

GROUP 55B

AUTOMATIC AIR CONDITIONER

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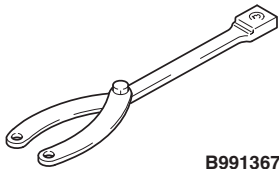
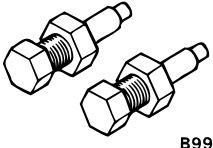
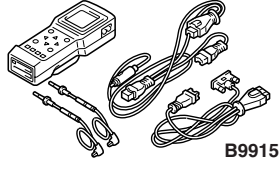
SERVICE SPECIFICATIONS

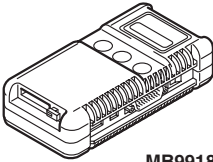
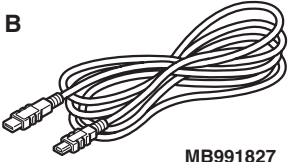

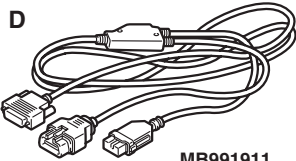
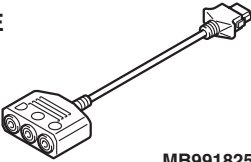
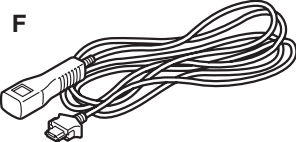

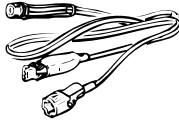
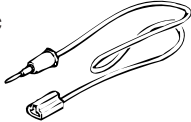

M1552000300537

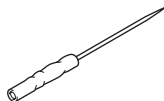
Item	Standard value
Resistance value for air mixing damper control motor and potentiometer k Ω	Approximately 0.65 – 5.35
Resistance value for mode selection damper control motor and potentiometer k Ω	Approximately 0.65 – 5.35

SPECIAL TOOLS

M1552000600527

Tool	Number	Name	Use
 B991367	MB991367	Special spanner	Armature mounting nut of compressor removal and installation
 B991386	MB991386	Pin	
 B991502	MB991502	M.U.T.-II sub-assembly	Automatic A/C check

Tool	Number	Name	Use
<p>A</p>  <p align="center">MB991824</p> <p>B</p>  <p align="center">MB991827</p> <p>C</p>  <p align="center">MB991910</p> <p>D</p>  <p align="center">MB991911</p> <p>E</p>  <p align="center">MB991825</p> <p>F</p>  <p align="center">MB991826</p> <p align="center">MB991955</p>	<p>MB991955</p> <p>A: MB991824</p> <p>B: MB991827</p> <p>C: MB991910</p> <p>D: MB991911</p> <p>E: MB991825</p> <p>F: MB991826</p>	<p>M.U.T.-III sub-assembly</p> <p>A: Vehicle Communication Interface (V. C. I.)</p> <p>B: M.U.T.-III USB cable</p> <p>C: M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>D: M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>E: M.U.T.-III measurement adapter</p> <p>F: M.U.T.-III trigger harness</p>	<p>Automatic A/C check</p> <p>⚠ CAUTION</p> <p>M.U.T.-III main harness B (MB991911) should be used. M.U.T.-III main harness A should not be used for this vehicle.</p>
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p>  <p align="center">MB991223</p>	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p>	<p>Harness set</p> <p>a. Check harness</p> <p>b. LED harness</p> <p>c. LED harness adapter</p> <p>d. Probe</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. For checking connector pin contact pressure</p> <p>b. For checking power supply circuit</p> <p>c. For checking power supply circuit</p> <p>d. For connecting a locally sourced tester</p>

Tool	Number	Name	Use
 MB992006	MB992006	Extra fine probe	Continuity check and voltage measurement at harness wire or connector

TROUBLESHOOTING

DIAGNOSIS TROUBLESHOOTING FLOW

M1554004700351

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points [P.00-13](#).

DIAGNOSIS FUNCTION

M1554004800369

How to read diagnosis code

Connect the M.U.T.-II/III to the 16-pin diagnosis connector to read diagnosis code (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points [P.00-6](#)).

How to erase diagnosis code

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points [P.00-6](#).

DIAGNOSIS CODE CHART

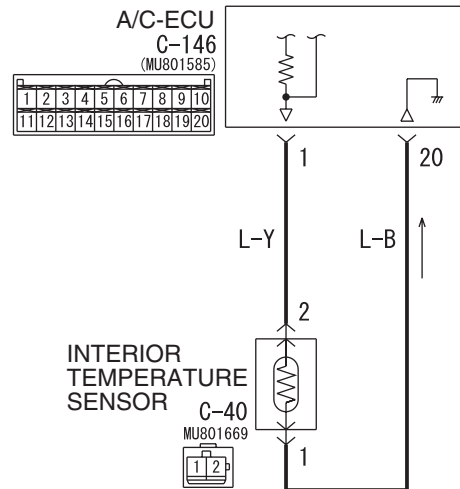
M1554004900559

Code No.	Diagnostic item	Reference page
11	Interior temperature sensor system (open circuit)	P.55B-5
12	Interior temperature sensor system (short circuit)	
13	Outside thermo sensor system (open circuit)	P.55B-7
14	Outside thermo sensor system (short circuit)	
15	Heater water temperature sensor system (open circuit)	P.55B-9
16	Heater water temperature sensor system (short circuit)	
21	Air thermo sensor system (open circuit)	P.55B-11
22	Air thermo sensor system (short circuit)	
31	Air mixing damper control motor and potentiometer sensor system	P.55B-13
32	Mode selection damper control motor and potentiometer sensor system	P.55B-15
41	Air mixing damper control motor and potentiometer activating system	P.55B-17
42	Mode selection damper control motor and potentiometer activating system	P.55B-19

DIAGNOSTIC TROUBLE CODE PROCEDURES

Code No.11, 12: Interior Temperature Sensor System

Interior Temperature Sensor 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

W6J55L007A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the interior temperature sensor circuit is open (Code No.11) or is short (Code No.12).

PROBABLE CAUSES

- Malfunction of the interior temperature sensor
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE

STEP 1. Check the interior temperature sensor.

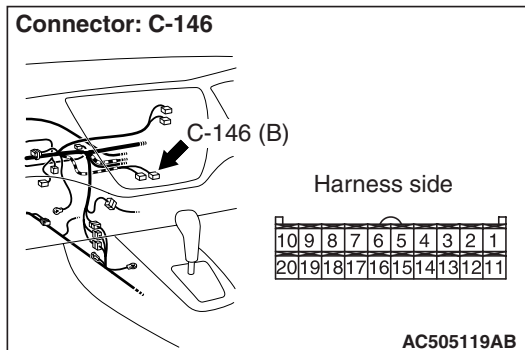
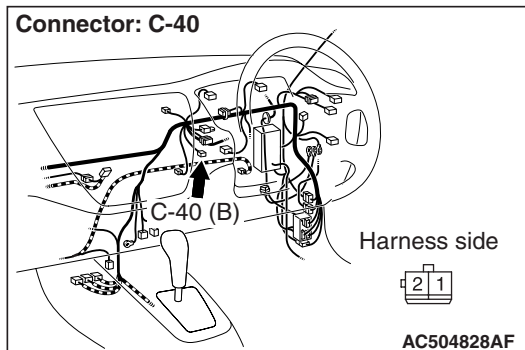
Refer to [P.55B-72](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the interior temperature sensor.

STEP 2. Connector check: C-146 A/C-ECU connector and C-40 interior temperature sensor connector

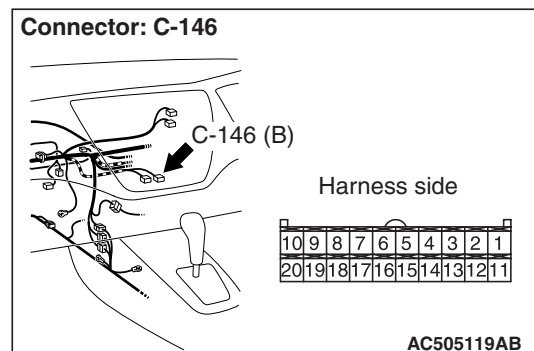
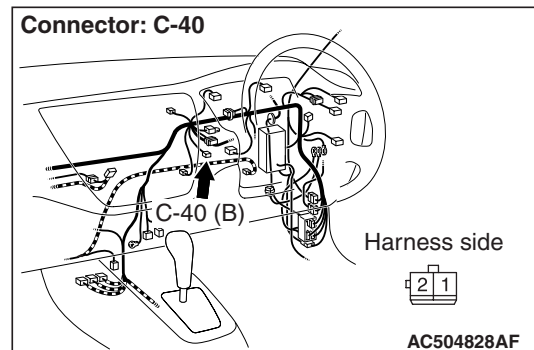


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-146 A/C-ECU connector (terminals 1 and 20) and C-40 interior temperature sensor connector (terminals 2 and 1).



- Check the sensor signal line and earth line for open or short circuit.

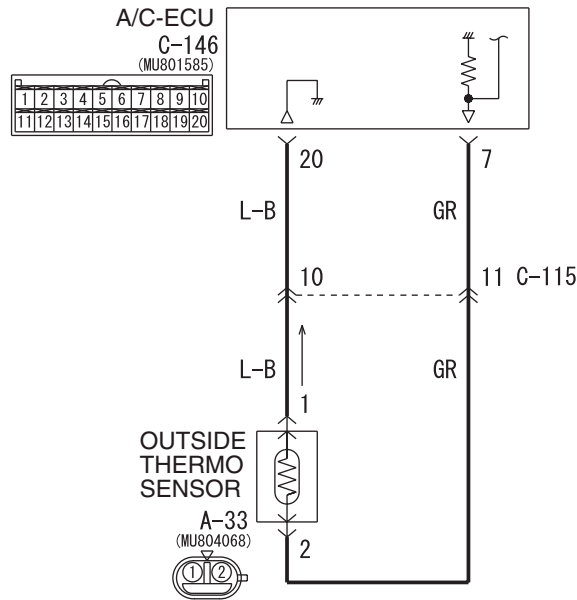
Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU)

NO : Repair the wiring harness.

Code No.13, 14: Outside Thermo Sensor System

Outside Thermo Sensor 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

W6J55L006A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the outside thermo sensor circuit is open (Code No.13) or is short (Code No.14).

PROBABLE CAUSES

- Malfunction of the outside thermo sensor
- Damaged the wiring harness and connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE

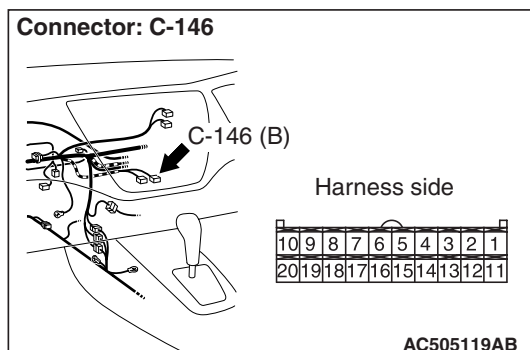
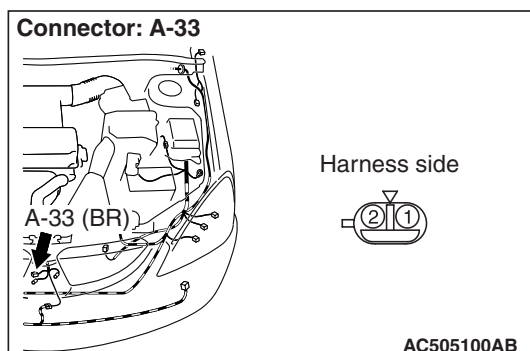
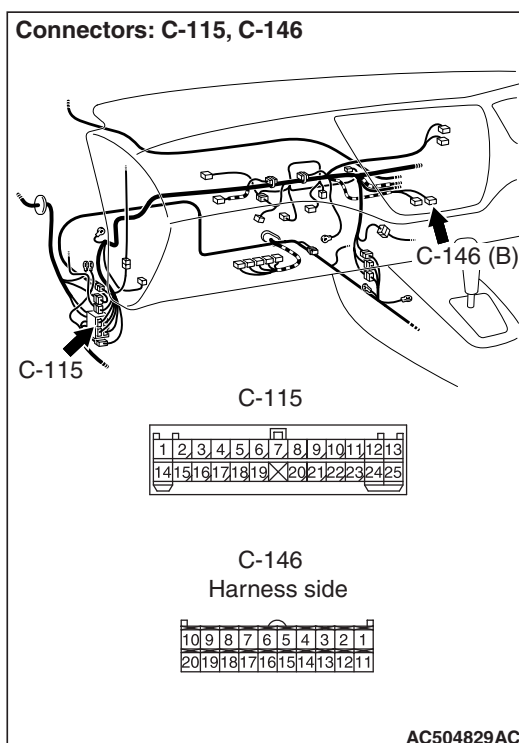
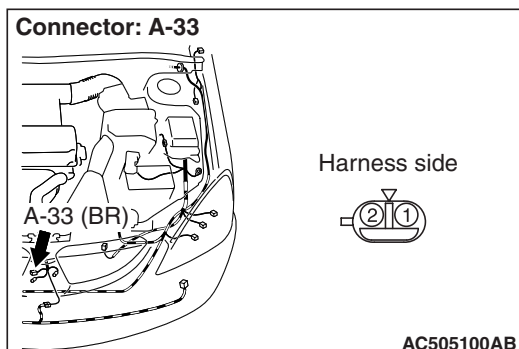
STEP 1. Check the outside thermo sensor.

Refer to [P.55B-75](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the outside thermo sensor.

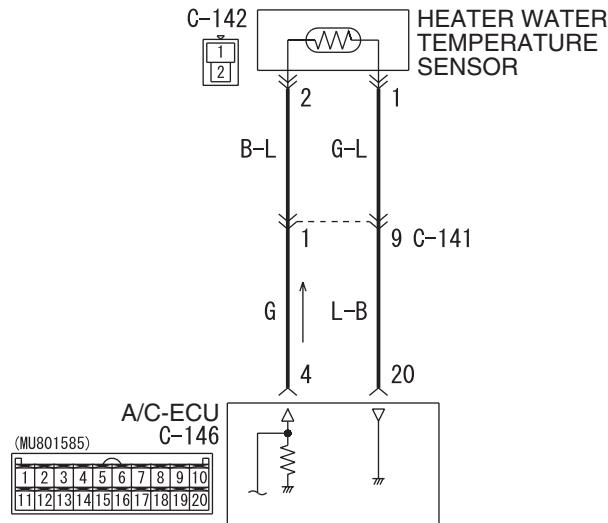
STEP 2. Connector check: A-33 outside thermo sensor connector and C-146 A/C-ECU connector**Q: Is the check result normal?****YES :** Go to Step 3.**NO :** Repair the connector.**STEP 3. Check the wiring harness between A-33 outside thermo sensor connector (terminals 1 and 2) and C-146 A/C-ECU connector (terminals 20 and 7).****NOTE:** Prior to the wiring harness inspection, check intermediate connector C-115, and repair if necessary.

- Check the sensor signal line and earth line for open or short circuit.

Q: Is the check result normal?**YES :** Replace the automatic A/C control panel (A/C-ECU)**NO :** Repair the wiring harness.

Code No.15, 16: Heater Water Temperature Sensor System

Heater Water Temperature Sensor 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

W6J55L008A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the heater water temperature sensor circuit is open (Code No.15) or is short (Code No.16).

PROBABLE CAUSES

- Malfunction of the heater water temperature sensor
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE

STEP 1. Check the heater water temperature sensor.

Refer to [P.55B-72](#).

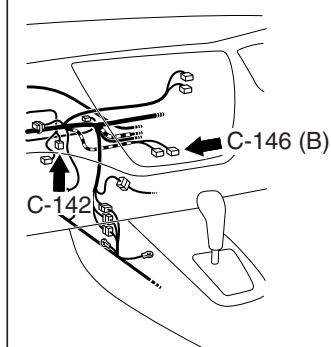
Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the heater water temperature sensor.

STEP 2. Connector check: C-146 A/C-ECU connector and C-142 heater water temperature connector

Connectors: C-142, C-146



Harness side

C-142



C-146

10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11

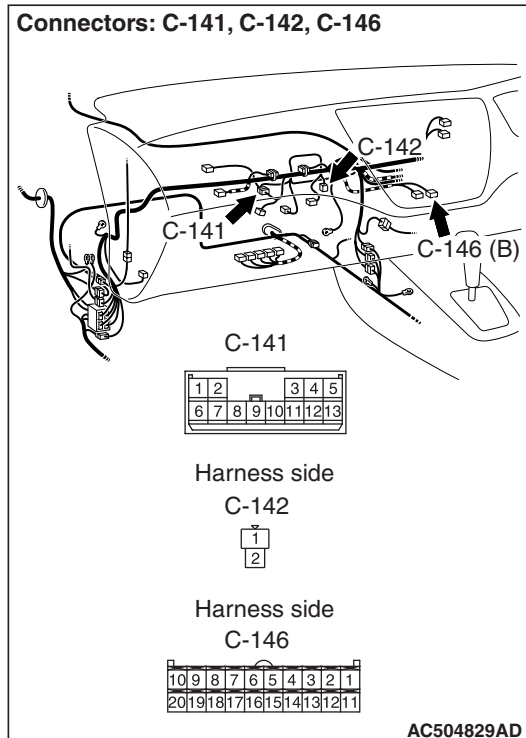
AC505120AB

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-146 A/C-ECU connector (terminals 4 and 20) and C-142 heater water temperature sensor connector (terminals 2 and 1).



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141, and repair if necessary.

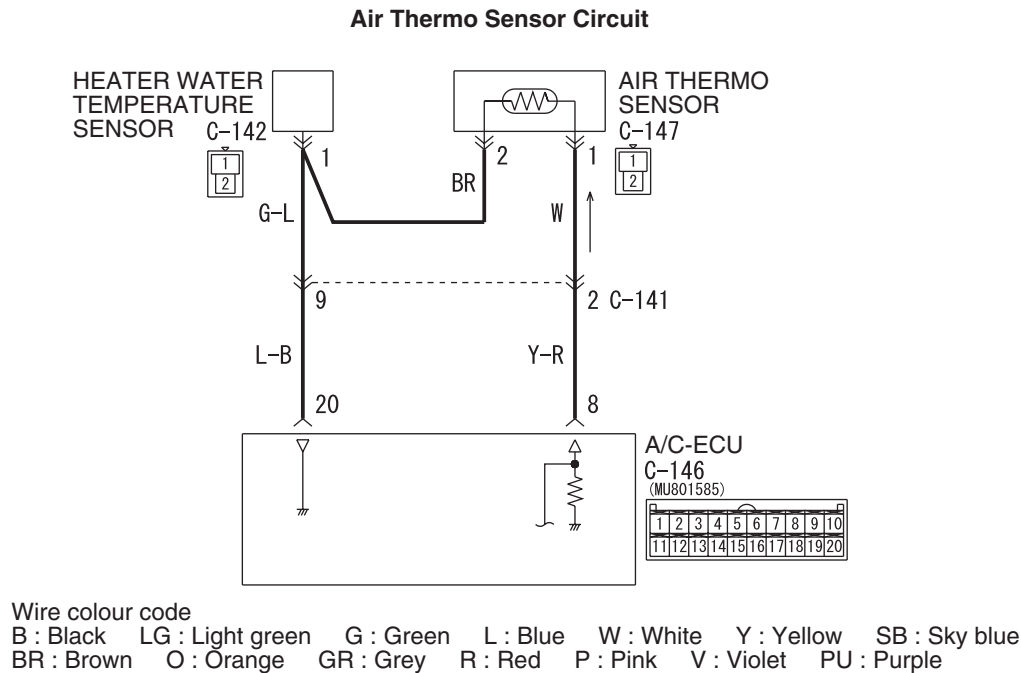
- Check the sensor signal line and earth line for open or short circuit.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU)

NO : Repair the wiring harness.

Code No.21, 22: Air Thermo Sensor System



W6J55L009A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the air thermo sensor circuit is open (Code No.21) or is short (Code No.22).

PROBABLE CAUSES

- Malfunction of the air thermo sensor
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE

STEP 1. Check the air thermo sensor.

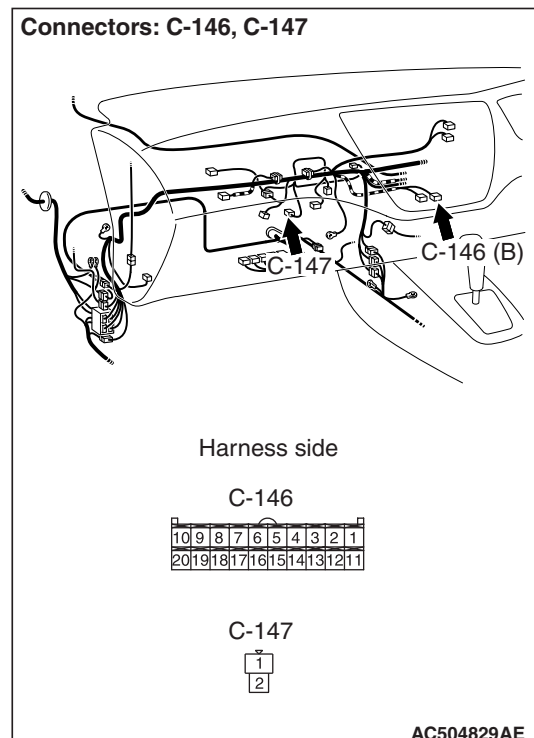
Refer to [P.55B-74](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the air thermo sensor.

STEP 2. Connector check: C-146 A/C-ECU connector and C-147 air thermo sensor connector

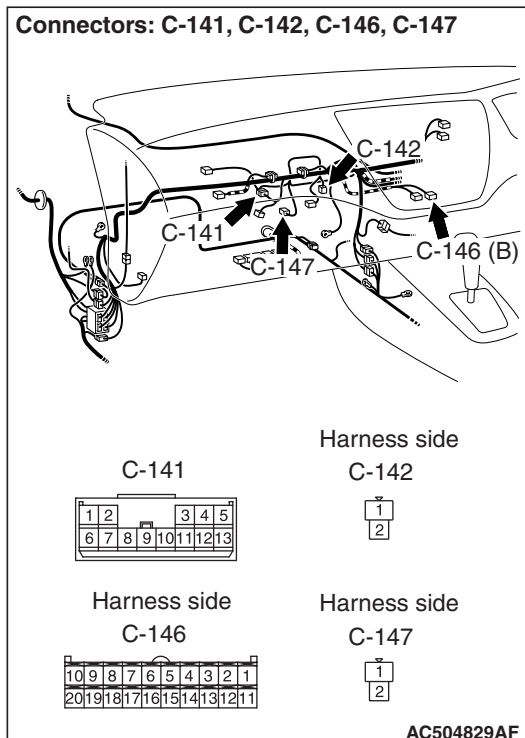


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-146 A/C-ECU connector (terminals 8 and 20) and C-147 air thermo sensor connector (terminals 1 and 2).



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141 and heater water temperature sensor connector C-142, and repair if necessary.

- Check the sensor signal line and earth line for open or short circuit.

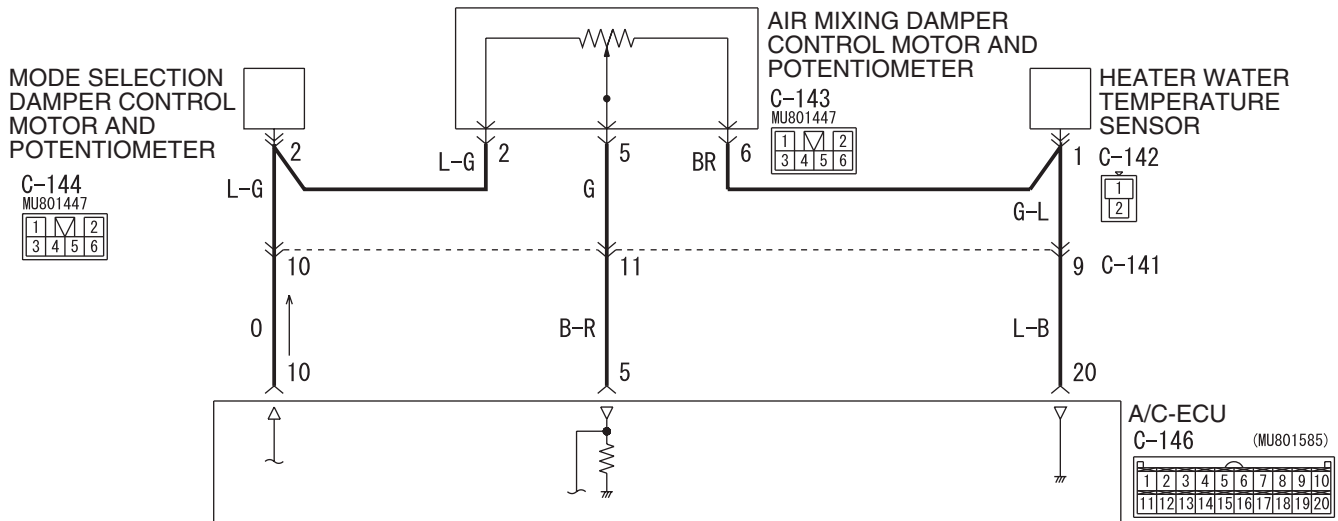
Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU)

NO : Repair the wiring harness.

Code No.31: Air Mixing Damper Control Motor Potentiometer System

Air Mixing Damper Control Motor Potentiometer 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

W6J55L010A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the air mixing damper control motor potentiometer does not send any signal to the A/C-ECU due to short or open circuit.

PROBABLE CAUSES

- Malfunction of the air mixing damper control motor and potentiometer
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE

STEP 1. Check the air mixing damper control motor and potentiometer.

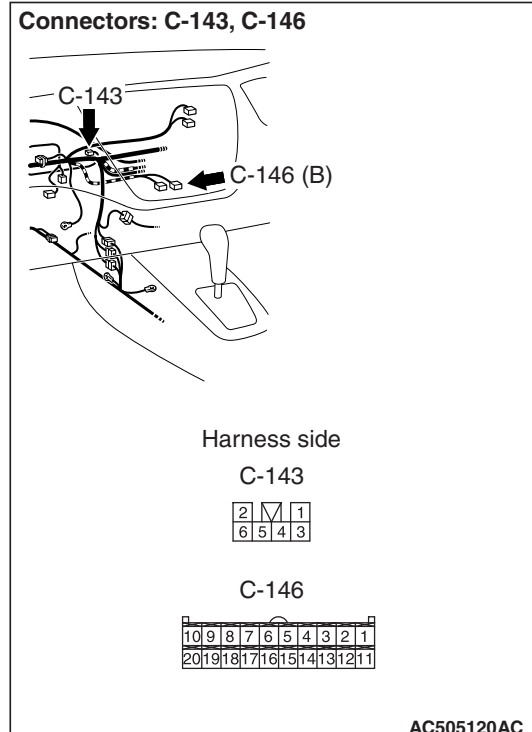
Refer to [P.55B-69](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the air mixing damper control motor and potentiometer.

STEP 2. Connector check: C-146 A/C-ECU connector and C-143 air mixing damper control motor and potentiometer connector



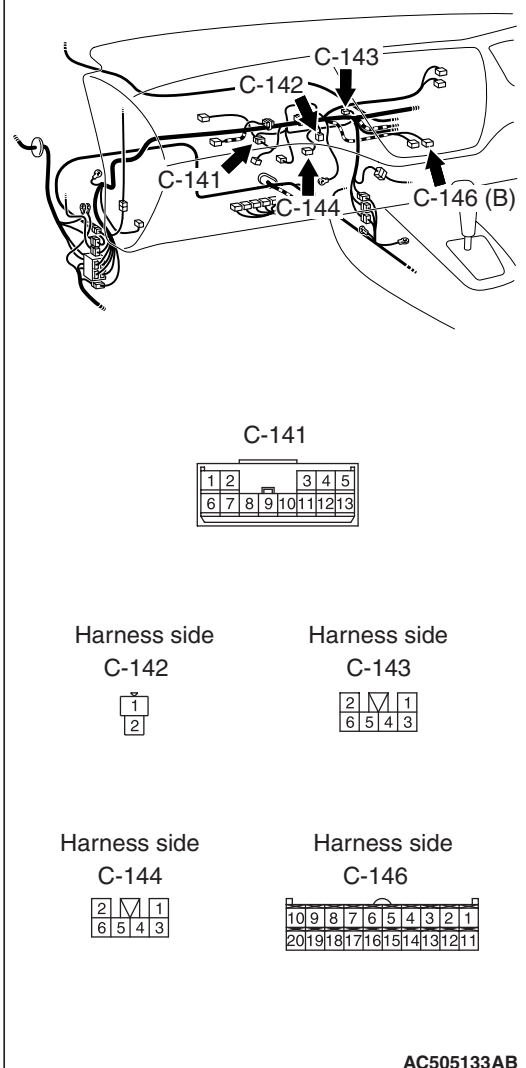
Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-146 A/C-ECU connector (terminals 10, 5 and 20) and C-143 air mixing damper control motor and potentiometer connector (terminals 2, 5 and 6).

Connectors: C-141, C-142, C-143, C-144, C-146



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141, mode selection damper control motor and potentiometer C-144 and heater water temperature sensor connector C-142, and repair if necessary.

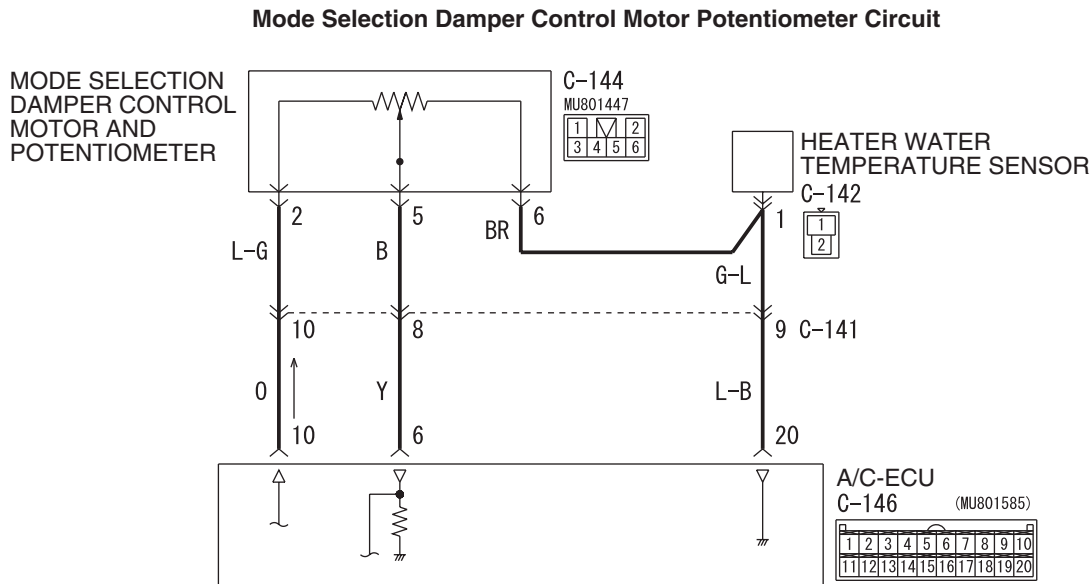
- Check the potentiometer power supply, earth and signal line for open or short circuit.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

Code No.32: Mode Selection Damper Control Motor Potentiometer System



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

W6J55L011A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the mode selection damper control motor potentiometer does not send any signal to the A/C-ECU due to short or open circuit.

PROBABLE CAUSES

- Malfunction of the mode selection damper control motor and potentiometer
- Malfunction of the automatic A/C control panel (A/C-ECU)
- Damaged the wiring harness or connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the mode selection damper control motor and potentiometer.

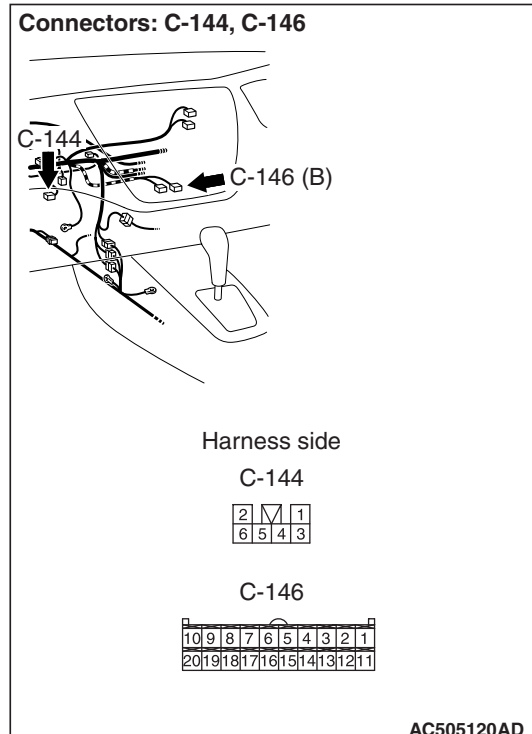
Refer to [P.55B-69](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the mode selection damper control motor and potentiometer.

STEP 2. Connector check: C-146 A/C-ECU connector and C-144 mode selection damper control motor and potentiometer connector

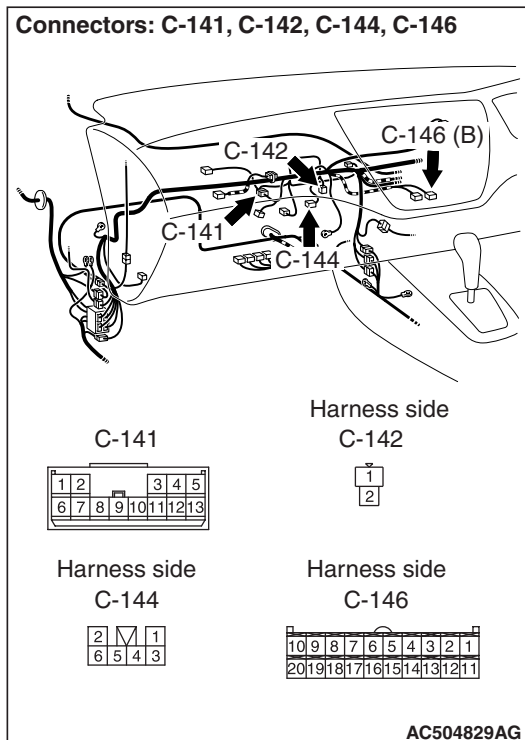


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-146 A/C-ECU connector (terminals 10, 6 and 20) and C-144 mode selection damper control motor and potentiometer connector (terminals 2, 5 and 6).



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141 and heater water temperature sensor connector C-142, and repair if necessary.

- Check the potentiometer power supply, earth and signal line for open or short circuit.

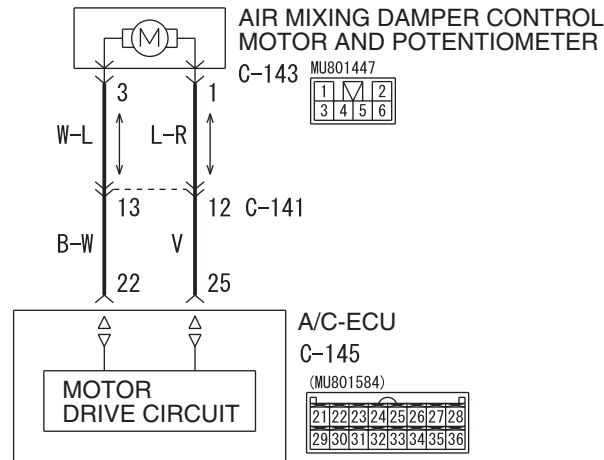
Q: Is the check result normal?

YES : Malfunction of the automatic A/C control panel (A/C-ECU)

NO : Repair the wiring harness.

Code No.41: Air Mixing Damper Control Motor System

Air Mixing Damper Control Motor Circuit



Wire colour code

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

W6J55L012A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the air mixing damper cannot be rotated to the preset opening angle.

PROBABLE CAUSES

- Malfunction of the air mixing damper control motor and potentiometer
- Malfunction of the automatic A/C control panel (A/C-ECU)
- Damaged the wiring harness or connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the air mixing damper control motor and potentiometer.

Refer to [P.55B-69](#).

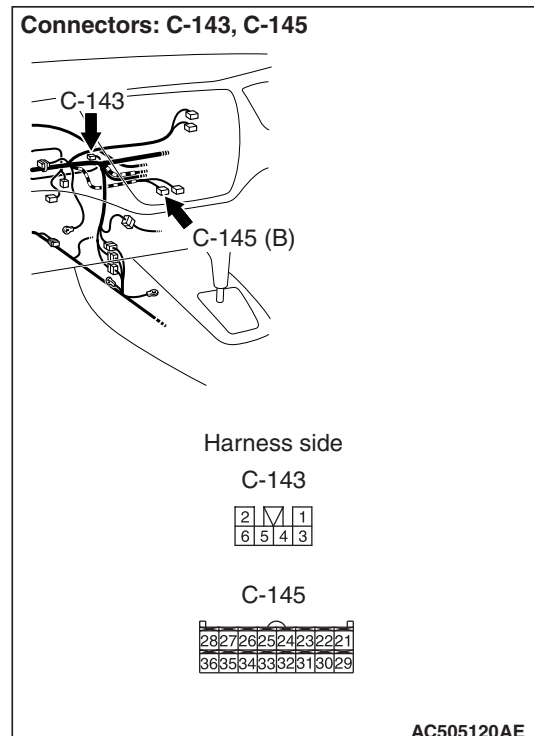
Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the air mixing damper control motor and potentiometer.

STEP 2. Connector check: C-145 A/C-ECU

connector and C-143 air mixing damper control motor and potentiometer connector

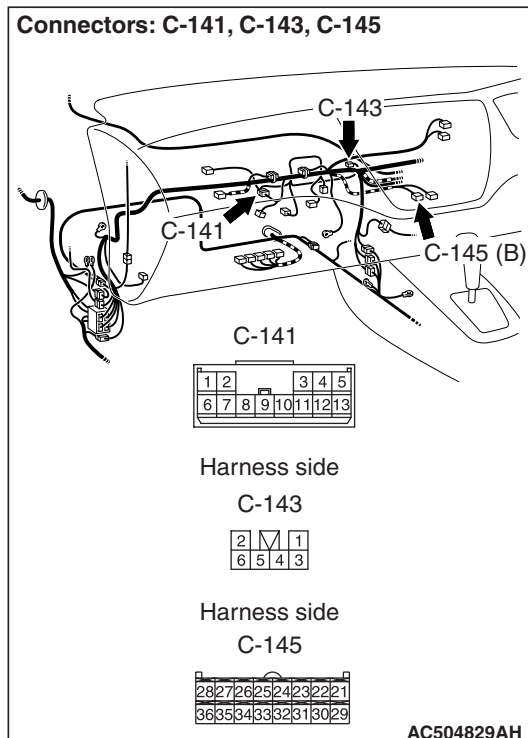


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-145 A/C-ECU connector (terminals 22 and 25) and C-143 air mixing damper control motor and potentiometer connector (terminals 3 and 1).



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141, and repair if necessary.

- Check the motor activating lines for open or short circuit.

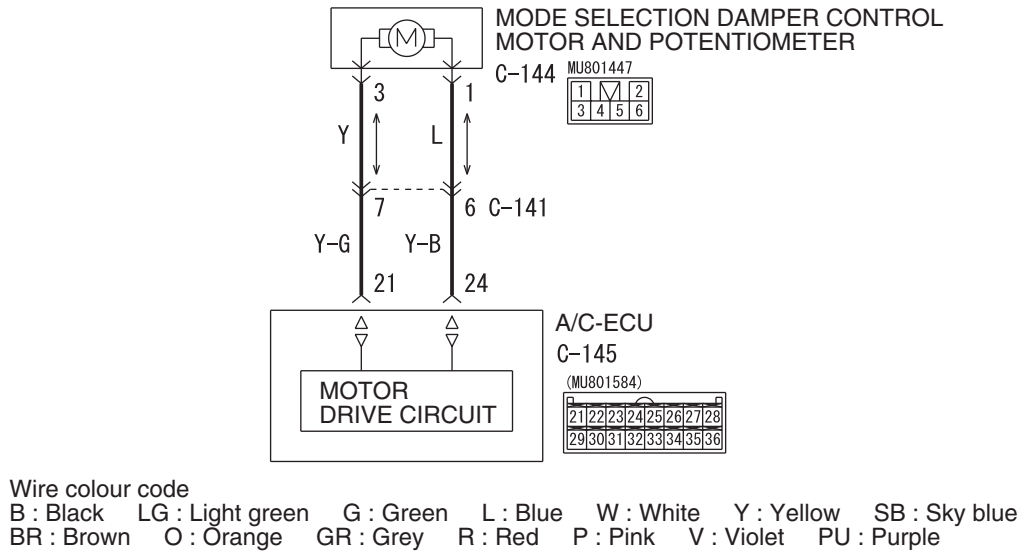
Q: Is the check result normal?

YES : Malfunction of the automatic A/C control panel (A/C-ECU)

NO : Repair the wiring harness.

Code No.42: Mode Selection Damper Control Motor and Potentiometer Activating System

Mode Selection Damper Control Motor and Potentiometer Circuit



W6J55L013A

COMMENTS ON TROUBLE SYMPTOM

This code is set when the mode selection damper cannot be rotated to the preset opening angle.

PROBABLE CAUSES

- Malfunction of the mode selection damper control motor and potentiometer
- Malfunction of the automatic A/C control panel (A/C-ECU)
- Damaged the wiring harness or connectors

DIAGNOSIS PROCEDURE

STEP 1. Check the mode selection damper control motor and potentiometer.

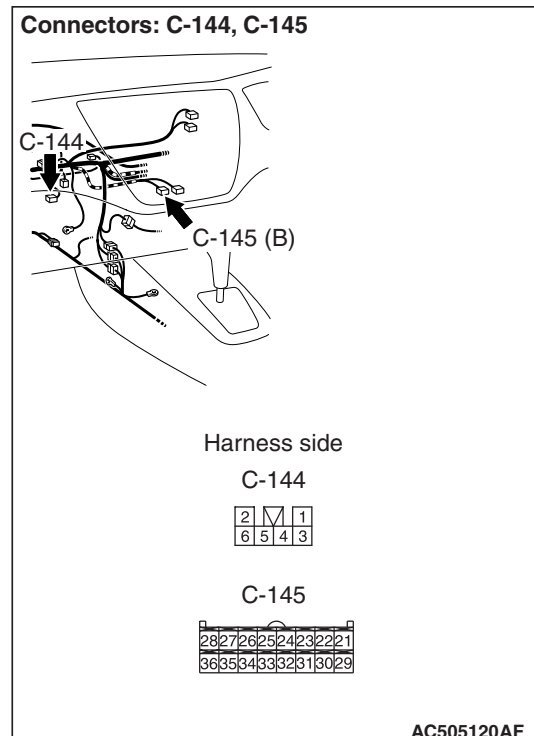
Refer to [P.55B-69](#).

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the mode selection damper control motor and potentiometer.

STEP 2. Connector check: C-145 A/C-ECU connector and C-144 mode selection damper control motor and potentiometer connector

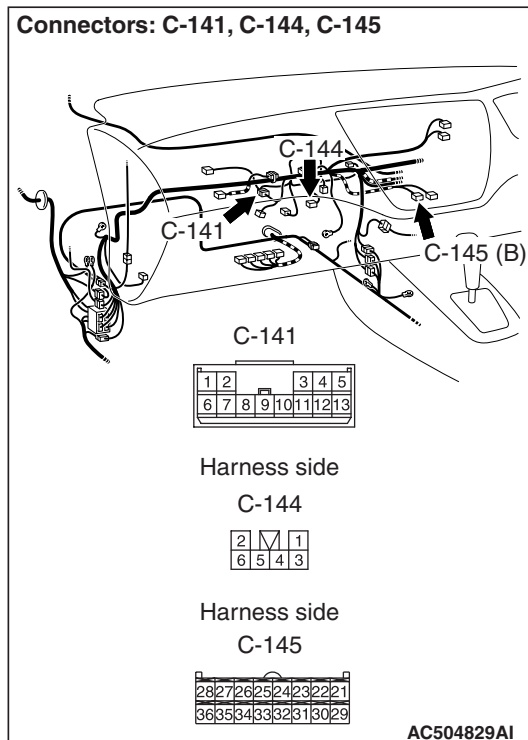


Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector.

STEP 3. Check the wiring harness between C-145 A/C-ECU connector (terminals 21 and 24) and C-144 mode selection damper control motor and potentiometer connector (terminals 3 and 1).



NOTE: Prior to the wiring harness inspection, check intermediate connector C-141, and repair if necessary.

- Check the motor activating lines for open or short circuit.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

TROUBLE SYMPTOM CHART

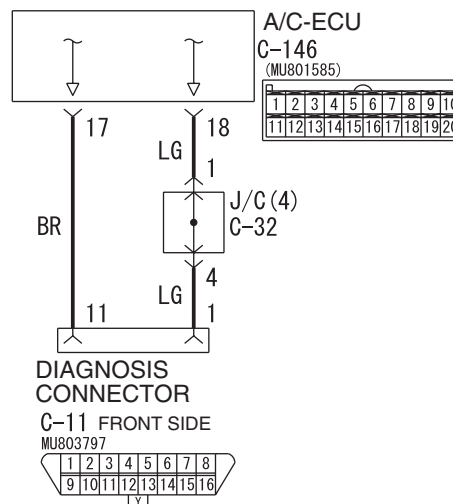
M1554005000623

Symptom	Inspection procedure number	Reference page
Communication with the M.U.T.-II/III is not possible.	1	P.55B-21
When the A/C is operating, temperature inside the passenger compartment does not decrease (cool air is not emitted).	2	P.55B-24
A/C outlet air temperature cannot be set.	3	P.55B-30
The blower does not work.	4	P.55B-31
The blower air volume cannot be changed.	5	P.55B-38
When sunlight intensity changes, blower air temperature does not change.	6	P.55B-40
The outside/inside air changeover is impossible.	7	P.55B-42
Rear window defogger function does not operate.	8	P.55B-46
Malfunction of the A/C-ECU power supply system.	9	P.55B-53
A/C compressor power supply system.	10	P.55B-57

SYMPTOM PROCEDURES

Inspection Procedure 1: Communication with the M.U.T.-II/III is not Possible.

Diagnosis Connector Circuit



COMMENTS ON TROUBLE SYMPTOM

If communication with all other systems is not possible, there is a high possibility that there is a malfunction of the diagnosis line. If only the A/C system can not communicate with the M.U.T.-II/III, the diagnosis line between the A/C-ECU and the diagnosis connector may be defective.

PROBABLE CAUSES

- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE**STEP 1. Check the communication with other systems.**

Q: Is the communication with the other systems possible using the M.U.T.-II/III?

YES : Go to Step 2.

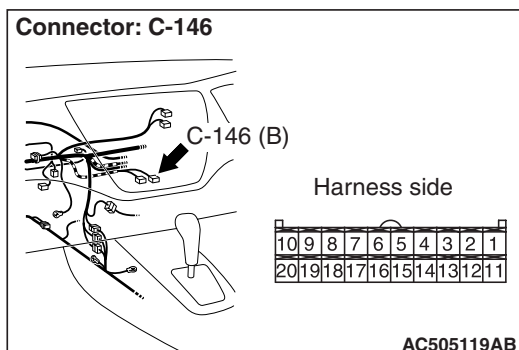
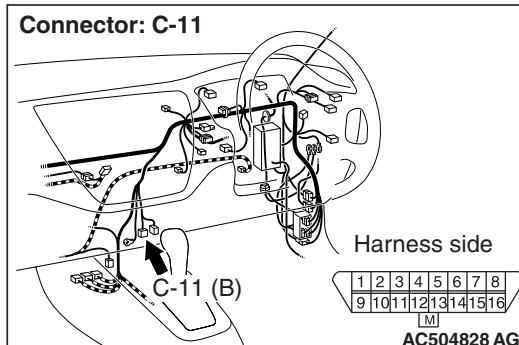
NO : Check the diagnosis line using the M.U.T.-II/III, and repair if necessary.

STEP 2. Check operations of the A/C, rear window defogger and outside/inside air selection damper control motor.

Q: Does the A/C, rear window defogger or outside/inside air selection damper control motor operate?

YES : Go to Step 3.

NO : Refer to Inspection procedure 9 "Malfunction of the A/C-ECU power supply system [P.55B-53](#)."

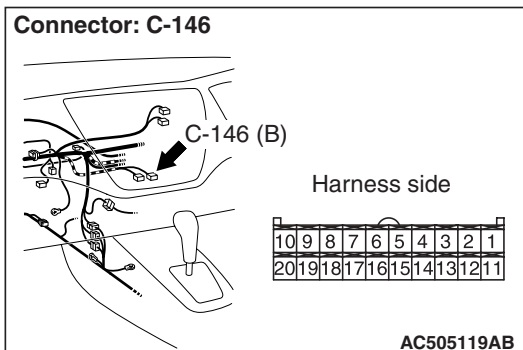
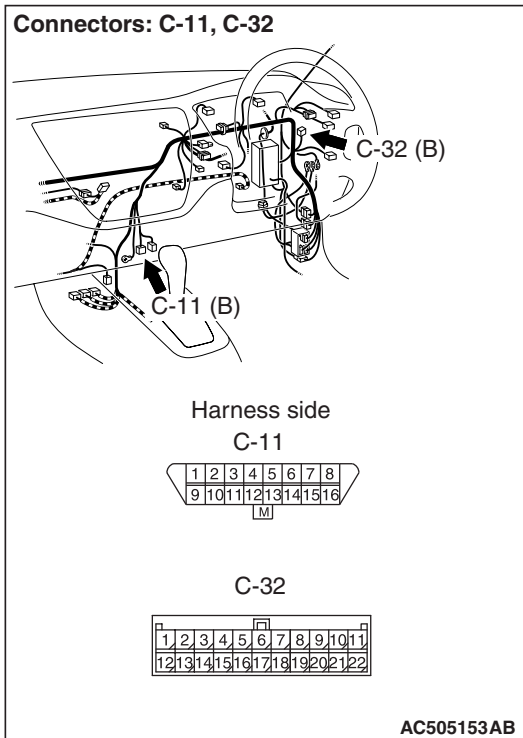
STEP 3. Connector check: C-146 A/C-ECU connector and C-11 diagnosis connector

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector.

STEP 4. Check the wiring harness between C-146 A/C-ECU connector (terminal 17 and 18) and C-11 diagnosis connector (terminal 11 and 1).



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

- Check the communication lines for open or short circuit.

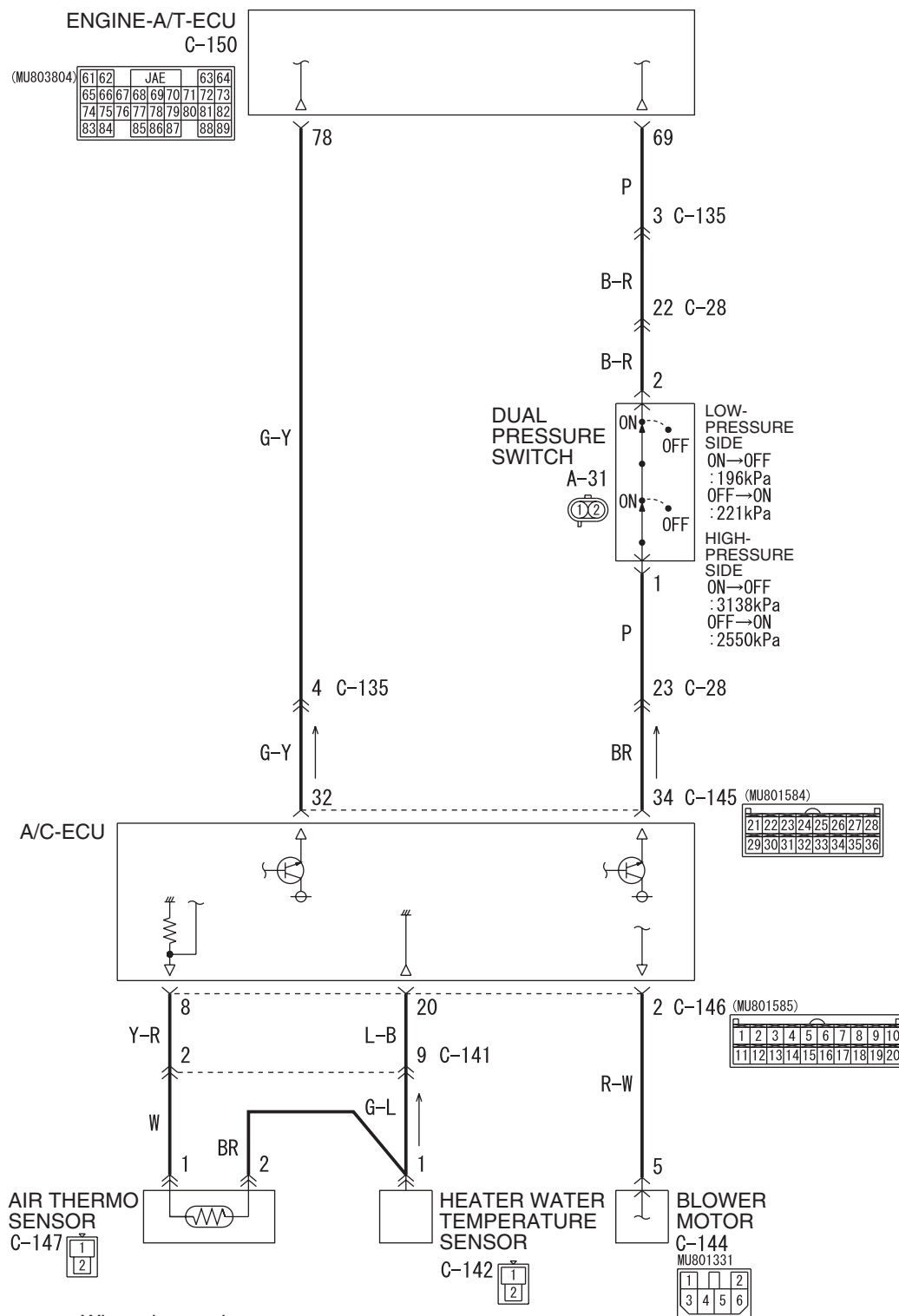
Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

Inspection Procedure 2: When the A/C is Operating, Temperature Inside the Passenger Compartment does not Decrease (Cool Air is not Emitted).

A/C-ECU System Circuit



COMMENTS ON TROUBLE SYMPTOM

If cool air is not distributed when the A/C switch is on, the air thermo sensor or the A/C compressor relay system may be defective.

PROBABLE CAUSES

- Improper amount of refrigerant
- Malfunction of the air thermo sensor
- Malfunction of the dual pressure switch
- Malfunction of the A/C compressor relay
- Malfunction of the A/C refrigerant temperature switch
- Malfunction of the magnetic clutch
- Malfunction of the manual A/C control panel (A/C-ECU)
- Damaged the wiring harness or connectors
- Malfunction of the engine-ECU

DIAGNOSIS PROCEDURE

STEP 1. Check the rear window defogger and outside/inside air selection damper control motor operation.

Q: Do the rear window defogger and outside/inside air selection damper control motor work normally?

YES : Go to Step 2.

NO : Refer to Inspection procedure 9
"Malfunction of the A/C-ECU power supply system [P.55B-53](#)."

STEP 2. Check the blower motor operation.

Q: Does the blower motor work normally?

YES : Go to Step 3.

NO : Refer to Inspection procedure 4 "The blower does not work [P.55B-31](#)."

STEP 3. Check the A/C compressor.

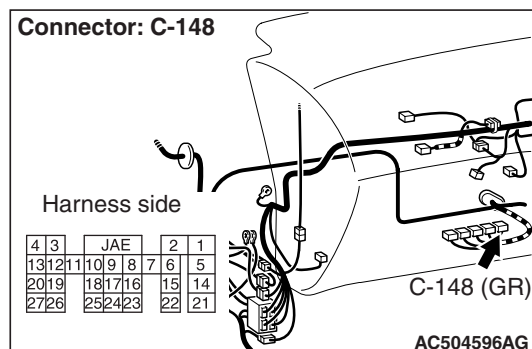
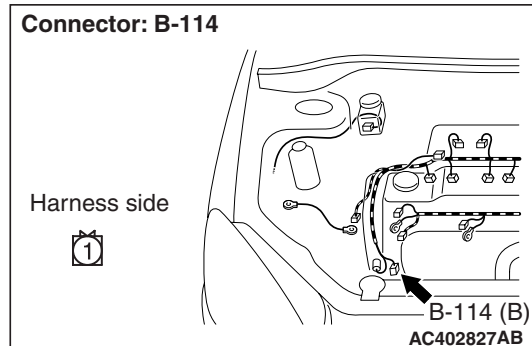
Check the A/C compressor for compressor oil leaks.

Q: Is the check result satisfactory?

YES : Go to Step 4.

NO : Replace the A/C compressor or the expansion valve.

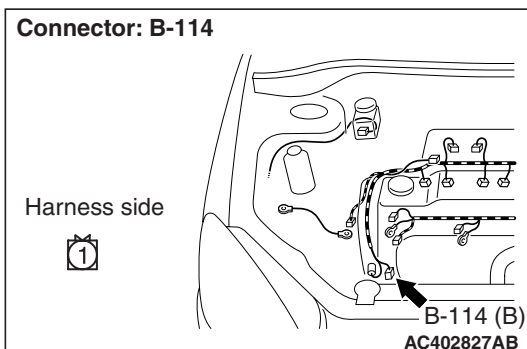
STEP 4. Connector check: B-114 A/C compressor connector and C-148 engine-A/T-ECU connector



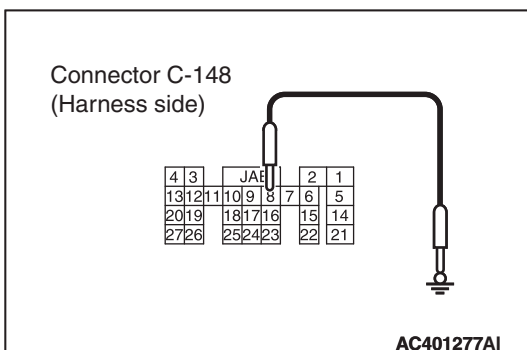
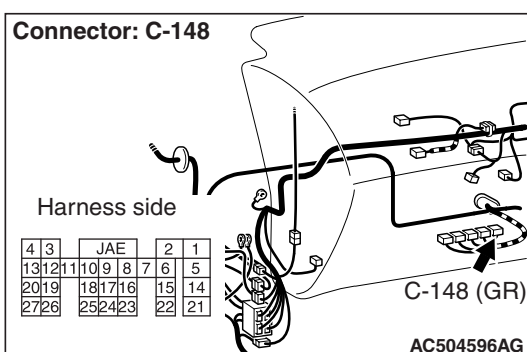
Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector.

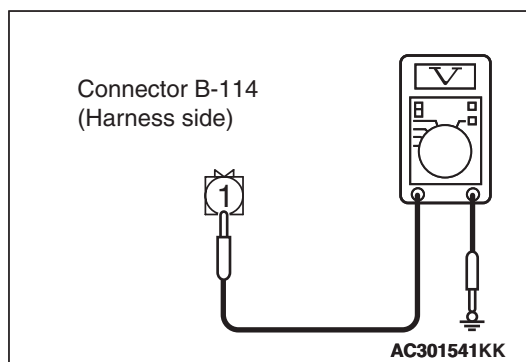
STEP 5. Voltage measurement at the B-114 A/C compressor connector.

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



- (2) Disconnect engine-ECU connector C-148, and earth terminal 8.

- (3) Turn the ignition switch to the "ON" position.



- (4) Measure the voltage between terminal 1 and body earth.

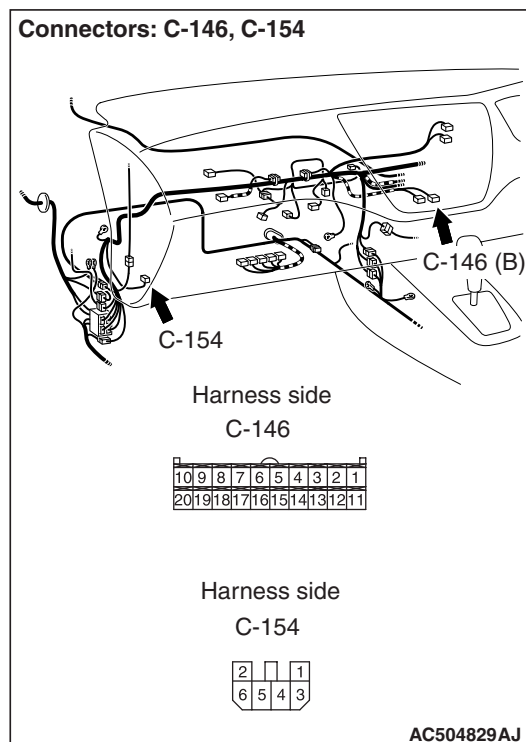
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 6.

NO : Refer to Inspection procedure 10 "A/C Compressor power supply system

[P.55B-57."](#)

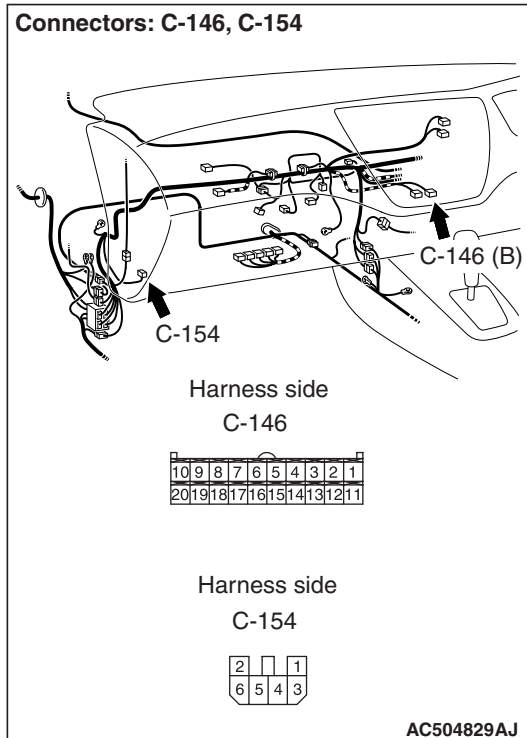
STEP 6. Connector check: C-146 A/C-ECU connector and C-154 blower liner controller connector

Q: Is the check result normal?

YES : Go to Step 7.

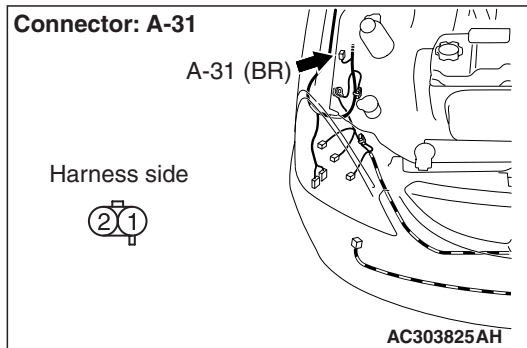
NO : Repair the connector.

STEP 7. Check the wiring harness between C-154 blower liner controller connector terminal No.5 and C-146 A/C-ECU connector terminal No.2.



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

STEP 8. Connector check: A-31 dual pressure switch connector



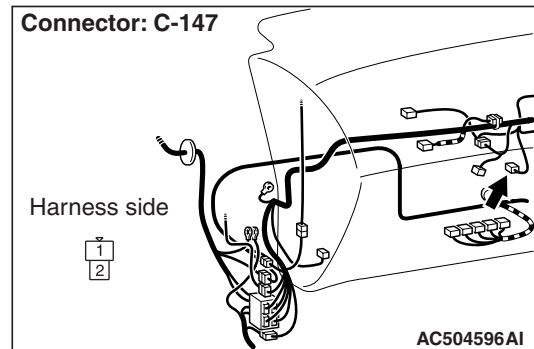
Q: Is the check result normal?
YES : Go to Step 9.
NO : Repair the connector.

STEP 9. Check the dual pressure switch operation.

Refer to [P.55A-43](#).

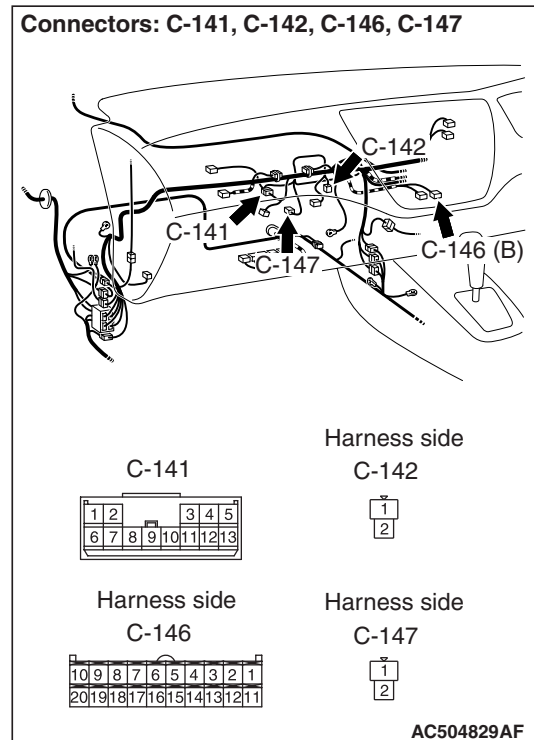
Q: Is the dual pressure switch operating properly?
YES : Go to Step 10.
NO : Replace the dual pressure switch.

STEP 10. Connector check: C-147 air thermo sensor connector



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

STEP 11. Check the wiring harness between C-147 air thermo sensor connector (terminals 1 and 2) and C-146 A/C-ECU connector (terminals 8 and 20).

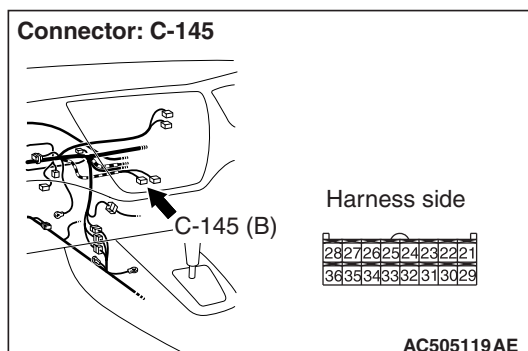
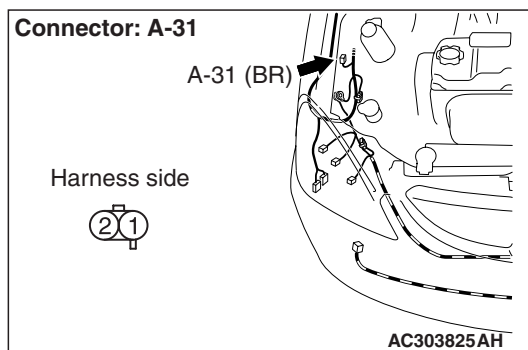


NOTE: Prior to the wiring harness inspection, check intermediate connector C-141 and heater water temperature sensor C-142, and repair if necessary.

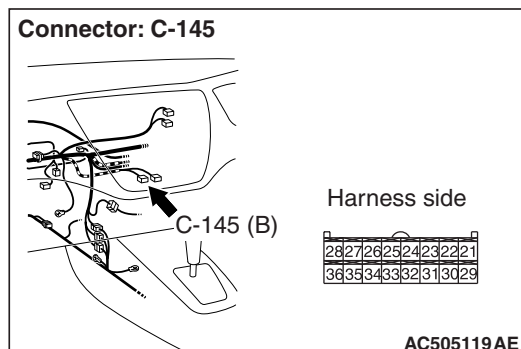
- Check the air thermo sensor output and earth line for open or short circuit.

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

STEP 12. Check the wiring harness between A-31 dual pressure switch connector terminal No.1 and C-145 A/C-ECU connector terminal No.34.



STEP 13. Connector check: C-145 engine-A/T-ECU connector

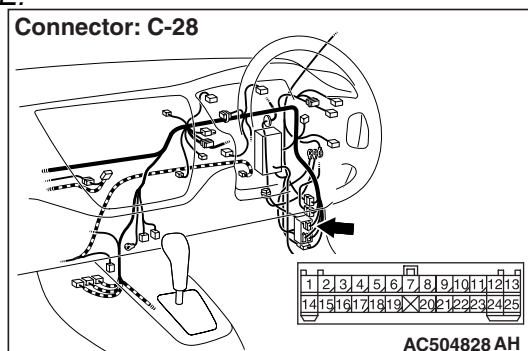


Q: Is the check result normal?

YES : Go to Step 14.

NO : Repair the connector.

NOTE:



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

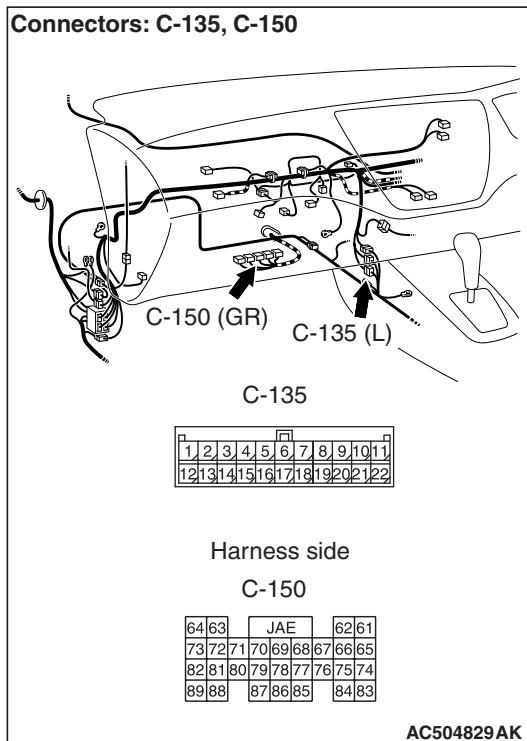
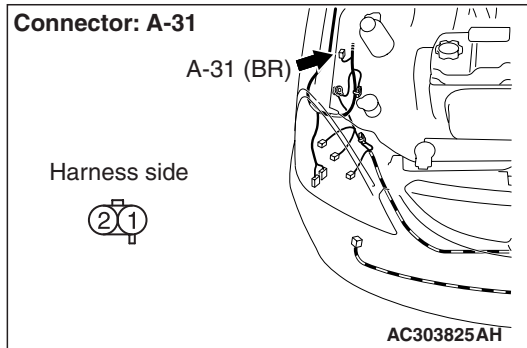
- Check the dual pressure switch output line for open or short circuit.

Q: Is the check result normal?

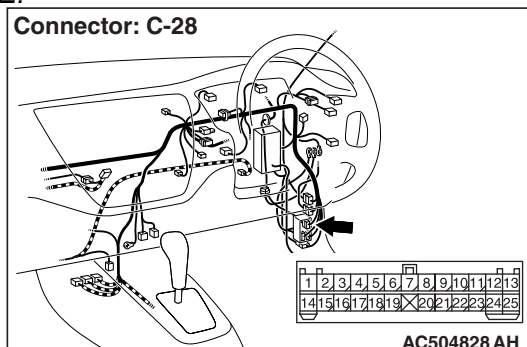
YES : Go to Step 13.

NO : Repair the wiring harness.

STEP 14. Check the wiring harness between C-150 engine-A/T-ECU connector terminal No.69 and A-31 dual pressure switch connector terminal No.2.



NOTE:



Prior to the wiring harness inspection, check intermediate connector C-28 and C-135, and repair if necessary.

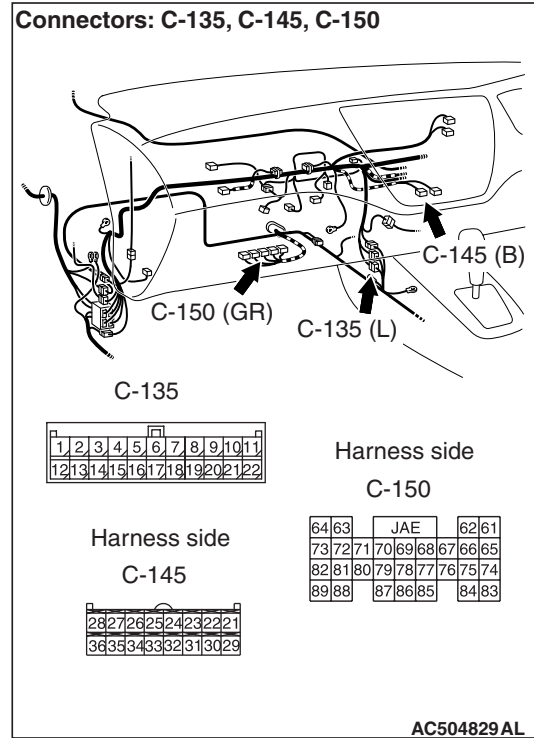
- Check the communication line for open or short circuit.

Q: Is the check result normal?

YES : Go to Step 15.

NO : Repair the wiring harness.

STEP 15. Check the wiring harness between C-150 engine-A/T-ECU connector terminal No.78 and C-145 A/C-ECU connector terminal No.32.



NOTE: Prior to the wiring harness inspection, check intermediate connector C-135, and repair if necessary.

- Check the communication line for open or short circuit.

Q: Is the check result normal?

YES : Go to Step 16.

NO : Repair the wiring harness.

STEP 16. Check the magnetic clutch operation.

Refer to [P.55A-59](#).

Q: Can the sound of the magnetic clutch (click) be heard?

YES : Go to Step 17.

NO : Replace the compressor magnet clutch.

STEP 17. Check the refrigerant temperature switch.

Refer to [P.55A-61](#).

Q: Is the refrigerant temperature switch operating properly?

YES : Go to Step 18.

NO : Replace the refrigerant temperature switch.

STEP 18. Check the air thermo sensor.

Refer to [P.55B-74](#).

Q: Is the air thermo sensor in good condition?

YES : Go to Step 19.

NO : Replace the air thermo sensor.

STEP 19. Check the refrigerant level.

Refer to [P.55A-43](#).

Q: Is the refrigerant level correct?

YES : Go to Step 20.

NO : Correct the refrigerant level (Refer to [P.55A-43](#)).

STEP 20. Replace the A/C-ECU.

Check that the A/C works normally.

Q: Is the check result normal?

YES : The procedure is complete.

NO : Replace the engine-A/T-ECU.

Inspection Procedure 3: A/C Outlet Air Temperature cannot be set.

COMMENTS ON TROUBLE SYMPTOM

When the blower air temperature can not be changed even if the preset temperature is changed, the sensors, the air mixing damper control motor and potentiometer or the A/C-ECU may be defective.

PROBABLE CAUSE

- Malfunction of the A/C-ECU

DIAGNOSIS PROCEDURE

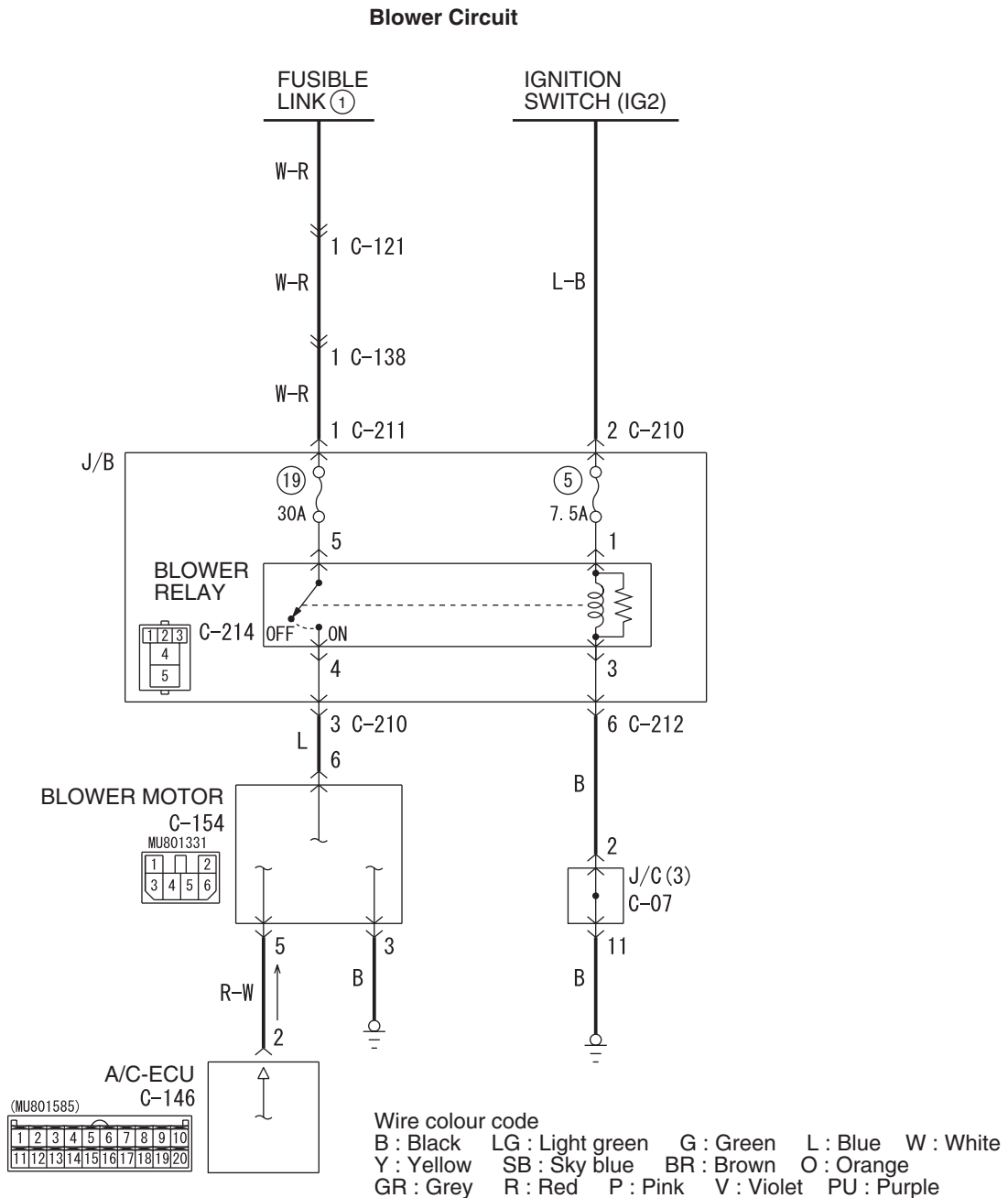
M.U.T.-II/III diagnosis code

Q: Is the diagnosis code set?

YES : Refer to diagnosis code chart [P.55B-4](#).

NO : Replace the automatic A/C control panel (A/C-ECU).

Inspection Procedure 4: The Blower does not work.



W6J55L016A

COMMENTS ON TROUBLE SYMPTOM

If the blower motor does not operate, the blower motor circuit system may be defective.

PROBABLE CAUSES

- Malfunction of the blower motor.
- Malfunction of the automatic A/C control panel (A/C-ECU)
- Damaged the wiring harness or connectors

DIAGNOSIS PROCEDURE

STEP 1. M.U.T.-II/III actuator test

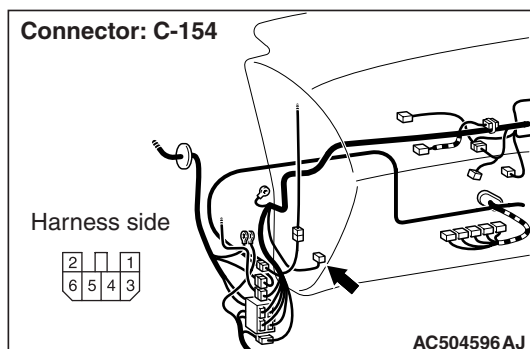
Carry out the actuator test. (Refer to [P.55B-63](#))

- Item 01, 02, 03, 04: Blower motor

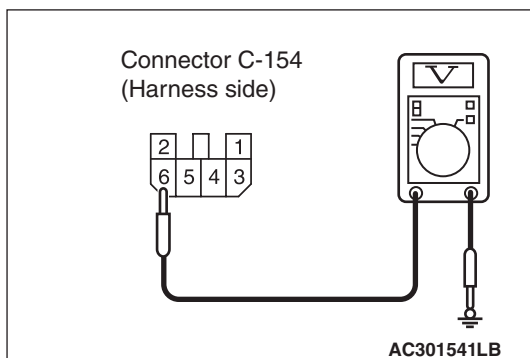
Q: Does the blower motor work normally?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Go to Step 2.

STEP 2. Voltage measurement at the C-154 blower motor connector.

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



- (3) Measure the voltage between terminal 6 and body earth.

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 15.

NO : Go to Step 3.

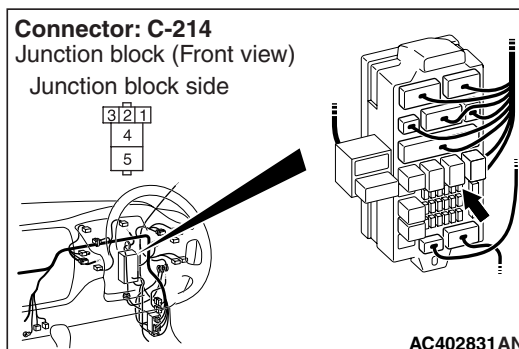
STEP 3. Check the blower relay.

Refer to GROUP 55A, On-vehicle Service –Power relay check [P.55A-46](#).

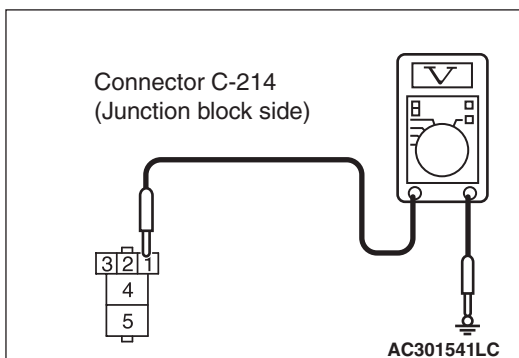
Q: Is the blower relay in good condition?

YES : Go to Step 4.

NO : Replace the blower relay.

STEP 4. Voltage measurement at C-214 blower relay connector.

- (1) Remove the relay, and measure at the junction block side.
- (2) Turn the ignition switch to the ON position.



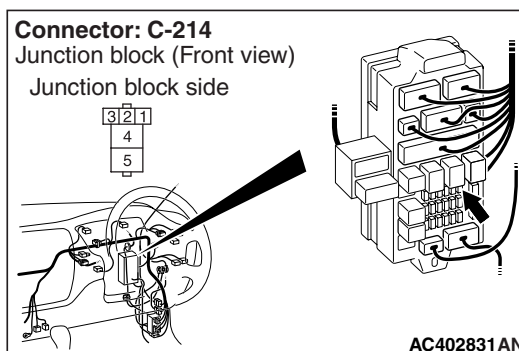
- (3) Voltage between terminal 1 and body earth.

OK: System voltage

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 5.

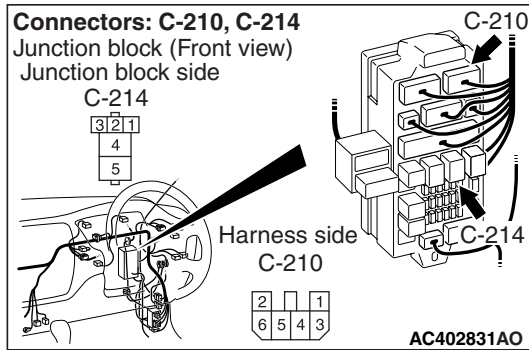
STEP 5. Connector check: C-214 blower relay connector

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

STEP 6. Check the wiring harness between C-214 blower relay connector terminal No.3 and the ignition switch (IG2).



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

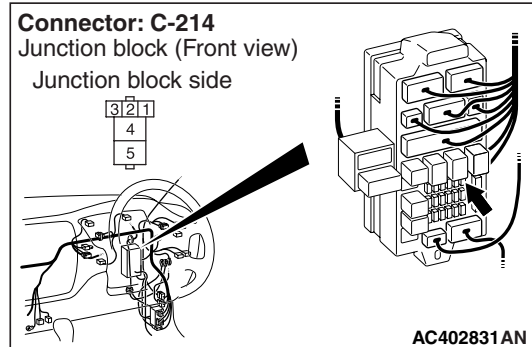
- Check the blower relay power supply line for open circuit.

Q: Is the check result normal?

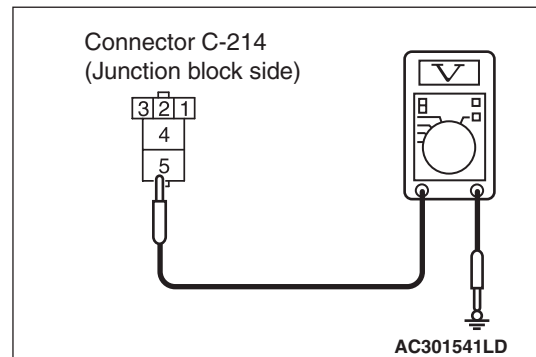
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the wiring harness.

STEP 7. Measure the voltage at C-214 blower relay connector.



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



(2) Voltage between terminal 5 and body earth.

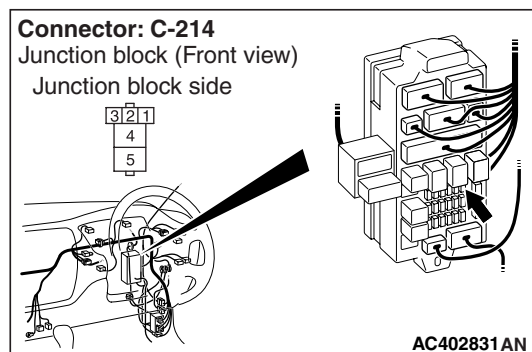
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 8.

STEP 8. Connector check: C-214 blower relay connector

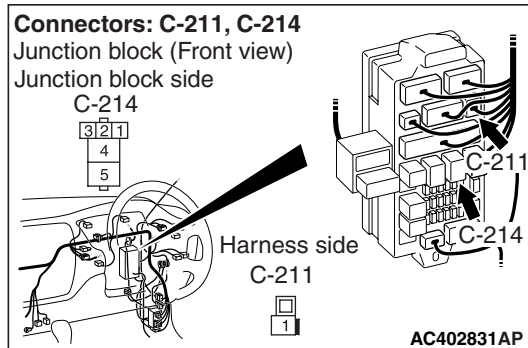


Q: Is the check result normal?

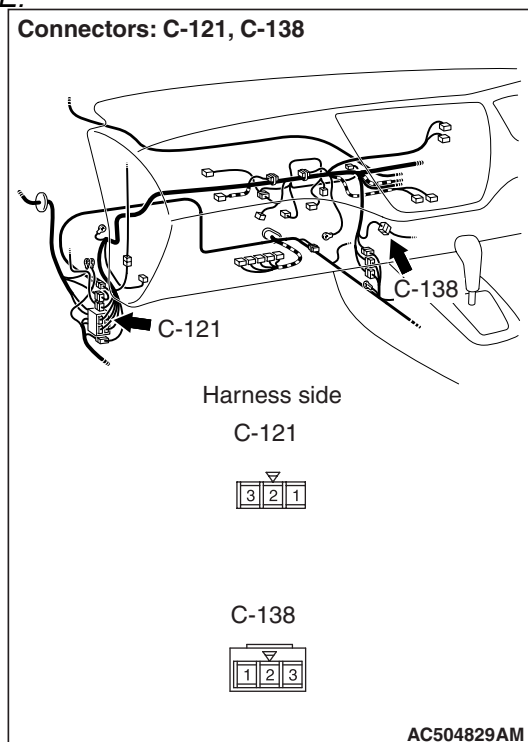
YES : Go to Step 9.

NO : Repair the connector.

STEP 9. Check the wiring harness between C-214 blower relay connector terminal No.5 and fusible link (1).



NOTE:



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

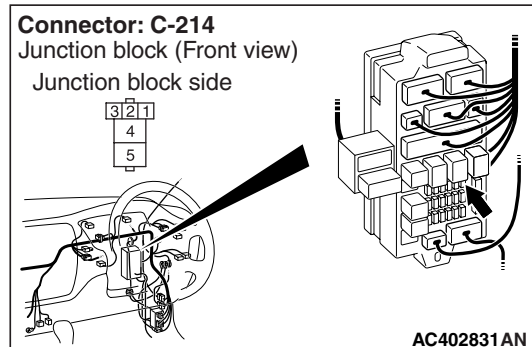
- Check the blower relay power supply line for open circuit.

Q: Is the check result normal?

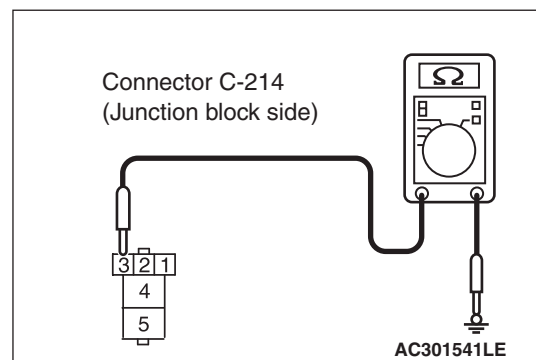
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-13](#)).

NO : Repair the wiring harness.

STEP 10. Resistance measurement at C-214 blower relay connector.



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



- (2) Measure the resistance between terminal 3 and body earth

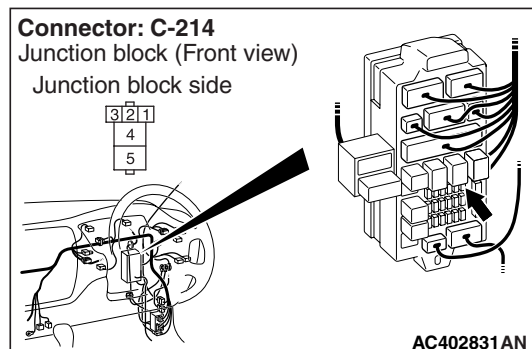
OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 13.

NO : Go to Step 11.

STEP 11. Connector check: C-214 blower relay connector

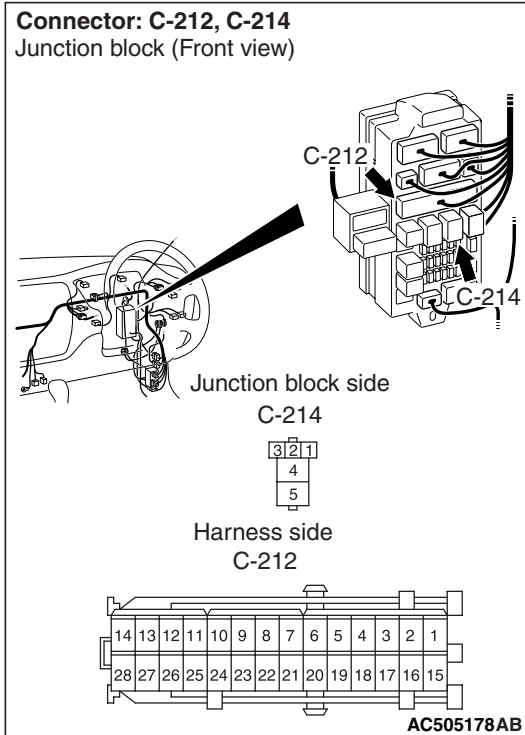


Q: Is the check result normal?

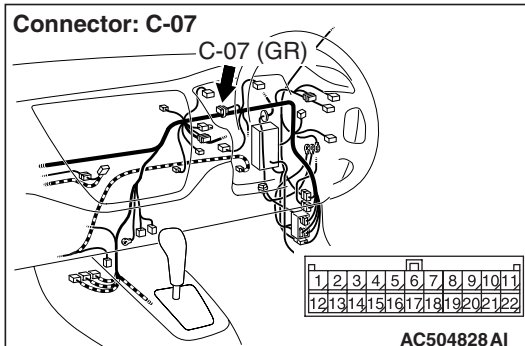
YES : Go to Step 12.

NO : Repair the connector.

STEP 12. Check the wiring harness between C-214 blower relay connector terminal No.3 and body earth.



NOTE:



Prior to the wiring harness inspection, check junction block connector C-212 and joint connector C-07, and repair if necessary.

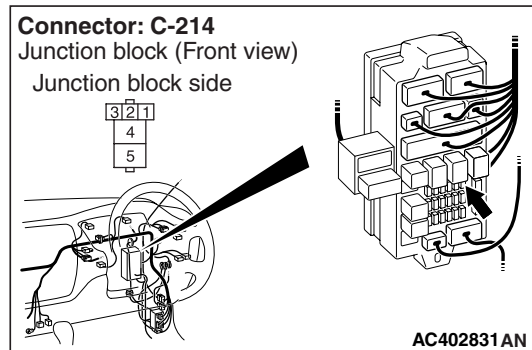
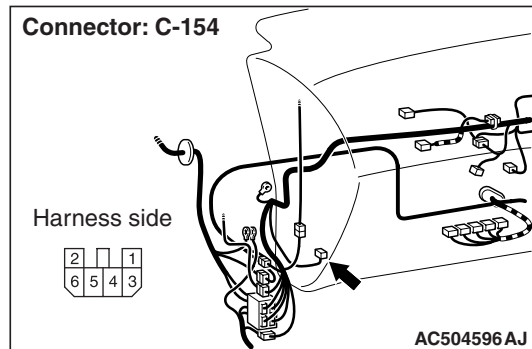
- Check the blower relay earth wires for open circuit.

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 13. Connector check: C-214 blower relay connector and C-154 blower motor connector

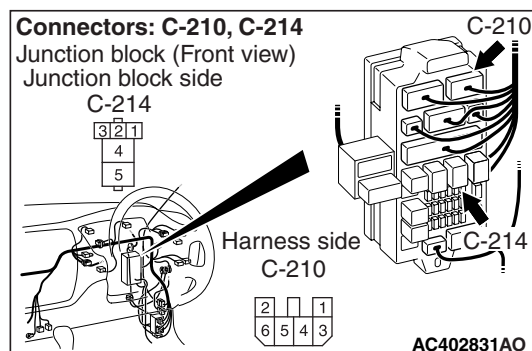
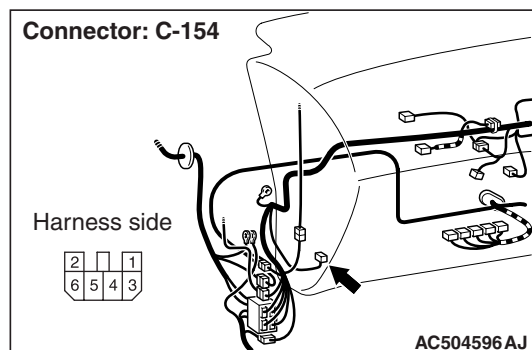


Q: Is the check result normal?

YES : Go to Step 14.

NO : Repair the connector.

STEP 14. Check the wiring harness between C-214 blower relay connector terminal No.4 and C-154 blower motor connector terminal No.6.



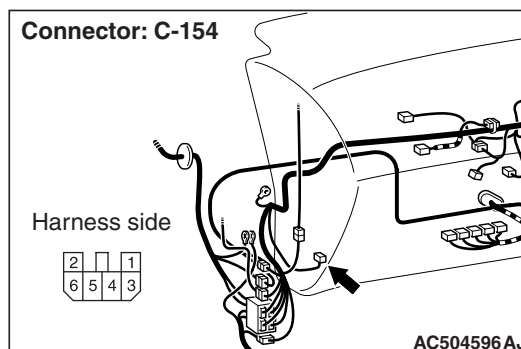
NOTE: Prior to the wiring harness inspection, check junction block connector C-210, and repair if necessary.

- Check the blower motor power supply line for open circuit.

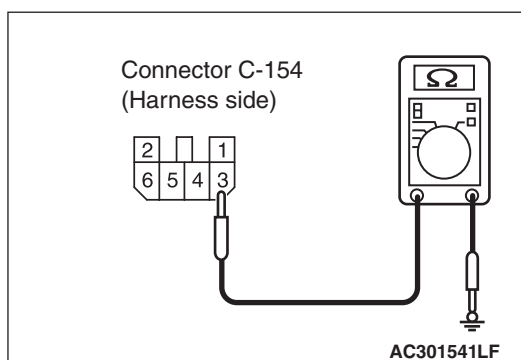
Q: Is the check result normal?

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 15. Resistance measurement at the C-154 blower motor connector.



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



(2) Continuity between terminal 3 and body earth

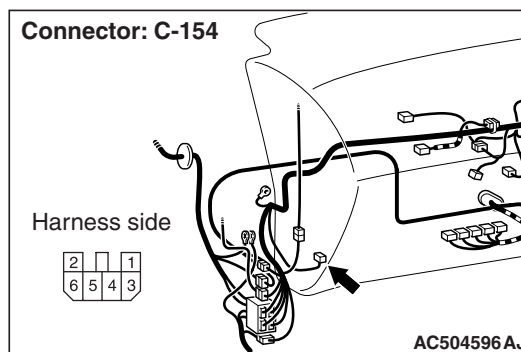
OK: 2Ω or less

Q: Is the check result normal?

YES : Go to Step 18.

NO : Go to Step 16.

STEP 16. Connector check: C-154 blower motor

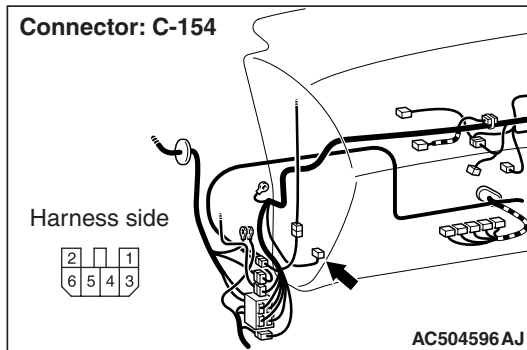


Q: Is the check result normal?

YES : Go to Step 17.

NO : Repair the connector.

STEP 17. Check the wiring harness between C-154 blower motor connector terminal No.3 and body earth.



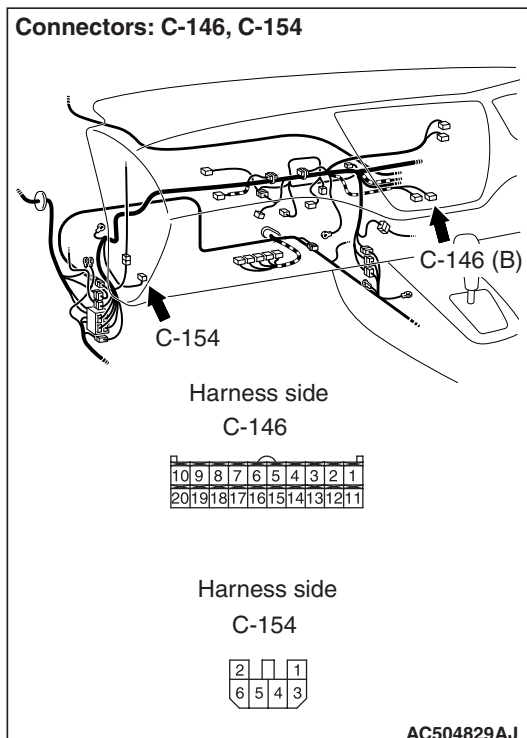
- Check the blower motor earth line for open circuit.

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 18. Connector check: C-146 A/C-ECU connector and C-154 blower motor connector

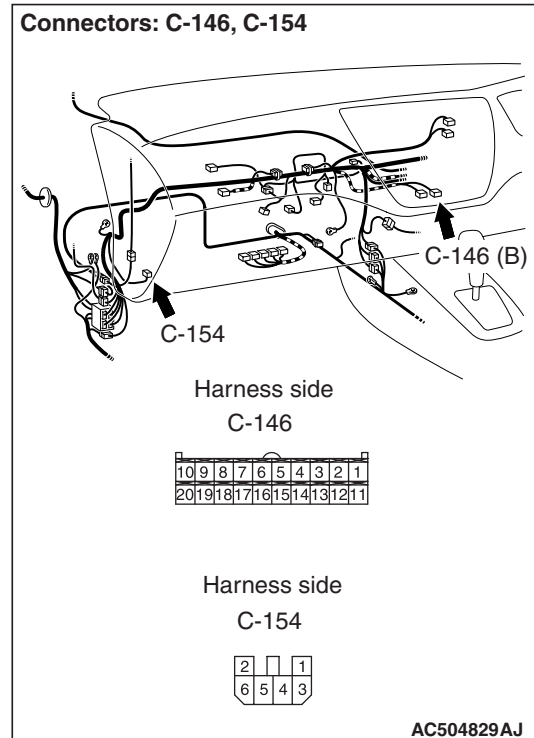


Q: Is the check result normal?

YES : Go to Step 19.

NO : Repair the connector.

STEP 19. Check the wiring harness between C-146 A/C-ECU connector terminal No.2 and C-154 blower motor connector terminal No.5.

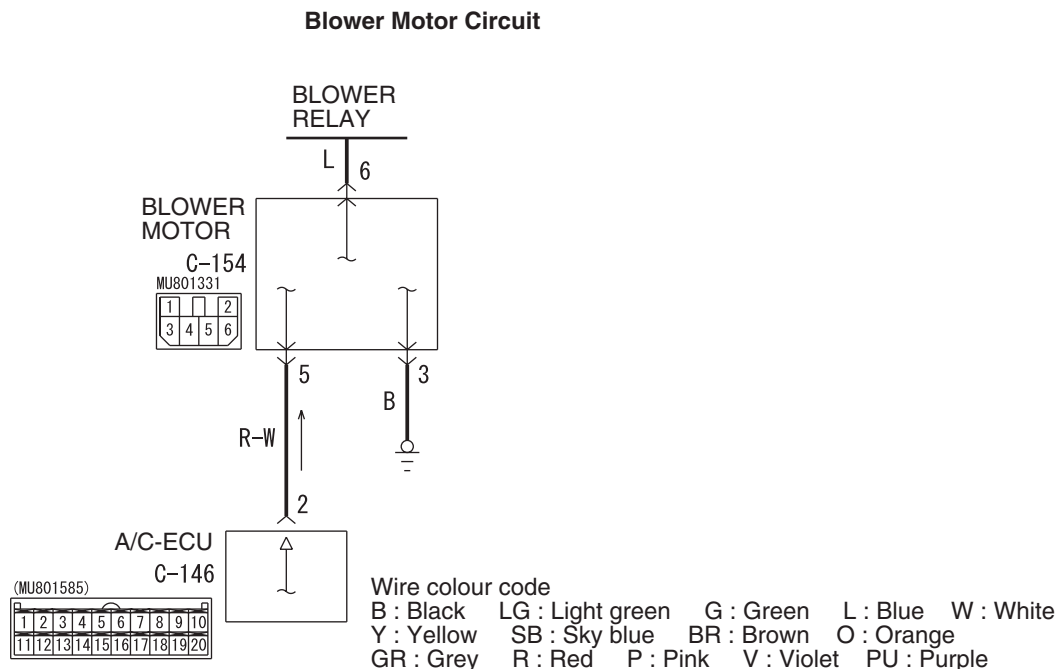


- Check the communication line for open or short circuit.

Q: Is the check result normal?

YES : Replace the A/C control panel (A/C-ECU) or the blower motor.

NO : Repair the wiring harness.

Inspection Procedure 5: The Blower Air Volume cannot be changed.

W6J55L017A

COMMENTS ON TROUBLE SYMPTOM

If the blower air volume can not be changed when the blower switch is operated, the circuit between blower motor and A/C-ECU may be defective.

POSSIBLE CAUSES

- Blower motor
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE**STEP 1. M.U.T.-II/III actuator test**

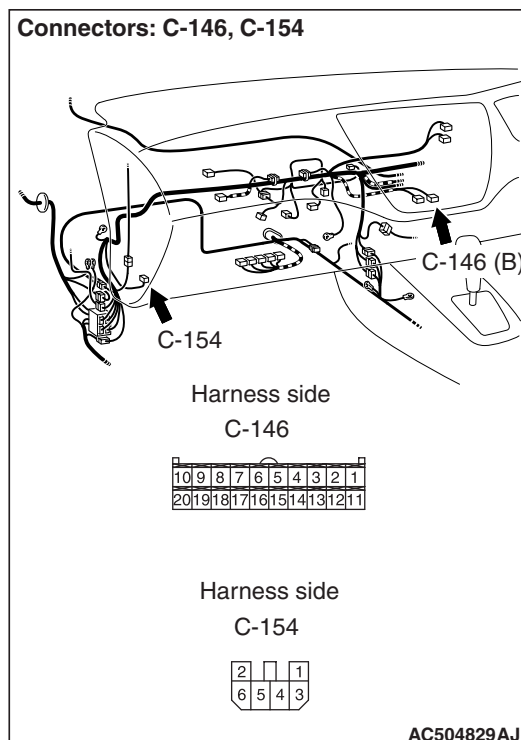
Carry out the actuator test.

- Items 01, 02, 03, 04: Blower motor

Q: Does the blower motor work normally?

YES : Replace the automatic A/C control panel (A/C-ECU)

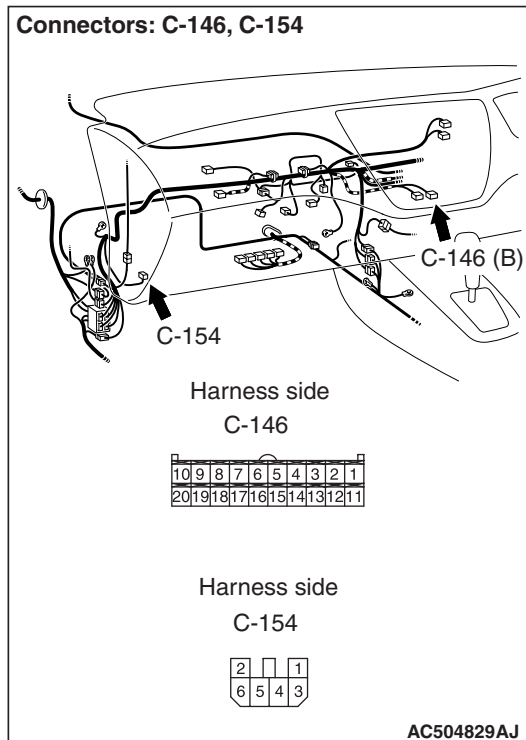
NO : Go to Step 2.

STEP 2. Connector check: C-146 A/C-ECU connector and C-154 blower motor connector**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Repair the connector.

**STEP 3. Check the wiring harness between C-146
A/C-ECU connector terminal No.2 and C-154
blower motor connector terminal No.5.**

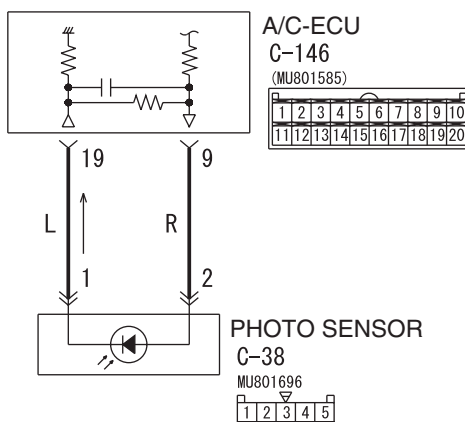


- Check the communication line for open or short circuit.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU) or the blower motor.

NO : Repair the wiring harness.

Inspection Procedure 6: When sunlight intensity changes, blower air temperature does not Change.**Photo Sensor 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

W6J55L018A

CIRCUIT OPERATION

When the blower air temperature can not be changed even if the preset temperature is changed, the sensors may be defective.

PROBABLE CAUSES

- Malfunction of the photo sensor
- Damaged the wiring harness or connectors
- Malfunction of the A/C-ECU

DIAGNOSIS PROCEDURE

STEP 1. Check the rear window defogger and outside/inside air selection damper control motor operation.

Q: Do the rear window defogger and outside/inside air selection damper control motor work normally?

YES : Go to Step 2.

NO : Refer to Inspection procedure 9

"Malfunction of the A/C-ECU power supply system [P.55B-53](#)."

STEP 2. M.U.T.-II/III diagnosis code

On completion, check that the diagnosis code is not reset.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Carry the diagnosis code procedures. Refer to [P.55B-4](#).

STEP 3. M.U.T.-II/III data list

- Item 25: Photo sensor

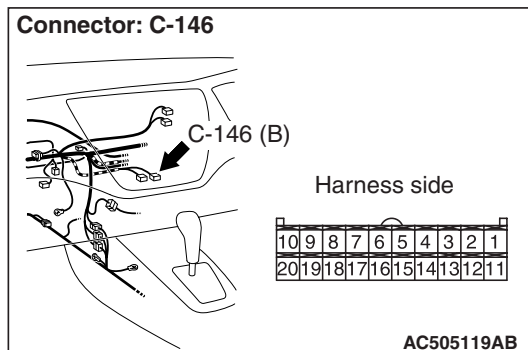
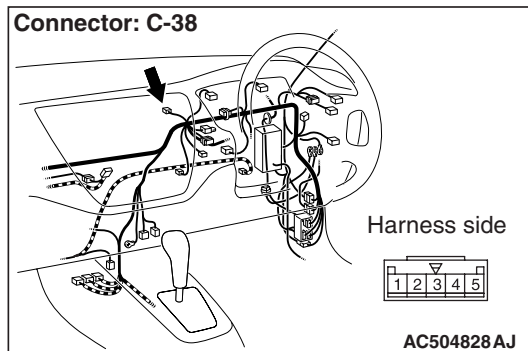
OK: Check that the volume of insolation takes inverse proportion with the M.U.T.-II/III displayed voltage.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Go to Step 4.

STEP 4. Connector check: C-146 A/C-ECU connector and C-38 photo sensor connector.

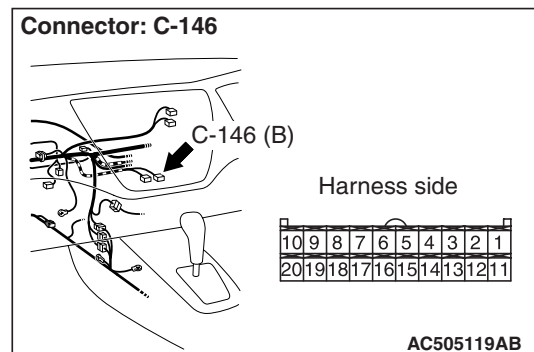
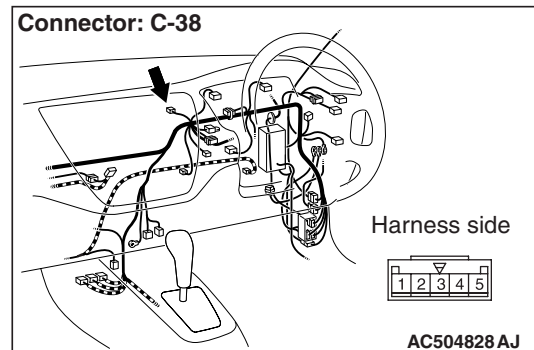


Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair or replace the connector.

STEP 5. Check the wiring harness between C-38 photo sensor connector (terminal 1, 2) and C-146 A/C-ECU connector (terminal 19, 9).

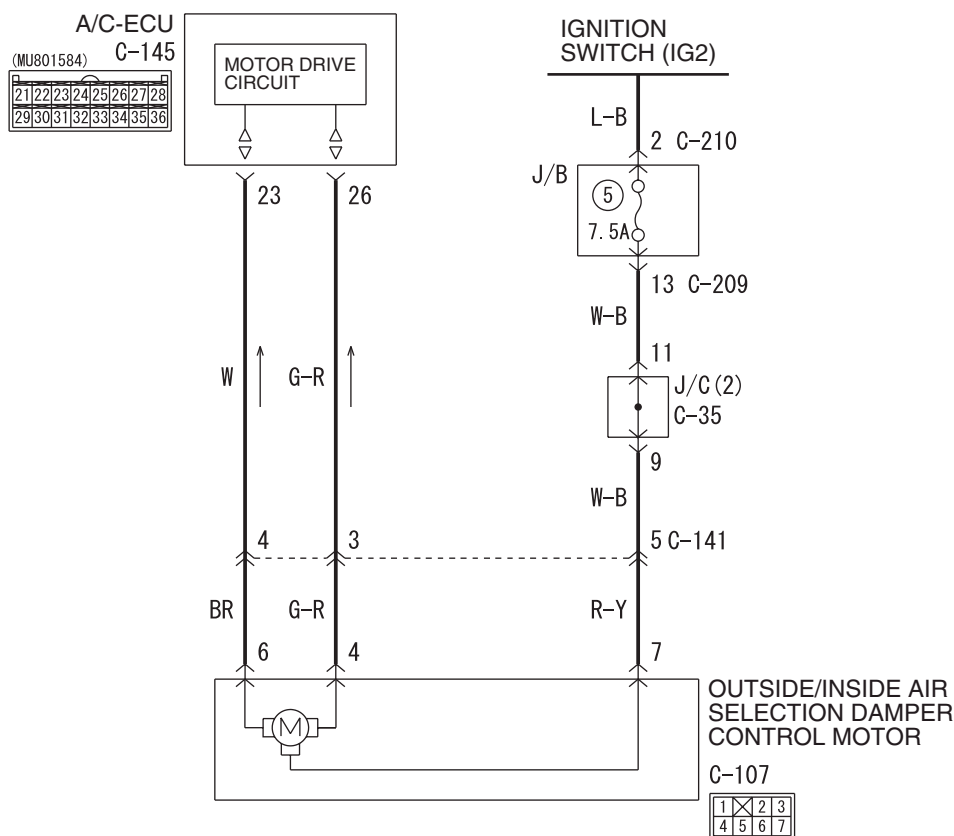


- Check the photo sensor signal lines for open or short circuit.

Q: Is the check result normal?

YES : Replace the Photo sensor.

NO : Repair the wiring harness.

Inspection Procedure 7: The outside/inside air changeover is impossible.**Outside/Inside Air Selection Damper Control Motor Circuit**

Wire colour code

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

W6J55L020A

COMMENTS ON TROUBLE SYMPTOM

When inside air cannot be changed to outside air vice versa even if its changeover switch is on, the outside/inside air selection damper control motor system may be defective.

PROBABLE CAUSES

- Malfunction of the outside/inside air selection damper control motor
- Damaged the wiring harness or connectors
- Malfunction of the automatic A/C control panel (A/C-ECU)

DIAGNOSIS PROCEDURE**STEP 1. M.U.T.-II/III actuator test**

Carry out the actuator test. (Refer to [P.55B-63](#))

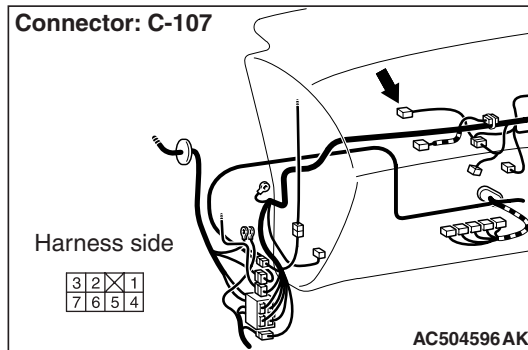
- Item 13, 14: outside/inside air selection damper control motor

Q: Does the blower motor work normally?

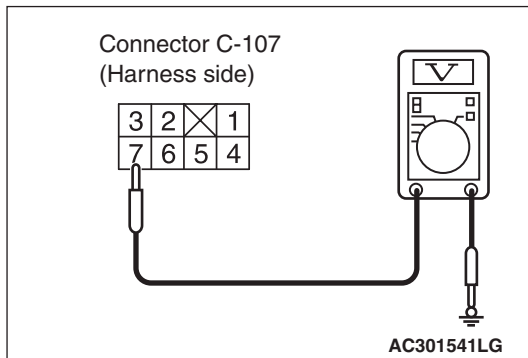
YES : Replace the automatic A/C control panel (A/C-ECU)

NO : Go to Step 2.

STEP 2. Measure the voltage at C-107 outside/inside air selection damper control motor connector.



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



- (3) Measure the voltage between terminal 7 and body earth.

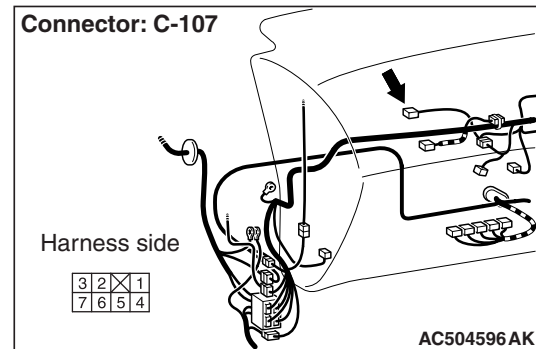
OK: System voltage

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 3.

STEP 3. Connector check: C-107 outside/inside air selection damper control motor connector

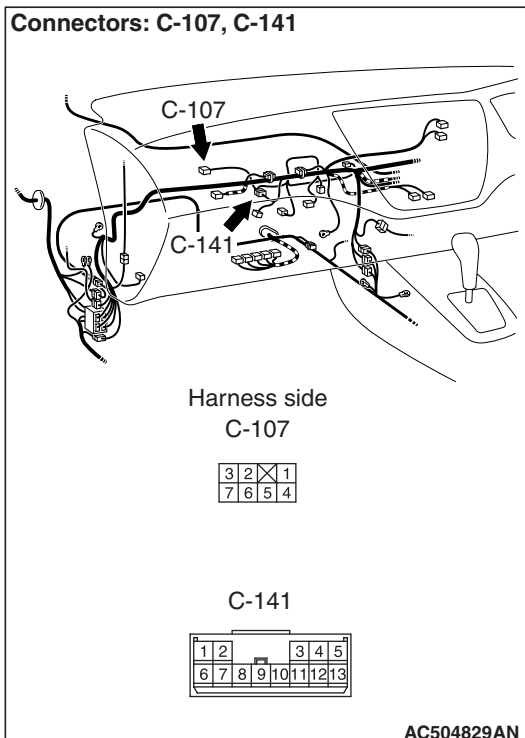


Q: Is the check result normal?

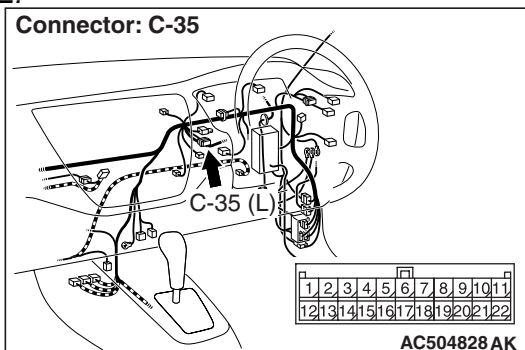
YES : Go to Step 4.

NO : Repair the connector.

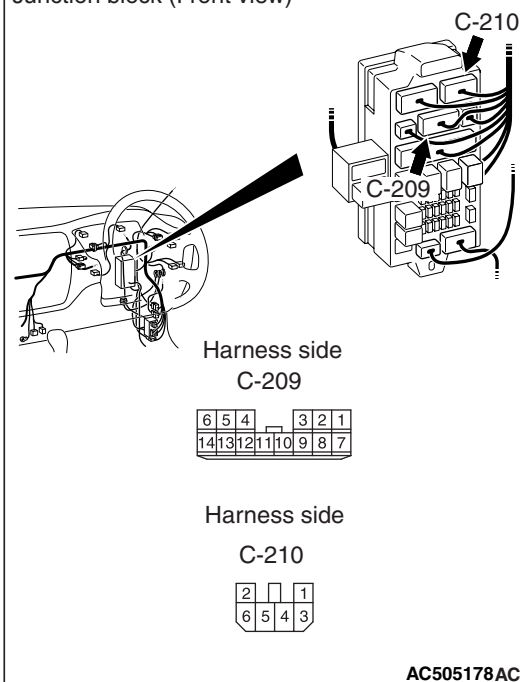
STEP 4. Check the wiring harness between C-107 outside/inside air selection damper control motor connector terminal No.7 and the ignition switch (IG2).



NOTE:



Connectors: C-209, C-210
Junction block (Front view)



Prior to the wiring harness inspection, check intermediate connector C-141, joint connector C-35 and junction block connectors C-209 and C-210, and repair if necessary.

- Check the motor 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.

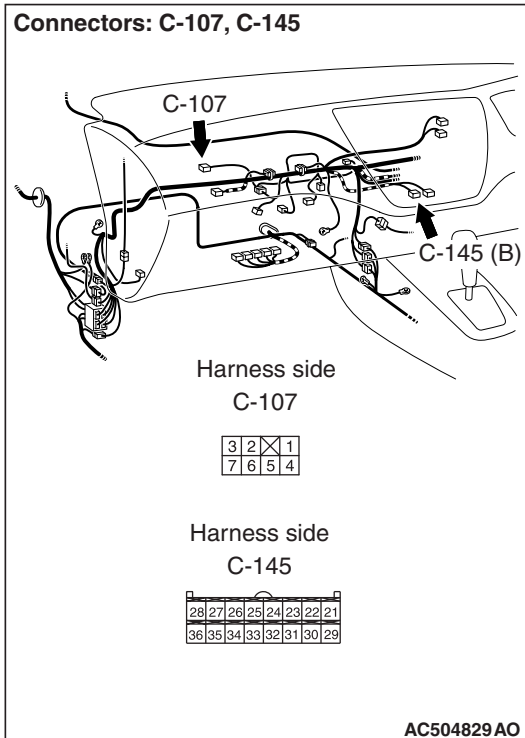
STEP 5. Check the outside/inside air selection damper control motor

Refer to [P.55B-69](#).

Q: Is the check result normal?

- YES :** Go to Step 6.
- NO :** Replace the outside/inside air selection damper control motor.

STEP 6. Connector check: C-145 A/C-ECU connector and C-107 outside/inside air selection damper control motor connector

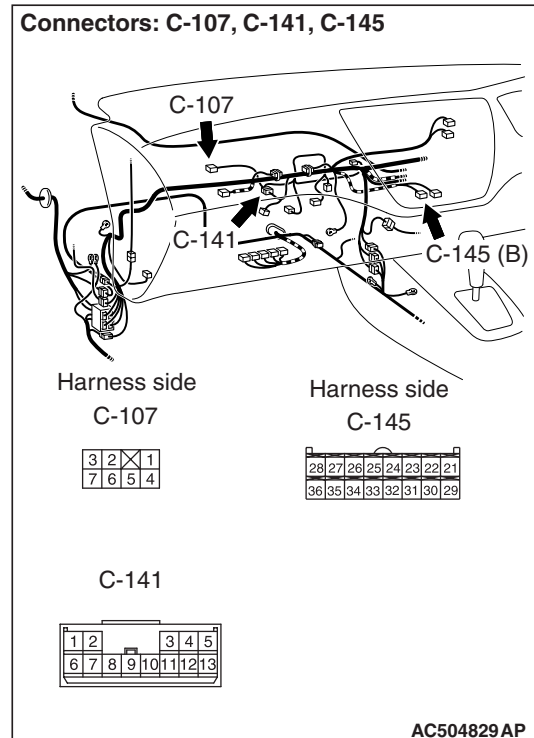


Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector.

STEP 7. Check the wiring harness between C-145 A/C-ECU connector (terminals 23 and 26) and C-107 outside/inside air selection damper control motor connector (terminals 6 and 4).



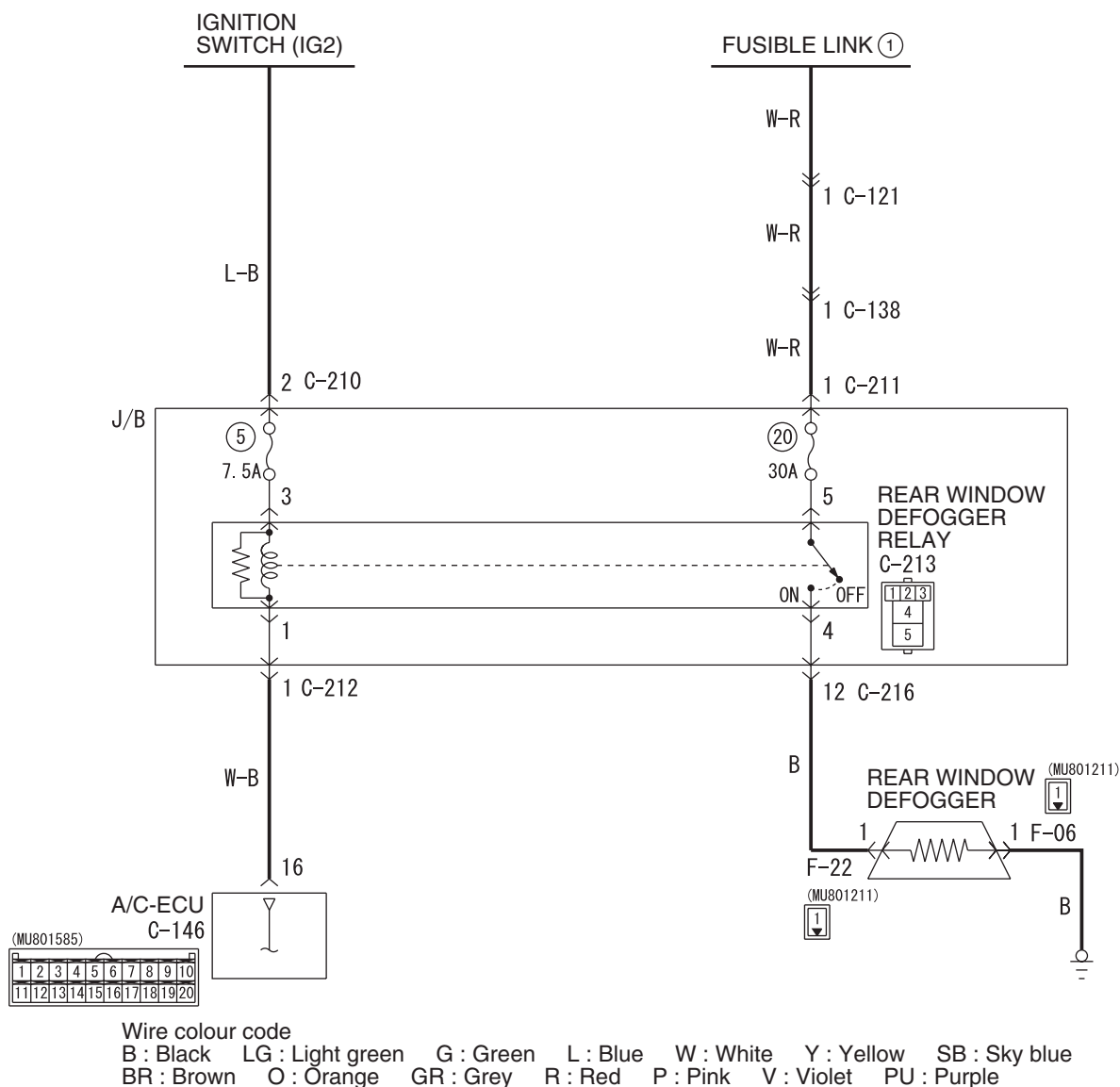
NOTE: Prior to the wiring harness inspection, check intermediate connector C-141, and repair if necessary.

- Check the motor activating lines for open or short circuit.

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

Inspection Procedure 8: Rear Window Defogger function does not operate.**Heater Water Temperature Sensor Circuit**

W6J55L019A

CIRCUIT OPERATION

If the rear window defogger does not operate when the rear window defogger switch is turned on, the rear window defogger relay system may be defective.

PROBABLE CAUSES

- Malfunction of the A/C-ECU
- Malfunction of the rear window defogger relay
- Damaged the wiring harness or connectors
- Malfunction of the rear window defogger

DIAGNOSIS PROCEDURE**STEP 1. Check the A/C and outside/inside air selection damper control motor operation.**

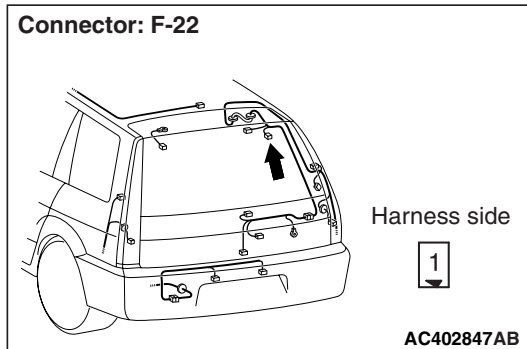
Q: Do the A/C and outside/inside air selection damper control motor work normally?

YES : Go to Step 2.

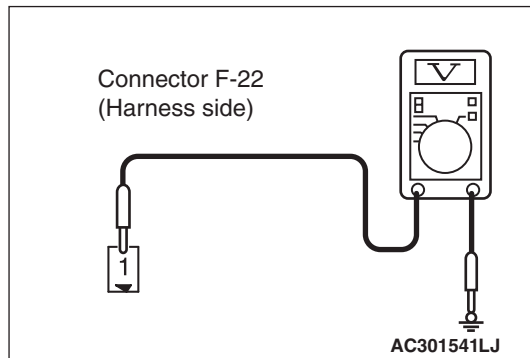
NO : Refer to Inspection procedure 9

"Malfunction of the A/C-ECU power supply system [P.55B-53](#)."

STEP 2. Voltage measurement at F-22 rear window defogger connector.



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



- (3) Measure the voltage between terminal 1 and body earth.

OK: System voltage

Q: Is the check result normal?

- YES :** Go to Step 14.
NO : Go to Step 3.

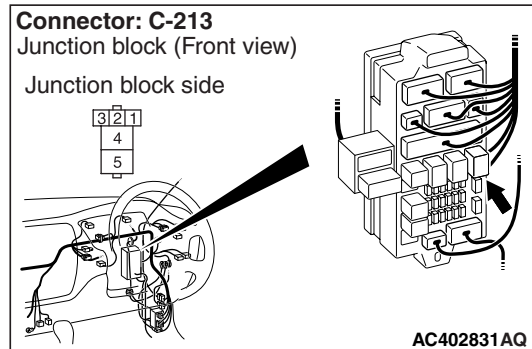
STEP 3. Check the rear window defogger relay continuity.

Refer to [P.55A-46](#).

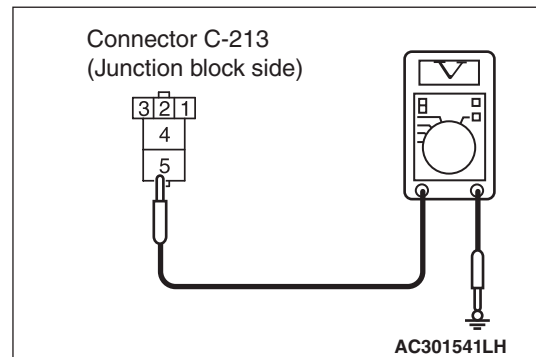
Q: Is the rear window defogger relay in good condition?

- YES :** Go to Step 4.
NO : Replace the rear window defogger relay.

STEP 4. Voltage measurement at C-213 rear window defogger relay connector.



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



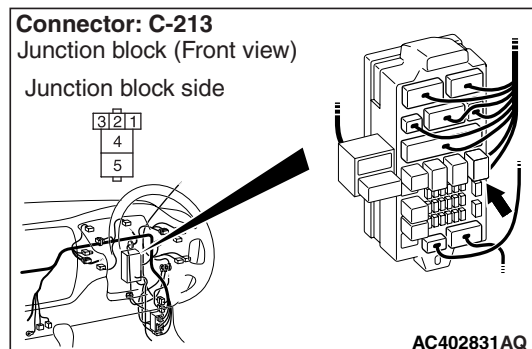
- (2) Measure the voltage between terminal 5 and body earth.

OK: System voltage

Q: Is the check result normal?

- YES :** Go to Step 7.
NO : Go to Step 5.

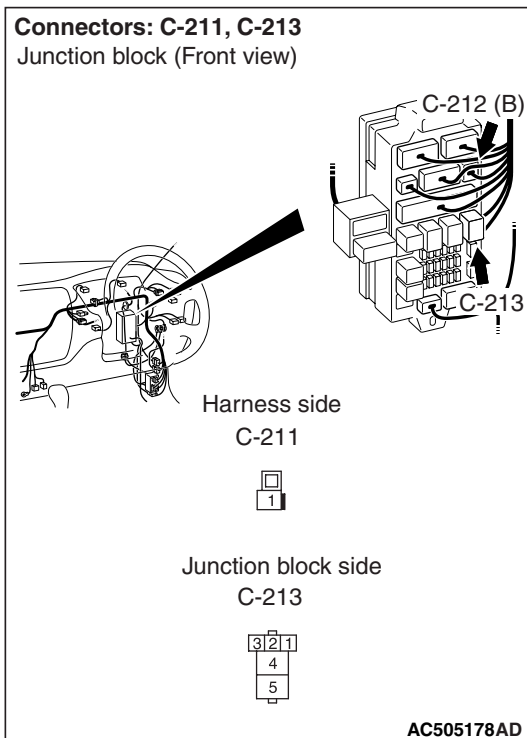
STEP 5. Connector check: C-213 rear window defogger relay connector



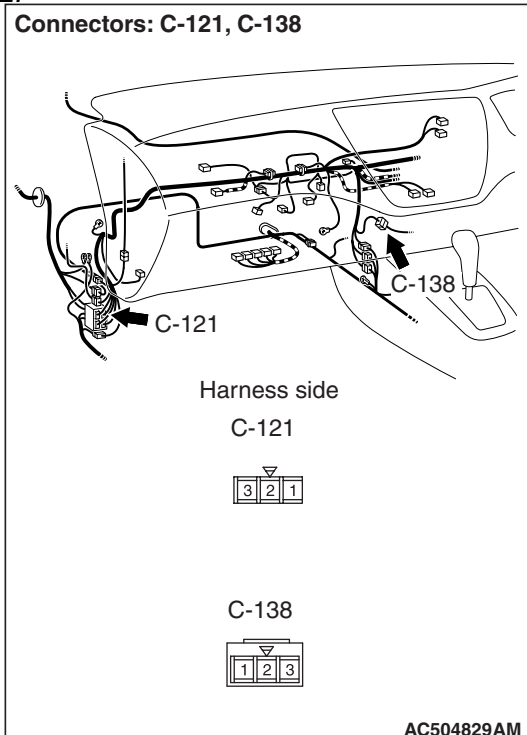
Q: Is the check result normal?

- YES :** Go to Step 6.
NO : Repair the connector.

STEP 6. Check the wiring harness between C-213 rear window defogger relay connector terminal No.5 and the fusible link (1).



NOTE:



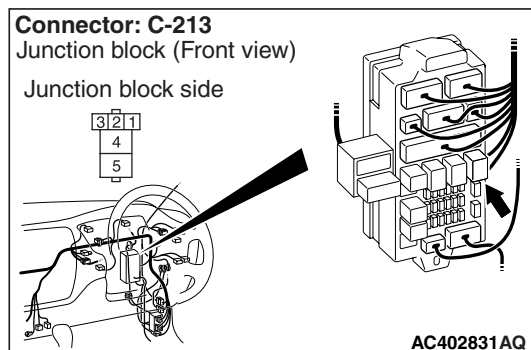
Prior to the wiring harness inspection, check intermediate connectors C-121, C-138 and junction block connector C-211, and repair if necessary.

- Check the rear window defogger relay power supply line for open or short circuit.

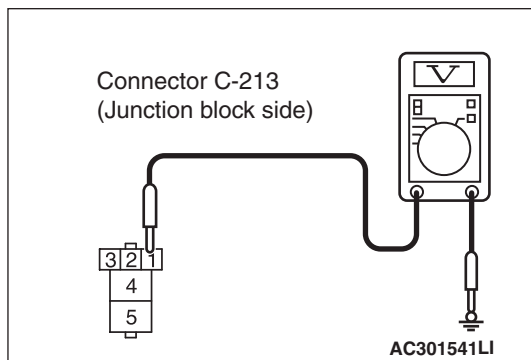
Q: Is the check result normal?

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 7. Voltage measurement at C-213 rear window defogger relay connector.



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



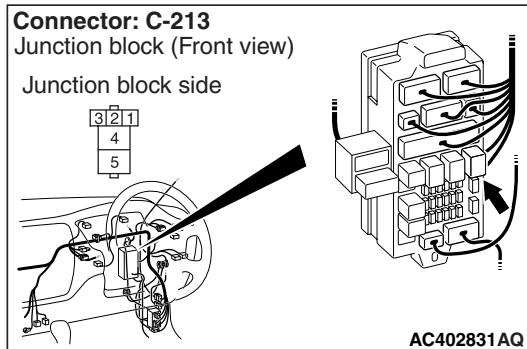
- (3) Voltage between terminal 3 and body earth.

OK: System voltage

Q: Is the check result normal?

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

STEP 8. Connector check: C-213 rear window defogger relay connector

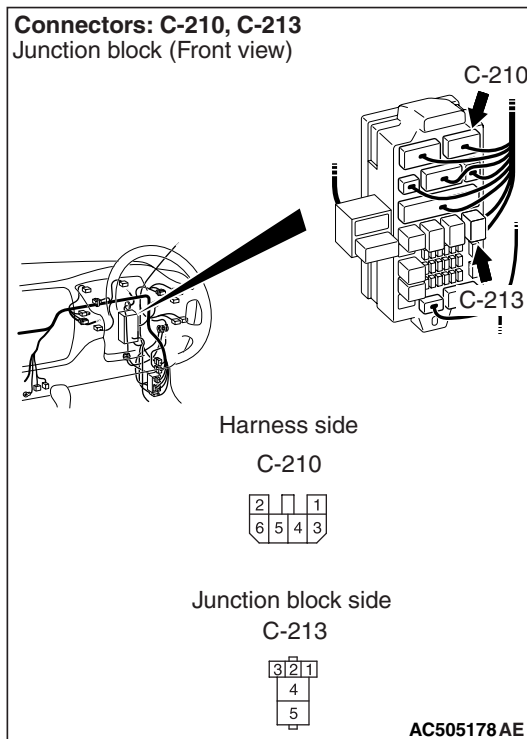


Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the connector.

STEP 9. Check the wiring harness between C-213 rear window defogger relay connector No.3 and ignition switch (IG2).



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

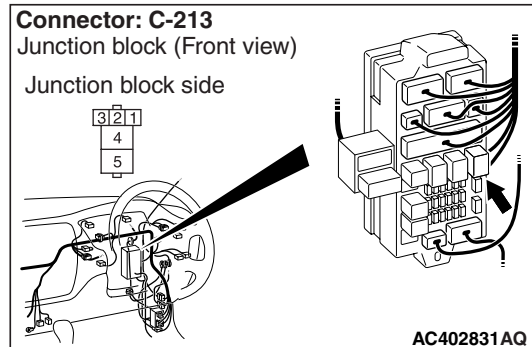
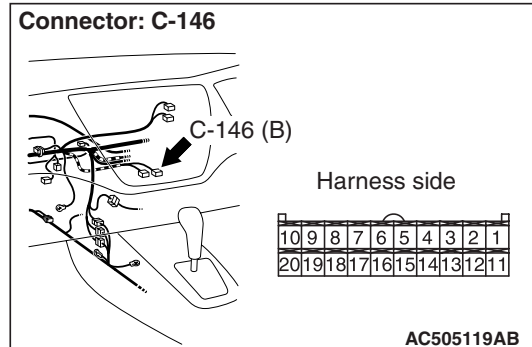
- Check the rear window defogger power supply line for open circuit.

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. Connector check: C-213 rear window defogger relay connector and C-146 A/C-ECU connector

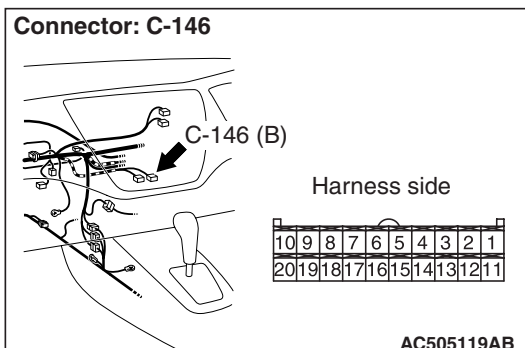


Q: Is the check result normal?

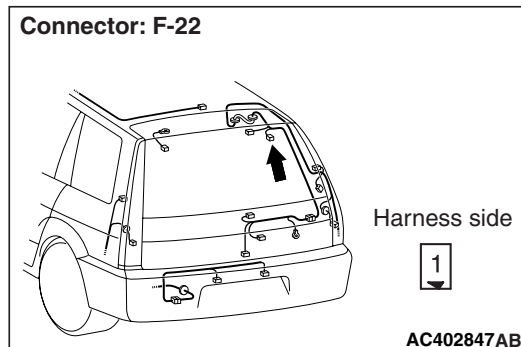
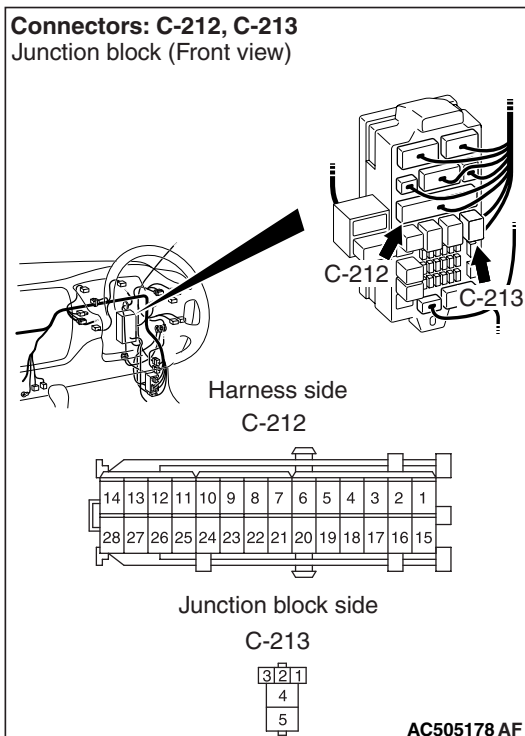
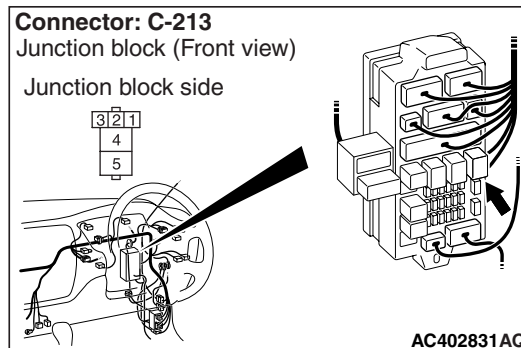
YES : Go to Step 11.

NO : Repair the connector.

STEP 11. Check the wiring harness between rear window defogger relay connector C-213 No.1 and A/C-ECU connector C-146 No.16.



STEP 12. Connector check: C-213 rear window defogger relay connector and F-22 rear window defogger connector



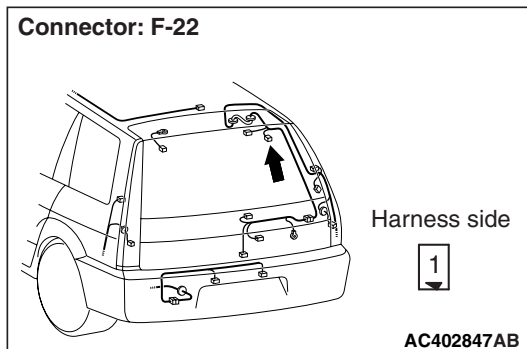
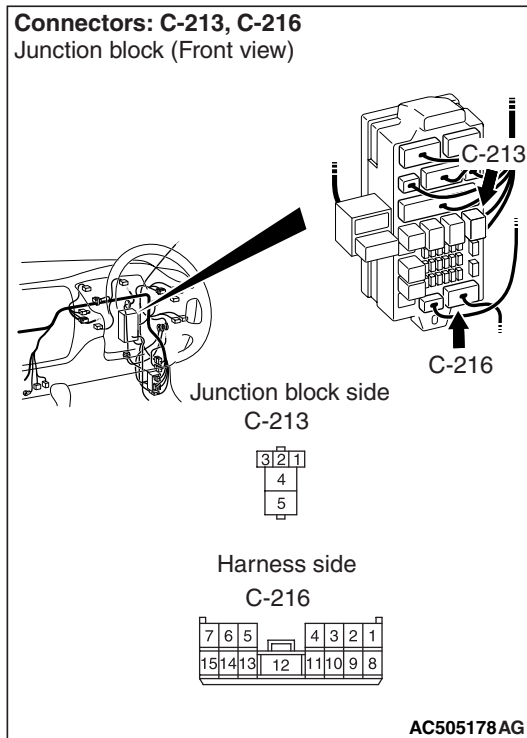
Q: Is the check result normal?
YES : Go to Step 13.
NO : Repair the connector.

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

- Check the rear window defogger relay line for open or short circuit.

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

STEP 13. Check the wiring harness between C-213 rear window defogger relay connector terminal No.4 and F-22 rear window defogger connector terminal No.1.



NOTE: Prior to the wiring harness inspection, check junction block connector C-216, and repair if necessary.

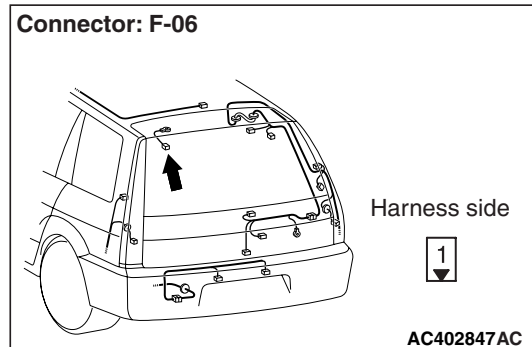
- Check the rear window defogger power supply line for open or short circuit.

Q: Is the check result normal?

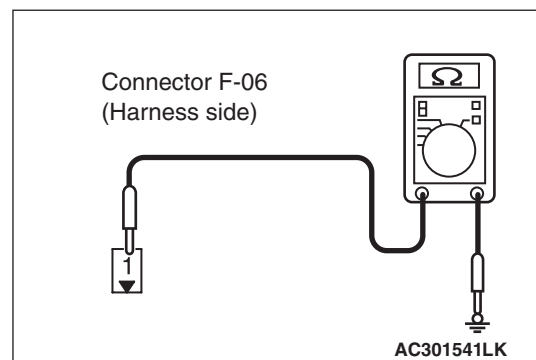
YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

STEP 14. Resistance measurement at F-06 rear window defogger connector.



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



(2) Continuity between terminal 1 and body earth.

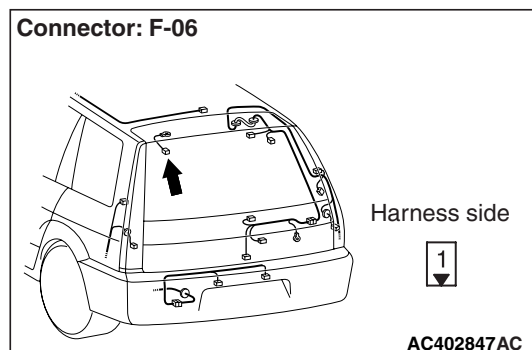
OK: 2 ohm or less

Q: Is the check result normal?

YES : Go to Step 17.

NO : Go to Step 15.

STEP 15. Connector check: F-06 rear window defogger connector

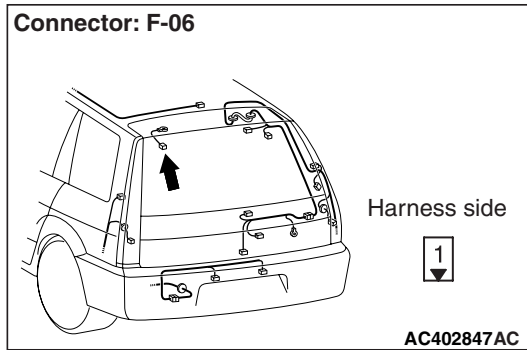


Q: Is the check result normal?

YES : Go to Step 16.

NO : Repair the connector.

STEP 16. Check the wiring harness between F-06 rear window defogger connector terminal No.1 and earth.



- Check the rear window defogger 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 or replace the wiring harness.

STEP 17. Check the rear window defogger.

Refer to [P.54A-106](#).

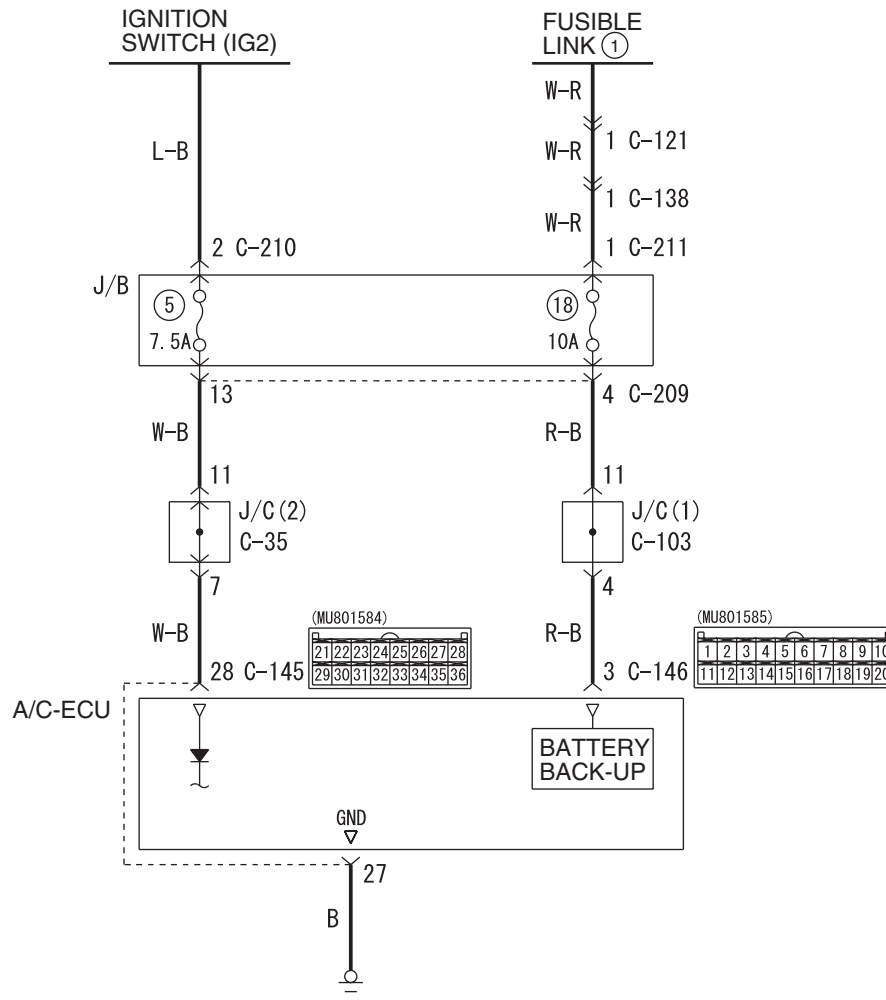
Q: Does the rear window defogger work normally?

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

NO : Repair the rear window defogger.

Inspection Procedure 9: Malfunction of the A/C-ECU power supply system.

A/C-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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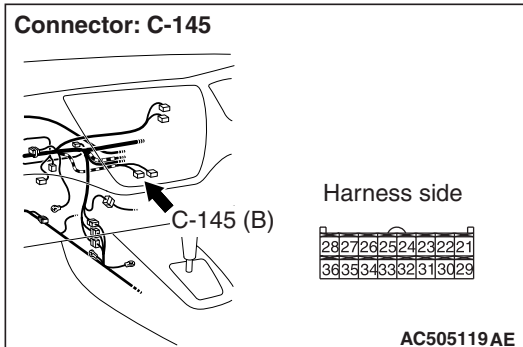
CIRCUIT OPERATION

The A/C-ECU power system may be defective if the A/C, defogger, and outside/inside air selection damper motor all do not operate normally.

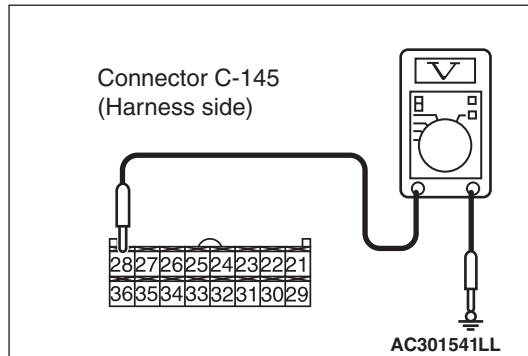
PROBABLE CAUSES

- Damaged the wiring harness or connectors
- Malfunction of the A/C-ECU

DIAGNOSIS PROCEDURE

STEP 1. Voltage measurement at A/C-ECU connector C-145.

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

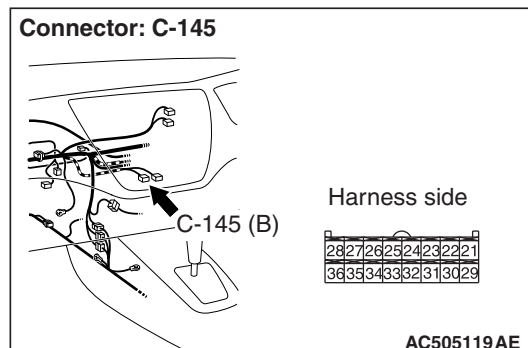


- (3) Measure the voltage between terminal 28 and body earth.

OK: System voltage

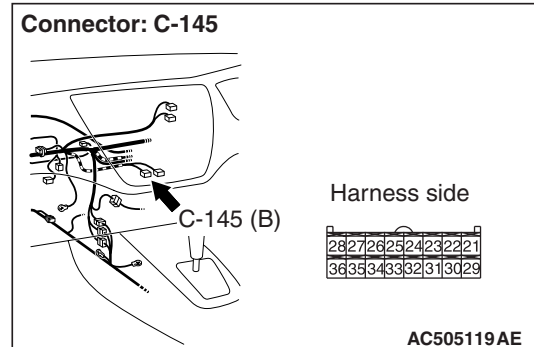
Q: Is the check result normal?

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

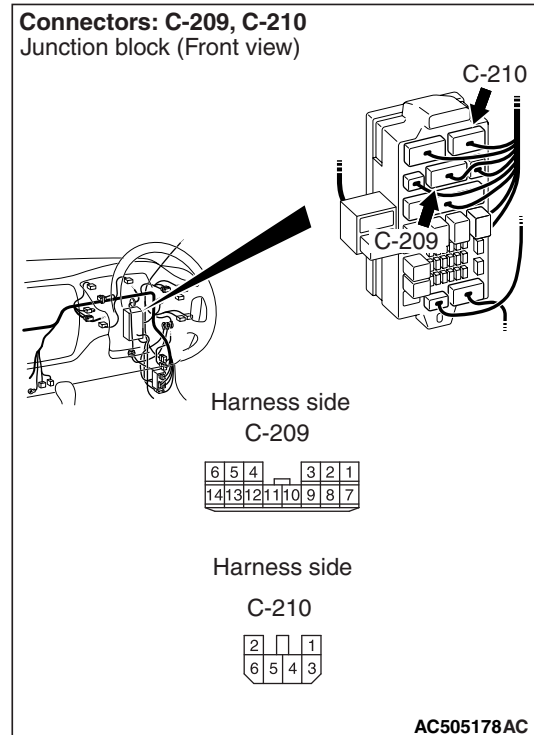
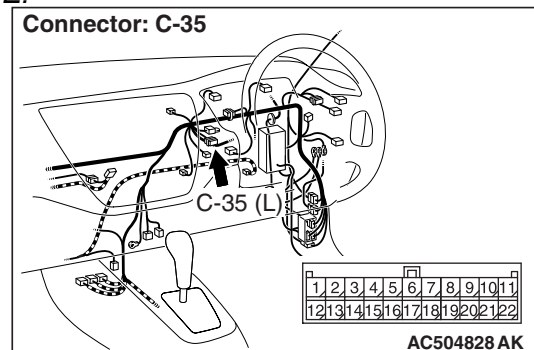
STEP 2. Connector check: C-145 A/C-ECU connector

Q: Is the check result normal?

- YES :** Go to Step 3.
NO : Repair the connector.

STEP 3. Check the wiring harness between C-145 A/C-ECU connector terminal No.28 and the ignition switch (IG2).

NOTE:



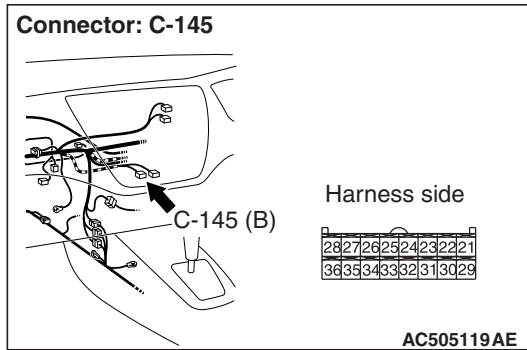
Prior to the wiring harness inspection, check joint connector C-35, junction block connectors C-209 and C-210, and repair if necessary.

- Check the A/C-ECU power supply line for open or short circuit.

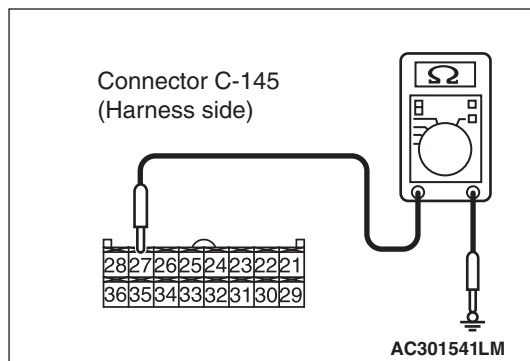
Q: Is the check result normal?

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 4. Resistance measurement at C-145 A/C-ECU connector.



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



(2) Continuity between terminal 27 and body earth.

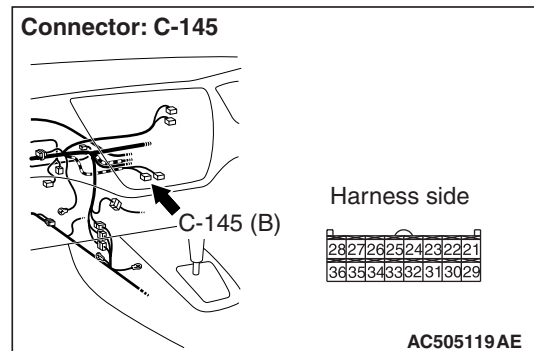
OK: 2 ohm or less

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 5.

STEP 5. Connector check: C-145 A/C-ECU connector

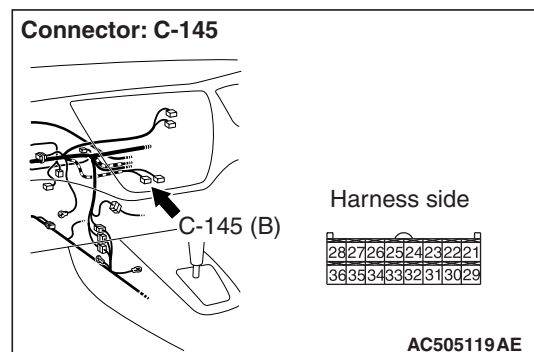


Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector.

STEP 6. Check the wiring harness between C-145 A/C-ECU connector terminal No.27 and the earth.

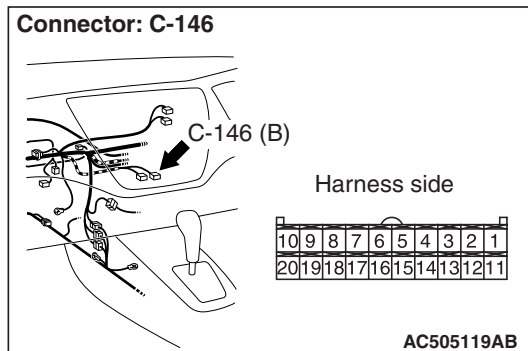


- Check the A/C-ECU earth line for open or short circuit.

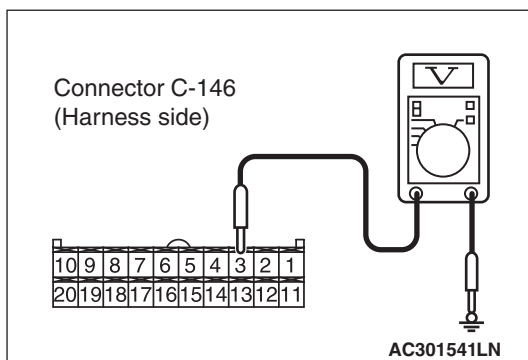
Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

NO : Repair the wiring harness.

STEP 7. Voltage measurement at C-146 A/C-ECU connector.

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



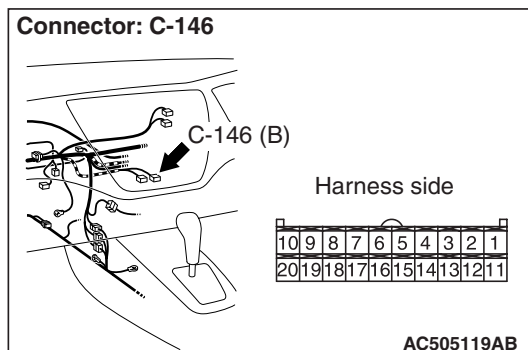
- (2) Measure the voltage between terminal 3 and earth.

OK: System voltage

Q: Is the check result normal?

YES : Replace the automatic A/C control panel (A/C-ECU).

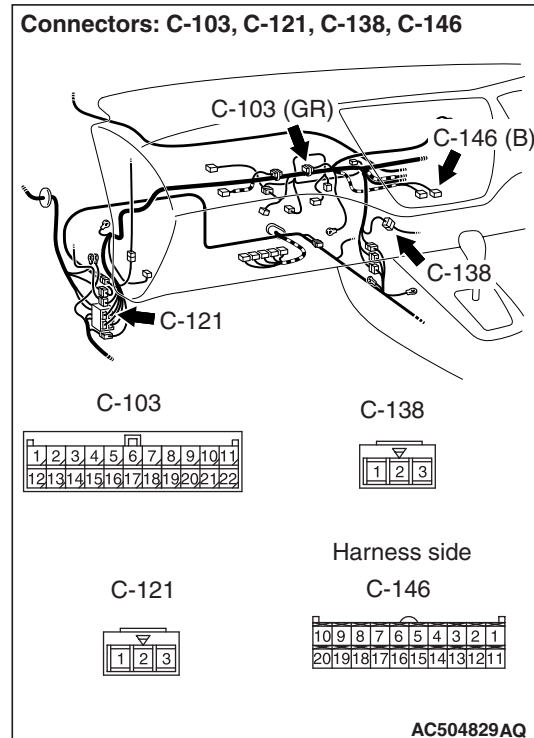
NO : Go to Step 8.

STEP 8. Connector check: C-146 A/C-ECU connector

Q: Is the check result normal?

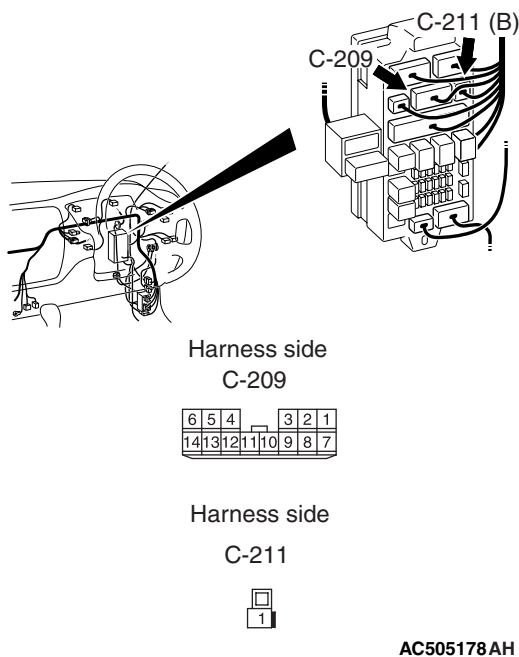
YES : Go to Step 9.

NO : Repair the connector.

STEP 9. Check the wiring harness between C-146 A/C-ECU connector terminal No.3 and battery.

NOTE:

Connectors: C-209, C-211
Junction block (Front view)



Prior to the wiring harness inspection, check intermediate connector C-121, C-138, joint connector C-103, junction block connectors C-211 and 209, and repair if necessary.

- Check the A/C-ECU power supply (battery back-up) line for open or short circuit.

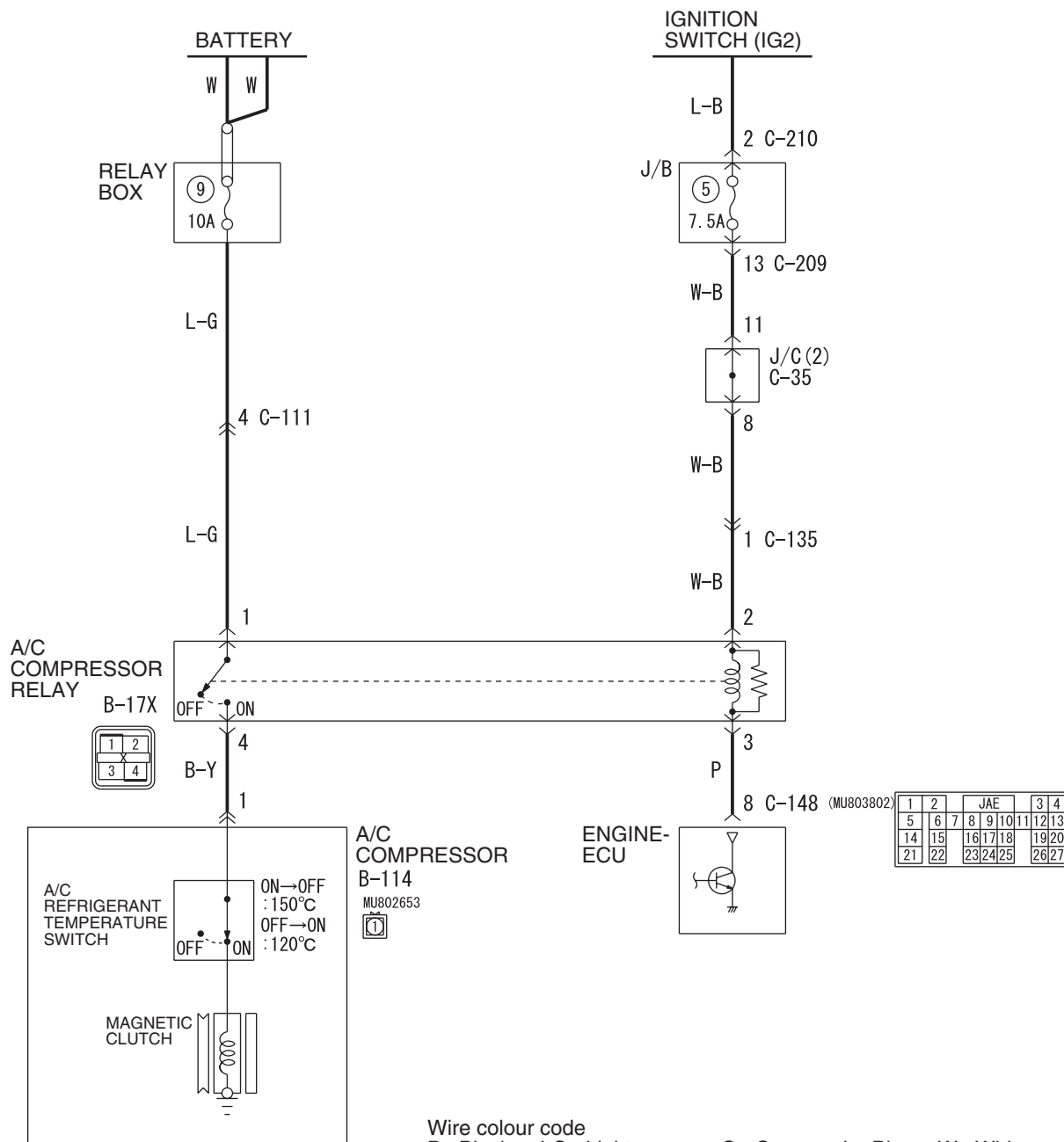
Q: Is the check result normal?

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.

Inspection Procedure 10: A/C Compressor power supply system.

A/C Compressor Circuit

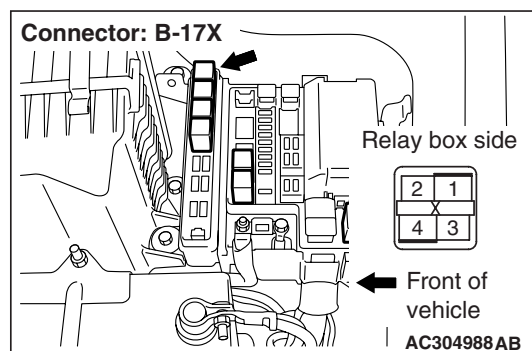


COMMENTS ON TROUBLE SYMPTOM

If the power is not supplied to the A/C compressor, the A/C compressor circuit system may be defective.

POSSIBLE CAUSES

- Malfunction of the A/C compressor relay
- Damaged the wiring harness or connectors

DIAGNOSIS PROCEDURE**STEP 1. Connector check: B-17X A/C compressor relay connector**

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector.

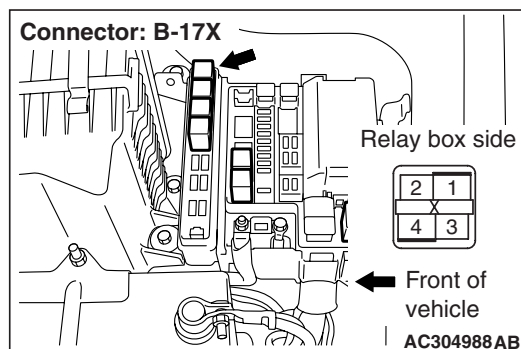
STEP 2. Check the A/C compressor relay continuity.

Refer to [P.55A-46](#).

Q: Is the A/C compressor relay in good condition?

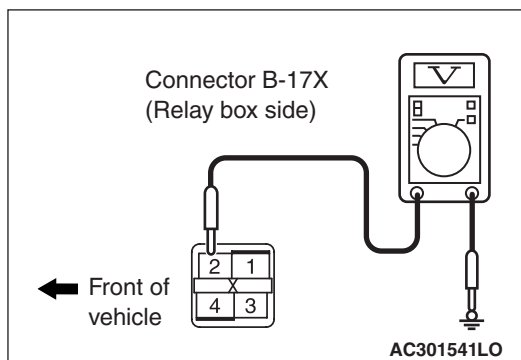
YES : Go to Step 3.

NO : Replace the A/C compressor relay.

STEP 3. Voltage measurement at B-17X A/C compressor relay connector.

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

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



(3) Measure the voltage between terminal 2 and body earth.

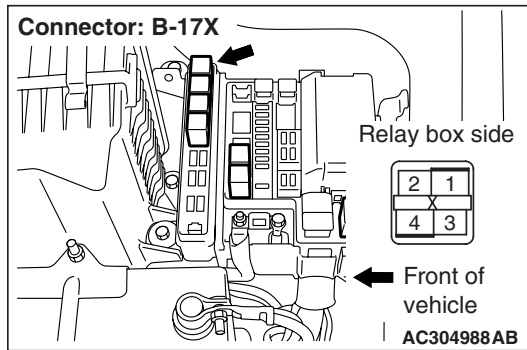
OK: System voltage

Q: Is the check result normal?

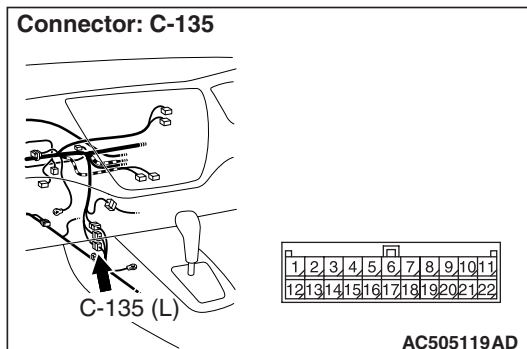
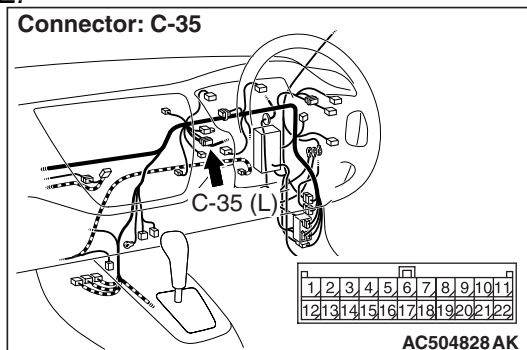
YES : Go to Step 5.

NO : Go to Step 4.

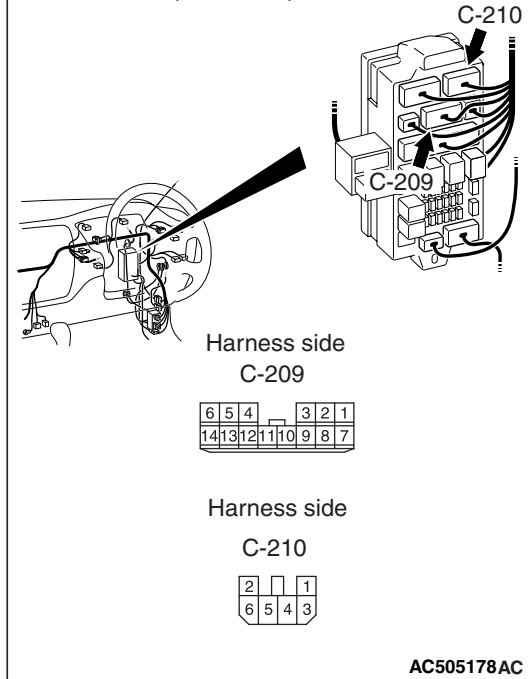
**STEP 4. Check the wiring harness between B-17X
A/C compressor relay connector terminal No.2
and the ignition switch (IG2).**



NOTE:



Connectors: C-209, C-210
Junction block (Front view)

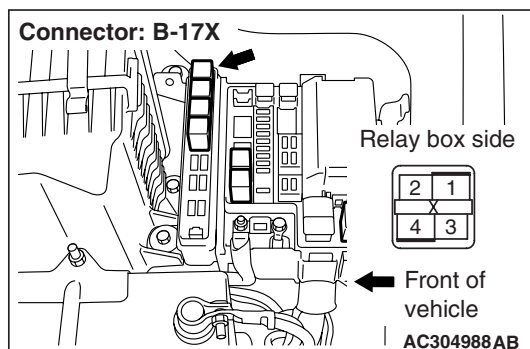


Prior to the wiring harness inspection, check intermediate connector C-135, joint connector C-35, junction block connectors C-209 and C-210, and repair if necessary.

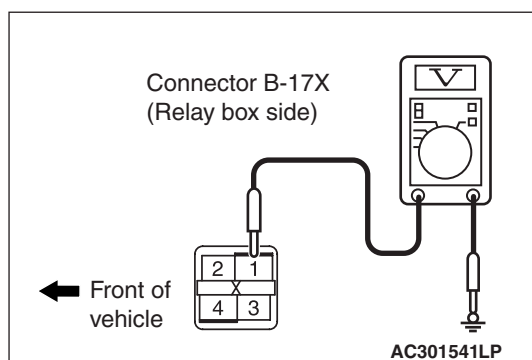
- Check the A/C compressor relay power supply line for open circuit.

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 B-17X A/C compressor relay connector.

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



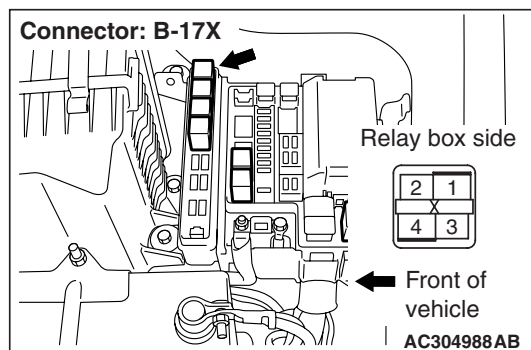
- (2) Measure the voltage between terminal 1 and body earth.

OK: System voltage

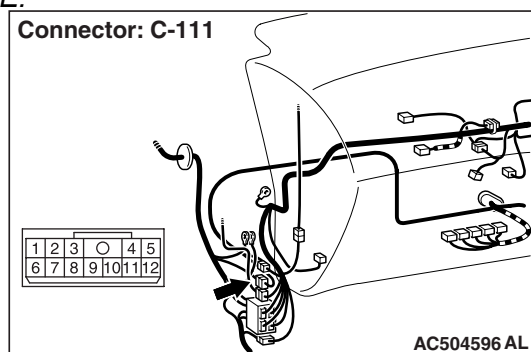
Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between B-17X A/C compressor relay connector terminal No.1 and the battery.

NOTE:



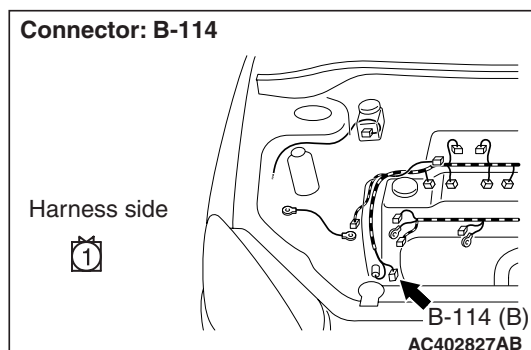
Prior to the wiring harness inspection, check intermediate connector C-111, and repair if necessary.

- Check the A/C compressor relay 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.

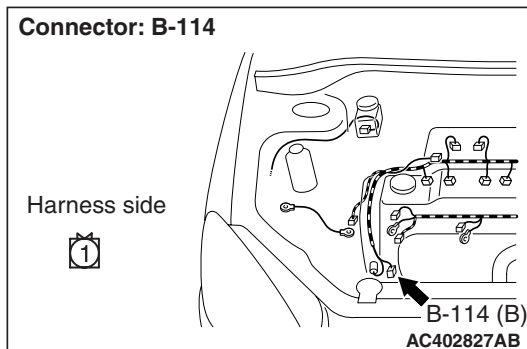
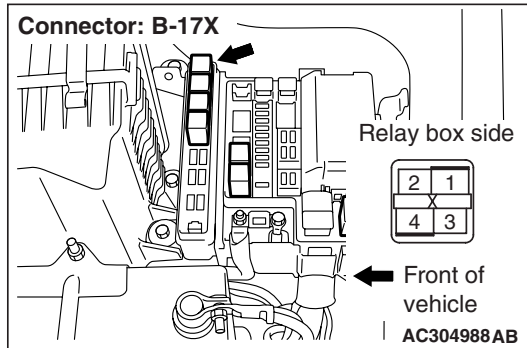
STEP 7. Connector check: B-114 A/C compressor connector

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector.

STEP 8. Check the wiring harness between B-17X A/C compressor relay connector terminal No.4 and B-114 A/C compressor connector terminal No.1.



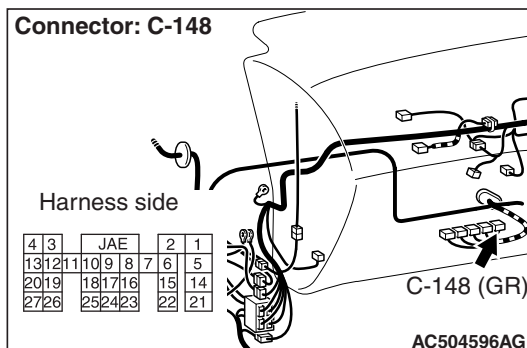
- Check the A/C compressor power supply line for open circuit.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Repair the wiring harness.

STEP 9. Connector check: C-148 engine-A/T-ECU connector

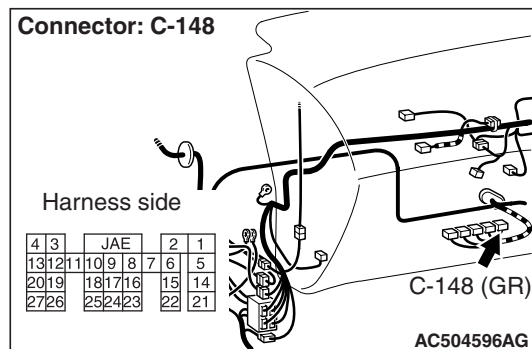
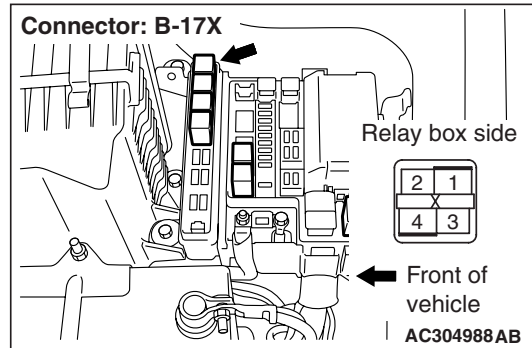


Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the connector.

STEP 10. Check the wiring harness between C-148 engine-A/T-ECU connector terminal No.8 and B-17X A/C compressor relay connector terminal No.3.



- Check the A/C compressor relay 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.

DATA LIST REFERENCE TABLE

M1554005100374

Item No.	Check items	Inspection conditions	Normal condition
11	Interior temperature sensor	Turn the ignition switch to the ON position.	Room temperature is the same as M.U.T.-II/III displayed temperature.
13	Outside thermo sensor	Turn the ignition switch to the ON position.	Outside temperature is the same as M.U.T.-II/III displayed temperature.
15	Heater water temperature sensor	Turn the ignition switch to the ON position.	Heater core wall surface temperature is the same as M.U.T.-II/III displayed temperature.
21	Air thermo sensor	Turn the ignition switch to the ON position.	Evaporator outlet temperate is the same as M.U.T.-II/III displayed temperature
25	Photo sensor	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Change the volume of insolation. 	The volume of insolation takes inverse proportion with the M.U.T.-II/III displayed voltage.
31	Air mixing damper control motor and potentiometer	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Door position: MAX HOT 	Opening angle: approximately 100%
		<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Door position: MAX COOL 	Opening angle: approximately 0%
32	Mode selection damper control motor and potentiometer	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Damper position: FACE 	Opening angle: approximately 0%
		<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Damper position: FOOT 	Opening angle: approximately 60%
		<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Damper position: FOOT/DEF 	Opening angle: approximately 80%
		<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Damper position: DEF 	Opening angle: approximately 100%
42	A/C pressure sensor	Turn the ignition switch to the ON position.	A/C refrigerant pressure is the same as M.U.T.-II/III displayed pressure.

ACTUATOR TEST TABLE

M1554005200337

Item No.	Check items	Drive content
01	Blower motor	Stop
02		Low speed
03		Middle speed
04		High speed
05	Air mixing damper control motor	Open angle: Approximately 0% (MAX COOL)
06		Opening angle: approximately 50%
07		Open angle: Approximately 100% (MAX HOT)
08	Mode selection damper control motor	FACE
09		FOOT
10		DEF
11	Compressor output	OFF
12		ON
13	Outside/inside air selection damper control motor	Outside air
14		Inside air
38	Idle-up	OFF (A/C high pressure)
39		ON (A/C low pressure)

CHECK AT ENGINE-A/T ECU TERMINALS

M1554005400320

<C-148>

1	2	JAE	3	4
5	6	7	8	9
10	11	12	13	14
15	16	17	18	19
20	21	22	23	24
25	26	27		

<C-150>

61	62	JAE	63	64
65	66	67	68	69
70	71	72	73	74
75	76	77	78	79
80	81	82	83	84
85	86	87	88	89

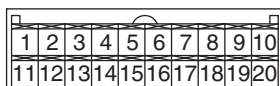
AC505186AB

Terminal No.	Check items	Check conditions	Normal conditions
8	Output to A/C compressor	A/C compressor relay: OFF	System voltage
		A/C compressor relay: ON	0 V
69	Input from A/C-ECU (A/C1)	When the A/C is in operation (When the air thermo sensor detects 3° C or more).	System voltage
78	Input from A/C-ECU (A/C2)	When the A/C is under low load	System voltage

CHECK AT A/C-ECU TERMINALS

M1554005400331

<C-146>



<C-145>



AC300196AF

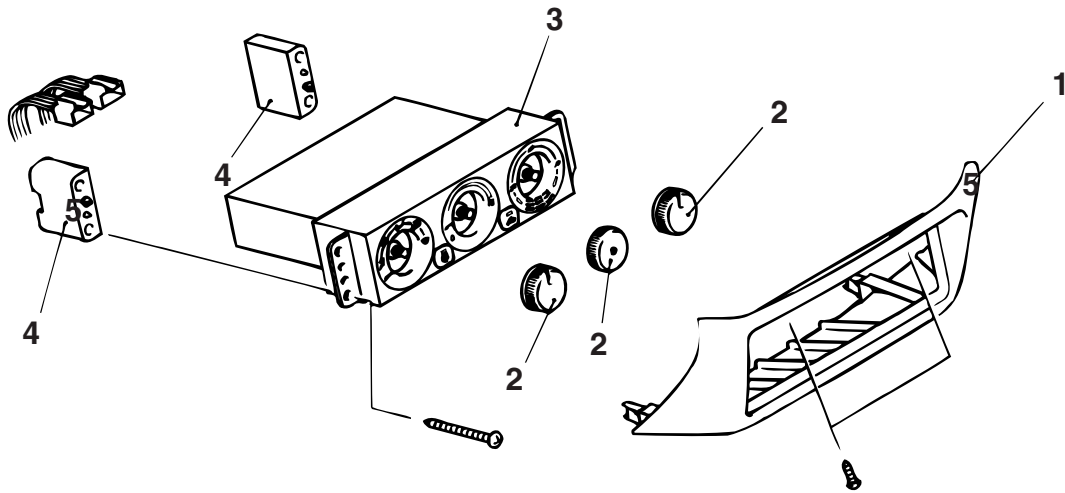
Terminal No.	Check items	Check conditions	Normal conditions
1	Interior temperature sensor	Sensor temperature: 25° C (4kΩ)	2.1 – 2.7V
2	Output to blower pulse controller	When the blower is operating.	0 – 2.5V (Effective alternating voltage)
3	Back-up power supply	Always	System voltage
4	Input from heater water temperature sensor	Sensor temperature: 25° C (4kΩ)	2.1 – 2.7V
5	Input from air mixing damper control motor potentiometer	When the damper flaps is moving to the MAX HOT position.	4.1 – 4.6 V
6	Input from mode selection damper control motor potentiometer	When the damper is moved to the DEF position.	4.1 – 4.6 V
7	Input from the outside thermo sensor	Sensor temperature: 25° C (4kΩ)	2.1 – 2.7 V
8	Input from the air thermo sensor	Sensor temperature: 25° C (4kΩ)	2.1 – 2.7 V
9	Photo sensor (-)	Brightness is 0 lux	4.9 – 5.1 V
		Brightness is 100000 lux or more	Approximately 0 V
10	Potentiometer power supply	Always	5 V
11	Input from the A/C pressure sensor	2.6 MPa	3.9 V
12 – 15	-	-	-
16	Rear defogger	When the rear defogger is operating.	2.0 V or less
		When the rear defogger is stopped	System voltage
17	Diagnosis set	Ignition switch: ON	A voltmeter needle fluctuates between 0 and 12 V.
18	Input from diagnosis	Ignition switch: ON	Approximately 5 V
19	Photo sensor (+)	Always	0 V
20	Sensors and potentiometers earth	Always	0 V
21	Air outlet changeover damper motor (FACE)	When the damper is moved to the FACE position.	10 V
		When the damper is moved to the DEF position.	Faint voltage (0.5 V)
22	Air mix damper motor (MAX COOL)	When the damper flaps is moving to the MAX COOL position.	10 V
		When the damper flaps is moving to the MAX HOT position.	Faint voltage (0.5 V)

Terminal No.	Check items	Check conditions	Normal conditions
23	Outside/inside air selection damper control motor (outside)	When the damper is moved to the inside air recirculation position	10 V (When the motor is stopped)
		When the damper is moved to the outside air inside air intake position	2.0 or less
24	Mode selection damper control motor and potentiometer (DEF)	When the damper is moved to the FACE position.	Faint voltage (0.5 V)
		When the damper is moved to the DEF position.	10 V
25	Air mixing damper control motor and potentiometer (MAX HOT)	When the damper flaps is moving to the MAX COOL position.	Faint voltage (0.5 V)
		When the damper flaps is moving to the MAX HOT position.	10 V
26	outside/inside air selection damper control motor (inside)	When the damper is moved to the inside air recirculation position	2.0 V or less
		When the damper is moved to the outside air inside air intake position	10 V (When the motor is stopped)
27	Earth	Always	Continuity exists.
28	IG2 power supply	Ignition switch: ON	System voltage
29	Illumination earth	Always	Continuity exists.
30	ILL power supply	Lighting switch: ON	System voltage
31	-	-	-
32	Input from the engine-A/T-ECU (A/C2)	When the A/C is under low load	System voltage
33	Input from the compressor relay	Compressor: ON	System voltage
34	Input from the engine-A/T-ECU (A/C1)	When the A/C is stopped	0 V
		When the A/C is operating (When the compressor is operating)	System voltage
35	-	-	-
36	ACC power supply	Ignition switch: ACC	System voltage

HEATER CONTROL ASSEMBLY AND A/C SWITCH

REMOVAL AND INSTALLATION

M1552002400671

AY0555AU
AC504841AB**Removal steps**

1. Centre lower case (Refer to GROUP 52A, Instrument panel assembly [P.52A-2](#))
2. Knob

Removal steps (Continued)

3. Automatic A/C control panel (A/C-ECU)
4. Bracket

HEATER UNIT, HEATER CORE, BLOWER ASSEMBLY AND EVAPORATOR UNIT

REMOVAL AND INSTALLATION

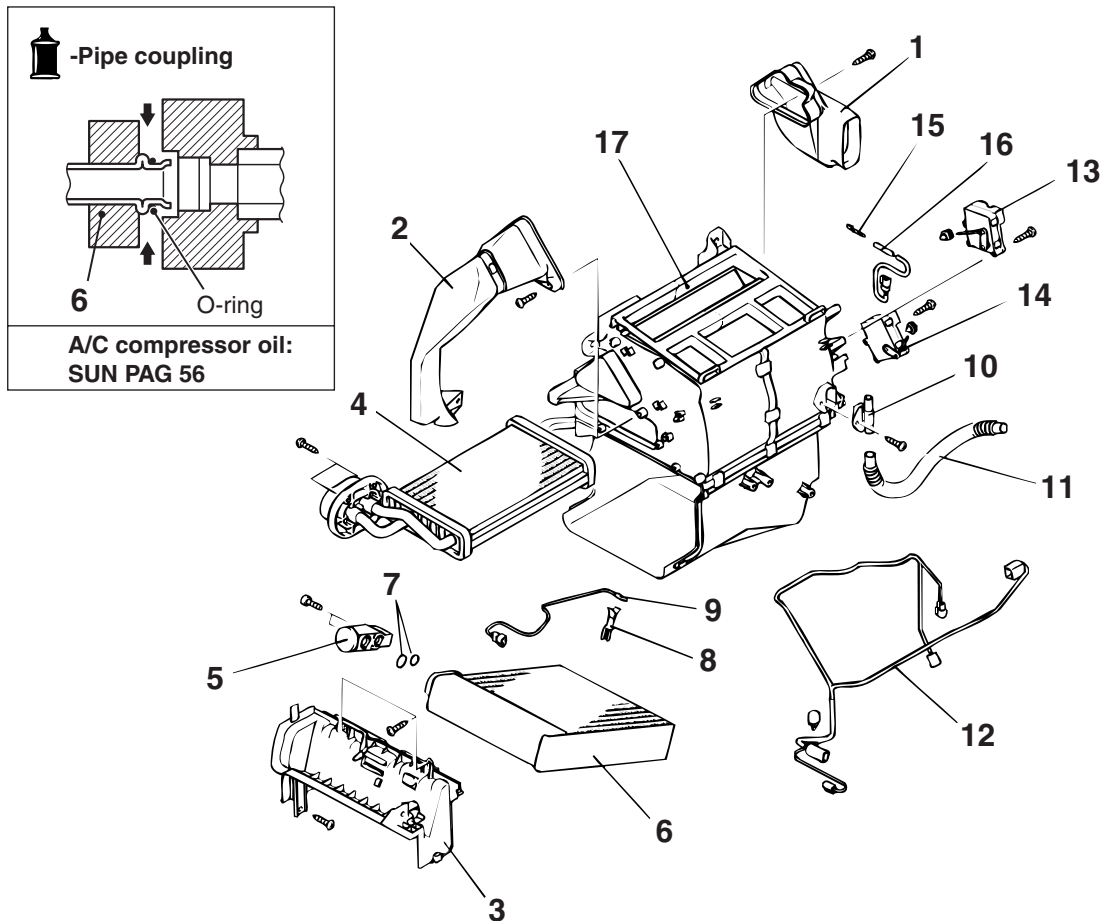
M1552011600543

The removal of heater unit is the same as it for the heater, A/C and ventilation. (Refer to GROUP 55A P.55A-51).

HEATER UNIT

DISASSEMBLY AND ASSEMBLY

M1551005400558



AC504713AB

Disassembly steps

1. Foot duct (RH)
2. Foot duct (LH)
3. Evaporator cover
4. Heater core
5. Expansion valve
6. Evaporator
7. O-ring
8. Air thermo sensor clip
9. Air thermo sensor
10. Aspirator

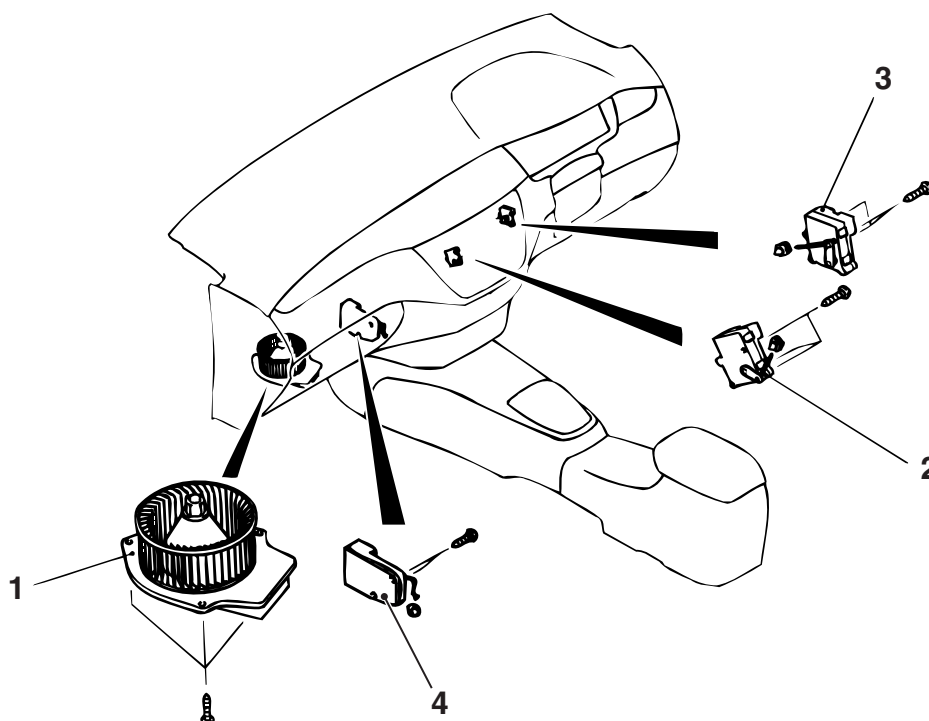
Disassembly steps (Continued)

11. Aspirator hose
12. Harness
13. Air mixing damper control motor and potentiometer
14. Mode selection damper control motor and potentiometer
15. Heater water temperature sensor clip
16. Heater water temperature sensor
17. Heater case

MODE SELECTION DAMPER CONTROL MOTOR, AIR MIXING DAMPER CONTROL MOTOR, OUTSIDE/INSIDE AIR SELECTION DAMPER CONTROL MOTOR AND BLOWER MOTOR

REMOVAL AND INSTALLATION

M1554019900038



AC505177AB

Blower motor removal step

- Front passenger's side under cover
1. Blower motor

Air mixing damper control motor and potentiometer removal step

2. Air mixing damper control motor and potentiometer

Mode selection damper control motor and potentiometer removal step

3. Mode selection damper control motor and potentiometer

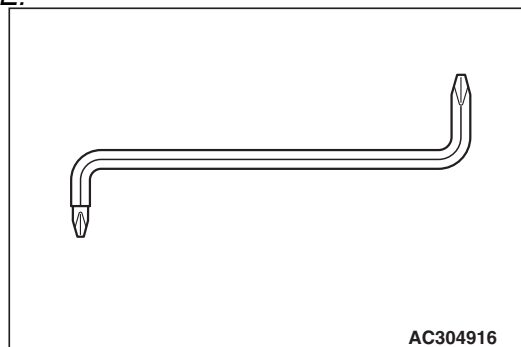
Outside/inside air selection damper control motor removal step

- Glove box (Refer to GROUP 52A, Instrument Panel [P.52A-2](#)).
 - Engine-ECU <M/T> or Engine-A/T-ECU <A/T> (Refer to GROUP 13A [P.13A-335](#)).
4. Outside/inside air selection damper control motor

REMOVAL SERVICE POINT

<<A>> BLOWER MOTOR AND MODE SELECTION DAMPER CONTROL MOTOR AND POTENTIOMETER REMOVAL

NOTE:

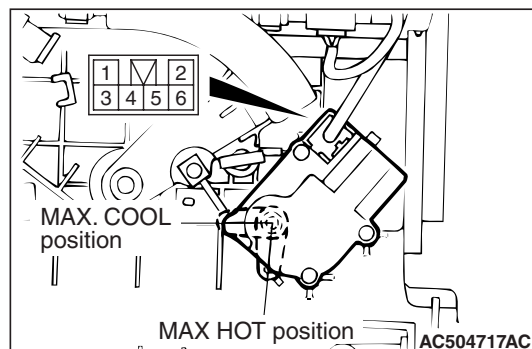


Use of commercially available offset screw driver is recommended.

INSPECTION

M1551006300510

CHECK THE AIR MIXING DAMPER CONTROL MOTOR AND POTENTIOMETER



CHECK THE AIR MIXING DAMPER CONTROL MOTOR

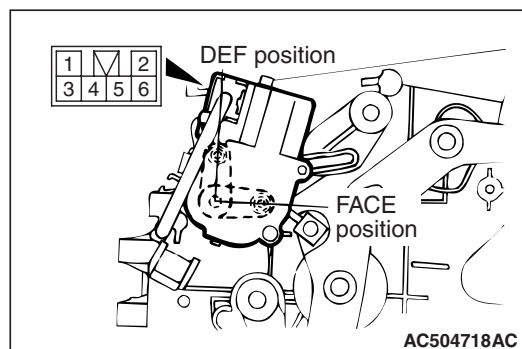
Battery connection (+) terminal	Battery connection (-) terminal	Lever operation
1	3	Rotate to the HOT position.
3	1	Rotate to the COOL position.

Potentiometer check

When the resistances between terminals 2 and 5 as well as terminals 5 and 6 are measured at the air mixing damper motor check, the resistance value should change gradually within the standard value.

Standard value: Approximately 0.65 – 5.35 kΩ

MODE SELECTION DAMPER CONTROL MOTOR AND POTENTIOMETER CHECK



MODE SELECTION DAMPER CONTROL MOTOR CHECK

Battery connection (+) terminal	Battery connection (-) terminal	Lever operation
1	3	Rotate to the DEF position.
3	1	Rotate to the FACE position.

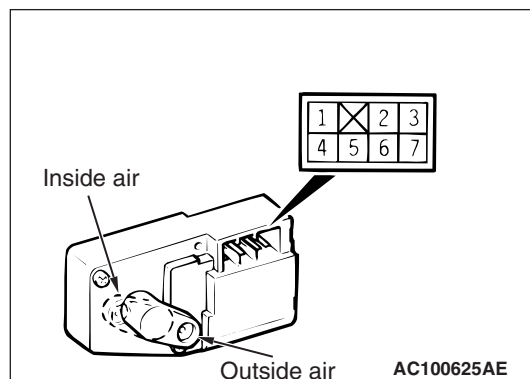
Potentiometer check

When the resistances between terminals 2 and 5 as well as terminals 5 and 6 are measured at the mode selection damper control motor check, the resistance value should change gradually within the standard value.

Standard value: Approximately 0.65 – 5.35 kΩ

OUTSIDE/INSIDE AIR SELECTION DAMPER CONTROL MOTOR CHECK

⚠ CAUTION



BLOWER MOTOR CHECK

Execute actuator test item No.01 to 04 by using M.U.T.-II/III with the vehicle body, and check that the blower motor works normally. (Refer to [P.55B-63](#)).

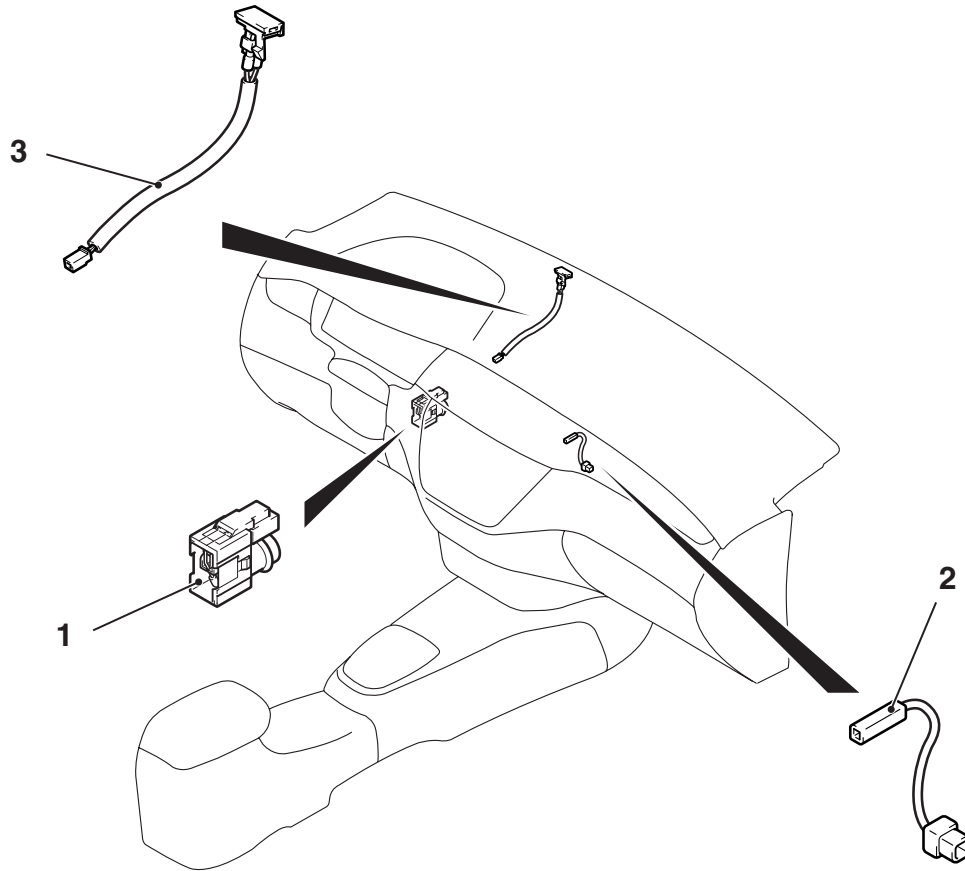
Cut off the battery voltage when the damper is in the outside/inside air position.

Lever position	Battery connection	Lever operation
At the inside position	<ul style="list-style-type: none"> • Connect terminal 7 to the positive battery terminal • Connect terminal 4 to the negative battery terminal 	The lever moves from the inside position to the outside position
At the outside position	<ul style="list-style-type: none"> • Connect terminal 7 to the positive battery terminal • Connect terminal 6 to the negative battery terminal 	The lever moves from the outside position to the inside position

SENSORS

REMOVAL AND INSTALLATION

M1554001900215



AC504729AB

Interior temperature sensor removal steps

1. Interior temperature sensor
- Heater water temperature sensor removal steps**

- Foot duct <front passenger's side> (Refer to GROUP 55, Ventilator P.55A-66).

2. Heater water temperature sensor

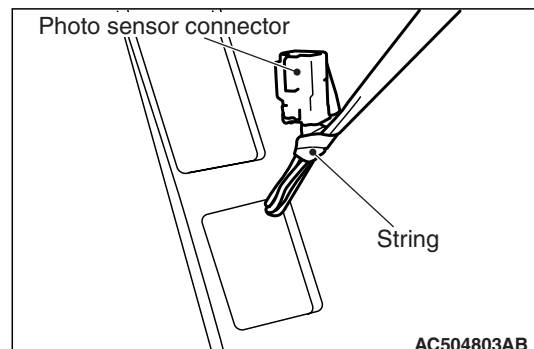
Photo sensor removal steps

3. Photo sensor

<<A>>

REMOVAL SERVICE POINT

<<A>> PHOTO SENSOR REMOVAL



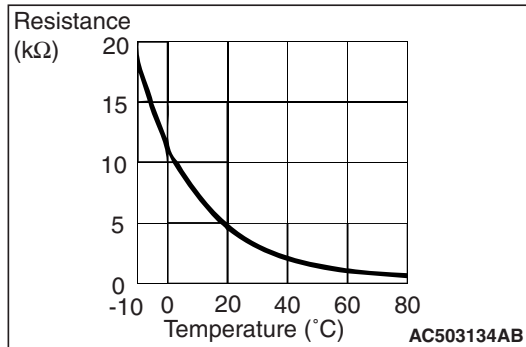
AC504803AB

1. Remove the photo sensor together with the defroster nozzle.
2. Suspend the connector with a string to avoid the connector drops behind the instrument panel.

INSPECTION

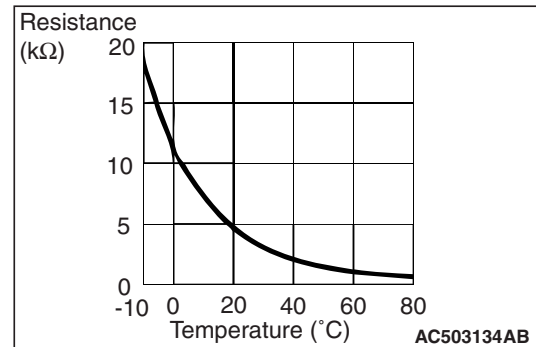
INTERIOR TEMPERATURE SENSOR
CHECK

M1552014302202



Check to see that the resistance shown in the graph is almost satisfied when measuring the resistance between the terminals under two or more different temperature conditions.

HEATER WATER TEMPERATURE SENSOR CHECK



Check to see that the resistance shown in the graph is almost satisfied when measuring the resistance between the terminals under two or more different temperature conditions.

PHOTO SENSOR CHECK

Check that the blower rotation comes down if the photo sensor is covered with hands, when the automatic A/C is operating (in summer sunbeam). If not the rotation comes down, replace the photo sensor.

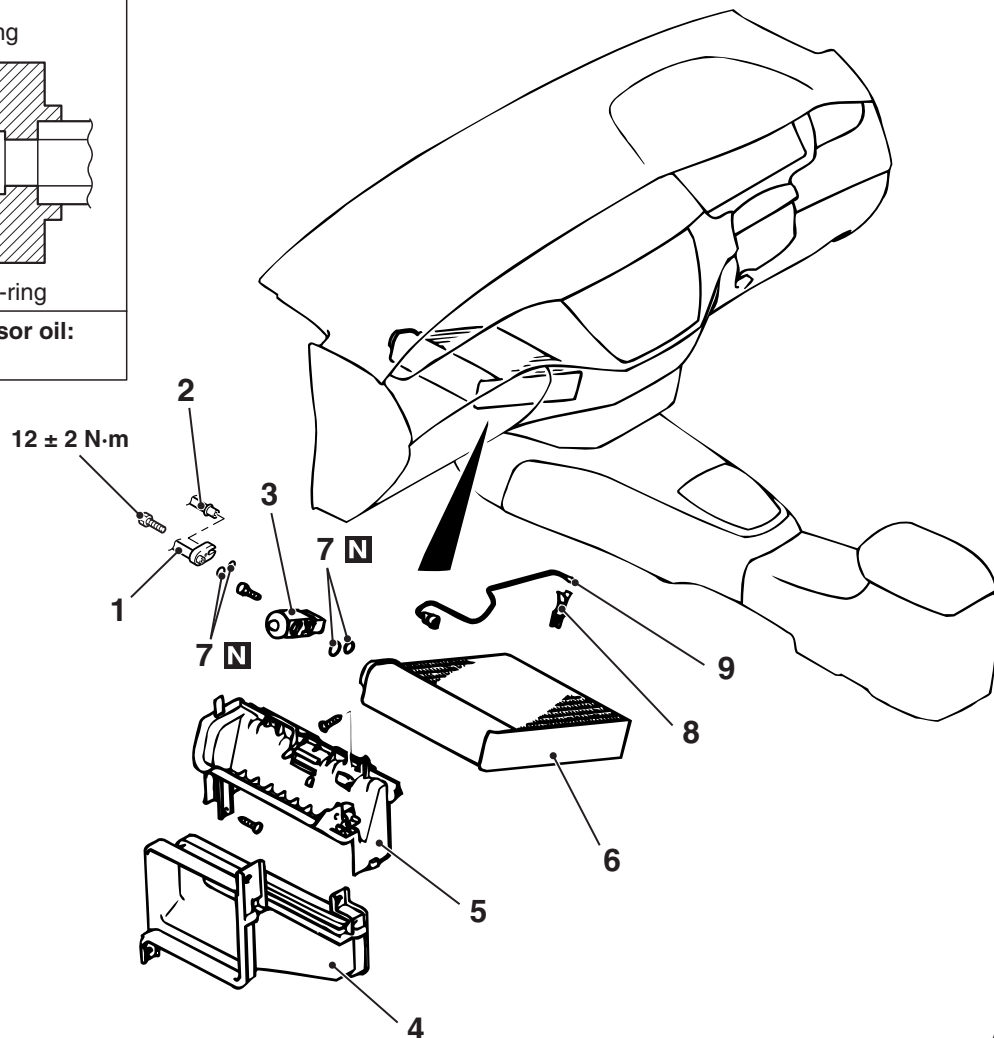
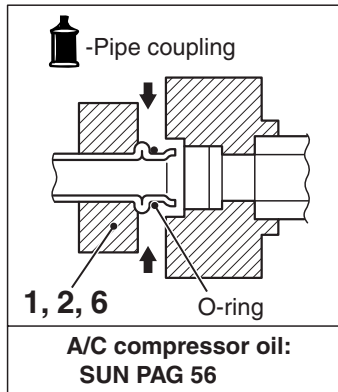
EVAPORATOR ASSEMBLY

REMOVAL AND INSTALLATION

M1552003600560

Pre-removal and Post-installation Operation

- Refrigerant draining and Refilling (Refer to GROUP 55A, on-vehicle service - Charging and Discharging [P.55A-43](#)).
- Air cleaner and air cleaner air flow sensor assembly Removal and Installation (Refer to GROUP 15, Air cleaner [P.15-3](#)).



AC304886AE

<<A>>

<<A>>

Removal steps

1. Flexible suction hose connection
2. Liquid pipe B connection
3. Expansion valve
 - Glove box (Refer to GROUP 52A, Instrument Panel [P.52A-2](#)).
 - Engine-ECU <M/T> or Engine-A/T-ECU <A/T> (Refer to GROUP 13A [P.13A-335](#)).
4. Joint duct

<>

Removal steps (Continued)

- Foot duct (RH), Rear heater duct A (RH) upper side (Refer to [P.55A-65](#)).
- 5. Evaporator cover
- 6. Evaporator
- 7. O-ring
- 8. Air thermo sensor clip
- 9. Air thermo sensor

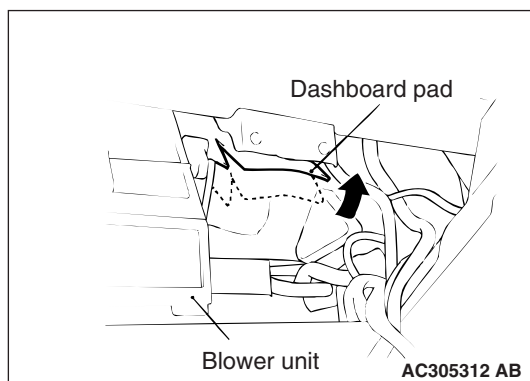
REMOVAL SERVICE POINT

<<A>> FLEXIBLE SUCTION HOSE/LIQUID
PIPE B DISCONNECTION**⚠ CAUTION**

As the compressor oil and receiver are highly moisture absorbent, use a non-porous material to plug the hose and nipples.

To prevent the entry of dust or other foreign bodies, plug the dismantled hose and the nipples of the expansion valves.

<> EVAPORATOR REMOVAL

**⚠ CAUTION**

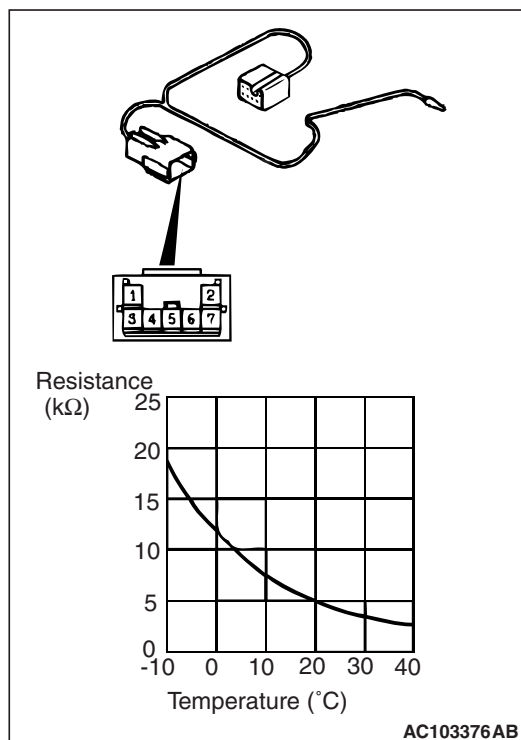
Do not cut the upper side of the pad.

1. When removing the evaporator, cut and fold back the dashboard pad as in the diagram (The thickness of the pad interferes with the removal of the evaporator).
2. Remove the evaporator.

INSPECTION

M1552014302213

AIR THERMO SENSOR INSPECTION



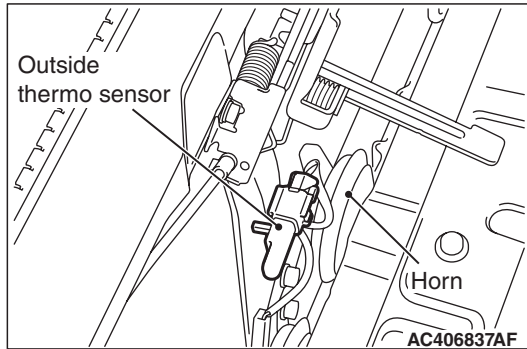
Measure the resistance between connector terminals 4 and 5 under at least two different temperatures. The resistance values should generally match those in the graph.

NOTE: The temperature at the check should not exceed the range in the graph.

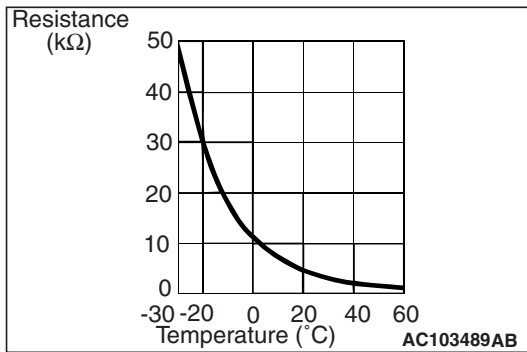
OUTSIDE THERMO SENSOR

INSPECTION

M1552014302224



Check to see that the resistance shown in the graph is almost satisfied when measuring the resistance between the sensor terminals under two or more different temperature conditions.



OTHER PARTS

OTHER PARTS

The following maintenance service points are the same as for the manual A/C.

Item		Reference page
Service specifications		P.55A-63
Lubricants		P.55A-63
On-vehicle service	Magnetic clutch test	P.55A-43
	Compressor drive belt adjustment	P.55A-43
	Dual pressure switch check	P.55A-43
	Refilling of oil in the A/C system	P.55A-43
	Performance test	P.55A-44
	Refrigerant leak repair procedure	P.55A-45
	Compressor noise check	P.55A-46
	Power relay continuity check	P.55A-46
	Idle-up operation check	P.55A-47
	Clean air filter replacement procedure	P.55A-48

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Item	Reference page
Heater unit and blower assembly	P.55A-51
A/C compressor	P.55A-58
Condenser and condenser fan motor	P.55A-62
Refrigerant line	P.55A-63
Ducts	P.55A-66