

GROUP 55A

HEATER, AIR CONDITIONING AND VENTILATION

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GENERAL DESCRIPTION

M1552000100522

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. Should any liquid refrigerant get 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

The 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 A/C 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.

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>	
Blower speed selection dial	ON		
A/C switch	ON		
Mode selection dial	defroster	<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>	
Temperature control dial	MAXIMUM A/C		
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		

- 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 A/C switch are ON, the A/C compressor clutch relay is energized.

When operating the mode selection dial

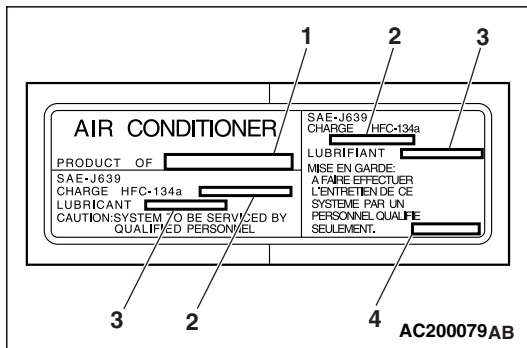
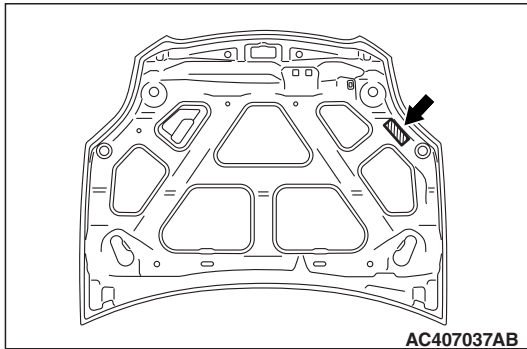
- The A/C will work when the mode selection dial is set to the "Defroster" or "Defroster/foot" position, or the temperature control dial is set to the "MAXIMUM A/C" position. In other dial positions, when the A/C switch is turned on, the A/C will work.

SERVICE PRECAUTIONS

CAUTION LABELS

M1552017400161

The refrigerant gas warning label must be affixed in the location shown in the figure on the left. Follow the instructions on the label when servicing.



NO.	CONTENTS
1	Name of A/C manufacturer
2	Amount of refrigerant
3	Name of compressor oil
4	Parts number

MANUAL A/C DIAGNOSIS

INTRODUCTION TO HEATER, AIR CONDITIONING AND VENTILATION DIAGNOSIS

M1552012200366

Air is drawn into the heater assembly from either the outside, or from the inside of the passenger cabin if DEFROST, maximum cooling or RECIRCULATION are selected. The air is then forced through the evaporator where heat is removed, cooling and de-humidifying the air. Depending on the temperature selected, a portion of this air is then forced through the heater core to achieve the selected discharge temperature.

If the system does not cool properly, look for a problem with the refrigerant, blower or air distribution systems. If the system does not heat properly, look for a problem with the coolant, blower or air distribution systems. In either case all system fuses, circuit breaker and relays should be checked.

HEATER, AIR CONDITIONING AND VENTILATION DIAGNOSTIC TROUBLESHOOTING STRATEGY

M1552009600449

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 that the malfunction is eliminated.

DIAGNOSTIC FUNCTION

M1552019800091

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

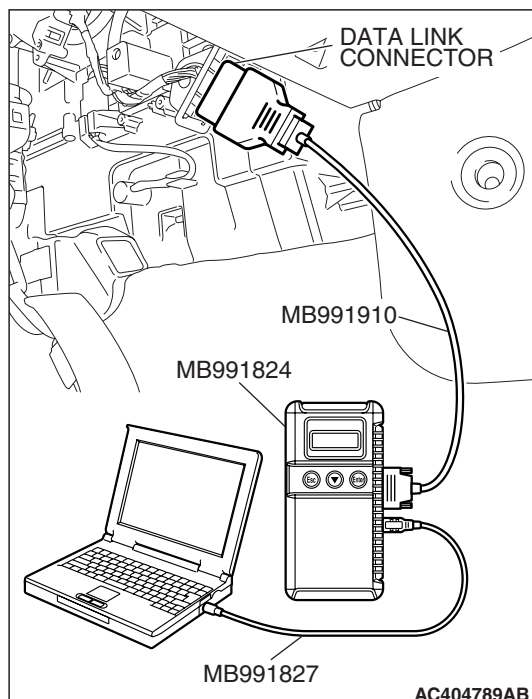
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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.



AC404789AB

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

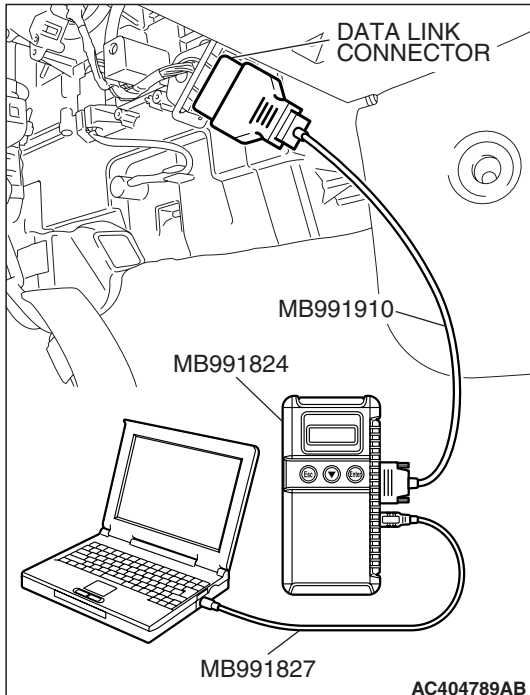
- MB991958: Scan Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

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.

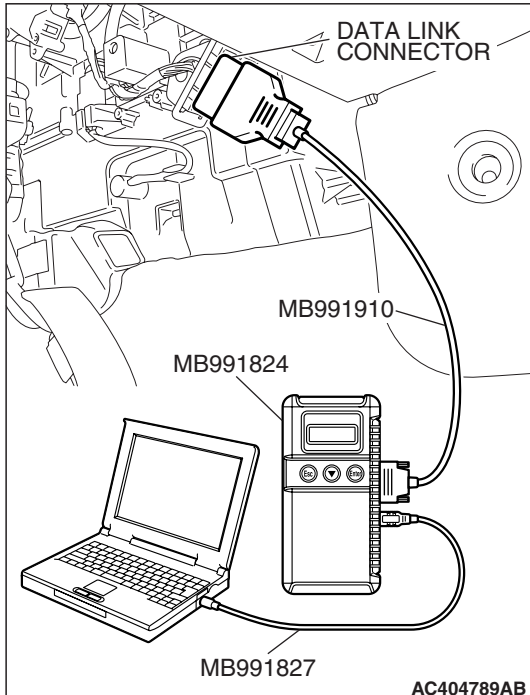
1. Connect the scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "Air Conditioner" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Select "Diagnostic Trouble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

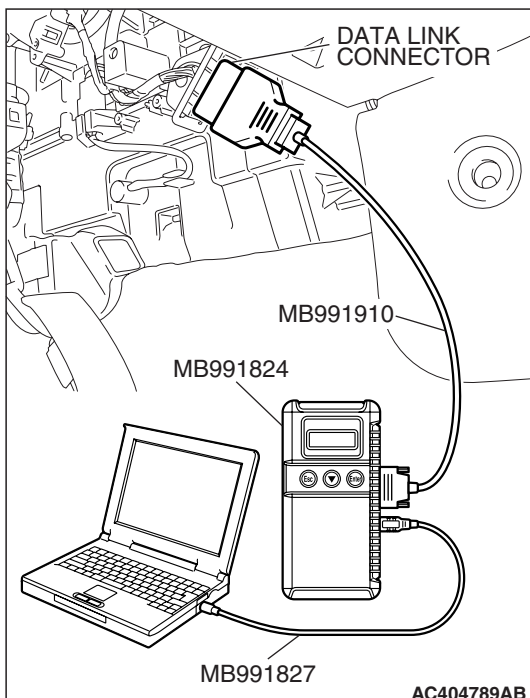
HOW TO PERFORM ACTUATOR TEST**Required Special Tools:**

- 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 "Air Conditioner" 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

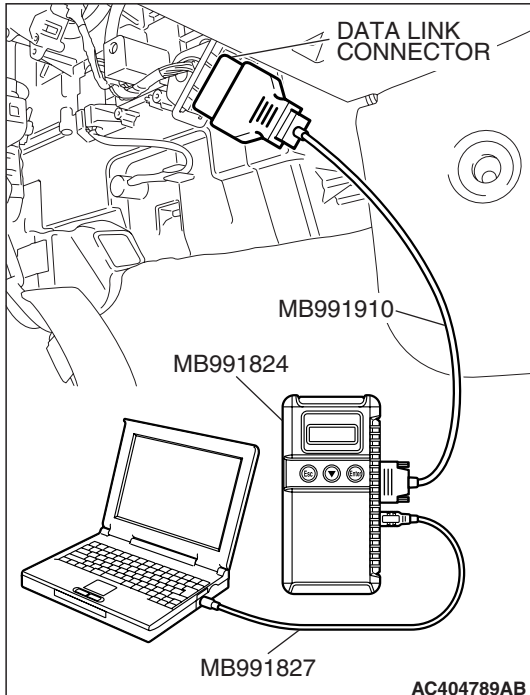
Required Special Tools:

- 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 being diagnosed.
 - 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

⚠ CAUTION

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

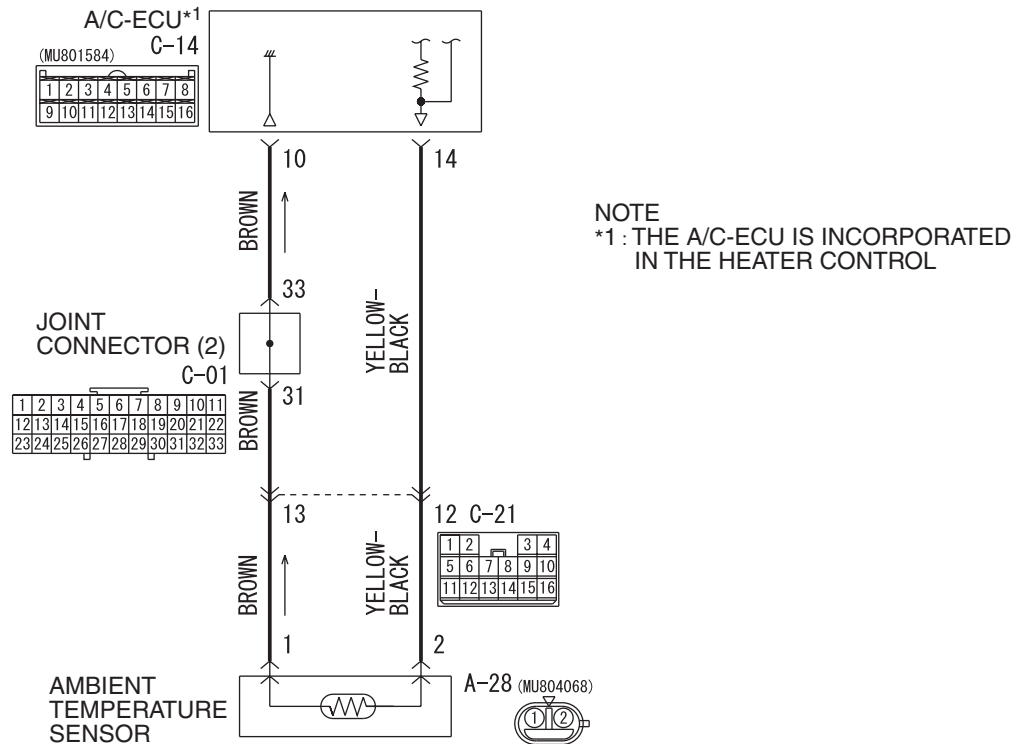
DIAGNOSTIC TROUBLE CODE NO.	DIAGNOSTIC ITEM	REFERENCE PAGE
B1011	Ambient air temperature sensor system (short circuit)	P.55A-11
B1012	Ambient air temperature sensor system (open circuit)	P.55A-16
B1021	Air thermo sensor system (short circuit)	P.55A-23
B1022	Air thermo sensor system (open circuit)	P.55A-29
B1041	Air mixing damper control motor and potentiometer (potentiometer system shorted to its power supply)	P.55A-36
B1042	Air mixing damper control motor and potentiometer (potentiometer system shorted to its ground)	P.55A-42
B1045	Air mixing damper control motor and potentiometer (activating system failure)	P.55A-50
B1061	Mode selection damper control motor and potentiometer (potentiometer system shorted to its power supply)	P.55A-66
B1062	Mode selection damper control motor and potentiometer (potentiometer system shorted to its ground)	P.55A-73
B1065	Mode selection damper control motor and potentiometer (activating system failure)	P.55A-82
U1073	Bus off	P.55A-92
U1100	ECM <M/T> or PCM <A/T> time-out (related to engine)	P.55A-93
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.55A-96

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

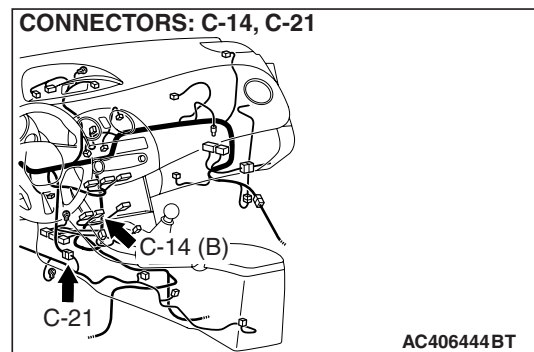
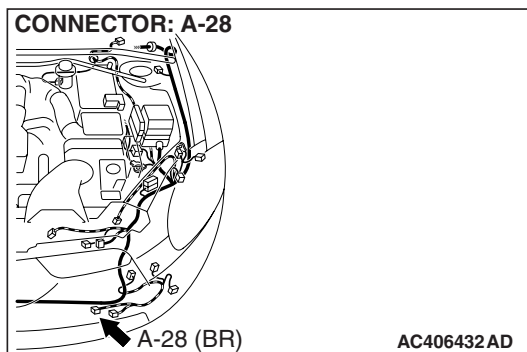
DIAGNOSTIC TROUBLE CODE PROCEDURES

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

Ambient Temperature Sensor Circuit



W6P55M000A



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

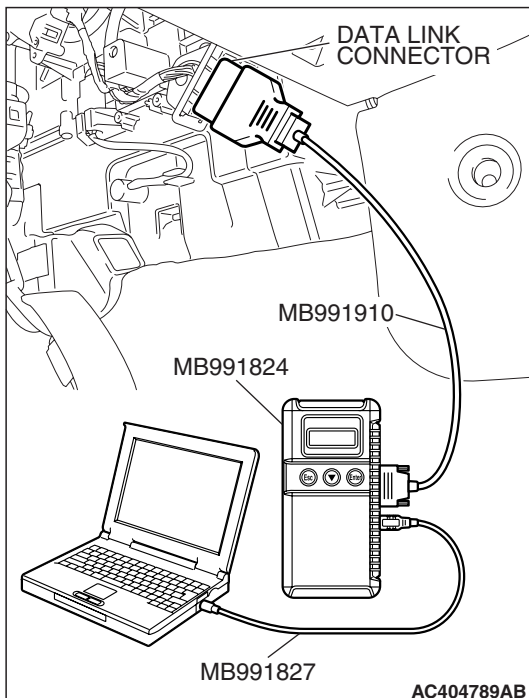
This code is set when the ambient air temperature sensor circuit (power supply side) is shorted to ground.

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.

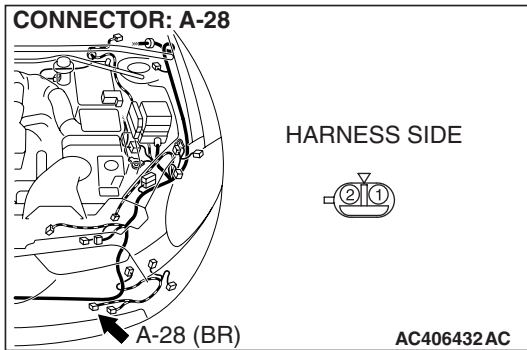
Recheck if the DTC is set.

- (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 heater control.

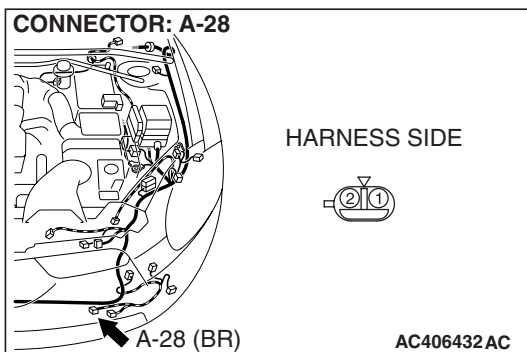


STEP 3. Check ambient air temperature sensor connector A-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

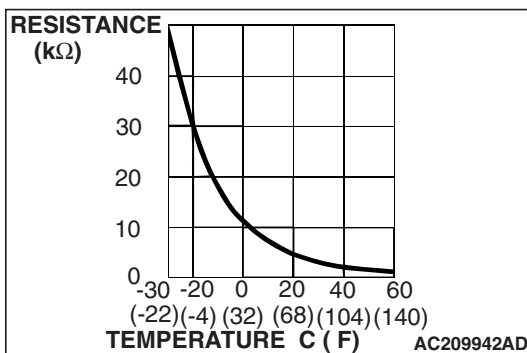
YES : Go to Step 4.

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.



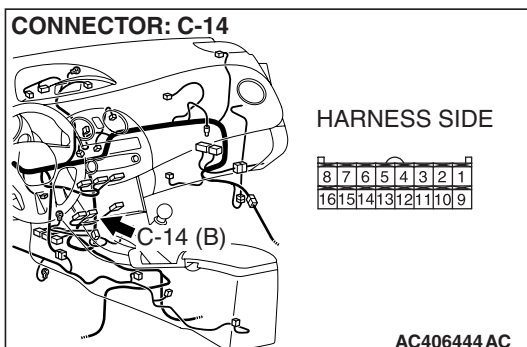
(2) Measure the resistance between the sensor terminals under at least two temperatures. The resistance values should meet the values shown.

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.

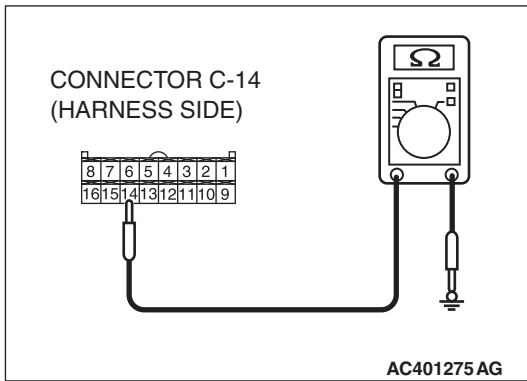
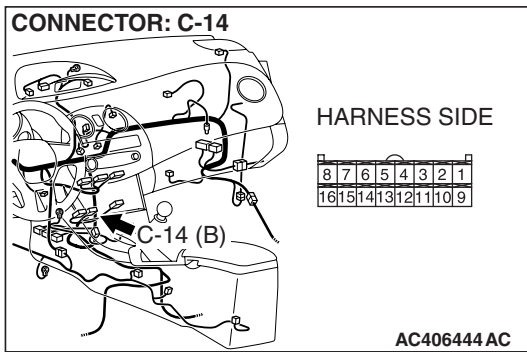


STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 14 and ground.

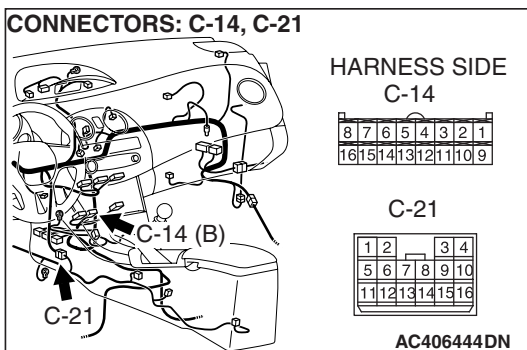
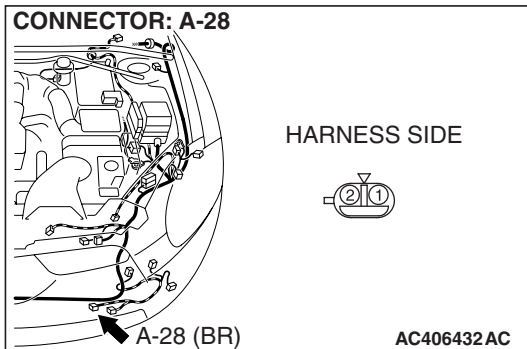
OK: 1kΩ or more

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-14 (terminal 14) and heater ambient 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-14 (terminal 14) and ambient 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. 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.

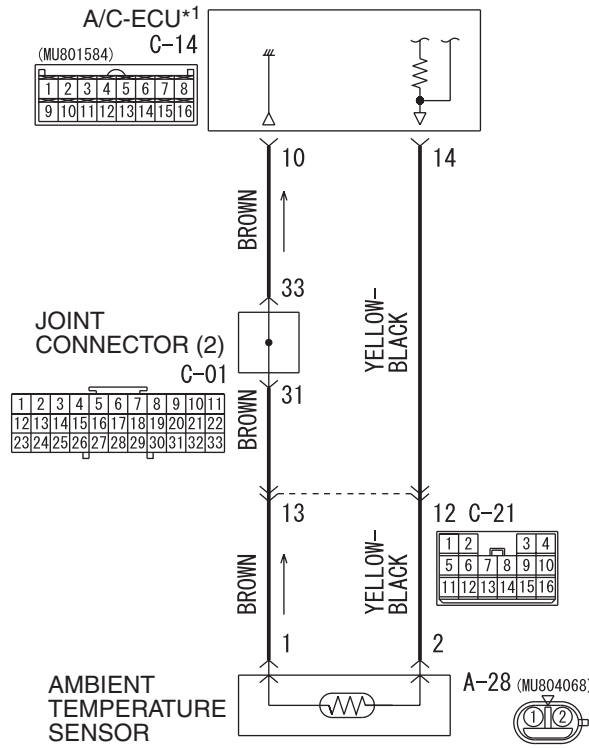
Q: Is the check result satisfactory?

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.

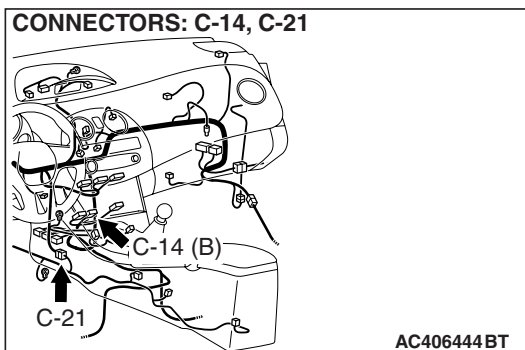
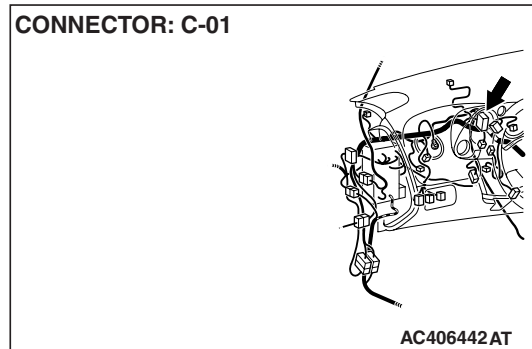
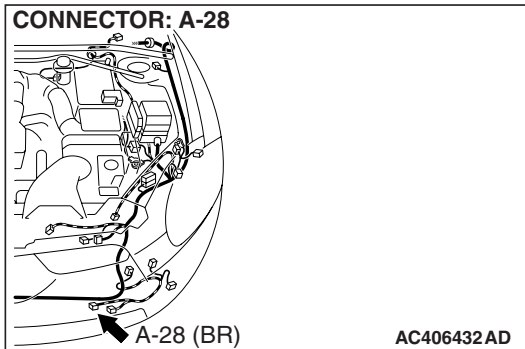
NO : Replace the heater control.

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

Ambient Temperature Sensor Circuit



W6P55M000A



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.

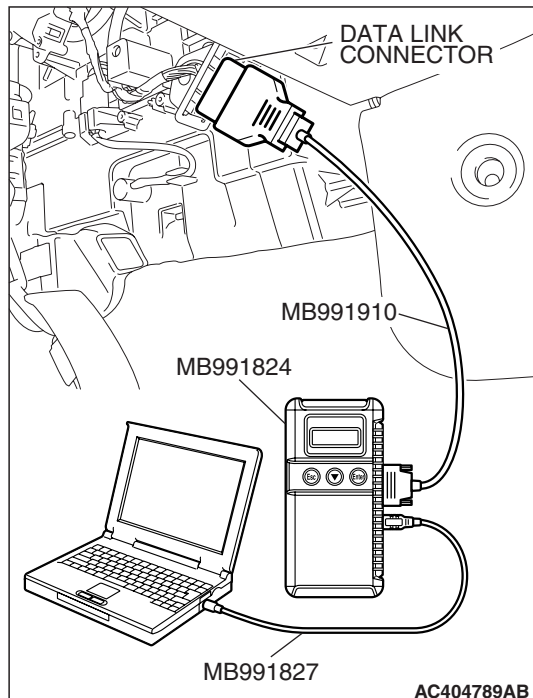
NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 20°C (68°F).

- (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](#).

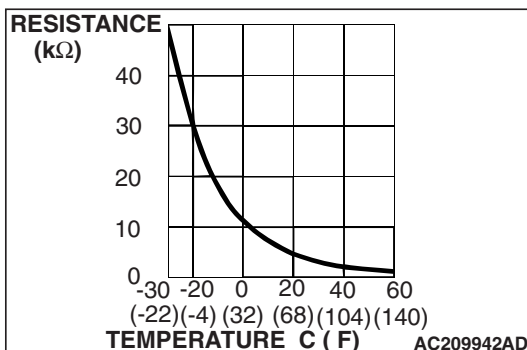
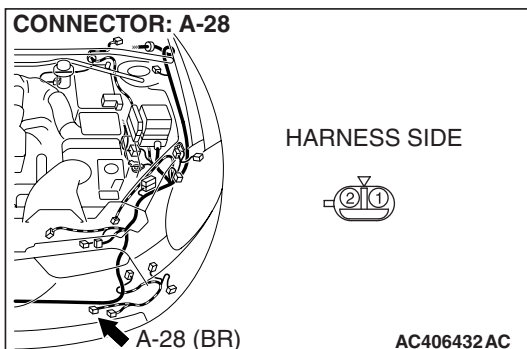
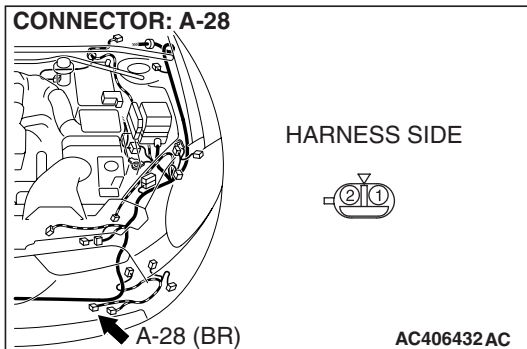
NO : Replace the heater control.

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.

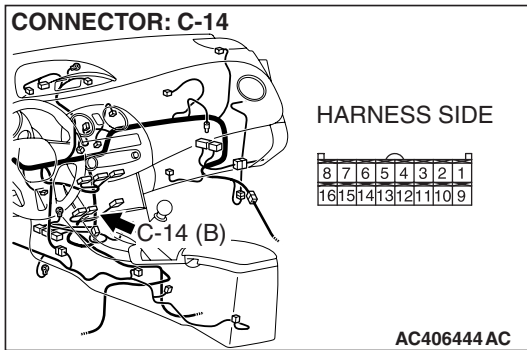
- (2) When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

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.

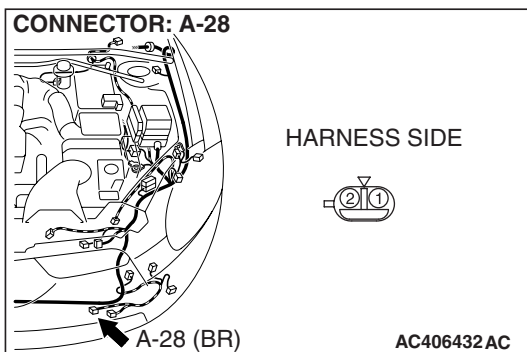


STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-14 in good condition?

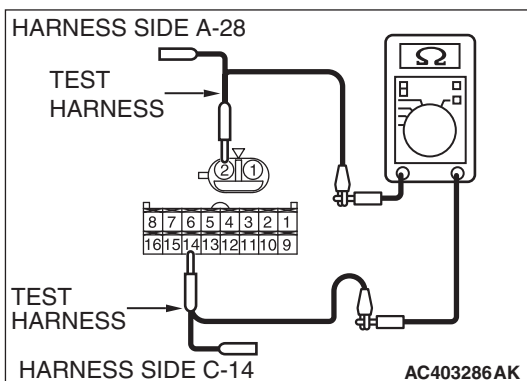
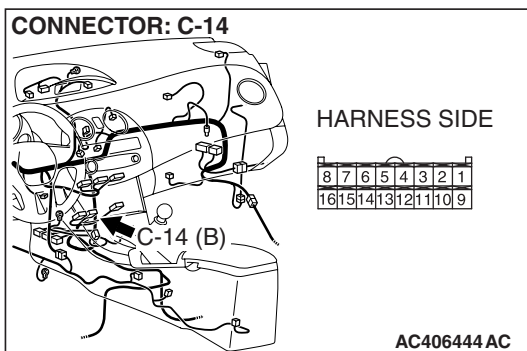
YES : Go to Step 6.

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-14 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-14 terminal 14 and ambient air temperature sensor connector A-28 terminal 2.

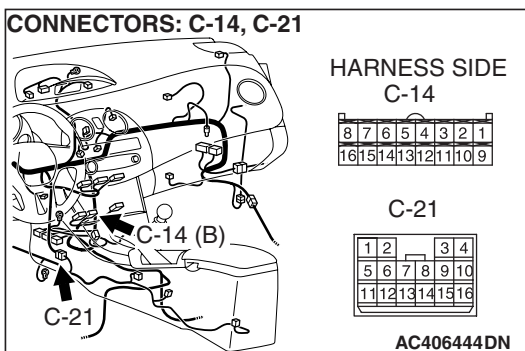
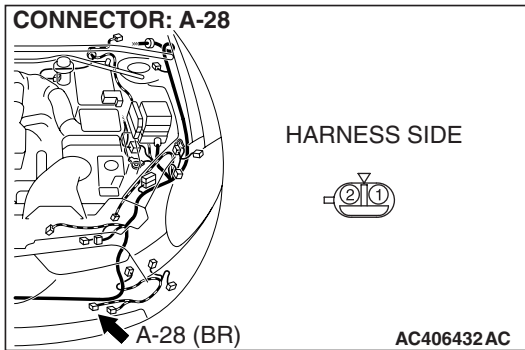
OK: Less than 2 ohms

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-14 (terminal 14) and ambient air temperature sensor connector A-28 (terminal 2).



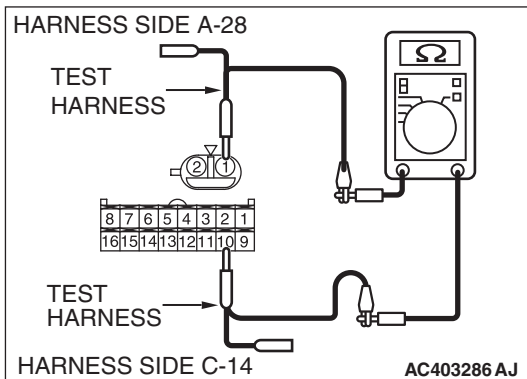
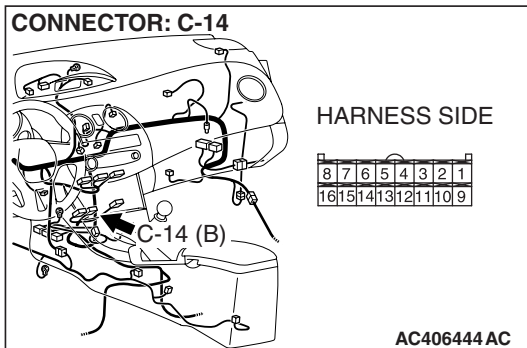
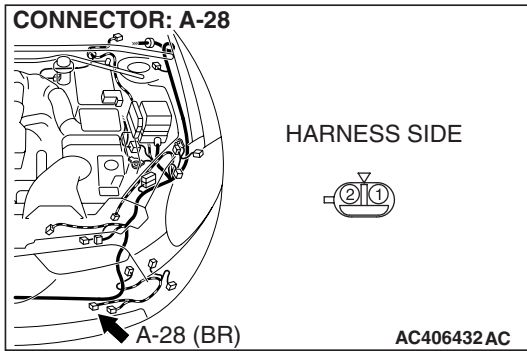
NOTE: Also check intermediate connector C-21 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-21 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 14) 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-14 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-14 terminal 10 and ambient air temperature sensor connector A-28 terminal 1.

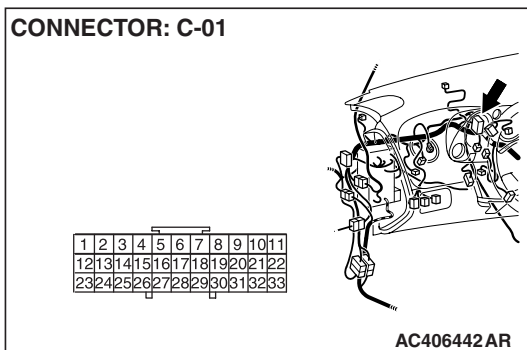
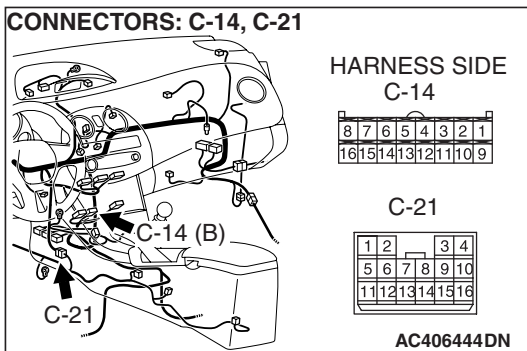
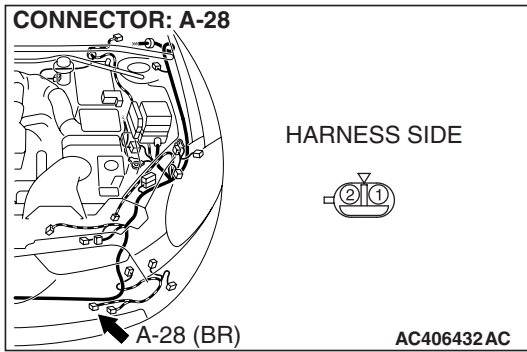
OK: Less than 2 ohms

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-14 (terminal 10) 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-14 (terminal 10) 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.

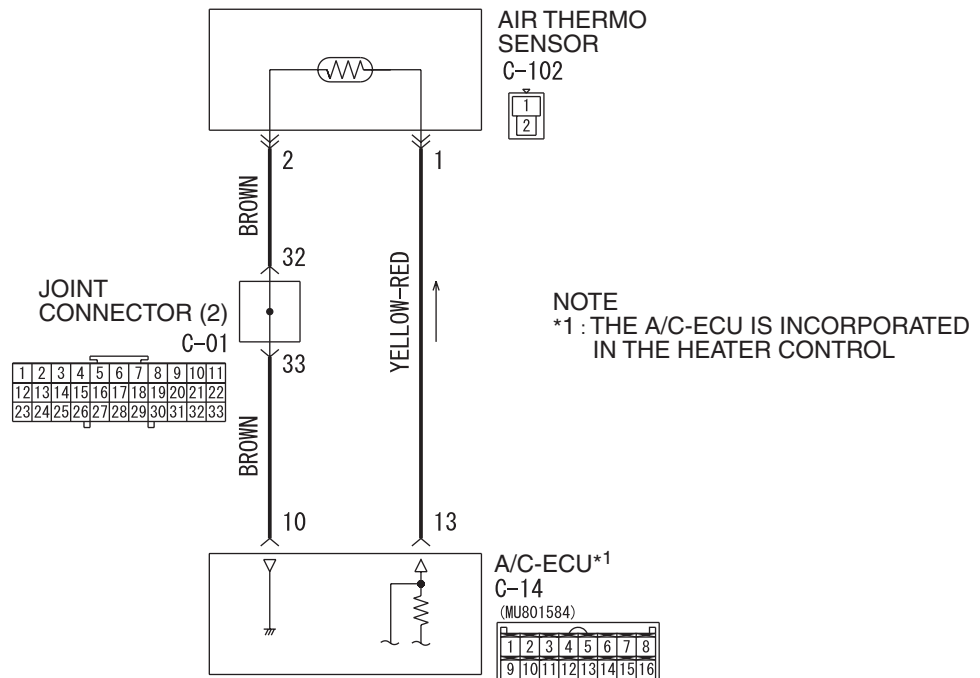
Refer to GROUP 00, How to Use

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

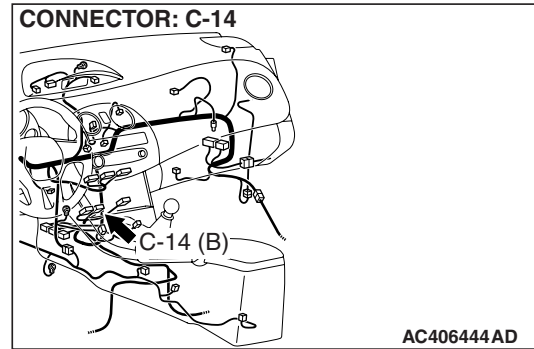
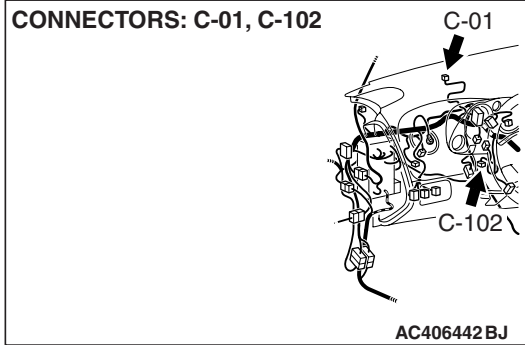
NO : Replace the heater control.

DTC B1021: Air Thermo Sensor System (Short Circuit)

Air Thermo Sensor Circuit



W6P55M002A



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 vent.

Detection logic

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

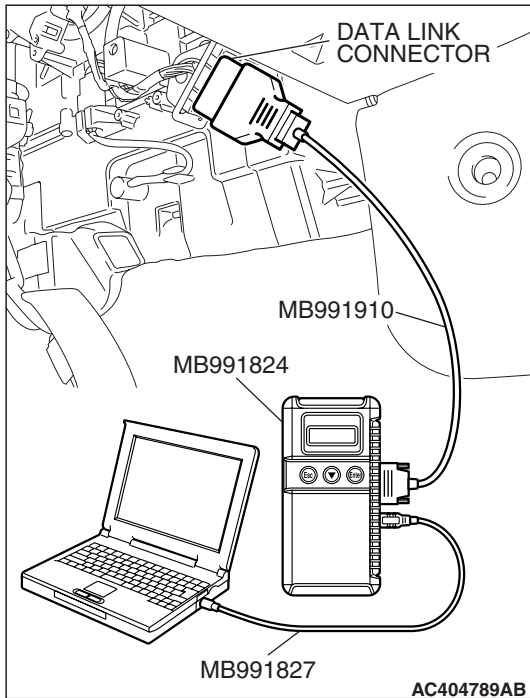
PROBABLE CAUSES

- 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.

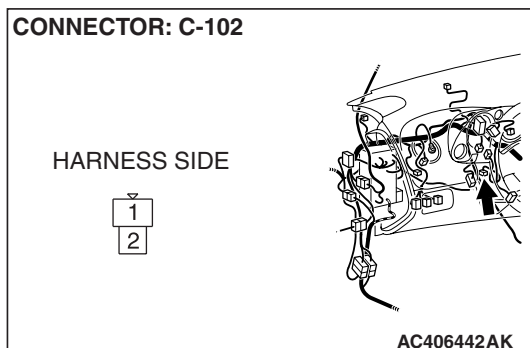
Q: Is the check result satisfactory?

- 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 heater control.

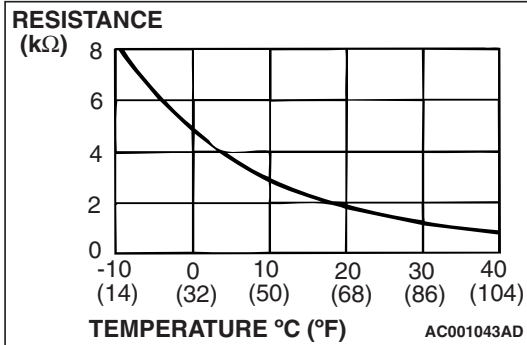
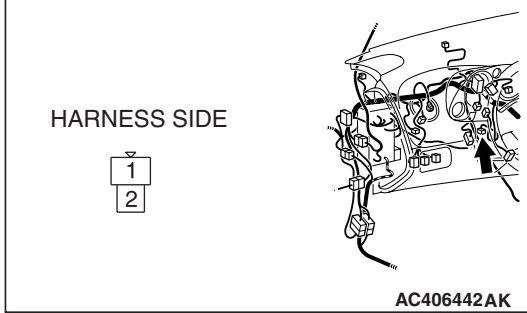
STEP 3. Check air thermo sensor connector C-102 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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



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.

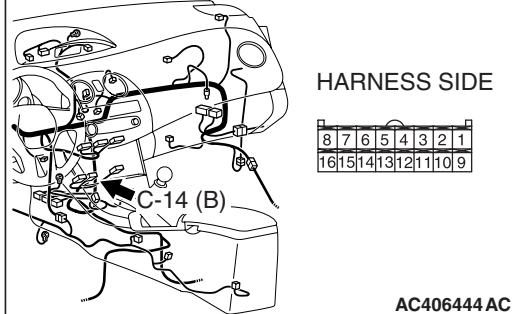
NOTE: The temperature at the check should not exceed the range in the graph.

Q: Is the air thermo sensor in good condition?

YES : Go to Step 5.

NO : Replace the air thermo sensor.

CONNECTOR: C-14

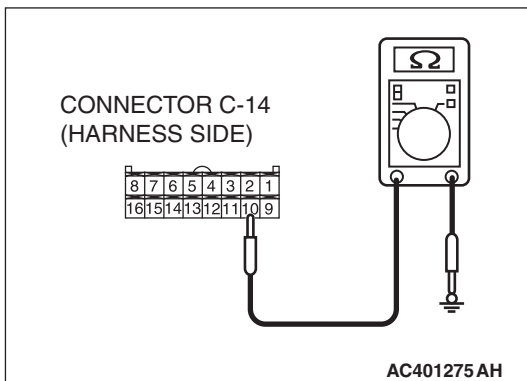
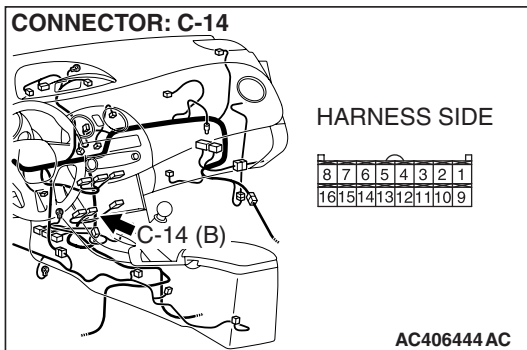


STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 10 and ground.

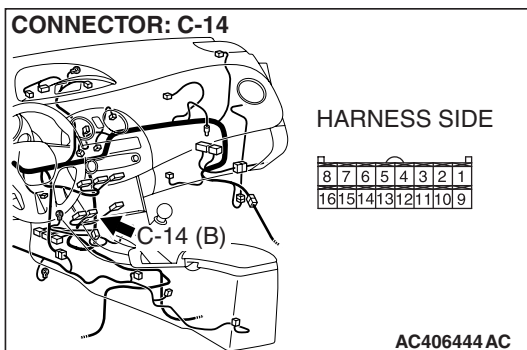
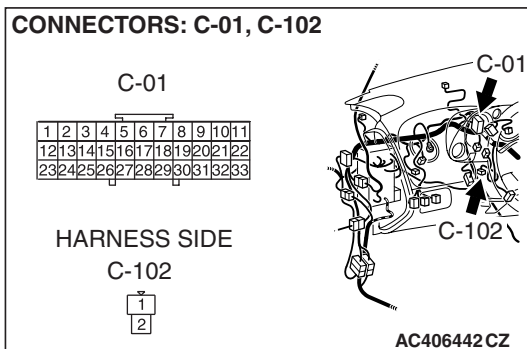
OK: 1kΩ or more

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-14 (terminal 10) 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-14 (terminal 10) 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 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.

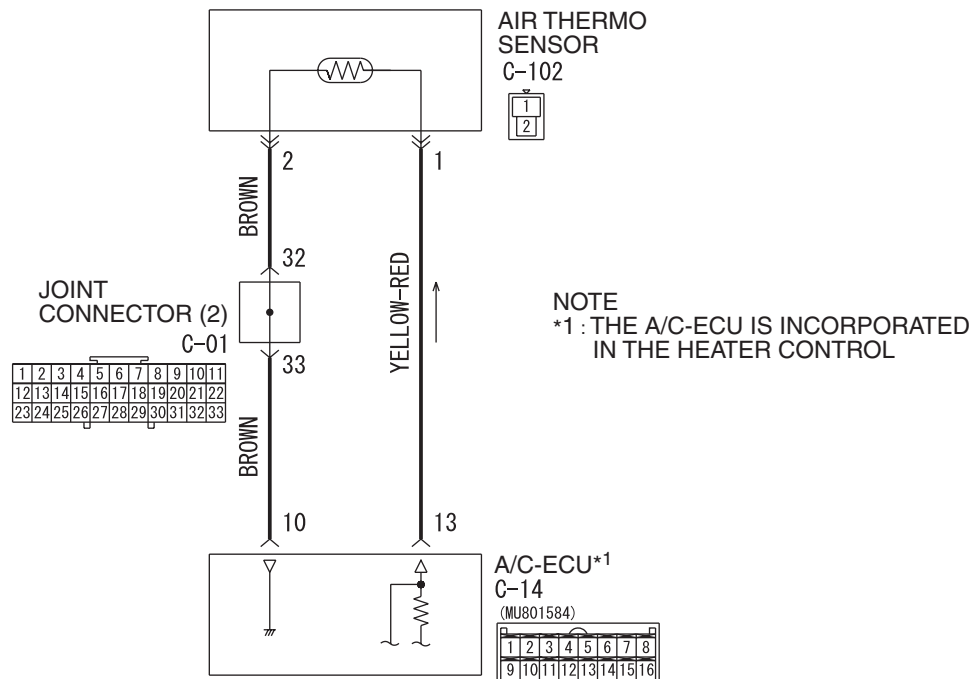
Q: Is the check result satisfactory?

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.

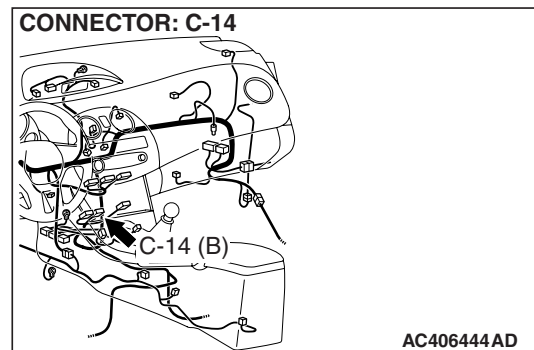
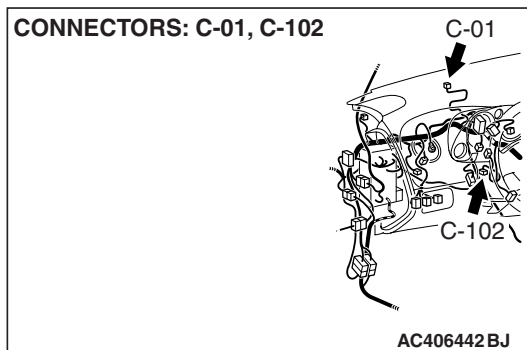
NO : Replace the heater control.

DTC B1022: Air Thermo Sensor System (Open Circuit)

Air Thermo Sensor Circuit



W6P55M002A



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 vent.

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.

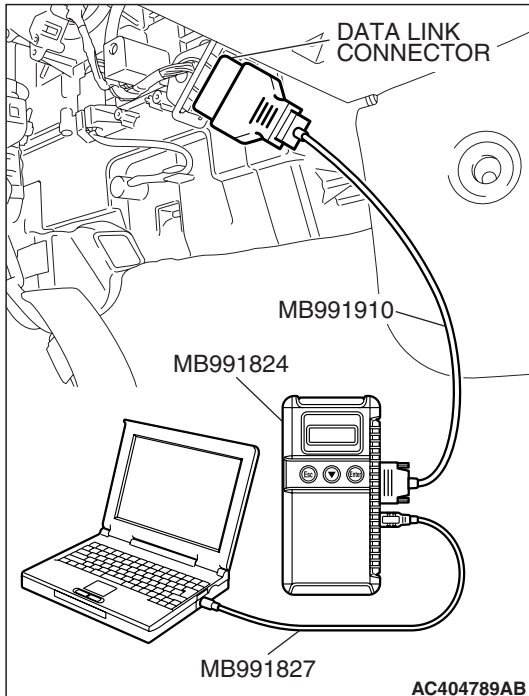
NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays -6°C (28°F).

- (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.**

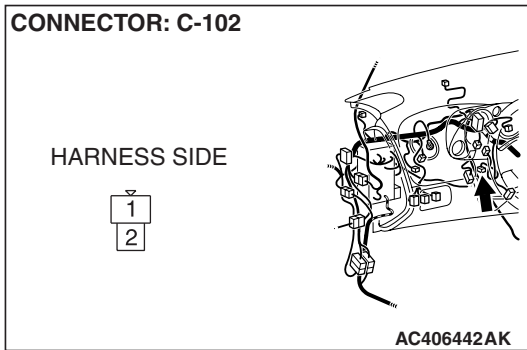
Recheck if the DTC is set.

- (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 heater control.

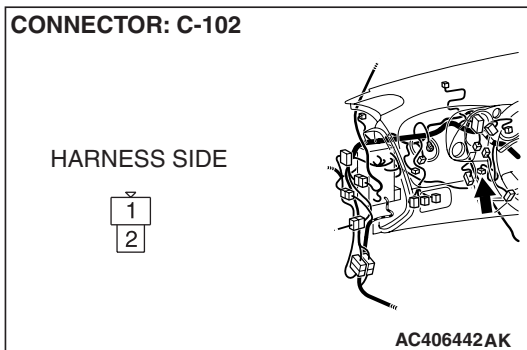


STEP 3. Check air thermo sensor connector C-102 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

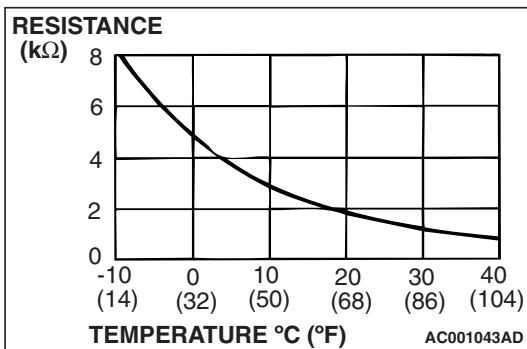
YES : Go to Step 4.

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.



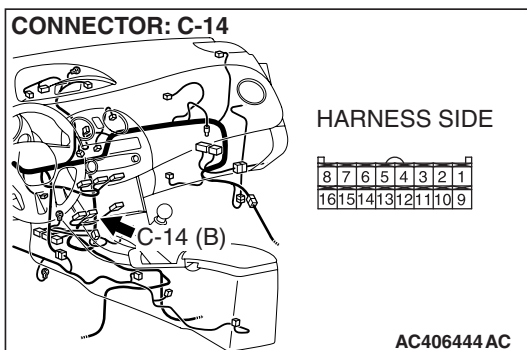
(2) Measure the resistance between connector terminals 1 and 2 under at least two different temperatures. The resistance values should generally match those in the graph.

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.

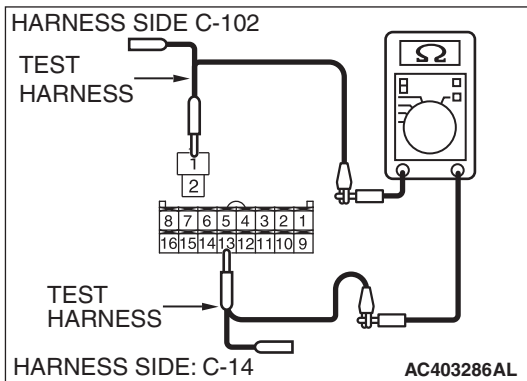
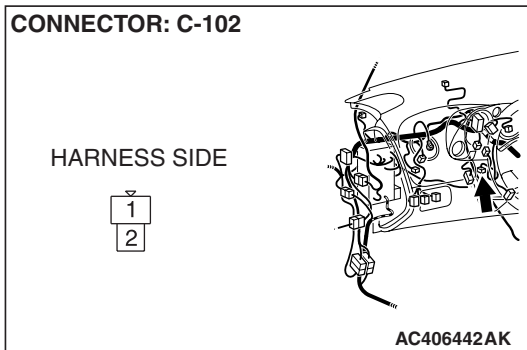
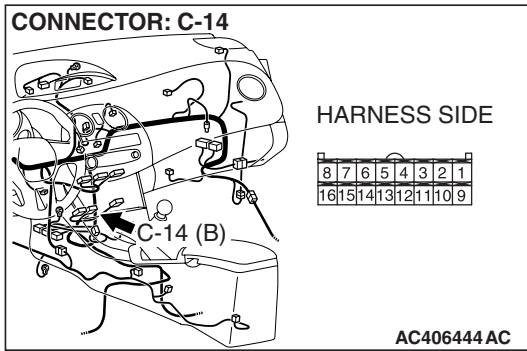


STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connectors C-14 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-14 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-14 terminal 13 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.

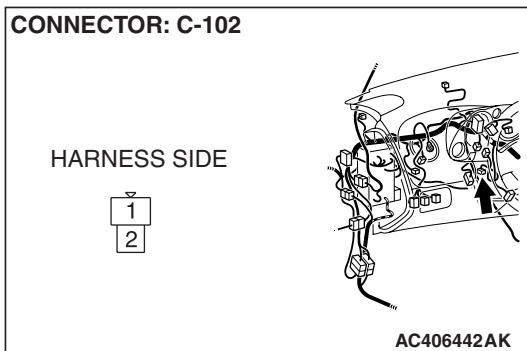
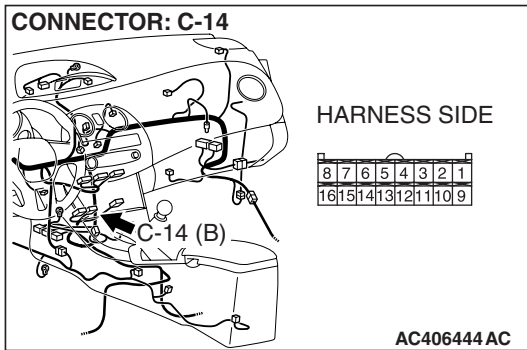
NO : Go to Step 7.

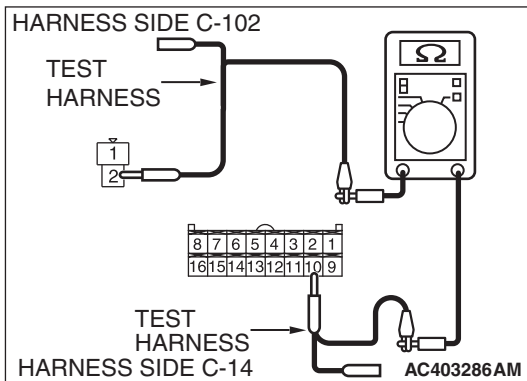
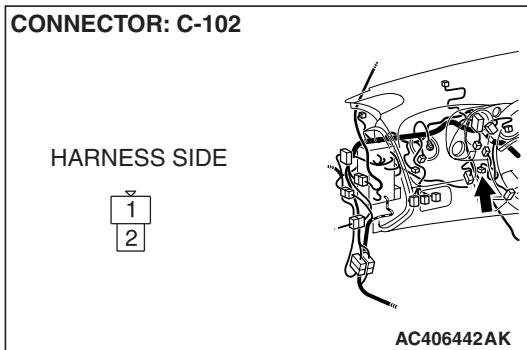
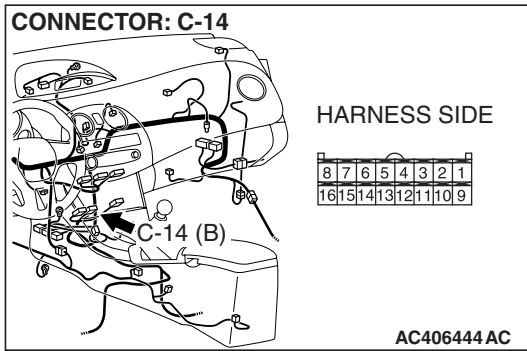
STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 13) and air thermo sensor connector C-102 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 13) 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-14 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-14 terminal 10 and air thermo sensor connector C-102 terminal 2.

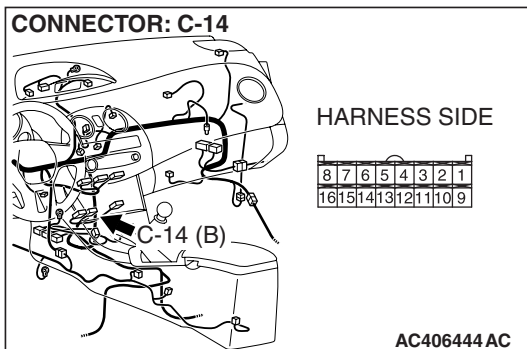
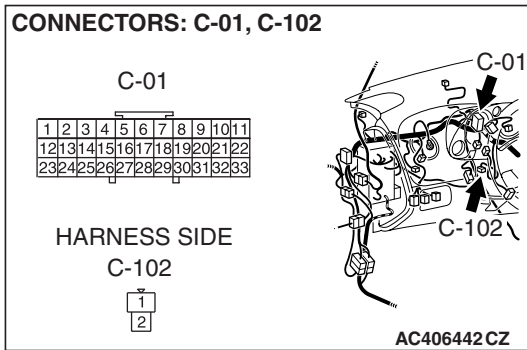
OK: Less than 2 ohms

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-14 (terminal 10) 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-14 (terminal 10) 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.

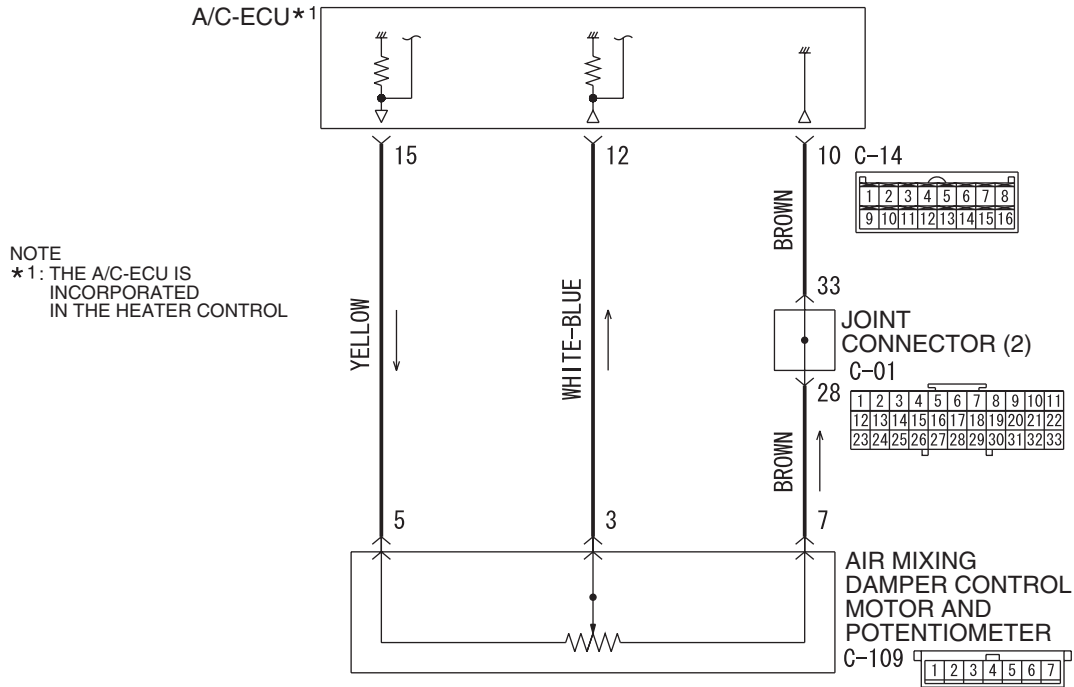
- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check that the diagnostic trouble code is not set.

Q: Is the check result satisfactory?

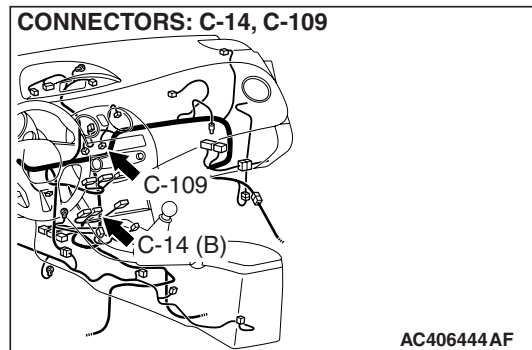
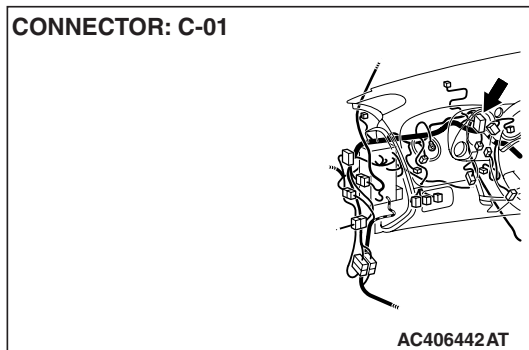
- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the heater control.

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

Air Mixing Damper Control Motor Potentiometer



W6P55M004A



FUNCTION

Detect 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 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)

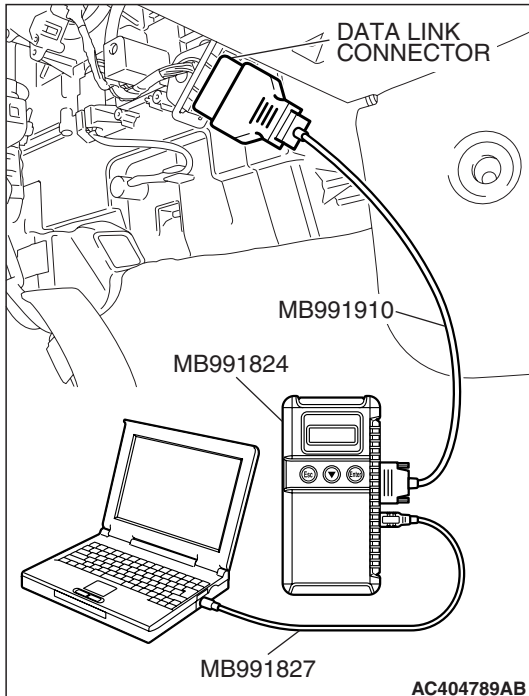
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

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

Q: Does the heater control setposition match the scan tool displayed position?

YES : Go to Step 2.

NO : Go to Step 3.



STEP 2. Recheck for diagnostic trouble code.

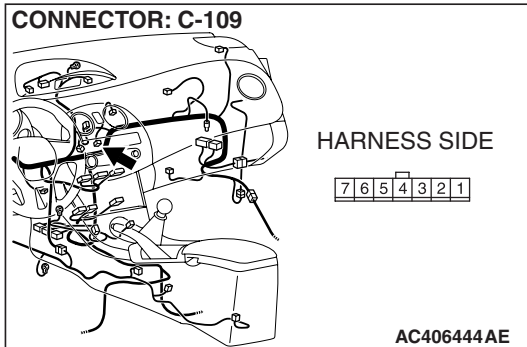
Recheck if the DTC is set.

- (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 heater control.

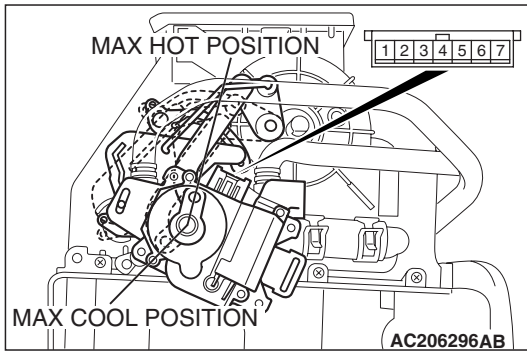


STEP 3. Check air mixing damper control motor and potentiometer connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

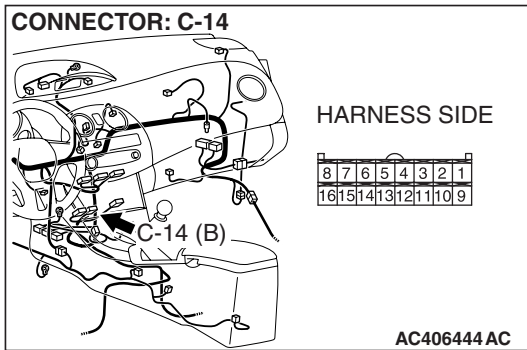
(2) Measure the resistances between connector terminals 3 and 5, and between 3 and 7, while the air mixing damper control motor is running. The resistances should change gradually within the standard value.

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.

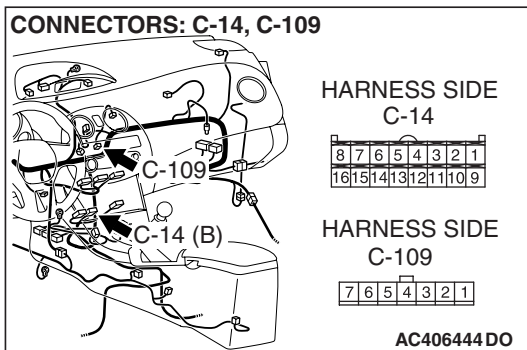


STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 in good condition?

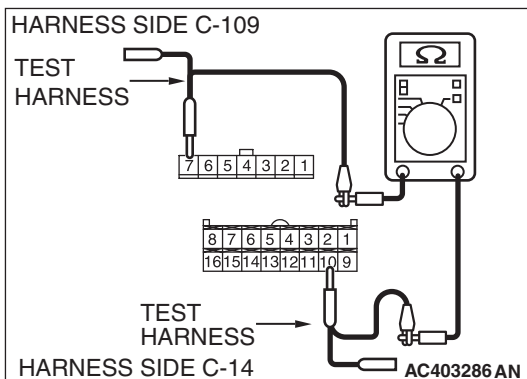
YES : Go to Step 6.

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-14 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-14 terminal 10 and air mixing damper control motor and potentiometer connector C-109 terminal 7.

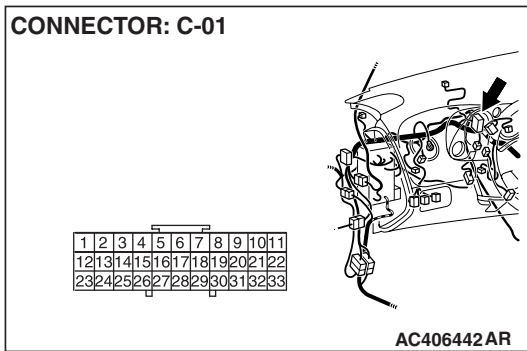
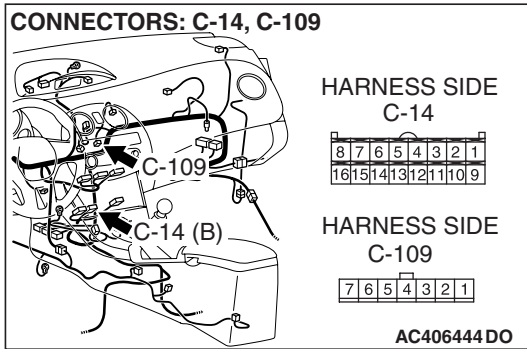
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 7.

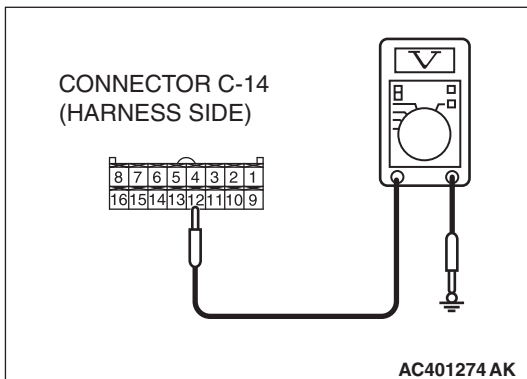
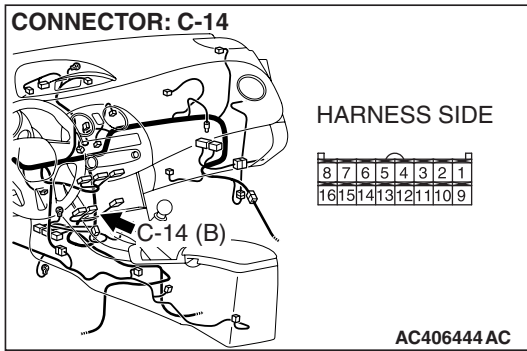
STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 10) and air mixing damper control motor and potentiometer connector C-109 (terminal 7).



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-14 (terminal 10) 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. Measure the voltage at A/C-ECU connector C-14.

- (1) Disconnect A/C-ECU connector C-14, 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.

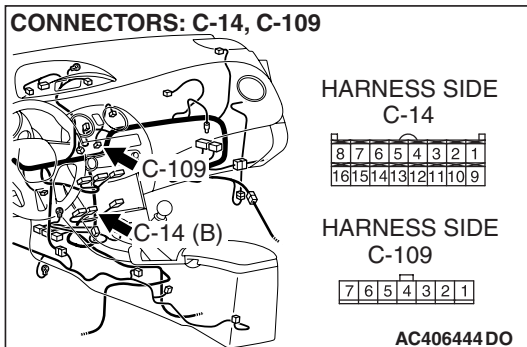
- (4) Measure the voltage between terminal 12 and ground.

OK: 1.3 –1.5 volts

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-14 (terminal 12) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 12) 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. 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.

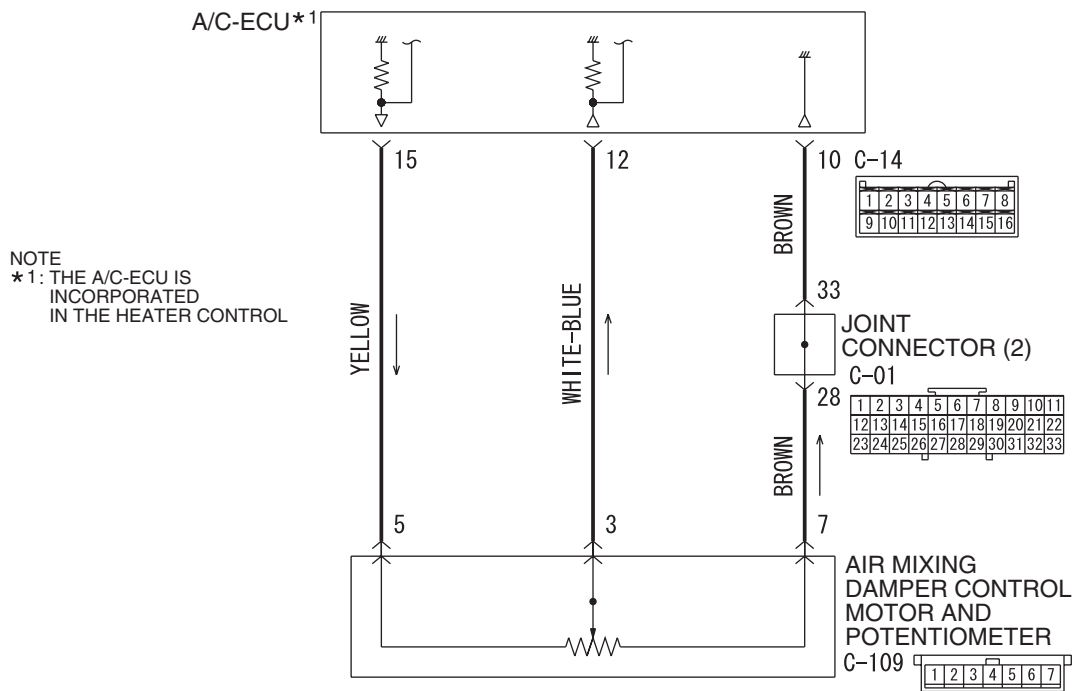
Refer to GROUP 00, How to Use

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

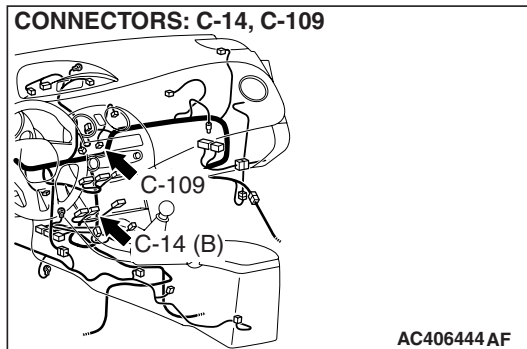
NO : Replace the heater control.

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

Air Mixing Damper Control Motor Potentiometer



W6P55M004A



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.

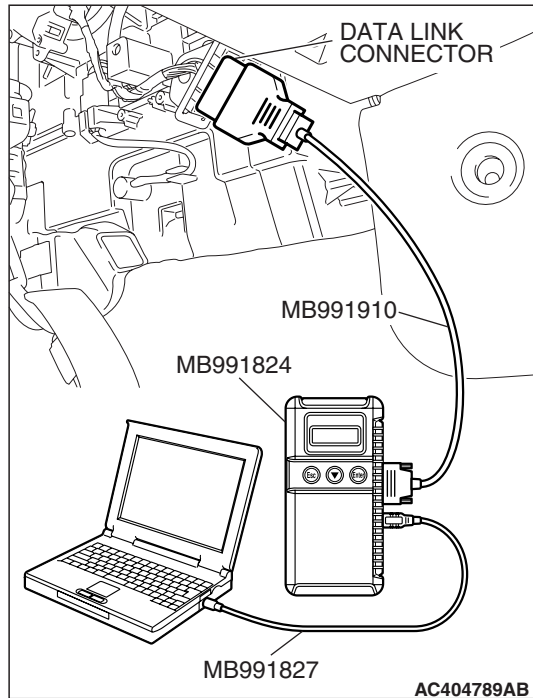
PROBABLE CAUSES

- 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: Does the heater control setposition match the scan tool displayed position?

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.

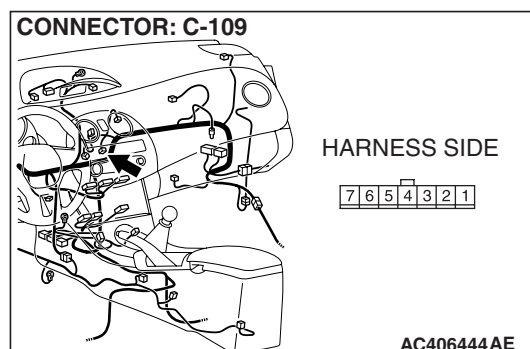
NO : Replace the heater control.

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.

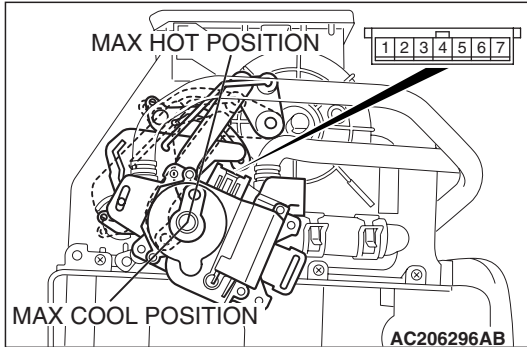


STEP 4. Check the air mixing damper control motor and potentiometer.

⚠ 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.

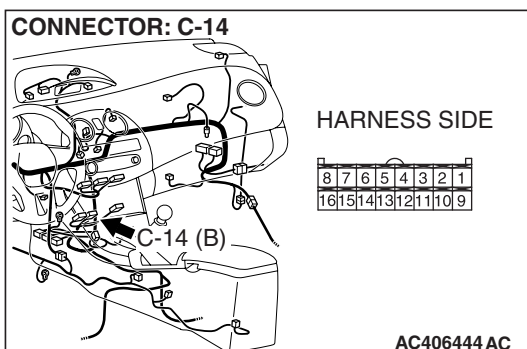
NO : Replace the air mixing damper control motor and potentiometer.

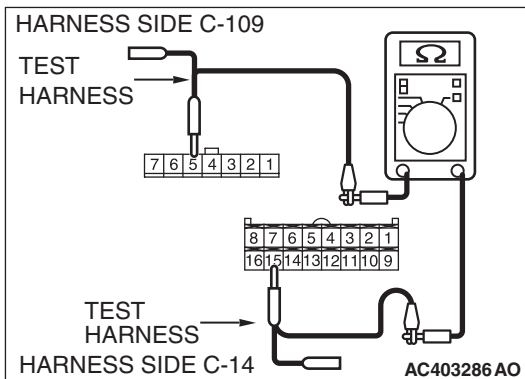
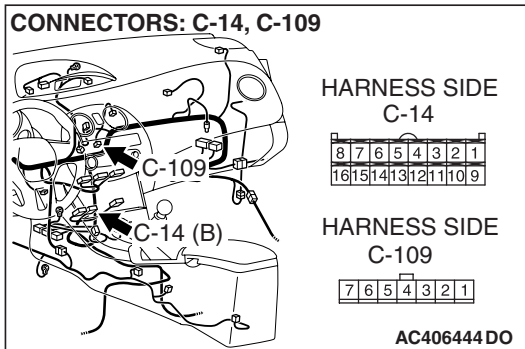
STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

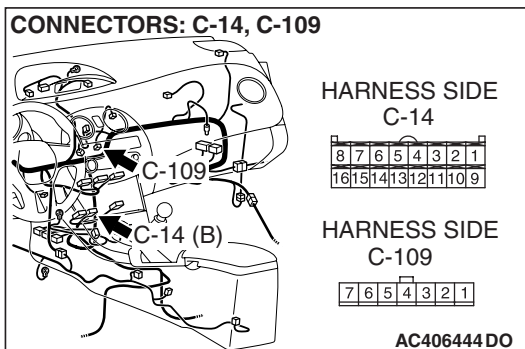
- (2) Measure the resistance between A/C-ECU connector C-14 terminal 15 and air mixing damper control motor and potentiometer connector C-109 terminal 5.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 8.

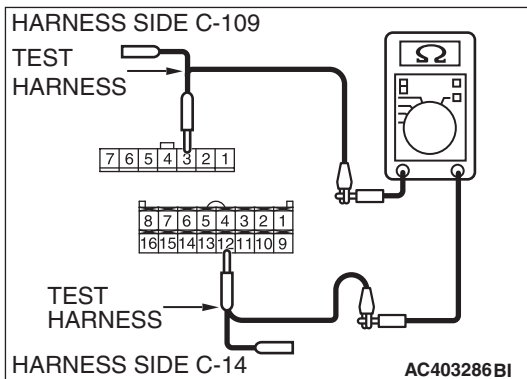
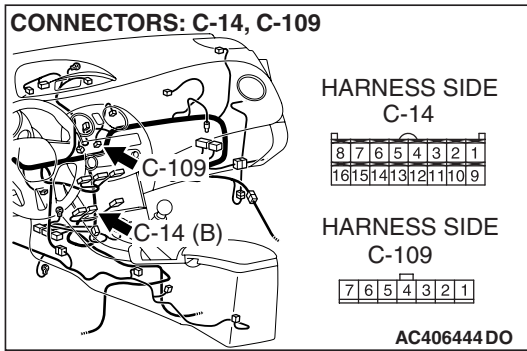
NO : Go to Step 7.

**STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 15) and air mixing damper control motor and potentiometer connector C-109 (terminal 5).**

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 15) 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-14 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

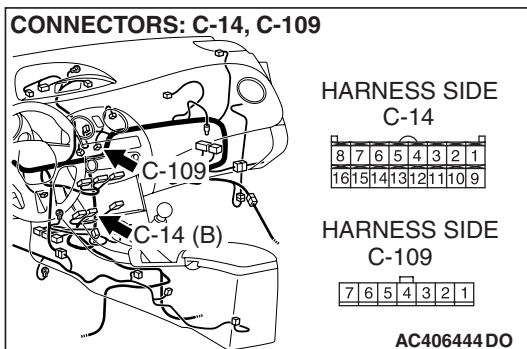
- (2) Measure the resistance between A/C-ECU connector C-14 terminal 12 and air mixing damper control motor and potentiometer connector C-109 terminal 3.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 10.

NO : Go to Step 9.

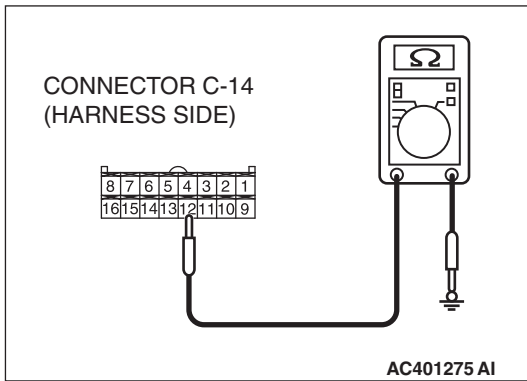
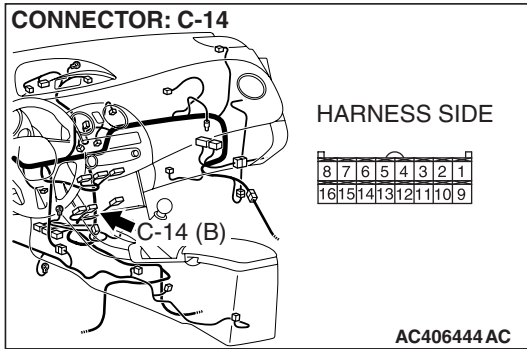


STEP 9. Check the wiring harness between A/C-ECU connector C-14 (terminal 12) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 12) 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

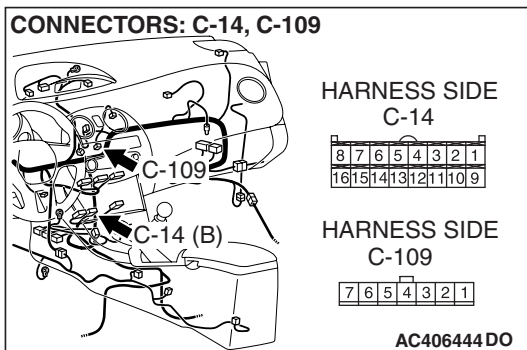
(2) Measure the resistance value between terminal 12 and ground.

OK: 1kΩ or more

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

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between A/C-ECU connector C-14 (terminal 12) and air mixing damper control motor and potentiometer connector C-109 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 12) 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?

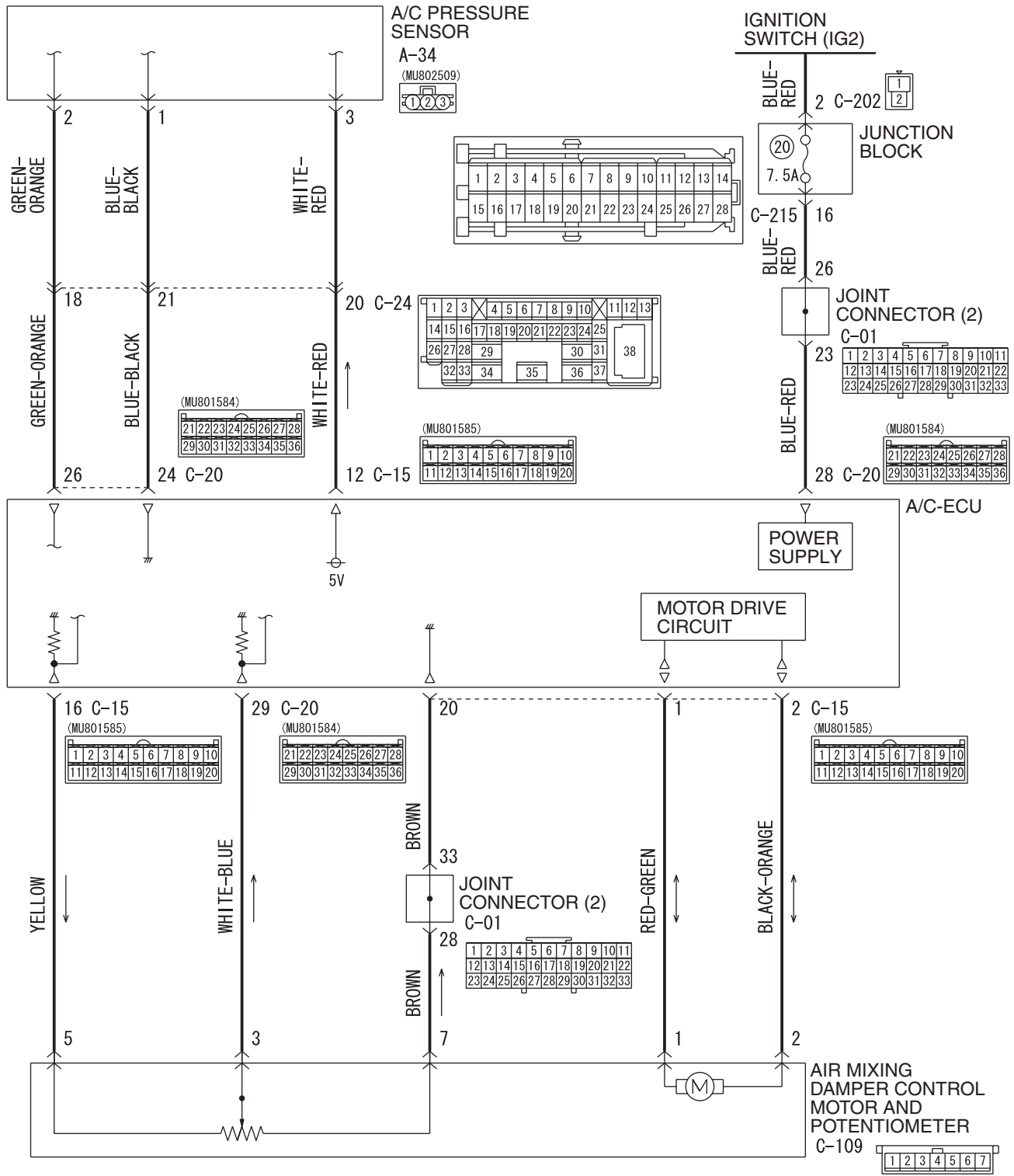
YES : It can be assumed that this malfunction is intermittent.

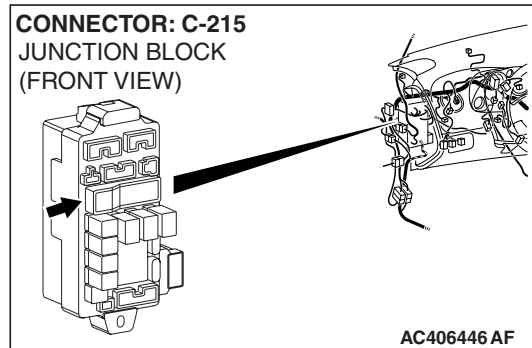
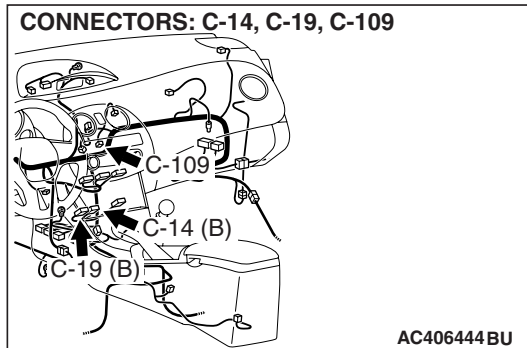
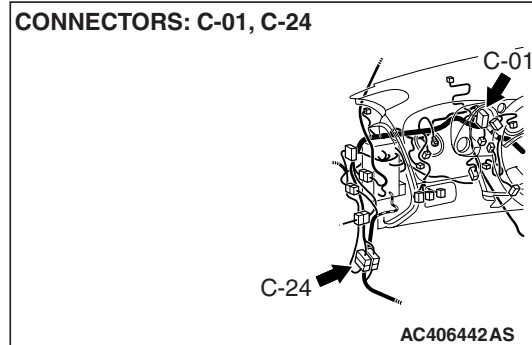
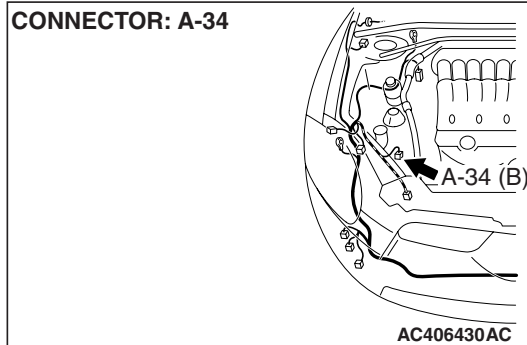
Refer to GROUP 00, How to Use

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

NO : Replace the heater control.

DTC B1045: Air Mixing Damper Control Motor and Potentiometer (Activating system failure)





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.

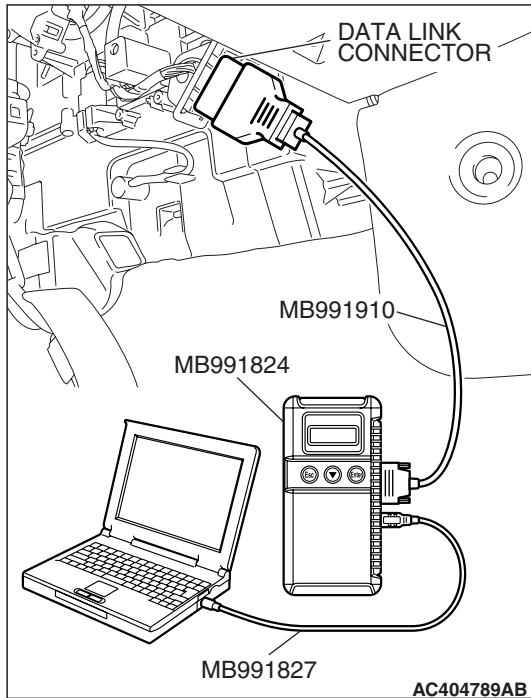
PROBABLE CAUSES

- 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
- 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, 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.

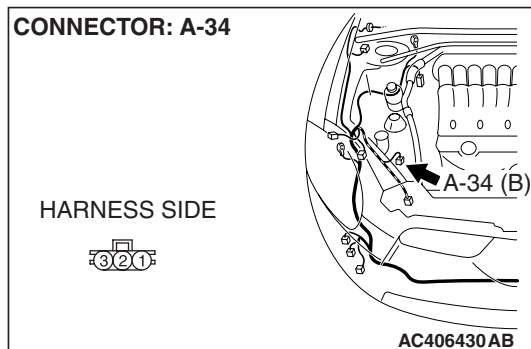
Q: Is only diagnostic trouble code B1045 set?

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

NO <B1041 is set simultaneously> : Refer to [P.00-14](#).

NO <B1042 is set simultaneously> : Refer to [P.00E-2](#).

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

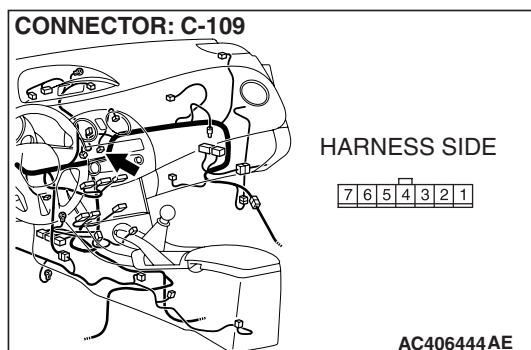


STEP 2. Check air mixing damper control motor and potentiometer connector C-109 and A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

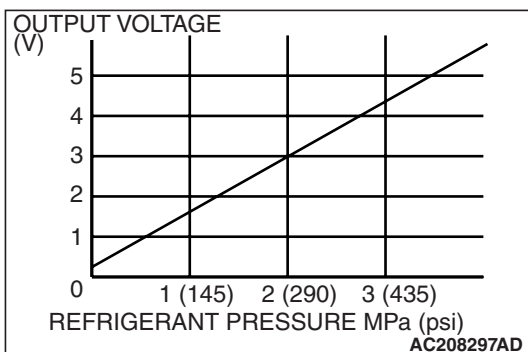
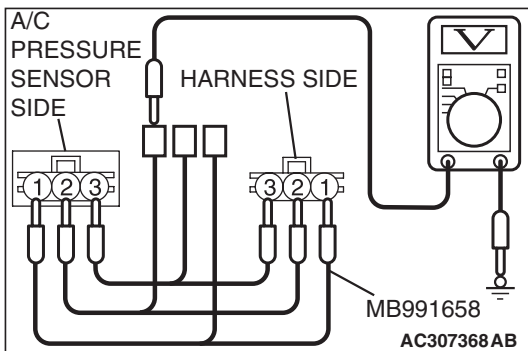
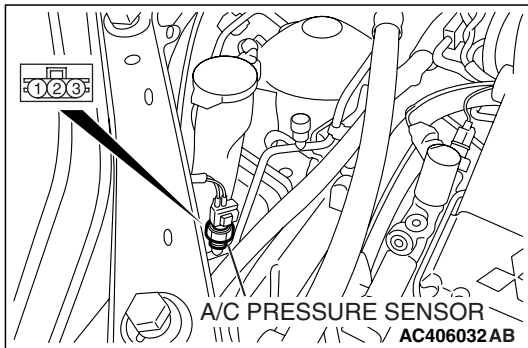
YES : Go to Step 3.

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 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 4.

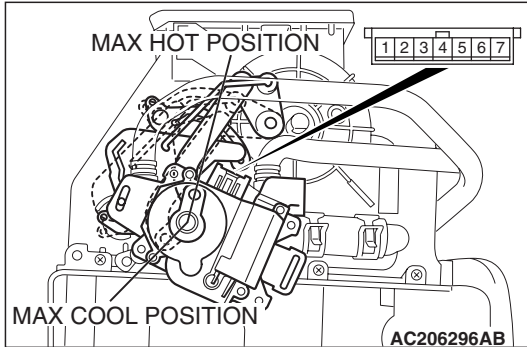
NO : Replace the A/C pressure sensor. Check that the A/C works normally.

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.

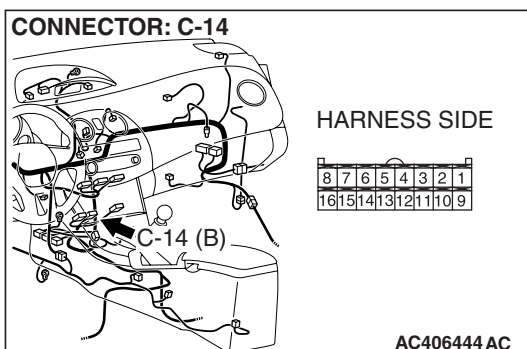
NO : Replace the air mixing damper control motor and potentiometer.

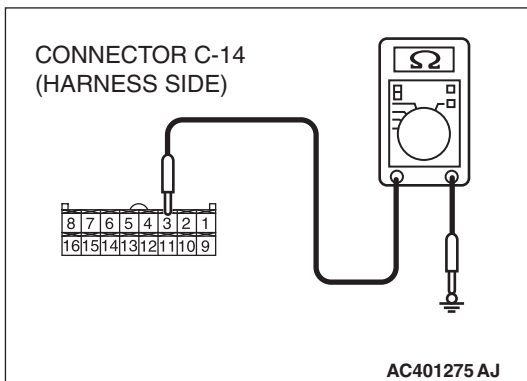
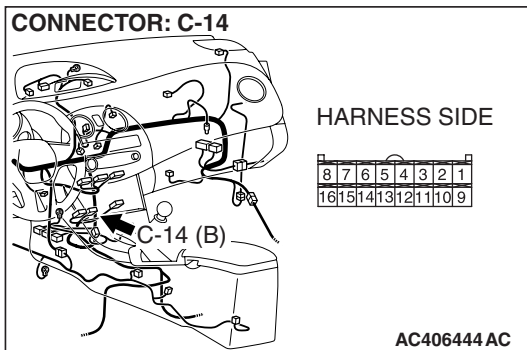
STEP 5. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 3 and ground.

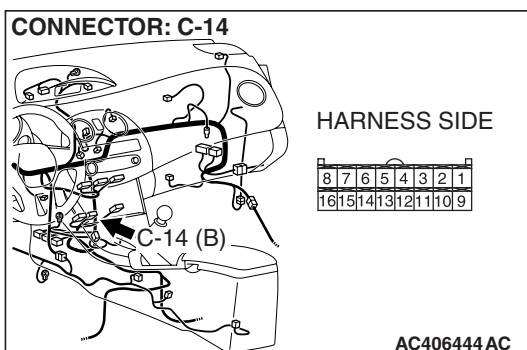
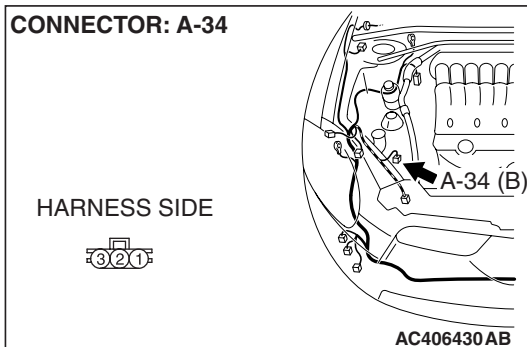
OK: 1.5 kΩ or more

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

YES : Go to Step 8.

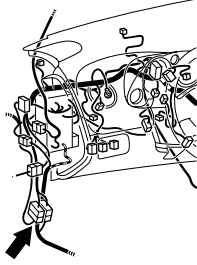
NO : Go to Step 7.

STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 16) and A/C pressure sensor connector A-34 (terminal 3).



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

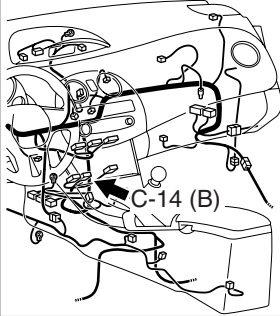
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 16) 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-14



HARNESS SIDE

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

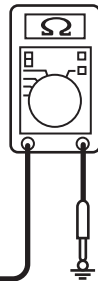
AC406444 AC

STEP 8. Measure the resistance at A/C-ECU connector C-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

CONNECTOR C-14
(HARNESS SIDE)

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



AC401275 AK

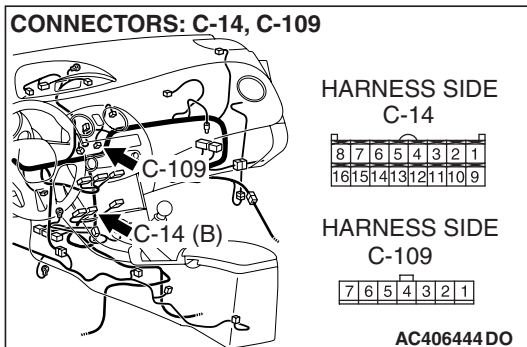
(2) Measure the resistance value between terminal 15 and ground.

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-14 (terminal 15) and air mixing damper control motor and potentiometer connector C-109 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 15) 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 heater control.

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

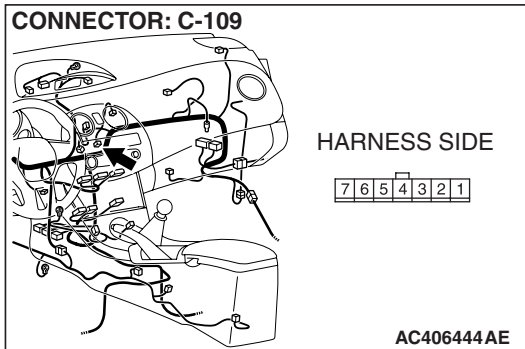
Troubleshooting/Inspection Service Points –How to
Cope with Intermittent Malfunctions [P.00-14](#).

NO : Replace the heater control.

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](#).

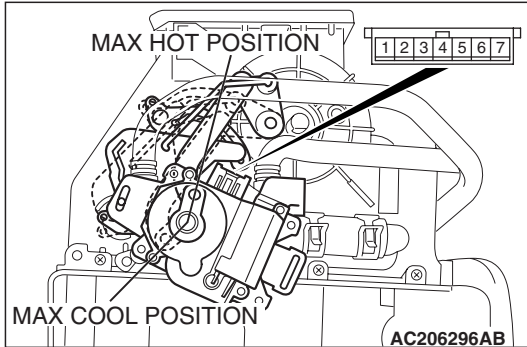


STEP 14. Check the air mixing damper control motor and potentiometer.

⚠ 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.

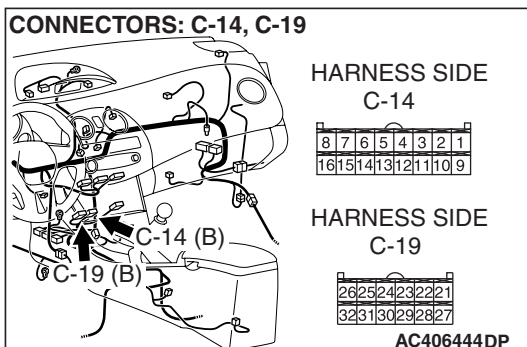
NO : Replace the air mixing damper control motor and potentiometer.

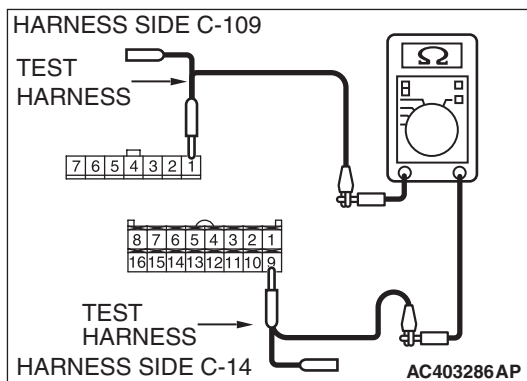
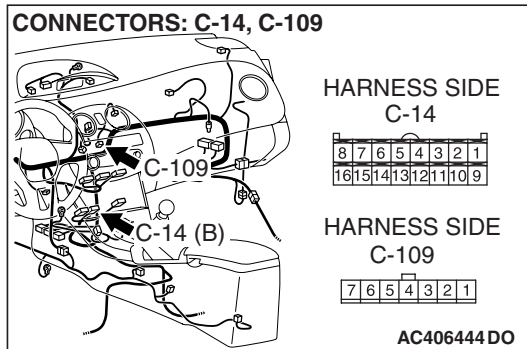
STEP 15. Check A/C-ECU connector C-14 and C-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-14 and C-19 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-14 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

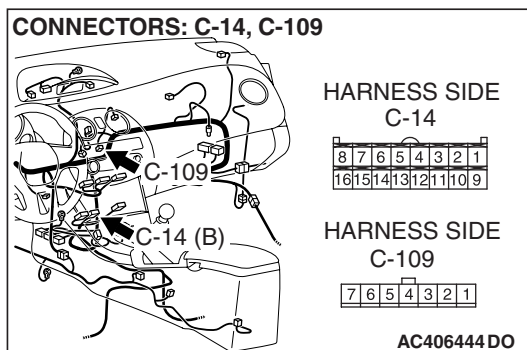
- (2) Measure the resistance between A/C-ECU connector C-14 terminal 9 and air mixing damper control motor and potentiometer connector C-109 terminal 1.

OK: Less than 2 ohms

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

YES : Go to Step 18.

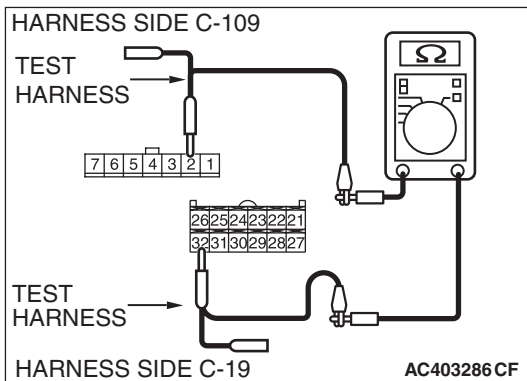
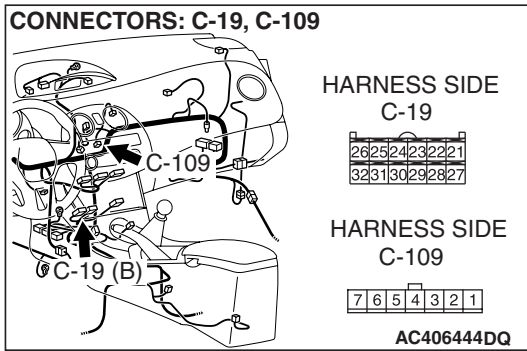
NO : Go to Step 17.

**STEP 17. Check the wiring harness between A/C-ECU connector C-14 (terminal 9) and air mixing damper control motor and potentiometer connector C-109 (terminal 1).**

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 9) 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-19 and air mixing damper control motor and potentiometer connector C-109, and measure the resistance at the wiring harness side.

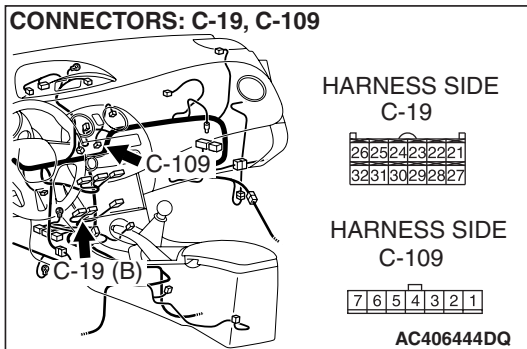
- (2) Measure the resistance between A/C-ECU connector C-19 terminal 32 and air mixing damper control motor and potentiometer connector C-109 terminal 2.

OK: Less than 2 ohms

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

YES : Go to Step 20.

NO : Go to Step 19.

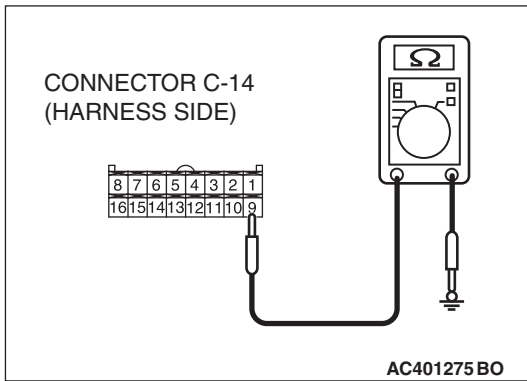
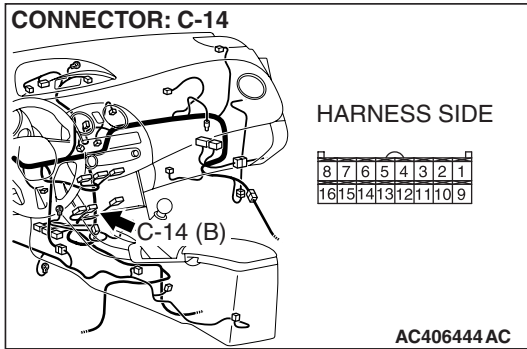


STEP 19. Check the wiring harness between A/C-ECU connector C-19 (terminal 32) and air mixing damper control motor and potentiometer connector C-109 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 32) 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

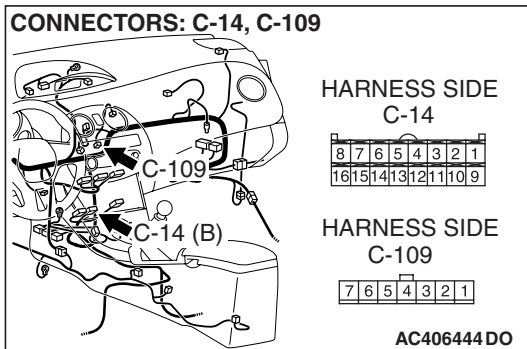
(2) Measure the resistance value between terminal 9 and ground.

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.

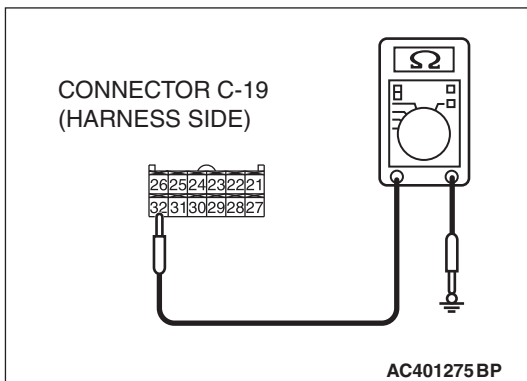
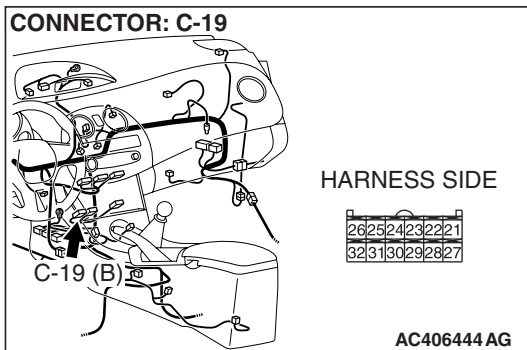


STEP 21. Check the wiring harness between A/C-ECU connector C-14 (terminal 9) and air mixing damper control motor and potentiometer connector C-109 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 9) 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-19.

(1) Disconnect A/C-ECU connector C-19, and measure the resistance at the wiring harness side.

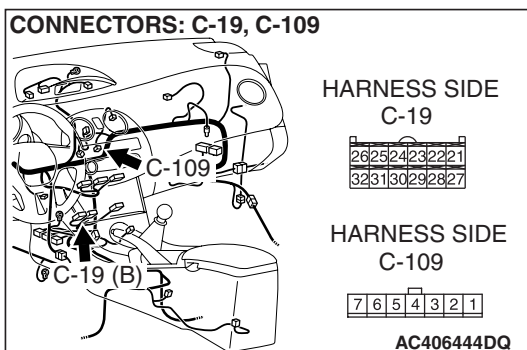
(2) Measure the resistance value between terminal 32 and ground.

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.



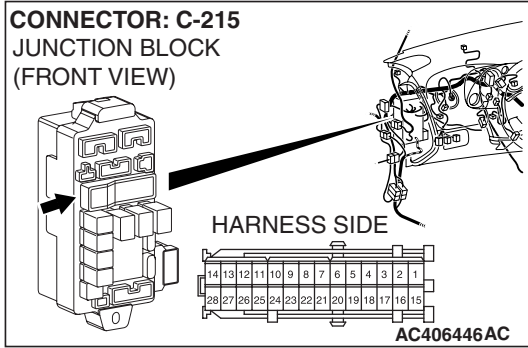
STEP 23. Check the wiring harness between A/C-ECU connector C-19 (terminal 32) and air mixing damper control motor and potentiometer connector C-109 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 32) 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.

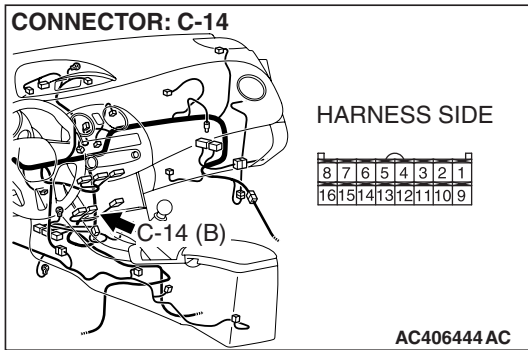


STEP 24. Check junction block connector C-215 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

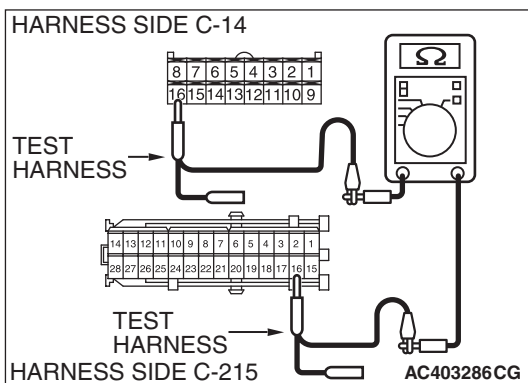
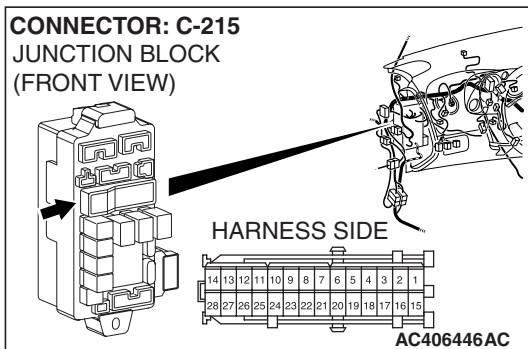
YES : Go to Step 25.

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-14 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-14 terminal 16 and junction block connector C-215 terminal 16.

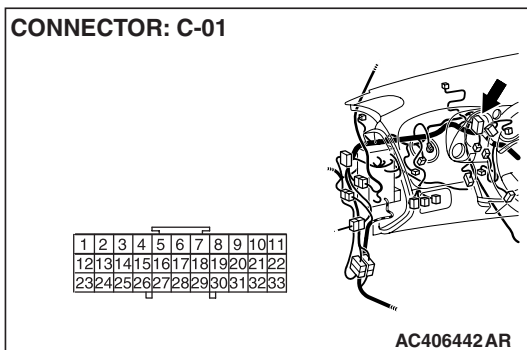
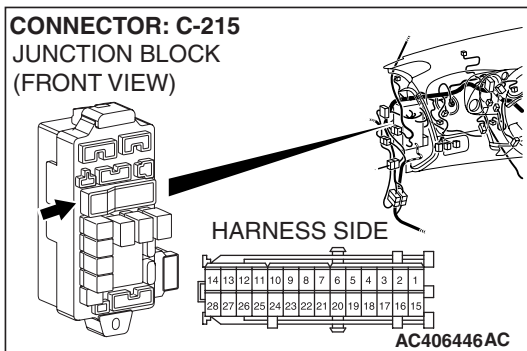
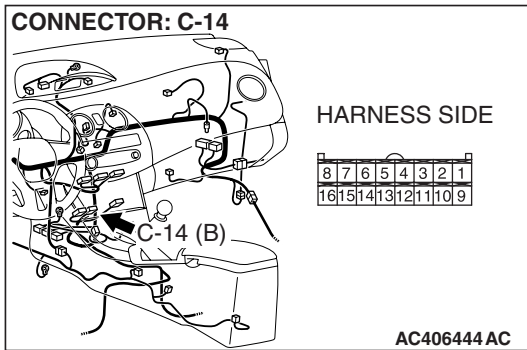
OK: Less than 2 ohms

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

YES : Go to Step 27.

NO : Go to Step 26.

STEP 26. Check the wiring harness between A/C-ECU connector C-14 (terminal 16) 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-14 (terminal 16) 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.

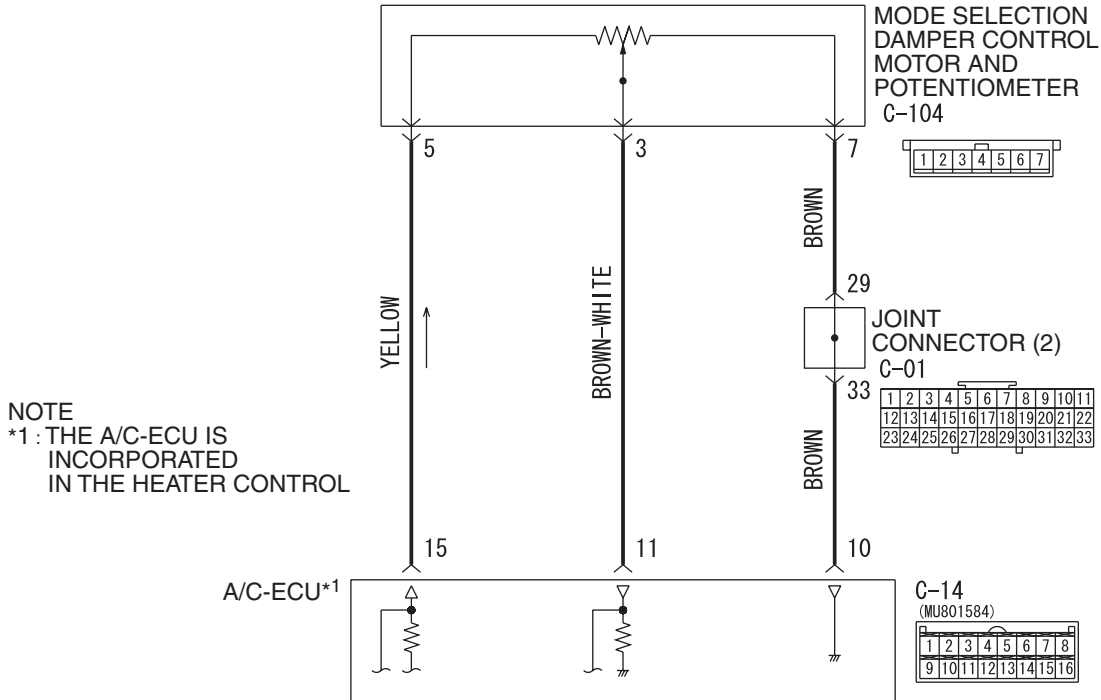
- (1) Erase the DTC.
- (2) Turn the ignition switch to "OFF" position.
- (3) Turn the ignition switch to "ON" position.
- (4) Drive the vehicle and check if the diagnostic trouble code is set.

Q: Is the check result satisfactory?

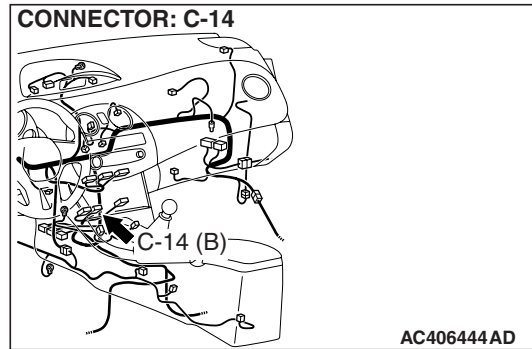
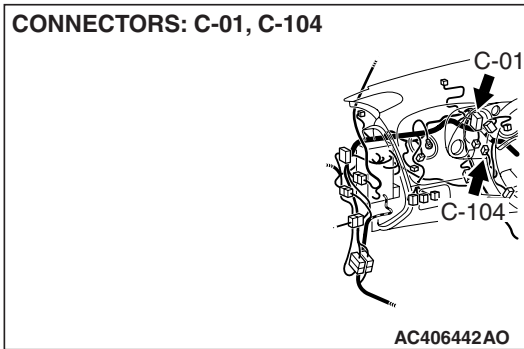
- YES :** It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.
- NO :** Replace the heater control.

DTC B1061: Mode Selection Damper Control Motor and Potentiometer (Potentiometer System Shorted to its Power Supply)

Mode Selection Damper Control Motor Potentiometer Circuit



W6P55M008A



FUNCTION

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

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 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)

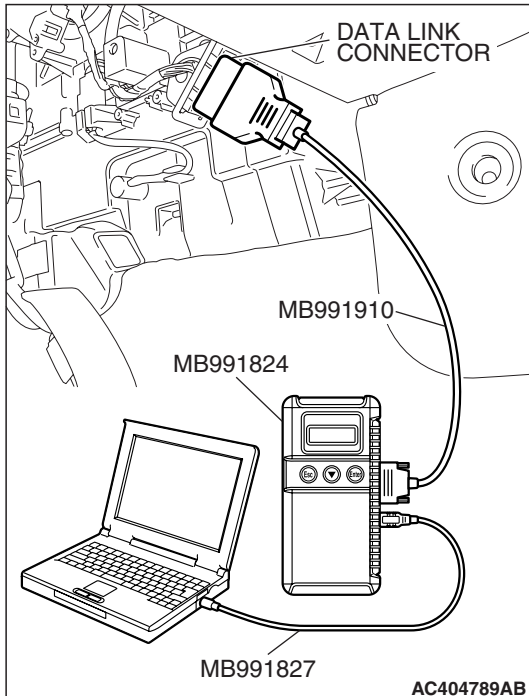
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

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

Q: Is the check result satisfactory?

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](#).

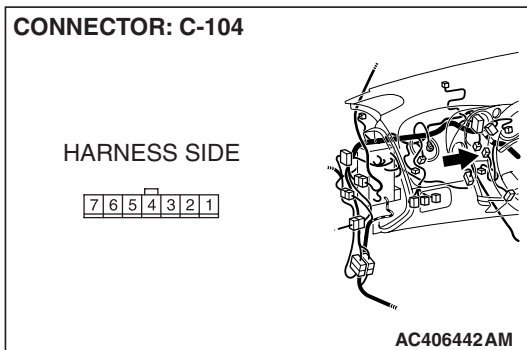
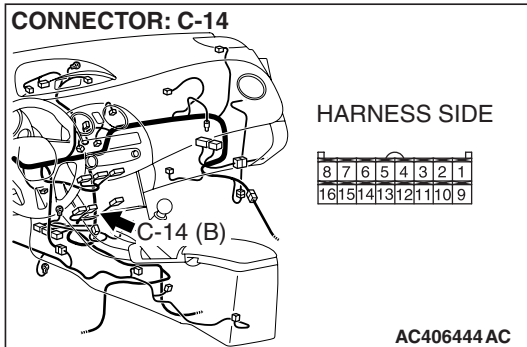
NO : Replace the heater control.

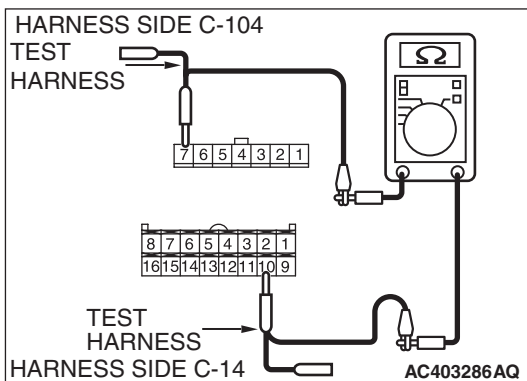
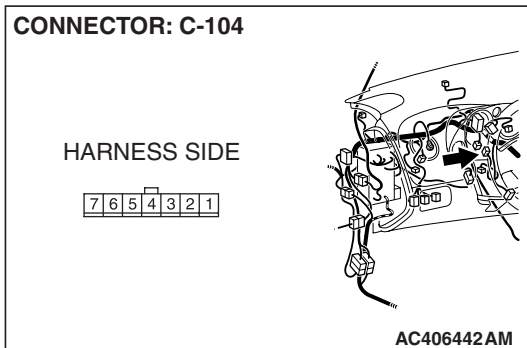
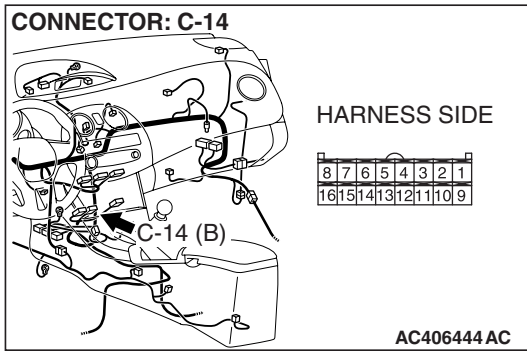
STEP 3. Check A/C-ECU connector C-14 and mode selection damper control motor and potentiometer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-14 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-14 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-14 terminal 10 and mode selection damper control motor and potentiometer connector C-104 terminal 7.

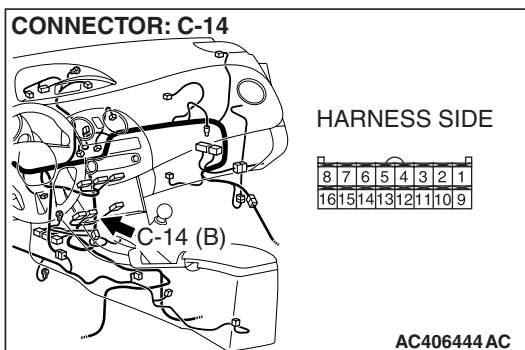
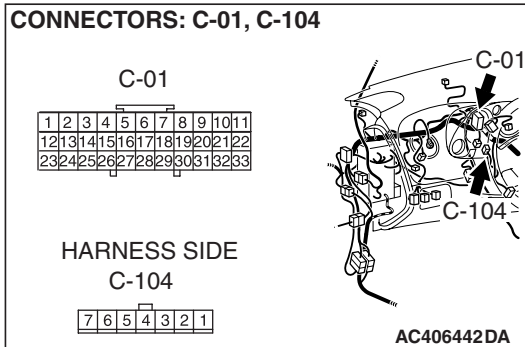
OK: Less than 2 ohms

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-14 (terminal 10) and mode selection damper control motor and potentiometer connector C-104 (terminal 7).

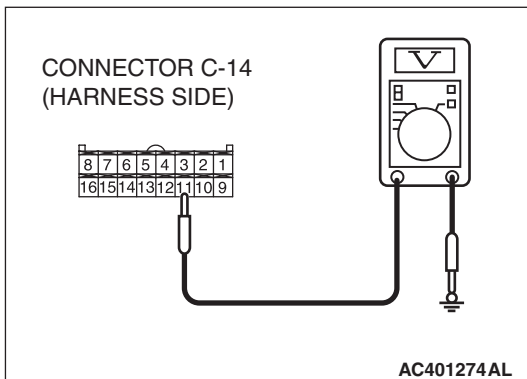
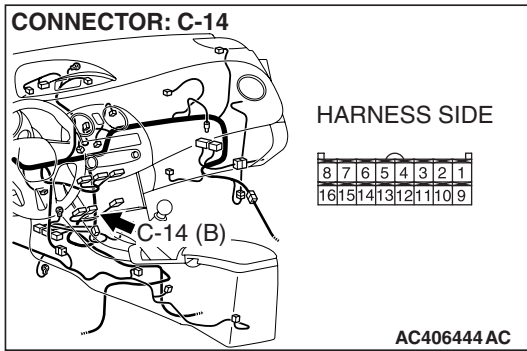


NOTE: Also check joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 10) 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-14.

- (1) Disconnect A/C-ECU connector C-14, 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.

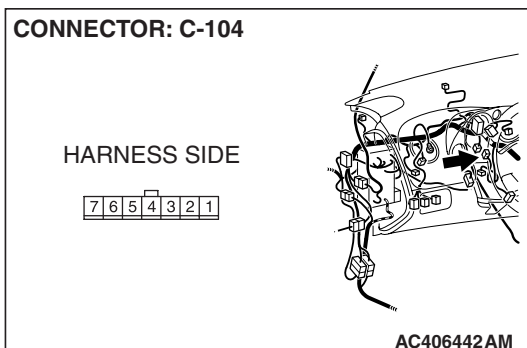
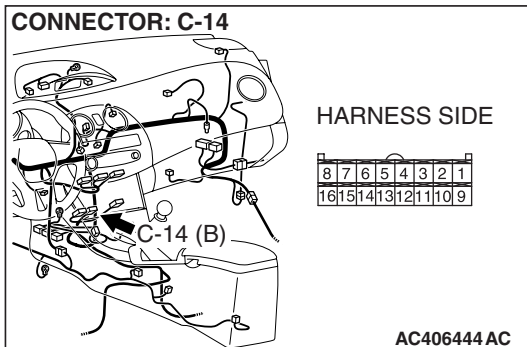
- (4) Measure the voltage between terminal 11 and ground.

OK: 0.4 – 0.8 volt

Q: Is the check result satisfactory?

YES : Go to Step 8.

NO : Go to Step 7.



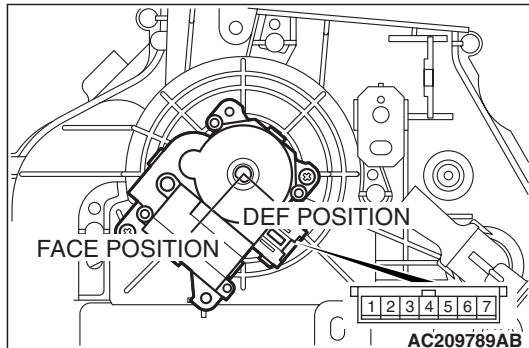
STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 3) in good condition?

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 11) 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.

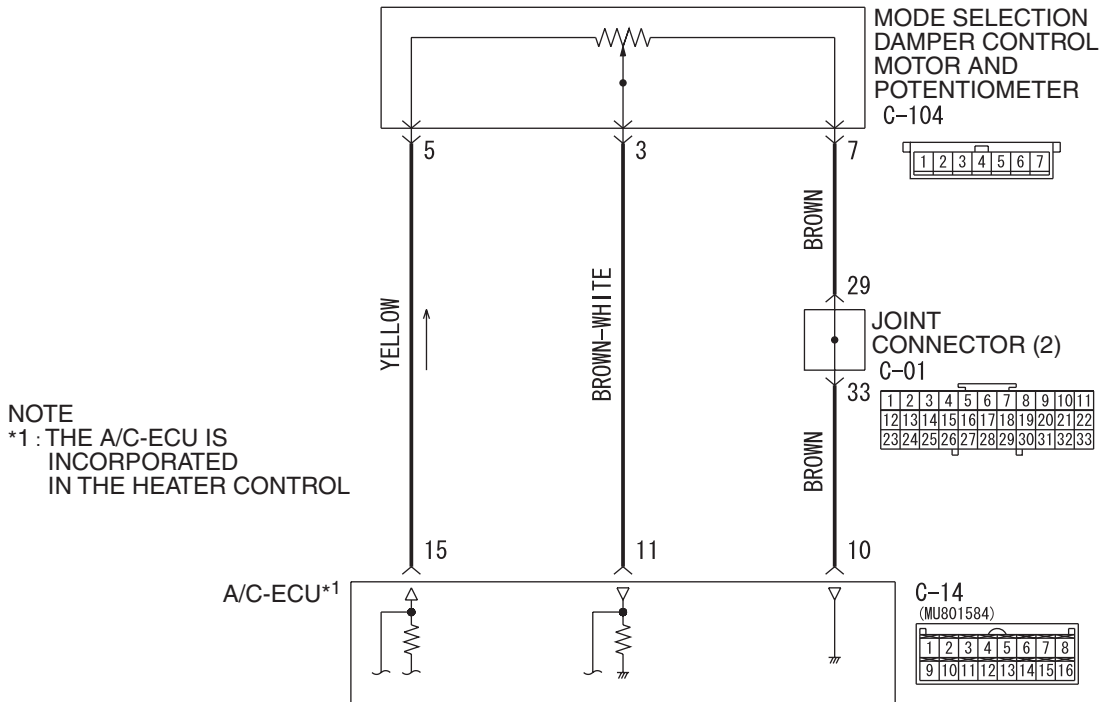
Q: Is the check result satisfactory?

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](#).

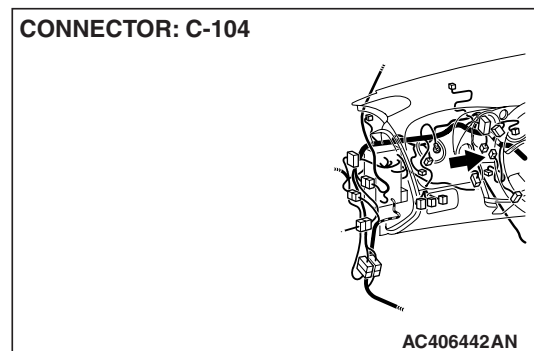
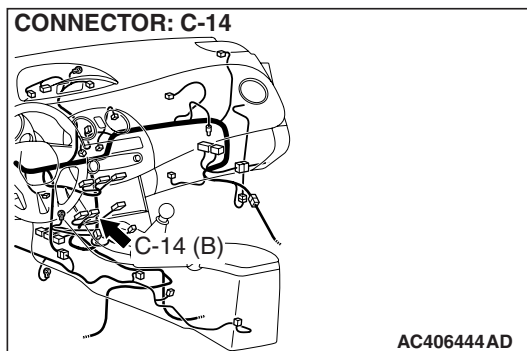
NO : Replace the heater control.

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

Mode Selection Damper Control Motor Potentiometer Circuit



W6P55M008A



FUNCTION

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

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)

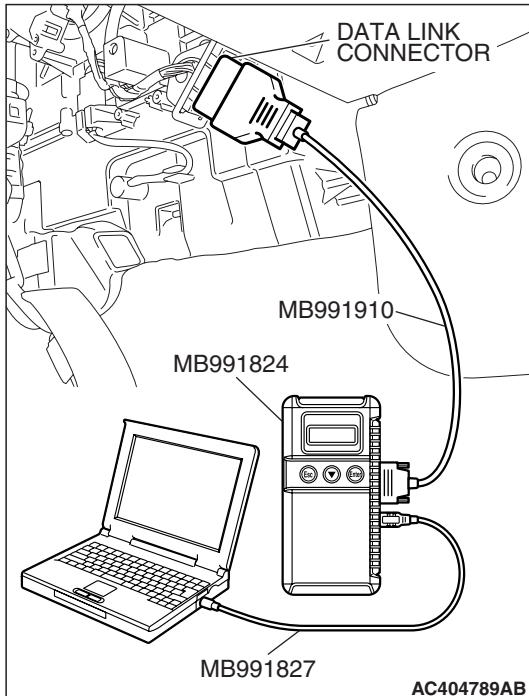
NOTE: Check that the set position of the heater control matches the displayed position on the scan tool.

- (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.

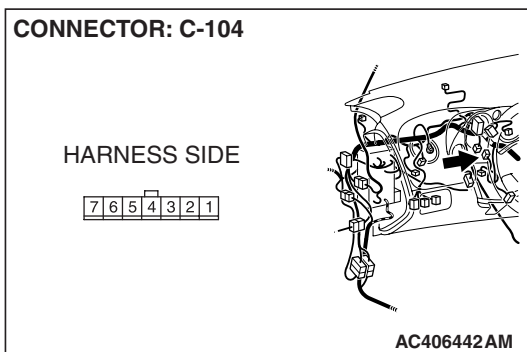
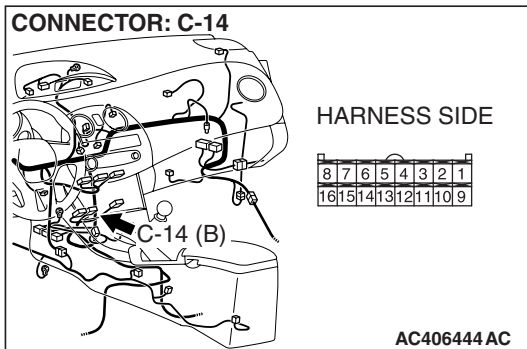
Q: Is the check result satisfactory?

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 heater control.

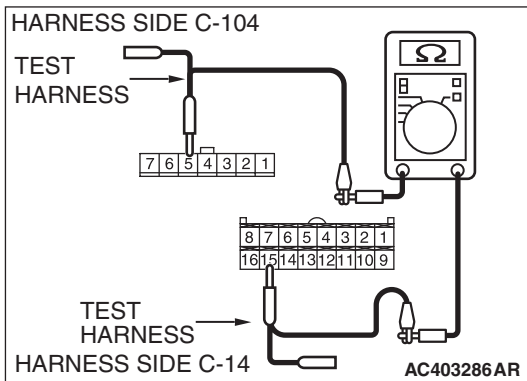
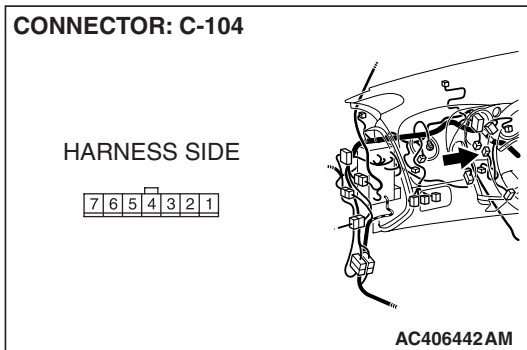
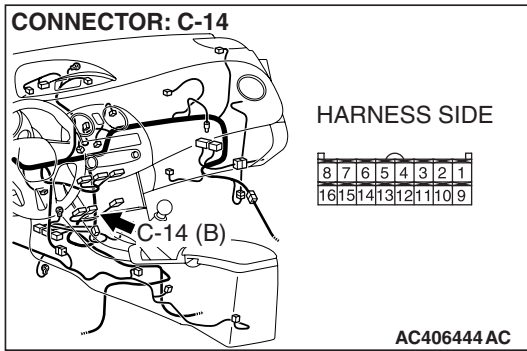


STEP 3. Check A/C-ECU connector C-14 and mode selection damper control motor and potentiometer connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connector C-14 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-14 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-14 terminal 15 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.

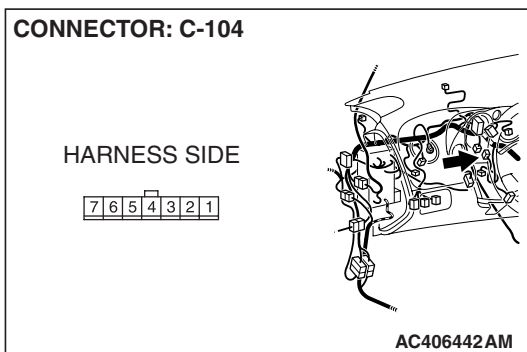
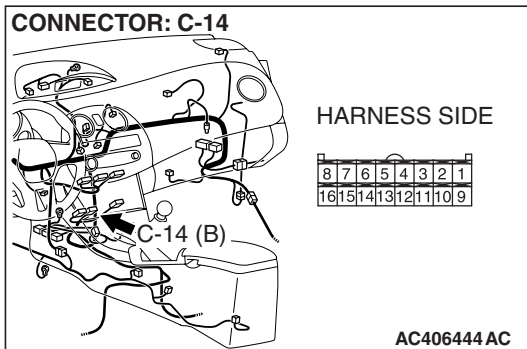
NO : Go to Step 5.

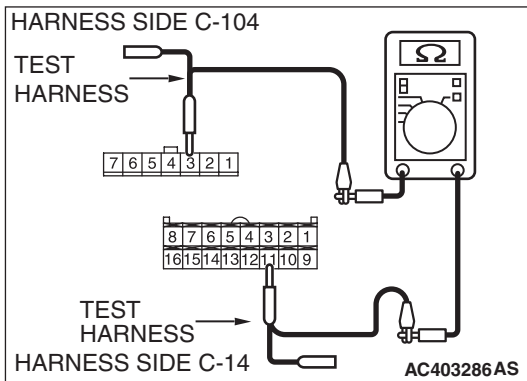
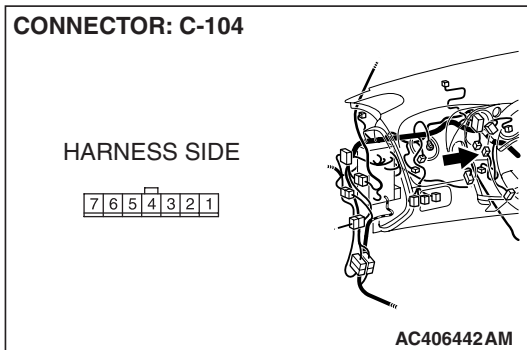
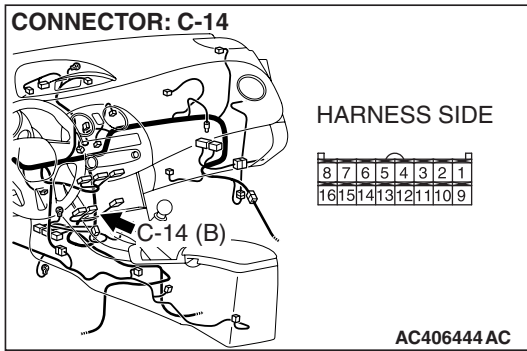
STEP 5. Check the wiring harness between A/C-ECU connector C-14 (terminal 15) and mode selection damper control motor and potentiometer connector C-104 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 15) 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-14 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.

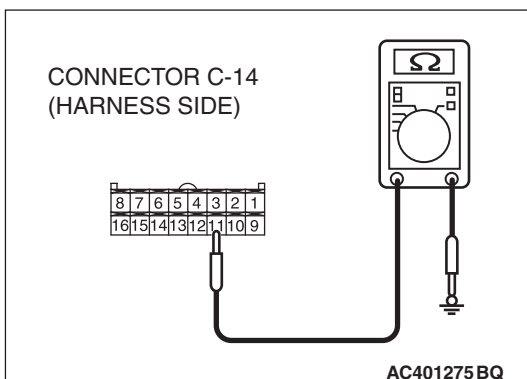
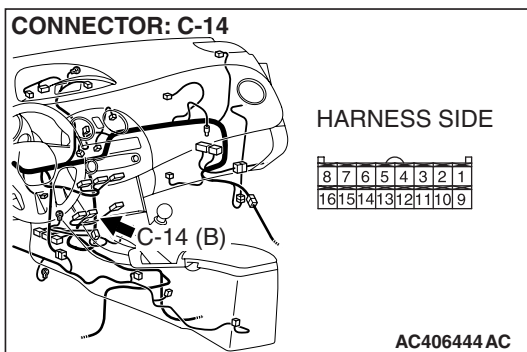
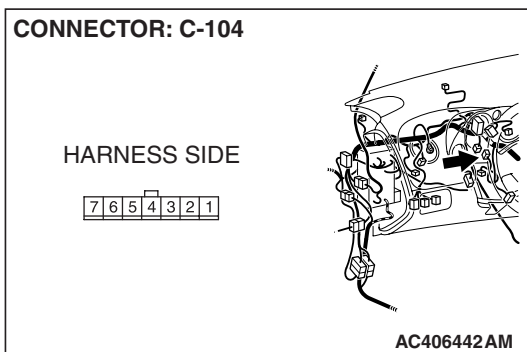
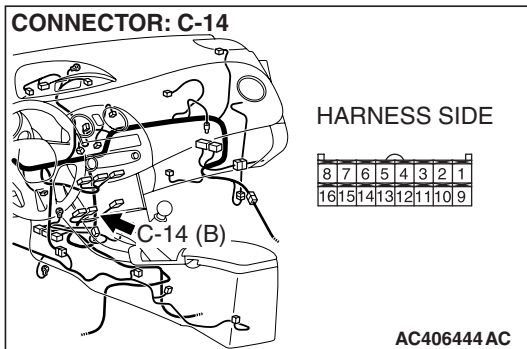
- (2) Measure the resistance between A/C-ECU connector C-14 terminal 11 and mode selection damper control motor and potentiometer connector C-104 terminal 3.

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-14 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 11) 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-14.

- (1) Disconnect A/C-ECU connector C-14, 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 11 and ground.

OK: 1 kΩ or more

Q: Is the check result satisfactory?

YES : Go to Step 10.

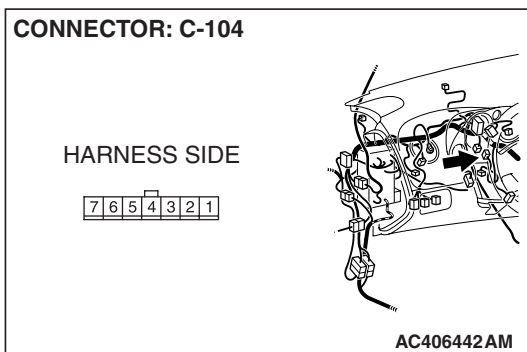
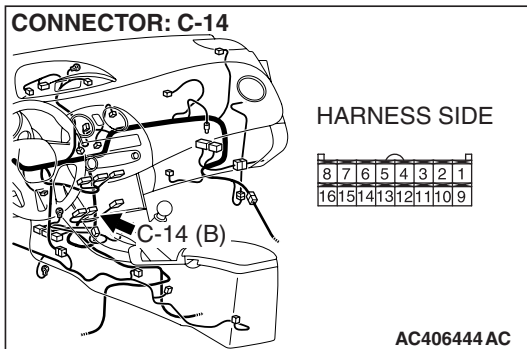
NO : Go to Step 9.

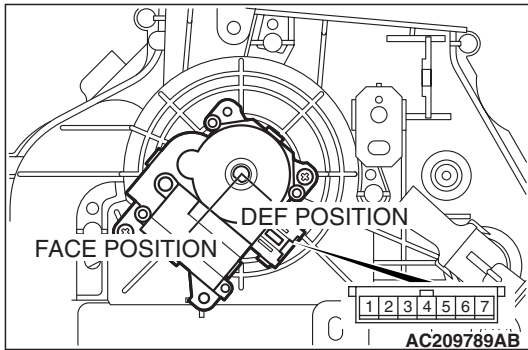
STEP 9. Check the wiring harness between A/C-ECU connector C-14 (terminal 11) and mode selection damper control motor and potentiometer connector C-104 (terminal 3).

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 11) 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?

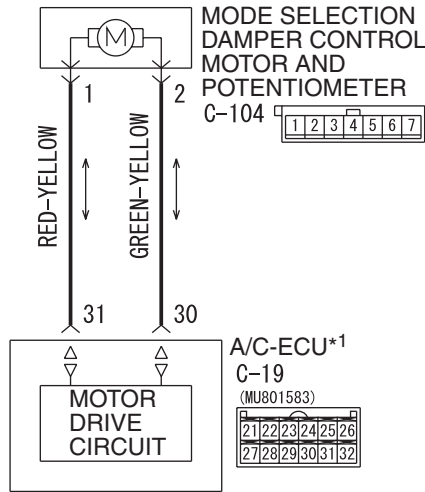
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Replace the heater control.

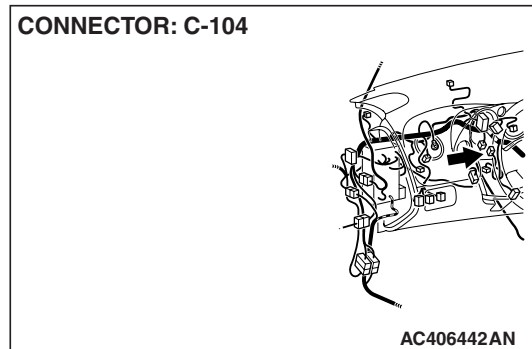
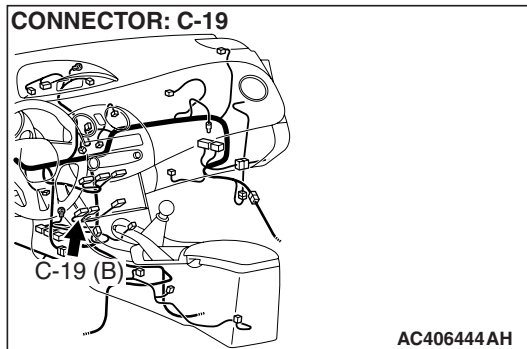
DTC B1065: Mode Selection Damper Control Motor and Potentiometer (Activating System Failure)

Mode Selection Damper Control Motor Circuit

NOTE
*1 : THE A/C-ECU IS INCORPORATED
IN THE HEATER CONTROL



W6P55M010A



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.

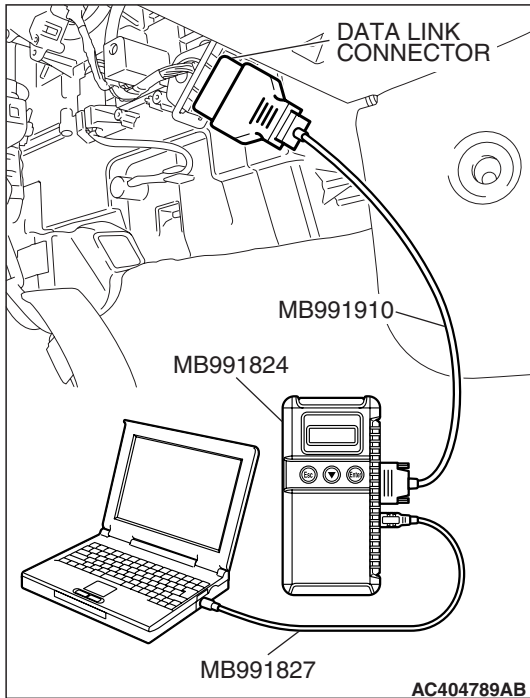
PROBABLE CAUSES

- 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-ECU.
- Malfunction of the A/C pressure sensor.

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 diagnostic trouble code B1045 set?

YES : Refer to [P.00-14](#).

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 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

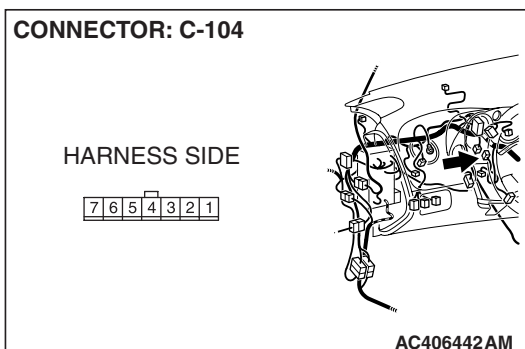
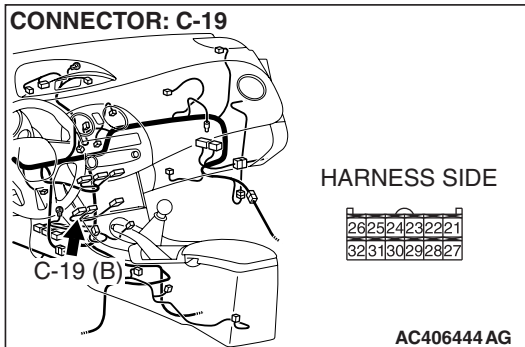
Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

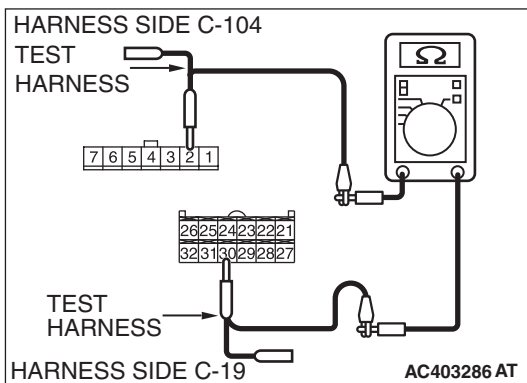
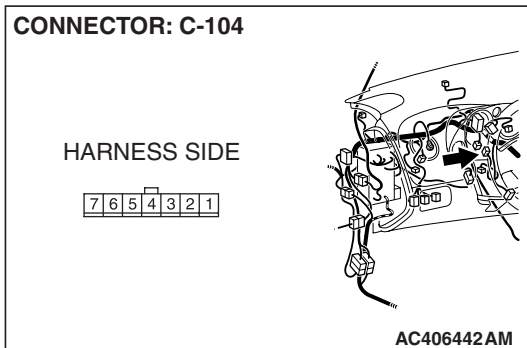
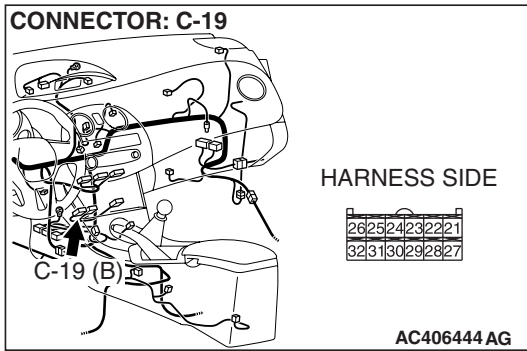
NO : Replace the heater control.

STEP 4. Check A/C-ECU connector C-19 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-19 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-19 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-19 terminal 30 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.

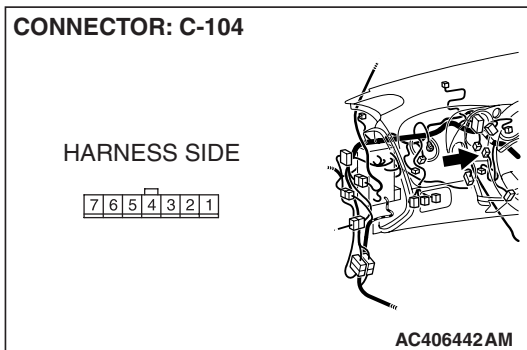
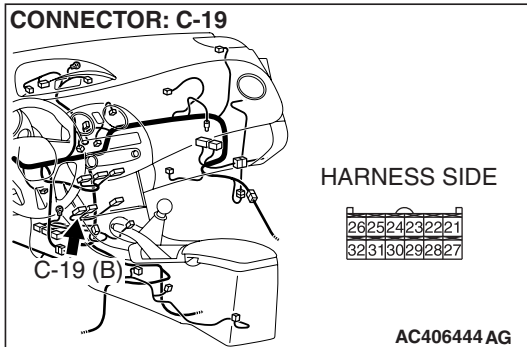
NO : Go to Step 6.

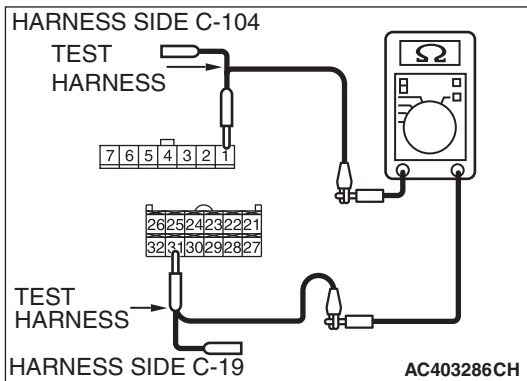
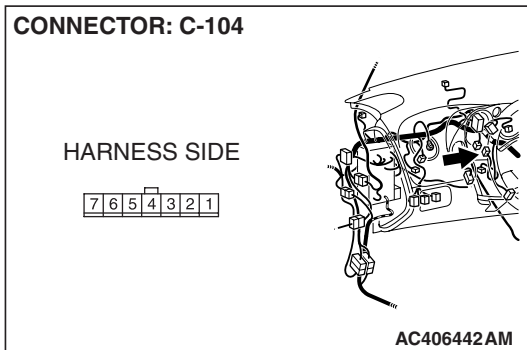
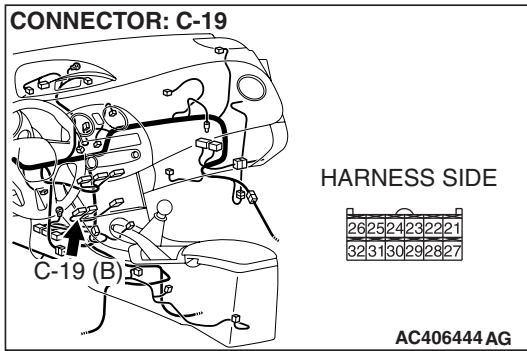
STEP 6. Check the wiring harness between A/C-ECU connector C-19 (terminal 30) and mode selection damper control motor and potentiometer connector C-104 (terminal 2).

Q: Is the wiring harnesses between A/C-ECU connector C-19 (terminal 30) and mode selection damper control motor and potentiometer connector C-104 (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 7. Check the wiring harness for open circuit.

- (1) Disconnect A/C-ECU connector C-19 and mode selection damper control motor and potentiometer connector C-104, and measure the resistance at the wiring harness side.

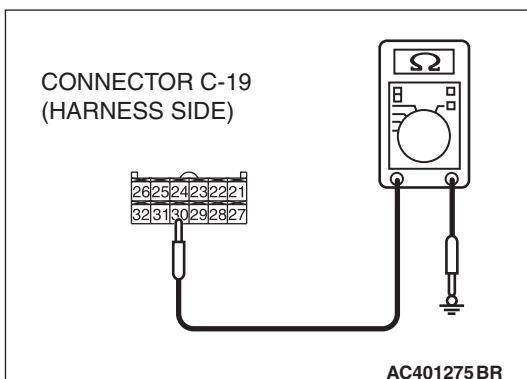
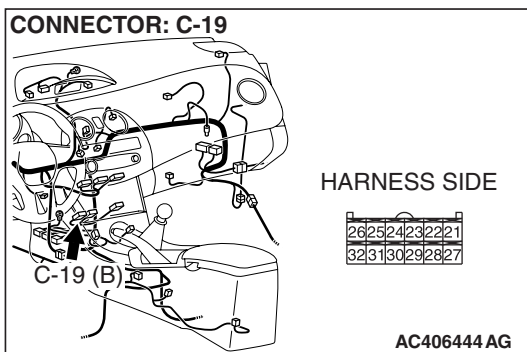
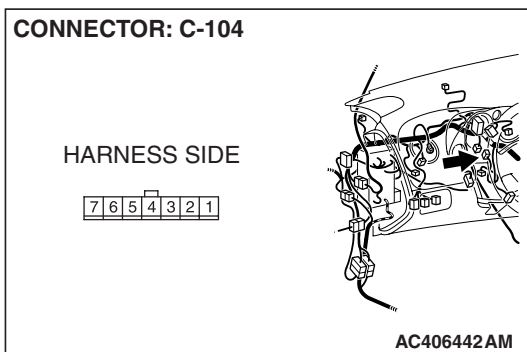
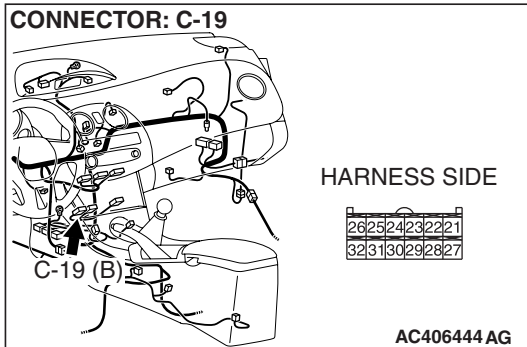
- (2) Measure the resistance between A/C-ECU connector C-19 terminal 31 and mode selection damper control motor and potentiometer connector C-104 terminal 1.

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-19 (terminal 31) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harnesses between A/C-ECU connector C-19 (terminal 31) 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-19.

(1) Disconnect A/C-ECU connector C-19, and measure the resistance at the wiring harness side.

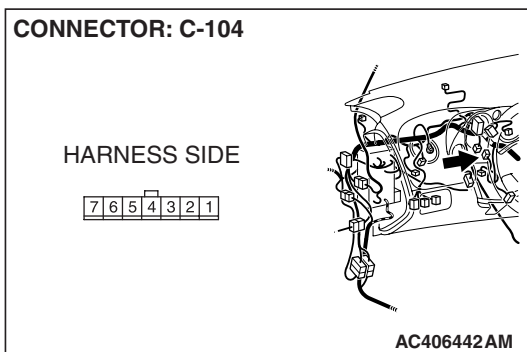
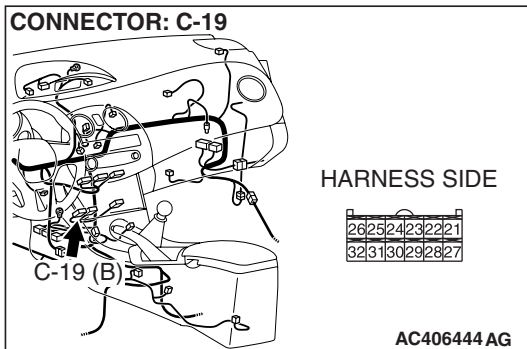
(2) Measure the resistance value between terminal 30 and ground.

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.

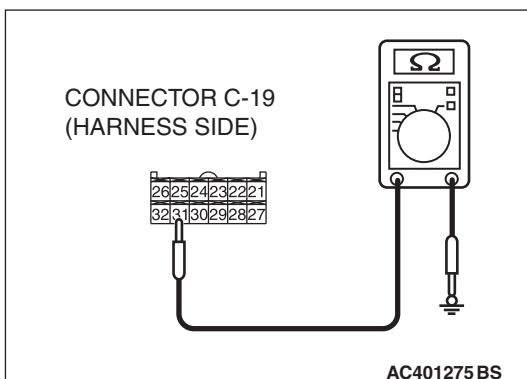
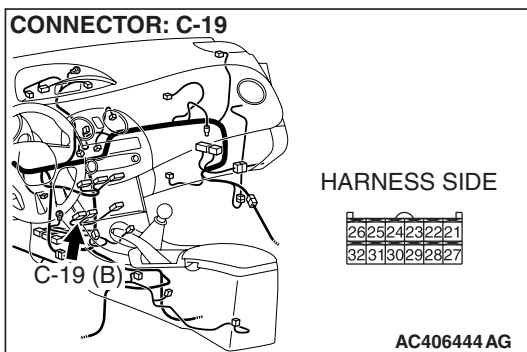


STEP 10. Check the wiring harness between A/C-ECU connector C-19 (terminal 30) and mode selection damper control motor and potentiometer connector C-104 (terminal 2).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 30) and mode selection damper control motor and potentiometer connector C-104 (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 11. Measure the resistance at A/C-ECU connector C-19.

(1) Disconnect A/C-ECU connector C-19, and measure the resistance at the wiring harness side.

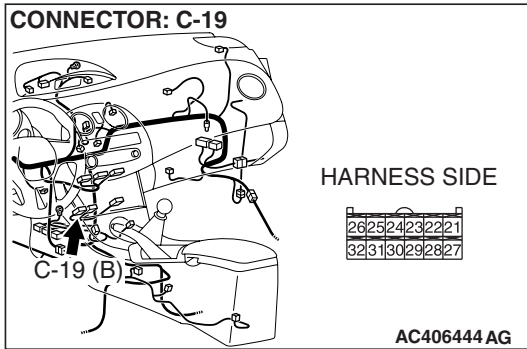
(2) Measure the resistance value between terminal 31 and ground.

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.

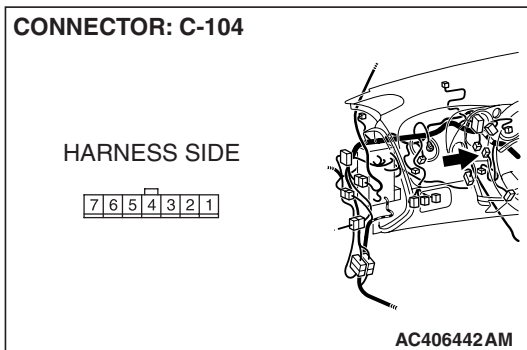


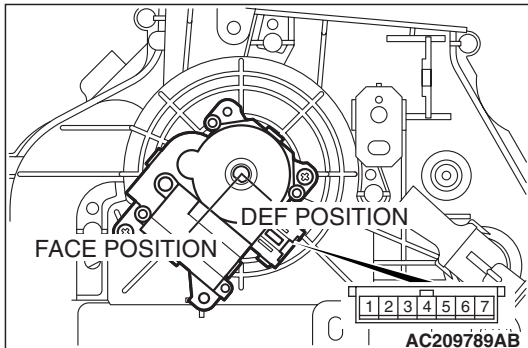
STEP 12. Check the wiring harness between A/C-ECU connector C-19 (terminal 31) and mode selection damper control motor and potentiometer connector C-104 (terminal 1).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 31) 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 heater control.

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

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**

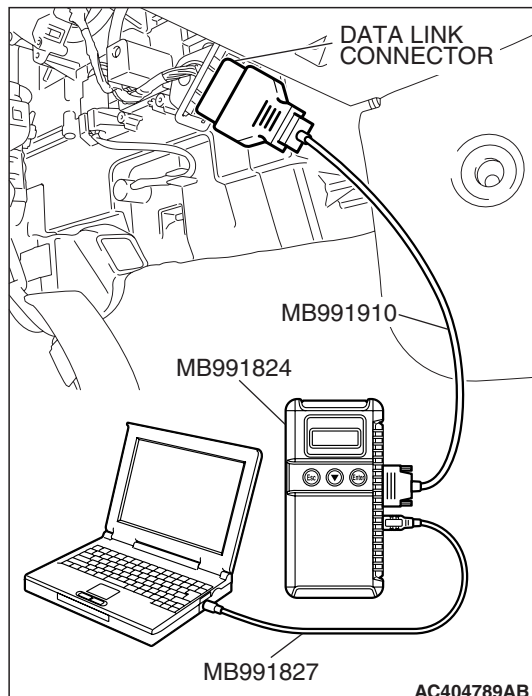
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (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.

PROBABLE CAUSES

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

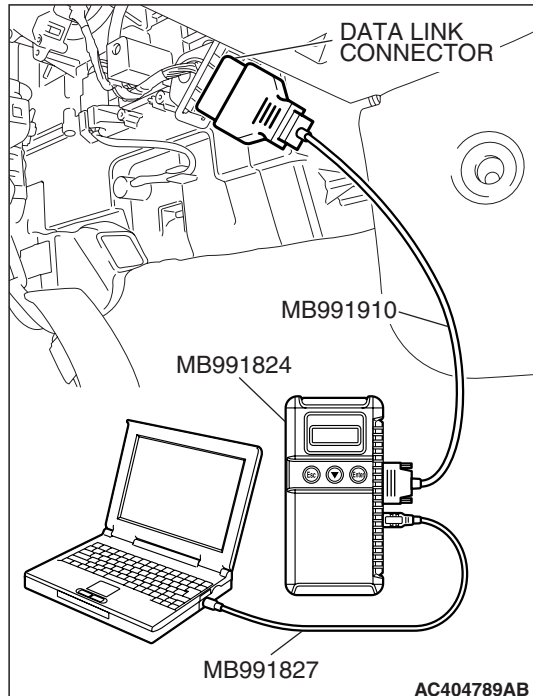
TROUBLE JUDGMENT

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.

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 or automatic transaxle DTC 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 13A, Diagnostic Trouble Code [P.13A-41](#) <2.4L ENGINE> or 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 heater control.

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

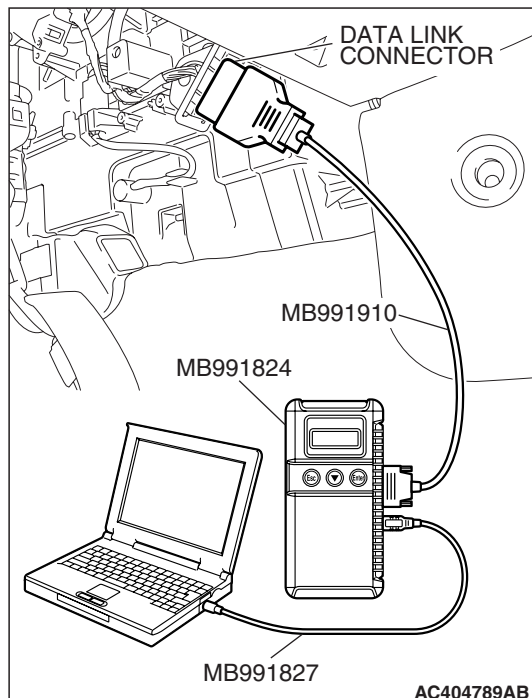
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (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 13A, Diagnostic Trouble Code [P.13A-41](#) <2.4L ENGINE> or 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 heater control.

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

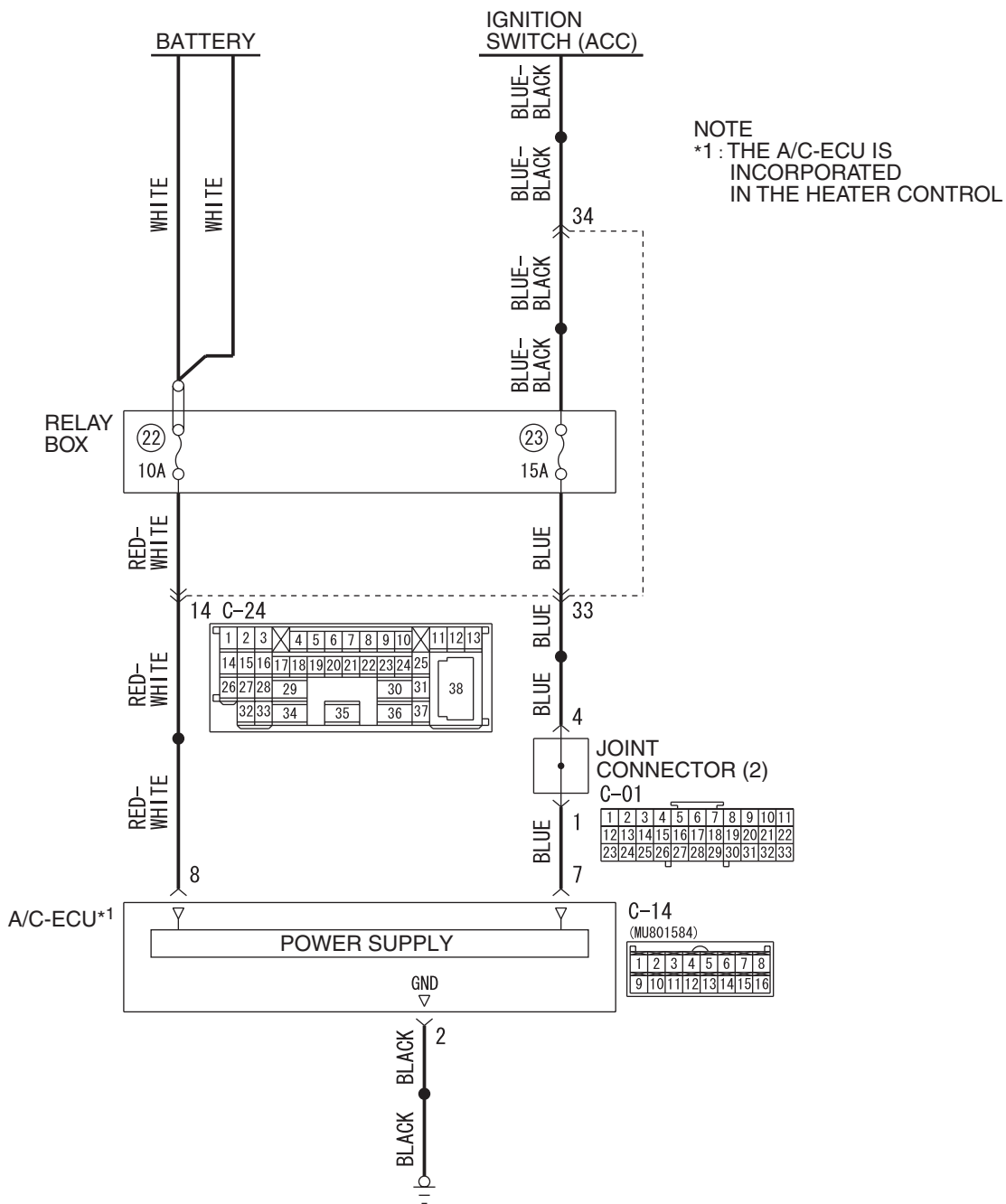
During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

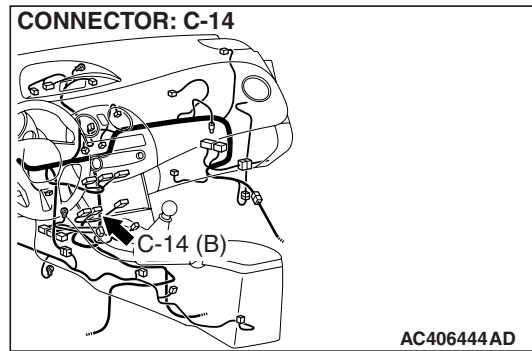
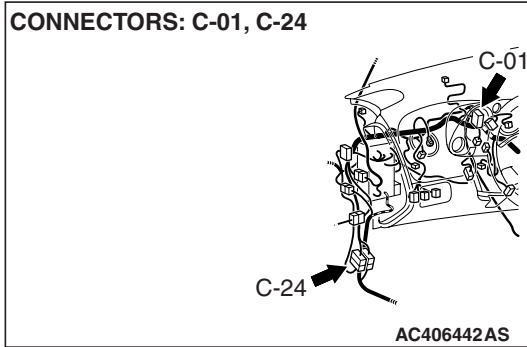
SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
Malfunction of the A/C-ECU power supply system.	1	P.55A-99
Outside/Inside air changeover is not possible.	2	P.55A-105
The compressor dose not work.	3	P.55A-115
Blower fan and motor do not turn.	4	P.55A-131
Blower air amount cannot be changed.	5	P.55A-142
When the A/C is operating, temperature inside the passenger compartment does not decrease (cool air is not emitted).	6	P.55A-146
The condenser fan and the radiator fan turns at full speed.	7	P.55A-149
The condenser fan and the radiator fan do not operate.	8	P.55A-154
Condenser fan does not operate.	9	P.55A-155
Rear window defogger function does not operate.	10	P.55A-165
Rear window defogger timer function does not operate.	11	P.55A-177

SYMPTOM PROCEDURES

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

A/C-ECU Power Supply Circuit





PROBABLE CAUSES

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

DIAGNOSIS

Required Special Tools:

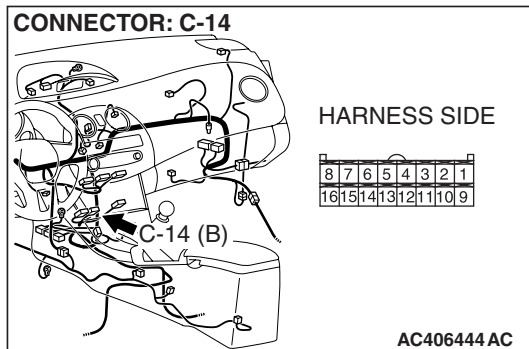
- MB991223: Harness Set
- MB992006: Extra Fine Probe

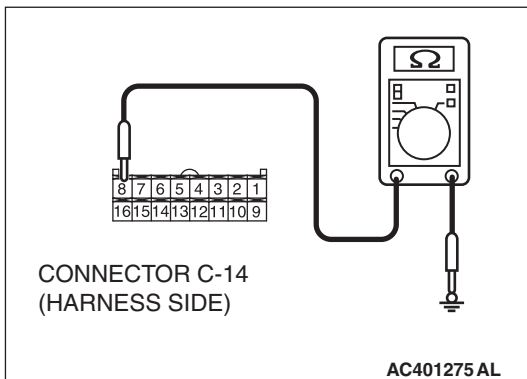
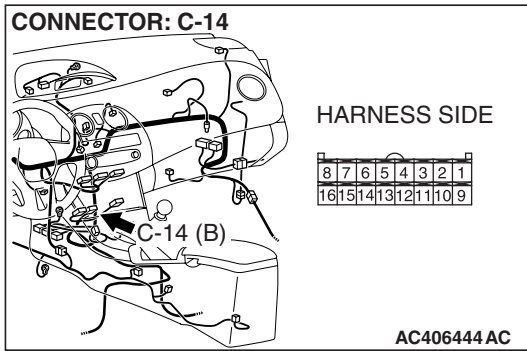
STEP 1. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14 and the battery harness, and measure at the wiring harness side.

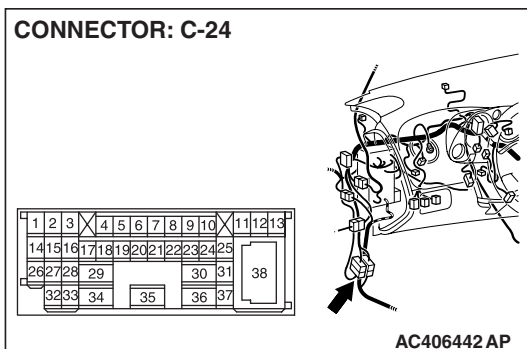
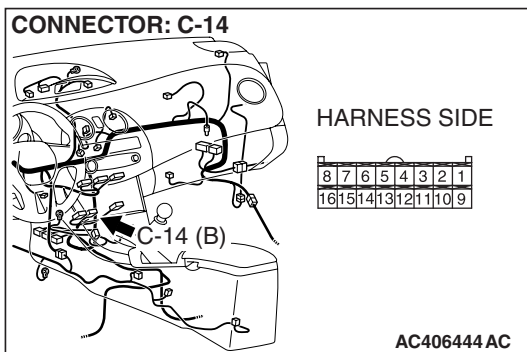
(2) Measure the resistance between A/C-ECU connector C-14 terminal 8 and battery.

OK: Less than 10 ohms

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.



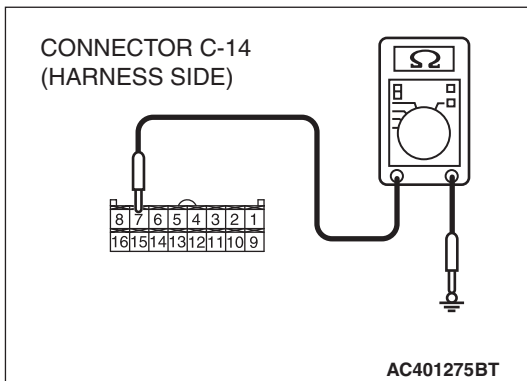
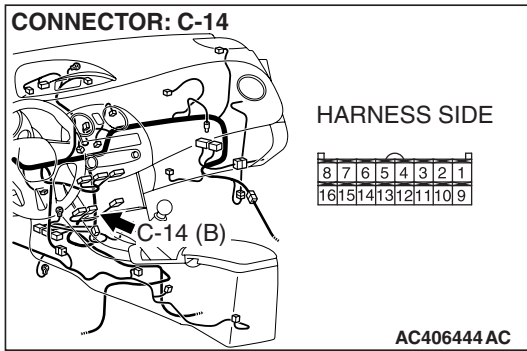
STEP 3. Check the wiring harness between A/C-ECU connector C-14 (terminal 8) and the battery.

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-14 (terminal 8) 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 the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-14 and ignition switch connector, and measure the resistance at the wiring harness side.

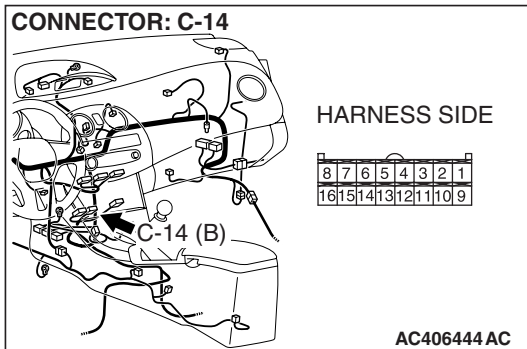
(2) Measure the resistance between A/C-ECU connector C-14 terminal 7 and ignition switch connector.

OK: Less than 10 ohms

Q: Is the check result normal?

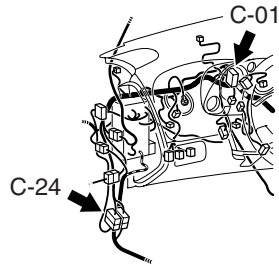
YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between A/C-ECU connector C-14 (terminal 7) 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			
32	33	34		35				36	37		38	

AC406443AC

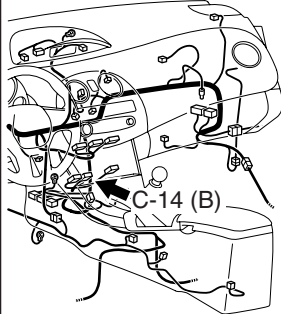
NOTE: Also check intermediate connector C-24 and joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 and joint connector C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector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

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 7) 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-14



HARNESS SIDE

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

AC406444AC

STEP 6. Check the wiring harness for open circuit.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

(2) Measure the resistance between A/C-ECU connector C-14 terminal 2 and ground.

OK: Less than 10 ohms

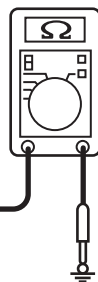
Q: Is the check result normal?

YES : Go to Step 8.

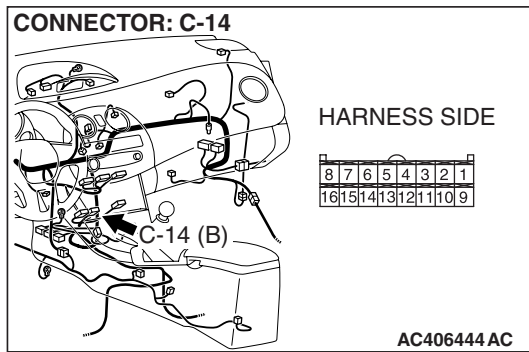
NO : Go to Step 7.

CONNECTOR C-14
(HARNESS SIDE)

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



AC401275 BU



STEP 7. Check the wiring harness between A/C-ECU connector C-14 (terminal 2) and ground.

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 16) 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 8. Retest the system.

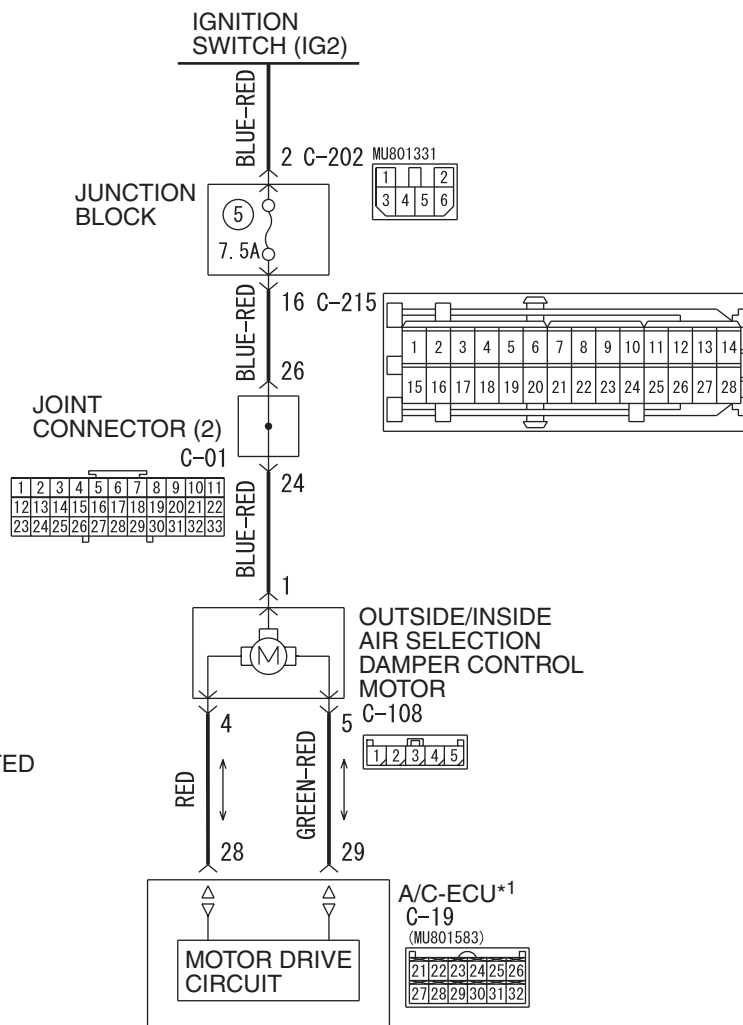
Check that the A/C works normally.

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 heater control.

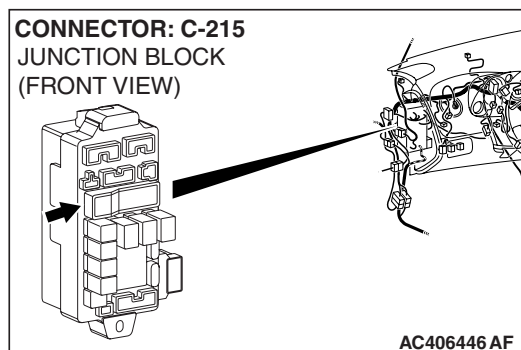
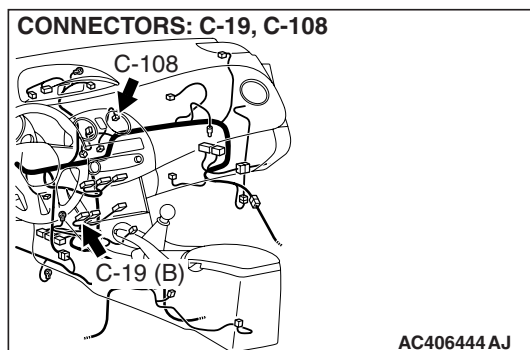
INSPECTION PROCEDURE 2: Outside/Inside Air Changeover is not possible.

Outside/Inside Air Selection Motor Circuit



NOTE
*1 : THE A/C-ECU IS INCORPORATED
IN THE HEATER CONTROL

W6P55M012A



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.

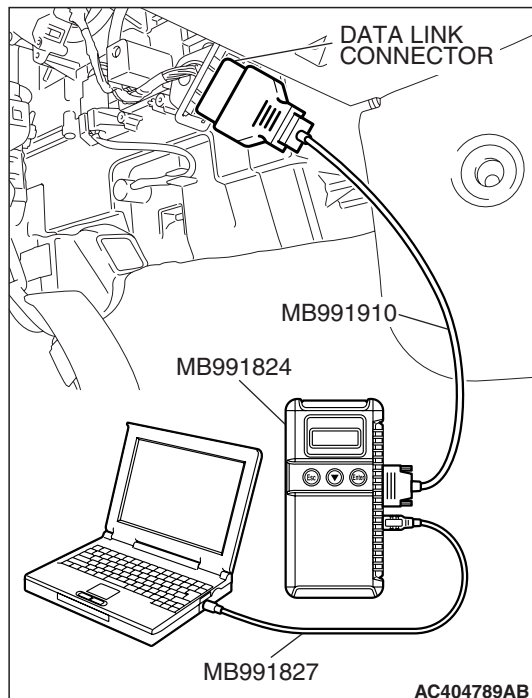
Check if an A/C-ECU DTC is set.

- (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.00-14](#).

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](#).

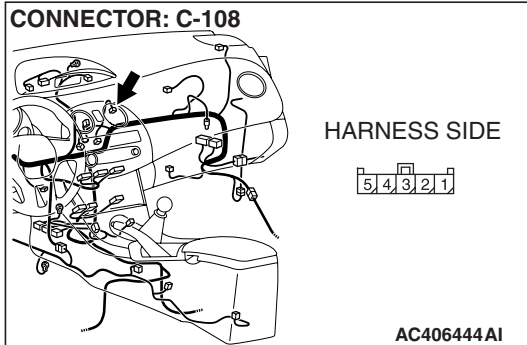
NO : Replace the heater control.

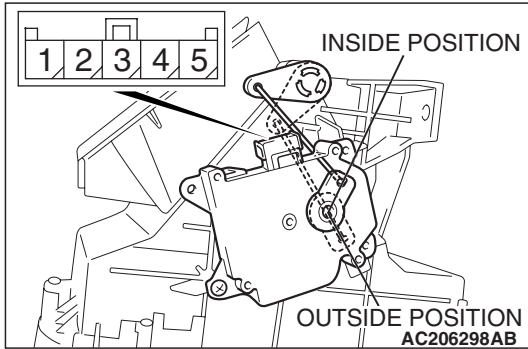
STEP 4. Check outside/inside air selection damper control motor connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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.

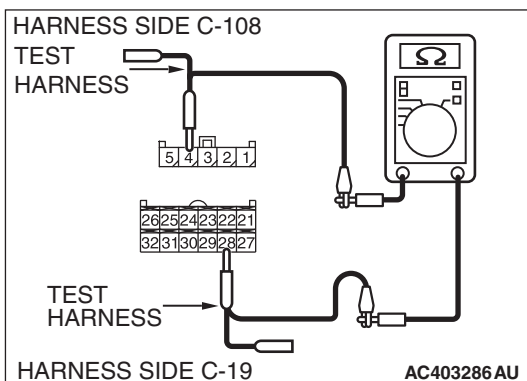
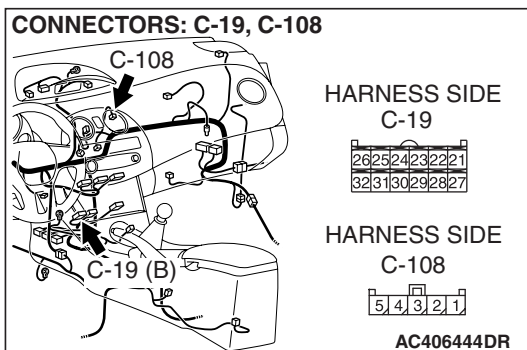
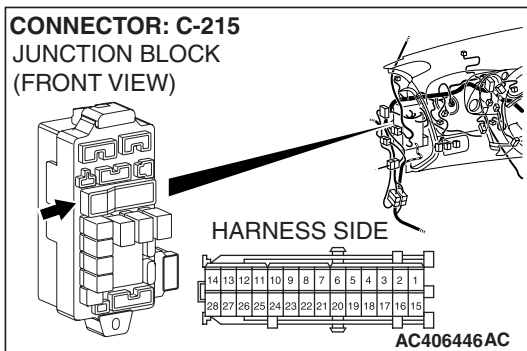
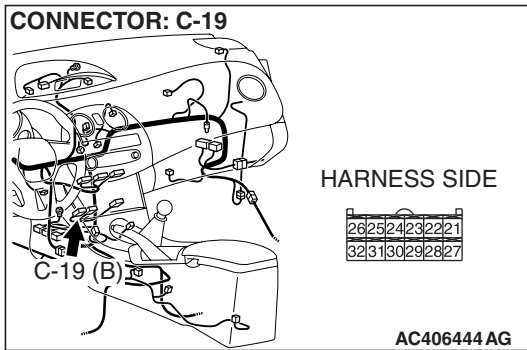
Check the outside/inside air selection damper control motor by the following procedures.

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 the 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-19 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-19 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-19 and outside/inside air selection damper control motor connector C-108, and measure the resistance at the wiring harness side.

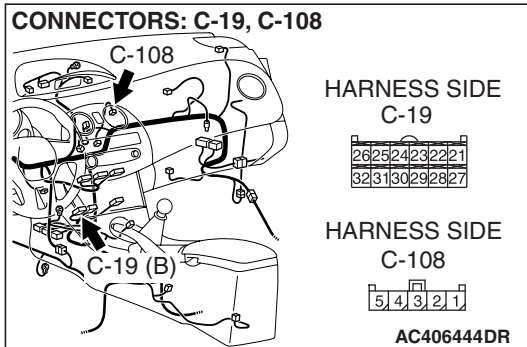
(2) Measure the resistance between A/C-ECU connector C-19 terminal 28 and outside/inside air selection damper control motor connector C-108 terminal 4.

OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 8.

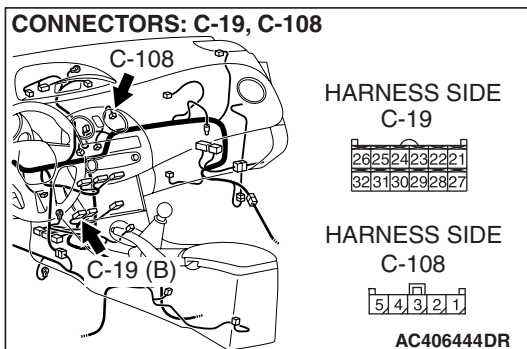


STEP 8. Check the wiring harness between A/C-ECU connector C-19 (terminal 28) and outside/inside air selection damper control motor connector C-108 (terminal 4).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 28) 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-19 and outside/inside air selection damper control motor connector C-108, and measure the resistance at the wiring harness side.

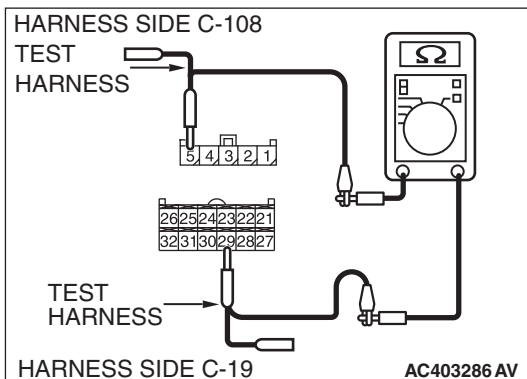
(2) Measure the resistance between A/C-ECU connector C-19 terminal 29 and outside/inside air selection damper control motor connector C-108 terminal 5.

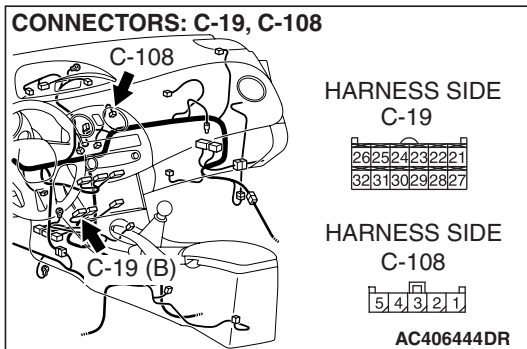
OK: Less than 2 ohms

Q: Is the check result normal?

YES : Go to Step 11.

NO : Go to Step 10.



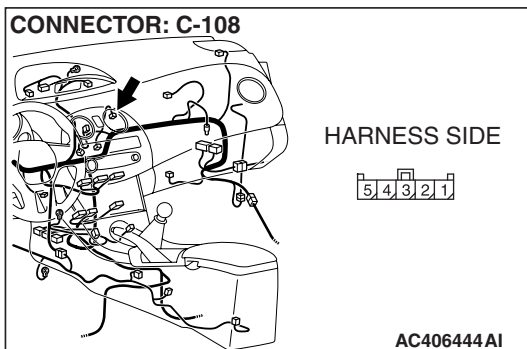


STEP 10. Check the wiring harness between A/C-ECU connector C-19 (terminal 29) and outside/inside air selection damper control motor connector C-108 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 29) and outside/inside air selection damper control motor connector C-108 (terminal 5) in good condition?

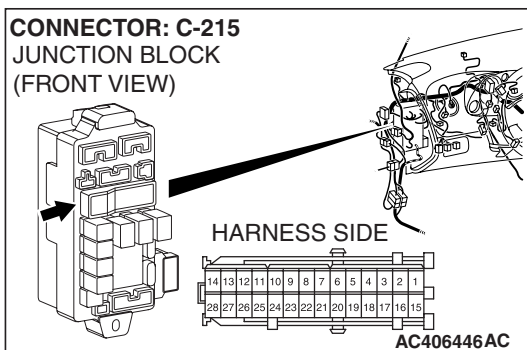
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

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.



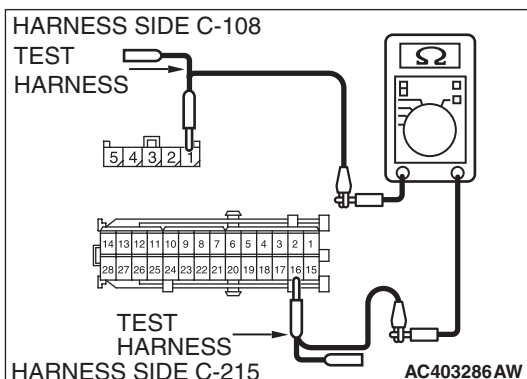
(2) Measure the resistance between junction block connector C-215 terminal 16 and outside/inside air selection damper control motor connector C-108 terminal 1.

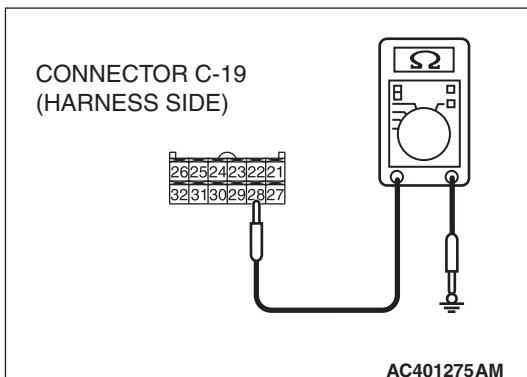
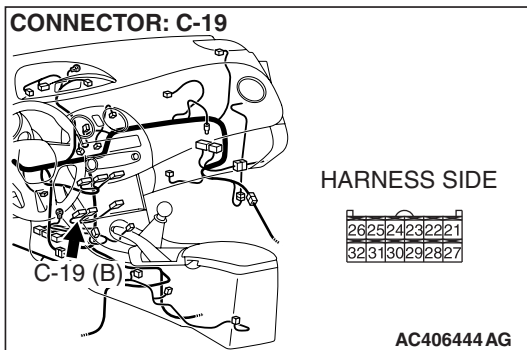
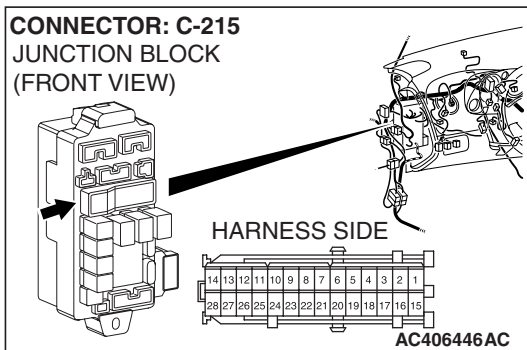
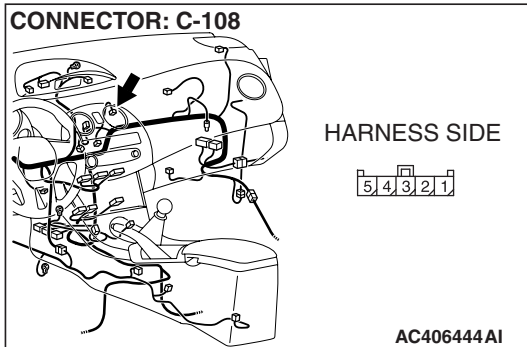
OK: Less than 2 ohms

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).

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-19.

(1) Disconnect A/C-ECU connector C-19, and measure the resistance at the wiring harness side.

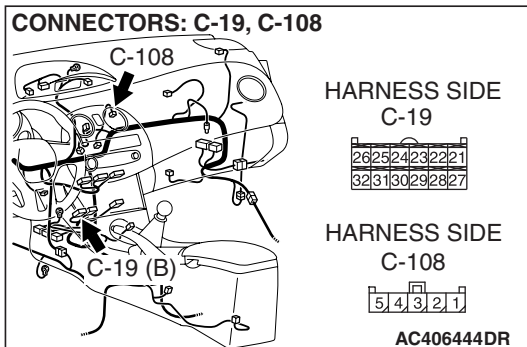
(2) Measure the resistance value between terminal 28 and ground.

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.

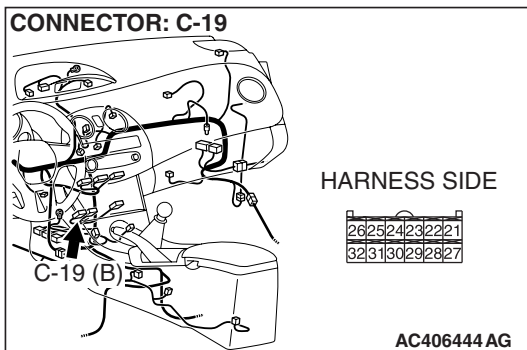


STEP 14. Check the wiring harness between A/C-ECU connector C-19 (terminal 28) and outside/inside air selection damper control motor connector C-108 (terminal 4).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 28) and outside/inside air selection damper control motor connector C-108 (terminal 4) in good condition?

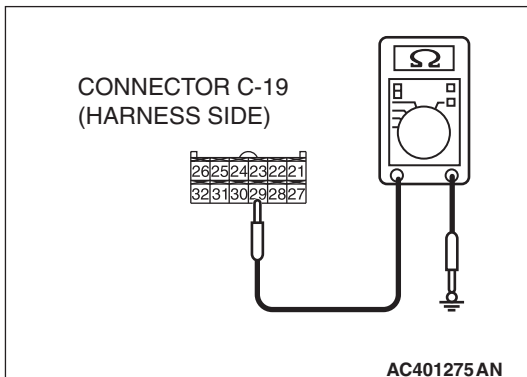
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions P.00-14.

NO : Repair the wiring harness.



STEP 15. Measure the resistance at A/C-ECU connector C-19.

(1) Disconnect A/C-ECU connector C-19, and measure the resistance at the wiring harness side.



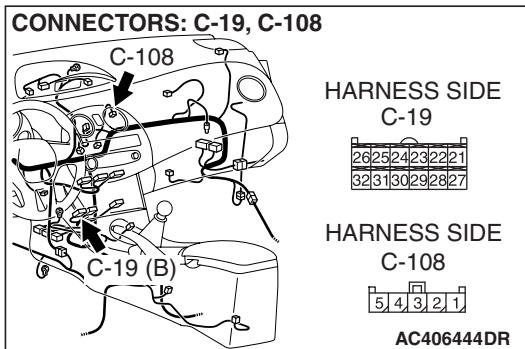
(2) Measure the resistance value between terminal 29 and ground.

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-19 (terminal 29) and outside/inside air selection damper control motor connector C-108 (terminal 5).

Q: Is the wiring harness between A/C-ECU connector C-19 (terminal 29) 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.

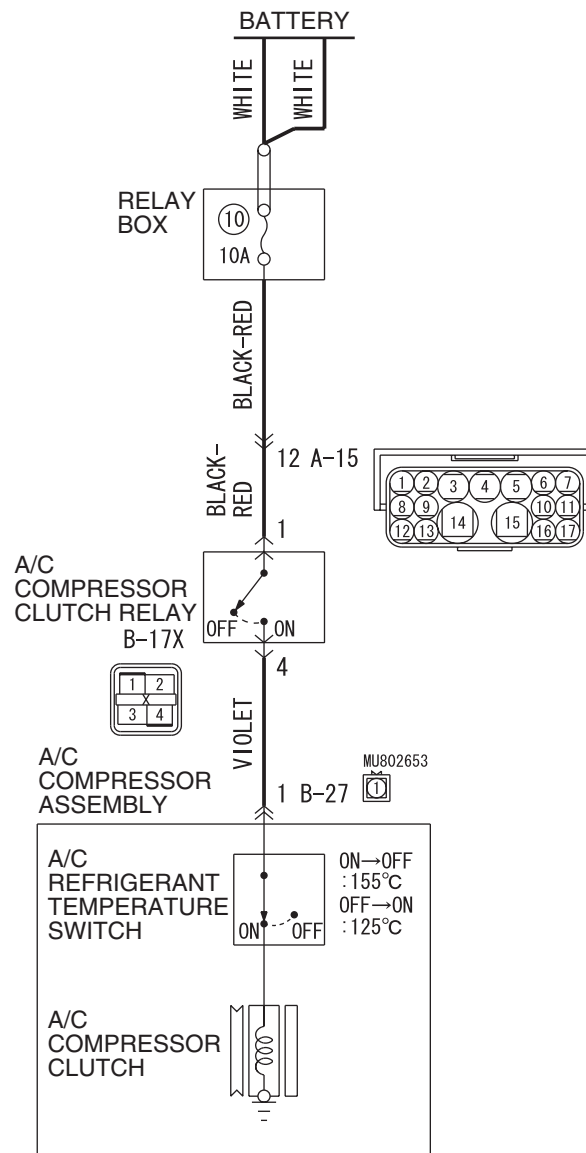
Q: Is the check result satisfactory?

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 heater control.

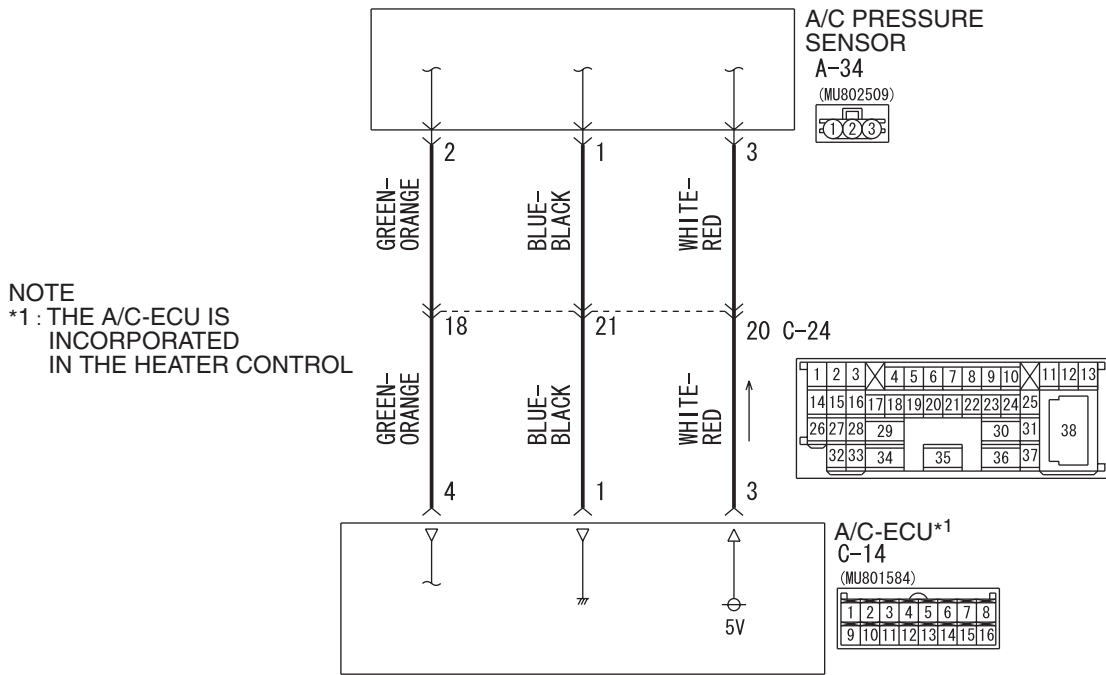
INSPECTION PROCEDURE 3: The Compressor does not Work.

A/C Compressor Circuit

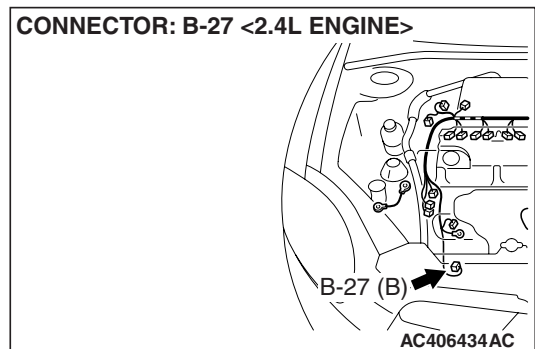
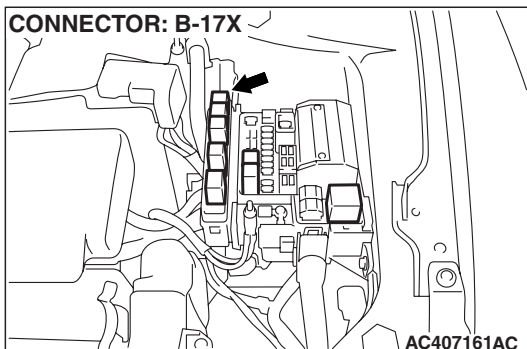
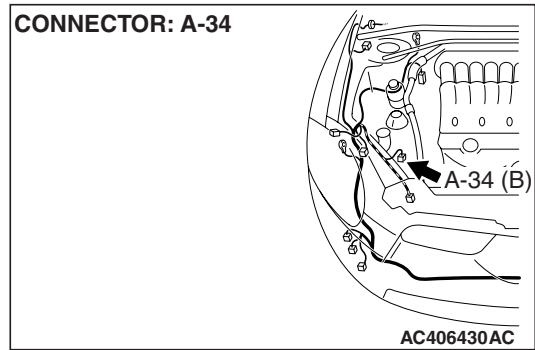
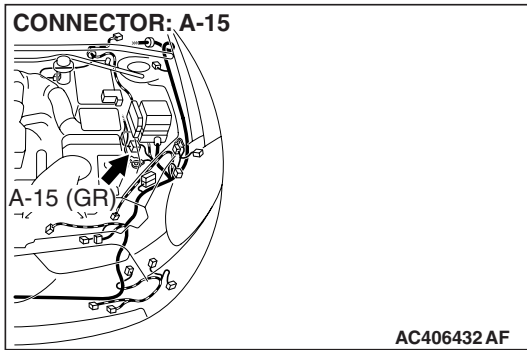


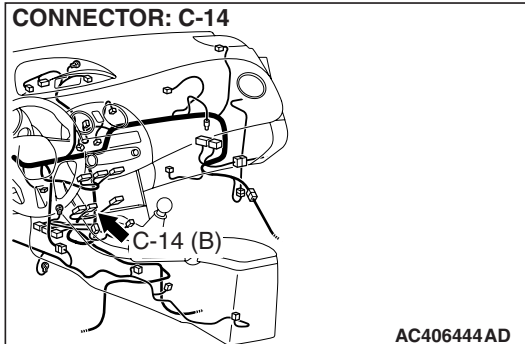
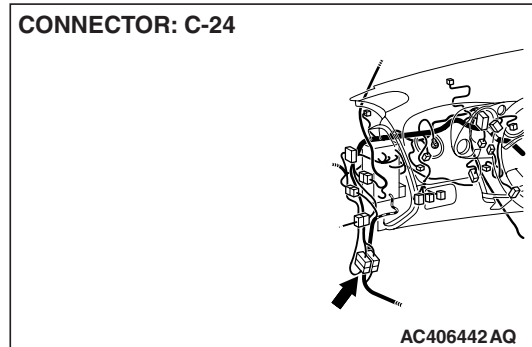
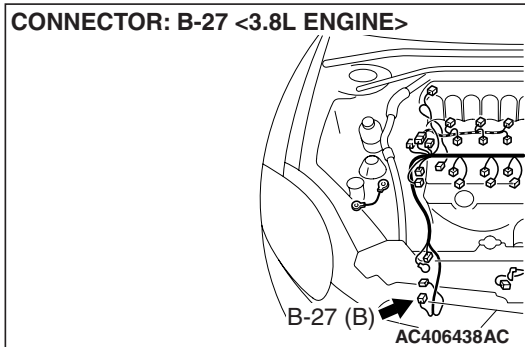
W6P55M014A

A/C Pressure Sensor Circuit



W6P55M018A





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

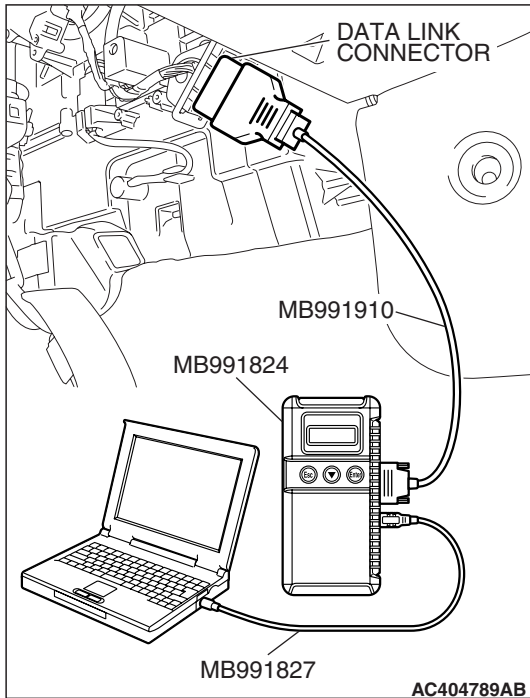
- Insufficient refrigerant

- 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-14](#)).

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.55A-10](#).

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 heater control.

STEP 5. Check the refrigerant level.

Refer to [P.00E-2](#).

Q: Is the check result satisfactory?

YES : Go to Step 6.

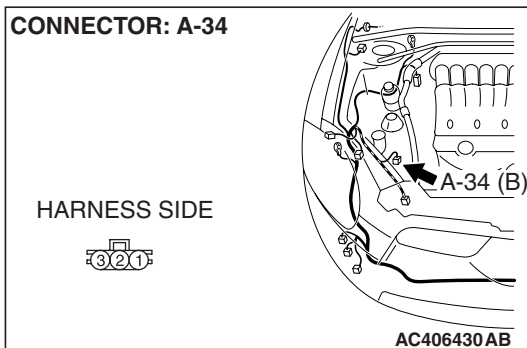
NO : Replenish the refrigerant.

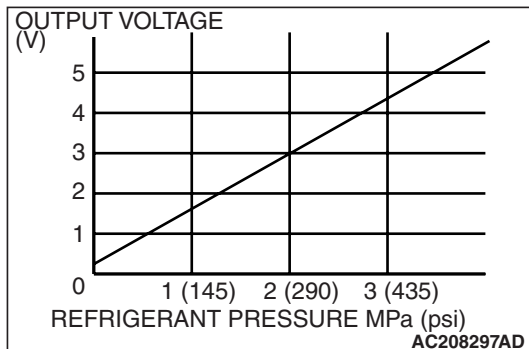
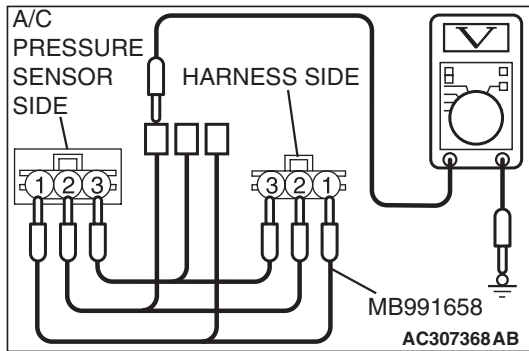
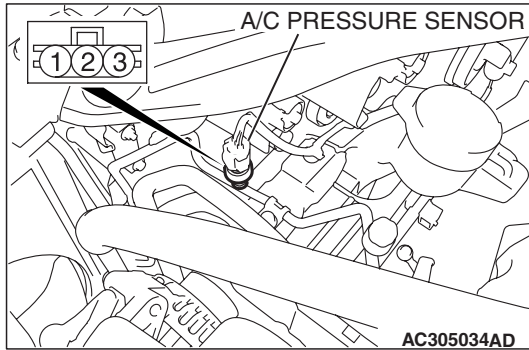
STEP 6. Check A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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.

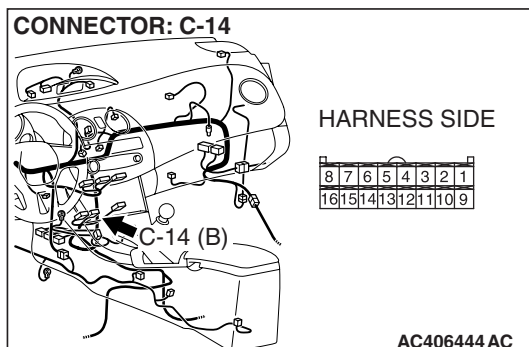
- (4) At this time, check to see that the voltage of A/C pressure sensor terminal No. 2 reflects the specifications of the figure.

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.

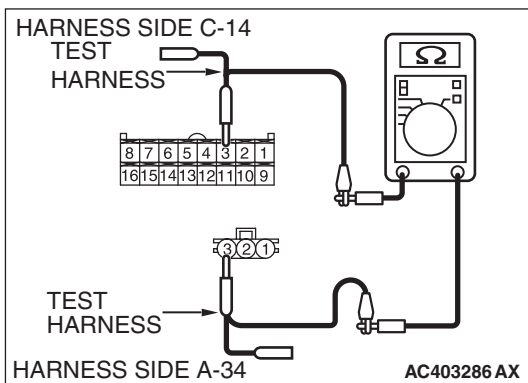
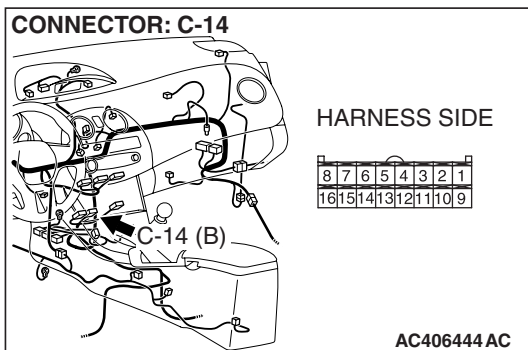
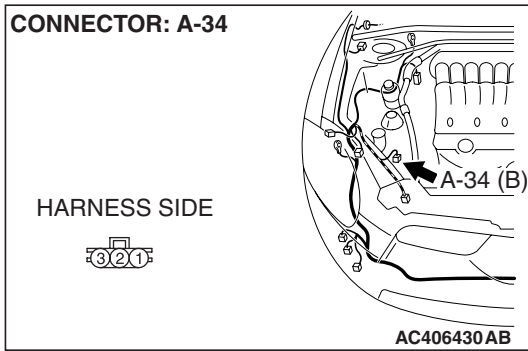


STEP 8. Check A/C-ECU connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-14 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-14 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-14 terminal 3 and A/C pressure sensor connector A-34 terminal 3.

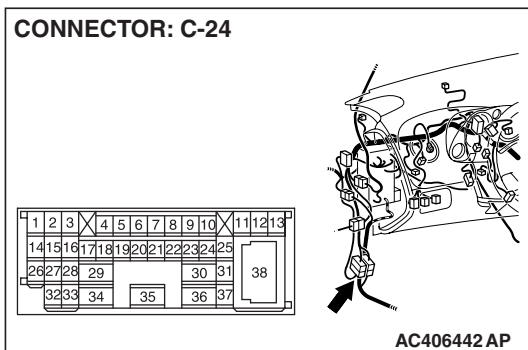
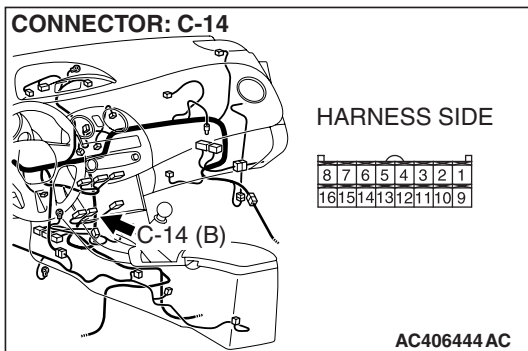
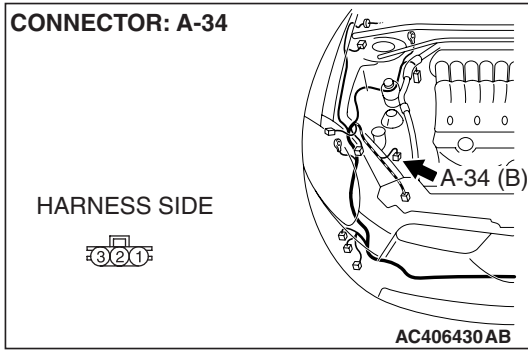
OK: Less than 10 ohms

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-14 (terminal 3) and A/C pressure sensor connector A-34 (terminal 3).



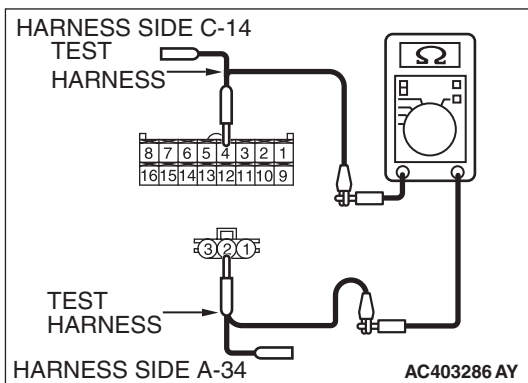
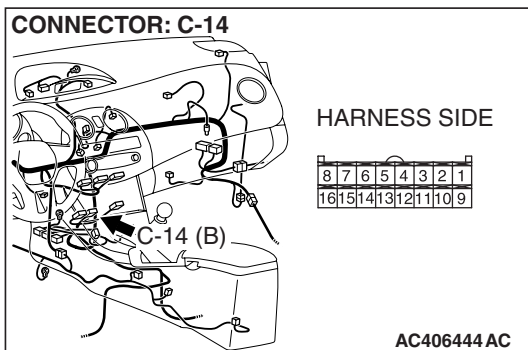
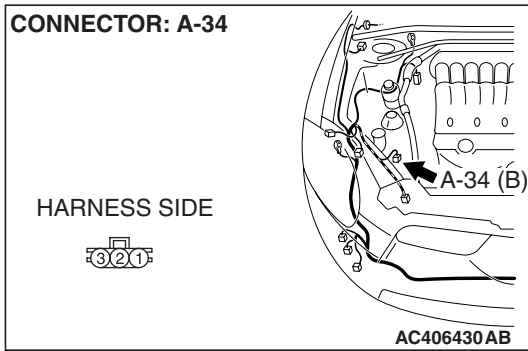
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 3) 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-14 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-14 terminal 4 and A/C pressure sensor connector A-34 terminal 2.

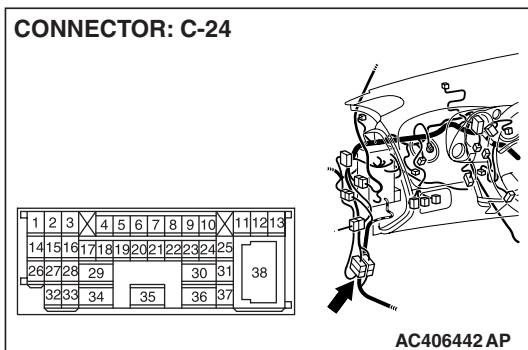
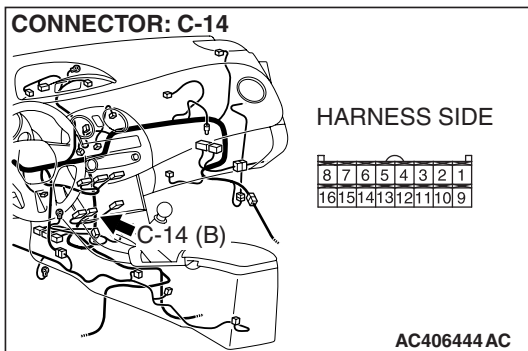
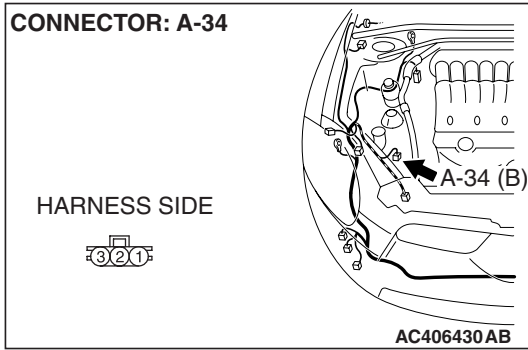
OK: Less than 10 ohms

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-14 (terminal 4) and A/C pressure sensor connector A-34 (terminal 2).



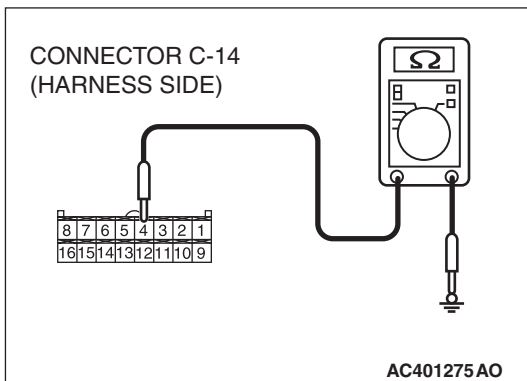
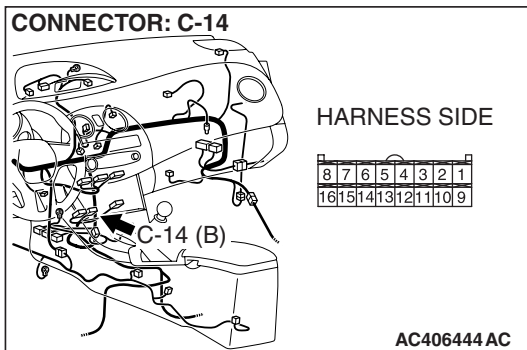
NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between A/C-ECU connector C-14 (terminal 4) 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-14.

(1) Disconnect A/C-ECU connector C-14, and measure the resistance at the wiring harness side.

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

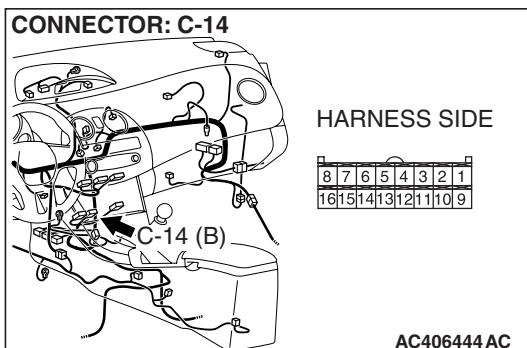
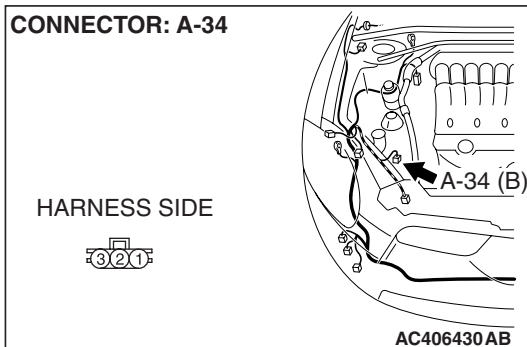
OK: 1 kΩ or more

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

YES : Go to Step 15.

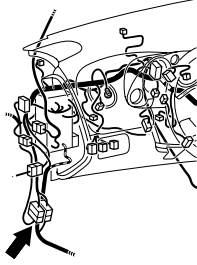
NO : Go to Step 14.

STEP 14. Check the wiring harness between A/C-ECU connector C-14 (terminal 4) 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-14 (terminal 4) 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.

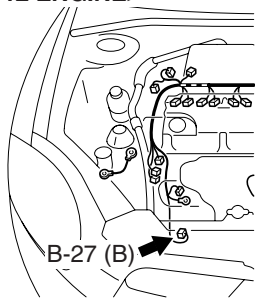
Q: Is A/C compressor assembly connector B-27 in good condition?

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>

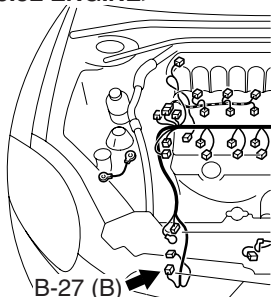
HARNESS SIDE



AC406434 AB

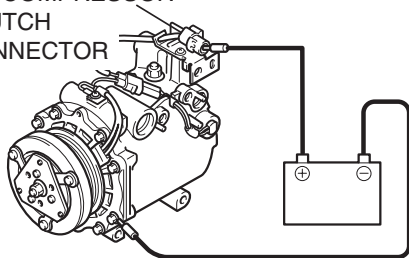
CONNECTOR: B-27 <3.8L ENGINE>

HARNESS SIDE



AC406438 AB

A/C COMPRESSOR CLUTCH CONNECTOR



AC206292 AB

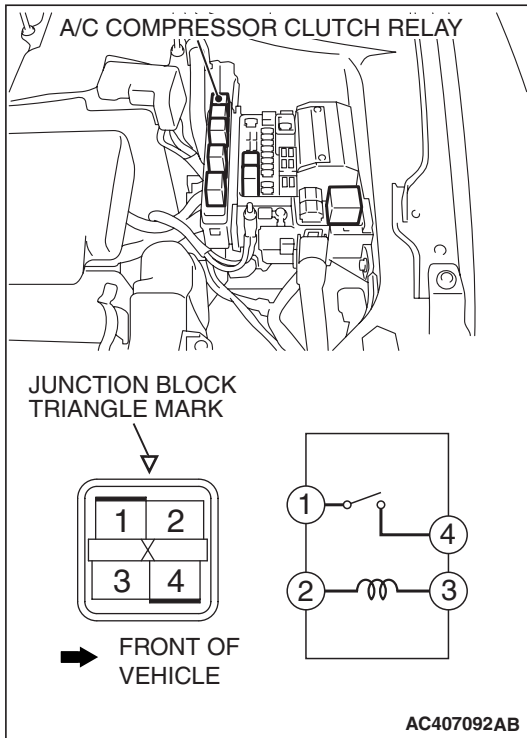
STEP 16. Check the A/C compressor clutch operation.

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.

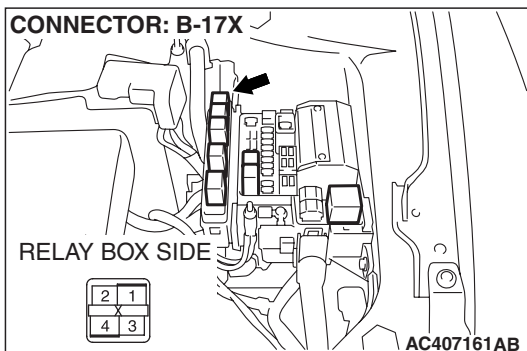
Follow the table below to check the A/C compressor clutch relay for continuity.

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?

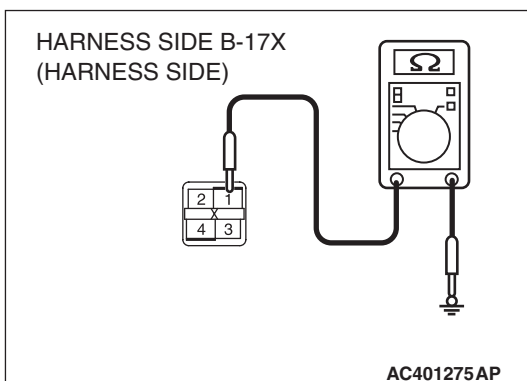
YES : Go to Step 18.

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 the battery.

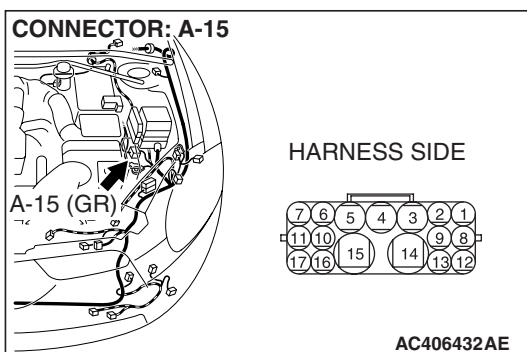
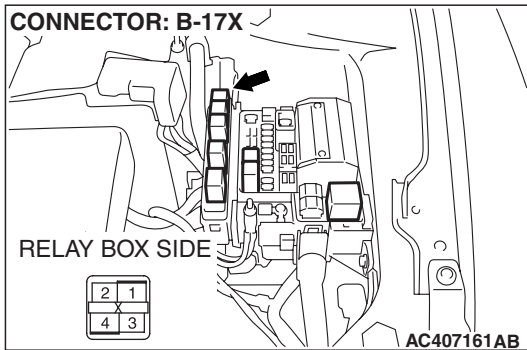
OK: Less than 2 ohms

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.



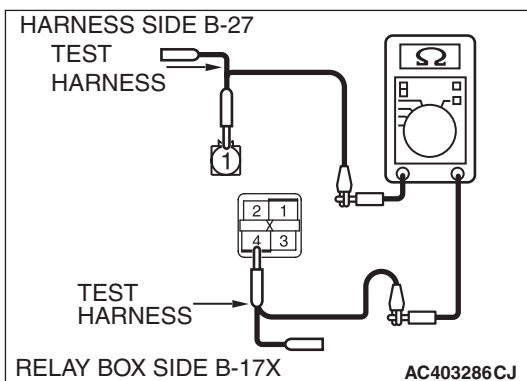
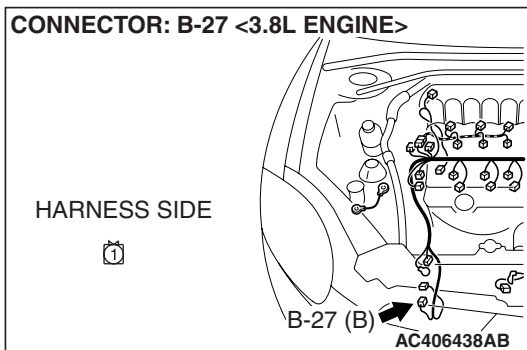
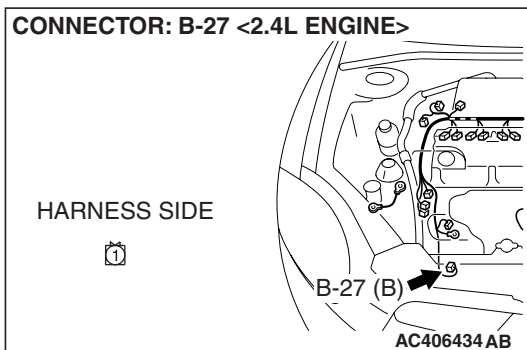
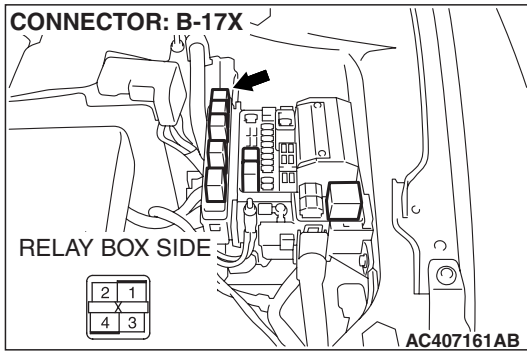
NOTE: Also check intermediate connector A-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

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.



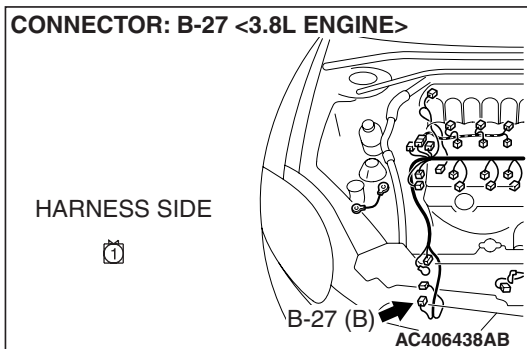
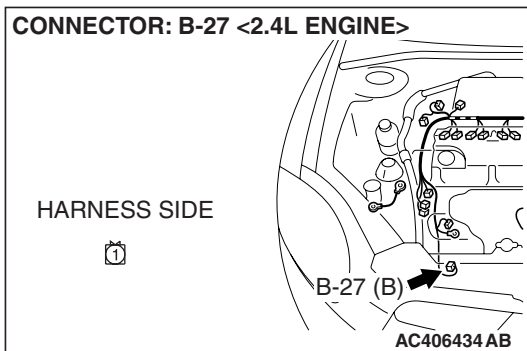
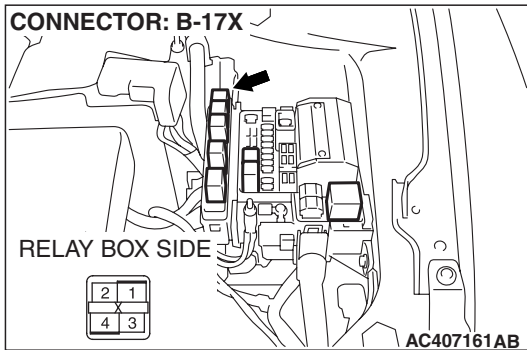
- (2) Measure the resistance between A/C compressor assembly connector B-27 terminal 1 and A/C compressor clutch relay connector B-17X terminal 4.

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.

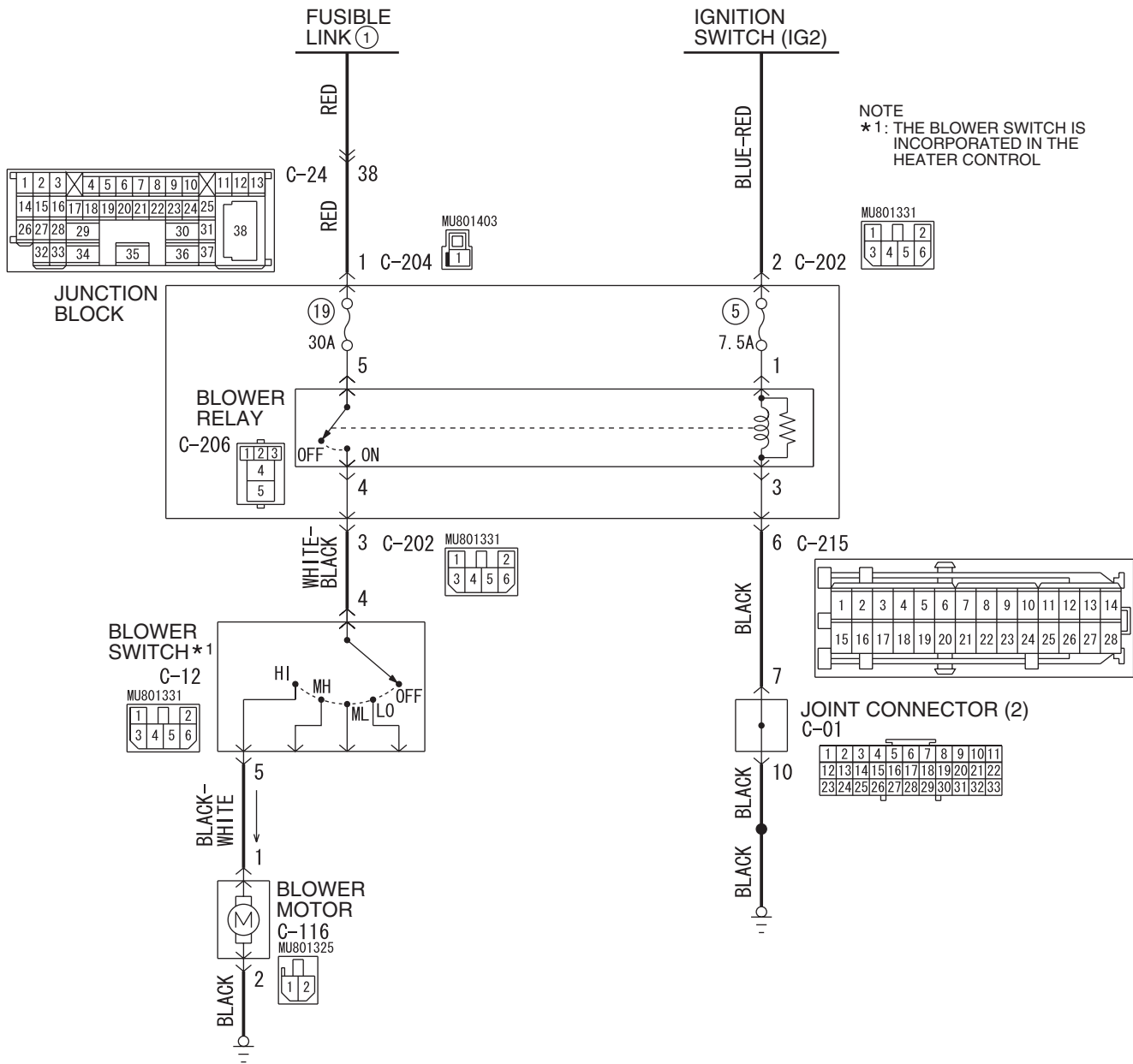
Q: Is the check result satisfactory?

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](#).

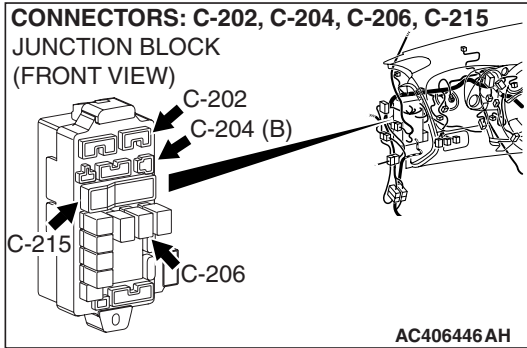
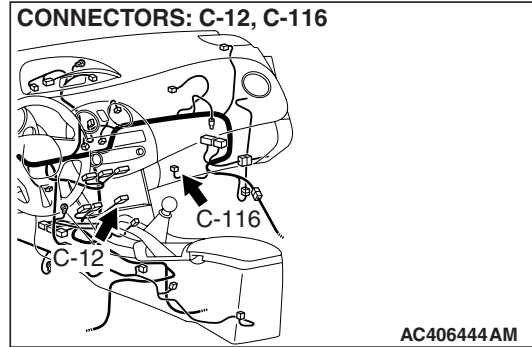
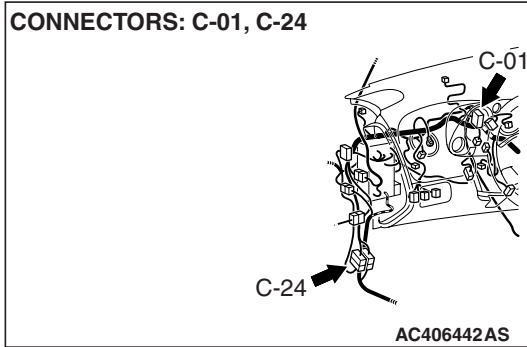
NO : Replace the heater control.

INSPECTION PROCEDURE 4: Blower Fan and Motor do not Turn.

Blower Motor Circuit



W6P55M015A



FUNCTION

The air from the blower fan is cooled or warmed to control the temperature.

PROBABLE CAUSES

- Malfunction of the blower relay
- Malfunction of the blower motor
- Malfunction of the blower switch
- Malfunction of the harness.
- Malfunction of connector.

DIAGNOSIS

Required Special Tools:

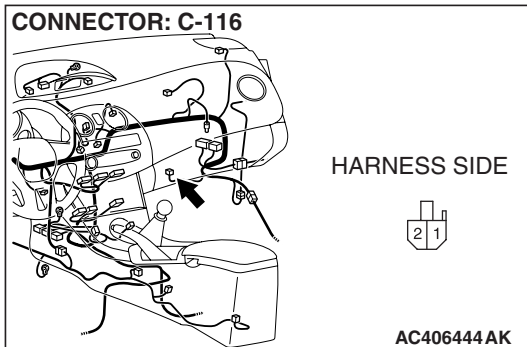
- MB991223: Harness Set
- MB992006: Extra Fine Probe

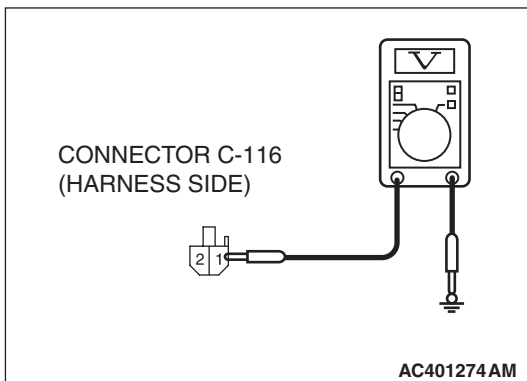
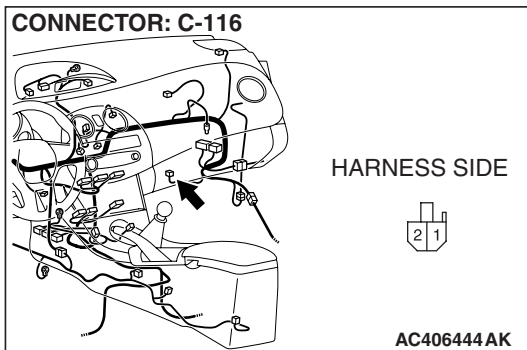
STEP 1. Check blower motor connector C-116 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-116 in good condition?

YES : Go to Step 2.

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





STEP 2. Measure the voltage at blower motor connector C-116.

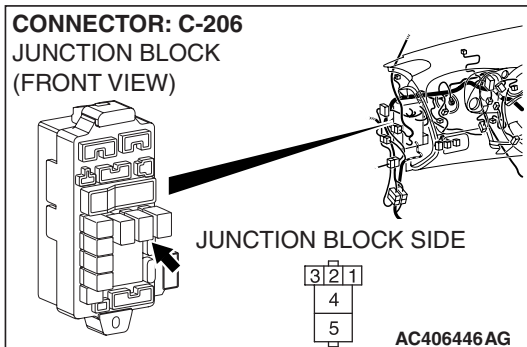
- (1) Disconnect blower motor connector C-116, and measure the voltage at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Turn the blower speed selection dial to the "4 (HI)" position.

- (4) 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 15.

NO : Go to Step 3.

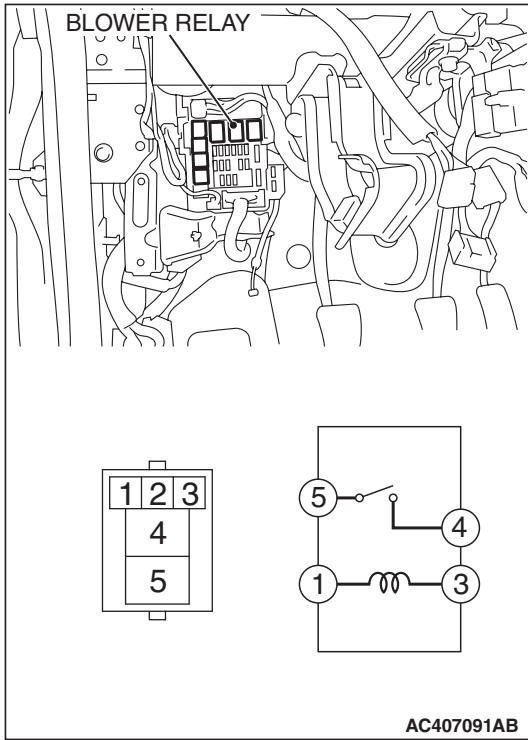


STEP 3. Check blower relay connector C-206 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower relay connector C-206 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 blower relay continuity.

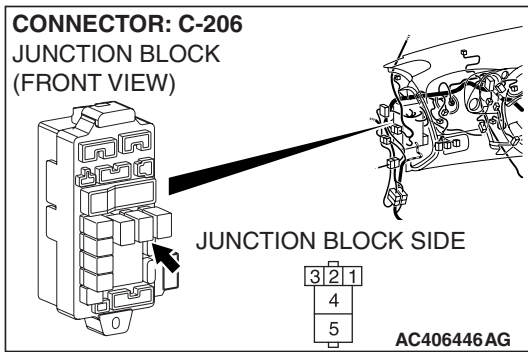
Follow the table below to check the blower relay for continuity.

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?

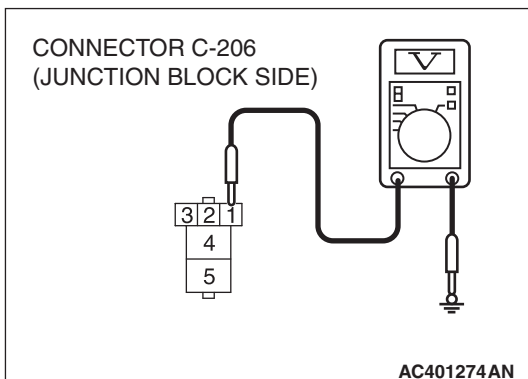
YES : Go to Step 5.

NO : Replace the blower relay.



STEP 5. Measure the voltage at blower relay connector C-206.

- (1) Disconnect blower relay connector C-206, 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.

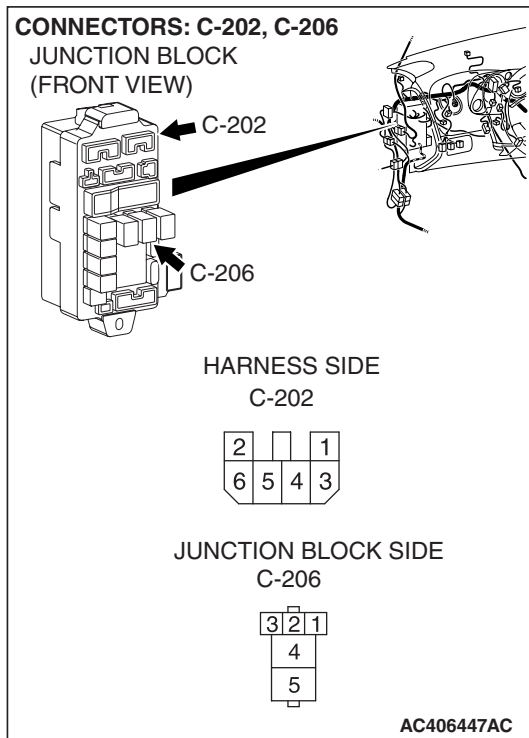
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between blower relay connector C-206 (terminal 1) and the 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.

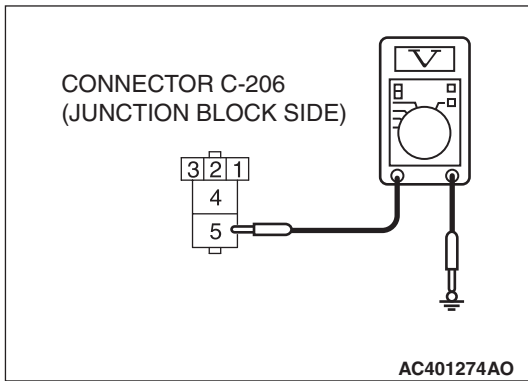
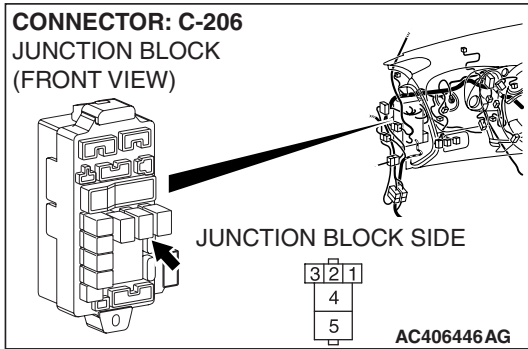
Q: Is the wiring harness between blower relay connector C-206 (terminal 1) and the ignition switch (IG2) in good condition?

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.



STEP 7. Measure the voltage at blower relay connector C-206.

(1) Disconnect blower relay connector C-206, and measure the voltage at the junction block side.

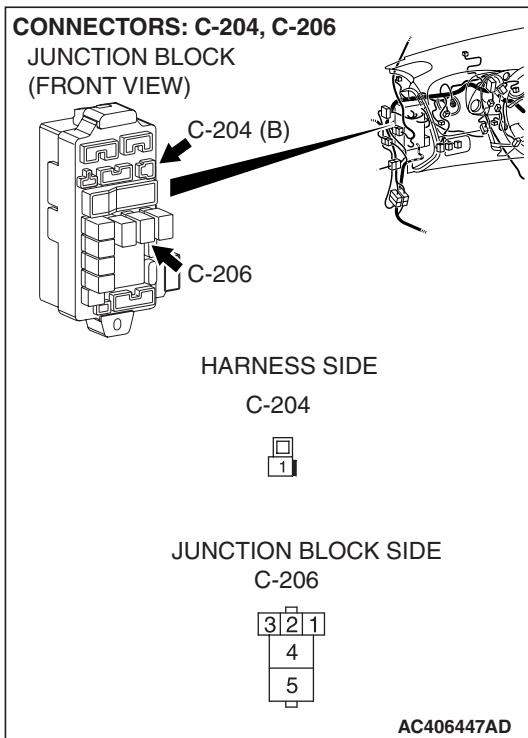
(2) Measure the voltage between terminal 5 and ground.
 • The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

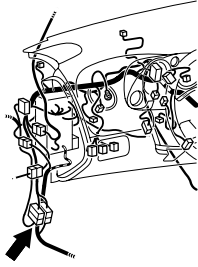
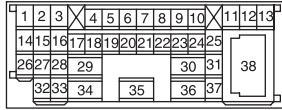
YES : Go to Step 9.

NO : Go to Step 8.

STEP 8. Check the wiring harness between blower relay connector C-206 (terminal 5) and 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, junction block connector C-204 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00-14.

Q: Is the wiring harness between blower relay connector C-206 (terminal 5) and fusible link (1) in good condition?

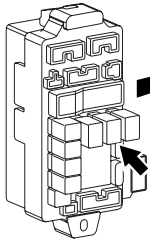
YES : It can be assumed that this malfunction is intermittent.

Refer to GROUP 00, How to Use

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

NO : Repair the wiring harness.

CONNECTOR: C-206
JUNCTION BLOCK
(FRONT VIEW)



JUNCTION BLOCK SIDE



AC406446 AG

STEP 9. Measure the resistance at blower relay connector C-206.

(1) Disconnect blower relay connector C-206, and measure the resistance at the wiring harness side.

(2) Measure the resistance value between terminal 3 and ground.

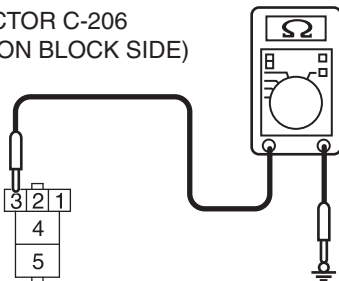
- The measured value should be 2 ohms or less.

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

YES : Go to Step 11.

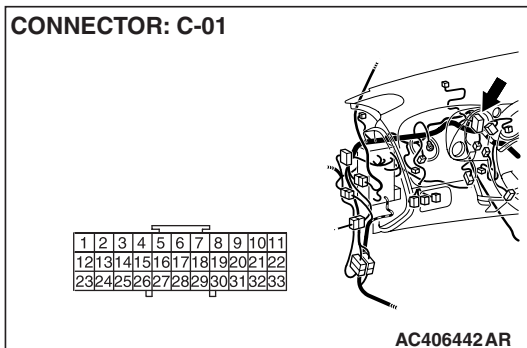
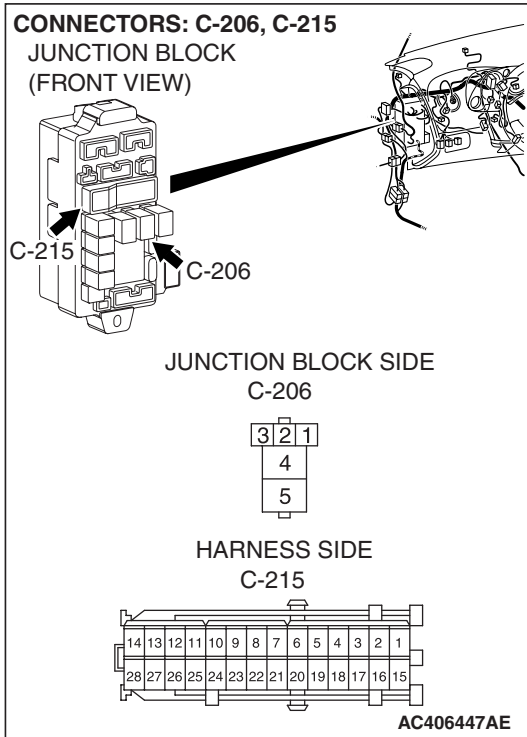
NO : Go to Step 10.

CONNECTOR C-206
(JUNCTION BLOCK SIDE)



AC401275 AQ

STEP 10. Check the wiring harness between blower relay connector C-206 (terminal 3) and ground.



NOTE: Also check junction block connector C-215 and joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 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 blower relay connector C-206 (terminal 3) 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.

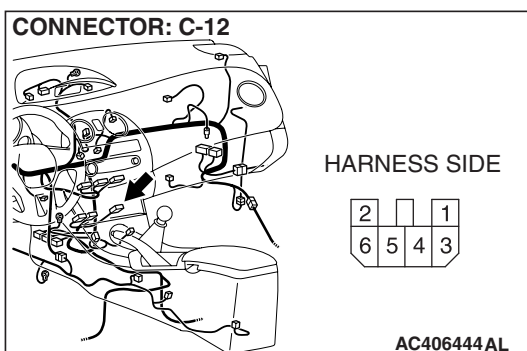
NO : Repair the wiring harness.

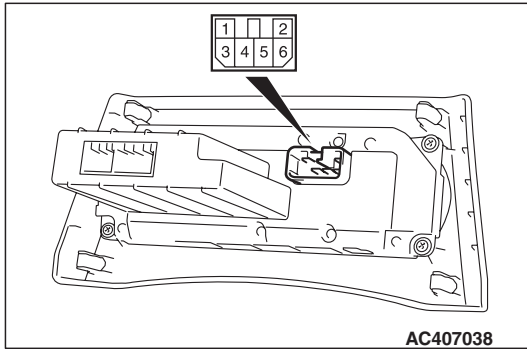
STEP 11. Check blower switch connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower switch connector C-12 in good condition?

YES : Go to Step 12.

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





STEP 12. Check the blower switch continuity.

Follow the table below to check the blower switch for continuity.

SWITCH POSITION	TESTER CONNECTION (CONNECTOR A)	SPECIFIED CONDITION
0 (OFF)	1 -4, 2-4, 4 -5, 4 -6	Open circuit
1 (LO)	1 -4	Less than 2 ohms
2 (ML)	4 -6	Less than 2 ohms
3 (MH)	2 -4	Less than 2 ohms
4 (HI)	4 -5	Less than 2 ohms

Q: Is the blower switch continuity in good condition?

YES : Go to Step 13.

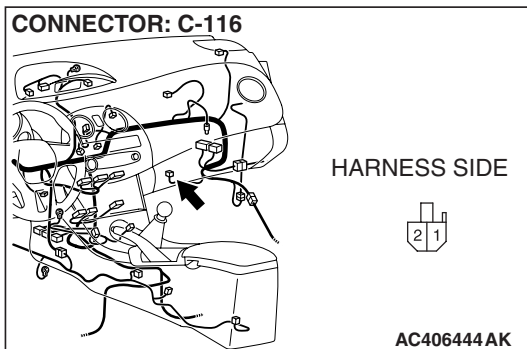
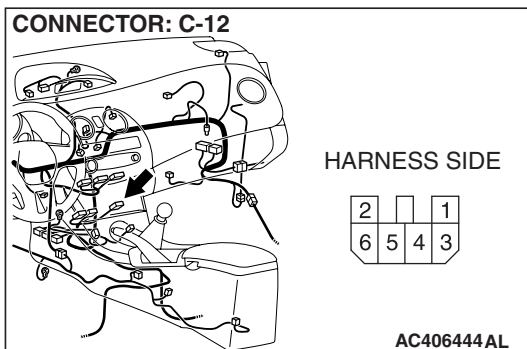
NO : Replace the heater control.

STEP 13. Check the wiring harness between blower motor connector C-116 (terminal 1) and blower switch connector C-12 (terminal 5).

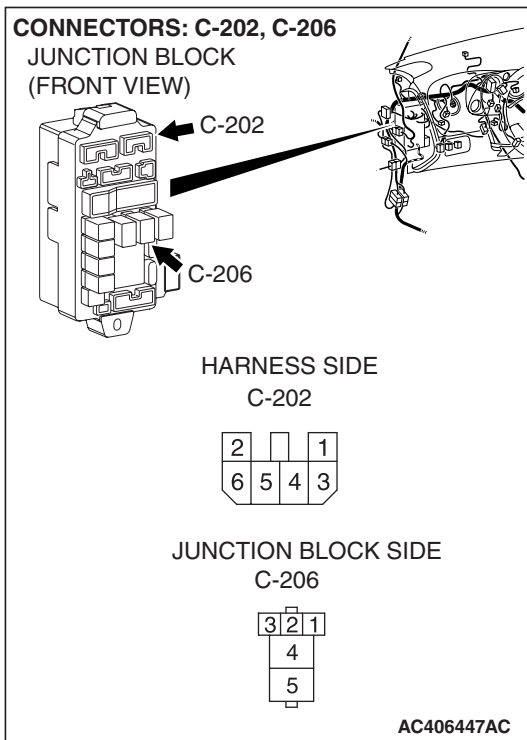
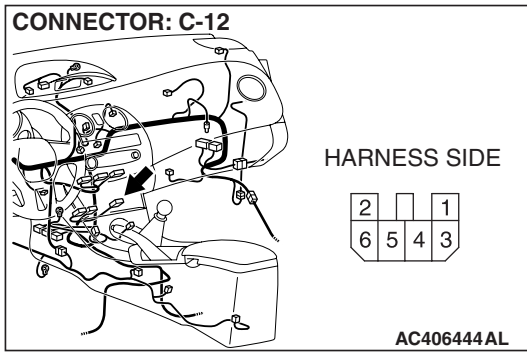
Q: Is the wiring harness between blower motor connector C-116 (terminal 1) and blower relay connector C-12 (terminal 5) in good condition?

YES : Go to Step 14.

NO : Repair the wiring harness.



STEP 14. Check the wiring harness between blower switch connector C-12 (terminal 4) and blower relay connector C-206 (terminal 4).

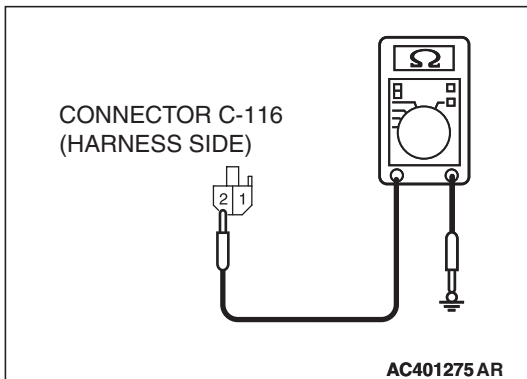
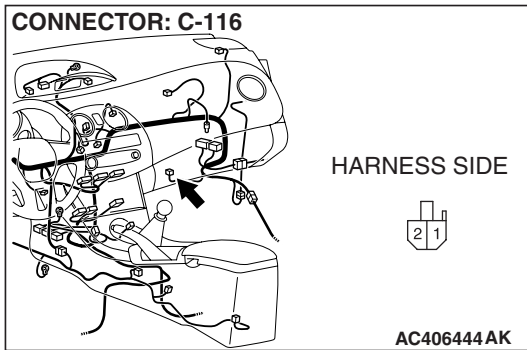


NOTE: Also check junction block connector C-202 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-202 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between blower switch connector C-12 (terminal 4) and blower relay connector C-206 (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 blower motor connector C-116 in order to the ground circuit to the blower motor.

(1) Disconnect blower motor connector C-116, and measure the resistance at the wiring harness side.

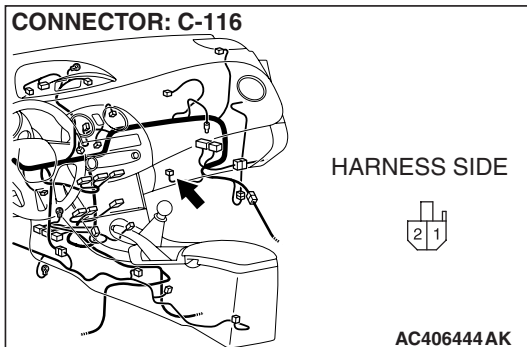
(2) Measure the resistance value between terminal 2 and ground.

OK: Less than 2 ohms

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 blower motor connector C-116 (terminal 2) and ground.

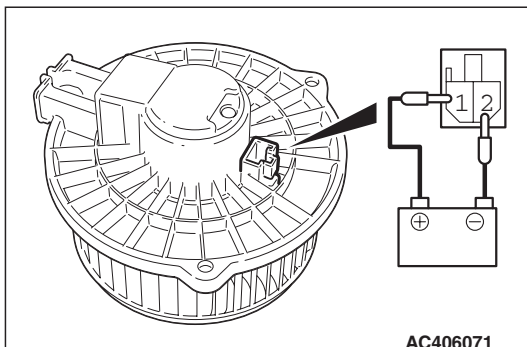
Q: Is the wiring harness between blower motor connector C-116 (terminal 2) and ground in good condition?

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

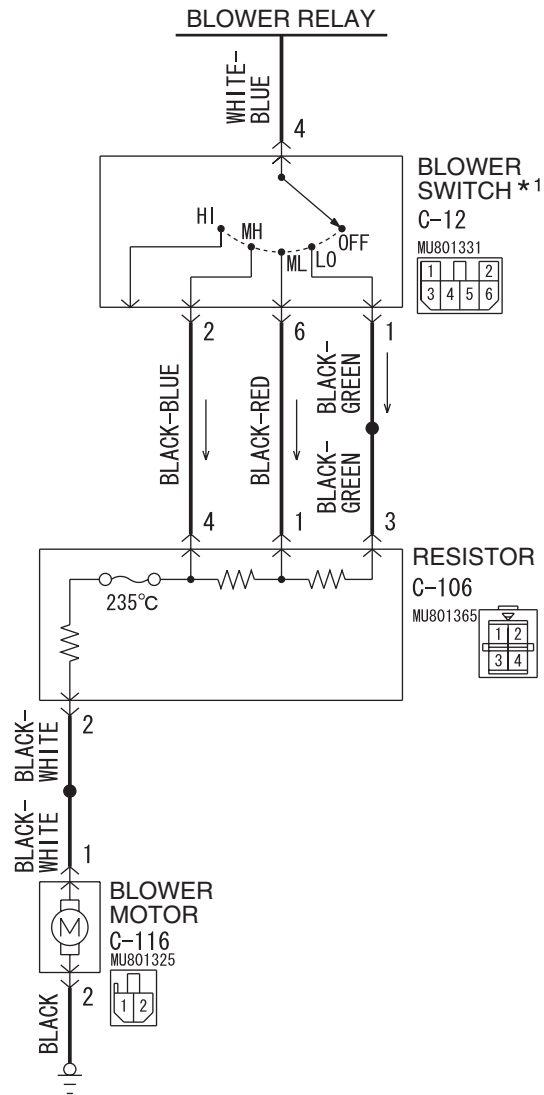
Refer to GROUP 00, How to Use

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

NO : Replace the blower motor.

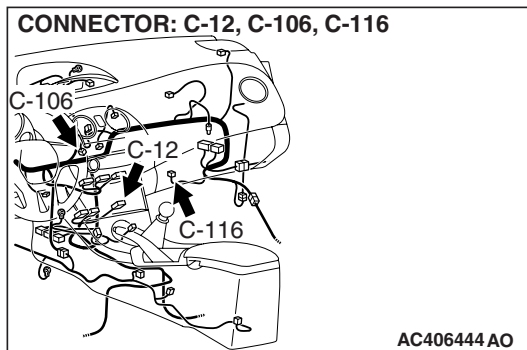
INSPECTION PROCEDURE 5: Blower Air Amount cannot be Changed.

Blower Switch and Resistor Circuit



NOTE
*1: THE BLOWER SWITCH IS
INCORPORATED IN THE
HEATER CONTROL

W6P55M016A



FUNCTION

The air from the blower fan is cooled or warmed to control the temperature.

PROBABLE CAUSES

- Malfunction of the resistor
- Malfunction of the blower switch
- Malfunction of the harness.
- Malfunction of connector.

DIAGNOSIS

Required Special Tools:

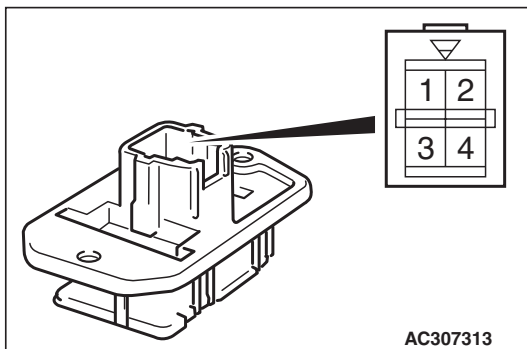
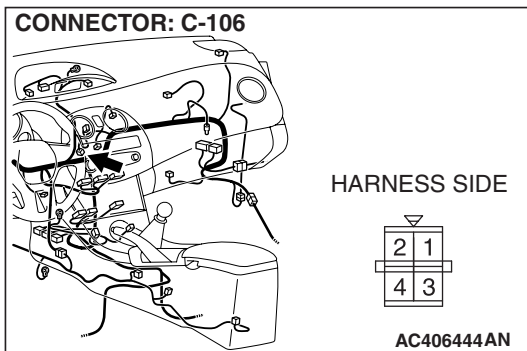
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check resistor connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is resistor connector C-106 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 resistor resistance value.

Use an ohmmeter to measure the resistance between the terminals. Check that the measured value is at the standard value.

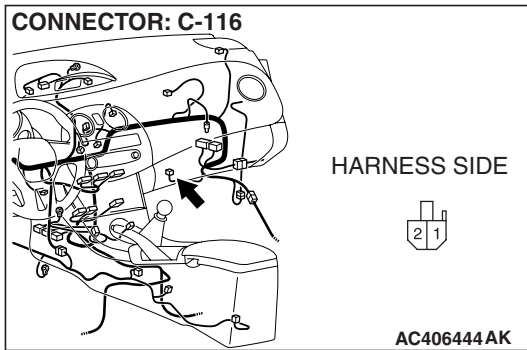
Standard value:

MEASUREMENT TERMINAL	STANDARD VALUE Ω
Between terminals 2 and 3 (LO)	2.79
Between terminals 1 and 2 (ML)	1.49
Between terminals 2 and 4 (MH)	0.39

Q: Is the measured value at the standard value?

YES : Go to Step 3.

NO : Replace the resistor.

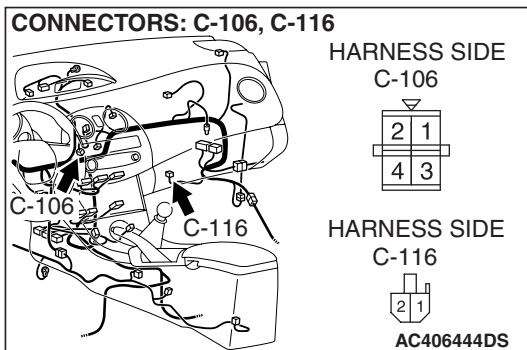


STEP 3. Check blower motor connector C-116 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-116 in good condition?

YES : Go to Step 4.

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

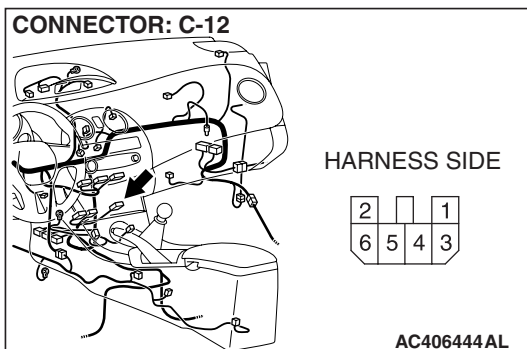


STEP 4. Check the wiring harness blower switch connector C-116 (terminal 1) and resistor connector C-106 (terminal 2).

Q: Is the wiring harness between blower switch connector C-116 (terminal 1) and resistor connector C-106 (terminal 2) in good condition?

YES : Go to Step 5.

NO : Repair the wiring harness.

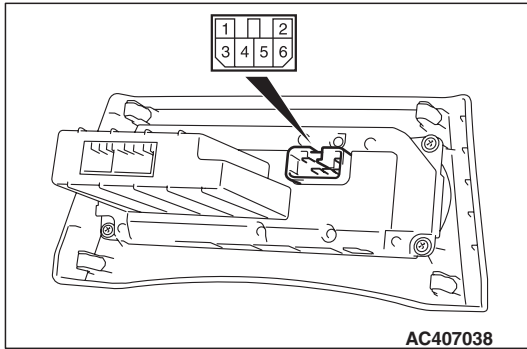


STEP 5. Check blower switch connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower switch connector C-12 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 switch continuity.

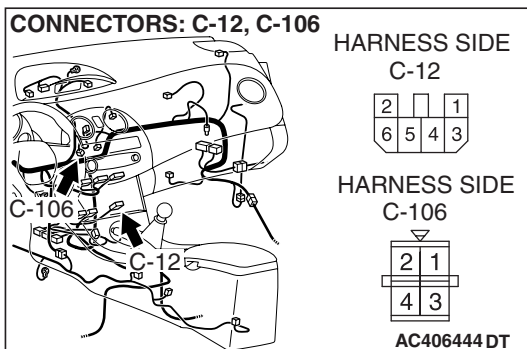
Follow the table below to check the blower switch for continuity.

SWITCH POSITION	TESTER CONNECTION (CONNECTOR A)	SPECIFIED CONDITION
0 (OFF)	1 -4, 2-4, 4 -5, 4 -6	Open circuit
1 (LO)	1 -4	Less than 2 ohms
2 (ML)	4 -6	Less than 2 ohms
3 (MH)	2 -4	Less than 2 ohms
4 (HI)	4 -5	Less than 2 ohms

Q: Is the blower switch continuity in good condition?

YES : Go to Step 7.

NO : Replace the heater control.



STEP 7. Check the wiring harness blower switch connector C-12 (terminals 1, 6 and 2) and resistor connector C-106 (terminals 3, 1 and 4).

Q: Are the wiring harness between blower switch connector C-12 (terminals 1, 6 and 2) and resistor connector C-106 (terminals 3, 1 and 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.

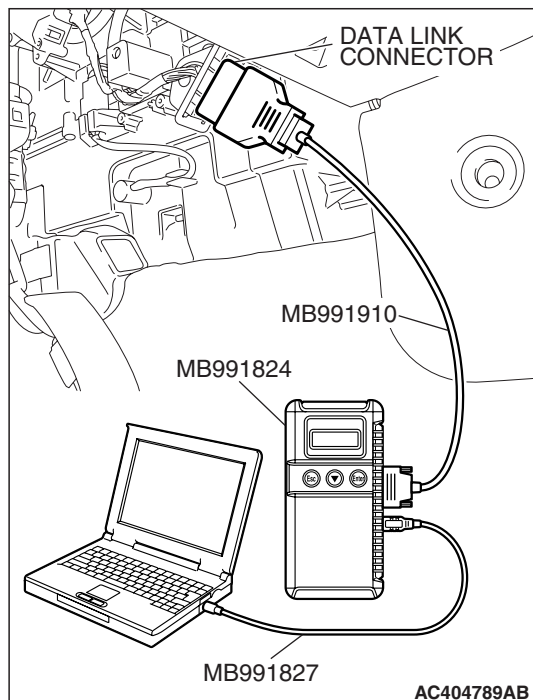
INSPECTION PROCEDURE 6: When the A/C is Operating, Temperature Inside the Passenger Compartment does not Decrease (Cool Air is not Emitted).**PROBABLE CAUSES**

- Improper amount of refrigerant

- Malfunction of the A/C-ECU

DIAGNOSIS**Required Special Tools:**

- 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.**

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.55A-10](#).

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 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 13A, Diagnostic Trouble Code [P.13A-41](#) <2.4L ENGINE> or 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 8, "The condenser fan and the radiator fan do not operate [P.55A-154.](#)"

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 3, "The compressor dose not work [P.55A-115.](#)"

STEP 5. Using scan tool MB991958, check actuator test.

⚠ CAUTION

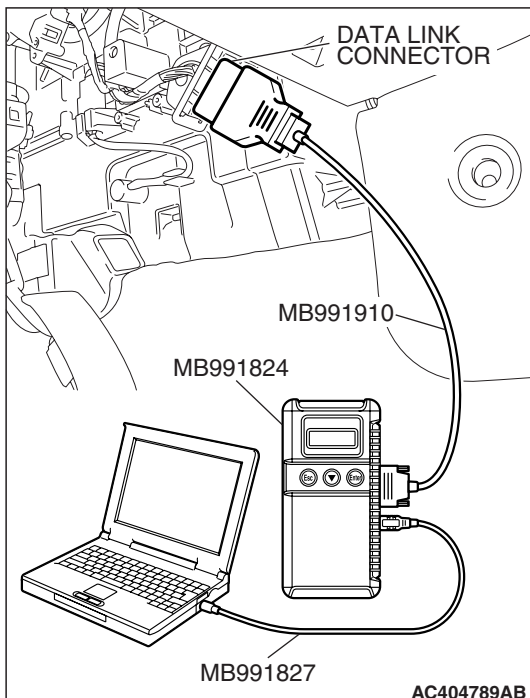
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Start the engine.
- (3) 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 heater control.

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.

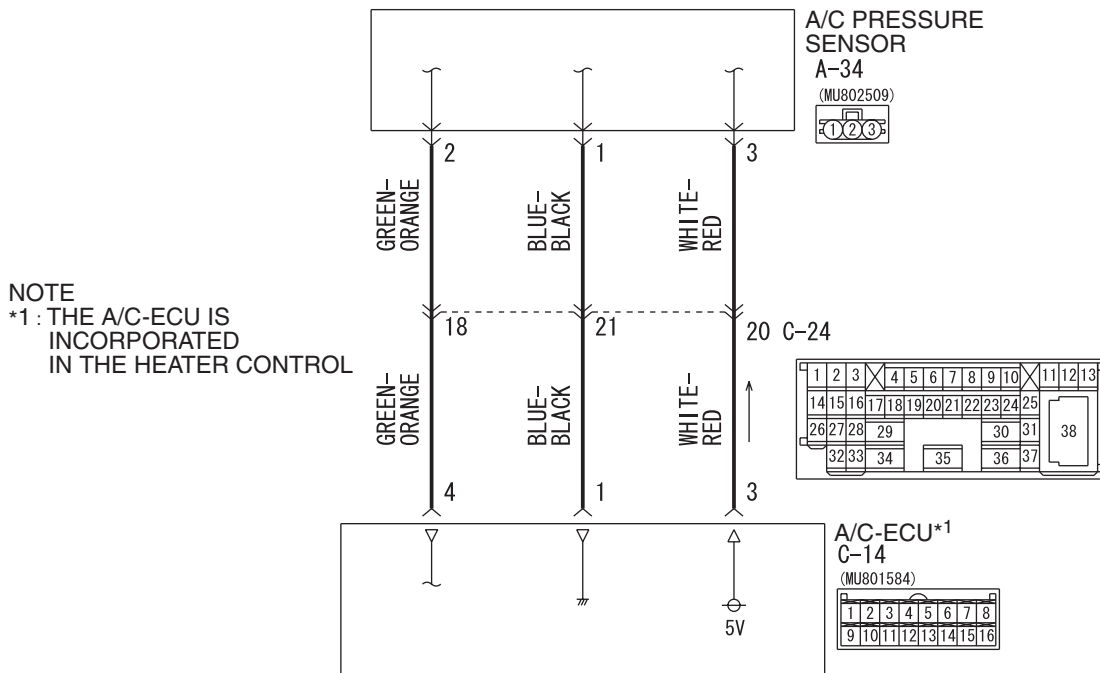
Q: Is the check result satisfactory?

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](#).

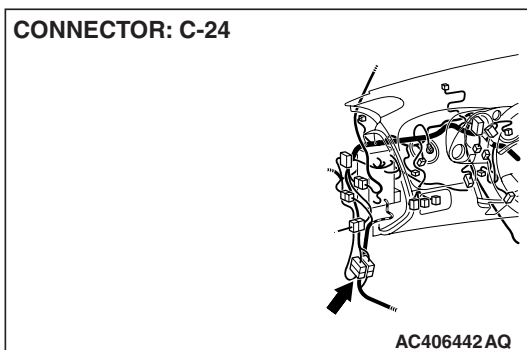
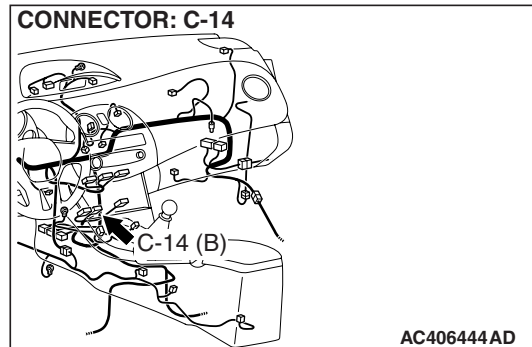
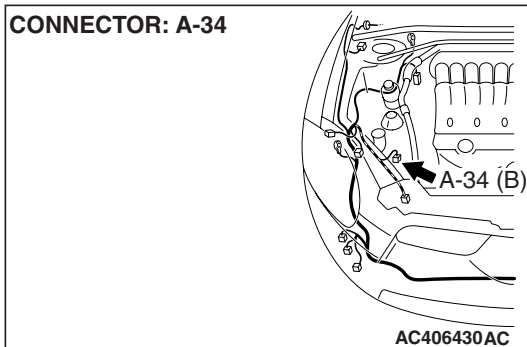
NO : Replace the heater control.

INSPECTION PROCEDURE 7: The condenser fan and the radiator fan turn at full speed.

A/C Pressure Sensor Circuit



W6P55M018A



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**

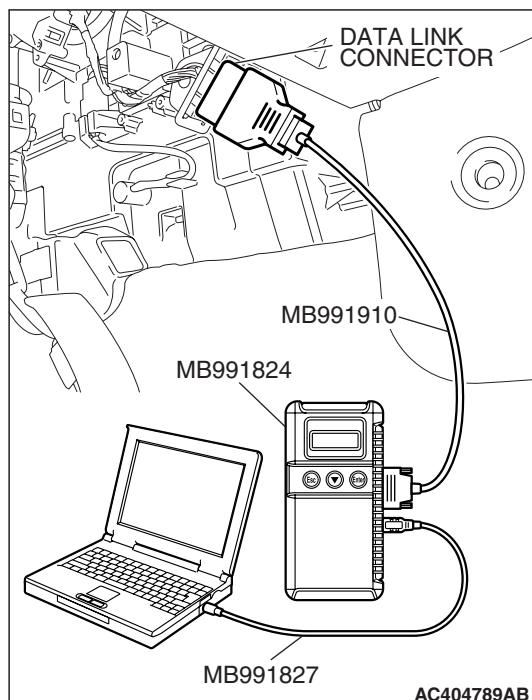
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (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 line (Refer to GROUP 54C, Diagnosis [P.54C-14](#)).

**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.55A-10](#).

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 ECM <M/T> or PCM <A/T> (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 heater control.

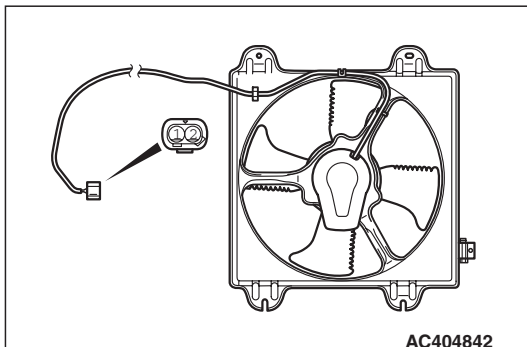
STEP 6. Check the condenser fan motor operation.

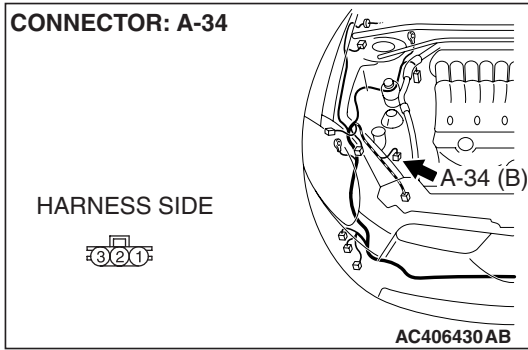
When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.

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-43](#) <3.8L ENGINE>).



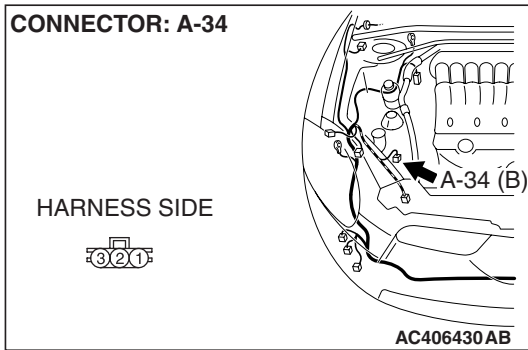


STEP 7. Check A/C pressure sensor connector A-34 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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

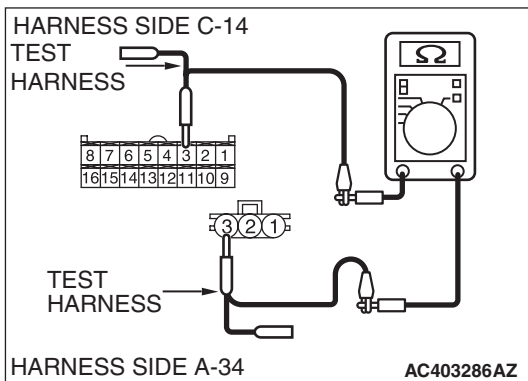
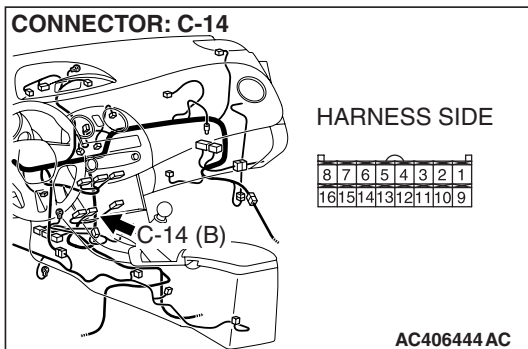
YES : Go to Step 8.

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-14 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-14 terminal 3 and A/C pressure sensor connector A-34 terminal 3.

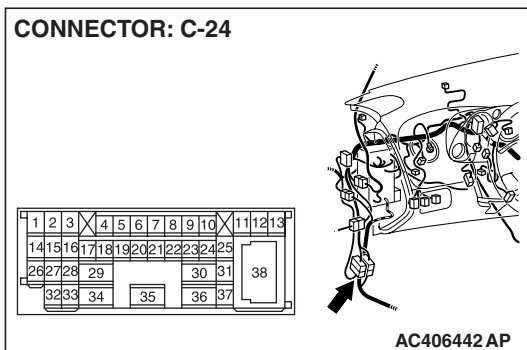
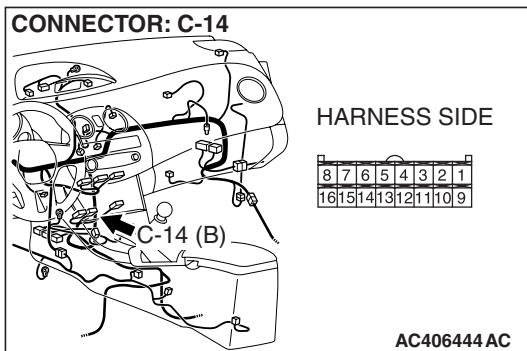
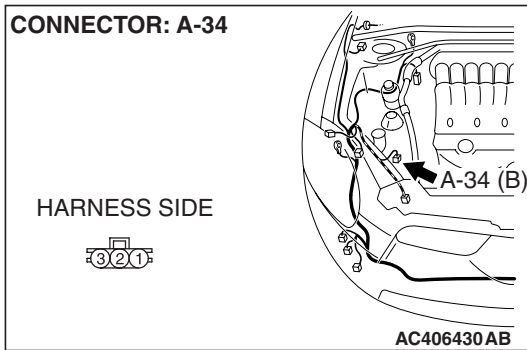
OK: Less than 2 ohms

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-14 (terminal 3) 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-14 (terminal 3) 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 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 heater control.

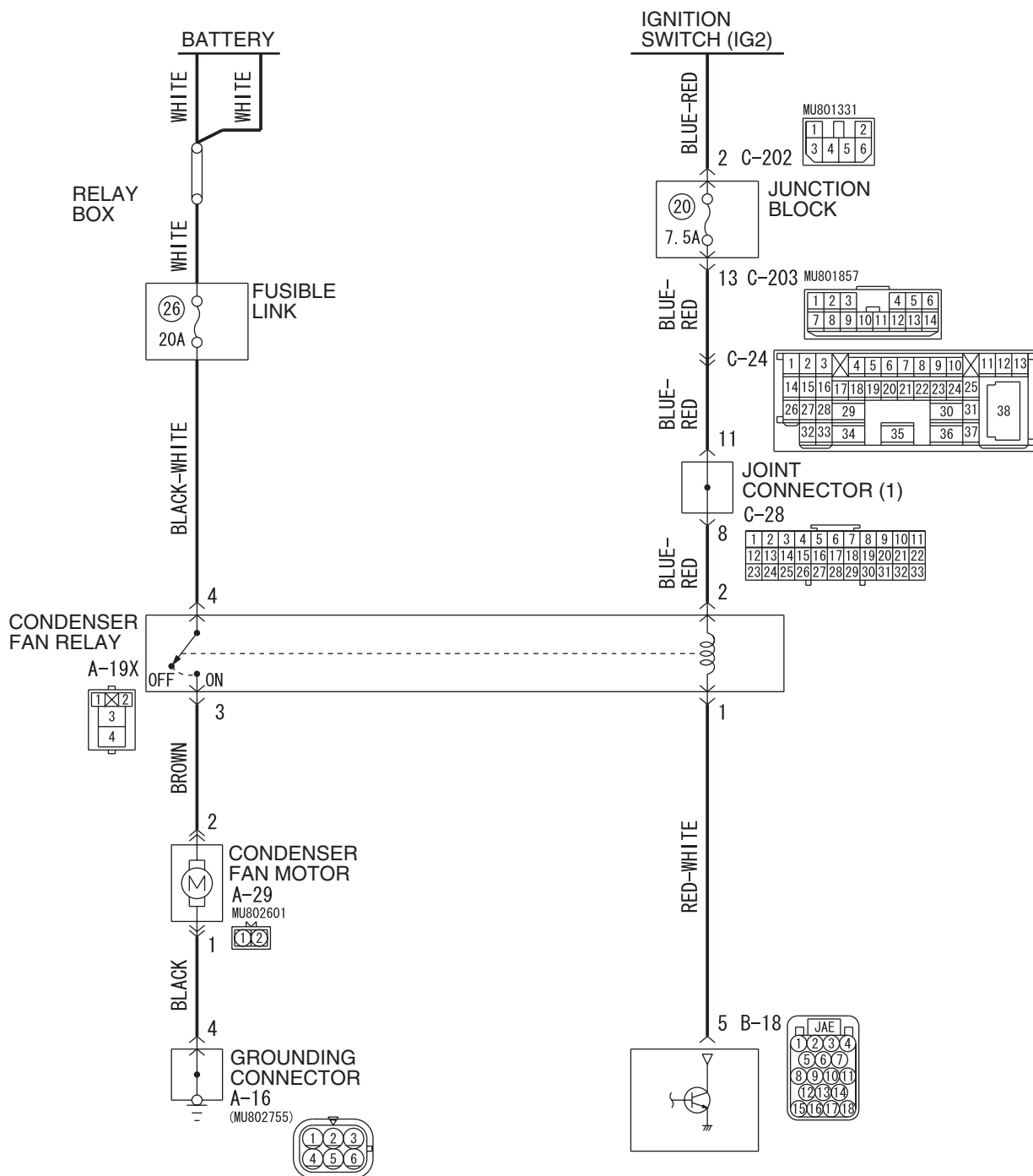
INSPECTION PROCEDURE 8: The condenser fan and the radiator fan do not operate.

DIAGNOSIS

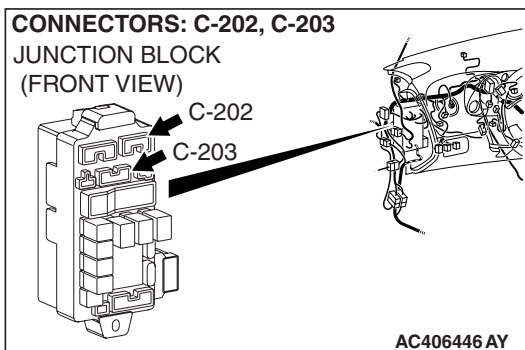
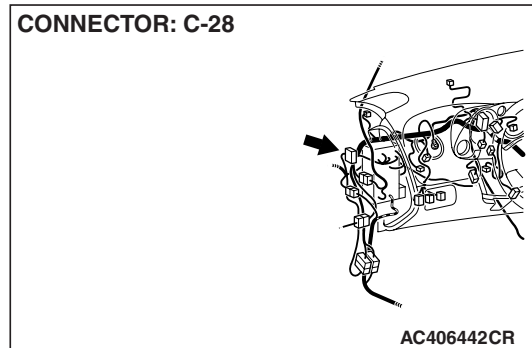
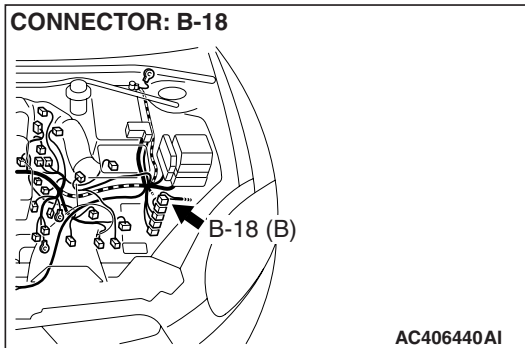
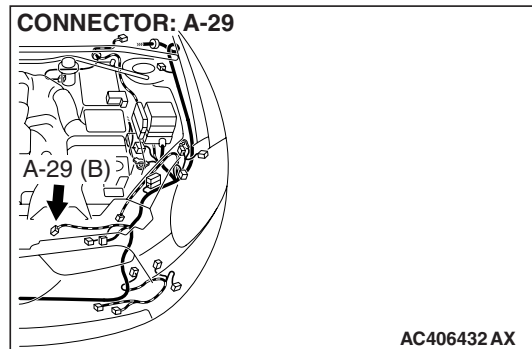
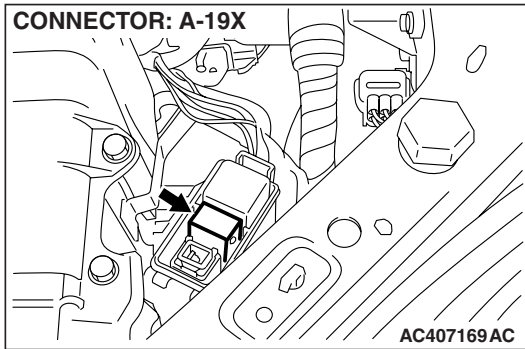
Refer to GROUP 14, Symptom Chart [P.14-4](#).

INSPECTION PROCEDURE 9: Condenser Fan does not Operate.

Condenser Fan Motor



W6P55M027A



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 the condenser fan relay
- Malfunction of the condenser fan motor
- Malfunction of the ECM <M/T> or PCM <A/T>
- Malfunction of the harness.
- Malfunction of connector.

DIAGNOSIS

Required Special Tools:

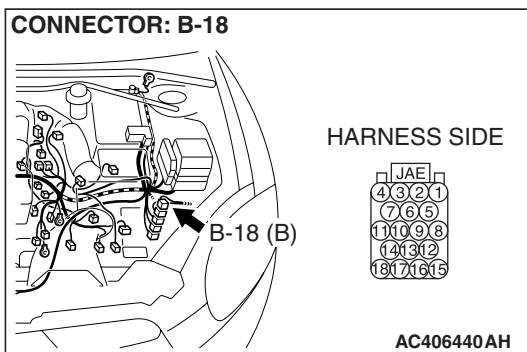
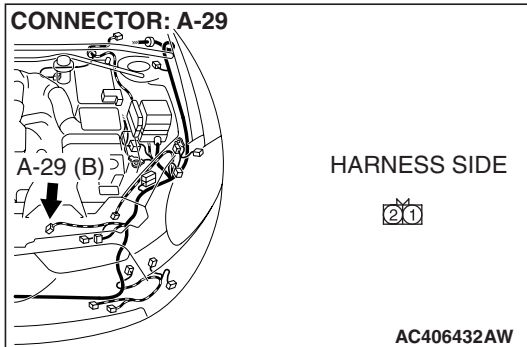
- MB991223: Harness Set
- MB992006: Extra Fine Probe

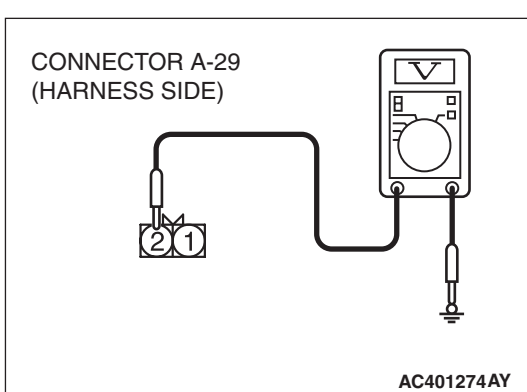
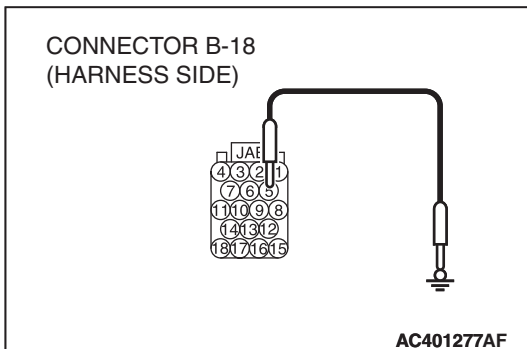
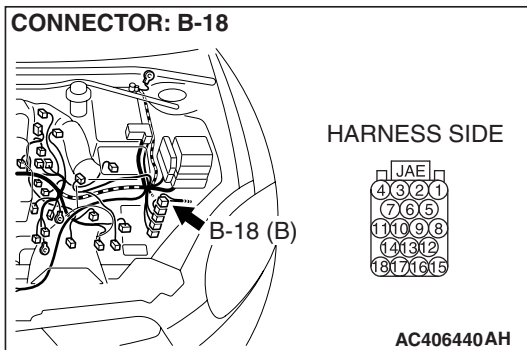
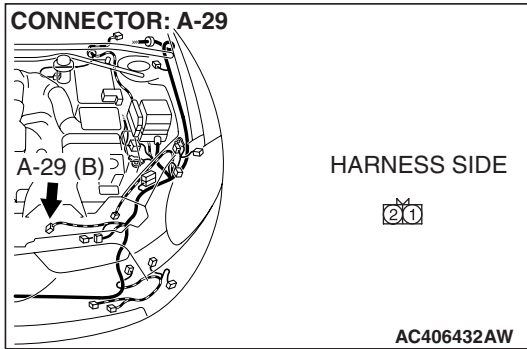
STEP 1. Check condenser fan motor connector A-29 and ECM <M/T> or PCM <A/T> connector B-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is condenser fan motor connector A-29 and ECM <M/T> or PCM <A/T> connector B-18 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. Measure the voltage at condenser fan motor connector A-29.

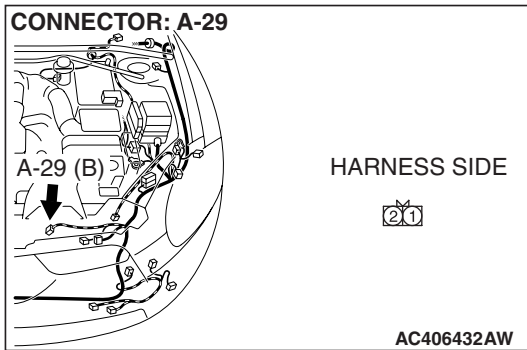
- (1) Disconnect condenser fan motor connector A-29, and measure the voltage at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Disconnect ECM <M/T> or PCM <A/T> connector B-18 and ground harness side terminal No.5.

- (4) Measure the voltage between terminal 2 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 11.
NO : Go to Step 3.

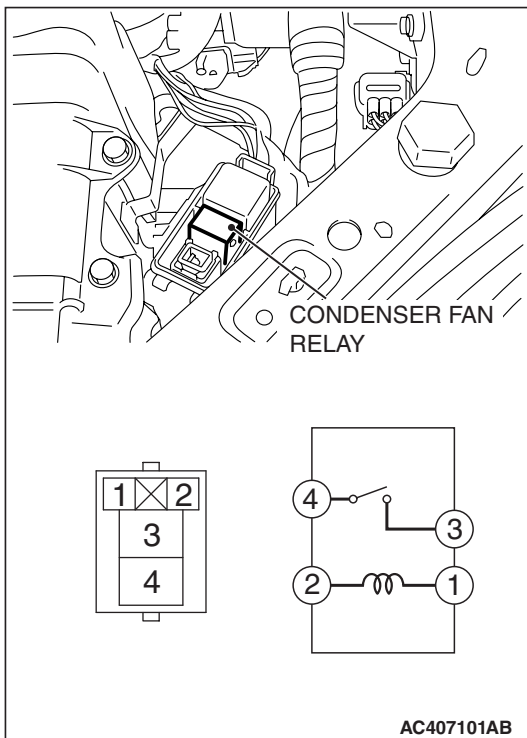


STEP 3. Check condenser fan motor connector A-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is condenser fan motor connector A-29 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 condenser fan relay continuity.

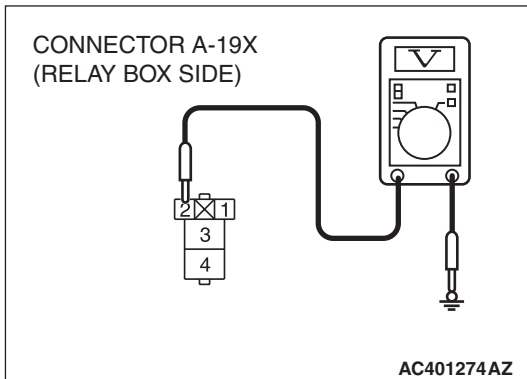
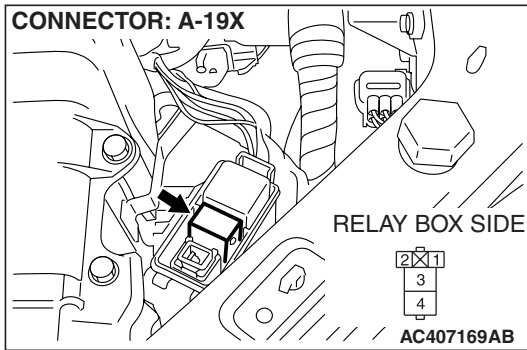
Follow the table below to check the condenser fan relay for continuity.

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

Q: Is the blower relay continuity in good condition?

YES : Go to Step 5.

NO : Replace the condenser fan relay.



STEP 5. Measure the voltage at condenser fan relay connector A-19X.

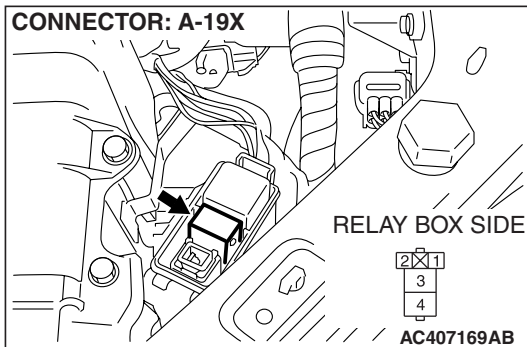
- (1) Disconnect condenser fan relay connector A-19X, and measure the voltage at the relay box side.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 2 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 7.

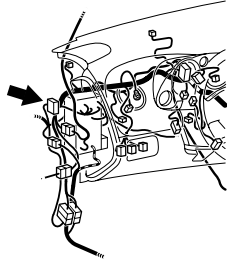
NO : Go to Step 6.



STEP 6. Check the wiring harness between condenser fan relay connector A-19X (terminal 2) and the ignition switch (IG2).

CONNECTOR: C-28

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



AC406442 AW

NOTE: Also check junction block connector C-202, C-203 and joint connector (1) C-28 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-202, C-203 and joint connector (1) C-28 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

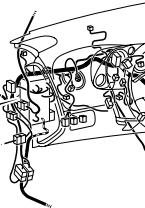
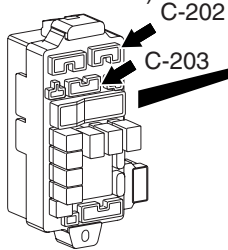
Q: Is the wiring harness between blower relay condenser fan relay connector A-19X (terminal 2) and the ignition switch (IG2) in good condition?

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.

CONNECTORS: C-202, C-203
JUNCTION BLOCK
(FRONT VIEW)



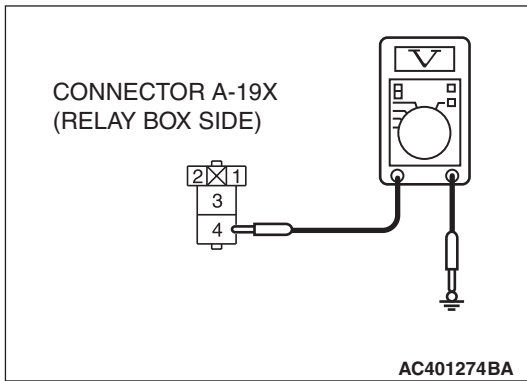
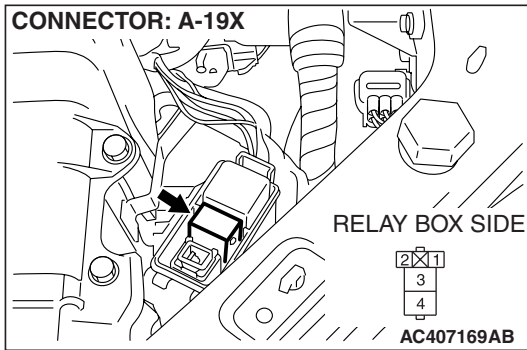
HARNESS SIDE
C-202

2	1
6	3

HARNESS SIDE
C-203

6	5	4	3	2	1		
14	13	12	11	10	9	8	7

AC406447 AN



STEP 7. Measure the voltage at condenser fan relay connector A-19X.

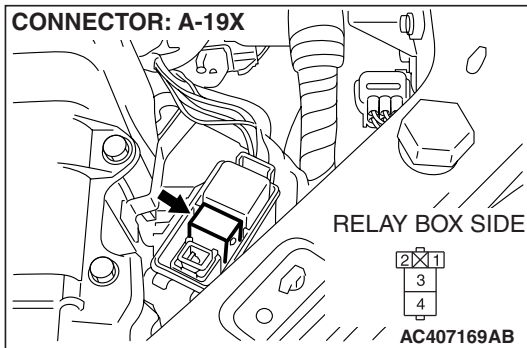
- (1) Disconnect condenser fan relay connector A-19X, and measure the voltage at the junction block side.

- (2) Measure the voltage between terminal 4 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 9.

NO : Go to Step 8.

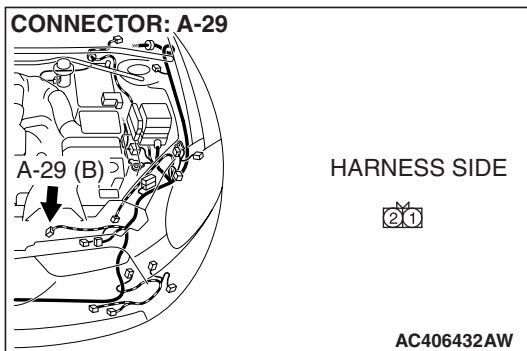
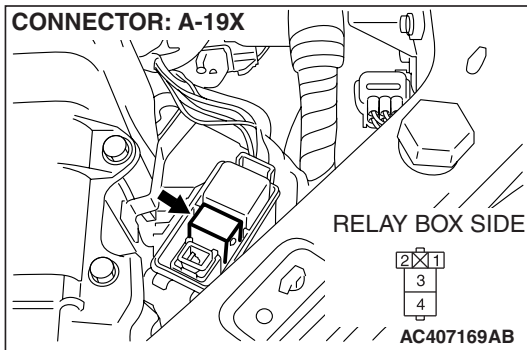


STEP 8. Check the wiring harness between condenser fan relay connector A-19X (terminal 4) and the battery.

Q: Is the wiring harness between condenser fan relay connector A-19X (terminal 4) 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.

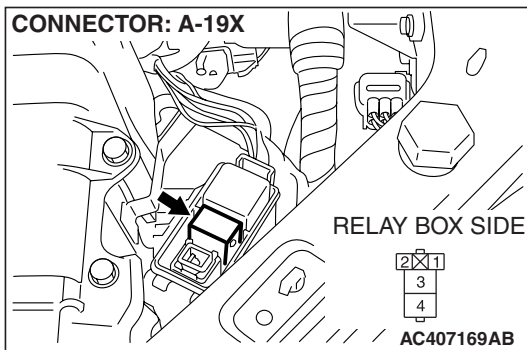


STEP 9. Check the wiring harness between condenser fan relay connector A-19X (terminal 3) and condenser fan motor connector A-29 (terminal 2).

Q: Is the wiring harness between condenser fan relay connector A-19X (terminal 3) and condenser fan motor connector A-29 (terminal 2) in good condition?

YES : Go to Step 10.

NO : Repair the wiring harness.

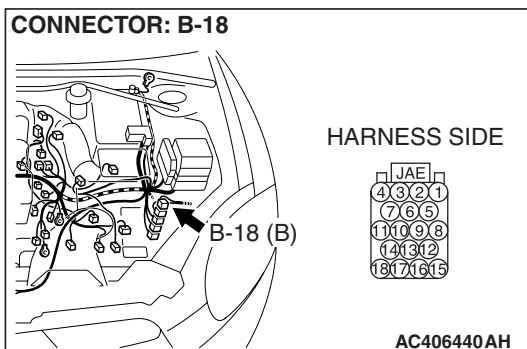


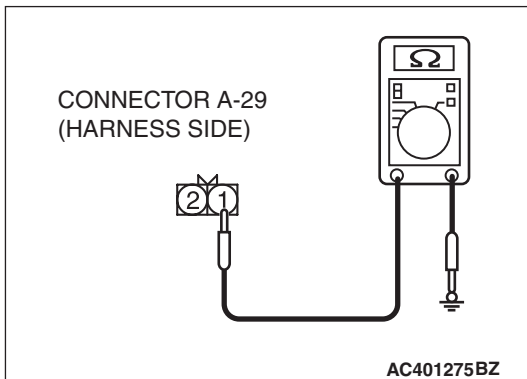
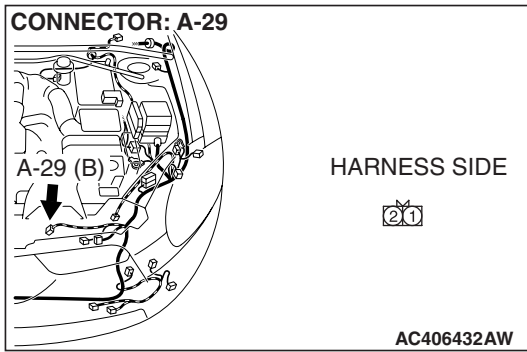
STEP 10. Check the wiring harness between condenser fan relay connector A-19X (terminal 1) and ECM <M/T> or PCM <A/T> B-18 (terminal 5).

Q: Is the wiring harness between condenser fan relay connector A-19X (terminal 1) and ECM <M/T> or PCM <A/T> B-18 (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. Measure the resistance at condenser fan motor connector A-29 in order to the ground circuit to the blower motor.

(1) Disconnect condenser fan motor connector A-29, and measure the resistance at the wiring harness side.

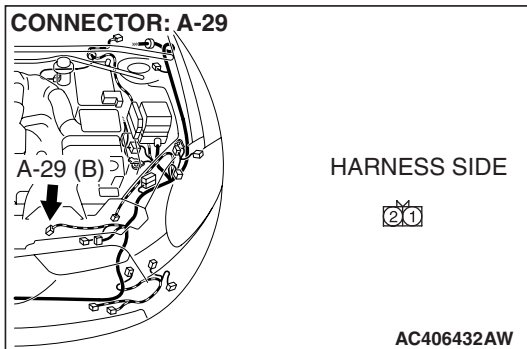
(2) Measure the resistance value between terminal 1 and ground.

- The measured value should be 2 ohms or less.

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

YES : Go to Step 13.

NO : Go to Step 12.

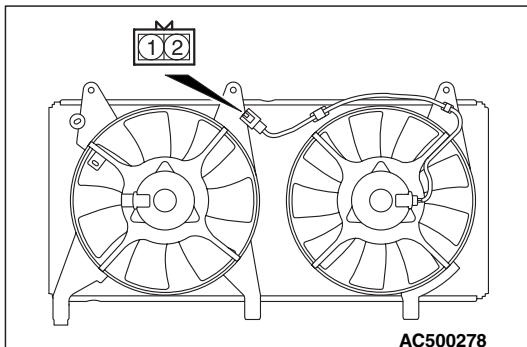


STEP 12. Check the wiring harness between condenser fan motor connector A-29 (terminal 1) and ground.

Q: Is the wiring harness between condenser fan motor connector A-29 (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 the wiring harness.



STEP 13. Check the condenser fan motor operation.

Check to be sure that the condenser fan motor operates when battery voltage is applied to terminal 2 and terminal 1 grounded.

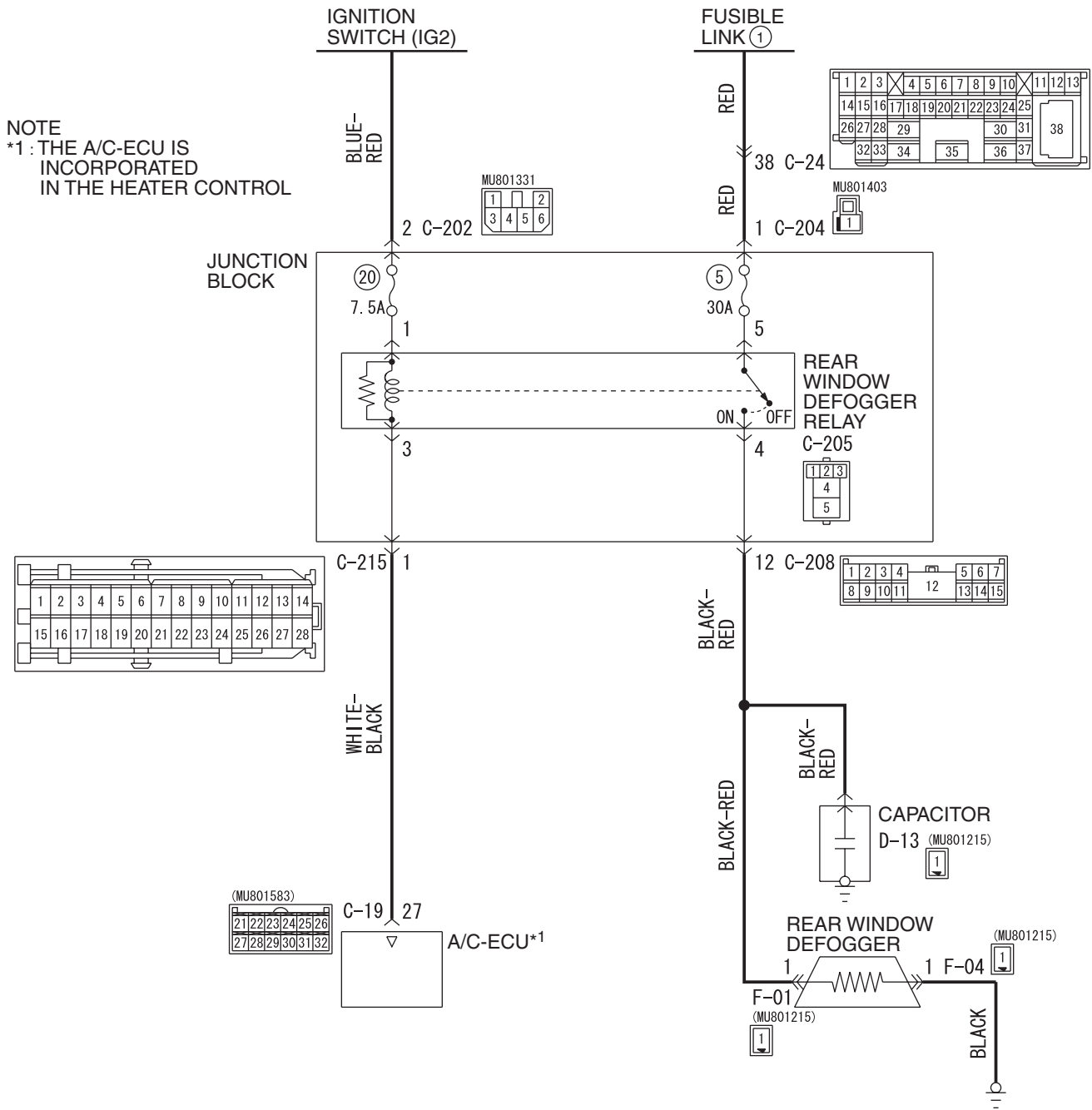
Q: Is there any abnormal noise?

YES : Replace the ECM <M/T> or PCM <A/T>.

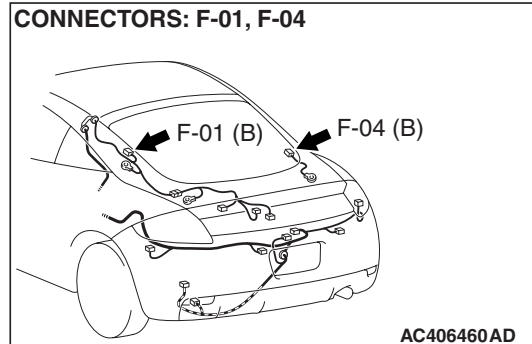
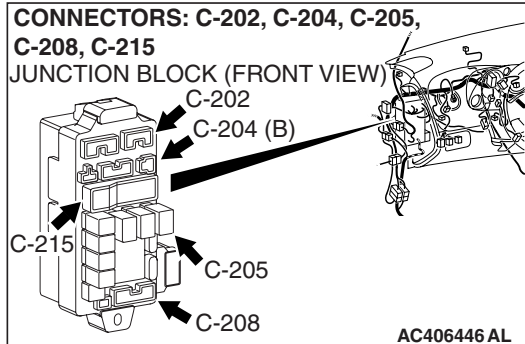
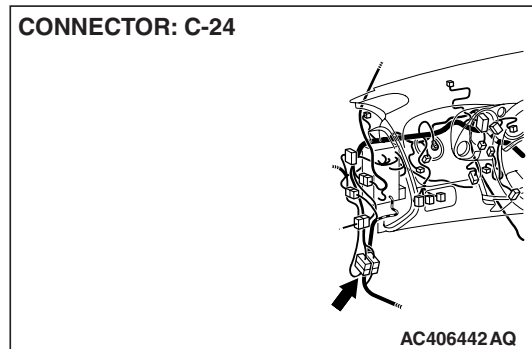
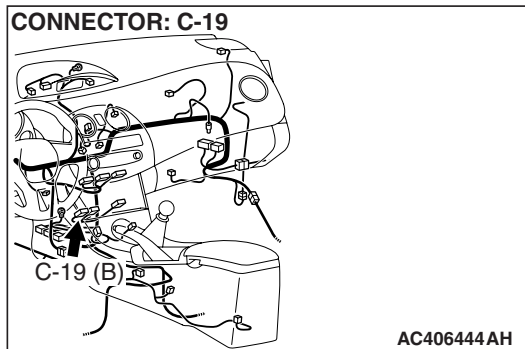
NO : Replace the condenser fan motor.

INSPECTION PROCEDURE 10: Rear Window Defogger Function does not Operate.

Rear Window Defogger Circuit



W6P55M028A



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:

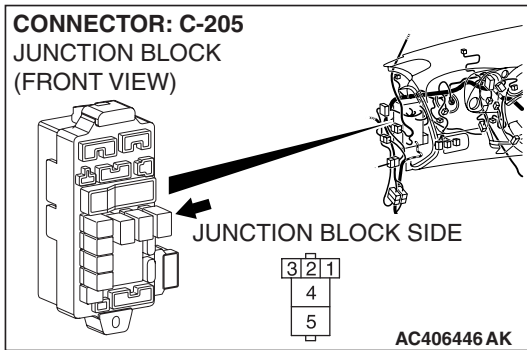
- MB991223: Harness Set
- MB992006: Extra Fine Probe

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.00-14.](#)"

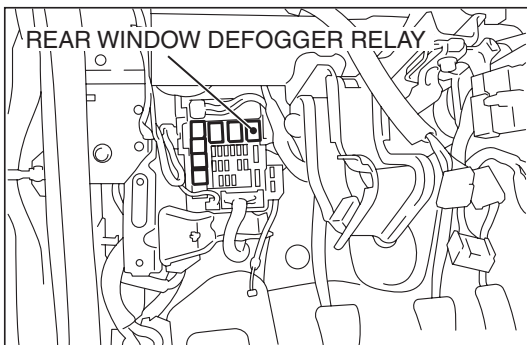


STEP 2. Check rear window defogger relay connector C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

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](#).



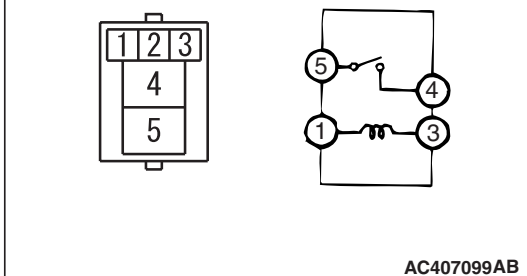
STEP 3. Check the rear window defogger relay continuity.
Follow the table below to check the rear window defogger relay for continuity.

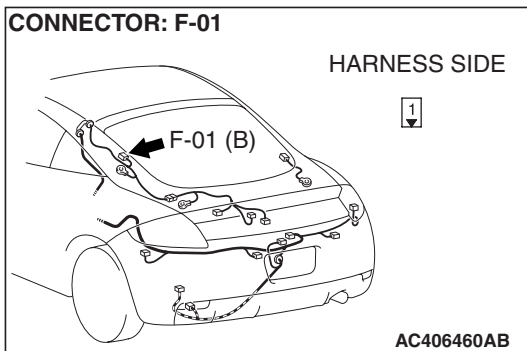
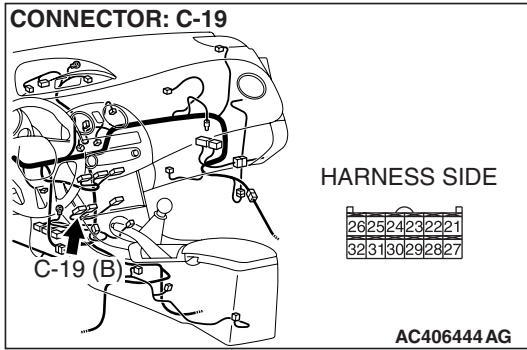
BATTERY VOLTAGE	CONNECT TESTER BETWEEN	SPECIFIED CONDITION
Not applied	4 -5	Open Circuit
<ul style="list-style-type: none"> Connect terminal 1 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	4 -5	Less than 2 ohms

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

YES : Go to Step 4.

NO : Replace the rear window defogger relay.



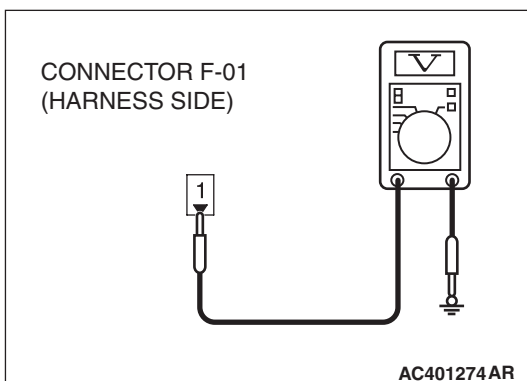
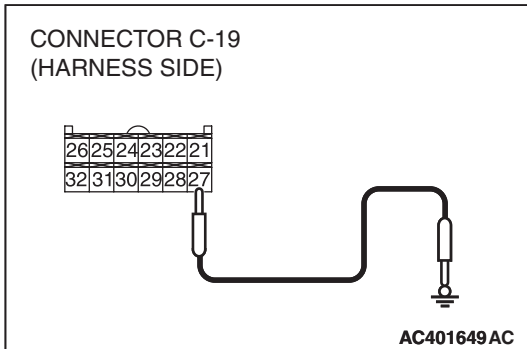
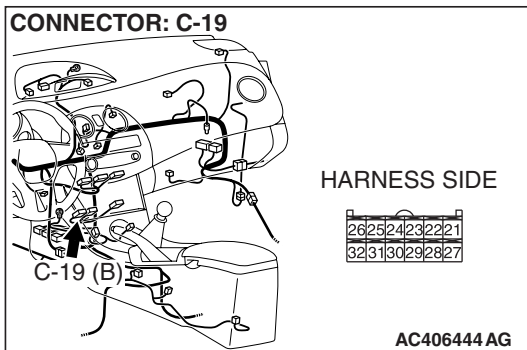
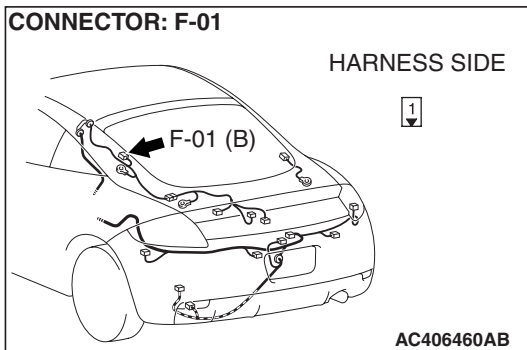


STEP 4. Check A/C-ECU connector C-19 and rear window defogger connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-19 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](#).



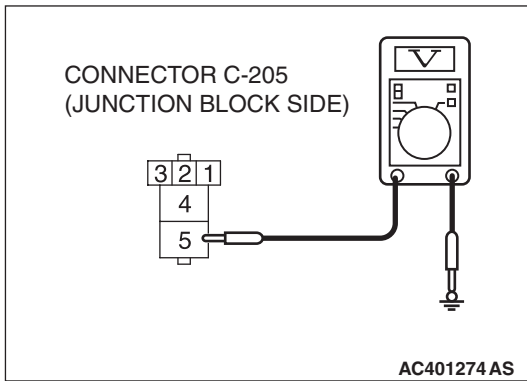
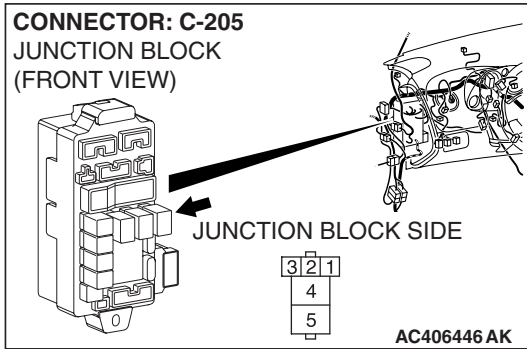
STEP 5. Measure the voltage at rear window defogger connector F-01.

- (1) Disconnect rear window defogger connector F-01, and measure the voltage at the harness side.
- (2) Disconnect A/C-ECU connector C-19 and ground harness side terminal No.27.
- (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.

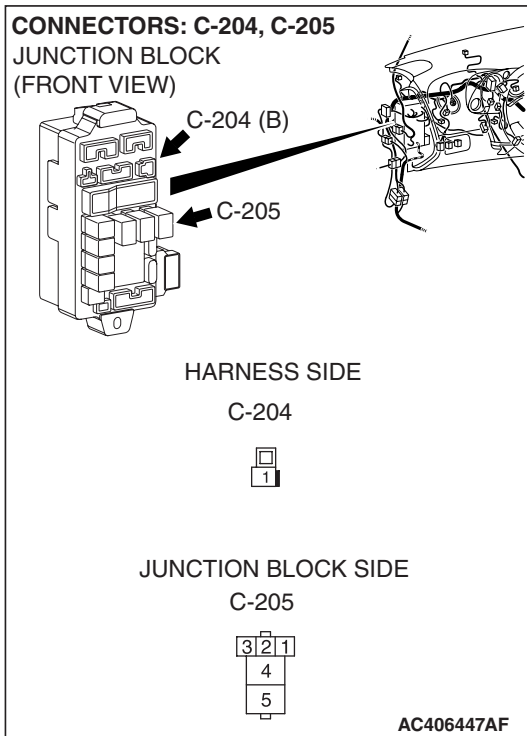
(2) Measure the voltage between terminal 5 and ground.

- The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

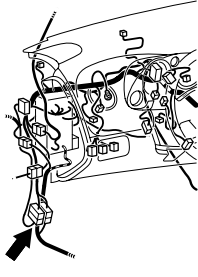
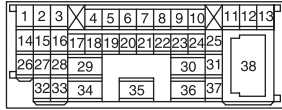
YES : Go to Step 8.

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.

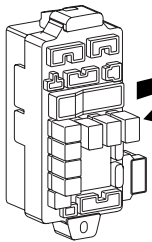
Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 5) and the fusible link (1) in good condition?

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.

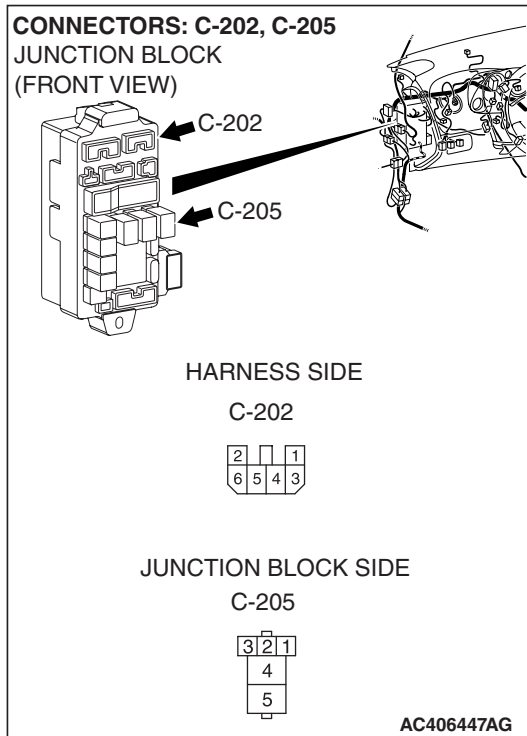
NO : Go to Step 9.

CONNECTOR C-205
(JUNCTION BLOCK SIDE)



AC401274 AT

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.

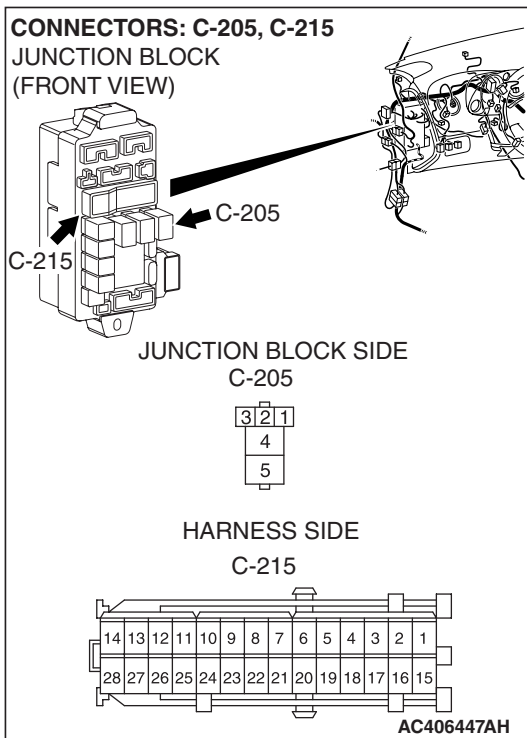
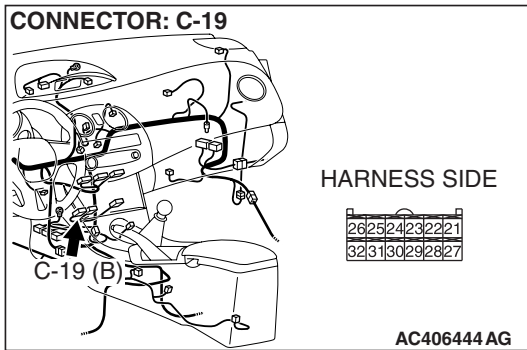
Refer to GROUP 00, How to Use

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-19 (terminal 27).



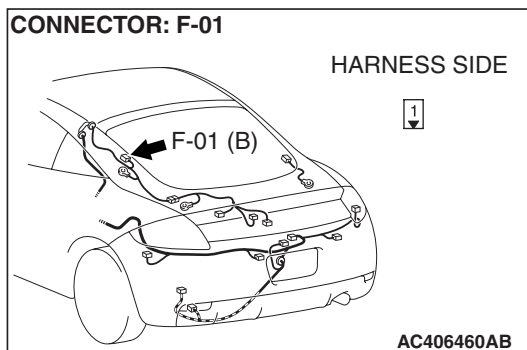
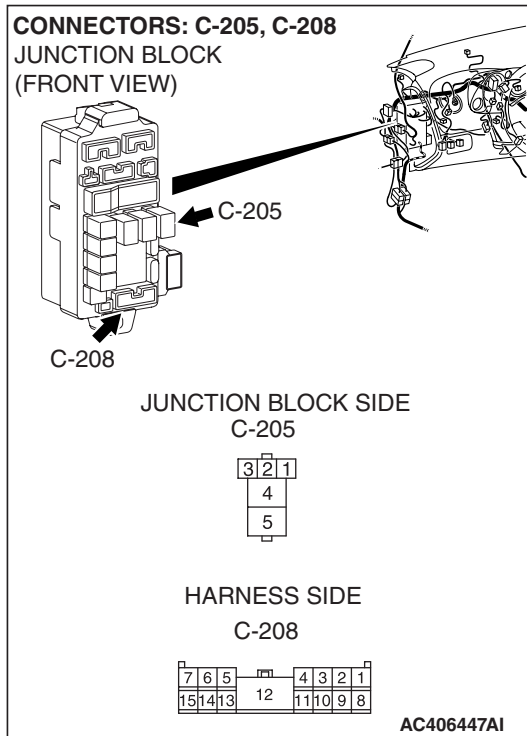
NOTE: Also check junction block connector C-215 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-215 is damaged, repair or replace the connector as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

Q: Is the wiring harness between rear window defogger relay connector C-205 (terminal 3) and A/C-ECU connector C-19 (terminal 27) 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).



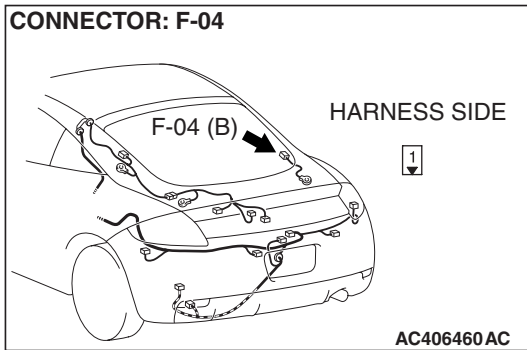
NOTE: Also check junction block connector C-208 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-208 is damaged, repair or replace the connector as described in GROUP 00E, *Harness Connector Inspection* [P.00E-2](#).

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](#).

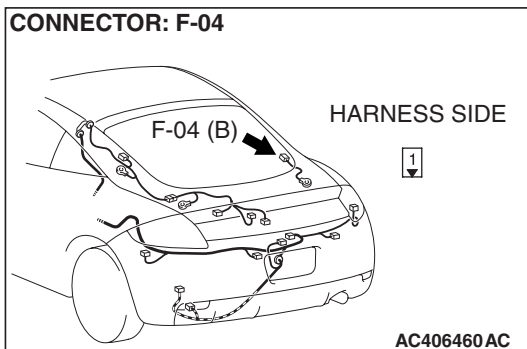


STEP 12. Check rear window defogger connector F-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger connector F-04 in good condition?

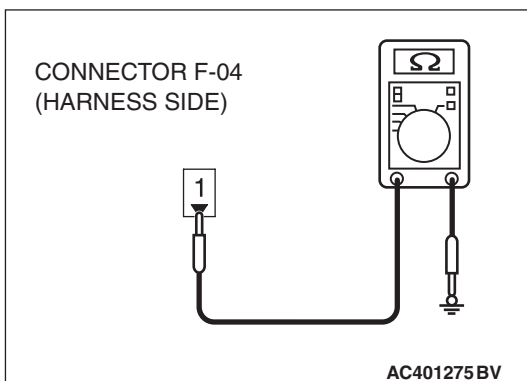
YES : Go to Step 13.

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.



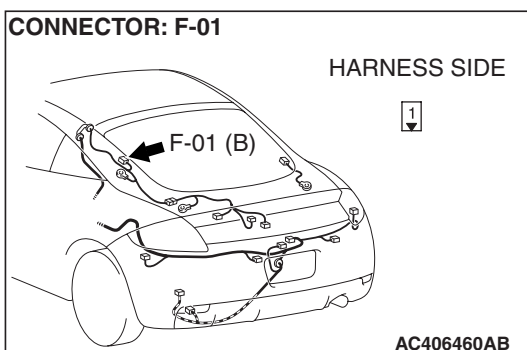
(2) Measure the resistance value between terminal 1 and ground.

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.

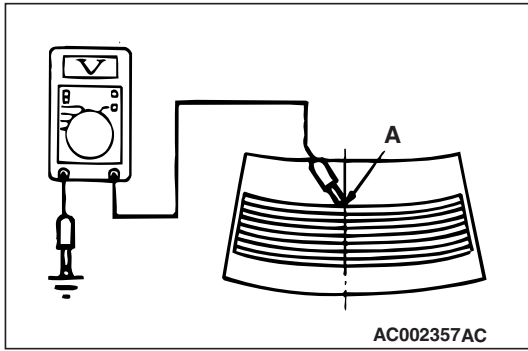


STEP 14. Check the wiring harness between rear window defogger connector F-01 (terminal 1) and ground.

Q: Is the wiring harness between rear window defogger connector F-01 (terminal 1) and ground in good condition?

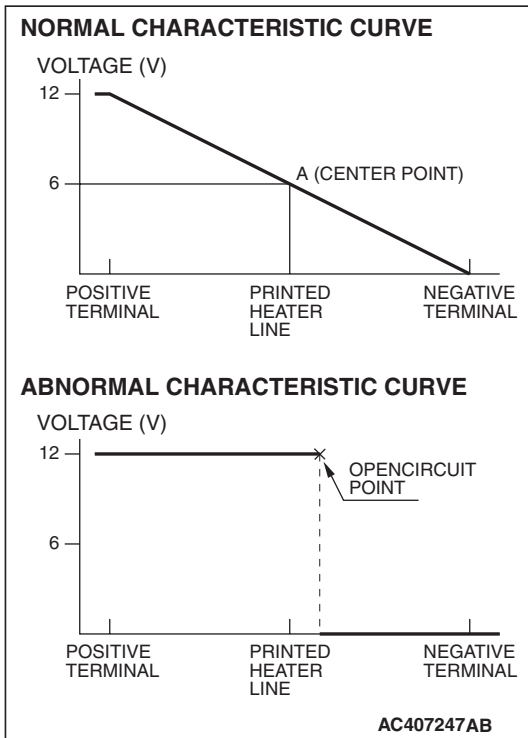
YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunctions [P.00-14](#).

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 heater control.

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*¹
- Malfunction of the rear window defogger timer

*NOTE: *¹: The A/C-ECU is incorporated in the heater control.*

DIAGNOSIS

Replace the heater control.

DATA LIST REFERENCE TABLE

M1554005100299

MUT-III SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	INSPECTION REQUIREMENT		NORMAL VALUE
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.
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
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.
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.

MUT-III SCAN TOOL DISPLAY	ITEM NO.	INSPECTION ITEM	INSPECTION REQUIREMENT		NORMAL VALUE
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
A/C SW (Compressor)	66	A/C switch	Ignition switch: ON	A/C switch: ON	Scan tool indication: ON
				A/C switch: OFF	Scan tool indication: OFF

ACTUATOR TEST REFERENCE

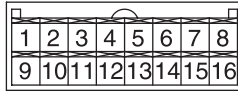
M1554005200274

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: 0%	77	Condenser fan	OFF
Condenser fan: 100%	78		High speed
Condenser fan: 50%	79		Middle speed
Rheostat: 0%	80	Heater control Illumination	Illumination: 0%
Rheostat: 100%	81		Illumination: 100%
Rheostat: 50%	82		Illumination: 50%

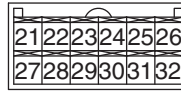
CHECK AT A/C-ECU TERMINAL

M1552010300873

C-14



C-19



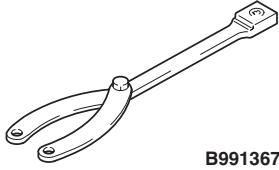
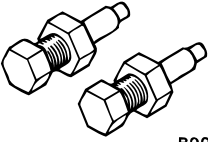
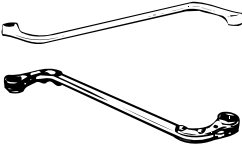
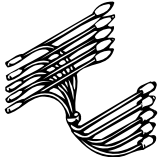
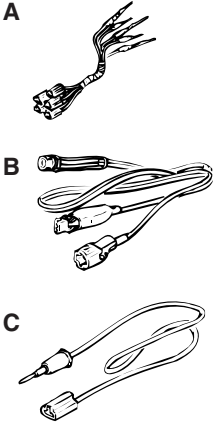
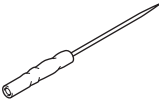
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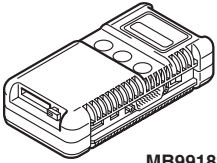
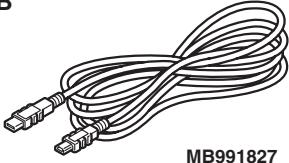
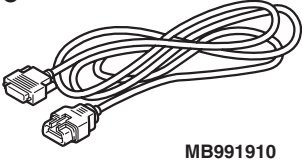
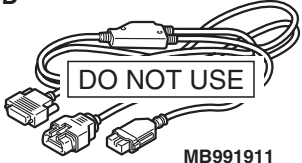
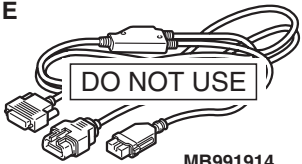
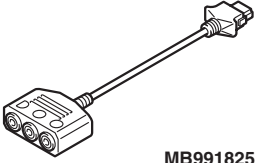
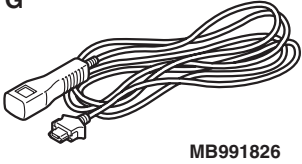
TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
1	A/C pressure sensor ground	Always	0 V
2	Ground	Always	0 V
3	A/C pressure sensor	Ignition switch: ON	5 V
4	A/C pressure sensor	at 2.6 MPa (377 psi)	3.9 V
5, 6	–	–	–
7	Power supply to the ignition switch (ACC)	Ignition switch: ON	Battery positive voltage
8	Back-up power supply	Always	Battery positive voltage
9	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
10	Sensors and potentiometers ground	Always	0 V
11	Mode selection damper control motor potentiometer input	When the damper has moved to the DEF position.	0.67 V
12	Air mixing damper control motor potentiometer input	When the damper door has moved to the MAX. HOT position.	1.4 V
13	Air thermo sensor input	When sensor temperature is 25° C (77° F) [1.5 kΩ]	2.2 V
14	Ambient air temperature sensor input	When sensor temperature is 25° C (77° F) [4 kΩ]	1.9 V
15	Potentiometer power supply	Ignition switch: ON	5 V
16	Power supply to the ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
21	ILL power supply	Lighting switch: ON	Battery positive voltage
22	Illumination ground	Always	0 V
23	A/C compressor relay	A/C compressor relay: ON	Battery positive voltage
24	Blower switch	Ignition switch: ON Blower switch: ON	Battery positive voltage
25, 26	–	–	–
27	Rear window defogger relay	Ignition switch: ON	Battery positive voltage

TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
28	Outside/inside air selection damper control motor (outside)	When the damper flap is moving to the air recirculation position.	0.5 V
		When the damper flap is moving to the outside air position.	0 V (when the motor is stopped)
29	Outside/inside air selection damper control motor (inside)	When the damper flap is moving to the air recirculation position.	0 V (when the motor is stopped)
		When the damper flap is moving to the outside air position.	0.5 V
30	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
31	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
32	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

SPECIAL TOOLS

M1552000600419

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 <p>B991367</p>	<p>MB991367 Special spanner</p>	<p>MB991367-01</p>	<p>Armature mounting nut of compressor removal and installation</p>
 <p>B991386</p>	<p>MB991386 Pin</p>	<p>MIT217213</p>	<p>Armature mounting nut of compressor removal and installation</p>
 <p>MB990900</p>	<p>MB990900 or MB991164 Door adjusting wrench</p>	<p>MB990900-01</p>	<p>Removal and installation of the heater unit and front deck crossmember assembly</p>
 <p>MB991658</p>	<p>MB991658 Test harness set</p>	<p>Tool not available</p>	<p>Inspection of A/C pressure sensor</p>
 <p>A B C D</p> <p>DO NOT USE MB991223AZ</p>	<p>MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe</p>	<p>General service tools</p>	<p>Making voltage and resistance measurement during troubleshooting A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection</p>
 <p>MB992006</p>	<p>MB992006 Extra fine probe</p>	<p>General service tool</p>	<p>Making voltage and resistance measurement during troubleshooting</p>

TOOL	TOOL NUMBER AND NAME	SUPERSESSON	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</p> <p>A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826</p> <p>MUT-III Sub Assembly</p> <p>A: Vehicle communication interface (V.C.I.)</p> <p>B: MUT-III USB cable</p> <p>C: MUT-III main harness A (Vehicles with CAN communication system)</p> <p>D: MUT-III main harness B (Vehicles without CAN communication system)</p> <p>E: MUT-III main harness C (for Daimler Chrysler models only)</p> <p>F: MUT-III measurement adapter</p> <p>G: MUT-III Trigger Harness</p>	<p>MB991824-KIT</p> <p><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</p> <p>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>

ON-VEHICLE SERVICE

REFRIGERANT LEVEL TEST

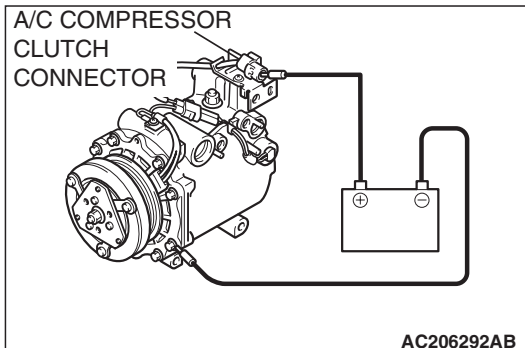
M1552008400505

Use the refrigerant recovery station to remove all of the refrigerant, and then calculate the amount of the refrigerant and charge it.

A/C COMPRESSOR CLUTCH TEST

M1552019900098

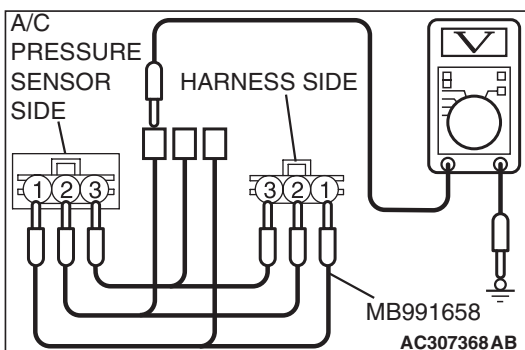
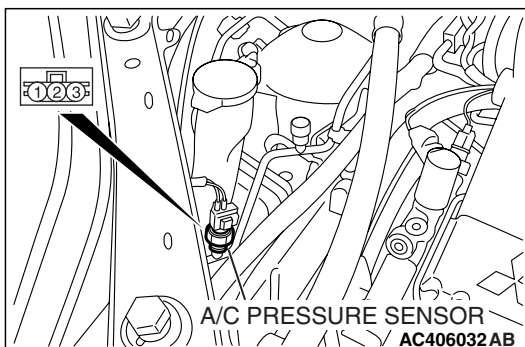
1. Disconnect the A/C compressor clutch connector to the A/C compressor clutch.
2. Connect positive battery voltage directly to the connector for the A/C compressor clutch.
3. If the A/C compressor clutch is normal, there will be a "click". If the pulley and armature do not make contact ("no click"), there is a malfunction.

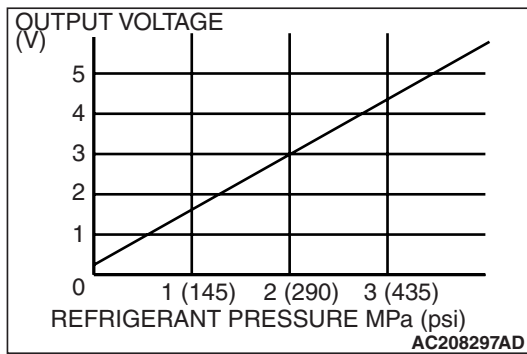


SIMPLE INSPECTION OF THE A/C PRESSURE SENSOR

M1552014700259

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 $\pm 5\%$.

COMPRESSOR DRIVE BELT ADJUSTMENT

M1552001000595

Refer to GROUP 00, Maintenance Service –Drive Belts

P.00-52.

CHARGING

M1552001200555

Use the refrigerant recovery station to charge the refrigerant.

METHOD BY USING REFRIGERANT RECOVERY AND RECYCLING UNIT

Using the refrigerant recovery and recycling unit, refill the refrigerant.

NOTE: Refer to the Refrigerant Recovery and Recycling Unit's Instruction Manual for operation of the unit.

DISCHARGING SYSTEM

Use the refrigerant recovery unit to discharge refrigerant gas from the system.

NOTE: Refer to the Refrigerant Recovery and Recycling Unit's Instruction Manual for operation of the unit.

REFILLING OF OIL IN THE A/C SYSTEM

Too little oil will provide inadequate compressor lubrication and cause a compressor failure. Too much oil will increase discharge air temperature.

When a compressor is installed at the factory, it contains 140 cm³ (4.7 fl.oz) of refrigerant oil. While the A/C system is in operation, the oil is carried through the entire system by the refrigerant. Some of this oil will be trapped and retained in various parts of the system.

When the following system components are changed, it is necessary to add oil to the system to replace the oil being removed with the component.

Compressor oil: SUN PAG 56

Quantity:

Evaporator: 60 cm³ (2.0 fl.oz)

Condenser: 15 cm³ (0.5 fl.oz)

Suction hose: 10 cm³ (0.3 fl.oz)

M1552001400560

PERFORMANCE TEST

The vehicles to be tested should be parked out of direct sunlight.

1. Close the high and low-pressure valve of the gauge manifold.
2. Connect the charging hose (blue) to the low-pressure valve and connect the charging hose (red) to the high-pressure valve of the gauge manifold.
3. Install the quick joint (for low-pressure) to the charging hose (blue), and connect the quick joint (for high-pressure) to the charging hose (red).

⚠ CAUTION

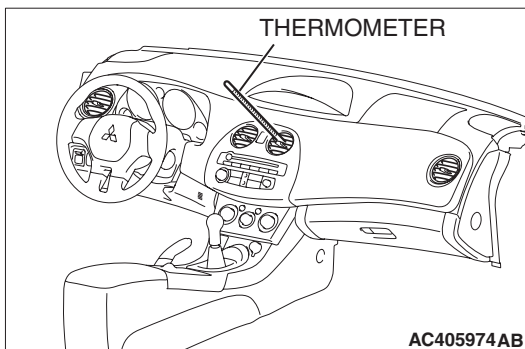
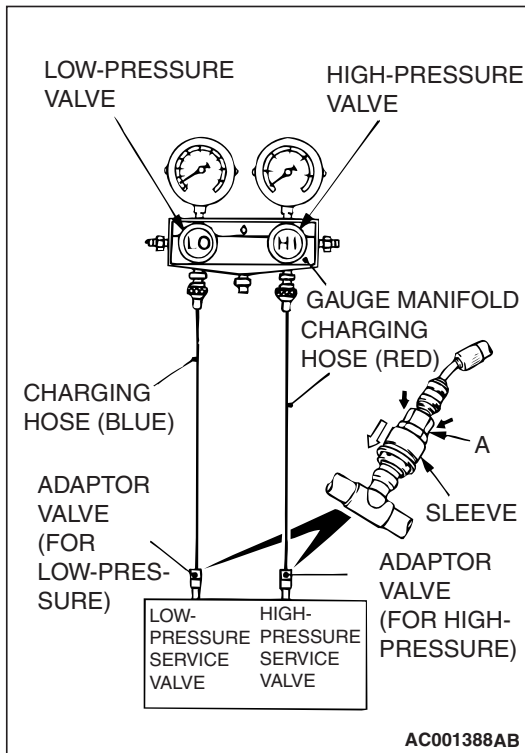
- To connect the quick joint, press section A firmly against the service valve until a click is heard.
 - When connecting, run your hand along the hose while pressing to ensure that there are no bends in the hose.
4. Connect the quick joint (for low-pressure) to the low-pressure service valve and connect the quick joint (for high-pressure) to the high-pressure service valve.

NOTE: The high-pressure service valve is on the A/C pipe and the low-pressure service valve is on the suction hose.

5. Start the engine.
6. Set the A/C controls as follows:
 - A/C switch: A/C –ON position
 - Mode selection: FACE position
 - Temperature control: MAXIMUM COOLING position
 - Air selection: RECIRCULATION position
 - Blower switch: Maximum air volume
7. Adjust engine speed to 1,500 r/min with A/C clutch engaged.
8. Engine should be warmed up with doors and windows closed.
9. Insert a thermometer in the center air outlet and operate the engine for 20 minutes.

NOTE: If the A/C clutch cycles, take the reading before the clutch disengages.

10. Note the discharge air temperature.



PERFORMANCE TEMPERATURE CHART

GARAGE AMBIENT AIR TEMPERATURE °C (°F)	20 (68)	25 (77)	30 (86)	35 (95)
Discharge air temperature °C (°F)	1 (34) –7 (45)			
Compressor high pressure kPa (psi)	1350 (196) –1850 (268)			
Compressor low pressure kPa (psi)	40 (5.8) –110 (16.0)			

REFRIGERANT LEAK REPAIR PROCEDURE

M1552001500363

LOST CHARGE

If the system has lost all charge due to a leak:

1. Evacuate the system. (Refer to P.55A-186).
2. Charge the system with approximately 0.453 kg (1 pound) of refrigerant.
3. Check for leaks.
4. Discharge the system.
5. Repair leaks.

⚠ CAUTION

Replacement filter-drier units must be sealed while in storage. The drier used in these units will saturate water quickly upon exposure to the atmosphere. When installing a drier, have all tools and supplies ready for quick assembly to avoid keeping the system open any longer than necessary.

6. Replace receiver drier.
7. Evacuate and charge system.

LOW CHARGE

If the system has not lost all of its refrigerant charge; locate and repair all leaks. If it is necessary to increase the system pressure to find the leak (because of an especially low charge) add refrigerant. If it is possible to repair the leak without discharging the refrigerant system, use the procedure for correcting low refrigerant level.

COMPRESSOR NOISE CHECK

You must first know the conditions when the noise occurs. These conditions are: weather, vehicle speed, in gear or neutral, engine temperature or any other special conditions.

Noises that develop during A/C operation can often be misleading. For example: what sounds like a failed front bearing or connecting rod, may be caused by loose bolts, nuts, mounting brackets, or a loose clutch assembly. Verify accessory drive belt tension (power steering or generator).

HANDLING TUBING AND FITTINGS

Kinks in the refrigerant tubing or sharp bends in the refrigerant hose lines will greatly reduce the capacity of the entire system. High pressures are produced in the system when it is operating. Extreme care must be exercised to make sure that all connections are pressure tight. Dirt and moisture can enter the system when it is opened for repair or replacement of lines or components. The following precautions must be observed. The system must be completely discharged before opening any fitting of connection in the refrigeration system. Open fittings with caution even after the system has been discharged. If any pressure is noticed as a fitting is loosened, allow trapped pressure to bleed off very slowly.

Never attempt to rebend formed lines to fit. Use the correct line for the installation you are servicing. A good rule for the flexible hose lines is keep the radius of all bends at least 10 times the diameter of the hose.

Sharper bends will reduce the flow of refrigerant. The flexible hose lines should be routed so that they are at least 80 mm (3.1 inches) from the exhaust manifold. It is good practice to inspect all flexible hose lines at least once a year to make sure they are in good condition and properly routed.

On standard plumbing fittings with O-rings, these O-rings are not reusable.

M1552008700346

Improper accessory drive belt tension can cause a misleading noise when the compressor is engaged and little or no noise when the compressor is disengaged.

Drive belts are speed-sensitive. That is, at different engine speeds, and depending upon belt tension, belts can develop unusual noises that are often mistaken for mechanical problems within the compressor.

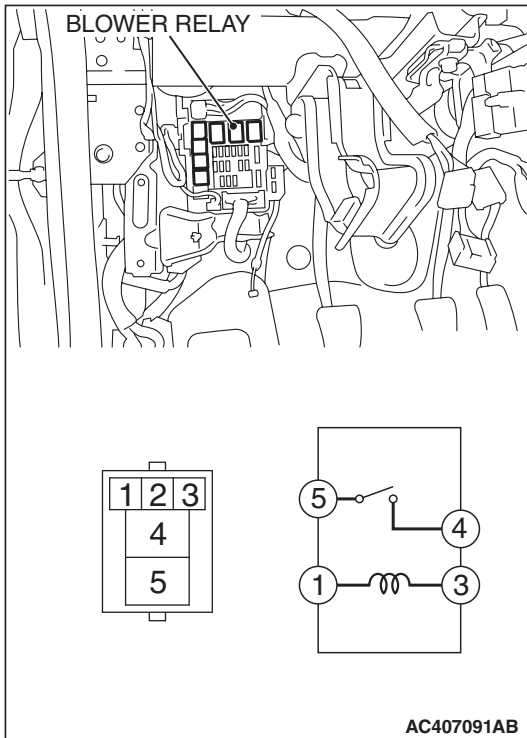
ADJUSTMENT

1. Select a quiet area for testing. Duplicate conditions as much as possible. Switch the compressor on and off several times to clearly identify compressor noise. To duplicate high ambient conditions (high head pressure), restrict air flow through the condenser. Install a manifold gauge set to make sure discharge pressure doesn't exceed 2,070 kPa (300.2 psi).
2. Tighten all compressor mounting bolts, clutch mounting bolt, and compressor drive belt. Check to assure clutch coil is tight (no rotation or wobble).
3. Check refrigerant hoses for rubbing or interference that can cause unusual noises.
4. Check refrigerant charge. (Refer to P.55A-186).
5. Recheck compressor noise as in Step 1.
6. If noise still exists, loosen compressor mounting bolts and retighten. Repeat Step 1.
7. If noise continues, replace compressor and repeat from Step 1.

POWER RELAY CHECK

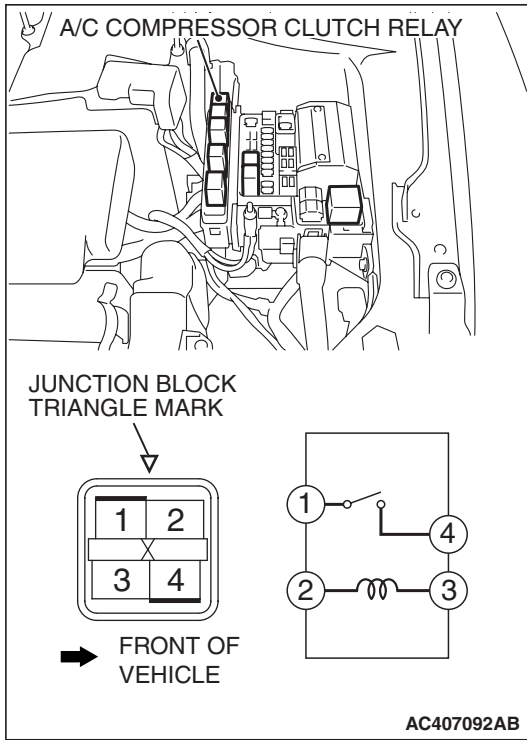
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BLOWER RELAY CONTINUITY CHECK



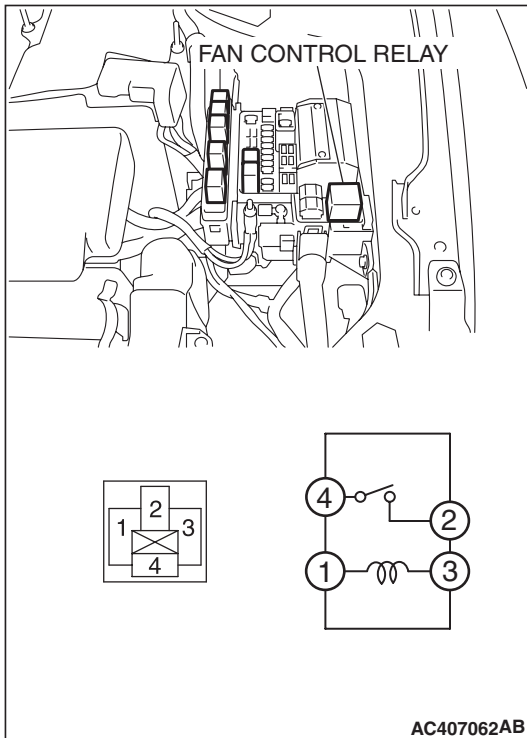
BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	4 -5	Open circuit
<ul style="list-style-type: none"> • Connect terminal 1 to the positive battery terminal • Connect terminal 3 to the negative battery terminal 	4 -5	Less than 2 ohms

A/C COMPRESSOR CLUTCH RELAY CHECK



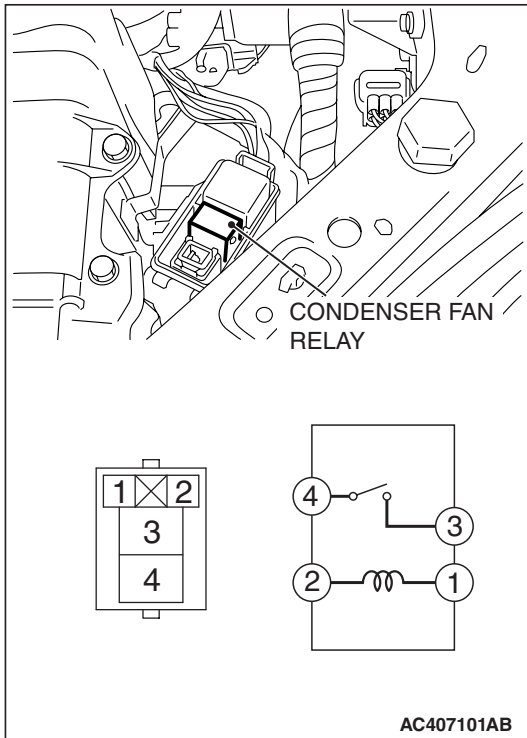
BATTERY VOLTAGE	TESTER CONNECTION	SPECIFIED CONDITION
Not applied	1 -4	Open circuit
<ul style="list-style-type: none"> Connect terminal 2 to the positive battery terminal Connect terminal 3 to the negative battery terminal 	1 -4	Less than 2 ohms

FAN CONTROL RELAY CHECK



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

**CONDENSER FAN RELAY CONTINUITY CHECK
<2.4L ENGINE>**



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

IDLE-UP OPERATION CHECK

M1552001600627

<2.4 L ENGINE>

- Before inspection and adjustment, set vehicle in the following condition:
 - Engine coolant temperature: 80 –90 °C (176.0 –194.0 °F)
 - Lights, electric cooling fan and accessories: OFF
 - Transaxle: Neutral ("N" or "P" position)
 - Steering wheel: Straightforward
- Check whether or not the idle speed is the standard value. Refer to GROUP 11A, On-vehicle Service –Idle Speed Check [P.11A-13](#).
Standard value: 700 ± 50 r/min
- Turn on the A/C switch and the blower speed selection dial. Engine idling speed should be within the standard value:
Standard value: 700 ± 50 r/min

NOTE: It is not necessary to make an adjustment, because the idling speed is automatically adjusted by the ISC system. If, however, a deviation from the standard value occurs for some reason, check the ISC system. (Refer to GROUP 11A, On-vehicle Service –Idle Speed Check [P.11A-13](#))

<3.8 L ENGINE>

1. Before inspection and adjustment, set vehicle in the following condition:
 - Engine coolant temperature: 80 –90 °C (176.0 –194.0 °F)
 - Lights, electric cooling fan and accessories: OFF
 - Transaxle: Neutral ("N" or "P" position)
 - Steering wheel: Straightforward
2. Check whether or not the idle speed is the standard value. Refer to GROUP 11C, On-vehicle Service –Idle Speed Check [P.11C-15](#).

Standard value: 680 ± 50 r/min

3. Turn on the A/C switch and the blower speed selection dial. Engine idling speed should be within the standard value:

Standard value: 680 ± 50 r/min

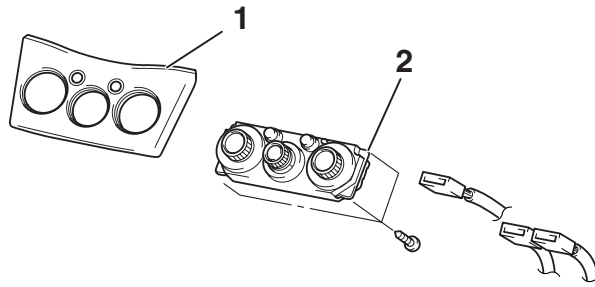
NOTE: The powertrain control module determines whether the A/C load is low or high according to the output signal from the A/C-ECU.

NOTE: It is not necessary to make an adjustment, because the idling speed is automatically adjusted by the ISC system. If, however, a deviation from the standard value occurs for some reason, check the ISC system. (Refer to GROUP 11C, On-vehicle Service –Idle Speed Check [P.11C-15](#))

HETER CONTROL ASSEMBLY (INCORPORATED IN A/C-ECU)

REMOVAL AND INSTALLATION

M1552021900039



AC405156AB

REMOVAL STEPS

- INSTRUMENT CENTER PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-21)
 1. CENTER PANEL
 2. HEATER CONTROL (A/C-ECU)*

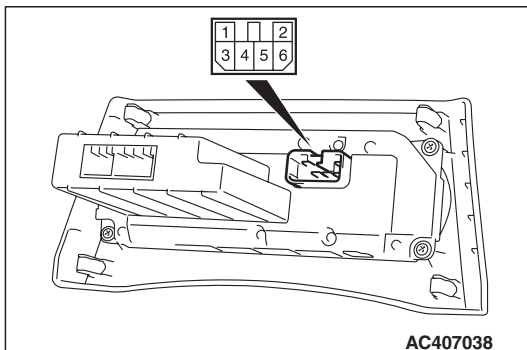
NOTE: The A/C-ECU integrated with the blower switch is incorporated in the heater control, and the A/C switch and the rear window defogger switch are incorporated in the A/C-ECU.

INSPECTION

M1552014301867

BLOWER SWITCH CONTINUITY CHECK

Check the following and replace the heater control if they are defective.



AC407038

SWITCH POSITION	TESTER CONNECTION (CONNECTOR A)	SPECIFIED CONDITION
0 (OFF)	1 -4, 2-4, 4 -5, 4 -6	Open circuit
1 (LO)	1 -4	Less than 2 ohms
2 (ML)	4 -6	Less than 2 ohms
3 (MH)	2 -4	Less than 2 ohms
4 (HI)	4 -5	Less than 2 ohms

HEATER UNIT, HEATER CORE, BLOWER ASSEMBLY AND EVAPORATOR UNIT

HEATER UNIT AND FRONT DECK CROSSMEMBER ASSEMBLY REMOVAL AND INSTALLATION

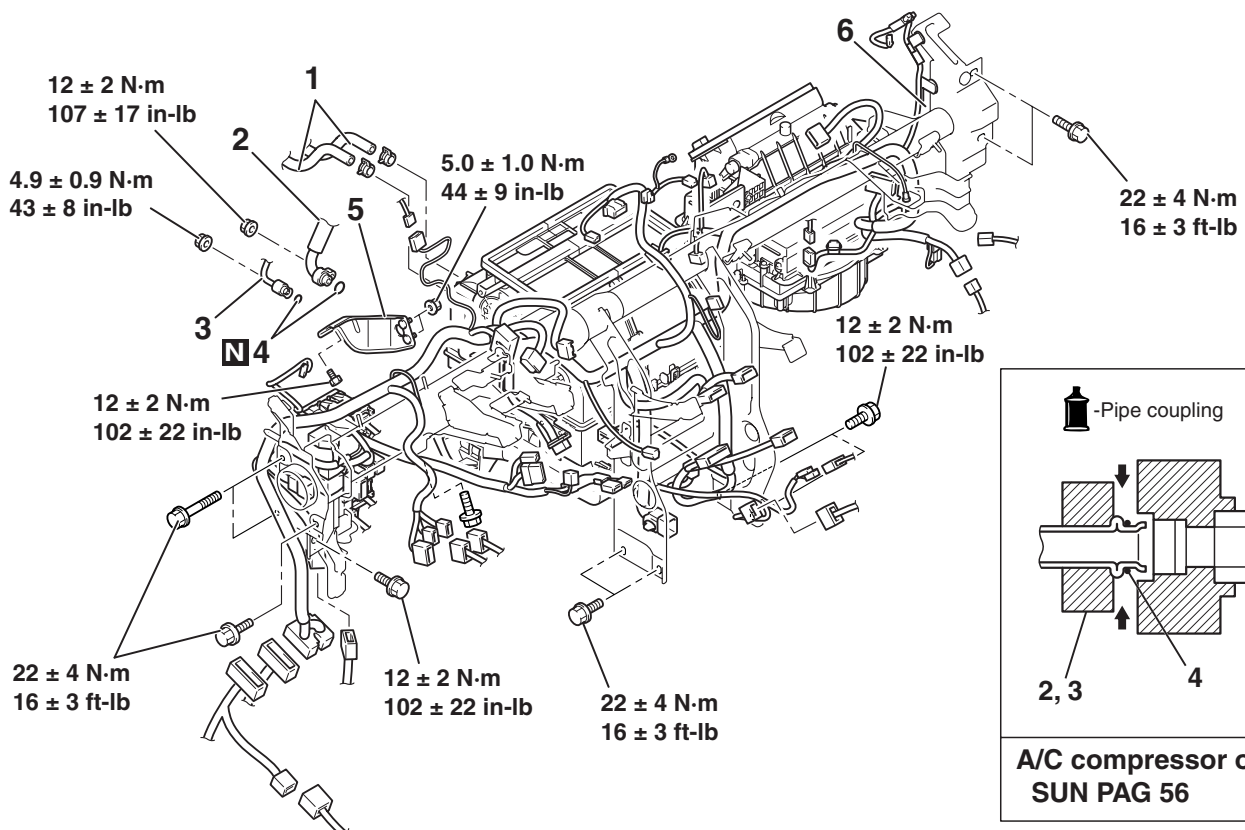
M1552021400023

⚠ WARNING

- Before removing the front seat assembly, refer to **GROUP 52B, Service Precautions P.52B-26** and **Air Bag Module and Clock Spring P.52B-408**.
- When removing and installing the front passenger seat, be sure to carry out accuracy check occupant classification sensor after the seat has been installed in the vehicle. (Refer to **GROUP 52B, On-Vehicle Service P.52B-395**.)

Pre-removal and Post-installation Operation

- Refrigerant draining and Refilling (Refer to Charging and Discharging **P.55A-186**).
- Engine coolant Draining and Refilling (Refer to GROUP 00, Engine coolant **P.00-63**).
- Floor Console Bracket Removal and Installation (Refer to GROUP 52A, Floor Console **P.52A-28**).
- Instrument Panel Removal and Installation (Refer to GROUP 52A, Instrument Panel **P.52A-21**).
- Cowl Side Trim Removal and Installation (Refer to GROUP 52A, Instrument Panel **P.52A-31**).
- Steering Column Shaft Assembly Removal and Installation (Refer to GROUP 37, Steering Shaft **P.37-29**).
- Strut Tower Bar <3.8 L> (Refer to GROUP 42, Removal And Installation **P.42-12**.)



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REMOVAL STEPS

REMOVAL STEPS (Continued)

<<A>>

1. HEATER HOSE CONNECTION
2. SUCTION PIPE CONNECTION
3. LIQUID PIPE CONNECTION
4. O-RING
- INSTRUMENT PANEL UNDER COVER (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21.](#))

<>

5. FRONT DECK STAY
6. HEATER UNIT AND FRONT DECK CROSSMEMBER ASSEMBLY

Required Special Tools:

MB990900 or MB991164: Door adjusting wrench

REMOVAL SERVICE POINTS

<<A>> SUCTION PIPE AND LIQUID PIPE DISCONNECTION

⚠ CAUTION

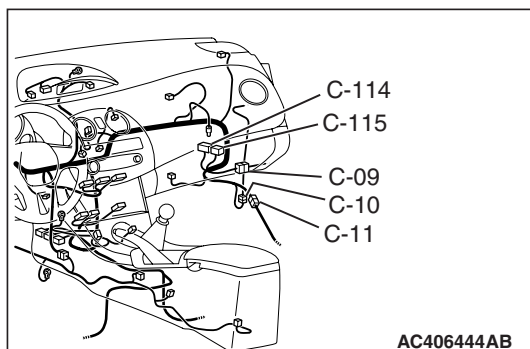
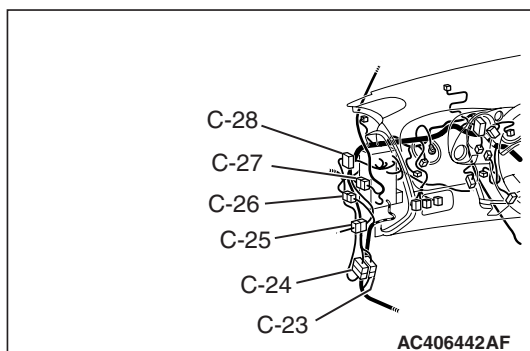
As the compressor oil and receiver are highly moisture absorbent, use a non-porous material to plug the hose and nipples.

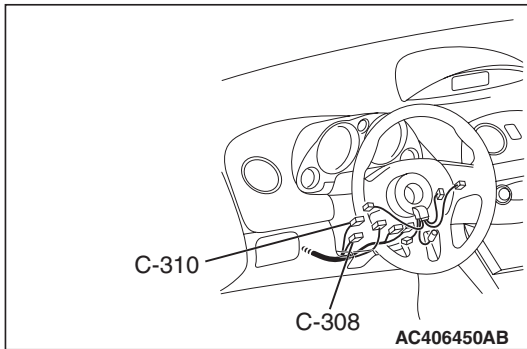
To prevent the entry of dust or other foreign bodies, plug the dismantled hose and the nipples of the expansion valves.

<> HEATER UNIT AND FRONT DECK CROSSMEMBER ASSEMBLY REMOVAL

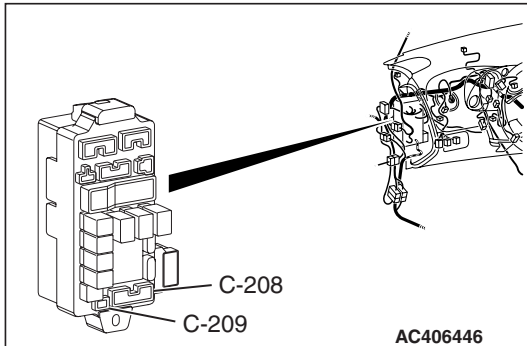
Disconnect the following connectors to gain access to the front deck crossmember.

- C-23 Instrument Panel Wiring Harness And Floor Wiring Harness Combination
- C-24 Instrument Panel Wiring Harness And Front Wiring Harness Combination
- C-25 Instrument Panel Wiring Harness And Front Door Wiring Harness (Lh) Combination
- C-26 Front Wiring Harness And Floor Wiring Harness Combination
- C-27 Instrument Panel Wiring Harness And Roof Wiring Harness Combination
- C-28 Joint Connector (1)
- C-09 Instrument Panel Wiring Harness And Front Door Wiring Harness (Rh) Combination
- C-10 Instrument Panel Wiring Harness And Front Wiring Harness Combination
- C-11 Instrument Panel Wiring Harness And Floor Wiring Harness Combination
- C-114 Audio Amplifier
- C-115 Audio Amplifier





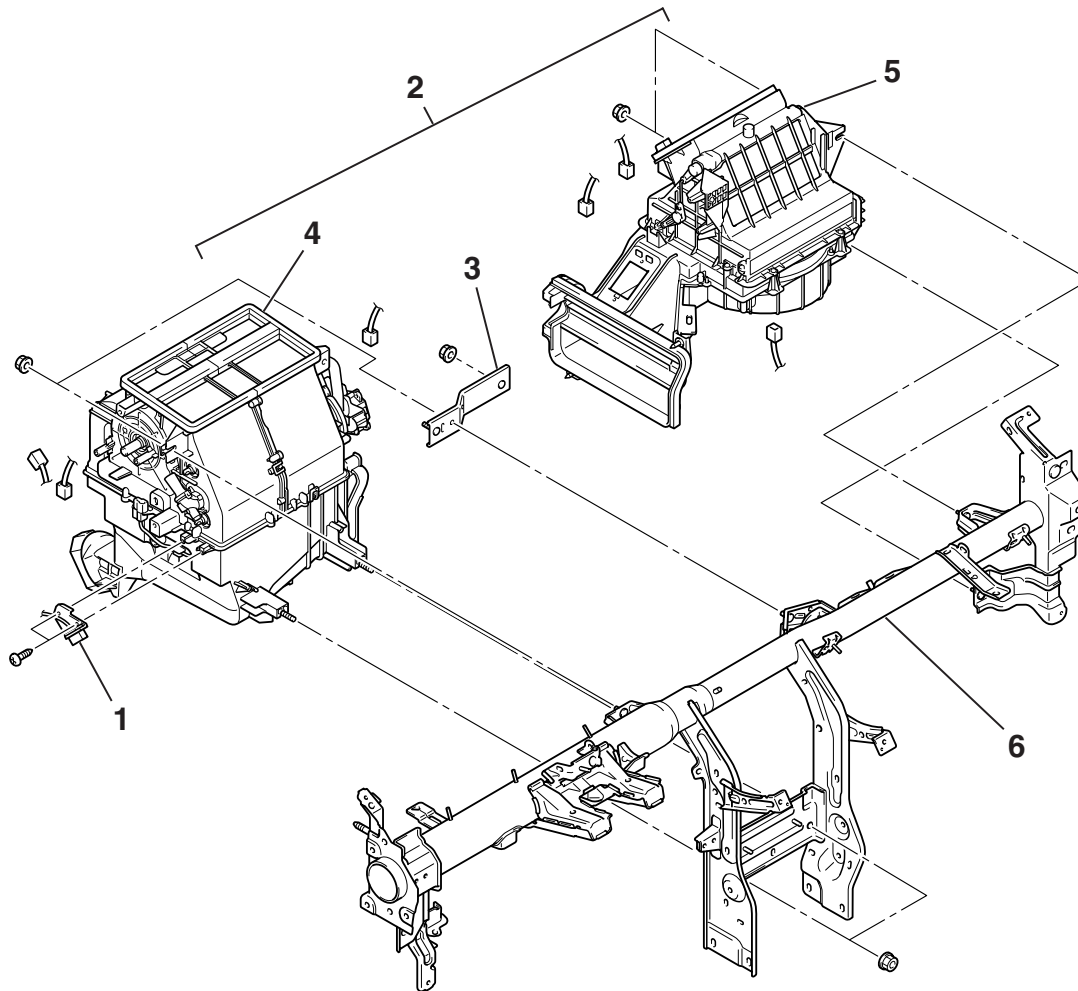
- C-308 IGNITION SWITCH
- C-310 KEY REMINDER SWITCH



- C-208 FLOOR WIRING HARNESS AND JUNCTION BLOCK COMBINATION
- C-209 ROOF WIRING HARNESS AND JUNCTION BLOCK COMBINATION

HEATER UNIT AND BLOWER ASSEMBLY REMOVAL AND INSTALLATION

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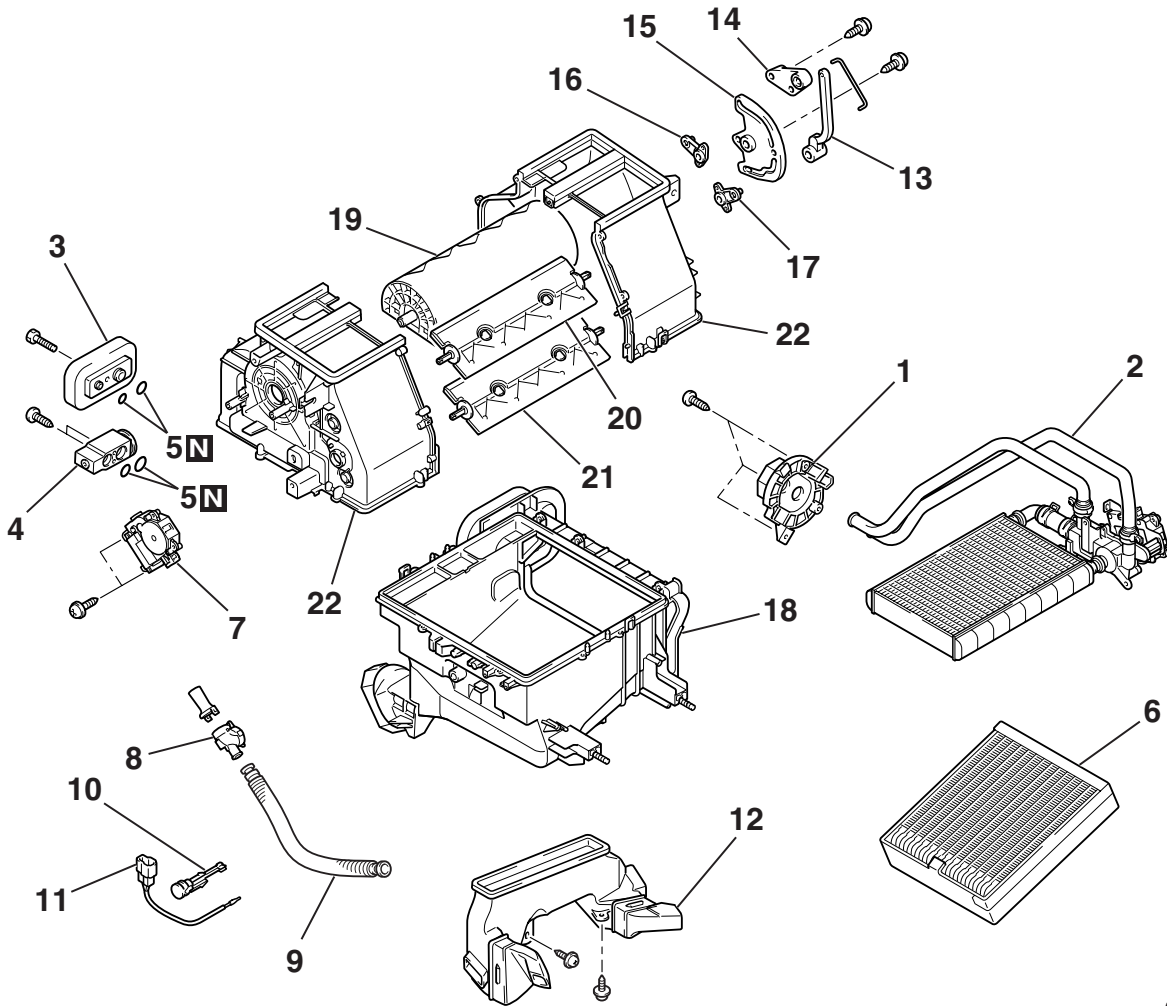
REMOVAL STEPS

1. DATA LINK CONNECTOR BRACKET
2. HEATER UNIT AND BLOWER ASSEMBLY
3. PLATE BRACKET

REMOVAL STEPS (Continued)

4. HEATER UNIT
5. BLOWER ASSEMBLY
6. FRONT DECK CROSSMEMBER ASSEMBLY

DISASSEMBLY AND ASSEMBLY



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DISASSEMBLY STEPS

1. PACKING
2. HEATER CORE ASSEMBLY
3. EXPANSION VALVE JOINT
4. EXPANSION VALVE
5. O-RING
6. EVAPORATOR
7. MODE SELECTION DAMPER CONTROL MOTOR AND POTENTIOMETER
8. ASPIRATOR
9. ASPIRATOR HOSE
10. AIR THERMO SENSOR CLIP

DISASSEMBLY STEPS

11. AIR THERMO SENSOR
12. FOOT DUCT
13. LEVER A
14. LEVER B
15. LEVER C
16. LEVER D
17. LEVER E
18. HEATER CASE LOWER
19. MODE SELECTION DAMPER
20. MAX A/C DAMPER
21. AIR MIXING DAMPER
22. HEATER CASE UPPER

INSPECTION

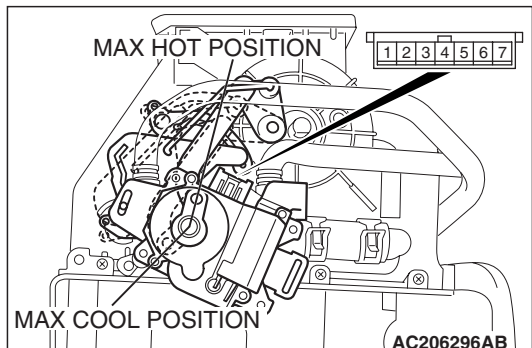
M1552014301878

AIR MIXING DAMPER CONTROL MOTOR CHECK

⚠ CAUTION

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

Check the air mix damper control motor by the following procedures.



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

POTENTIOMETER CHECK

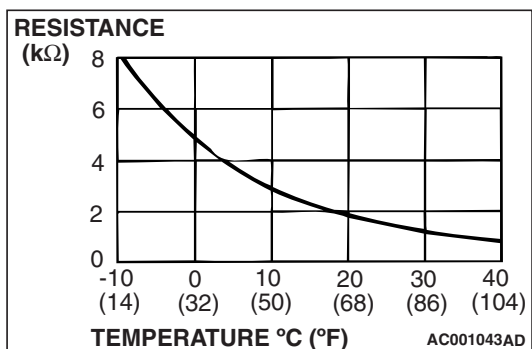
While checking the air mix damper control motor, measure the resistances between terminals numbers 3 and 5 and between numbers 3 and 7. At this time, the resistances should change gradually within the standard value.

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

AIR THERMO SENSOR INSPECTION

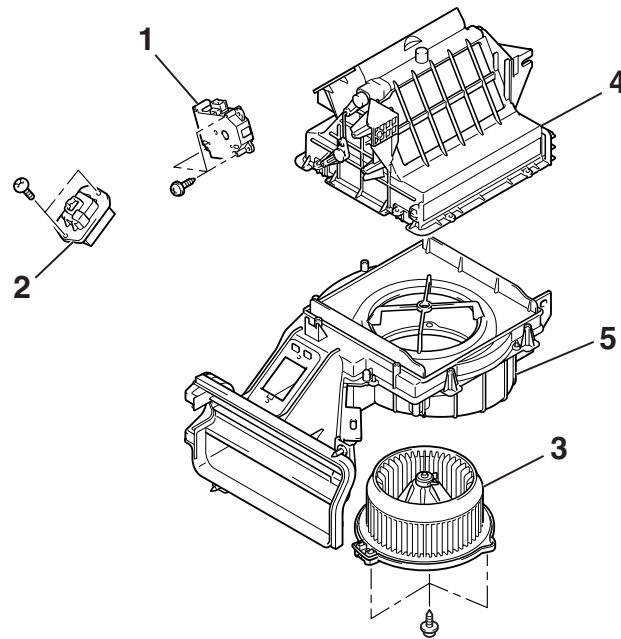
Measure the resistance between connector terminals 1 and 2 under at least two different temperatures. The resistance values should generally match those in the graph.

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



BLOWER ASSEMBLY DISASSEMBLY AND ASSEMBLY

M1551005500254



AC306324AB

DISASSEMBLY STEPS

1. OUTSIDE/INSIDE AIR
SELECTION DAMPER CONTROL
MOTOR
2. RESISTOR

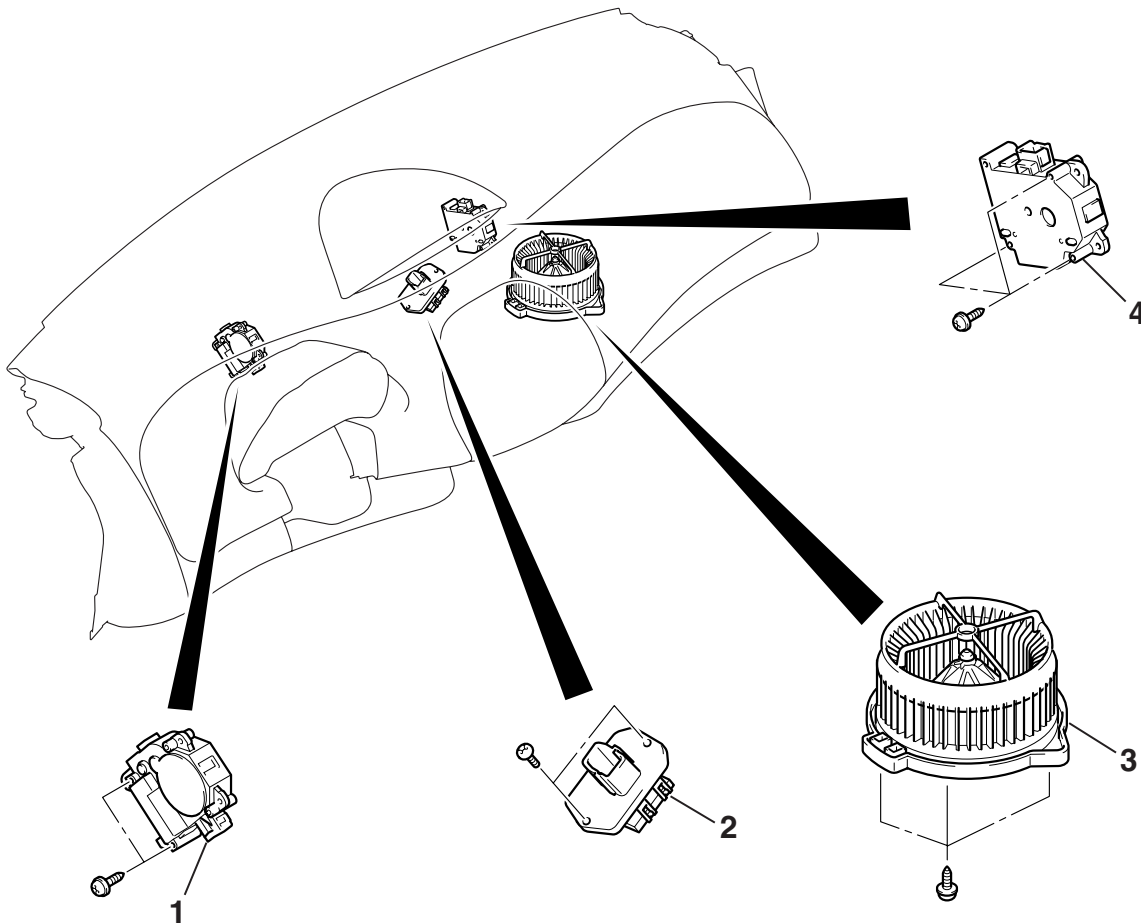
DISASSEMBLY STEPS

3. BLOWER MOTOR
4. BLOWER CASE UPPER
5. BLOWER CASE LOWER

MOTORS AND TRANSISTOR

REMOVAL AND INSTALLATION

M1551006900051



AC404832AB

MODE SELECTION DAMPER CONTROL MOTOR REMOVAL STEP

- >>A<<
1. MODE SELECTION DAMPER CONTROL MOTOR
- ### POWER TRANSISTOR REMOVAL STEP
- GLOVE BOX ASSEMBLY, INSTRUMENT PANEL PARCEL BOX (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21](#)).
2. RESISTOR

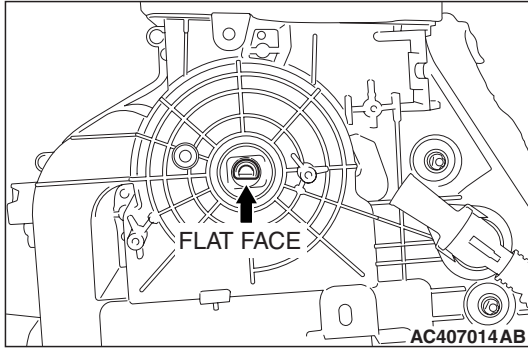
BLOWER MOTOR REMOVAL STEP

- INSTRUMENT PANEL UNDER COVER (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21](#)).
3. BLOWER MOTOR
- ### OUTSIDE/INSIDE AIR SELECTION DAMPER MOTOR REMOVAL STEP
- GLOVE BOX ASSEMBLY, INSTRUMENT PANEL PARCEL BOX (REFER TO GROUP 52A, INSTRUMENT PANEL [P.52A-21](#)).
4. OUTSIDE/INSIDE AIR SELECTION DAMPER MOTOR

INSTALLATION SERVICE POINT

>>A<< MODE SELECTION DAMPER CONTROL MOTOR INSTALLATION

Place the flat face as shown downward and install.



INSPECTION

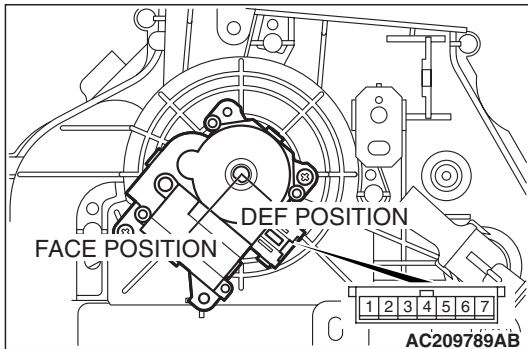
M1551006300468

MODE SELECTION DAMPER CONTROL MOTOR CHECK

⚠ 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

POTENTIOMETER CHECK

While checking the mode selection damper control motor, measure the resistances between terminal numbers 3 and 5 and between terminal numbers 3 and 7. At this time, the resistances should change gradually within the standard value.

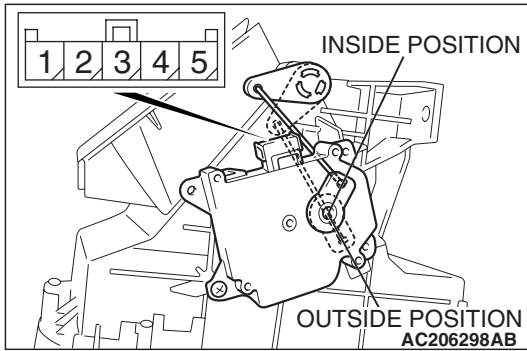
Standard value: 0.8 (DEF) – 4.8 (FACE) kΩ

OUTSIDE/INSIDE AIR SELECTION DAMPER CONTROL MOTOR CHECK

⚠ CAUTION

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

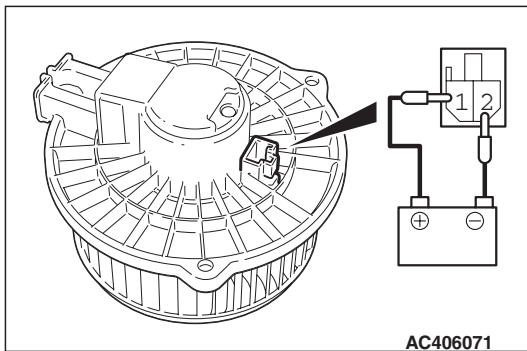
Check the outside/inside air selection damper control motor by the following procedures.



LEVER POSITION	BATTERY CONNECTION	LEVER OPERATION
At the inside 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 outside 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

BLOWER FAN AND MOTOR CHECK

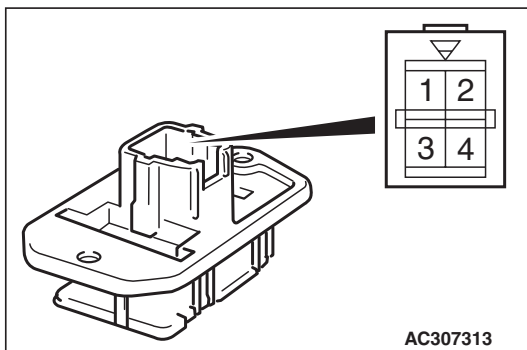
When battery voltage is applied between the terminals, check that the motor operates. Also, check that there is no abnormal noise.



RESISTOR CHECK

Use an ohmmeter to measure the resistance between the terminals. Check that the measured value is at the standard value.

Standard value:

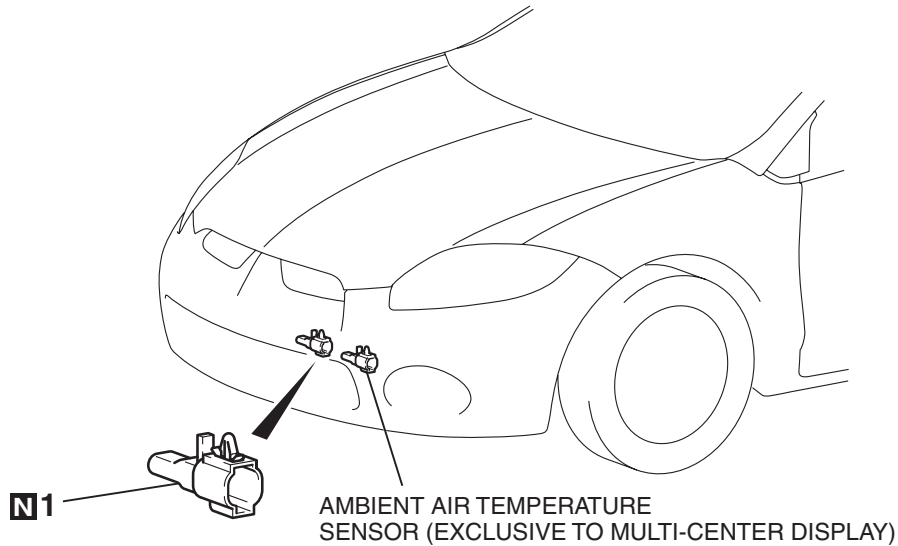


MEASUREMENT TERMINAL	STANDARD VALUE Ω
Between terminals 2 and 3 (LO)	2.54
Between terminals 1 and 2 (ML)	1.24
Between terminals 2 and 4 (MH)	0.6

AMBIENT TEMPERATURE SENSOR

REMOVAL AND INSTALLATION

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REMOVAL STEP

1. AMBIENT AIR TEMPERATURE SENSOR (EXCLUSIVE TO A/C)

INSPECTION

M1551006300479

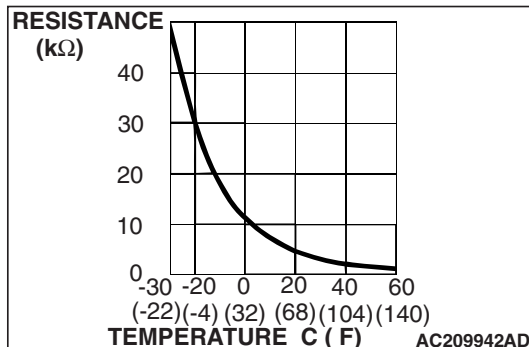
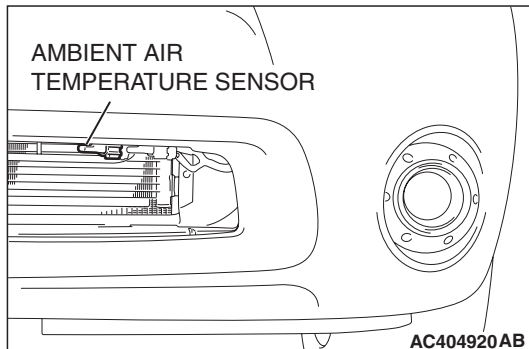
AMBIENT AIR TEMPERATURE SENSOR CHECK

⚠ CAUTION

The ambient air temperature sensor should be checked without removing it. If the sensor is removed, it is no longer serviceable.

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.



COMPRESSOR ASSEMBLY AND TENSION PULLEY

REMOVAL AND INSTALLATION

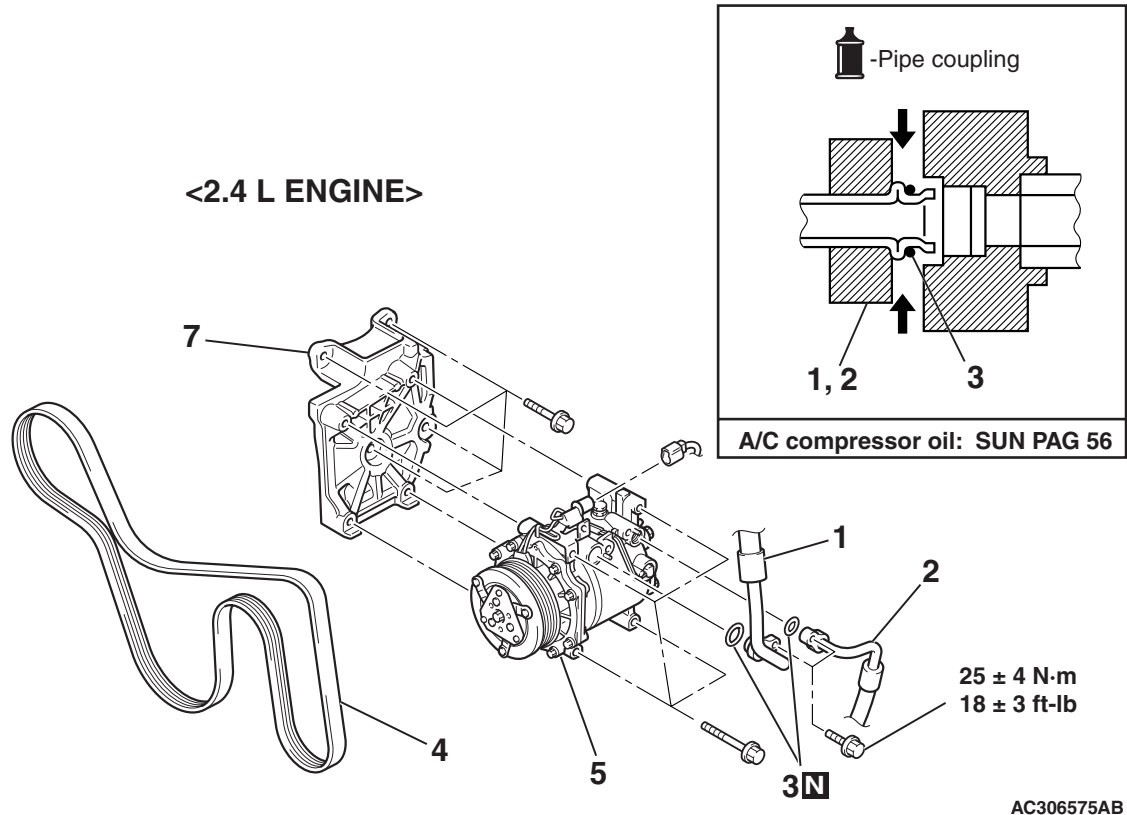
M1552004100502

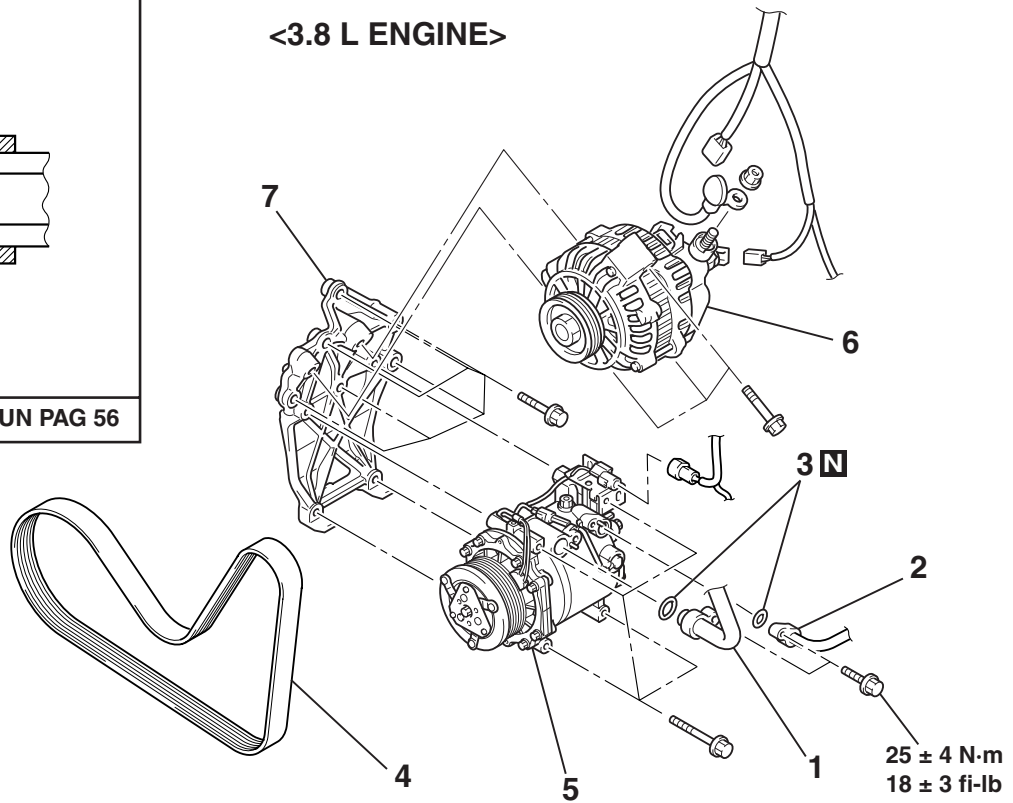
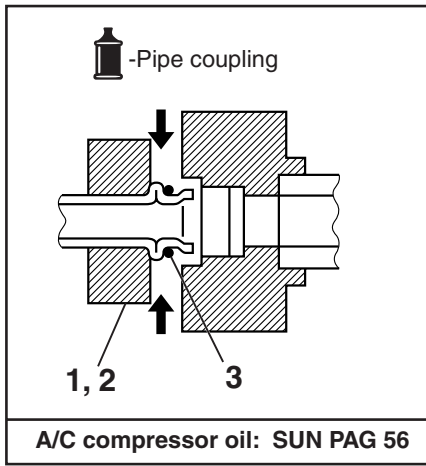
Pre-removal Operation

- Refrigerant Discharging (Refer to P.55A-186).
- Front Bumper Under Cover (Refer to GROUP 51, FRONT BUMPER P.51-2).
- Front Under Cover RH (Refer to GROUP 51, UNDER COVER P.51-8).

Post-installation Operation

- Drive Belt Tension Adjustment (Refer to GROUP 00, Maintenance Service –Drive Belt P.00-52).
- Refrigerant Charging (Refer to P.55A-186).
- Front Bumper Under Cover (Refer to GROUP 51, FRONT BUMPER P.51-2).
- Front Under Cover RH (Refer to GROUP 51, UNDER COVER P.51-8).





AC206183AB

<<A>>

- REMOVAL STEPS**
1. FLEXIBLE SUCTION HOSE CONNECTION
 2. FLEXIBLE DISCHARGE HOSE CONNECTION
 3. O-RING

<<A>>

<> >>A<<

REMOVAL STEPS (Continued)

4. DRIVE BELT
5. A/C COMPRESSOR
6. GENERATOR
7. A/C COMPRESSOR BRACKET

REMOVAL SERVICE POINTS

<<A>> FLEXIBLE SUCTION HOSE AND FLEXIBLE DISCHARGE HOSE DISCONNECTION

CAUTION

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

To prevent the entry of dust or other foreign bodies, plug the dismantled hoses and compressor nipples.

<> A/C COMPRESSOR REMOVAL

Take care not to spill any compressor oil when removing the compressor.

INSTALLATION SERVICE POINT

>>A<< A/C COMPRESSOR INSTALLATION

If a new compressor is installed, first adjust the amount of oil according to the procedures described below, and then install the compressor.

1. Measure the amount $X \text{ cm}^3$ ($X \text{ fl.oz}$) of oil within the removed compressor.
2. Drain (from the new compressor) the amount of oil calculated according to the following formula, and then install the new compressor.

New compressor oil amount = 140 cm^3 (4.7 fl.oz)

$$140 \text{ cm}^3 - X \text{ cm}^3 = Y \text{ cm}^3 \quad (4.7 \text{ fl.oz} - X \text{ fl.oz} = Y \text{ fl.oz})$$

NOTE: $Y \text{ cm}^3$ ($Y \text{ fl.oz}$) indicates the amount of oil in the refrigerant line, the condenser, the evaporator, etc.

NOTE: When replacing the following parts at the same times as the compressor, subtract the rated oil amount of each part from $Y \text{ cm}^3$ ($Y \text{ fl.oz}$) and discharge from the new compressor.

Quantity:

Evaporator: 60 cm^3 (2.0 fl.oz)

Condenser: 15 cm^3 (0.5 fl.oz)

Suction hose: 10 cm^3 (0.3 fl.oz)

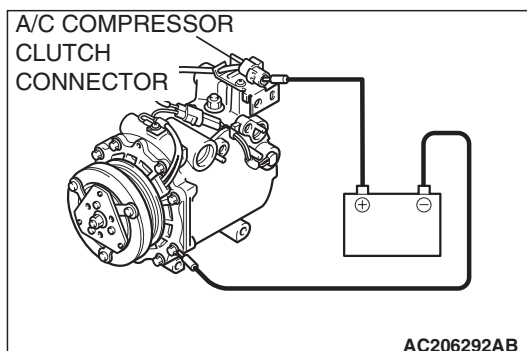
Receiver: 10 cm^3 (0.3 fl.oz)

INSPECTION

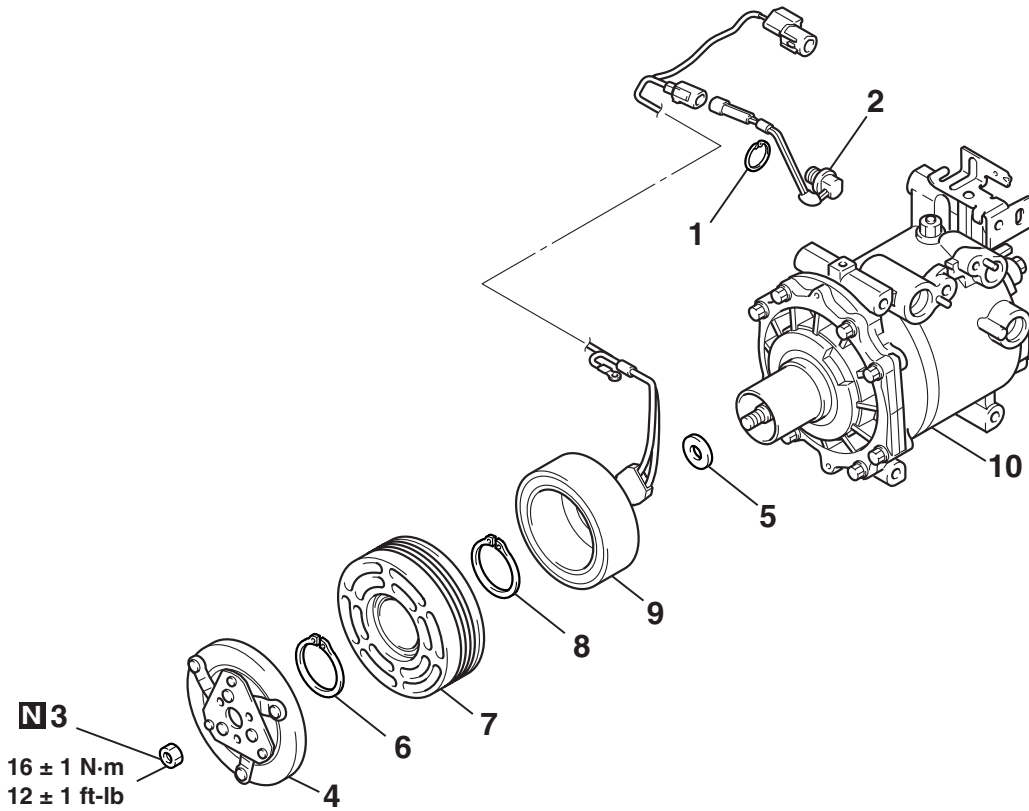
M1552014301889

A/C COMPRESSOR CLUTCH OPERATION CHECK

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.



DISASSEMBLY AND ASSEMBLY



AC209643AB

COOLING TEMPERATURE SWITCH DISASSEMBLY STEPS

1. SNAP RING
2. COOLING TEMPERATURE SWITCH

A/C COMPRESSOR CLUTCH DISASSEMBLY

- <<A>> >>D<< • AIR GAP ADJUSTMENT
- >>C<< 3. SELF-LOCKING NUT
- 4. ARMATURE
- 5. SHIM

A/C COMPRESSOR CLUTCH DISASSEMBLY (Continued)

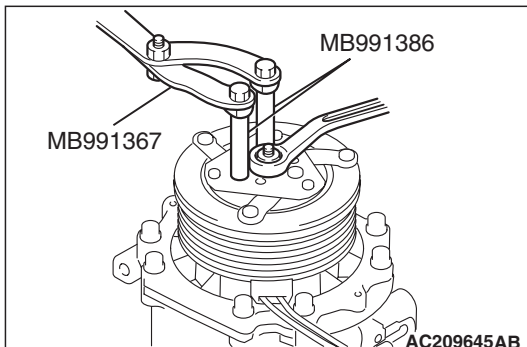
- >>B<< 6. SNAP RING
- 7. ROTOR
- >>A<< 8. SNAP RING
- 9. FIELD CORE
- 10. A/C COMPRESSOR

Required Special Tools:

- MB991367: Special Spanner
- MB991386: Pin

DISASSEMBLY SERVICE POINT

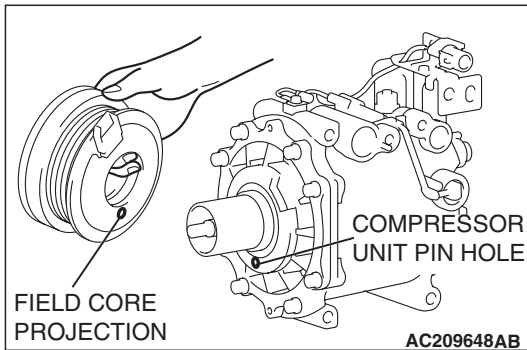
<<A>> SELF-LOCKING NUT REMOVAL



ASSEMBLY SERVICE POINTS

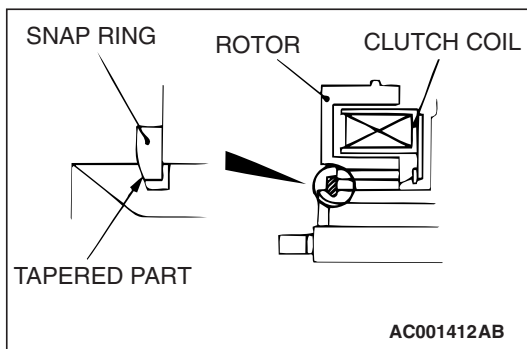
>>A<< FIELD CORE ATTACHMENT

Line up the pin hole on the compressor unit with the field core projection and attach.



>>B<< SNAP RING INSTALLATION

Using snap ring pliers, fit the snap ring so that the snap ring's tapered part is on the outside.



>>C<< SELF-LOCKING NUT INSTALLATION

Using a special tool, as when removing the nut, secure the armature and tighten the self-locking nut.

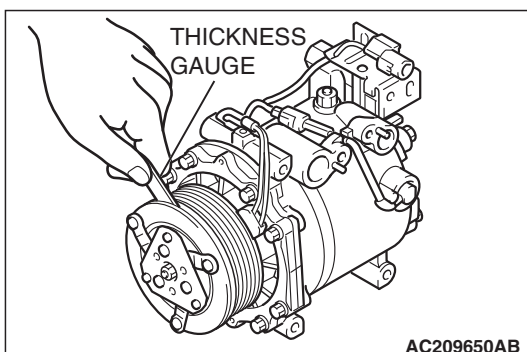
>>D<< AIR GAP ADJUSTMENT

Check whether or not the air gap of the clutch is within the standard value.

Standard value:

0.3 – 0.5 mm (0.012 – 0.020 inch)

NOTE: If there is a deviation of the air gap from the standard value, make the necessary adjustment by adjusting the number of shims.



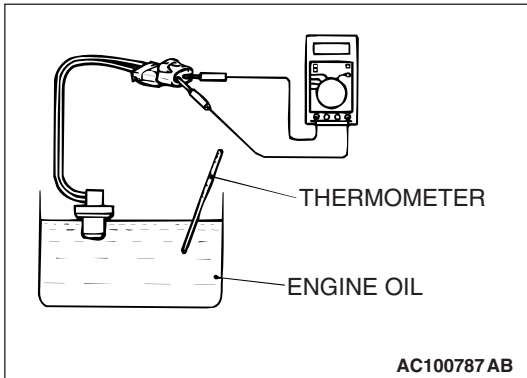
INSPECTION

COOLING TEMPERATURE SWITCH

⚠ CAUTION

Do not heat more than necessary.

1. Dip the metal part of the cooling temperature switch into engine oil and increase the oil temperature using a gas burner or similar.

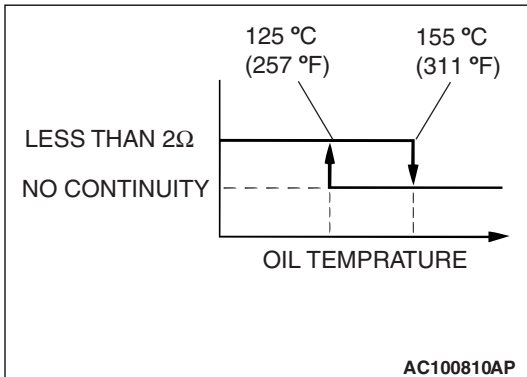


2. When the oil temperature reaches the standard value, check that voltage is supplied between the terminals.

Standard value:

ITEM	TEMPERATURE
Less than 2 ohms	Slightly below 155°C (311°F)
No continuity	155°C (311°F) or more

NOTE: When the oil temperature is 155°C (311°F) or more and there is no continuity, the resistance will not be 2Ω or lower until the oil temperature reduces to 125°C (257°F) or less.



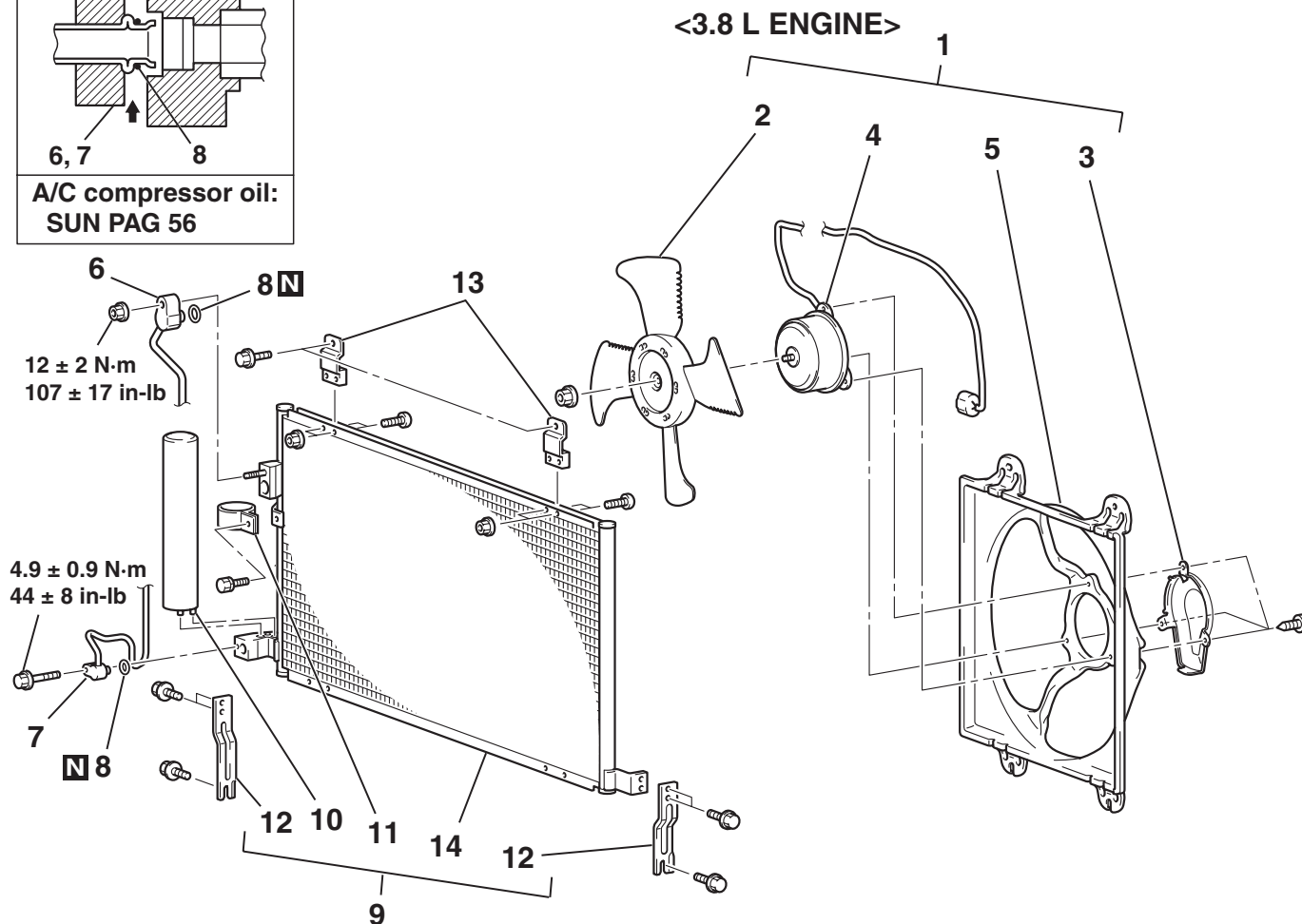
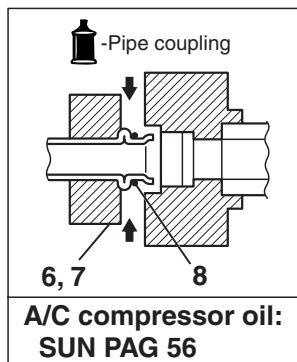
CONDENSER AND CONDENSER FAN MOTOR

REMOVAL AND INSTALLATION

M1552006700652

Pre-removal and Post-installation Operation

- Refrigerant Draining and Refilling (Refer to P.55A-186).
- Air Duct Removal and Installation (Refer to GROUP 15, Air Cleaner P.15-4).



AC404843AB

CONDENSER FAN MOTOR REMOVAL STEPS

1. CONDENSER FAN ASSEMBLY <<A>>
2. FAN <<A>>
3. COVER
4. MOTOR
5. SHROUD
- RADIATOR GRILLES
- FRONT END STRUCTURE BAR

CONDENSER REMOVAL STEPS

6. FLEXIBLE DISCHARGE HOSE CONNECTION
7. LIQUID PIPE A CONNECTION
8. O-RING
- FRONT UNDER COVER
9. CONDENSER ASSEMBLY
10. RECEIVER
11. CLAMP
12. UNDER BRACKET
13. UPPER BRACKET
14. CONDENSER

>>A<<

REMOVAL SERVICE POINTS**<<A>> FLEXIBLE DISCHARGE HOSE AND LIQUID PIPE A DISCONNECTION****⚠ CAUTION**

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

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

INSTALLATION SERVICE POINT**>>A<< CONDENSER INSTALLATION**

When replacing the condenser, refill it with a specified amount of compressor oil and install it to the vehicle.

Compressor oil: SUN PAG 56

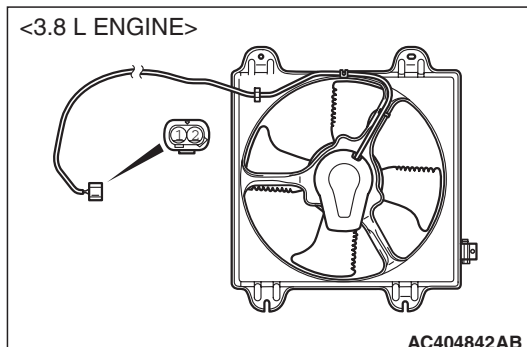
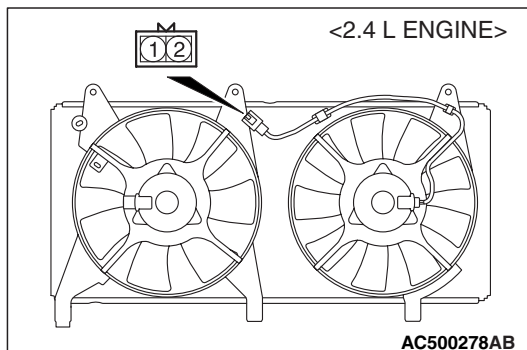
Quantity: 15 cm³ (0.5 fl.oz)

INSPECTION

M1552014301908

CONDENSER FAN MOTOR CHECK

Check to be sure that the condenser fan motor operates when battery voltage is applied to terminal 2 and terminal 1 grounded.



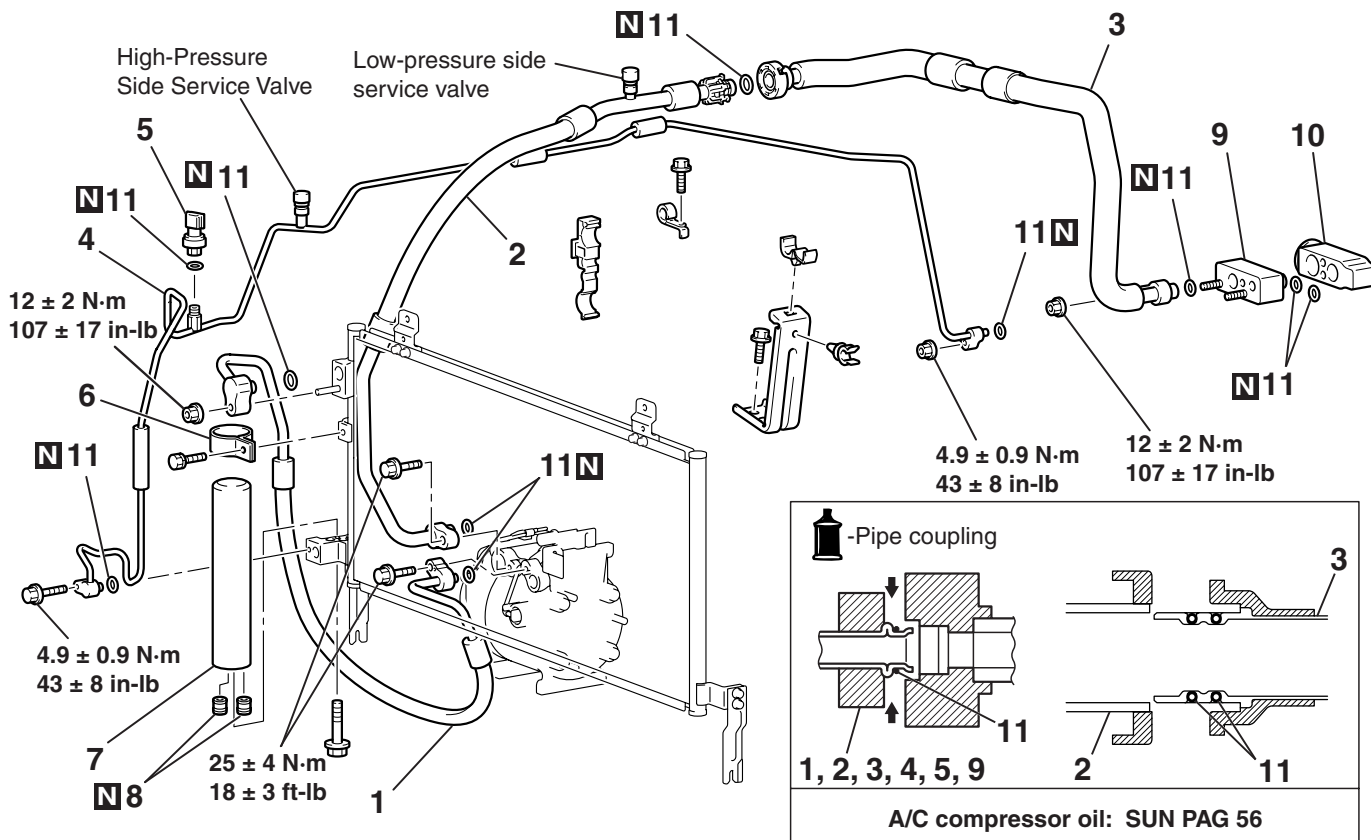
REFRIGERANT LINE

REMOVAL AND INSTALLATION

M1552006400907

Pre-removal and Post-installation Operation

- Refrigerant Draining and Refilling (Refer to Charging and Discharging P.55A-186).



<<A>>
<> >>A<<
<> >>A<<
<<A>>
<<A>>

REMOVAL STEPS

1. FLEXIBLE DISCHARGE HOSE
2. FLEXIBLE SUCTION HOSE
3. SUCTION PIPE
4. LIQUID PIPE
5. A/C PRESSURE SENSOR
6. CLAMP

<<A>>
<<A>>

REMOVAL STEPS (Continued)

7. RECEIVER
8. RECEIVER JOINT
9. EXPANSION VALVE JOINT
10. EXPANSION VALVE
11. O-RING

REMOVAL SERVICE POINT

<<A>> HOSE/PIPE/RECEIVER/EXPANTION VALVE DISCONNECTION

⚠ CAUTION

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

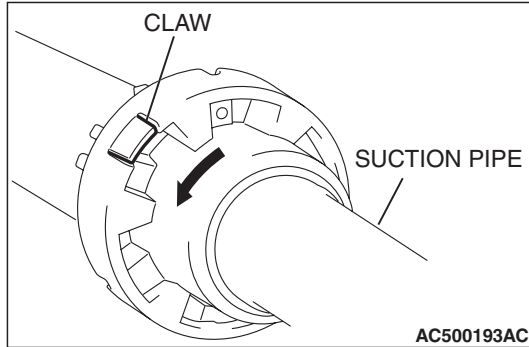
To prevent the entry of other foreign bodies, plug the condenser, compressor, and expansion valve nipples.

<> FLEXIBLE SUCTION HOSE AND SUCTION PIPE DISCONNECTION**⚠ CAUTION**

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

To disconnect the suction hose from the suction flexible hose, lift the lug on the suction pipe and twist the suction flexible hose union counterclockwise.

Plug the hose nipple to prevent entry of dust and dirt.

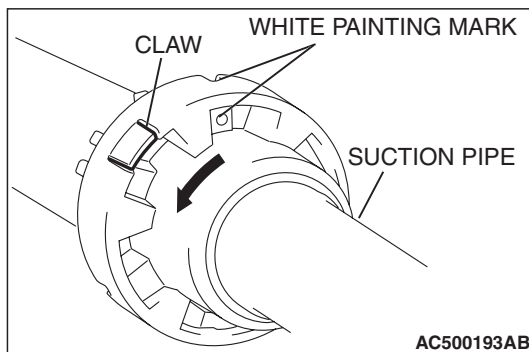
**INSTALLATION SERVICE POINT****>>A<< SUCTION PIPE AND FLEXIBLE SUCTION HOSE INSTALLATION**

1. When replacing the suction hose, refill them with a specified amount of compressor oil, and then install them.

Compressor oil: SUN PAG 56

Quantity: 10 cm³ (0.3 fl.oz)

2. Align the white painting marks when connecting the flexible suction hose and the suction pipe.



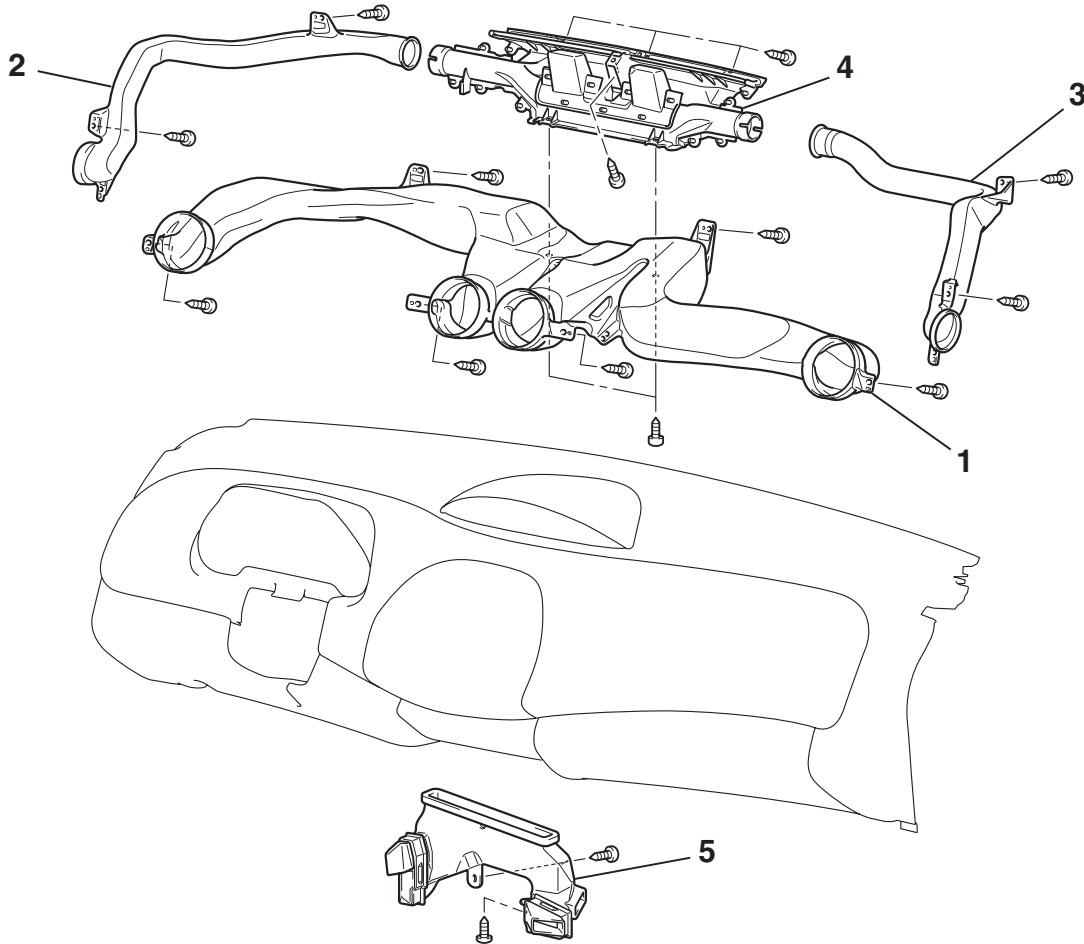
DUCTS

REMOVAL AND INSTALLATION

M1553001000327

⚠ WARNING

When removing and installing the front passenger seat, be sure to carry out accuracy check occupant classification sensor after the seat has been installed in the vehicle. (Refer to GROUP 52B, On-vehicle Service [P.52B-395](#).)



AC404835AC

DEFROSTER NOZZLE AND DISTRIBUTION DUCT REMOVAL STEPS

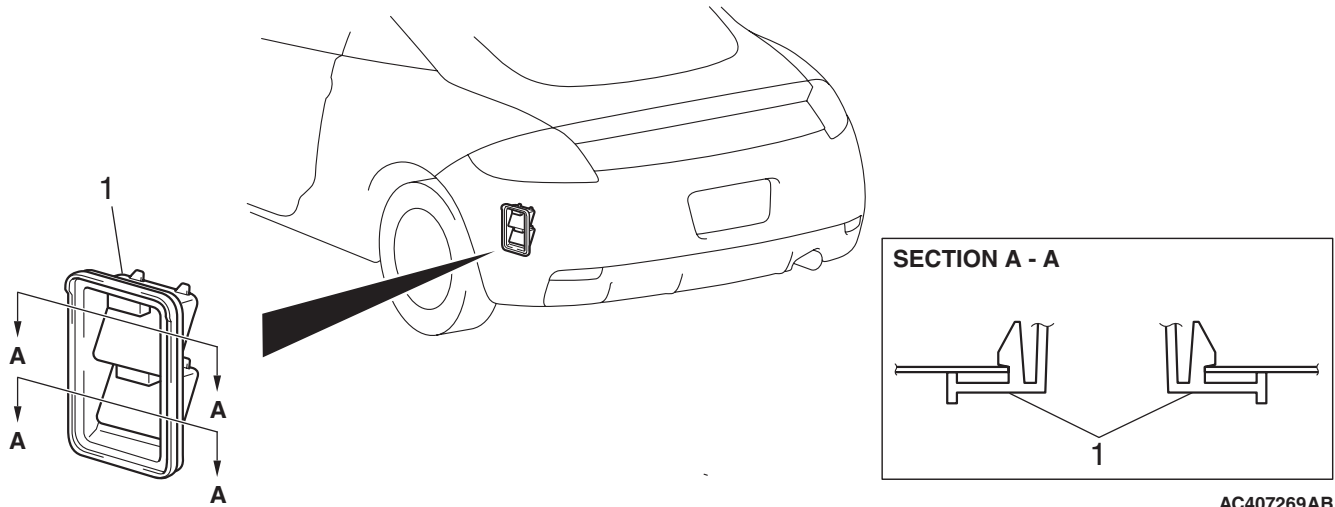
- INSTRUMENT PANEL (REFER TO GROUP 52A [P.52A-21](#)).
1. VENTILATOR AIR DISTRIBUTION DUCT
 2. SIDE DEFROSTER DUCT LH

DEFROSTER NOZZLE AND DISTRIBUTION DUCT REMOVAL STEPS (Continued)

3. SIDE DEFROSTER DUCT RH
 4. DEFROSTER NOZZLE
- #### FOOT DUCT REMOVAL STEPS
- HEATER UNIT (REFER TO [P.55A-197](#)).
5. FOOT HEATER DUCT

VENTILATORS**REMOVAL AND INSTALLATION**

M1553001600534



AC407269AB

**REAR VENTILATION DUCT
REMOVAL STEPS**

- REAR BUMPER ASSEMBLY
(REFER TO GROUP 51, [P.51-4](#)).
1. REAR VENTILATION DUCT

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1552012100314

ITEM	SPECIFICATION
Front deck stay mounting nut	5.0 ± 1.0 N· m (44 ± 9 in-lb)
Front deck crossmember mounting bolt (installation from the side of left position)	22 ± 4 N· m (16 ± 3 ft-lb)
Front deck crossmember mounting bolt (installation from the front side of left position)	12 ± 2 N· m (102 ± 22 in-lb)
Front deck crossmember mounting bolt (installation from the left side of center position)	22 ± 4 N· m (16 ± 3 ft-lb)
Front deck crossmember mounting bolt (installation from the right side of center position)	12 ± 2 N· m (102 ± 22 in-lb)
Front deck crossmember mounting bolt (installation of right position)	22 ± 4 N· m (16 ± 3 ft-lb)
Liquid pipe mounting nut (heater unit side)	4.9 ± 0.9 N· m (43 ± 8 in-lb)
Liquid pipe mounting bolt (condenser side)	4.9 ± 0.9 N· m (43 ± 8 in-lb)
Flexible suction hose mounting nut (compressor side)	25 ± 4 N· m (18 ± 3 ft-lb)
Suction pipe mounting nut (heater unit side)	12 ± 2 N· m (107 ± 17 in-lb)
Flexible discharge hose mounting bolt (compressor side)	25 ± 4 N· m (18 ± 3 ft-lb)
Flexible discharge hose mounting nut (condenser side)	12 ± 2 N· m (107 ± 17 in-lb)

GENERAL SPECIFICATIONS

M1552000200295

ITEM	MANUAL AIR CONDITIONING
Heater control	Dial type
A/C switch	Push-button type
Compressor	MSC105CA (Scroll type)
Refrigerant	Type
	Amount g (oz)
	R134a (HFC-134a)
	530 –570 (18.7 –20.1)

SERVICE SPECIFICATIONS

M1552000300485

ITEM		STANDARD VALUE
Idle speed r/min	2.4 L ENGINE	700 ± 50
Idle speed r/min	3.8 L ENGINE	680 ± 50
Idle-up speed r/min	2.4 L ENGINE	700 ± 50
Idle-up speed r/min	3.8 L ENGINE	680 ± 50
Air mix damper potentiometer resistance kΩ		1.7 – 5.0
Air outlet changeover damper potentiometer resistance kΩ		0.8 – 4.8
Resistor resistance kΩ	(LO)	2.54
	(ML)	1.24
	(MH)	0.6
Air gap (A/C compressor clutch) mm (in)		0.3 – 0.5 (0.012 – 0.020)
Cooling temperature switch	Less than 2 ohms	slightly below 155° C (311° F)
	No continuity	155° C (311° F) or more [up to 125° C (257° F) when temperature drops]

LUBRICANTS

M1552000400448

ITEM	SPECIFIED LUBRICANT	QUANTITY
Each connection of refrigerant line	SUN PAG 56	As required
Compressor refrigerant unit lubricant cm ³ (fl.oz)	SUN PAG 56	140 (4.7)