GROUP 55A

HEATER, AIR CONDITIONING AND VENTILATION

CONTENTS

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WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

⚠ WARNING

- ***Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).***
- ***Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.***
- ***MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.***

NOTE
The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, air bag module, side-airbag module, curtain air bag module, side impact sensors, seat belt pre-tensioners, clock spring, and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (*).

GENERAL INFORMATION

M1552023500071

The blower, heater, and evaporator have been integrated with the heater and A/C system to achieve greater fan power and noise reduction.

Item	Specification
Heater control assembly	Dial type
Compressor	QS90
Compressor model	Scroll type
Refrigerant and quantity g (oz)	R-134a (HFC-134a), 480 – 520 (16.9 – 18.3)

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 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.

COMPRESSOR CONTROL

When operating the A/C switch

- The fin thermo sensor, which senses the temperature of the air flowing out of the evaporator directly, deactivates the compressor at 1°C (33.8°F) or below.
- The A/C pressure sensor 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 automatically 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.

A/C Compressor Clutch Relay ON Conditions

Ignition switch		ON	*NOTE: A/C compressor clutch relay is de-energized when any one switch, sensor or control unit shown on the left turns off.* *NOTE: The components marked by * communicate with the ECM. 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.*
Blower speed selection dial		ON	
A/C switch		ON	
Mode selection dial		defroster	
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)		ON	

GENERAL SPECIFICATIONS

M1552000200358

Item		Manual air conditioning
Heater control		Dial type
A/C switch		Push-button type
Compressor		QS90 (Scroll type)
Refrigerant	Type	R134a (HFC-134a)
	Amount g (oz)	480 - 520 (16.9 - 18.3)

SERVICE SPECIFICATIONS

M1552000300720

Item			Standard value
Idle speed r/min	2.4L		650 ± 100
	3.0L		600 ± 100
Idle-up speed r/min	2.4 L	A/C at low load	700 ± 50
		A/C at high load	800 ± 50
	3.0 L		760 ± 50
Air gap (A/C compressor clutch) mm (in)			0.25 – 0.45 (0.010 – 0.017)
Cooling temperature switch		Less than 2 ohms	slightly below 135°C (275°F)
		No continuity	135°C (275°F) or more [up to 120°C (248°F) when temperature drops]

LUBRICANTS

M1552000400608

Item	Specified lubricant	Quantity
Each connection of refrigerant line	SUN PAG 56 or S10X	As required
Compressor refrigerant unit lubricant cm^3 (fl.oz)	SUN PAG 56 or S10X	70 (2.4)

SEALANT

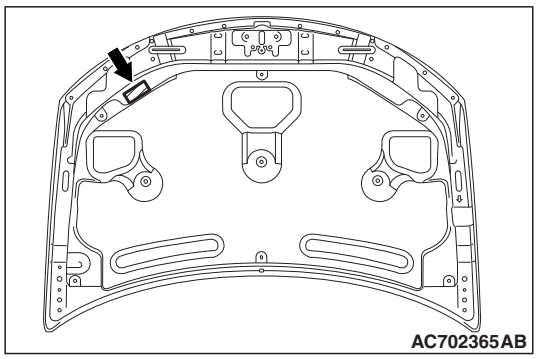
M1552023400182

Item	Specified sealant	Quantity
A/C refrigerant temperature switch	KE-347W	As required

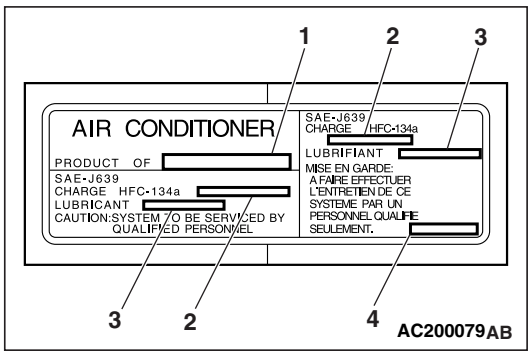
SERVICE PRECAUTIONS

CAUTION LABELS

M1552017400406



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

M1552012200429

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

M1552009600502

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-12)
4. Verify that the malfunction is eliminated.

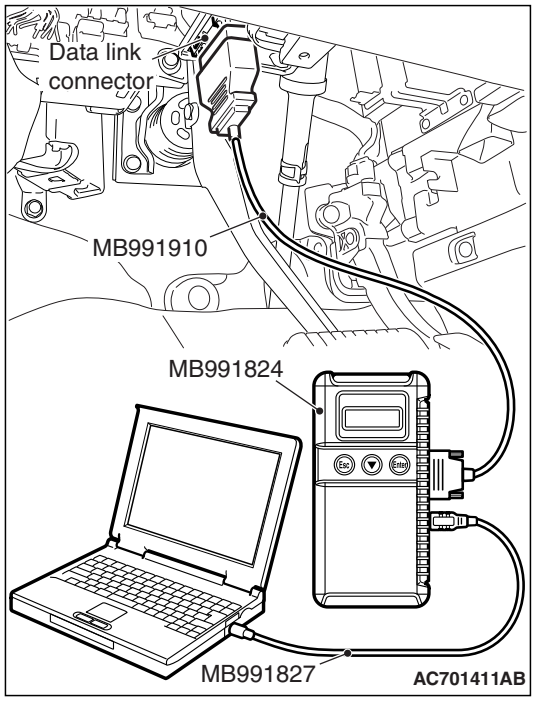
DIAGNOSTIC FUNCTION

M1552019800347

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



⚠ 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 scan tool system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ 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 set. 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 "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.

5. Select "Air Conditioner" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO READ DATA LIST

Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ 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 "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "Air Conditioner" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Data List."
7. Choose an appropriate item and select the "OK" button.

HOW TO PERFORM ACTUATOR TEST

Required Special Tools:
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ 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 "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.

5. Select "Air Conditioner" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Actuator Test."
7. Choose an appropriate item and select the "OK" button.

HOW TO DIAGNOSE THE CAN BUS LINE

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ 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".

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction P.00-15).

When detecting fault and storing the DTC, the ECU connected to CAN bus line obtains the data before the determination of the DTC and the data when the DTC is determined, and then stores the ECU status of that time. By analyzing the data from scan tool, the troubleshooting can be performed more efficiently. The displayed items are as shown in the table below.

DISPLAY ITEM LIST

Item No.	Item name	Content item	Unit
01	Odometer	Total driving distance after the diagnostic trouble code is generated	mile*
02	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
04	Current trouble accumulative time	Cumulative time for current malfunction of diagnostic trouble code	min

NOTE:

- **: If a failure occurs to both the ABS-ECU and ETACS-ECU, 0000 mile or FFFF km is displayed to the scan tool MB991958.*

DIAGNOSTIC TROUBLE CODE CHART

M1554004902180

⚠ CAUTION

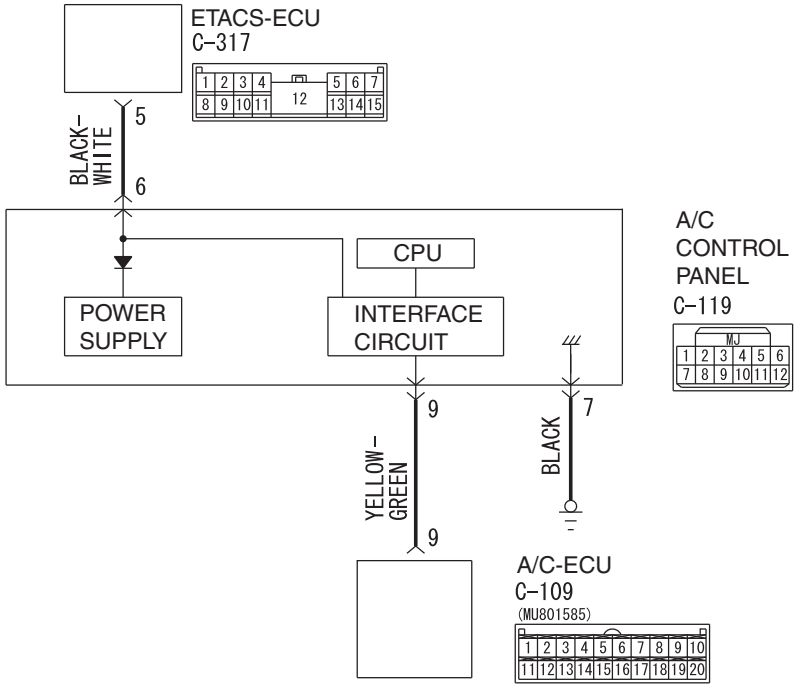
During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion of repairs, check all systems for DTC code(s). If DTC code(s) are set, erase them all.

Diagnostic trouble code No.	Diagnostic item	Reference page
B1000	Control panel communication error	P.55A-12
B1003	Mode dial SW error	P.55A-16
B1018	Temperature control dial SW error	P.55A-20
B1021	Fan dial SW error	P.55A-23
B1031	Air thermo sensor system (short circuit)	P.55A-26
B1032	Air thermo sensor system (open circuit)	P.55A-26
B1034*	Ambient air temperature sensor system (short circuit)	P.55A-29
B1035*	Ambient air temperature sensor system (open circuit)	P.55A-29
B1079	Refrigerant leaks	P.55A-32
B2214	Control panel failure	P.55A-36
B223B	Control panel improperly assembled	P.55A-39
U1415	Coding not completed	P.55A-39
U0019	Bus off (CAN1)	P.55A-44
U0141	ETACS-ECU time-out	P.55A-45
U0151	SRS-ECU time-out	P.55A-47
U0154	Occupant classification-ECU time-out	P.55A-49
U0155	Combination meter time-out	P.55A-52
U0168	WCM time-out	P.55A-54
U0184	Audio time-out	P.55A-57
U0195	Satellite radio tuner time-out	P.55A-59

*NOTE: The diagnostic trouble codes marked by * are set from the ETACS-ECU.*

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1000: Control Panel Communication Error



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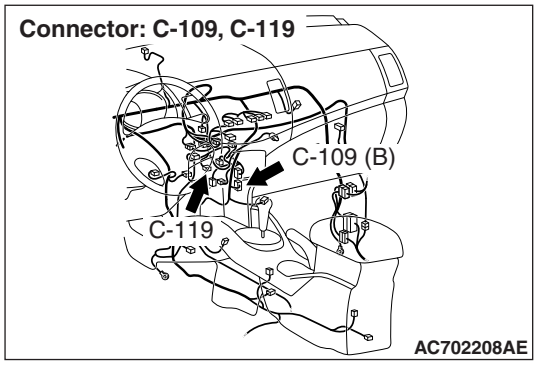

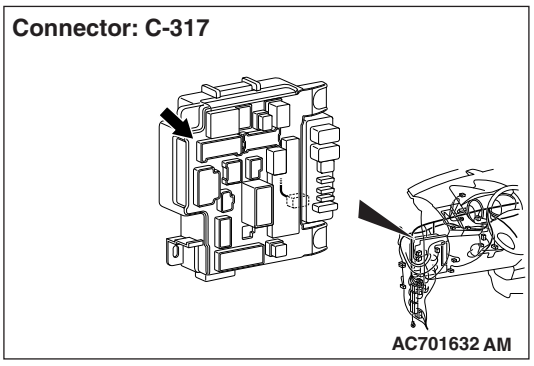

DTC SET CONDITION

DTC B1000 will be set when the communication between A/C-ECU and A/C control panel cannot be performed.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

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Past trouble

- If DTC B1000 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

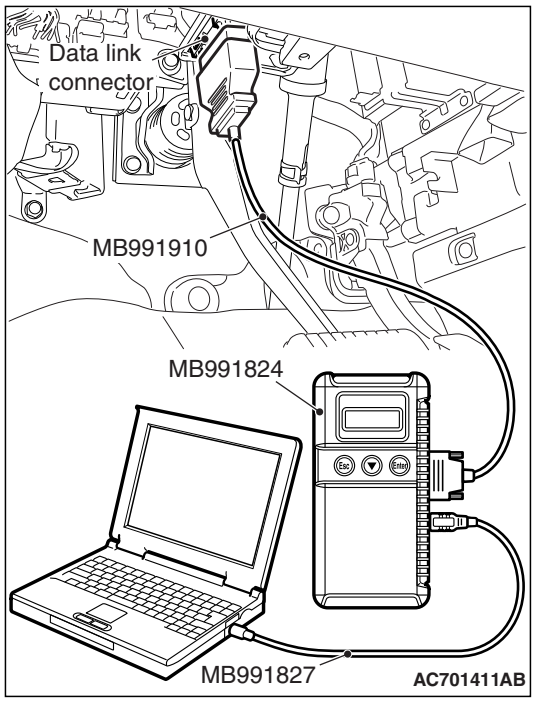
- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the A/C control panel.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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



Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines. Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

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STEP 3. Check A/C control panel connector C-119 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

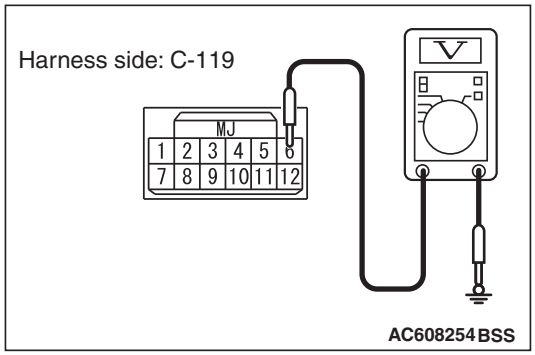
Q: Is A/C control panel connector C-119 in good condition?

YES : Go to Step 4.

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

STEP 4. Measure the voltage at A/C control panel connector C-119.

(1) Disconnect A/C control panel connector C-119, and measure the voltage at the harness side.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 6 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 6.

NO : Go to Step 5.

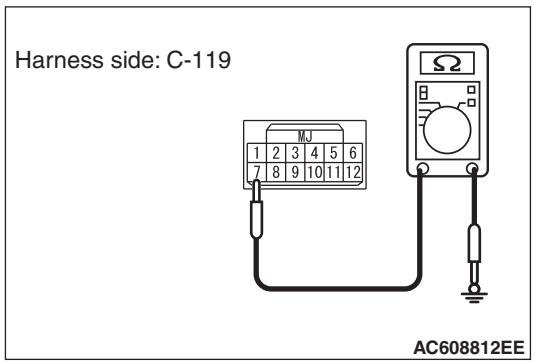
STEP 5. Check the wiring harness between A/C control panel connector C-119 (terminal 6) and ETACS-ECU connector C-317 (terminal 5).

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

Q: Is the wiring harness between A/C control panel connector C-119 (terminal 6) and ETACS-ECU connector C-317 (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.00-15.

NO : Repair the wiring harness.



STEP 6. Measure the resistance at A/C control panel connector C-119.

(1) Disconnect A/C control panel connector C-119, and measure the resistance at the wiring harness side.
(2) Measure the resistance value between terminal 7 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 8.
NO : Go to Step 7.

STEP 7. Check the wiring harness between A/C control panel connector C-119 (terminal 7) and ground.

- Check the A/C control panel ground line for open circuit.

Q: Is the wiring harness between A/C control panel connector C-119 (terminal 7) 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.00-15.
NO : Repair the wiring harness.

STEP 8. Check A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-109 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 between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the A/C control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 10.
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 "ON" position.
(3) Check if the DTC 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.00-15.

NO : Replace the A/C control panel. Then go to Step 11.

STEP 11. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC is set.

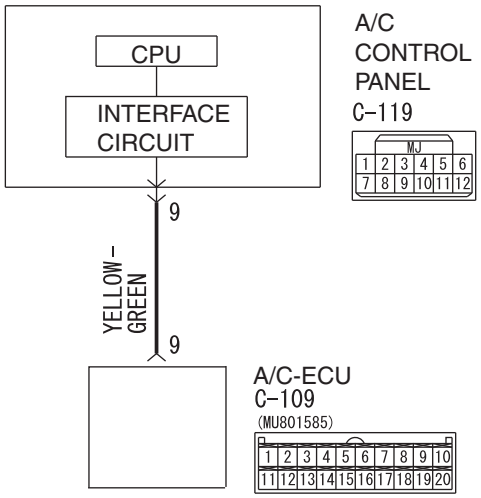
Q: Is the check result satisfactory?

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.00-15.

NO : Replace the A/C-ECU.

DTC B1003: Mode Dial SW Error

A/C Control Panel Circuit



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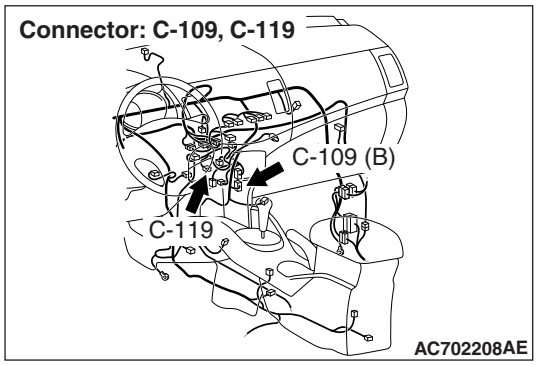
TSB Revision



DTC SET CONDITION

DTC B1003 will be set when the A/C-ECU cannot receive the signal of mode selection knob.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1003 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

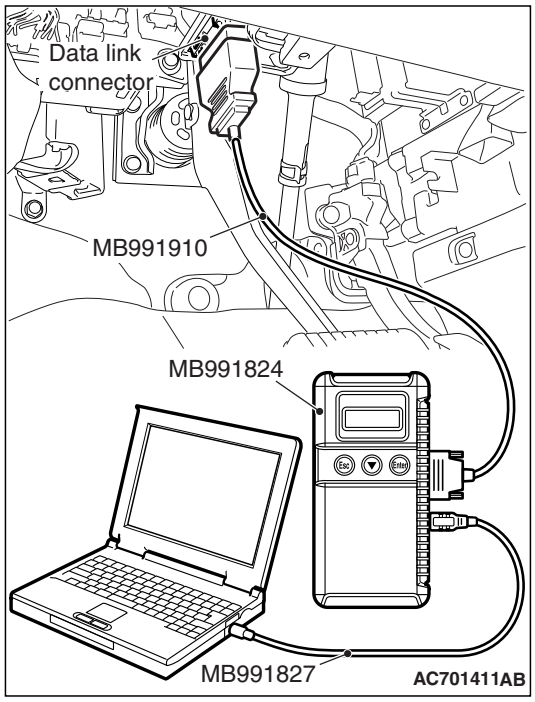
TROUBLESHOOTING HINT

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

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check A/C control panel connector C-119 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-119 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the AC control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C control panel. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

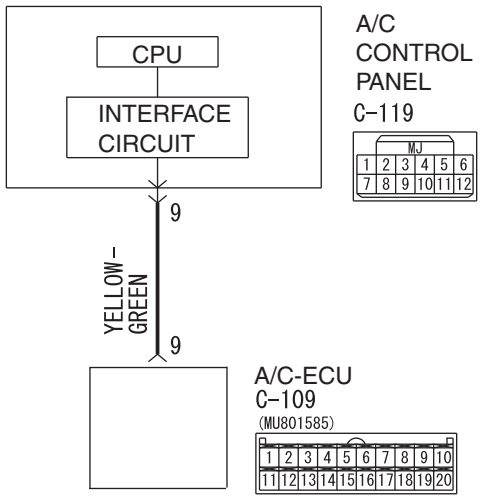
Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC is set.

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.00-15.
NO : Replace the A/C-ECU.

DTC B1018: Temperature Control Dial SW Error

A/C Control Panel Circuit



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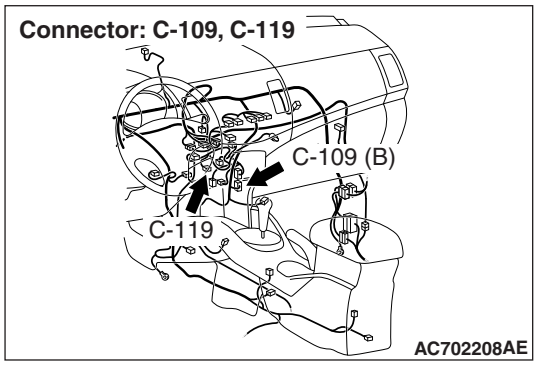


DTC SET CONDITION

DTC B1018 will be set when the A/C-ECU cannot receive the signal of temperature adjustment knob.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1018 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

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

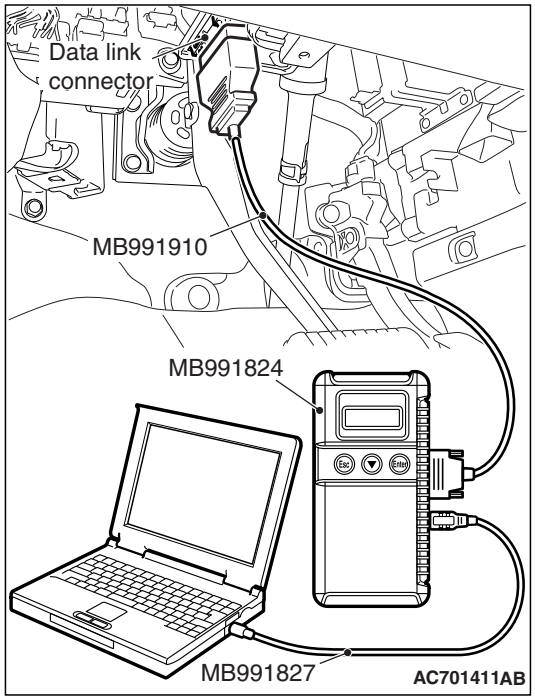
DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)

TSB Revision

- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check A/C control panel connector C-119 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-119 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the A/C control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C control panel. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

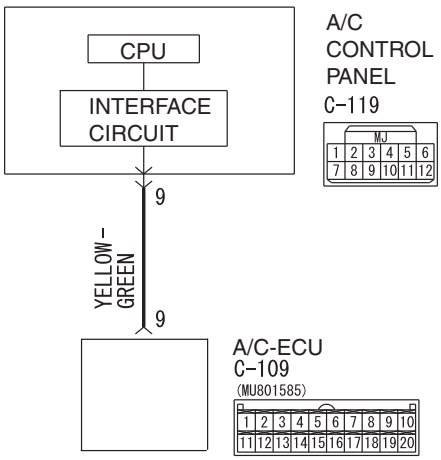
Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC is set.

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.00-15.
NO : Replace the A/C-ECU.

DTC B1021: Fan Dial SW Error

A/C Control Panel Circuit



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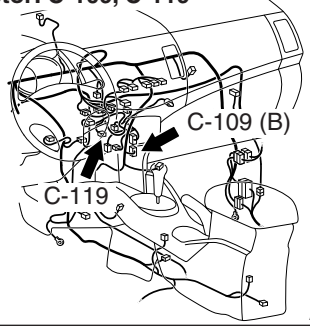
Connector: C-109, C-119



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DTC SET CONDITION

DTC B1021 will be set when the A/C-ECU cannot receive the signal of blower knob.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1021 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

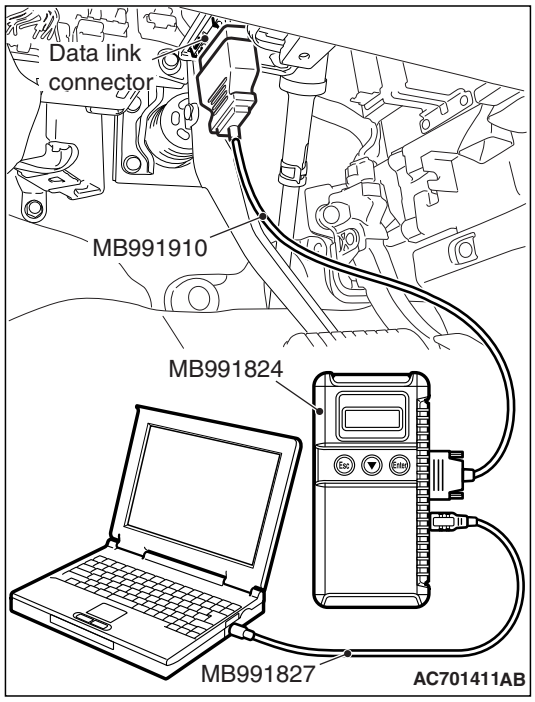
- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the A/C control panel.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

TSB Revision



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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check A/C control panel connector C-119 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-119 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the A/C control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C control panel. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

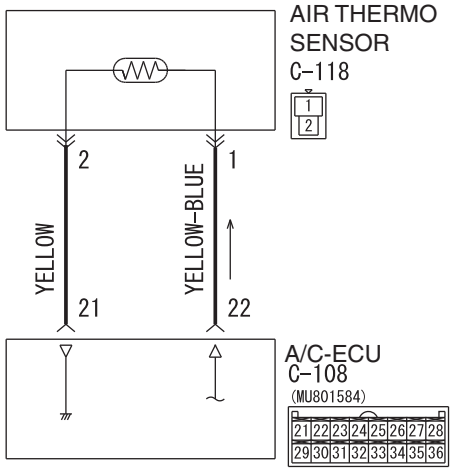
Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC is set.

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.00-15.
NO : Replace the A/C-ECU.

DTC B1031, B1032: Air Thermo Sensor System

Air Thermo Sensor Circuit



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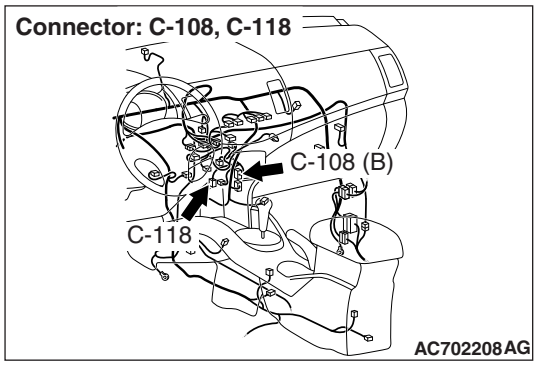


DTC SET CONDITION

- DTC B1031 is set if there is a short circuit in the air thermo sensor input circuit.
- DTC B1032 is set if there is a defective connector connection, or if there is an open circuit in the harness.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the air thermo sensor, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1031 or B1032 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the air thermo sensor. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

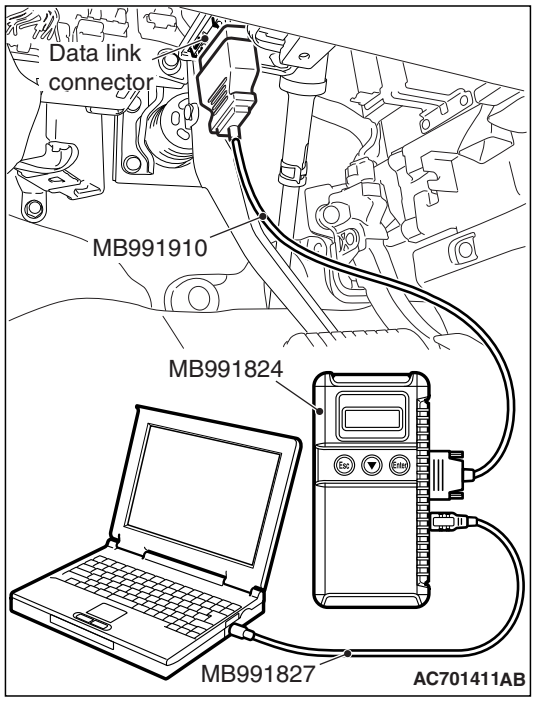
- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the air thermo sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

TSB Revision



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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check air thermo sensor connector C-118 and A/C-ECU connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are air thermo sensor connector C-118 and A/C-ECU connector C-108 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 between A/C-ECU connector C-108 (terminals 22 and 21) and air thermo sensor connector C-118 (terminals 1 and 2).

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

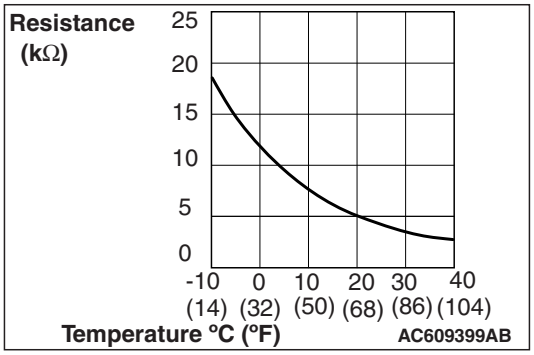
Q: Is the wiring harness between A/C-ECU connector C-108 (terminals 22 and 21) and air thermo sensor connector C-118 (terminals 1 and 2) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Check the air thermo sensor.

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 : Replace the A/C-ECU. Then go to Step 6.
NO : Replace the air thermo sensor. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

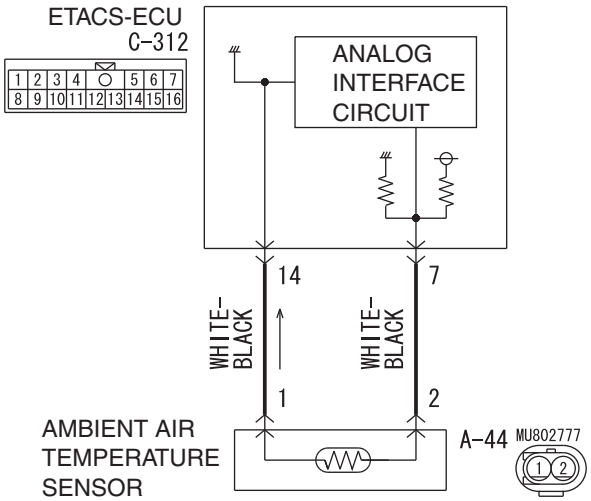
Check again if the DTC is set.
(1) Connect scan tool MB991958 to the data link connector
(2) Turn the ignition switch to the "ON" position.
(3) Check if the DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Return to Step 1.

DTC B1034, B1035: Ambient air temperature Sensor System

Ambient Air Temperature Sensor Circuit



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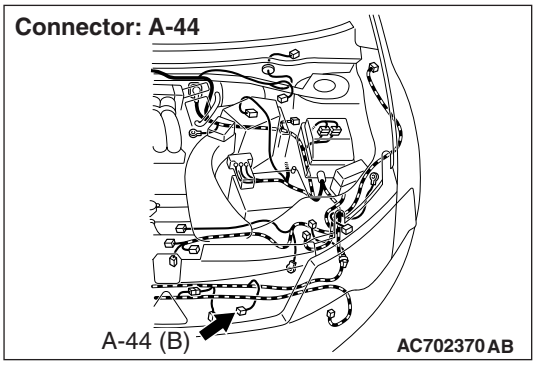
Connector: A-44



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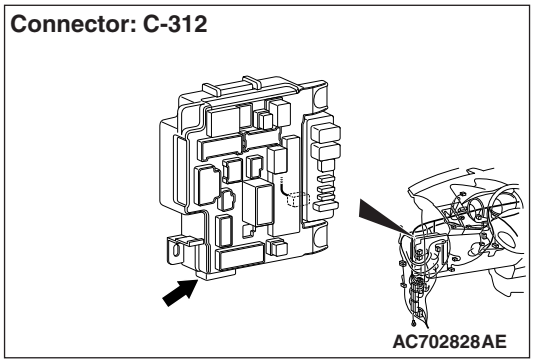
Connector: C-312



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DTC SET CONDITION

- DTC B1034 is set if there is a short circuit in the ambient air temperature sensor input circuit.
- DTC B1035 is set if there is a defective connector connection, or if there is an open circuit in the harness.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the ambient air temperature sensor, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1034 or B1035 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the ambient air temperature sensor. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

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

DIAGNOSIS

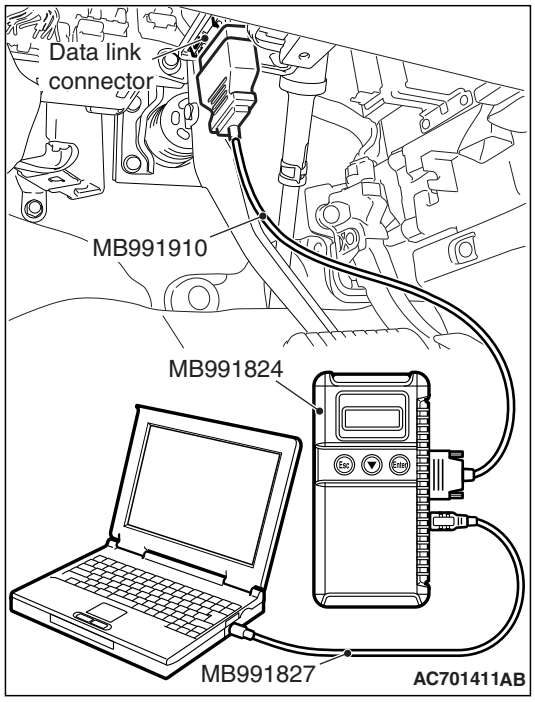
Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)

TSB Revision

- MB991824: Vehicle Communication Interface (V.C.I.)
- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check ambient air temperature sensor connector A-44 and ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are ambient air temperature sensor connector A-44 and ETACS-ECU connector C-312 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 between ambient air temperature sensor connector A-44 (terminals 2 and 1) and ETACS-ECU connector C-312 (terminals 7 and 14).

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

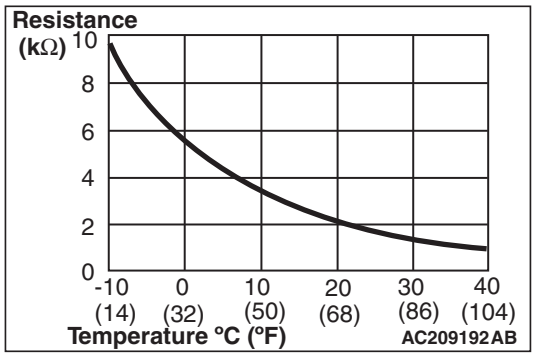
Q: Is the wiring harness between ambient air temperature sensor connector A-44 (terminals 2 and 1) and ETACS-ECU connector C-312 (terminals 7 and 14) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Check the ambient air temperature sensor.

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 ambient air temperature sensor in good condition?

YES : Replace the A/C-ECU. Then go to Step 6.
NO : Replace the ambient air temperature sensor. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

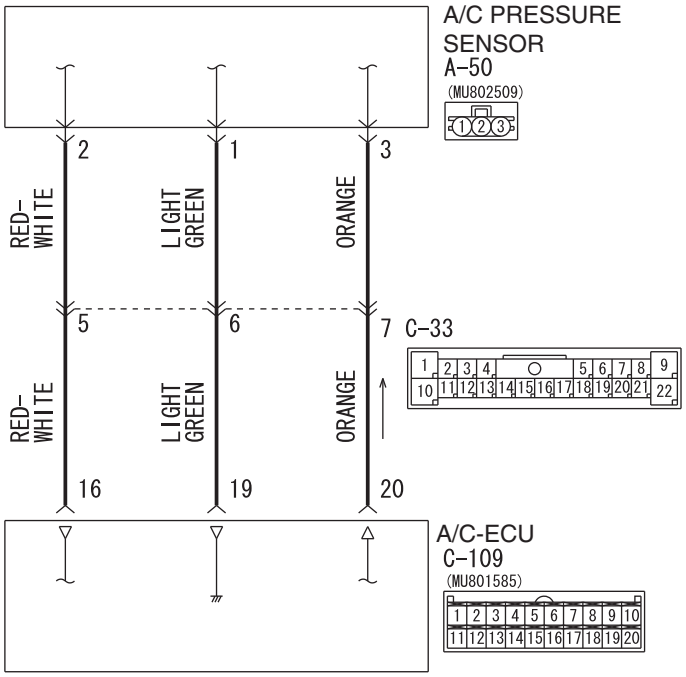
Check again if the DTC is set.
(1) Connect scan tool MB991958 to the data link connector
(2) Turn the ignition switch to the "ON" position.
(3) Check if the DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Return to Step 1.

DTC B1079: Refrigerant Leaks

A/C Pressure Sensor Circuit



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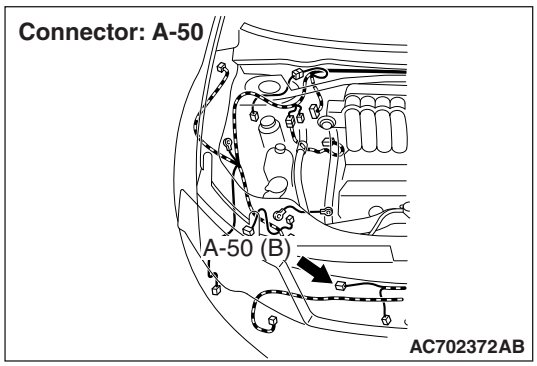
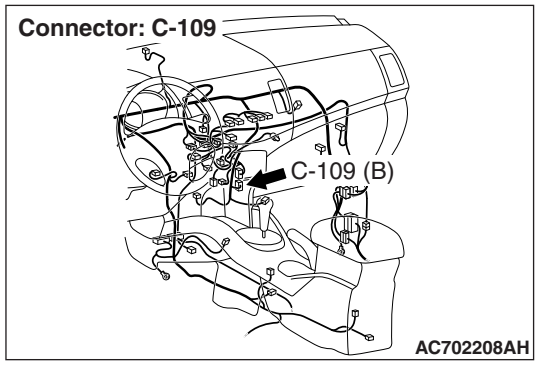




DTC SET CONDITION

DTC B1079 will be set when the A/C pressure sensor detects the refrigerant pressure of specified level or less.

NOTE: When DTC B1079 is set, the A/C indicator of A/C control panel flashes.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The refrigerant amount is not at the specified level, or the wiring harness or connector between the A/C-ECU and A/C pressure sensor, and the A/C-ECU itself or A/C pressure sensor itself may be failed.

TSB Revision

Past trouble

- If DTC B1079 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C pressure sensor. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

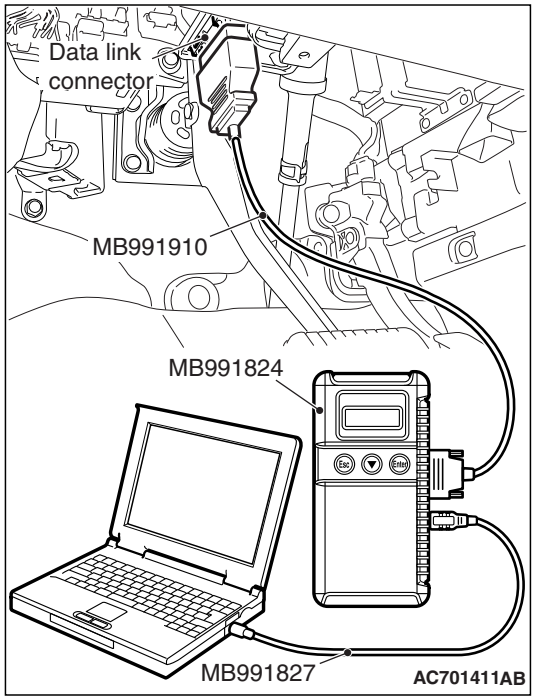
- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the A/C pressure sensor.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

TSB Revision

STEP 3. Check A/C pressure sensor connector A-50 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are air A/C pressure sensor connector A-50 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminals 20, 16 and 19) and A/C pressure sensor connector A-50 (terminals 3, 2 and 1).

NOTE: Also check intermediate connectors C-33 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-33 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

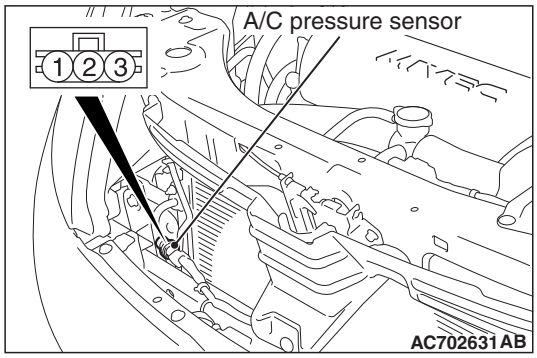
- Check the sensor signal line and ground line for open and short circuit.

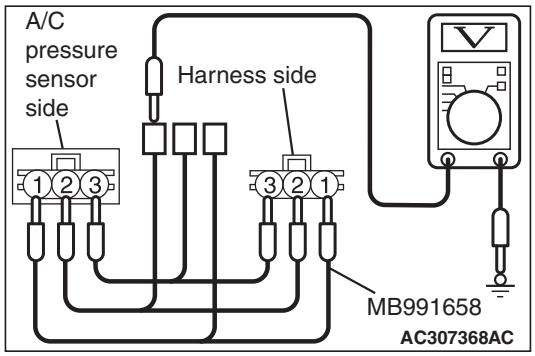
Q: Is the wiring harness between A/C-ECU connector C-109 (terminals 20, 16 and 19) and A/C pressure sensor connector A-50 (terminals 3, 2 and 1) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Check the A/C pressure sensor operation.

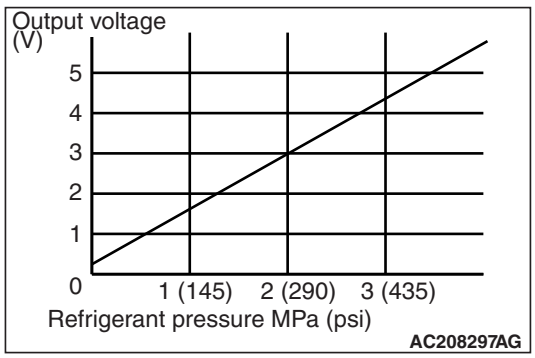
(1) Assemble a gauge manifold on the high pressure service valve.





(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 ±5%.

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

YES : Go to Step 6.

NO : Replace the A/C pressure sensor. Then go to Step 7.

STEP 6. Check the refrigerant level.

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

Q: Is the refrigerant level correct?

YES : Go to Step 7.

NO : Correct the refrigerant level (Refer to On-vehicle Service P.55A-108). Then go to Step 7.

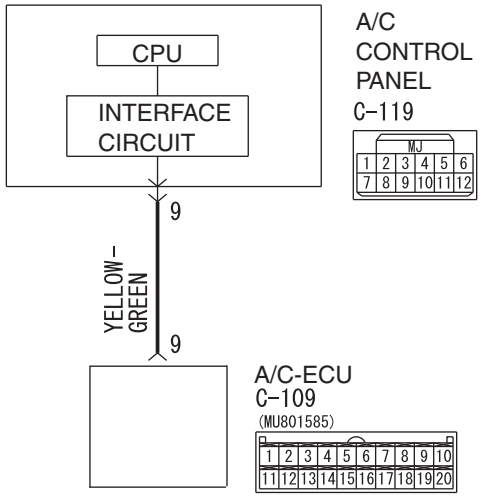
STEP 7. Recheck for diagnostic trouble code.
Check again if the DTC is set.
(1) Connect scan tool MB991958 to the data link connector
(2) Turn the ignition switch to the "ON" position.
(3) Check if the DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Return to Step 1.

DTC B2214: Control Panel Failure

A/C Control Panel Circuit



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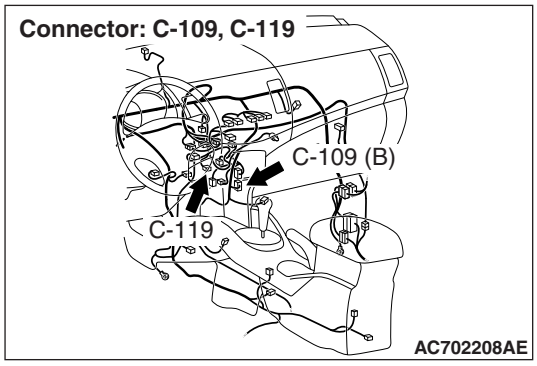


DTC SET CONDITION

DTC B2214 will be set when the A/C-ECU detects the A/C control panel abnormality.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

TSB Revision

Past trouble

- If DTC B2214 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

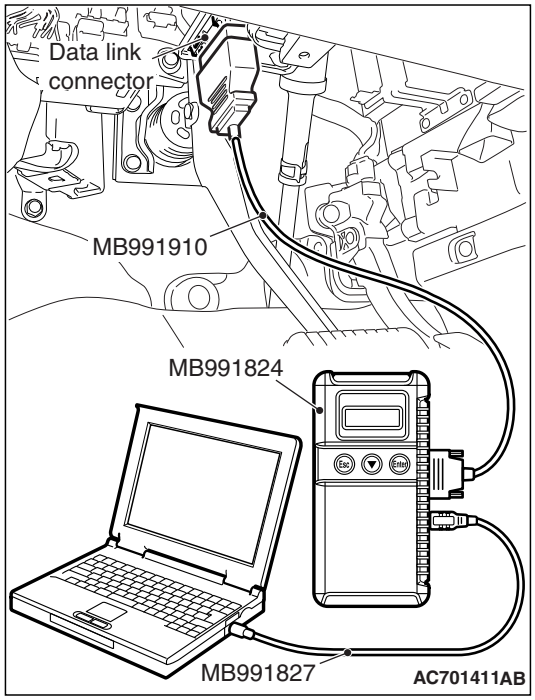
- Malfunction of connector.
- Malfunction of the harness.
- Malfunction of the A/C control panel.
- Malfunction of the A/C-ECU.

DIAGNOSIS

Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

TSB Revision

STEP 3. Check A/C control panel connector C-119 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-119 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the A/C control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C control panel. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

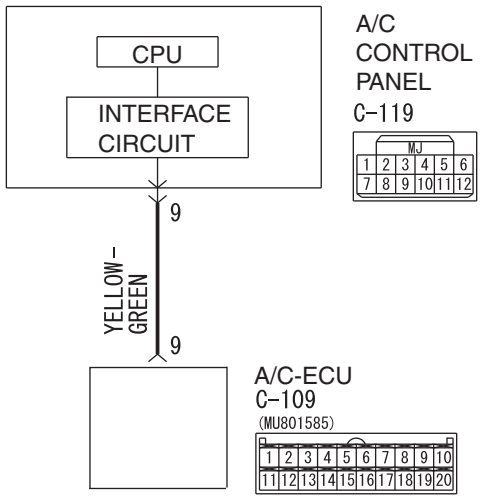
Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC is set.

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.00-15.
NO : Replace the A/C-ECU.

DTC B223B: Control Panel Improperly Assembled

A/C Control Panel Circuit



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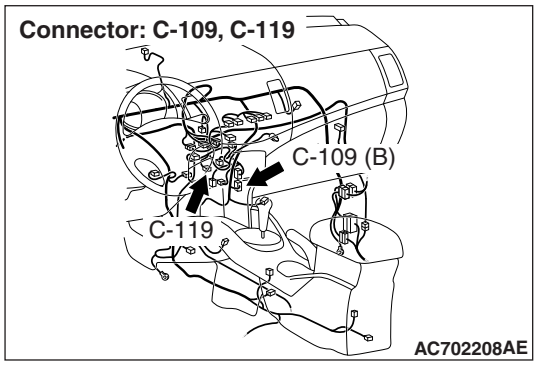


DTC SET CONDITION

DTC B223B will be set when the A/C control panel sends an abnormal data, the A/C control panel for RHD is improperly assembled, or the ETACS-ECU sends incorrect vehicle information (information for RHD is sent).

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- The A/C-ECU, the A/C control panel, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B223B is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the A/C control panel. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

TROUBLESHOOTING HINT

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

DIAGNOSIS

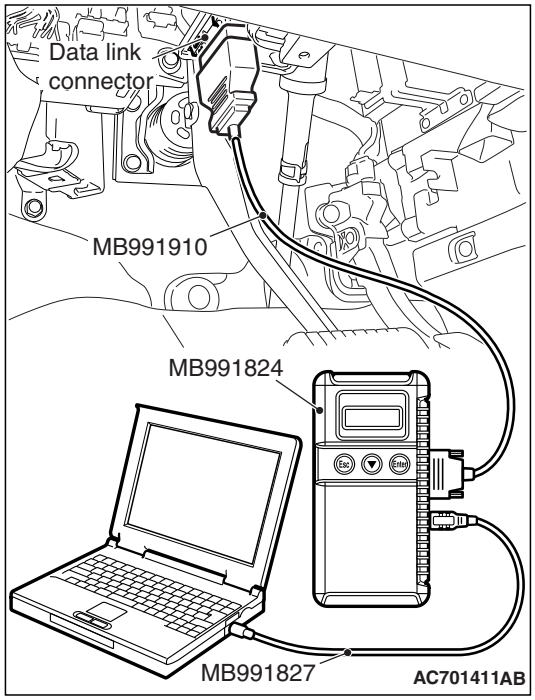
Required Special Tool:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)

TSB Revision

- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Go to Step 3.

STEP 3. Check A/C control panel connector C-119 and A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-119 and A/C-ECU 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 wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9).

- Check the A/C control panel signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 9) and A/C control panel connector C-119 (terminal 9) in good condition?

YES : Go to Step 5.
NO : Repair the wiring harness.

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C control panel. Then go to Step 6.

STEP 6. Recheck for diagnostic trouble code.

Recheck if the DTC is set.
(1) Erase the DTC.
(2) Turn the ignition switch to "ON" position.
(3) Check if the DTC 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.00-15.
NO : Replace the A/C-ECU.

DTC U1415:Coding Not Completed

⚠ CAUTION
If DTC U1415 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives the vehicle information signals from the ETACS-ECU via the CAN bus lines. If incorrect global coding data is received or coding data cannot be received with the ignition switch turned ON when the coding confirmation is completed, the diagnostic trouble code U1415 is stored.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

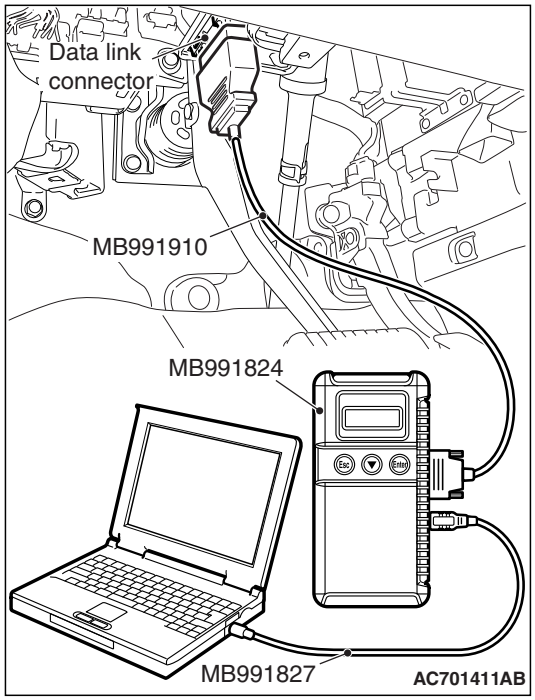
TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Using scan tool MB991958 read the ETACS-ECU diagnostic trouble code.

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

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the ETACS-ECU (Refer to GROUP 54A, Diagnostic Trouble Code P.54A-733).

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.

- WCM <vehicles with WCM>
  B2204: Coding data unmatched
- KOS <vehicles with KOS>
  B2204: Coding data unmatched

(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. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the ETACS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the ETACS-ECU. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the ETACS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0019: Bus Off (CAN1)

⚠ CAUTION
If DTC U0019is 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

DTC U0019 will be stored when the A/C-ECU ceases CAN communication (bus off) and then resumes the communication when the ignition switch is turned to the "LOCK" (OFF) position.

TECHNICAL DESCRIPTION (COMMENT)

The wiring harness wire or connectors may have loose, corroded, or damage terminals, or terminals pushed back in the connector, or the A/C-ECU may be defective.

TROUBLESHOOTING HINTS

- Defective connector(s) or wiring harness
- Malfunction of the A/C-ECU

DIAGNOSIS

Required Special Tools:

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

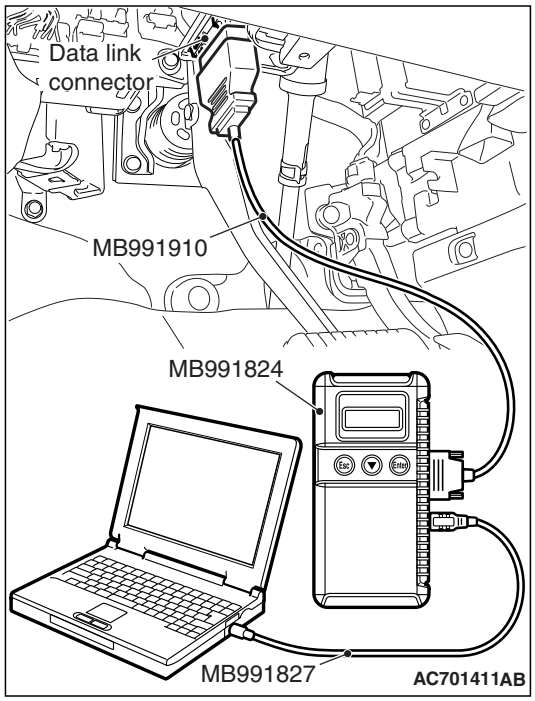
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

⚠ 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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).



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.00-15.)

NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0141: ETACS-ECU Time-out

⚠ CAUTION
If DTC U0141 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives air conditioning operation-related signals from the ETACS-ECU via the CAN bus lines. If the ECU cannot receive any of the air conditioning control-related signals from the ETACS-ECU, the diagnostic trouble code U0141 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble
- Connector(s) or wiring harness in the CAN bus lines between the ETACS-ECU and the A/C-ECU, the power supply system to the ETACS-ECU, the ETACS-ECU itself, or the A/C-ECU may be defective.

Past trouble
- If DTC U0141 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the ETACS-ECU, and the power supply system to the ETACS-ECU. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

  NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

TROUBLESHOOTING HINTS

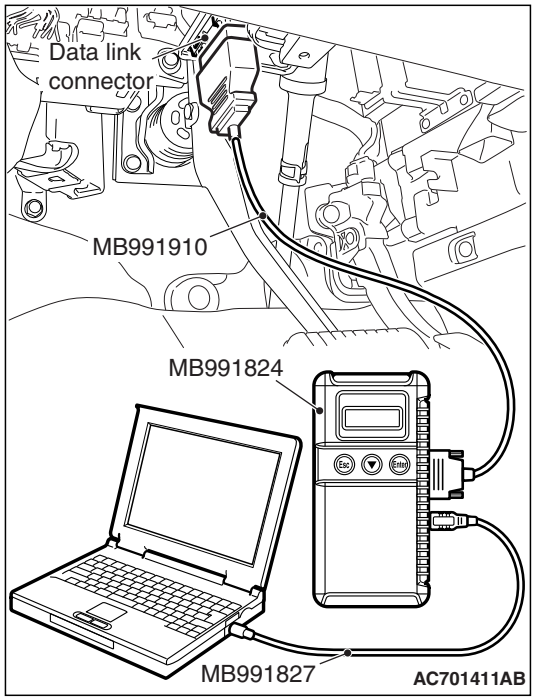
- Malfunction of the A/C-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.

- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Using scan tool MB991958 read the ETACS-ECU diagnostic trouble code.

Check whether an ETACS-ECU DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for ETACS-ECU 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 ETACS-ECU (Refer to GROUP 54A, Diagnostic Trouble Code P.54A-733).

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

(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. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the EATCS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the ETACS-ECU. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the ETACS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0151: SRS-ECU Time-out

⚠ CAUTION
If DTC U0151 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives air conditioning operation-related signals from the SRS-ECU via the CAN bus lines. If any of the air conditioning control-related signals from the SRS-ECU cannot be received, the diagnostic trouble code U0151 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the SRS-ECU and the A/C-ECU, the power supply system to the SRS-ECU, the SRS-ECU itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0151 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the SRS-ECU, and the power supply system to the SRS-ECU. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

  NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

TSB Revision

TROUBLESHOOTING HINTS

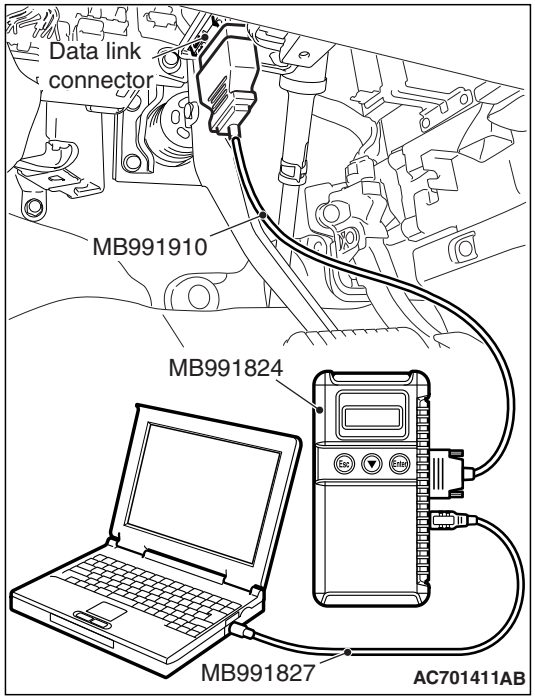
- Malfunction of the SRS-ECU
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Using scan tool MB991958 read the SRS-ECU diagnostic trouble code.

Check whether an SRS-ECU DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for SRS-ECU 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 SRS-ECU (Refer to GROUP 52B, Diagnostic Trouble Code P.52B-31).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the SRS-ECU 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. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the SRS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the SRS-ECU. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the SRS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0154: Occupant classification-ECU Time-out

⚠ CAUTION
If DTC U0154 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives the air conditioning control-related signals from the occupant classification-ECU via the CAN bus lines. If any of the air conditioning control-related signals from the occupant classification-ECU cannot be received, the diagnostic trouble code U0154 is stored.

TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the Occupant classification-ECU and the A/C-ECU, the power supply system to the Occupant classification-ECU, the Occupant classification-ECU itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0154 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the Occupant classification-ECU, and the power supply system to the Occupant classification-ECU. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

TROUBLESHOOTING HINTS

- Malfunction of the Occupant classification-ECU
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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

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

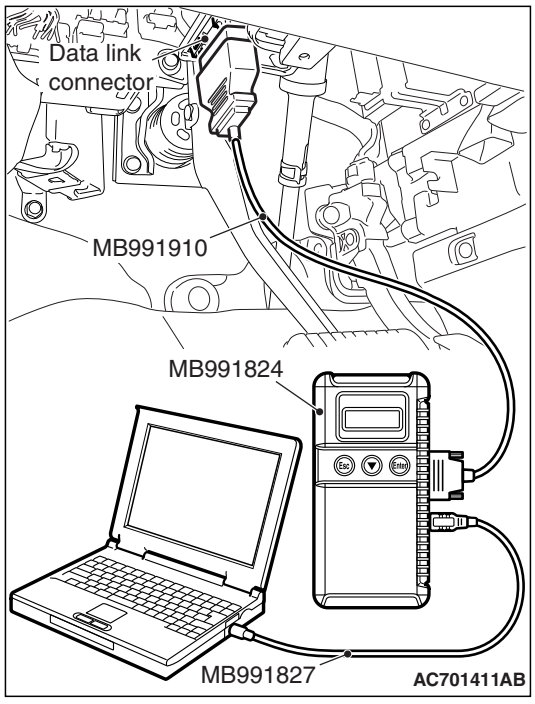
⚠ CAUTION

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).



STEP 2. Using scan tool MB991958 read the Occupant classification-ECU diagnostic trouble code.

Check whether an Occupant classification-ECU DTCs are set or not.

(1) Turn the ignition switch to the "ON" position.
(2) Check for Occupant classification-ECU 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 Occupant classification-ECU (Refer to GROUP 52B, Diagnostic Trouble Code P.52B-344).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the Occupant classification-ECU 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. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the SRS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the Occupant classification-ECU. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the SRS-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

TSB Revision

DTC U0155: Combination meter Time-out

⚠ CAUTION
If DTC U0155 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives the air conditioning control-related signals from the combination meter via the CAN bus lines. If any of the air conditioning control-related signals from the combination meter cannot be received, the diagnostic trouble code U0155 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the combination meter and the A/C-ECU, the power supply system to the combination meter, the combination meter itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0155 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the combination meter, and the power supply system to the combination meter. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

  NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

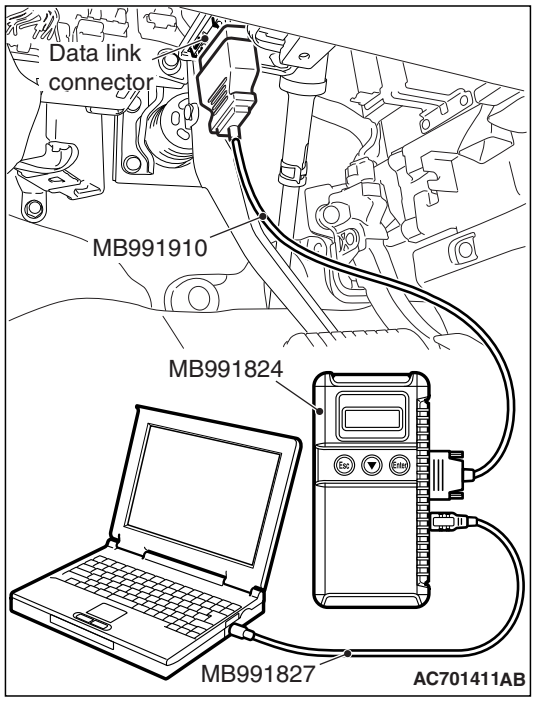
TROUBLESHOOTING HINTS

- Malfunction of the combination meter
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

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

Check whether a combination meter DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for combination meter 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 combination meter (Refer to GROUP 54A, Diagnostic Trouble Code P.54A-34).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the combination meter 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. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the combination meter and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the combination meter. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the combination meter and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0168: WCM Time-out

⚠ CAUTION
If DTC U0168 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives the air conditioning control-related signals from the WCM-ECU via the CAN bus lines. If any of the air conditioning control-related signals from the WCM-ECU cannot be received, the diagnostic trouble code U0168 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the WCM-ECU and the A/C-ECU, the power supply system to the WCM-ECU, the WCM-ECU itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0168 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the WCM-ECU, and the power supply system to the WCM-ECU. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

TROUBLESHOOTING HINTS

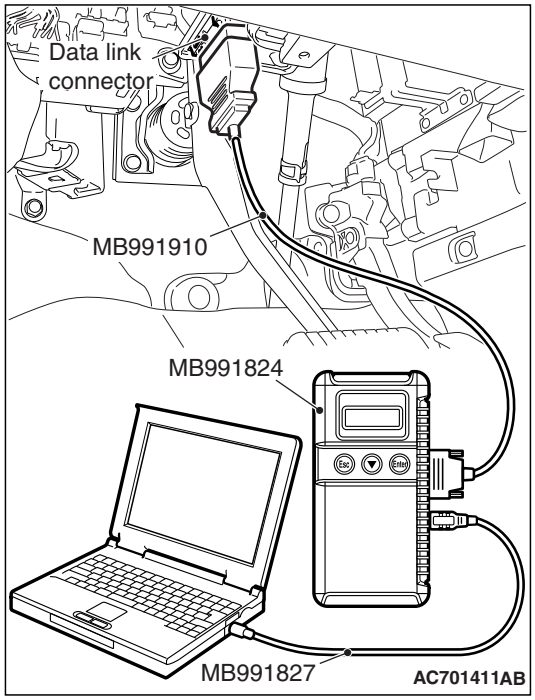
- Malfunction of the WCM-ECU
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

STEP 2. Using scan tool MB991958 read the WCM-ECU diagnostic trouble code.

Check whether an WCM-ECU DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for WCM-ECU 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 WCM-ECU (Refer to GROUP 42C, Diagnostic Trouble Code P.42C-7).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the WCM-ECU 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. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the WCM-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the WCM-ECU. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the WCM-ECU and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0184: Audio Time-out

⚠ CAUTION
If DTC U0184 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives air conditioning operation-related signals from the audio via the CAN bus lines. If any of the air conditioning control-related signals from the audio cannot be received, the diagnostic trouble code U0184 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the Audio and the A/C-ECU, the power supply system to the Audio, the Audio itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0184 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the Audio, and the power supply system to the Audio. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

  NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

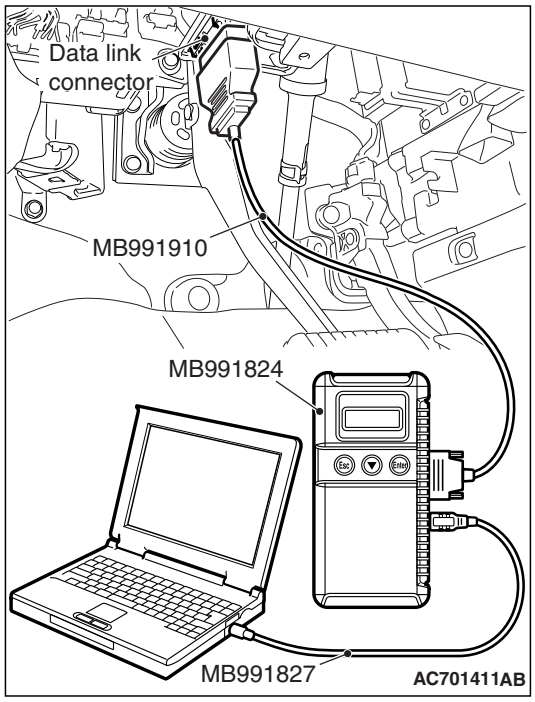
TROUBLESHOOTING HINTS

- Malfunction of the Audio
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

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

Check whether an audio DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for Audio 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 Audio (Refer to GROUP 54A, Diagnostic Trouble Code P.54A-333).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the Audio 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. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the audio and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the Audio. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.
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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the audio and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

DTC U0195: Satellite radio tuner Time-out

⚠ CAUTION
If DTC U0195 is set in the A/C-ECU, diagnose the CAN main bus line.

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

TROUBLE JUDGMENT

The A/C-ECU receives air conditioning operation-related signals from the satellite radio tuner via the CAN bus lines. If any of the air conditioning control-related signals from the satellite radio tuner cannot be received, the diagnostic trouble code U0195 is stored.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the Satellite radio tuner and the A/C-ECU, the power supply system to the Satellite radio tuner, the Satellite radio tuner itself, or the A/C-ECU may be defective.

Past trouble

- If DTC U0195 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) in the CAN bus line between the A/C-ECU and the Satellite radio tuner, and the power supply system to the Satellite radio tuner. If the connectors and wiring are normal, and obviously the ECU is the cause of the trouble, replace the ECU. If in doubt, do not replace the ECU.

NOTE: For a past trouble, you cannot find it by the scan tool CAN bus diagnostics even if there is a failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-15) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, Explanation about the scan too CAN bus diagnostics P.54C-16).

TROUBLESHOOTING HINTS

- Malfunction of the Satellite radio tuner
- Malfunction of the A/C-ECU
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

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

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

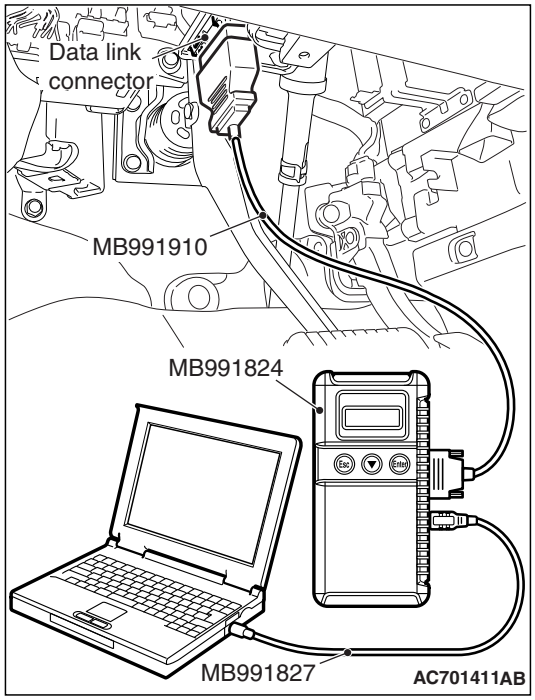
⚠ CAUTION

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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).



STEP 2. Using scan tool MB991958 read the Satellite radio tuner diagnostic trouble code.

Check whether an Satellite radio tuner DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for Satellite radio tuner 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 Satellite radio tuner (Refer to GROUP 54A, Diagnostic Trouble Code P.54A-333).

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.

- ETACS-ECU
  DTC indicating a time-out error related to the Satellite radio tuner 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. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the Satellite radio tuner and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)
NO : Replace the Satellite radio tuner. On completion, check that the DTC is not reset.

STEP 5. Recheck for diagnostic trouble code.

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 : A poor connection, open circuit or other intermittent malfunction is present in the lines between the Satellite radio tuner and the A/C-ECU (Refer to GROUP 00E, Harness Connector Inspection P.00E-2.)

NO : Replace the A/C-ECU. On completion, check that the DTC is not reset.

SYMPTOM CHART

M1552009900730

⚠ 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
When the A/C is operating, temperature inside the passenger compartment does not decrease (cool air is not emitted).	1	P.55A-63
Malfunction of the A/C-ECU power supply system.	2	P.55A-65
The compressor dose not work.	3	P.55A-69
Blower fan and motor do not turn.	4	P.55A-77
Blower air amount cannot be changed.	5	P.55A-82
Outside/Inside air changeover is not possible.	6	P.55A-85
A/C outlet air temperature does not increase.	7	P.55A-87
Air outlet vent cannot be changed.	8	P.55A-89
Rear window defogger function does not operate.	10	P.55A-91
Blower motor power supply system.	11	P.55A-98

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: When the A/C is Operation, Temperature Inside the Passenger Compartment does not Decrease (Cool Air is not Emitted).

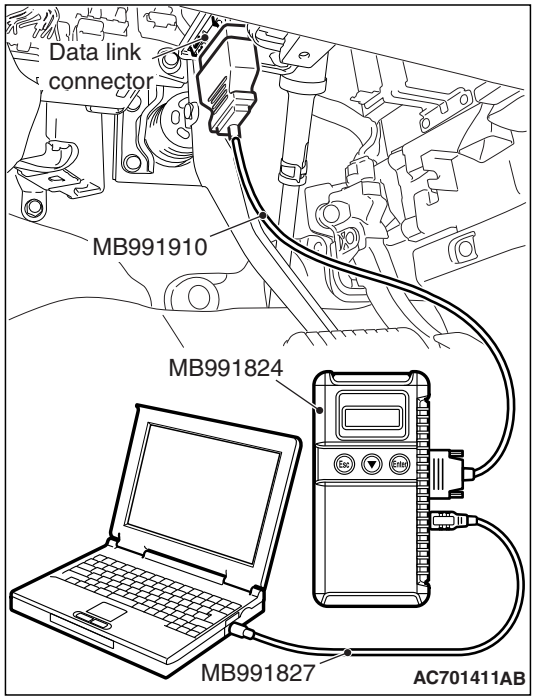
TECHNICAL DESCRIPTION (COMMENT)

The blower system or the compressor system may be defective if there is no cool air coming from the vents.

TROUBLESHOOTING HINTS

- Malfunction of blower motor
- Malfunction of A/C-ECU
- Malfunction of A/C compressor

DIAGNOSIS



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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.42C-7."
(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-11.
NO : Go to Step 2.

STEP 2. Check that the blower motor operation when the blower knob is moved to the "Maximum air volume" position.

(1) Turn the ignition switch to the "ON" position.
(2) Turn the blower knob to the "Maximum air volume" position

Q: Does the blower motor operate when the blower knob is moved to the "Maximum air volume" position?

YES : Go to Step 3.
NO : Refer to Inspection procedure 4 "Blower fan and motor do not turn P.55A-77."

STEP 3. Check the rear window defogger and outside/inside air selection damper control motor operation.

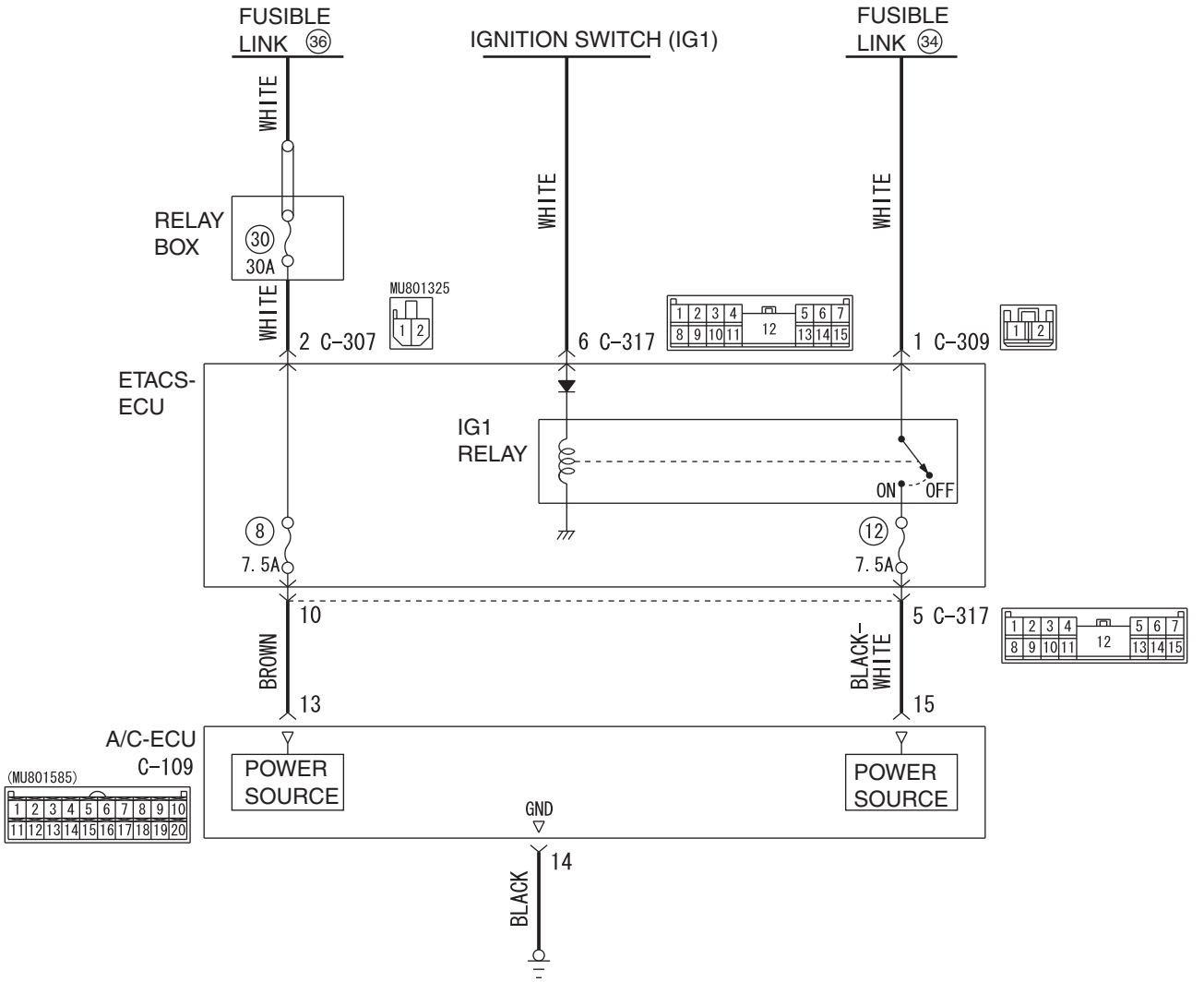
(1) Turn the ignition switch to the "ON" position.
(2) Check the operations of rear window defogger and outside/inside air selection damper control motor.

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

YES : Refer to Inspection procedure 3 "The A/C compressor does not Work P.55A-69."
NO : Refer to Inspection procedure 2, "Malfunction of the A/C-ECU power supply system P.55A-65."

INSPECTION PROCEDURE 2: Malfunction of the A/C-ECU Power Supply System.

A/C-ECU Power Supply Circuit



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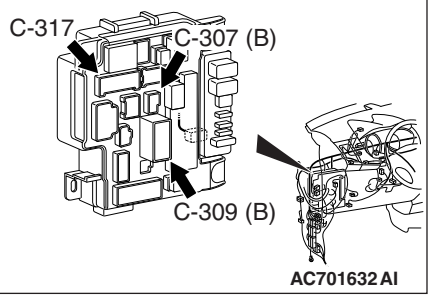
Connectors: C-307, C-309, C-317



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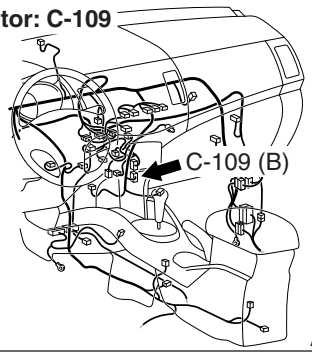
Connector: C-109



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TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tool:

- MB991223: Test Harness Set

STEP 1. Check A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

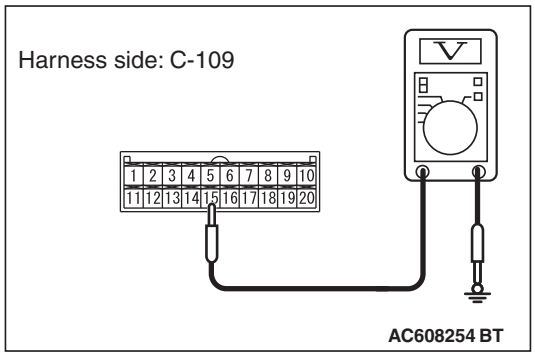
Q: Is A/C-ECU connector C-109 in good condition?

YES : Go to Step 2.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the A/C works normally.

STEP 2. Measure the voltage at A/C-ECU connector C-109.

(1) Disconnect A/C-ECU connector C-109 and measure the voltage at the harness side.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 15 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 5.

NO : Go to Step 3.

STEP 3. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 4.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the A/C works normally.

STEP 4. Check the wiring harness between A/C-ECU connector C-109 (terminal 15) and ETACS-ECU connector C-317 (terminal 5).

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

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 15) and ETACS-ECU connector C-317 (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.00-15.

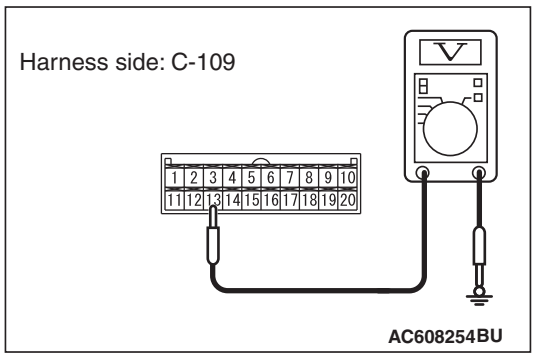
NO : Repair the wiring harness. Check that the A/C works normally.

STEP 5. Measure the voltage at A/C-ECU connector C-109.

(1) Disconnect A/C-ECU connector C-109 and measure the voltage at the harness side.

(2) Measure the voltage between terminal 13 and ground.

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



Q: Is the measured voltage approximately 12 V?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between A/C-ECU connector C-109 (terminal 13) and the fusible link (36).

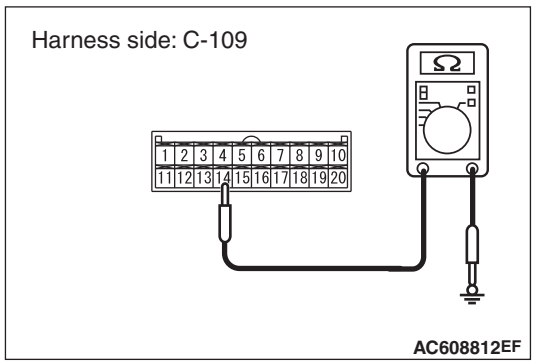
NOTE: Also check ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 13) and the fusible link (36) 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.00-15.

NO : Repair the wiring harness. Check that the A/C works normally.



STEP 7. Measure the resistance at A/C-ECU connector C-109.

(1) Disconnect A/C-ECU connector C-109, and measure at the wiring harness side.
(2) Measure the resistance between terminal 14 and ground.
- The measured value should be 2 ohms or less.

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

YES : Replace the A/C-ECU, and check that the A/C works normally.
NO : Go to Step 8.

STEP 8. Check the wiring harness between A/C-ECU connector C-109 (terminal 14) and the ground.

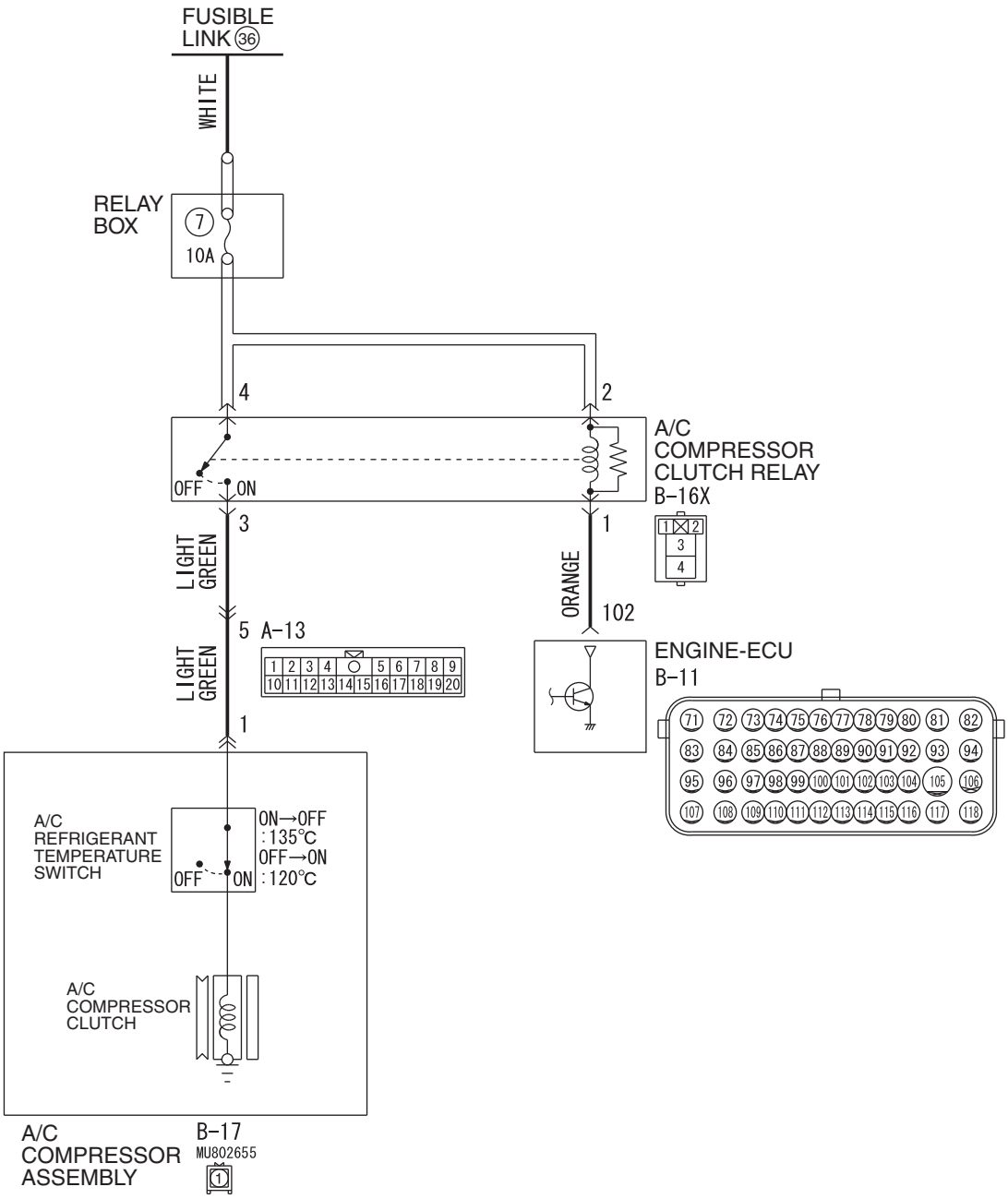
- Check the A/C-ECU ground line for open circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 14) 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.00-15.
NO : Repair the wiring harness. Check that the A/C works normally.

INSPECTION PROCEDURE 3: The Compressor does not Work.

A/C Compressor Assembly Circuit



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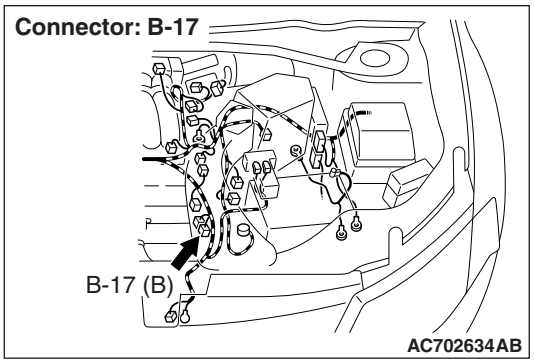

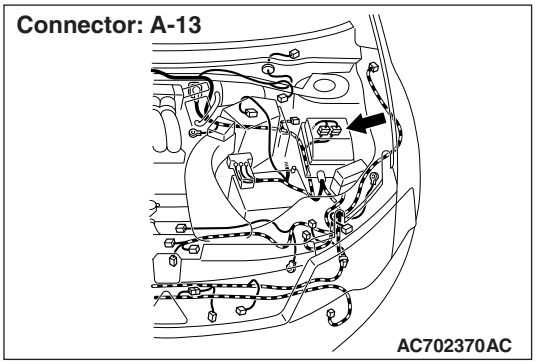

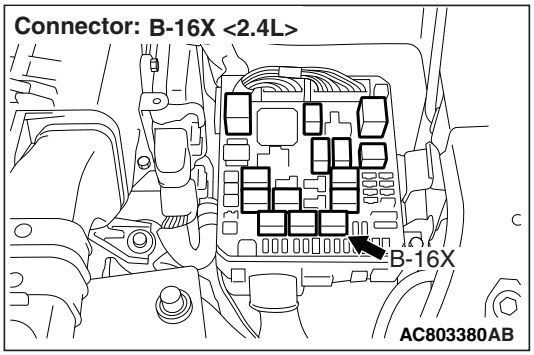

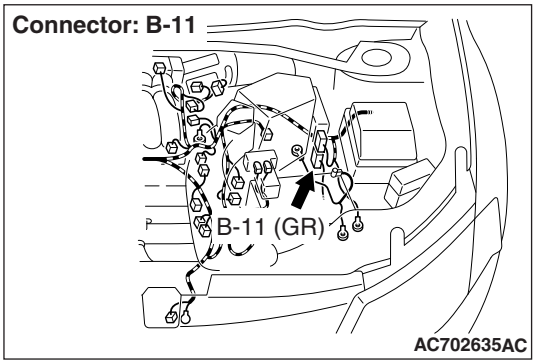

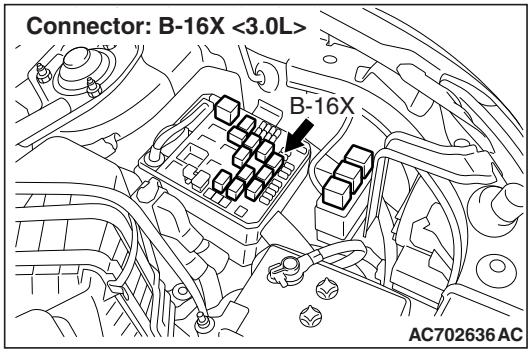

FUNCTION

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 (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

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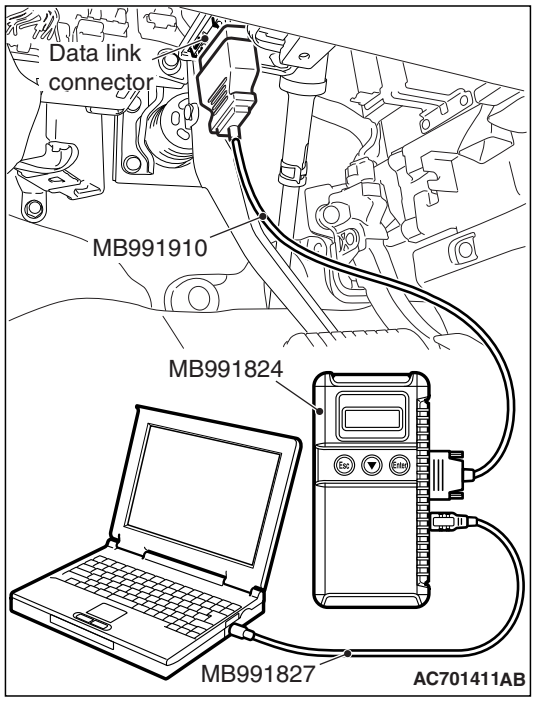


STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ 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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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-17).

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.

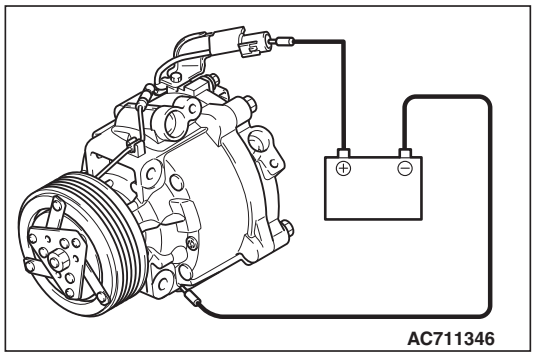
Q: Is the check result satisfactory?

YES : Refer to Diagnostic Trouble Code Chart P.55A-11.
NO : Go to Step 3.

STEP 3. Check A/C compressor assembly connector B-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C compressor assembly connector B-17 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 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 5.

NO : Replace the compressor magnet clutch.

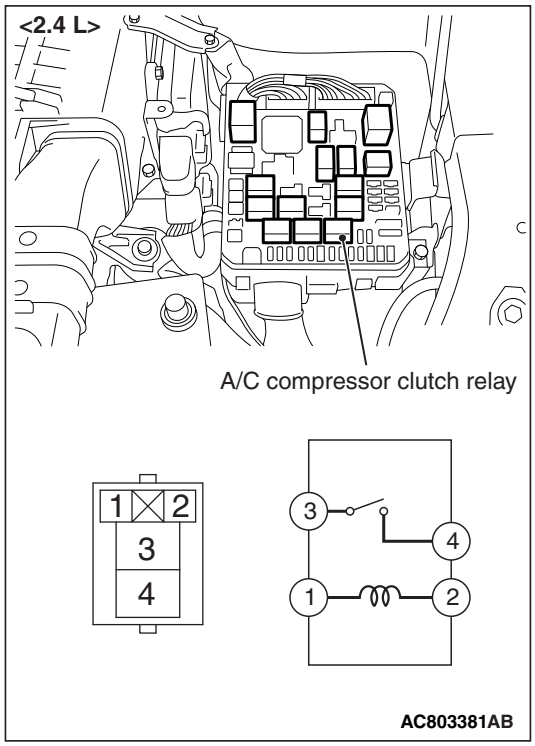
STEP 5. Check A/C compressor clutch relay connector B-16X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

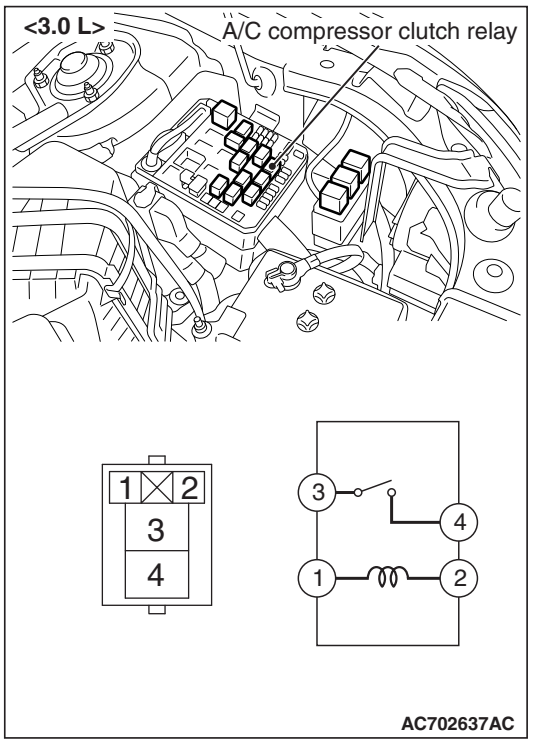
Q: Is A/C compressor clutch relay connector B-16X in good condition?

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 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	3 – 4	Open circuit
• 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 A/C compressor clutch relay in good condition?

YES : Go to Step 7.

NO : Replace the A/C compressor clutch relay.

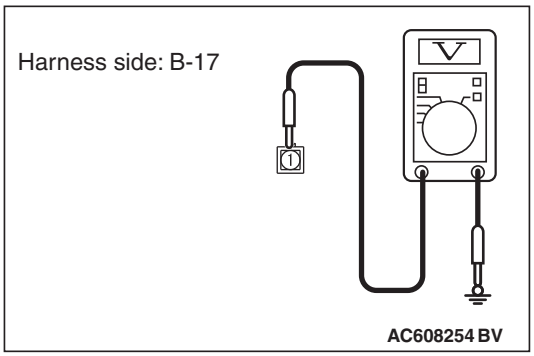
STEP 7. Check engine control module connector B-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is engine control module connector B-11 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. Measure the voltage at A/C compressor assembly connector B-17.

(1) Disconnect A/C compressor assembly connector B-17 and measure the voltage at the wiring harness side.
(2) Disconnect powertrain control module connector B-11 and ground harness side terminal No.102.
(3) Turn the ignition switch to the "ON" position.
(4) A/C compressor assembly connector B-17 terminal 1 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).



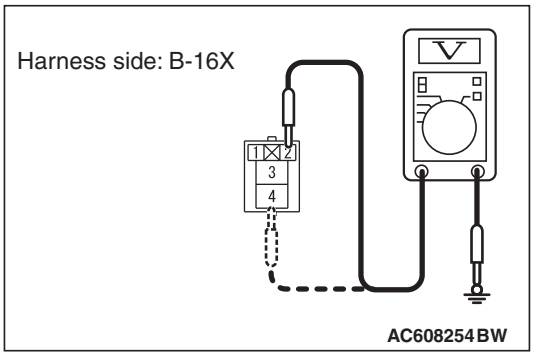
Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 13.
NO : Go to Step 9.

STEP 9. Measure the voltage at A/C compressor clutch relay connector B-16X.

(1) Disconnect A/C compressor connector B-16X and measure the voltage at the relay box side.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 4 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

(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 10.

STEP 10. Check the wiring harness between A/C compressor clutch relay connector B-16X (terminals 2 and 4) and the fusible link (36).

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

Q: Is the wiring harness between A/C compressor clutch relay connector B-16X (terminals 2 and 4) and the fusible link (36) 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.00-15.

NO : Repair the wiring harness. Check that the A/C works normally.

STEP 11. Check the wiring harness between A/C compressor clutch relay connector B-16X (terminal 3) and A/C compressor assembly connector B-17 (terminal 1).

NOTE: Also check intermediate connector A-13 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector A-13 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between A/C compressor clutch relay connector B-16X (terminal 3) and A/C compressor assembly connector B-17 (terminal 1) in good condition?

YES : Go to Step 12.

NO : Repair the wiring harness. Check that the A/C works normally.

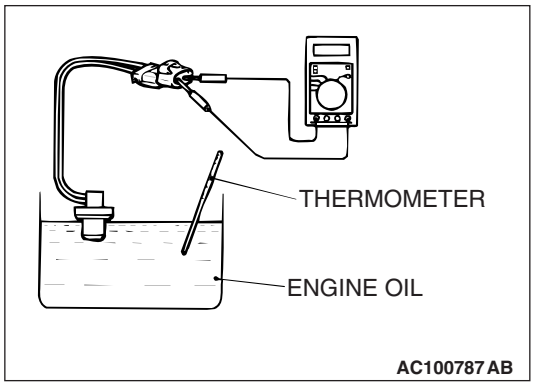
STEP 12. Check the wiring harness between powertrain control module connector B-11 (terminal 102) and A/C compressor clutch relay connector B-16X (terminal 1).

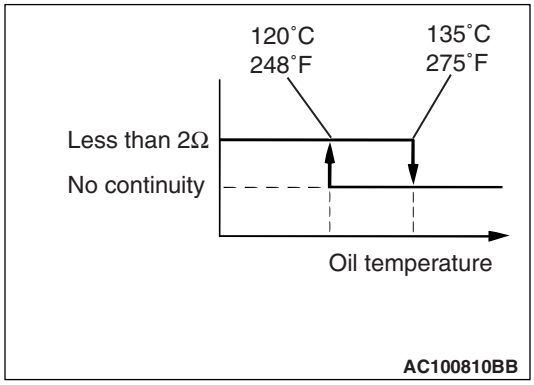
- Check the powertrain control module signal line for open and short circuit.

Q: Is the wiring harness between powertrain control module connector B-11 (terminal 102) and A/C compressor clutch relay connector B-16X (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.00-15.

NO : Repair the wiring harness. Check that the A/C works normally.





STEP 13. Check the refrigerant 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 120°C (248°F)
No continuity	135°C (275°F) or more

NOTE: When the oil temperature is 135°C (275°F) or more and there is no continuity, the resistance will not be 2Ω or lower until the oil temperature reduces to 120°C (248°F) or less.

Q: Is the refrigerant temperature switch operating properly?

YES : Go to Step 14.
NO : Replace the refrigerant temperature switch. Check that the A/C works normally.

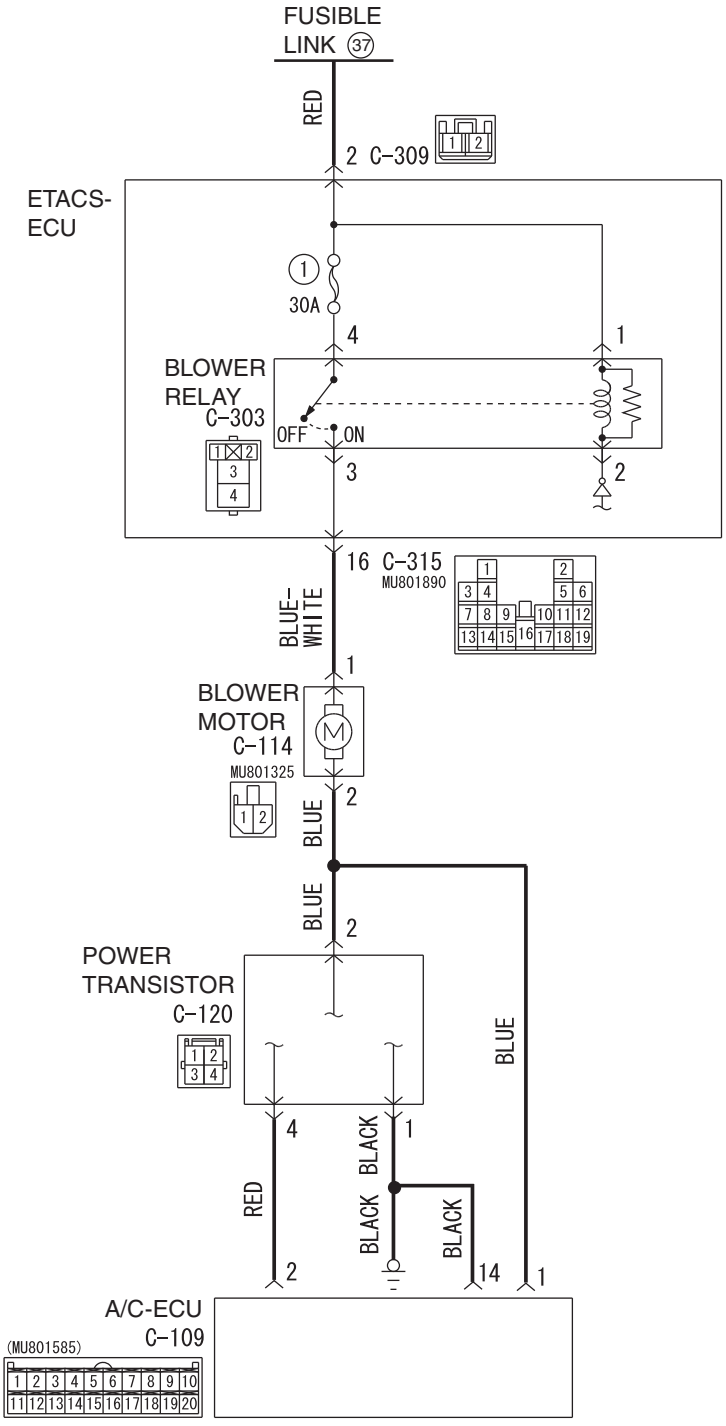
STEP 14. Replace the A/C-ECU.

Q: Does the A/C operate normally?

YES : No action is necessary and testing is complete.
NO : Replace the powertrain control module. Check that the A/C works normally.

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

Blower Motor Circuit



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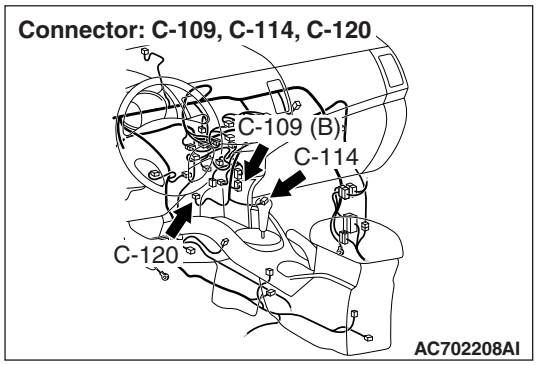
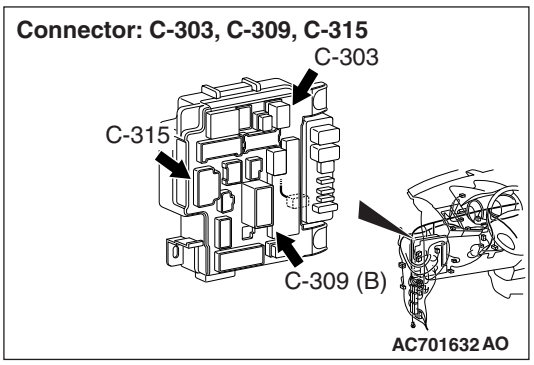




CIRCUIT OPERATION

If the blower motor does not operate, the blower relay system is suspected.

TROUBLESHOOTING HINTS

- Malfunction of the power transistor
- Malfunction of the blower motor
- Malfunction of the A/C-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

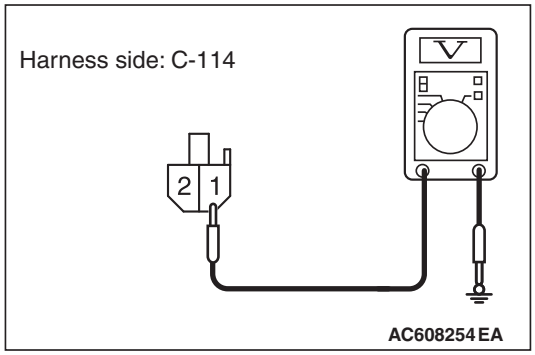
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check blower motor connector C-114 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-114 in good condition?

YES : Go to Step 2.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.



STEP 2. Measure the voltage at blower motor connector C-114.

(1) Disconnect blower motor connector C-114, and measure the voltage at the wiring harness side.
(2) Turn the ignition switch to the "ON" position.
(3) Turn the blower switch to the "Maximum air volume" position.
(4) Measure the voltage between terminal 1 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

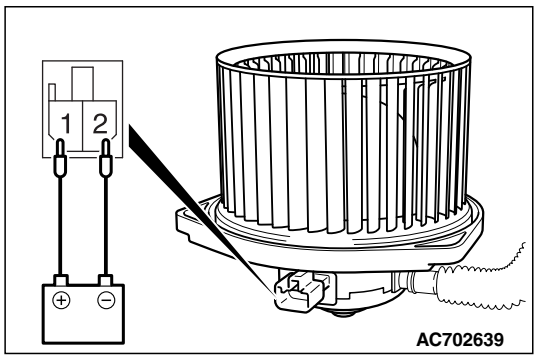
Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 3.
NO : Refer to Inspection procedure 10, "Blower motor power supply system P.55A-98."

STEP 3. Check blower motor connector C-114 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower motor connector C-114 in good condition?

YES : Go to Step 4.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.



STEP 4. Check the blower fan and motor operation.

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

Q: Is there any abnormal noise?

YES : Go to Step 5.
NO : Replace the blower relay. The blower motor should operate normally.

STEP 5. Check A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-109 in good condition?

YES : Go to Step 6.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.

STEP 6. Check the wiring harness between A/C-ECU connector C-109 (terminal 1) and blower motor connector C-114 (terminal 2).

- Check the AC-ECU signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminal 1) and blower motor connector C-114 (terminal 2) in good condition?

YES : Go to Step 7.

NO : Repair the wiring harness. The blower motor should operate normally.

STEP 7. Check power transistor connector C-120 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power transistor connector C-120 in good condition?

YES : Go to Step 8.

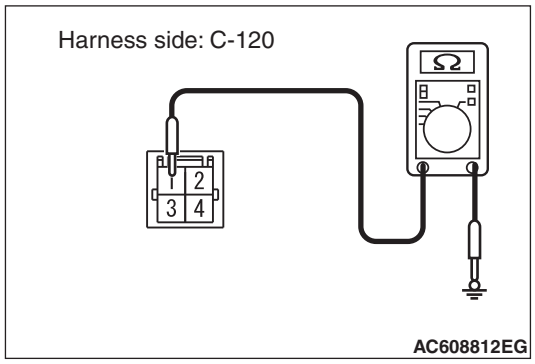
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.

STEP 8. Measure the resistance at power transistor connector C-120.

(1) Disconnect power transistor connector C-120, and measure the resistance at the wiring harness side.

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

OK: The measured value should be 2 ohms or less



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 power transistor connector C-120 (terminal 1) and ground.

- Check the power transistor ground line for open circuit.

Q: Is the wiring harness between power transistor connector C-120 (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.00-15.

NO : Repair the wiring harness. The blower motor should operate normally.

STEP 10. Check the wiring harness between A/C-ECU connector C-109 (terminals 1,2 and 14) and power transistor connector C-120 (terminals 2 and 4).

- Check the AC-ECU signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminals 1 and 2) and power transistor connector C-120 (terminals 2 and 4) in good condition?

YES : Go to Step 11.
NO : Repair the wiring harness. The blower motor should operate normally.

STEP 11. Replace the power transistor and check the trouble symptom again

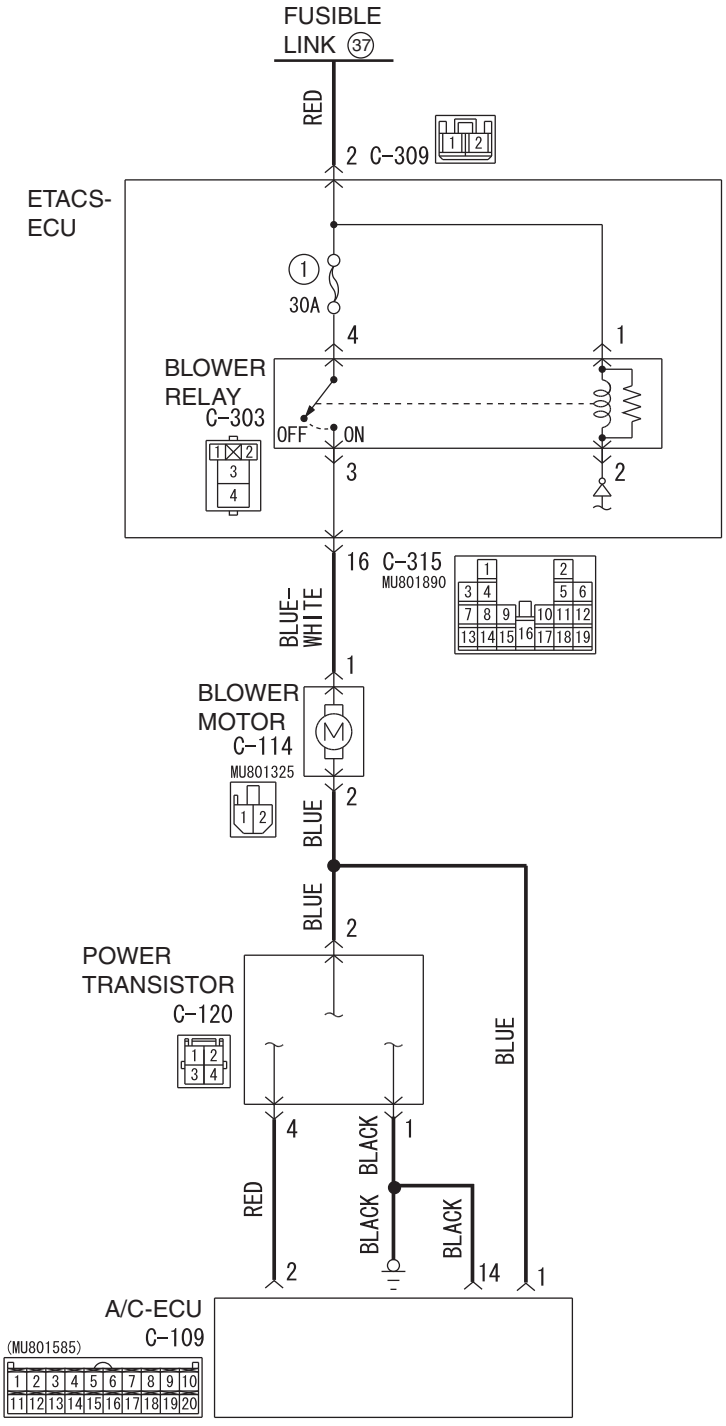
Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 5: Blower Air Amount cannot be Changed.

Blower Motor Circuit



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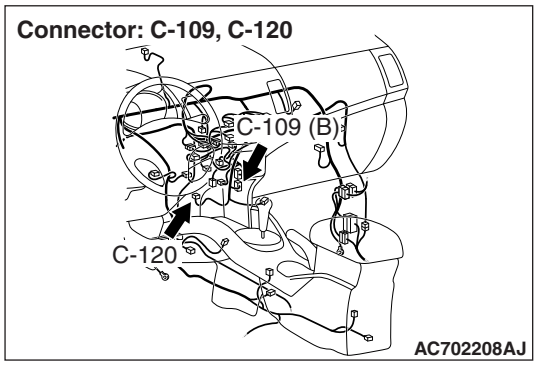


TROUBLESHOOTING HINTS

- Malfunction of the power transistor
- Malfunction of the A/C-ECU
- Damaged harness wires or connectors

CIRCUIT OPERATION

If the blower motor speed cannot be changed, the power transistor circuit is suspected.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check power transistor connector C-120 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is power transistor connector C-120 in good condition?

YES : Go to Step 2.

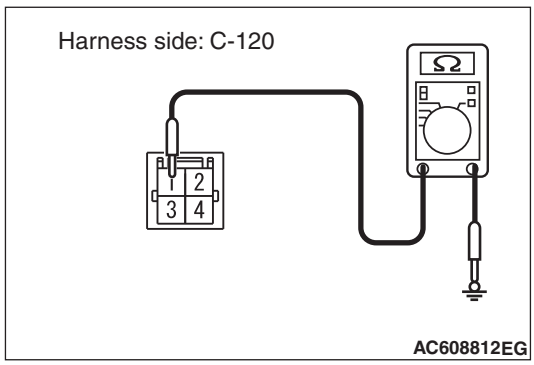
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.

STEP 2. Measure the resistance at power transistor connector C-120.

(1) Disconnect power transistor connector C-120, and measure the resistance at the wiring harness side.

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

OK: The measured value should be 2 ohms or less



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

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between power transistor connector C-120 (terminal 1) and ground.

- Check the power transistor ground line for open circuit.

Q: Is the wiring harness between power transistor connector C-120 (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.00-15.

NO : Repair the wiring harness. The blower motor should operate normally.

STEP 4. Check A/C-ECU connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-109 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.The blower motor should operate normally.

STEP 5. Check the wiring harness between A/C-ECU connector C-109 (terminals 1,2 and 14) and power transistor connector C-120 (terminals 2 and 4).

- Check the AC-ECU signal line for open and short circuit.

Q: Is the wiring harness between A/C-ECU connector C-109 (terminals 1 and 2) and power transistor connector C-120 (terminals 2 and 4) in good condition?

YES : Go to Step 6.

NO : Repair the wiring harness. The blower motor should operate normally.

STEP 6. Replace the power transistor and check the trouble symptom again

Check the trouble symptom again.

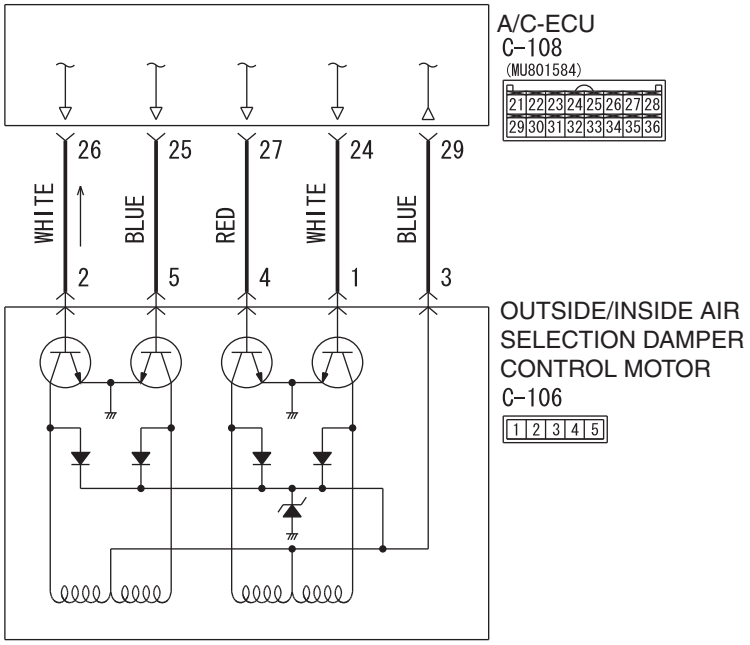
Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 6: Outside/Inside Air Changeover is not possible.

Outside/Inside Air Selection Damper Control Motor Circuit



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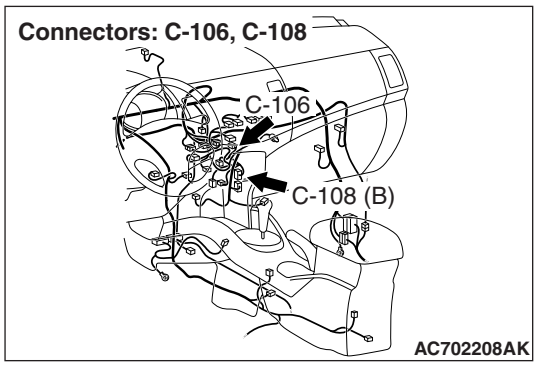


CIRCUIT OPERATION

If the outside/inside air selection damper control motor does not operate normally, the outside/inside air selection damper control motor system may be defective.

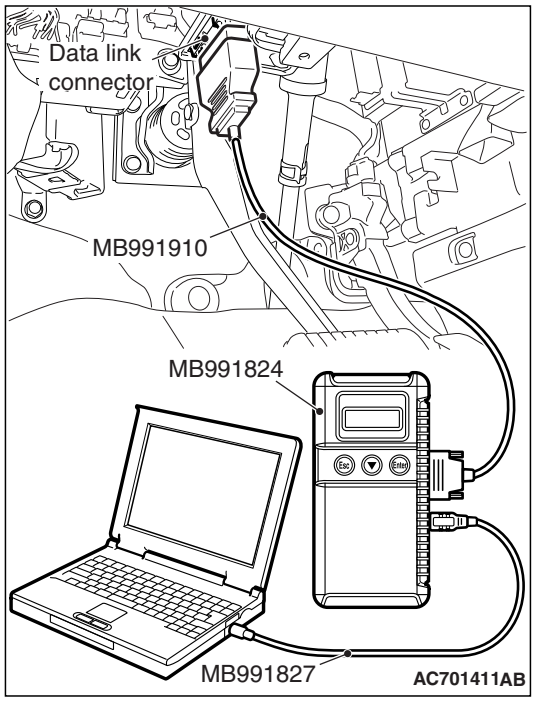
TROUBLESHOOTING HINTS

- Malfunction of the outside/inside air selection damper control motor
- Malfunction of the A/C-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: V.C.I.
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-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. Refer to "How to connect the Scan Tool (M.U.T.-III) P.55A-7."
(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 : Go to Step 2.
NO : Refer to DIAGNOSTIC TROUBLE CODE CHART P.55A-11.

STEP 2. Check outside/inside air selection damper control motor connector C-106 and A/C-ECU connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are outside/inside air selection damper control motor connector C-106 and A/C-ECU connector C-108 in good condition?

YES : Go to Step 3.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the A/C works normally.

STEP 3. Check the wiring harness between A/C-ECU connector C-108 (terminals 26, 25, 27, 24 and 29) and outside/inside air selection damper control motor connector C-106 (terminals 2, 5, 4. 1 and 3).

- Check the AC-ECU signal line for open and short circuit.

Q: Are the wiring harness between A/C-ECU connector C-108 (terminals 26, 25, 27, 24 and 29) and outside/inside air selection damper control motor connector C-106 (terminals 2, 5, 4. 1 and 3) in good condition?

YES : Go to Step 4.
NO : Repair the wiring harness. Check that the A/C works normally.

STEP 4. Replace the power transistor and check the trouble symptom again

Check the trouble symptom again.

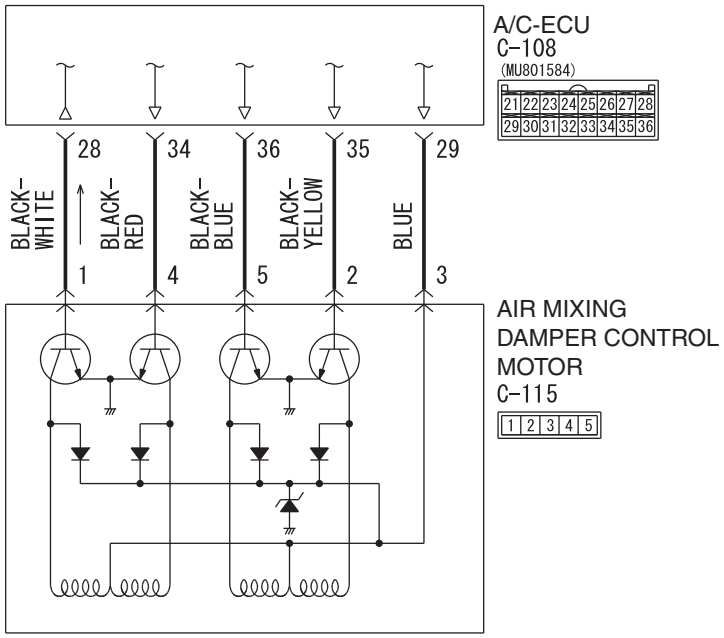
Q: Is the check result satisfactory?

YES : The procedure is complete.

NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 7: A/C Outlet Air Temperature does not Increase

Air Mixing Damper Control Motor Circuit



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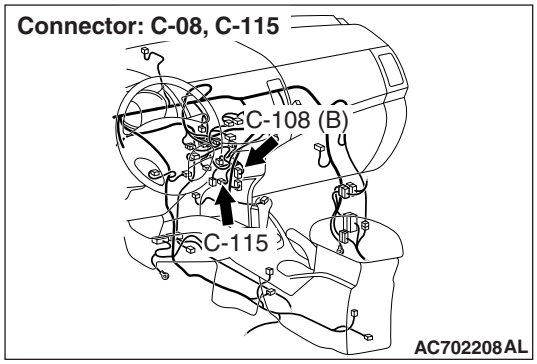

CIRCUIT OPERATION

If the air outlet temperature cannot be adjusted, the air mixing damper control motor circuit may be failed.

TROUBLESHOOTING HINTS

- Malfunction of the air mixing damper control motor
- Malfunction of the A/C-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)

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- MB991824: V.C.I.
- MB991827: M.U.T.-III USB Cable
- MB991910: M.U.T.-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 : Go to Step 2.
NO : Refer to DIAGNOSTIC TROUBLE CODE CHART P.55A-11.

STEP 2. Check air mixing damper control motor connector C-115 and A/C-ECU connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are air mixing damper control motor connector C-115 and A/C-ECU connector C-108 in good condition?

YES : Go to Step 3.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the A/C works normally.

STEP 3. Check the wiring harness between A/C-ECU connector C-108 (terminals 29, 35, 36, 34 and 28) and air mixing damper control motor connector C-115 (terminals 3, 2, 5. 4 and 1).

- Check the A/C-ECU signal line for open and short circuit.

Q: Are the wiring harness between A/C-ECU connector C-108 (terminals 29, 35, 36, 34 and 28) and air mixing damper control motor connector C-115 (terminals 3, 2, 5. 4 and 1) in good condition?

YES : Go to Step 4.
NO : Repair the wiring harness. Check that the A/C works normally.

STEP 4. Replace the power transistor and check the trouble symptom again

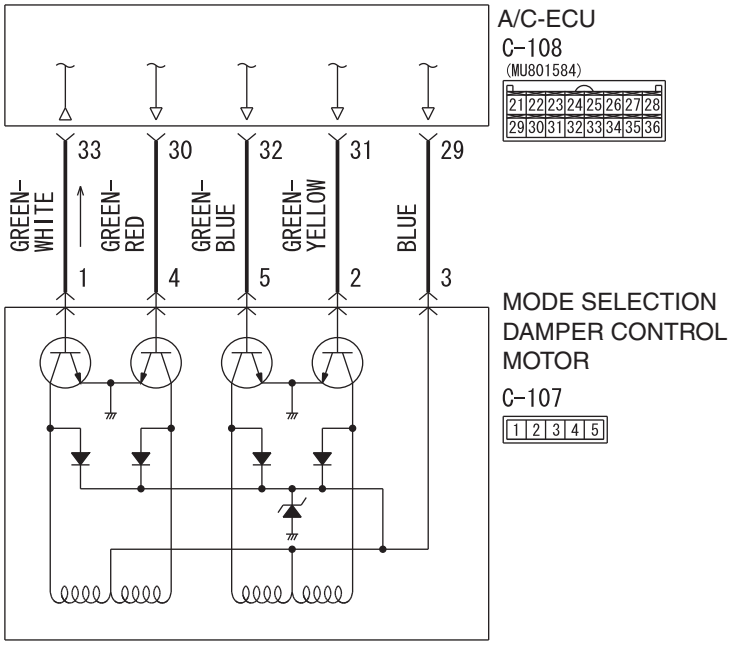
Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 8: Air Outlet Vent cannot be Changed.

Mode Selection Damper Control Motor Circuit



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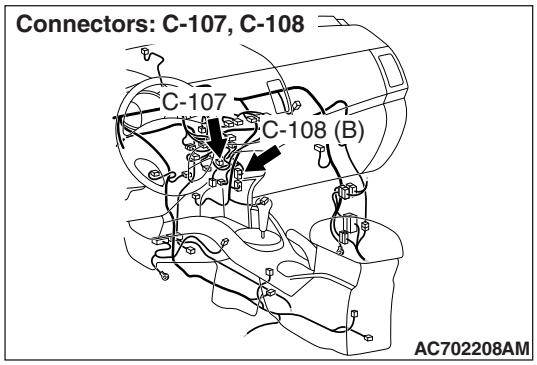

CIRCUIT OPERATION

If the air outlet cannot be switched, the mode selection damper control motor circuit may be failed.

TROUBLESHOOTING HINTS

- Malfunction of the mode selection damper control motor
- Malfunction of the A/C-ECU
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

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

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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 : Go to Step 2.
NO : Refer to DIAGNOSTIC TROUBLE CODE CHART P.55A-11.

STEP 2. Check mode selection damper control motor connector C-107 and A/C-ECU connector C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are mode selection damper control motor connector C-107 and A/C-ECU connector C-108 in good condition?

YES : Go to Step 3.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the A/C works normally.

STEP 3. Check the wiring harness between A/C-ECU connector C-108 (terminals 29, 31, 32, 30 and 33) and mode selection damper control motor connector C-107 (terminals 3, 2, 5. 4 and 1).

- Check the A/C-ECU signal line for open and short circuit.

Q: Are the wiring harness between A/C-ECU connector C-108 (terminals 29, 31, 32, 30 and 33) and mode selection damper control motor connector C-107 (terminals 3, 2, 5. 4 and 1) in good condition?

YES : Go to Step 4.
NO : Repair the wiring harness. Check that the A/C works normally.

STEP 4. Replace the power transistor and check the trouble symptom again

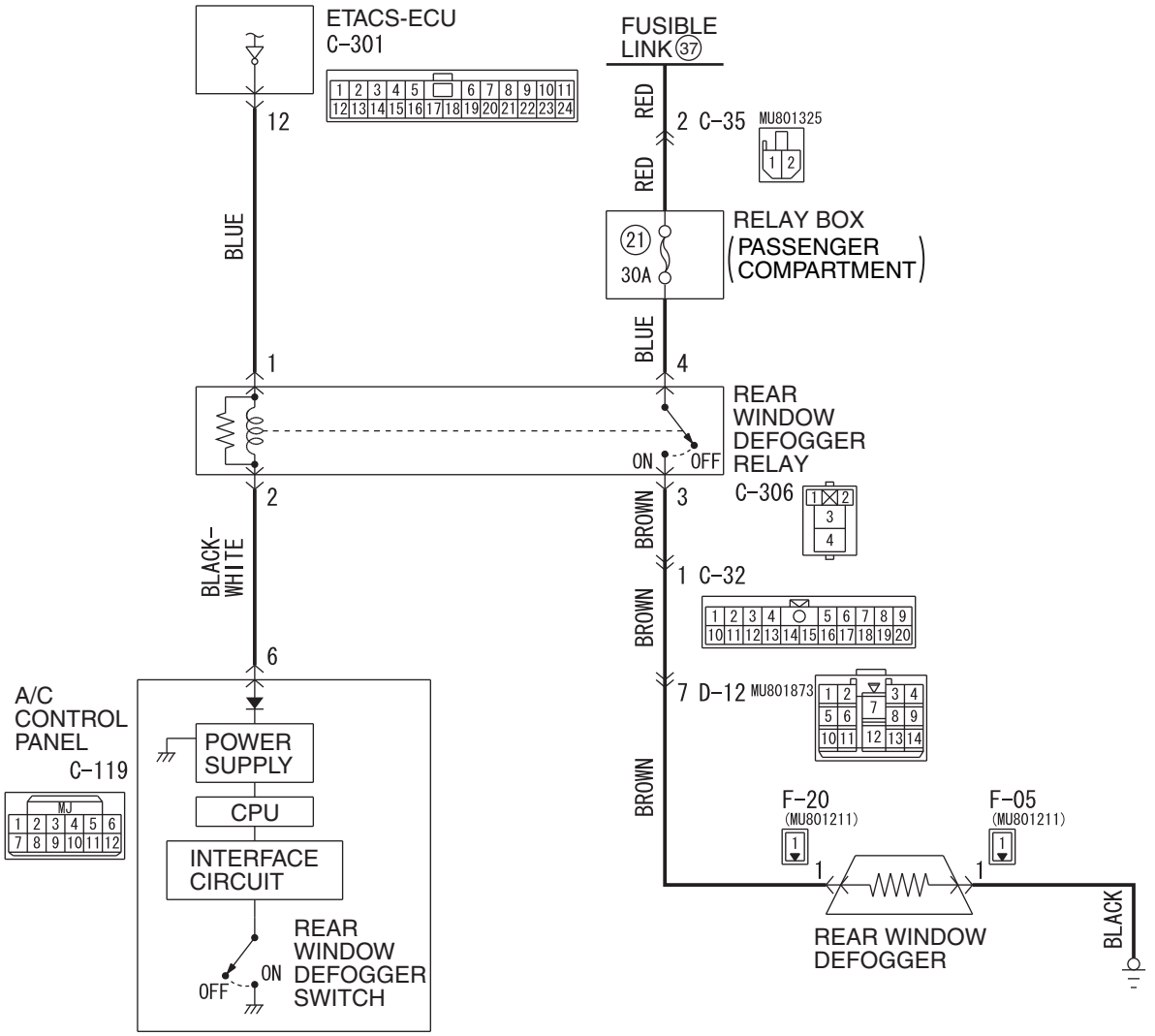
Check the trouble symptom again.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Replace the A/C-ECU.

INSPECTION PROCEDURE 9: Rear window defogger does not operate.

Rear Window Defogger Circuit



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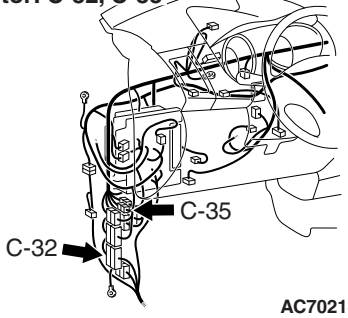
Connector: C-32, C-35



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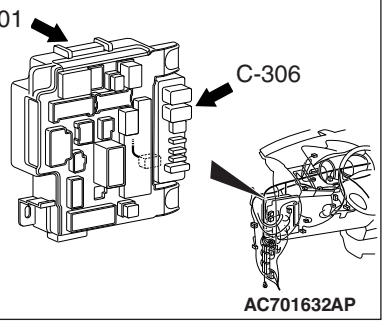
Connectors: C-301, C-306



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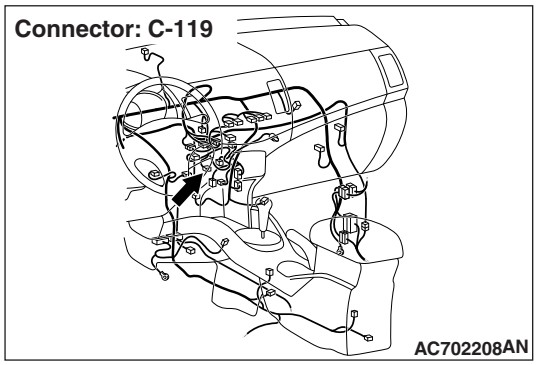
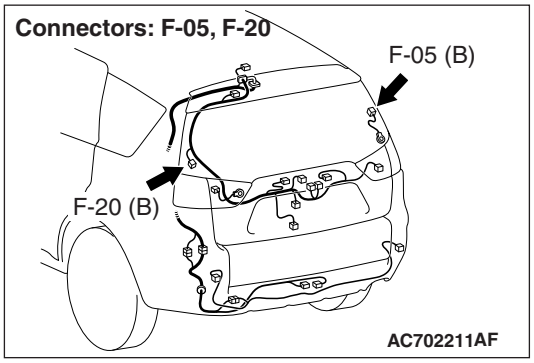
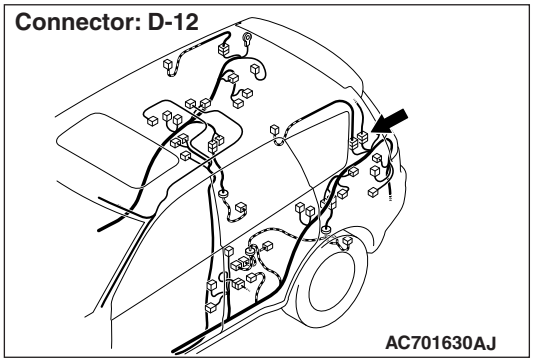






TECHNICAL DESCRIPTION (COMMENT)

If the 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.

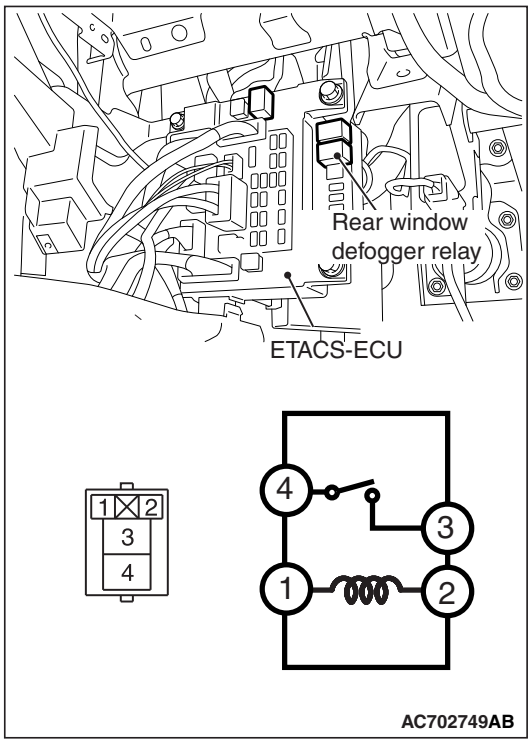
NO : Refer to Inspection procedure 2, "Malfunction of the A/C-ECU power supply system P.55A-65."

STEP 2. Check rear window defogger relay connector C-306 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger relay connector C-306 in good condition?

YES : Go to Step 3.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear window defogger system should work normally.



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

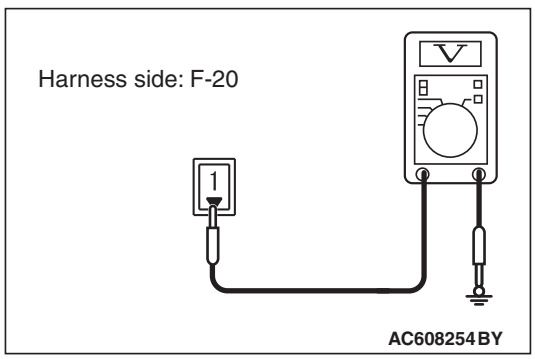
Battery voltage	Connect tester between	Specified condition
Not applied	3 – 4	Open Circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal	3 – 4	Less than 2 ohms

Q: Is the rear window defogger relay in good condition?
YES : Go to Step 4.
NO : Replace the rear window defogger relay. The rear window defogger system should work normally.

STEP 4. Check rear window defogger connector F-20 and A/C control panel connector C-119 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear window defogger connector F-20 and A/C control panel connector C-119 in good condition?
YES : Go to Step 5.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear window defogger system should work normally.

STEP 5. Measure the voltage at rear window defogger connector F-20.
(1) Disconnect rear window defogger connector F-20, and measure the voltage at the harness side.
(2) Disconnect A/C-control panel connector C-119 and ground harness side terminal No.6.
(3) Turn the ignition switch to the "ON" position.
(4) Measure the voltage between rear window defogger connector F-20 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 13.
NO : Go to Step 6.

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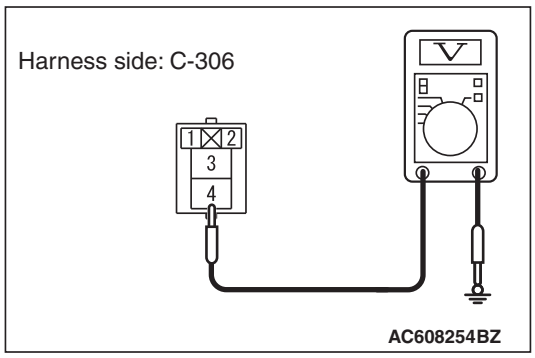


STEP 6. Measure the voltage at rear window defogger relay connector C-306.

(1) Disconnect rear window defogger relay connector C-306, 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 8.
NO : Go to Step 7.

STEP 7. Check the wiring harness between rear window defogger relay connector C-306 (terminal 4) and the fusible link (37).

NOTE: Also check intermediate connector C-35 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-35 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between rear window defogger relay connector C-306(terminal 4) and the fusible link (37) in good condition?

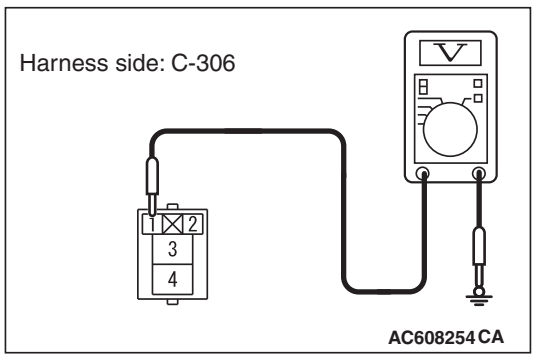
YES : Check that the rear window defogger system works normally.
NO : Repair the wiring harness. Check that the rear window defogger system works normally.

STEP 8. Measure the voltage at rear window defogger relay connector C-306.

(1) Disconnect rear window defogger relay connector C-306, 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 11.
NO : Go to Step 9.



STEP 9. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 10.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 10. Check the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU C-301 (terminal 12).

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

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU C-301 (terminal 12) in good condition?

YES : Check that the rear window defogger system works normally.

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

STEP 11. Check the wiring harness between rear window defogger relay connector C-306 (terminal 2) and A/C-control panel connector C-119 (terminal 6).

- Check the A/C-ECU signal line for open and short circuit.

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 2) and A/C-control panel connector C-119 (terminal 6) in good condition?

YES : Go to Step 12.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 12. Check the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-20 (terminal 1).

NOTE: Also check intermediate connector C-32 and D-12 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-32 and D-12 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-20 (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.00-15.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 13. Check rear window defogger connector F-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger connector F-05 in good condition?

YES : Go to Step 14.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 14. Measure the resistance at rear window defogger connector F-05.

(1) Disconnect rear window defogger connector F-05, and measure at the wiring harness side.

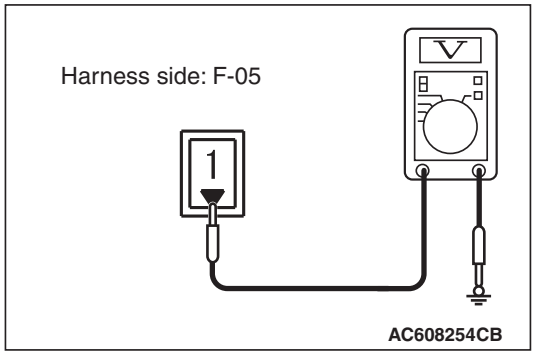
(2) Measure the resistance between terminal 1 and ground.

- The measured value should be 2 ohms or less.

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

YES : Go to Step 16.

NO : Go to Step 15.



STEP 15. Check the wiring harness between rear window defogger connector F-05 (terminal 1) and the ground.

- Check the rear window defogger ground line for open circuit.

Q: Is the wiring harness between rear window defogger connector F-05 (terminal 1) and the ground in good condition?

YES : Check that the rear window defogger system works normally.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 16. Check the rear window defogger.

(1) Let the engine run at 2,000 r/min, and check the printed heater with the battery fully charged.

(2) Turn on the rear window defogger switch, and use a voltmeter to measure the voltage in each printed heater at middle point A on the rear window glass.

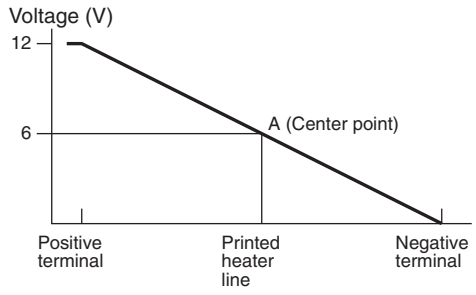
- The value should be approximately 6 volts.

Q: Does the rear window defogger work normally?

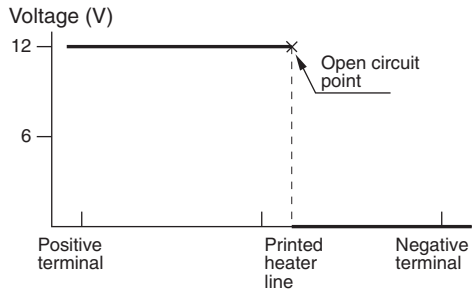
YES : Replace the A/C-ECU. Check that the rear window defogger system works normally.

NO : Repair the rear window defogger.

Normal characteristic curve



Abnormal characteristic curve



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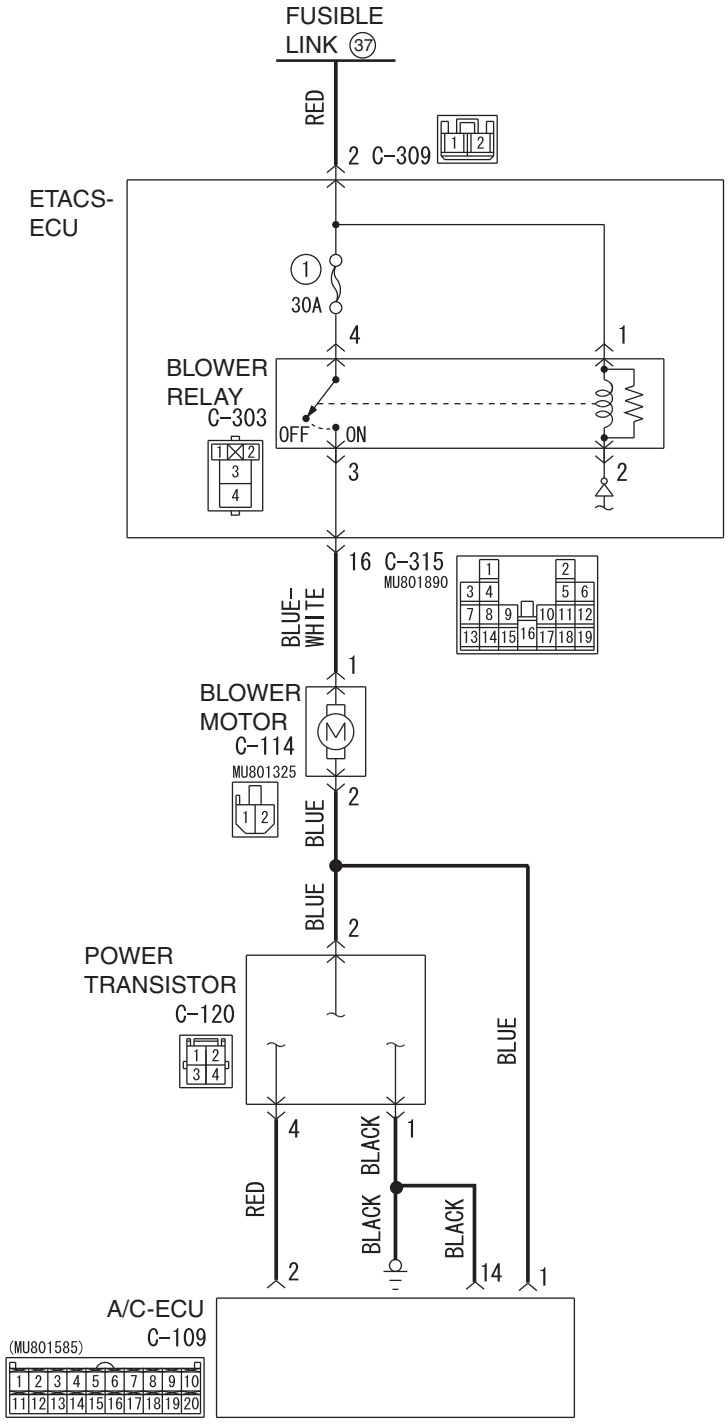
INSPECTION PROCEDURE 10: Blower Motor power supply system.

Blower Motor Circuit



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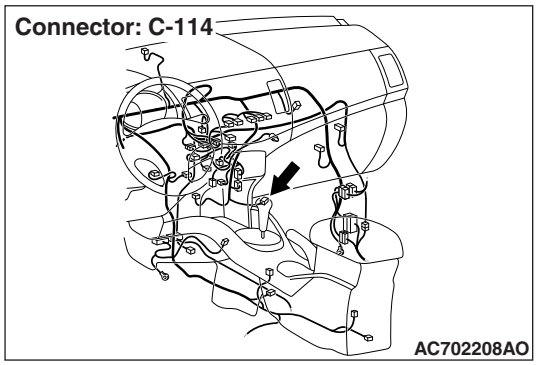
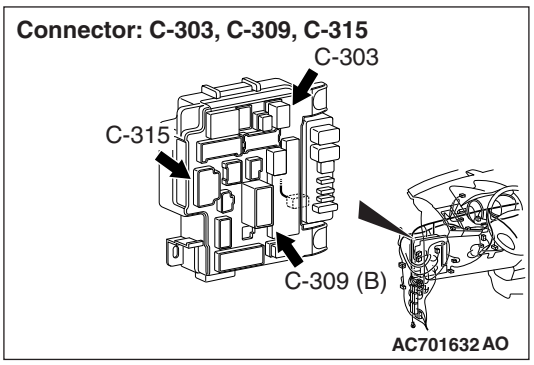




TECHNICAL DESCRIPTION (COMMENT)

If the voltage is not supplied to the blower motor, the blower relay system may be failed.

TROUBLESHOOTING HINTS

- Malfunction of the ETACS-ECU
- Malfunction of the blower relay
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

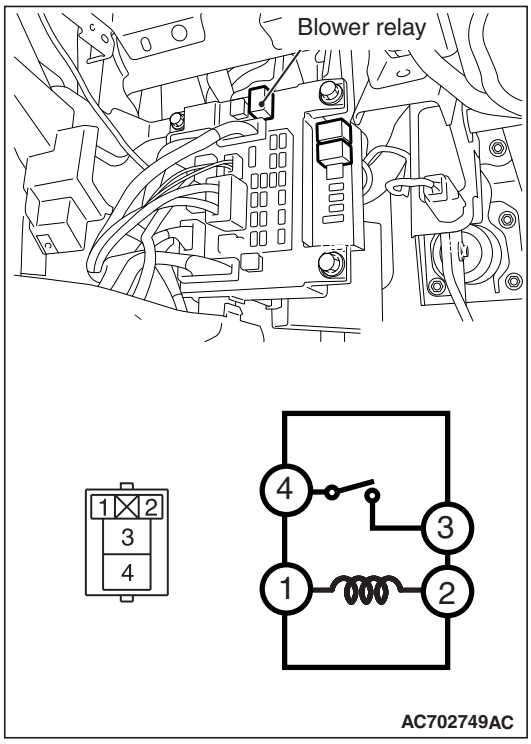
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check blower relay connector C-303 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower relay connector C-303 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 blower relay continuity.

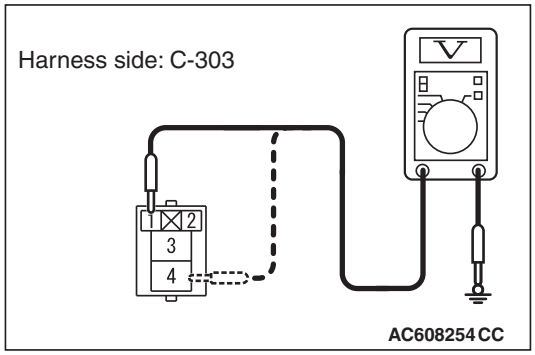
Follow the table below to check the blower relay for continuity.

Battery voltage	Connect tester between	Specified condition
Not applied	3 – 4	Open Circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal	3 – 4	Less than 2 ohms

Q: Is the blower relay in good condition?

YES : Go to Step 3.

NO : Replace the rear window defogger relay.



STEP 3. Measure the voltage at blower relay connector C-303.

(1) Disconnect blower relay connector C-303, and measure the voltage at the junction block side.

(2) Measure the voltage between terminals 1 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

(3) Measure the voltage between terminals 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 5.

NO : Go to Step 4.

STEP 4. Check the wiring harness between blower relay connector C-303 (terminals 1 and 4) and the fusible link (37).

NOTE: Also check ETACS-ECU connector C-309 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-309 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between blower relay connector C-303 (terminals 1 and 4) and the fusible link (37) 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.00-15.

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

STEP 5. Check blower relay connector C-114 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is blower relay connector C-114 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 between blower relay connector C-303 (terminal 3) and blower motor connector C-114 (terminal 1).

NOTE: Also check ETACS-ECU connector C-315 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-315 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between blower relay connector C-303 (terminal 3) and blower motor connector C-114 (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.00-15.

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

DATA LIST REFERENCE TABLE

M1554005100910

Refer to GROUP 55B - Data list reference table P.55B-12.)

ACTUATOR TEST REFERENCE

M1554005200865

Refer to GROUP 55B - Actuator test reference P.55B-17.)

CHECK AT A/C-ECU TERMINAL

M1552010302233

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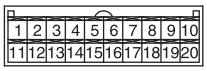

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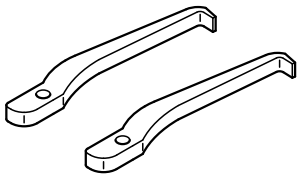
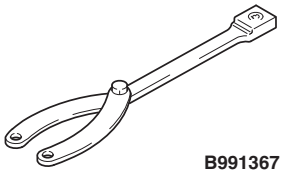
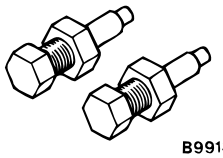
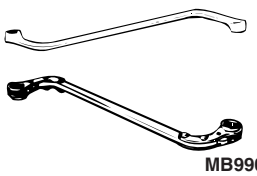
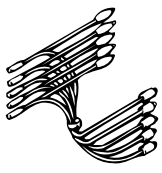
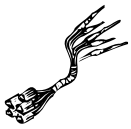
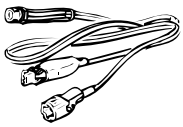
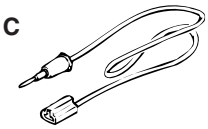
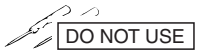
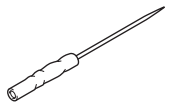
Terminal No.	Check items	Check conditions	Normal conditions
1	Power transistor (DRAIN)	Air volume control dial: Maximum air volume	0 to 2 V
2	Power transistor (GATE)	Air volume control dial: Maximum air volume	Battery positive voltage
3 – 8	–	–	–
9	A/C control panel (input)	–	–
10 – 12	–	–	–
13	Battery power supply	Always	Battery positive voltage
14	Ground	Always	1 V or less
15	IG1 power supply	Ignition switch: IG1	Battery positive voltage
16	A/C pressure sensor input	Refer to P.55A-107.	Refer to P.55A-107.
17	Interior temperature sensor	Sensor probe temperature: 25°C (77°F) (4.0 kΩ)	2.1 to 2.7 V
18	–	–	–
19	Sensor ground	Always	1 V or less
20	A/C pressure sensor power supply	Ignition switch: IG2	5 V
21	Fin thermo sensor ground	Always	1 V or less
22	Fin thermo sensor	Sensor probe temperature: 25°C (77°F) (4.0 kΩ)	2.1 to 2.7 V
23	–	–	–
24	Motor for air outside/inside air circulation switching damper	–	–
25	Motor for air outside/inside air circulation switching damper	–	–

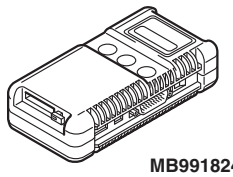
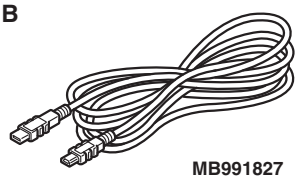
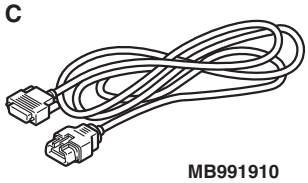
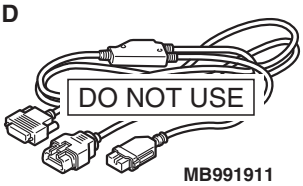
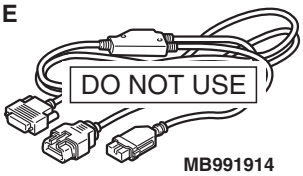
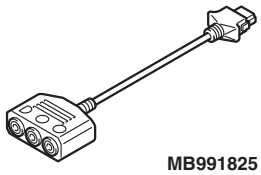
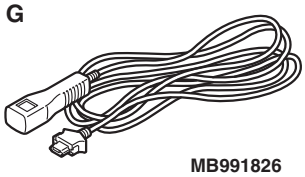
Terminal No.	Check items	Check conditions	Normal conditions
26	Motor for air outside/inside air circulation switching damper	–	–
27	Motor for air outside/inside air circulation switching damper	–	–
28	Air mix damper motor	–	–
29	Motor power supply	–	–
30	Air outlet changeover damper motor	–	–
31	Air outlet changeover damper motor	–	–
32	Air outlet changeover damper motor	–	–
33	Air outlet changeover damper motor	–	–
34	Air mix damper motor	–	–
35	Air mix damper motor	–	–
36	Air mix damper motor	–	–

SPECIAL TOOLS

M1552000600839

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
 MB990810	MB990810 Side bearing puller		A/C compressor rotor removal and installation
 MB992623	MB992623 Guide		
 MB992624	MB992624 Pusher		
	MD999566 Claw		
 B991367	MB991367 Special spanner	MB991367-01	Armature mounting nut of compressor removal and installation
 B991386	MB991386 Pin	MIT217213	Armature mounting nut of compressor removal and installation
 MB990900	MB990900 or MB991164 Door adjusting wrench	MB990900-01	Removal and installation of the heater unit and front deck crossmember assembly
 MB991658	MB991658 Test harness set	Tool not available	Inspection of A/C pressure sensor

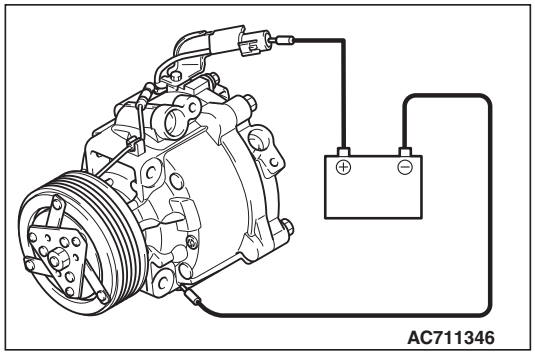
TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  B  C  D  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adaptor D: Probe	General service tools	Making voltage and resistance measurement during troubleshooting A: Connector pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
 MB992006	MB992006 Extra fine probe	General service tool	Making voltage and resistance measurement during troubleshooting

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  MB991824 B  MB991827 C  MB991910 D  MB991911 E  MB991914 F  MB991825 G  MB991826 MB991958	MB991958 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826 M.U.T.-III Sub Assembly A: Vehicle communication interface (V.C.I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (Vehicles with CAN communication system) D: M.U.T.-III main harness B (Vehicles without CAN communication system) E: M.U.T.-III main harness C (for Chrysler models only) F: M.U.T.-III measurement adapter G: M.U.T.-III Trigger Harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** Checking diagnostic trouble codes

ON-VEHICLE SERVICE

A/C COMPRESSOR CLUTCH TEST

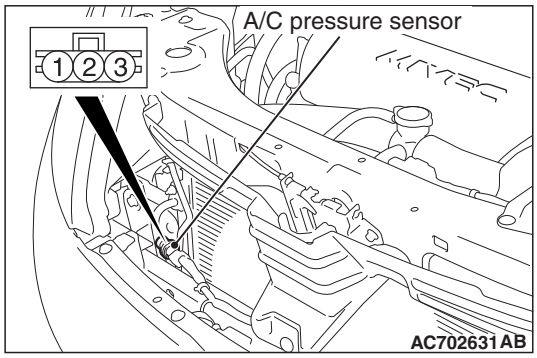
M1552019900140



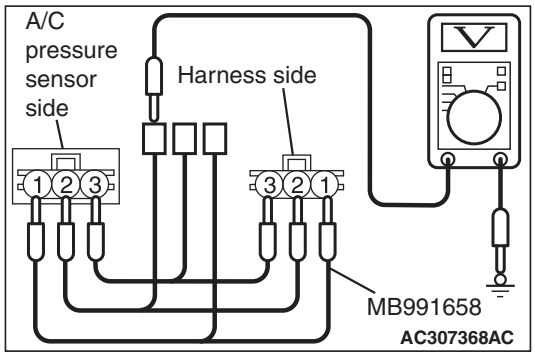
1. Disconnect the A/C compressor clutch connector to the A/C compressor clutch.
2. Connect positive battery voltage directly to the connector for the A/C compressor clutch.
3. If the A/C compressor clutch is normal, there will be a "click". If the pulley and armature do not make contact ("no click"),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

SIMPLE INSPECTION OF THE A/C PRESSURE SENSOR

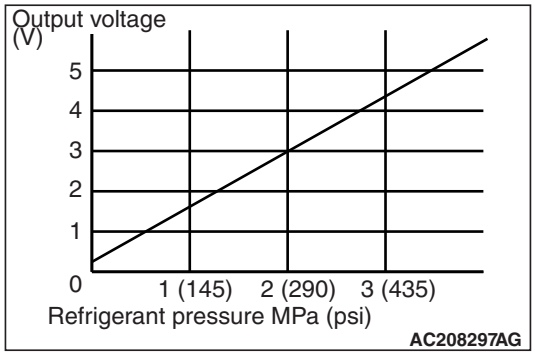
M1552014700516



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 ±5%.

COMPRESSOR DRIVE BELT ADJUSTMENT

M1552001001491

Refer to GROUP 11A, on-vehicle service – drive belt tension check P.11A-9. <2.4L>
Refer to GROUP 11C, on-vehicle service – generator drive belt tension check P.11C-8. <3.0L>

REFRIGERANT LEVEL CHECK, DRAINING, AND CHARGING

M1552023300022

REFRIGERANT LEVEL TEST

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

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

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.

CHARGING

Use the refrigerant recovery station to charge the refrigerant.

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 80 cm^3 (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 cm^3 (2.0 fl.oz)

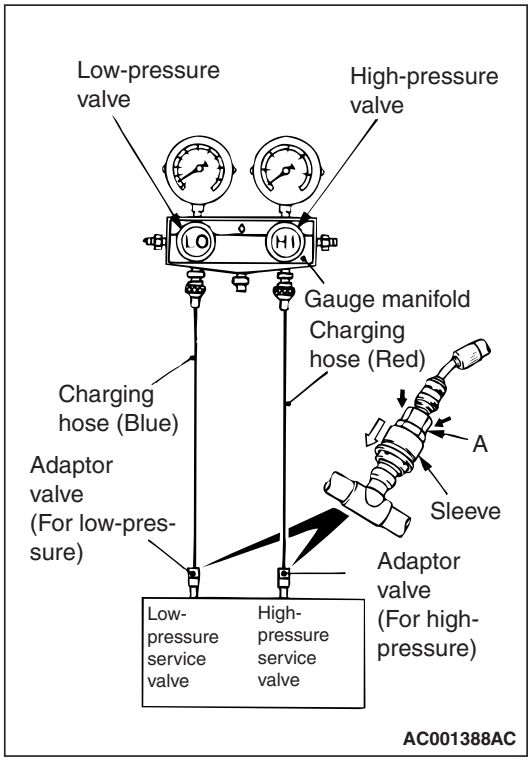
Condenser: 15 cm^3 (0.5 fl.oz)

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

PERFORMANCE TEST

M1552001400991

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).

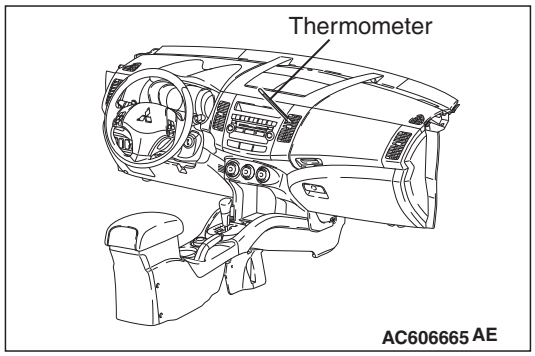
⚠ CAUTION

- **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 idle speed with A/C clutch engaged.
8. Engine should be warmed up with doors and windows opened.



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)	3.5 (38.3) – 13.2 (55.7)	8.5 (47.3) – 20.3 (68.0)	13.4 (56.1) – 23.1 (73.6)	18.4 (65.1) – 34.4 (93.9)
Compressor high pressure kPa (psi)	972 (141) – 1205 (175)	1123 (163) – 1390 (202)	1275 (185) – 1574 (228)	1426 (207) – 1759 (255)
Compressor low pressure kPa (psi)	176 (25.5) – 301 (43.7)	211 (30.6) – 335 (48.6)	245 (35.5) – 370 (53.7)	280 (40.6) – 404 (58.6)

REFRIGERANT LEAK REPAIR PROCEDURE

M1552001500459

LOST CHARGE

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

1. Evacuate the system. (Refer to P.55A-108).
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.

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.

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).
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.

M1552008700498

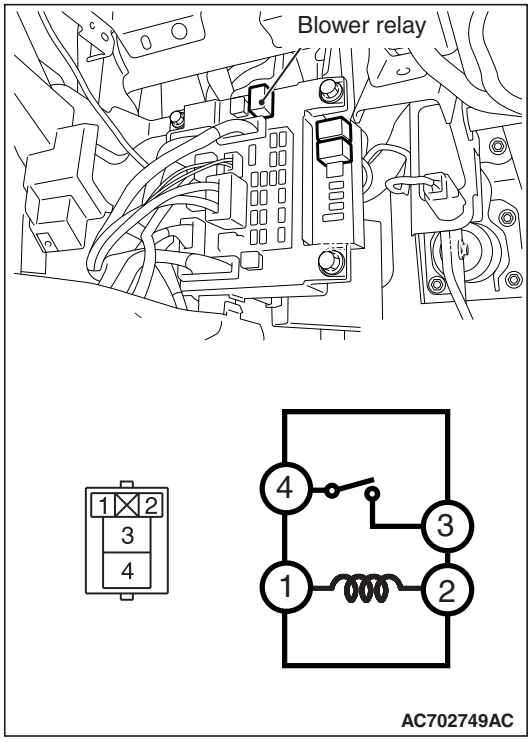
ADJUSTMENT

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-108).
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

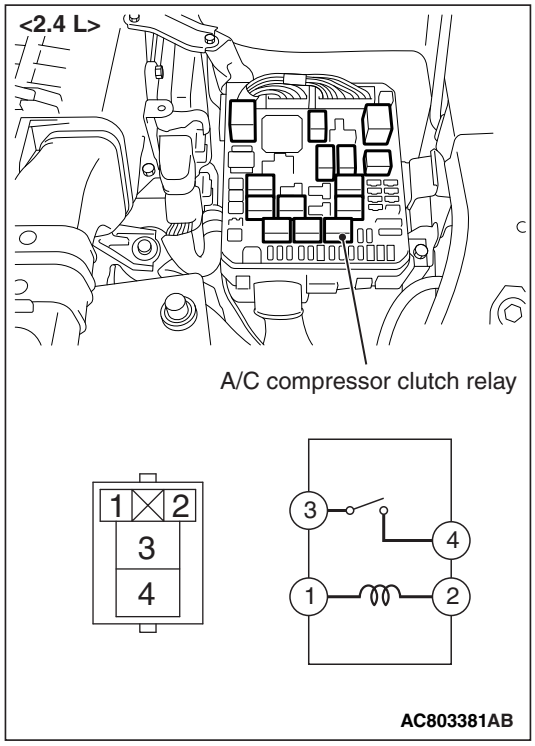
M1552008801391

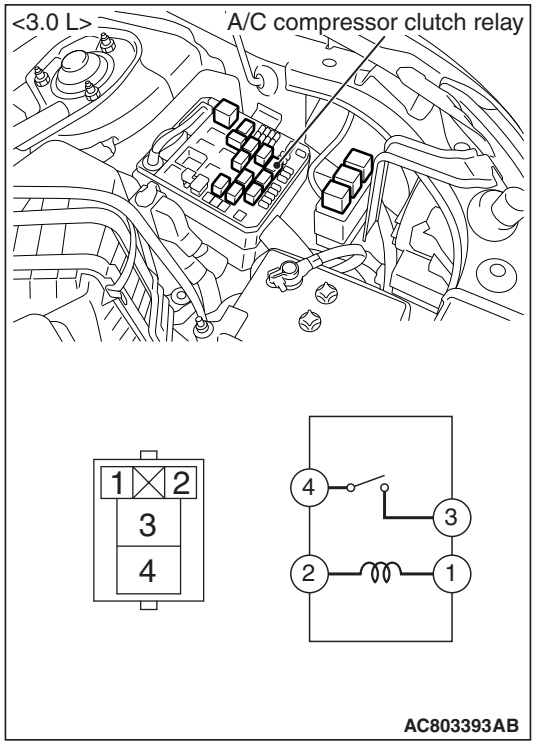
BLOWER RELAY CONTINUITY CHECK



Battery voltage	Tester connection	Specified condition
Not applied	3 – 4	Open circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 2 to the negative battery terminal	3 – 4	Less than 2 ohms

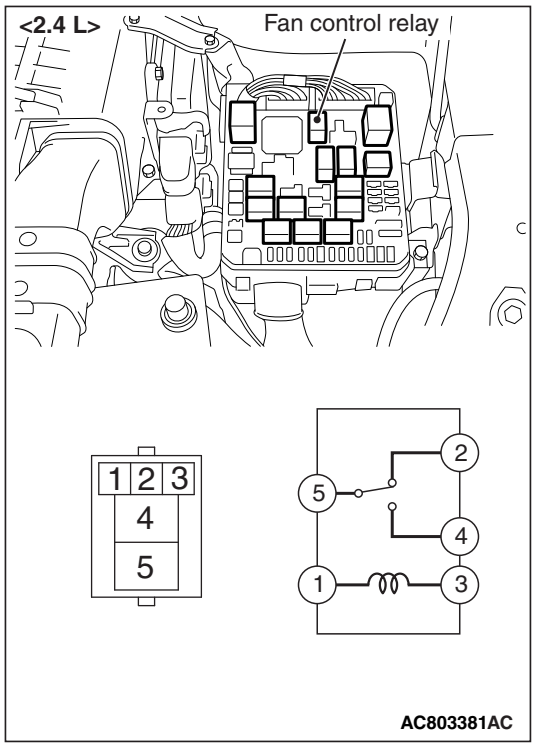
A/C COMPRESSOR CLUTCH RELAY CONTINUITY CHECK

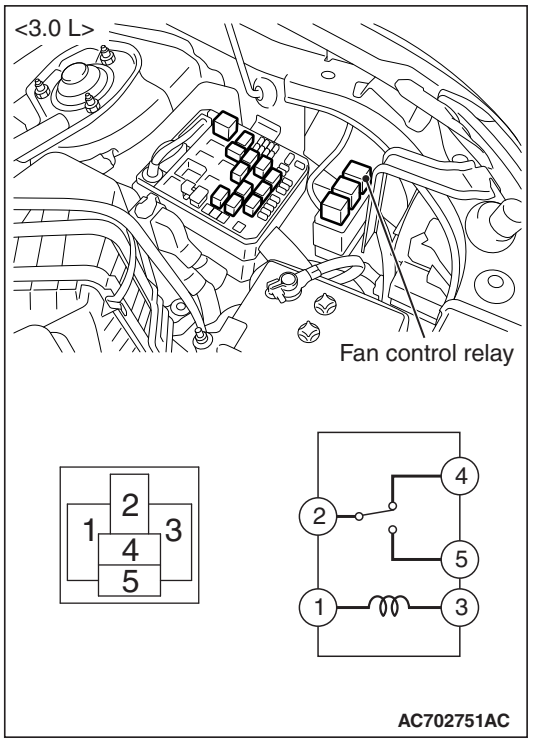




Battery voltage	Tester connection	Specified condition
Not applied	3 – 4	Open circuit
• Connect terminal 2 to the positive battery terminal • Connect terminal 1 to the negative battery terminal	3 – 4	Less than 2 ohms

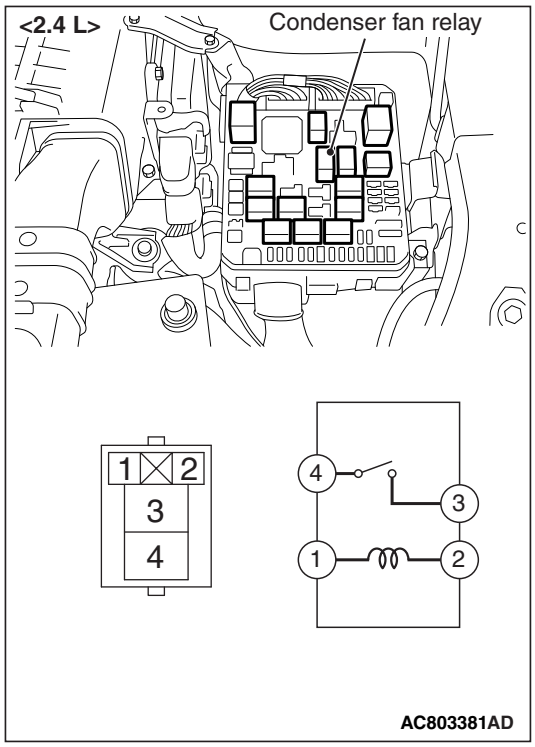
FAN CONTROL RELAY CONTINUITY CHECK

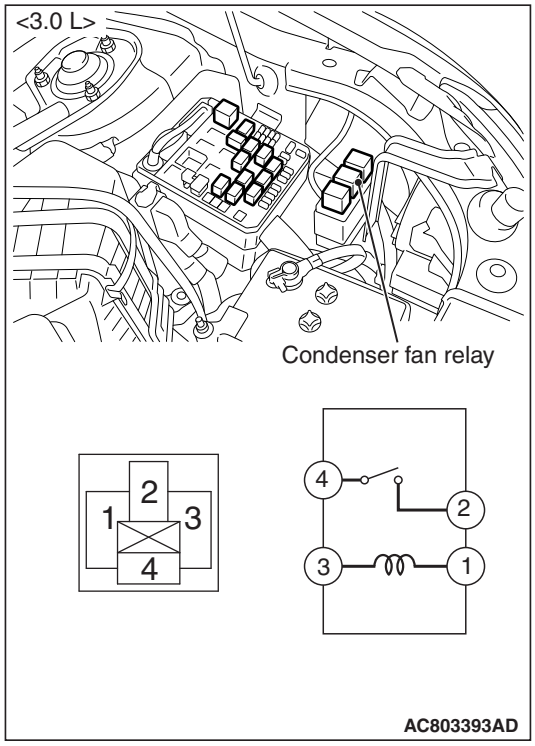




Battery voltage	Tester connection	Specified condition
Not applied	2 – 4	Open circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 3 to the negative battery terminal	2 – 5	Less than 2 ohms

CONDENSER FAN RELAY CONTINUITY CHECK





Battery voltage	Tester connection	Specified condition
Not applied	2 – 4	Open circuit
• Connect terminal 3 to the positive battery terminal • Connect terminal 1 to the negative battery terminal	2 – 4	Less than 2 ohms

IDLE-UP OPERATION CHECK

M1552001601749

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

1. Check whether or not the idle speed is the standard value.
   Refer to GROUP 11A, On-vehicle Service – Idle Speed Check P.11A-15. <2.4L>
   Refer to GROUP 11C, On-vehicle Service – Idle Speed Check P.11C-15. <3.0L>

   <2.4L>
   650 ± 100 r/min

   <3.0L>
   600 ± 100 r/min

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

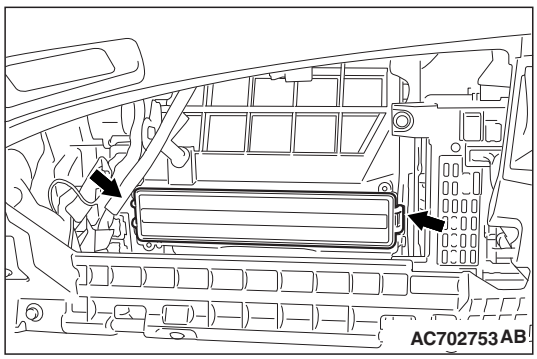
   Standard value: 800 ± 50 r/min

   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 11A, On-vehicle Service – Idle Speed Check P.11A-15 <2.4L> or GROUP 11C, On-vehicle Service – Idle Speed Check P.11C-15 <3.0L>)

REPLACE THE CLEAN AIR FILTER

M1552020100290

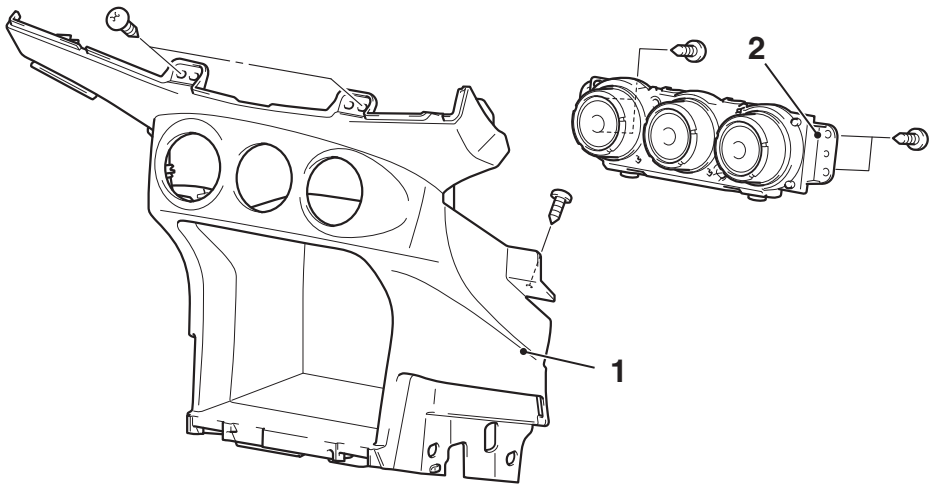


1. Remove the glove box (Refer to GROUP 52A – Instrumental Panel, P.52A-2).
2. Loosen the two lugs as shown to replace the clean air filter.
3. Install the glove box.

A/C CONTROL PANEL ASSEMBLY

REMOVAL AND INSTALLATION

M1552001800063



AC808932AC

Removal steps

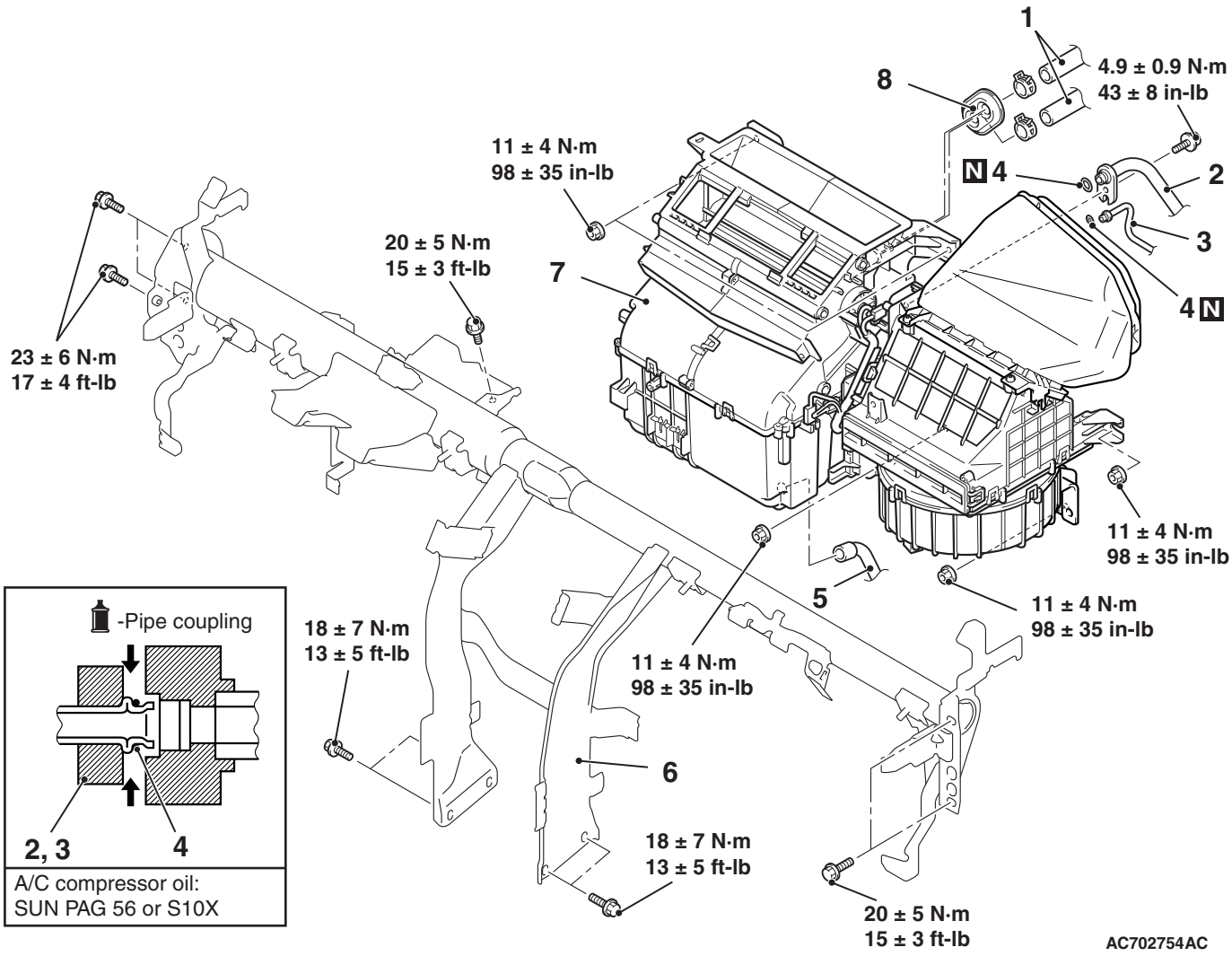
1. Center lower panel (Refer to GROUP 52A – Instrument Panel P.52A-2)
2. A/C control panel

HEATER UNIT, HEATER CORE, BLOWER ASSEMBLY AND EVAPORATOR UNIT

HEATER UNIT AND FRONT DECK CROSSMEMBER ASSEMBLY REMOVAL AND INSTALLATION

M1552021400067

Pre-removal operation	Post-installation Operation
• Engine Coolant Draining (Refer to GROUP 14 – On-vehicles service P.14-26.) • Discharging refrigerant (Refer to P.55A-108) • Front seat assembly removal (Refer to GROUP 52A – Front seat assembly P.52A-17). • Rear heater duct removal (Refer to P.55A-135). • Instrument panel assembly removal (Refer to GROUP 52A – Instrumental Panel P.52A-2).	• Instrument panel assembly installation (Refer to GROUP 52A – Instrumental Panel P.52A-2). • Rear heater duct installation (Refer to Duct, P.55A-135). • Front seat assembly installation (Refer to GROUP 52A – Front seat assembly P.52A-17). • Engine Coolant Refilling (Refer to On-vehicles service P.14-26). • Charging refrigerant (Refer to P.55A-108)



Removal steps

<<A>>
- Wiring harness and clamps
1. Heater hose
- Heat protector

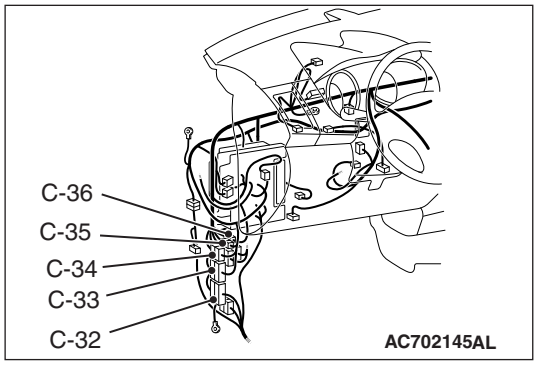
<<B>>
2. Suction pipe

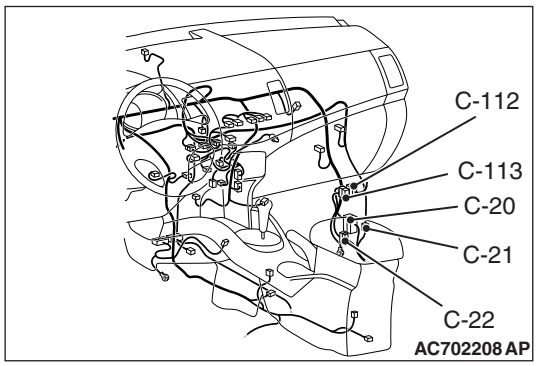
<<B>>
3. Liquid pipe B
4. O-ring
5. Drain hose
6. Front deck crossmember
7. Heater unit assembly

TSB Revision

REMOVAL SERVICE POINTS

<<A>> CONNECTOR DISCONNECTION





Disconnect the following connectors to remove the front deck crossmember.

Connector number	Connector name
C-32	Instrument panel wiring harness and floor wiring harness connection
C-33	Instrument panel wiring harness and front wiring harness connection
C-34	Instrument panel wiring harness and front wiring harness connection
C-35	Instrument panel wiring harness and front wiring harness connection
C-36	Instrument panel wiring harness and roof wiring harness connection
C-20	Instrument panel wiring harness and floor wiring harness connection
C-22	Instrument panel wiring harness and floor wiring harness connection
C-112	Instrument panel wiring harness and front door (RH) wiring harness connection
C-113	Instrument panel wiring harness and front door (RH) wiring harness connection

<<B>> SUCTION FLEXIBLE HOSE / LIQUID PIPE B DISCONNECTION

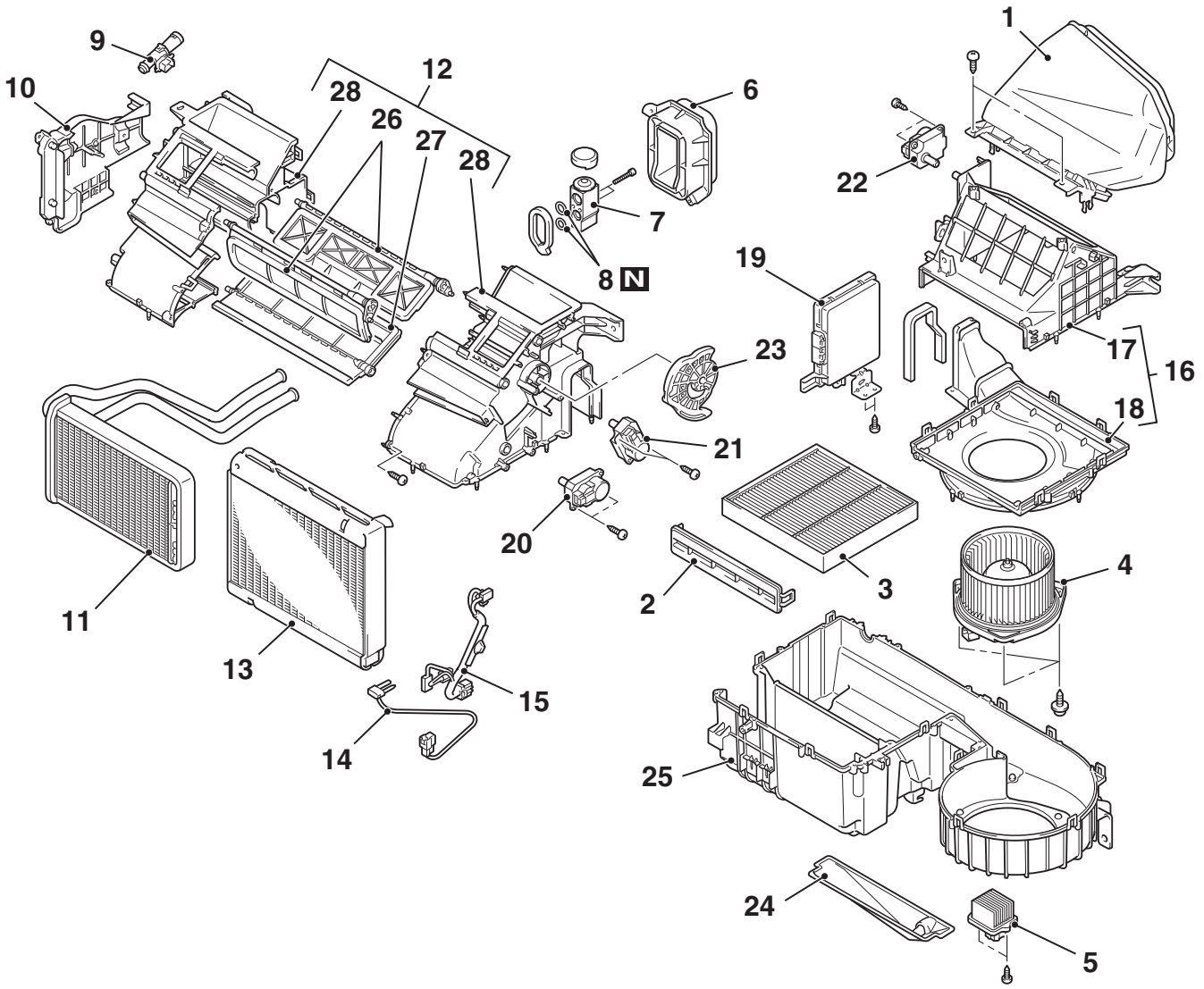
⚠ CAUTION

Use the plug which is not breathable because A/C compressor oil or receiver have high hygroscopicity.

Plug the removed nipple of the pipe, hose and expansion valve to prevent the entry of dust and dirt.

DISASSEMBLY AND ASSEMBLY

M1551005401294



AC702755 AB

Disassembly steps

1. Air intake duct
2. Clean air filter cover
3. Clean air filter
4. Blower motor
5. Power transistor
6. Expansion valve cover
7. Expansion valve
8. O-ring
9. Aspirator
10. Heater pipe cover
11. Heater core
12. Upper case assembly
13. Evaporator
14. Air thermo sensor
15. Wiring harness

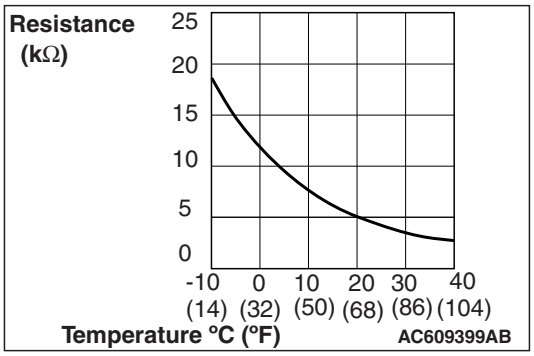
Disassembly steps (Continued)

16. Blower case assembly
17. Blower case, upper
18. Blower case, lower
19. A/C-ECU
20. Air mixing damper control motor
21. Mode selection damper control motor
22. Outside/inside air selection damper control motor
23. Mode selection damper lever
24. Insulator
25. Lower case
26. Air mix damper
27. Mode selection damper
28. Upper case

TSB Revision

INSPECTION

M1552014304361



AIR THERMO SENSOR CHECK

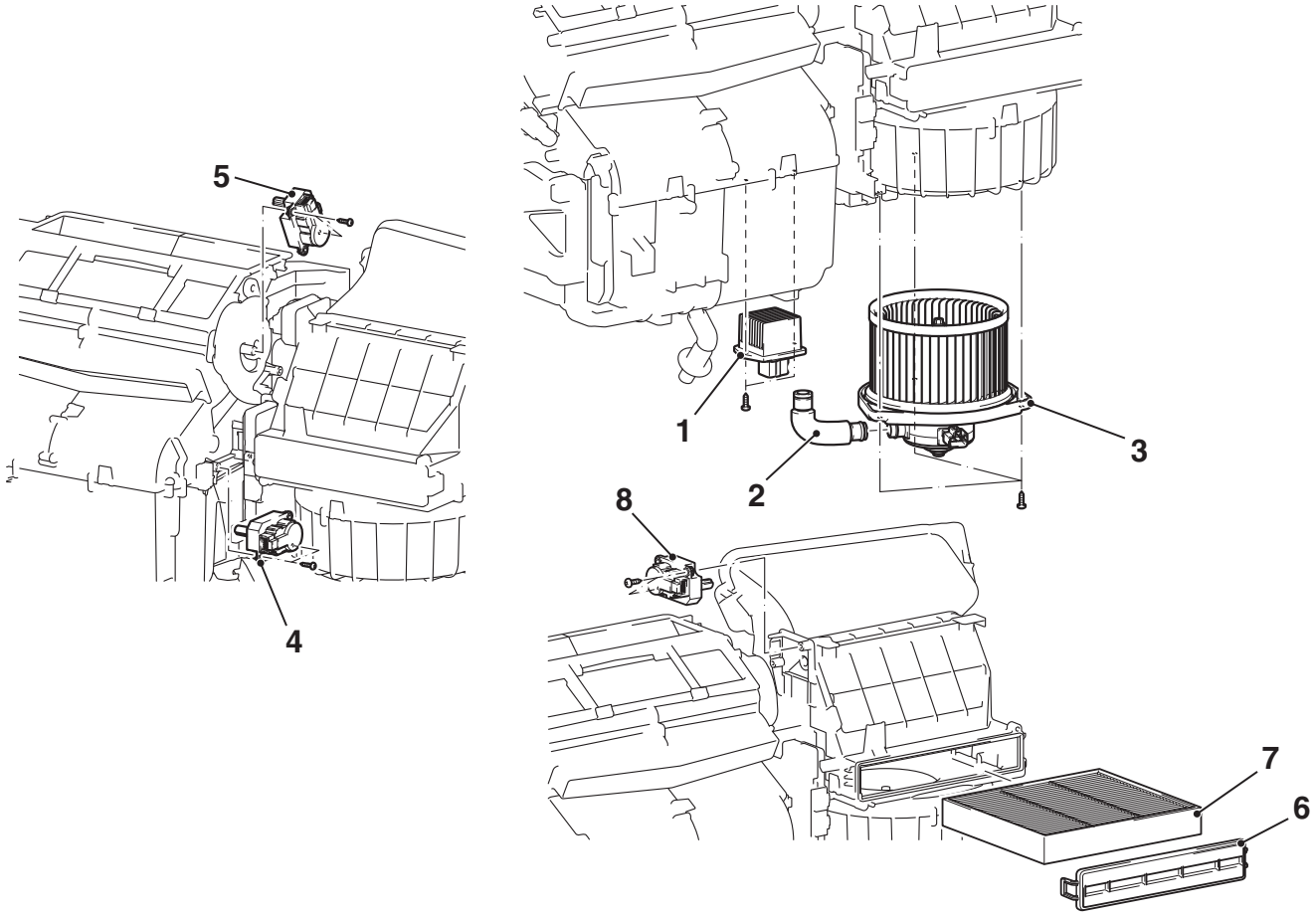
Check that the resistance shown in the graph is almost satisfied when measuring the resistance between the terminals under two or more different temperature conditions.

NOTE: The temperature condition in checking should be within the range shown.

MOTORS AND TRANSISTOR

REMOVAL AND INSTALLATION

M1551006900125



AC708788AC

Power transistor removal steps
- Bottom cover assembly (front passenger's seat)(Refer to GROUP 52A – Instrument panel assembly P.52A-2).

1. Power transistor

Blower motor removal steps
- Bottom cover assembly (front passenger's seat)(Refer to GROUP 52A – Instrument panel assembly P.52A-2).

2. Hose
3. Blower motor

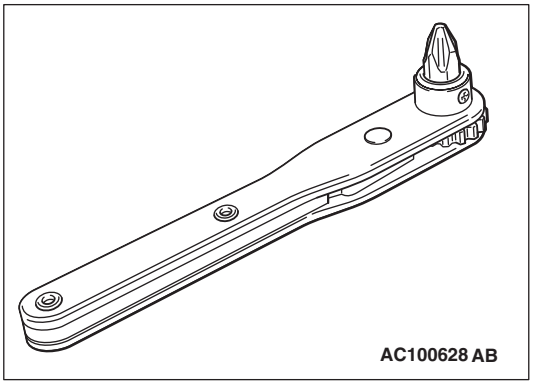
Air mixing damper control motor, mode selection damper control motor and outside/inside air selection damper control motor removal steps
- Glove box assembly (Refer to GROUP 52A – Instrument panel assembly P.52A-2).
- Rear heater duct A (Refer to P.55A-135).
- A/C-ECU (Refer to P.55A-124).

<<A>> 4. Air mixing damper control motor
<<A>> 5. Mode selection damper control motor
6. Clean air filter cover
7. Clean air filter
<<A>> >>A<< 8. Outside/inside air selection damper control motor

TSB Revision

REMOVAL SERVICE POINT

<<A>> AIR MIXING DAMPER CONTROL MOTOR, OUTSIDE/INSIDE AIR SELECTION DAMPER MOTOR, MODE SELECTION DAMPER CONTROL MOTOR REMOVAL


AC100628 AB

NOTE: A normal plate-type ratchet driver is recommended.

INSTALLATION SERVICE POINT

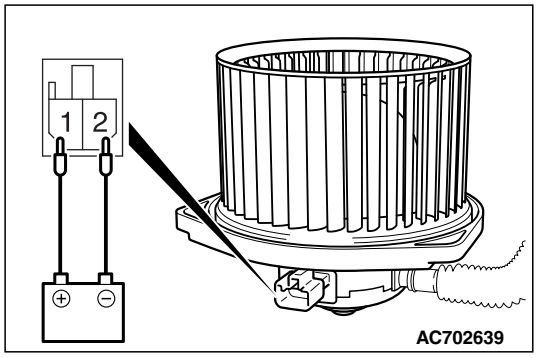
>>A<< OUTSIDE/INSIDE AIR SELECTION DAMPER MOTOR INSTALLATION

Adjust the position of the outside/inside air selection damper while supporting it from the lower side through the hole which the clean air filter and the blower motor were removed.

INSPECTION

M1551006300770

BLOWER MOTOR CHECK



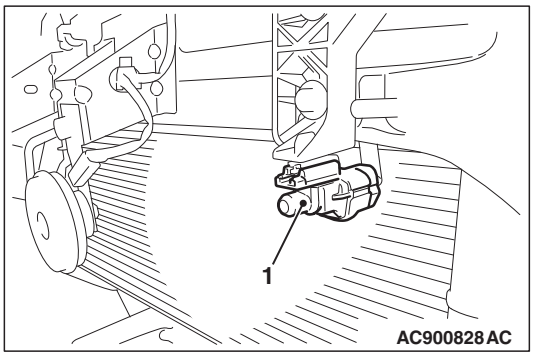
AC702639

Check that the motor turns when applying battery power between the connector terminals. Also check to see that there is no abnormal sound emitted from the motor at this time.

AMBIENT AIR TEMPERATURE SENSOR

REMOVAL AND INSTALLATION

M1554017500131



Removal steps

- Front bumper (Refer to GROUP 51, Front bumper assembly P.51-4)

1. Ambient air temperature sensor

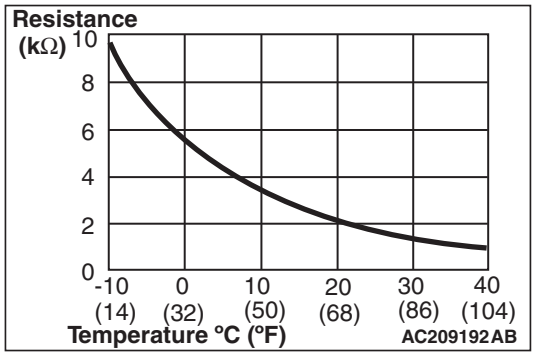
INSPECTION

M1551006300781

AMBIENT AIR TEMPERATURE SENSOR CHECK

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.

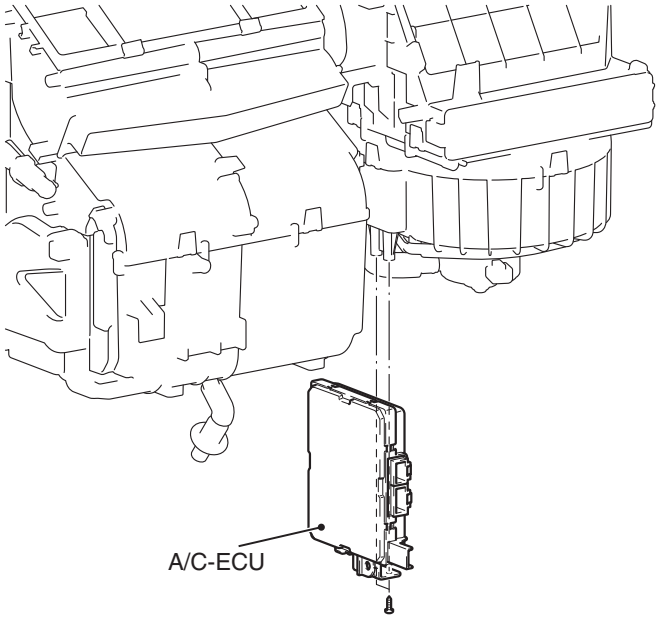


A/C-ECU

REMOVAL AND INSTALLATION

M1554016600298

Pre-removal and Post-installation Operation
- Glove Box and Bottom Cover Assembly (passenger's side) Removal and Installation (Refer to GROUP 52A – Instrument Panel P.52A-2).
- Foot duct Removal and Installation (Refer to P.55A-135).



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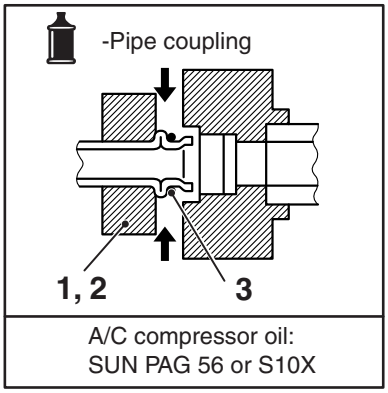
TSB Revision

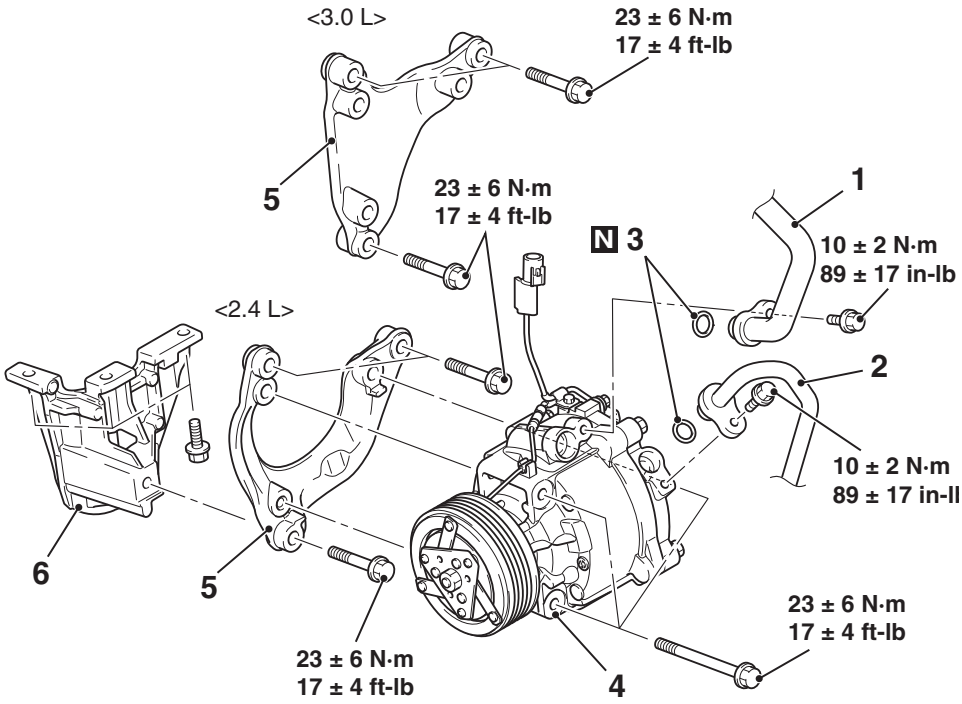
COMPRESSOR ASSEMBLY

REMOVAL AND INSTALLATION

M1552004402651

Pre-removal Operation	Post-installation Operation
• Refrigerant Discharging (Refer to P.55A-108). • Front bumper under cover (Refer to GROUP 51, Front bumper P.51-4). • Front under cover RH (Refer to GROUP 51, Under cover P.51-22). • Drive belt removal (Refer to GROUP 11A, Crankshaft pulley P.11A-21) <2.4L> • Drive belt removal (Refer to GROUP 11C, Crankshaft pulley P.11C-23) <3.0L>	• Drive belt installation (Refer to GROUP 11A, Crankshaft pulley P.11A-21) <2.4L> • Drive belt installation (Refer to GROUP 11C, Crankshaft pulley P.11C-23) <3.0L> • Drive belt tension adjustment (Refer to GROUP 11A, On-vehicles service – Drive belt tension check P.11A-9). <2.4L> • Drive belt tension adjustment (Refer to GROUP 11C, On-vehicles service – Generator drive belt tension check P.11C-8). <3.0L> • Refrigerant Charging (Refer to P.55A-108). • Front bumper under cover (Refer to GROUP 51, Front bumper P.51-4). • Front under cover RH (Refer to GROUP 51, Under cover P.51-22).





AC800691AD

Removal steps

<<A>> 1. Flexible suction hose connection
<<A>> 2. Flexible discharge hose connection
3. O-ring
<<B>> >>A<< 4. A/C compressor and clutch assembly

Removal steps (Continued)

5. A/C compressor bracket A
6. A/C compressor bracket B

NOTE: The service points which are not described are the same as before.

TSB Revision

REMOVAL SERVICE POINTS

<<A>> FLEXIBLE DISCHARGE HOSE / FLEXIBLE SUCTION 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.

<<B>> A/C COMPRESSOR REMOVAL

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

INSTALLATION SERVICE POINT

>>A<< A/C COMPRESSOR AND CLUTCH ASSEMBLY 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 cm^3 (X 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 = 70cm^3 (2.4 fl.oz)

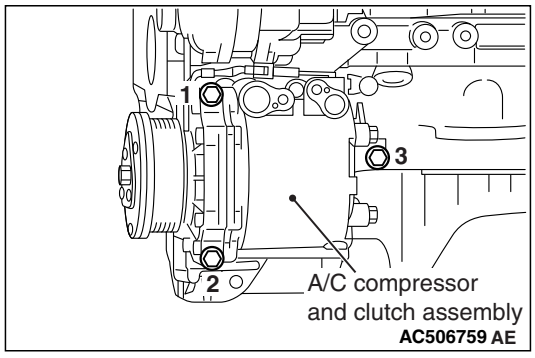
   70 cm^3 – X cm^3 = Y cm^3 (2.4 fl.oz. – X fl.oz. = Y fl.oz)

NOTE: Y cm^3 (Y 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 cm^3 (Y fl.oz) and discharge from the new compressor.

3. Tighten A/C compressor and clutch assembly mounting bolts to the specified torque in the order of number shown in the figure.

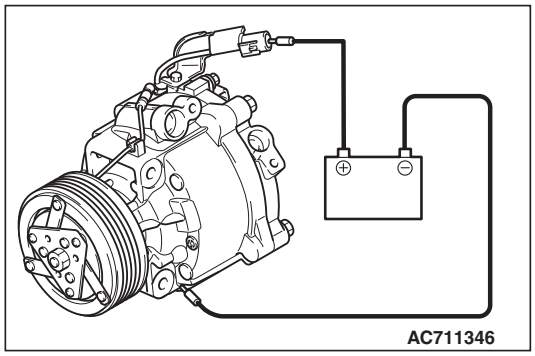
   Tightening torque: 23 ± 6 N·m



INSPECTION

M1552004500908

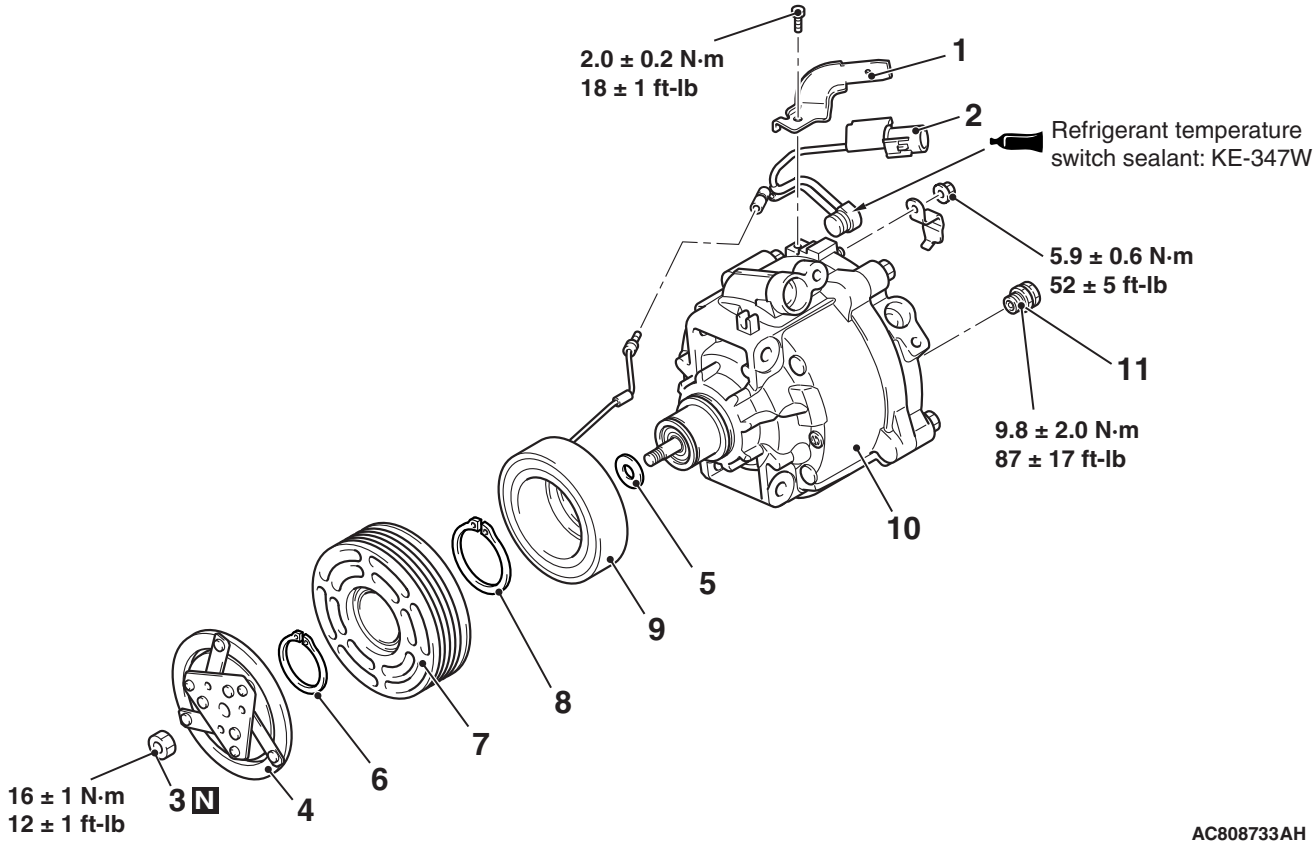
A/C COMPRESSOR CLUTCH OPERATION CHECK



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 REASSEMBLY

M1552004602730



A/C refrigerant temperature switch disassembly steps

1. A/C refrigerant temperature switch
2. Bracket

A/C compressor clutch disassembly steps

>>F<< • Air gap adjustment

<<A>> >>E<< 3. Self-locking nut
4. Armature
5. Shim

>>D<< 6. Snap ring

A/C compressor clutch disassembly steps (Continued)

<<B>> >>C<< 7. Rotor
8. Snap ring

>>B<< 9. Field core
10. A/C compressor

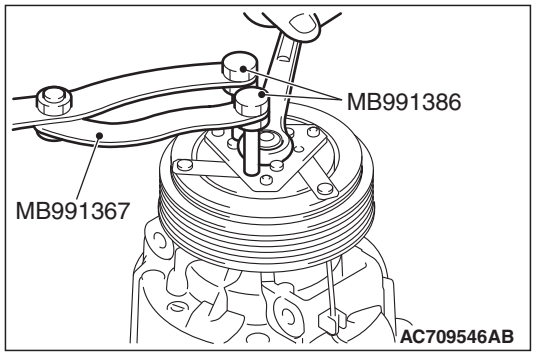
>>A<< 11. A/C compressor high pressure relief valve

NOTE: The service points which are not described are the same as before.

TSB Revision

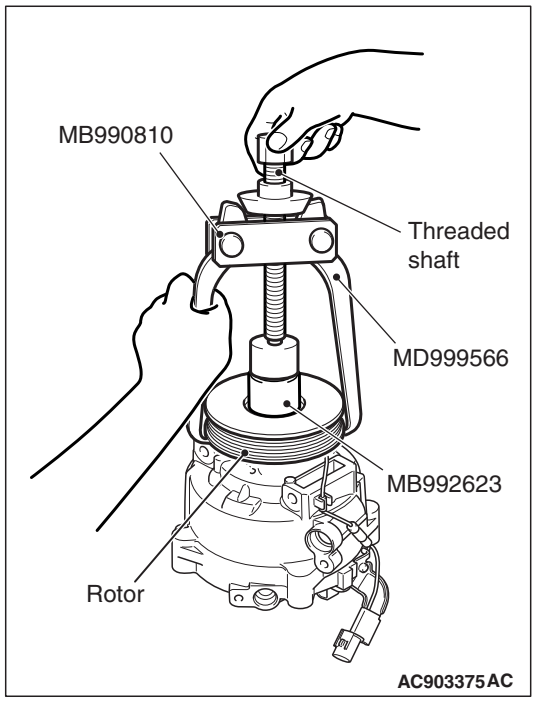
DISASSEMBLY SERVICE POINT

<<A>> SELF-LOCKING NUT REMOVAL



Use special tools MB991367 and MB991386 to hold the A/C compressor, and remove the nut.

<<B>> ROTOR REMOVAL



⚠ CAUTION

- **Be sure to use the guide (MB992623) when the side bearing puller (MB990810) are used to prevent the damage of A/C compressor.**
- **If the threaded shaft of side bearing puller (MB990810) is turned than necessary, the rotor may be distorted. Therefore, turn the threaded shaft lightly only by hand without using any tools.**

Rotor can be removed by hand, but if it is difficult to remove it, use the guide (MB992623) and the side bearing puller (MB990810) as shown.

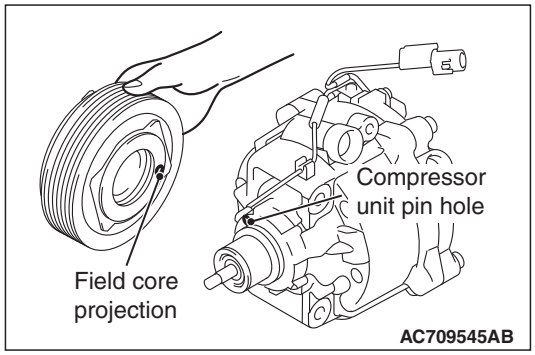
ASSEMBLY SERVICE POINTS

>>A<< A/C COMPRESSOR HIGH PRESSURE RELIEF VALVE INSTALLATION

⚠ CAUTION

Be careful not to damage the O-ring when installing the high-pressure relief valve. Apply the specified refrigerating machine oil the high-pressure relief valve mounting hole before installation

Check that O-ring is installed to the high-pressure relief and use the adjust torque wrench to install the high-pressure relief valve to the main body of the compressor.



>>B<< FIELD CORE ATTACHMENT

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

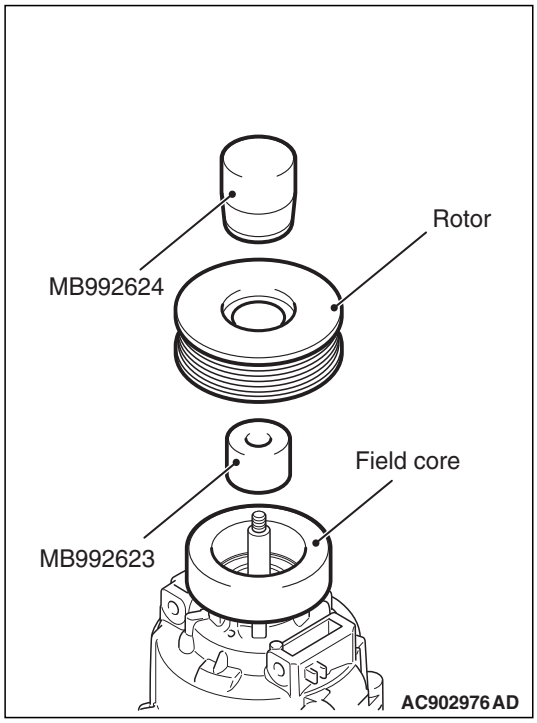
>>C<< ROTOR INSTALLATION

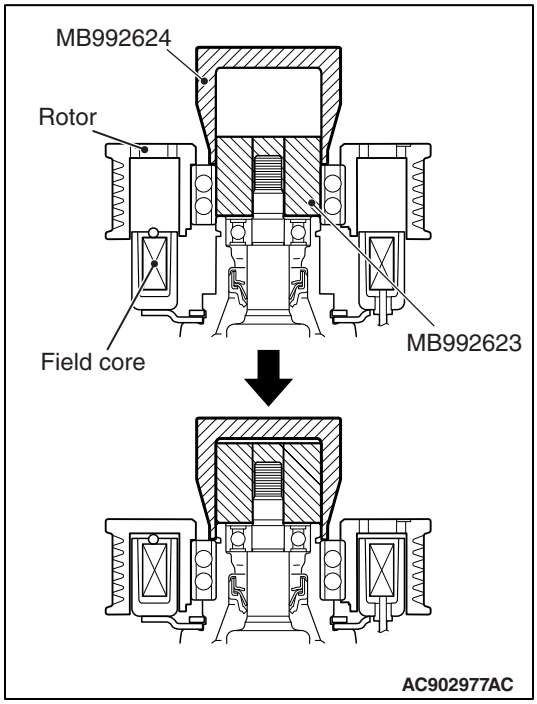
⚠ CAUTION

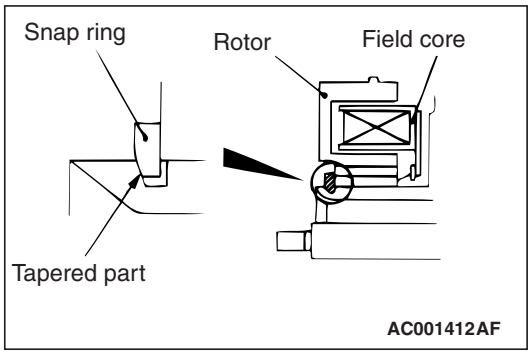
If the outer wheel side of the rotor is pushed, an abnormal noise can be generated because the inside of the rotor is damaged, therefore, always push the inner wheel side.

Install the rotor while pushing the inner wheel side slowly using the pusher (MB992624) and the guide (MB992623).

NOTE: Insert the rotor in a direction perpendicular to the A/C compressor.

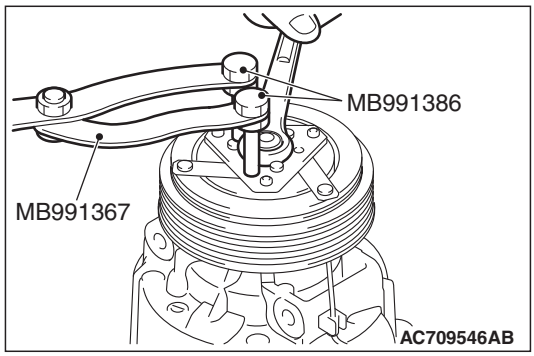






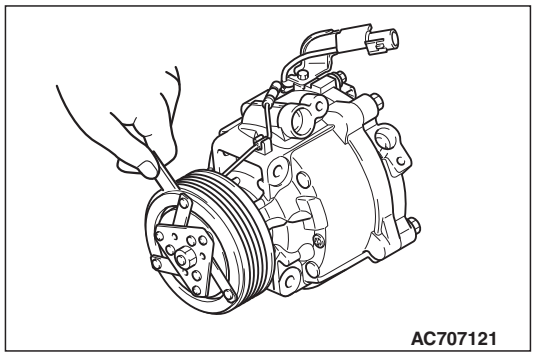
>>D<< SNAP RING INSTALLATION

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



>>E<< SELF-LOCKING NUT INSTALLATION

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



>>F<< AIR GAP ADJUSTMENT

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

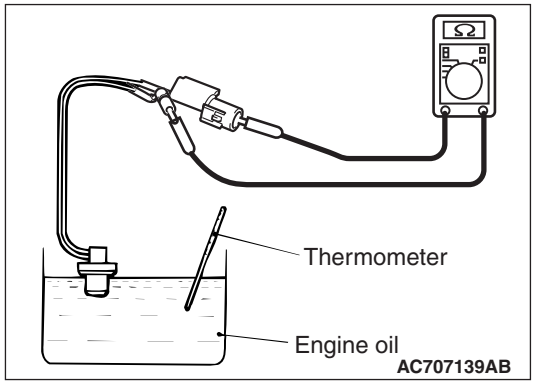
Standard value:
0.25 – 0.45 mm (0.010 – 0.017 inch)

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

M1552004700678

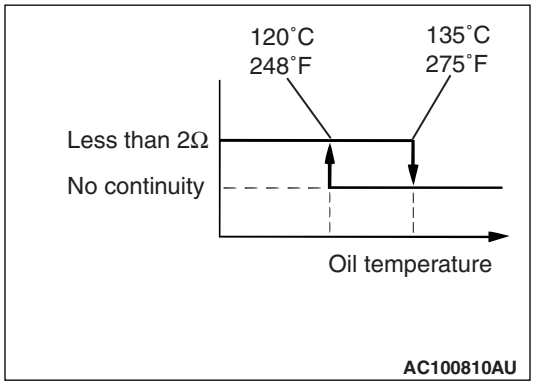
A/C REFRIGERANT TEMPERATURE SWITCH



⚠ CAUTION

Do not heat more than necessary.

1. Dip the metal part of the A/C refrigerant 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 120°C (248°F)
No continuity	135°C (275°F) or more

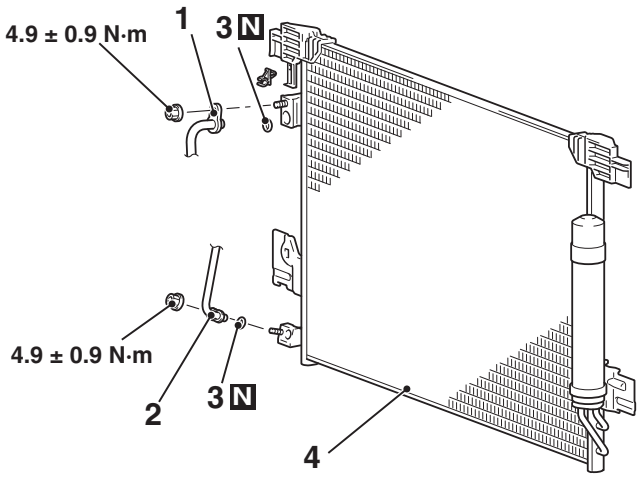
NOTE: When the oil temperature is 135°C (275°F) or more and there is no continuity, the resistance will not be 2Ω or lower until the oil temperature reduces to 120°C (248°F) or less.

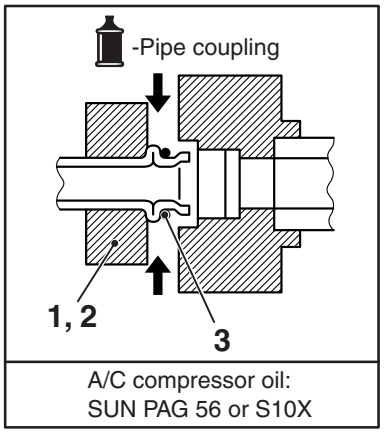
CONDENSER ASSEMBLY

REMOVAL AND INSTALLATION

M1552015401340

Pre-removal and Post-installation Operation
- Refrigerant Draining and Refilling (Refer to P.55A-108).
- Air Duct Removal and Installation (Refer to GROUP 15, Air Cleaner P.15-4 <2400> or P.15-5 <3000>).





AC901033AD

Condenser removal steps
<<A>> 1. Flexible discharge hose connection
<<A>> 2. Liquid pipe A connection

Condenser removal steps
3. O-ring
4. Condenser assembly

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.

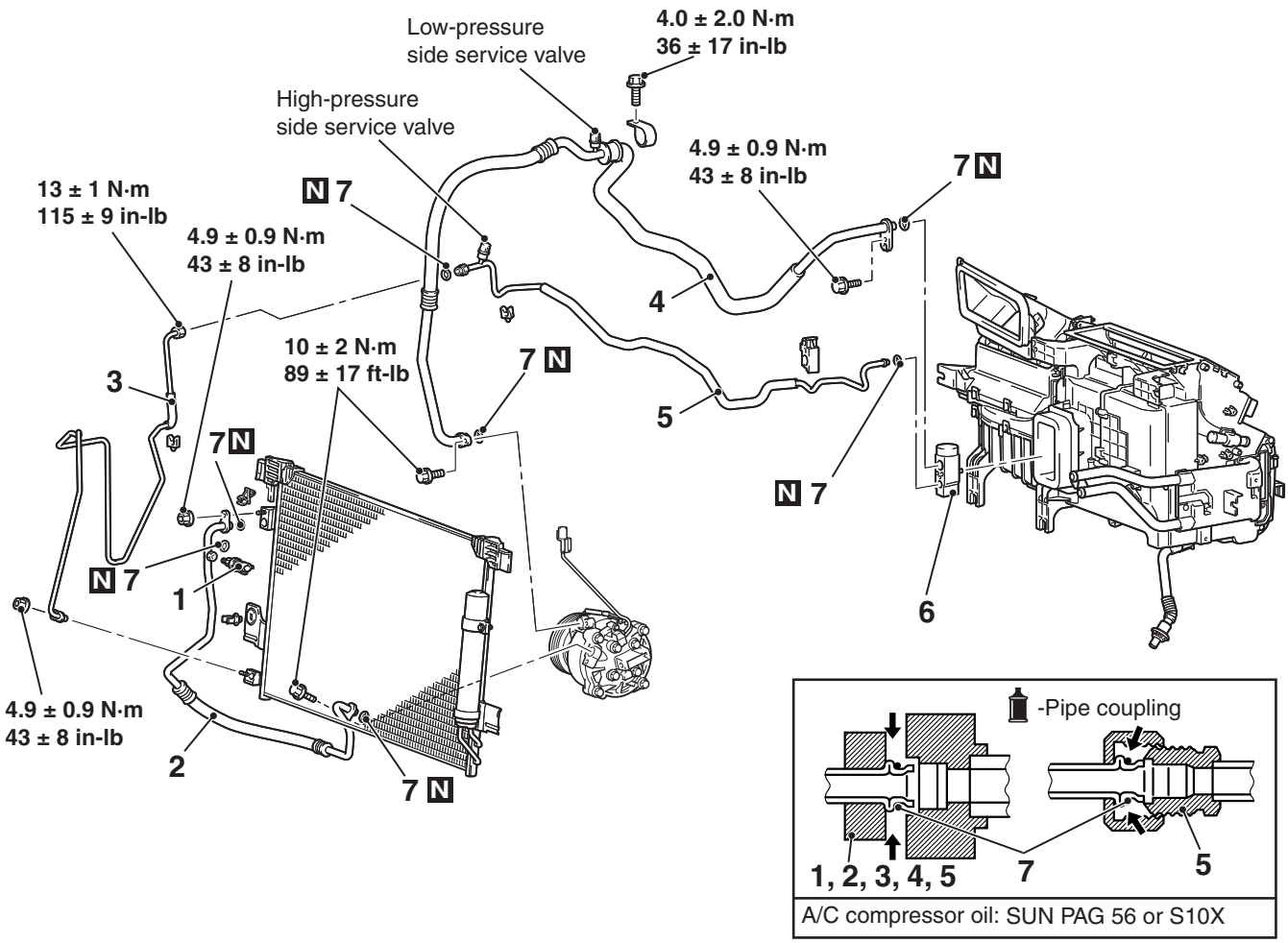
TSB Revision

REFRIGERANT LINE

REMOVAL AND INSTALLATION

M1552006402527

Pre-removal and Post-installation Operation
- Refrigerant Draining and Refilling (Refer to Charging and Discharging P.55A-135).



AC901565 AB

	Removal steps		Removal steps (Continued)	
<<A>>	1. A/C pressure sensor	<<A>>	5.	Liquid pipe B
<<A>>	2. Discharge flexible hose	<<A>>	6.	Expansion valve
<<A>>	3. Liquid pipe A		7.	O-ring
<<A>>	4. Suction flexible hose			

REMOVAL SERVICE POINT

<<A>> HOSE AND PIPE REMOVAL

⚠ 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.

TSB Revision

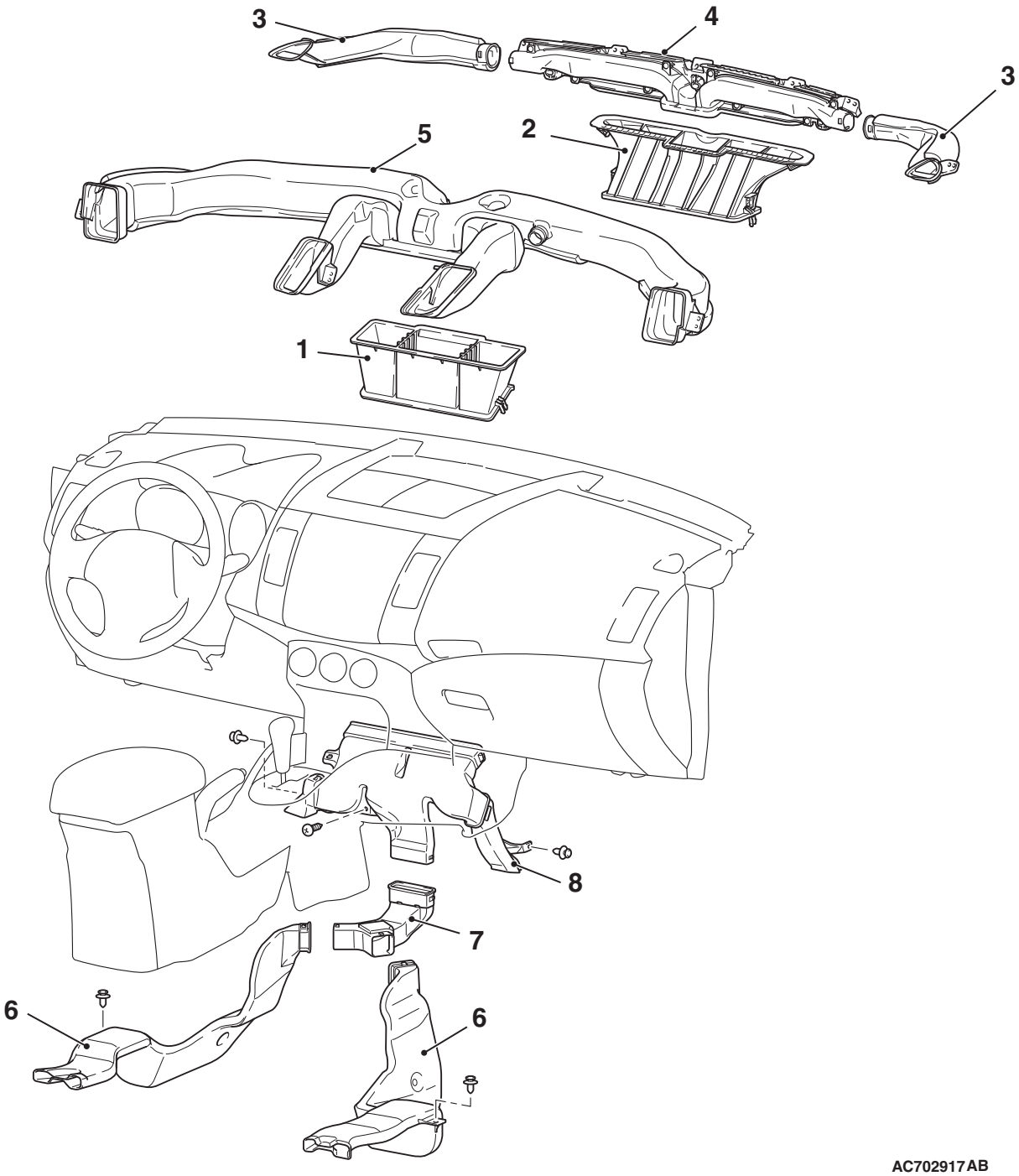
DUCTS

REMOVAL AND INSTALLATION

M1553001000952

⚠ CAUTION

- **For the removal of the front passenger's air bag module, refer to GROUP 52B – Service Precautions P.52B-25, Driver's and Front Passenger's Air Bag Module, and Clock Spring before operation.**
- **Do not subject SRS-ECU to any shocks when removing or installing the instrument panel.**



AC702917AB

Removal steps for rear center duct, front center duct, side defroster duct, defroster nozzle, ventilation air distribution duct

- Instrument panel assembly (Refer to GROUP 52A – Instrumental PanelP.52A-2).

1. Rear center duct
2. Front center duct
3. Side defroster duct
4. Defroster nozzle
5. Ventilation air distribution duct

Rear heater duct removal steps

- Front scuff plate inner and cowl side trim (Refer to GROUP 52A – Interior trim P.52A-2).
- Selector lever, selector lever panel, glove box, lower panel, console side cover and center console (Refer to GROUP 52A – Instrument Panel P.52A-2).
- Front seat assembly (Refer to GROUP 52A – Front Seat Assembly P.52A-17).

6. Rear heater duct B
7. Rear heater duct A

Foot duct removal steps

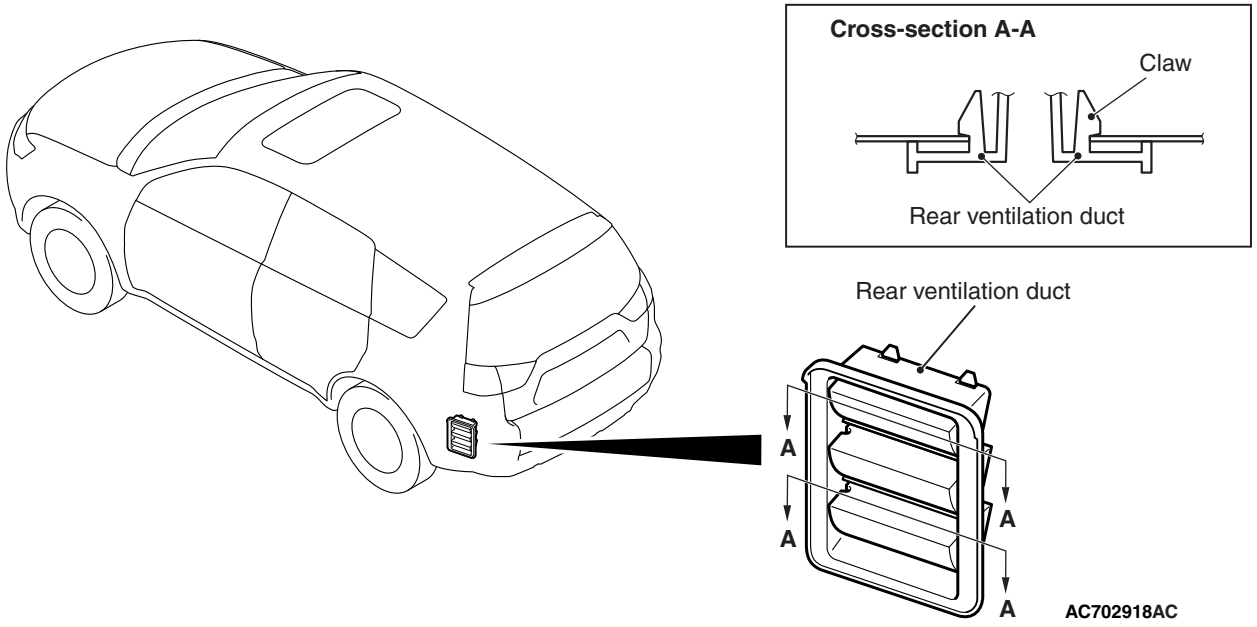
- Heater unit and blower assembly (Refer to P.55A-117).

8. Foot duct

VENTILATORS

REMOVAL AND INSTALLATION

M1553001600620



Rear ventilation duct removal steps

- Rear bumper assembly (Refer to GROUP 51, P.51-7).

1. Rear ventilation duct