

GROUP 55B

AUTOMATIC AIR CONDITIONING

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GENERAL DESCRIPTION

M1552000100533

The heater and cooling units are combined in a single unit, which, with the mode film damper and flow rate control valve in the heater unit, reduces ventilation resistance, increases fan power, and decreases noise.

ITEM	SPECIFICATION
Heater control assembly	Dial type
Compressor	MSC105CA
Compressor Model	Scroll type
Refrigerant and quantity g (oz)	R-134a (HFC-134a), 530 – 570 (18.7 – 20.1)

SAFETY PRECAUTIONS

⚠ WARNING

Wear safety goggles and gloves when servicing the refrigeration system to prevent severe damage to eyes and hands.

Because R-134a refrigerant is a hydro fluorocarbon (HFC) which contains hydrogen atoms in place of chlorine atoms, it will not cause damage to the ozone layer.

Ozone filters out harmful radiation from the sun. To assist in protecting the ozone layer, Mitsubishi Motors Corporation recommends an R-134a refrigerant recycling device.

Refrigerant R-134a is transparent and colorless in both the liquid and vapor state. Since it has a boiling point of -29.8°C (-21.64°F) at atmospheric pressure, it will be a vapor at all normal temperatures and pressures. The vapor is heavier than air, non-flammable, and non-explosive. The following precautions must be observed when handling R-134a.

⚠ WARNING

Do not heat R-134a above 40°C (104.0°F) or it may catch fire and explode.

R-134a evaporates so rapidly at normal atmospheric pressures and temperatures that it tends to freeze anything it contacts. For this reason, extreme care must be taken to prevent any liquid refrigerant from contacting the skin and especially the eyes. Always wear safety goggles when servicing the refrigeration part of the A/C system. Keep a bottle of sterile mineral oil handy when working on the refrigeration system.

1. If any liquid refrigerant gets into your eyes, use a few drops of mineral oil to wash them out. R-134a is rapidly absorbed by the oil.
2. Next, splash your eyes with plenty of cold water.
3. Call your doctor immediately even if irritation has ceased.

⚠ CAUTION

Keep R-134a containers upright when charging the system.

In most instances, moderate heat is required to bring the pressure of the refrigerant in its container above the pressure of the system when charging or adding refrigerant.

A bucket or large pan of hot water not over 40°C (104.0°F) is all the heat required for this purpose. Do not heat the refrigerant container with a blow torch or any other means that would raise temperature and pressure above this temperature. Do not weld or steam-clean on or near the system components or refrigerant lines.

⚠ WARNING

A leak detector for R-134a should be used to check for refrigerant gas leaks.

⚠ CAUTION

Do not allow liquid refrigerant to touch bright metal or it will be stained.

When metering R-134a into the refrigeration system, keep the supply tank or cans in an upright position. If the refrigerant container is on its side or upside down, liquid refrigerant will enter the system and damage the compressor.

Refrigerant will tarnish bright metal and chrome surfaces, and in combination with moisture can severely corrode all metal surfaces.

OPERATION

CONDENSER FAN AND RADIATOR FAN CONTROL

The ECM <M/T> or PCM <A/T> judges the required revolution speed of radiator fan motor and condenser fan motor using the input signals transmitted from A/C switch, output shaft speed sensor and engine coolant temperature sensor. The PCM activates the fan control relays to drive the radiator fan motor and condenser fan motor.

COMPRESSOR CONTROL

When operating the air conditioning switch

- The air thermo sensor, which senses the temperature of the air flowing out of the evaporator, deactivates the compressor at 3° C (37.4° F) or below.

- The dual pressure switch turns OFF when the refrigerant pressure becomes excessively high or low, thus protecting the compressor circuit (See Table below).
- When the air thermo sensor is activated, and the ignition switch, blower switch, and air conditioning switch are ON, the A/C compressor clutch relay is energized.

When operating the mode selection dial

- The air conditioning will work when the mode selection dial is set to the "Defroster" or "Defroster/foot" position, or the temperature control dial is set to the "MAXIMUM A/C" position. In other dial positions, when the air conditioning switch is turned on, the air conditioning will work.

A/C Compressor Clutch Relay ON Conditions

Ignition switch (IG2)		ON	<i>NOTE: A/C compressor clutch relay is de-energized when any one switch, sensor or control unit shown on the left turns off.</i> <i>NOTE: The components marked by * communicate with the ECM <M/T> or PCM <A/T>. If the air thermo sensor detects a temperature of 3°C (37.4°F), the A/C-ECU will turn off the A/C compressor clutch relay.</i>
Blower switch		ON	
Air conditioning switch, mode selection dial defroster, defroster/foot position or temperature control MAX A/C		ON	
Air thermo sensor		*	
Pressure detected by A/C pressure sensor	2.94 MPa (427 psi) or less (If the refrigerant pressure exceeds 2.94 MPa (427 psi), A/C compressor clutch relay is not ON condition until the refrigerant pressure has been measured up to 2.35 MPa (341 psi) or less.)	ON	
	0.19 MPa (27psi) or more (If the refrigerant pressure falls short of 0.19 MPa (27psi), A/C compressor clutch relay is not ON condition until the refrigerant pressure has been measured up to 0.22 MPa (32psi) or more.)		
A/C compressor clutch relay driving transistor (within ECM <M/T> or PCM <A/T>)		ON	

AUTOMATIC A/C DIAGNOSIS

INTRODUCTION

M1554006200073

After air is taken in through the damper, it is fed to the evaporator by the blower fan and motor and cooled. The air cooled by the air mix damper is mixed appropriately with the warmed air to achieve a comfortable temperature. If the A/C does not operate or the cooled air is not discharged, the system components or relay may be faulty.

AUTOMATIC A/C TROUBLESHOOTING STRATEGY

M1554004700287

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find a heater, air conditioning and ventilation fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart. (Refer to [P.55B-106](#))
4. Verify malfunction is eliminated.

DIAGNOSTIC FUNCTION

M1552019800109

HOW TO CONNECT THE SCAN TOOL (MUT-III)

Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

⚠ CAUTION

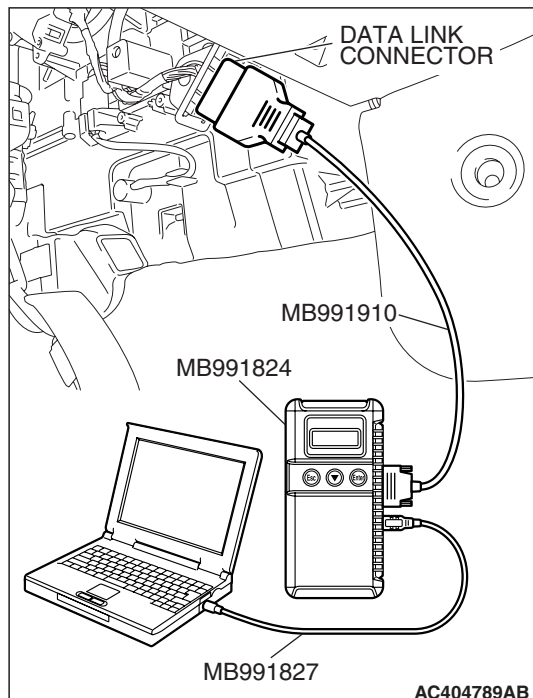
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When the special tool MB991824 is energized, the special tool MB991824 indicator light will be illuminated in a green color.

7. Start the MUT-III system on the personal computer.

NOTE: Disconnecting the scan tool special tool MB991824 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES**Required Special Tools:**

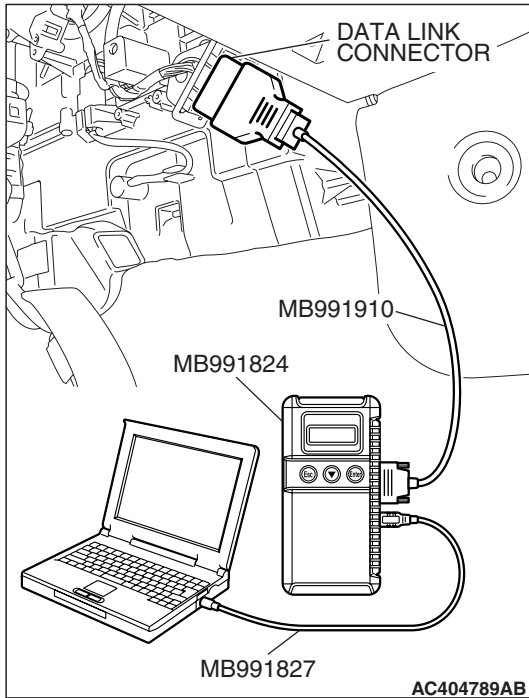
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

⚠ CAUTION

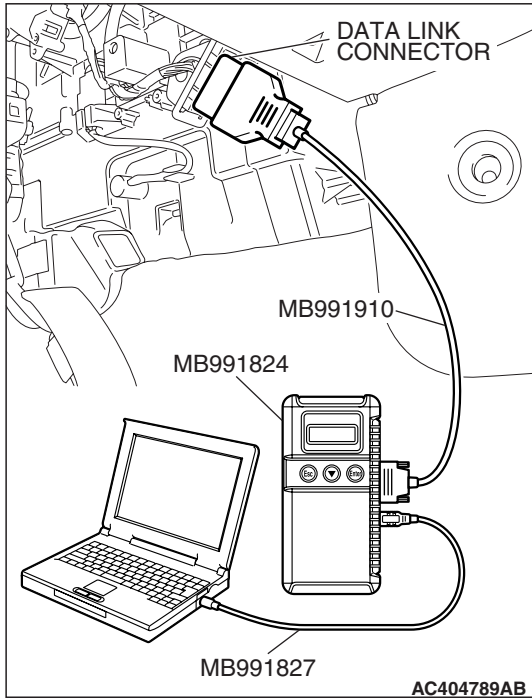
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

NOTE: If the battery voltage is low, diagnostic trouble codes will not be output. Check the battery if scan tool MB991958 does not display.

1. Connect the scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "AUTO A/C" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Select "Diagnostic Trouble Code."
8. If a DTC is set, it is shown.
9. Choose "Erase DTC" to erase the DTC.

**HOW TO READ DATA LIST****Required Special Tools:**

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect the scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "AUTO A/C" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Select "Data List."
8. Choose an appropriate item and select the "OK" button.

HOW TO PERFORM ACTUATOR TEST

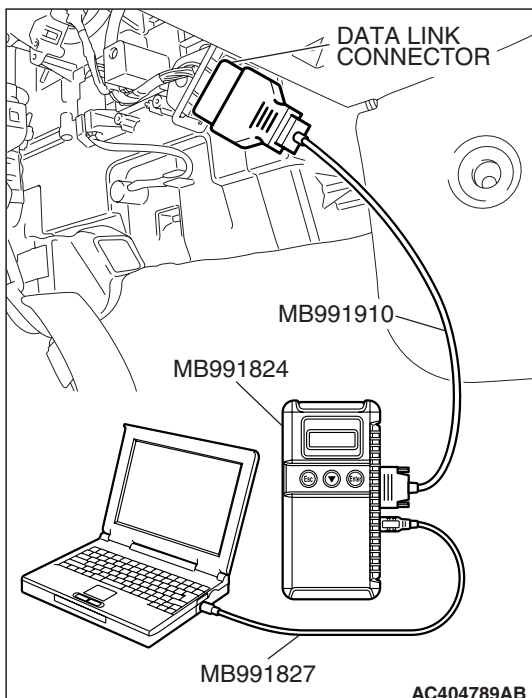
Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect the scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "AUTO A/C" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Choose "Actuator Test" from "AUTO A/C" screen.
8. Choose an appropriate item and select the "OK" button.



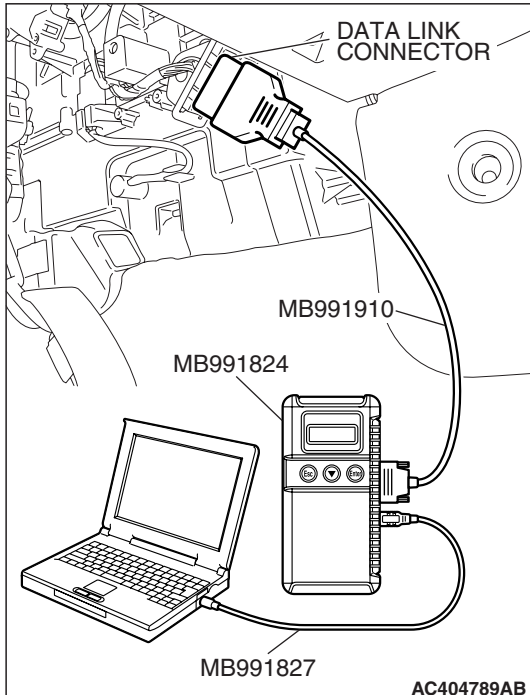
HOW TO DIAGNOSE THE CAN BUS LINE**Required Special Tools:**

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle whose CAN bus lines will be diagnosed.
 - If they match, go to step 8.
 - If not, go to step 5.
5. Select "view vehicle information" button.
6. When the vehicle information is displayed, confirm again that it matches the vehicle which is diagnosed CAN bus line.
 - If they match, go to step 8.
 - If not, go to step 5.
7. Press the "OK" button.
8. When the options are displayed, choose the options (mark the check) and then select "OK".



DIAGNOSTIC TROUBLE CODE CHART

M1554004900452

⚠ CAUTION

During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. After completing the repair, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

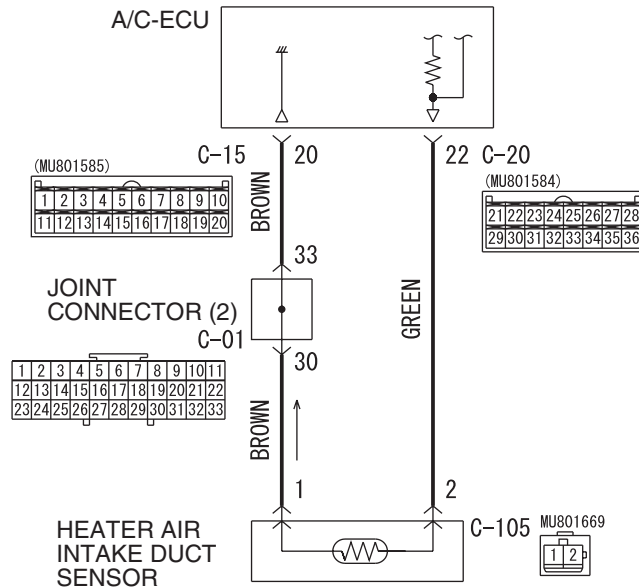
DIAGNOSTIC TROUBLE CODE NO.	DIAGNOSTIC ITEM	REFERENCE PAGE
B1001	Heater air intake duct sensor system (short circuit)	P.55B-10
B1002	Heater air intake duct sensor system (open circuit)	P.55B-14
B1011	Ambient air temperature sensor system (short circuit)	P.55B-19
B1012	Ambient air temperature sensor system (open circuit)	P.55B-25
B1021	Air thermo sensor system (short circuit)	P.55B-32
B1022	Air thermo sensor system (open circuit)	P.55B-37
B1041	Air mixing damper control motor and potentiometer (potentiometer system shorted to its power supply)	P.55B-45
B1042	Air mixing damper control motor and potentiometer (potentiometer system shorted to its ground)	P.55B-51
B1045	Air mixing damper control motor and potentiometer (activating system failure)	P.55B-59
B1061	Mode selection damper control motor and potentiometer (potentiometer system shorted to its power supply)	P.55B-75
B1062	Mode selection damper control motor and potentiometer (potentiometer system shorted to its ground)	P.55B-82
B1065	Mode selection damper control motor and potentiometer (activating system failure)	P.55B-90
U1073	Bus off	P.55B-100
U1100	ECM <M/T> or PCM <A/T> time-out (related to engine)	P.55B-102
U1111	Multi-center display unit (middle grade type) time-out	*
U1120	Failure information on ECM <M/T> or PCM <A/T> (related to engine)	P.55B-104

*NOTE: *: This diagnostic trouble code will be set even if the system is normal.*

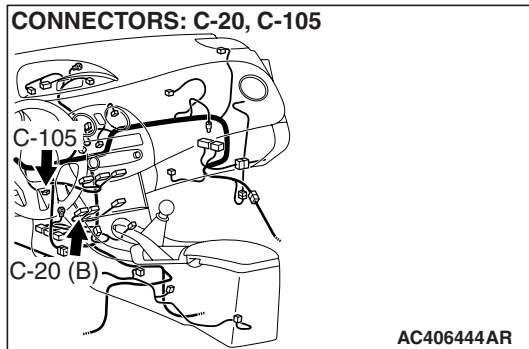
DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1001: Heater Air Intake Duct Sensor System (Short Circuit)

Heater Air Intake Duct Sensor Circuit



W6P55M023A



FUNCTION

The Heater Air Intake Duct Sensor has characteristics that the resistance drops when the temperature rises, and it sends the information of the temperature inside the vehicle to the A/C-ECU to control the temperature.

DETECTION LOGIC

This code is set when the Heater Air Intake Duct Sensor circuit (power supply side) is shorted to ground.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the heater air intake duct sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

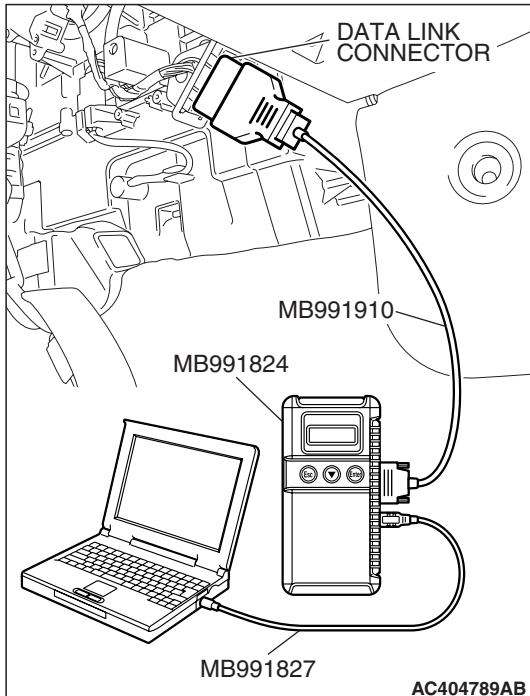
- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 01: Interior temperature sensor
 - Check that the interior temperature matches the displayed value on the scan tool.

NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 25 °C (77 °F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the interior temperature match the displayed value on the scan tool?

- YES :** Go to Step 2.
NO : Go to Step 3.



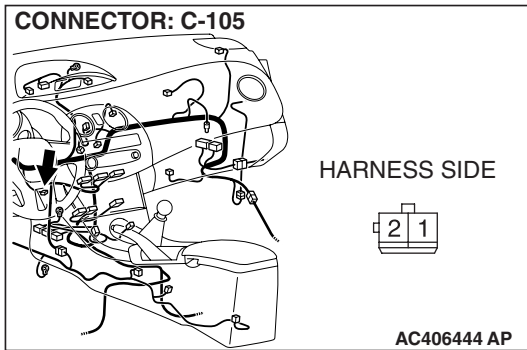
STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

- YES :** It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the A/C-ECU.

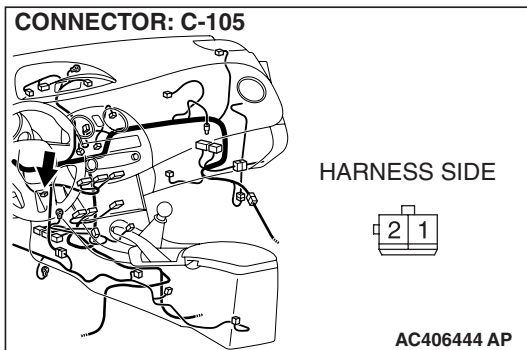


STEP 3. Check heater air intake duct sensor connector C-105 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is heater air intake duct sensor connector C-105 in good condition?

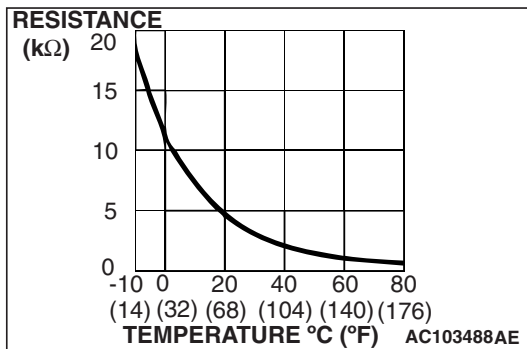
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 4. Check the heater air intake duct sensor.

(1) Disconnect heater air intake duct sensor connector C-105.



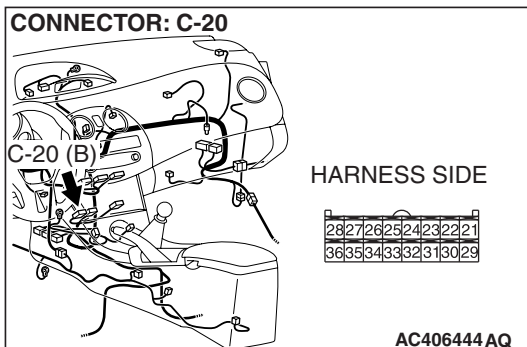
(2) When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

NOTE: The temperature conditions when checking should not exceed the range shown in the diagram.

Q: Is the heater air intake duct sensor in good condition?

YES : Go to Step 5.

NO : Replace the heater air intake duct sensor.

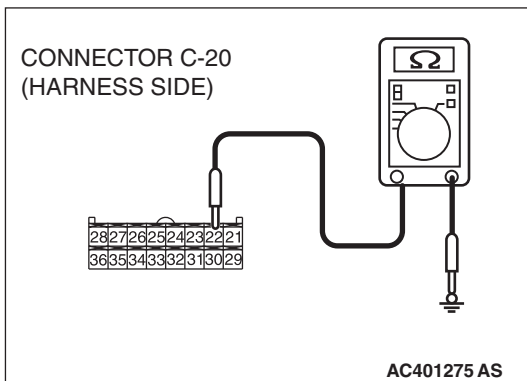
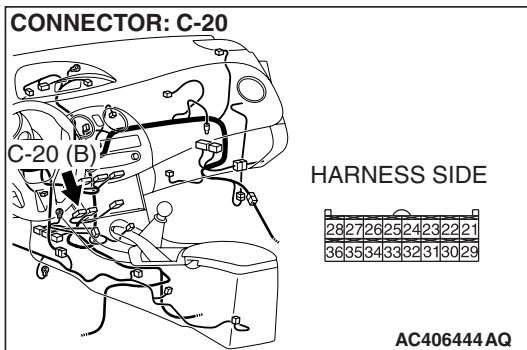


STEP 5. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-20 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 6. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

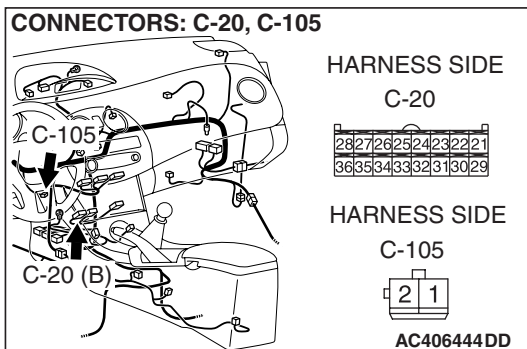
(2) Measure the resistance value between terminal 22 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 22) and heater air intake duct sensor connector C-105 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 22) and heater air intake duct sensor connector C-105 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 8. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

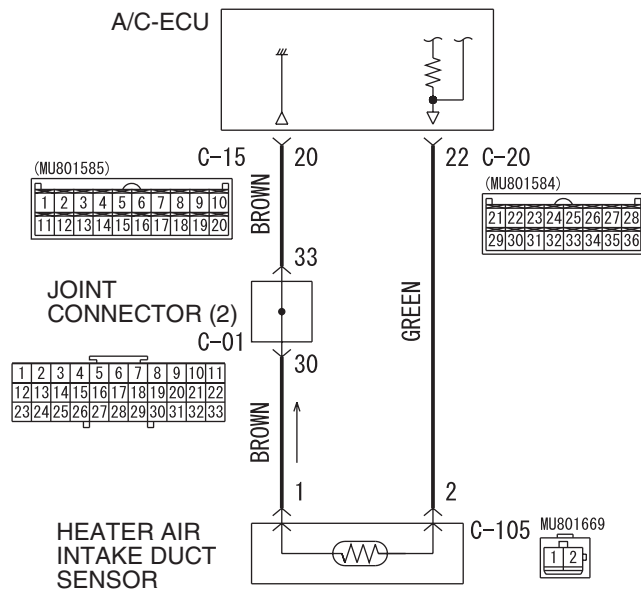
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

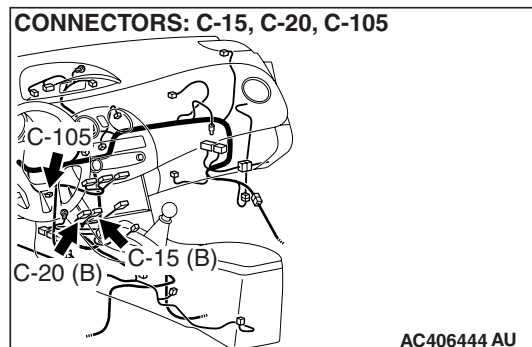
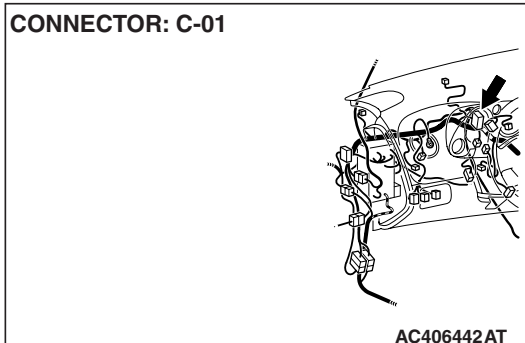
NO : Replace the A/C-ECU.

DTC B1002: Heater Air Intake Duct Sensor System (Open Circuit)

Heater Air Intake Duct Sensor Circuit



W6P55M023A



FUNCTION

The Heater Air Intake Duct Sensor has characteristics that the resistance drops when the temperature rises, and it sends the information of the temperature inside the vehicle to the A/C-ECU to control the temperature.

DETECTION LOGIC

This code is set when the Heater Air Intake Duct Sensor circuit (power supply side and ground side) is open.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the heater air intake duct sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 01: Interior temperature sensor
 - Check that the interior temperature matches the displayed value on the scan tool.

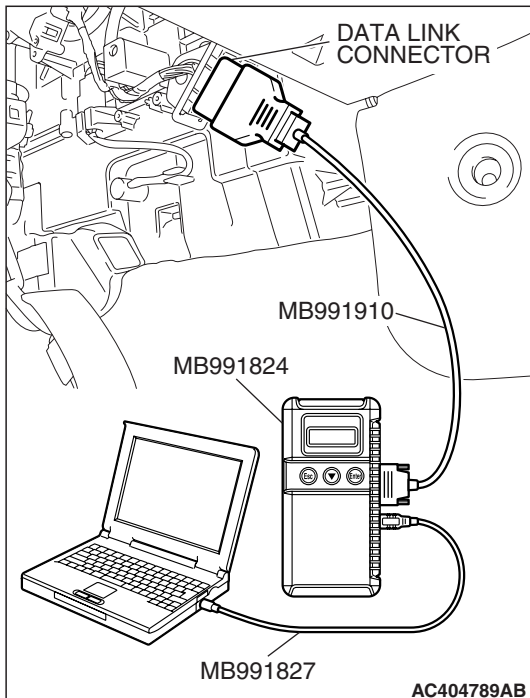
NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 25°C (77°F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the interior temperature match the displayed value on the scan tool?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

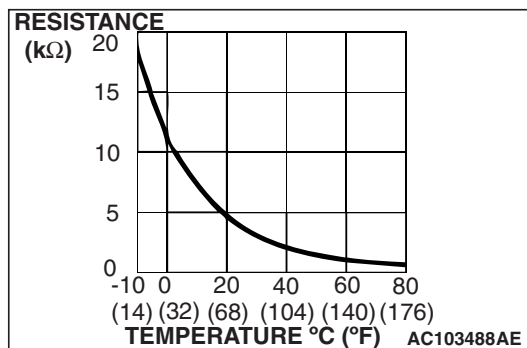
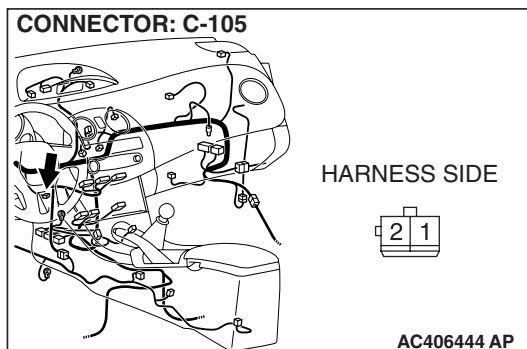
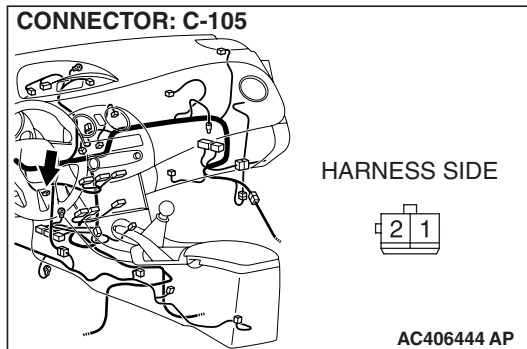
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

STEP 3. Check heater air intake duct sensor connector C-105 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is heater air intake duct sensor connector C-105 in good condition?**

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**STEP 4. Check the heater air intake duct sensor.**

- (1) Disconnect heater air intake duct sensor connector C-105.

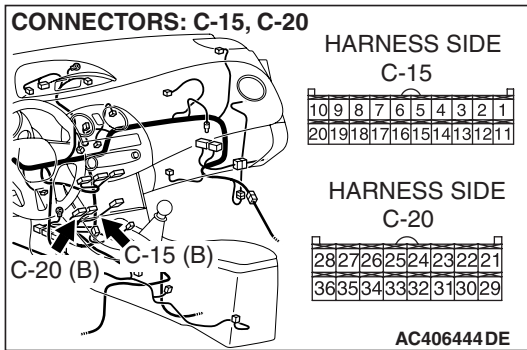
- (2) When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

NOTE: The temperature conditions when checking should not exceed the range shown in the diagram.

Q: Is the heater air intake duct sensor in good condition?

YES : Go to Step 5.

NO : Replace the heater air intake duct sensor.

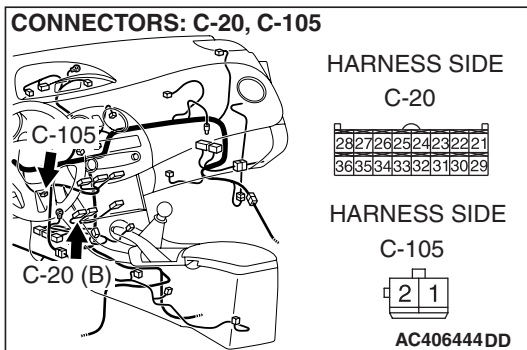


STEP 5. Check A/C-ECU connector C-15 and C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-15 and C-20 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 6. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20 and heater air intake duct sensor connector C-105, and measure the resistance at the wiring harness side.

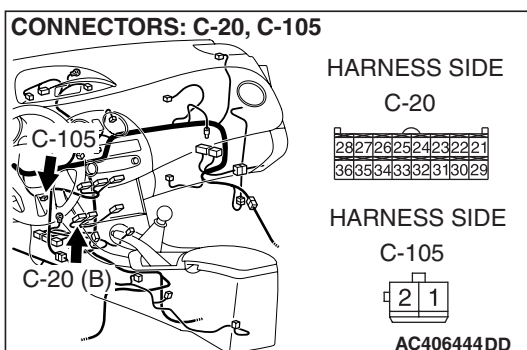
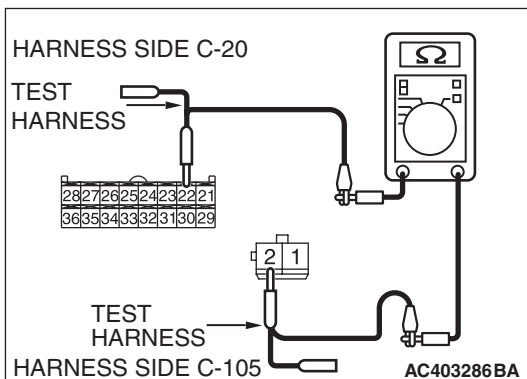
(2) Measure the resistance between A/C-ECU connector C-20 terminal 22 and heater air intake duct sensor connector C-105 terminal 2.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

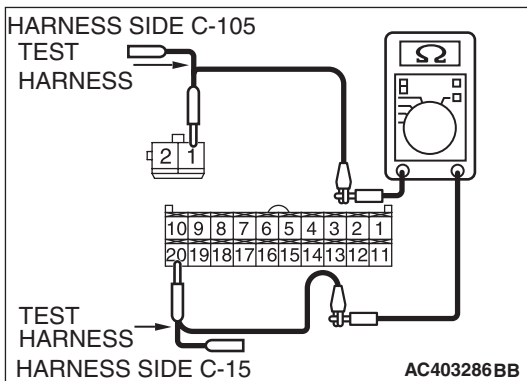
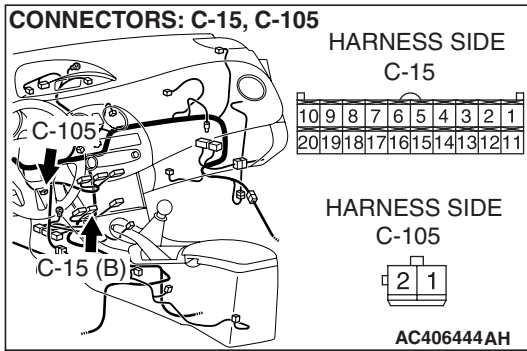


STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 22) and heater air intake duct sensor connector C-105 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 22) and heater air intake duct sensor connector C-105 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 8. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and heater air intake duct sensor connector C-105, and measure the resistance at the wiring harness side.

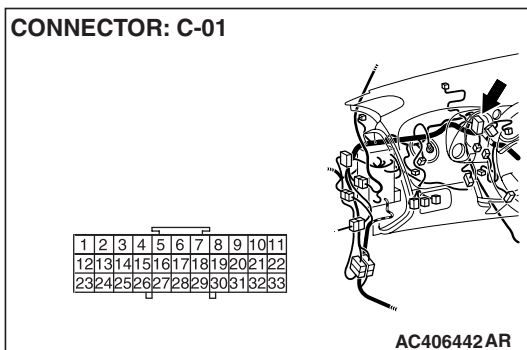
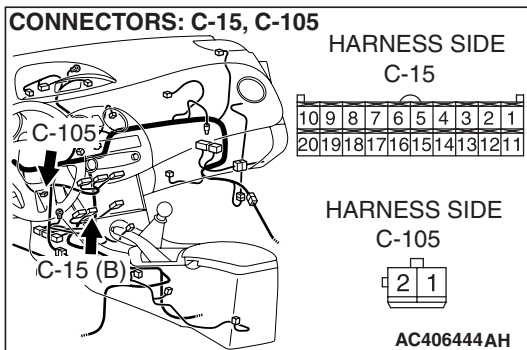
(2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and heater air intake duct sensor connector C-105 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between A/C-ECU connector C-15 (terminal 20) and heater air intake duct sensor connector C-105 (terminal 1).

NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 20) and heater air intake duct sensor connector C-105 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 10. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

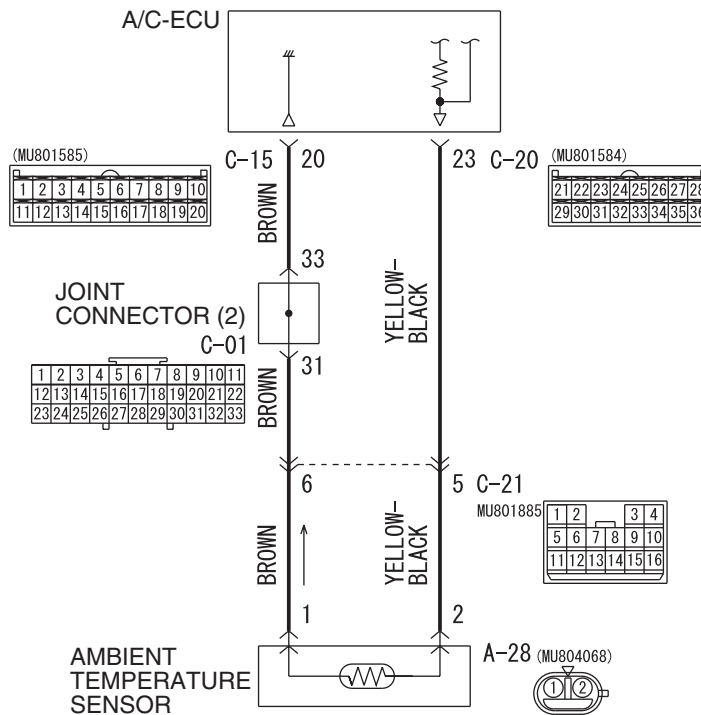
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

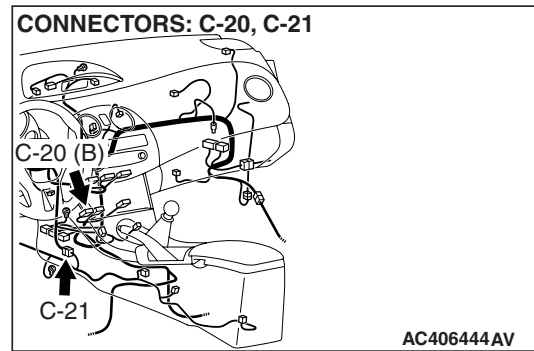
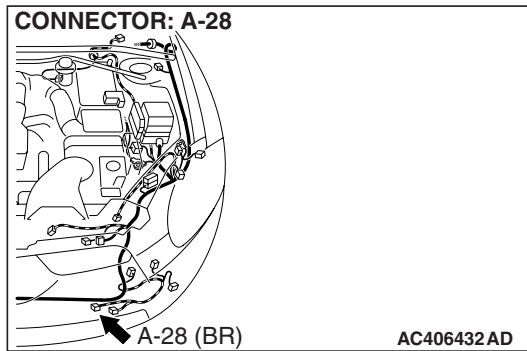
NO : Replace the A/C-ECU.

DTC B1011: Ambient Air Temperature Sensor System (Short Circuit)

Ambient Temperature Sensor Circuit



W6P55M001A



FUNCTION

The ambient air temperature sensor has characteristics that the resistance drops when the temperature rises, and it sends the temperature information outside the vehicle to the A/C-ECU to control the temperature.

DETECTION LOGIC

This code is set when the ambient air temperature sensor circuit (power supply side) is shorted to ground.

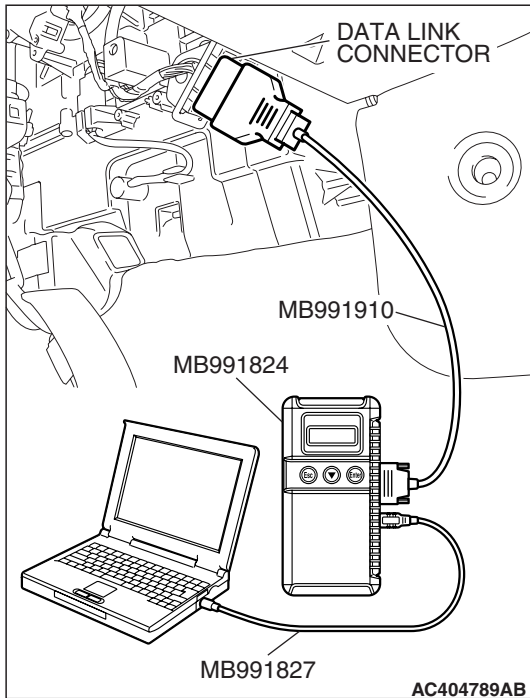
PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the ambient air temperature sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 02: Ambient air temperature sensor
 - Check that the ambient temperature matches the displayed value on the scan tool.

NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 20°C (68°F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the interior temperature match the displayed value on the scan tool?

YES : Go to Step 2.

NO : Go to Step 3.

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

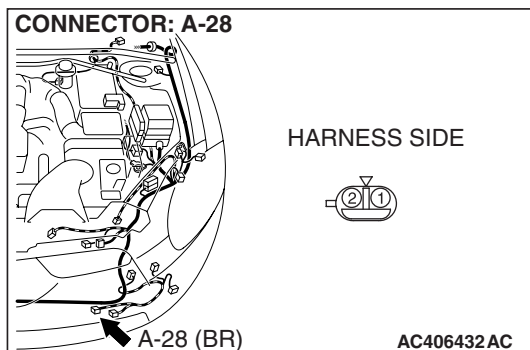
NO : Replace the A/C-ECU.

STEP 3. Check ambient air temperature sensor connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ambient air temperature sensor connector A-28 in good condition?

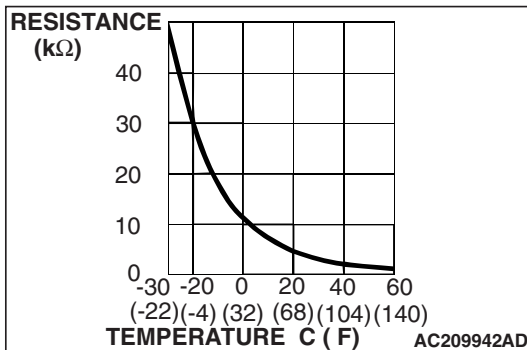
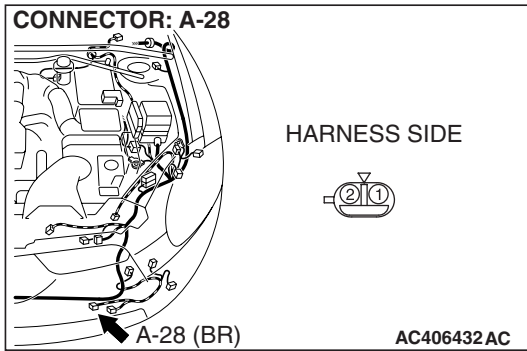
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 4. Check the ambient air temperature sensor.

(1) Disconnect ambient air temperature sensor connector A-28.



(2) Measure the resistance between the sensor terminals under at least two temperatures. The resistance values should meet the values shown.

NOTE: The temperature should be within the shown range.

Q: Is the ambient air temperature sensor in good condition?

YES : Go to Step 5.

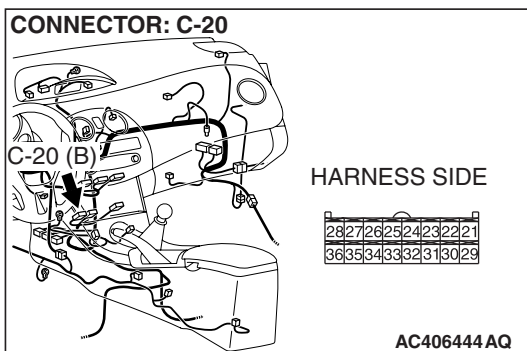
NO : Replace the ambient air temperature sensor.

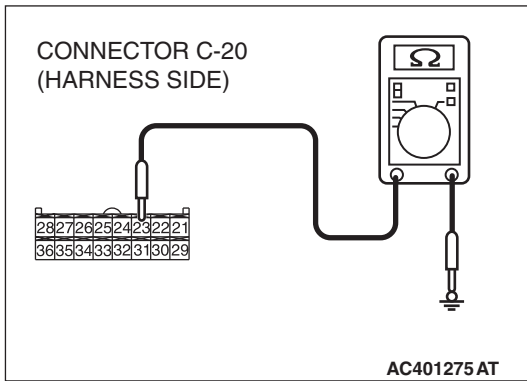
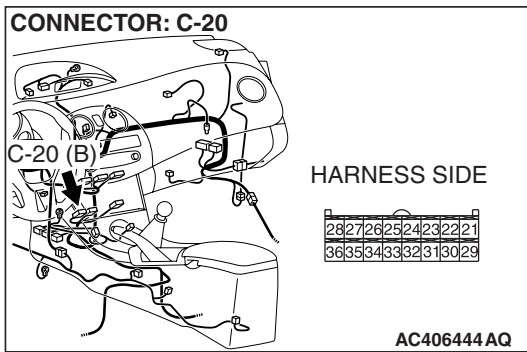
STEP 5. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-20 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 6. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

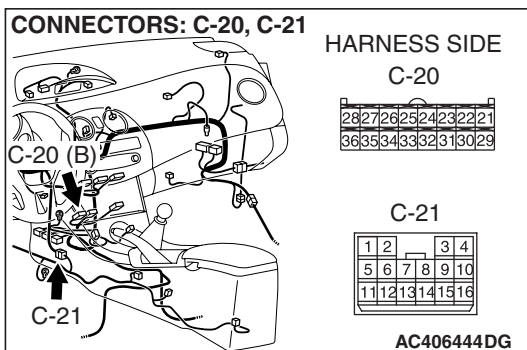
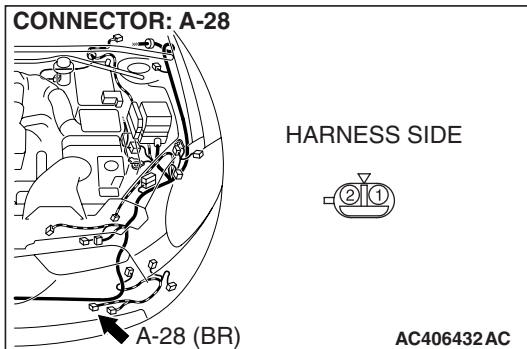
(2) Measure the resistance value between terminal 23 and ground.

OK: 1kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 23) and heater air intake duct sensor connector A-28 (terminal 2).

NOTE: Also check intermediate connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 23) and heater air intake duct sensor connector A-28 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 8. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

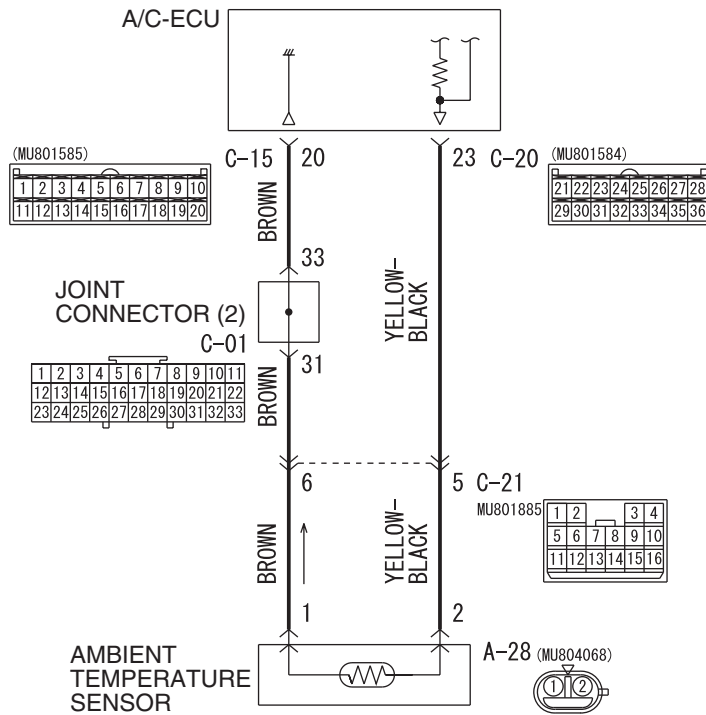
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

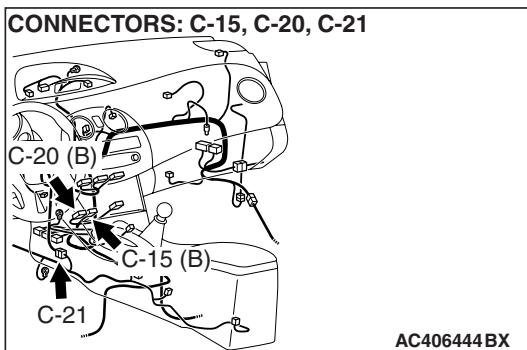
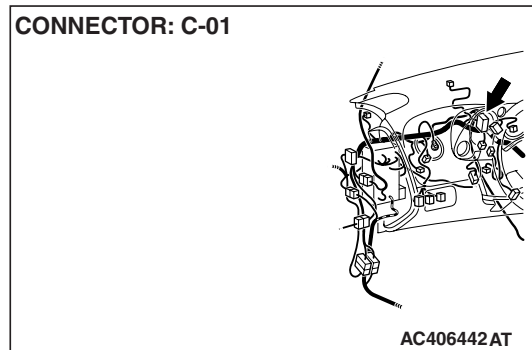
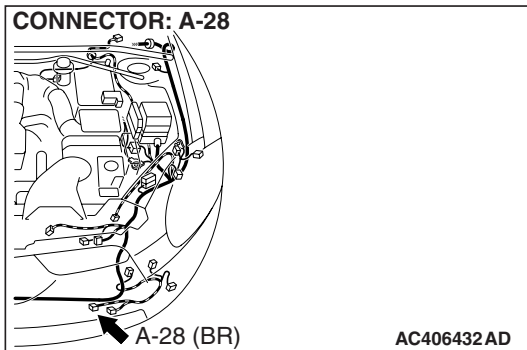
NO : Replace the A/C-ECU.

DTC B1012: Ambient Air Temperature Sensor System (Open Circuit)

Ambient Temperature Sensor Circuit



W6P55M001A



FUNCTION

The ambient air temperature sensor has characteristics that the resistance drops when the temperature rises, and it sends the temperature information outside the vehicle to the A/C-ECU to control the temperature.

DETECTION LOGIC

This code is set when the ambient air temperature sensor circuit (power supply side and ground side) is open.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the ambient air temperature sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.**⚠ CAUTION**

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 02: Ambient air temperature sensor
 - Check that the ambient temperature matches the displayed value on the scan tool.

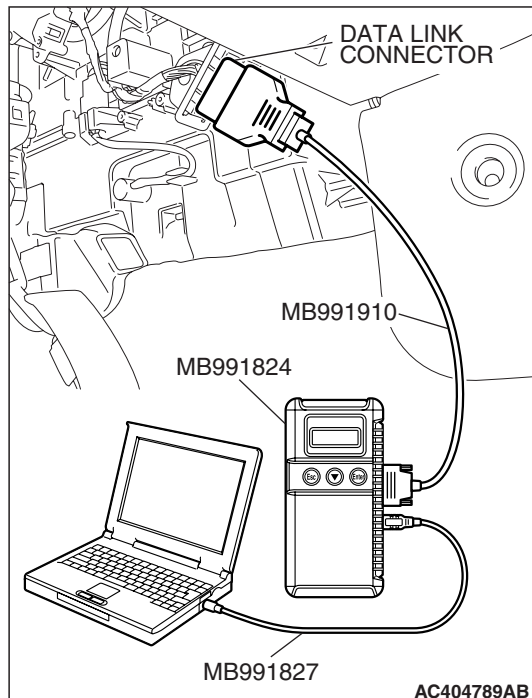
NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 20°C (68°F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the interior temperature match the displayed value on the scan tool?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions P.00-14.

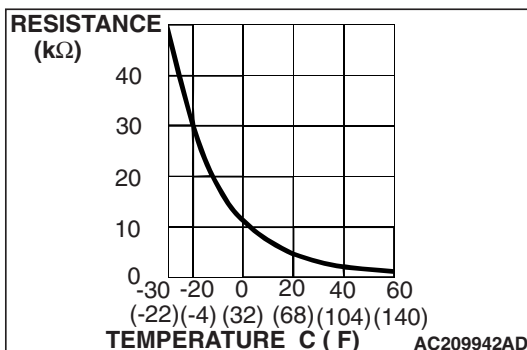
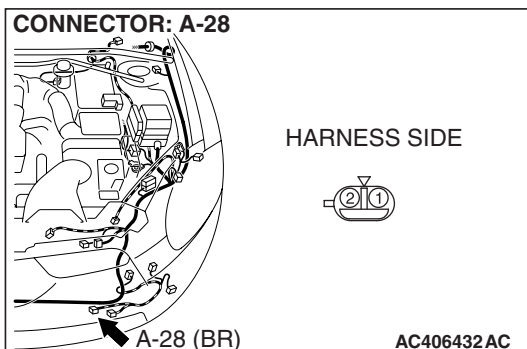
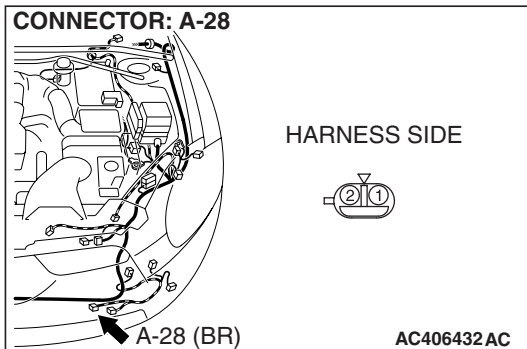
NO : Replace the A/C-ECU.

STEP 3. Check ambient air temperature sensor connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ambient air temperature sensor connector A-28 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 4. Check the ambient air temperature sensor.

- (1) Disconnect ambient air temperature sensor connector A-28.

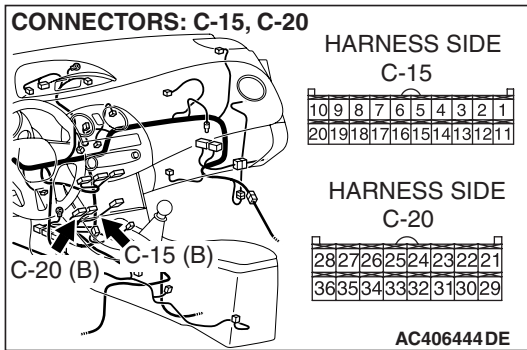
- (2) When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

NOTE: The temperature conditions when checking should not exceed the range shown in the diagram.

Q: Is the ambient air temperature sensor in good condition?

YES : Go to Step 5.

NO : Replace the ambient air temperature sensor.

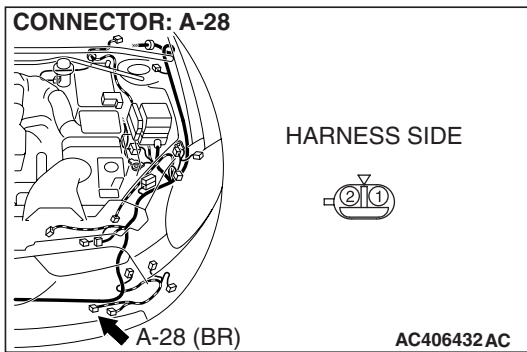


STEP 5. Check A/C-ECU connector C-15 and C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-15 and C-20 in good condition?

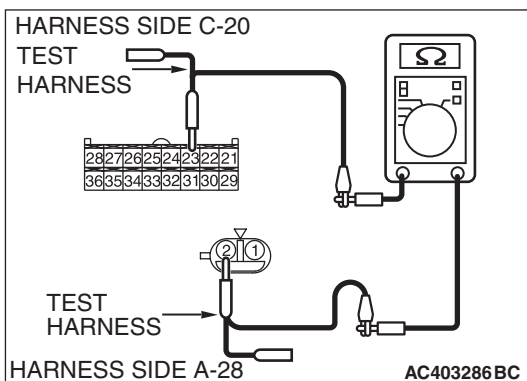
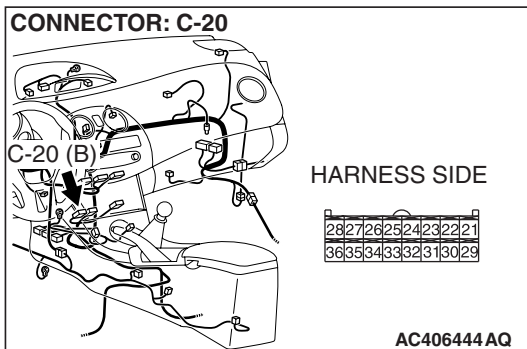
YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 6. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20 and ambient air temperature sensor connector A-28, and measure the resistance at the wiring harness side.



(2) Measure the resistance between A/C-ECU connector C-20 terminal 23 and ambient air temperature sensor connector A-28 terminal 2.

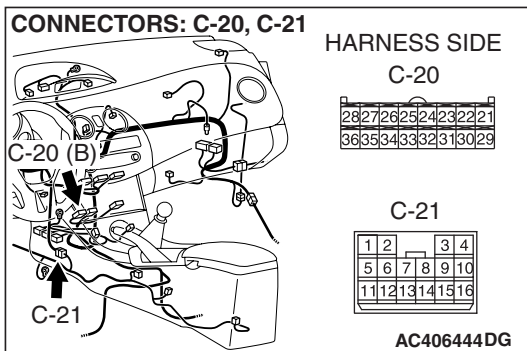
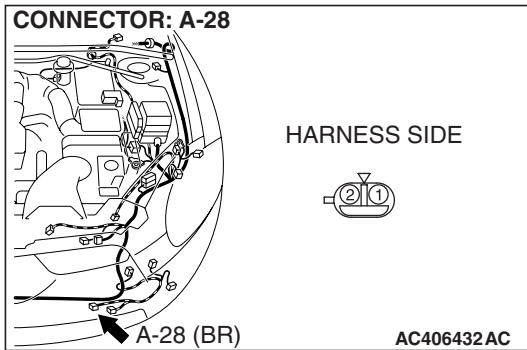
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 23) and ambient air temperature sensor connector A-28 (terminal 2).



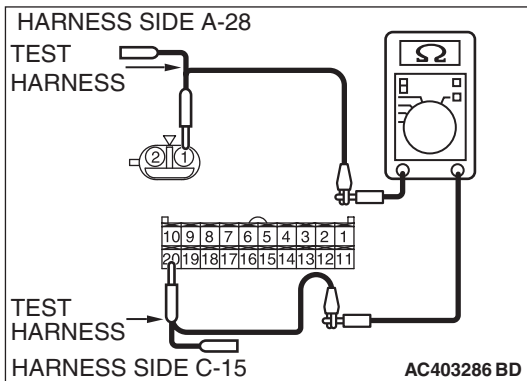
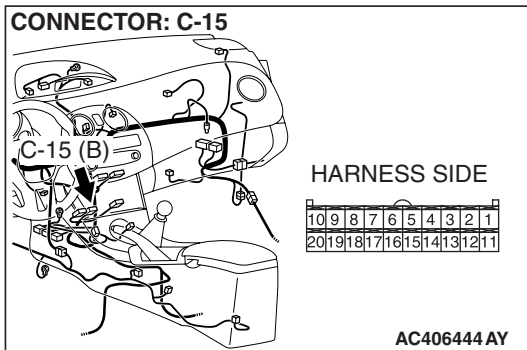
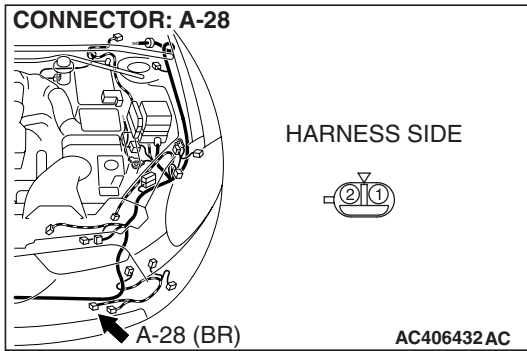
NOTE: Also check intermediate connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 23) and ambient air temperature sensor connector A-28 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 8. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and ambient air temperature sensor connector A-28, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and ambient air temperature sensor connector A-28 terminal 1.

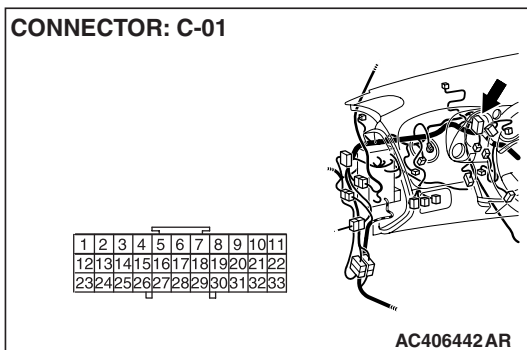
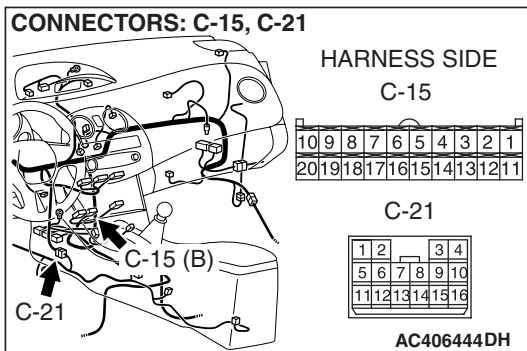
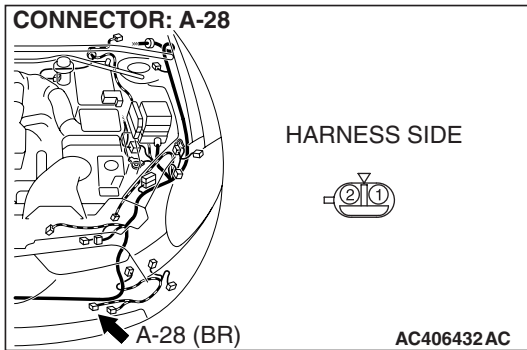
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between A/C-ECU connector C-15 (terminal 20) and ambient air temperature sensor connector A-28 (terminal 1).



NOTE: Also check intermediate connector C-21 and joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 and joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 20) and ambient air temperature sensor connector A-28 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.

STEP 10. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

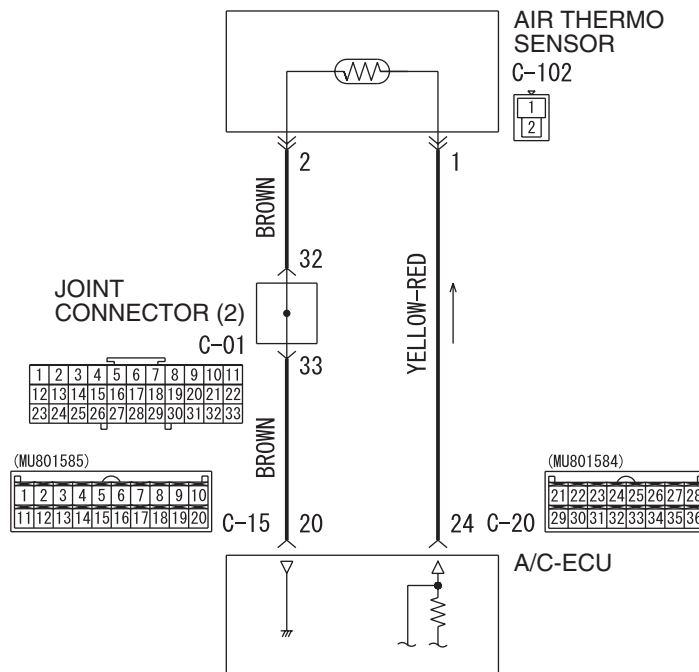
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

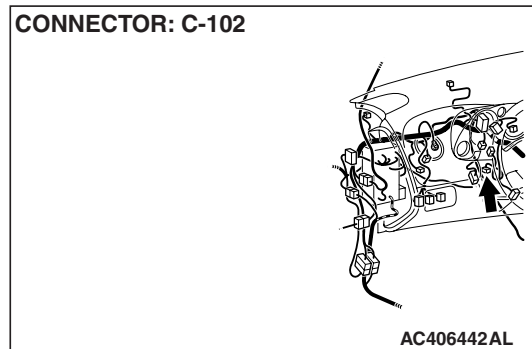
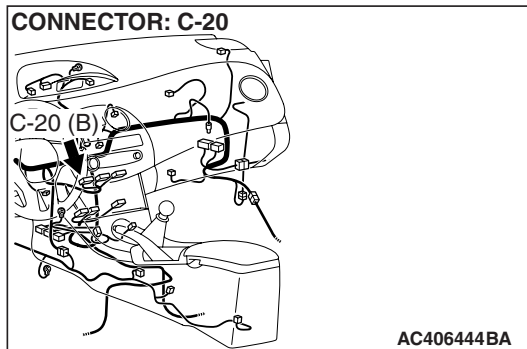
NO : Replace the A/C-ECU.

DTC B1021: Air Thermo Sensor System (Short Circuit)

Air Thermo Sensor Circuit



W6P55M003A



FUNCTION

The air thermo sensor sends the temperature information inside the heater unit to the A/C-ECU. The A/C-ECU controls the air mixing damper control motor and potentiometer to control the temperature of the air coming out of the vents.

Detection logic

This code is set when the air thermo sensor circuit (power supply side) is shorted to ground.

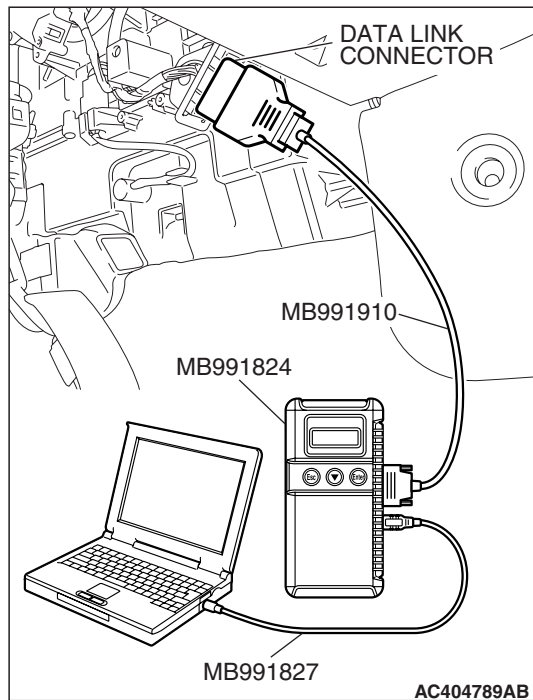
PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the air thermo sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

**STEP 1. Using scan tool MB991958, check data list.****⚠ CAUTION**

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 20: air thermo sensor
 - Check that the temperature behind the evaporator matches the displayed value on the scan tool.

NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays -6°C (28°F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

YES : Go to Step 2.

NO : Go to Step 3.

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

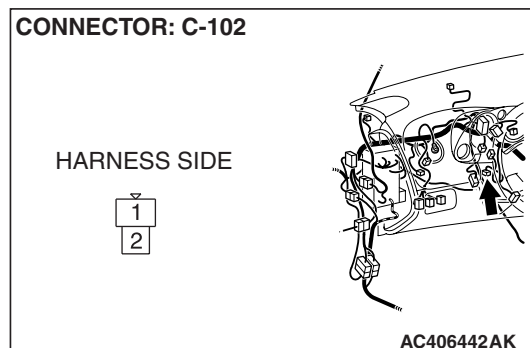
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

STEP 3. Check air thermo sensor connector C-102 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is air thermo sensor connector C-102 in good condition?**

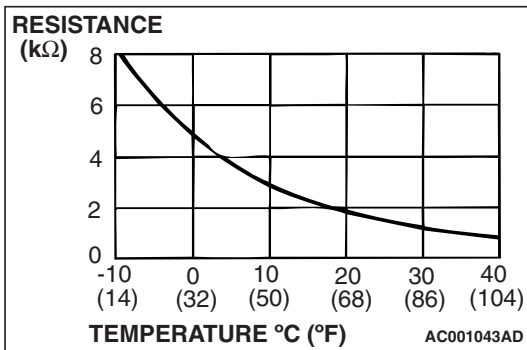
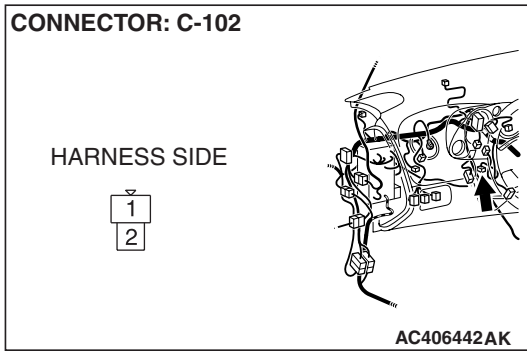
YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 4. Check the air thermo sensor.

(1) Disconnect the air thermo sensor connector C-102.



(2) Measure the resistance between connector terminals 1 and 2 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.

Q: Is the air thermo sensor in good condition?

YES : Go to Step 5.

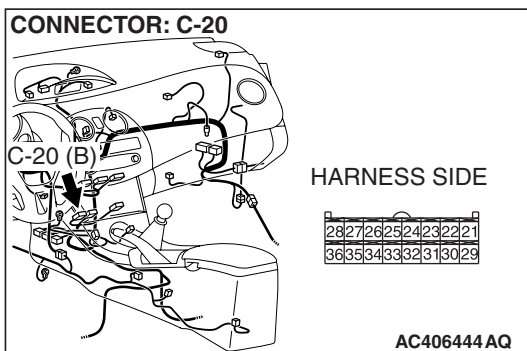
NO : Replace the air thermo sensor.

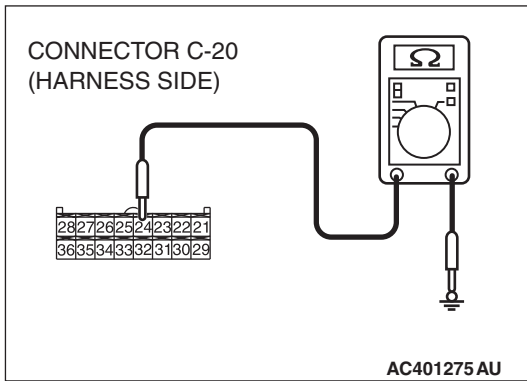
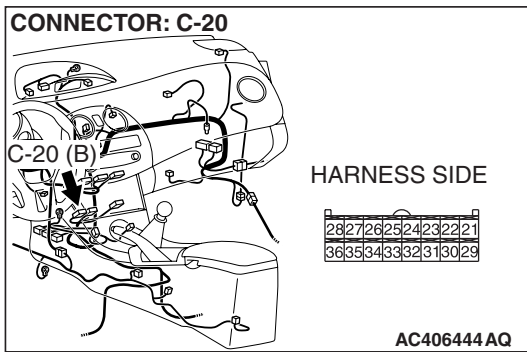
STEP 5. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-20 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 6. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

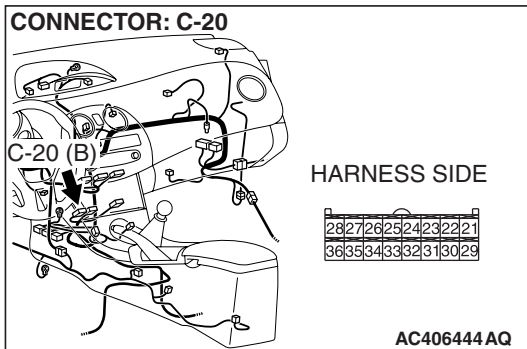
(2) Measure the resistance value between terminal 24 and ground.

OK: 1kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 8.

NO : Go to Step 7.

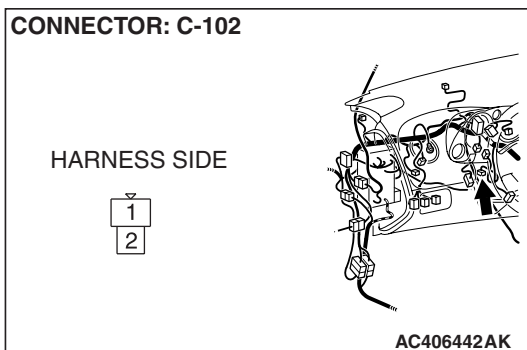


STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 24) and air thermo sensor connector C-102 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 24) and air thermo sensor connector C-102 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 8. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

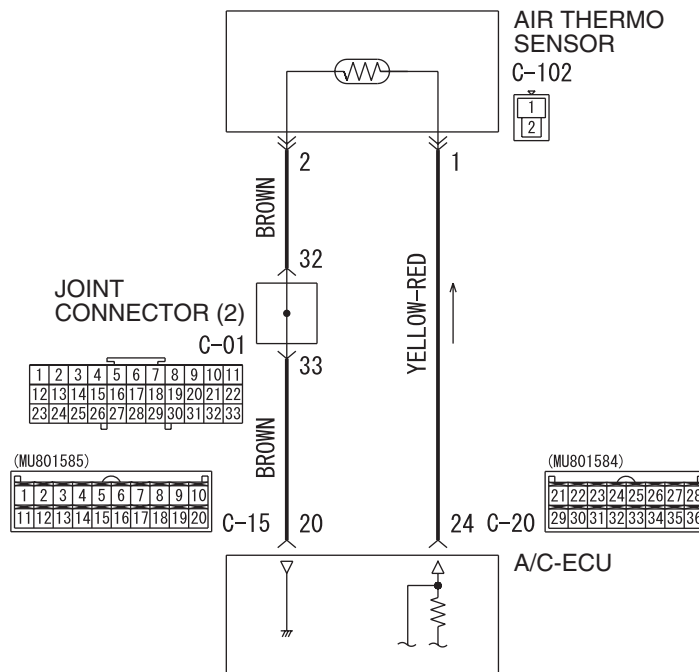
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

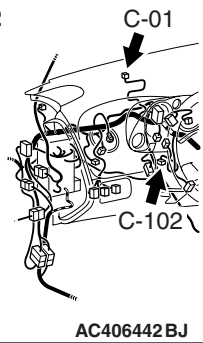
DTC B1022: Air Thermo Sensor System (Open Circuit)

Air Thermo Sensor Circuit

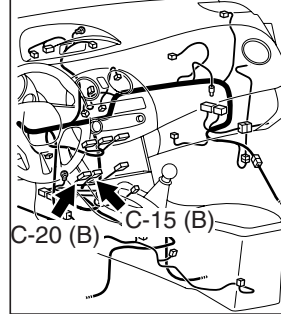


W6P55M003A

CONNECTORS: C-01, C-102



CONNECTORS: C-15, C-20



FUNCTION

The air thermo sensor sends the temperature information inside the heater unit to the A/C-ECU and controls the temperature of the air coming out of the vents.

DETECTION LOGIC

This code is set when the air thermo sensor circuit is open (power supply side and ground side).

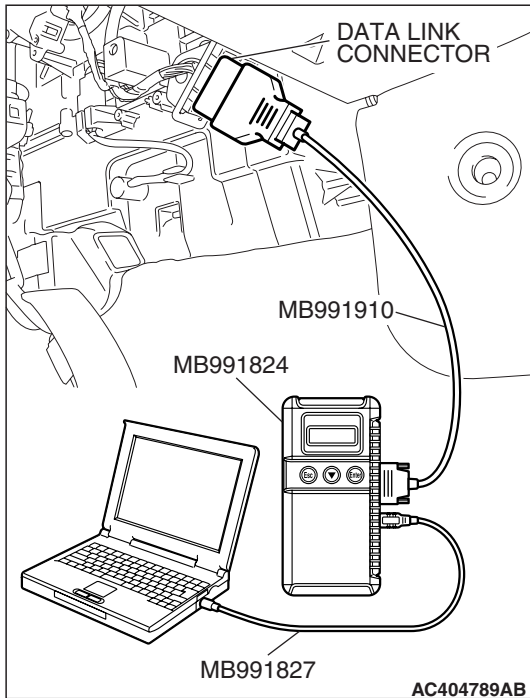
PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the air thermo sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 20: air thermo sensor
 - Check that the temperature behind the evaporator matches the displayed value on the scan tool.

NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays -6°C (28°F).

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

- YES :** Go to Step 2.
NO : Go to Step 3.

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

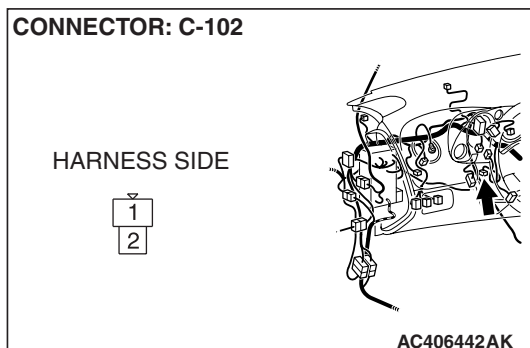
Q: Is the check result satisfactory?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the A/C-ECU.

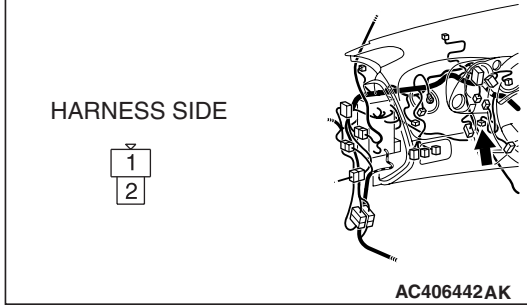
STEP 3. Check air thermo sensor connector C-102 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is air thermo sensor connector C-102 in good condition?

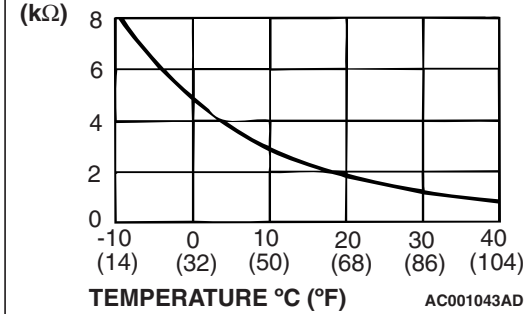
- YES :** Go to Step 4.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



CONNECTOR: C-102



RESISTANCE



STEP 4. Check the air thermo sensor.

(1) Disconnect the air thermo sensor connector C-102.

(2) Measure the resistance between connector terminals 1 and 2 under at least two different temperatures. The resistance values should generally match those in the graph.

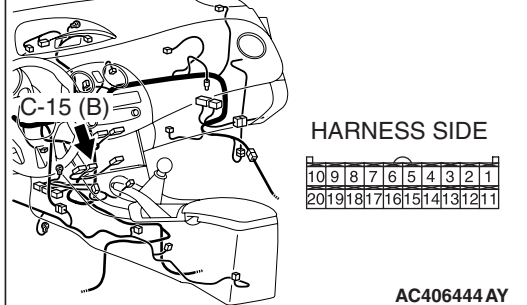
NOTE: The temperature at the check should not exceed the range in the graph.

Q: Is the air thermo sensor in good condition?

YES : Go to Step 5.

NO : Replace the air thermo sensor.

CONNECTOR: C-15



STEP 5. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

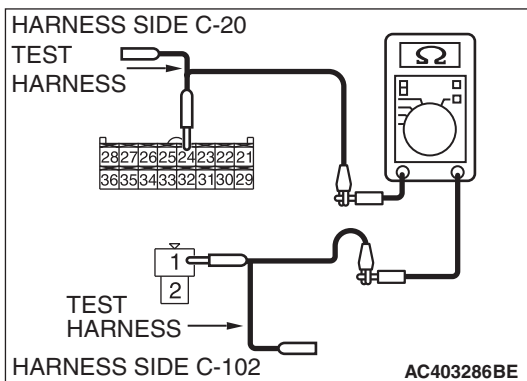
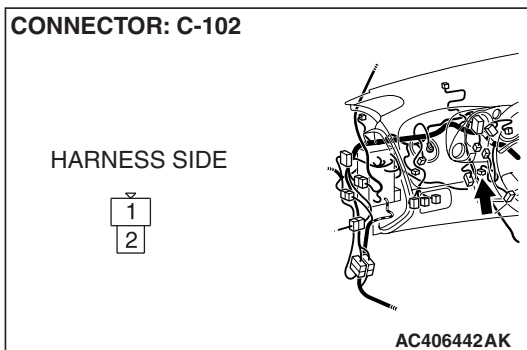
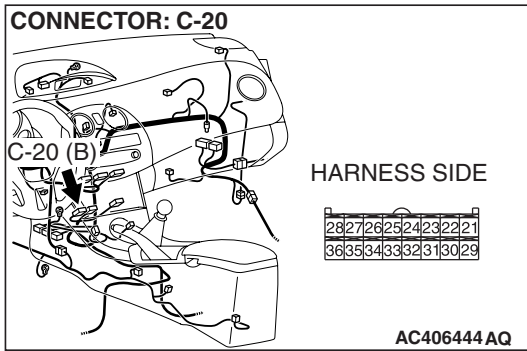
Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 6. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-20 and air thermo sensor connector C-102, and measure the resistance at the wiring harness side.



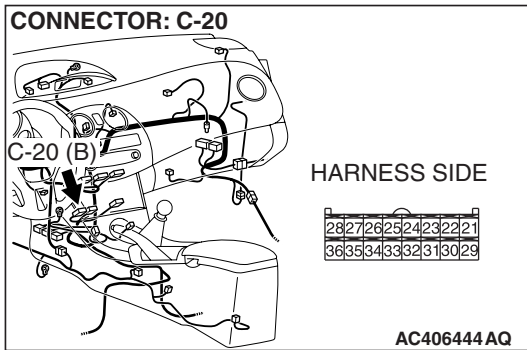
- (2) Measure the resistance between A/C-ECU connector C-20 terminal 24 and air thermo sensor connector C-102 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 24) and air thermo sensor connector C-102 (terminal 1).

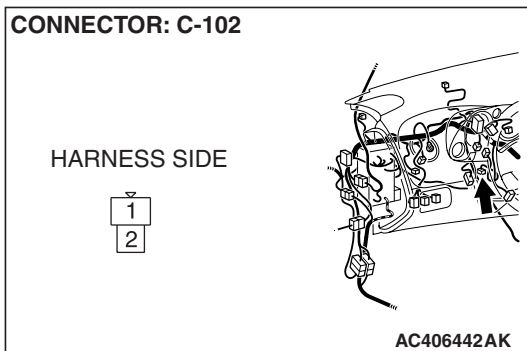
Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 24) and air thermo sensor connector C-102 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

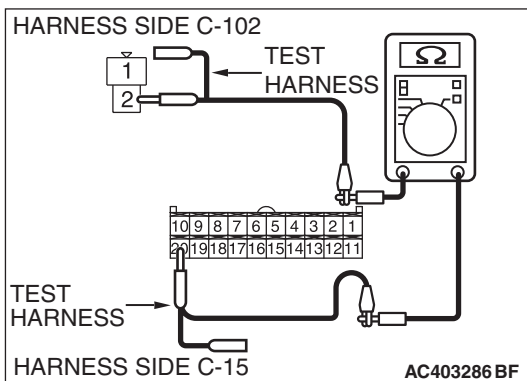
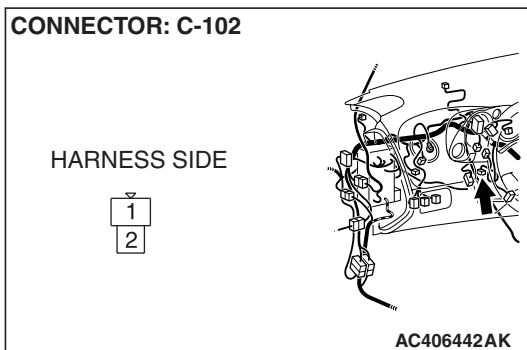
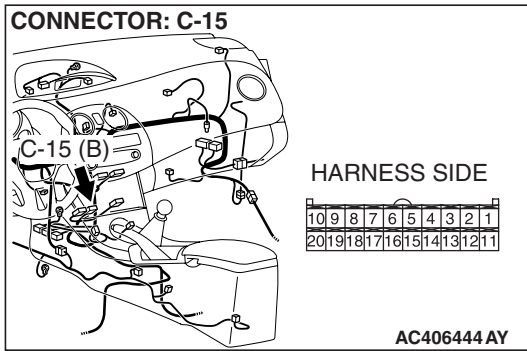
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 8. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and air thermo sensor connector C-102, and measure the resistance at the wiring harness side.



- (2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and air thermo sensor connector C-102 terminal 2.

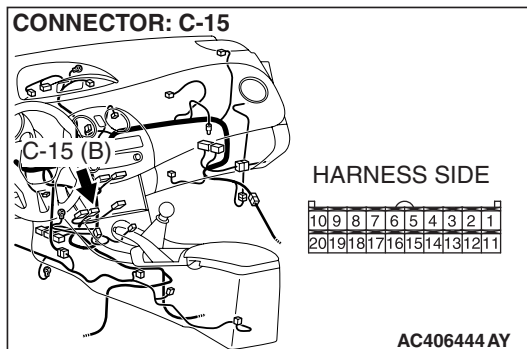
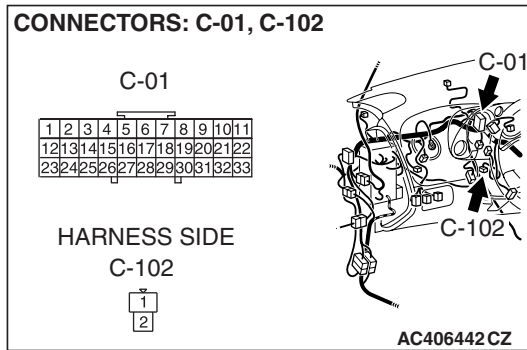
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between A/C-ECU connector C-15 (terminal 20) and air thermo sensor connector C-102 (terminal 2).



NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 20) and air thermo sensor connector C-102 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 10. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

(1) Erase the DTC.

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

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

(4) Drive the vehicle and check that the diagnostic trouble code is not set.

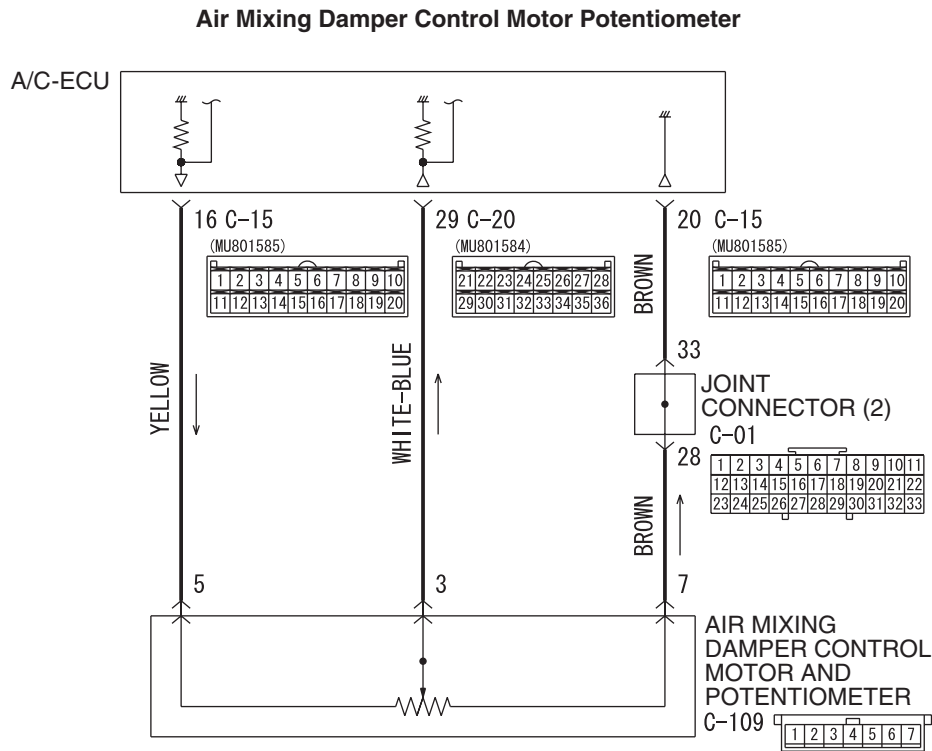
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

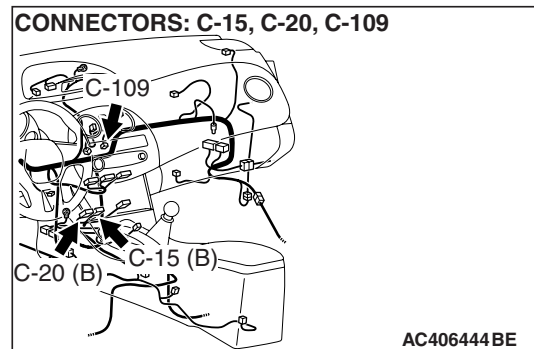
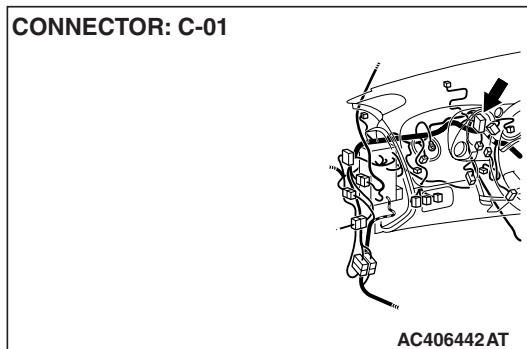
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

DTC B1041: Air Mixing Damper Control Motor and Potentiometer (Potentiometer system shorted to its power supply)



W6P55M005A



FUNCTION

Read the position of air mixing damper from the drive motor.

DETECTION LOGIC

This code is set when the air mixing damper control motor and potentiometer do not send any signal to the A/C-ECU due to short to power supply of the air mixing damper control motor and potentiometer circuit.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (air mixing damper control motor and potentiometer circuit is open/shorted to its power supply)
- Malfunction of the air mixing damper control motor and potentiometer.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 63: Air mix potentiometer
 - Item 64: Air mix potentiometer (Target)

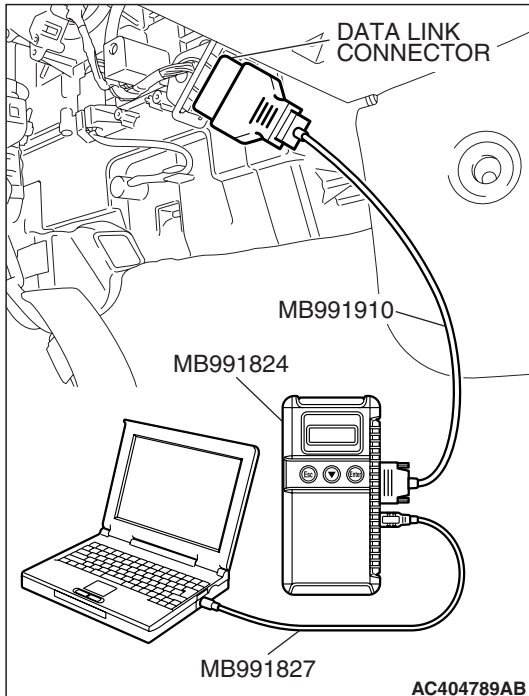
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

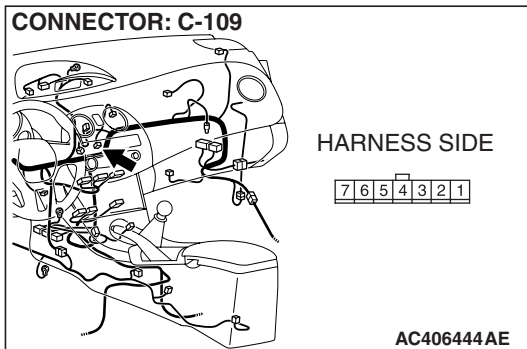
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

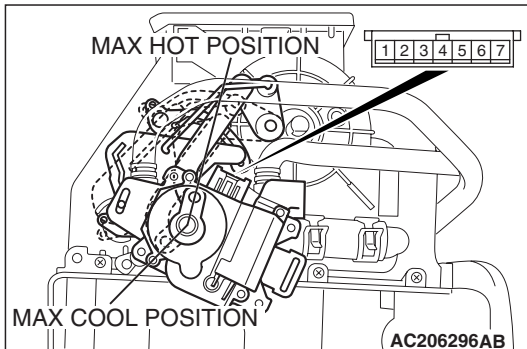


STEP 3. Check air mixing damper control motor and potentiometer connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is air mixing damper control motor and potentiometer connector C-109 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 4. Check the air mixing damper control motor and potentiometer.

⚠ CAUTION

Do not apply battery voltage when the damper is in the MAX COOL or MAX HOT position.

(1) Operate the air mixing damper control motor as described in the table below.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the MAX COOL position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the MAX COOL position to the MAX HOT position
At the MAX HOT position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the MAX HOT position to the MAX COOL position

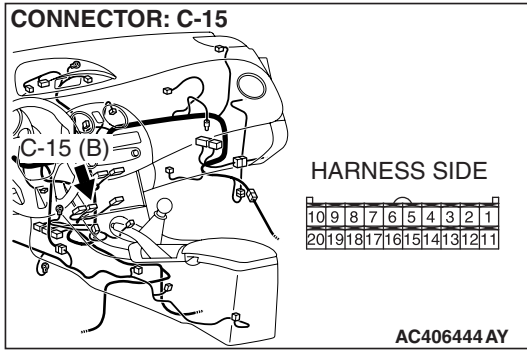
(2) Measure the resistances between connector terminals 3 and 5, and between 3 and 7, while the air mixing damper control motor is running. The resistances should change gradually within the standard value.

Standard value: 1.7 (MAX HOT) –5.0 (MAX COOL) kΩ

Q: Are the air mixing damper control motor and potentiometer in good condition?

YES : Go to Step 5.

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

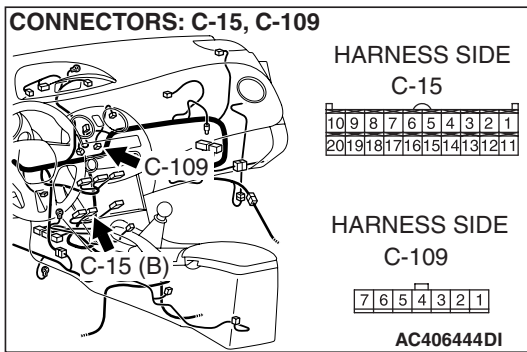


STEP 5. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-15 in good condition?

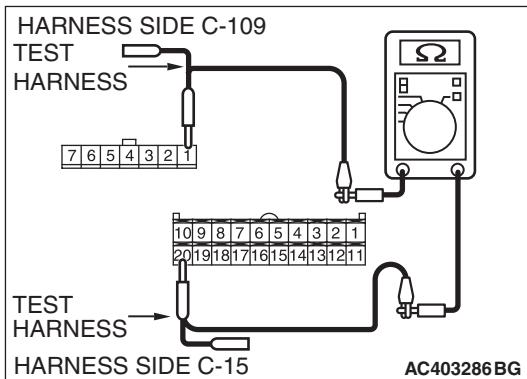
YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 6. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.



(2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and air mixing damper control motor and potentiometer connector C-109 terminal 1.

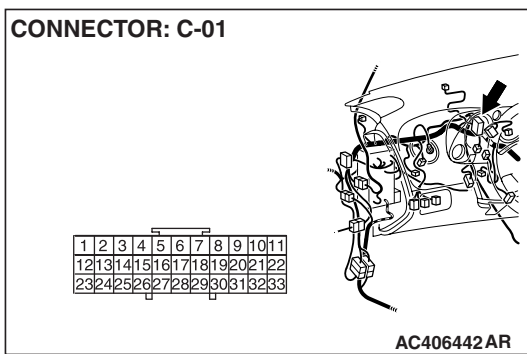
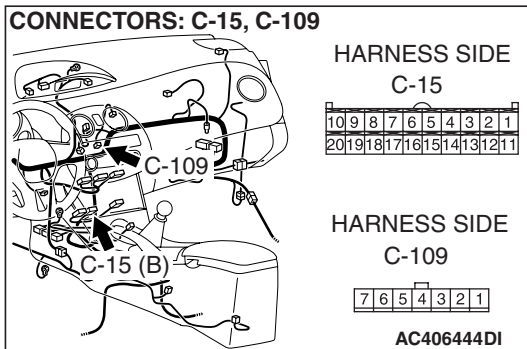
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check the wiring harness between A/C-ECU connector C-15 (terminal 20) and air mixing damper control motor and potentiometer connector C-109 (terminal 7).



NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

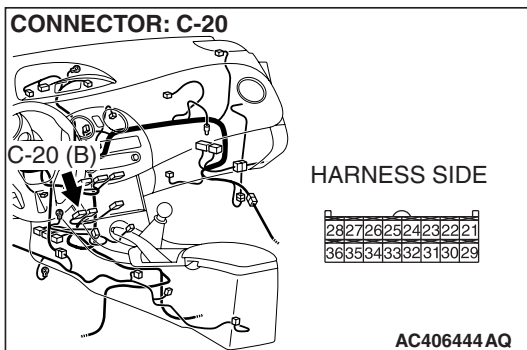
Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 20) and air mixing damper control motor and potentiometer connector C-109 (terminal 7) in good condition?

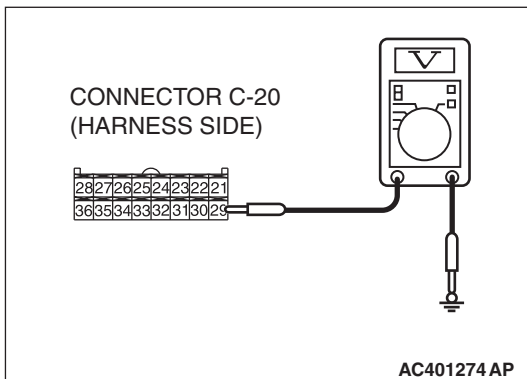
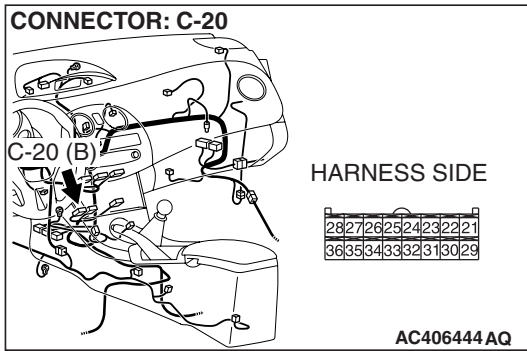
- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.

STEP 8. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-20 in good condition?

- YES :** Go to Step 9.
- NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.





STEP 9. Measure the voltage at A/C-ECU connector C-20.

- (1) Disconnect A/C-ECU connector C-20, and measure the voltage at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Turn the temperature control dial to the MAX HOT position.

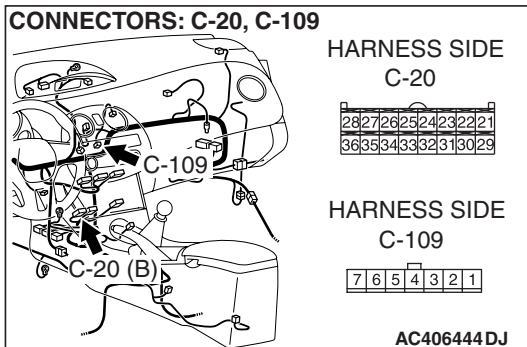
- (4) Measure the voltage between terminal 29 and ground.

OK: 1.3 – 1.5 volts

Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.



STEP 10. Check the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 11. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

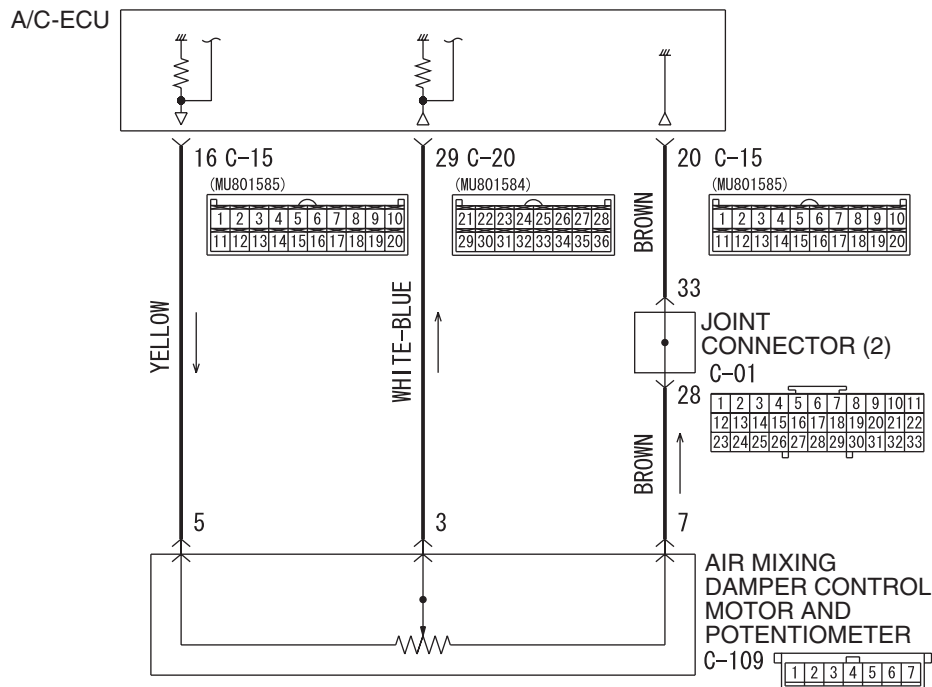
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

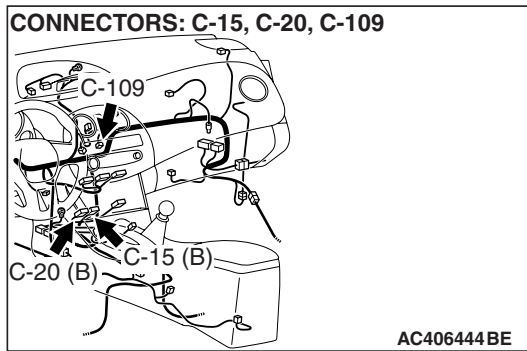
NO : Replace the A/C-ECU.

DTC B1042: Air Mixing Damper Control Motor and Potentiometer (Potentiometer system shorted to its ground)

Air Mixing Damper Control Motor Potentiometer



W6P55M005A



FUNCTION

Read the position of air mixing damper from the drive motor.

DETECTION LOGIC

This code is set when the air mixing damper control motor and potentiometer do not send any signal to the A/C-ECU due to an open circuit and short to ground of the air mixing damper control motor and potentiometer circuit.

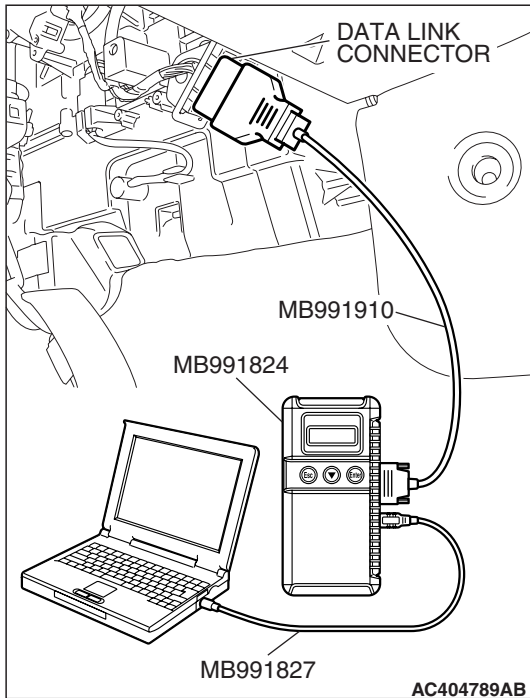
PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (Air mixing damper control motor and potentiometer circuit is open/shorted to ground)
- Malfunction of the Air mixing damper control motor and potentiometer.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 63 : Air mix potentiometer
 - Item 64 : Air mix potentiometer (Target)

NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

YES : Go to Step 2.

NO : Go to Step 3.

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

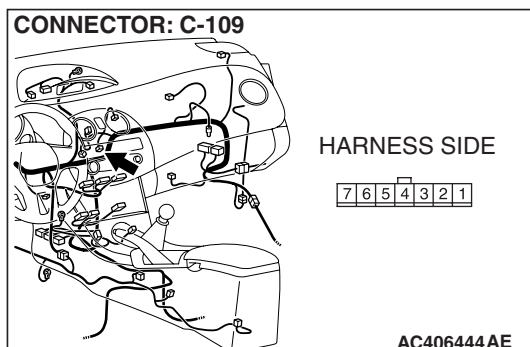
NO : Replace the A/C-ECU.

STEP 3. Check air mixing damper control motor and potentiometer connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is air mixing damper control motor and potentiometer connector C-109 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

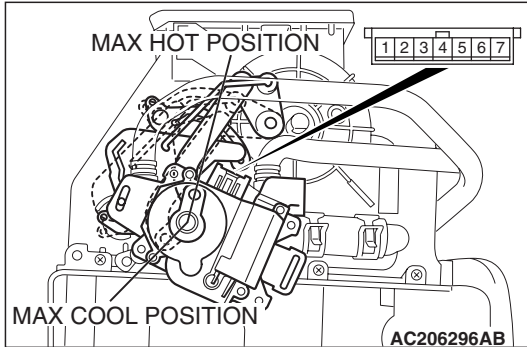


STEP 4. Check the air mixing damper control motor and potentiometer.

⚠ CAUTION

Do not apply battery voltage when the damper is in the MAX COOL or MAX HOT position.

(1) Operate the air mixing damper control motor as described in the table below.



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the MAX COOL position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the MAX COOL position to the MAX HOT position
At the MAX HOT position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the MAX HOT position to the MAX COOL position

(2) Measure the resistances between connector terminals 3 and 5, and between 3 and 7, while the air mixing damper control motor is running. The resistances should change gradually within the standard value.

Standard value: 1.7 (MAX HOT) –5.0 (MAX COOL) kΩ

Q: Are the air mixing damper control motor and potentiometer in good condition?

YES : Go to Step 5.

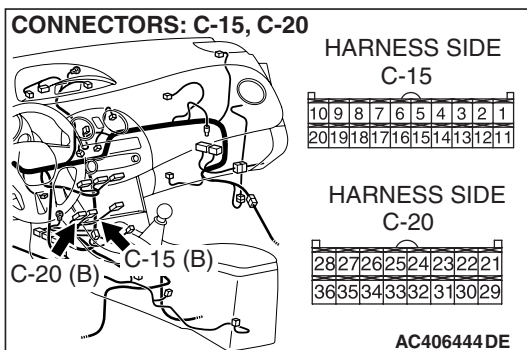
NO : Replace the air mixing damper control motor and potentiometer.

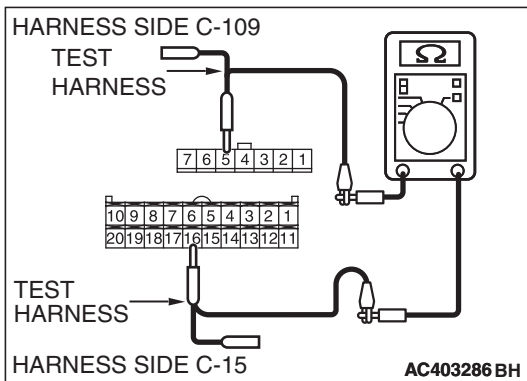
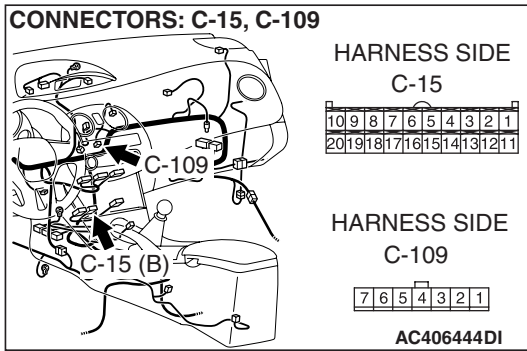
STEP 5. Check A/C-ECU connector C-15 and C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-15 and C-20 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 6. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

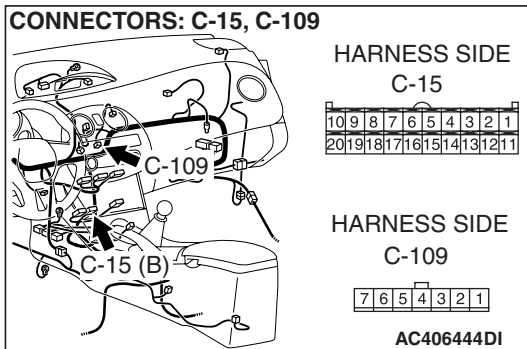
- (2) Measure the resistance between A/C-ECU connector C-15 terminal 16 and air mixing damper control motor and potentiometer connector C-109 terminal 5.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

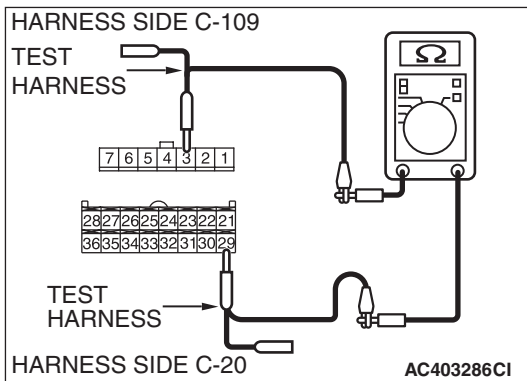
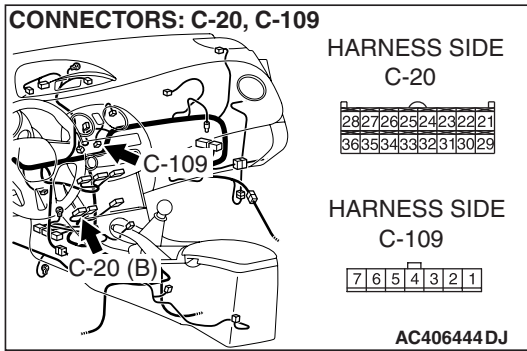


STEP 7. Check the wiring harness between A/C-ECU connector C-15 (terminal 16) and air mixing damper control motor and potentiometer connector C-109 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 16) and air mixing damper control motor and potentiometer connector C-109 (terminal 5) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 8. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

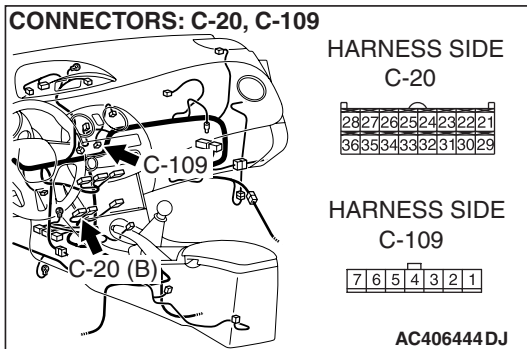
(2) Measure the resistance between A/C-ECU connector C-20 terminal 29 and air mixing damper control motor and potentiometer connector C-109 terminal 3.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

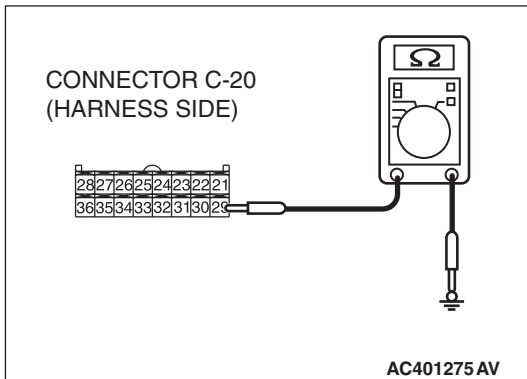
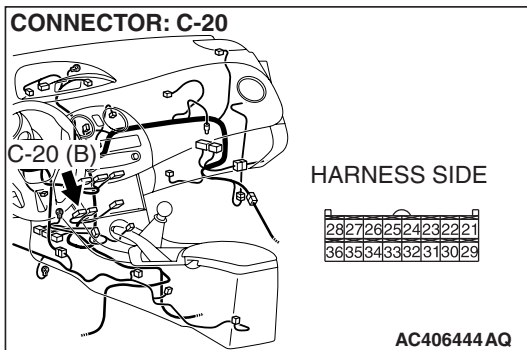


STEP 9. Check the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 10. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

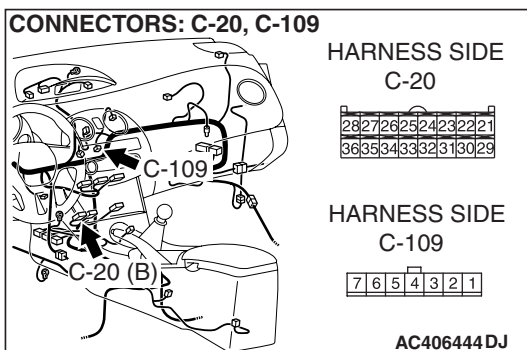
(2) Measure the resistance between terminal 29 and ground.

OK: 1kΩ or more

Q: Is the check result satisfactory?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 29) and air mixing damper control motor and potentiometer connector C-109 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 12. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

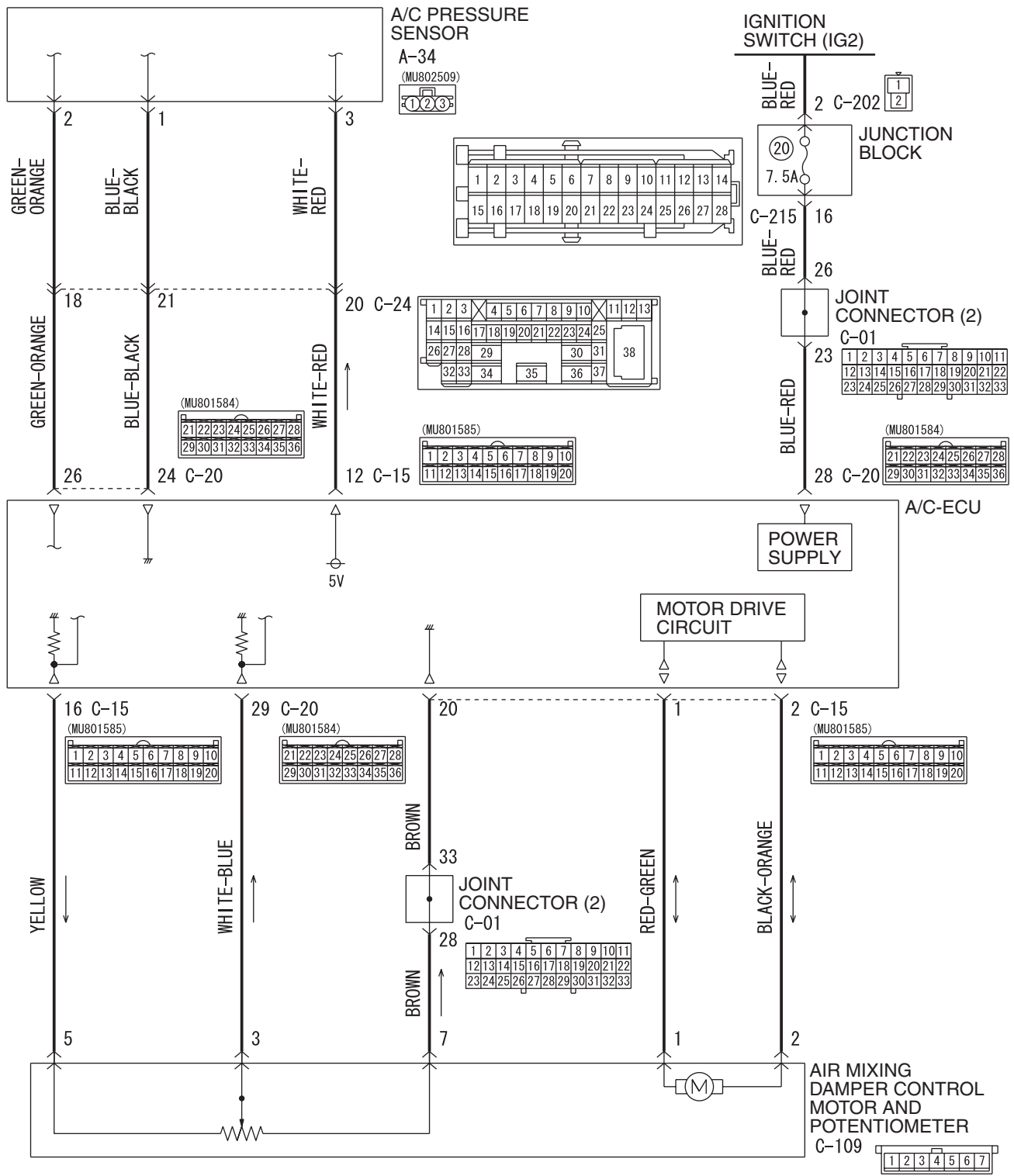
YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

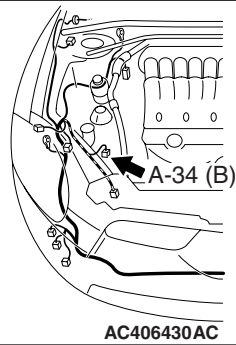
NO : Replace the A/C-ECU.

DTC B1045: Air mixing damper control motor and potentiometer (activating system failure)

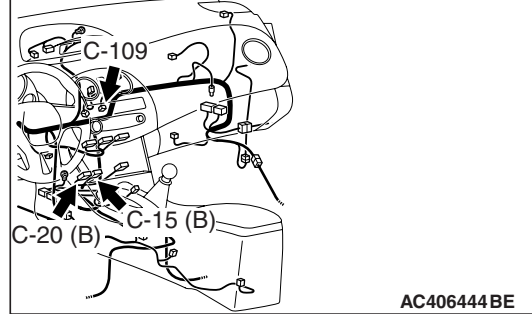


W6P55M025A

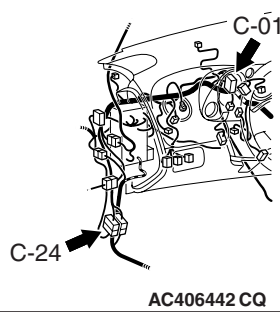
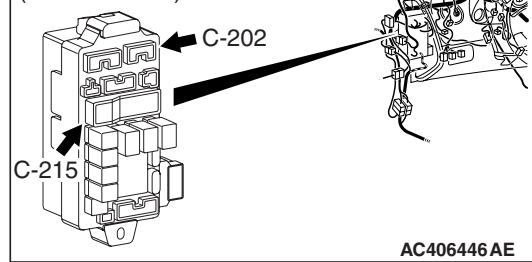
CONNECTOR: A-34



CONNECTORS: C-15, C-20, C-109



CONNECTORS: C-01, C-24

CONNECTORS: C-202, C-215
JUNCTION BLOCK
(FRONT VIEW)

FUNCTION

Takes in fresh air or inside air from the blower, and activates the damper on the side of the heater core to control the volume of the warm air that passes through the heater core and the cool air that does not pass through the heater core.

DETECTION LOGIC

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

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (open circuit, damage or short to ground of air mixing damper control motor and potentiometer circuit, short to ground of pressure sensor circuit, and open circuit or damage of power supply (IG2) circuit)
- Malfunction of the air mixing damper control motor and potentiometer.
- Malfunction of the A/C-ECU.
- Malfunction of the junction block.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

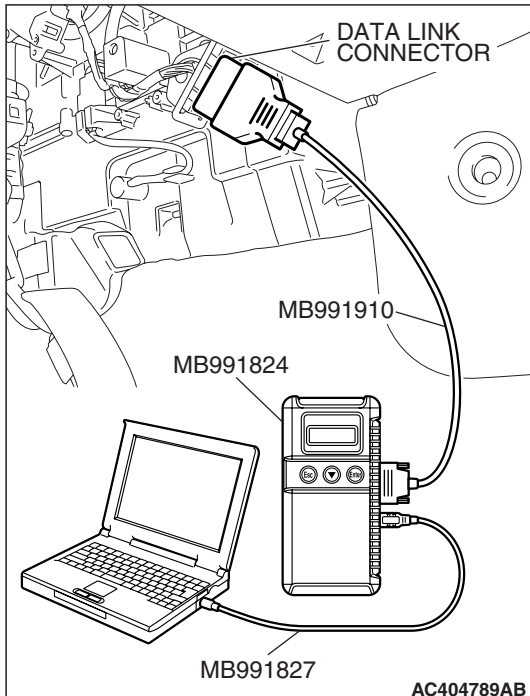
Q: Is only diagnostic trouble code B1045 set?

YES <Only B1045 is set> : Go to Step 11.

NO <B1041 is set simultaneously> : Refer to [P.55B-45](#).

NO <B1042 is set simultaneously> : Refer to [P.55B-51](#).

NO <B1065 is set simultaneously> : Go to Step 2.

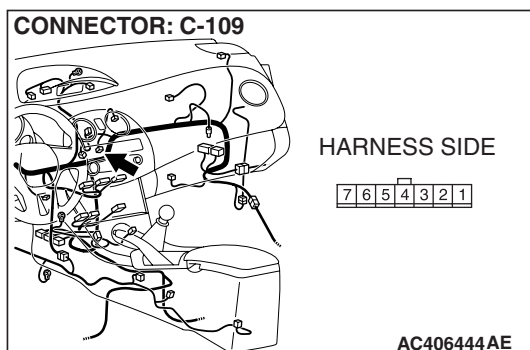
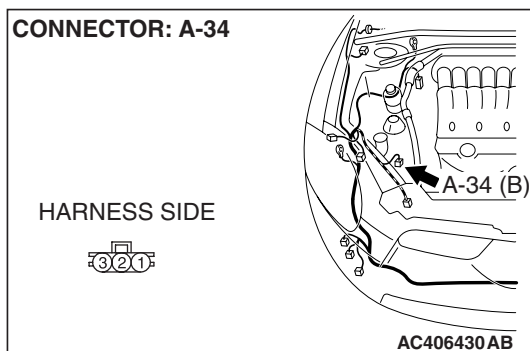


STEP 2. Check air mixing damper control motor and potentiometer connector C-109 and A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are air mixing damper control motor and potentiometer connector C-109 and A/C pressure sensor connector A-34 in good condition?

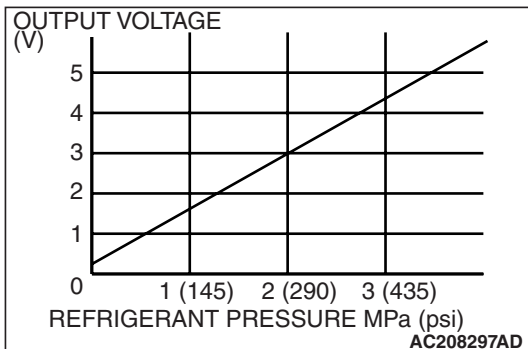
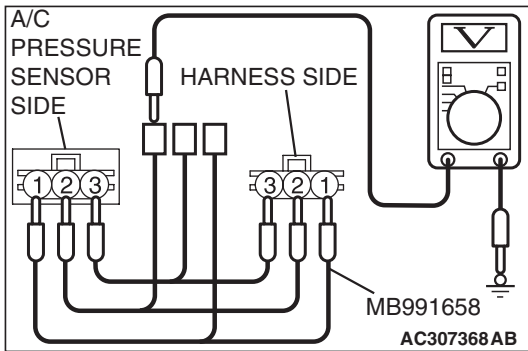
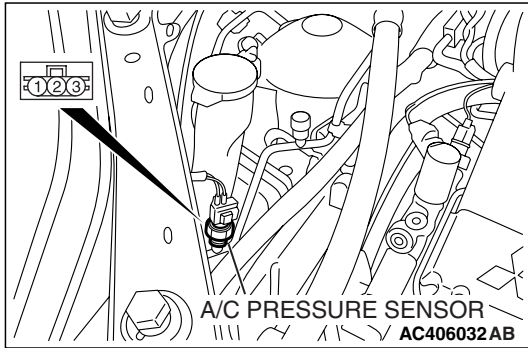
YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 3. Check the A/C pressure sensor operation.

- (1) Assemble a gauge manifold on the high pressure service valve.
- (2) Disconnect the A/C pressure sensor connector and connect special tool test harness MB991658 as shown in the illustration.
- (3) Turn ON the engine and then turn ON the air conditioner switch.



- (4) At this time, check to see that the voltage of A/C pressure sensor terminal No. 2 reflects the specifications of the figure.

NOTE: The allowance shall be defined as $\pm 5\%$.

Q: Is the A/C pressure sensor operating properly?

YES : Go to Step 4.

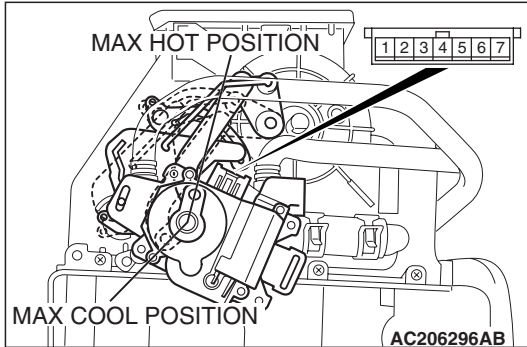
NO : Replace the A/C pressure sensor.

STEP 4. Check the air mixing damper control motor and potentiometer.

⚠ CAUTION

Do not apply battery voltage when the damper is in the MAX COOL or MAX HOT position.

(1) Operate the air mixing damper control motor as described in the table below.



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the MAX COOL position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the MAX COOL position to the MAX HOT position
At the MAX HOT position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the MAX HOT position to the MAX COOL position

(2) Measure the resistances between connector terminals 3 and 5, and between 3 and 7, while the air mixing damper control motor is running. The resistances should change gradually within the standard value.

Standard value: 1.7 (MAX HOT) –5.0 (MAX COOL) kΩ

Q: Are the air mixing damper control motor and potentiometer in good condition?

YES : Go to Step 5.

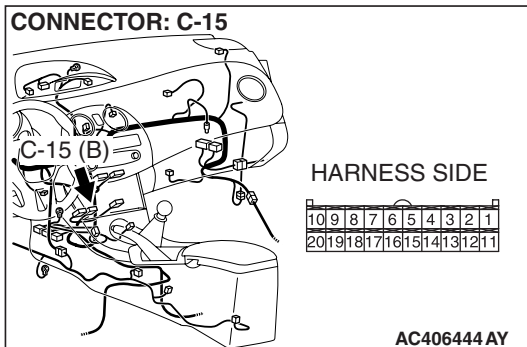
NO : Replace the air mixing damper control motor and potentiometer.

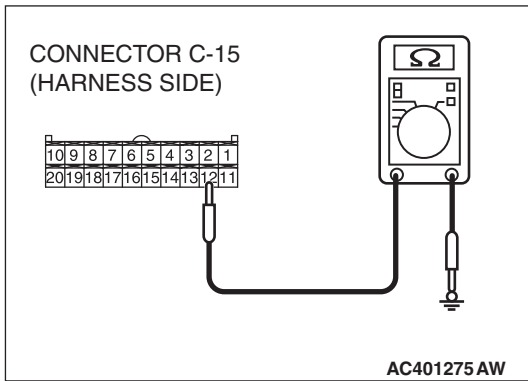
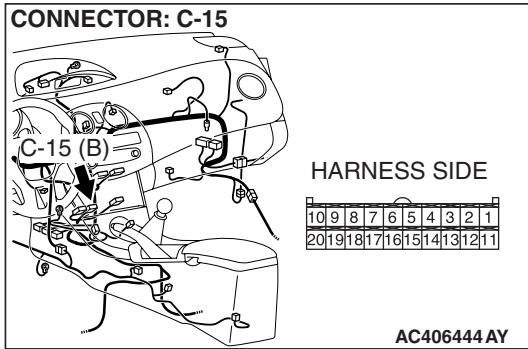
STEP 5. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 6.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 6. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 12 and ground.

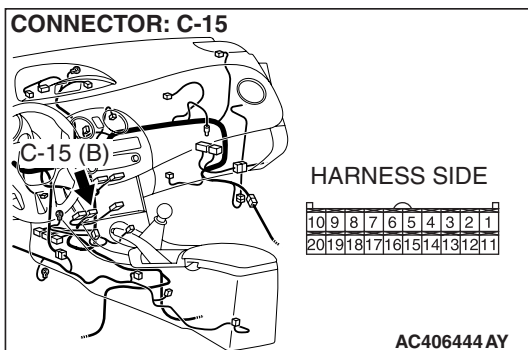
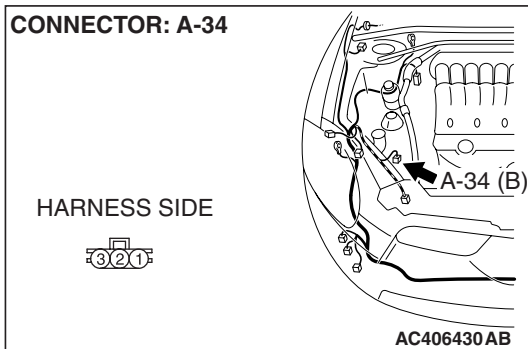
OK: 1.5 kΩ or more

Q: Does the measured resistance value correspond with this range?

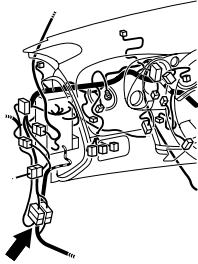
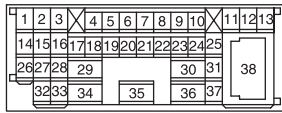
YES : Go to Step 8.

NO : Go to Step 7.

STEP 7. Check the wiring harness between A/C-ECU connector C-15 (terminal 12) and A/C pressure sensor connector A-34 (terminal 3).



CONNECTOR: C-24



AC406442 AP

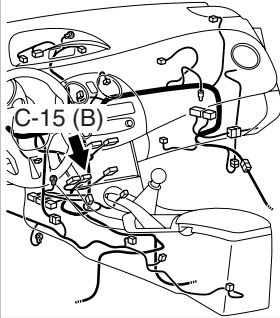
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 12) and A/C pressure sensor connector A-34 (terminal 3) in good condition?

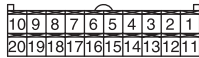
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

CONNECTOR: C-15



HARNES SIDE

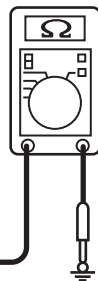


AC406444 AY

STEP 8. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

**CONNECTOR C-15
(HARNES SIDE)**



AC401275 AX

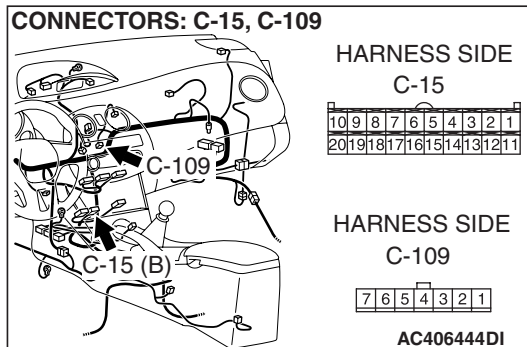
(2) Measure the resistance value between terminal 16 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between A/C-ECU connector C-15 (terminal 16) and air mixing damper control motor and potentiometer connector C-109 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 16) and air mixing damper control motor and potentiometer connector C-109 (terminal 5) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 10. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

STEP 11. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 42: air mix damper motor 0% (MAX COOL position)
 - Item 43: air mix damper motor 100% (MAX HOT position)
 - Item 44: air mix damper motor 50% (middle position)
 - Check that the air mixing damper control motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 13.

NO : Go to Step 12.

STEP 12. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

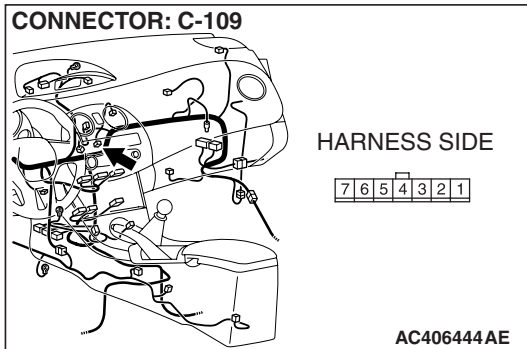
NO : Replace the A/C-ECU.

STEP 13. Check air mixing damper control motor and potentiometer connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is air mixing damper control motor and potentiometer connector C-109 in good condition?

YES : Go to Step 14.

NO : Repair or replace the connector. Refer to GROUP
00E, Harness Connector Inspection [P.00E-2](#).

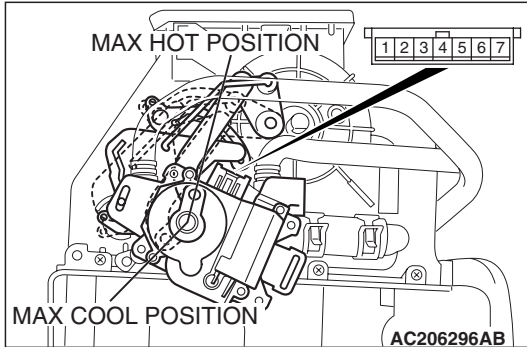


STEP 14. Check the air mixing damper control motor and potentiometer.

⚠ CAUTION

Do not apply battery voltage when the damper is in the MAX COOL or MAX HOT position.

(1) Operate the air mixing damper control motor as described in the table below.



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the MAX COOL position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the MAX COOL position to the MAX HOT position
At the MAX HOT position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the MAX HOT position to the MAX COOL position

(2) Measure the resistances between connector terminals 3 and 5, and between 3 and 7, while the air mixing damper control motor is running. The resistances should change gradually within the standard value.

Standard value: 1.7 (MAX HOT) –5.0 (MAX COOL) kΩ

Q: Are the air mixing damper control motor and potentiometer in good condition?

YES : Go to Step 15.

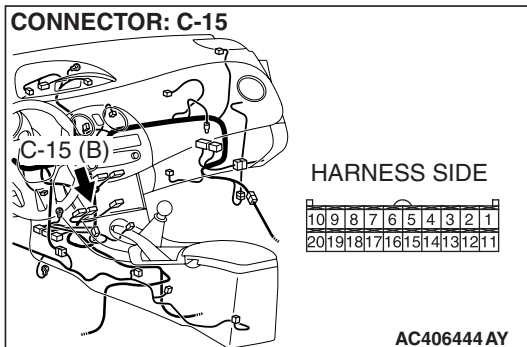
NO : Replace the air mixing damper control motor and potentiometer.

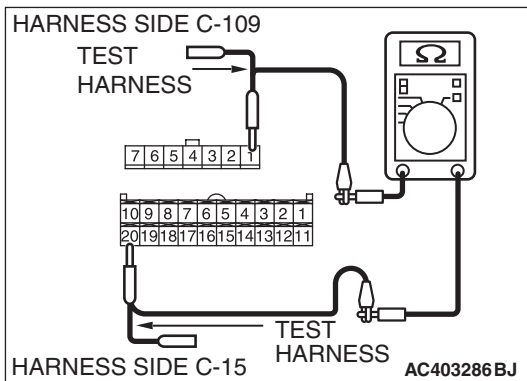
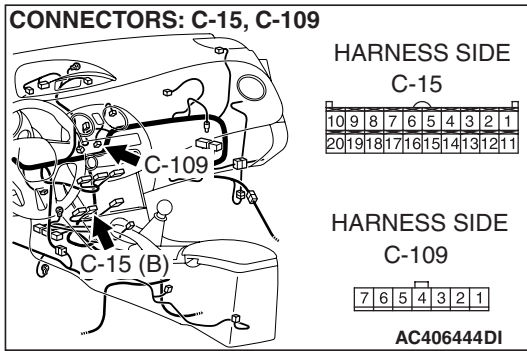
STEP 15. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-15 in good condition?

YES : Go to Step 16.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 16. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

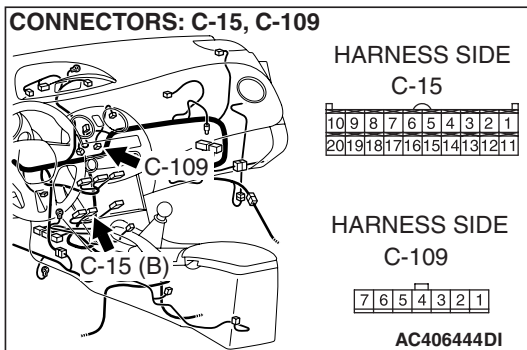
(2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and air mixing damper control motor and potentiometer connector C-109 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 18.

NO : Go to Step 17.

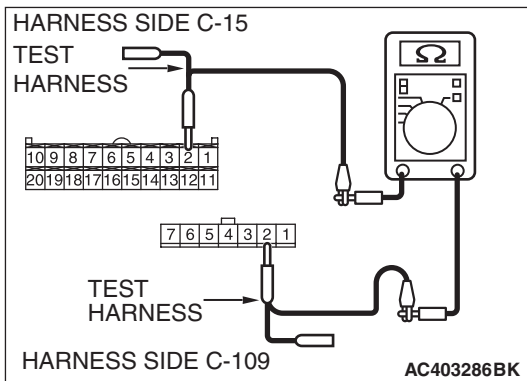
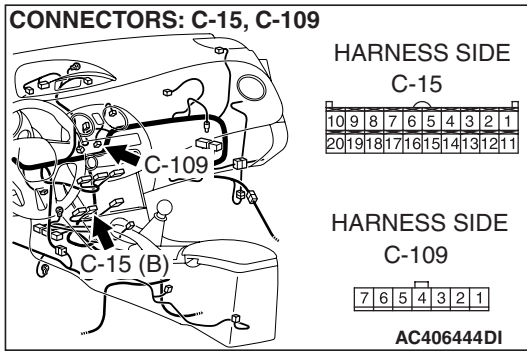


STEP 17. Check the wiring harness between A/C-ECU connector C-15 (terminal 1) and air mixing damper control motor and potentiometer connector C-109 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 1) and air mixing damper control motor and potentiometer connector C-109 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 18. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

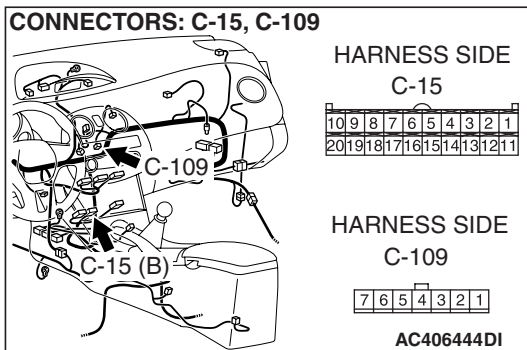
(2) Measure the resistance between A/C-ECU connector C-15 terminal 2 and air mixing damper control motor and potentiometer connector C-109 terminal 2.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 20.

NO : Go to Step 19.

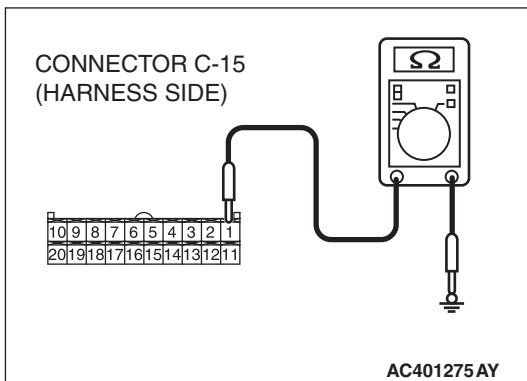
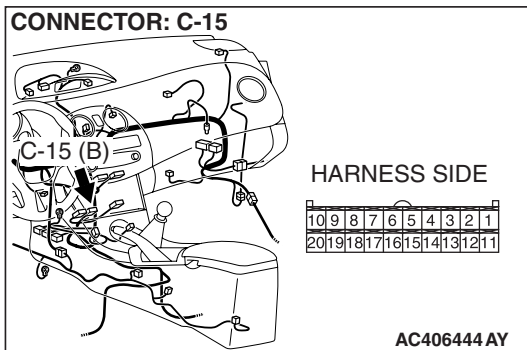


STEP 19. Check the wiring harness between A/C-ECU connector C-15 (terminal 2) and air mixing damper control motor and potentiometer connector C-109 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 2) and air mixing damper control motor and potentiometer connector C-109 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 20. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

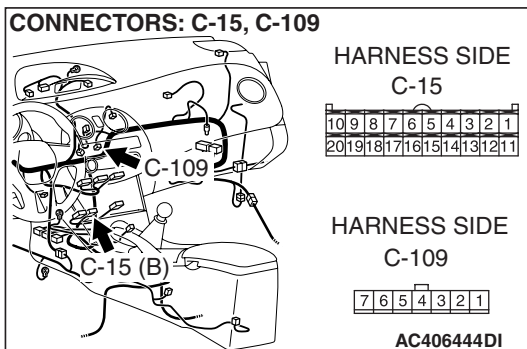
(2) Measure the resistance value between terminal 1 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 22.

NO : Go to Step 21.

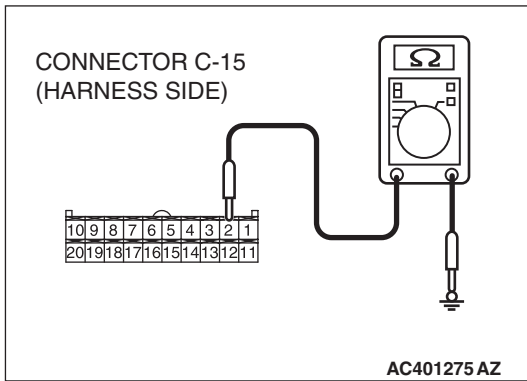
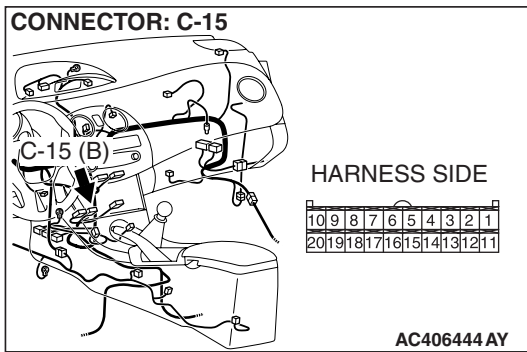


STEP 21. Check the wiring harness between A/C-ECU connector C-15 (terminal 1) and air mixing damper control motor and potentiometer connector C-109 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 1) and air mixing damper control motor and potentiometer connector C-109 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 22. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

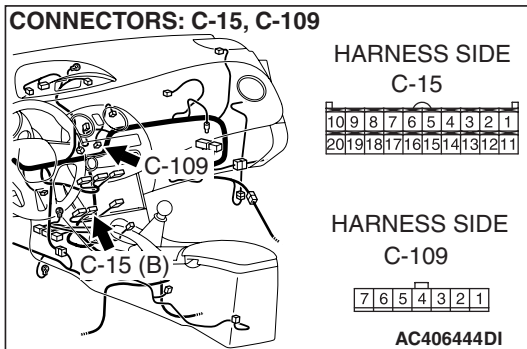
(2) Measure the resistance value between terminal 2 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 24.

NO : Go to Step 23.

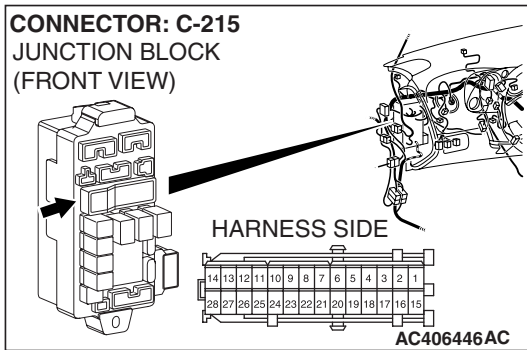


STEP 23. Check the wiring harness between A/C-ECU connector C-15 (terminal 2) and air mixing damper control motor and potentiometer connector C-109 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 2) and air mixing damper control motor and potentiometer connector C-109 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

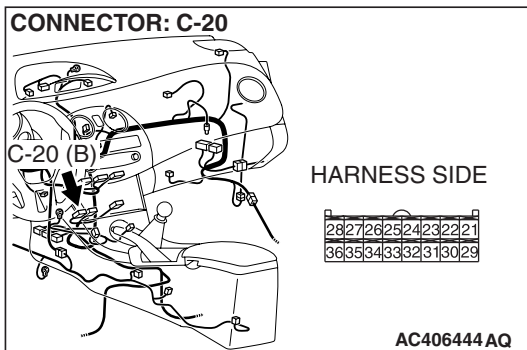


STEP 24. Check junction block connector C-215 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is junction block connectors C-215 in good condition?

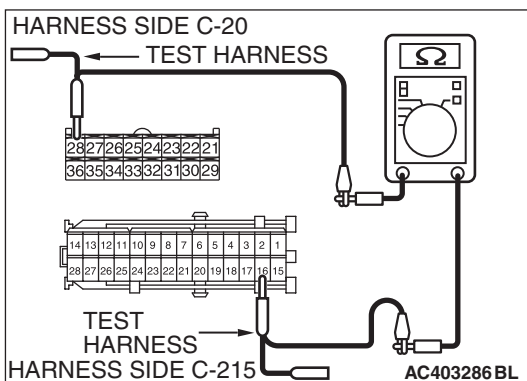
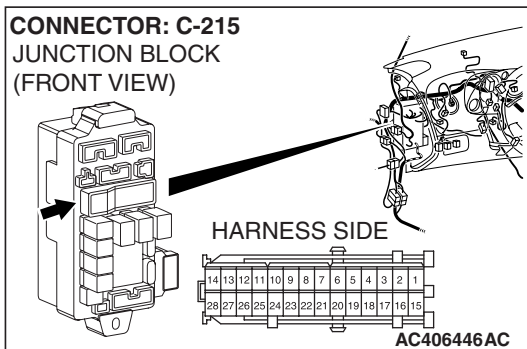
YES : Go to Step 25.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 25. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20 and junction block connector C-215, and measure the resistance at the wiring harness side.



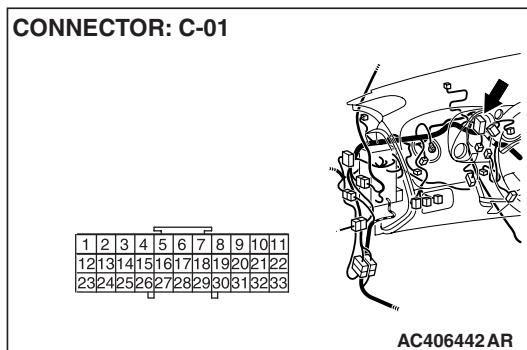
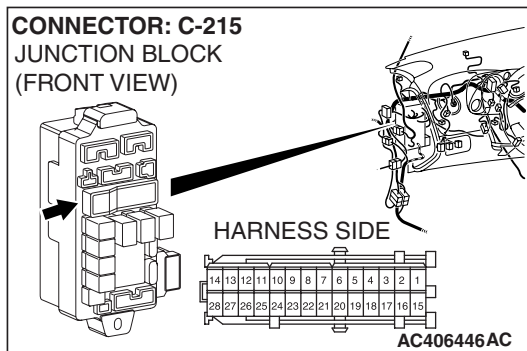
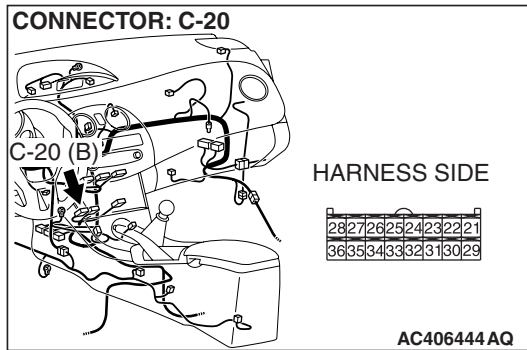
(2) Measure the resistance between A/C-ECU connector C-20 terminal 28 and junction block connector C-215 terminal 16.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 27.

NO : Go to Step 26.



STEP 26. Check the wiring harness between A/C-ECU connector C-20 (terminal 28) and junction block connector C-215 (terminal 16).

NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 28) and junction block connector C-215 (terminal 16) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 27. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

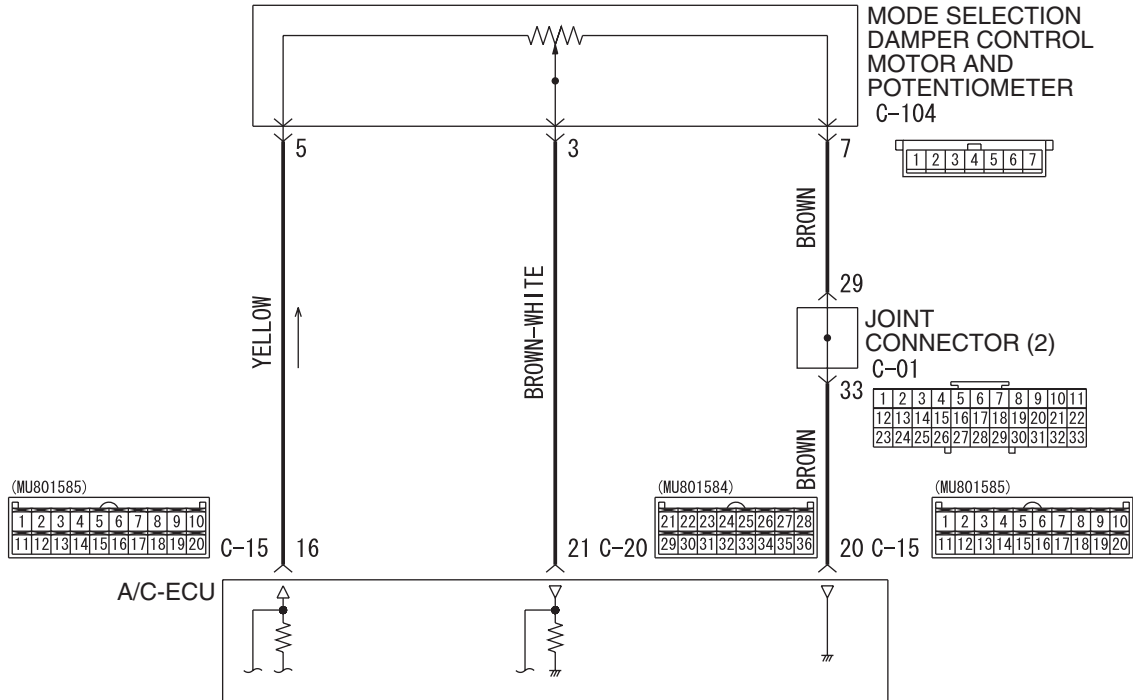
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

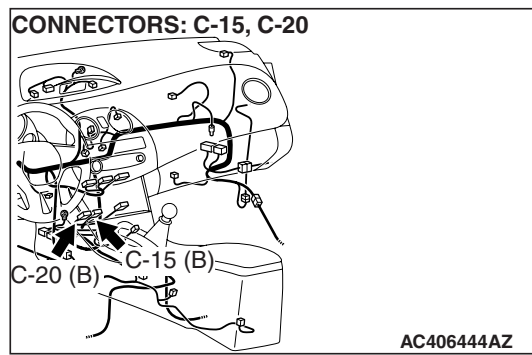
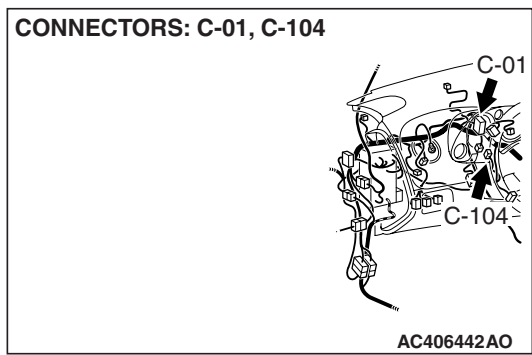
NO : Replace the A/C-ECU.

DTC B1061: Mode Selection Damper Control Motor and Potentiometer (Potentiometer system shorted to its power supply)

Mode Selection Damper Control Motor Potentiometer Circuit



W6P55M009A



FUNCTION

Read the position of mode selection damper from the drive motor.

DETECTION LOGIC

This code is set when the mode selection damper control motor and potentiometer do not send any signal due to a short to power supply of the mode selection damper control motor and potentiometer circuit.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (mode selection damper control motor and potentiometer circuit is open.)
- Malfunction of the mode selection damper control motor and potentiometer.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 55: Air outlet c/o potentiometer
 - Item 56: Air outlet c/o potentiometer (Target)

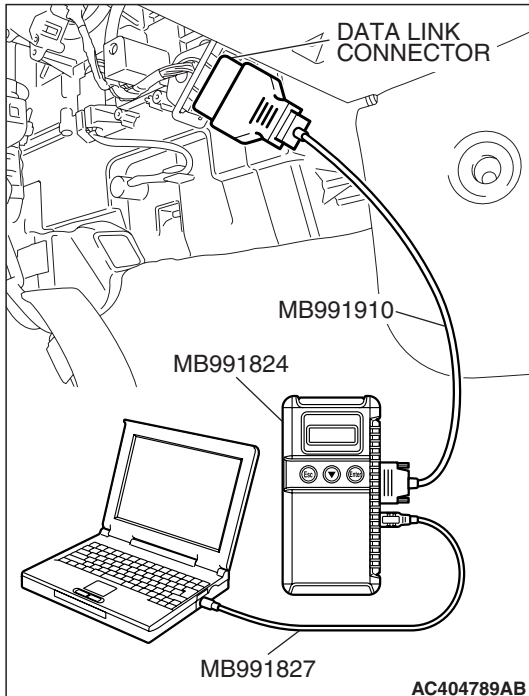
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

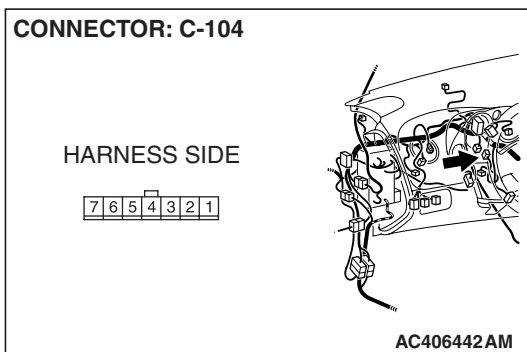
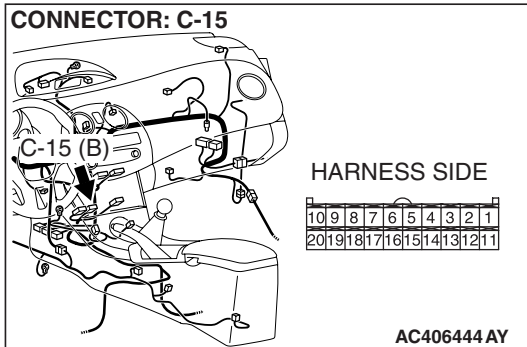
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

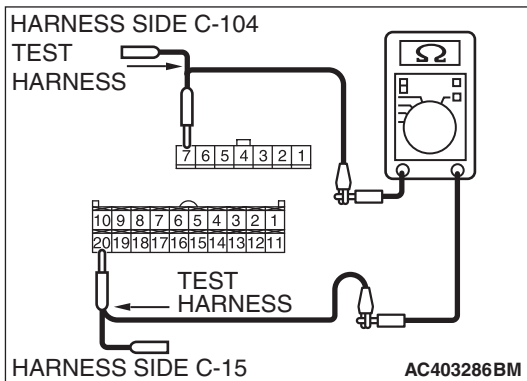
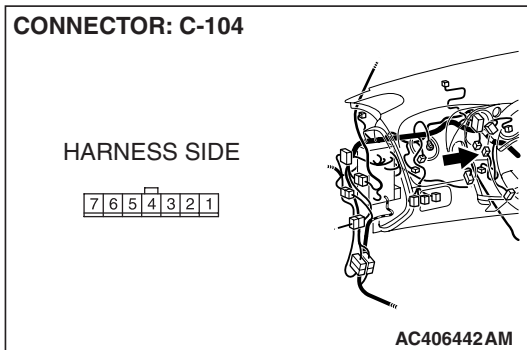
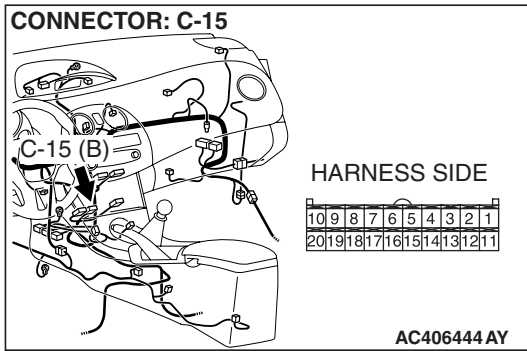


STEP 3. Check A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 4. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-15 terminal 20 and mode selection damper control motor and potentiometer connector C-104 terminal 7.

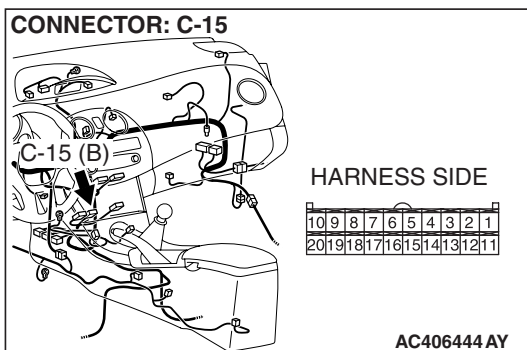
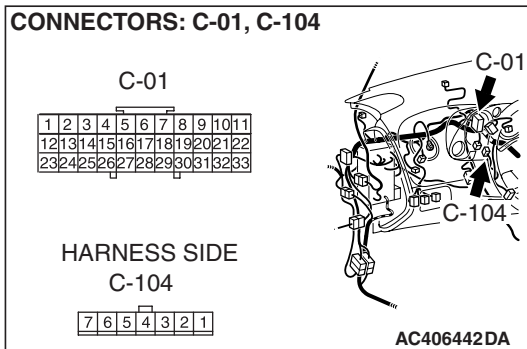
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between A/C-ECU connector C-15 (terminal 20) and mode selection damper control motor and potentiometer connector C-104 (terminal 7).

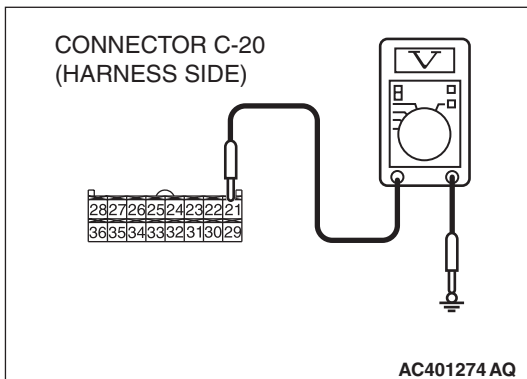
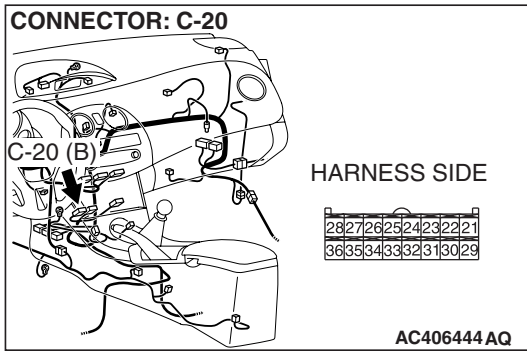


NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 20) and mode selection damper control motor and potentiometer connector C-104 (terminal 7) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 6. Measure the voltage at A/C-ECU connector C-20.

- (1) Disconnect A/C-ECU connector C-20, and measure the voltage at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Move the mode selection damper control motor to the DEF position.

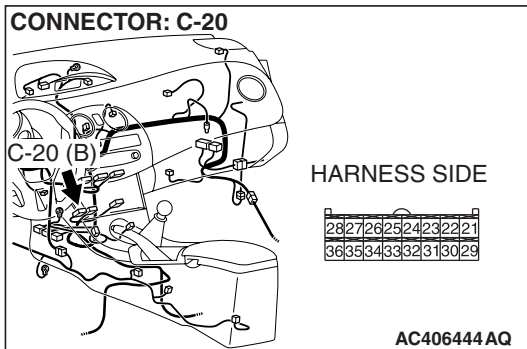
- (4) Measure the voltage between terminal 21 and ground.

OK: 0.4 – 0.8 volt

Q: Is the check result satisfactory?

YES : Go to Step 8.

NO : Go to Step 7.

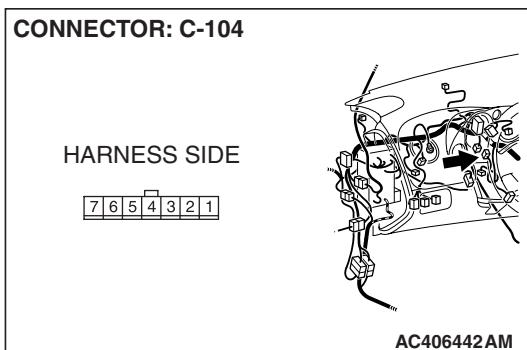


STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

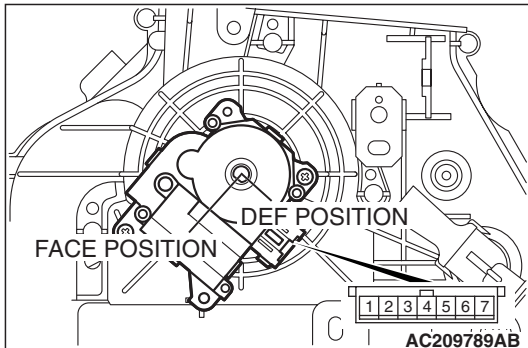


STEP 8. Check the mode selection damper control motor.

⚠ CAUTION

Do not apply battery voltage when the damper is in the FACE or DEF position.

Check the mode selection damper control motor by the following procedures.



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the FACE position	<ul style="list-style-type: none"> • Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal 	The lever moves from the FACE position to the DEF position
At the DEF position	<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal 	The lever moves from the DEF position to the FACE position

Q: Is the mode selection damper control motor in good condition?

YES : Go to Step 9.

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

STEP 9. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

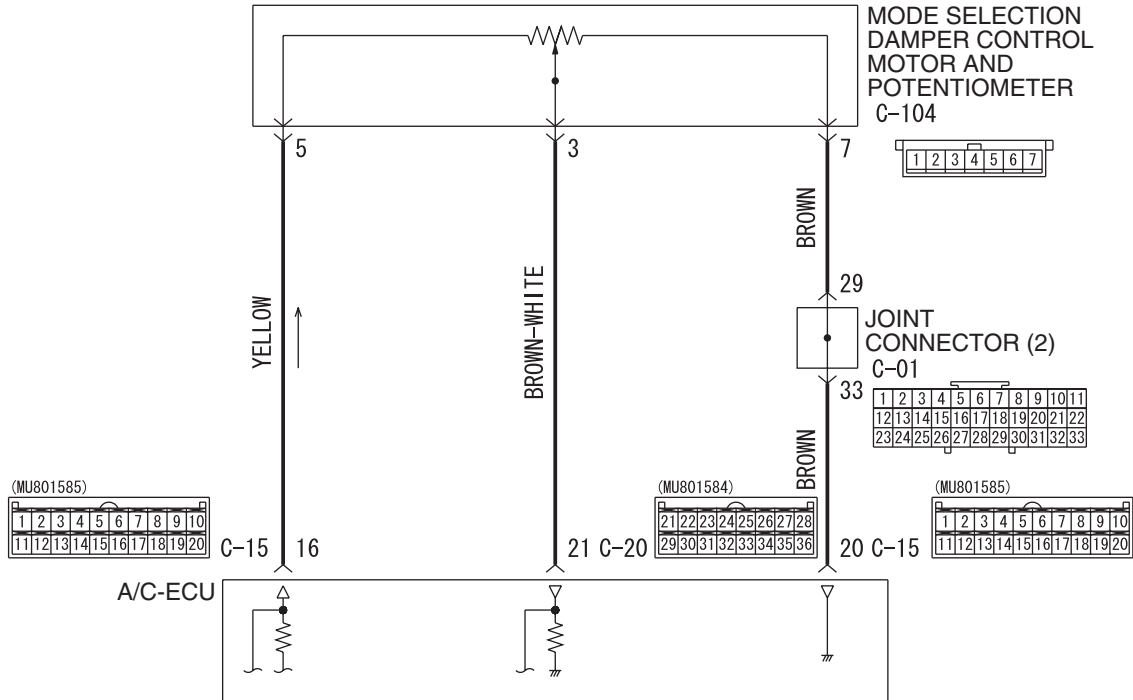
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

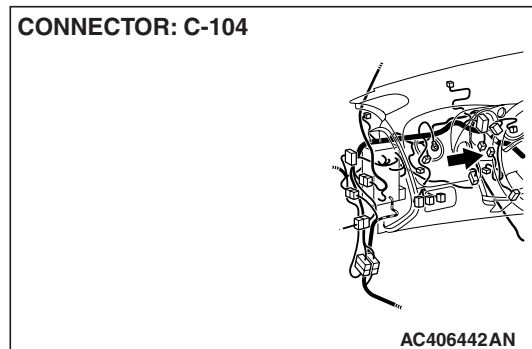
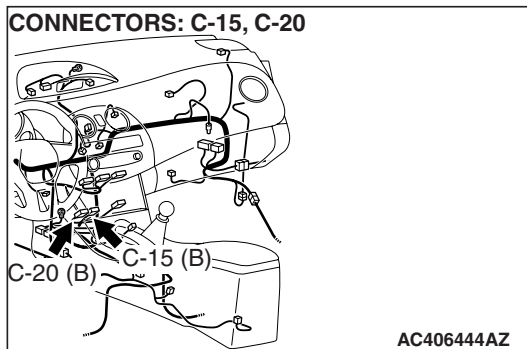
NO : Replace the A/C-ECU.

DTC B1062: Mode Selection Damper Control Motor and Potentiometer (Potentiometer system shorted to its ground)

Mode Selection Damper Control Motor Potentiometer Circuit



W6P55M009A



FUNCTION

Read the position of mode selection damper from the drive motor.

DETECTION LOGIC

This code is set when the mode selection damper control motor and potentiometer do not send any signal to the A/C-ECU due to an open circuit and short to ground of the mode selection damper control motor and potentiometer circuit.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (mode selection damper control motor and potentiometer circuit is open/damaged/shorted to ground)
- Malfunction of the mode selection damper control motor and potentiometer.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, check data list.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 55: Air outlet c/o potentiometer
 - Item 56: Air outlet c/o potentiometer (Target)

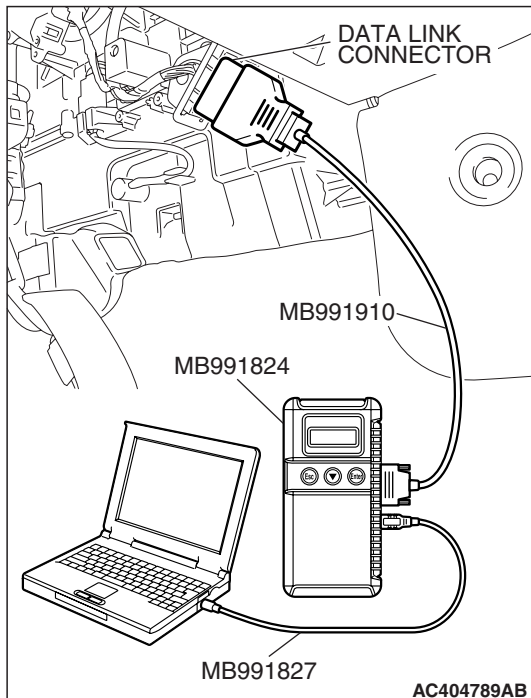
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the sensor within the specified range?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

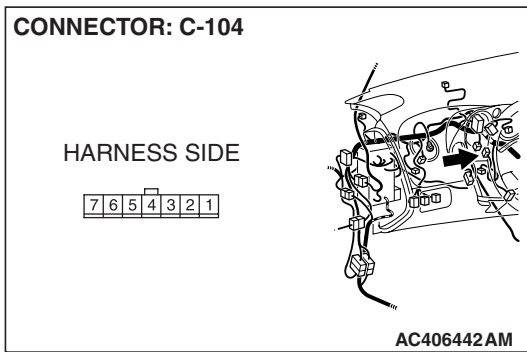
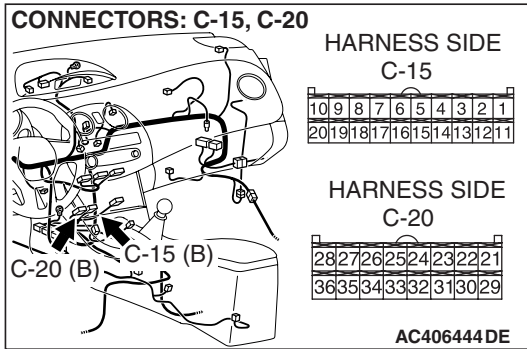
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Replace the A/C-ECU.



STEP 3. Check A/C-ECU connector C-15, C-20 and mode selection damper control motor and potentiometer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

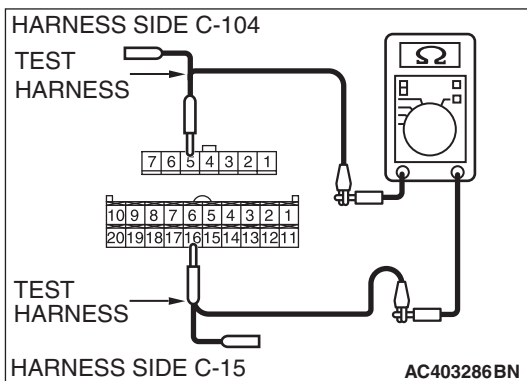
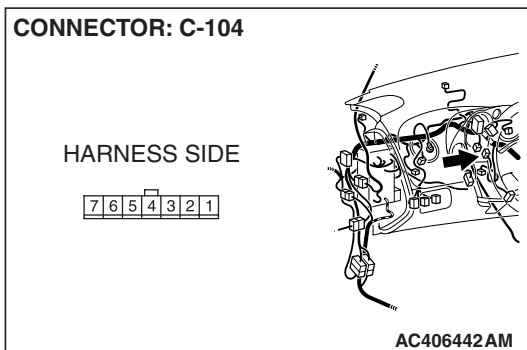
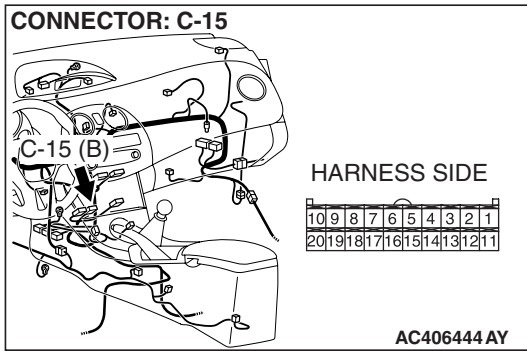
Q: Are A/C-ECU connector C-15, C-20 and mode selection damper control motor and potentiometer connector C-104 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 4. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.



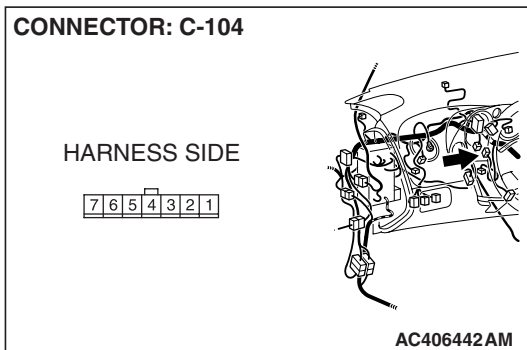
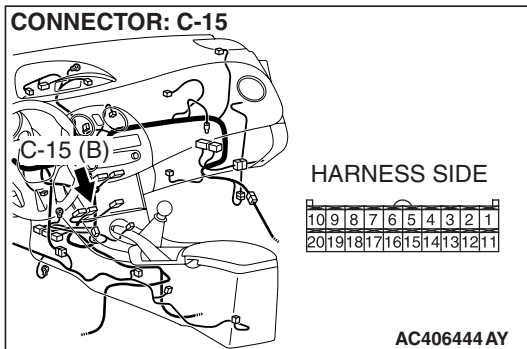
- (2) Measure the resistance between A/C-ECU connector C-15 terminal 16 and mode selection damper control motor and potentiometer connector C-104 terminal 5.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between A/C-ECU connector C-15 (terminal 16) and mode selection damper control motor and potentiometer connector C-104 (terminal 5).

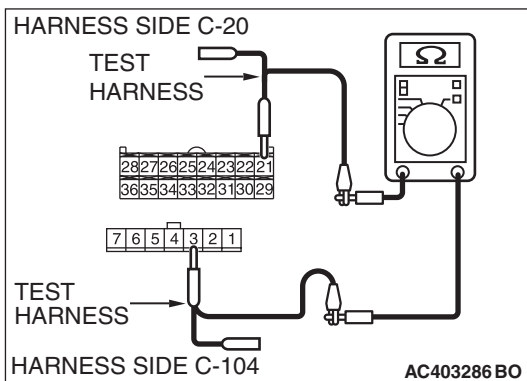
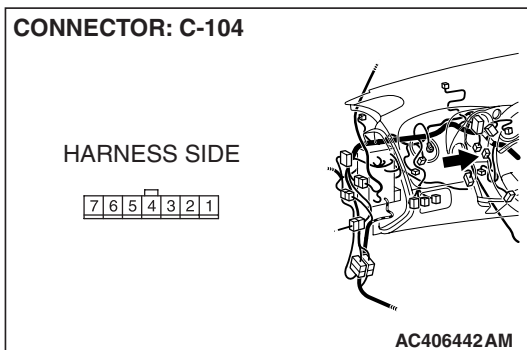
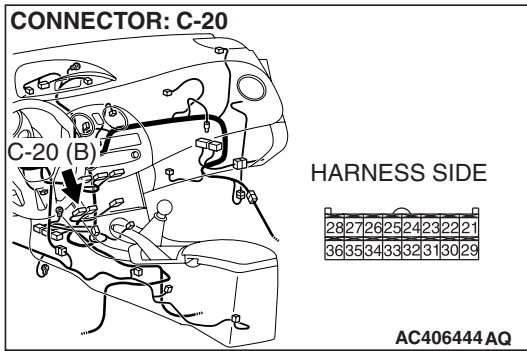
Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 16) and mode selection damper control motor and potentiometer connector C-104 (terminal 5) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 6. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-20 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.



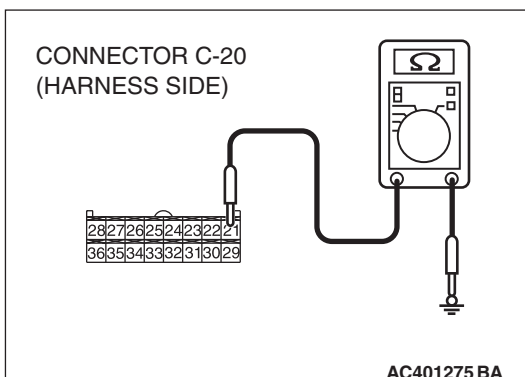
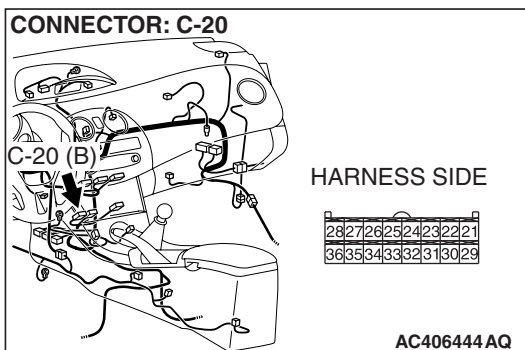
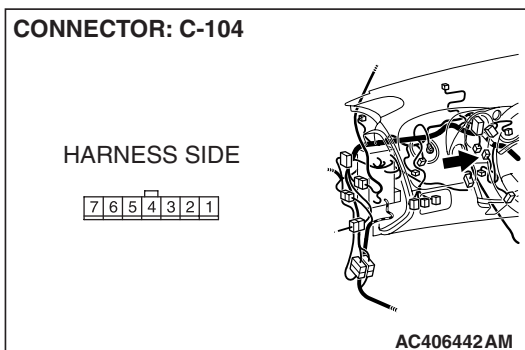
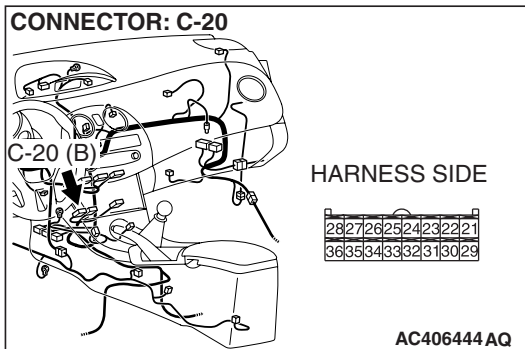
- (2) Measure the resistance between A/C-ECU connector C-20 terminal 21 and mode selection damper control motor and potentiometer connector C-104 terminal 3.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 8. Measure the resistance at A/C-ECU connector C-20.

- (1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Move the mode selection damper control motor to the DEF position.

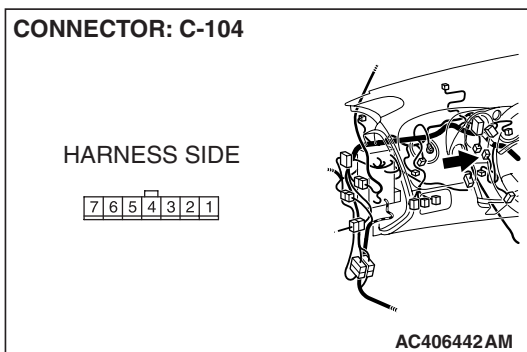
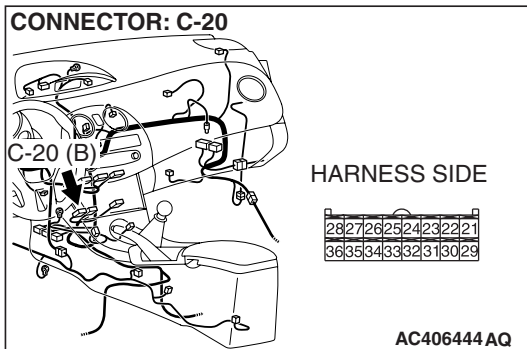
- (4) Measure the resistance between terminal 21 and ground.

OK: 1 kΩ or more

Q: Is the check result satisfactory?

YES : Go to Step 10.

NO : Go to Step 9.

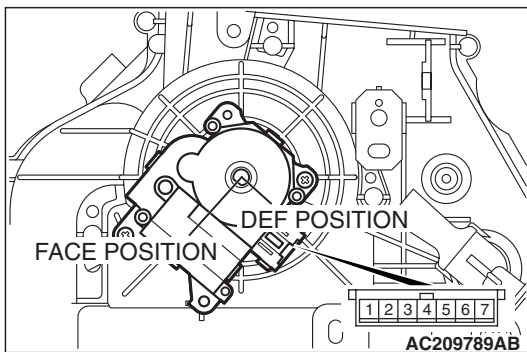


STEP 9. Check the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 21) and mode selection damper control motor and potentiometer connector C-104 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 10. Check the mode selection damper control motor.

⚠ CAUTION

Do not apply battery voltage when the damper is in the FACE or DEF position.

Check the mode selection damper control motor by the following procedures.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the FACE position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the FACE position to the DEF position
At the DEF position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the DEF position to the FACE position

Q: Is the mode selection damper control motor in good condition?

YES : Go to Step 11.

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

STEP 11. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

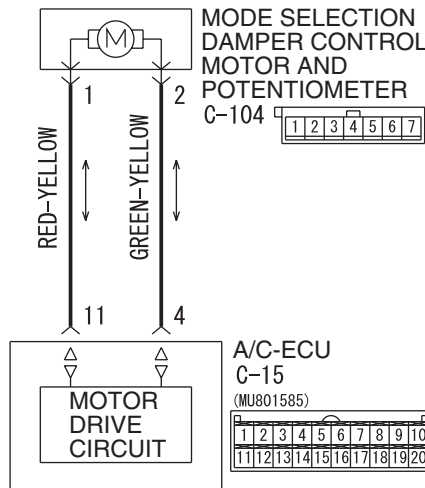
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions P.00-14.

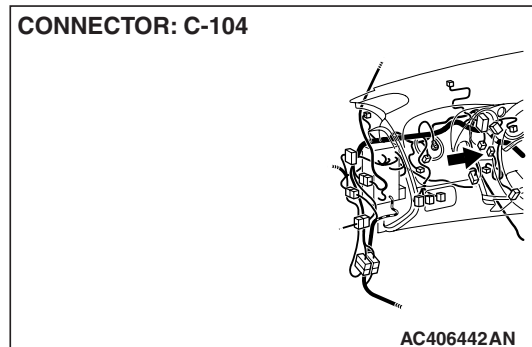
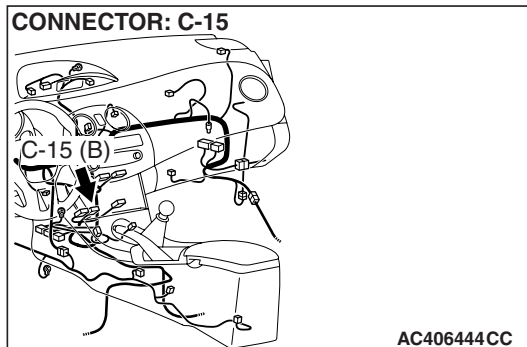
NO : Replace the A/C-ECU.

DTC B1065: Mode Selection Damper Control Motor and Potentiometer (Activating System Failure)

Mode Selection Damper Control Motor Circuit



W6P55M011A



FUNCTION

Drive the mode selection damper control motor and control the outlet selection.

DETECTION LOGIC

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

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (mode selection damper control motor and potentiometer circuit is open, shorted to ground, or the resistance has increased)
- Malfunction of the mode selection damper control motor and potentiometer.
- Malfunction of the A/C pressure sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

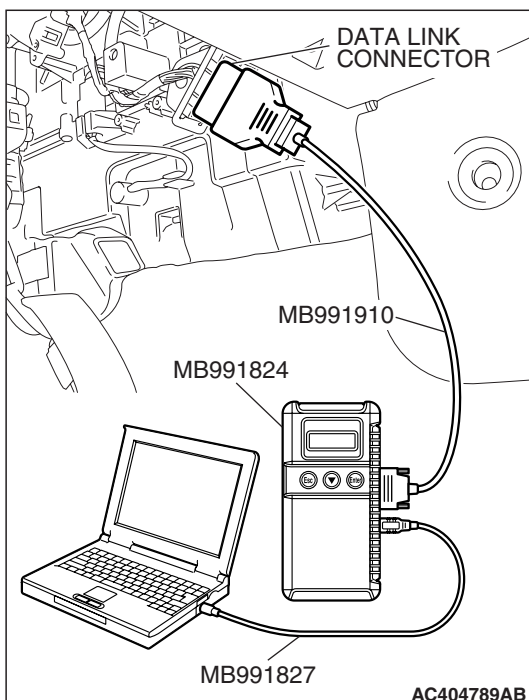
Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is diagnostic trouble code B1045 set?

YES : Refer to [P.55B-59](#).

NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 67: air outlet c/o damper (Bi_Level position)
 - Item 68: air mix damper motor (DEF position)
 - Item 69: air mix damper motor (DEF/FOOT position)
 - Item 70: air mix damper motor (FACE position)
 - Item 71: air mix damper motor (FOOT position)
 - Check that the mode selection damper control motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

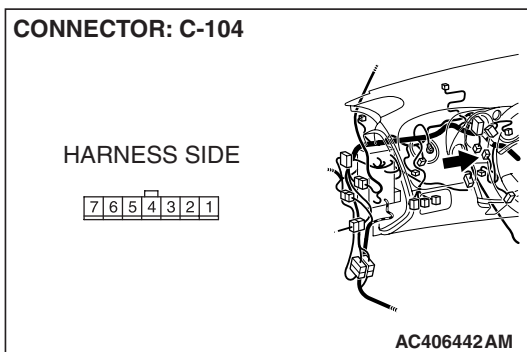
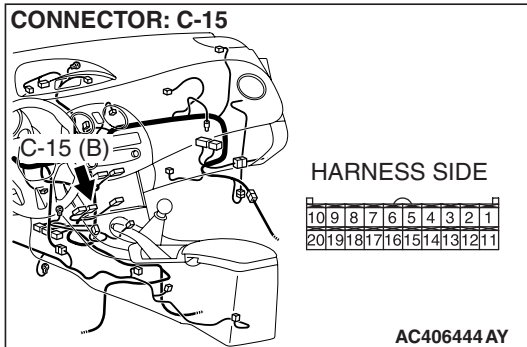
NO : Replace the A/C-ECU.

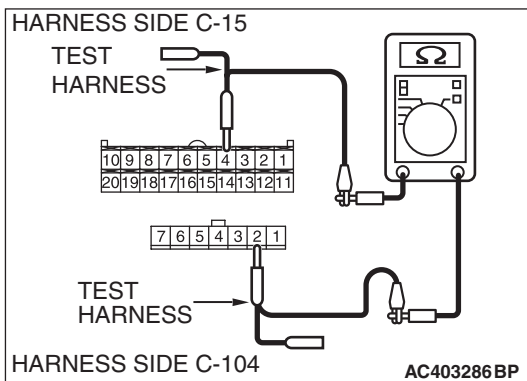
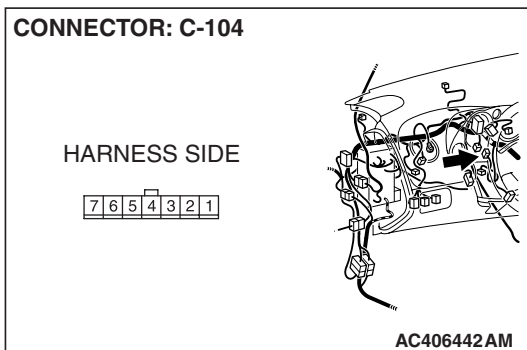
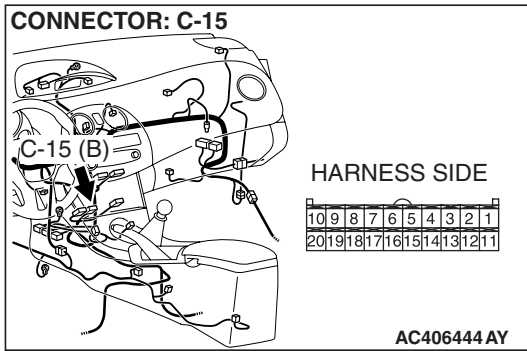
STEP 4. Check A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 5. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.

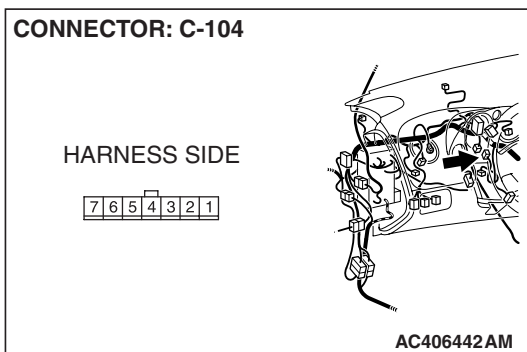
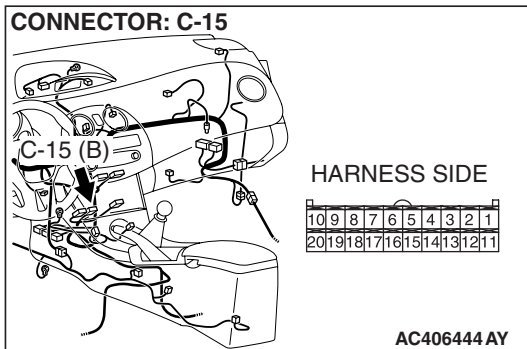
- (2) Measure the resistance between A/C-ECU connector C-15 terminal 4 and mode selection damper control motor and potentiometer connector C-104 terminal 2.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

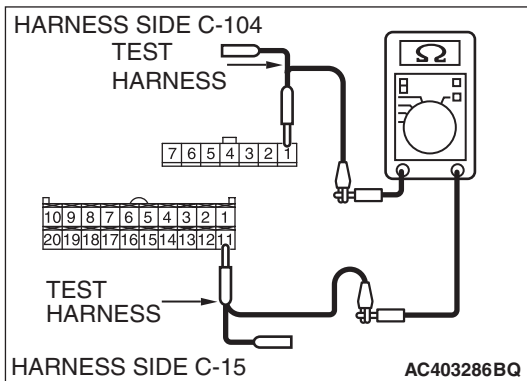
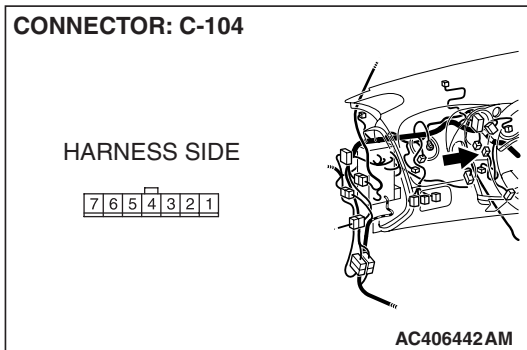
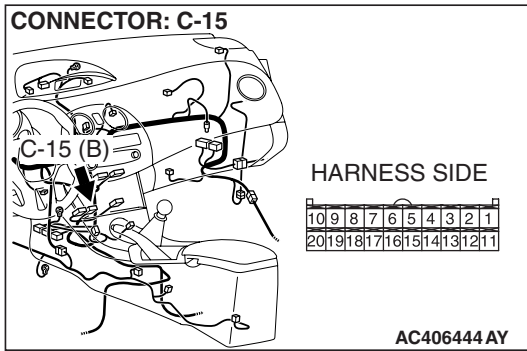


STEP 6. Check the wiring harness between A/C-ECU connector C-15 (terminal 4) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harnesses between A/C-ECU connector C-15 (terminal 4) and mode selection damper control motor and potentiometer connector C-104 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 7. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.

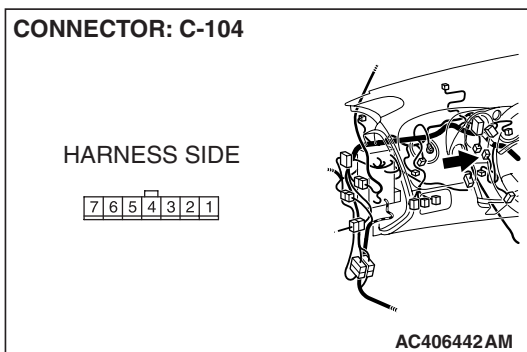
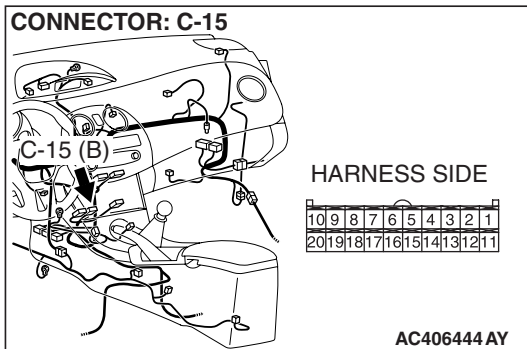
- (2) Measure the resistance between A/C-ECU connector C-15 terminal 11 and mode selection damper control motor and potentiometer connector C-104 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 8.

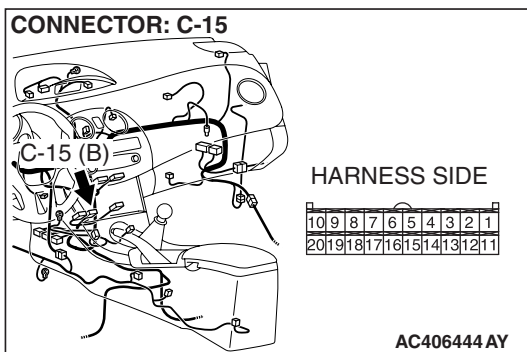


STEP 8. Check the wiring harness between A/C-ECU connector C-15 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harnesses between A/C-ECU connector C-15 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 1) in good condition?

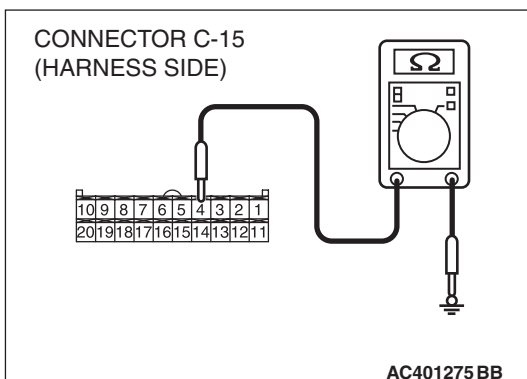
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 9. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.



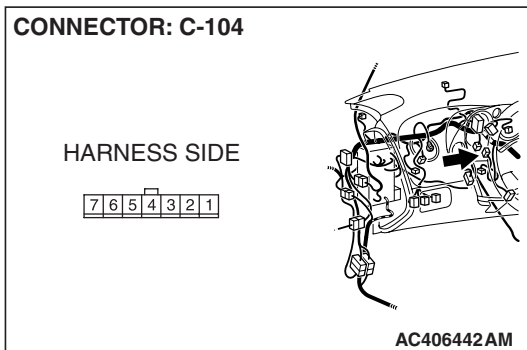
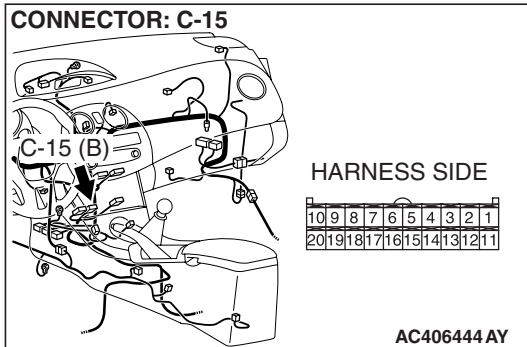
(2) Measure the resistance value between terminal 4 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 11.

NO : Go to Step 10.

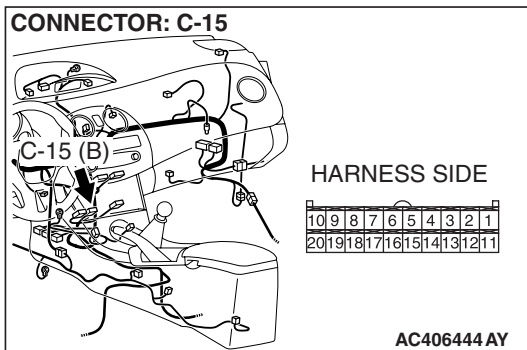


STEP 10. Check the wiring harness between A/C-ECU connector C-15 (terminal 4) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 4) and mode selection damper control motor and potentiometer connector C-104 (terminal 1) in good condition?

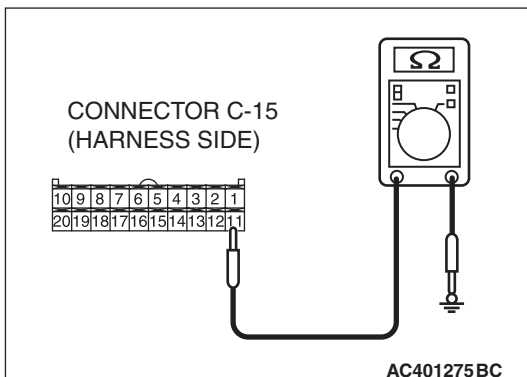
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 11. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.



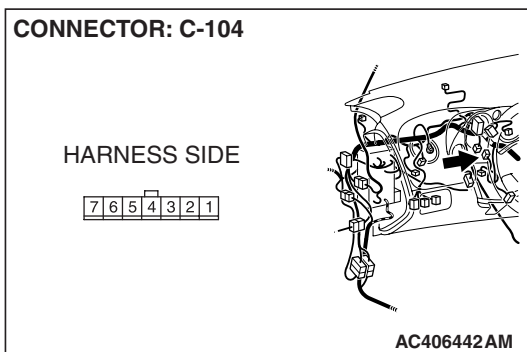
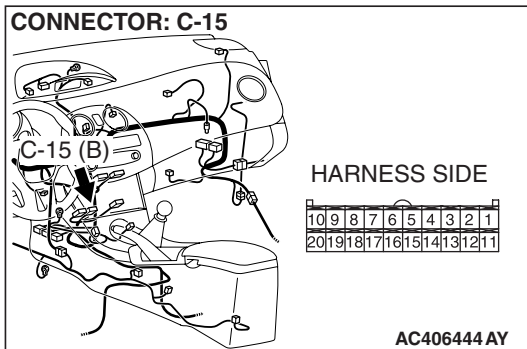
(2) Measure the resistance value between terminal 11 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 13.

NO : Go to Step 12.

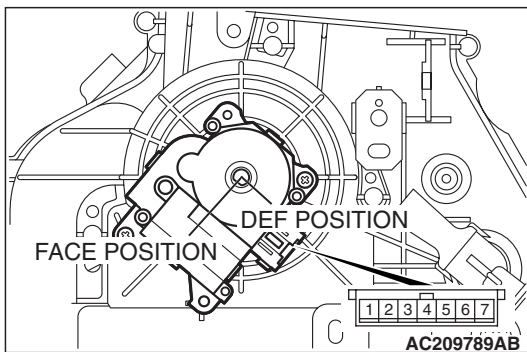


STEP 12. Check the wiring harness between A/C-ECU connector C-15 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 13. Check the mode selection damper control motor.

⚠ CAUTION

Do not apply battery voltage when the damper is in the FACE or DEF position.

Check the mode selection damper control motor by the following procedures.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the FACE position	<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 1 to the negative battery terminal 	The lever moves from the FACE position to the DEF position
At the DEF position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 2 to the negative battery terminal 	The lever moves from the DEF position to the FACE position

Q: Is the mode selection damper control motor in good condition?

YES : Go to Step 14.

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

STEP 14. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

DTC U1073: Bus Off

⚠ CAUTION

If DTC U1073 is set in the A/C-ECU, diagnose the CAN main bus line.

⚠ CAUTION

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

TROUBLE JUDGMENT

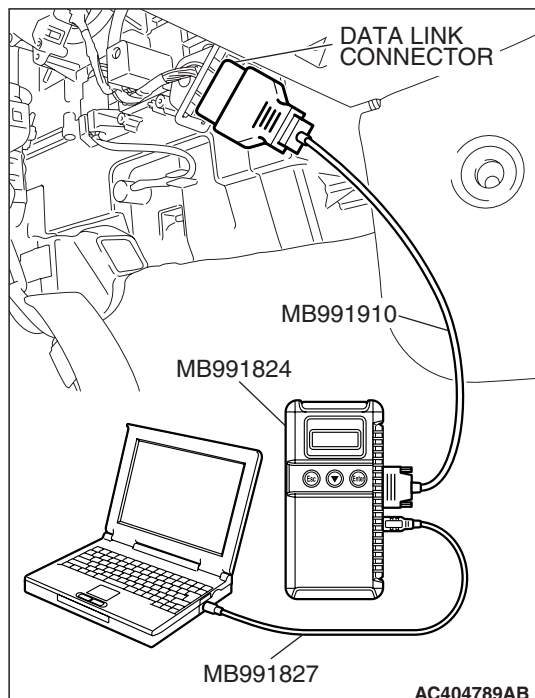
If the A/C-ECU ceases communicating once (i.e. bus off) and then returns to it, the A/C-ECU will not communicate for three minutes immediately after that point. This three-minute period is called "Penalty mode." Immediately after the A/C-ECU returns to communication, the DTC is set.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (CAN line is open/shorted to ground)
- Malfunction of the A/C-ECU

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: USB Cable
 - MB991910: Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines (Refer to GROUP 54C, precautions on how to repair the can bus lines [P.54C-5](#)).

STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set.

- (1) Connect scan tool MB991958 to the data link connector
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : There is an intermittent malfunction such as poor engaged connector(s) or open circuit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#)).

NO : Go to Step 3.

STEP 3. Replace the A/C-ECU and then recheck the DTC.

Check again if the DTC is set.

- (1) Connect scan tool MB991958 to the data link connector
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Go to Step 1.

DTC U1100: ECM <M/T> or PCM <A/T> Time-out (Related to Engine)

⚠ CAUTION

If DTC U1100 is set in the A/C-ECU, diagnose the CAN main bus line.

⚠ CAUTION

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

TROUBLE JUDGMENT

The A/C-ECU receives engine control system-related signals from the ECM <M/T> or PCM <A/T> via CAN bus lines. If the A/C-ECU cannot receive the necessary signals, DTC U1100 will be set.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (CAN line is open/shorted to ground)
- Malfunction of the A/C-ECU.
- Malfunction of the ECM <M/T> or PCM <A/T>.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

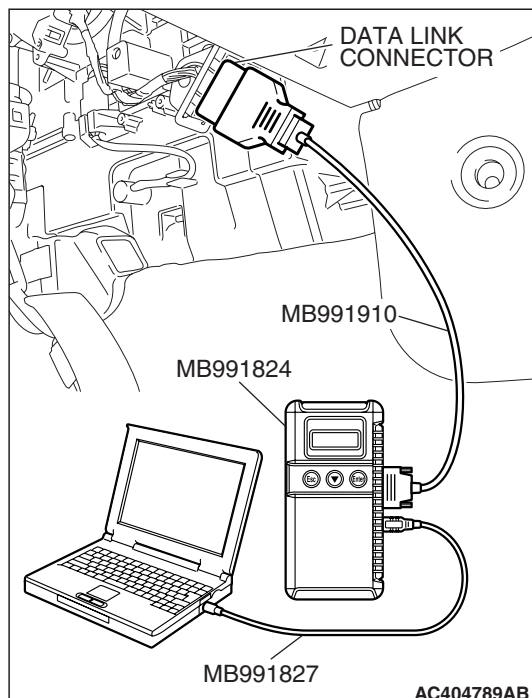
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines (Refer to GROUP 54C, precautions on how to repair the CAN bus lines P.54C-5).



STEP 2. Using scan tool MB991958 read the ECM <M/T> or PCM <A/T> diagnostic trouble code.

Check whether an engine and automatic transaxle DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for engine and automatic transaxle DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.

NO : Diagnose the ECM <M/T> or PCM <A/T> (Refer to GROUP 13B, Diagnostic Trouble Code [P.13B-43](#) <3.8L ENGINE>).

STEP 3. Using scan tool MB991958, check for any diagnostic trouble code.

Check if a DTC, which relates to CAN communication-linked systems below, is set.

- Combination meter
DTC indicating a time-out error related to the engine or automatic transaxle control system
- ABS-ECU
DTC indicating a time-out error related to the engine or automatic transaxle control system

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for a DTC related to the relevant system.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Using scan tool MB991958 read the ECM <M/T> or PCM <A/T> diagnostic trouble code.

Check whether an engine and automatic transaxle DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for engine and automatic transaxle DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the A/C-ECU.

STEP 5. Replace the A/C-ECU and then recheck the DTC.

Check again if the DTC is set.

- (1) Connect scan tool MB991958 to the data link connector
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Go to Step 1.

DTC U1120: Failure Information on ECM <M/T> or PCM <A/T> (Related to Engine)**CAUTION**

If DTC U1120 is set in the A/C-ECU, diagnose the CAN main bus line.

CAUTION

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

CAUTION

The engine control system- related DTC may be set when DTC U1120 is set. (For details refer to GROUP 00, Intersystem Affiliated DTC Reference Table P.00-17.) Diagnose the engine control system first when the engine control system- related DTC is set.

TROUBLE JUDGMENT

The A/C-ECU receives the vehicle speed signal and the coolant temperature from the ECM <M/T> or PCM <A/T> via CAN bus lines. If failure information is sent to the vehicle speed signal and the coolant temperature, DTC U1120 will be set.

TROUBLESHOOTING HINTS

- Malfunction of connector.
- Malfunction of the harness (CAN line is open/shorted to ground)
- Malfunction of the A/C-ECU.
- Malfunction of the ECM <M/T> or PCM <A/T>.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**CAUTION**

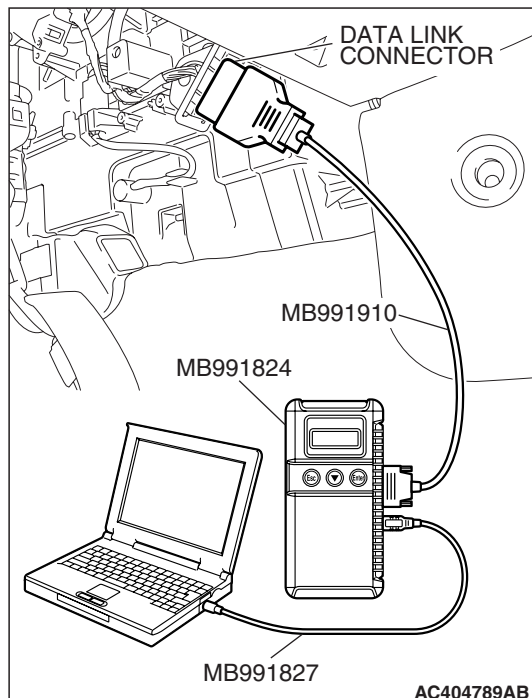
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-14).



STEP 2. Using scan tool MB991958, read the ECM <M/T> or PCM <A/T> diagnostic trouble code.

Check whether any engine or automatic transaxle DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for engine and automatic transaxle DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.

NO : Refer to GROUP 13B, Diagnostic Trouble Code [P.13B-43](#) <3.8L ENGINE>.

STEP 3. Using scan tool MB991958, check for any diagnostic trouble code.

Check if a DTC, which relates to CAN communication-linked systems below, is set.

- Combination meter
DTC indicating a time-out error related to the engine or automatic transaxle control system
- ETACS
DTC indicating a time-out error related to the engine or automatic transaxle control system

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for a DTC related to the relevant system.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Replace the ECM <M/T> or PCM <A/T> and then recheck the DTC.

Check again if the DTC is set.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check if the DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the A/C-ECU.

STEP 5. Replace the A/C-ECU and then recheck the DTC.

Check again if the DTC is set.

- (1) Connect scan tool MB991958 to the data link connector
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Go to Step 1.

SYMPTOM CHART

⚠ CAUTION

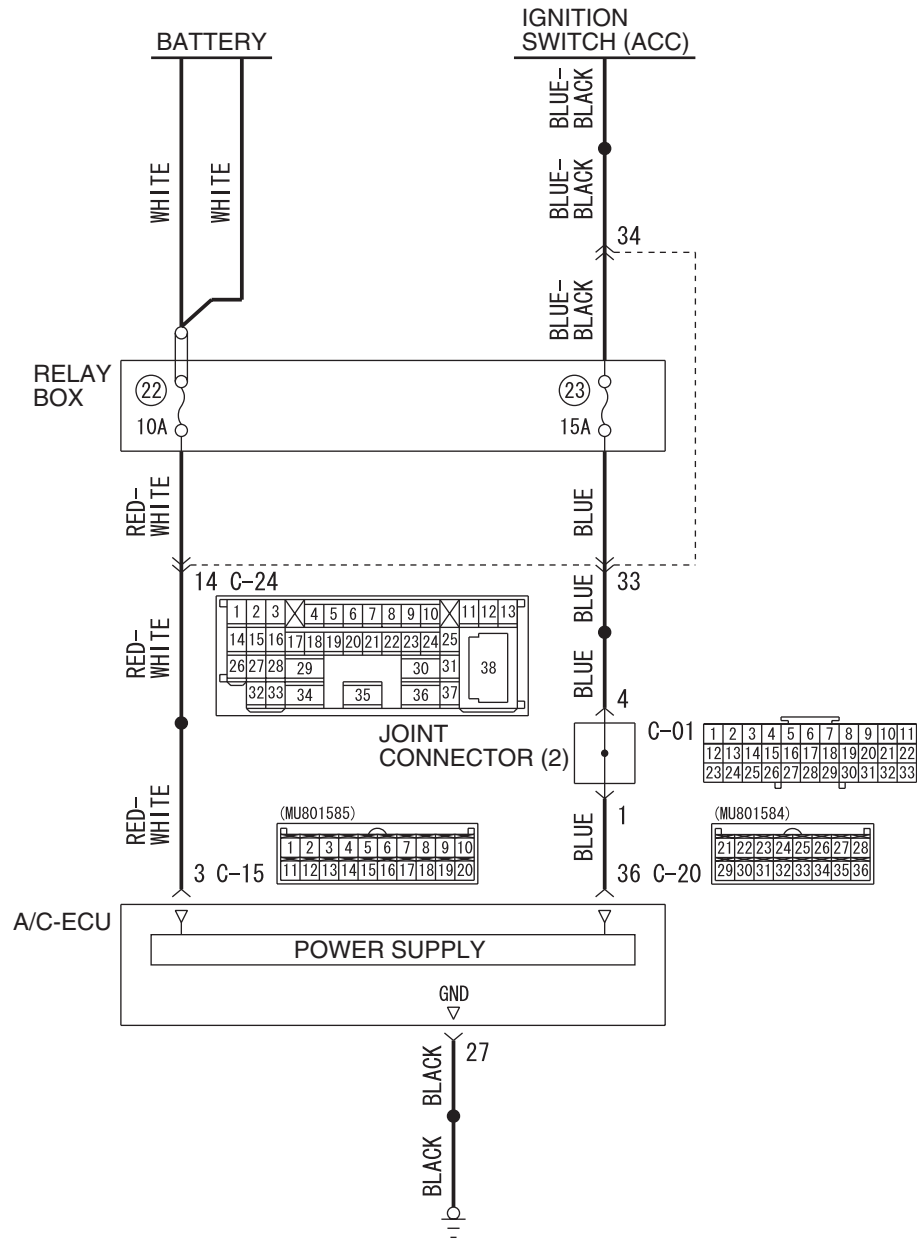
During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

SYMPTOM	INSPECTION PROCEDURE NO.	REFERENCE PAGE
Malfunction of the A/C-ECU power supply system.	1	P.55A-98
Outside/Inside air changeover is not possible.	2	P.55A-98
The compressor does not work.	3	P.55A-98
Blower fan and motor do not turn.	4	P.55A-98
Blower fan and motor does not stop turning.	5	P.55A-98
When the A/C is operating, temperature inside the passenger compartment does not decrease (cool air is not emitted).	6	P.55A-98
When sunlight intensity changes, air outlet temperature does not change.	7	P.55B-157
The condenser fan and the radiator fan turns at full speed.	8	P.14-4
The condenser fan and the radiator fan do not operate.	9	REFER TO GROUP 14 –SYMPTOM CHART P.14-4
Rear window defogger function does not operate.	10	P.55A-98
Rear window defogger timer function does not operate.	11	P.55A-98

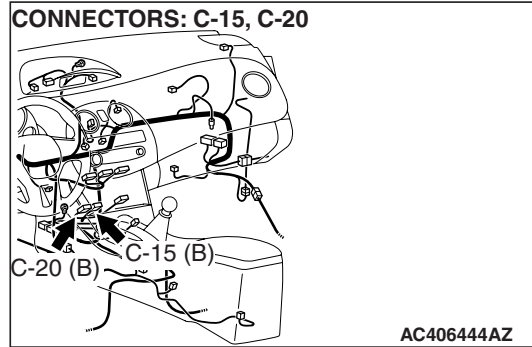
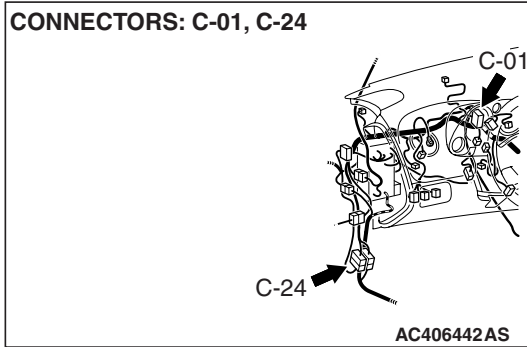
SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Malfunction of the A/C-ECU Power Supply System.

A/C-ECU Power Supply Circuit



W6P55M021A



PROBABLE CAUSES

- Malfunction of connector.

- Malfunction of the harness.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

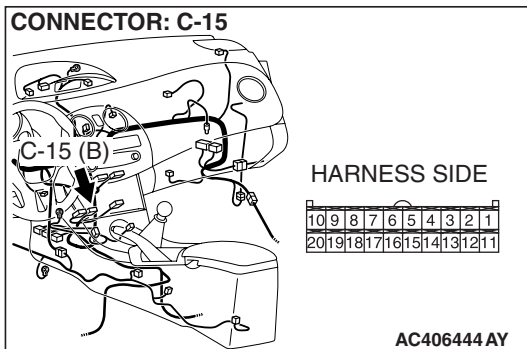
- MB991223: Harness Set
- MB992006: Extra Fine Probe

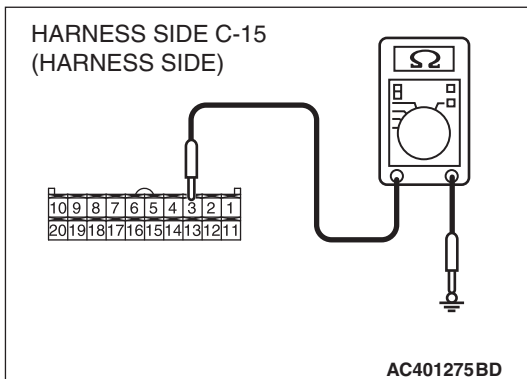
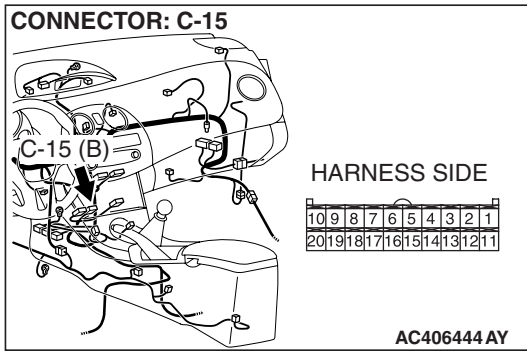
STEP 1. Check A/C-ECU connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-15 in good condition?

YES : Go to Step 2.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 2. Check the wiring harness for open circuit.

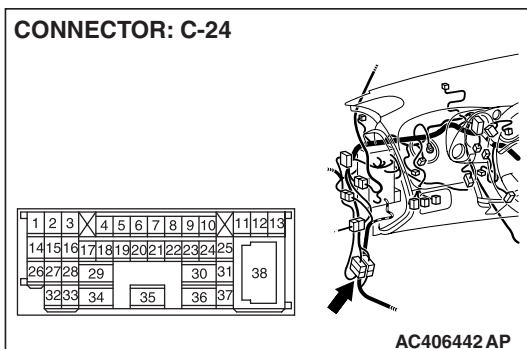
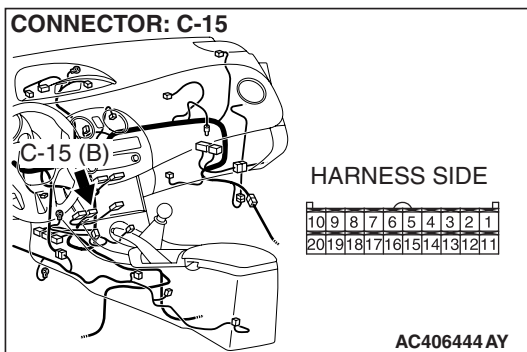
- (1) Disconnect A/C-ECU connector C-15 and the battery harness, and measure at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-15 terminal 3 and battery.

OK: Less than 10 ohms

Q: Is the check result normal?

- YES :** Go to Step 4.
NO : Go to Step 3.



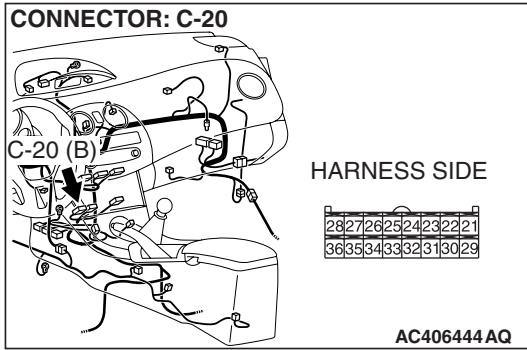
STEP 3. Check the wiring harness between A/C-ECU connector C-15 (terminal 3) and the battery.

NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 3) and the battery in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

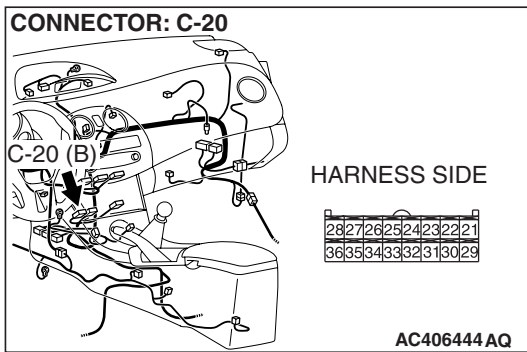


STEP 4. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-20 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 5. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

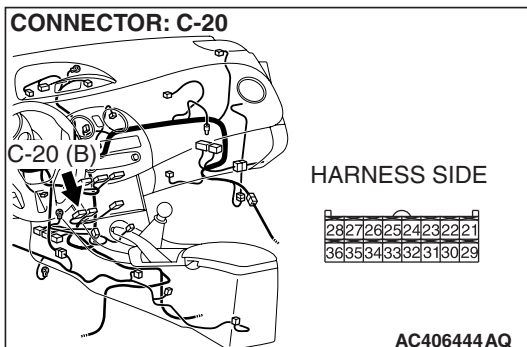
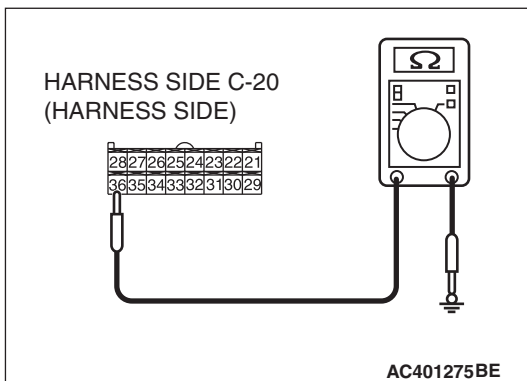
(2) Measure the resistance between A/C-ECU connector C-20 terminal 36 and ignition switch connector.

OK: Less than 10 ohms

Q: Is the check result normal?

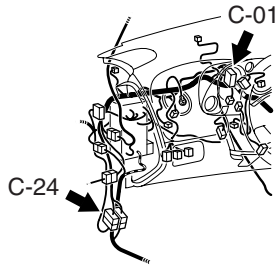
YES : Go to Step 7.

NO : Go to Step 6.



STEP 6. Check the wiring harness between A/C-ECU connector C-20 (terminal 28) and the ignition switch (IG2).

CONNECTORS: C-01, C-24



C-01

1	2	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	28	29	30	31	32	33

C-24

1	2	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	28	29					30	31		38	
32	33	34		35				36	37			

AC406443AC

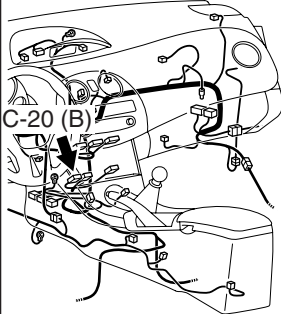
NOTE: Also check intermediate connector C-24 and joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 and joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 28) and the ignition switch (IG2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

CONNECTOR: C-20



HARNESS SIDE

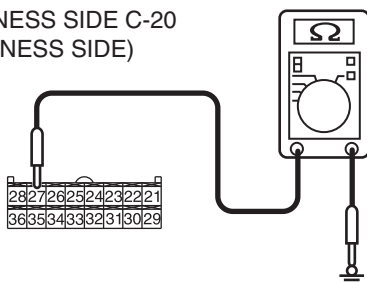
28	27	26	25	24	23	22	21
36	35	34	33	32	31	30	29

AC406444AQ

STEP 7. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

HARNESS SIDE C-20
(HARNESS SIDE)



AC401275BW

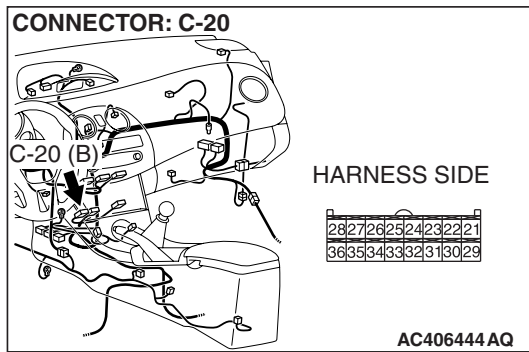
(2) Measure the resistance between A/C-ECU connector C-20 terminal 27 and ground.

OK: Less than 10 ohms

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 8.



STEP 8. Check the wiring harness between A/C-ECU connector C-20 (terminal 27) and ground.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 27) and ground in good condition?

- YES :** It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).
- NO :** Repair the wiring harness.

STEP 9. Retest the system

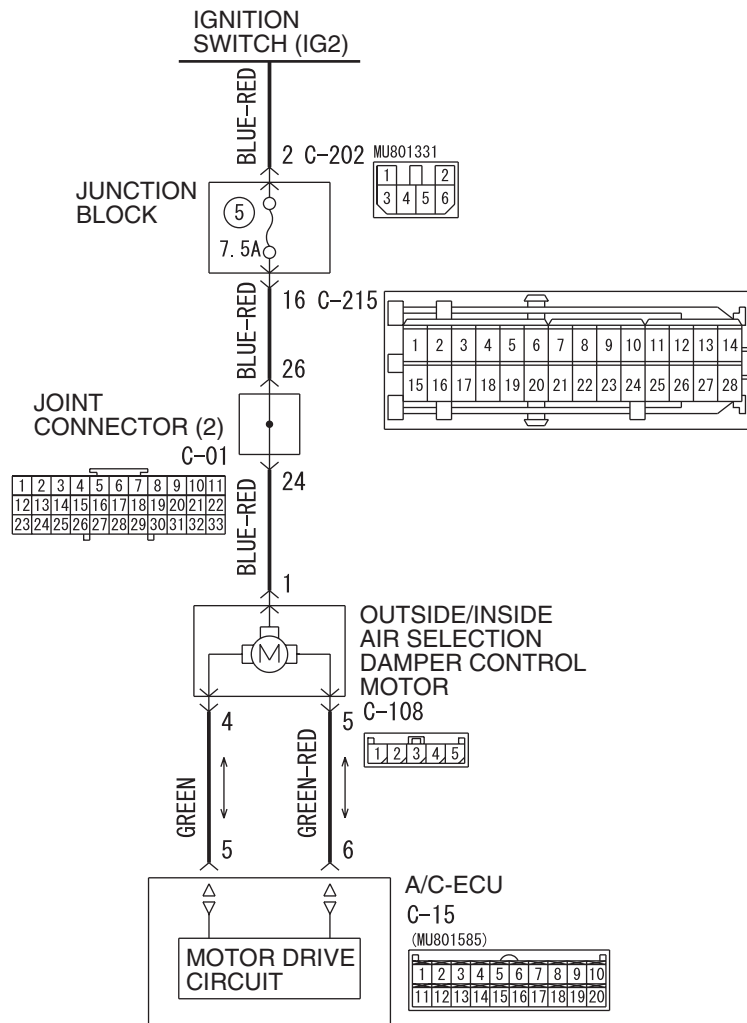
Check that the A/C works normally.

Q: Is the check result satisfactory?

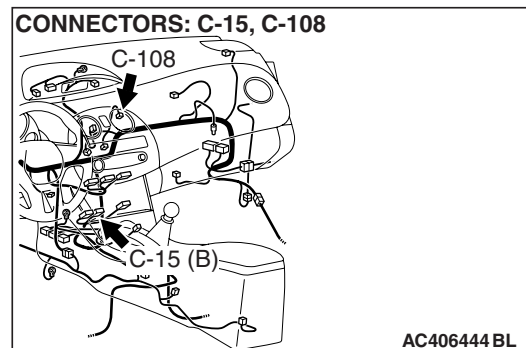
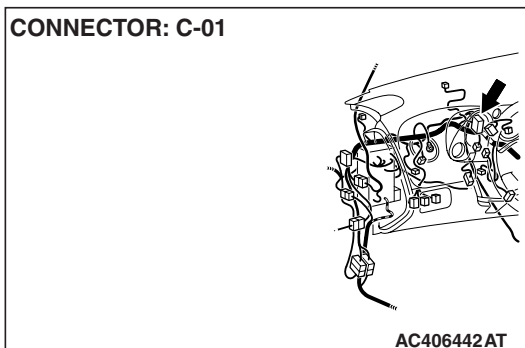
- YES :** It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).
- NO :** Replace the A/C-ECU.

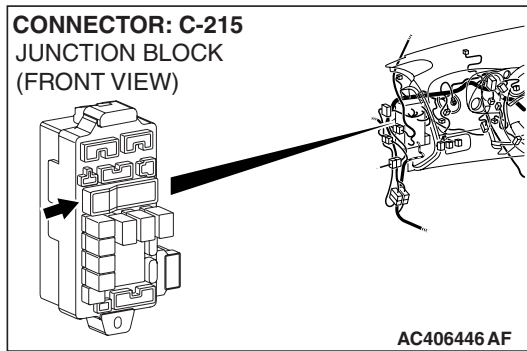
INSPECTION PROCEDURE 2: Outside/Inside Air Changeover is not possible.

Outside/Inside Air Selection Motor Circuit



W6P55M013A





FUNCTION

Changeover between inside air recirculation mode and fresh air mode

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (outside/inside air selection damper control motor circuit is open/shorted to ground)
- Malfunction of the outside/inside air selection damper control motor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

Check if an A/C-ECU DTC is set.

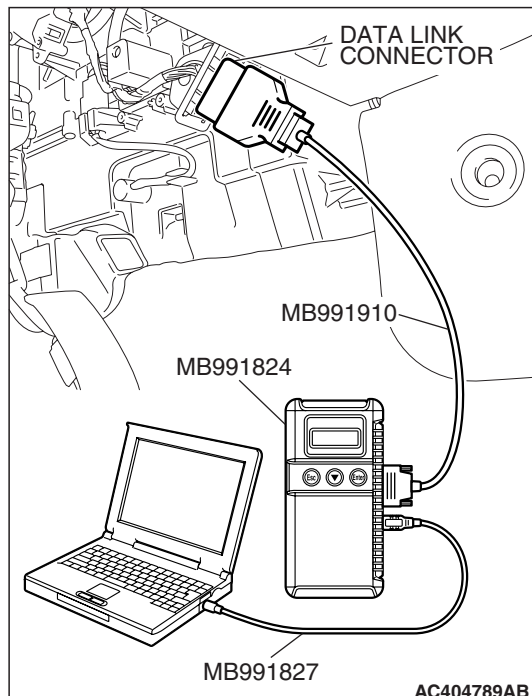
- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to DIAGNOSTIC TROUBLE CODE CHART

[P.55B-9.](#)

NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 72: In/out changeover damper: Fresh
 - Item 73: In/out changeover damper: Recirc
 - Check that the outside/inside air selection damper control motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 3.

NO : Go to Step 4.

STEP 3. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

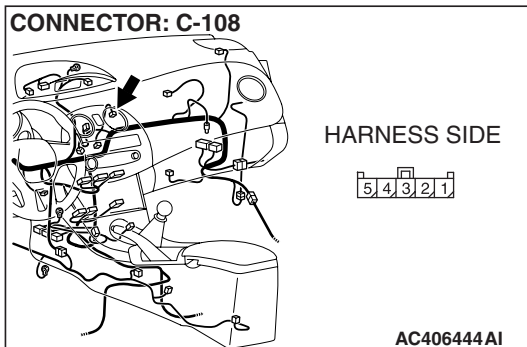
NO : Replace the A/C-ECU.

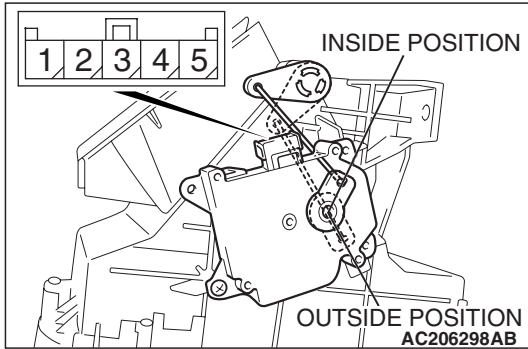
STEP 4. Check outside/inside air selection damper control motor connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is outside/inside air selection damper control motor connector C-108 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





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

CAUTION

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

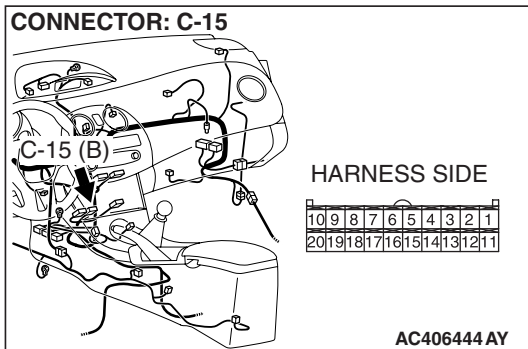
Check the outside/inside air selection damper control motor by the following procedures.

LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the outside position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 5 to the negative battery terminal 	The lever moves from the outside position to the inside position
At the inside position	<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 4 to the negative battery terminal 	The lever moves from the inside position to the outside position

Q: Does outside/inside air selection damper control motor work normally?

YES : Go to Step 6.

NO : Replace the outside/inside air selection damper control motor.

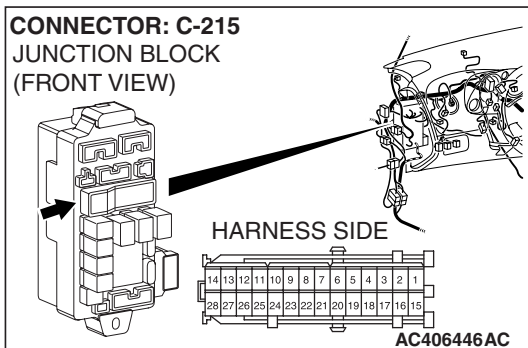


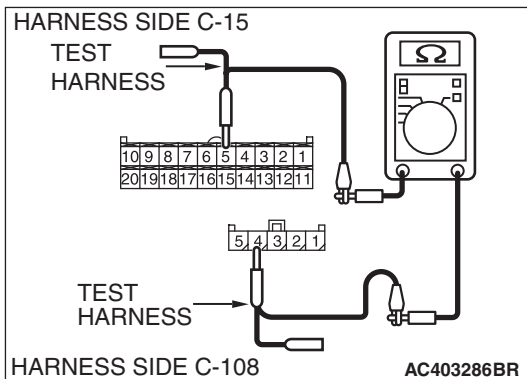
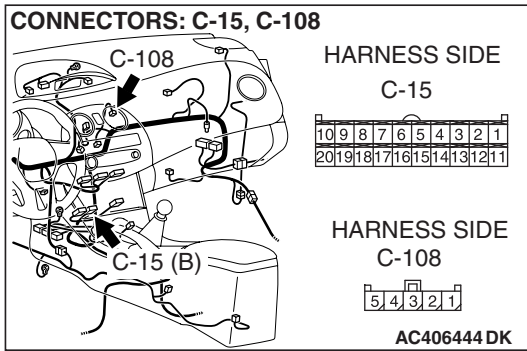
STEP 6. Check A/C-ECU connector C-15 and junction block connector C-215 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and junction block connector C-215 in good condition?

YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 7. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and outside/inside air selection damper control motor connector C-108, and measure the resistance at the wiring harness side.

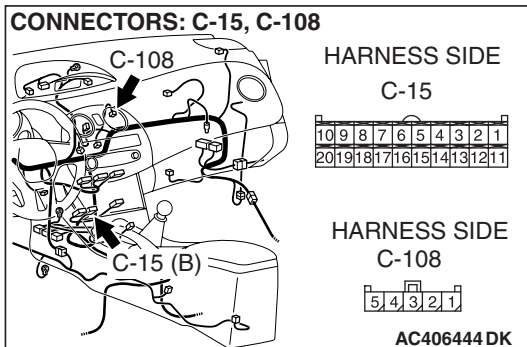
(2) Measure the resistance between A/C-ECU connector C-15 terminal 5 and outside/inside air selection damper control motor connector C-108 terminal 4.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 8.

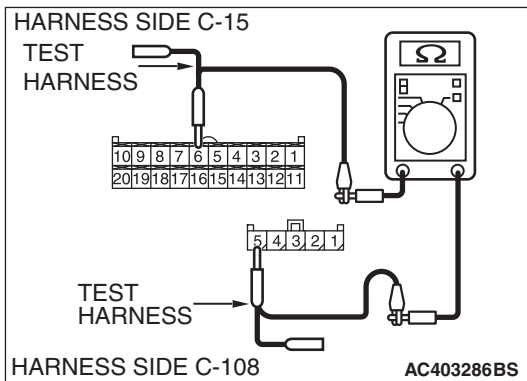
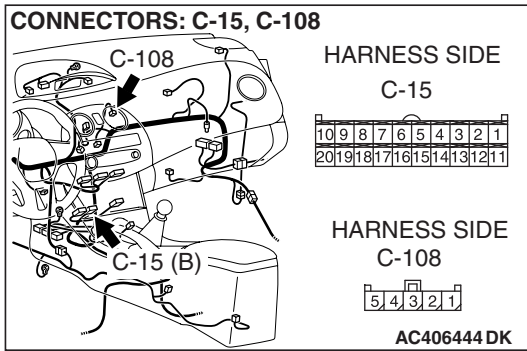


STEP 8. Check the wiring harness between A/C-ECU connector C-15 (terminal 5) and outside/inside air selection damper control motor connector C-108 (terminal 4).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 5) and outside/inside air selection damper control motor connector C-108 (terminal 4) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 9. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and outside/inside air selection damper control motor connector C-108, and measure the resistance at the wiring harness side.

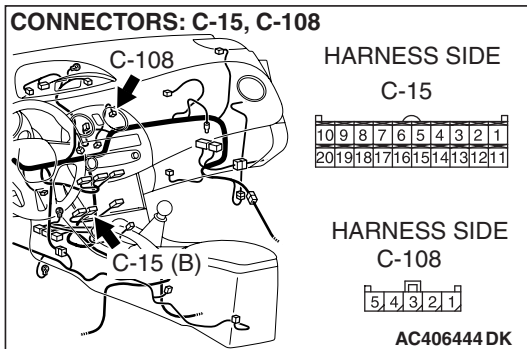
- (2) Measure the resistance between A/C-ECU connector C-15 terminal 6 and outside/inside air selection damper control motor connector C-108 terminal 5.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.

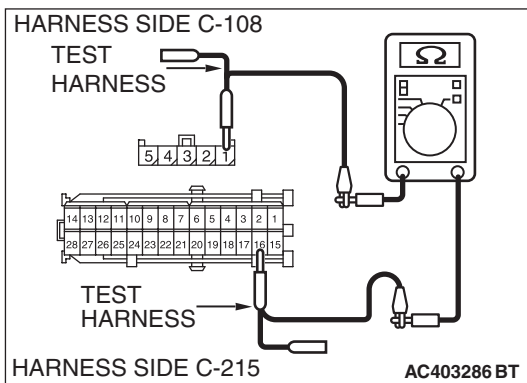
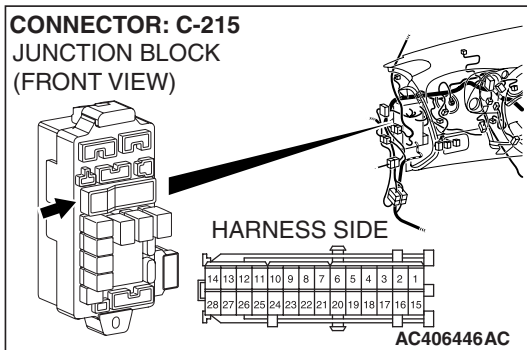
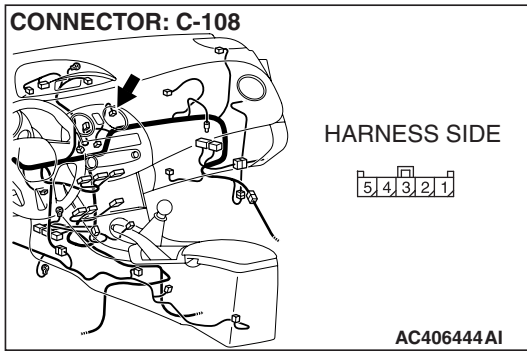


STEP 10. Check the wiring harness between A/C-ECU connector C-15 (terminal 6) and outside/inside air selection damper control motor connector C-108 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 6) and outside/inside air selection damper control motor connector C-108 (terminal 5) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 11. Check the wiring harness for open circuit.

- (1) Disconnect junction block connector C-215 and outside/inside air selection damper control motor connector C-108, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between junction block connector C-215 terminal 16 and outside/inside air selection damper control motor connector C-108 terminal 1.

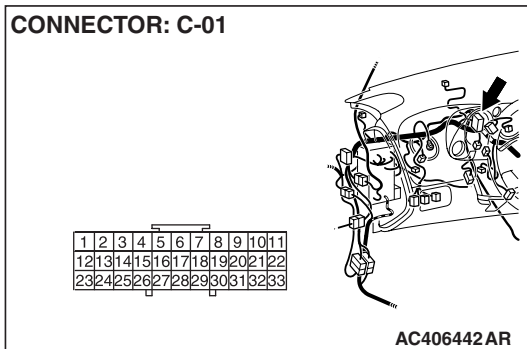
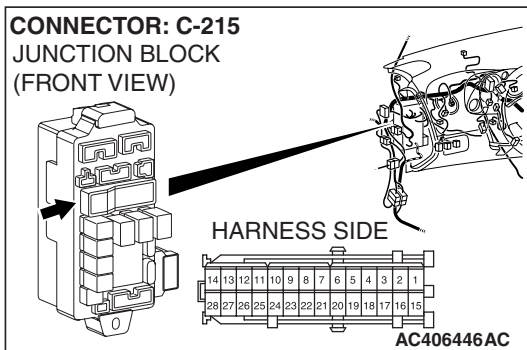
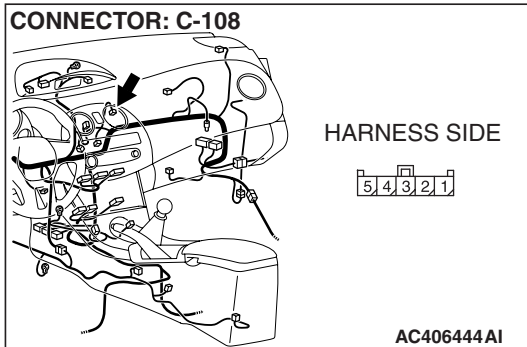
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 13.

NO : Go to Step 12.

STEP 12. Check the wiring harness between junction block connector C-215 (terminal 16) and outside/inside air selection damper control motor connector C-108 (terminal 1).

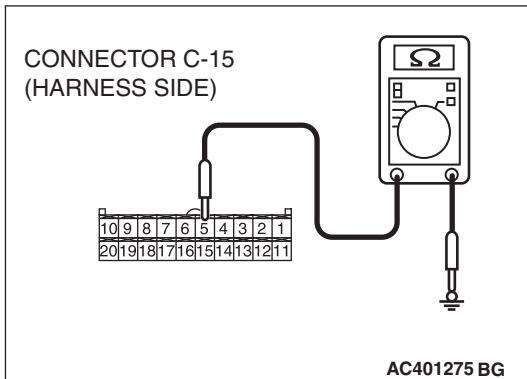
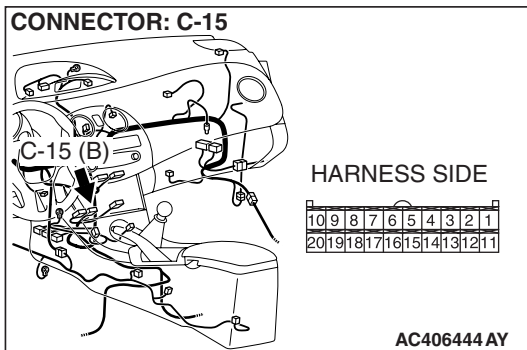


NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between junction block connector C-215 (terminal 16) and outside/inside air selection damper control motor connector C-108 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 13. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

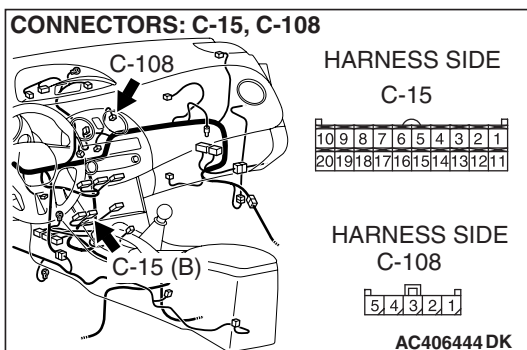
(2) Measure the resistance value between terminal 5 and ground.

OK: 1.5 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 15.

NO : Go to Step 14.



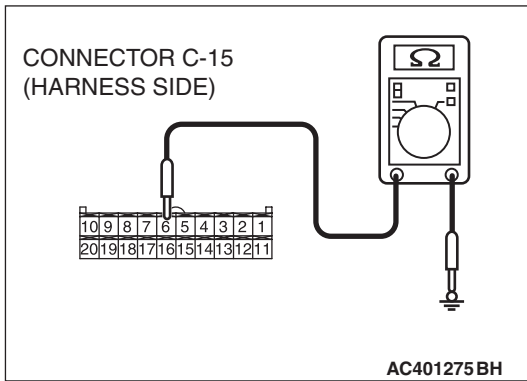
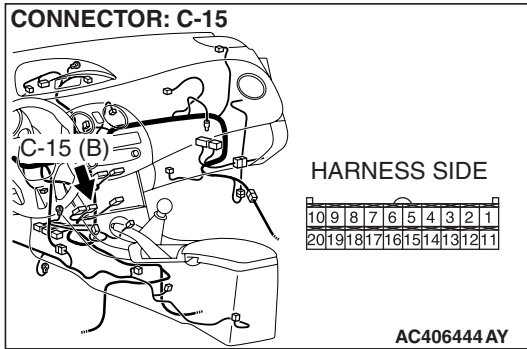
STEP 14. Check the wiring harness between A/C-ECU connector C-15 (terminal 5) and outside/inside air selection damper control motor connector C-108 (terminal 4).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 5) and outside/inside air selection damper control motor connector C-108 (terminal 4) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 15. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

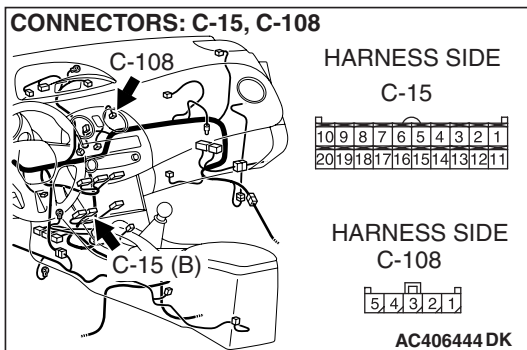
(2) Measure the resistance value between terminal 6 and ground.

OK: 1.5 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 17.

NO : Go to Step 16.



STEP 16. Check the wiring harness between A/C-ECU connector C-15 (terminal 6) and outside/inside air selection damper control motor connector C-108 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 6) and outside/inside air selection damper control motor connector C-108 (terminal 5) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 17. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

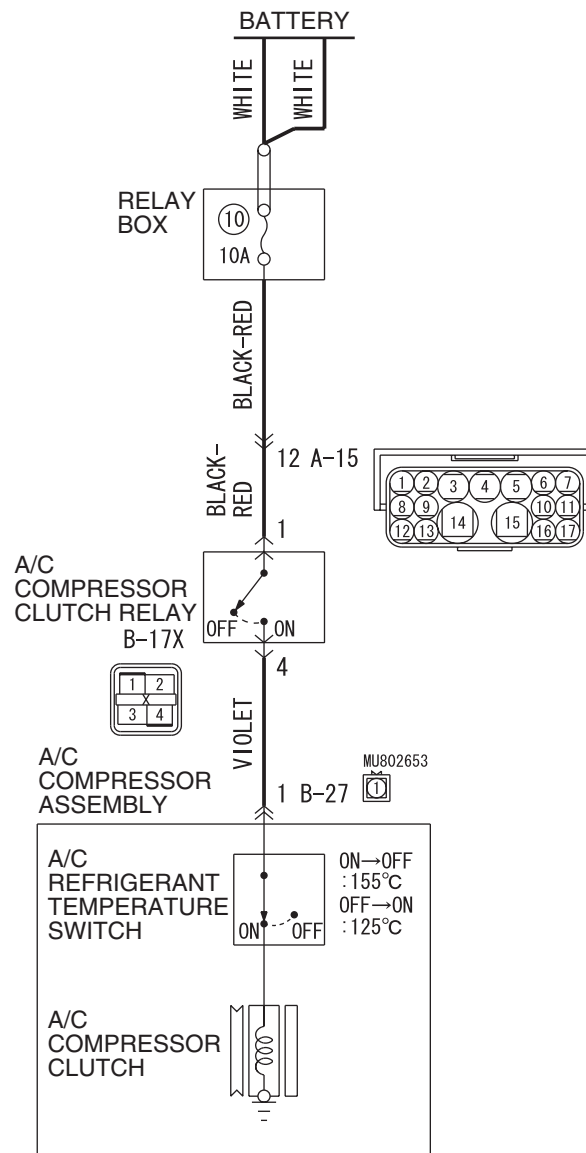
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

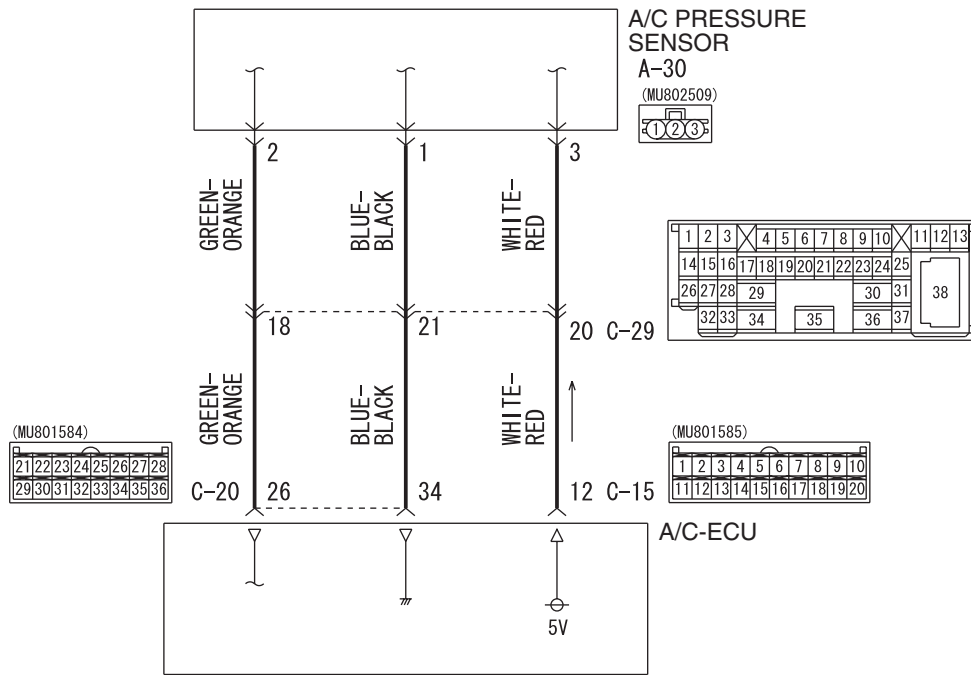
INSPECTION PROCEDURE 3: The Compressor does not Work.

A/C Compressor Circuit

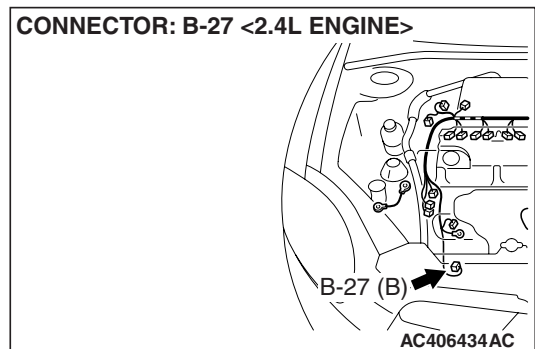
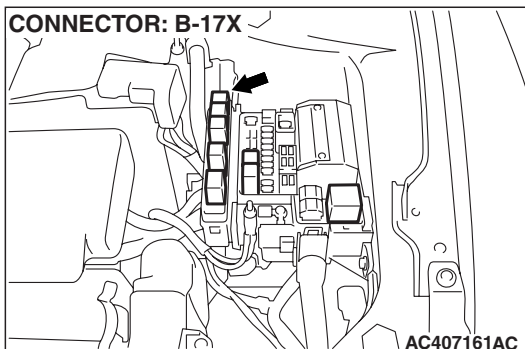
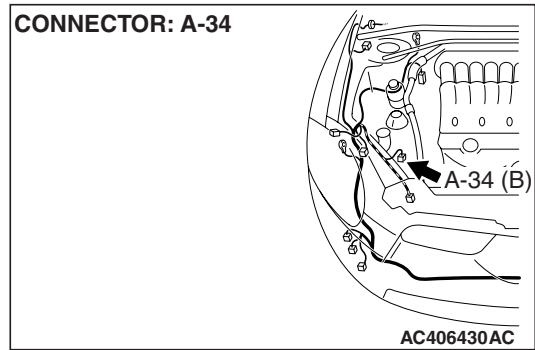
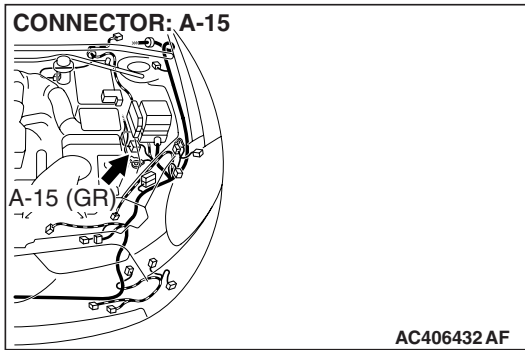


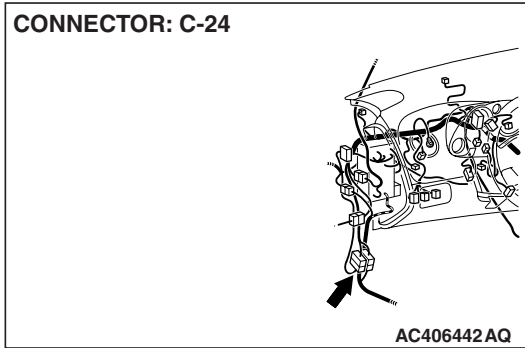
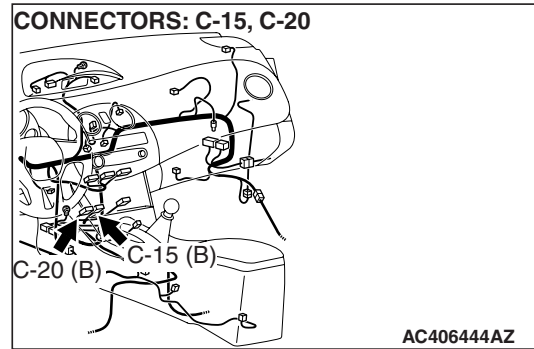
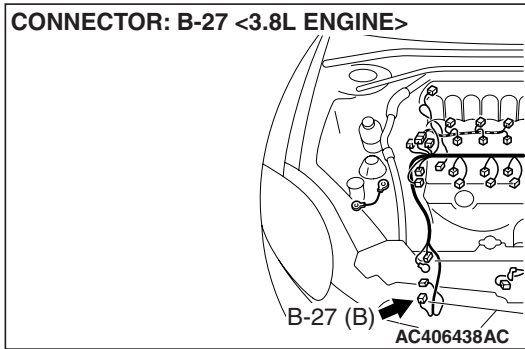
W6P55M014A

A/C Pressure Sensor Circuit



W6P55M019A





FUNCTION

Compressor that recovers the refrigerant, which evaporated in the evaporator and became a high-temperature and high-pressure gas, and turns it into liquid again.

PROBABLE CAUSES

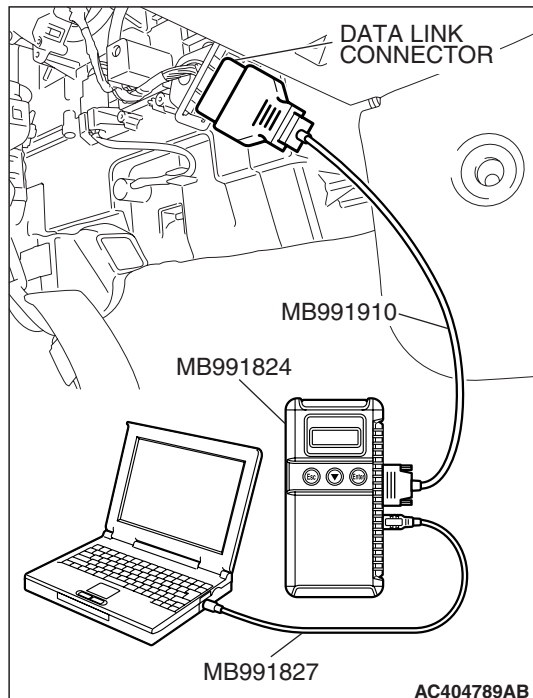
- Insufficient refrigerant

- Malfunction of connector.
- Malfunction of the harness (A/C compressor circuit is open/shorted to ground)
- Malfunction of the A/C pressure sensor.
- Malfunction of the A/C compressor.
- Malfunction of the A/C compressor clutch relay.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991658: Test Harness Set
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines (Refer to GROUP 54C, precautions on how to repair the can bus lines [P.54C-5](#)).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to DIAGNOSTIC TROUBLE CODE CHART [P.55B-9](#).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check data list.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 66: Air conditioning switch

NOTE: Check that the scan tool displays "ON" when the A/C switch is ON.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the scan tool display "ON" when the A/C switch is on?

YES : Go to Step 5.

NO : Go to Step 4.

STEP 4. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

STEP 5. Check the refrigerant level.

Refer to GROUP 55A, On-vehicles service –Refrigerant Level
Test [P.55A-185](#).

Q: Is the check result satisfactory?

YES : Go to Step 6.

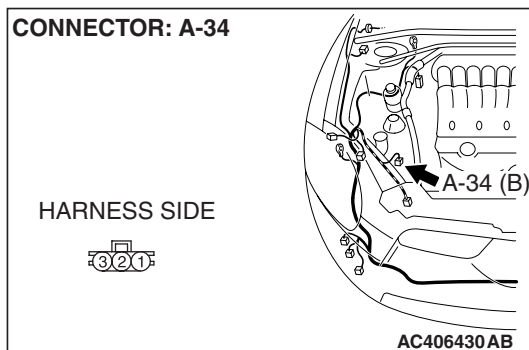
NO : Replenish the refrigerant (Refer to GROUP 55A,
On-vehicle service –Charging [P.55A-186](#)).

STEP 6. Check A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C pressure sensor connector A-34 in good condition?

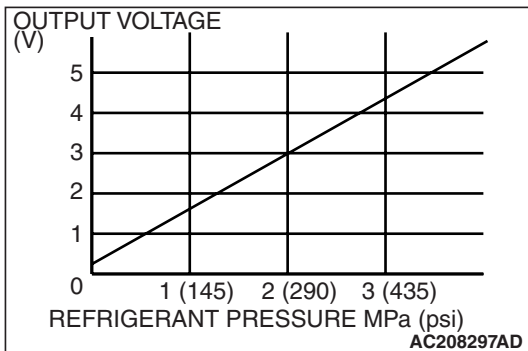
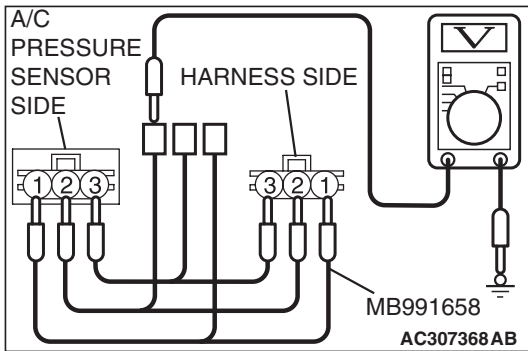
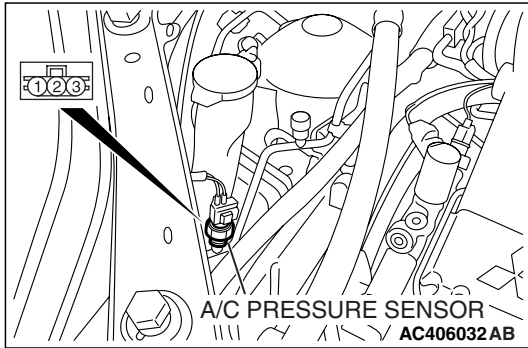
YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP
00E, Harness Connector Inspection [P.00E-2](#).



STEP 7. Check the A/C pressure sensor operation.

- (1) Assemble a gauge manifold on the high pressure service valve.
- (2) Disconnect the A/C pressure sensor connector and connect special tool test harness MB991658 as shown in the illustration.
- (3) Turn ON the engine and then turn ON the A/C switch.



- (4) At this time, check to see that the voltage of A/C pressure sensor terminal No. 2 reflects the specifications of the figure.

NOTE: The allowance shall be defined as $\pm 5\%$.

Q: Is the A/C pressure sensor operating properly?

YES : Go to Step 8.

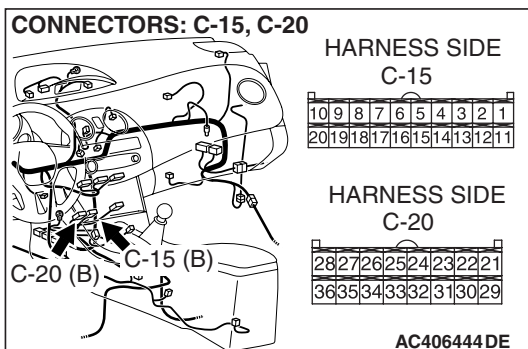
NO : Replace the A/C pressure sensor.

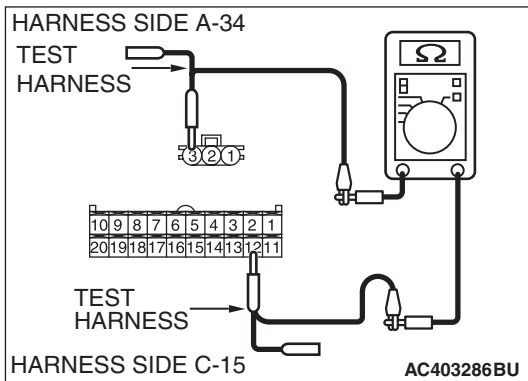
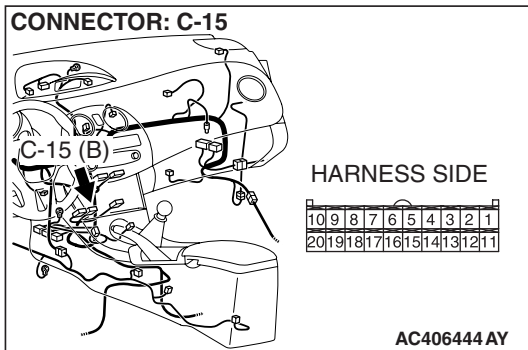
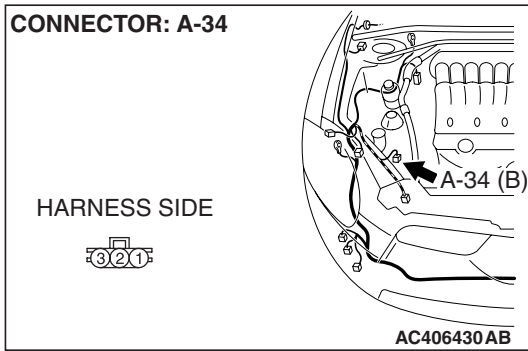
STEP 8. Check A/C-ECU connector C-15 and C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and C-20 in good condition?

YES : Go to Step 9.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).





STEP 9. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and A/C pressure sensor connector A-34, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-15 terminal 12 and A/C pressure sensor connector A-34 terminal 3.

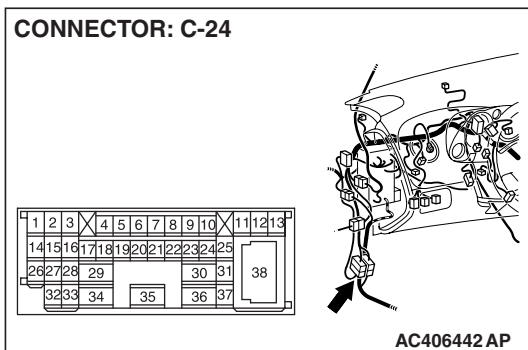
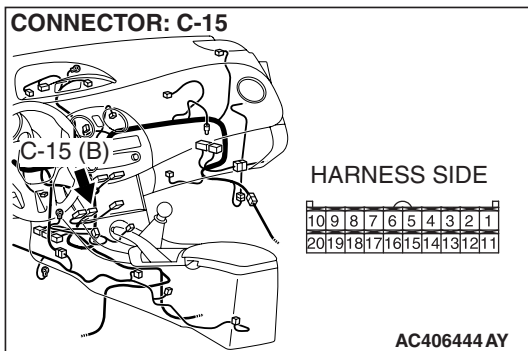
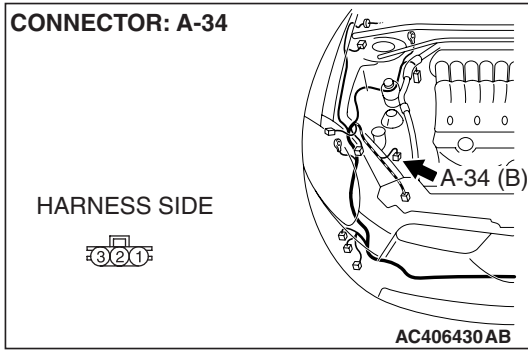
OK: Less than 10 ohms

Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.

STEP 10. Check the wiring harness between A/C-ECU connector C-15 (terminal 12) and A/C pressure sensor connector A-34 (terminal 3).



NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 12) and A/C pressure sensor connector A-34 (terminal 3) in good condition?

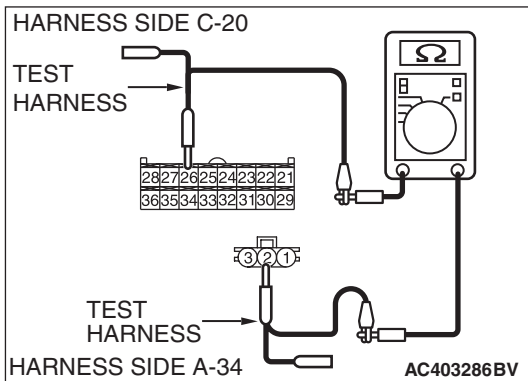
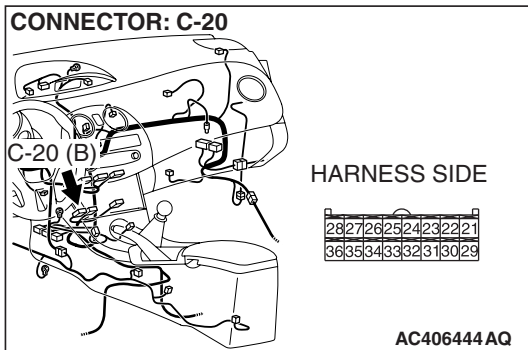
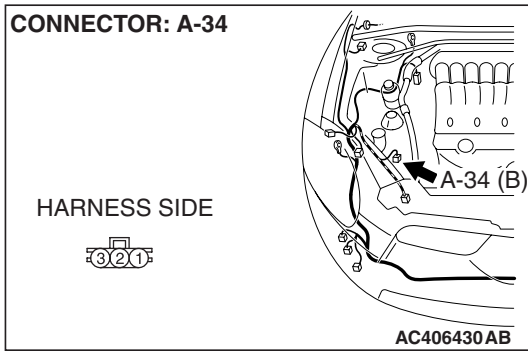
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 11. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-20 and A/C pressure sensor connector A-34, and measure the resistance at the wiring harness side.



- (2) Measure the resistance between A/C-ECU connector C-20 terminal 26 and A/C pressure sensor connector A-34 terminal 2.

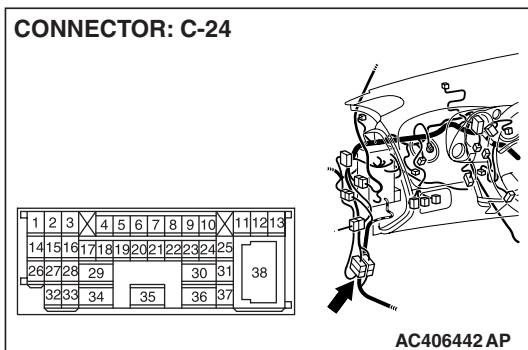
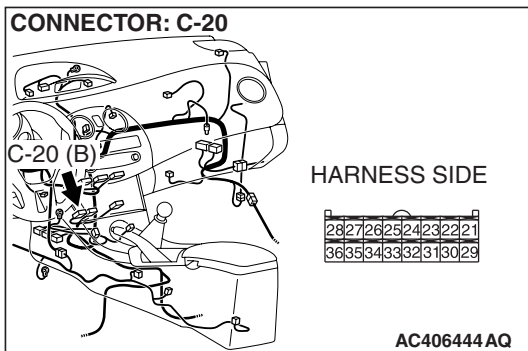
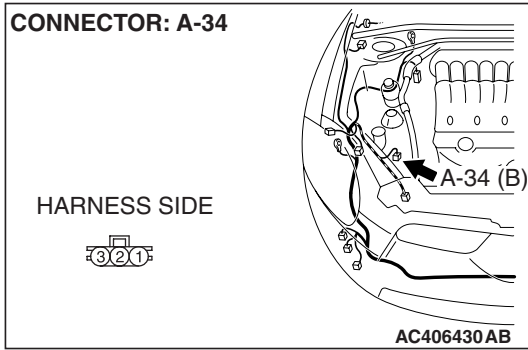
OK: Less than 10 ohms

Q: Is the check result normal?

YES : Go to Step 13.

NO : Go to Step 12.

STEP 12. Check the wiring harness between A/C-ECU connector C-20 (terminal 26) and A/C pressure sensor connector A-34 (terminal 2).



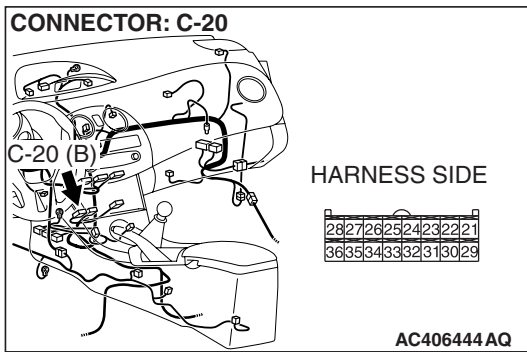
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 26) and A/C pressure sensor connector A-34 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

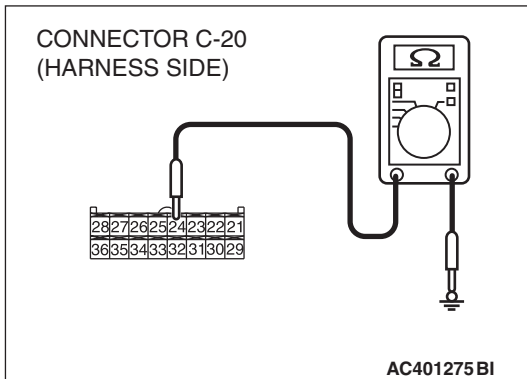
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 13. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.



(2) Measure the resistance value between terminal 24 and ground.

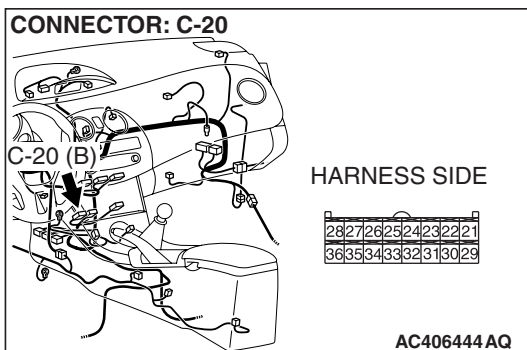
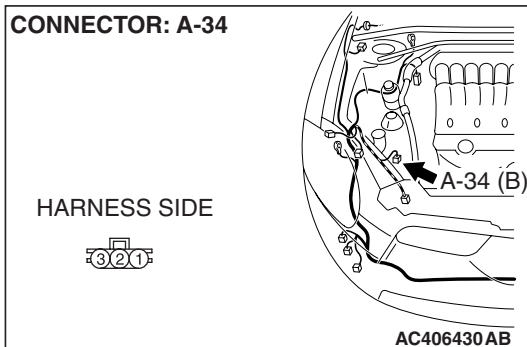
OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 15.

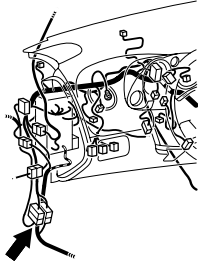
NO : Go to Step 14.

STEP 14. Check the wiring harness between A/C-ECU connector C-20 (terminal 26) and A/C pressure sensor connector A-34 (terminal 2).



CONNECTOR: C-24

1	2	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	28	29					30	31		38	
32	33	34		35				36	37			



AC406442 AP

NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 26) and A/C pressure sensor connector A-34 (terminal 2) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.

STEP 15. Check A/C compressor assembly connector B-27 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

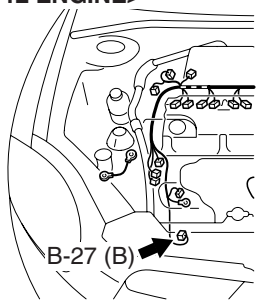
Q: Is A/C compressor assembly connector B-27 in good condition?

YES : Go to Step 16.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

CONNECTOR: B-27 <2.4L ENGINE>

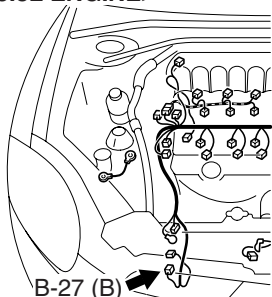
HARNESS SIDE



AC406434 AB

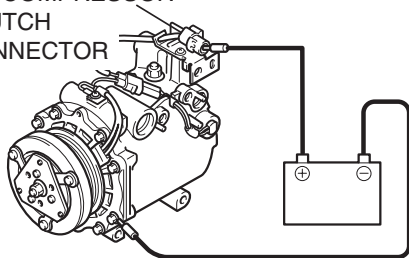
CONNECTOR: B-27 <3.8L ENGINE>

HARNESS SIDE



AC406438 AB

A/C COMPRESSOR CLUTCH CONNECTOR



AC206292 AB

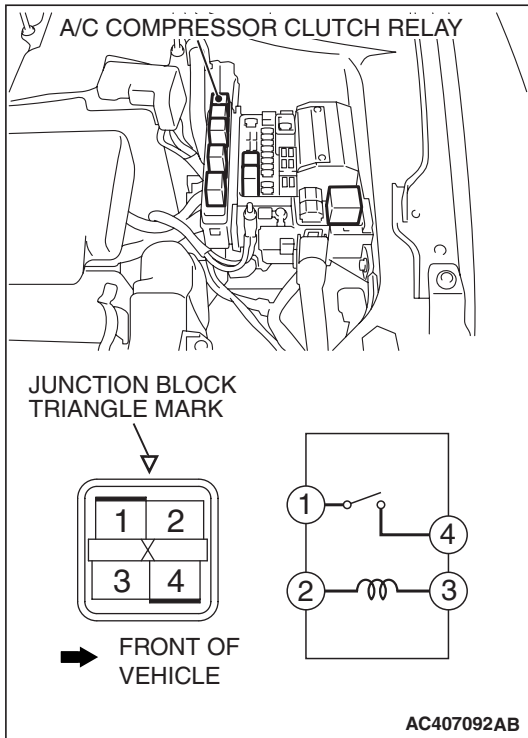
STEP 16. Check the A/C compressor clutch operation.

Connect the compressor connector terminal to the battery positive (+) terminal and ground the battery's negative (-) terminal to the compressor unit. At that time, the A/C compressor clutch should make a definite operating sound.

Q: Can the sound (click) of the A/C compressor clutch operation be heard?

YES : Go to Step 17.

NO : Replace the compressor magnet clutch.



STEP 17. Check the A/C compressor clutch relay continuity.

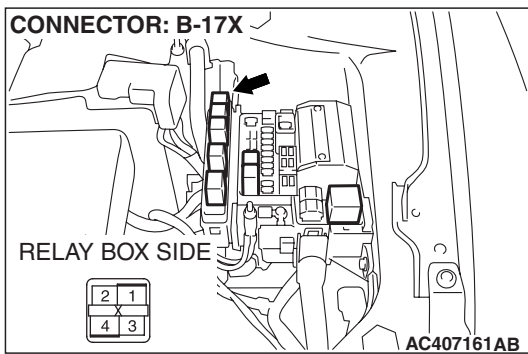
Follow the table below to check the A/C compressor clutch relay for continuity.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 – 4	Open circuit
<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	1 – 4	Less than 2 ohms

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

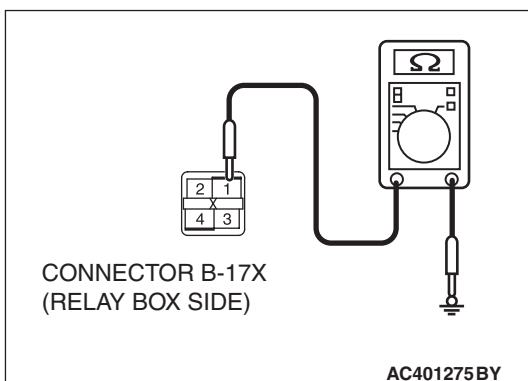
YES : Go to Step 18.

NO : Replace the A/C compressor clutch relay.



STEP 18. Check the wiring harness for open circuit.

(1) Disconnect A/C compressor clutch relay connector B-17X, and measure the resistance at the wiring harness side.



(2) Measure the resistance between A/C compressor clutch relay connector B-17X terminal 1 and ground.

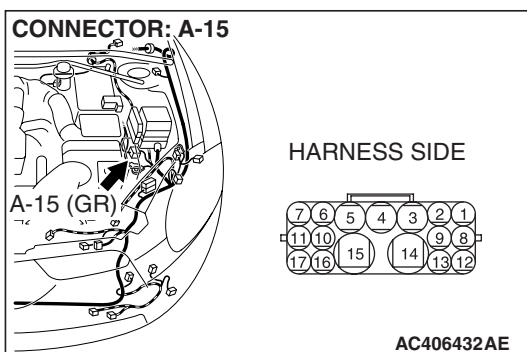
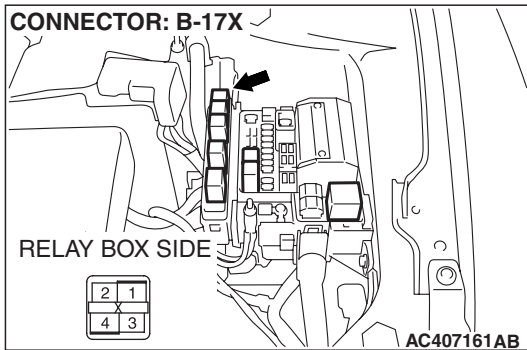
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 20.

NO : Go to Step 19.

STEP 19. Check the wiring harness between A/C compressor clutch relay connector B-17X (terminal 1) and the battery.

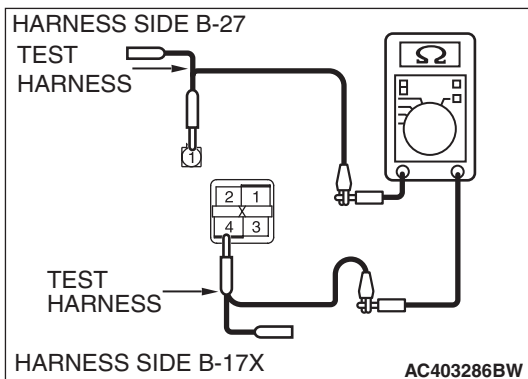
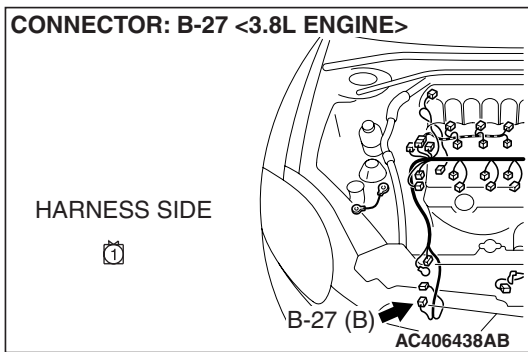
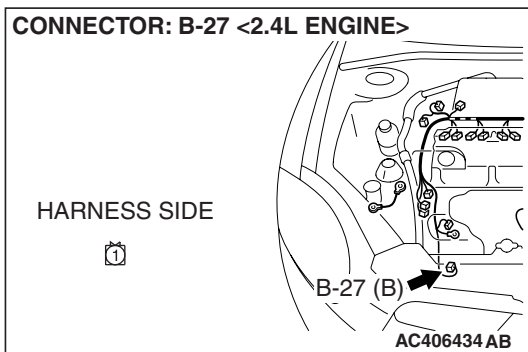
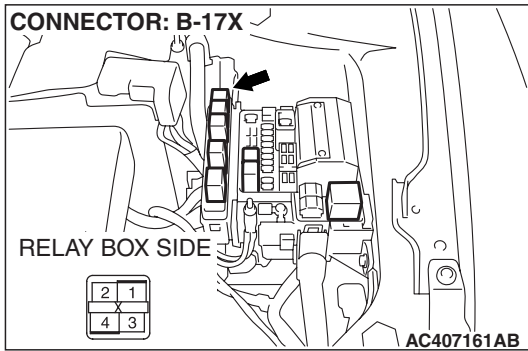


NOTE: Also check intermediate connector A-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between A/C compressor clutch relay connector B-17X (terminal 1) and the battery in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 20. Check the wiring harness for open circuit.

- (1) Disconnect A/C compressor assembly connector B-27 and A/C compressor clutch relay connector B-17X, and measure the resistance at the wiring harness side.

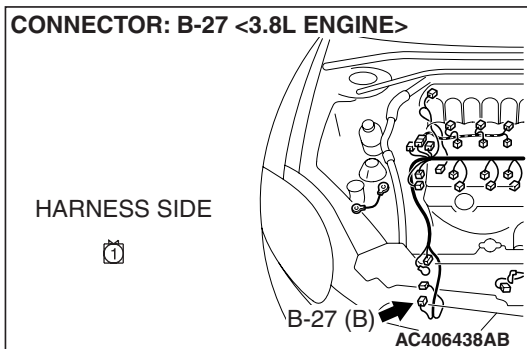
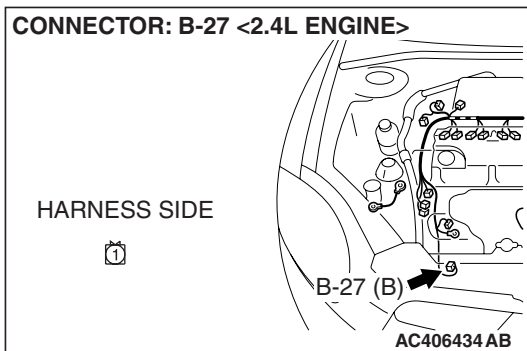
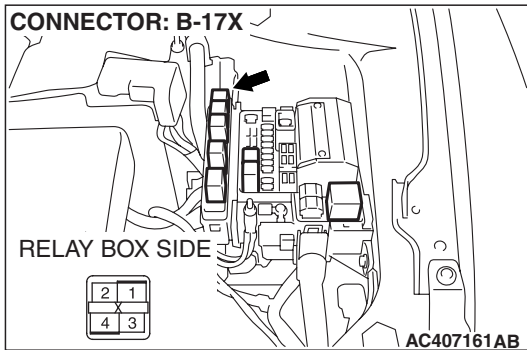
- (2) Measure the resistance between A/C compressor assembly connector B-27 terminal 1 and A/C compressor clutch relay connector B-17X terminal 4.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 22.

NO : Go to Step 21.



STEP 21. Check the wiring harness between A/C compressor assembly connector B-27 (terminal 1) and A/C compressor clutch relay connector B-17X (terminal 4).

Q: Is the wiring harness between A/C compressor assembly connector B-27 (terminal 1) and A/C compressor clutch relay connector B-17X (terminal 4) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 22. Retest the system.

Check that the A/C works normally.

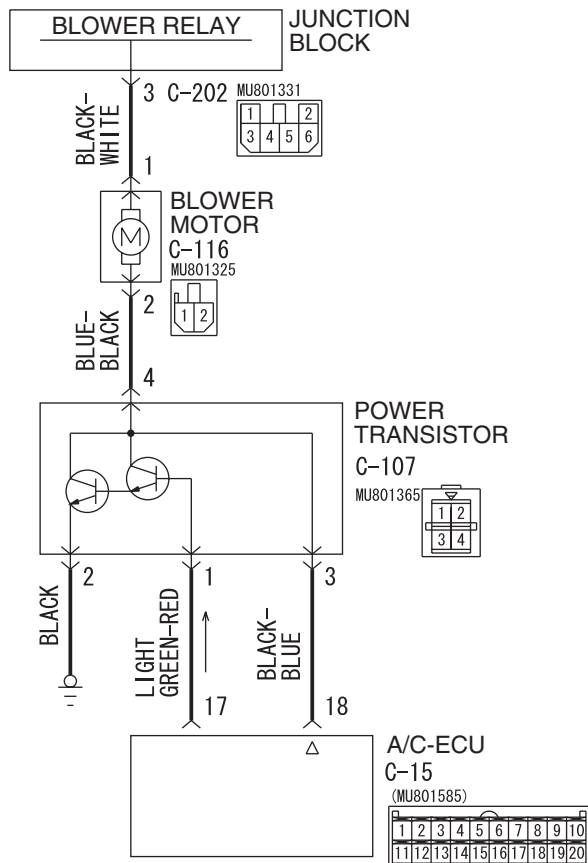
Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

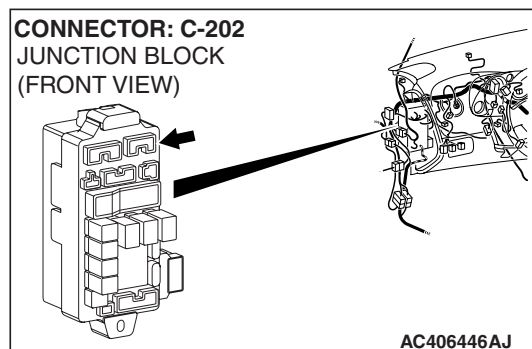
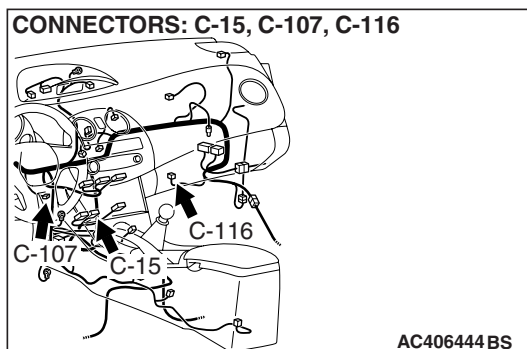
NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 4: Blower Fan and Motor do not Turn.

Blower Motor Circuit



W6P55M017A



FUNCTION

The air from the blower fan is cooled or warmed to control the temperature.

TROUBLESHOOTING HINTS

- Malfunction of connector.

- Malfunction of the harness (Blower motor circuit is open/damaged/shorted to ground)
- Malfunction of the blower motor
- Malfunction of the blower relay
- Malfunction of the power transistor
- Malfunction of the A/C-ECU

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.**⚠ CAUTION**

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

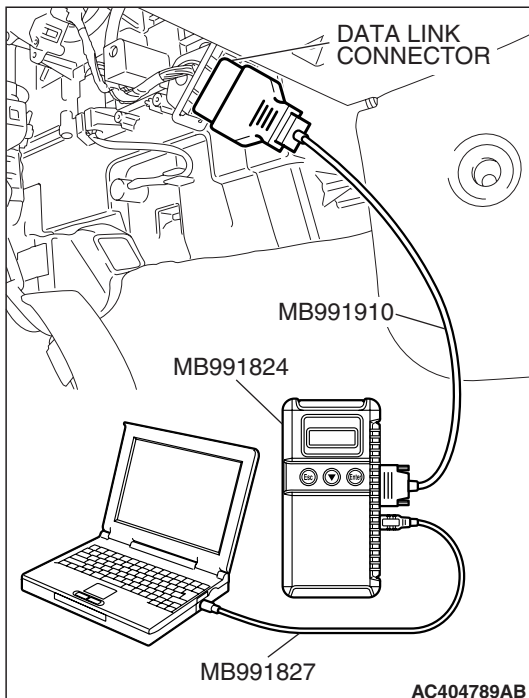
Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart [P.55B-9](#).

NO : Go to Step 2.

**STEP 2. Using scan tool MB991958, check actuator test.**

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 01: Blower fan: OFF
 - Item 02: Blower fan: 8 step
 - Item 03: Blower fan: 16 step
 - Check that the blower motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

- YES :** It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).
- NO :** Replace the A/C-ECU.

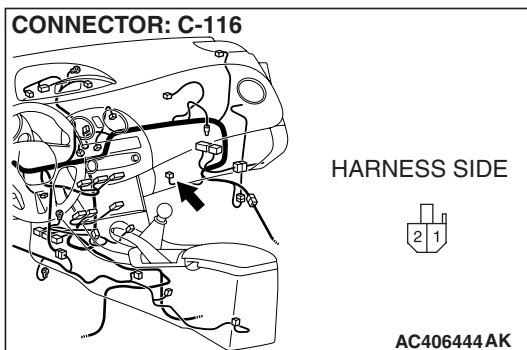
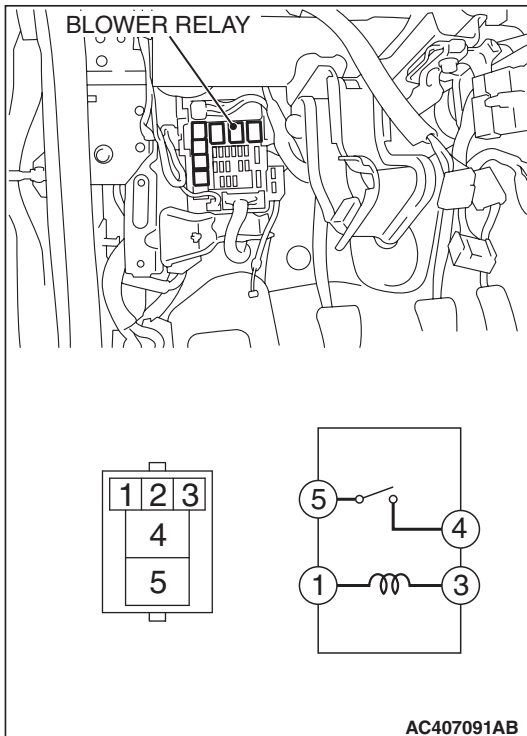
STEP 4. Check the blower relay continuity.

Follow the table below to check the blower relay for continuity.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	4 – 5	Less than 2 ohms

Q: Is the blower relay continuity in good condition?

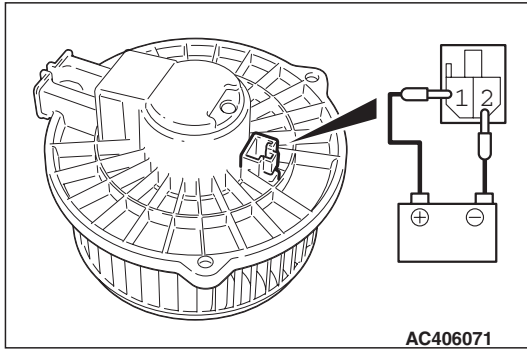
- YES :** Go to Step 5.
NO : Replace the blower relay.



STEP 5. Check blower motor connector C-116 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-116 in good condition?

- YES :** Go to Step 6.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



AC406071

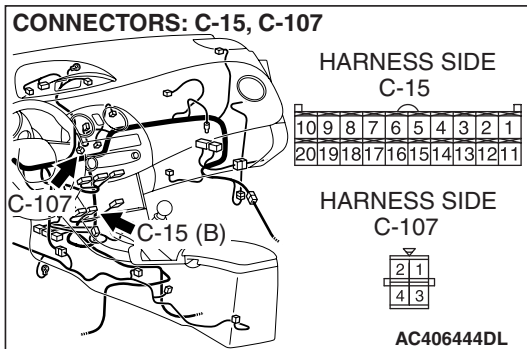
STEP 6. Check the blower fan and motor operation.

When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.

Q: Is there any abnormal noise?

YES : Go to Step 7.

NO : Replace the blower motor.

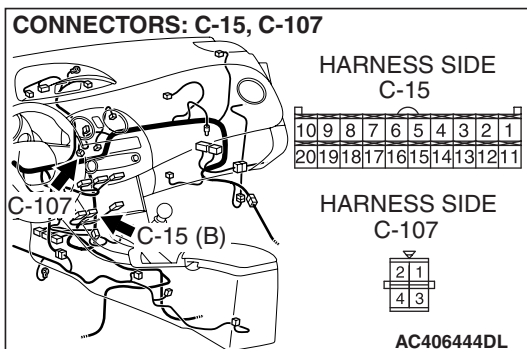


STEP 7. Check A/C-ECU connector C-15 and power transistor connector C-107 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and power transistor connector C-107 in good condition?

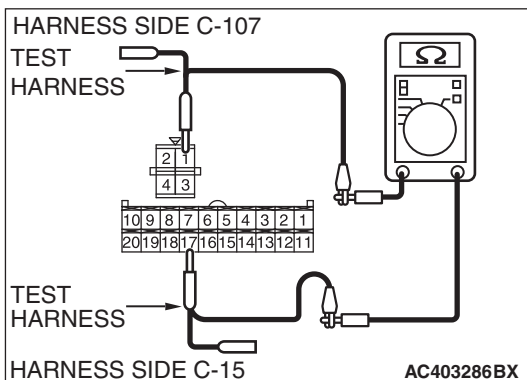
YES : Go to Step 8.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 8. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-15 and power transistor connector C-107, and measure the resistance at the wiring harness side.



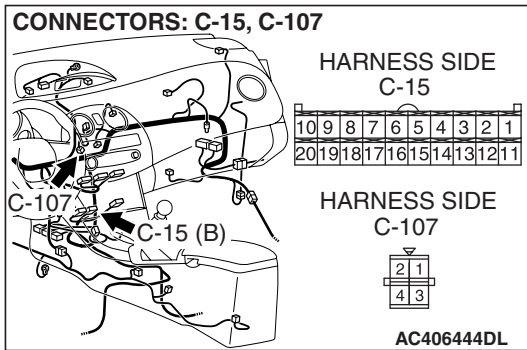
(2) Measure the resistance between A/C-ECU connector C-15 terminal 17 and power transistor connector C-107 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

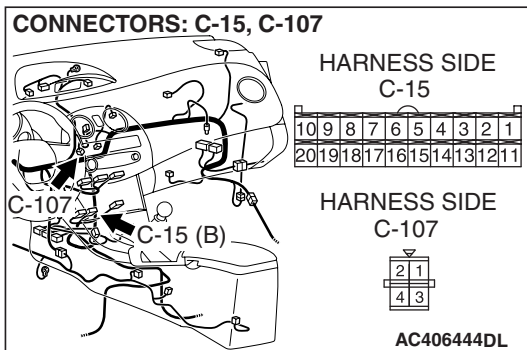
NO : Go to Step 9.



STEP 9. Check the wiring harness between A/C-ECU connector C-15 (terminal 17) and power transistor connector C-107 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 17) and power transistor connector C-107 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.



STEP 10. Check the wiring harness for open circuit.

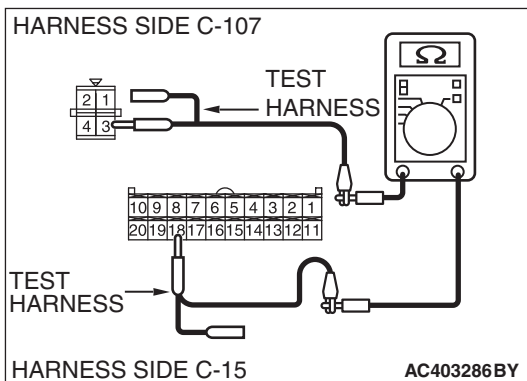
(1) Disconnect A/C-ECU connector C-15 and power transistor connector C-107, and measure the resistance at the wiring harness side.

(2) Measure the resistance between A/C-ECU connector C-15 terminal 18 and power transistor connector C-107 terminal 3.

OK: Less than 2 ohms

Q: Is the check result normal?

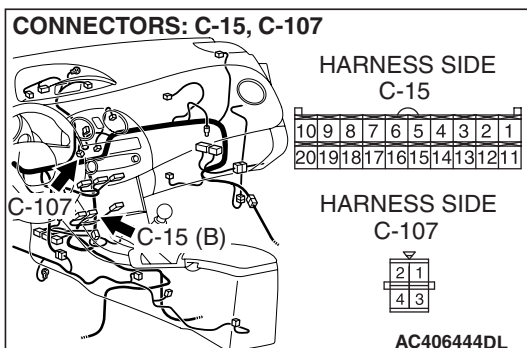
- YES :** Go to Step 12.
- NO :** Go to Step 11.

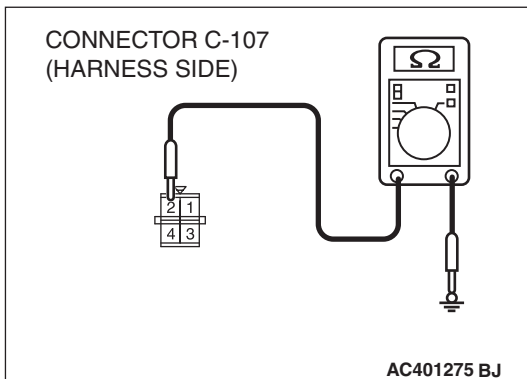
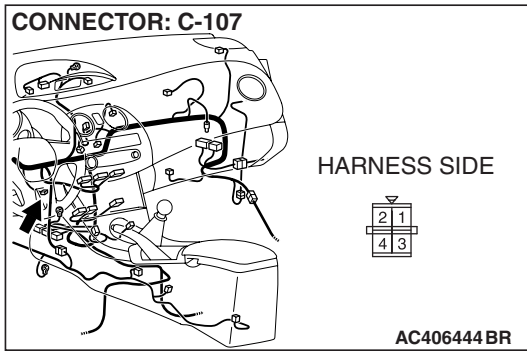


STEP 11. Check the wiring harness between A/C-ECU connector C-15 (terminal 18) and power transistor connector C-107 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 18) and power transistor connector C-107 (terminal 3) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.





STEP 12. Check the wiring harness for open circuit.

- (1) Disconnect power transistor connector C-107, and measure the resistance at the wiring harness side.

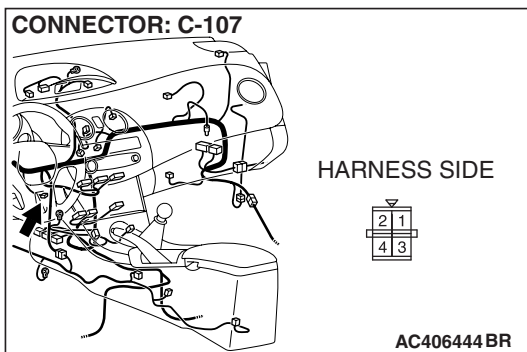
- (2) Measure the resistance between power transistor connector C-107 terminal 2 and ground.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 14.

NO : Go to Step 13.

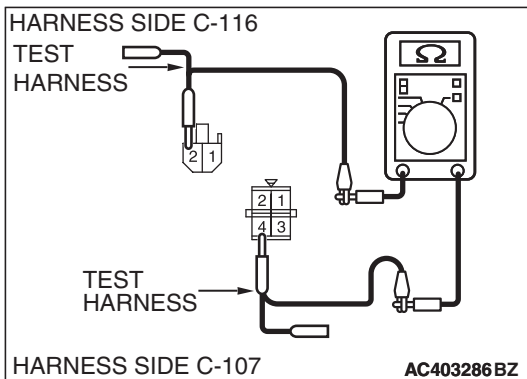
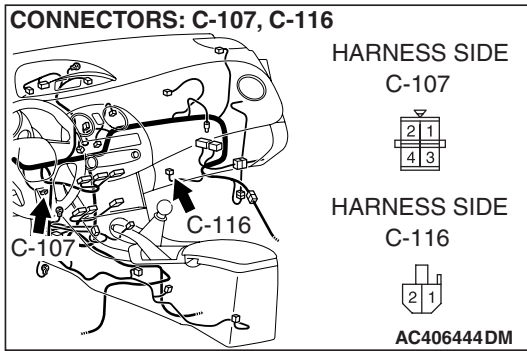


STEP 13. Check the wiring harness between power transistor connector C-107 (terminal 2) and ground.

Q: Is the wiring harness between power transistor connector C-107 (terminal 2) and ground in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 14. Check the wiring harness for open circuit.

- (1) Disconnect blower motor connector C-116 and power transistor connector C-107, and measure the resistance at the wiring harness side.

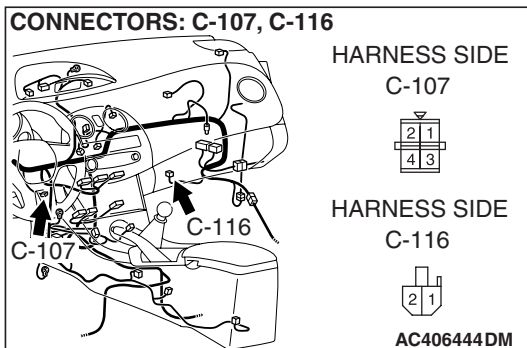
- (2) Measure the resistance between blower motor connector C-116 terminal 2 and power transistor connector C-107 terminal 4.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 16.

NO : Go to Step 15.



STEP 15. Check the wiring harness between blower motor connector C-116 (terminal 2) and power transistor connector C-107 (terminal 4).

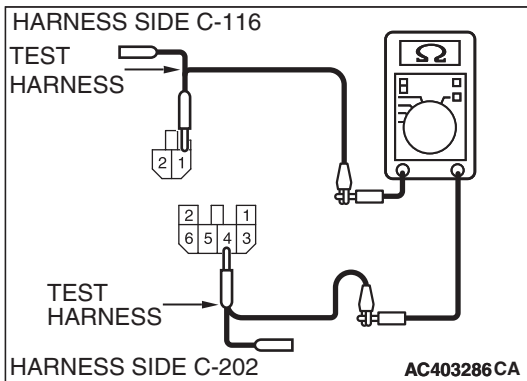
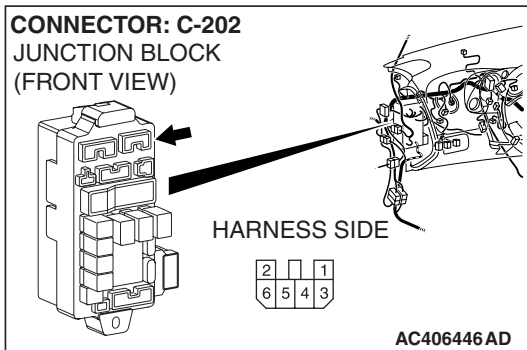
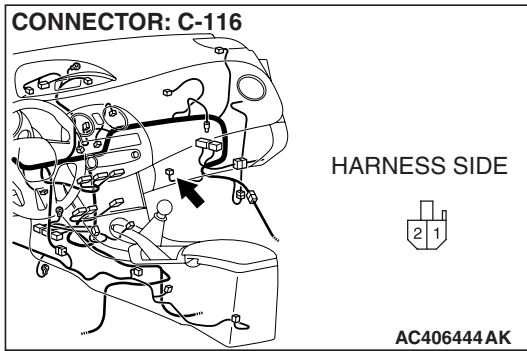
Q: Is the wiring harness between blower motor connector C-116 (terminal 2) and power transistor connector C-107 (terminal 4) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.



STEP 16. Check the wiring harness for open circuit.

- (1) Disconnect blower motor connector C-116 and junction block connector C-202, and measure the resistance at the wiring harness side.

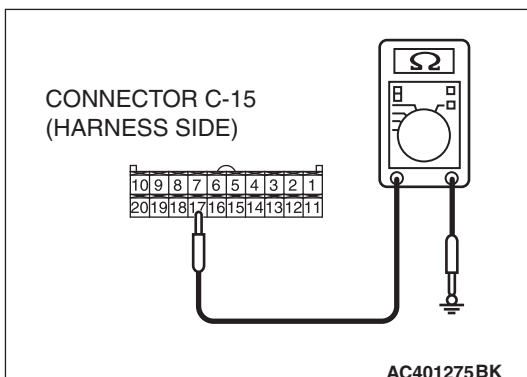
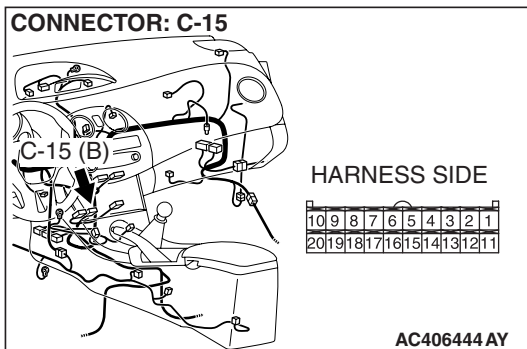
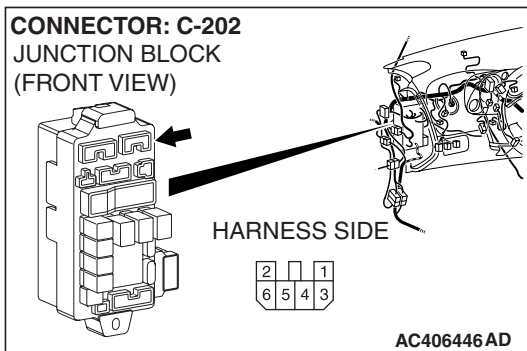
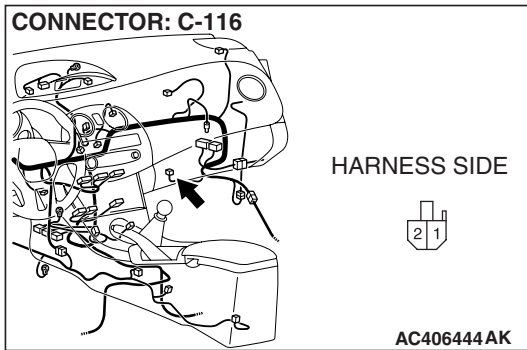
- (2) Measure the resistance between blower motor connector C-116 terminal 1 and junction block connector C-202 terminal 4.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 18.

NO : Go to Step 17.



STEP 17. Check the wiring harness between blower motor connector C-116 (terminal 1) and junction block connector C-202 (terminal 3).

Q: Is the wiring harness between blower motor connector C-116 (terminal 1) and junction block connector C-202 (terminal 3) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.

STEP 18. Measure the resistance at A/C-ECU connector C-15.

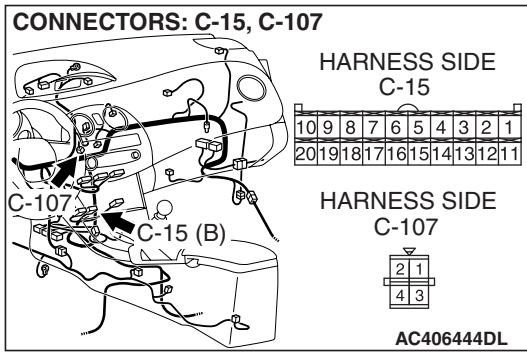
(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 17 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

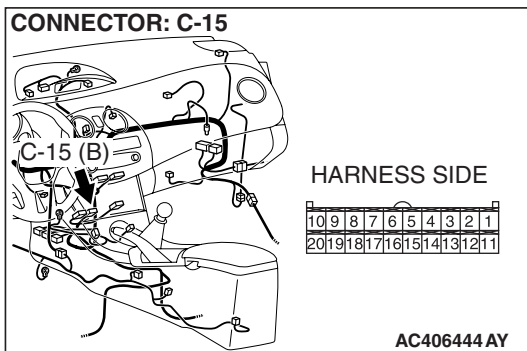
- YES :** Go to Step 20.
- NO :** Go to Step 19.



STEP 19. Check the wiring harness between A/C-ECU connector C-15 (terminal 17) and power transistor connector C-107 (terminal 1).

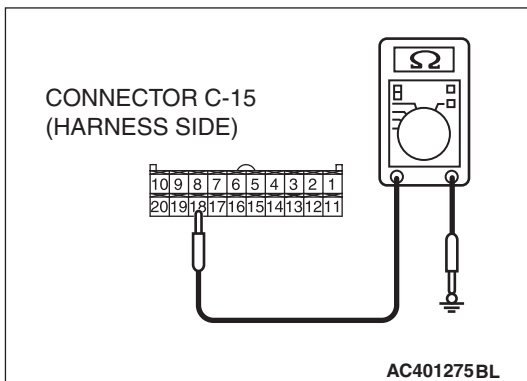
Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 17) and power transistor connector C-107 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.



STEP 20. Measure the resistance at A/C-ECU connector C-15.

(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

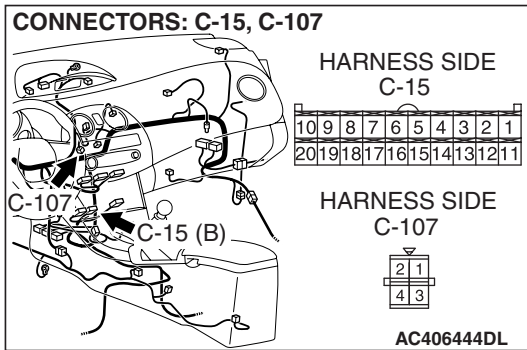


(2) Measure the resistance value between terminal 18 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

- YES :** Go to Step 22.
- NO :** Go to Step 21.



STEP 21. Check the wiring harness between A/C-ECU connector C-15 (terminal 18) and power transistor connector C-107 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 18) and power transistor connector C-107 (terminal 3) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 22. Replace the power transistor and check the trouble symptom again

Check the trouble symptom again.

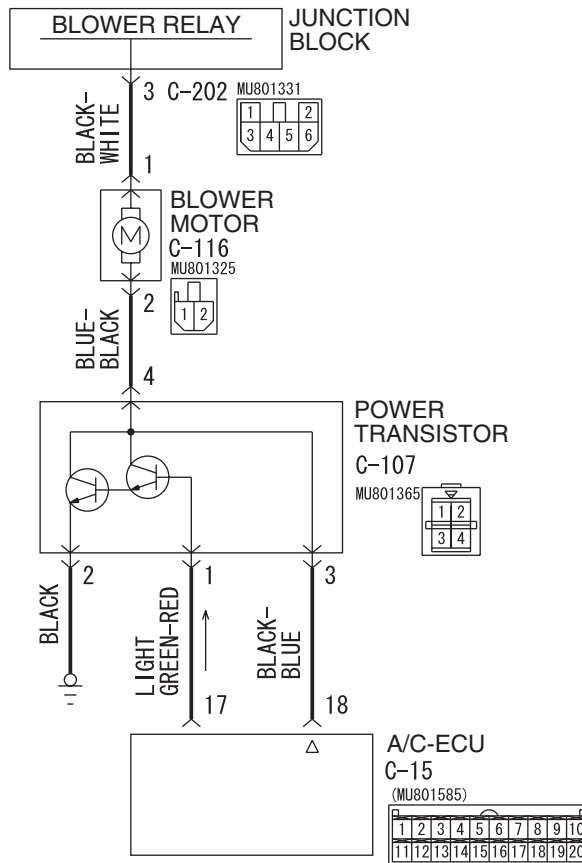
Q: Is the check result satisfactory?

YES : The procedure is complete.

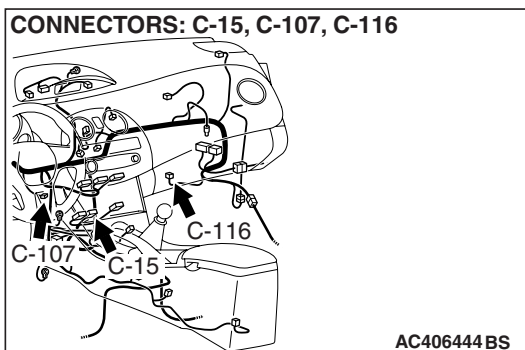
NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 5: Blower Fan and Motor does not Stop Turning.

Blower Motor Circuit



W6P55M017A



FUNCTION

The air from the blower fan is cooled or warmed to control the temperature.

TROUBLESHOOTING HINTS

- Malfunction of connector.

- Malfunction of the harness (Blower motor circuit is shorted to ground)
- Malfunction of the blower motor
- Malfunction of the blower relay
- Malfunction of the power transistor
- Malfunction of the A/C-ECU

DIAGNOSIS

Required Special Tool:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

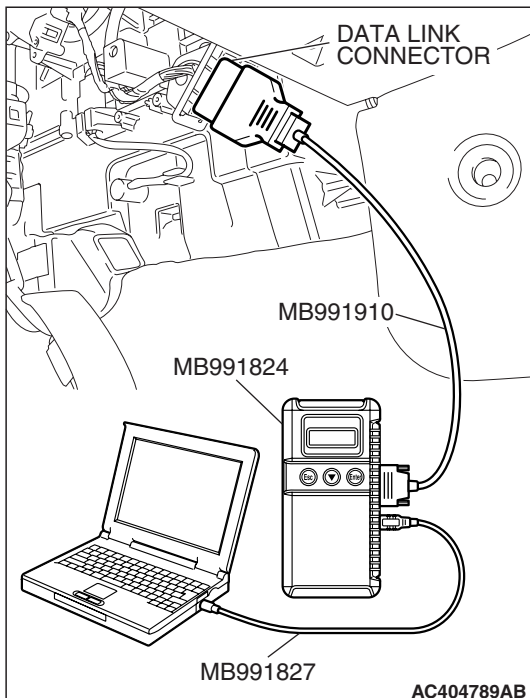
Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart [P.55B-9](#).

NO : Go to Step 2.



STEP 2. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 01: Blower fan: OFF
 - Item 02: Blower fan: 8 step
 - Item 03: Blower fan: 16 step
 - Check that the blower motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Retest the system

Check the trouble symptom again.

Q: Is the check result satisfactory?

- YES :** It can be assumed that this malfunction is intermittent.
Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the A/C-ECU.

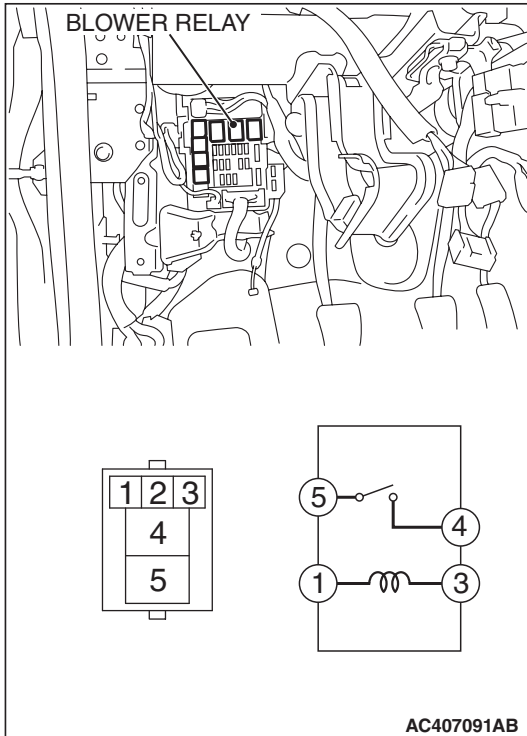
STEP 4. Check the blower relay continuity.

Follow the table below to check the blower relay for continuity.

BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 – 5	Open circuit
<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	4 – 5	Less than 2 ohms

Q: Is the blower relay continuity in good condition?

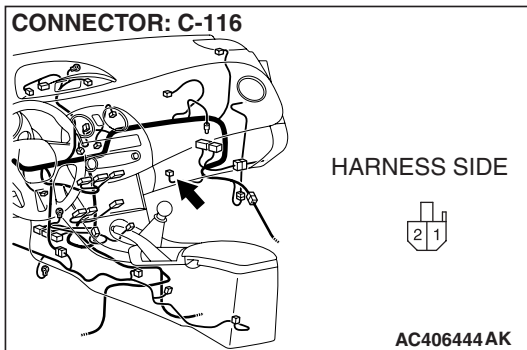
- YES :** Go to Step 5.
- NO :** Replace the blower relay.

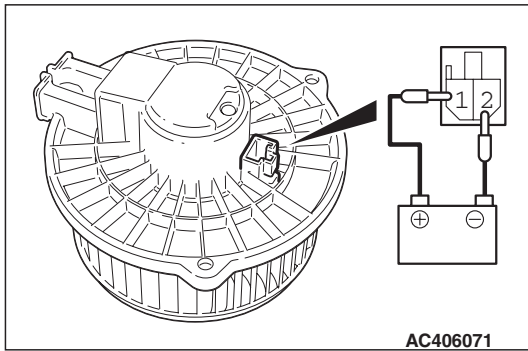


STEP 5. Check blower motor connector C-116 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-116 in good condition?

- YES :** Go to Step 6.
- NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.





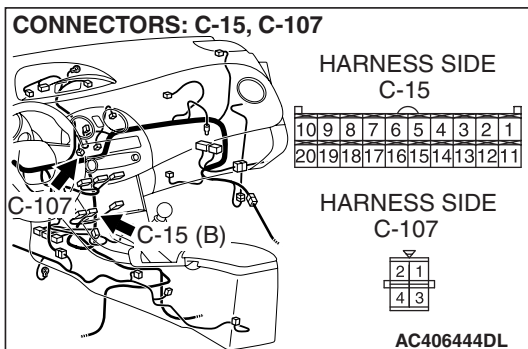
STEP 6. Check the blower fan and motor operation.

When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.

Q: Is there any abnormal noise?

YES : Go to Step 7.

NO : Replace the blower relay.

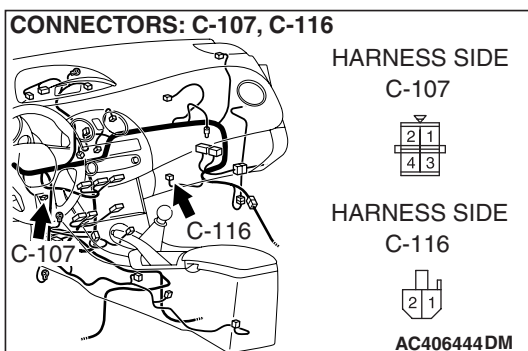


STEP 7. Check A/C-ECU connector C-15 and power transistor connector C-107 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-15 and power transistor connector C-107 in good condition?

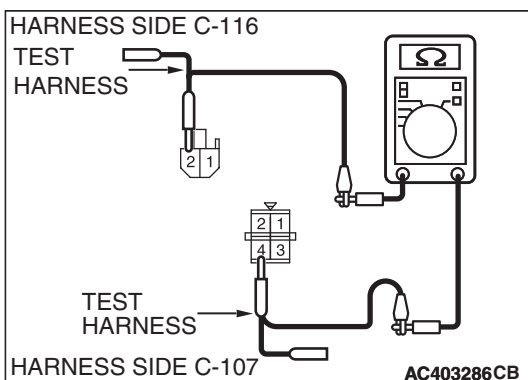
YES : Go to Step 8.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 8. Check the wiring harness for open circuit.

(1) Disconnect blower motor connector C-116 and power transistor connector C-107, and measure the resistance at the wiring harness side.



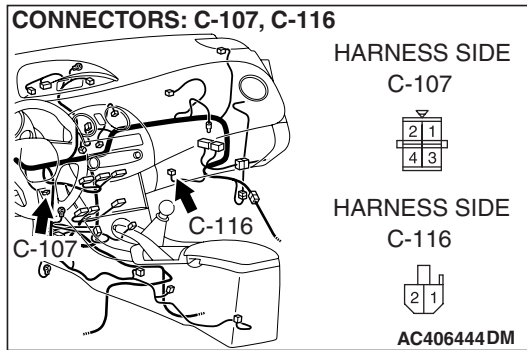
(2) Measure the resistance between blower motor connector C-116 terminal 2 and power transistor connector C-107 terminal 4.

OK: 1.5 ohm or more

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.



STEP 9. Check the wiring harness between blower motor connector C-116 (terminal 2) and power transistor connector C-107 (terminal 4).

Q: Is the wiring harness between blower motor connector C-116 (terminal 2) and power transistor connector C-107 (terminal 4) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair the wiring harness.

STEP 10. Replace the power transistor and check the trouble symptom again

Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 6: When the A/C is Operating, Temperature Inside the Passenger Compartment does not Decrease (Cool Air is not Emitted).

PROBABLE CAUSES

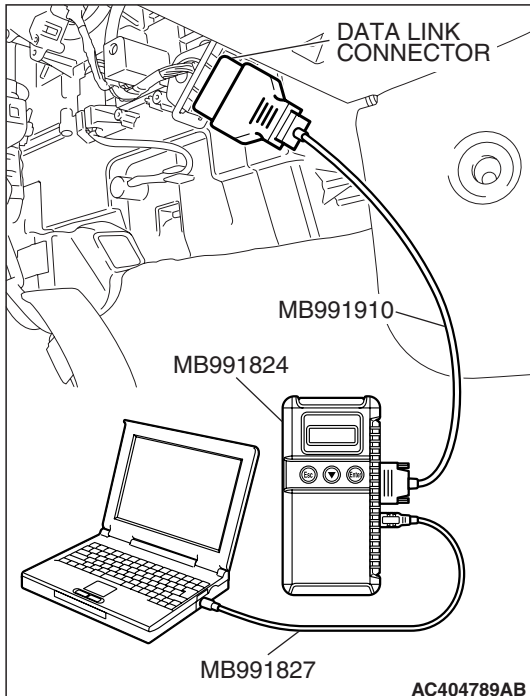
- Improper amount of refrigerant

- Malfunction of the A/C-ECU

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart [P.55B-9](#).

NO : Go to Step 2.

STEP 2. Using scan tool MB991958 read the ECM <M/T> or PCM <A/T> diagnostic trouble code.

Check whether engine or automatic transaxle DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for engine and automatic transaxle DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.

NO : Diagnose the ECM <M/T> or PCM <A/T> (Refer to GROUP 13B, Diagnostic Trouble Code [P.13B-43](#) <3.8L ENGINE>).

STEP 3. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 77: Condenser fan: 0%
 - Item 78: Condenser fan: 100%
 - Item 79: Condenser fan: 50%
 - Check that the condenser motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 4.

NO : Refer to Inspection procedure 9, "The condenser fan and the radiator fan do not operate [P.55B-171](#)."

STEP 4. Check the A/C compressor operation.

Does the A/C compressor operate?

Q: Is the check result satisfactory?

YES : Go to Step 5.

NO : Refer to Inspection procedure 10, "The compressor does not work [P.55B-123](#)."

STEP 5. Using scan tool MB991958, check actuator test.

(1) Connect scan tool MB991958 to the data link connector.

(2) Start the engine.

(3) Use scan tool MB991958 to run the actuator test.

Item 42: air mix damper motor 0% (MAX COOL position)

Item 43: air mix damper motor 100% (MAX HOT position)

Item 44: air mix damper motor 50% (middle position)

- Check that the air mixing damper control motor operates.

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

STEP 7. Check the refrigerant level.

Refer to [P.55A-185](#).

Q: Is the check result satisfactory?

YES : Go to Step 8.

NO : Replenish the refrigerant.

STEP 8. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

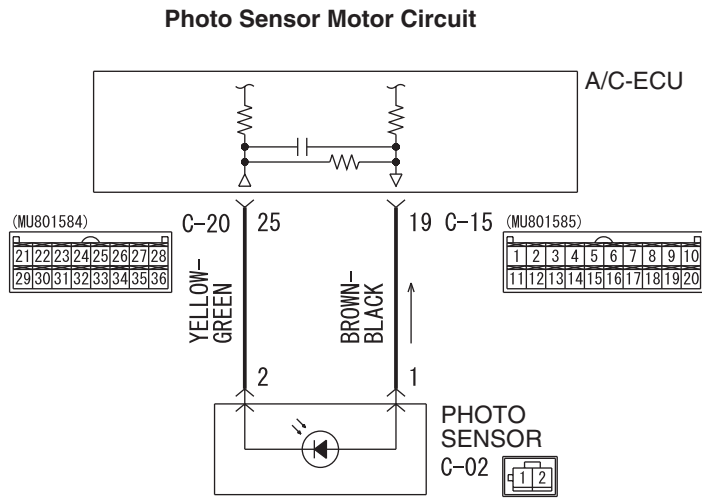
YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

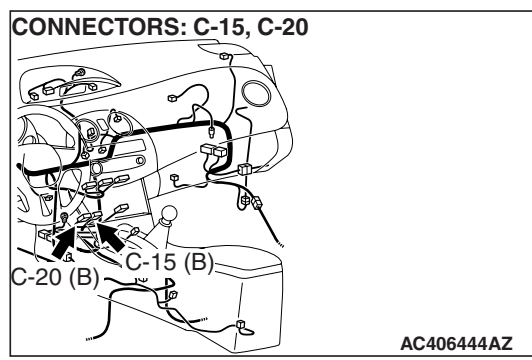
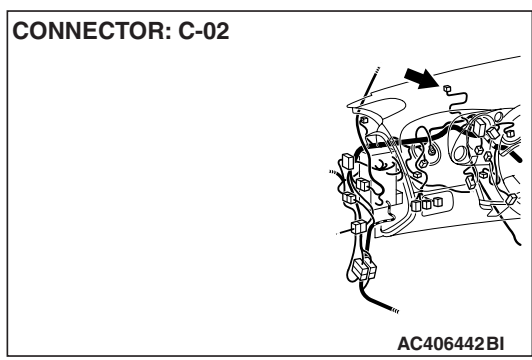
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 7: When Sunlight Intensity Changes, Air Outlet Temperature does not Change.



W6P55M022A



FUNCTION

The resistance of the photo sensor varies by the volume of the insulation intensity of sun light, and the sensor sends the information to the A/C-ECU to control the temperature.

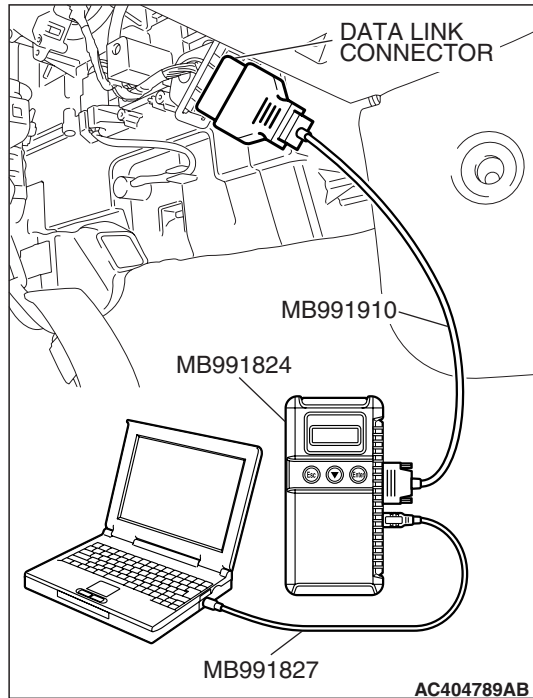
PROBABLE CAUSES

- Malfunction of the harness (photo sensor circuit is open/shorted to ground)
- Malfunction of the photo sensor
- Malfunction of the A/C-ECU
- Malfunction of connector.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using scan tool MB991958, read diagnostic trouble code.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

Check if an A/C-ECU DTC is set.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Check if the DTC is set.
4. Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart [P.55B-9](#).

NO : Go to Step 2.

STEP 2. Using scan tool MB991958, check data list.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Set scan tool MB991958 to the data reading mode.
 - Item 06: Photo sensor
- (4) Cover the photo sensor with your hand or a shop towel.

NOTE: Check that the voltage displayed on the scan tool changes.

- (5) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the voltage displayed on the scan tool change when the photo sensor is covered?

YES : Go to Step 3.

NO : Go to Step 4.

STEP 3. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

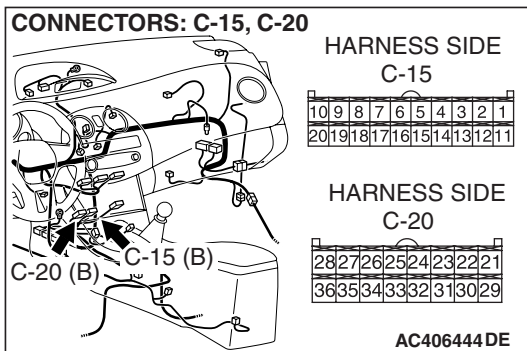
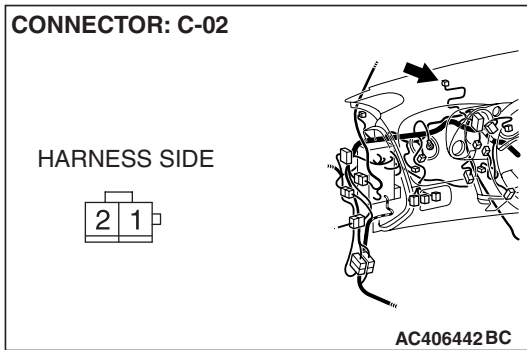
NO : Replace the A/C-ECU.

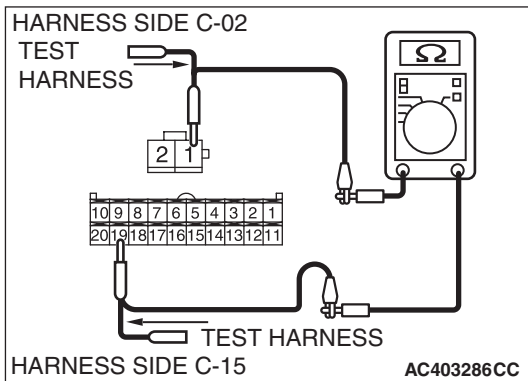
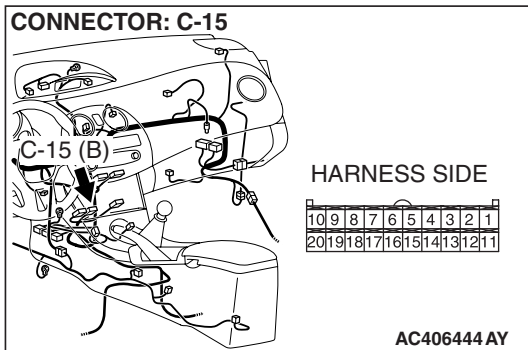
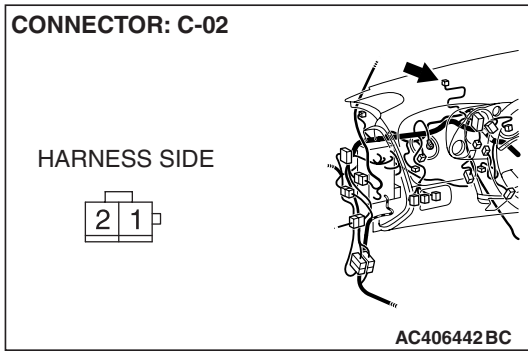
STEP 4. Check A/C-ECU connectors C-15, C-20 and photo sensor connector C-02 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-15, C-20 and photo sensor connector C-02 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the air conditioning works normally.





STEP 5. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-15 and photo sensor connector C-02, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-15 terminal 19 and photo sensor connector C-02 terminal 1.

OK: Less than 2 ohms

Q: Is the check result normal?

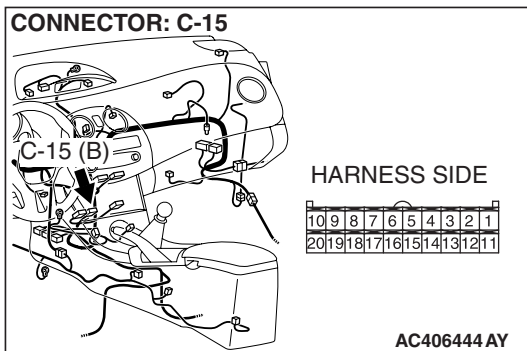
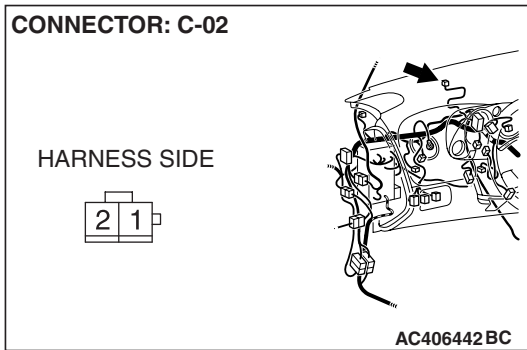
YES : Go to Step 7.

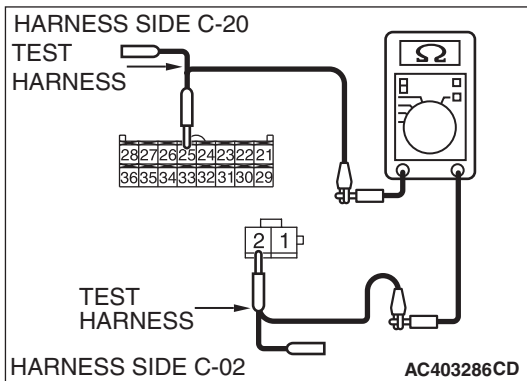
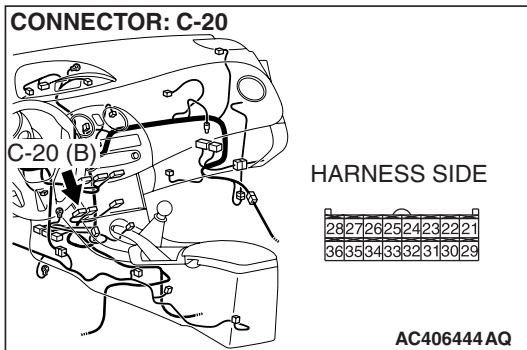
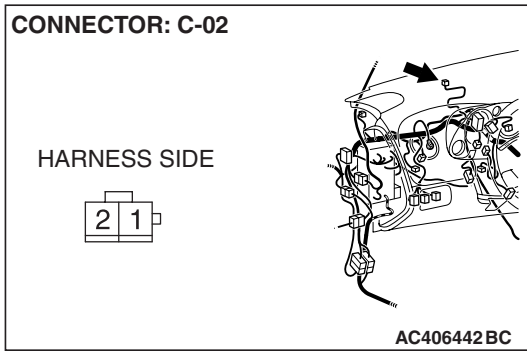
NO : Go to Step 6.

STEP 6. Check the wiring harness between A/C-ECU connector C-15 (terminal 19) and photo sensor connector C-02 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 19) and photo sensor connector C-02 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).
- NO :** Repair the wiring harness.





STEP 7. Check the wiring harness for open circuit.

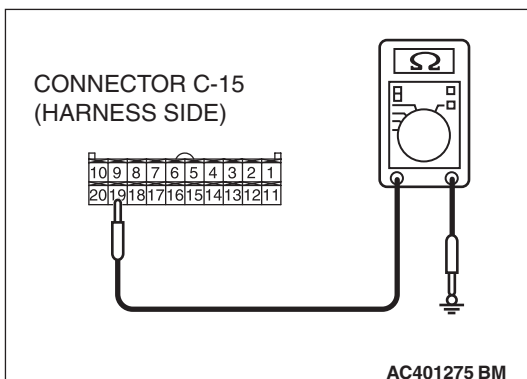
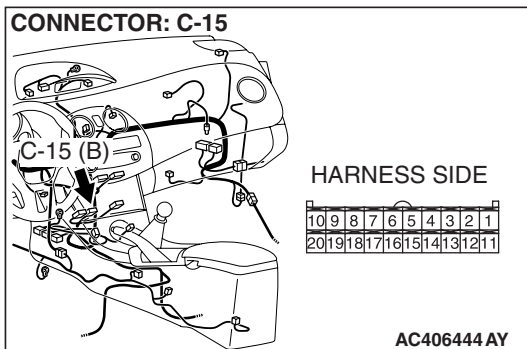
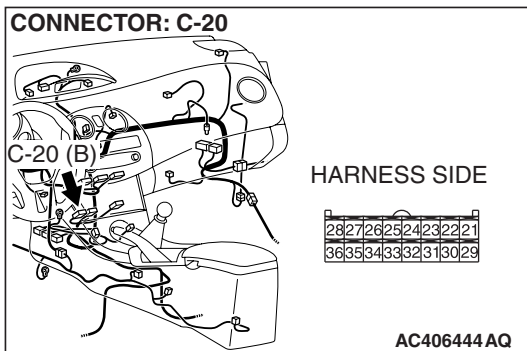
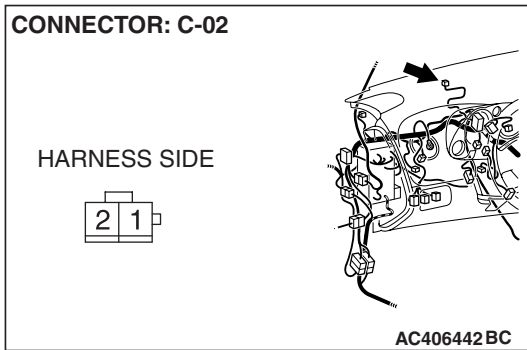
- (1) Disconnect A/C-ECU connector C-20 and photo sensor connector C-02, and measure the resistance at the wiring harness side.

- (2) Measure the resistance between A/C-ECU connector C-20 terminal 25 and photo sensor connector C-02 terminal 2.

OK: Less than 2 ohms

Q: Is the check result normal?

- YES :** Go to Step 9.
NO : Go to Step 8.



STEP 8. Check the wiring harness between A/C-ECU connector C-20 (terminal 25) and photo sensor connector C-02 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 25) and photo sensor connector C-02 (terminal 2) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.

STEP 9. Measure the resistance at A/C-ECU connector C-15.

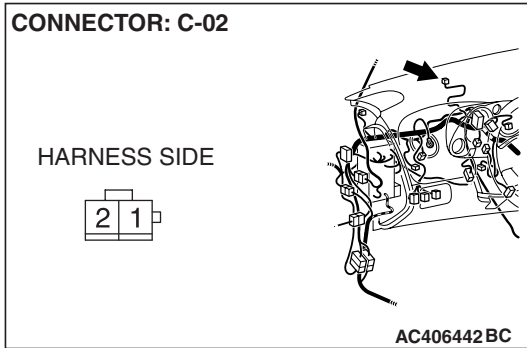
(1) Disconnect A/C-ECU connector C-15, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 19 and ground.

OK: 1.5 kΩ or more

Q: Does the measured resistance value correspond with this range?

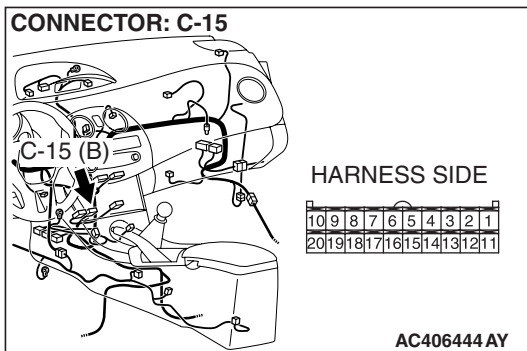
- YES :** Go to Step 11.
- NO :** Go to Step 10.



STEP 10. Check the wiring harness between A/C-ECU connector C-15 (terminal 19) and photo sensor connector C-02 (terminal 1).

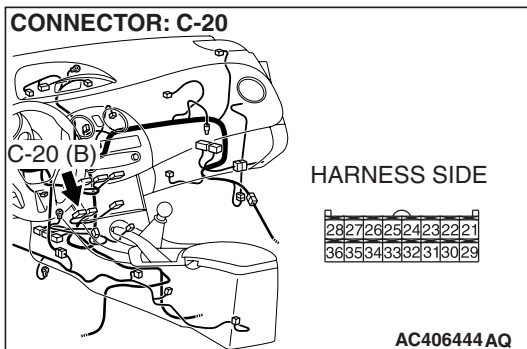
Q: Is the wiring harness between A/C-ECU connector C-15 (terminal 19) and photo sensor connector C-02 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.



STEP 11. Measure the resistance at A/C-ECU connector C-20.

(1) Disconnect A/C-ECU connector C-20, and measure the resistance at the wiring harness side.

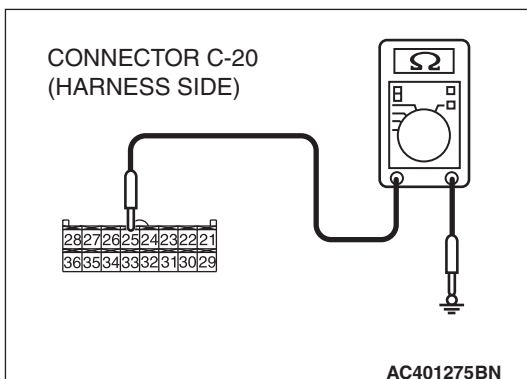


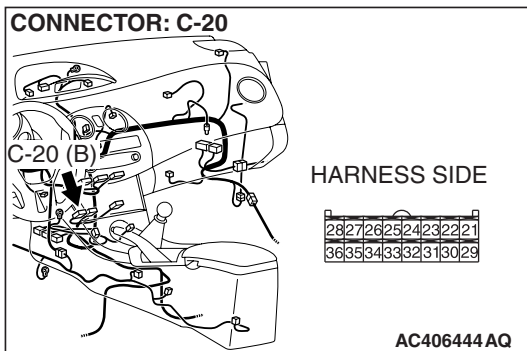
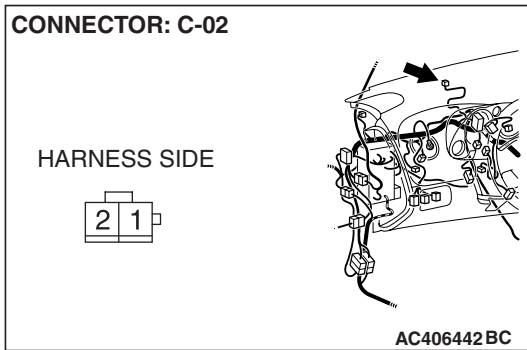
(2) Measure the resistance value between terminal 25 and ground.

OK: 1.5 kΩ or more

Q: Does the measured resistance value correspond with this range?

- YES :** Go to Step 13.
- NO :** Go to Step 12.





STEP 12. Check the wiring harness between A/C-ECU connector C-20 (terminal 25) and photo sensor connector C-02 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 25) and photo sensor connector C-02 (terminal 2) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).
- NO :** Repair the wiring harness.

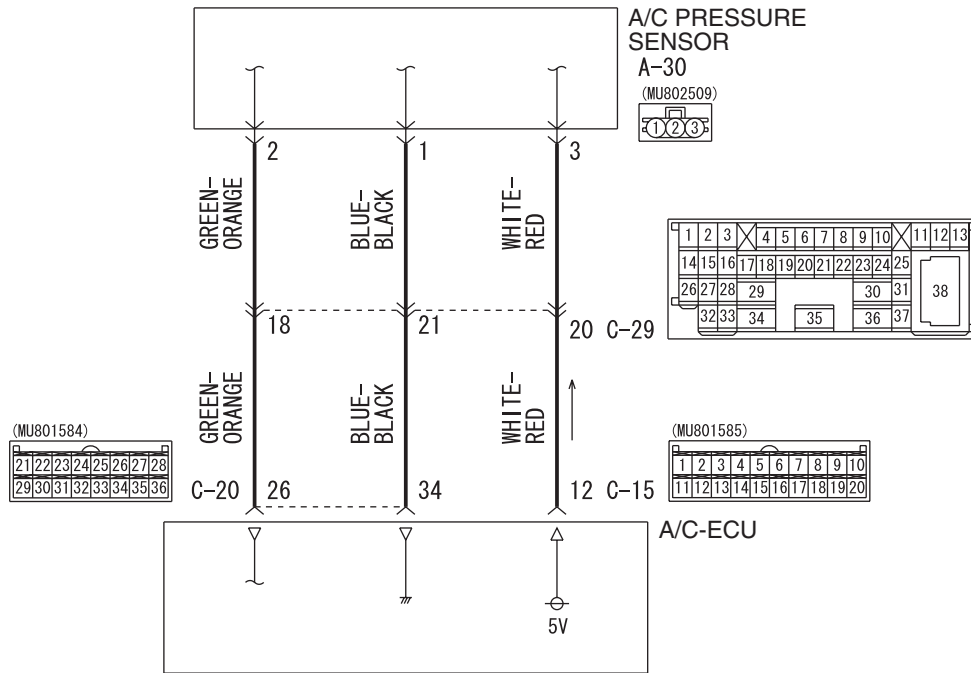
STEP 13. Replace the photo sensor and check the trouble symptom again.

Q: Is the check result normal?

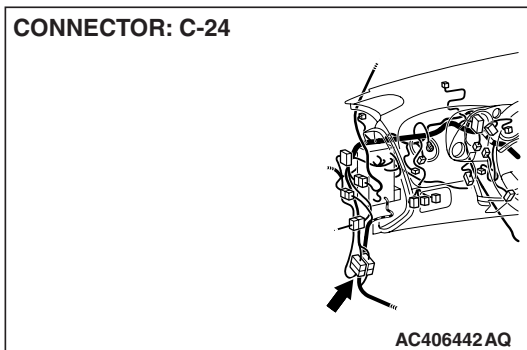
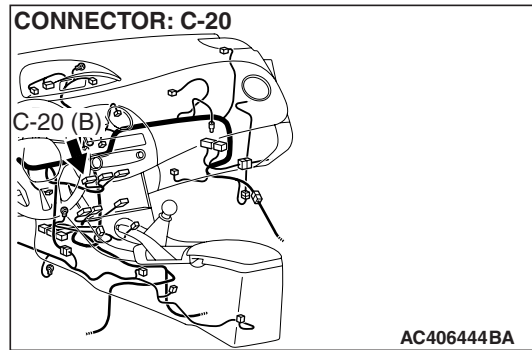
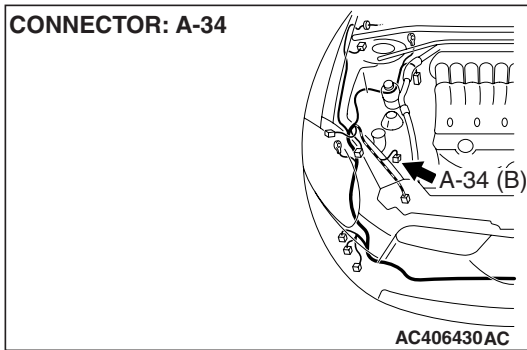
- YES :** The procedure is complete.
- NO :** Replace the A/C-ECU.

INSPECTION PROCEDURE 8: The condenser fan and the radiator fan turn at full speed.

A/C Pressure Sensor Circuit



W6P55M019A



FUNCTION

The condenser turns the high-temperature and high-pressure refrigerant into liquid by cooling it down with fresh air, and it is cooled down by the air from the condenser fan.

PROBABLE CAUSES

- Malfunction of connector.
- Malfunction of the harness (Pressure sensor circuit is open)
- Malfunction of the A/C pressure sensor.
- Malfunction of the condenser fan motor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

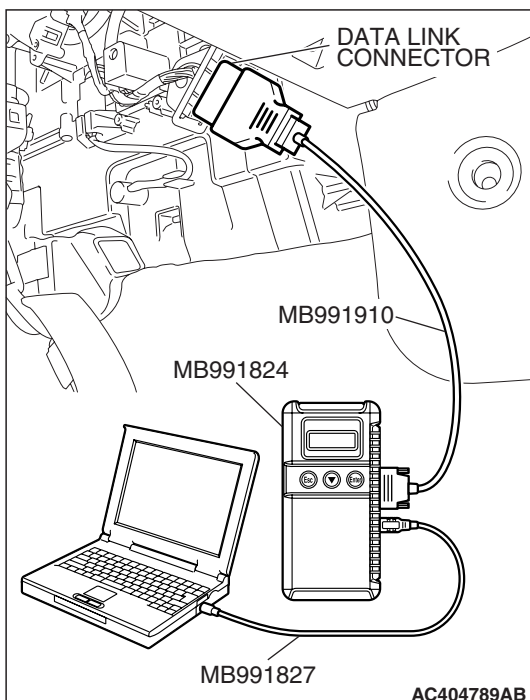
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus lines (Refer to GROUP 54C, precautions on how to repair the can bus lines [P.54C-5](#)).



STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

Check if an A/C-ECU DTC is set.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check if the DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart [P.55B-9](#).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958 read the ECM <M/T> or PCM <A/T> diagnostic trouble code.

Check whether an engine and automatic transaxle DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for engine and automatic transaxle DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 4.

NO : Diagnose the powertrain control module (Refer to GROUP 13B, Diagnostic Trouble Code [P.13B-43](#) <3.8L ENGINE>).

STEP 4. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) Use scan tool MB991958 to run the actuator test.
 - Item 77: Condenser fan: 0%
 - Item 78: Condenser fan: 100%
 - Item 79: Condenser fan: 50%
 - Check that the condenser fan motor operates.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the motor operate normally?

YES : Go to Step 5.

NO : Go to Step 6.

STEP 5. Retest the system.

Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the A/C-ECU.

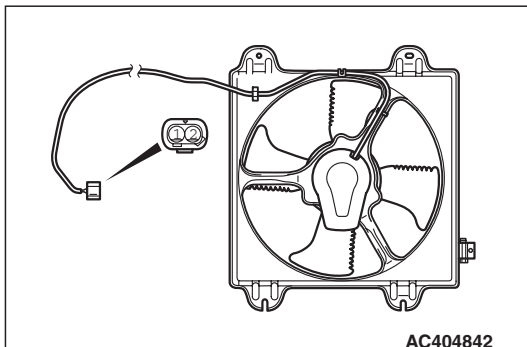
STEP 6. Check the condenser fan motor operation.

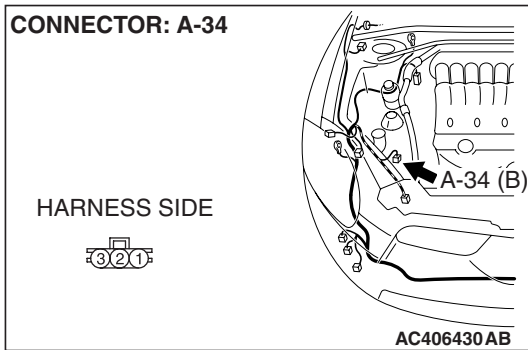
When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.

Q: Is there any abnormal noise?

YES : Go to Step 7.

NO : Diagnose the ECM <M/T> or PCM <A/T> (Refer to GROUP 13B, Diagnostic Trouble Code [P.13B-48](#) <3.8L ENGINE>).



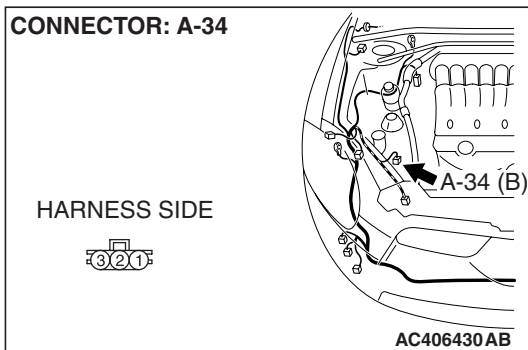


STEP 7. Check A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C pressure sensor connector A-34 in good condition?

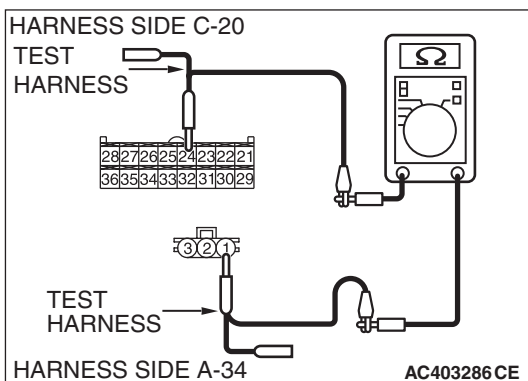
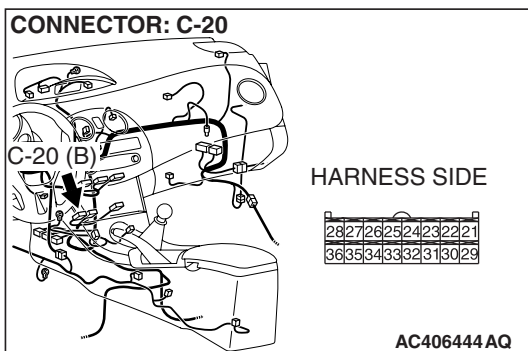
YES : Go to Step 8.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 8. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-20 and A/C pressure sensor connector A-34, and measure the resistance at the wiring harness side.



(2) Measure the resistance between A/C-ECU connector C-20 terminal 34 and A/C pressure sensor connector A-34 terminal 1.

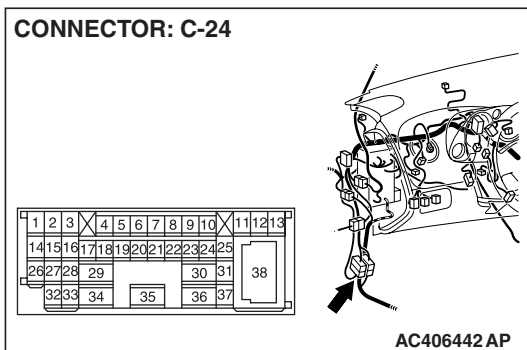
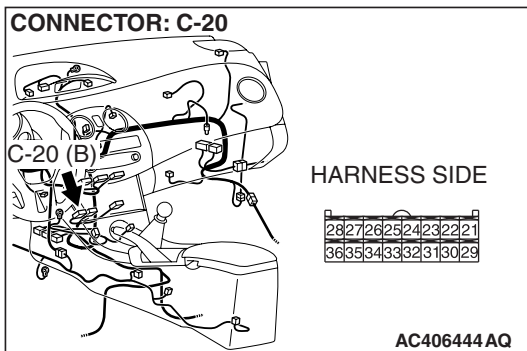
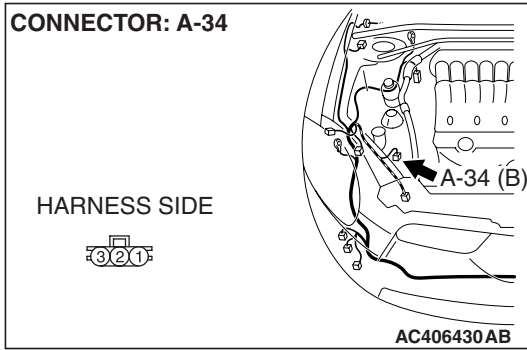
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between A/C-ECU connector C-20 (terminal 34) and A/C pressure sensor connector A-34 (terminal 1).



NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-20 (terminal 34) and A/C pressure sensor connector A-34 (terminal 1) in good condition?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Repair the wiring harness.

STEP 10. Retest the system.

Check that the condenser works normally.

Q: Is the check result satisfactory?

- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the A/C-ECU.

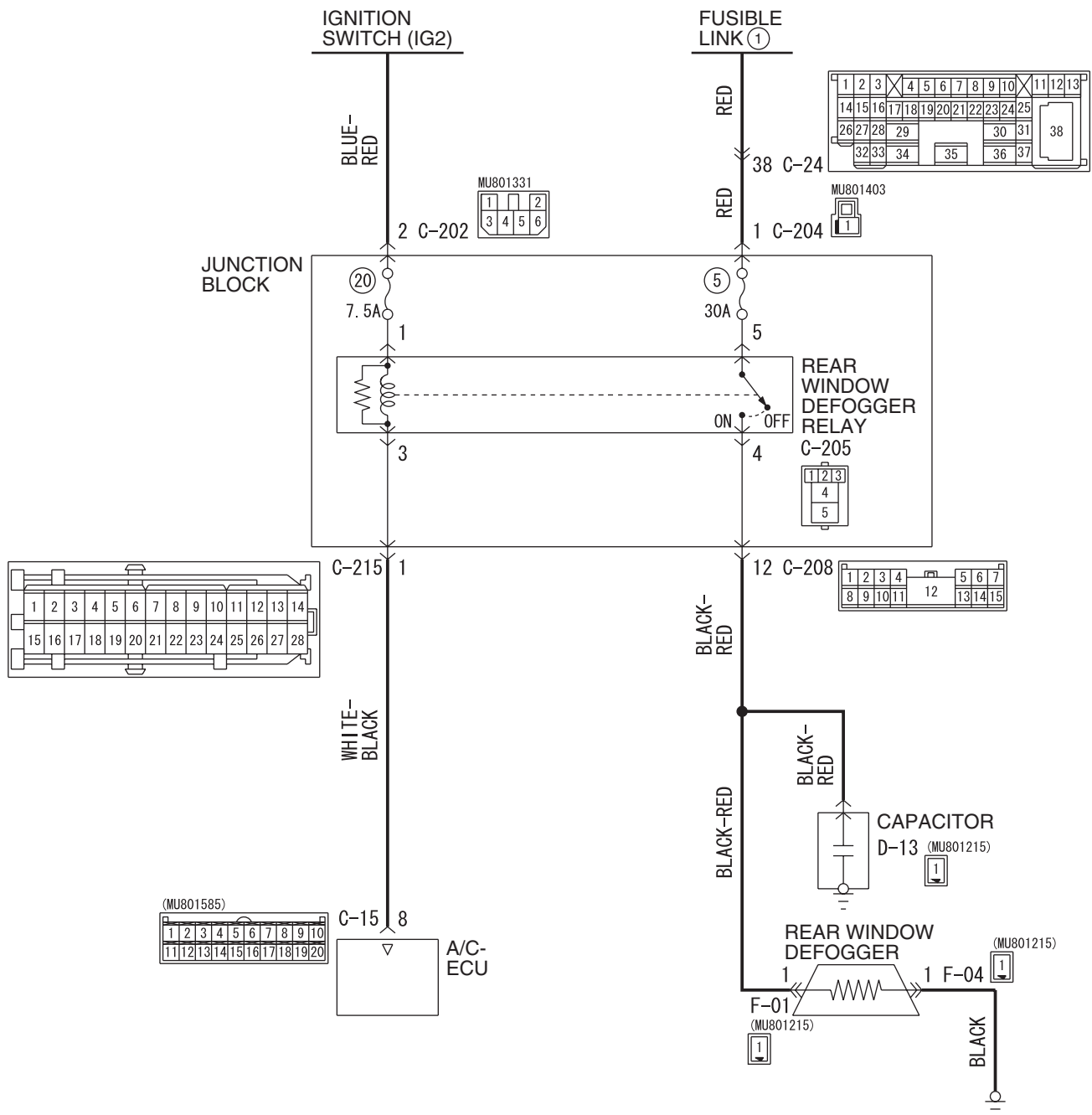
INSPECTION PROCEDURE 9: The condenser fan and the radiator fan do not operate.

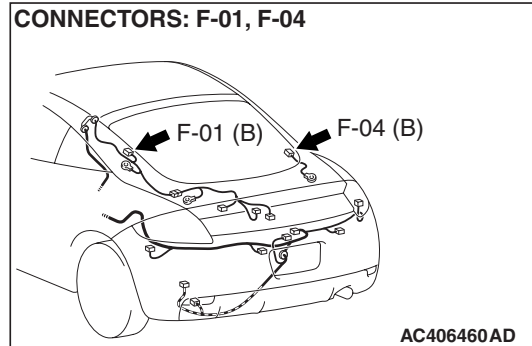
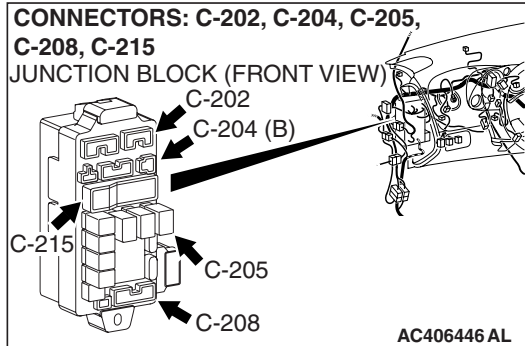
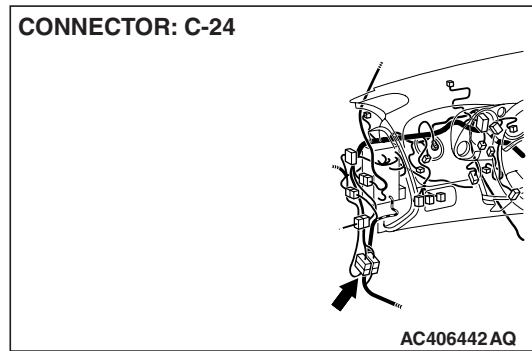
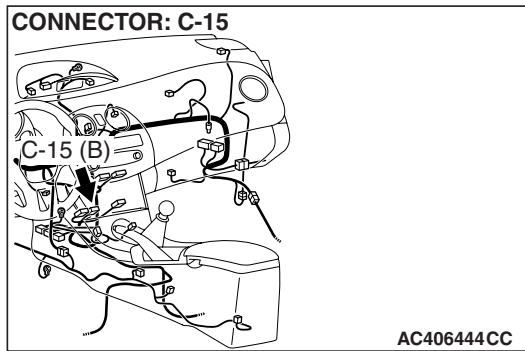
DIAGNOSIS

Refer to GROUP 14, Symptom Chart P.14-4.

INSPECTION PROCEDURE 10: Rear Window Defogger Function does not Operate.

Rear Window Defogger Circuit





TECHNICAL DESCRIPTION (COMMENT)

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.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

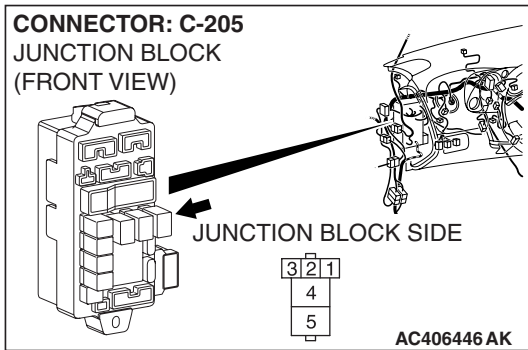
- MB991223: Harness Set
- MB992006: Extra Fine Probe

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 1, "Malfunction of the A/C-ECU power supply system [P.55B-107](#)."

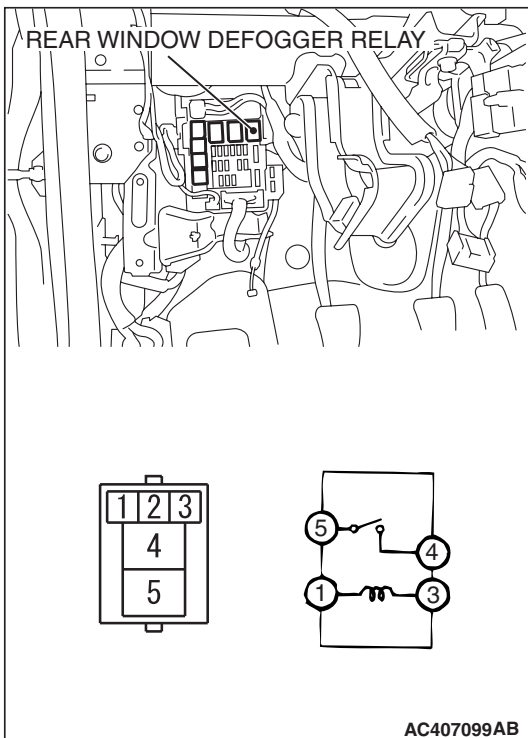


STEP 2. Check rear window defogger relay connector C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger relay connector C-205 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



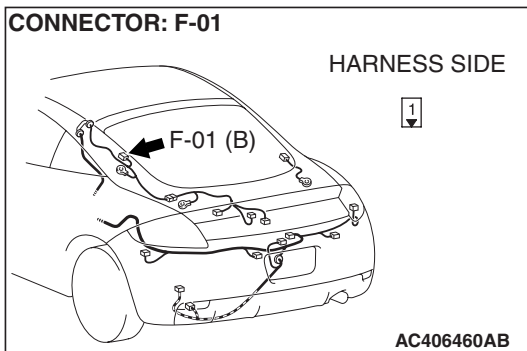
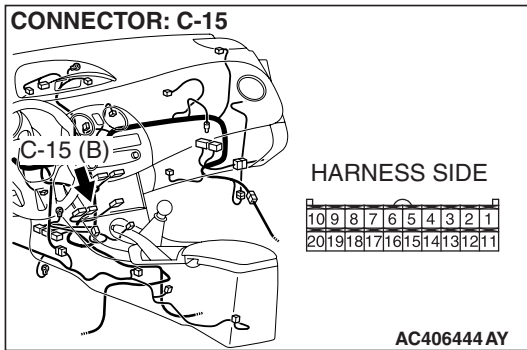
STEP 3. Check the rear window defogger relay continuity.
Follow the table below to check the rear window defogger relay for continuity.

BATTERY VOLTAGE	CONNECT TESTER BETWEEN	SPECIFIED CONDITION
Not applied	4 – 5	Open Circuit
<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	4 – 5	Less than 2 ohms

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

YES : Go to Step 4.

NO : Replace the rear window defogger relay.

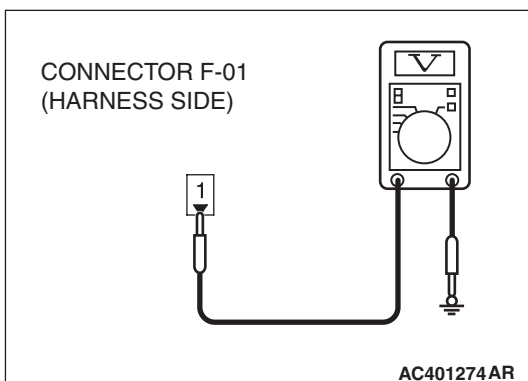
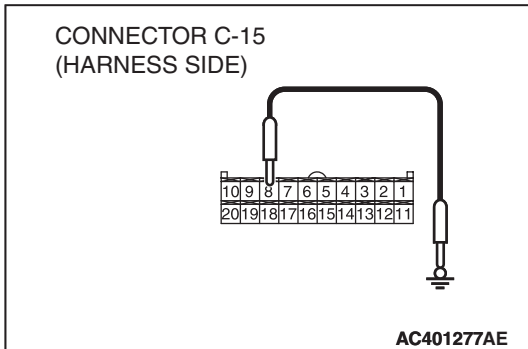
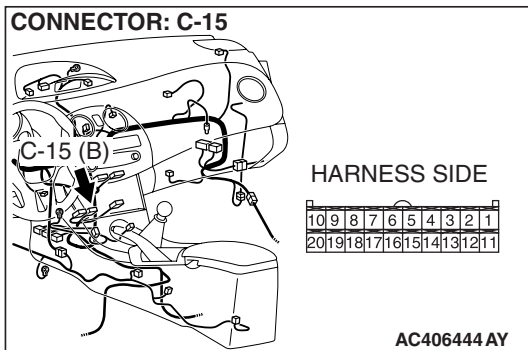
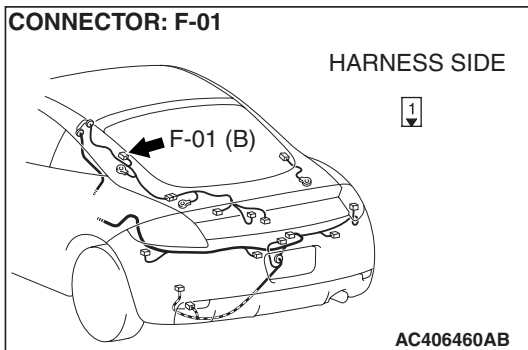


STEP 4. Check A/C-ECU connector C-15 and rear window defogger connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-15 and rear window defogger connector F-01 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



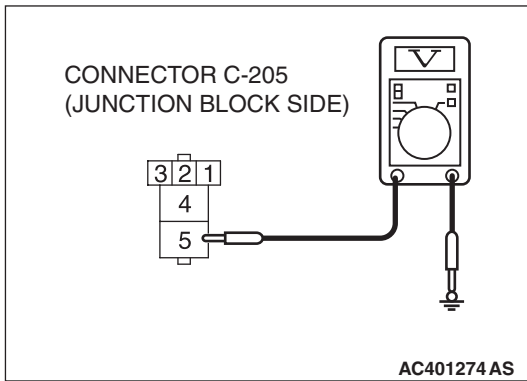
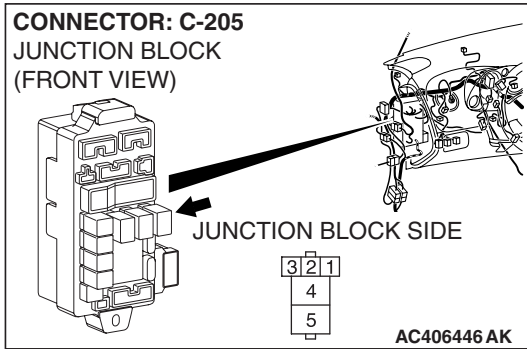
STEP 5. Measure the voltage at rear window defogger connector F-01.

- (1) Disconnect rear window defogger connector F-01, and measure the voltage at the harness side.
- (2) Disconnect A/C-ECU connector C-15 and ground harness side terminal No.8.
- (3) Turn the ignition switch to the "ON" position.
- (4) Measure the voltage between rear window defogger connector F-01 terminal No.1 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 12.

NO : Go to Step 6.



STEP 6. Measure the voltage at rear window defogger relay connector C-205.

(1) Disconnect rear window defogger relay connector C-205, and measure the voltage at the junction block side.

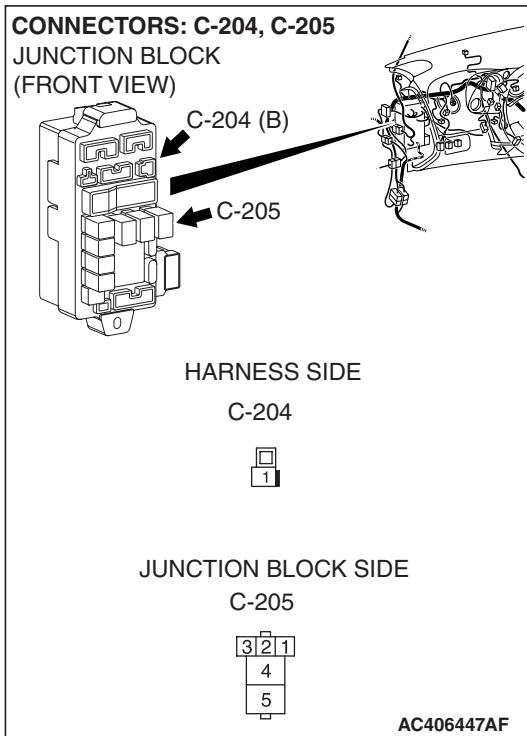
(2) Measure the voltage between terminal 5 and ground.

- The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

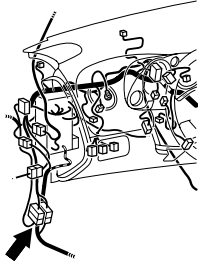
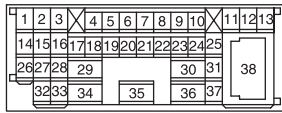
YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the wiring harness between rear window defogger relay connector C-205 (terminal 5) and the fusible link (1).

CONNECTOR: C-24



AC406442 AP

NOTE: Also check intermediate connector C-24 and junction block connector C-204 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 and junction block connector C-204 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

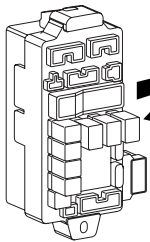
Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 5) and the fusible link (1) in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

**CONNECTOR: C-205
JUNCTION BLOCK
(FRONT VIEW)**



JUNCTION BLOCK SIDE



AC406446 AK

STEP 8. Measure the voltage at rear window defogger relay connector C-205.

- (1) Disconnect rear window defogger relay connector C-205, and measure the voltage at the junction block side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 1 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 10.

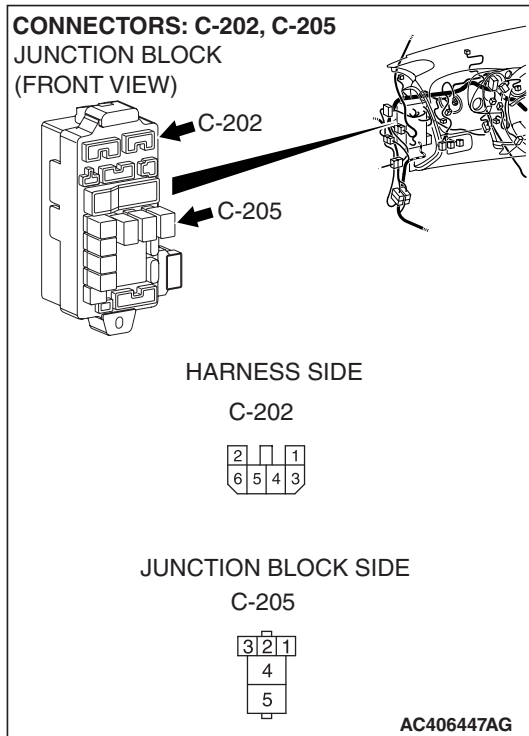
NO : Go to Step 9.

**CONNECTOR C-205
(JUNCTION BLOCK SIDE)**



AC401274AT

STEP 9. Check the wiring harness between rear window defogger relay connector C-205 (terminal 1) and ignition switch (IG2).



NOTE: Also check junction block connector C-202 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-202 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 1) and ignition switch (IG2) in good condition?

YES : It can be assumed that this malfunction is intermittent.

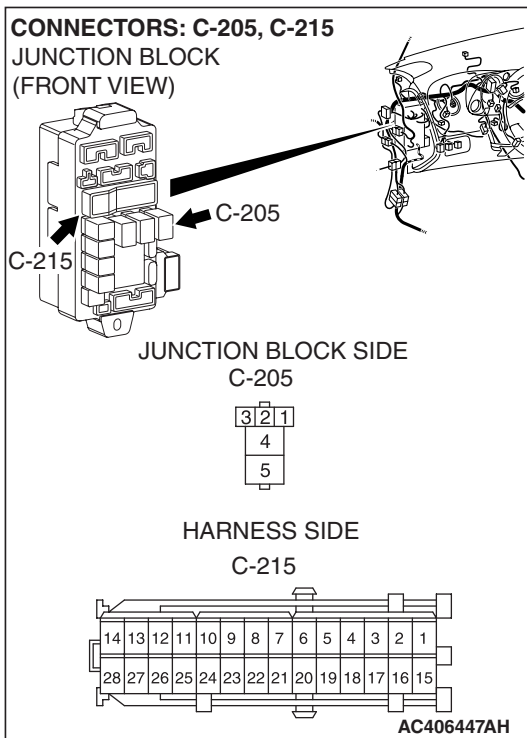
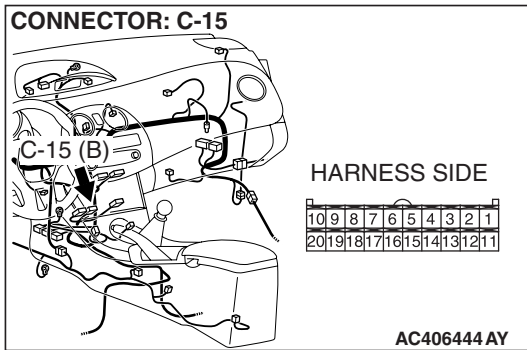
Refer to GROUP 00, How to Use

Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#).

STEP 10. Check the wiring harness between rear window defogger relay connector C-205 (terminal 3) and A/C-ECU connector C-15 (terminal 8).



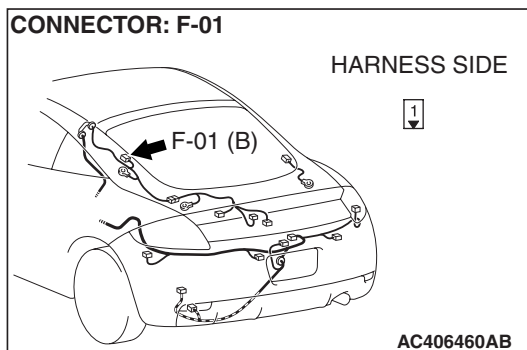
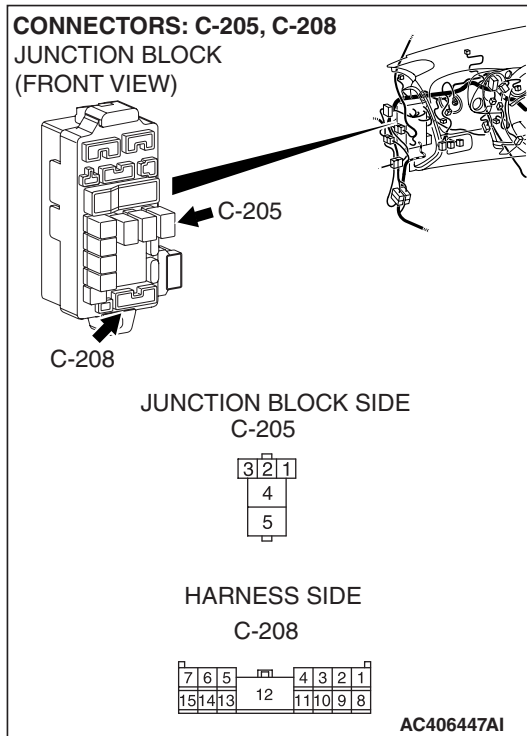
NOTE: Also check junction block connector C-215 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 is damaged, repair or replace the connector as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 3) and A/C-ECU connector C-15 (terminal 8) in good condition?

YES : Go to Step 11.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

STEP 11. Check the wiring harness between rear window defogger relay connector C-205 (terminal 4) and rear window defogger connector F-01 (terminal 1).



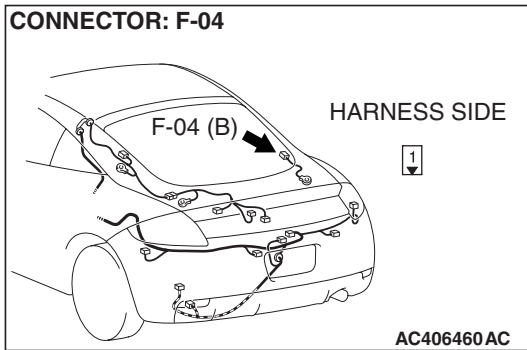
NOTE: Also check junction block connector C-208 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-208 is damaged, repair or replace the connector as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 4) and rear window defogger connector F-01 (terminal 1) in good condition?

YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair or replace the wiring harness. Refer to GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

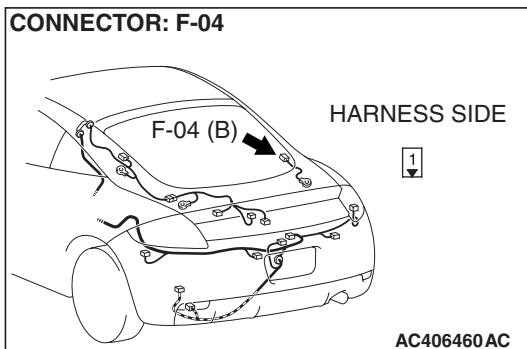


STEP 12. Check rear window defogger connector F-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger connector F-04 in good condition?

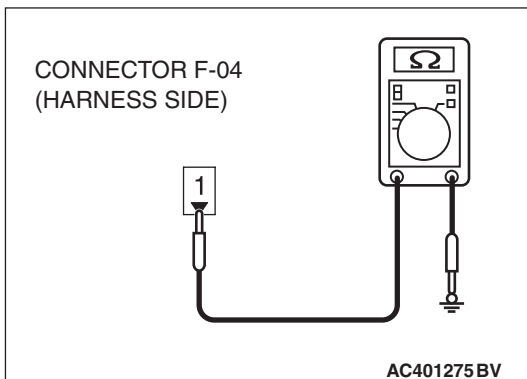
YES : Go to Step 13.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 13. Measure the resistance at rear window defogger connector F-04.

(1) Disconnect rear window defogger connector F-04, and measure the resistance at the wiring harness side.



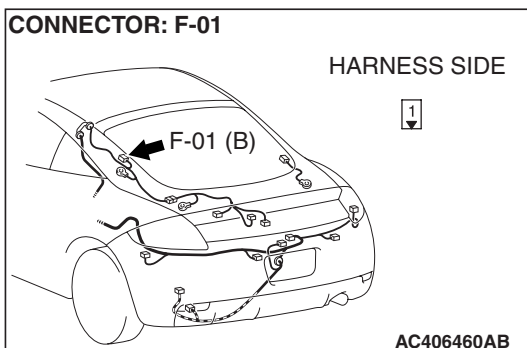
(2) Measure the resistance value between terminal 1 and ground.

OK: 1 kΩ or more

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 15.

NO : Go to Step 14.

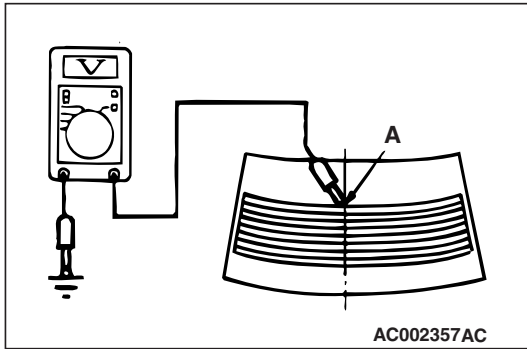


STEP 14. Check the wiring harness between rear window defogger connector F-01 (terminal 1) and ground.

Q: Is the wiring harness between rear window defogger connector F-01 (terminal 1) and ground in good condition?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

**STEP 15. Check the rear window defogger.**

(1) Let the engine run at 2,000 r/min, and check the printed heater with the battery fully charged.

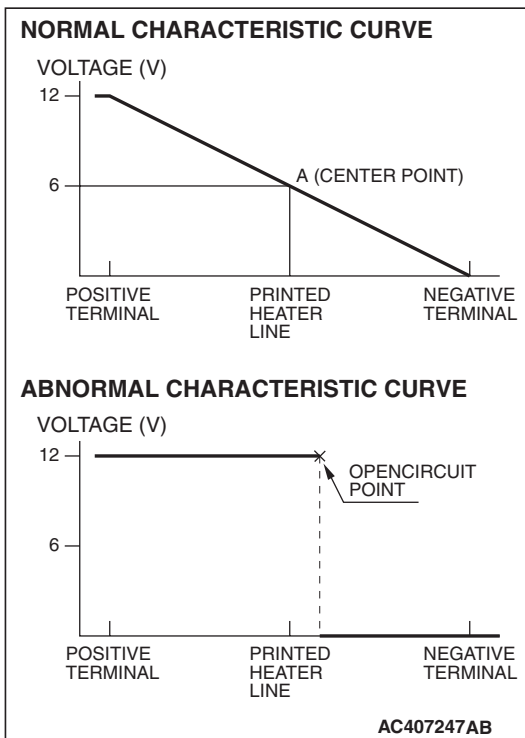
(2) Turn on the rear window defogger switch, and use a voltmeter to measure the voltage in each printed heater at middle point A on the rear window glass.

- The value should be approximately 6 volts.

Q: Does the rear window defogger work normally?

YES : Replace the A/C-ECU.

NO : Repair the rear window defogger.

**INSPECTION PROCEDURE 11: Rear Window Defogger Timer Function does not Operate.****CIRCUIT OPERATION**

Turn ON the rear window defogger switch. If the rear window defogger does not shut off after about 16 minutes then the rear window defogger timer is malfunctioning.

TROUBLESHOOTING HINT

- Malfunction of the A/C-ECU
- Malfunction of the rear window defogger timer

DIAGNOSIS

Replace the A/C-ECU.

DATA LIST REFERENCE TABLE

M1554005100307

MUT-III SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	INSPECTION REQUIREMENT		NORMAL VALUE
Air conditioning switch	12	Air conditioning switch	Ignition switch: ON	Air conditioning switch: ON	Scan tool indication: ON
				Air conditioning switch: OFF	Scan tool indication: OFF
Air thermo sensor	20	Air thermo sensor	Ignition switch: ON		The temperature measured behind the evaporator matches the displayed value on the scan tool while the engine is cold.
Interior temperature sensor	21	Heater air intake duct sensor	Ignition switch: ON		Inside air temperature and temperature displayed on the scan tool are identical.
Temperature setting	23	Preset temperature	Ignition switch: ON		The heater control preset temperature is the same as the scan tool display.
Refrigerant leak	29	Refrigerant leak	Ignition switch: ON		The scan tool indication is normal
Air outlet c/o potentiometer	55	Mode selection damper control motor potentiometer	Ignition switch: ON	Damper position	Opening degree (%)
				FACE	Approx. 100
				FOOT	Approx. 75
				FOOT/DEF.	Approx. 50
				DEF.	Approx. 0
Air outlet c/o potentiometer. (target)	56	Target value for mode selection damper control motor potentiometer	Ignition switch: ON	Damper position	Opening degree (%)
				FACE	Approx. 100
				FOOT	Approx. 75
				FOOT/DEF.	Approx. 50
				DEF.	Approx. 0
Low pressure judgment	57	Refrigerant pressure	Ignition switch: ON		The scan tool indication is normal
Ambient air temperature sensor	58	Ambient air temperature sensor	Ignition switch: ON		Outside air temperature and temperature displayed on the scan tool are identical.

MUT-III SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	INSPECTION REQUIREMENT		NORMAL VALUE
Rear defogger switch	60	Rear window defogger switch	Ignition switch: ON	Rear window defogger switch: ON	Scan tool indication: ON
				Rear window defogger switch: OFF	Scan tool indication: OFF
Pressure sensor	61	A/C pressure sensor	Ignition switch: ON		Measured refrigerant pressure is nearly equal to the value shown on the scan tool.
Water temperature sensor	62	Engine coolant temperature sensor (Data received by CAN Communication)	Ignition switch: ON		Engine coolant temperature and temperature displayed on the scan tool are identical.
Air mix potentiometer	63	Air mixing damper control motor potentiometer	Ignition switch: ON	Damper position	Opening degree (%)
				MAX. HOT	Approx. 100
				MAX. COOL	Approx. 0
Air mix potentiometer (Target)	64	Target value for air mixing damper control motor potentiometer	Ignition switch: ON	Damper position	Opening degree (%)
				MAX. HOT	Approx. 100
				MAX. COOL	Approx. 0
In/out air c/o damper motor	65	Outside/inside air selection damper control motor	Ignition switch: ON	Damper set position	Damper position
				Fresh air position	FRESH
				Air recirculation position	RECIRC
Photo sensor	67	Photo sensor	Ignition switch: ON		Amount of light is proportional to voltage displayed on the scan tool.
Front blower fan	68	Blower motor	Ignition switch: ON		Display the blower motor speed.
Front blower fan (Target)	68	Blower motor (Target)	Ignition switch: ON		Display the target value of blower motor speed.

ACTUATOR TEST REFERENCE

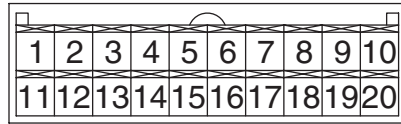
M1554005200285

MUT-III SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	DRIVE CONTENT
Rear defogger switch: OFF	35	Rear window defogger switch	Rear window defogger: OFF
Rear defogger switch: ON	36		Rear window defogger: ON
Air mix damper motor: 0%	42	Air mixing damper control motor	Opening degree: approx. 0% (Max cool)
Air mix damper motor: 100%	43		Opening degree: approx. 100% (Max hot)
Air mix damper motor: 50%	44		Opening degree: approx. 50%
Air outlet c/o dumper: Bi_Level	67	Mode selection damper control motor	FOOT/FACE
Air outlet c/o dumper: DEF	68		DEF
Air outlet c/o dumper: DEF/FOOT	69		DEF/FOOT
Air outlet c/o dumper: FACE	70		FACE
Air outlet c/o dumper: FOOT	71		FOOT
In/out changeover damper: Fresh	72	Outside/inside air selection damper control motor	Outside
In/out changeover damper: Recirc	73		Inside
Idle up request: high load	74	Idle up operation	Idle up: high load
Idle up request: low load	75		Idle up: low load
Idle up request: OFF	76		Idle up: OFF
Condenser fan: OFF	77	Condenser fan	OFF
Condenser fan: 100%	78		High speed
Condenser fan: 50%	79		Middle speed
Front blower fan: OFF	83	Blower motor	OFF
Front blower fan: Middle	84		Middle speed
Front blower fan: High	85		High speed

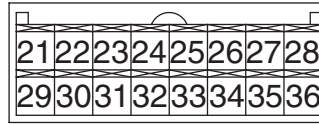
CHECK AT A/C-ECU TERMINAL

M1552010300895

C-15



C-20



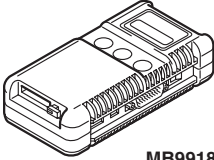
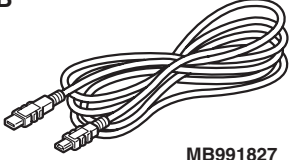
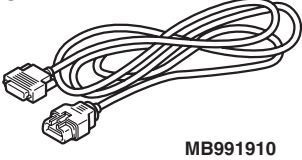
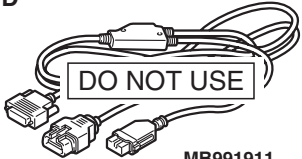
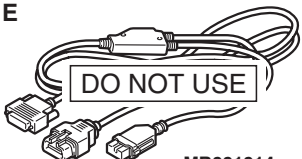
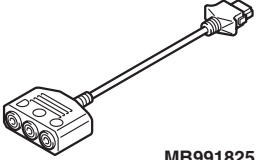
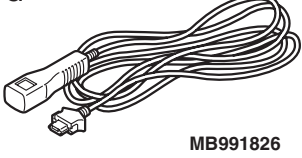
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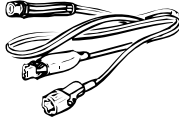
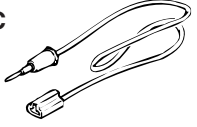
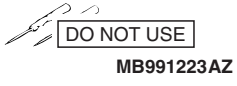
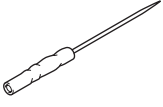
TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
1	Air mixing damper control motor	When the air mix damper is moved to the MAX. COOL position.	10 V
		When the air mix damper is moved to the MAX. HOT position.	0.5 V
2	Air mixing damper control motor	When the air mix damper is moved to the MAX. COOL position.	0.5 V
		When the air mix damper is moved to the MAX. HOT position.	10 V
3	Back-up power supply	Always	Battery positive voltage
4	Mode selection damper control motor (DEF)	When the damper is moved to the FACE position.	0.5 V
		When the damper is moved to the DEF position.	10 V
5	Outside/inside air selection damper control motor (outside)	When the damper is moved to the inside air recirculation position.	0.5 V
		When the damper is moved to the outside air induction position.	0 V (when the motor is stopped)
6	Outside/inside air selection damper control motor (inside)	When the damper is moved to the inside air recirculation position.	0 V (when the motor is stopped)
		When the damper is moved to the outside air induction position.	0.5 V
8	Rear defogger relay	Ignition switch: ON	Battery positive voltage
9	Front blower relay	Ignition switch: ON	Battery positive voltage
10	A/C compressor relay	A/C compressor relay: ON	Battery positive voltage
11	Mode selection damper control motor (FACE)	When the damper is moved to the FACE position.	10 V
		When the damper is moved to the DEF position.	0.5 V
12	A/C pressure sensor	Ignition switch: ON	5 V

TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
16	Potentiometer power supply	Ignition switch: ON	5 V
17	Power transistor (BASE)	When the blower speed selection dial shows Maximum air volume.	1 V
18	Power transistor (COLLECTOR)	When the blower speed selection dial shows Maximum air volume.	12.1 V
19	Photo sensor	Ignition switch: ON	5 V
20	Sensors and potentiometers ground	Always	0 V
21	Mode selection damper control motor potentiometer input	When the damper is moved to the FACE position.	4 V
22	Interior temperature sensor	Ignition switch: ON	5 V
23	Ambient temperature sensor input	When sensor temperature is 25° C (77° F) [4 kΩ]	1.9 V
24	Air thermo sensor input	When sensor temperature is 25° C (77° F) [1.5 kΩ]	2.2 V
25	Photo sensor ground	Ignition switch: ON	0 V
26	A/C pressure sensor	at 2.6 MPa (377 psi)	3.9 V
27	Ground	Always	0 V
28	Power supply to the ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
29	Air mixing damper control motor potentiometer input	When the damper door is moved to the MAX. HOT position.	1.4 V
30	Illumination ground	Always	0 V
31	ILL power supply	Lighting switch: ON	Battery positive voltage
34	A/C pressure sensor ground	Always	0 V
36	Power supply to the ignition switch (ACC)	Ignition switch: ON	Battery positive voltage

SPECIAL TOOLS

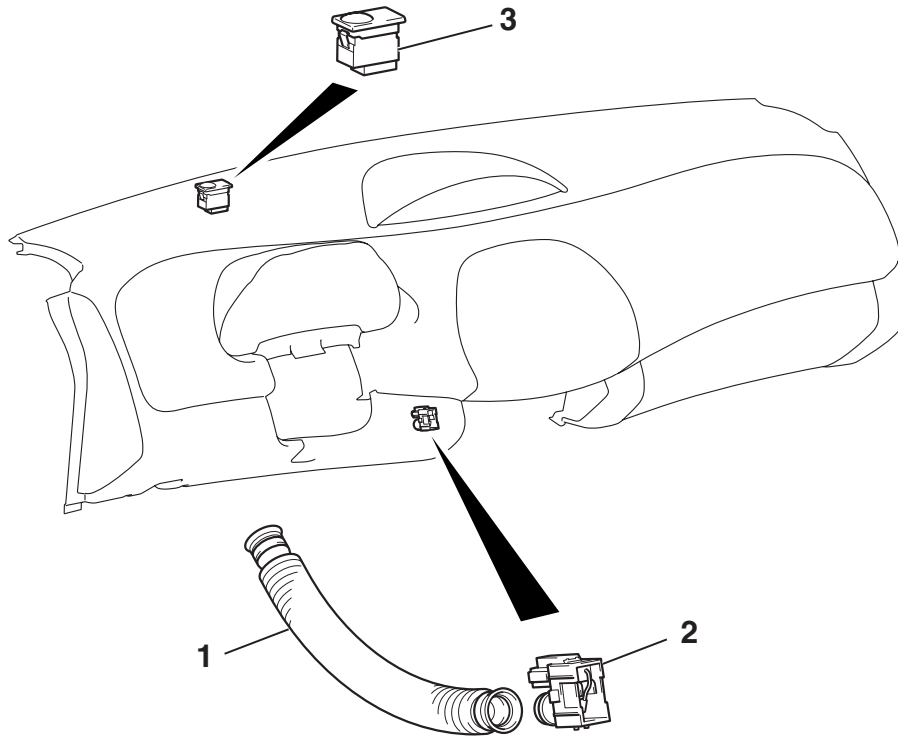
M155200600420

TOOL	TOOL NUMBER AND NAME	SUPER SESSION	APPLICATION
<p>A</p>  <p>MB991824</p> <p>B</p>  <p>MB991827</p> <p>C</p>  <p>MB991910</p> <p>D</p>  <p>MB991911</p> <p>E</p>  <p>MB991914</p> <p>F</p>  <p>MB991825</p> <p>G</p>  <p>MB991826 MB991958</p>	<p>MB991958 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826</p> <p>MUT-III Sub Assembly A: Vehicle communication interface (V.C.I.) B: MUT-III USB cable C: MUT-III main harness A (Vehicles with CAN communication system) D: MUT-III main harness B (Vehicles without CAN communication system) E: MUT-III main harness C (for Daimler Chrysler models only) F: MUT-III measurement adapter G: MUT-III Trigger Harness</p>	<p>MB991824-KIT <i>NOTE: G: MB991826 MUT-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>Checking diagnostic trouble codes</p> <p>CAUTION For vehicles with CAN communication, use MUT-III main harness A to send simulated vehicle speed. If you connect MUT-III main harness B instead, the CAN communication does not function correctly.</p>

TOOL	TOOL NUMBER AND NAME	SUPER SESSION	APPLICATION
<p>A</p>  <p>B</p>  <p>C</p>  <p>D</p> 	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222</p> <p>Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>
 <p style="text-align: center;">MB992006</p>	<p>MB992006 Extra fine probe</p>	<p>General service tool</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p>

SENSORS**REMOVAL AND INSTALLATION**

M1554001900174



AC404837AB

**HEATER AIR INTAKE DUCT
SENSOR REMOVAL STEPS**

1. AUTOMATIC HEATER CONTROL VACUUM HOSE
- INSTRUMENT PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21](#)).
2. HEATER AIR INTAKE DUCT SENSOR

**PHOTO SENSOR REMOVAL
STEPS**

- INSTRUMENT PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21](#)).
- 3. PHOTO SENSOR

Required Special Tools:

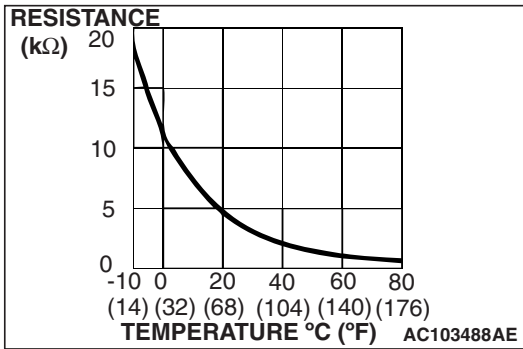
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

INSPECTION

M1554002000174

HEATER AIR INTAKE DUCT SENSOR CHECK

When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.



NOTE: The temperature conditions when checking should not exceed the range shown in the diagram.

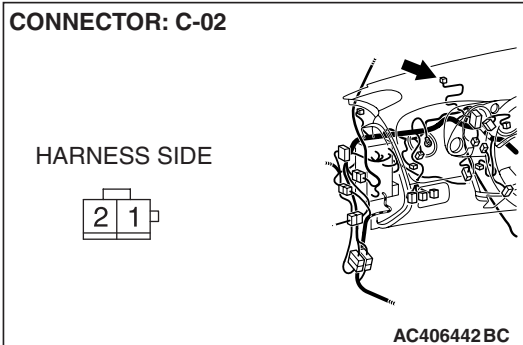


PHOTO SENSOR CHECK

1. Connect scan tool MB991958, and check the data list of the photo sensor. (Refer to [P.55B-183](#))
2. Check that the displayed value changes when you cover the photo sensor with your hands or a shop towel.

OTHER PARTS**OTHER PARTS MAINTENANCE SERVICE POINTS**

M1554004000211

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

ITEM		REFERENCE PAGE
ON-VEHICLE SERVICE	REFRIGERANT LEVEL TEST	P.55A-185
	AIR CONDITIONING COMPRESSOR CLUTCH TEST	P.55A-185
	SIMPLE INSPECTION OF THE A/C PRESSURE SENSOR	P.55A-185
	COMPRESSOR DRIVE BELT ADJUSTMENT	P.55A-186
	CHARGING, DISCHARGING	P.55A-186
	PERFORMANCE TEST	P.55A-187
	REFRIGERANT LEAK REPAIR	P.55A-188
	COMPRESSOR NOISE CHECK	P.55A-188
	POWER RELAY CONTINUITY CHECK	P.55A-189
	IDLE-UP OPERATION CHECK	P.55A-191
HEATER CONTROL (A/C-ECU)		P.55A-193
HEATER CASE, BLOWER CASE		P.55A-197
MOTORS AND TRANSISTOR		P.55A-201
AMBIENT AIR TEMPERATURE SENSOR		P.55A-204
COMPRESSOR AND TENSION PULLEY		P.55A-205
CONDENSER		P.55A-211
REFRIGERANT LINE		P.55A-213
DUCTS		P.55A-216
REAR VENTILATION DUCT		P.55A-216