GROUP 55B

AUTOMATIC AIR CONDITIONING

CONTENTS

GENERAL DESCRIPTION

M1552000100351

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

ITEM	SPECIFICATION
Heater control assembly	Dial type
Compressor	MSC105CA
Compressor Model	Scroll type
Refrigerant and quantity g (oz)	R-134a (HFC-134a), 590 – 630 (20.80 – 22.22)

SAFETY PRECAUTIONS

⚠ ***WARNING***

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

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

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

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

⚠ ***WARNING***

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

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

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

⚠ **CAUTION**

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

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

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

⚠ ***WARNING***

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

⚠ **CAUTION**

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

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

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

OPERATION

CONDENSER FAN AND RADIATOR FAN CONTROL

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

COMPRESSOR CONTROL

When operating the air conditioning switch

- The air thermo sensor, which senses the temperature of the air flowing out of the evaporator, deactivates the compressor at 3°C (37.4°F) or below.
- The dual pressure switch turns OFF when the refrigerant pressure becomes excessively high or low, thus protecting the compressor circuit (See Table below).
- When the air thermo sensor is activated, and the ignition switch, blower switch, and air conditioning switch are ON, the A/C compressor clutch relay is energized.

When operating the mode selection dial

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

A/C Compressor Clutch Relay ON Conditions

Ignition switch (IG2)		ON	*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 PCM. 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 switch		ON	
Air conditioning switch, mode selection dial defroster, defroster/foot position or temperature control MAX A/C		ON	
Air thermo sensor		*	
Pressure detected by A/C pressure sensor	2.94 MPa or less (If the refrigerant pressure exceeds 2.94 MPa, A/C compressor clutch relay is not ON condition until the refrigerant pressure has been measured up to 2.35 MPa or less.)	ON	
	0.19 MPa or more (If the refrigerant pressure falls short of 0.19 MPa, A/C compressor clutch relay is not ON condition until the refrigerant pressure has been measured up to 0.22 MPa or more.)		
A/C compressor clutch relay driving transistor (within powertrain control module)		ON	

AUTO A/C DIAGNOSIS

INTRODUCTION

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

AUTOMATIC AIR CONDITIONING TROUBLESHOOTING STRATEGY

M1554004700157

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.
4. Verify malfunction is eliminated.

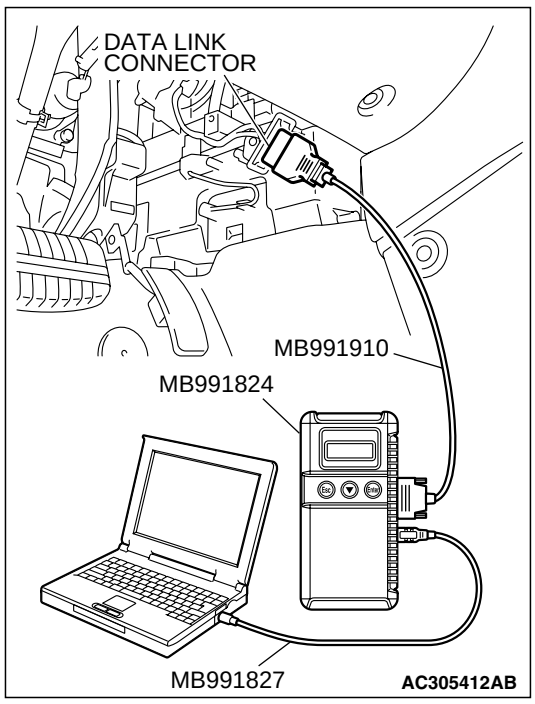
DIAGNOSTIC FUNCTION

M1552019800046

HOW TO CONNECT THE SCAN TOOL (MUT-III)

Required Special Tools:

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

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

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HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

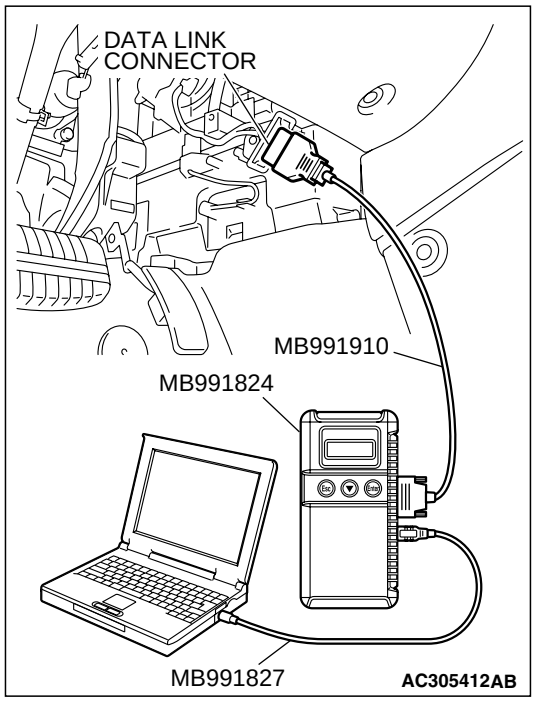
Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A (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 output. Check the battery if scan tool MB991958 does not display.

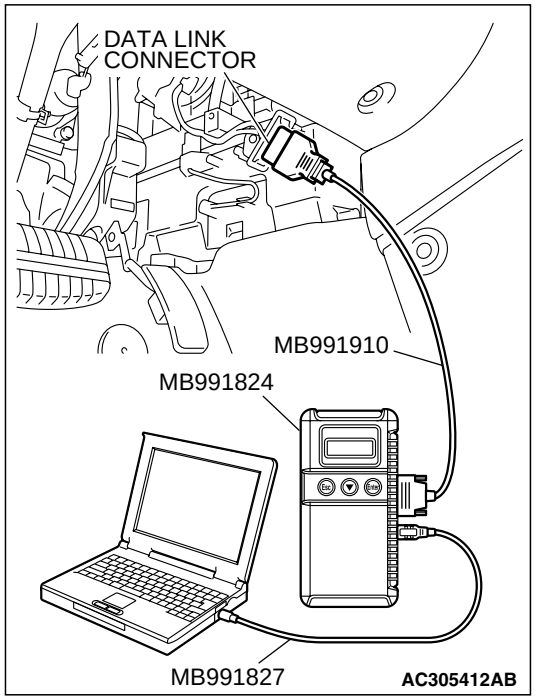


1. Connect the scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "AUTO A/C" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Select "Diagnostic Trouble Code."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

HOW TO READ DATA LIST

Required Special Tools:

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



⚠ CAUTION

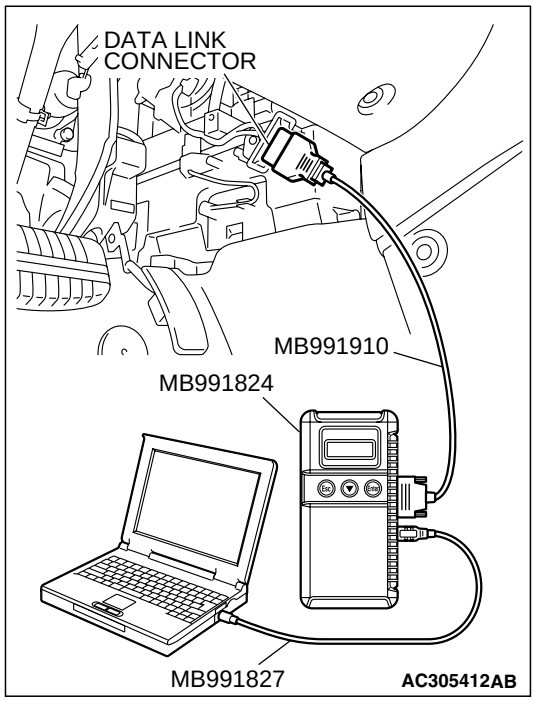
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

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

HOW TO PERFORM ACTUATOR TEST

Required Special Tools:

- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-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 "Interactive Diagnosis" from the start-up screen.
4. Select "System Select."
5. Choose "AUTO A/C" from the "BODY" tab.
6. Select "MITSUBISHI."
7. Choose "Actuator Test" from "AUTO A/C" screen.
8. Choose an appropriate item and select the "OK" button.

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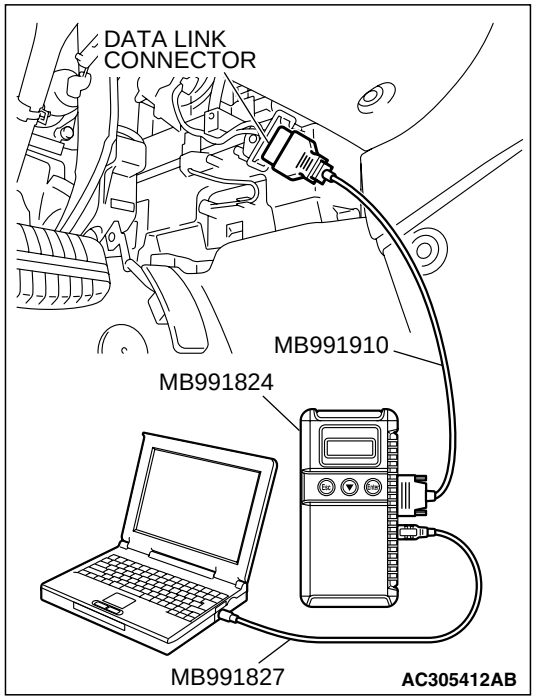
HOW TO DIAGNOSE THE CAN BUS LINE

Required Special Tools:

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



⚠ CAUTION

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

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

DIAGNOSTIC TROUBLE CODE CHART

M1554004900225

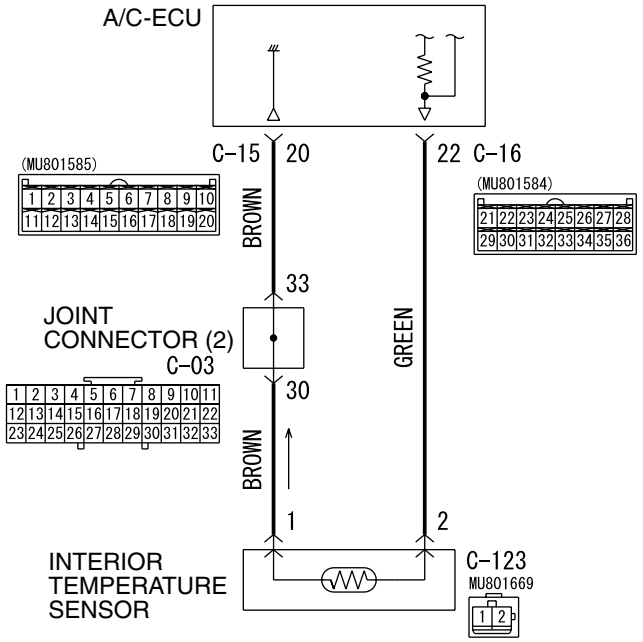
⚠ CAUTION
During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. After completing the repair, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

DIAGNOSTIC TROUBLE CODE NO.	DIAGNOSTIC ITEM	REFERENCE PAGE
B1001	Interior temperature sensor system (short circuit)	P.55B-9
B1002	Interior temperature sensor system (open circuit)	P.55B-9
B1011	Ambient temperature sensor system (short circuit)	Refer to GROUP 55A, DIAGNOSTIC TROUBLE CODE CHARTP.55A-58
B1012	Ambient temperature sensor system (open circuit)	
B1021	Air thermo sensor system (short circuit)	
B1022	Air thermo sensor system (open circuit)	
B1041	Air mixing damper control motor and potentiometer (potentiometer system shorted to its power supply)	
B1042	Air mixing damper control motor and potentiometer (potentiometer system shorted to its ground or open circuit)	
B1045	Air mixing damper control motor and potentiometer (activating system failure)	
B1061	Mode selection damper control motor and potentiometer (potentiometer system shorted to its power supply)	
B1062	Mode selection damper control motor and potentiometer (potentiometer system shorted to its ground or open circuit)	
B1065	Mode selection damper control motor and potentiometer (activating system failure)	
U1073	Bus off	
U1100	Powertrain control module time-out (related to engine)	
U1111	Multi-center display unit (middle grade type) time-out	
U1120	Failure information on powertrain control module (related to engine)	

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B1001, B1002: Interior Temperature Sensor System

Interior Temperature Sensor Circuit



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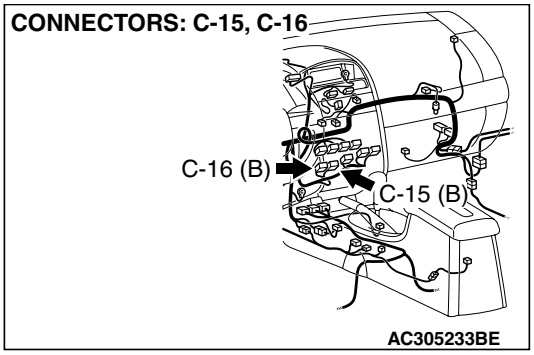
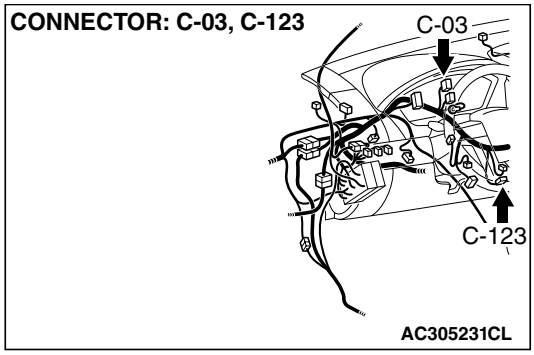




DTC SET CONDITION

- DTC B1001 is set if there is a short circuit in the interior temperature sensor input circuit.
- DTC B1002 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 interior air temperature sensor, or connector(s) or wiring between the two may be defective.

Past trouble

- If DTC B1001 or B1002 is stored as a past trouble, carry out diagnosis with particular emphasis on wiring and connector(s) between the A/C-ECU and the interior 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 interior temperature sensor.
- Malfunction of the A/C-ECU.

TSB Revision

DIAGNOSIS

Required Special Tool:

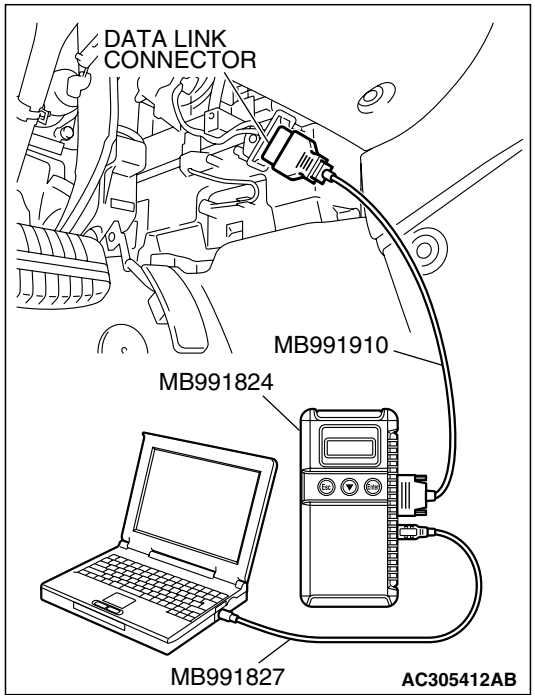
- MB991958: Scan Tool (MUT-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: MUT-III USB Cable
  - MB991910: MUT-III Main Harness A (Vehicles with CAN communication system)

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. (Refer to GROUP 54C, Diagnosis-CAN Bus Diagnostic Chart P.54C-607). Then go to Step 7.

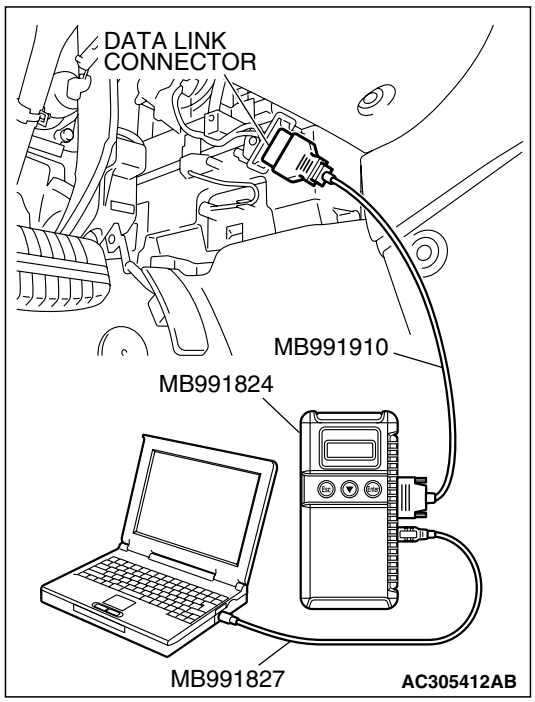


STEP 2. Recheck for diagnostic trouble code.

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.00-14.
NO : Go to Step 3.



STEP 3. Using scan tool MB991958, check data list item 01: interior temperature sensor.

⚠ CAUTION

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

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

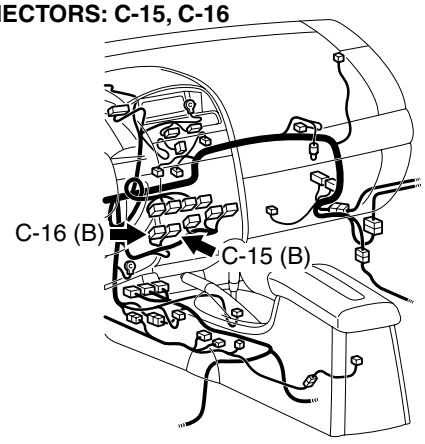
NOTE: When this DTC is set and the system is in fail-safe status, the value of service data displays 25°C.

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

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

YES : Replace the A/C-ECU. Then go to Step 7.
NO : Go to Step 4.

CONNECTORS: C-15, C-16



HARNESS SIDE
C-15

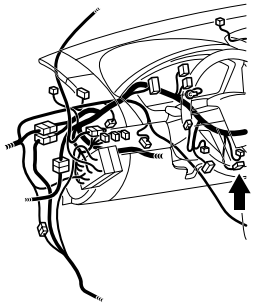
10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11

HARNESS SIDE
C-16

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

AC305234AG

CONNECTOR: C-123



HARNESS SIDE

2	1

AC305231CK

STEP 4. Check A/C-ECU connector C-15, C-16 and interior temperature sensor connector C-123 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

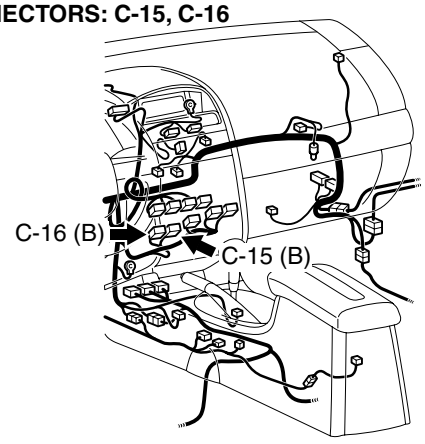
Q: Are A/C-ECU connectors C-15, C-16 and interior temperature sensor connector C-123 in good condition?

YES : Go to Step 5.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Then go to Step 7.

STEP 5. Check the wiring harness between A/C-ECU connector C-15 (terminals 20), C-16 (terminals 22) and interior temperature sensor connector C-123 (terminals 1 and 2).

CONNECTORS: C-15, C-16



HARNESS SIDE
C-15

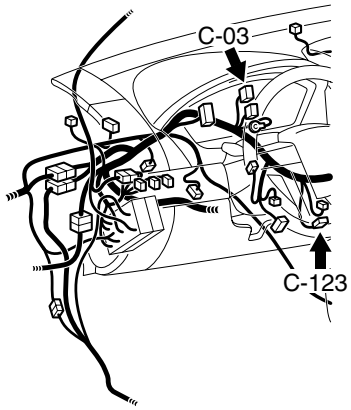
10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11

HARNESS SIDE
C-16

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

AC305234AG

CONNECTORS: C-03, C-123



JUNCTION BLOCK SIDE
C-03

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33

HARNESS SIDE
C-123

2	1

AC305232AQ

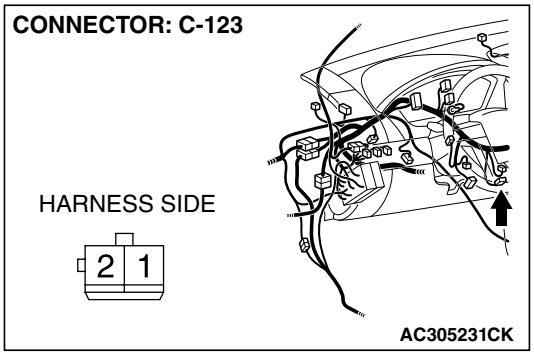
NOTE: Also check joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

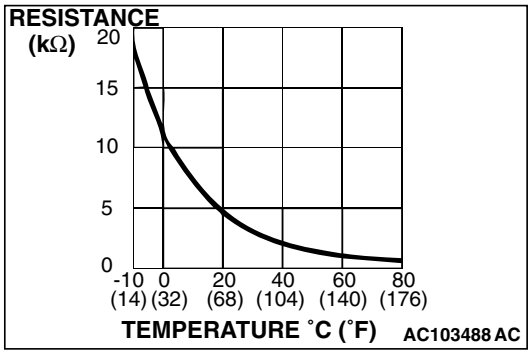
Q: Are the wiring harnesses between A/C-ECU connector C-15 (terminals 20), C-16 (terminals 22) and interior temperature sensor connector C-123 (terminals 1 and 2) in good condition?

YES : Go to Step 6.
NO : Repair the wiring harness. Then go to Step 7.

STEP 6. Check the interior temperature sensor.

(1) Disconnect interior temperature sensor connector C-123.



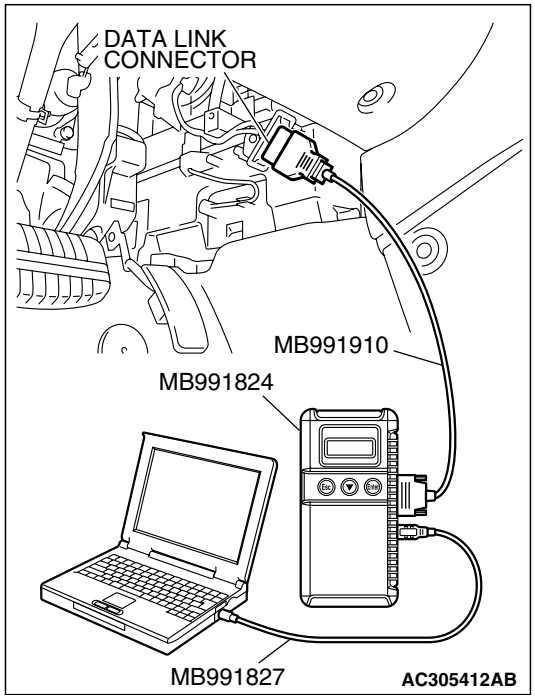


(2) When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

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

Q: Is the interior temperature sensor in good condition?

YES : Replace the A/C-ECU. Then go to Step 7.
NO : Replace the interior temperature sensor. 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.

SYMPTOM CHART

M1554005000203

⚠ CAUTION

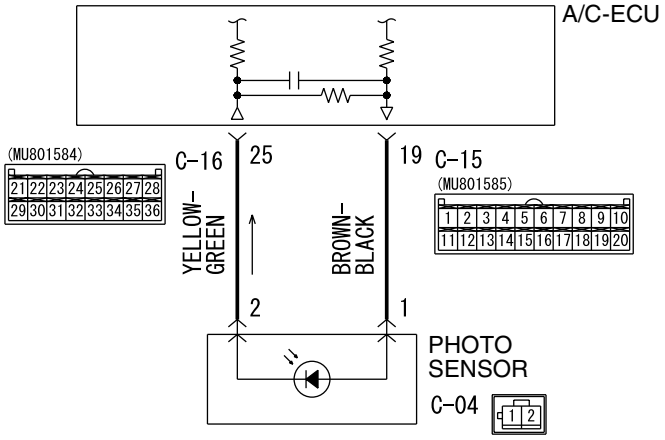
During diagnosis, a DTC code associated with another system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

SYMPTOM	INSPECTION PROCEDURE NO.	REFERENCE PAGE
When the ignition switch is "ON", the A/C does not operate.	1	REFER TO GROUP 55A – SYMPTOM CHART P.55A-178
When the air outlet changeover control knob is moved to DEFROSTER or DEFROSTER/FOOT position, the A/C or the inside/outside air changeover damper motor does not operate.	2	
Outside/Inside air changeover is not possible.	3	
When the A/C is operating, temperature inside the passenger compartment does not decrease (cool air is not emitted).	4	
Front blower fan and motor do not turn.	5	
Front blower air amount cannot be changed.	6	
The A/C indicator flashes.	7	
Defogger function does not operate.	8	
Defogger timer function does not operate.	9	
Malfunction of the A/C-ECU power supply system.	10	
Condenser fan does not operate.	11	REFER TO GROUP 14 – SYMPTOM CHART P.14-3
When sunlight intensity changes, air outlet temperature does not change.	12	P.55B-17

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 12: When Sunlight Intensity Changes, Air Outlet Temperature Does Not Change.

Photo Sensor Motor Circuit



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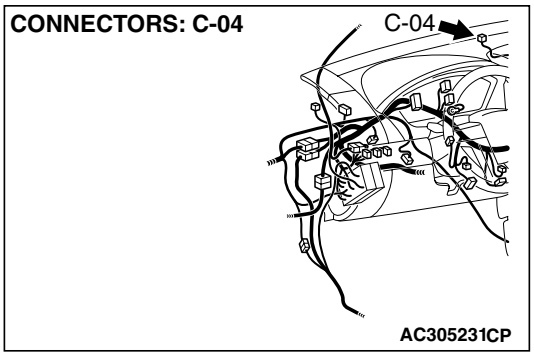
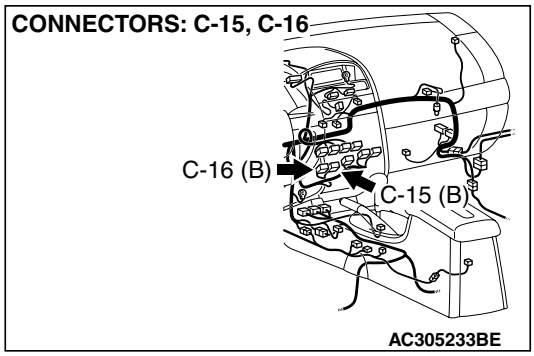




CIRCUIT OPERATION

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

TROUBLESHOOTING HINTS

- Improper amount of refrigerant
- Malfunction of the A/C pressure sensor
- Malfunction of the photo sensor
- Malfunction of the A/C-ECU
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

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

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

YES : Go to Step 2.
NO : Refer to GROUP 55A, Manual A/C Diagnosis, P.55A-178.

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

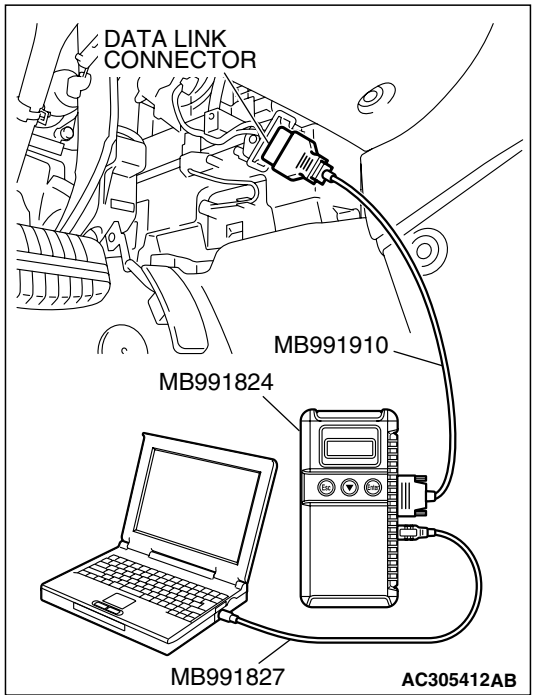
⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

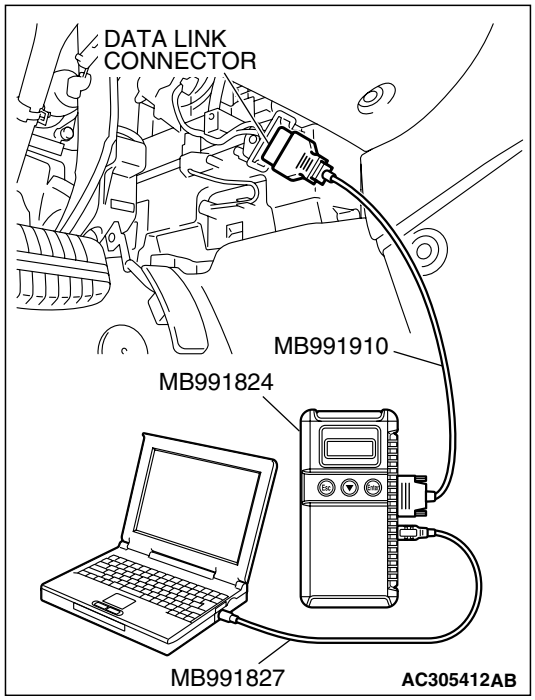
Check if an A/C-ECU DTC is set.

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

Q: Is the DTC set?

YES : Refer to P.55A-58.
NO : Go to Step 3.





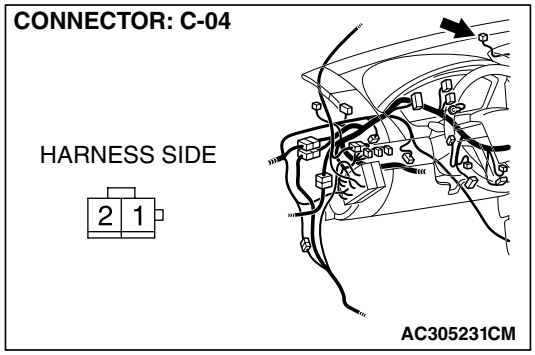
STEP 3. Using scan tool MB991958, check data list item 06: Photo sensor.

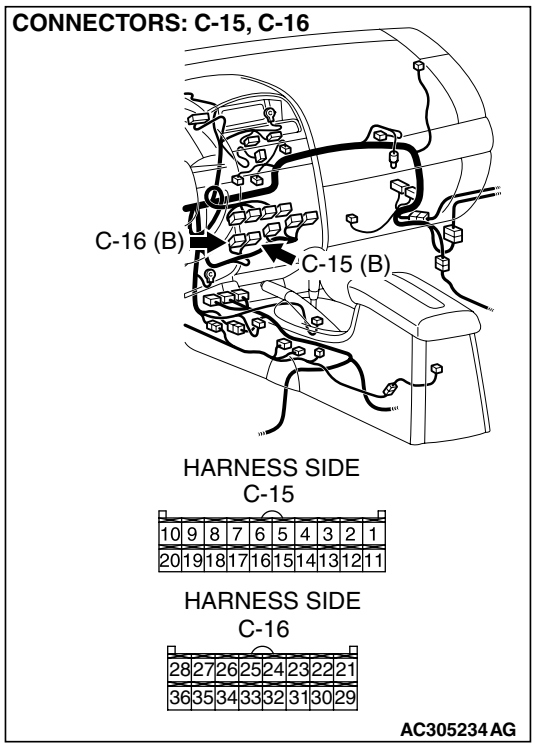
(1) Connect scan tool MB991958 to the data link connector.
(2) Start the engine.
(3) Set scan tool MB991958 to the data reading mode for item 06: Photo sensor.
- Check that the display on the scan tool changes when the photo sensor is covered with hands.

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

Q: Is the sensor within the specified range?

YES : Go to Step 7.
NO : Go to Step 4.



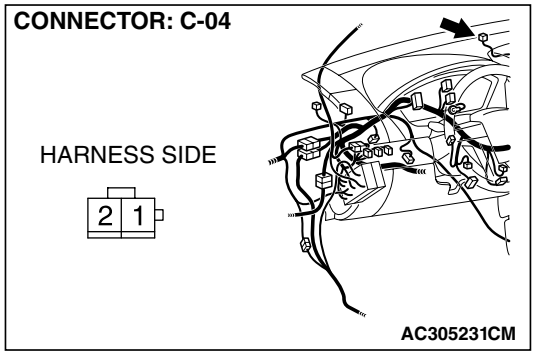


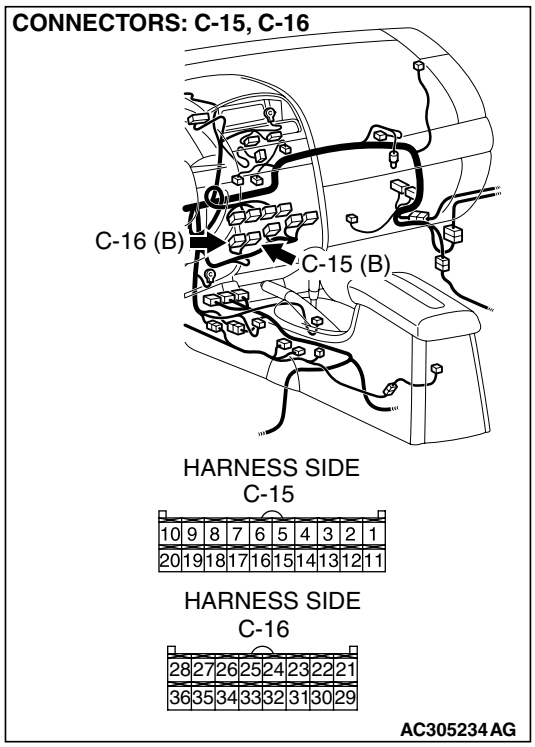
STEP 4. Check A/C-ECU connectors C-15, C-16 and photo sensor connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C-ECU connectors C-15, C-16 and photo sensor connector C-04 in good condition?

YES : Go to Step 5.

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





STEP 5. Check the wiring harness between photo sensor connector C-04 (terminal 1, 2) and A/C-ECU connector C-15 (terminal 19), C-16 (terminal 25).

Q: Is the wiring harness between photo sensor connector C-04 (terminal 1, 2) and A/C-ECU connector C-15 (terminal 19), C-16 (terminal 25) in good condition?

YES : Go to Step 6.

NO : Repair the wiring harness. Check that the air conditioning works normally.

STEP 6. Replace the photo sensor.

Q: Does the A/C operate normally?

YES : No action is necessary and testing is complete.

NO : Replace the A/C-ECU. Check that the air conditioning works normally.

STEP 7. 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 : Refer to GROUP 55A, Symptom Chart P.55A-178.

NO : Correct the refrigerant level (Refer to GROUP 55A, On-vehicle Service P.55A-262). Check that the air conditioning works normally.

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DATA LIST REFERENCE TABLE

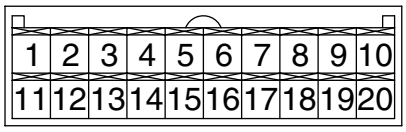
M1554005100147

SCAN TOOL (MUT-III) DISPLAY	ITEM NO.	INSPECTION ITEM	INSPECTION REQUIREMENT	NORMAL VALUE
Inside temperature sensor	01	Interior temperature sensor	Ignition switch: ON	Inside air temperature and temperature displayed on the scan tool are identical.
Photo sensor	06	Photo sensor	Ignition switch: ON	Amount of light is proportional to voltage displayed on the scan tool.

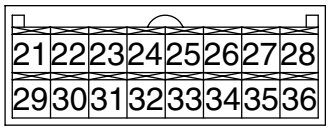
CHECK AT A/C-ECU TERMINAL

M1552010300572

C-15



C-16



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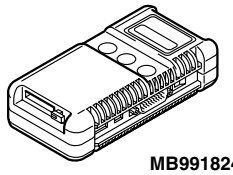
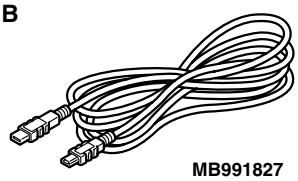
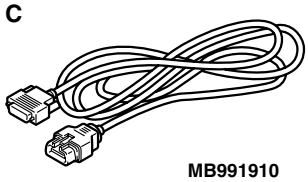
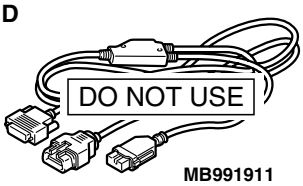
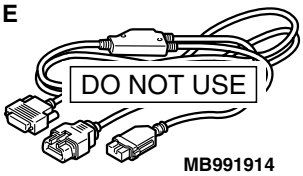
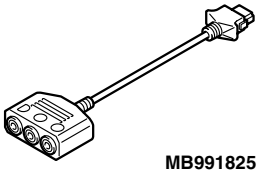
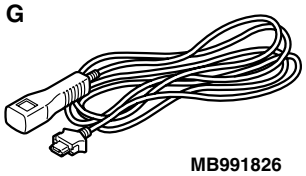
TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
1	Air mixing damper control motor	When the air mix damper is moved to the MAX. COOL position.	10 V
		When the air mix damper is moved to the MAX. HOT position.	0.5 V
2	Air mixing damper control motor	When the air mix damper is moved to the MAX. COOL position.	0.5 V
		When the air mix damper is moved to the MAX. HOT position.	10 V
3	Back-up power supply	Always	Battery positive voltage
4	Mode selection damper control motor (DEF)	When the damper is moved to the FACE position.	0.5 V
		When the damper is moved to the DEF position.	10 V
5	Outside/inside air selection damper control motor (outside)	When the damper is moved to the inside air recirculation position.	0.5 V
		When the damper is moved to the outside air induction position.	0 V (when the motor is stopped)

TERMINAL NO.	CHECK ITEM	CHECKING REQUIREMENTS	NORMAL CONDITION
6	Outside/inside air selection damper control motor (inside)	When the damper is moved to the inside air recirculation position.	0 V (when the motor is stopped)
		When the damper is moved to the outside air induction position.	0.5 V
8	Rear defogger relay	Ignition switch: ON	Battery positive voltage
9	Front blower relay	Ignition switch: ON	Battery positive voltage
10	A/C compressor relay	A/C compressor relay: ON	Battery positive voltage
11	Mode selection damper control motor (FACE)	When the damper is moved to the FACE position.	10 V
		When the damper is moved to the DEF position.	0.5 V
12	A/C pressure sensor	Ignition switch: ON	5 V
16	Potentiometer power supply	Ignition switch: ON	5 V
17	Power transistor (BASE)	When the blower speed selection dial shows Maximum air volume.	1 V
18	Power transistor (COLLECTOR)	When the blower speed selection dial shows Maximum air volume.	12.1 V
19	Photo sensor	Ignition switch: ON	5 V
20	Sensors and potentiometers ground	Always	0 V
21	Mode selection damper control motor potentiometer input	When the damper is moved to the FACE position.	4 V
22	Interior temperature sensor	Ignition switch: ON	5 V
23	Ambient temperature sensor input	When sensor temperature is 25°C (77°F) [4 kΩ]	1.9 V
24	Air thermo sensor input	When sensor temperature is 25°C (77°F) [1.5 kΩ]	2.2 V
25	Photo sensor ground	Ignition switch: ON	0 V
26	A/C pressure sensor	at 2.6 MPa	3.9 V
27	Ground	Always	0 V
28	Power supply to the ignition switch (IG2)	Ignition switch: ON	Battery positive voltage
29	Air mixing damper control motor potentiometer input	When the damper door is moved to the MAX. HOT position.	1.4 V
30	Illumination ground	Always	0 V
31	ILL power supply	Lighting switch: ON	Battery positive voltage
34	A/C pressure sensor ground	Always	0 V
36	Power supply to the ignition switch (ACC)	Ignition switch: ON	Battery positive voltage

SPECIAL TOOLS

M1552000600345

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

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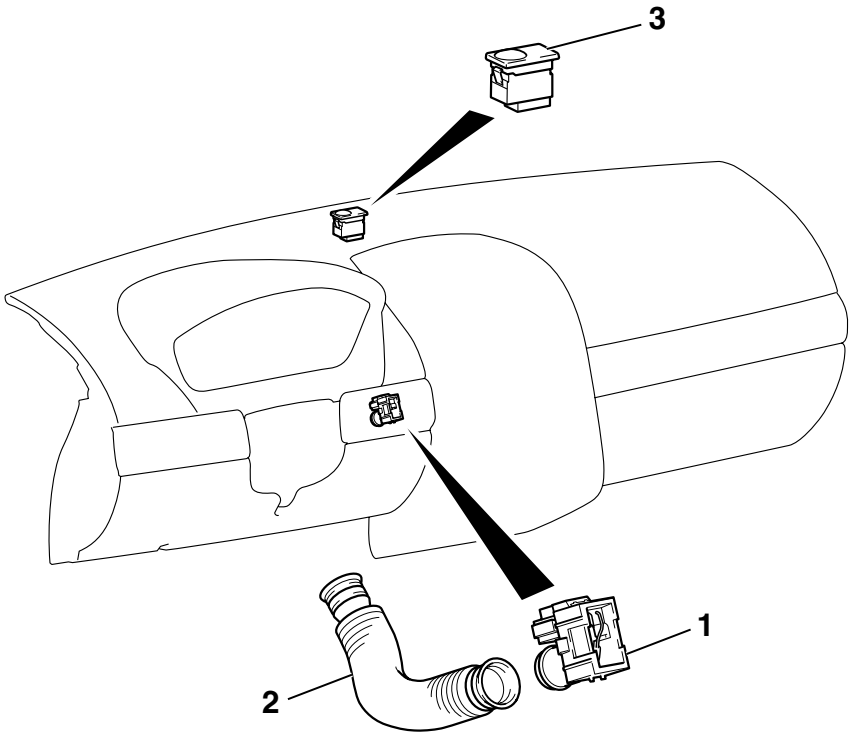
SENSORS

REMOVAL AND INSTALLATION

M1554001900088



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INTERIOR TEMPERATURE SENSOR REMOVAL STEPS

- LOWER PANEL (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3).

1. INTERIOR TEMPERATURE SENSOR
2. ASPIRATOR HOSE

PHOTO SENSOR REMOVAL STEPS

3. PHOTO SENSOR

Required Special Tools:

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

INSPECTION

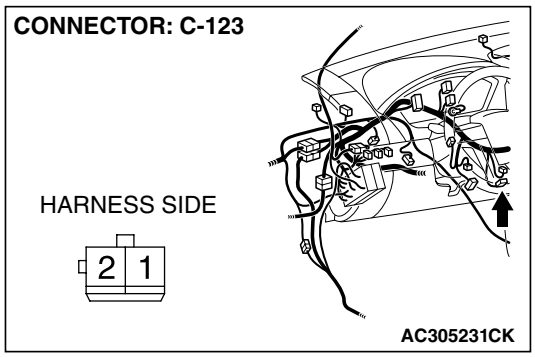
M1554002000130

INTERIOR TEMPERATURE SENSOR CHECK

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

NOTE:

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



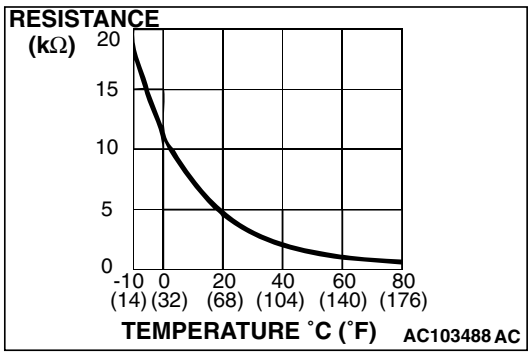


PHOTO SENSOR CHECK

1. Connect scan tool MB991958, and check the data list of the photo sensor. (Refer to P.55B-22)
2. Check that the displayed value changes when you cover the photo sensor with your hands.

OTHER PARTS

OTHER PARTS MAINTENANCE SERVICE POINTS

M1554004000170

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

ITEM		REFERENCE PAGE
ON-VEHICLE SERVICE	REFRIGERANT LEVEL TEST	P.55A-259
	AIR CONDITIONING COMPRESSOR CLUTCH TEST	P.55A-259
	SIMPLE INSPECTION OF THE A/C PRESSURE SENSOR	P.55A-259
	COMPRESSOR DRIVE BELT ADJUSTMENT	P.55A-260
	CHARGING, DISCHARGING	P.55A-260
	PERFORMANCE TEST	P.55A-261
	REFRIGERANT LEAK REPAIR	P.55A-262
	COMPRESSOR NOISE CHECK	P.55A-262
	POWER RELAY CONTINUITY CHECK	P.55A-263
	IDLE-UP OPERATION CHECK	P.55A-264

ITEM	REFERENCE PAGE
HEATER CONTROL (A/C-ECU)	P.55A-266
HEATER CASE, BLOWER CASE	P.55A-269
MOTORS AND TRANSISTOR	P.55A-273
AMBIENT AIR TEMPERATURE SENSOR	P.55A-276
COMPRESSOR AND TENSION PULLEY	P.55A-277
CONDENSER	P.55A-283
REFRIGERANT LINE	P.55A-285
DUCTS	P.55A-288
REAR VENTILATION DUCT	P.55A-288

NOTES