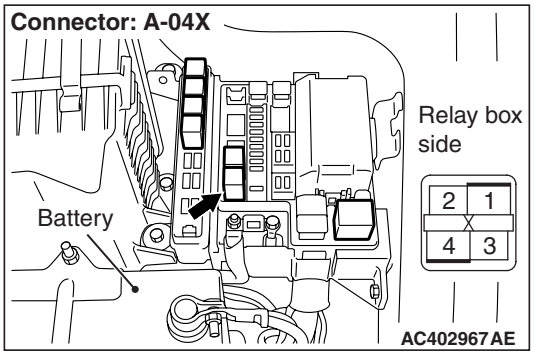
STEP 3. Connector check: A-04X fog lamp relay connector.

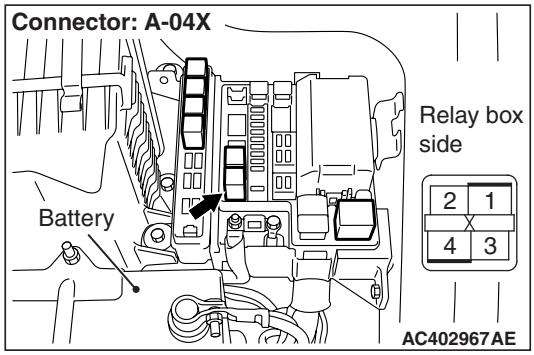


Q: Is the check result normal?
YES : Go to Step 4.
NO : Repair the defective connector.

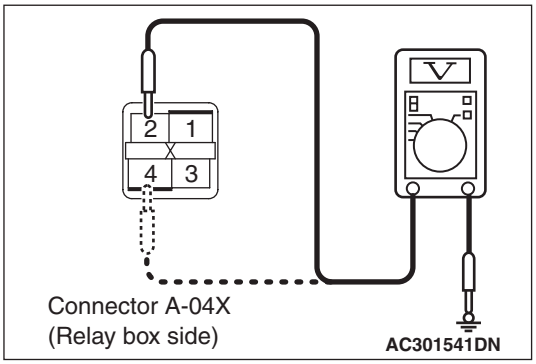
STEP 4. Check the fog lamp relay.
Refer to GROUP 54A – Fog lamp P.54A-62.

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

STEP 5. Voltage measurement at the A-04X fog lamp relay connector



(1) Remove the fog lamp relay, and measure at the relay box side.



(2) Check the voltage between the fog lamp relay connector and body earth.
- Voltage between A-04X fog lamp relay connector terminal No.2 and body earth
- Voltage between A-04X fog lamp relay connector terminal No.4 and body earth

OK: System voltage

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

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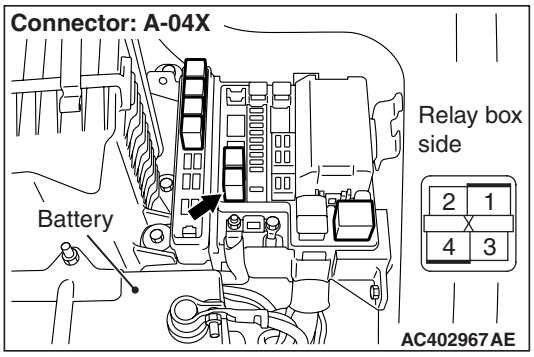
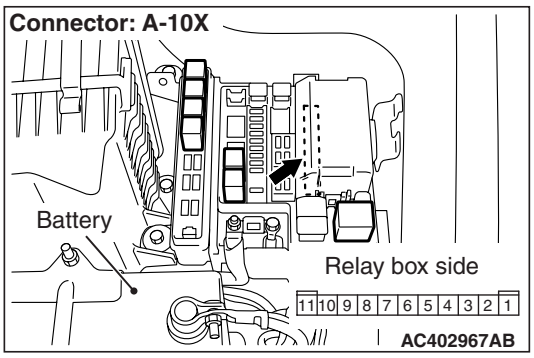
STEP 6. Check the wiring harness between A-04X fog lamp relay connector (terminal Nos. 2 and 4) and the battery.



Check the power supply line for open circuit.

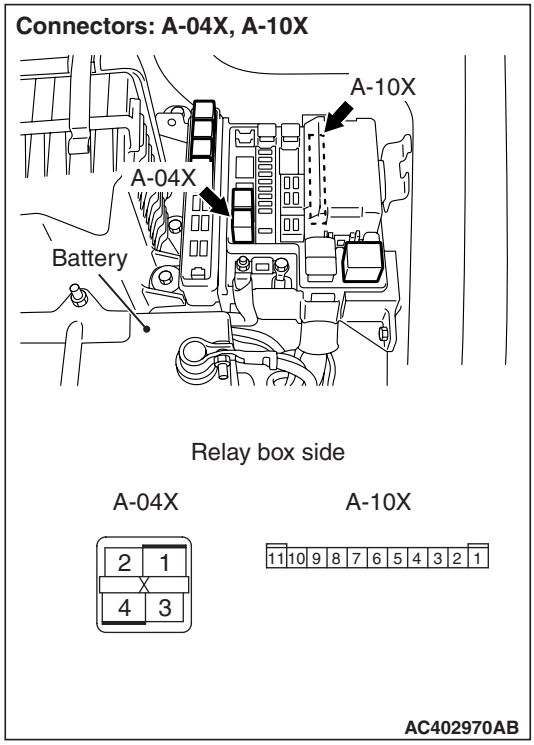
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 7. Connector check: A-10X front-ECU connector



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

STEP 8. Check the wiring harness between A-04X fog lamp relay connector terminal No.3 and A-10X front-ECU connector terminal No.1.



Check the output lines for open circuit.

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

STEP 9. Retest the system.
Check that the fog lamps illuminate normally.

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

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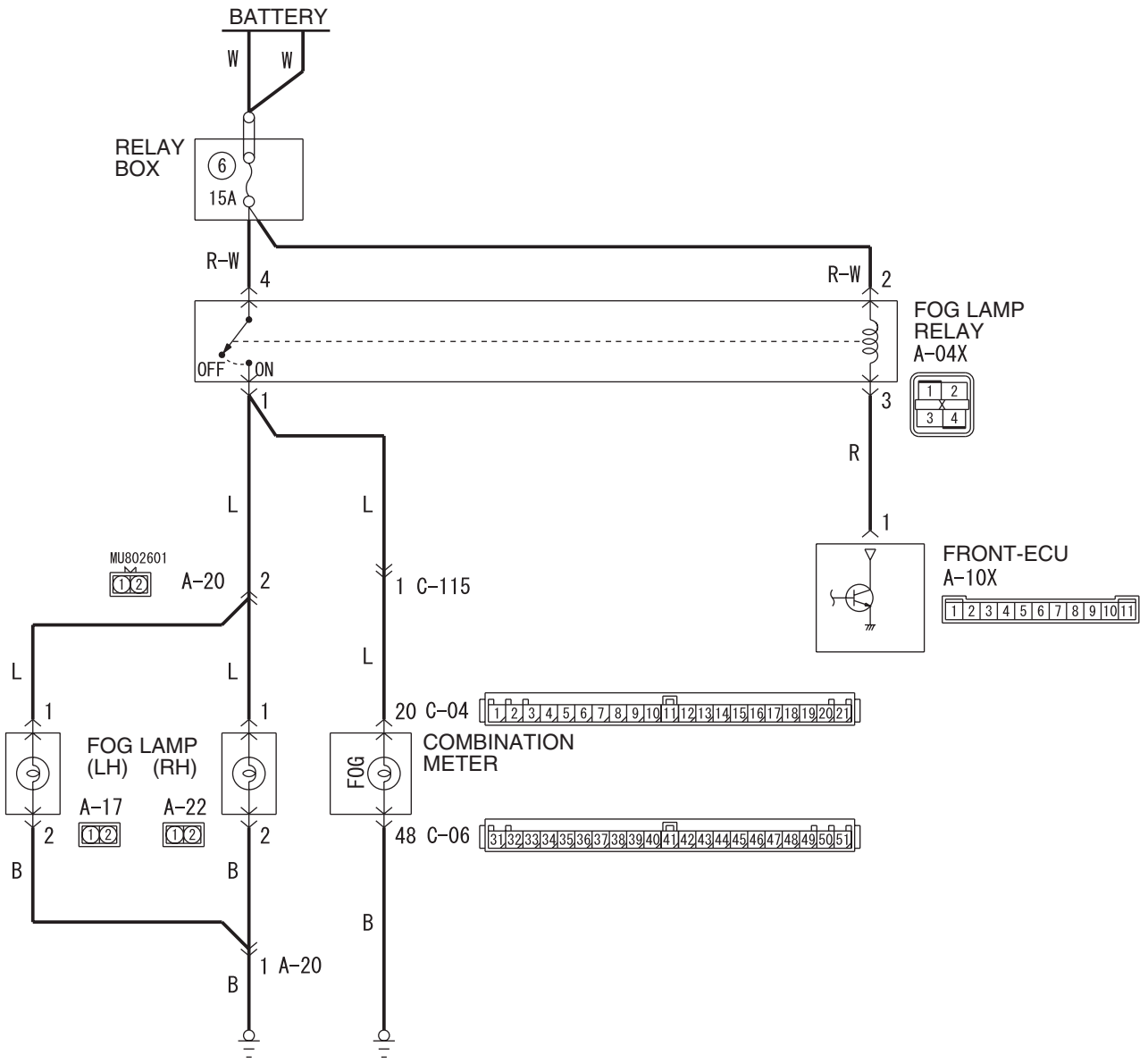
INSPECTION PROCEDURE K-2: The fog lamps or the fog lamp indicator do not illuminate normally.

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

Fog Lamp Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

If any of the fog lamps do not illuminate, the wiring harness connector(s), the bulb or the fuse may be defective or burned out.

PROBABLE CAUSES

- Burned-out fog lamp bulb
- Damaged harness wires and connectors

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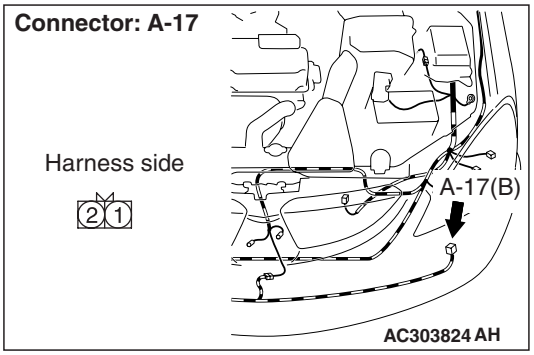
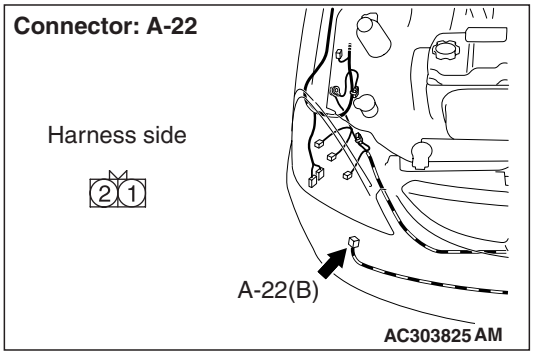
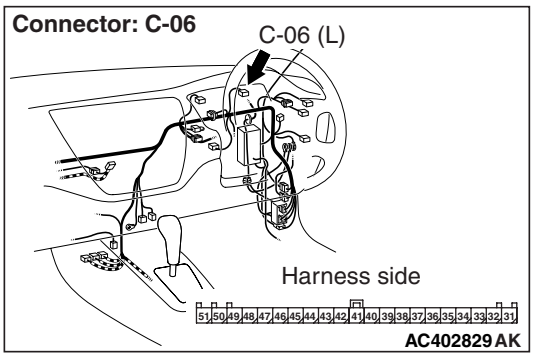
DIAGNOSIS PROCEDURE

STEP 1. Connector check: A-22 fog lamp (RH) or A-17 fog lamp (LH) connector, or C-06 combination meter (fog lamp indicator lamp) connector





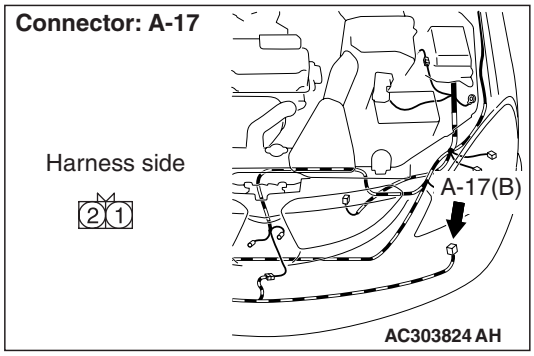


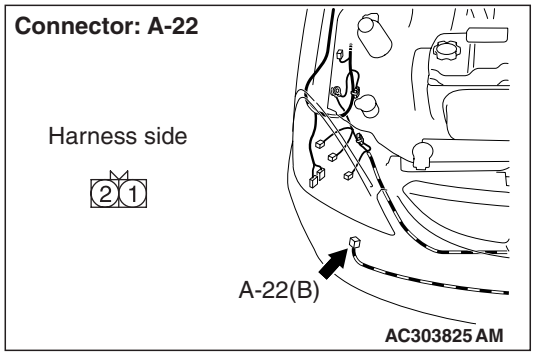
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

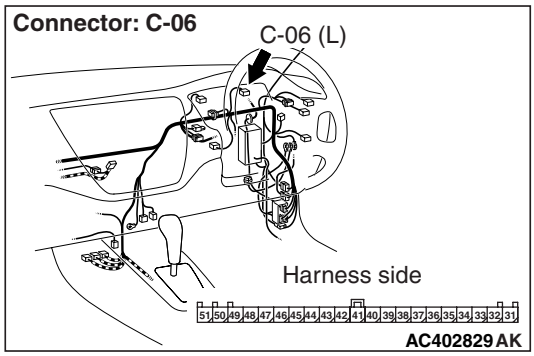
STEP 2. Check the bulbs of the fog lamps or the fog lamp indicator lamp.
Check the bulb(s) of the defective lamp.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the bulb(s) of the defective lamp.

STEP 3. Resistance measurement at A-22 fog lamp (RH) or A-17 fog lamp (LH) connector, or C-06 combination meter (fog lamp indicator lamp) connector







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

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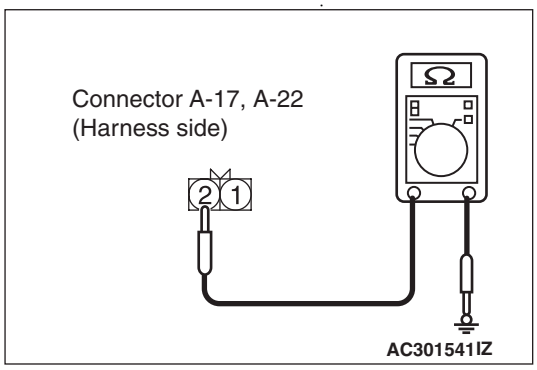
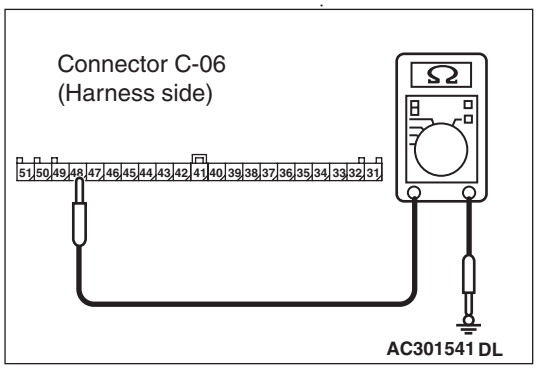
(2) Check the resistance between the lamp connector and body earth.



Resistance between A-22 fog lamp (RH) connector terminal No.2 and body earth

- Resistance between A-17 fog lamp (LH) connector terminal No.2 and body earth

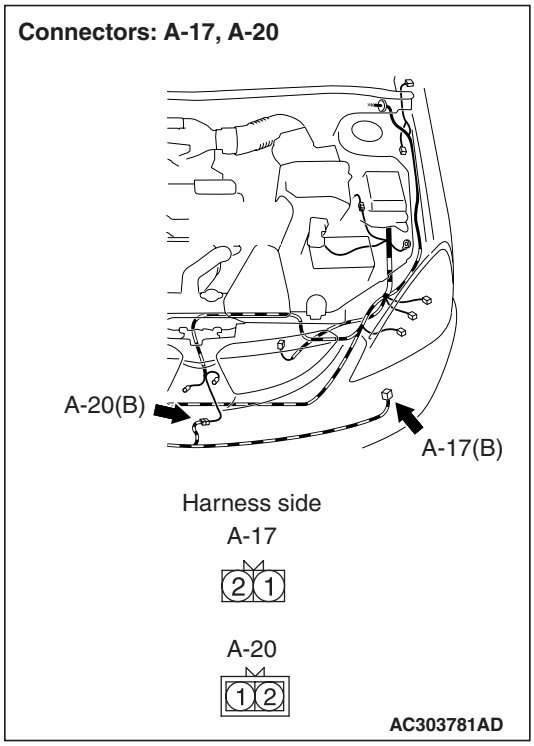


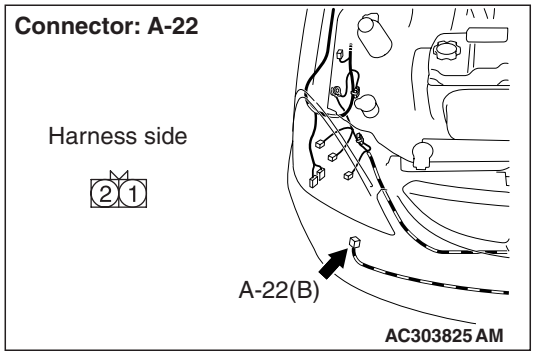
Resistance between C-06 combination meter (fog lamp indicator lamp) connector terminal No.48 and body earth

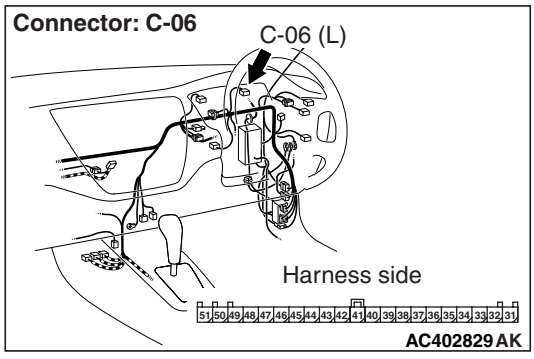
OK: 2 Ω or less

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

STEP 4. Check the wiring harness from A-22 fog lamp (RH) or A-17 fog lamp (LH) connector terminal No.2 or C-06 combination meter (fog lamp indicator lamp) connector terminal No.48 to body earth.







NOTE: Prior to the wiring harness inspection, check intermediate connector A-20 <fog lamp>, and repair if necessary.
Check the earth wires for open circuit.

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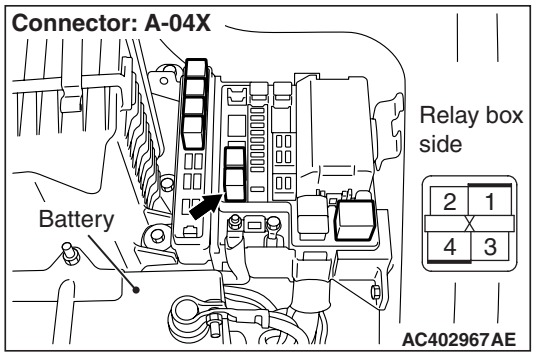
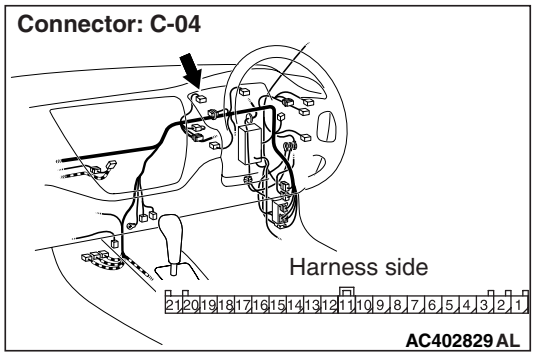
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

STEP 5. Connector check: A-04X fog lamp relay connector, C-04 combination meter (fog lamp indicator lamp) connector





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

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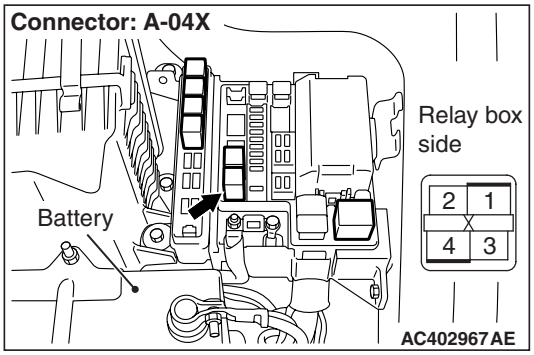
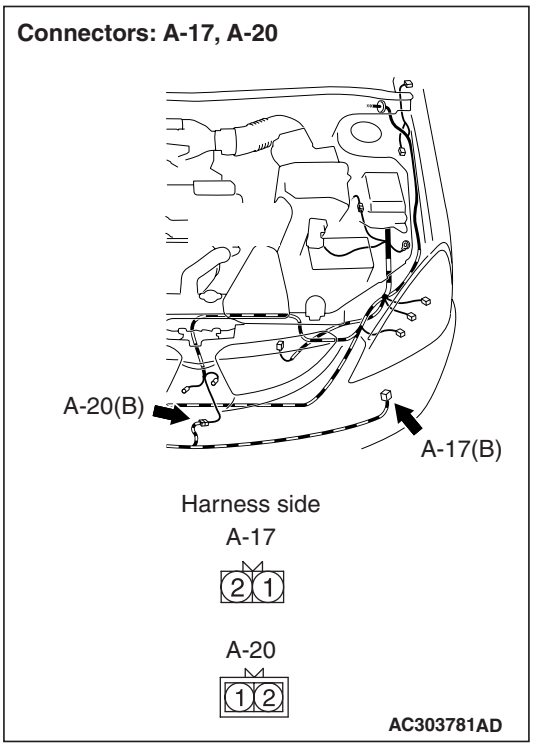
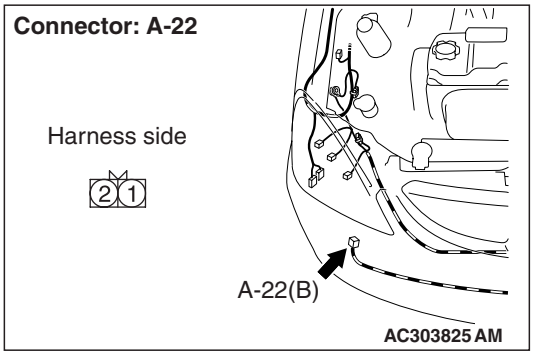
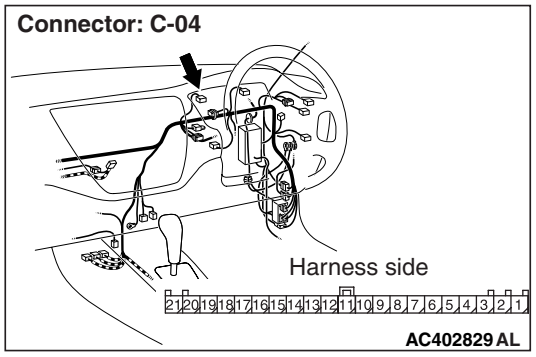
STEP 6. Check the wiring harness from A-22 fog lamp (RH) or A-17 fog lamp (LH) connector terminal No.1 or C-04 combination meter (fog lamp indicator lamp) connector terminal No.20 to A-04X fog lamp relay connector terminal No.1.









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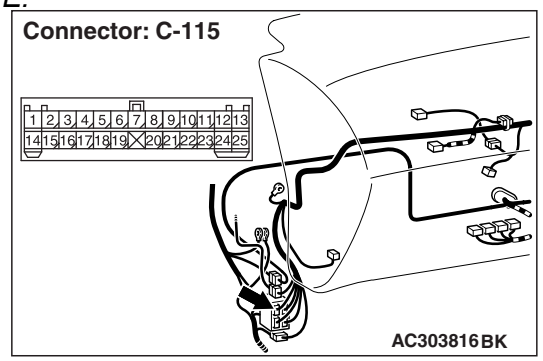

Prior to the wiring harness inspection, check intermediate connector A-20 <fog lamp> or C-115 <combination meter (fog lamp indicator lamp)>, and repair if necessary.

Check the output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the fog lamp and the fog lamp indicator lamp illuminate normally.

Q: Is the check result normal?

The lamps illuminate normally at both high and low beams. : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).

The fog lamps do not illuminate. : Replace the fog lamp(s).

The combination meter (fog lamp indicator lamp) does not illuminate. : Replace the combination meter.

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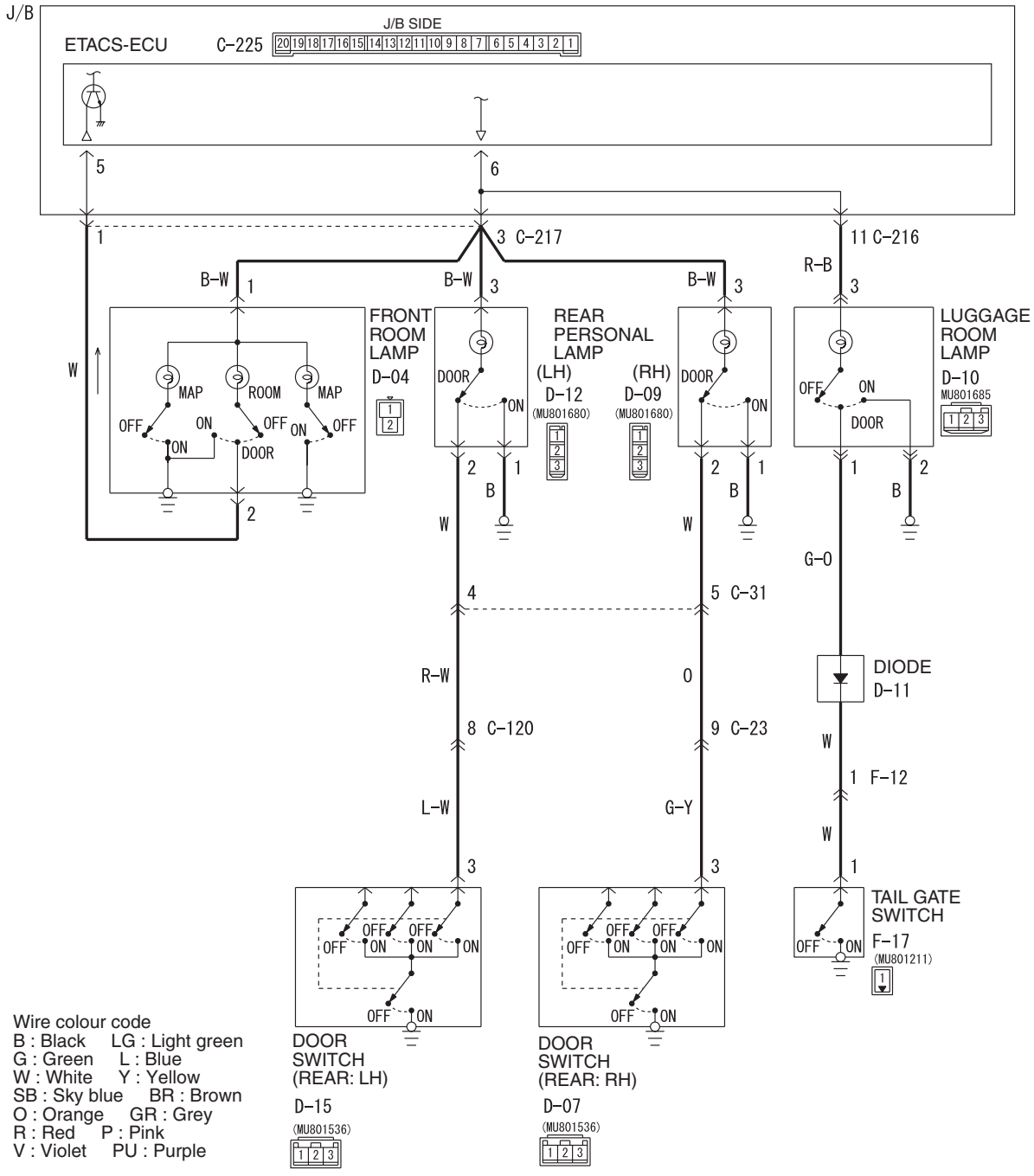
INTERIOR LAMP

INSPECTION PROCEDURE L-1: The front or rear room lamp does not illuminate or extinguish normally.

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

Room Lamp Circuit <Vehicles without Curtain Air Bag>



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

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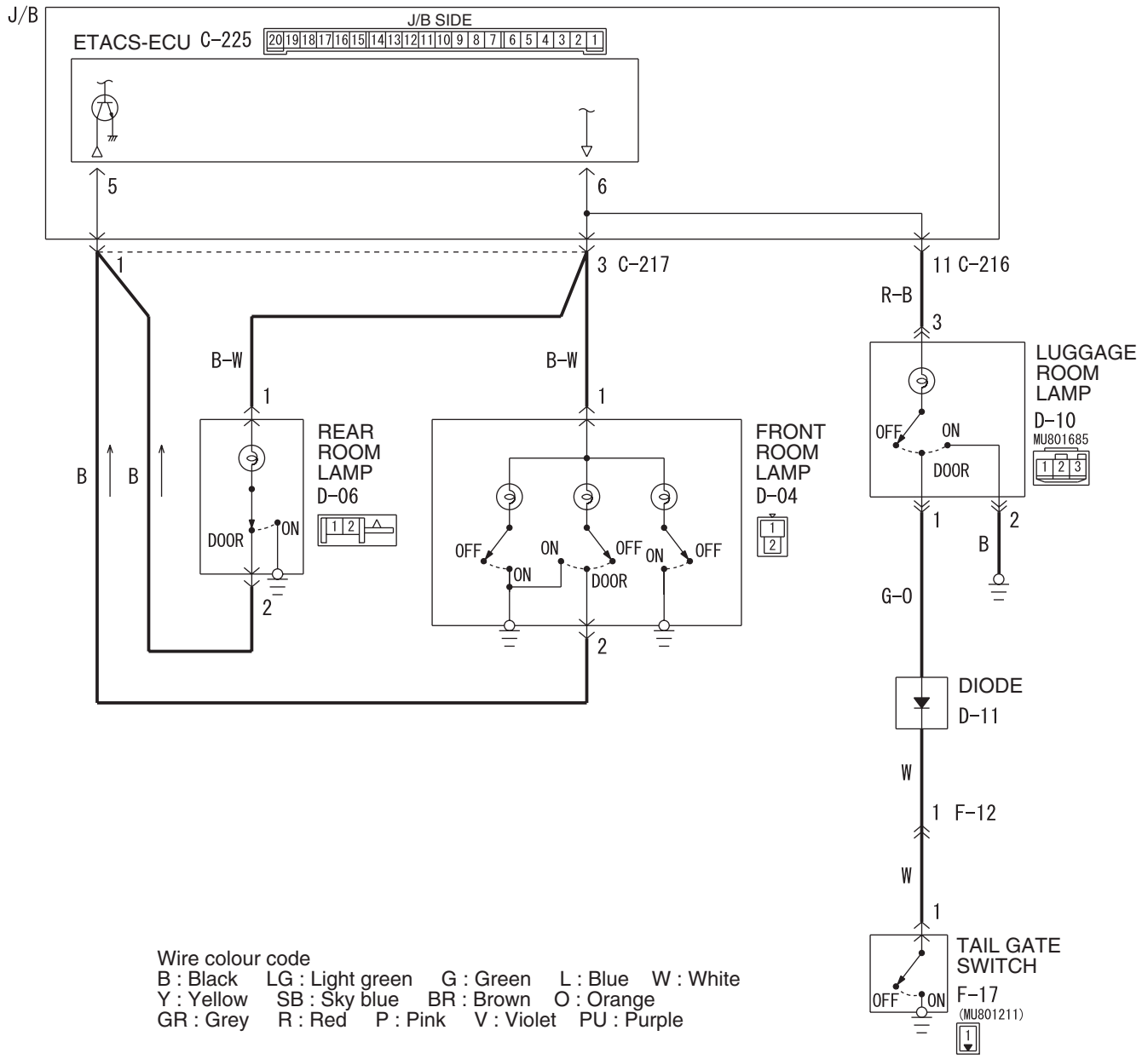
Room Lamp Circuit <Vehicles with Curtain Air Bag>



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

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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 shut-down function or the ETACS-ECU may be defective. The delay-off setting of this function can be changed by the adjustment function (default setting; 15 seconds).

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.
Check that the room lamp delay-off time has been set to other than "0 second" by the adjustment function.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Use the adjustment function to set the room lamp delay-off time to other than "0 second." Refer to P.54B-261.

STEP 2. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

STEP 3. Pulse check
Check the input signals below, which are related to the front and rear room lamps.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC to ON
All of the door switches	A door is opened when all the doors are closed
Driver's door lock actuator switch	When the driver's door is unlocked or locked
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 4.
NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."
NO <All the door switch signals are not received> : Refer to inspection procedure M-11 "All the door switch signals are not received P.54B-230 ."
NO <The driver's door lock actuator switch signal is not received> : Refer to inspection procedure M-12 "The front door lock actuator (RH) switch signal is not received P.54B-235 ."
NO <Interior lamp loaded signal is not detected> : Refer to inspection procedure M-16 "The interior lamp loaded signal is not detected P.54B-248."

STEP 4. Determine a trouble spot.

Q: Which lamp does not illuminate?
No lamp illuminates. : Replace the ETACS-ECU.
The front room lamp or the rear room lamp <Vehicles with curtain air bag> does not illuminate. : Go to Step 5.
The rear personal lamp (LH) <Vehicles without curtain air bag> does not illuminate. : Go to Step 10.
The rear personal lamp (RH) <Vehicles without curtain air bag> does not illuminate. : Go to Step 17.
The luggage room lamp does not illuminate. : Go to Step 24.

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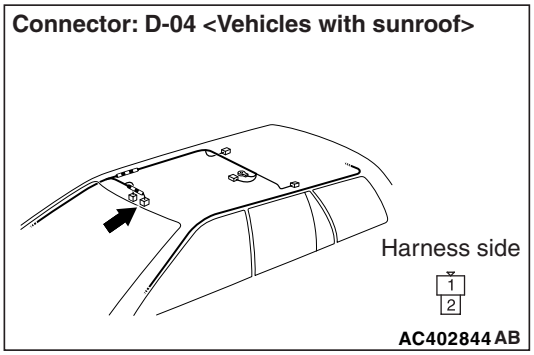
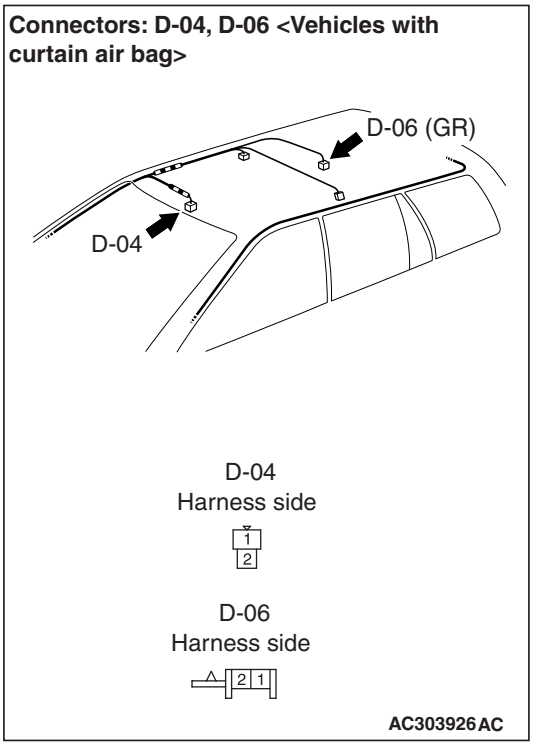
STEP 5. Connector check: D-04 front room lamp connector, D-06 rear room lamp connector



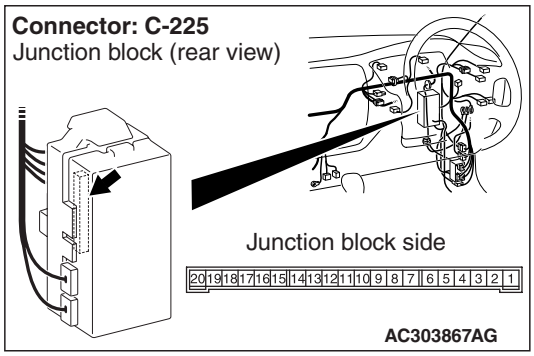


Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

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-225 ETACS-ECU connector



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

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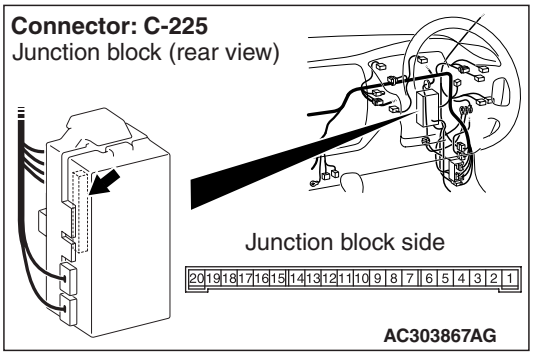
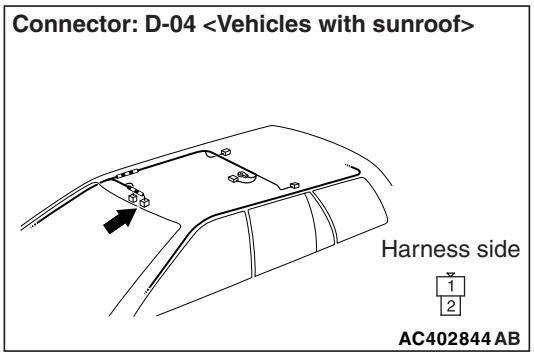
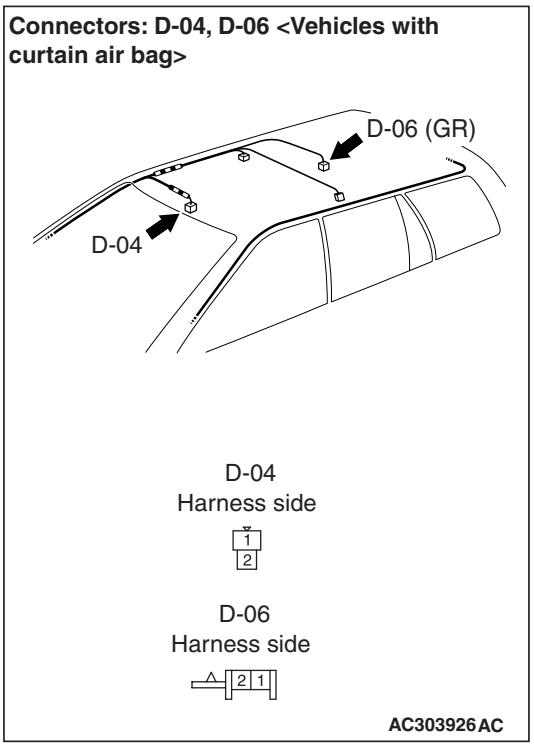
STEP 8. Check the wiring harness from C-225 ETACS-ECU connector terminal Nos. 5 and 6 to D-04 front room lamp connector terminal Nos. 2 and 1 or D-06 rear room lamp connector terminal Nos. 2 and 1.







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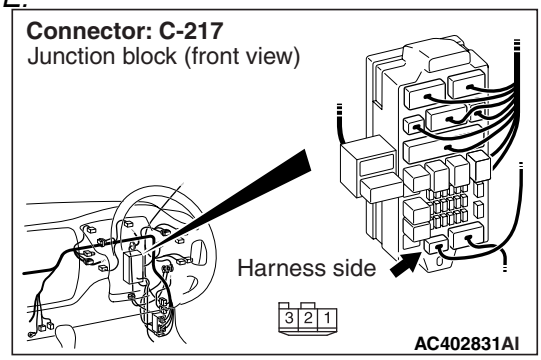

Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.
Check the input or output lines for open circuit.

Q: Is the check result normal?
YES : Go to Step 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.00-13).
NO : Replace the ETACS-ECU.

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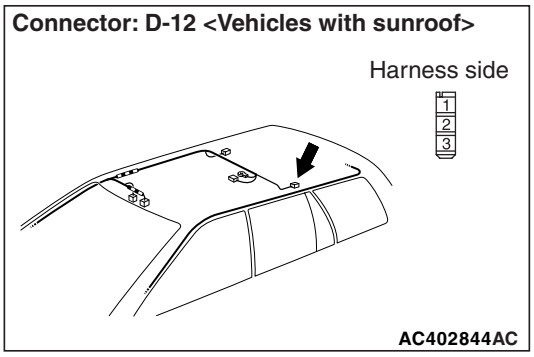
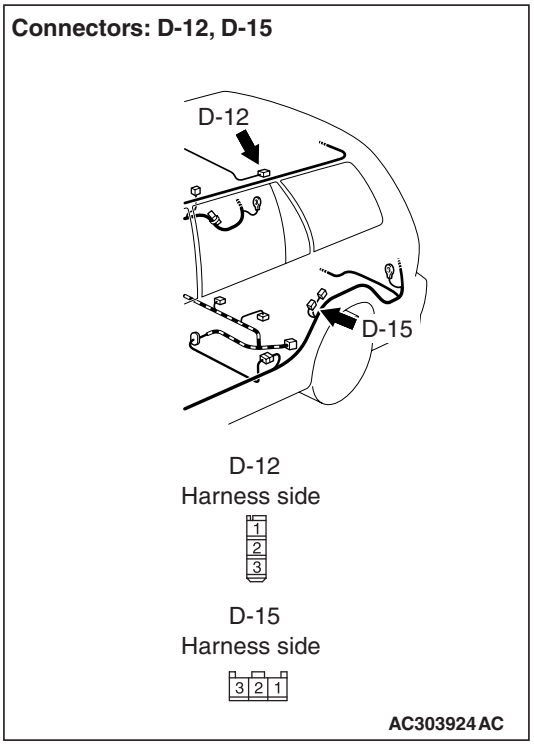
STEP 10. Connector check: D-12 rear personal lamp (LH) connector, D-15 door switch (rear: LH) connector





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

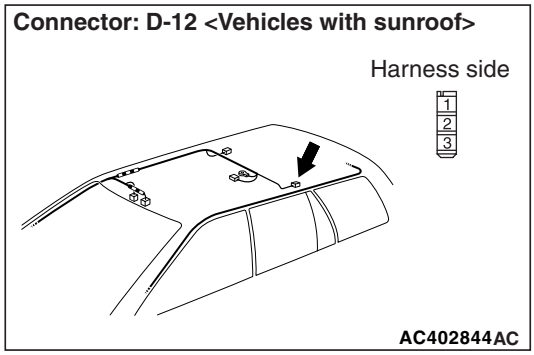
STEP 11. Check the bulbs of the rear personal lamp (LH).
Check that the rear personal lamp (LH) bulb are not burned out.

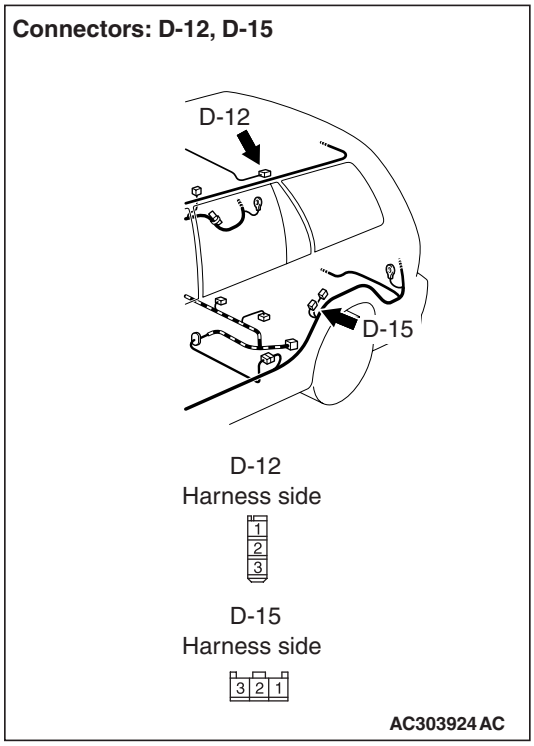
Q: Is the check result normal?
YES : Go to Step 12.
NO : Replace the rear personal lamp (LH) bulb.

STEP 12. Check the door switch (rear: LH).
Check the door switch (rear: LH).Refer to GROUP 42 – Door P.42-28.

Q: Is the check result normal?
YES : Go to Step 13.
NO : Replace the door switch (rear: LH).

STEP 13. Check the wiring harness from D-12 rear personal lamp (LH) connector terminal No.2 to D-15 door switch (rear: LH) connector terminal No.3.





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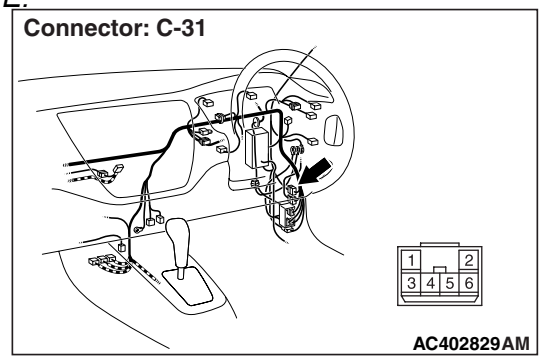
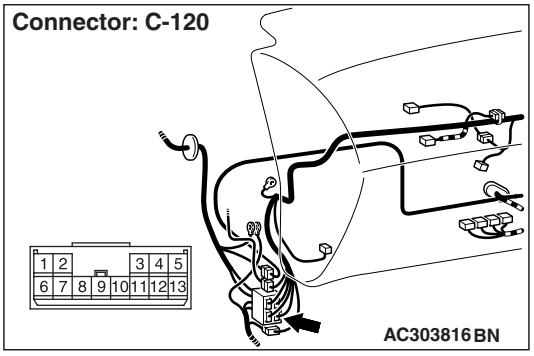
NOTE:

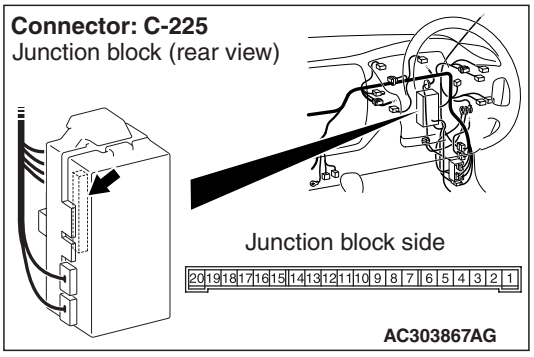




Prior to the wiring harness inspection, check intermediate connector C-31 or C-120, and repair if necessary.
Check the earth wires for open circuit.

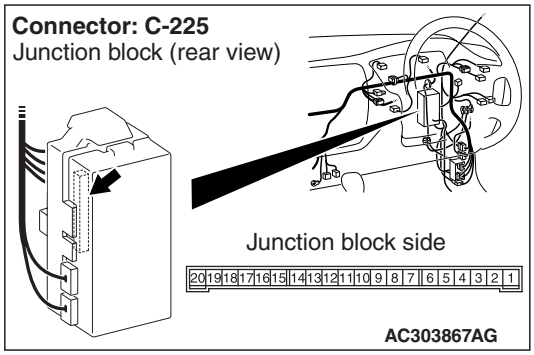
Q: Is the check result normal?
YES : Go to Step 14.
NO : Repair the wiring harness.

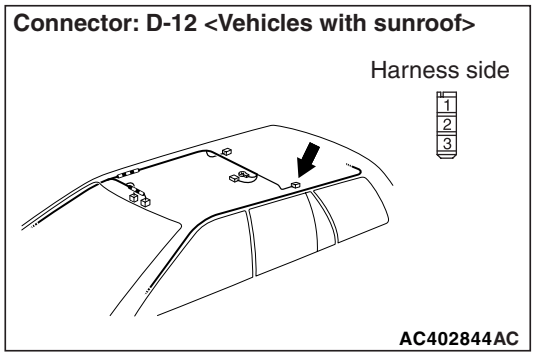
STEP 14. Connector check: C-225 ETACS-ECU connector

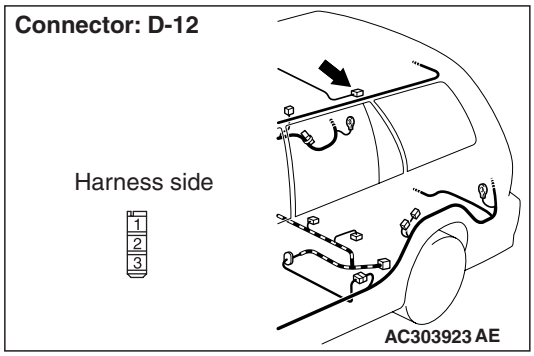


Q: Is the check result normal?
YES : Go to Step 15.
NO : Repair the defective connector.

STEP 15. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-12 rear personal lamp (LH) connector terminal No.3.







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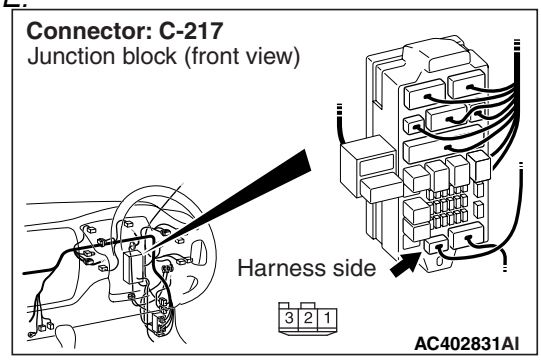

Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.
Check the power supply line for open circuit.

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

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STEP 16. Retest the system.

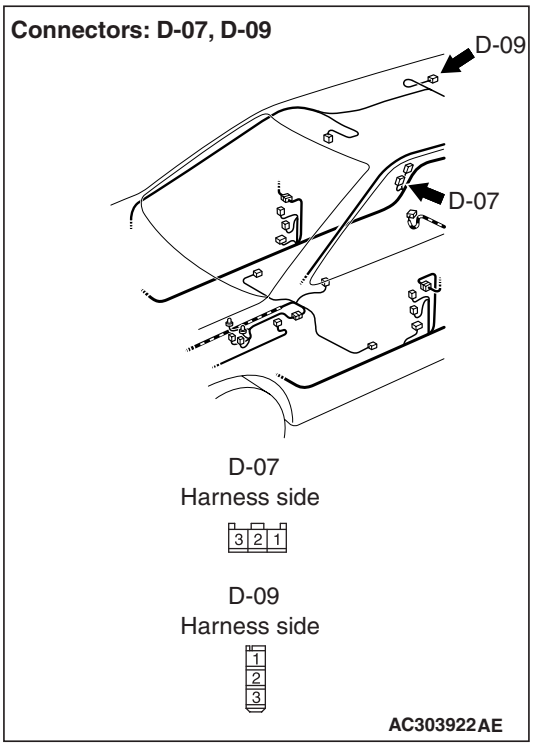
Check that the rear personal lamp (LH) illuminates and extinguishes normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

STEP 17. Connector check: D-09 rear personal lamp (RH) connector, D-07 door switch (rear: RH) connector



Q: Is the check result normal?

YES : Go to Step 18.

NO : Repair the defective connector.

STEP 18. Check the bulbs of the rear personal lamp (RH).

Check that the rear personal lamp (RH) bulb are not burned out.

Q: Is the check result normal?

YES : Go to Step 19.

NO : Replace the rear personal lamp (RH) bulb.

STEP 19. Check the door switch (rear: RH).

Check the door switch (rear: RH).Refer to GROUP 42 – Door P.42-28.

Q: Is the check result normal?

YES : Go to Step 20.

NO : Replace the door switch (rear: RH).

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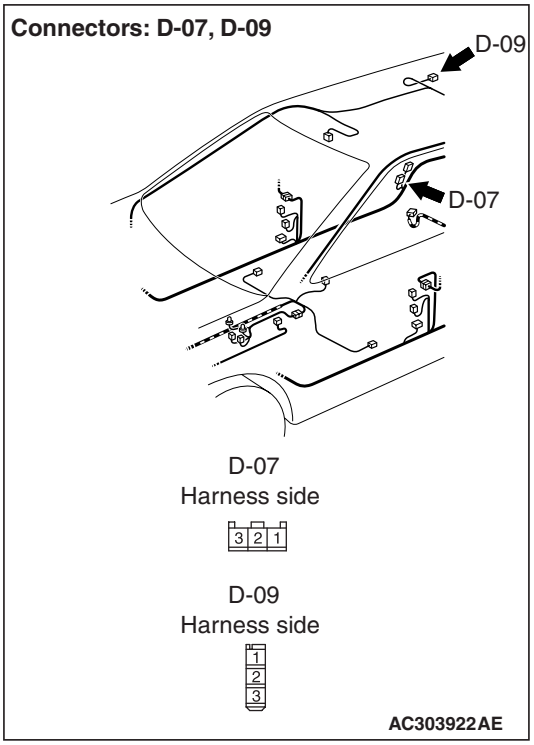
STEP 20. Check the wiring harness from D-09 rear personal lamp (RH) connector terminal No.2 to D-07 door switch (rear: LH) connector terminal No.3.



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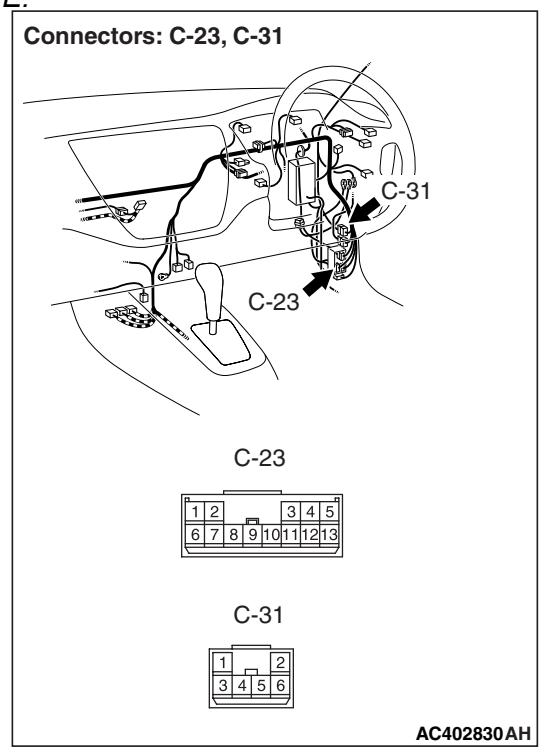
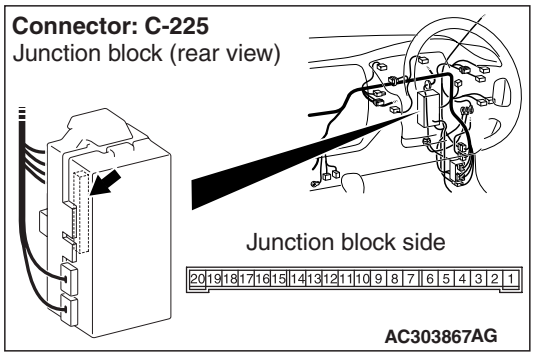


Prior to the wiring harness inspection, check intermediate connector C-23 or C-31, and repair if necessary.

Check the earth wires for open circuit.

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

STEP 21. Connector check: C-225 ETACS-ECU connector



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

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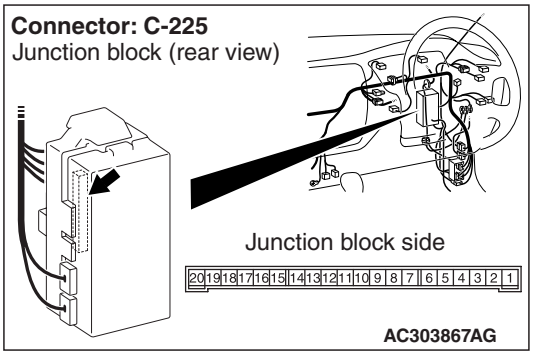
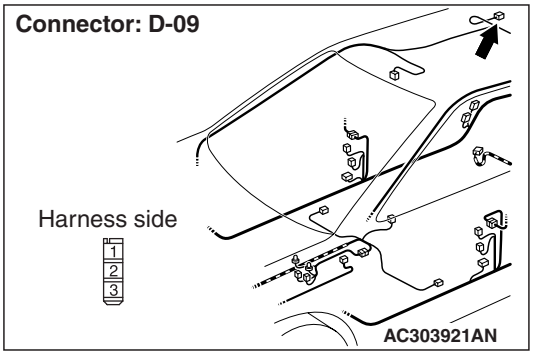
STEP 22. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-09 rear personal lamp (RH) connector terminal No.3.





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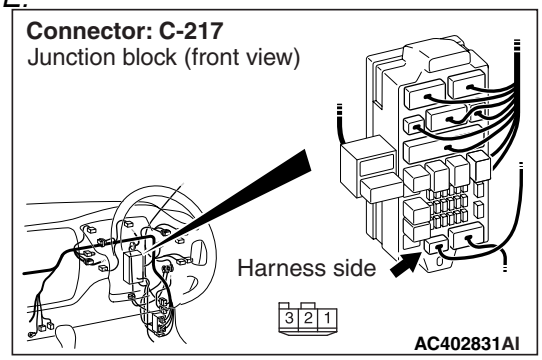


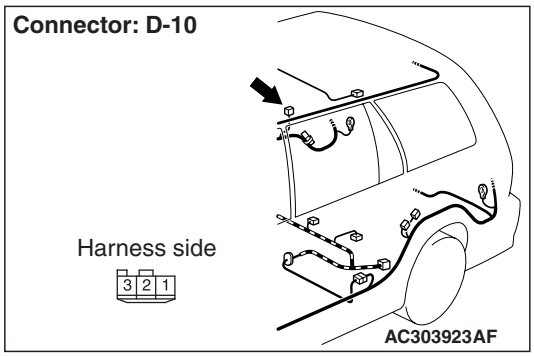
Prior to the wiring harness inspection, check junction block connector C-217, and repair if necessary.
Check the power supply line for open circuit.

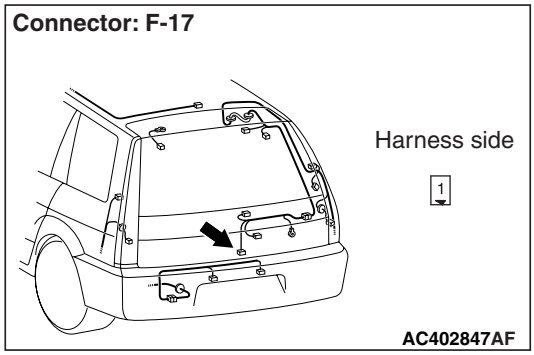
Q: Is the check result normal?
YES : Go to Step 23.
NO : Repair the wiring harness.

STEP 23. Retest the system.
Check that the rear personal lamp (RH) illuminates and extinguishes normally.

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

STEP 24. Connector check: D-10 luggage room lamp connector, F-17 tailgate switch connector





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

STEP 25. Check the bulbs of the luggage room lamp.
Check that the luggage room lamp bulb are not burned out.

Q: Is the check result normal?
YES : Go to Step 26.
NO : Replace the rear personal lamp (RH) bulb.

STEP 26. Check the tailgate switch.
Check the tailgate switch. Refer to GROUP 42 – Tailgate P.42-45.

Q: Is the check result normal?
YES : Go to Step 27.
NO : Replace the tailgate switch.

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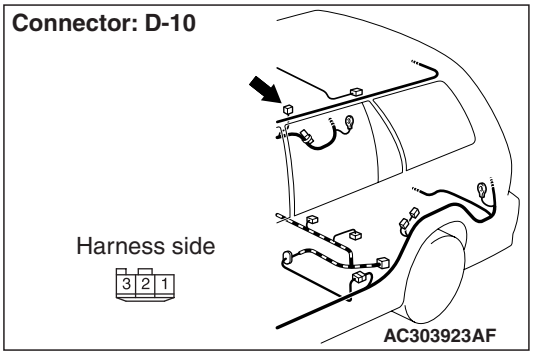
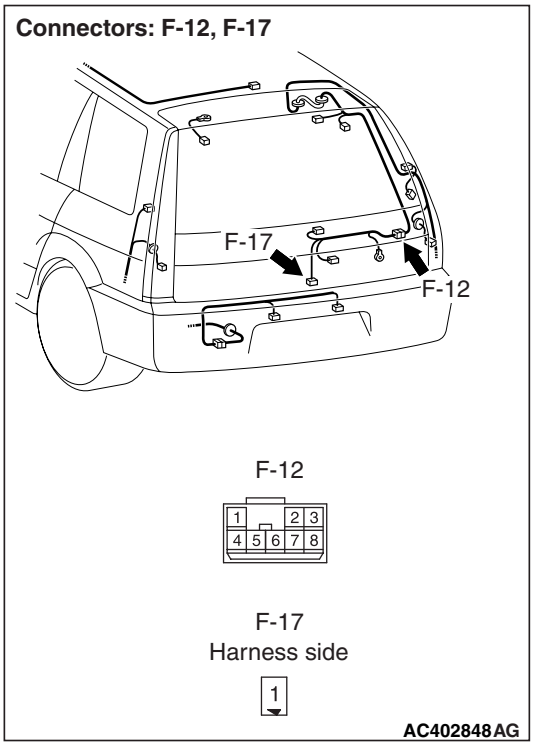
STEP 27. Check the wiring harness from D-10 luggage room lamp connector terminal No.1 to F-17 tailgate switch connector terminal No.1.

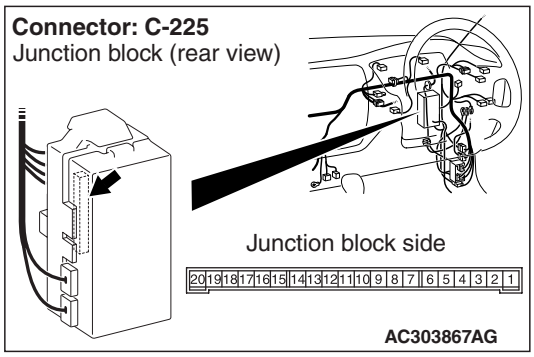




NOTE: Prior to the wiring harness inspection, check intermediate connector F-12, and repair if necessary.
Check the earth wires for open circuit.

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

STEP 28. Connector check: C-225 ETACS-ECU connector



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

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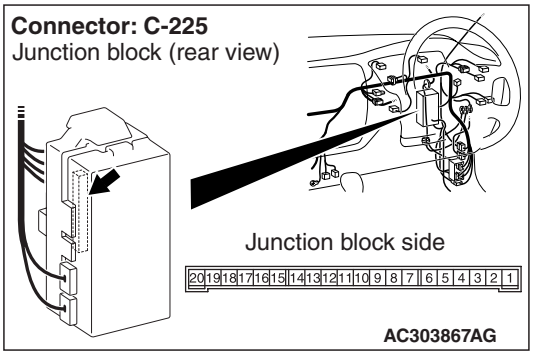
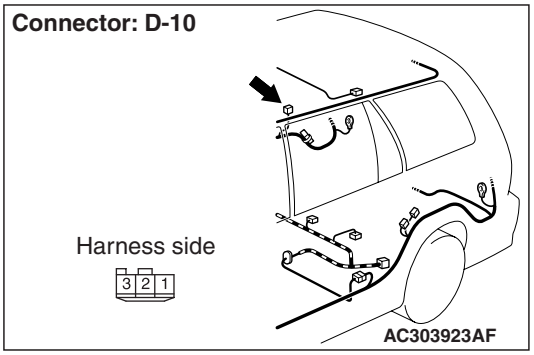
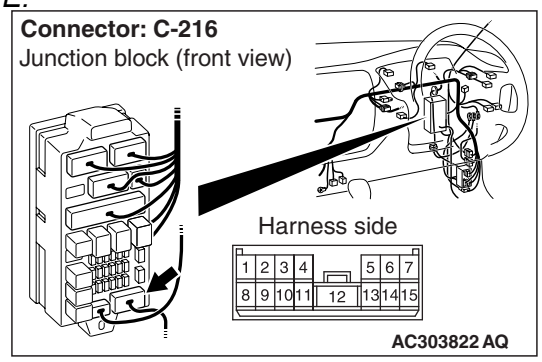
STEP 29. Check the wiring harness from C-225 ETACS-ECU connector terminal No.6 to D-10 luggage room lamp connector terminal No.3.





NOTE:



Prior to the wiring harness inspection, check junction block connector C-216, and repair if necessary.
Check the power supply line for open circuit.

Q: Is the check result normal?
YES : Go to Step 30.
NO : Repair the wiring harness.

STEP 30. Retest the system.
Check that the luggage room lamp illuminates and extinguishes normally.

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

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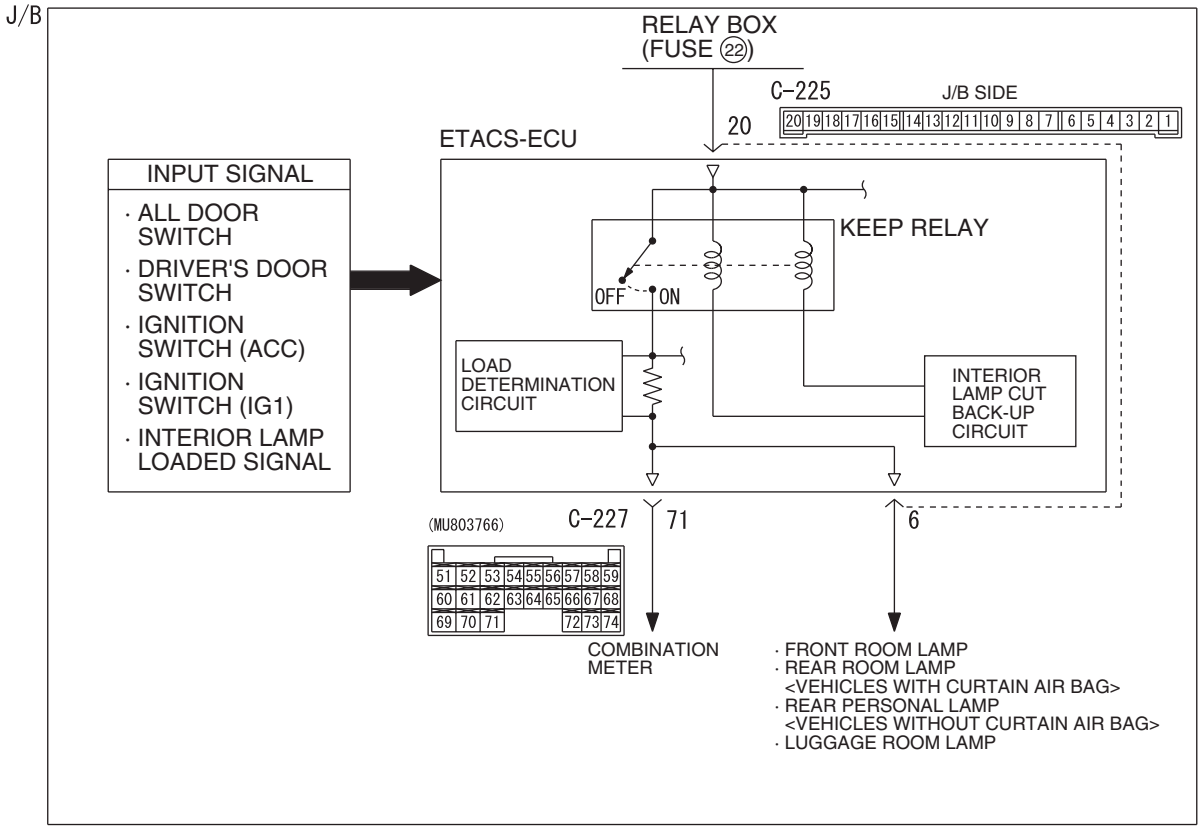
INSPECTION PROCEDURE L-2: Interior lamp automatic shutdown function does not work normally.

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

Interior Lamp Automatic Shutdown Function Circuit



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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU operates the interior lamp automatic shutdown function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Front door switch
- All of the door switches
- Interior lamp loaded signal

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may be defective. Note that this function can be disabled/enabled by the adjustment function (default setting; enabled).

PROBABLE CAUSES

- Malfunction of the door switches
- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the adjustment function.

Check that the interior lamp automatic shutdown function has been enabled by using the adjustment function.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Enable the interior lamp automatic shutdown function by using the adjustment function. Refer to P.54B-261.

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STEP 2. Check the power supply circuit.
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

STEP 3. Pulse check
Check the input signals below, which are related to the front and rear dome lamps.

System switch	Check conditions
Ignition switch (ACC)	When turned from the LOCK (OFF) position to the ACC position
Ignition switch (IG1)	When turned from ACC to ON
Front door switch	front door is opened while all the other doors are closed.
All of the door switches	A door is opened when all the doors are closed
Interior lamp loaded signal	When a load is applied through multi-purpose fuse No.18

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

Q: Is the check result normal?
YES <All the signals are received normally> : Go to Step 4.
NO <The ignition switch (ACC) signal is not received> : Refer to inspection procedure M-1 "The ignition switch (ACC) signal is not received P.54B-201."
NO <The ignition switch (IG1) signal is not received> : Refer to inspection procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."
NO <The front door switch signal is not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213 ."
NO <All the door switch signals are not received> : Refer to inspection procedure M-11 "All the door switch signals are not received P.54B-230 ."
NO <Interior lamp loaded signal is not detected> : Refer to inspection procedure M-16 "The interior lamp loaded signal is not detected P.54B-248."

STEP 4. Retest the system.
Check that the interior lamp automatic shutdown function works normally.

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

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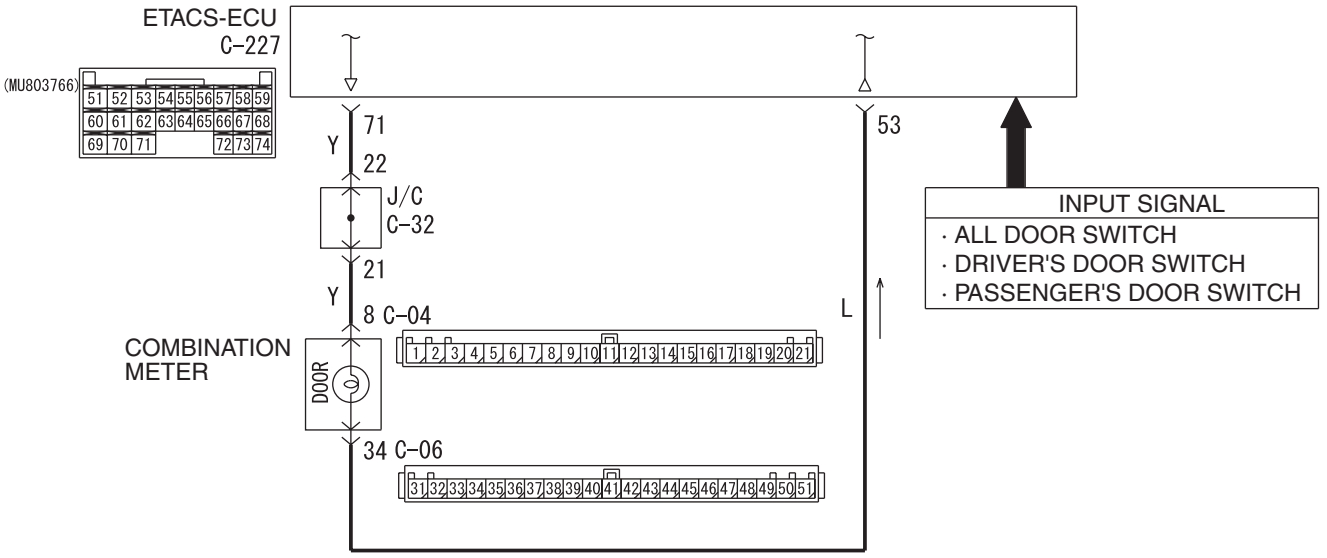
INSPECTION PROCEDURE L-3: The door-ajar warning lamp does not illuminate/extinguish normally.

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

Door Ajar Indicator Lamp Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

If the door-ajar warning lamp does not work normally, the input signal circuits from all the door switches or the ETACS-ECU may be defective.

PROBABLE CAUSES

- All the door switches are defective.
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the operation of the room lamp.

Q: Does the room lamp illuminate/extinguish?
YES : Go to Step 2.
NO : Refer to inspection procedure L-1 "The front or rear room lamp does not illuminate/extinguish P.54B-181 ." Or refer to inspection procedure L-2 "The front or rear room lamp does not illuminate/extinguish P.54B-193 ."

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STEP 2. Pulse check

Check the input signals below, which are related to the door-ajar warning lamp.

System switch	Check condition
Driver's door switch	Driver's door is opened while all the other doors are closed.
Passenger's door switch	Passenger's door is opened while all the other doors are closed.
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?

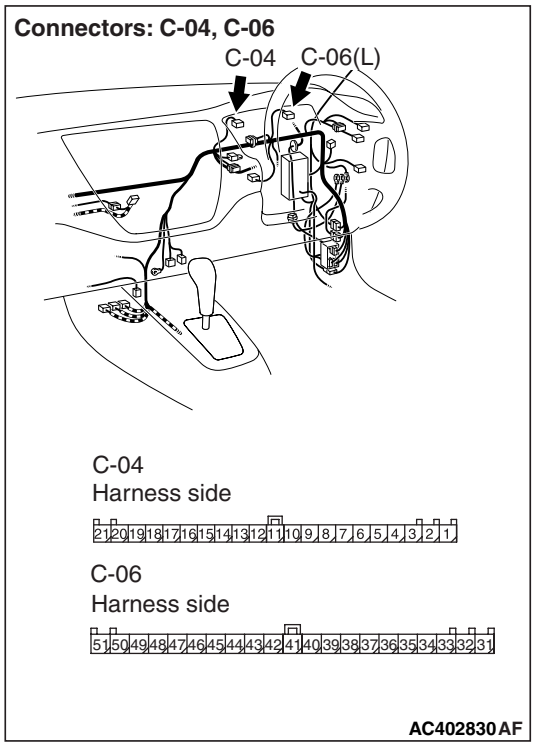
YES <All the signals are received normally> : Go to Step 3.

NO <The driver's door switch signal is not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213 ."

NO <The passenger's door switch signal is not received> : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213 ."

NO <All the door switch signals are not received> : Refer to inspection procedure M-11 "All the door switch signals are not received P.54B-230 ."

STEP 3. Connector check: C-04 and C-06 combination meter connector



Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the defective connector.

STEP 4. Check the door-ajar warning lamp bulb.

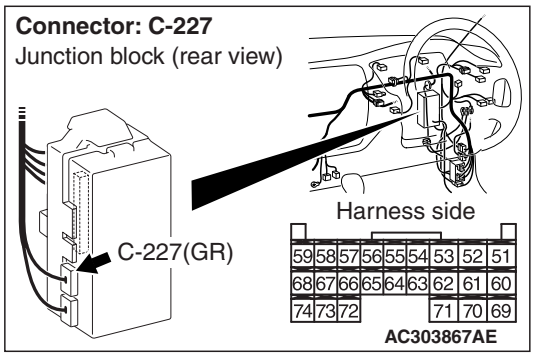
Check the door-ajar warning lamp bulb.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the door-ajar warning lamp bulb.

STEP 5. Connector check: C-227 ETACS-ECU connector



Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the defective connector.

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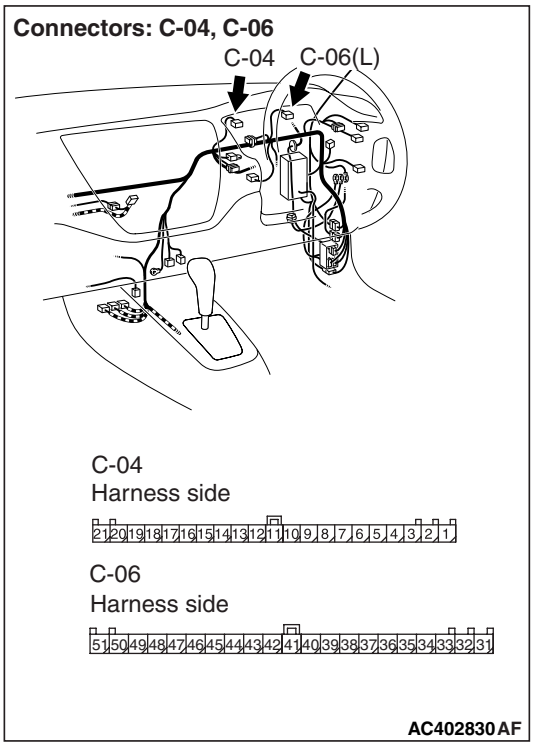
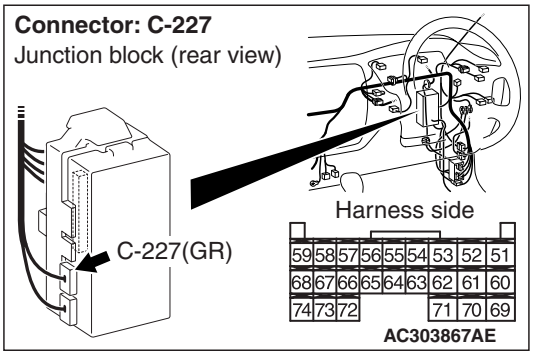
STEP 6. Check the wiring harness from C-227 ETACS-ECU connector terminal Nos. 53 and 71 to C-06 combination meter connector terminal No.34 and C-04 combination meter connector terminal No.8.





Check the input or output lines for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 7. Retest the system.

Replace the ETACS-ECU, and then check that the door-ajar warning lamp illuminates/extinguishes normally.

(1) Replace the ETACS-ECU.

(2) Check that the door-ajar warning lamp illuminates/extinguishes normally.

Q: Is the check result normal?

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

NO : Replace the combination meter.

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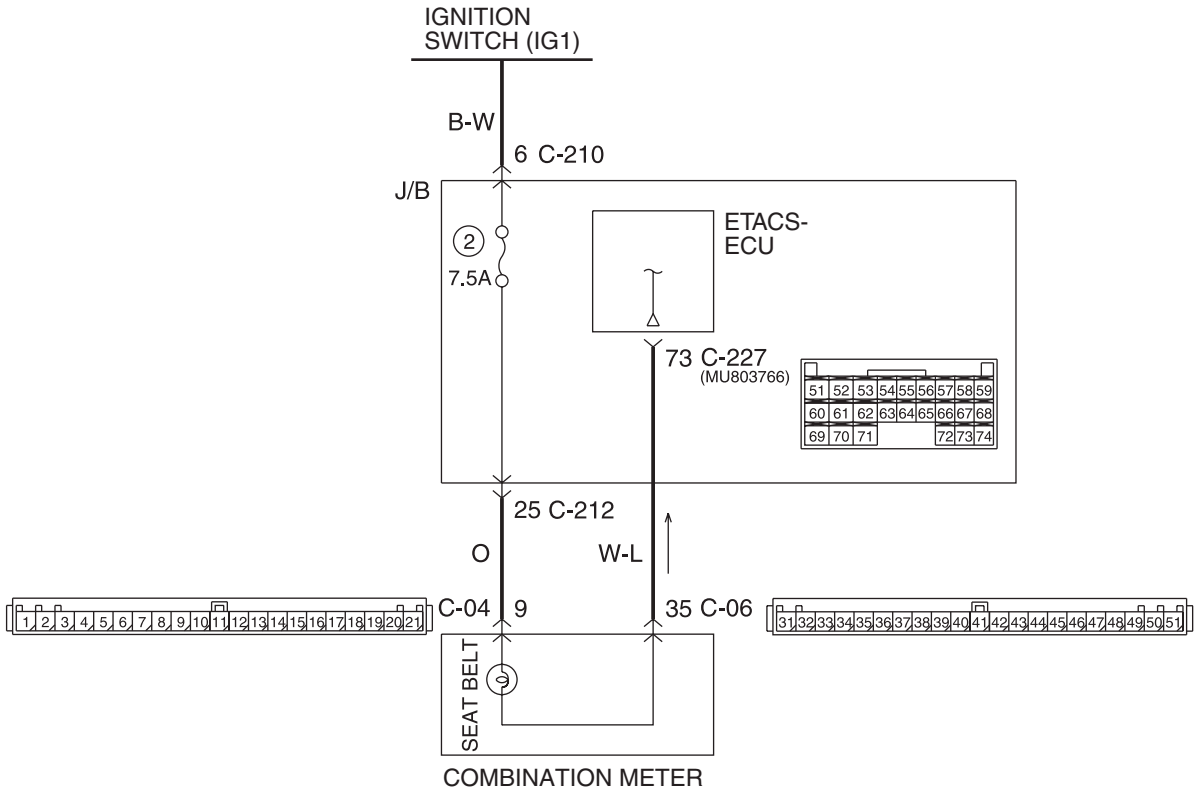
INSPECTION PROCEDURE L-4: The seat belt warning lamp does not flash normally.

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

Seat Belt Warning Lamp Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

The ETACS-ECU flashes the seat belt warning lamp in accordance with the input signal from the ignition switch (IG1).
If it does not flash normally, these input signal circuit(s) or the ETACS-ECU may be defective.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signals, which are related to the seat belt warning lamp.

System switch	Check condition
Ignition switch (IG1)	When turned from ACC 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 : Refer to Inspection Procedure M-2 "The ignition switch (IG1) signal is not received P.54B-203."

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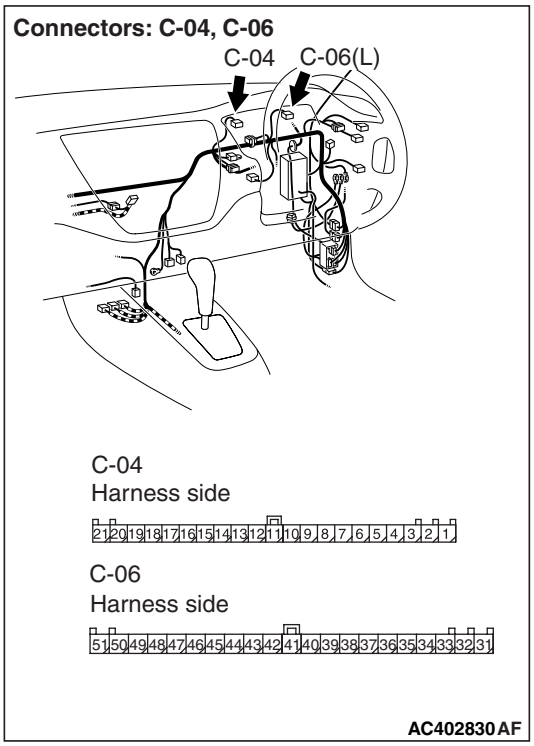
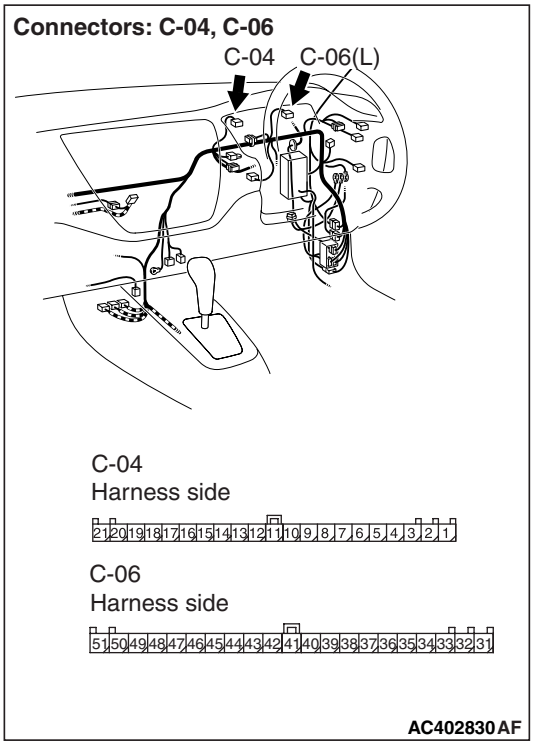
STEP 2. Connector check: C-04 and C-06 combination meter connectors



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

STEP 3. Check the seat belt warning lamp.

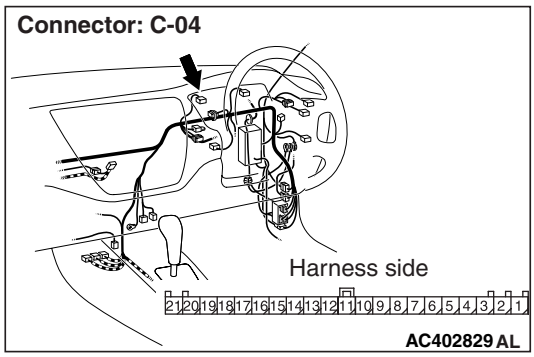


(1) Disconnect the C-04 and C-06 combination meter connectors, and check at the equipment side.

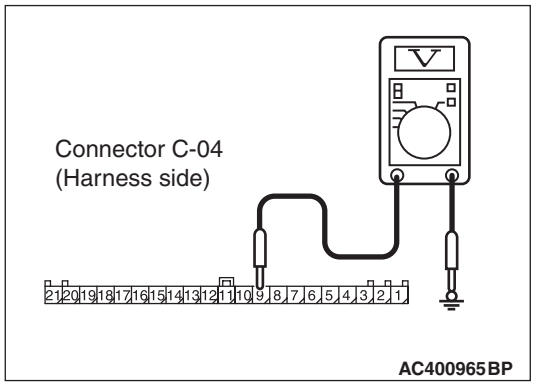
(2) When you connect the positive battery terminal to C-04 combination meter connector terminal No.9 and the negative battery terminal to C-06 combination meter connector terminal No.35 respectively, check that the seat belt warning lamp should illuminate.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Replace the combination meter.

STEP 4. Measure the voltage at the C-04 combination meter connector.



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



(2) Voltage between C-04 combination meter connector No.9 and body earth

OK: System voltage

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

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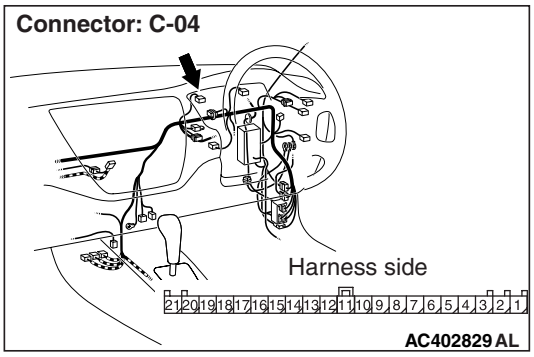
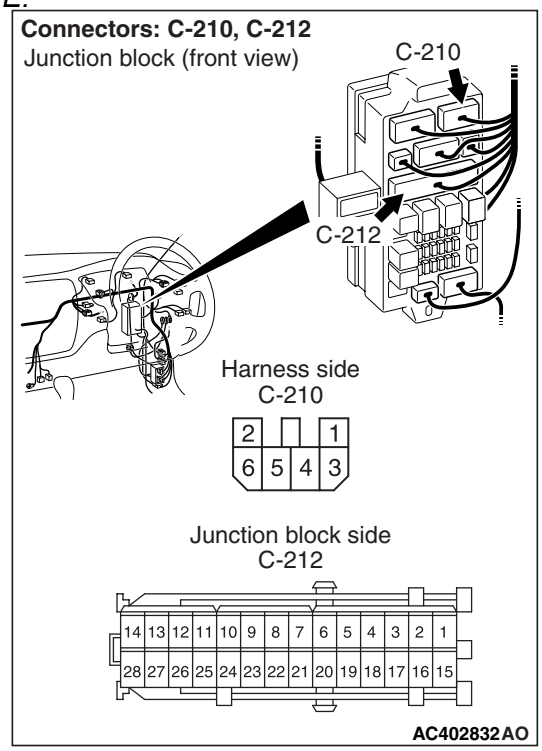
STEP 5. Check the wiring harness between C-04 combination meter connector terminal No.9 and the ignition switch (IG1).



NOTE:

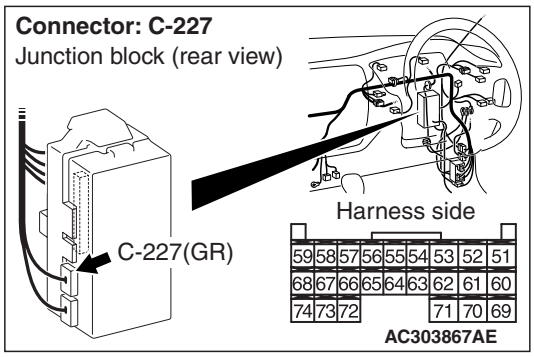


Prior to the wiring harness inspection, check junction block connectors C-210 and C-212, and repair if necessary.

- Check the power supply line for open circuit.

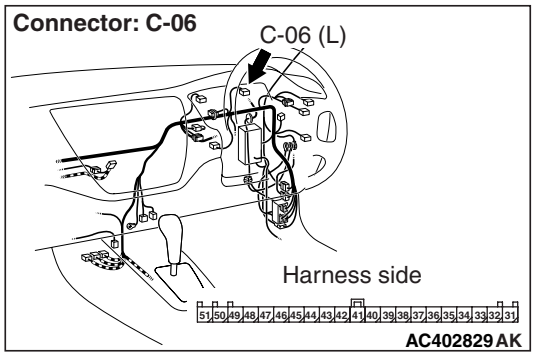
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

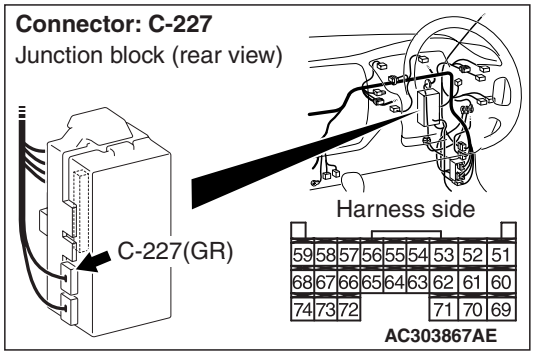
STEP 6. Connector check: C-227 ETACS-ECU connector



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

STEP 7. Check the wiring harness between C-06 combination meter connector terminal No.35 and C-227 ETACS-ECU connector terminal No.73.





- Check the input and output lines for open circuit.

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

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STEP 8. Retest the system.
Check that the seat belt warning lamp flashes normally.

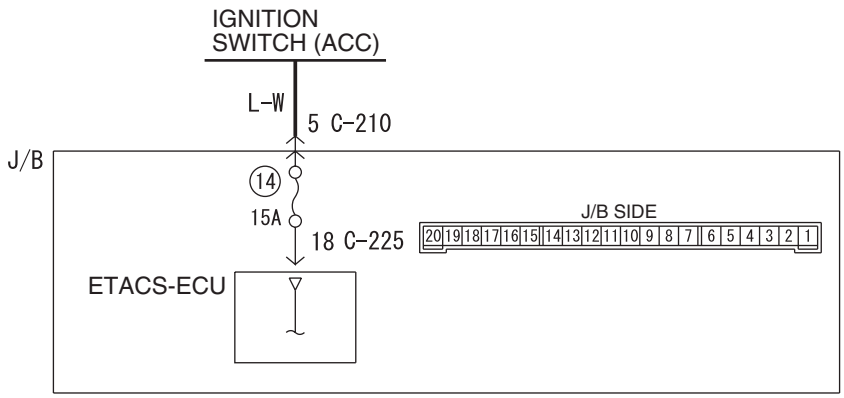
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

INPUT SIGNAL PROCEDURES

INSPECTION PROCEDURE M-1: The ignition switch (ACC) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Ignition Switch (ACC) Input Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (ACC) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Windshield wiper and washer
- Rear wiper and washer
- Interior lamp automatic shutdown function

PROBABLE CAUSES

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

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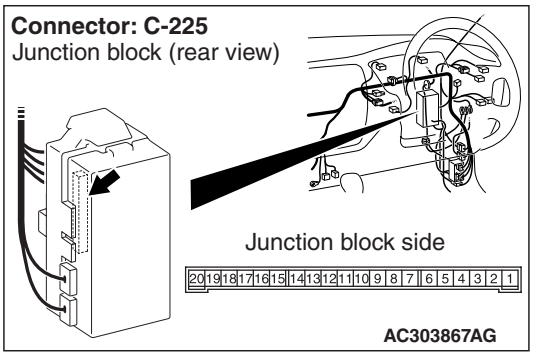
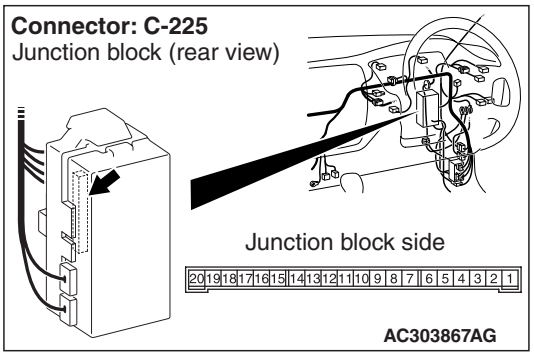
DIAGNOSIS PROCEDURE

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

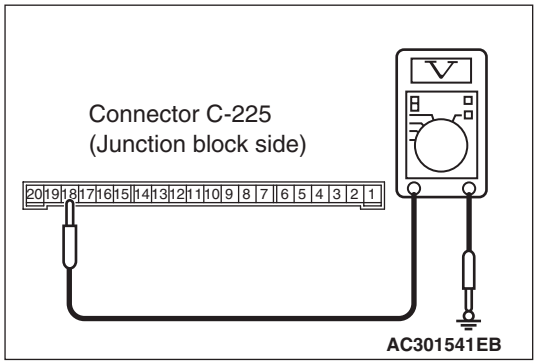


Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

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



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the "ON" position.

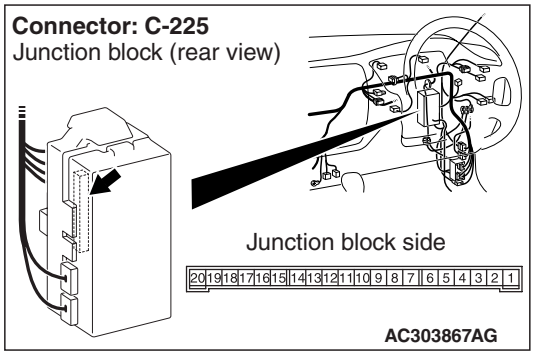


(3) Voltage between C-225 ETACS-ECU connector terminal No.18 and body earth

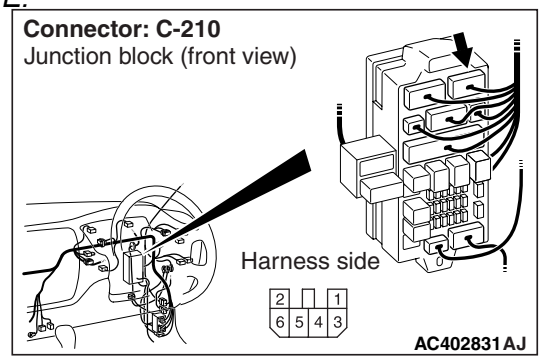
OK: System voltage

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

STEP 3. Check the wiring harness between C-225 ETACS-ECU connector terminal No.18 and the ignition switch (ACC).



NOTE:



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

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

STEP 4. Retest the system.

Check that the ignition switch (ACC) signal is received normally.

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

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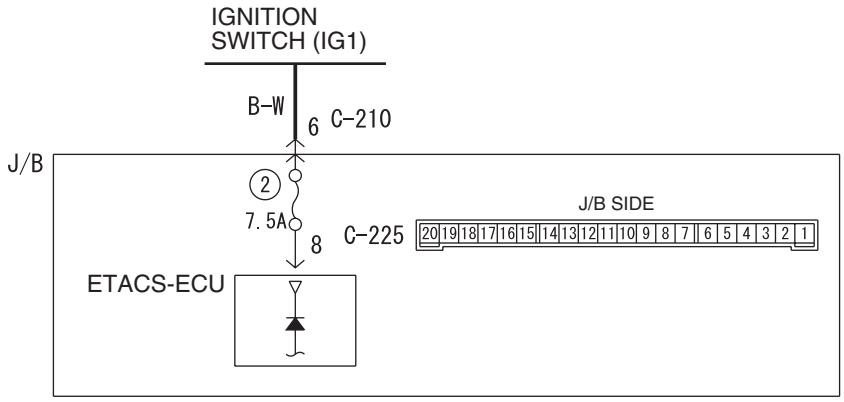
INSPECTION PROCEDURE M-2: The ignition switch (IG1) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Ignition Switch (IG1) Input Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the ignition switch (IG1) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

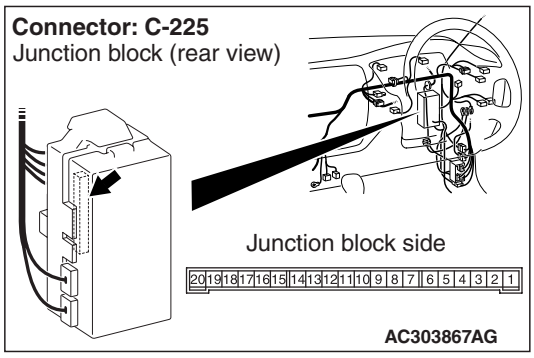
- Lamp reminder function
- Ignition key cylinder illumination lamp
- Turn-signal lamp
- Room lamps

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

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



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

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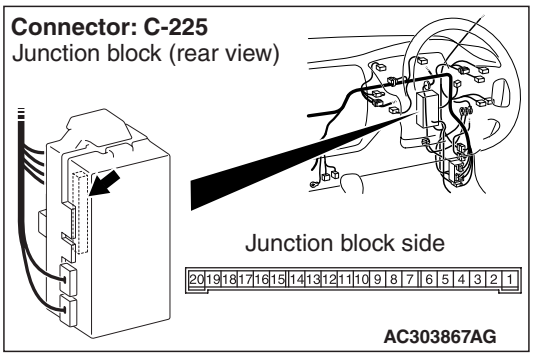
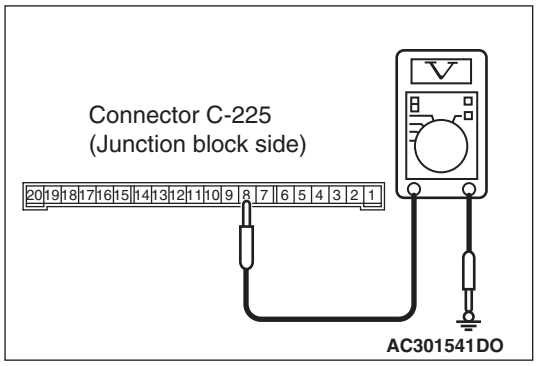
STEP 2. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the "ON" position.

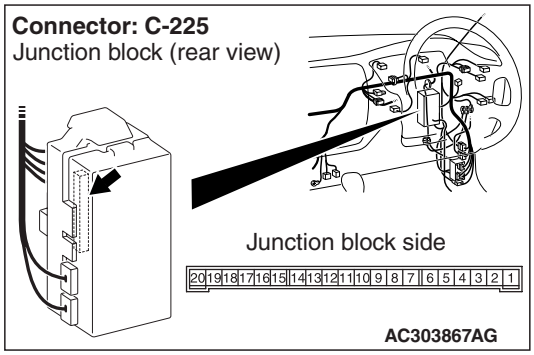


(3) Voltage between C-225 ETACS-ECU connector terminal No.8 and body earth

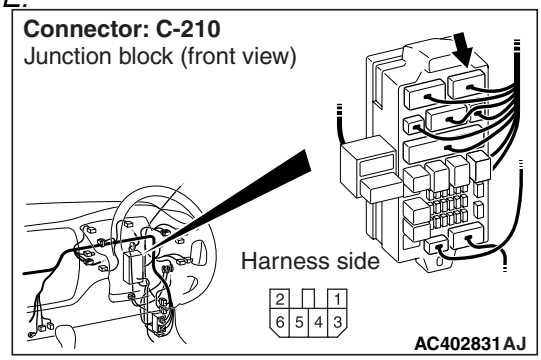
OK: System voltage

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

STEP 3. Check the wiring harness between C-225 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



NOTE:



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

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

STEP 4. Retest the system.

Check that the ignition switch (IG1) signal is received normally.

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

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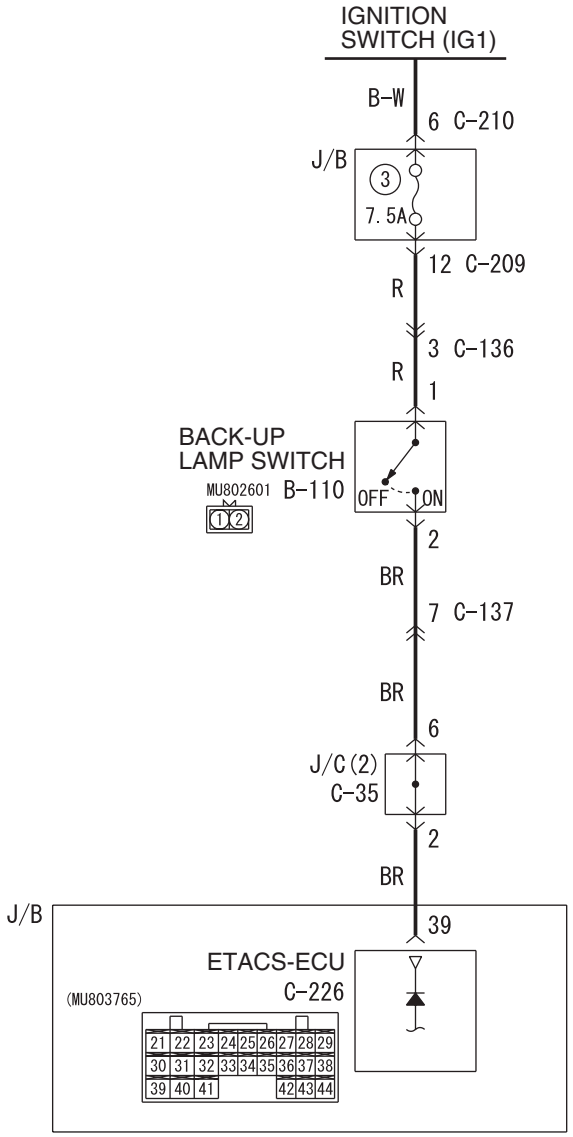
INSPECTION PROCEDURE M-3: The back-up lamp switch signal is not received. <M/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Back-up Lamp Switch Input Circuit <M/T>



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

W5J54L074A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the back-up lamp switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

PROBABLE CAUSES

- Malfunction of the back-up lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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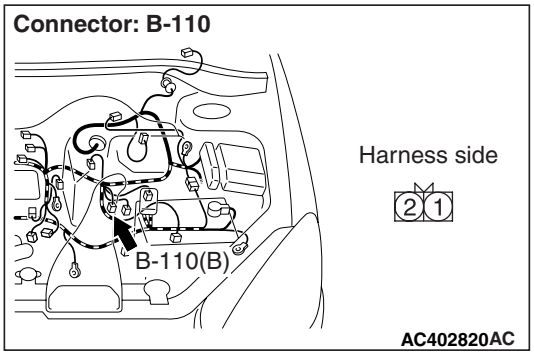
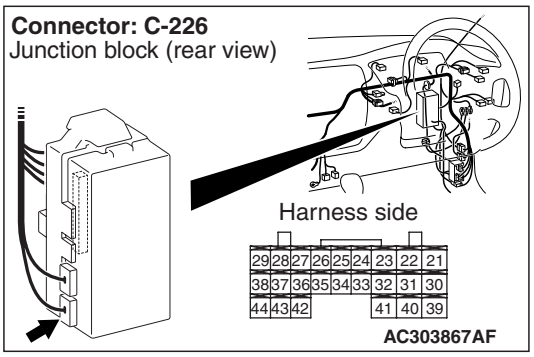
DIAGNOSIS PROCEDURE

STEP 1. Connector check: B-110 back-up lamp switch connector and C-226 ETACS-ECU connector





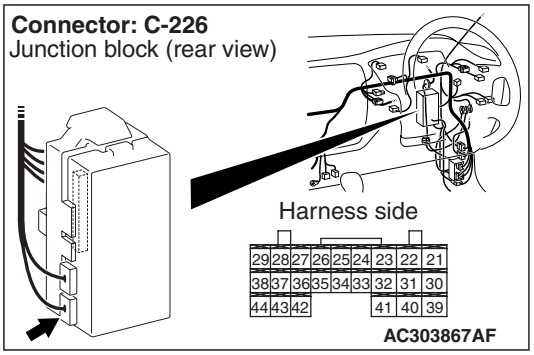
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the back-up lamp switch

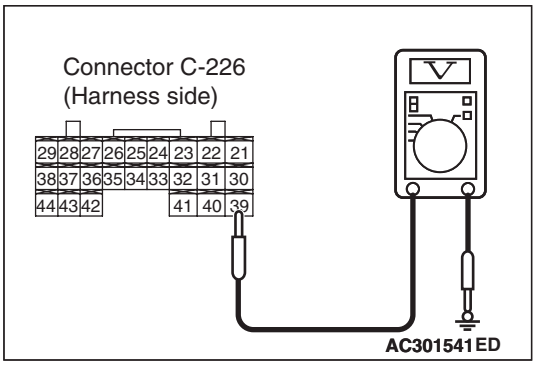
Check the back-up lamp switch (Refer to GROUP 22B – Transmission P.22B-18).

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

STEP 3. Voltage measurement at the C-226 ETACS-ECU connector



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

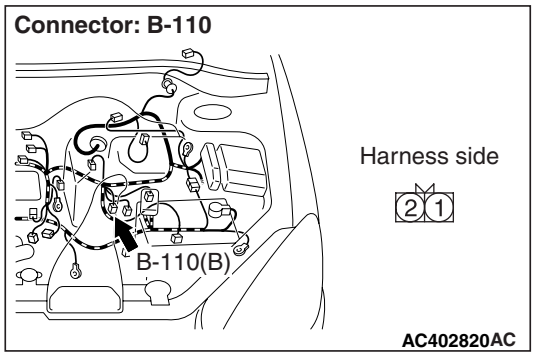


(4) Voltage between C-226 ETACS-ECU connector terminal No.39 and body earth

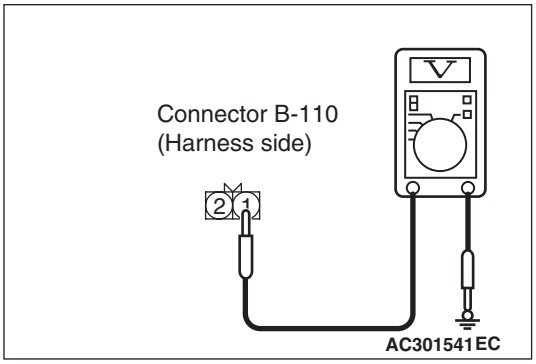
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

STEP 4. Voltage measurement at the B-110 back-up lamp switch connector



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



(3) Voltage between B-110 back-up lamp switch connector terminal No.1 and body earth

OK: System voltage

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

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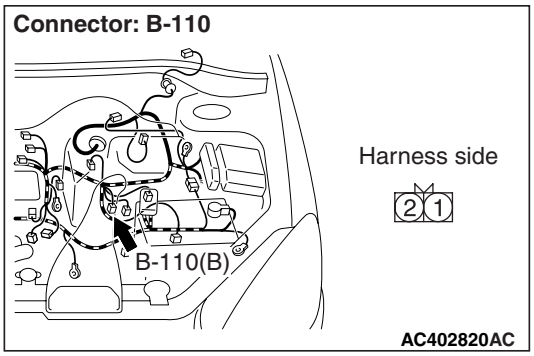
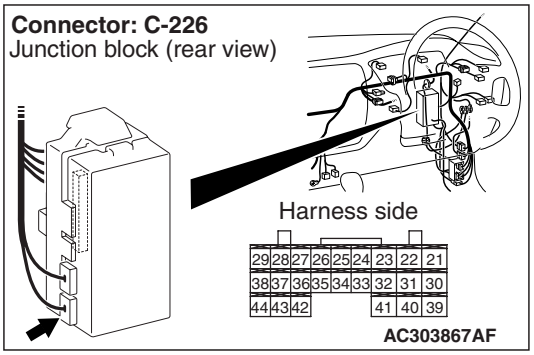
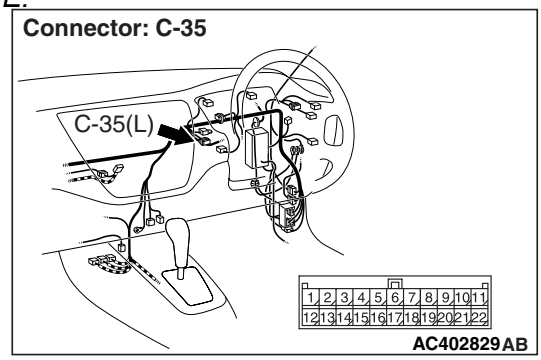
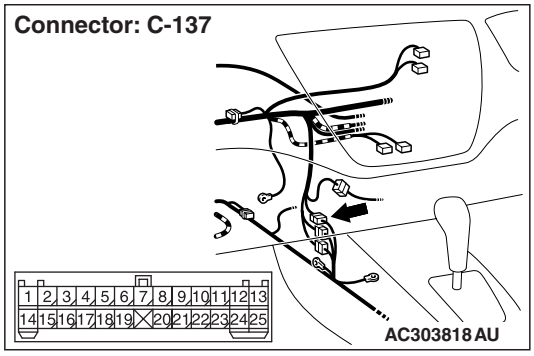
STEP 5. Check the wiring harness between B-110 back-up lamp switch connector terminal No.2 and C-226 ETACS-ECU connector terminal No.39.





NOTE:





Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-137, and repair if necessary.

Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

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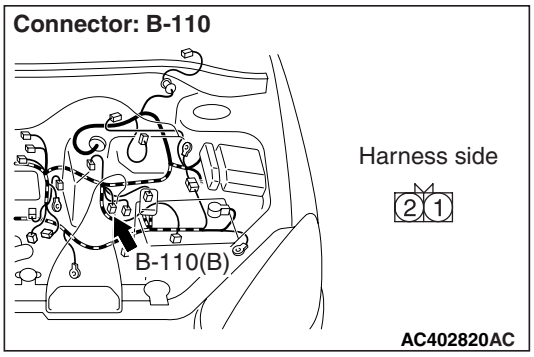
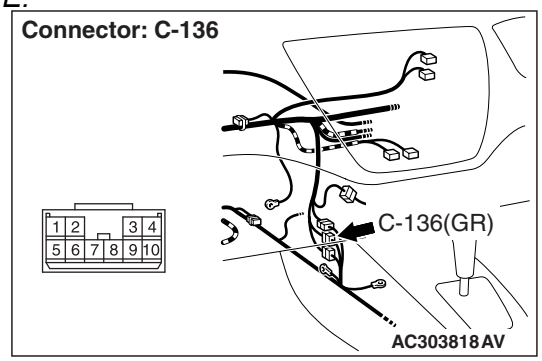
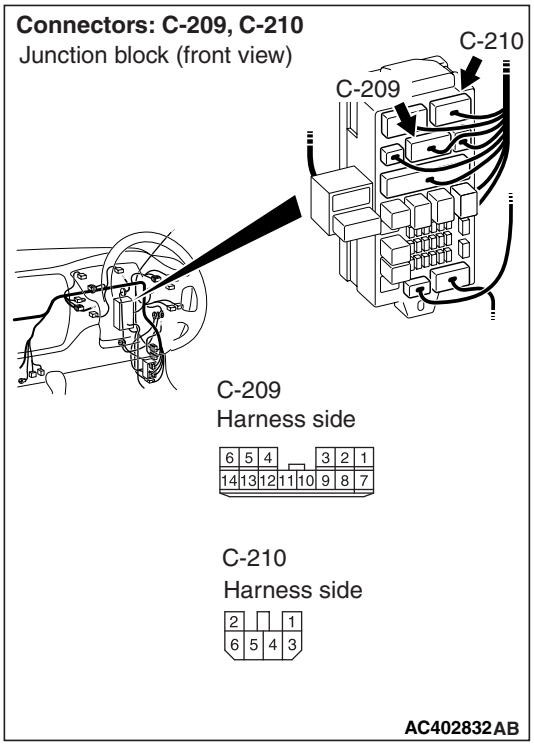
STEP 6. Check the wiring harness between B-110 back-up lamp switch connector terminal No.1 and the ignition switch (IG1).



NOTE:





Prior to the wiring harness inspection, check intermediate connector C-136, junction block connectors C-209 and C-210, and repair if necessary.
Check the power supply line to the ignition switch (IG1) for open circuit.

Q: Is the check result normal?

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

STEP 7. Retest the system.
Check that the back-up lamp switch signal is received normally.

Q: Is the check result normal?

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

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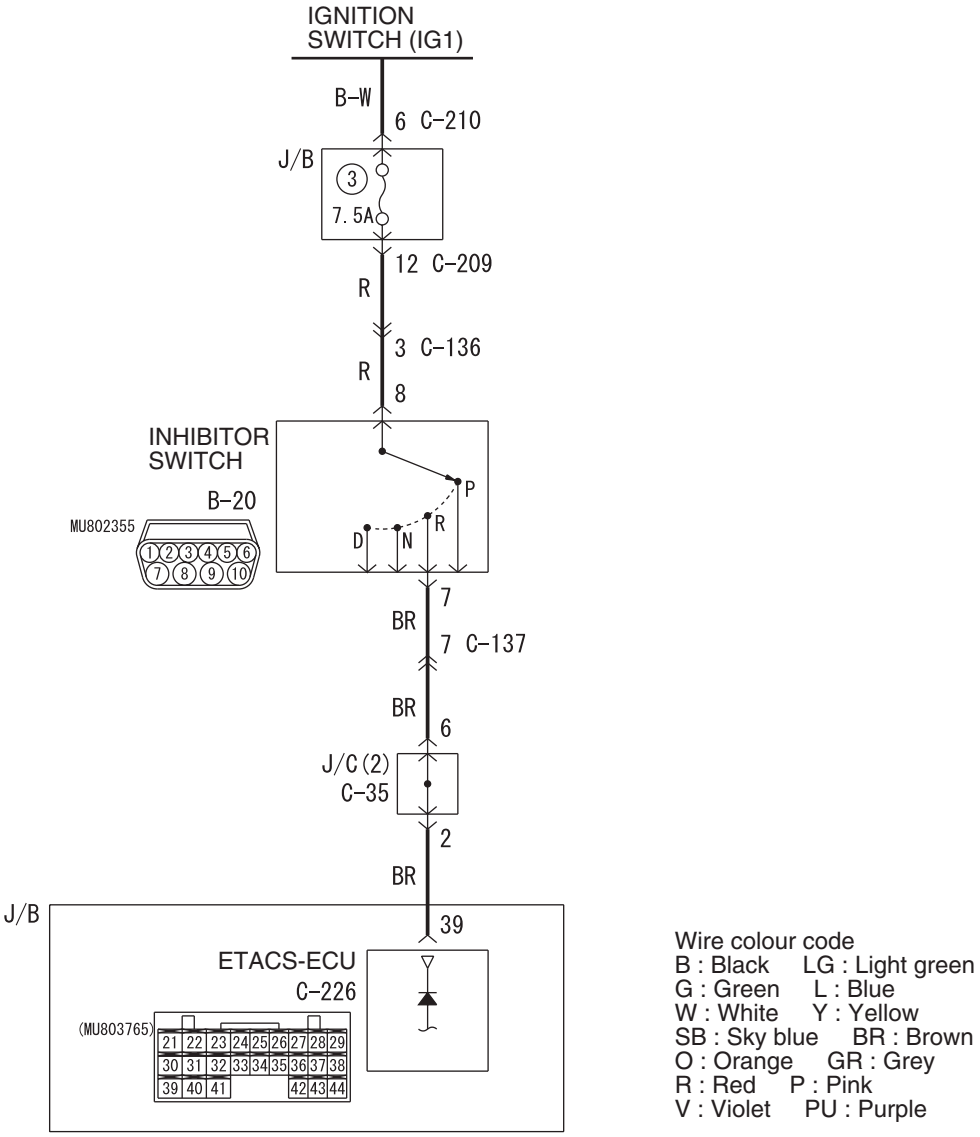
INSPECTION PROCEDURE M-3: The inhibitor switch (reverse position) signal is not received. <A/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Inhibitor Switch Input Circuit <A/T>



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

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the inhibitor switch is used to operate the rear wiper. If the signal is abnormal, the rear wiper will not work normally.

PROBABLE CAUSES

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

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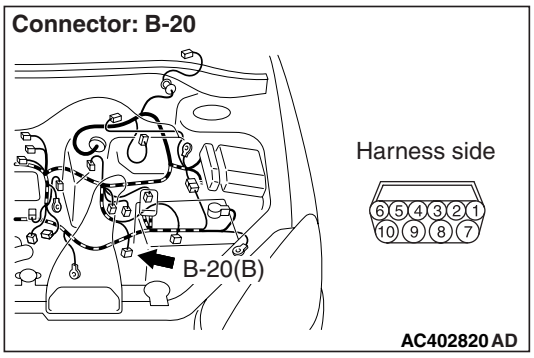
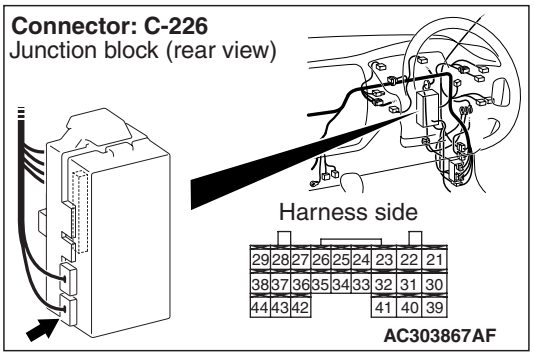
DIAGNOSIS PROCEDURE

STEP 1. Connector check: B-20 inhibitor switch connector and C-226 ETACS-ECU connector





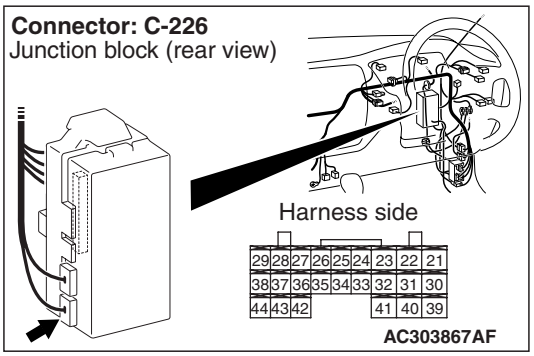
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the connector.

STEP 2. Check the inhibitor switch

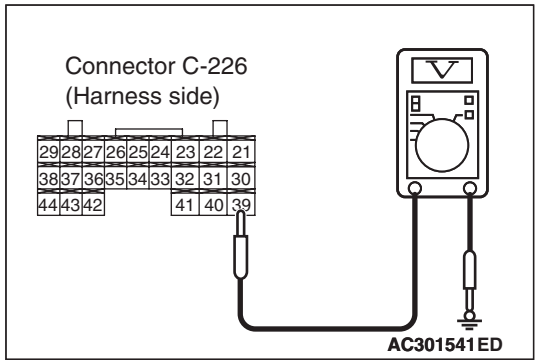
Refer to GROUP 23A – On-vehicle Service P.23A-110.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the inhibitor switch.

STEP 3. Voltage measurement at the C-226 ETACS-ECU connector



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

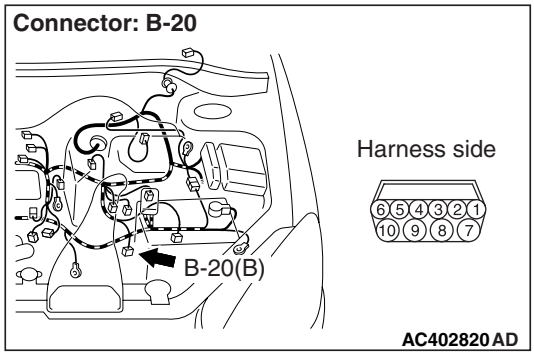


(4) Voltage between C-226 ETACS-ECU connector terminal No.39 and body earth

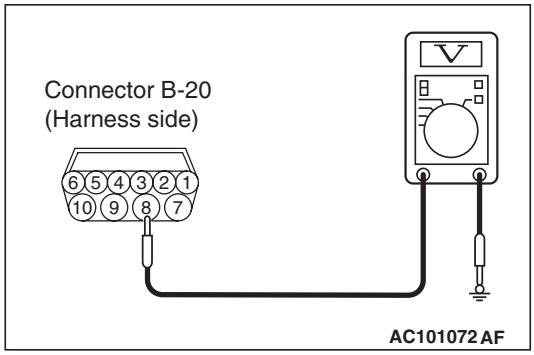
OK: System voltage

Q: Is the check result normal?
YES : Replace the ETACS-ECU.
NO : Go to Step 4.

STEP 4. Voltage measurement at the B-20 inhibitor switch connector



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



(3) Voltage between B-20 inhibitor switch connector terminal No.8 and body earth

OK: System voltage

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

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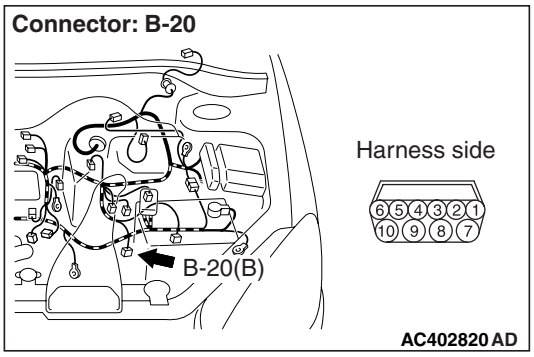
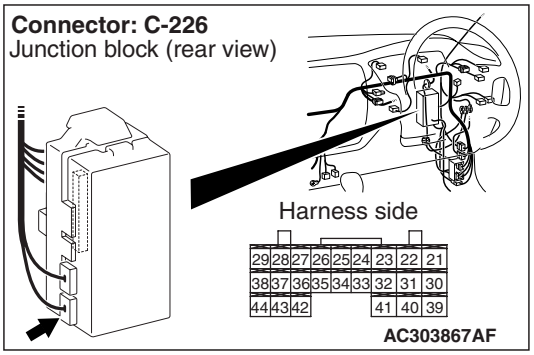
STEP 5. Check the wiring harness between B-20 inhibitor switch connector terminal No.7 and C-226 ETACS-ECU connector terminal No.39.





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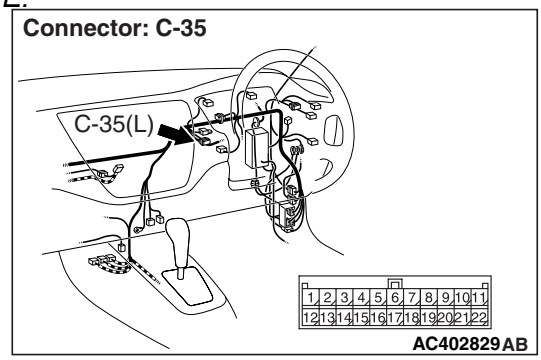
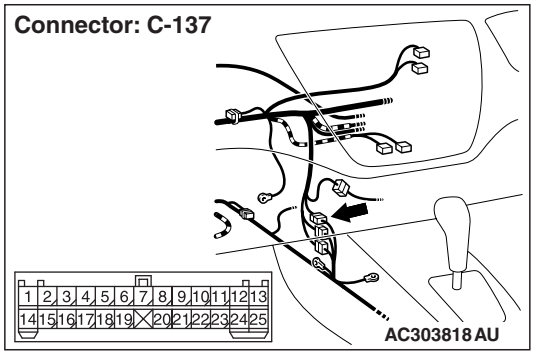




Prior to the wiring harness inspection, check joint connector C-35 and intermediate connector C-137, and repair if necessary.

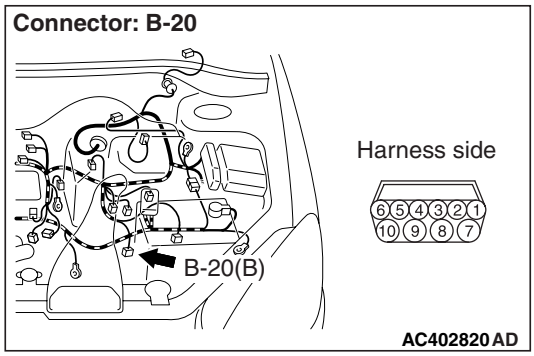
Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the wiring harness.

STEP 6. Check the wiring harness between B-20 inhibitor switch connector terminal No.8 and the ignition switch (IG1).



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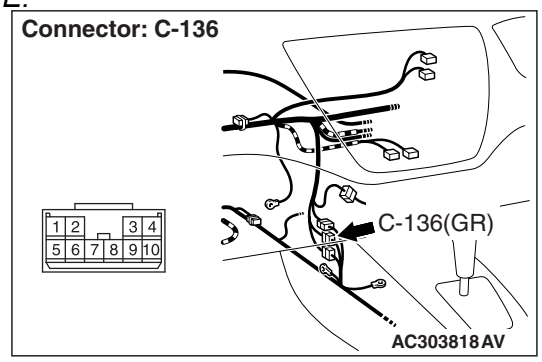
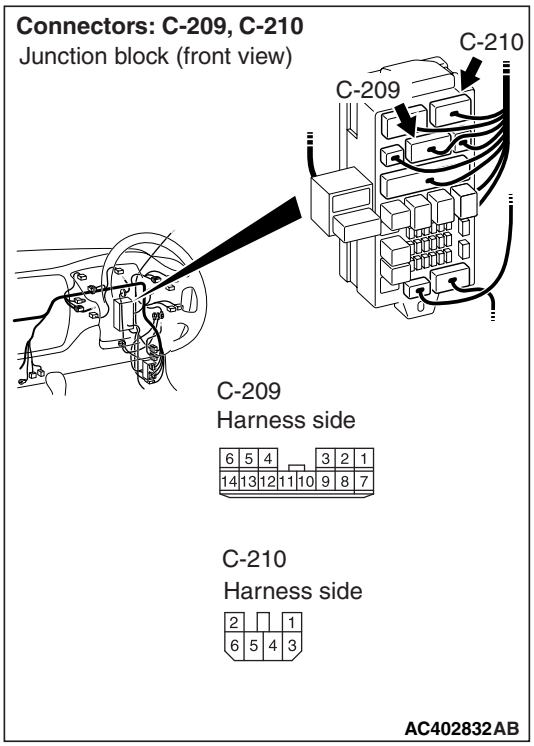
NOTE:





Prior to the wiring harness inspection, check intermediate connector C-136 and junction block connectors C-209 and C-210, and repair if necessary.

Check the power supply line to the ignition switch (IG1) for open circuit.

Q: Is the check result normal?

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

NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the inhibitor switch (reverse position) signal is received normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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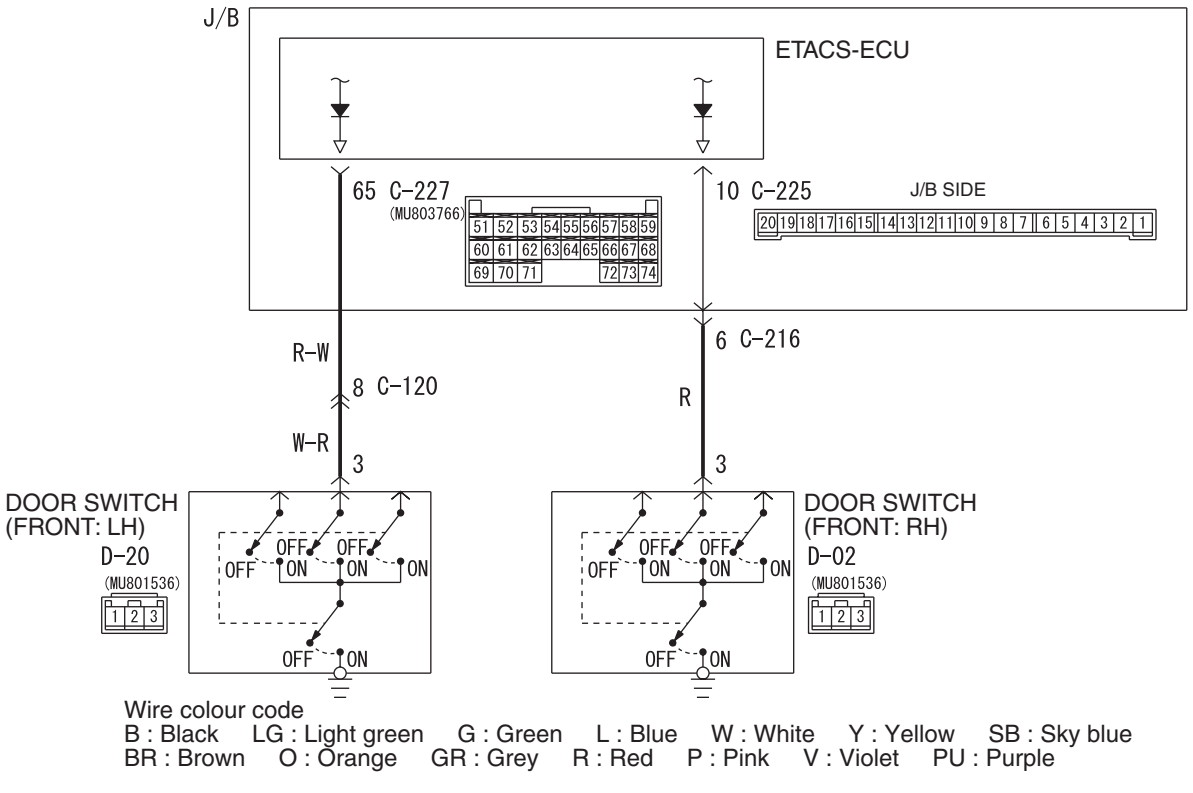
INSPECTION PROCEDURE M-4: The front door switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Front door Switch Input Circuit



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

W5J54L036A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the door switch (front: RH) or door switch (front: LH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Lamp reminder function
- Power window timer function
- Sunroof timer function
- Room lamps

PROBABLE CAUSES

- Malfunction of the door switch (front: RH)
- Malfunction of the door switch (front: LH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

STEP 2. Connector check: D-02 door switch (front: RH) or D-20 door switch (front: LH) connector

DIAGNOSIS PROCEDURE

STEP 1. Check the installation condition.
Check that the door switch (front: RH) or (front: LH) is installed on the body correctly.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Correct the installation condition.

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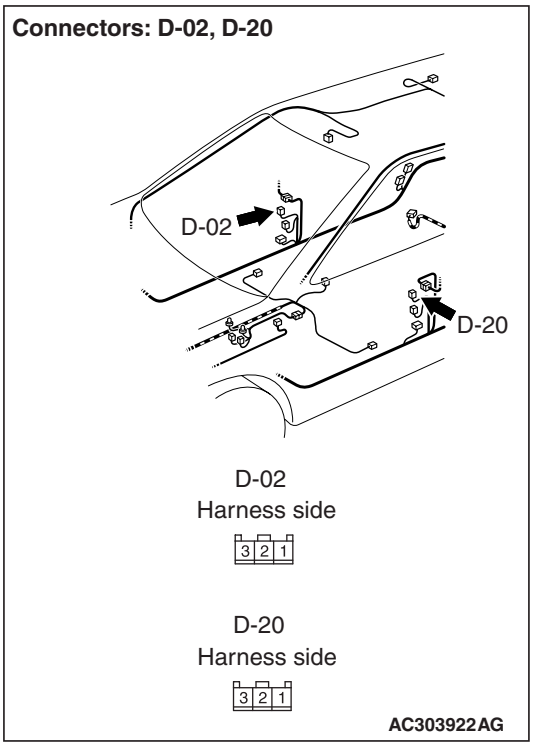


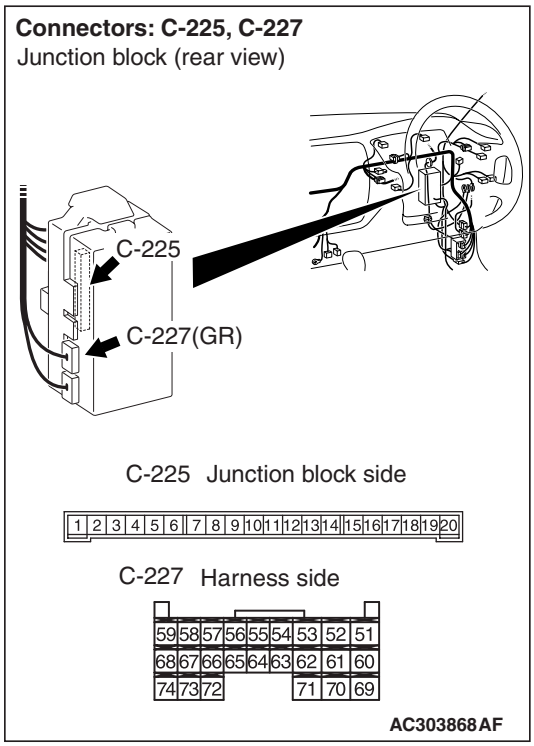
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Check the door switch (front: RH) or door switch (front: LH).

Refer to GROUP 42 – Door P.42-28.

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

STEP 4. Connector check: C-225 ETACS-ECU connector <door switch (front: RH)> or C-227 ETACS-ECU connector <door switch (front: LH)>



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

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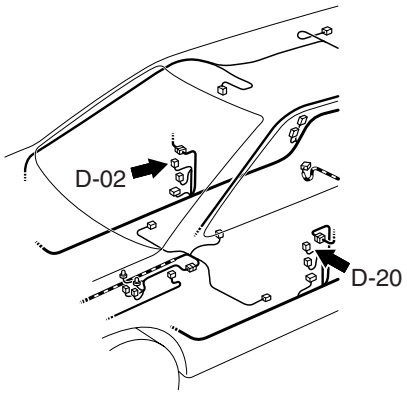
STEP 5. Check the wiring harness between D-02 door switch (front: RH) connector terminal No.3 and C-225 ETACS-ECU connector terminal No.10 or D-20 door switch (front: LH) connector terminal No.3 and C-227 ETACS-ECU connector terminal No.65.

Connectors: D-02, D-20

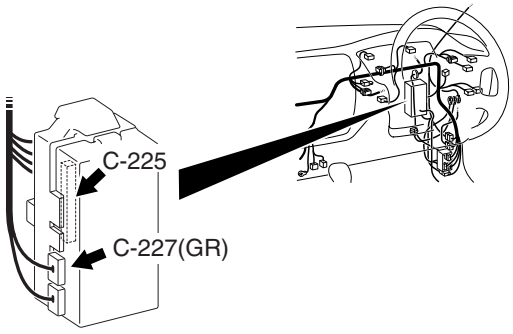


D-02
Harness side

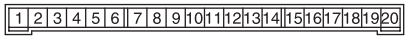
D-20
Harness side

AC303922AG

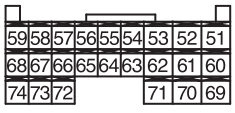
Connectors: C-225, C-227
Junction block (rear view)



C-225 Junction block side



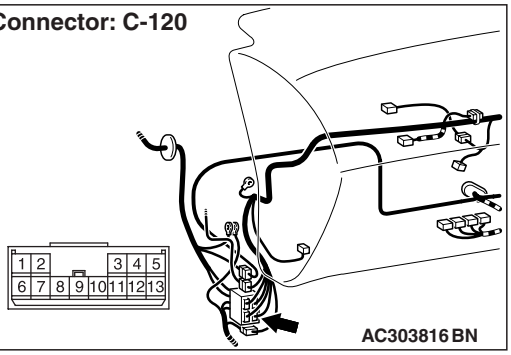
C-227 Harness side



AC303868AF

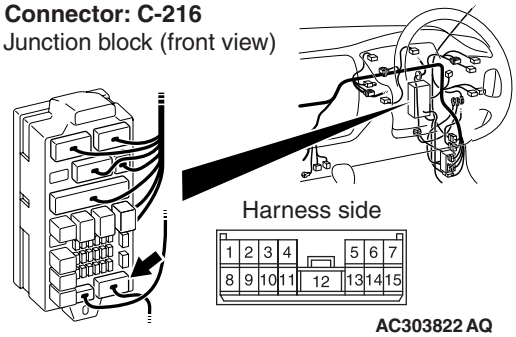
NOTE:

Connector: C-120



AC303816BN

Connector: C-216
Junction block (front view)



AC303822AQ

Prior to the wiring harness inspection, check intermediate connector C-120 <door switch (front: LH)> or junction block connector C-216 <door switch (front: RH)>, and repair if necessary.
Check the input line for open circuit.

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

STEP 6. Retest the system.
Check that the door switch (front: RH) or door switch (front: LH) signal is received normally.

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

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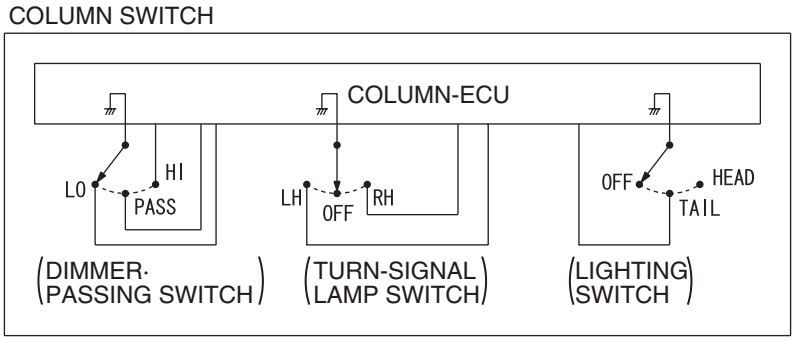
INSPECTION PROCEDURE M-5: The column switch (lighting and turn-signal lamp switch) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Lighting Switch Input Circuit



W5J54L060A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (lighting and turn-signal lamp 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
- Fog lamp
- Turn-signal lamp

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the column switch connector.
Check that the wiper and washer switch connector, the lighting switch connector and the switch body connector are in good condition.

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

STEP 2. Check the column switch (lighting switch and switch body).
Refer to GROUP 54A – Column switch P.54A-70.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the column switch.

STEP 3. Use the M.U.T.-II/III to confirm a diagnosis code.
Check that the ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 4.

STEP 4. Retest the system.
Replace the column switch, and check if the column switch (lighting and turn-signal lamp switch) sends signal.
(1) Replace the column switch.
(2) Check if the column switch (lighting and turn-signal switch) sends signal.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the ETACS-ECU.

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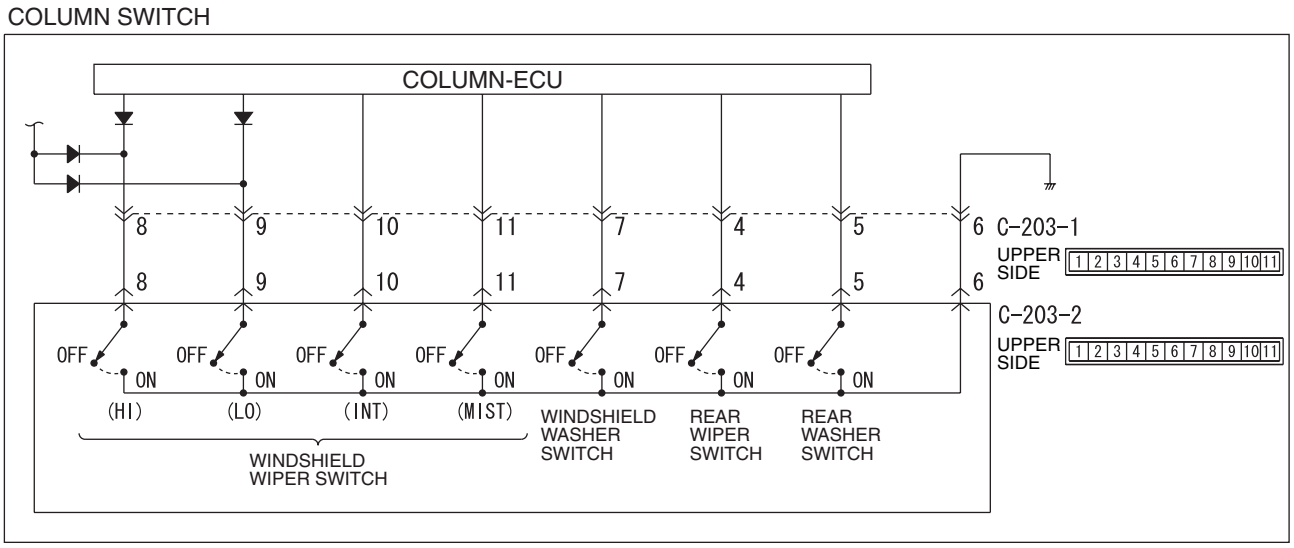
INSPECTION PROCEDURE M-6: The column switch (windshield wiper washer and rear wiper washer switch) signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Windshield Wiper and Washer Switch Input Circuit



W4J54E38AA

COMMENTS ON TROUBLE SYMPTOM

Input signal from the column switch (wiper switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Windshield wiper and washer
- Rear wiper and washer

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Use the M.U.T.-II/III to confirm a diagnosis code.

Check that the ETACS-ECU sets a diagnosis code.

Q: Is the diagnosis code set?
YES : Refer to diagnosis code chart P.54B-17.
NO : Go to Step 2.

STEP 2. Retest the system.

Replace the column switch, and check if the column switch (windshield wiper/washer and rear wiper/washer switch) sends signal.
(1) Replace the column switch.
(2) Check if the column switch (windshield wiper/washer and rear wiper/washer switch) sends signal.

Q: Is the check result normal?
YES : The procedure is complete.
NO : Replace the ETACS-ECU.

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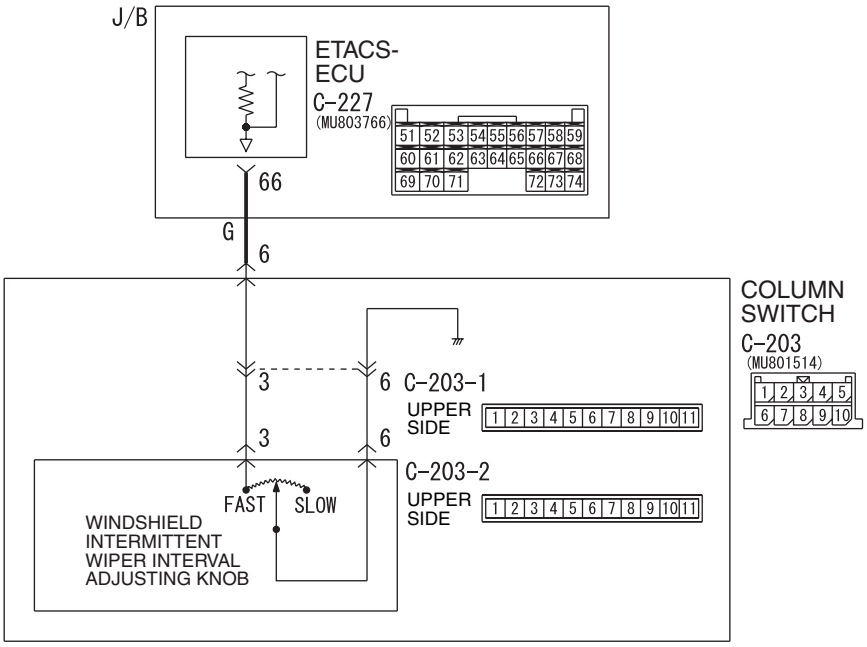
INSPECTION PROCEDURE M-7: The windshield intermittent wiper volume signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Windshield Intermittent Wiper Interval Adjusting Knob Input Circuit



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

W5J54L061A

COMMENTS ON TROUBLE SYMPTOM

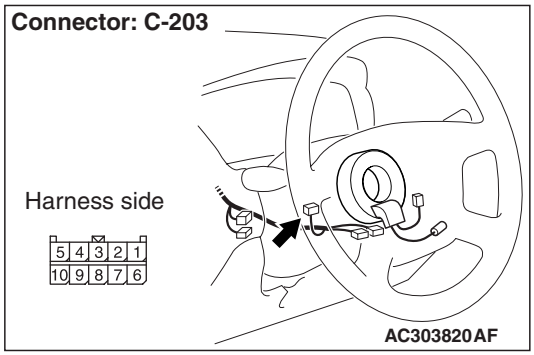
The intermittent wiper interval is calculated in accordance with the input signal from the windshield intermittent wiper volume. If this signal is abnormal, the wiper interval can not be adjusted.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-203 column switch connector



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

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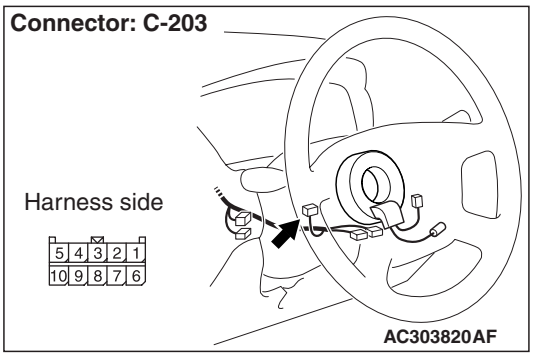
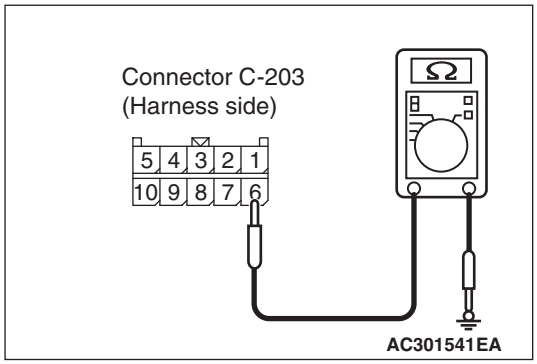
STEP 2. Resistance measurement at the C-203 column switch connector



(1) Disconnect the connector, and measure at the column switch side.

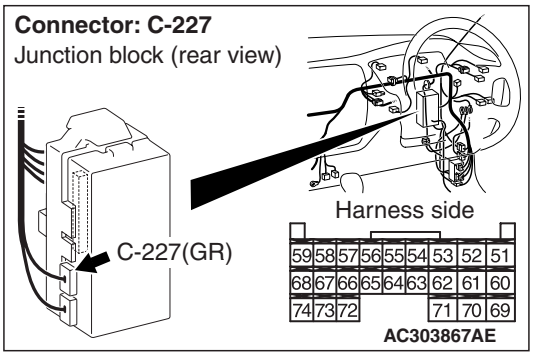


(2) Resistance between C-203 column switch connector terminal No.6 and body earth

OK: The resistance should rise from 0 to 1 kΩ when the windshield intermittent wiper volume is rotated from "Fast" to "Slow".

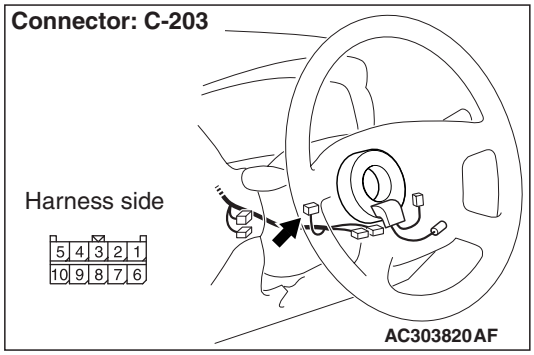
Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the column switch.

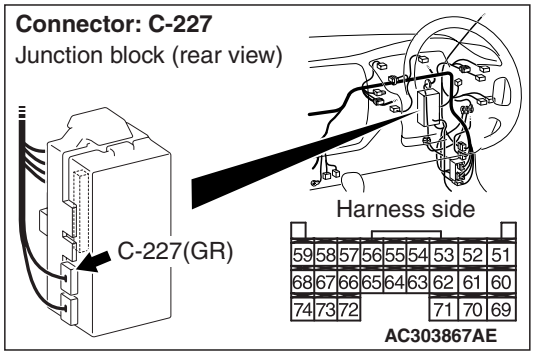
STEP 3. Connector check: C-227 ETACS-ECU connector



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

STEP 4. Check the wiring harness between C-203 column switch connector terminal No.6 and C-227 ETACS-ECU connector terminal No.66.





Check the input line for open circuit.

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

STEP 5. Retest the system.
Check that the windshield intermittent wiper volume is sending a correct signal.

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

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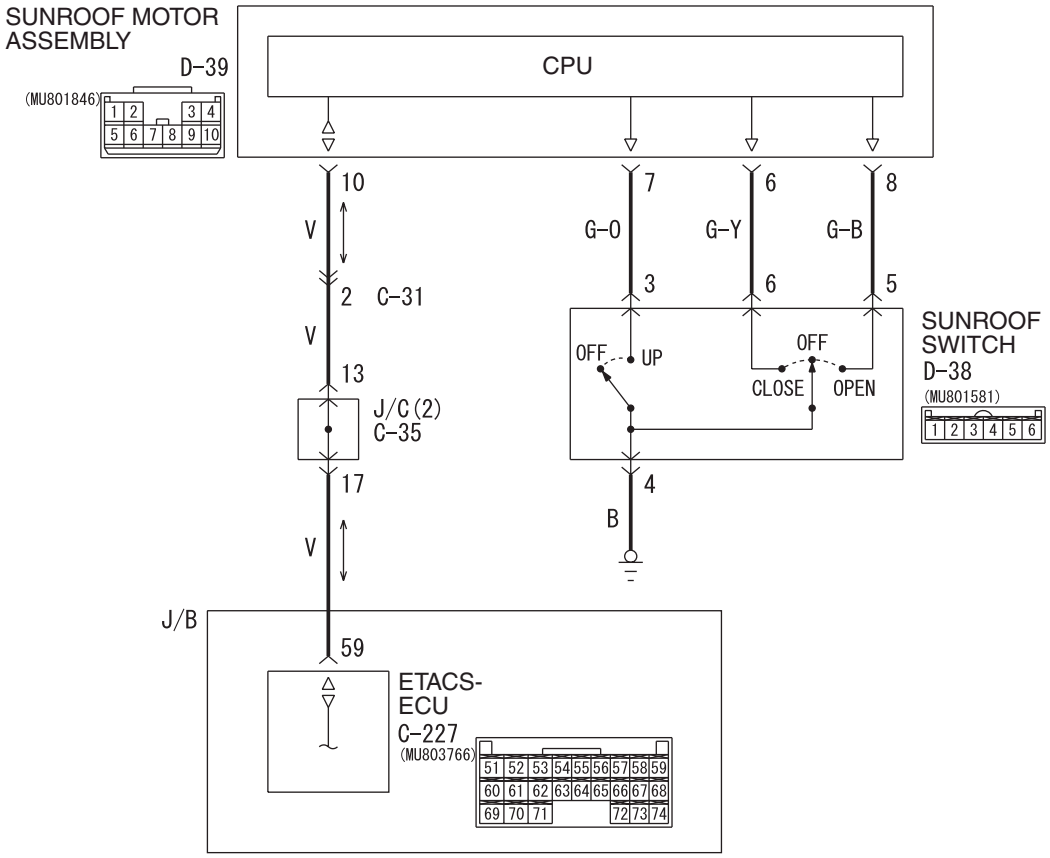
INSPECTION PROCEDURE M-8: When the sunroof switch is operated, the switch signals are not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Sunroof Switch Input Circuit



Wire colour code
B : Black LG : Light green G : Green L : Blue W : White Y : Yellow SB : Sky blue
BR : Brown O : Orange GR : Grey R : Red P : Pink V : Violet PU : Purple W5J54L063A

COMMENTS ON TROUBLE SYMPTOM

If the input signal from the sunroof switch is abnormal, the sunroof input check response signal will not be sent to the SWS communication line.

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Check the operation condition of the sunroof.
Check that the sunroof works normally.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Refer to Inspection Procedure F-1 "Sunroof does not work at all P.54B-94."

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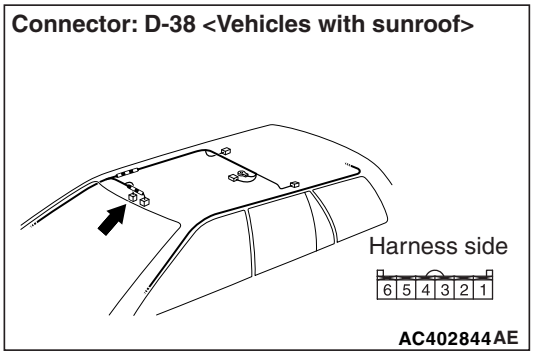
STEP 2. Connector check: D-38 sunroof switch connector

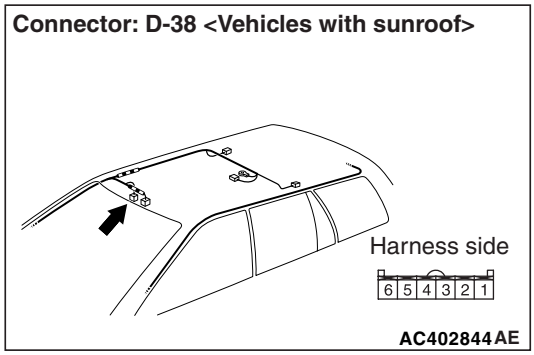


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the connector.

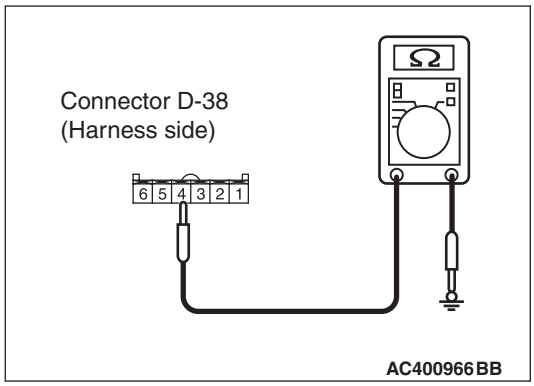
STEP 3. Check the sunroof switch.
Refer to GROUP 42 – Sunroof P.42-60.

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

STEP 4. Resistance measurement at the D-38 sunroof switch connector.



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

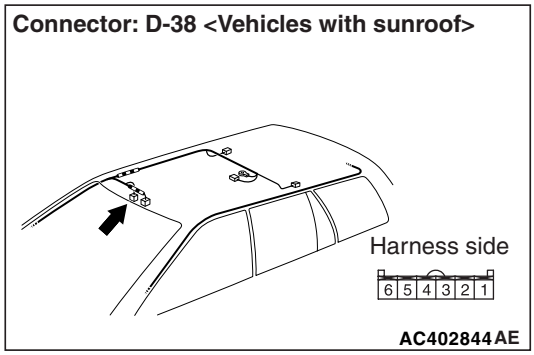


(2) Continuity between D-38 sunroof switch connector terminal No.4 and body earth

OK: 2Ω or less

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

STEP 5. Check the wiring harness between D-38 sunroof switch connector terminal No.4 and body earth.



- Check the earth wires for open circuit.

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

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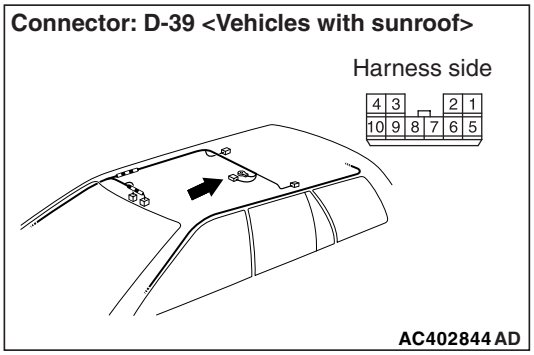
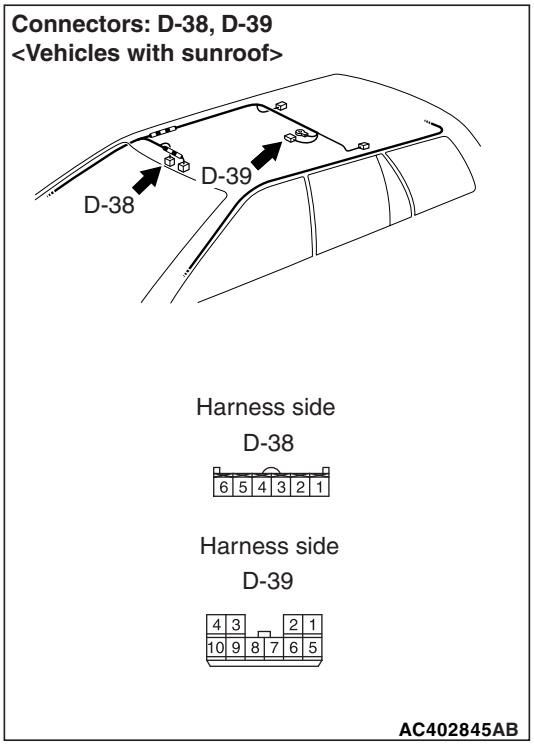
STEP 6. Connector check: D-39 sunroof motor assembly connector



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

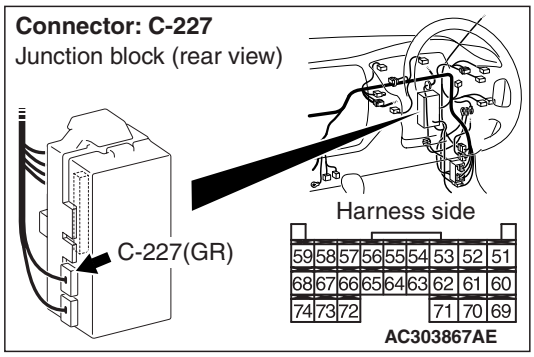
STEP 7. Check the wiring harness from D-39 sunroof motor assembly connector (terminal Nos. 6, 7 and 8) to D-38 sunroof switch connector (terminal Nos. 6, 3 and 5).



- Check the input line for open circuit.

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

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



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

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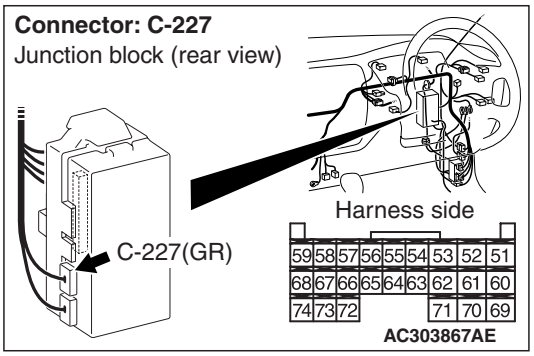
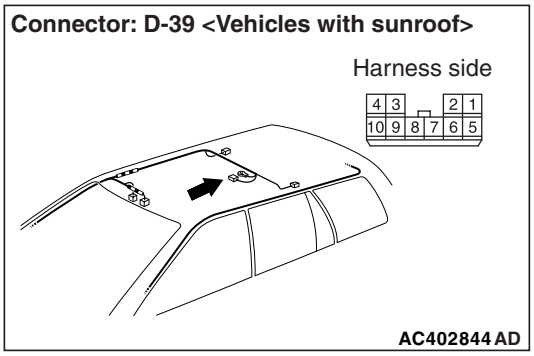
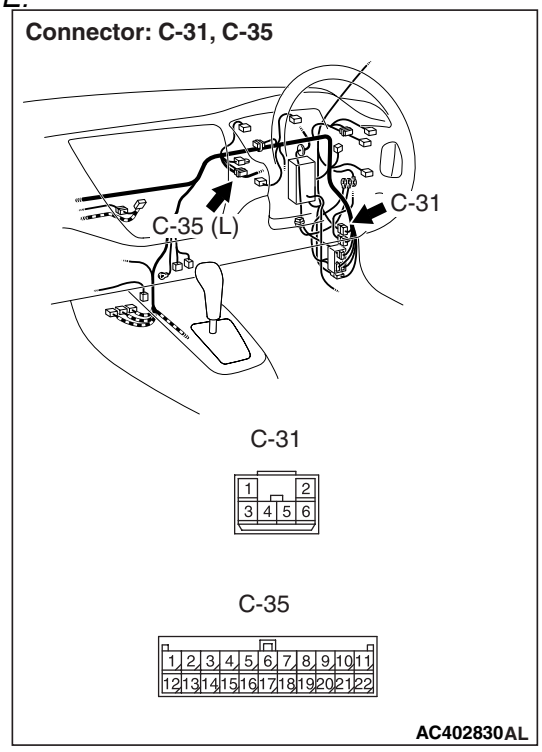
STEP 9. Check the wiring harness between D-39 sunroof motor assembly connector terminal No.10 and C-227 ETACS-ECU connector terminal No.59.





NOTE:



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

- Check the communication lines for open circuit.

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

STEP 10. Retest the system.

Check that each switch signal is received by operating the sunroof switch.

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

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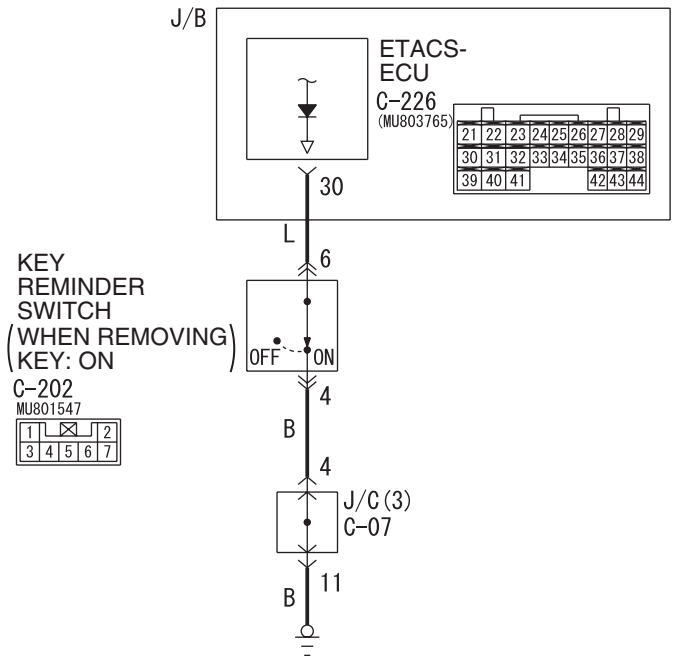
INSPECTION PROCEDURE M-9: The key reminder switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Key Reminder Switch Input Circuit



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

W5J54L037A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the key reminder switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

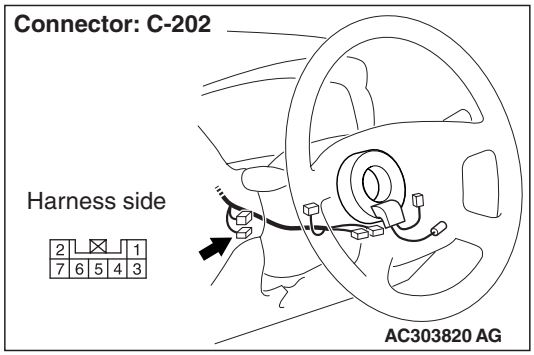
- Keyless entry system
- Room lamps

PROBABLE CAUSES

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

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-202 key reminder switch connector



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

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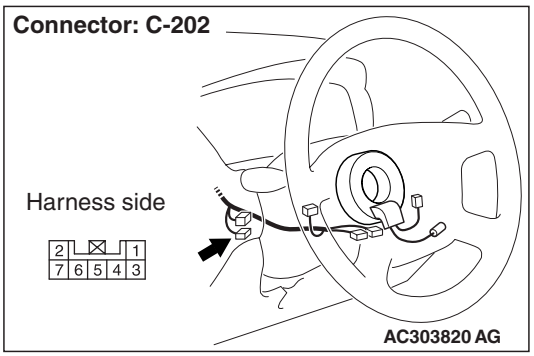
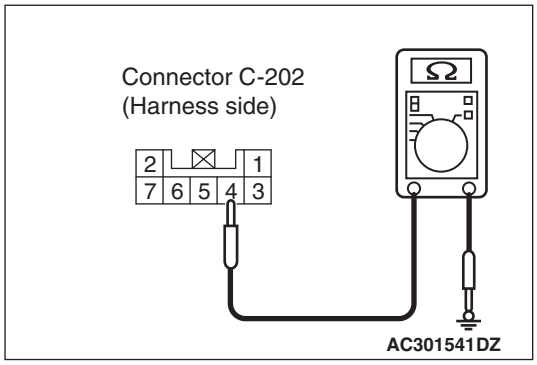
STEP 2. Check the key reminder switch.
Refer to GROUP 54A – Ignition switch P.54A-25.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the key reminder switch.

STEP 3. Resistance measurement at the C-202 key reminder switch connector



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

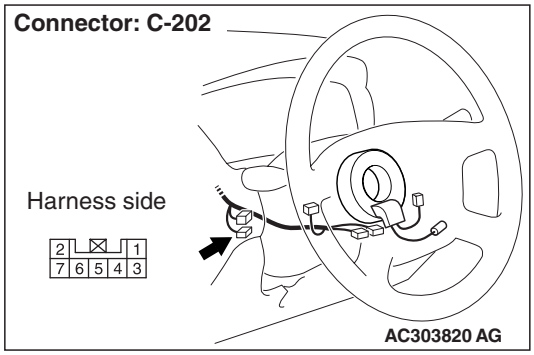


(2) Resistance between C-202 key reminder switch connector terminal No.4 and body earth

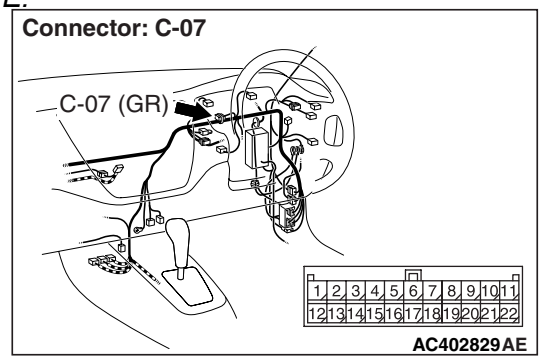
OK: 2 Ω or less

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

STEP 4. Check the wiring harness between C-202 key reminder switch connector terminal No.4 and the body earth.



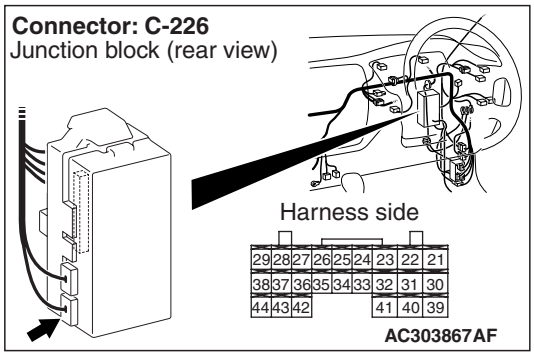
NOTE:



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

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

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



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

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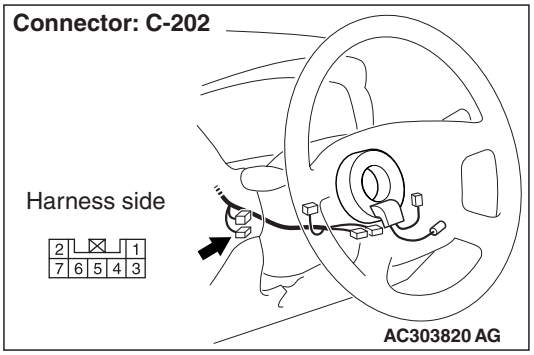
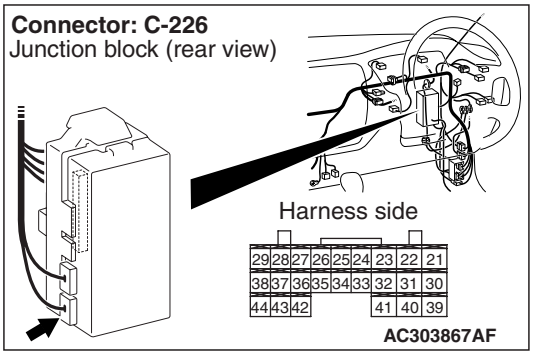
STEP 6. Check the wiring harness between C-202 key reminder switch connector terminal No.6 and C-226 ETACS-ECU connector terminal No.30.





Check the input line for open circuit.

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

STEP 7. Retest the system.
Check that the key reminder switch signal is received normally.

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

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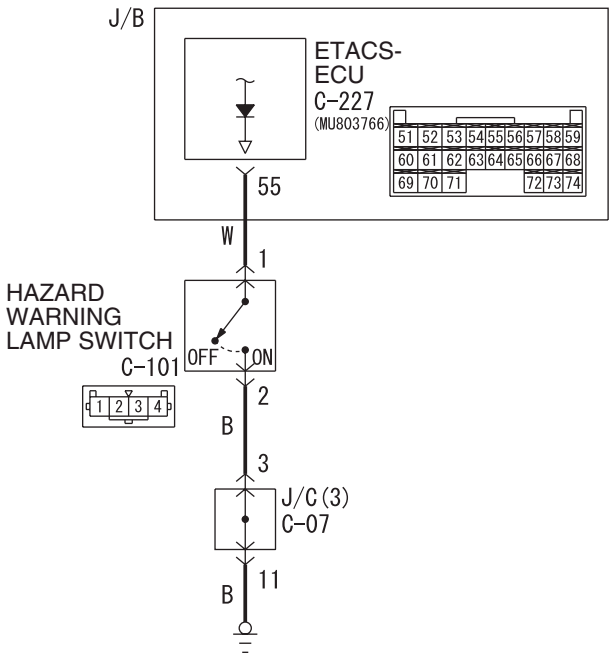
INSPECTION PROCEDURE M-10: The hazard warning lamp switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Hazard Warning Lamp Switch Input Circuit



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

W5J54L038A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the hazard warning lamp switch is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

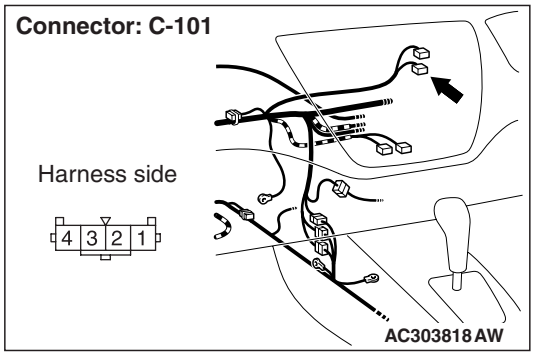
- Keyless entry system (encrypted code registration)
- Hazard warning lamp

PROBABLE CAUSES

- Malfunction of the hazard warning lamp switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-101 hazard warning lamp switch connector



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

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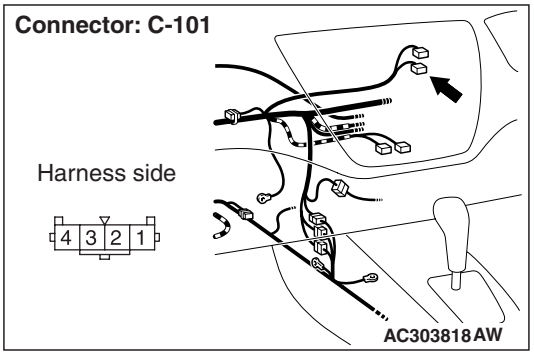
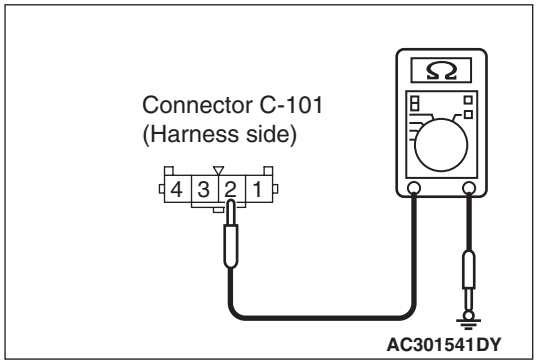
STEP 2. Check the hazard warning lamp switch.
Refer to GROUP 54A – Hazard warning lamp switch P.54A-68.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the hazard warning lamp switch.

STEP 3. Resistance measurement at the C-101 hazard warning lamp switch connector



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

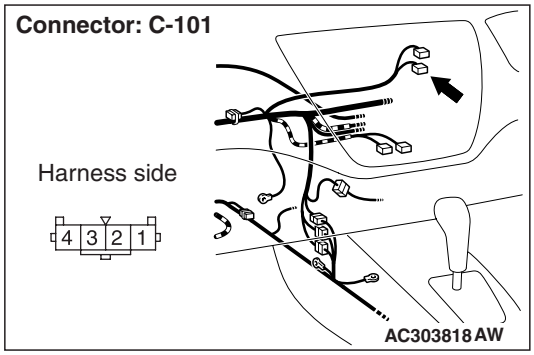


(2) Resistance between C-101 hazard warning lamp switch connector terminal No.2 and body earth

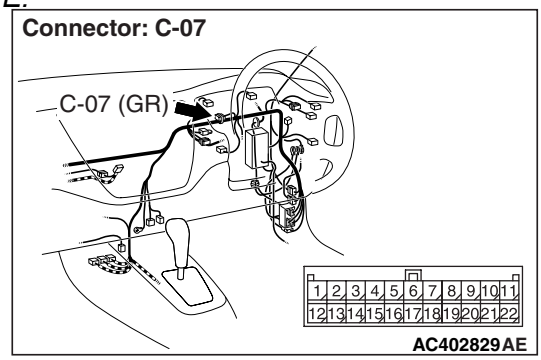
OK: 2 Ω or less

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

STEP 4. Check the wiring harness between C-101 hazard warning lamp switch connector terminal No.2 and the body earth.



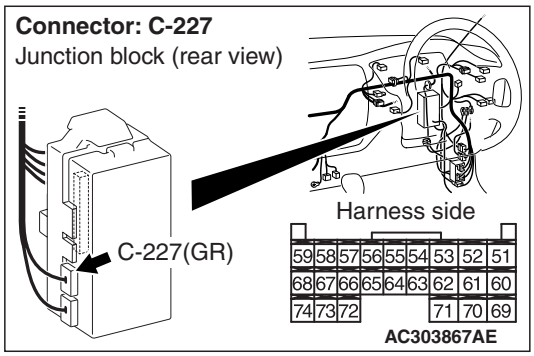
NOTE:



Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.
Check the earth wires for open circuit.

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

STEP 5. Connector check: C-227 ETACS-ECU connector



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

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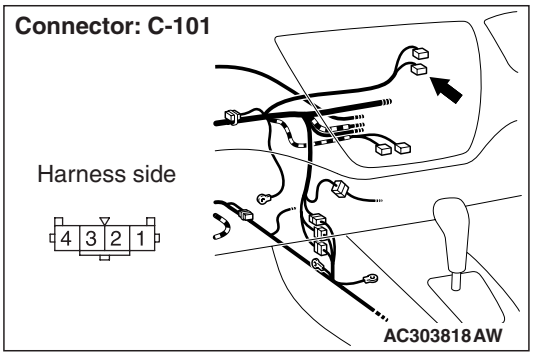
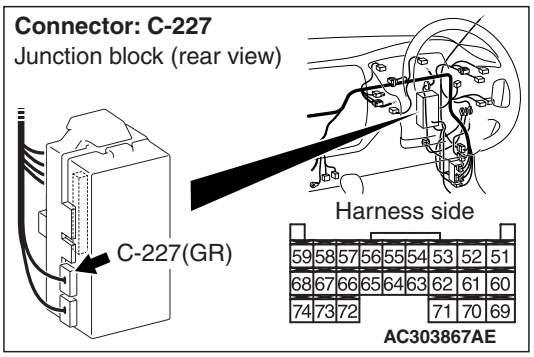
STEP 6. Check the wiring harness between C-227 ETACS-ECU connector terminal No.55 and C-101 hazard warning lamp switch connector terminal No.1.





Check the input line for open circuit.

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

STEP 7. Retest the system.
Check that the hazard warning lamp switch signal is received normally.

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

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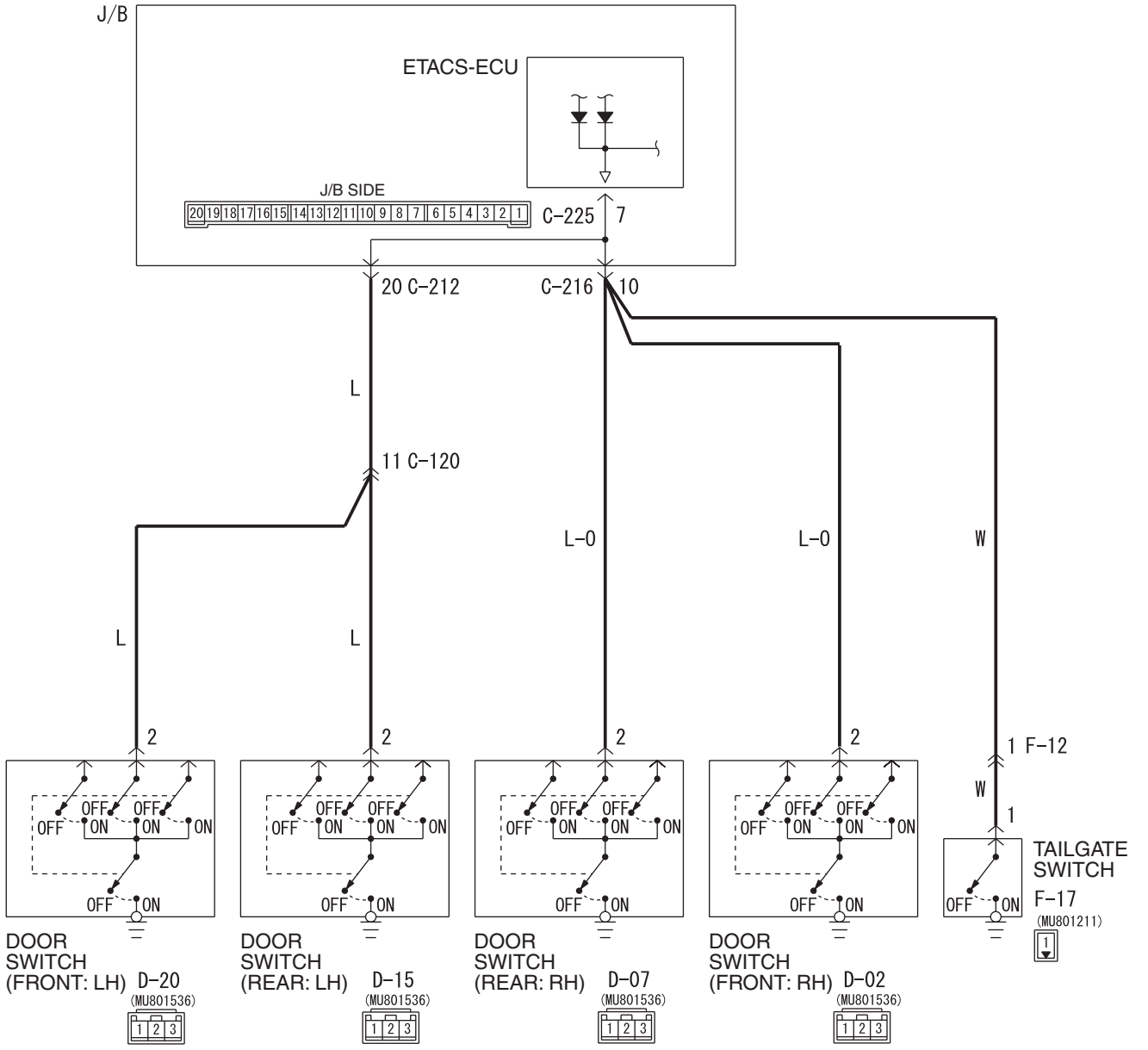
INSPECTION PROCEDURE M-11: All the door switch signals are not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

All Door Switches Input Circuit



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

W5J54L070A

COMMENTS ON TROUBLE SYMPTOM

Input signals from all the door switches are used to operate the functions below. If the signal(s) are abnormal, these functions will not work normally.

- Keyless entry system
- Room lamps

PROBABLE CAUSES

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

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DIAGNOSIS PROCEDURE

STEP 1. Pulse check

Check the input signal from the door switch (front: RH) or door switch (front: LH).

System switch	Check condition
Driver's door switch	When the driver's door is opened
Passenger's door switch	When the passenger's door is opened

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 : Refer to inspection procedure M-4 "The front door switch signal is not received P.54B-213."

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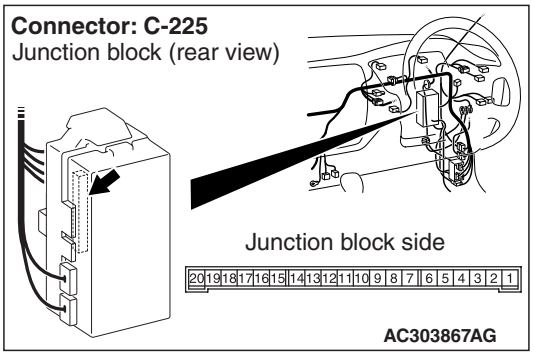
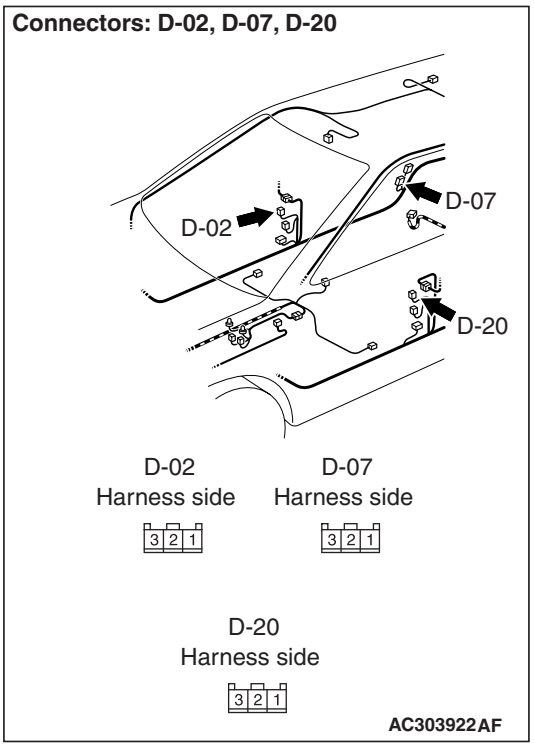
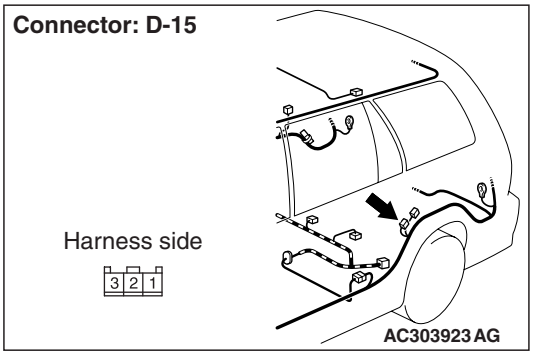
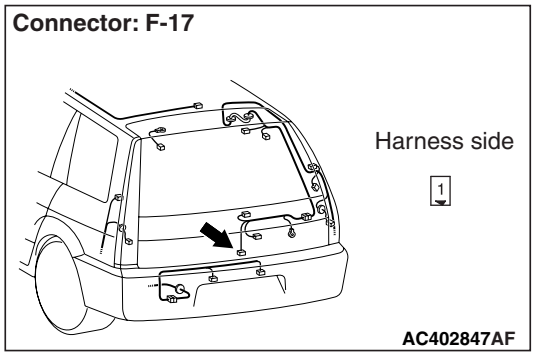
Group TOC

STEP 2. Connector check: D-20 door switch (front: LH), D-02 door switch (front: RH), D-07 door switch (rear: RH) or D-15 door switch (rear: LH) connectors or F-17 tailgate switch connector, and C-225 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.42-28.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the door switch.

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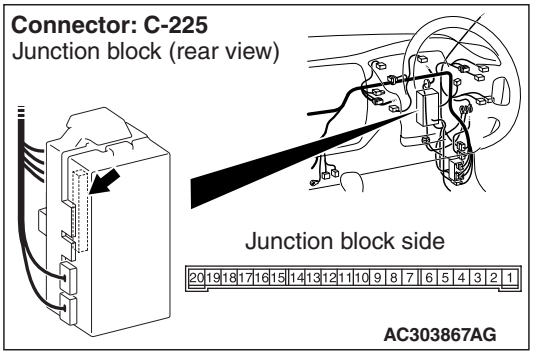
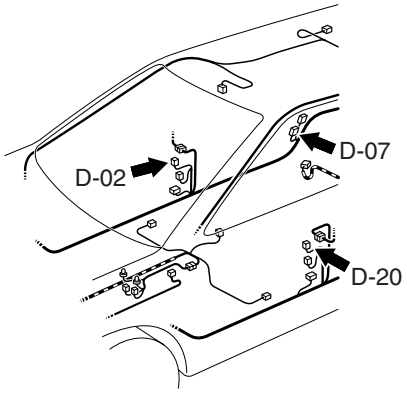
STEP 5. Check the wiring harness from terminal No.2 of the D-20 door switch (front: LH), D-02 door switch (front: RH), D-07 door switch (rear: RH) or D-15 door switch (rear: LH) connector or terminal No.1 of the F-17 tailgate switch connector to terminal No.7 of the C-225 ETACS-ECU connector.

Connector: C-225
Junction block (rear view)



Connectors: D-02, D-07, D-20



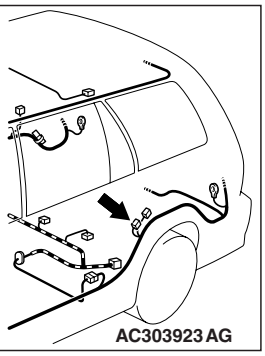
D-02
Harness side
3 2 1

D-07
Harness side
3 2 1

D-20
Harness side
3 2 1

AC303922AF

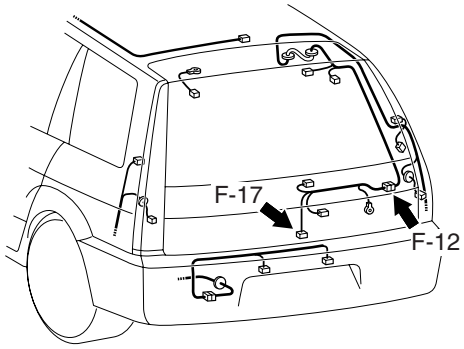
Connector: D-15



Harness side
3 2 1

AC303923AG

Connectors: F-12, F-17



F-12
1 2 3
4 5 6 7 8

F-17
Harness side
1

AC402848AG

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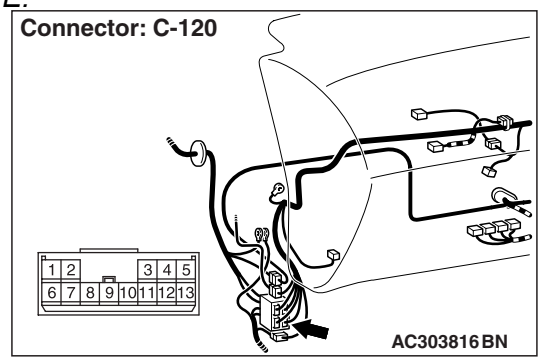
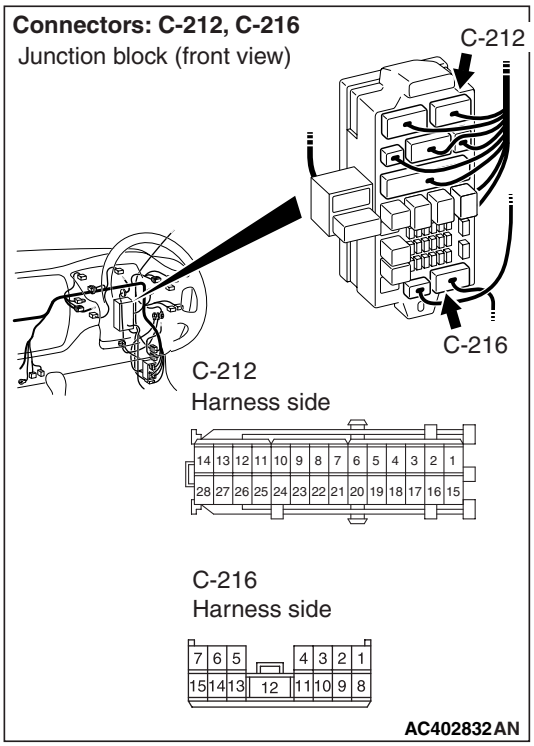
NOTE:





Prior to the wiring harness inspection, check intermediate connector F-12 <tailgate switch> or C-120 <door switch (front:LH), door switch (rear: LH)> and junction block connector C-216 <door switch (front:RH), door switch (rear: RH) and tailgate> or C-212 <door switch (front:LH), door switch (rear: LH)>, and repair if necessary.

Check the input line for open circuit.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the wiring harness between each of the door switches and the ETACS-ECU.

STEP 6. Retest the system.

Check that all the door switch signals are received normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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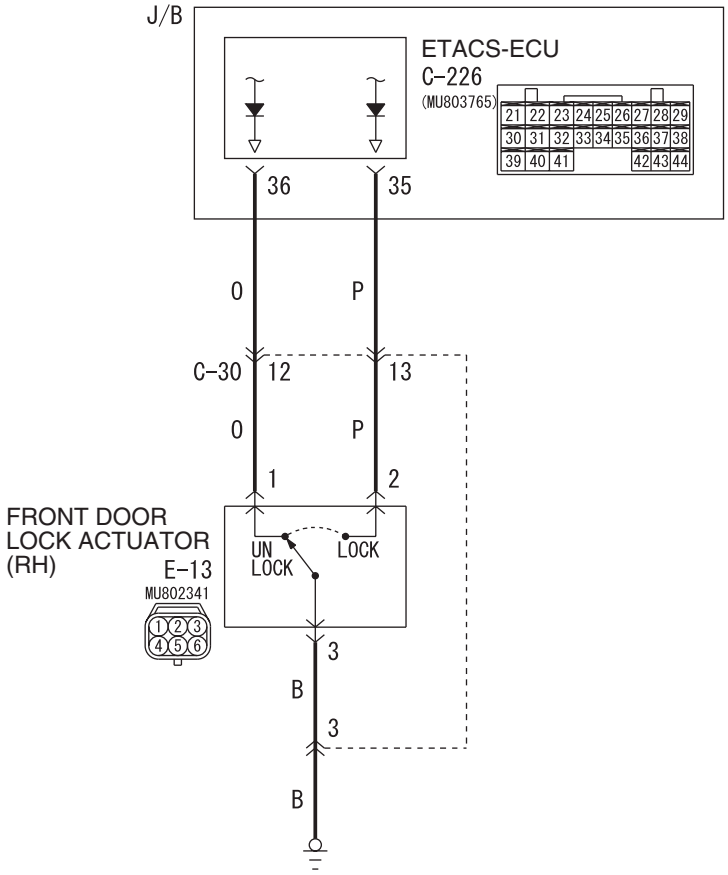
INSPECTION PROCEDURE M-12: The front door lock actuator (RH) switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Front Door Lock Actuator Input Circuit



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

W5J54L041A

COMMENTS ON TROUBLE SYMPTOM

Input signal from the front door lock actuator (RH) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Central door locking
- Keyless entry system
- Room lamps

PROBABLE CAUSES

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

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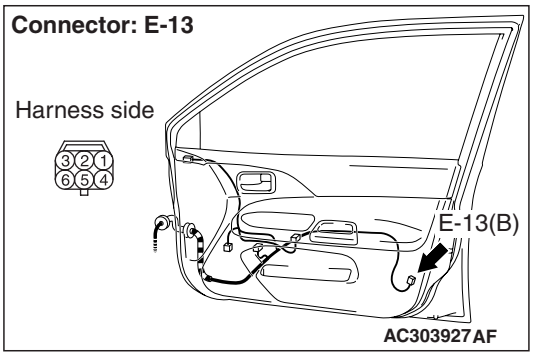
DIAGNOSIS PROCEDURE

STEP 1. Connector check: E-13 front door lock actuator (RH) connector



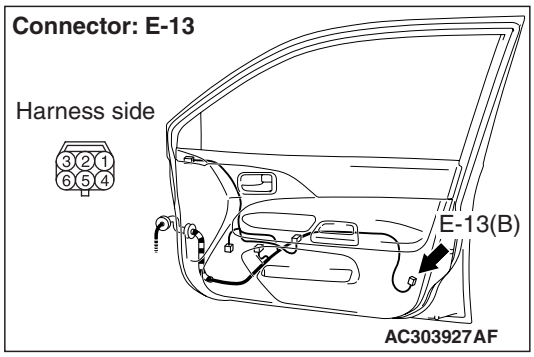
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the front door lock actuator (RH).

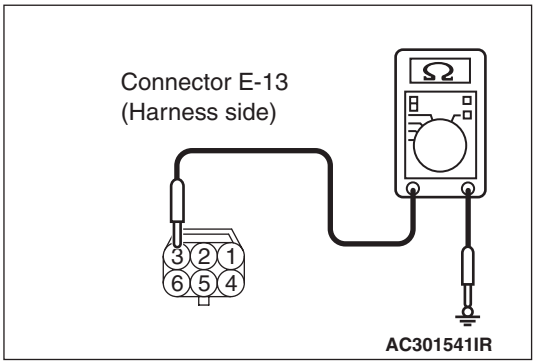
Refer to GROUP 42 – Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the front door lock actuator (RH).

STEP 3. Resistance measurement at the E-13 front door lock actuator (RH) connector



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



(2) Resistance between E-13 front door lock actuator (RH) connector terminal No.3 and body earth

OK: 2 Ω or less

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

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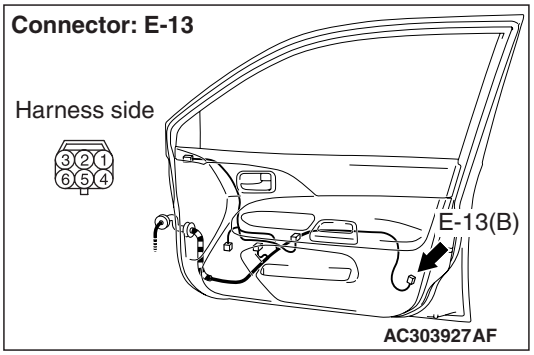
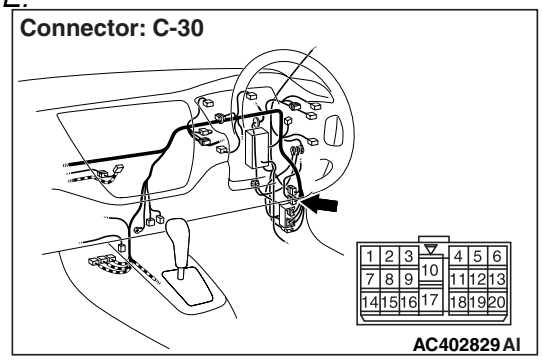
STEP 4. Check the wiring harness between E-13 front door lock actuator (RH) connector terminal No.3 and body earth



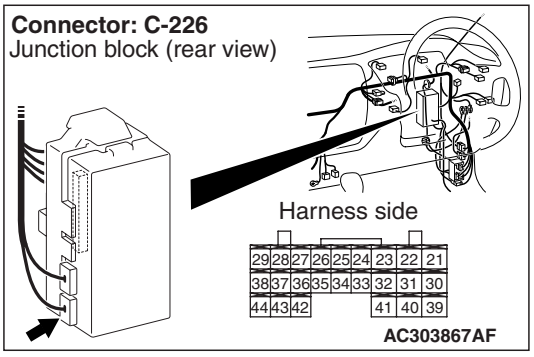
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30, and repair if necessary.
Check the earth wires for open circuit.

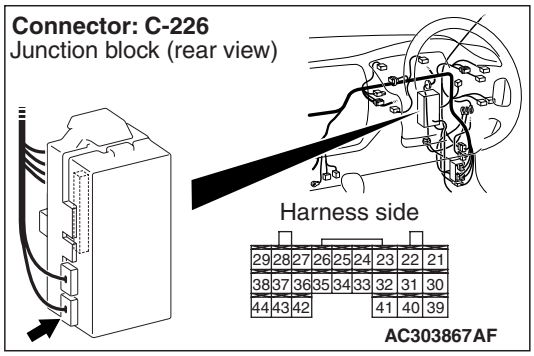
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

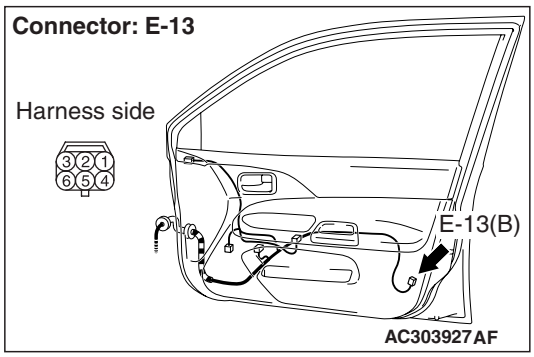
STEP 5. Connector check: C-226 ETACS-ECU connector



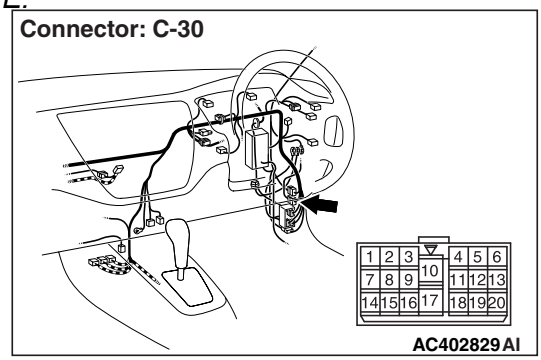
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Check the wiring harness from E-13 front door lock actuator (RH) connector terminal Nos. 2 and 1 to C-226 ETACS-ECU connector terminal Nos. 35 and 36.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-30, and repair if necessary.
Check the input line for open circuit.

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

STEP 7. Retest the system.
Check that the front door lock actuator (RH) switch signal is received normally.

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

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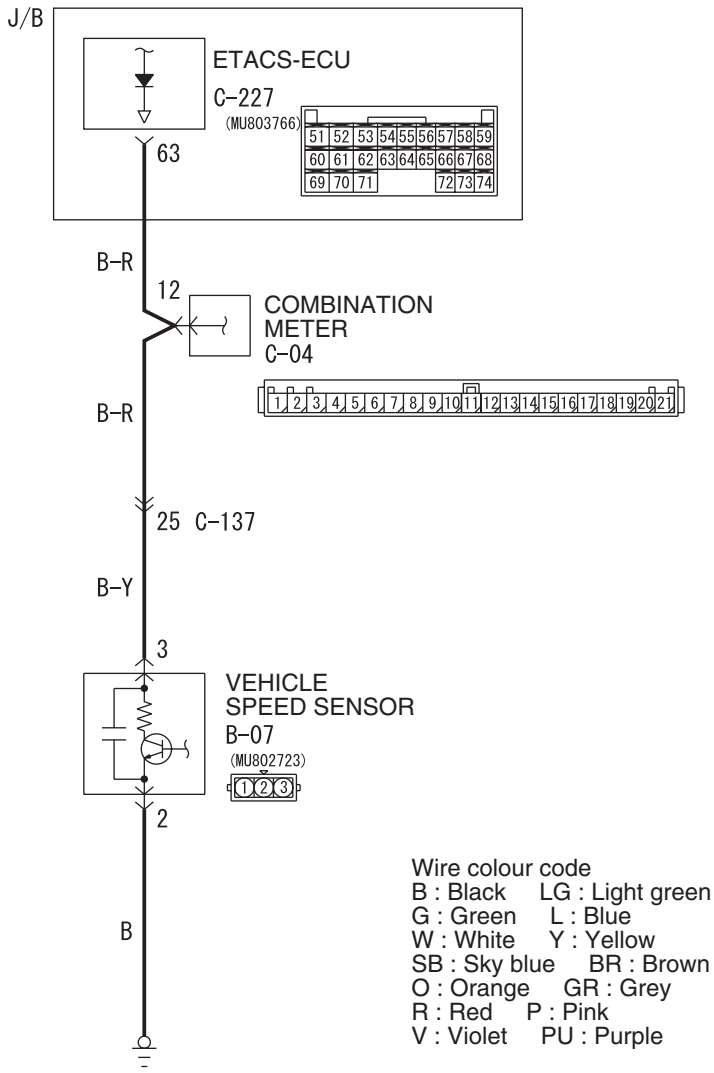
INSPECTION PROCEDURE M-13: The vehicle speed sensor signal is not received. <M/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Vehicle Speed Signal Input Circuit <M/T>



W5J54L042A

COMMENTS ON TROUBLE SYMPTOM

Vehicle speed sensor signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

PROBABLE CAUSES

- Malfunction of the vehicles speed sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the speedometer.
Check that the speedometer works normally.

Q: Is the diagnosis code set?
YES : Go to Step 2.
NO : Diagnose the combination meter (Refer to GROUP 54A – Combination meter P.54A-29).

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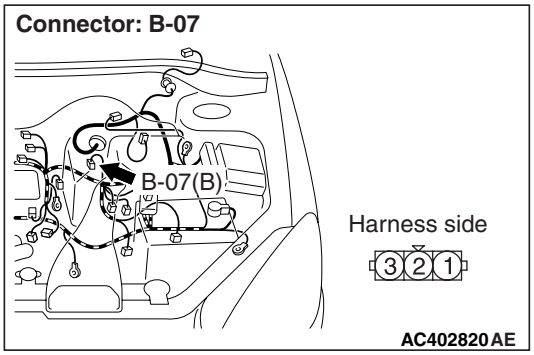
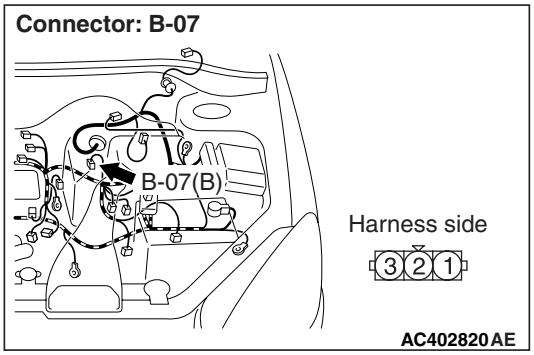
STEP 2. Connector check: B-07 vehicles speed sensor connector

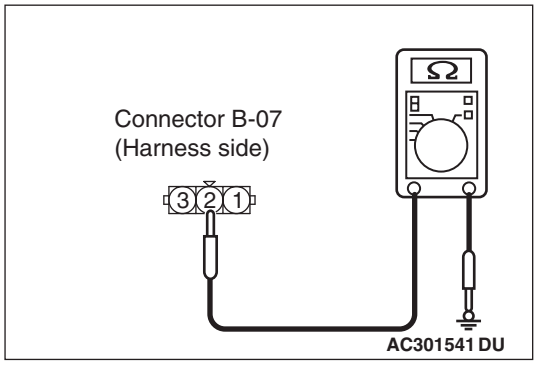


Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Resistance measurement at the B-07 vehicles speed sensor connector



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

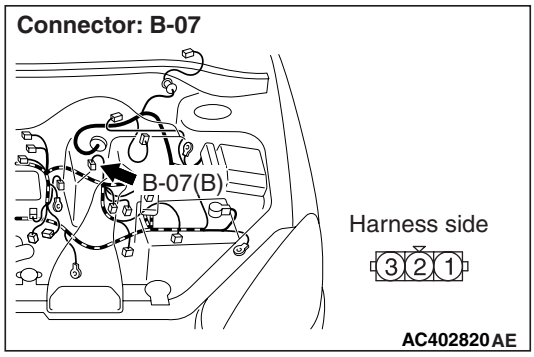


(2) Resistance between B-07 vehicles speed sensor connector terminal No.2 and body earth

OK: 2 Ω or less

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

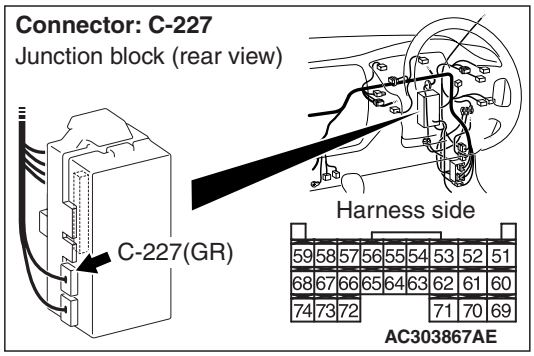
STEP 4. Check the wiring harness between B-07 vehicles speed sensor connector terminal No.2 and the body earth.



Check the earth wires for open circuit.

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

STEP 5. Connector check: C-227 ETACS-ECU connector



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

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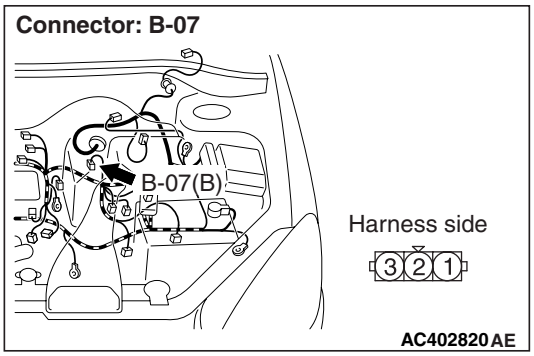
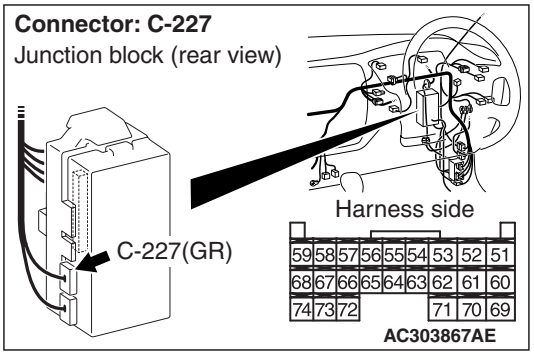
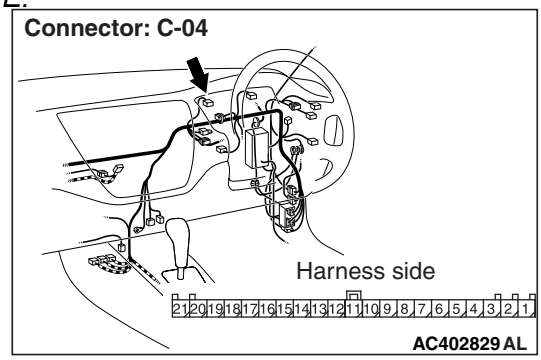
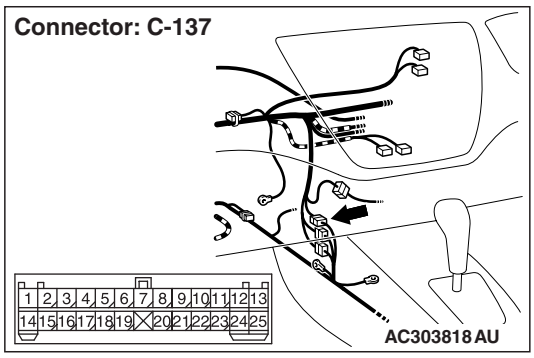
STEP 6. Check the wiring harness between B-07 vehicles speed sensor connector terminal No.3 and C-227 ETACS-ECU connector terminal No.63.





NOTE:





Prior to the wiring harness inspection, check combination meter connector C-04 and intermediate connector C-137, and repair if necessary.
Check the input line for open circuit.

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

STEP 7. Retest the system.
Check that the vehicle speed sensor signal is received normally.

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

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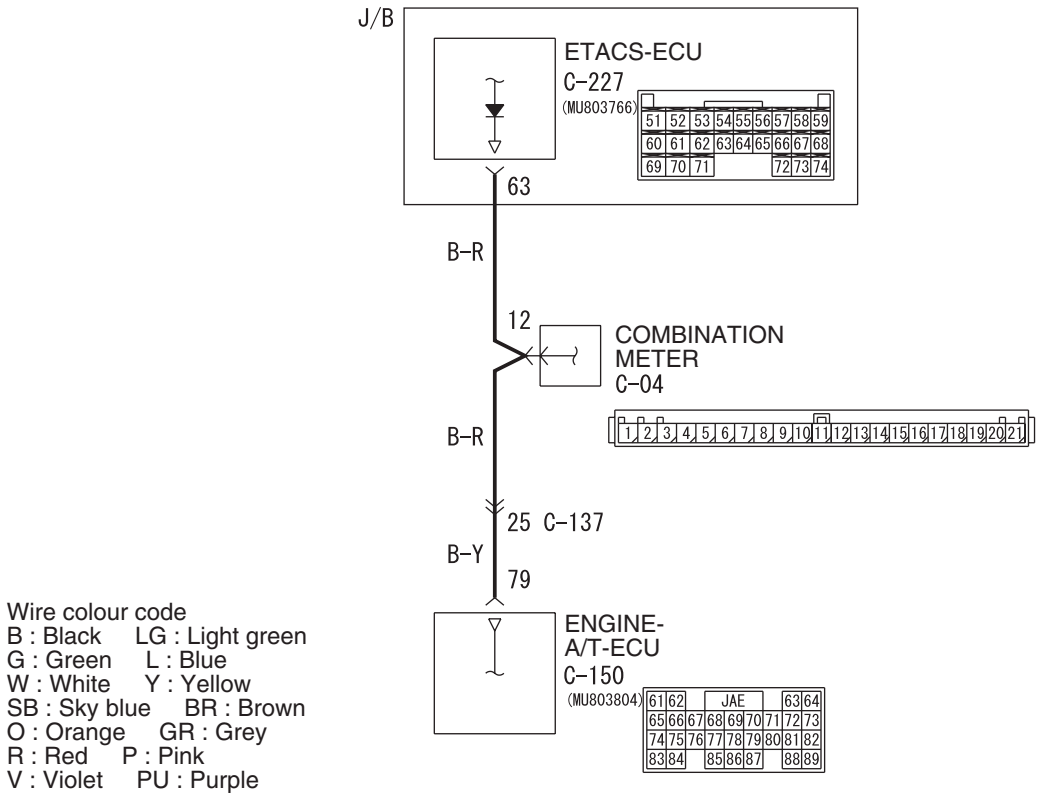
INSPECTION PROCEDURE M-13: The vehicle speed signal is not received. <A/T>

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Vehicle Speed Signal Input Circuit <A/T>



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

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COMMENTS ON TROUBLE SYMPTOM

Vehicle speed signal is used to operate the windshield wiper (vehicle speed-dependent wiper function). If this signal is abnormal, the windshield wipers do not work normally.

PROBABLE CAUSES

- Malfunction of the engine-A/T-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS PROCEDURE

STEP 1. Check if the A/T related diagnosis code is set.

Q: Is the diagnosis code set?
YES : Diagnose the automatic transmission control system. (Refer to GROUP 23 – Troubleshooting P.23A-15)
NO : Go to Step 2.

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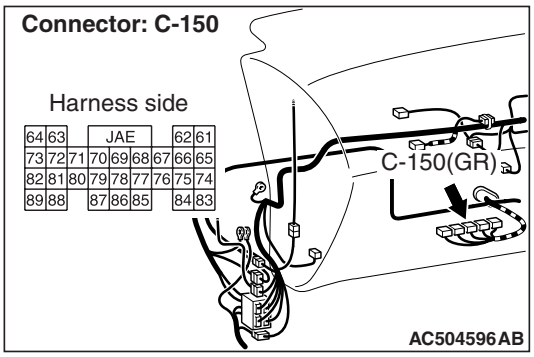
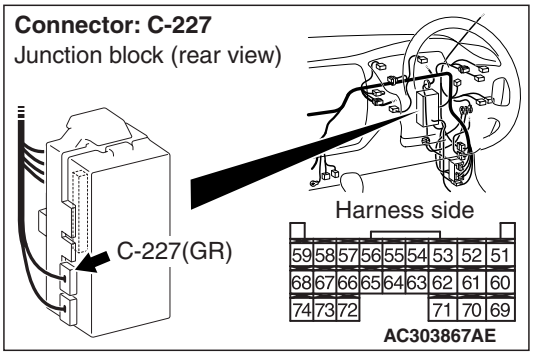
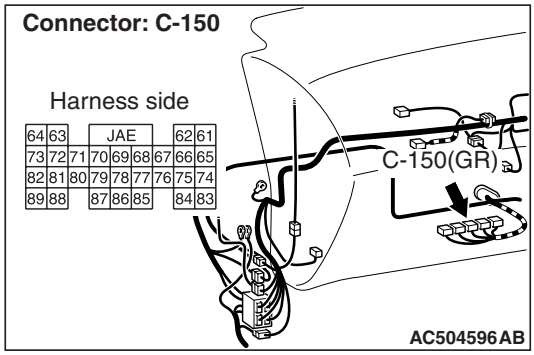
STEP 2. Connector check: C-150 engine-A/T-ECU connector and C-227 ETACS-ECU connector

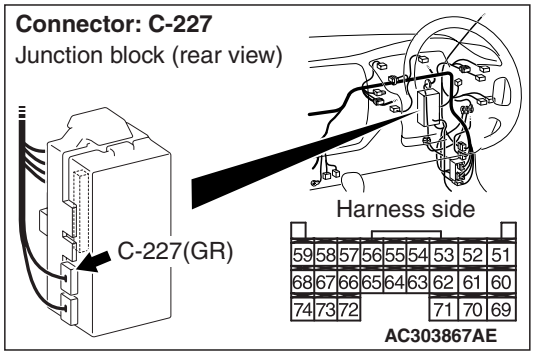




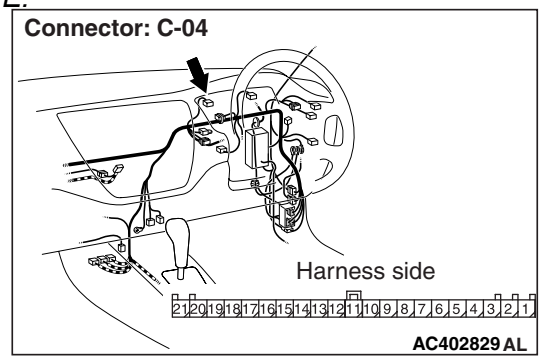
Q: Is the check result normal?
YES : Go to Step 3.
NO : Repair the defective connector.

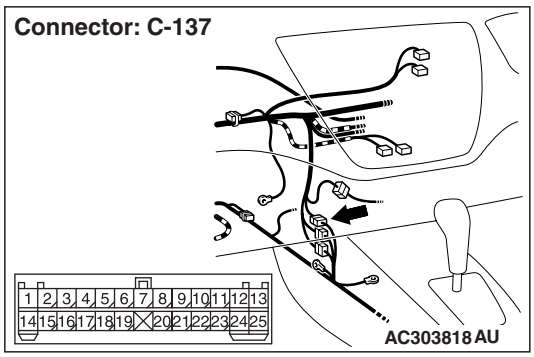
STEP 3. Check the wiring harness between C-150 engine-A/T-ECU connector terminal No.79 and C-227 ETACS-ECU connector terminal No.63.





NOTE:





Prior to the wiring harness inspection, check combination meter connector C-04 and intermediate connector C-137, and repair if necessary.
Check the input line for open circuit.

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

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STEP 4. Check the speedometer.
Check that the speedometer works normally.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace the engine-A/T-ECU.

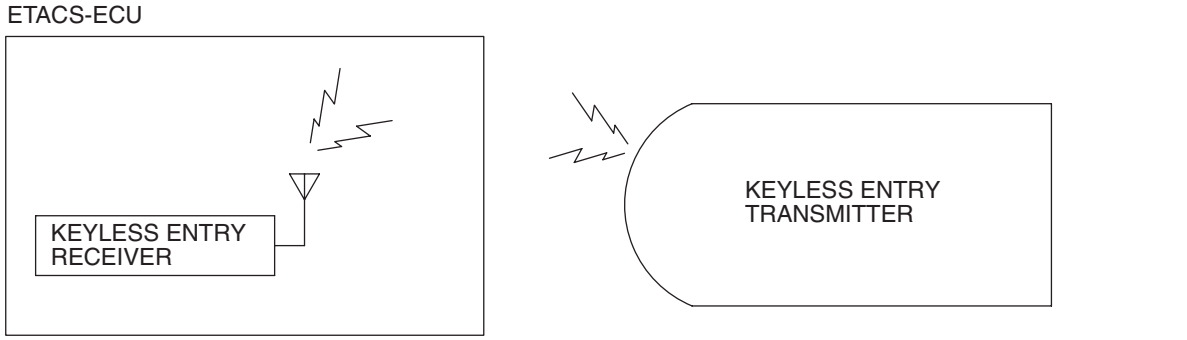
STEP 5. Retest the system.
Check that the vehicle speed signal is received normally.

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

INSPECTION PROCEDURE M-14: Each switch signal of the keyless entry transmitter is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Transmitter Input Circuit



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COMMENTS ON TROUBLE SYMPTOM
Input signal from the keyless entry transmitter is used to operate the keyless entry system. If the signal is abnormal, the keyless entry system will not work normally.

PROBABLE CAUSES
- Malfunction of the keyless entry transmitter
- Defective battery of the keyless entry transmitter
- Malfunction of the ETACS-ECU

DIAGNOSIS PROCEDURE

STEP 1. Pulse check
Check whether the ETACS-ECU receives signal from a transmitter or not. For this check, you should use the 2-button-type transmitter (integrated with a key), which cover screw is silver and has already been registered.

NOTE: For how to register the keyless entry transmitter encrypted code, refer to GROUP 42 – On-vehicle Service P.42-50.

System switch	Check conditions
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.

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STEP 2. Check the transmitter battery.
Refer to GROUP 42 – Keyless entry system P.42-55.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the keyless entry transmitter battery.

STEP 3. Register the encrypted code, and then retest the system.
(1) Register the keyless entry transmitter again.
(2) Check that each signal is received from the keyless entry transmitter.

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

STEP 4. Retest the system.
Check that each signal is received from the keyless entry transmitter.

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

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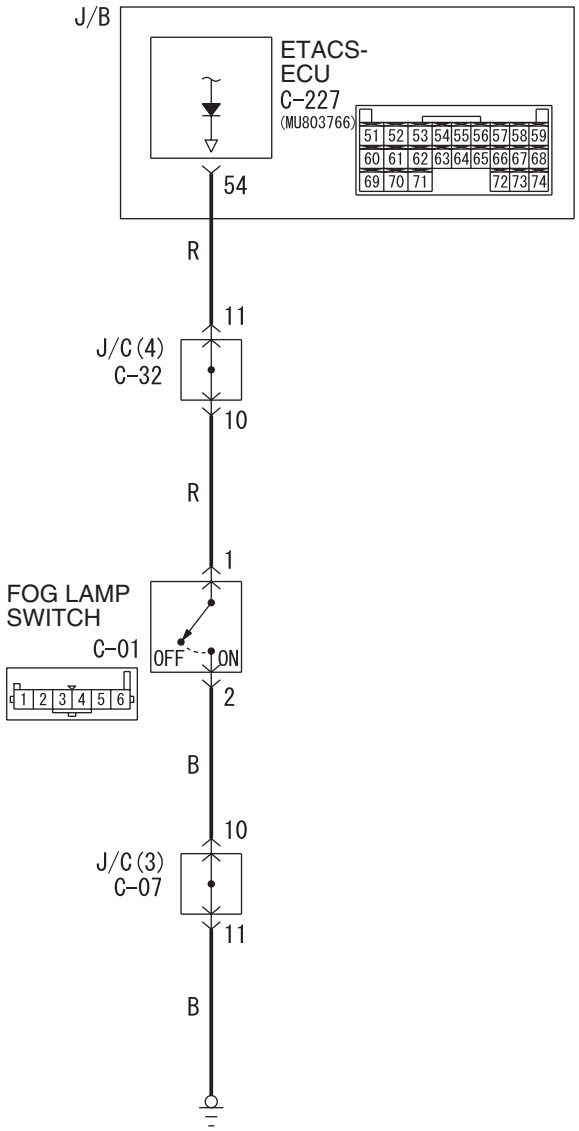
INSPECTION PROCEDURE M-15: The fog lamp switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Fog Lamp Switch Input Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the fog lamp switch is used to operate the fog lamps. If the signal is abnormal, the fog lamps will not illuminate and extinguish normally.

PROBABLE CAUSES

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

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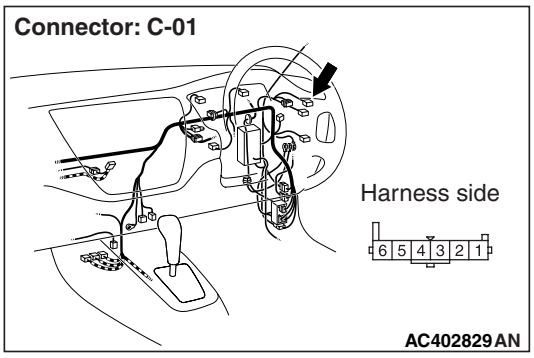
DIAGNOSIS PROCEDURE

STEP 1. Connector check: C-01 fog lamp switch connector



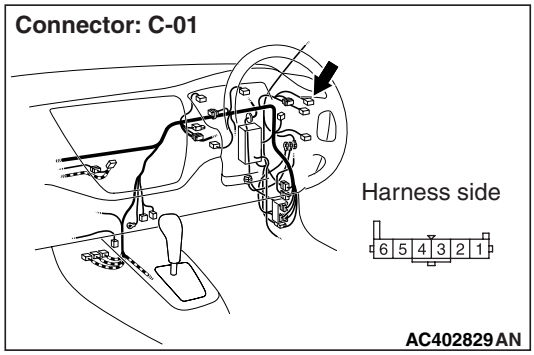
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the fog lamp switch.

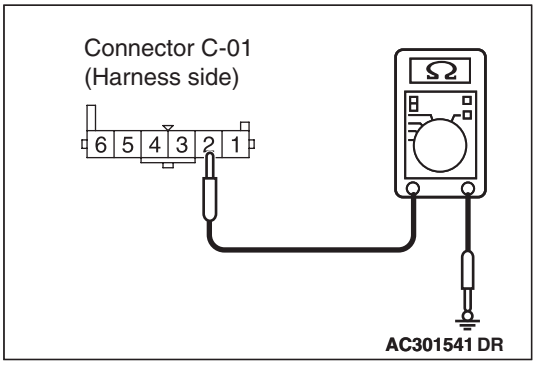
Refer to GROUP 54A – Fog lamp P.54A-62.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the fog lamp switch.

STEP 3. Resistance measurement at the C-01 fog lamp switch connector



(1) Remove the fog lamp switch, and measure at the wiring harness side.



(2) Resistance between C-01 fog lamp switch connector terminal No.2 and body earth

OK: 2Ω or less

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

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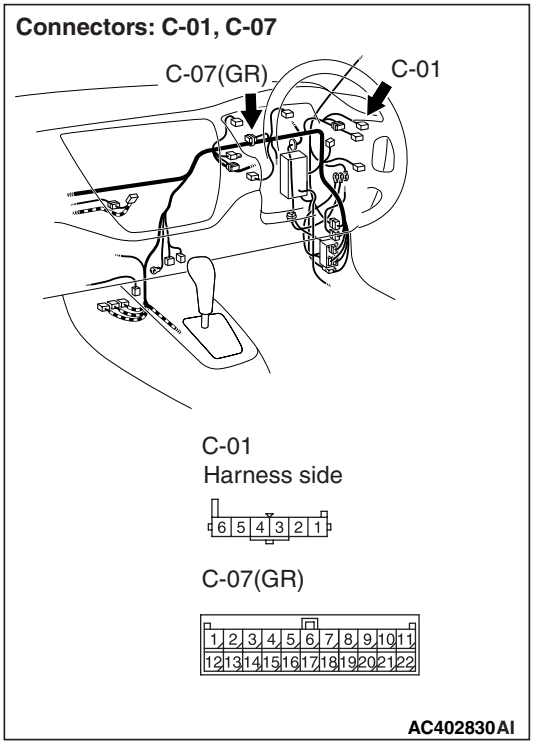
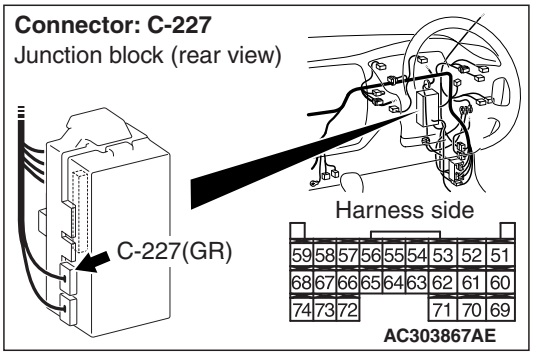
STEP 4. Check the wiring harness from C-01 fog lamp switch connector terminal No.2 to body earth.



NOTE: Prior to the wiring harness inspection, check joint connector C-07, and repair if necessary.
Check the earth wires for open circuit.

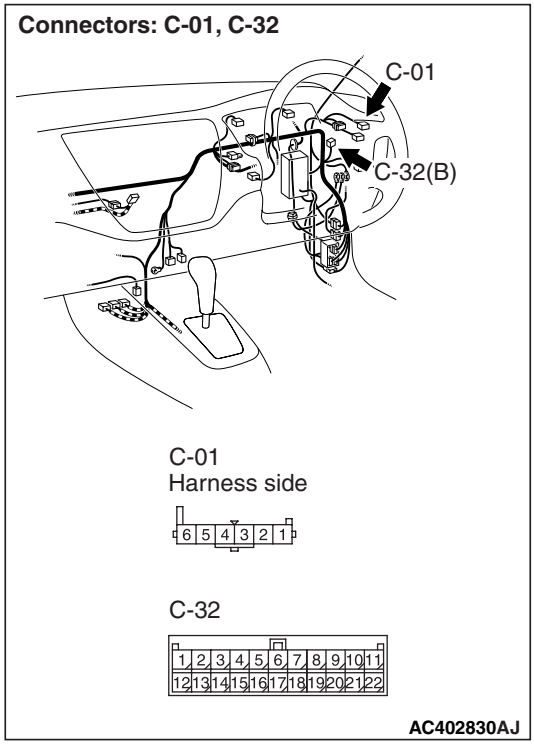
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

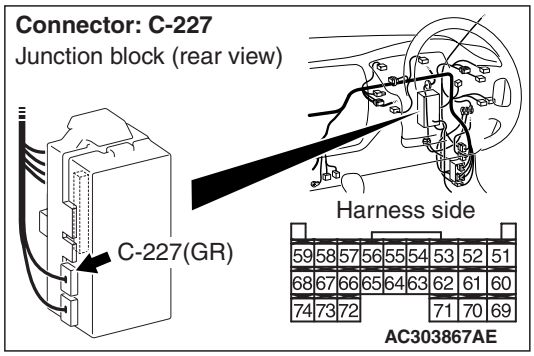
STEP 5. Connector check: C-227 ETACS-ECU connector



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

STEP 6. Check the wiring harness from C-227 ETACS-ECU connector No.54 to C-01 fog lamp switch connector terminal No.1.





NOTE: Prior to the wiring harness inspection, check joint connector C-32, and repair if necessary.
Check the input line for open circuit.

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

STEP 7. Retest the system.
Check that the fog lamp switch signal is received normally.

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

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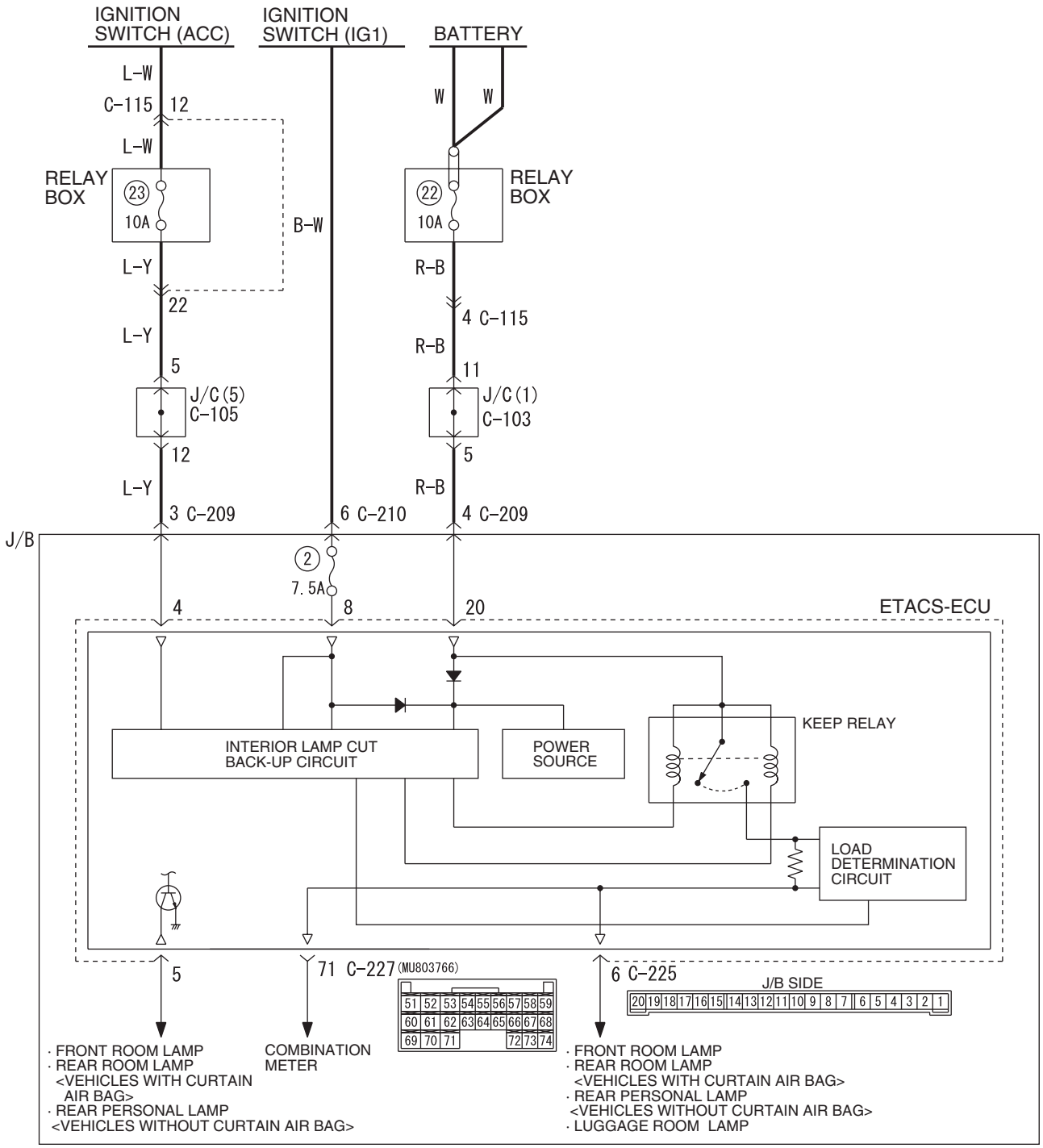
INSPECTION PROCEDURE M-16: The interior lamp loaded signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Interior Lamp Automatic Shutdown Function Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

The interior lamp automatic shutdown function operates in accordance with the interior lamp loaded signal. If this signal is abnormal, the functions below will not work normally.

- Ignition key cylinder illumination lamp
- Room lamps

PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Damaged wiring harness or connector(s)

DIAGNOSIS PROCEDURE

STEP 1. Check the power supply circuit.

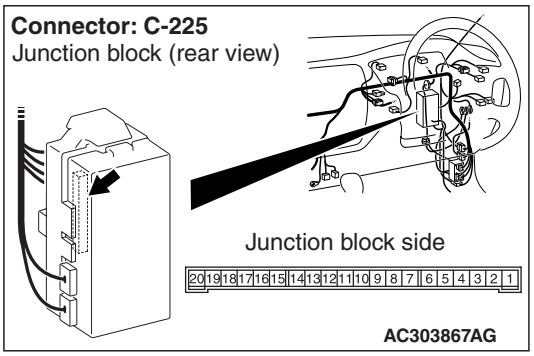
When the ignition switch is turned to the LOCK (OFF) position, check if the hazard warning lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to inspection procedure A-2 "Check the battery power supply circuit to the ETACS-ECU P.54B-41."

STEP 2. Connector check: C-225 ETACS-ECU connector

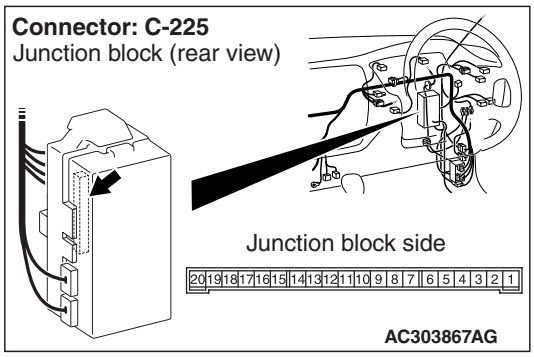


Q: Is the check result normal?

YES : Go to Step 3.

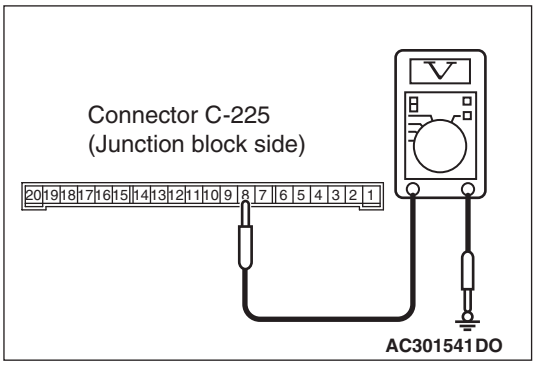
NO : Repair the defective connector.

STEP 3. Voltage measurement at the C-225 ETACS-ECU connector



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

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



(3) Voltage between C-225 ETACS-ECU connector terminal No.8 and body earth

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

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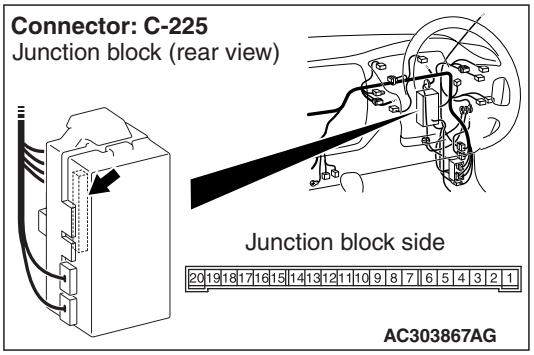
STEP 4. Check the wiring harness between C-225 ETACS-ECU connector terminal No.8 and the ignition switch (IG1).



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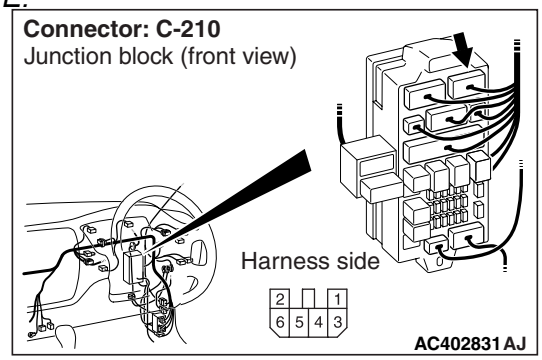
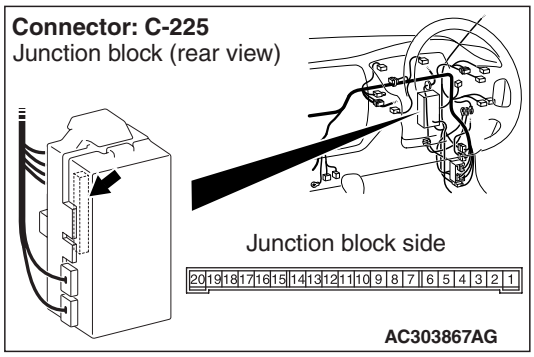


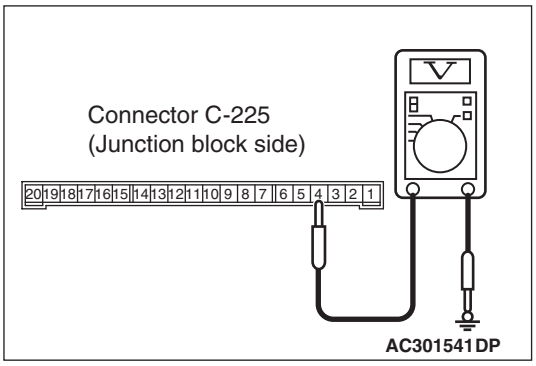
Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.
Check the power supply line to the ignition switch (IG1) for open circuit.

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

STEP 5. Voltage measurement at the C-225 ETACS-ECU connector



(1) Remove the ETACS-ECU, and measure at the junction block side.
(2) Turn the ignition switch to the "ACC" position.



(3) Voltage between C-225 ETACS-ECU connector terminal No.4 and body earth

OK: System voltage

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

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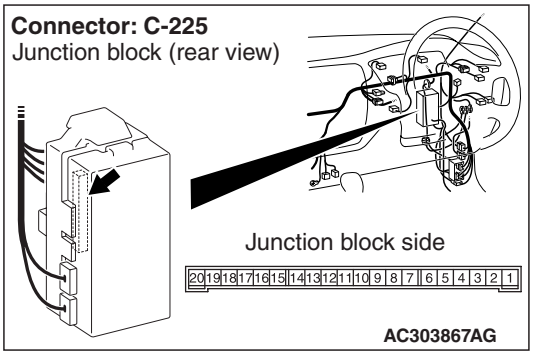
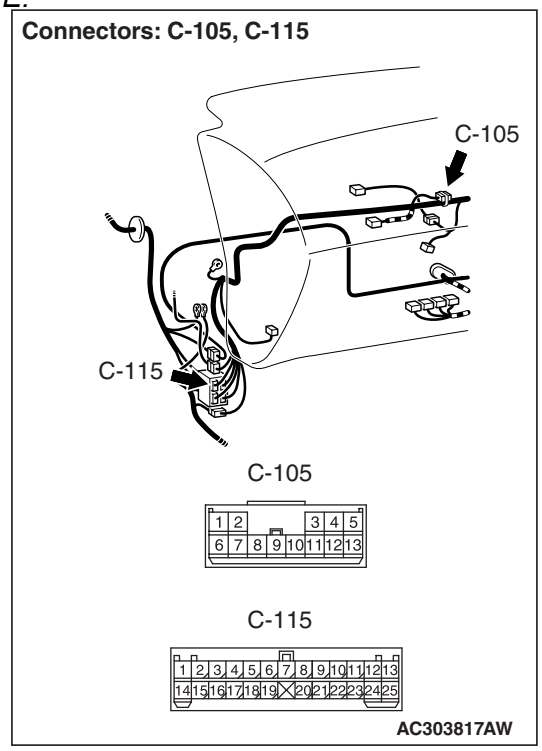
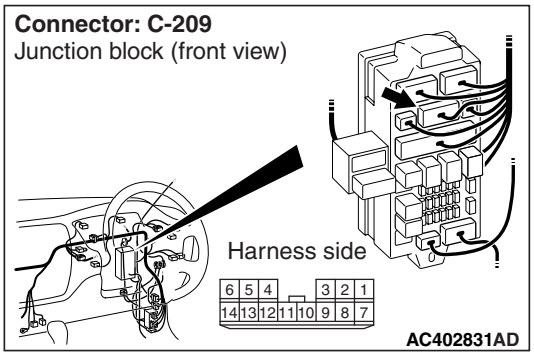
STEP 6. Check the wiring harness between C-225 ETACS-ECU connector terminal No.4 and the ignition switch (ACC).



NOTE:





Prior to the wiring harness inspection, check joint connector C-105, junction block connector C-209 or intermediate connector C-115, and repair if necessary.

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

Q: Is the check result normal?

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

NO : Repair the wiring harness.

STEP 7. Retest the system.

Check that the interior lamp loaded signal is received normally.

Q: Is the check result normal?

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

NO : Replace the ETACS-ECU.

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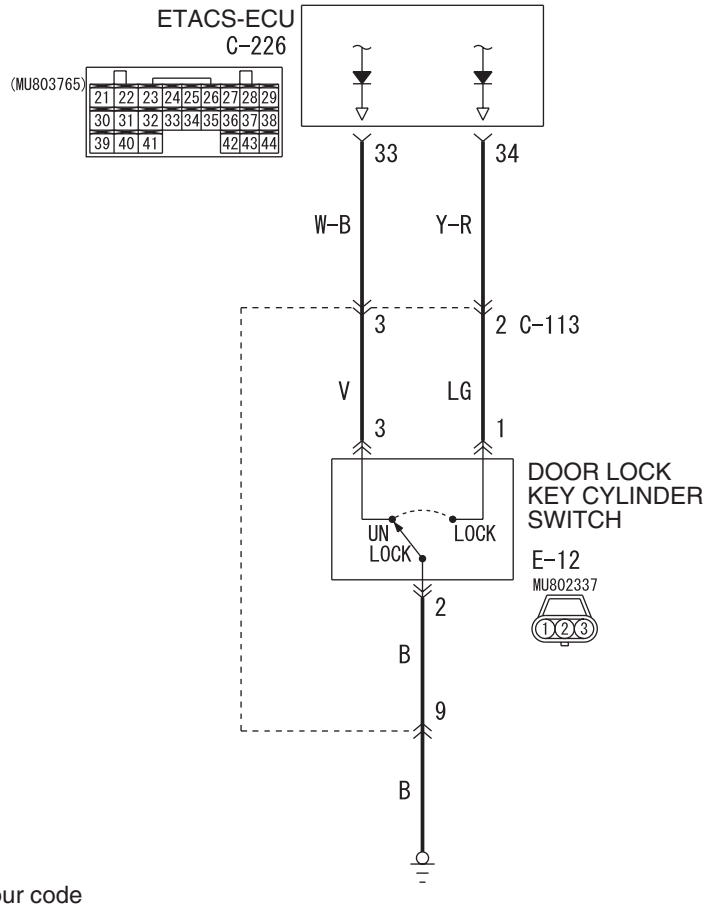
INSPECTION PROCEDURE M-17: The door lock key cylinder switch signal is not received.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the input signal circuit is normal.

Door Lock Key Cylinder Switch Input Circuit



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

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COMMENTS ON TROUBLE SYMPTOM

Input signal from the door lock key cylinder switch is used to operate the central door locking function. If the signal is abnormal, the central door locking function will not work normally.

PROBABLE CAUSES

- Malfunction of the door lock key cylinder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

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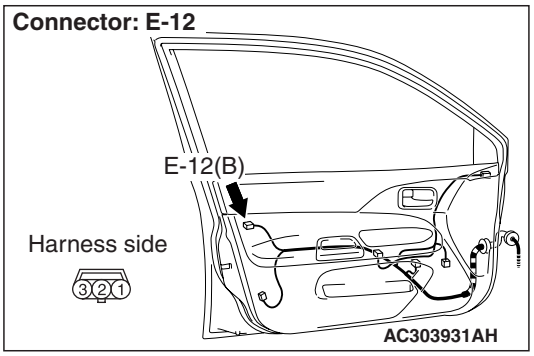
DIAGNOSIS PROCEDURE

STEP 1. Connector check: E-12 door lock key cylinder switch connector



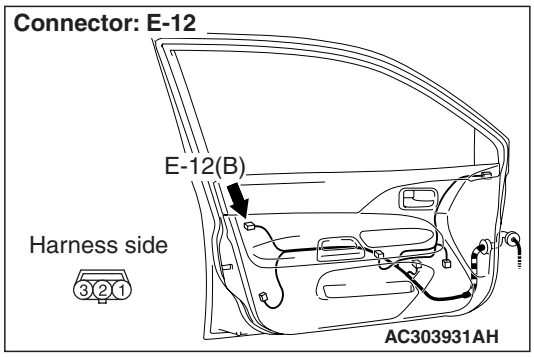
Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the door lock key cylinder switch.

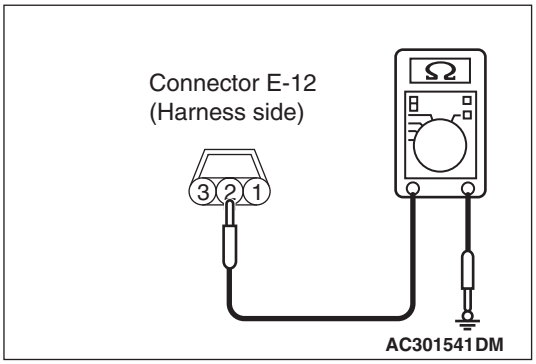
Refer to GROUP 42 – Door P.42-34.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Replace the door lock key cylinder switch.

STEP 3. Resistance measurement at the E-12 door lock key cylinder switch connector



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

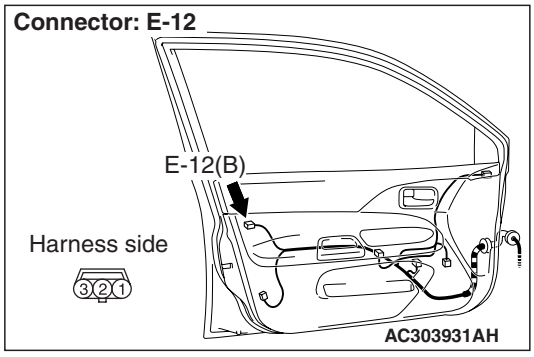


(2) Resistance between E-12 door lock key cylinder switch connector terminal No. 2 and body earth

OK: 2 Ω or less

Q: Is the check result normal?
YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the wiring harness between E-12 door lock key cylinder switch connector terminal No. 2 and body earth.



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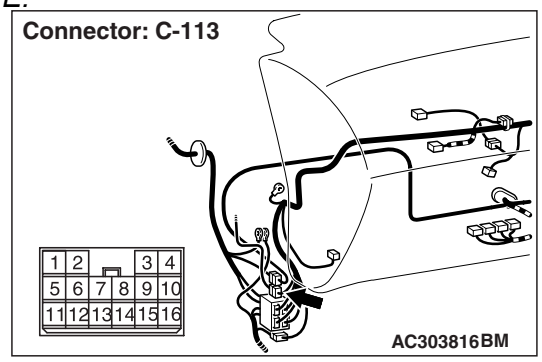
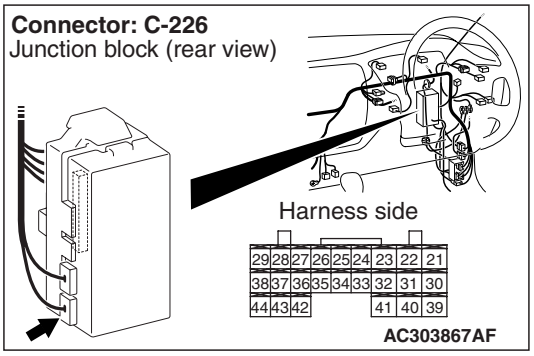
NOTE:



Prior to the wiring harness inspection, check intermediate connector C-113, and repair if necessary.
Check the earth wires for open circuit.

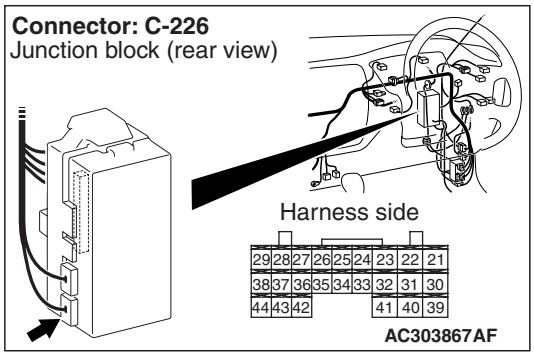
Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness.

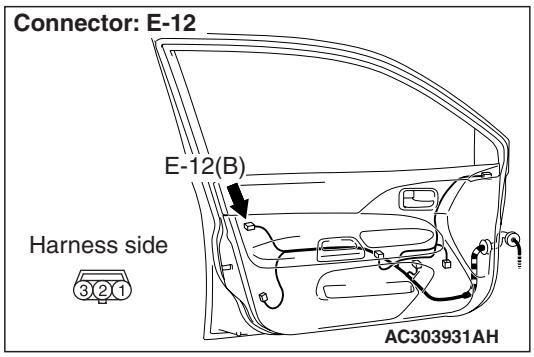
STEP 5. Connector check: C-226 ETACS-ECU connector



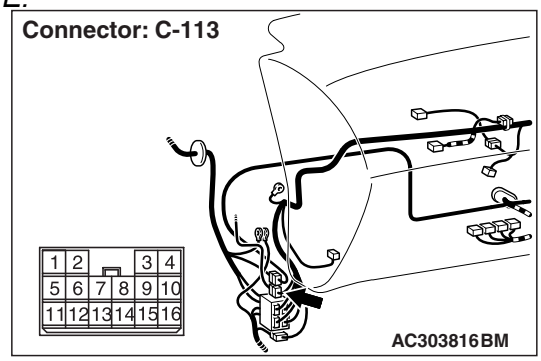
Q: Is the check result normal?
YES : Go to Step 6.
NO : Repair the defective connector.

STEP 6. Check the wiring harness from E-12 door lock key cylinder switch connector terminal Nos. 1 and 3 to C-226 ETACS-ECU connector terminal Nos. 34 and 33.





NOTE:



Prior to the wiring harness inspection, check intermediate connector C-113, and repair if necessary.
Check the input line for open circuit.

Q: Is the check result normal?
YES : Go to Step 7.
NO : Repair the wiring harness.

STEP 7. Retest the system.

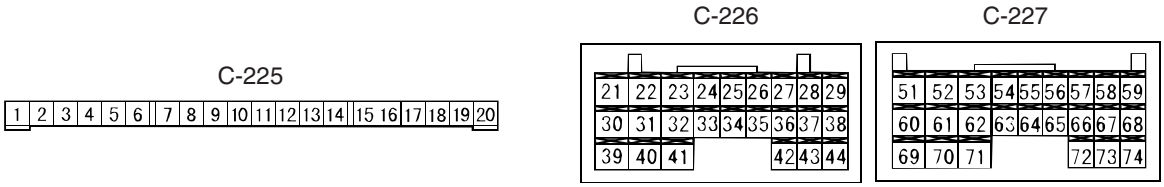
Check that the door lock key cylinder switch signal is received normally.

Q: Is the check result normal?
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

CHECK AT ECU TERMINAL

M1549001201202

ETACS-ECU



AC005554AG

NOTE: Terminal numbers 1 to 20 can not be measured as the ETACS-ECU is mounted on the junction block directly. The values are for reference only.

Terminal No.	Check items	Check conditions	Normal conditions
1	Output to the power window relay	When the power windows are operative	System voltage
2	Power supply to the central door locking system (battery positive voltage)	Always	System voltage
3	Earth (for ECU)	Always	0 V
4	Ignition switch (ACC)	Ignition switch: ACC	System voltage
5	Output to room lamp	When the room lamp is on	2 V or less
6	Power supply to interior lamp (battery positive voltage)	Always (when the interior lamp off function is off)	System voltage
7	Input from all the door switches	One of the door switches: ON (door open)	0 V
8	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
9	Output to right turn-signal lamps	When right turn-signal lamps are on	System voltage
10	Input from driver's door switch	Driver's door switch: ON (door open)	0 V
11	Power supply to hazard warning lamp (battery positive voltage)	Always	System voltage
12	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	System voltage
13	Output to central door locking (for unlocking the doors other than the driver's door)	When the door lock actuators unlock the doors	System voltage
14	Output to left turn-signal lamps	When the left turn-signal lamps are on	System voltage
15	–	–	–
16	Output to rear wiper	When rear wiper is operating	System voltage
17	Input of rear wiper automatic stop signal	When rear wiper is operating	System voltage
18	–	–	–
19	–	–	–

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Terminal No.	Check items	Check conditions	Normal conditions
20	Battery power supply (for ECU)	Always	System voltage
21	–	–	–
22	Output to central door locking (for unlocking the driver's door)	When the door lock actuators unlock the doors	System voltage
23	Rear washer output	When rear washer is operating	System voltage
24 to 28	–	–	–
29	Input of collision signal	–	–
30	Input to key reminder switch	Key reminder switch: ON (ignition key removed)	0 V
31, 32	–	–	–
33	Input to door lock key cylinder switch (lock switch)	All doors: Locked	0 V
34	Input to door lock key cylinder switch (unlock switch)	All doors: Unlocked	0 V
35	Input to driver's door lock actuator (lock switch)	Driver's door lock: Locked	0 V
36	Input to driver's door lock actuator (unlock switch)	Driver's door lock: Unlocked	0 V
37, 38	–	–	–
39	Input to back-up lamp switch	Shift lever: R Ignition switch: ON	System voltage
	Input to inhibitor switch ("R" position)	Selector lever: R Ignition switch: ON	
40 to 44	–	–	–
51	Setting diagnosis code or sending input check signal	When diagnosis code is set (the M.U.T.-II/III is connected or the diagnosis connector No.1 is earthed)	0 to 12 V (pulse signal)
		When input check signal is sent	0 V, 12 V (input signal is fluctuating)
52, 53	–	–	–
54	Input from fog lamp switch	Fog lamp switch: ON	0 V
55	Input from hazard warning lamp switch	Hazard warning lamp switch: ON	0 V
56	Earth (for sensor)	Always	0 V
57, 58	–	–	–
59	SWS communication line	Always	0 to 12 V (pulse signal)
60 to 62	–	–	–
63	Input of vehicle speed signal	When the vehicle is being driven	0 to 12 V (pulse signal)
64, 65	–	–	–

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Terminal No.	Check items	Check conditions	Normal conditions
66	Input from windshield intermittent wiper volume	Turn the ignition switch to the ACC position, and move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
67	Input from diagnosis control	When M.U.T.-II/III is connected	0 V
68	Input of SWS request signal	Always	0 to 12 V (pulse signal)
69	Output to ignition key cylinder illumination lamp	When ignition key cylinder illumination is on	2 V or less
70	–	–	–
71	Power supply to interior lamp	Always (when the interior lamp off function is off)	System voltage
72	–	–	–
73	Output to seat belt warning lamp	When seat belt warning lamp is on	0 V
74	–	–	–

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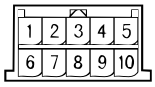
COLUMN SWITCH

C-203



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Terminal No.	Check items	Check conditions	Normal conditions
1	System voltage	Always	System voltage
2	Input of SWS request signal	Always	0 to 12 V (pulse signal)
3	SWS communication line	Always	0 to 12 V (pulse signal)
4	Earth	Always	0 V
5	–	–	–
6	Output to windshield intermittent wiper volume	Ignition switch: ACC Move the wiper volume from "Fast" to "Slow."	0 to 2.5 V
7	–	–	–
8	Back-up output to windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
9	Power supply from ignition switch (IG1)	Ignition switch: ON	System voltage
10	Back-up output to headlamp switch	Headlamp switch: ON	0 V

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FRONT-ECU

AC305097AB

NOTE: Measurement is not possible as the front-ECU is mounted on the relay box directly. The values are for reference only.

Terminal No.	Check item	Check condition	Normal condition
1	Output to fog lamps	When fog lamps are on	System voltage
2	Output to high-beam headlamps	When high-beam headlamps are on	System voltage
3, 4	Battery power supply (for headlamps)	Always	System voltage
5	Battery power supply (for tail lamps)	Always	Battery voltage
6	Output to low-beam headlamps	When low-beam headlamps are on	Battery voltage
7	Battery power supply (for ECU)	Always	System voltage
8	Output to tail lamps	When the tail lamps are on	System voltage
9~11	–	–	–
21	Output to windshield washer	When windshield washer is operating	System voltage
22	SWS communication line	Always	0 to 12 V (pulse signal)
23	Input of windshield wiper automatic stop signal	When windshield wipers are operating	System voltage
24	Power supply from ignition switch (ACC)	Ignition switch: ACC	System voltage
25	Back-up input from headlamp switch	Headlamp switch: ON	0 V
26	Back-up input from windshield wiper switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	0 V
27	Output to windshield wiper (low speed operation)	When windshield wipers are operating at low speed	System voltage
28	Output to windshield wiper (high speed operation)	When windshield wipers are operating at high speed	System voltage
29	–	–	–
30	Power supply to the ignition switch (IG2)	Ignition switch: ON	System voltage
31	Earth	Always	0 V

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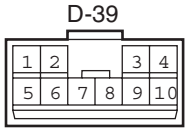
SUNROOF MOTOR ASSEMBLY



ACX01514 AD

Terminal No.	Check items	Check conditions	Normal conditions
1	Battery power supply (for motor)	Always	System voltage
2	Power supply to the ignition switch (IG2)	Ignition switch: ON	System voltage
5	Earth	Always	0 V
6	Input signal ("CLOSE/DOWN") from the sunroof switch	Sunroof switch: "CLOSE/DOWN"	0 V
7	Input signal ("UP") from the sunroof switch	Sunroof switch: "UP"	0 V
8	Input signal ("OPEN") from the sunroof switch	Sunroof switch: "OPEN"	0 V
10	SWS communication line	Always	0 to 12 V (pulse signal)

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ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

M1549002501046

According to the configuration mode entry conditions of the input switch, the following functions can be adjusted. The data on configuration will be memorized even if the battery is removed.

- Keyless entry system hazard answerback function
- Vehicle speed-dependent wiper function
- Interior lamp automatic-shutdown function
- Delayed lamp-off time of the room lamp
- Initialisation of all functions (Returns to initial settings)

1. Conditions for entering the configuration mode
   i. Set each switch to the following state.
      - Hazard lamp switch: OFF
      - Diagnosis control: ON (Connect the M.U.T.-II/III or earth No.1 pin of the 16-pin diagnosis connector.)
      - Key reminder switch: OFF (Insert the ignition key)
      - Ignition switch: "LOCK" (OFF) position
      - Driver's door switch: OFF (driver's door closed)

   ii. When the windshield washer switch is ON for more than ten seconds, the buzzer in the ETACS-ECU sounds for three seconds, and the configuration mode will be set.
2. Conditions for exiting the configuration mode
   - Diagnosis control: OFF (Disconnect the M.U.T.-II/III or the earth of No.1 pin of the 16-pin diagnosis connector disconnected.)
   - Key reminder switch: ON (Remove the ignition key)
   - Ignition switch: Turning to any position other than "LOCK" (OFF) position
   - Driver's door switch: ON (driver's door opened)
   - When three minutes pass without configurations performed
   - When the other warning buzzer output is generated
3. Configurations of various functions

Function	Configuration procedure
Keyless entry system hazard answerback function	When the lock button of the transmitter is pressed twice continuously within two seconds, the hazard answerback function during the lock state will be switched between available or unavailable. • Function available: Buzzer sounds once. (Initial state) • Function not available: Buzzer sounds twice. When the unlock button of the transmitter is pressed twice continuously within two seconds, the hazard answerback function during the unlock state will be switched between available or unavailable. • Function available: Buzzer sounds once. (Initial state) • Function not available: Buzzer sounds twice.
Vehicle speed-dependent wiper function	When the windshield wiper mist switch is turned ON for more than two seconds, the vehicle speed-dependent wiper function is switched between available or unavailable. • Function available: Buzzer sounds once. (Initial state) • Function not available: Buzzer sounds twice.

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Function	Configuration procedure
Interior lamp automatic-shutdown function	When the hazard switch is turned ON for more than two seconds, the interior lamp automatic-shutdown function is switched between available or unavailable. • Function available: Buzzer sounds once. (Initial state) • Function not available: Buzzer sounds twice.
Delayed lamp-off time of the interior lamp	When the turn-signal lamp switch is set in the order of RH to LH to RH to LH within three seconds from the LH position, the delayed lamp-off time switches (Returns to a after e, and repeats from a in order.) a. 15 seconds: Buzzer sounds four times. (Initial state) b. 7.5 seconds: Buzzer sounds five times. c. 30 seconds: Buzzer sounds once. d. 10 seconds: Buzzer sounds twice. e. 0 second (No delay time): Buzzer sounds three times.
Initialisation of all functions	When the windshield washer switch is ON for more than 20 seconds continuously, the buzzer sounds twice, and all functions will be initialised. (Settings are returned to their initial states.) The configuration mode entry buzzer sounds after 10 seconds, however to initialise all functions, the ON state should be continued for 20 seconds. When the windshield washer switch is ON for more than 20 seconds continuously without the configuration mode set, the configuration mode will be set after 10 seconds without the initialisation of all functions.