
HEATER, AIR CONDITIONER AND VENTILATION

Click on the applicable bookmark to selected the required model year.

HEATER, AIR CONDITIONER AND VENTILATION

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55109000157

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

WARNING!

- (1) 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 (from rendering the SRS inoperative).
- (2) Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.
- (3) 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: impact sensors, SRS-ECU unit, SRS warning lamp, air bag module, 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 (*).

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GENERAL INFORMATION

55200010305

The heater system uses a two-way-flow full-air-mix system that features high performance and low operating noise, and includes an independent side face air blowing function. The A/C system is

basically the same as the conventional system, but a new refrigerant system has been adopted as a response to restrictions on the use of chlorofluorocarbons.

Items		Specifications
Heater unit	Type	Two-way-flow full-air-mix system
Heater control assembly		Dial type
Compressor	Model	Scroll type <MSC 105C>
Dual pressure switch kPa	High-pressure switch	ON → OFF: 2,942, OFF → ON: 2,354
	Low-pressure switch	ON → OFF: 196, OFF → ON: 221
Refrigerant and quantity g		R-134a (HFC-134a), Approx. 600 – 650

SAFETY PRECAUTIONS

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

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

Caution

Wear safety goggles when servicing the refrigeration system.

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. Should any liquid refrigerant get into the eyes, use a few drops of mineral oil to wash them out. R-134a is rapidly absorbed by the oil. Next splash the eyes with plenty of cold water. Call your doctor immediately even though irritation has ceased after treatment.

Caution**Do not heat R-134a above 40°C**

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 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.

Caution

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

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.

Caution

- 1. The leak detector for R-134a should be used to check for refrigerant gas leaks.**
- 2. Do not allow liquid refrigerant to touch bright metal.**

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

SERVICE SPECIFICATIONS

55200030325

Items			Standard value
Idle speed r/min	6G7		700±100
	4D5		750±50
Idle up speed r/min	6G7	When low load on A/C (Outside air temperature sensor: ON)	750±100
		When high load on A/C (Outside air temperature sensor: OFF)	900±100
	4D5		950±50
Resistor <L.H. drive vehicles> Ω			LO: 2.00, ML: 1.10, MH: 0.68
Resistor <R.H. drive vehicles> Ω			LO: 2.48, ML: 1.17, MH: 0.28
Rear heater resistor Ω			3.9
Air gap (Magnetic clutch) mm			0.3 – 0.5
Engine coolant temperature switch (for A/C cut-off) <4D5> C°	ON (continuity)		108 or less
	OFF (no continuity)		115 or more
Engine coolant temperature switch (for condenser fan) <4D5> C°	ON (continuity)		102 or more
	OFF (no continuity)		97 or less

LUBRICANTS

55200040229

Items	Specified lubricants	Quantity
Each connection of refrigerant line	SUN PAG 56	As required
Compressor refrigerant unit lubricant mL	SUN PAG 56	170

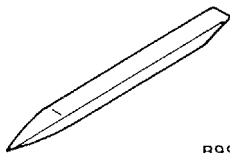
SEALANT

55200050048

Item	Specified sealant	Remark
Engine coolant temperature switch threaded part	3M Nut Locking Part No. 4171 or equivalent	Drying sealant

SPECIAL TOOL

55100060017

Tool	Number	Name	Use
 B990784	MB990784	Ornament remover	Meter bezel assembly removal

TROUBLESHOOTING

55200070372

TROUBLESHOOTING PROCEDURES

Caution

For vehicles with 6G7 engine, when the A/C is working under low loads (when outside temperature is low), condenser fan may not operate due to the A/C condenser control function. Disconnect the battery (–) cable and reconnect it, and then check the trouble symptom during the initial check that is performed for five minutes after the battery (–) cable has been reconnected.

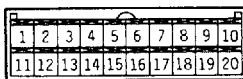
Trouble symptom	Problem cause	Remedy	Reference page
When the ignition switch is "ON", the A/C does not operate.	A/C compressor relay is defective	Replace A/C compressor relay	55-18
	Magnetic clutch is defective	Replace the A/C compressor	55-8, 36
	Refrigerant leak or overfilling of refrigerant	Replenish the refrigerant, repair the leak or take out some of the refrigerant	55-8, 16
	Dual pressure switch is defective	Replace the dual pressure switch	55-9, 41
	A/C switch is defective	Replace the A/C switch	55-23, 25
	Blower switch is defective	Replace the blower switch	55-23, 25
	Thermostat is defective	Replace the Thermostat	55-31
	Automatic compressor controller is defective	Replace the automatic compressor controller	55-31
	Engine coolant temperature switch (for A/C cut-off) is defective <4D5>	Replace the engine coolant temperature switch	55-43, 44
	Engine-ECU is defective <4D5>	Replace the engine-ECU	–

Trouble symptom	Problem cause	Remedy	Reference page
When the A/C is operating, temperature inside the passenger compartment doesn't decrease (cool air is not emitted).	Refrigerant leak	Replenish the refrigerant and repair the leak	55-16
	Dual pressure switch is defective	Replace the dual pressure switch	55-9, 41
	Thermostat is defective	Replace the Thermostat	55-31
	Automatic compressor controller is defective	Replace the automatic compressor controller	55-31
Blower fan and motor doesn't turn	Blower relay is defective	Replace the blower relay	55-17
	Blower fan and motor is defective	Replace the blower fan and motor	55-28, 29
	Blower resistor is defective	Replace the blower resistor	55-28, 29
	Blower switch is defective	Replace the blower switch	55-23, 25
Blower fan and motor doesn't stop turning.	Short circuit of the harness between the blower fan and motor and the blower switch	Repair the harness	–
	Blower switch is defective	Replace the blower switch	55-23, 25
	Blower relay is defective	Replace the blower relay	55-1
When the A/C is operating condenser fan does not turn.	Condenser fan motor is defective	Replace the condenser fan motor	55-39, 40
	Condenser fan relay is defective	Replace the condenser fan relay	55-18
	Automatic compressor controller is defective <6G7>	Replace the automatic compressor controller	55-31

INSPECTION AT THE AUTOMATIC COMPRESSOR-CONTROLLER TERMINAL

55201030089

<6G7>

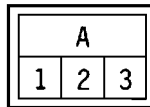


V0224AA

Terminal No.	Name of signal	Condition	Terminal voltage
1	IG2 power supply	Ignition switch ON	System voltage
2	A/C switch input	A/C switch OFF or Blower switch OFF	0V
		A/C switch ON Ignition switch ON Blower switch ON	System voltage
4	Air conditioning output	A/C compressor relay OFF	0V
		A/C compressor relay ON	System voltage
8	Earth	At all time	Continuity

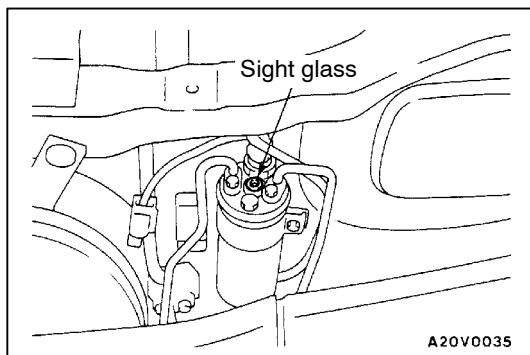
Terminal No.	Name of signal	Condition	Terminal voltage
9	Earth	At all time	Continuity
14	Air thermo sensor power supply	At all time	4.8 – 5.2V
15	Air thermo sensor input	Sensor temperature 25°C (4kΩ)	2.3 – 2.9V
16	Outside air temperature sensor power supply	At all time	4.8 – 5.2V
17	Outside air temperature sensor input	Sensor temperature 25°C (4kΩ)	2.3 – 2.9V
18	Backup power supply	At all time	System voltage
19	Outside air temperature output	Sensor temperature 15°C or more	System voltage
		Sensor temperature 18°C or less	2V or more

<4D5>



16V0297

Terminal No.	Name of signal	Condition	Terminal voltage
1	Air conditioning output	A/C compressor relay OFF	0V
		A/C compressor relay ON	System voltage
2	A/C switch input	A/C switch OFF or Blower switch OFF	0V
		A/C switch ON Ignition switch ON Blower switch ON	System voltage
3	Earth	At all time	0V



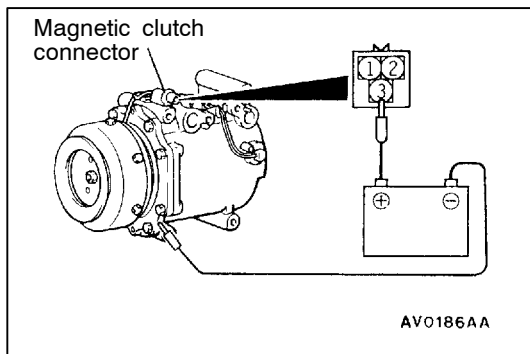
ON-VEHICLE SERVICE

55200840096

SIGHT GLASS REFRIGERANT LEVEL TEST

The sight glass is a refrigerant level indicator. To check the refrigerant level, clean the sight glass and start the vehicle engine. Push the A/C button to operate the compressor, place the blower switch to high and move the temperature control lever to max cool. After operating for a few minutes in this manner, check the sight glass.

1. If the sight glass is clear, the magnetic clutch is engaged, the compressor discharge line is warm and the compressor inlet line is cool; the system has a full charge.
2. If the sight glass is clear, the magnetic clutch is engaged and there is no significant temperature difference between compressor inlet and discharge lines; the system has lost some refrigerant.
3. If the sight glass shows foam or bubbles, the system could be low on charge. The system has to be recharged with refrigerant.



MAGNETIC CLUTCH TEST

55200850280

1. Disconnect the magnetic clutch connector to the magnetic clutch.
2. Connect battery (+) voltage directly to the connector for the magnetic clutch.
3. If the magnetic clutch is normal, there will be "click". If the pulley and armature do not make contact ('click'), there is a malfunction.

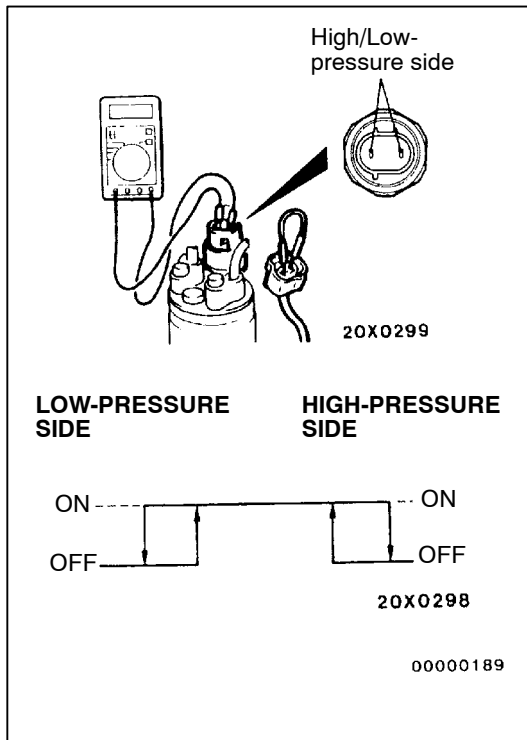
RECEIVER DRIER TEST

55200860139

Operate the unit and check the piping temperature by touching the receiver drier outlet and inlet.

If there is a difference in the temperatures, the receiver assembly is restricted.

Replace the receiver assembly.

**DUAL PRESSURE SWITCH CHECK**

55201040228

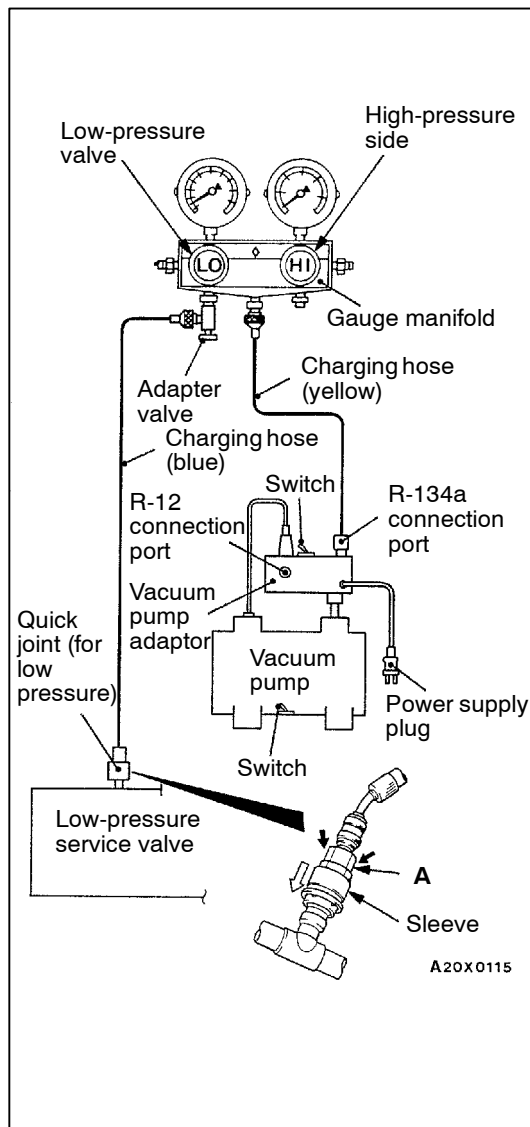
1. Remove the dual pressure switch connector and connect the high/low-pressure side terminals located on the harness side as shown in the illustration.
2. Install a gauge manifold to the high-pressure side service valve of the refrigerant line. (Refer to Performance Test.)
3. When the high/low-pressure sides of the dual pressure switch are at operation pressure (ON) and there is continuity between the respective terminals, then the condition is normal. If there is no continuity, replace the switch.

Items	Switch position	
	OFF → ON	ON → OFF
Low-pressure side kPa	221	196
High-pressure side kPa	2,354	2,942

COMPRESSOR DRIVE BELT ADJUSTMENT

55200100255

Refer to GROUP 11 – On-vehicle Service.



CHARGING

55200120268

1. With the handles turned back all the way (valve closed), install the adaptor valve to the low-pressure side of the gauge manifold.
2. Connect the charging hose (blue) to the adaptor valve.
3. Connect the quick joint (for low-pressure) to the charging hose (blue).
4. Connect the quick joint (for low-pressure) to the low-pressure service valve.

NOTE

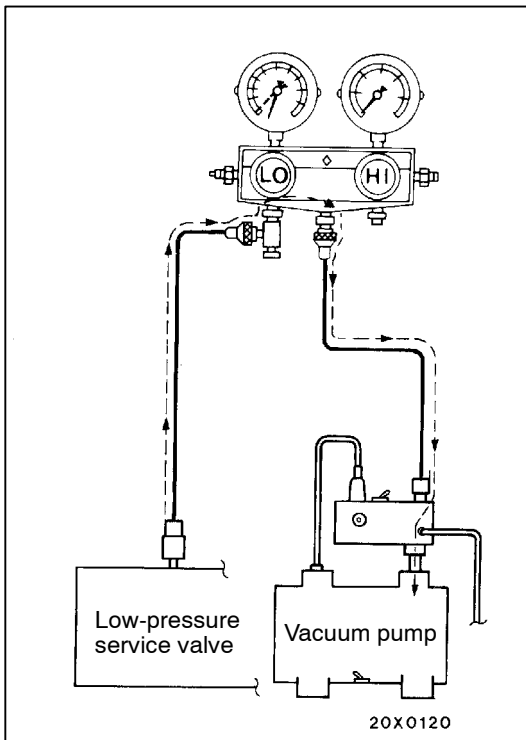
The low-pressure service valve should be connected to the suction hose.

Caution

- (1) Use tools that are suited to R-134a.
 - (2) To install 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.
5. Close the high and low-pressure valves of the gauge manifold.
 6. Install the vacuum pump adaptor to the vacuum pump.
 7. Connect the vacuum pump plug to the vacuum pump adaptor.
 8. Connect the charging hose (yellow) to the R-134a connection port of the vacuum pump adaptor.
 9. Tighten the adaptor valve handle (valve open).
 10. Open the low-pressure valve of the gauge manifold.
 11. Turn the power switch of the vacuum pump to the ON position.

NOTE

Even if the vacuum pump power switch is turned ON, the vacuum pump will not operate because of the power supply connection in step (7).



12. Turn the vacuum pump adaptor switch to the R-134a side to start the vacuum pump.

Caution

Do not operate the compressor for evacuation.

13. Evacuate to a vacuum reading of 100 kPa or higher (takes approx. 10 minutes).
14. Turn the vacuum pump adaptor switch OFF and allow to stand it for 5 minutes.

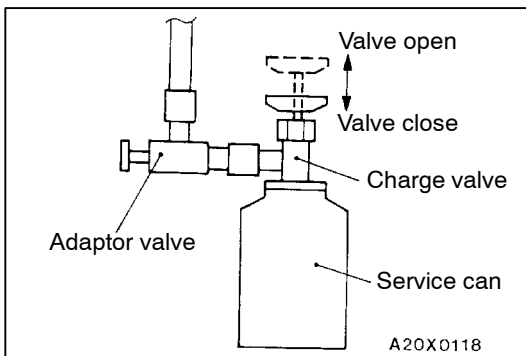
Caution

Do not operate the compressor in the vacuum condition; damage may occur.

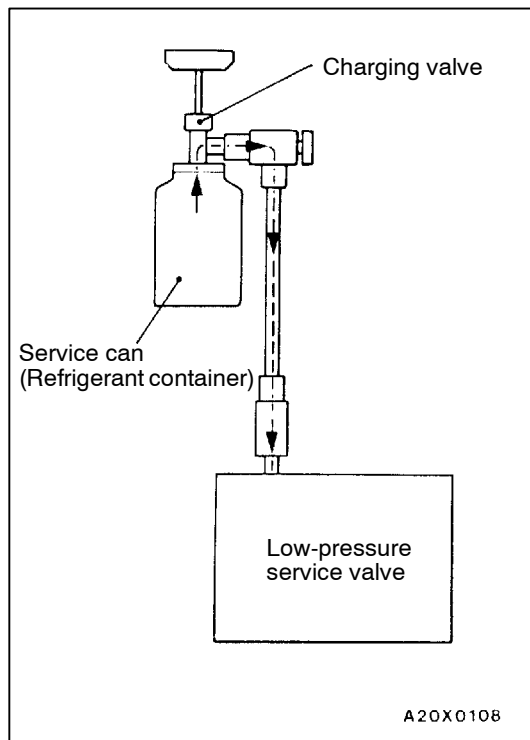
15. Carry out a leak test. (Good if the negative pressure does not drop.)

Caution

If the negative pressure drops, increase the tightness of the connections, and then repeat the evacuation procedure from step (12).



16. With the handle turned back all the way (valve open), install the charging valve to the service van.
17. Turn the handle of the adaptor valve back all the way (valve closed), remove it from the gauge manifold and install the service can.
18. Tighten the handle of the charging valve (valve closed) to puncture the service can.



19. Turn the handle of the charging valve back (valve open) and tighten the handle of the adaptor valve (valve open) to charge the system with refrigerant.

Caution

If the service can is inverted, liquid refrigerant may be drawn into the compressor damaging it by liquid compression. Keep the service can upright to ensure that refrigerant is charged in gas state.

20. If the refrigerant is not drawn in, turn the handle of the adaptor valve back all the way (valve closed).
21. Check for gas leaks using a leak detector.
If a gas leak is detected, re-tighten the connections, and then repeat the charging procedure from evacuation in step (12).

Caution

The leak detector for R-134a should be used.

22. Start the engine.
23. Operate the A/C and set to the lowest temperature (MAX. COOL).
24. Fix the engine speed at 1,500 r/min.
25. Tighten the handle of the adaptor valve (valve open) to charge the required volume of refrigerant.

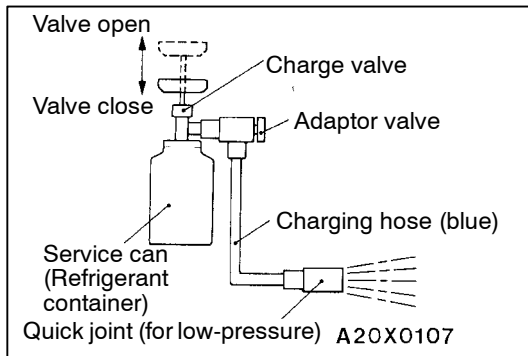
Caution

If the service can is inverted, liquid refrigerant may be drawn into the compressor damaging it by liquid compression. Keep the service can upright to ensure that refrigerant is charged in gas state.

26. After charging with refrigerant, turn the handle of the adaptor valve back all the way (valve closed).
27. Tighten the charging valve handle (valve closed).
Remove the quick joint (for low-pressure) from the low-pressure service valve.

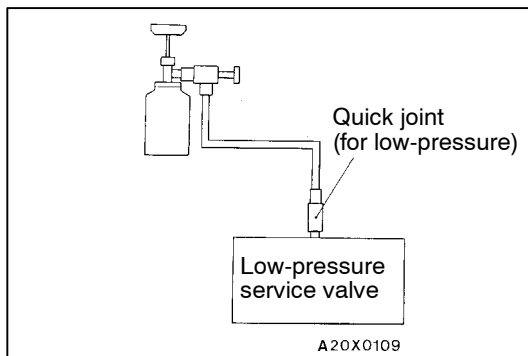
NOTE

If the service can is not emptied completely, keep the handles of the charging valve and adaptor valve closed for the next charging.



CORRECTING LOW REFRIGERANT LEVEL IN CASE THE SERVICE CAN IS USED.

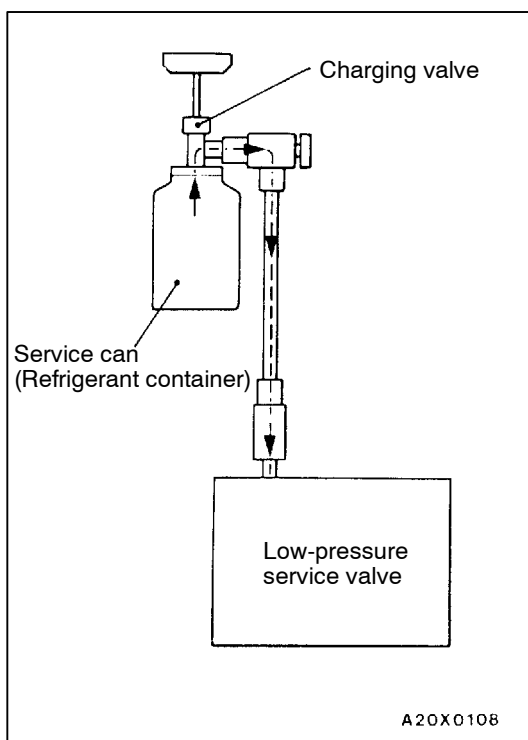
1. Install the charge valve with the handle turned all the way back (valve open) to the service can.
2. Install the adaptor valve with the handle turned all the way back (valve close) to the charging valve.
3. Connect the charging hose (blue) to the adaptor valve.
4. Connect the charging hose (blue) to the quick joint (for low-pressure).
5. Tighten the handle of the charge valve (valve close), and pierce the service can.
6. Turn the handle of the adaptor valve to bleed the air.



7. Install the quick joint (for low-pressure) to the low-pressure service valve.

NOTE

The low-pressure service valve should be connected to the suction hose.



8. Start the engine.
9. Operate the air conditioner and set at the lowest temperature (MAX. COOL).
10. Fix the engine speed at 1,500 r/min.
11. Tighten the handle of the adaptor valve (valve open), and replenish refrigerant while checking the quantity through the sight glass.

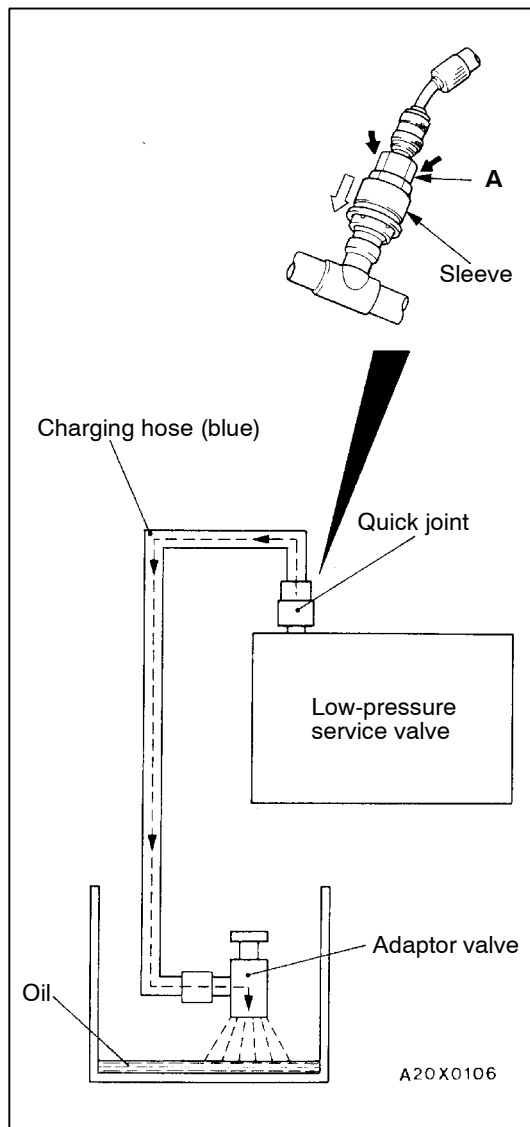
Caution

If the service can is inverted, liquid refrigerant may be draw into the compressor damaging it by liquid compression. Keep the service can upright to ensure that refrigerant is changed in gas state.

12. After replenishing is completed, turn the handle of the adaptor valve all the way back (valve close), and remove the quick joint.

NOTE

When there is remainder of refrigerant in the service can, keep it for next use with the charge valve and the valve of the adaptor valve being closed.

**DISCHARGING SYSTEM**

1. Run the engine at an engine speed of 1,200–1,500 r/min for approximately 5 minutes with the A/C operating to return to the oil.

NOTE

Returning the oil will be more effective if it is done while driving.

2. Stop the engine.
3. Connect the charging hose (blue) to the adaptor valve with its handle turned back all the way (valve closed).
4. Connect the quick joint to the charging hose (blue).
5. Install the quick joint to the low-pressure service valve.

NOTE

The low-pressure service valve should be connected to the suction hose.

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.

6. Place the adaptor valve inside the container and discharge the refrigerant by opening the handle gradually so that oil does not gush out.

NOTE

Any oil remaining in the container should be returned to the A/C system.

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 180 mL 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.

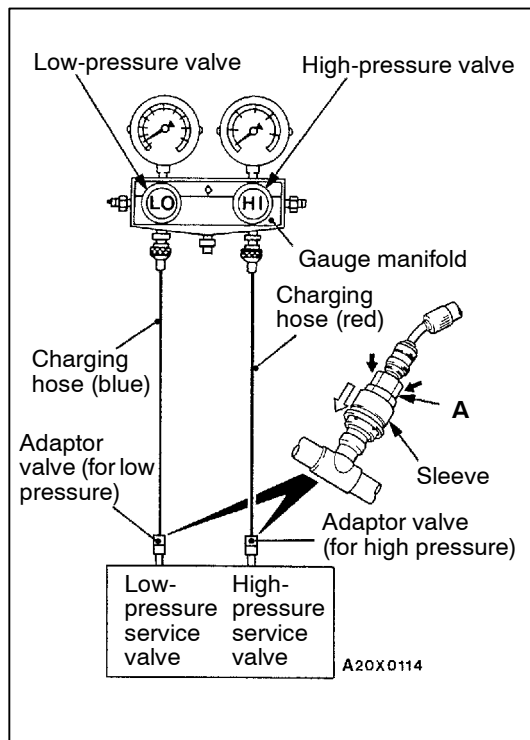
Compressor oil: SUN PAG 56**Quantity**

Condenser: 20 mL

Evaporator: 70 mL

Suction hose: 10 mL

Receiver: 10 mL



PERFORMANCE TEST

55200140240

1. The vehicles to be tested should be in a place that is not in direct sunlight.
2. Close the high and low-pressure valve of the gauge manifold.
3. 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.
4. 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).
5. 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 discharge hose and the low-pressure service valve is on the suction hose.

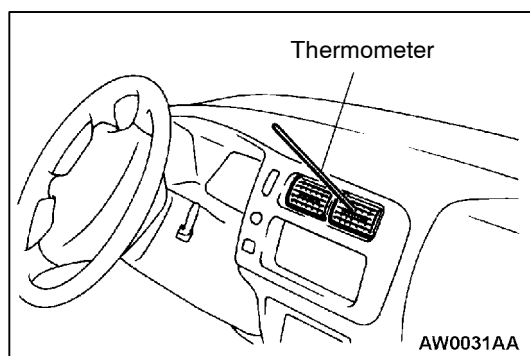
Caution

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.

6. Start the engine.
7. Set the controls to the A/C as follows:
A/C switch: A/C - ON position
Mode selection: Face position
Temperature control: Max. cooling position
Air selection: Recirculation position
Blower switch: HI (Fast) position
8. Adjust engine speed to 1,000 r/min with A/C clutch engaged.
9. Engine should be warmed up with doors and windows closed.
10. Insert a thermometer in the center air outlet and operate the engine for 20 minutes.
11. Note the discharge air temperature.

NOTE

If the clutch cycles, take the reading before the clutch disengages.



Performance Temperature Chart

Garage ambient temperature °C	20	25	35	40
Discharge air temperature °C	4.5 – 6.5	5.0 – 7.0	7.2 – 9.2	8.5 – 10.5
Compressor high pressure kPa	830 – 1,130	1,000 – 1,300	1,200 – 1,500	1,550 – 1,850
Compressor low pressure kPa	95 – 195	105 – 205	125 – 225	145 – 245

REFRIGERANT LEAK REPAIR

55200150120

LOST CHARGE

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

1. Evacuate the system. (See procedure.)
2. Charge the system with approximately one pound of refrigerant.
3. Check for leaks.
4. Discharge the system.
5. Repair leaks.
6. Replace receiver drier.

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 reassembly to avoid keeping the system open any longer than necessary.

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 or 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 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.

Unified plumbing connections with O-rings, these O-rings are not reusable.

COMPRESSOR NOISE

55200870156

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.

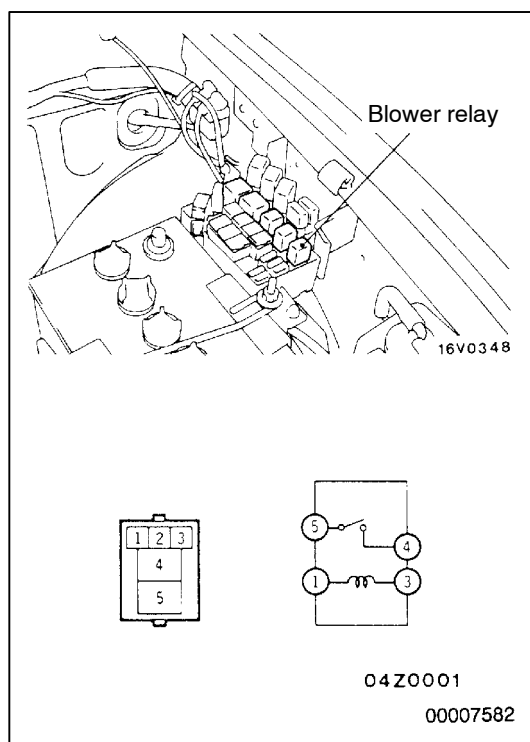
Noises that develop during A/C operation can often be misleading. For example: what sounds like a failed front bearing or connecting rod, may be caused by loose bolts, nuts, mounting brackets, or a loose clutch assembly. Verify accessory drive belt tension (power steering or alternator).

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

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

ADJUSTMENT

1. Select a quiet area for testing. Duplicate conditions as much as possible. Switch compressor on and off several times to clearly identify compressor noise. To duplicate high ambient conditions (high head pressure), restrict air flow through condenser. Install manifold gauge set to make sure discharge pressure doesn't exceed 2,070 kPa.
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. (See "Charging System".)
5. Recheck compressor noise as in Step 1.
6. If noise still exists, loosen compressor mounting bolts and retorque. Repeat Step 1.
7. If noise continues, replace compressor and repeat Step 1.

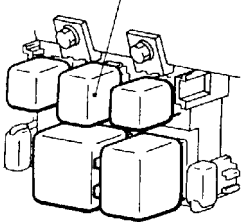


POWER RELAY CONTINUITY CHECK BLOWER RELAY

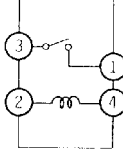

55200880289

Battery voltage	Terminal No.			
	1	3	4	5
Power is not supplied	○	○		
Power is supplied	⊕	⊖	○	○

Rear heater relay



T0092AA



20Z0001

00009186

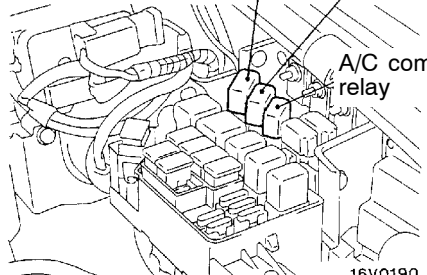
REAR HEATER RELAY

Battery voltage	Terminal No.			
	1	2	3	4
Power is not supplied		○		○
Power is supplied	○	⊖	○	⊕

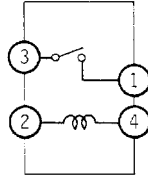

Condensor fan control relay

Condenser fan relay

A/C compressor relay



16V0190



20Z0001

00005069

A/C COMPRESSOR RELAY, CONDENSER FAN RELAY,
CONDENSER FAN CONTROL RELAY

Battery voltage	Terminal No.			
	1	2	3	4
Power is not supplied		○		○
Power is supplied	○	⊖	○	⊕

IDLE-UP OPERATION CHECK

55200160321

<6G7>

1. Before inspection and adjustment, set vehicle in the following condition:
 - Engine coolant temperature: 80 – 90°C
 - Lights, electric cooling fan and accessories: Set to OFF
 - Transmission: Neutral
 - Steering wheel: Straight forward
2. Check whether or not the idling speed is the standard value.

Standard value: 700 ± 100 r/min

NOTE

There is no necessity to make an adjustment, because the idling speed is automatically adjusted by the ISC system. If, however, there occurs a deviation from the standard value for some reason, check the ISC system. (Refer to GROUP 13A – On-vehicle Service.)

3. When the A/C is running after turning the A/C switch to ON, and the blower switch to the MH or HI position, check to be sure that the idle speed is at the standard value.

Standard value:

When low load on air conditioner (Outside air temperature sensor: ON): 750 ± 100 r/min

When high load on air conditioner (Outside air temperature sensor: OFF): 900 ± 100 r/min

NOTE

Whether a low load or a high load is applied to the air conditioner is determined by the outside air temperature signal that is sent to the engine-ECU from the automatic compressor-ECU.

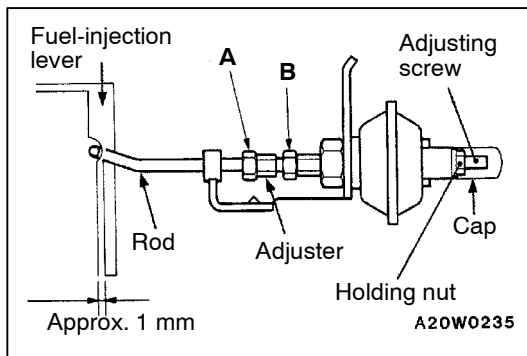
<4D5>

1. Before inspection and adjustment, set vehicle in the following condition:
 - Engine coolant temperature: 80 – 90 °C
 - Lamps, electric cooling fan and accessories: Set to OFF
 - Transmission: Neutral
 - Steering wheel: Straight forward
2. Check whether or not the idling speed is the standard value.

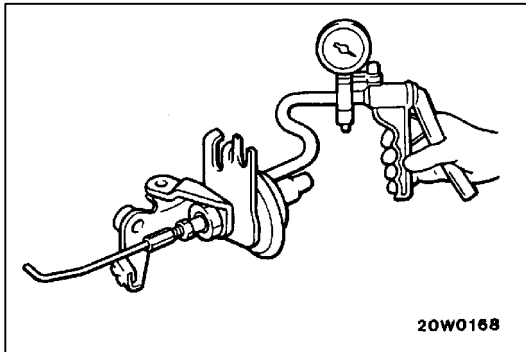
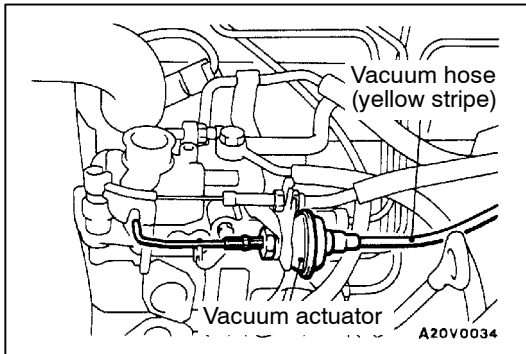
Standard value: 750 ± 50 r/min

3. If there is a deviation of the idling speed from the standard value, adjust the idling speed. (Refer to GROUP 11B – On-vehicle Service.)
4. Check to be sure that the idling speed becomes the standard value when the A/C switch is switched ON and the A/C is activated.

Standard value: 950 ± 50 r/min



5. If there is a deviation of the idling speed from the standard value, adjust the idling speed by the following the procedures.
 - (1) Loosen nuts (A) and (B).
 - (2) Adjust, by using the adjuster, so that the end of the vacuum actuator's rod is at the position indicated in the illustration.
 - (3) Securely tighten nuts (A) and (B).
 - (4) After activating the vacuum actuator, check to be sure that the rod and the lever do not contact when the activation is cancelled.
 - (5) Remove the cap and loosen the nut for holding.
 - (6) Adjust to the specified r/min by turning the adjusting screw.
 - (7) Securely tighten the holding nut, and then attach the cap.



VACUUM ACTUATOR CHECK <4D5>

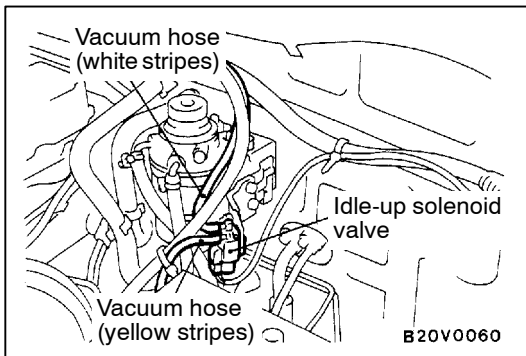
55200890060

1. Pull off the vacuum hose (yellow stripe) connected to the vacuum actuator.
2. Connect a manual vacuum pump to the nipple of the vacuum actuator.
3. Check to be sure that the vacuum actuator rod starts to contact when 8 kPa of negative pressure is applied, and that the rod contracts to its full stroke when 12 kPa of negative pressure is applied.
4. Disconnect the manual vacuum pump from the vacuum actuator, and connect the vacuum hose (yellow stripe) to the vacuum actuator.
5. Start the engine and let it run at idle. Then cover the end of the vacuum hose (yellow stripe) with a finger and check the negative pressure when the A/C switch is turned on and off.

A/C switch	Negative pressure at hose end
OFF	No
ON	Yes

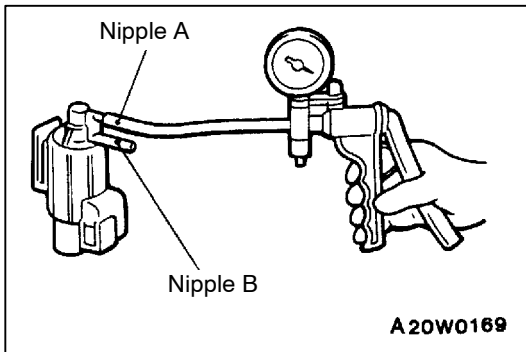
Caution

Be careful, when connecting the vacuum hose not to damage it.

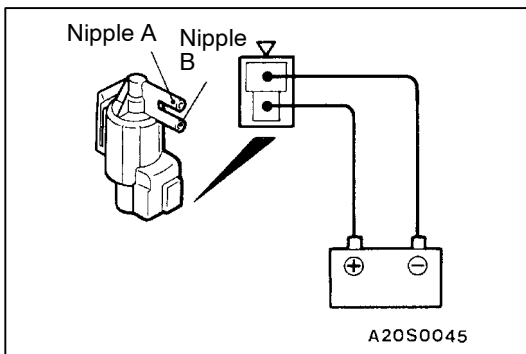
**IDLE-UP SOLENOID VALVE CHECK <4D5>**

55201120038

1. Disconnect the vacuum hoses (white stripes, yellow stripes) from the solenoid valve.
2. Disconnect the harness connector.



3. Connect a manual vacuum pump to the nipple A.

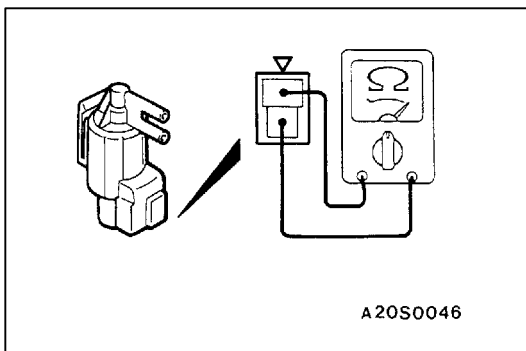


4. Check air-tightness by applying a vacuum with voltage applied directly from the battery to the solenoid valve terminal and without applying voltage.

Battery voltage	Nipple B	Vacuum condition
Applied	Open	Vacuum leaks from nipple B
	Blocked with finger *1	Vacuum is maintained
Not applied	Open	Vacuum is maintained
	Blocked with finger *2	

NOTE

In case of mark *1, a vacuum can be felt but in case of mark *2, a vacuum can not be felt.



5. Measure the resistance of the solenoid valve.

Standard value: Approx. 40 Ω

6. When disconnecting the vacuum hose, always make a mark so that the hose can be reconnected at original position.

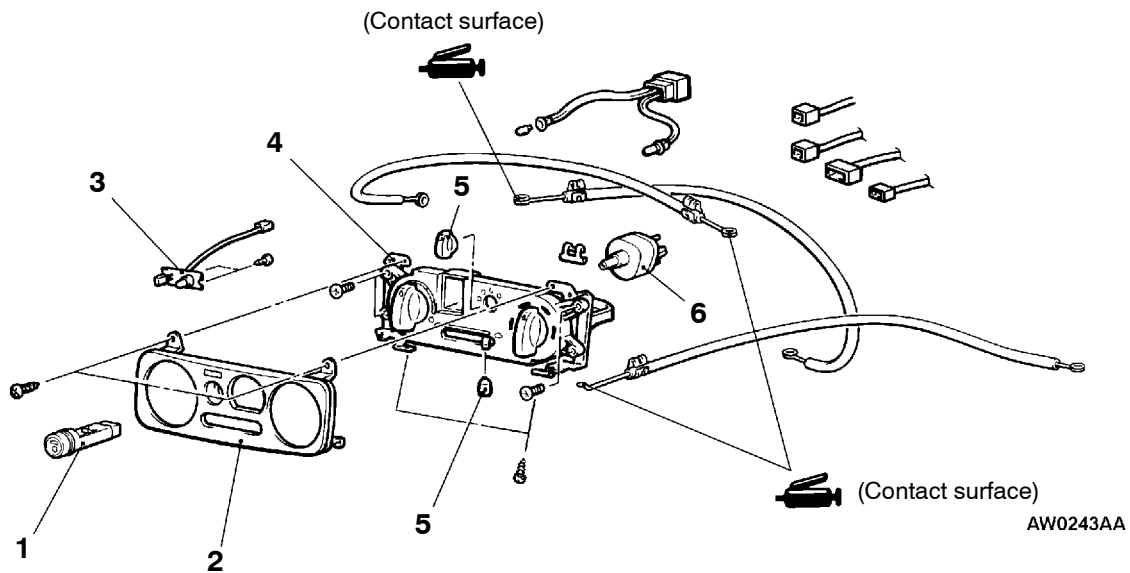
HEATER CONTROL ASSEMBLY AND A/C SWITCH

55200240131

REMOVAL AND INSTALLATION

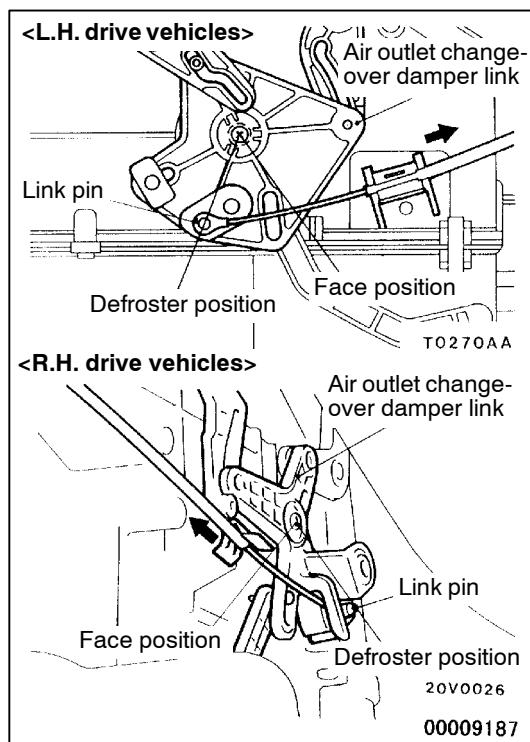
Pre-removal and Post-installation Operation

- Foot Duct Removal and Installation (Refer to P.55-47.)
- Driver Side Under Cover or Knee Protector, Meter Bezel Assembly, Glove Box Assembly, Center Under Cover Removal and Installation (Refer to GROUP 52A – Instrument Panel.)

**Removal steps**

1. A/C switch
2. Heater control bezel
3. Rear heater indicator
<Vehicles with rear heater>

- ▶◀ 4. Heater control assembly
5. Knob
 6. Blower switch

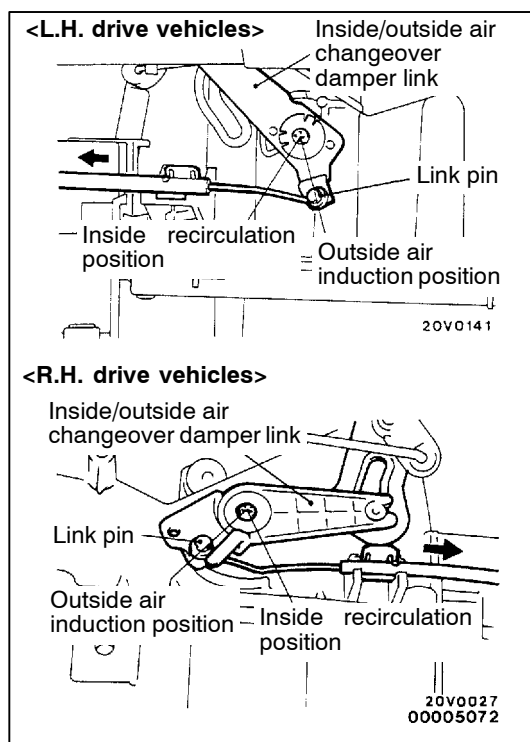
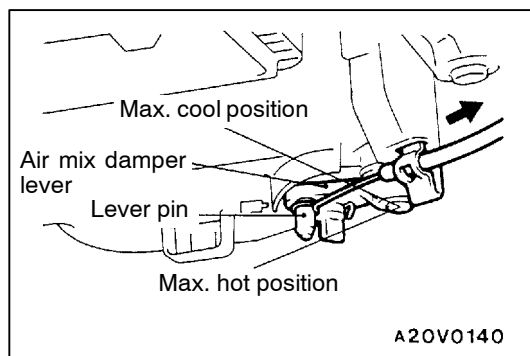
**INSTALLATION SERVICE POINT****►A◀ HEATER CONTROL ASSEMBLY INSTALLATION**

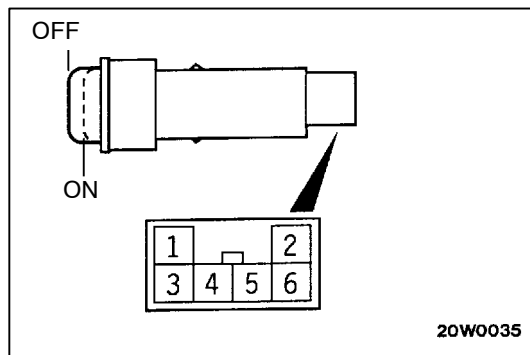
1. Follow the steps below to install the air outlet changeover damper link cable.
 - (1) Set the air outlet changeover control knob on the heater control assembly to the defroster position.
 - (2) Set the air outlet changeover damper link of the heater unit to the defroster position as shown in the illustration, and then connect the cable to the link pin.
 - (3) Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.

2. Follow the steps below to instal the air mix damper lever cable.
 - (1) Set the temperature control knob on the heater control assembly to the max. hot position.
 - (2) Set the air mix damper lever of the heater unit to the max. hot position as shown in the illustration, and then connect the cable to the lever pin.
 - (3) Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.

3. Follow the steps below to install the inside/outside air changeover damper link cable.
 - (1) Set the inside/outside air changeover control knob on the heater control assembly to the inside recirculation position.
 - (2) Set the inside/outside air changeover damper link of the blower assembly to the inside recirculation position as shown in the illustration, and then connect the cable to the link pin.
 - (3) Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.

4. After installation, ensure that each damper operates smoothly by operating the heater control assembly knob.



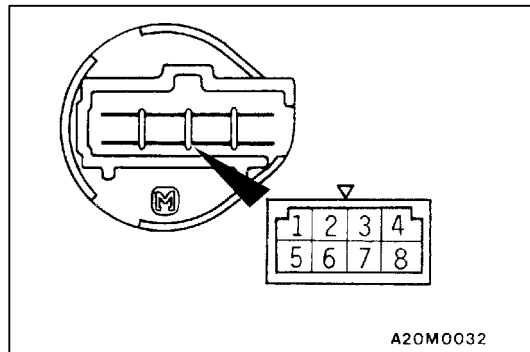


INSPECTION

55200220074

A/C SWITCH CONTINUITY CHECK

Switch position	Terminal No.						
	1	4	IND	5	3	ILL	6
OFF		○	⎓	○	○	⎓	○
ON	○	○	⎓	○	○	⎓	○



BLOWER SWITCH CONTINUITY CHECK

55200900091

Switch position	Terminal No.						
	1	2	3	5	6	7	8
OFF							
LO	○		○	○			○
ML	○			○	○		○
MH	○	○		○			○
HI	○			○		○	○

HEATER UNIT AND HEATER CORE

55100190303

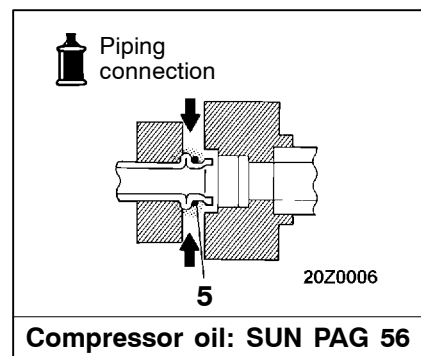
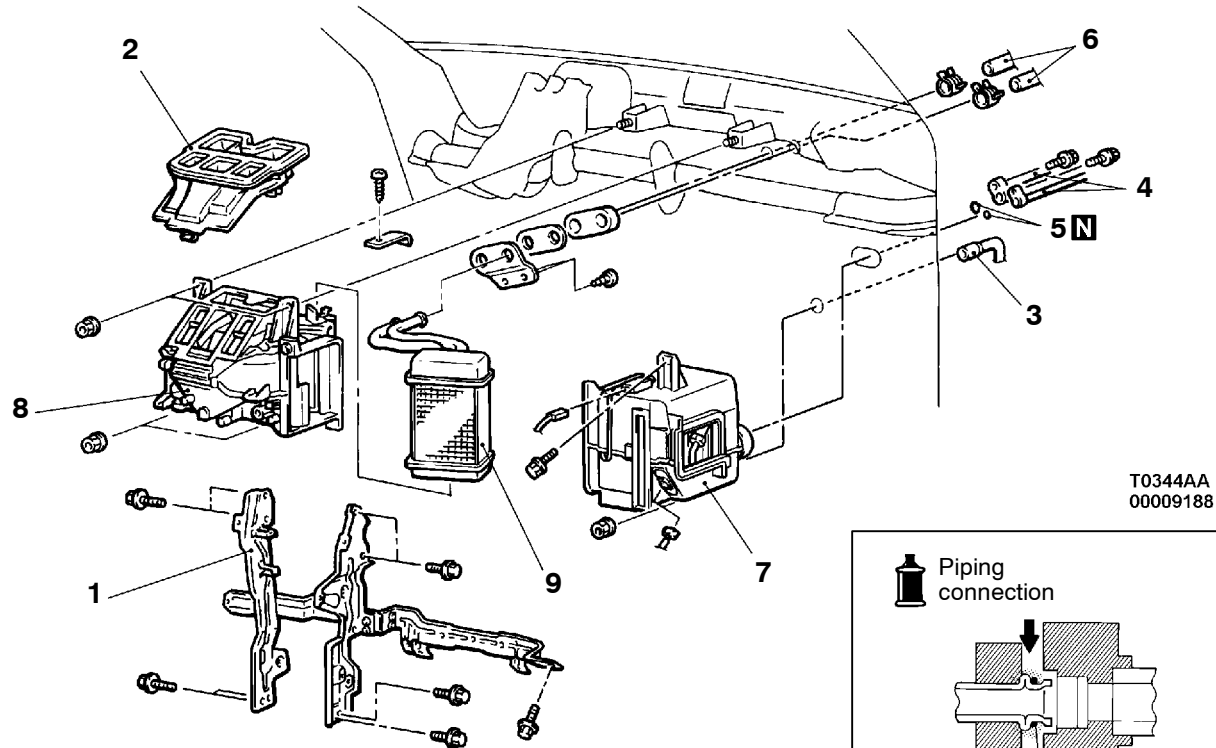
REMOVAL AND INSTALLATION

Caution: SRS

When removing and installing the heater unit from vehicles equipped with SRS, do not let it bump against the SRS-ECU or the components.

Pre-removal and Post-installation Operation

- Refrigerant Discharging and Charging <Vehicles with A/C> (Refer to P. 55-10, 14.)
- Engine Coolant Draining and Refilling (Refer to GROUP 14 - On-vehicle Service.)
- Instrument Panel Removal and Installation (Refer to GROUP 52A.)
- Joint Duct Removal and Installation <Vehicles without A/C> (Refer to P.55-28.)

**Removal steps**

1. Center reinforcement
2. Center ventilation duct
3. Drain hose <Vehicles with A/C>
4. Suction pipe or hose and liquid pipe connection <Vehicles with A/C>

5. O-ring
6. Heater hose connection
7. Evaporator <Vehicles with A/C>
8. Heater unit
9. Heater core



REMOVAL SERVICE POINT

◀A▶ SUCTION PIPE OR HOSE, LIQUID PIPE DISCONNECTION

Plug the disconnected hose and the evaporator nipple not to let foreign matter get into them.

Caution

Seal the hoses completely, otherwise the compressor oil and receiver will absorb water vapour easily.

INSTALLATION SERVICE POINT

▶A◀ EVAPORATOR INSTALLATION

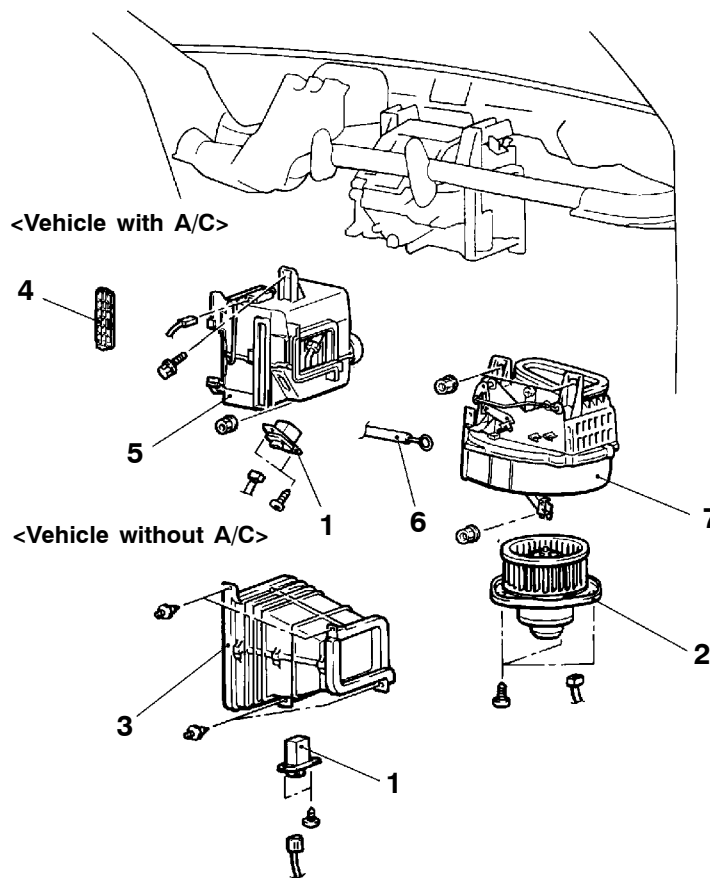
When replacing the evaporator, refill with a specified amount of compressor oil and install it (to the vehicle).

Compressor oil: SUN PAG 56

Quantity: 70 mL

BLOWER ASSEMBLY AND RESISTOR

55100280314

REMOVAL AND INSTALLATION

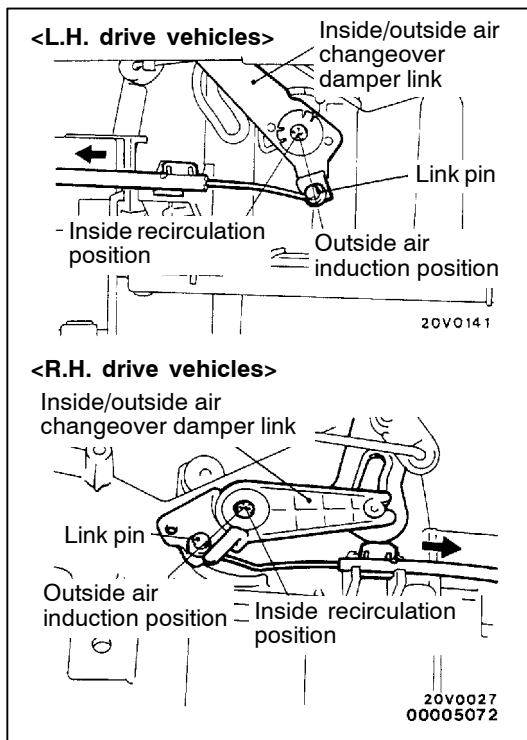
BV0113AA

Resistor, blower fan and motor removal steps

- Under cover and glove box assembly (Refer to GROUP 52A – Instrument Panel.)
1. Resistor
 2. Blower fan and motor

Blower case removal steps

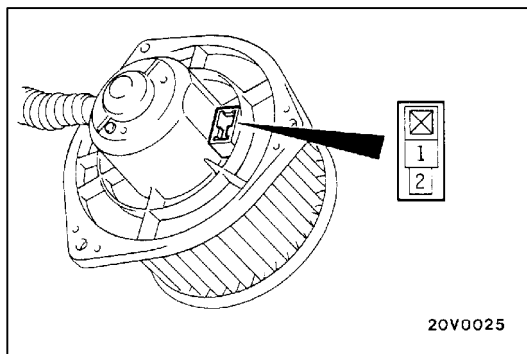
- Instrument panel (Refer to GROUP 52A.)
 - Glove box frame or center frame B (Refer to GROUP 52A – Instrument Panel.)
3. Joint duct <Vehicles without A/C>
 4. Cover <L.H. drive vehicles, Vehicles with A/C>
 5. Evaporator <Vehicles with A/C> (Refer to P.55-30.)
- ▶A◀
6. Inside/outside air changeover damper cable connection
 7. Blower case assembly



INSTALLATION SERVICE POINT

►A◀ INSIDE/OUTSIDE AIR CHANGEOVER DAMPER CABLE INSTALLATION

1. Set the inside/outside air changeover control knob on the heater control assembly to the inside recirculation position.
2. Set the inside/outside air changeover damper link of the blower assembly to the inside recirculation position as shown in the illustration, and then connect the cable to the link pin.
3. Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.

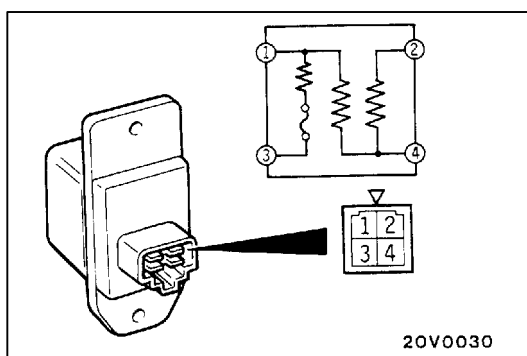


INSPECTION

55100290119

BLOWER FAN AND MOTOR CHECK

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



RESISTOR CHECK

Use a circuit tester to measure the resistance between the terminals as indicated below. Check that the measured value is at the standard value.

Standard value:

<L.H. drive vehicles>

Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.00
Between terminals 3 and 4 (ML)	1.10
Between terminals 3 and 1 (MH)	0.68

<R.H. drive vehicles>

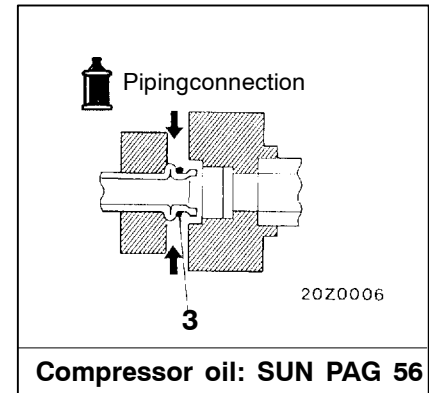
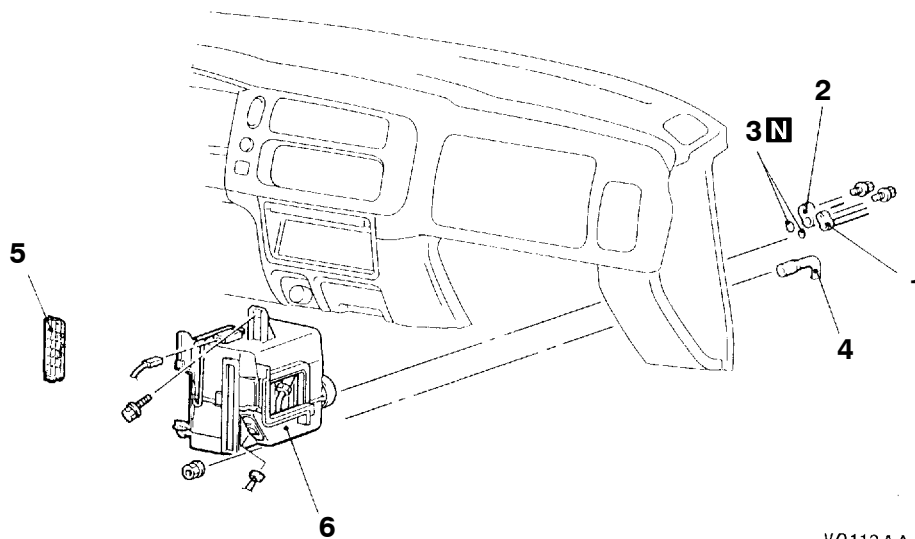
Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.48
Between terminals 3 and 4 (ML)	1.17
Between terminals 3 and 1 (MH)	0.28

EVAPORATOR <VEHICLES WITH A/C>

55200360271

REMOVAL AND INSTALLATION**Pre-removal and Post-installation Operation**

- Refrigerant Discharging and Charging (Refer to P. 55-10, 14.)
- Under Cover, Glove Box Assembly Removal and Installation (Refer to GROUP 52A – Instrument Panel.)



V0112AA

00009189

Removal steps

1. Suction pipe or hose connection
2. Liquid pipe connection
3. O-ring
4. Drain hose

- Glove box frame or center frame B (Refer to GROUP 52A – Instrument Panel.)
- 5. Cover <L.H. drive vehicles>
- 6. Evaporator

**REMOVAL SERVICE POINT****◀A▶ SUCTION PIPE OR HOSE, LIQUID PIPE DISCONNECTION**

Plug the disconnected hose and the evaporator nipple not to let foreign matter get into them.

Caution

Seal the hoses completely, otherwise the compressor oil and receiver will absorb water vapour easily.

INSTALLATION SERVICE POINT

►A◄ EVAPORATOR INSTALLATION

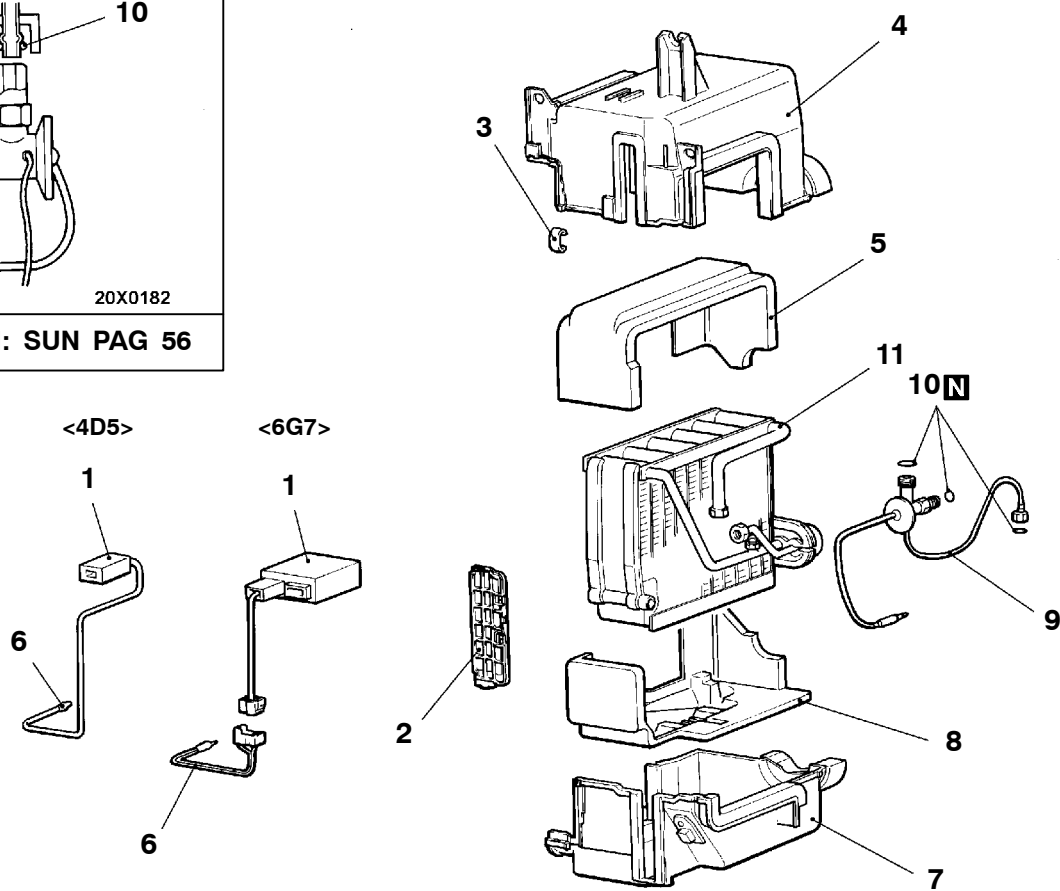
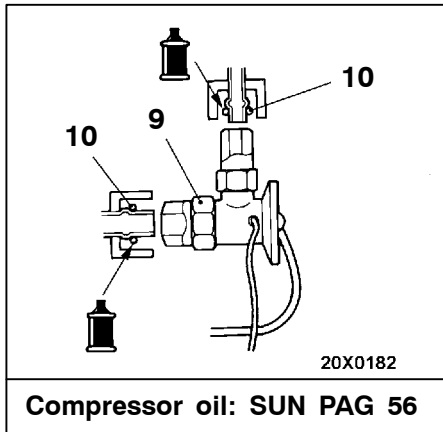
When replacing the evaporator, refill it with a specified amount of compressor oil and install it (to the vehicle).

Compressor oil: SUN PAG 56

Quantity: 70 mL

DISASSEMBLY AND REASSEMBLY

55200380215



W0244AA
00009190

Disassembly steps

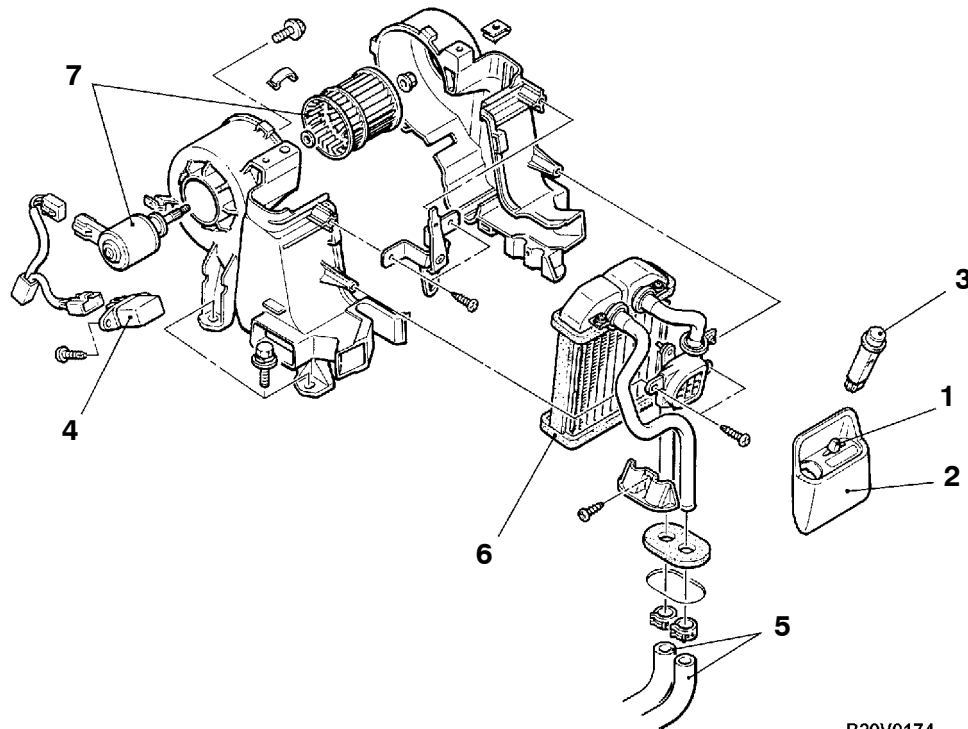
1. Automatic compressor controller
2. Cover <L.H. drive vehicles>
3. Clip
4. Evaporator cover (upper)
5. Lining, upper
6. Thermostat

7. Evaporator cover (lower)
8. Lining, lower
9. Expansion valve
10. O-ring
11. Evaporator

REAR HEATHER UNIT

REMOVAL AND INSTALLATION

55100470025



B20V0174

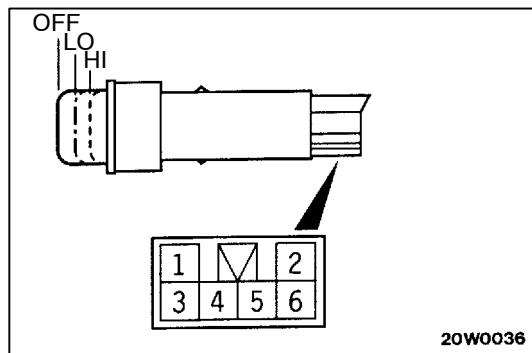
Rear heater unit switch removal steps

1. Knob
2. Rear heater control panel assembly
3. Rear heater switch

Fan motor assembly removal steps

- Rear floor console (Refer to GROUP 52A - Floor Console.)

4. Resistor
- Draining and supplying of coolant (Refer to GROUP 14 - On-vehicle Service.)
5. Rear heater hose connection
6. Rear heater core assembly
7. Rear blower motor assembly

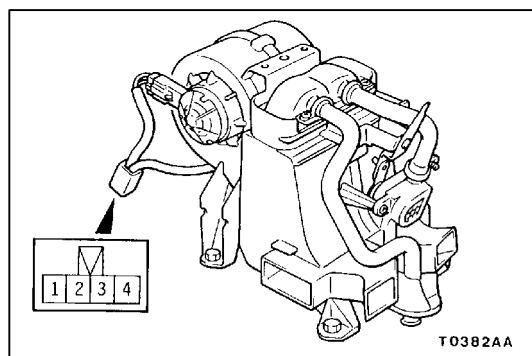


INSPECTION

55100480028

REAR HEATER SWITCH CONTINUITY CHECK

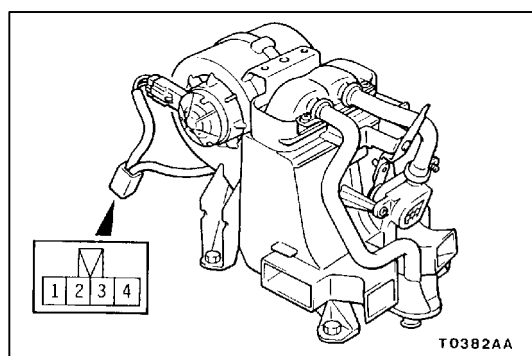
Level position	Terminal No.							
	1	2	4	IND	5	3	ILL	6
OFF						○	⊕	○
LO		○	○	yellow ▶	○	○	⊕	○
HI	○	○	○	orange ▶	○	○	⊕	○



REAR BLOWER MOTOR INSPECTION

Check that the motor rotates when the battery voltage is applied between the terminals. Make sure that there is no abnormal noise from the motor at this time.

Battery connection terminal				Motor operation (HI)
1	2	3	4	
⊕		⊖		Rotates (HI)
⊕			⊖	Rotates (LO)



RESISTOR CHECK

Use an ohmmeter to check the resistance between terminals number 3 and number 4.

Check that the measured value is at the standard value.

Standard value: 3.9 Ω

COMPRESSOR AND TENSION PULLEY

55200410440

REMOVAL AND INSTALLATION

Caution: SRS

When removing and installing the compressor from vehicles equipped with SRS, do not let it bump against the front impact sensor (L.H.).

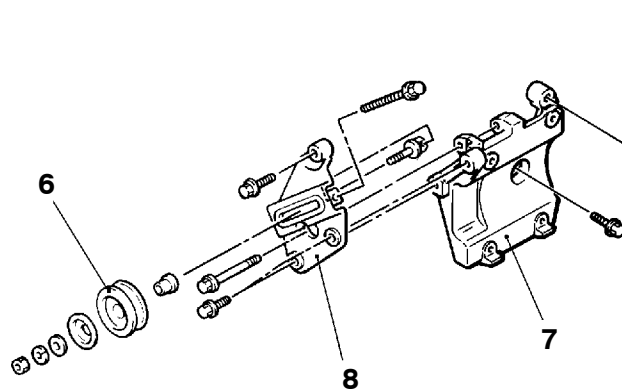
Pre-removal Operation

- Refrigerant Discharging (Refer to P. 55-14.)
- Battery Removal

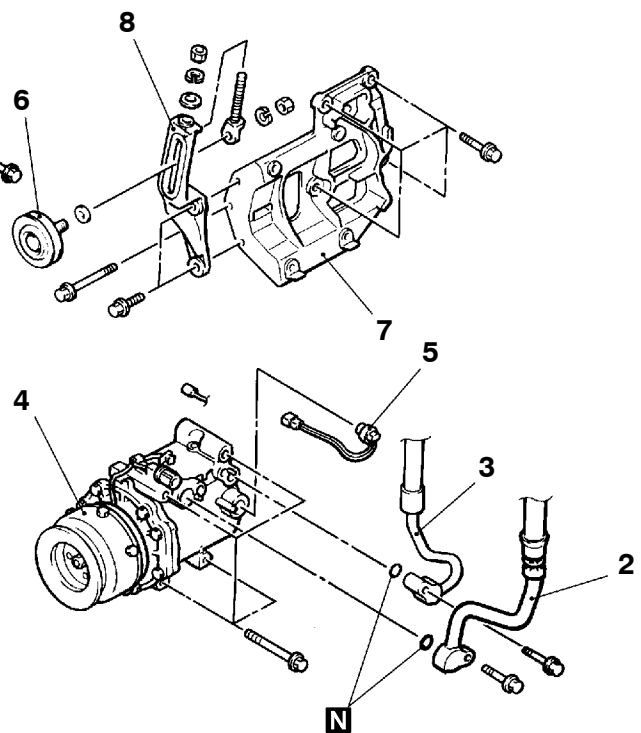
Post-installation Operation

- Drive Belt Tension Adjustment (Refer to GROUP 11 – On-vehicle Service.)
- Battery Installation
- Refrigerant Charging (Refer to P. 55-10.)

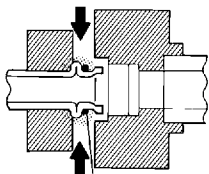
<6G7>



<4D5>



Hose connection



O-ring 20Z0006

Compressor oil: SUN PAG 56

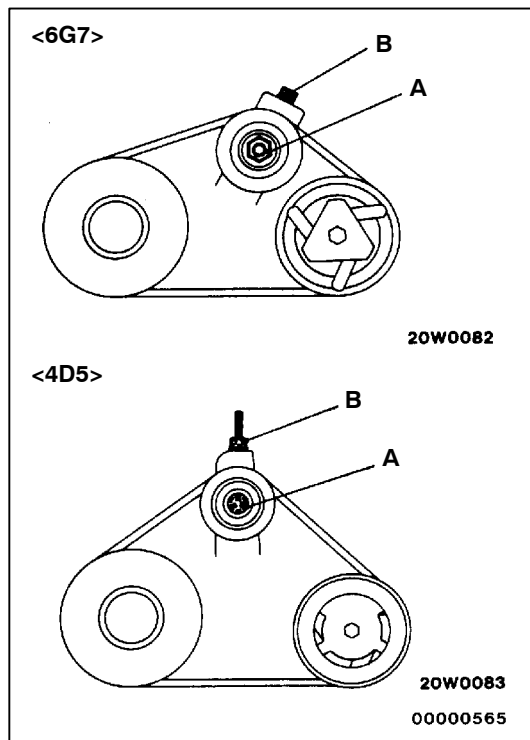
W0245AA
00009191

Removal steps



1. Drive belt
2. Suction hose connection
3. Discharge hose connection
4. Compressor

5. Refrigerant-temperature switch
6. Tension pulley
7. Compressor bracket
8. Tension pulley bracket assembly

**REMOVAL SERVICE POINTS****◀A▶ DRIVE BELT REMOVAL**

1. Loosen the nut "A" for holding.
2. Loosen the bolt "B" for adjustment.
3. Remove the drive belt.

◀B▶ SUCTION HOSE, DISCHARGE HOSE DISCONNECTION

Plug the disconnected hose and the compressor nipple not to let foreign matter get into them.

Caution

Seal the hoses completely, otherwise the compressor oil and receiver will absorb water vapour easily.

◀C▶ COMPRESSOR REMOVAL

When doing this work, be careful not to spill the compressor oil.

INSTALLATION SERVICE POINT**▶A◀ COMPRESSOR INSTALLATION**

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

1. Measure the amount (X mL) 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

$$170 \text{ mL} - X \text{ mL} = Y \text{ mL}$$

NOTE

- (1) Y mL indicates the amount of oil in the refrigerant line, the condenser, the evaporator etc.
- (2) When replacing the following parts at the same times as the compressor, subtract the rated oil amount of the each part from Y mL and discharge from the new compressor.

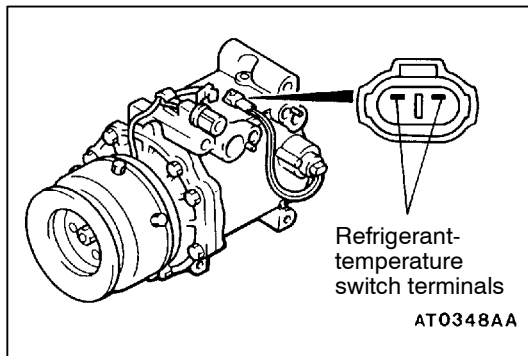
Quantity

Evaporator: 70 mL

Condenser: 20 mL

Suction hose: 10 mL

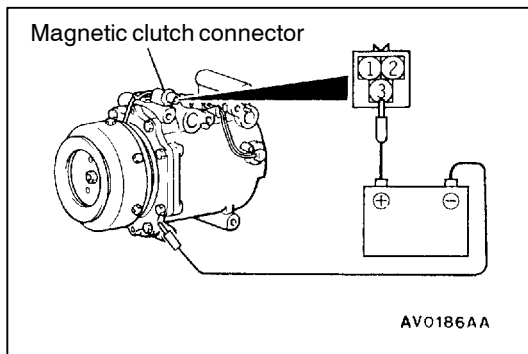
Receiver: 10 mL

**INSPECTION**

55200930137

REFRIGERANT-TEMPERATURE SWITCH SIMPLE CHECK

When the A/C is off, check that there is continuity between the refrigerant-temperature switch terminals. If no, replace the compressor assembly.

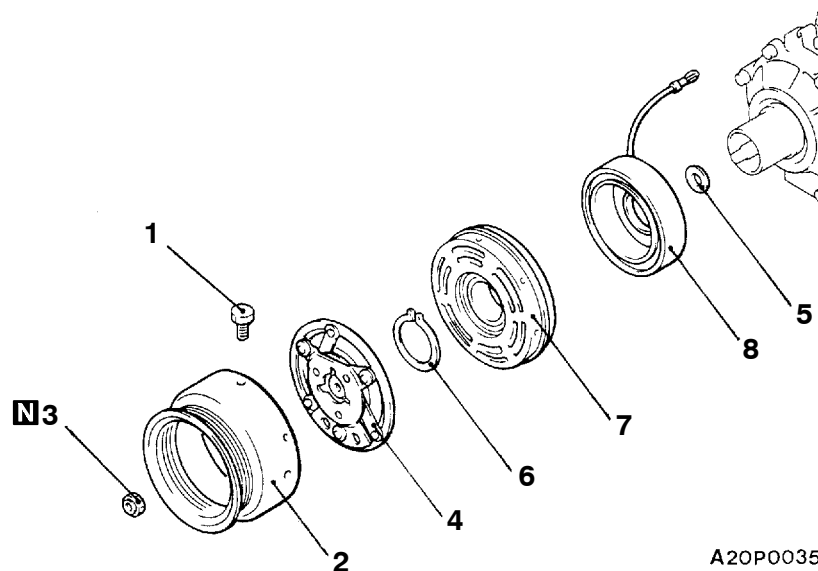
**COMPRESSOR MAGNETIC CLUTCH OPERATION INSPECTION**

55200850297

Connect the battery (+) terminal to the compressor magnetic clutch connector terminal 3, and ground the battery (-) terminal to the body of the compressor. The condition is normal if the sound of the magnetic clutch (click) can be heard.

**MAGNETIC CLUTCH
DISASSEMBLY AND REASSEMBLY**

55200460339



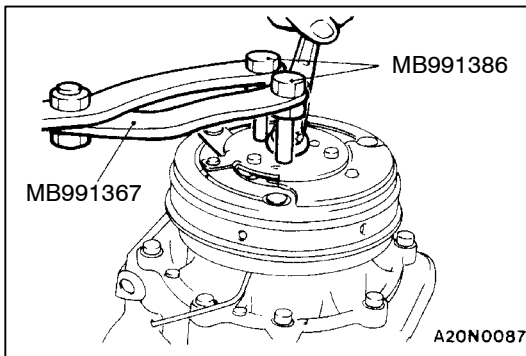
A20P0035

Disassembly steps

1. Bolt
2. Pulley
- Air gap adjustment
3. Nut
4. Armature plate

5. Shims
6. Snap ring
7. Rotor
8. Clutch coil

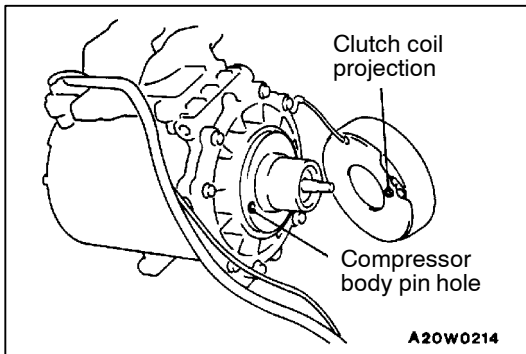




DISASSEMBLY SERVICE POINT

◀A▶ NUT REMOVAL

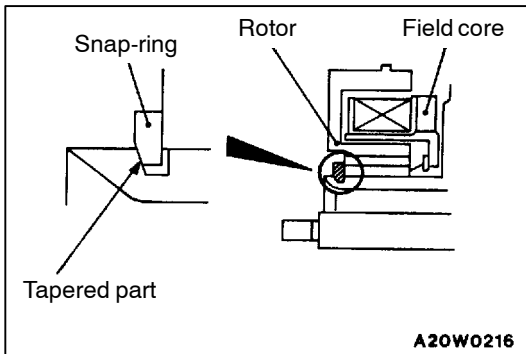
Use special tools to hold the magnetic clutch, and remove the nut.



REASSEMBLY SERVICE POINTS

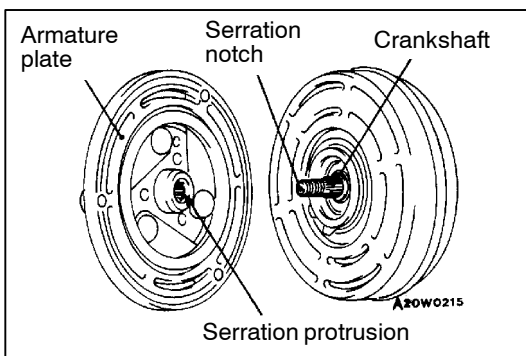
▶A◀ CLUTCH COIL INSTALLATION

When installing the clutch coil to the A/C compressor body, install so that the pin hole of the A/C compressor body and the clutch coil projection are aligned.



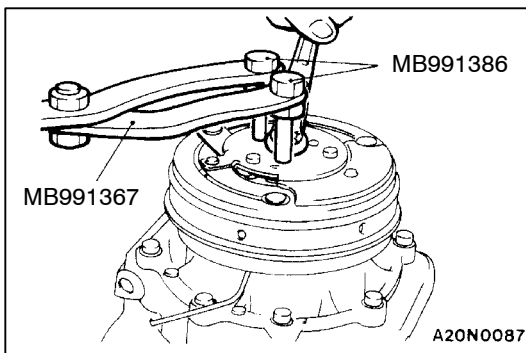
▶B◀ SNAP RING INSTALLATION

Install the snap ring so that the tapered surface is to the outside.



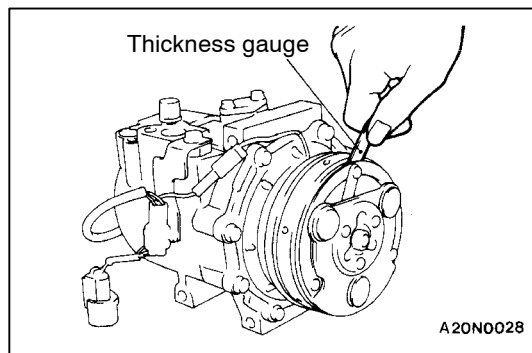
▶C◀ ARMATURE PLATE INSTALLATION

Align the serration protrusion on the crankshaft with the notch on the armature and install.



▶D◀ NUT INSTALLATION

Use special tools to hold the magnetic clutch, and tighten the nut in the same manner as for removal.

**►E◄ AIR GAP ADJUSTMENT**

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

Standard value: 0.3 – 0.5 mm

NOTE

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

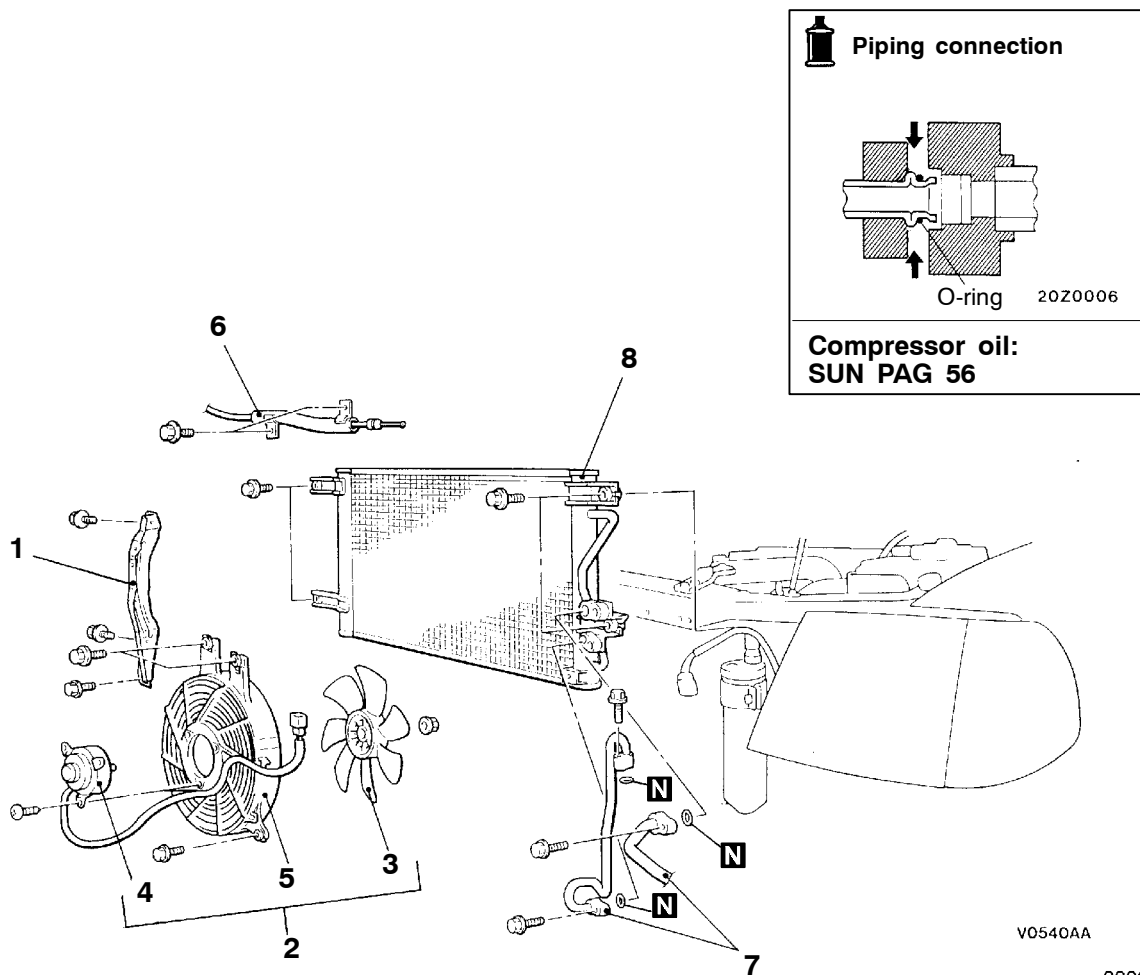
CONDENSER AND CONDENSER FAN MOTOR

55200670350

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Radiator Grille Removal and Installation (Refer to GROUP 51 - Grille, Moulding and Garnish.)
- Front Bumper Removal and Installation (Refer to GROUP 51 - Front Bumper.)
- Hood Latch Removal and Installation (Refer to GROUP 42 - Hood.)
- Engine Oil Cooler Removal and Installation <4D5> (Refer to GROUP 12.)



Condenser fan motor removal steps

1. Hood lock stay
2. Condenser fan motor and shroud assembly
3. Condenser fan
4. Condenser fan motor
5. Shroud

Condenser removal steps

- Refrigerant Discharging and Charging (Refer to P.55-10.)
1. Hood lock stay
 2. Condenser fan motor and shroud assembly
 6. Cable protector
 7. Discharge hose, liquid pipe A and condenser connection
 8. Condenser



REMOVAL SERVICE POINTS**◀A▶ LIQUID PIPE A/DISCHARGE HOSE
DISCONNECTION**

Plug the disconnected pipe, hose and the condenser nipple not to let foreign matter get into them.

Caution

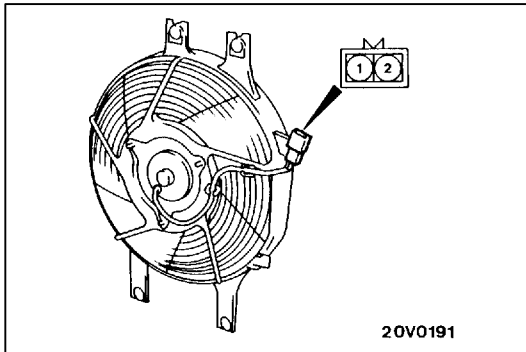
Seal the hoses completely, otherwise the compressor oil and receiver will absorb water vapour easily.

INSTALLATION SERVICE POINT**▶A◀ CONDENSER INSTALLATION**

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

Compressor oil: SUN PAG 56

Quantity: 20 mL

**INSPECTION**

55200680193

CONDENSER FAN MOTOR CHECK

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

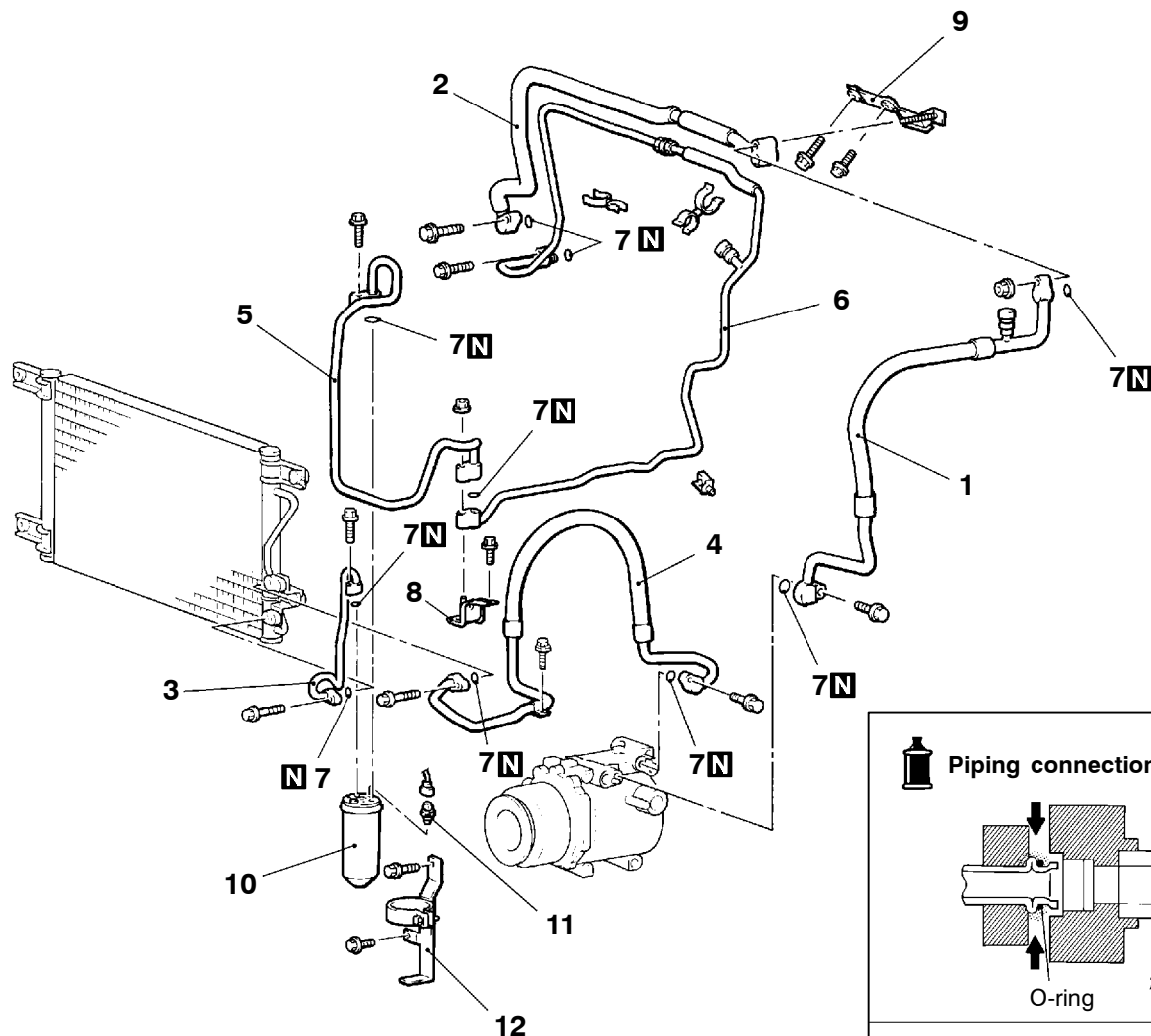
REFRIGERANT LINE

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

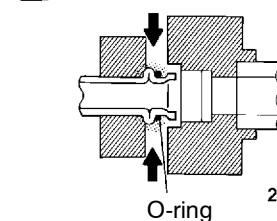
- Refrigerant Discharging and Charging (Refer to P. 55-10, 14.)
- Radiator Grill Removal and Installation (Refer to GROUP 51 - Grille, Moulding and Garnish.)
- Front Bumper Removal and Installation (Refer to GROUP 51 - Front Bumper.)
- Battery Removal and Installation
- Windshield Washer Tank Removal and Installation (Refer to GROUP 51 - Windshield Wiper and Washer.)

<L.H. drive vehicles>



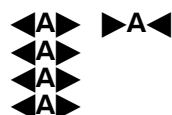
W0127AA
00009192

Piping connection



Compressor oil:
SUN PAG 56

Removal steps

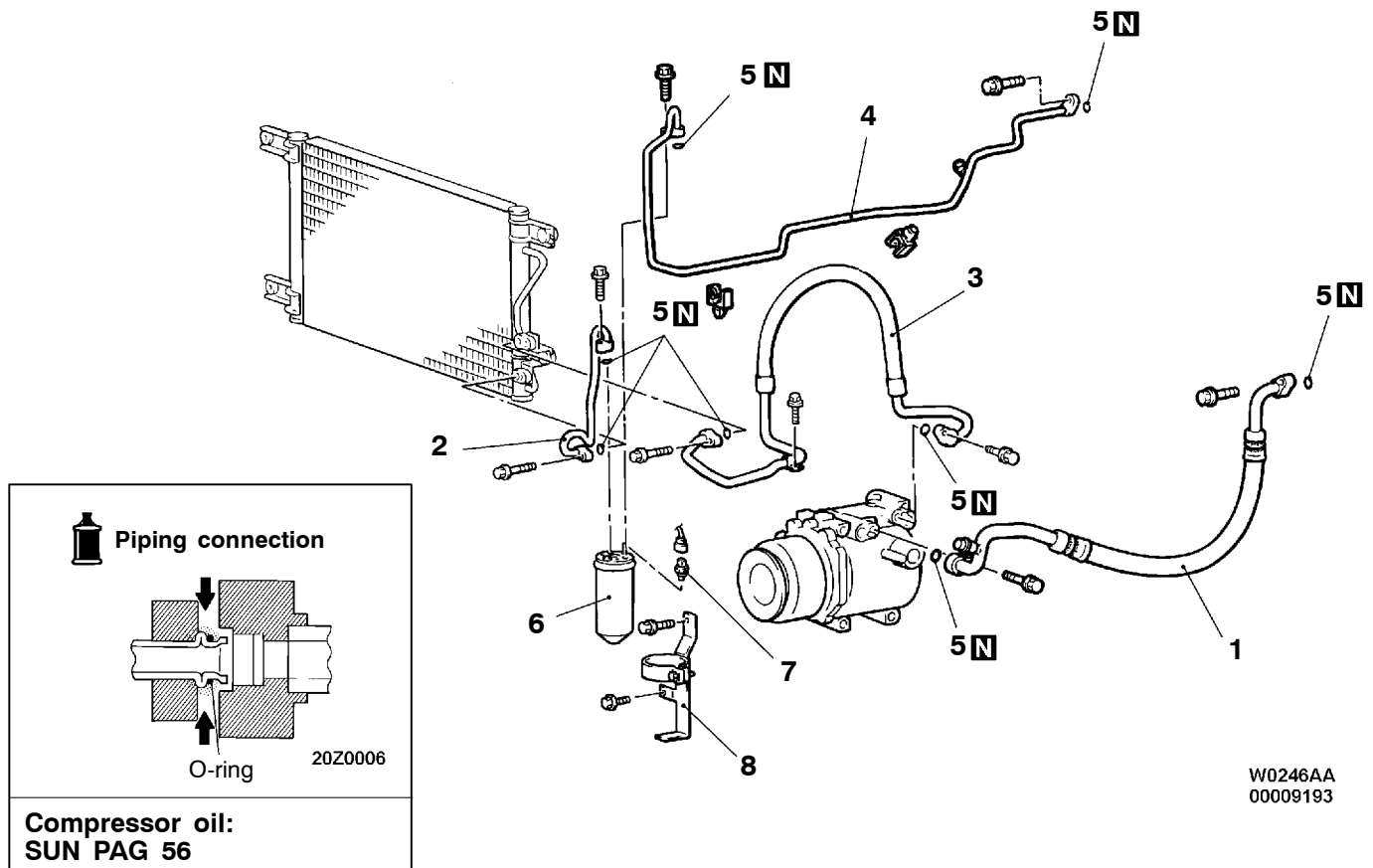


1. Suction hose
2. Suction pipe A
3. Liquid pipe A
4. Discharge hose
5. Liquid pipe B
6. Liquid pipe C



7. O-ring
8. Cramp bracket
9. Suction pipe bracket
10. Receiver assembly
11. Dual pressure switch
12. Receiver bracket

<R.H. drive vehicles>

**Removal steps**

1. Suction hose
2. Liquid pipe A
3. Discharge hose
4. Liquid pipe B



5. O-ring
6. Receiver assembly
7. Dual pressure switch
8. Receiver bracket

REMOVAL SERVICE POINT**◀A▶ HOSE/PIPE/RECEIVER ASSEMBLY
DISCONNECTION**

Plug the disconnected hose, the receiver, the evaporator and the compressor nipple not to let foreign matter get into them.

Caution

Seal the hoses completely, otherwise the compressor oil and receiver will absorb water vapour easily.

INSTALLATION SERVICE POINT

▶A◀ SUCTION HOSE/RECEIVER ASSEMBLY
INSTALLATION

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

Compressor oil: SUN PAG 56

Quantity:

Suction hose: 10 mL

Receiver assembly: 10 mL

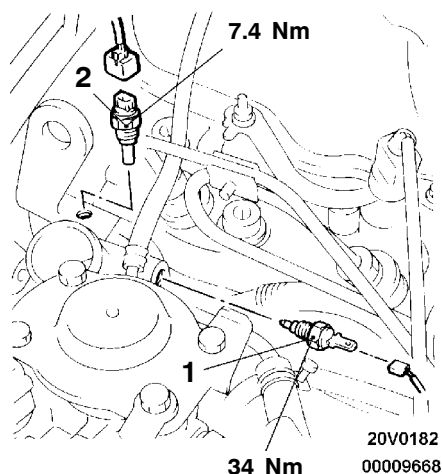
ENGINE COOLANT TEMPERATURE SWITCH <4D5>

55200730096

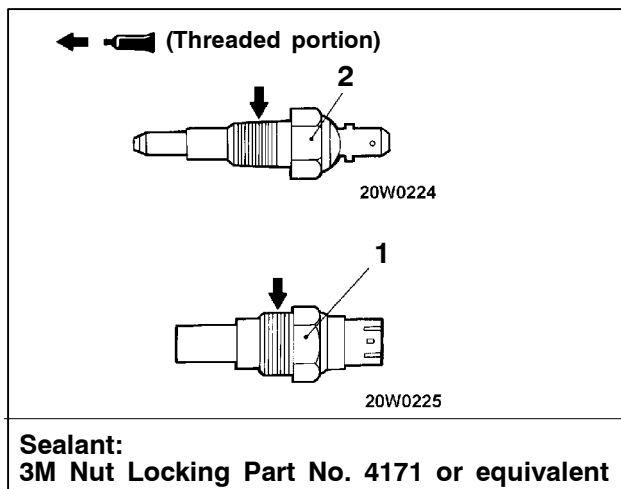
REMOVAL AND INSTALLATION

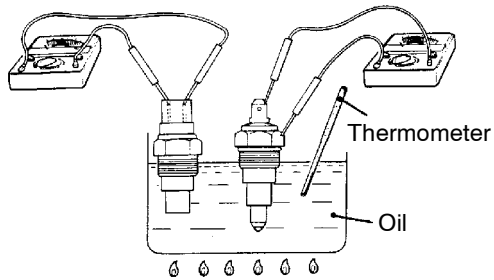
Pre-removal and Post-installation Operation

- Coolant Refilling (Refer to GROUP 14 – On-vehicle Service.)
- Intercooler Removal and Installation (Refer to GROUP 15.)

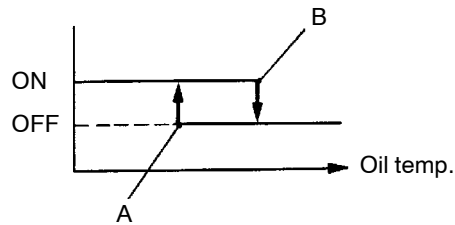


1. Engine coolant temperature switch (for A/C cut-off)
2. Engine coolant temperature switch (for condenser fan)

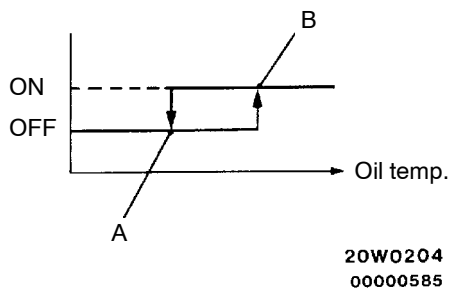




<For A/C cut-off>



<For condenser fan>

**INSPECTION****ENGINE COOLANT TEMPERATURE SWITCH
CONTINUITY CHECK**

1. Dip the engine coolant temperature switch in oil and heat the oil with a gas burner or similar item.

Caution**Do not heat any more than is necessary.**

2. Check the continuity with a circuit tester as the temperature of the oil changes, and the condition is normal if the continuity is within the following ranges.

Standard value:

Engine coolant temperature switch	Temperature	Continuity
For A/C cut-off	Less than 108 °C (Temperature at point A)	ON (Continuity)
	More than 115 °C (Temperature at point B)	OFF (No continuity)
For condenser fan	Less than 97 °C (Temperature at point A)	OFF (No continuity)
	More than 102 °C (Temperature at point B)	ON (Continuity)

IDLE-UP SYSTEM <4D5>

55200810035

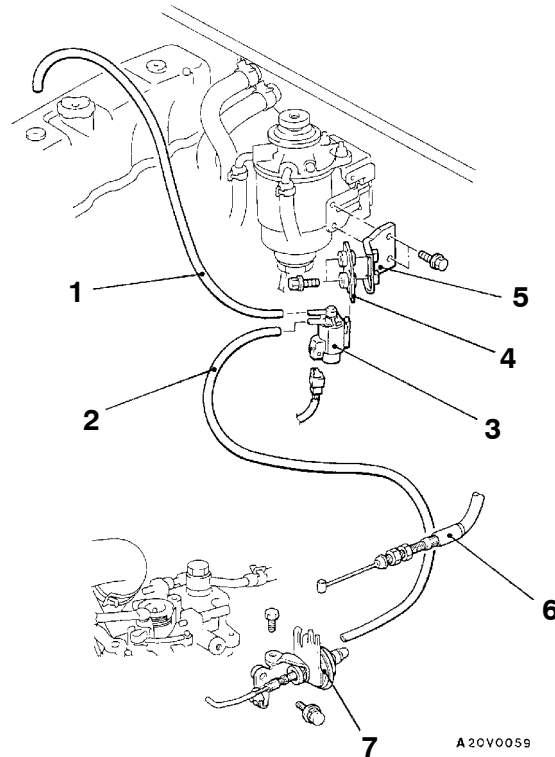
REMOVAL AND INSTALLATION

Pre-removal Operation

- Intercooler Removal (Refer to GROUP 15.)

Post-installation Operation

- Accelerator Cable Adjustment (Refer to GROUP 17 - On-vehicle Service.)
- Intercooler Installation (Refer to GROUP 15.)
- Idle-up Operation Check (Refer to P. 55-20.)



Idle-up solenoid valve removal steps

1. Vacuum hose (white stripe) connection
2. Vacuum hose (yellow stripe) connection
3. Idle-up solenoid valve
4. Solenoid valve bracket B
5. Solenoid valve bracket A

Vacuum actuator assembly removal steps

2. Vacuum hose (yellow stripe) connection
6. Accelerator cable connection
7. Vacuum actuator assembly

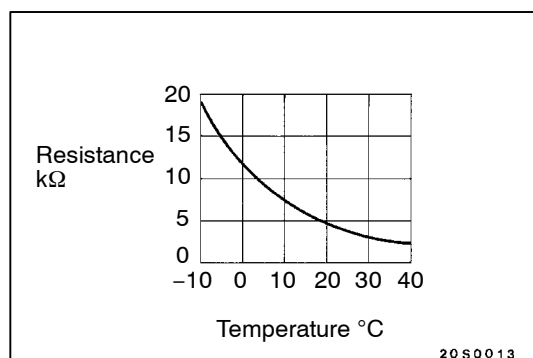
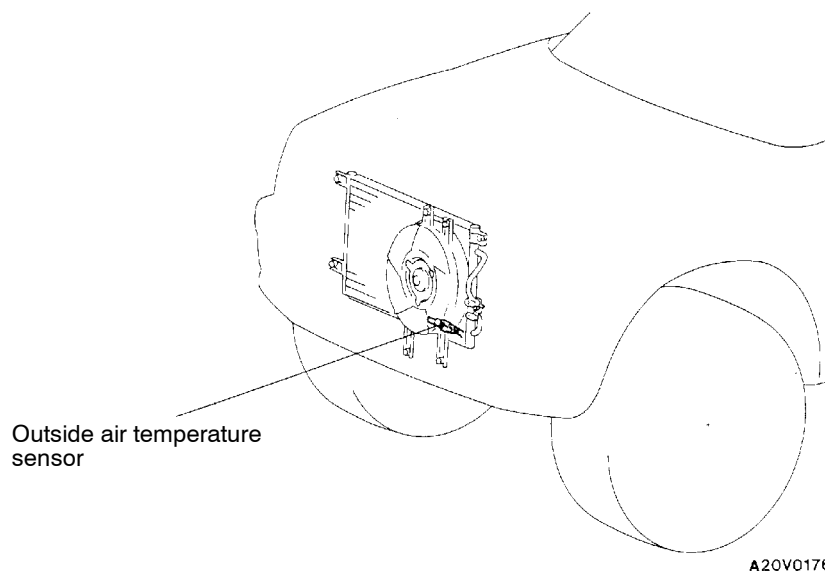
OUTSIDE AIR TEMPERATURE SENSOR <6G7>

55400340080

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Front Bumper Removal and Installation
(Refer to GROUP 51 – Front Bumper.)



INSPECTION

55400350076

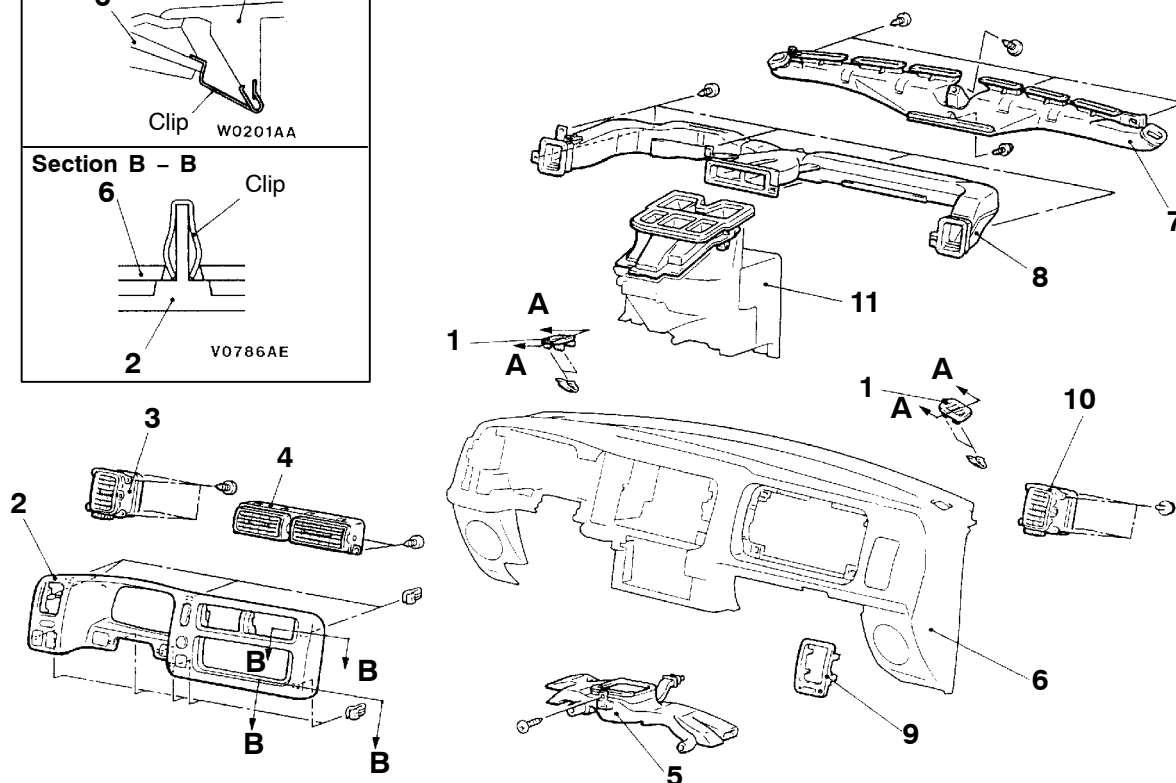
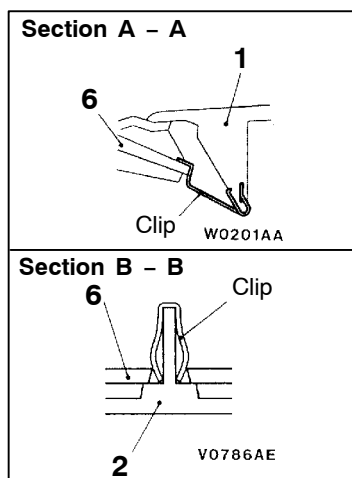
When the resistance between the sensor terminals is measured under two or more temperature conditions, the resistance should approximately satisfy the illustrated values.

NOTE

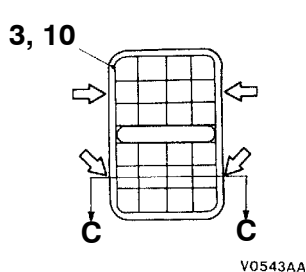
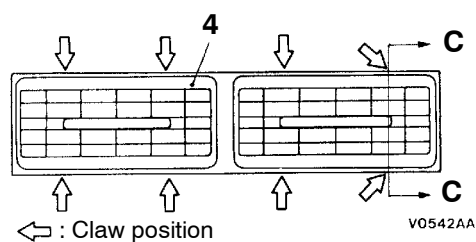
The temperature conditions when checking should not exceed the range shown in the diagram.

VENTILATORS

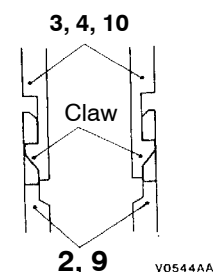
REMOVAL AND INSTALLATION



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Section C - C



1. Side defroster grille

**Air outlet assembly (Driver's side)
and center outlet assembly removal
steps**

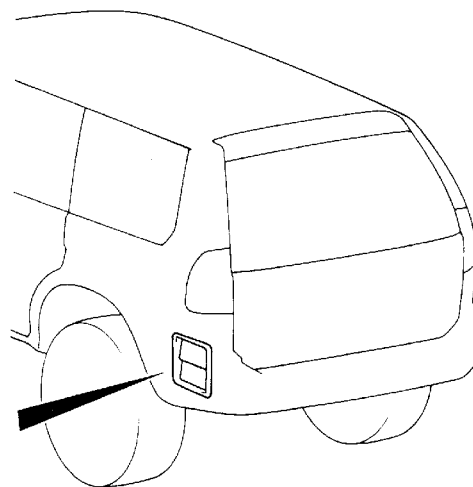
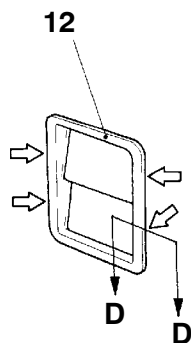
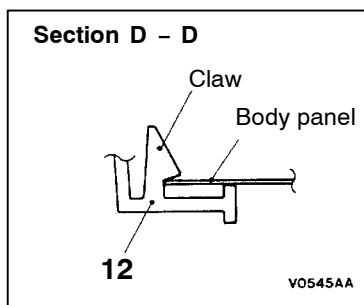
2. Meter bezel assembly
3. Air outlet assembly (Driver's side)
4. Center outlet assembly

Foot duct removal steps

- Floor console assembly (Refer to GROUP 52A - Floor Console.)
- 5. Foot duct

**Defroster nozzle, distribution duct,
air outlet assembly (Passenger's
side) and center ventilation duct
removal steps**

6. Instrument panel (Refer to GROUP 52A - Instrument Panel.)
7. Defroster nozzle
8. Distribution duct
9. Air outlet grille
10. Air outlet assembly (Passenger's side)
11. Center ventilation duct

**NOTE**

⇔ : Claw position

20V0165

00007589

Rear ventilation duct removal steps

- Rear bumper assembly (Refer to GROUP 51 – Rear Bumper.)
12. Rear ventilation duct


Service Bulletins

Click on the applicable bookmark to select the Service Bulletin.



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-99E55-001	
		Date: 1999-07-30	<Model> (EC) PAJERO SPORT <M/Y> 99-10 (EC) MONTERO SPORT
Subject: CHANGE IN RESISTANCE VALUE OF RESISTOR		Draft No.: 99SY121514	
Group: HEATER, A/C & VENTILATION			
INFORMATION	OVERSEAS SERVICE DEPT	 T.NITTA - VICE GENERAL MANAGER QUALITY INFORMATION ANALYSIS	

1. Description:

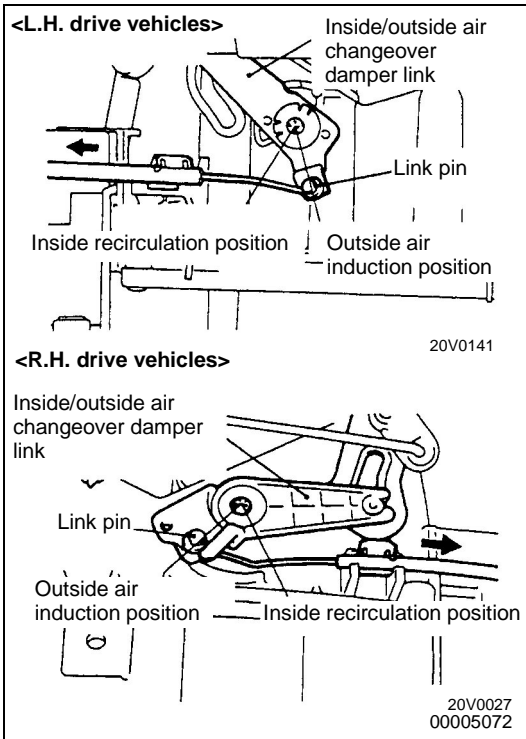
In order to modify the air flow characteristics of the blower fan, the standard resistance value of the resistor has been changed from 0.68 • to 0.37 • between terminals 3 and 1.

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
'99 PAJERO SPORT Workshop Manual chassis	PWJE9812	(English)	55-29
	PWJF9814	(French)	
	PWJG9815	(German)	
'99 MONTERO SPORT Workshop Manual chassis	PWJS9813	(Spanish)	

3. Effective Date:

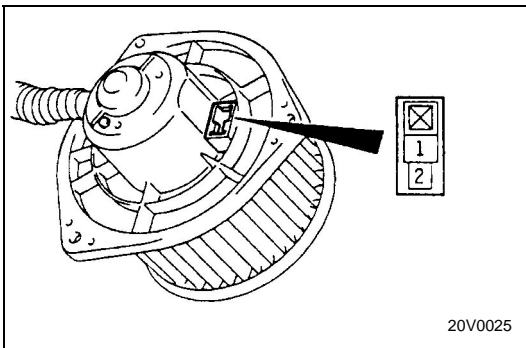
From the middle of February 1999.
Effective model: WM5436 and up



INSTALLATION SERVICE POINT

▶▶INSIDE/OUTSIDE AIR CHANGEOVER DAMPER CABLE INSTALLATION

1. Set the inside/outside air changeover control knob on the heater control assembly to the inside recirculation position.
2. Set the inside/outside air changeover damper link of the blower assembly to the inside recirculation position as shown in the illustration, and then connect the cable to the link pin.
3. Push the outer cable in the direction of the arrow so that there is no looseness, and then secure it with clip.



INSPECTION

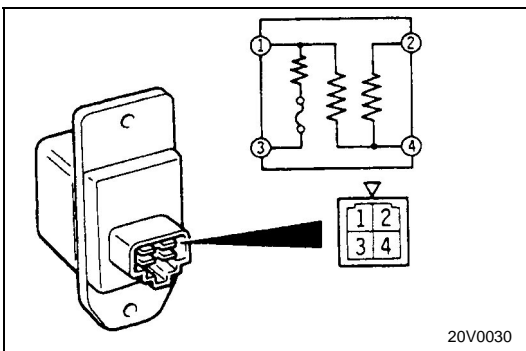
55100290119

BLOWER FAN AND MOTOR CHECK

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

<New>

0.68 <Up to the beginning of February 1999>
0.37 <From the middle of February 1999>



RESISTOR CHECK

Use a circuit tester to measure the resistance between the terminals as indicated below. Check that the measured value is at the standard value.

Standard value:

<L.H. drive vehicles>

Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.00
Between terminals 3 and 4 (ML)	1.10
Between terminals 3 and 1 (MH)	0.68

<R.H. drive vehicles>

<Old>

Measurement terminal	Standard value Ω
Between terminals 3 and 2 (LO)	2.48
Between terminals 3 and 4 (ML)	1.17
Between terminals 3 and 1 (MH)	0.28

GROUP 55

HEATER, AIR CONDITIONER AND VENTILATION

GENERAL

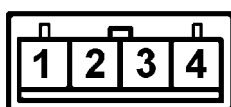
OUTLINE OF CHANGE

- Inspection at the automatic compressor-controller terminal has been changed due to the changes on the automatic compressor-controller. <6G7>

TROUBLESHOOTING

INSPECTION AT THE AUTOMATIC COMPRESSOR-CONTROLLER TERMINAL

<6G7>



Y0111AA

Terminal No.	Name of signal	Condition	Terminal voltage
1	A/C switch input	A/C switch OFF or Blower switch OFF	0 V
		A/C switch ON Ignition switch ON Blower switch ON	System voltage
2	Air conditioning output	A/C compressor relay OFF	0 V
		A/C compressor relay ON	System voltage
3	Outside air temperature output	Sensor temperature 15 °C or more	System voltage
		Sensor temperature 18 °C or more	2 V or more
4	Earth	At all time	Continuity


Service Bulletins

Click on the applicable bookmark to select the Service Bulletin.



SERVICE BULLETIN

QUALITY INFORMATION ANALYSIS
OVERSEAS SERVICE DEPT. MITSUBISHI MOTORS CORPORATION

SERVICE BULLETIN		No.: MSB-01E55-501	
		Date: 2001-04-23	<Model> (EC)MONTERO SPORT/PAJERO SPORT (K80W,K90W)
Subject: CORRECTION TO DESCRIPTION CONCERNING AUTOMATIC COMPRESSOR- CONTROLLER		<M/Y> 01-10	
Group: HEATER, A/C & VENTILATION	Draft No.: 00SY103020		
CORRECTION	INTERNATIONAL CAR ADMINISTRATION OFFICE	 T.MASAKI-MANAGER TECHNICAL SERVICE PLANNING	

1. Description:

This Service Bulletin informs you that correction has been made of the descriptions in the table "INSPECTION AT THE AUTOMATIC COMPRESSOR-CONTROLLER TERMINAL".

2. Applicable Manuals:

Manual	Pub. No.	Language	Page(s)
2001 PAJERO SPORT Workshop Manual chassis	PWJE9812-B	(English)	55-1
2001 MONTERO SPORT Workshop Manual chassis	PWJS9813-B	(Spanish)	
2001 PAJERO SPORT Workshop Manual chassis	PWJT9818R-B	(French)	55-1 (CD-ROM)
	PWJT9818R-B	(German)	

3. Details:

HEATER, AIR CONDITIONER AND VENTILATION - General/Troubleshooting 55-1

GROUP 55

HEATER, AIR CONDITIONER AND VENTILATION

GENERAL

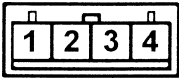
OUTLINE OF CHANGE

- Inspection at the automatic compressor-controller terminal has been changed due to the changes on the automatic compressor-controller. <6G7>

TROUBLESHOOTING

INSPECTION AT THE AUTOMATIC COMPRESSOR-CONTROLLER TERMINAL

<6G7>



Y0111AA

Terminal No.	Name of signal	Condition	Terminal voltage
1	A/C switch input	A/C switch OFF or Blower switch OFF	0 V
		A/C switch ON	System voltage
		Ignition switch ON	
		Blower switch ON	
2	Air conditioning output	A/C compressor relay OFF	0 V
		A/C compressor relay ON	System Voltage
3	Outside air temperature output	Sensor temperature 15 °C or more	System Voltage
		Sensor temperature 18 °C or more	2 V or more
4	Earth	At all time	Continuity

<Incorrect>

<Correct>

3	Output ECU to engine-ECU	Air thermo sensor detection temperature: 5°C or less	System voltage
		Air thermo sensor detection temperature: 7°C or more	0V

AUTOMATIC AIR CONDITIONER

CONTENTS

GENERAL	2	AUTOMATIC AIR CONDITIONer control panel ASSEMBLY (A/C-ECU)	21
Outline of Changes	2		
SERVICE SPECIFICATIONS	2	MOTOR	22
SPECIAL TOOLS	2	HEATER UNIT	25
TROUBLESHOOTING	3	EVAPORATOR	27
ON-VEHICLE SERVICE	20	PHOTO SENSOR	28
Blower High Speed Relay Continuity Check ...	20	AMBIENCE TEMPERATURE SENSOR	29
Idle-up Inspection <4D56>	20		

GENERAL

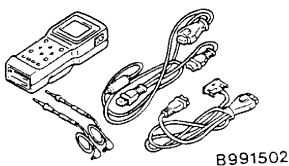
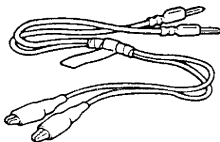
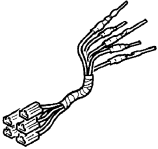
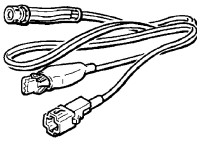
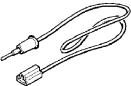

OUTLINE OF CHANGES

The following service procedures have been added as an automatic A/C has been equipped as standard. Other service procedures are the same as before.

SERVICE SPECIFICATIONS

Item	Typical value	
Air mixing damper control potentiometer resistance k Ω	MAX HOT	Around 0.18
	MAX COOL	Around 4.82
Mode selection damper control potentiometer resistance k Ω	DEF position	Around 0.18
	FACE position	Around 4.82

SPECIAL TOOLS

Tool	Number	Name	Use
 B991502	MB991502	MUT-II sub-assembly	Automatic air conditioner inspection
 B991529	MB991529	Diagnosis code check harness	Automatic air conditioner inspection when using voltmeter
A  B  C  D  C991223	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222	Harness set A: Check harness B: LED harness C: LED harness adapter D: Probe	Checking continuity and measuring voltage at harness or connector A: For checking connector pin contact pressure B: For checking the power supply circuit C: For checking the power supply circuit D: For connecting commercial tester

TROUBLESHOOTING

DIAGNOSIS TROUBLESHOOTING FLOW

Refer to '99 PAJERO SPORT Workshop Manual. (Pub. No. PWJE9812) GROUP 00 - How to Use Troubleshooting/Inspection Service Points.

DIAGNOSIS FUNCTION

METHOD OF READING DIAGNOSIS CODES

METHOD OF ERASING DIAGNOSIS CODES

Connect the MUT-II to the 16-pin diagnosis connector.

[Refer to '99 PAJERO SPORT Workshop Manual. (Pub. No. PWJE9812) GROUP 00 - How to Use Troubleshooting/Inspection Service Points.]

INSPECTION CHART FOR DIAGNOSIS CODES

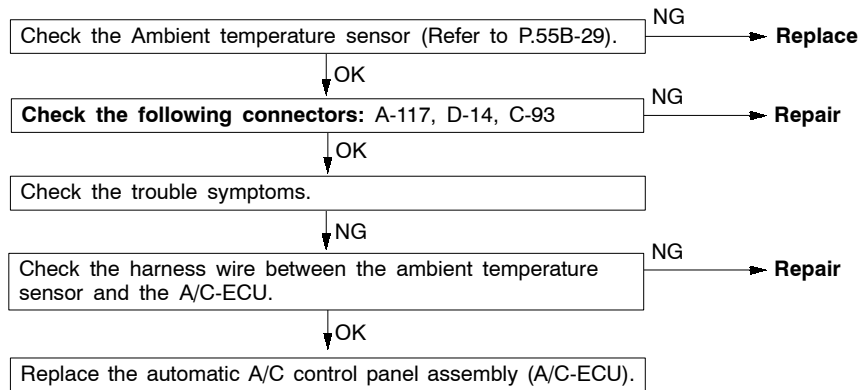
Code No.	Diagnosis item	Reference page
11	Inside air temperature sensor system (open circuit)	55B-3
12	Inside air temperature sensor system (short circuit)	55B-3
13	Ambient temperature sensor system (open circuit)	55B-4
14	Ambient temperature sensor system (short circuit)	55B-4
15	Heater water temperature sensor system (open circuit)	55B-4
16	Heater water temperature sensor system (short circuit)	55B-4
21	Air thermo sensor system (open circuit)	55B-5
22	Air thermo sensor system (short circuit)	55B-5
31	Potentiometer system for the air mixing damper	55B-5
32	Potentiometer system for the mode selection damper	55B-6
41	Air mixing damper control motor drive system	55B-6
42	Mode selection damper control motor drive system	55B-7

INSPECTION PROCEDURE FOR DIAGNOSIS CODES

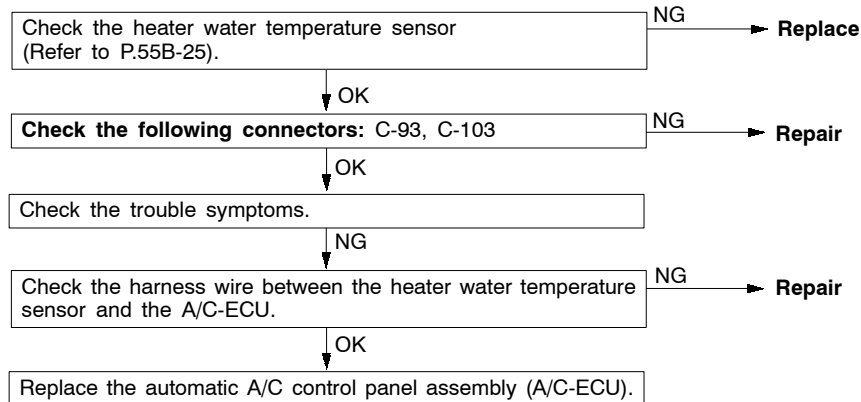
Code No.11, 12 Inside air temperature sensor system	Probable cause
Code No.11 is set when the inside air temperature circuit inside the A/C-ECU is open. Meanwhile, code No.12 is set when it is short.	Malfunction of the A/C-ECU

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

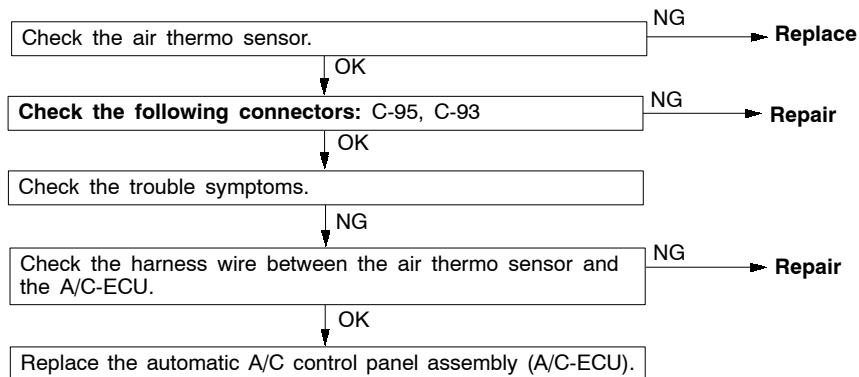
Code No.13, 14 Ambient temperature sensor system	Probable cause
Code No.13 is set when the ambient temperature sensor circuit is open. Meanwhile, code No.14 is set when it is short.	<ul style="list-style-type: none"> ● Malfunction of the ambient temperature sensor ● Malfunction of connector or harness ● Malfunction of the A/C-ECU



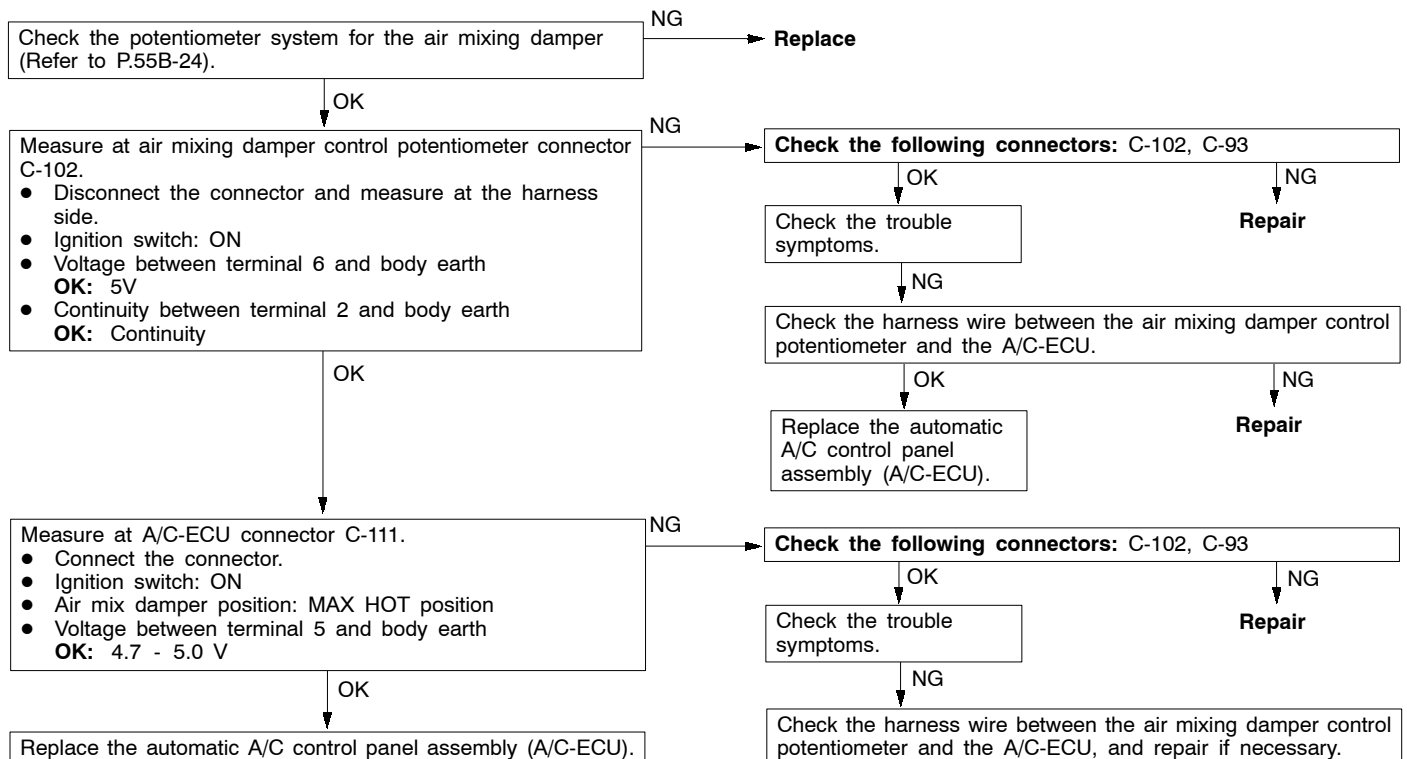
Code No.15, 16 Heater water temperature sensor system	Probable cause
Code No.15 is output when the heater water temperature sensor circuit is open. Code No.16 is output when that circuit is short.	<ul style="list-style-type: none"> ● Malfunction of the heater water temperature sensor ● Malfunction of connector or harness ● Malfunction of the A/C-ECU



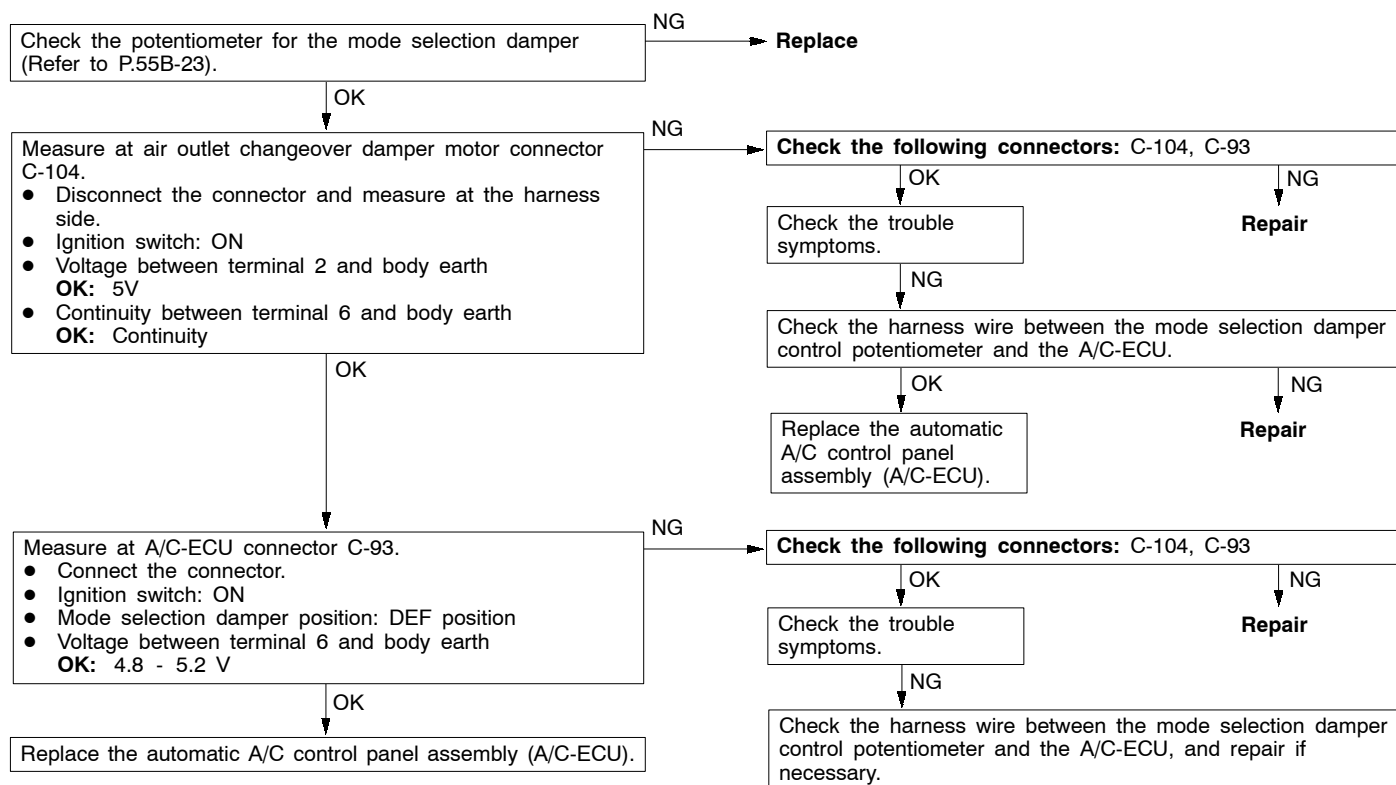
Code No.21, 22 Air thermo sensor system	Probable cause
Code No.21 is set when the air thermo sensor circuit is open. Meanwhile, code No.22 is set when it is short.	<ul style="list-style-type: none"> • Malfunction of the air thermo sensor • Malfunction of connector or harness • Malfunction of the A/C-ECU



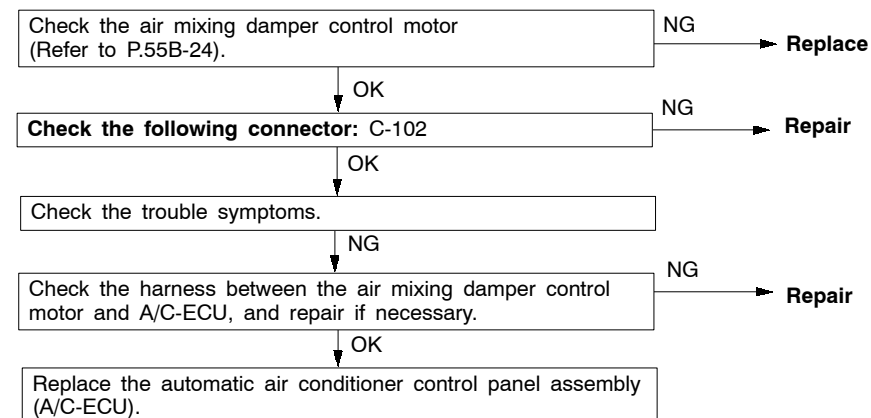
Code No.31 Potentiometer system for the air mixing damper	Probable cause
This diagnosis code is set when the potentiometer for the air mix damper does not send any signal to the A/C-ECU due to short or open circuit.	<ul style="list-style-type: none"> • Malfunction of the potentiometer system for the air mix damper • Malfunction of connector or harness • Malfunction of the A/C-ECU



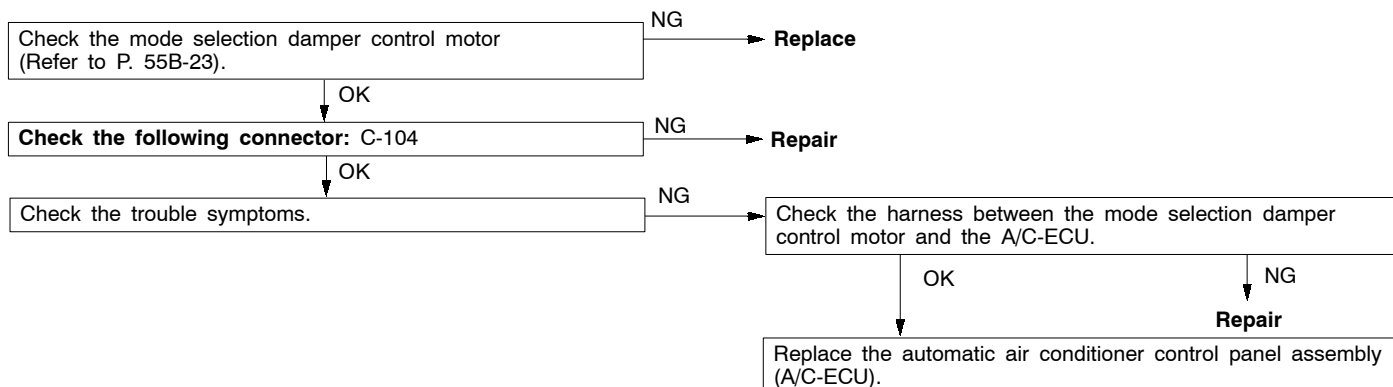
Code No.32 Potentiometer system for the mode selection damper	Probable cause
This diagnosis code is set when the potentiometer for the mode selection does not send any signal to the A/C-ECU due to open or short circuit.	<ul style="list-style-type: none"> • Malfunction of the potentiometer for the mode selection damper • Malfunction of connector or harness • Malfunction of the A/C-ECU



Code 41 Air mixing damper control motor drive system	Probable cause
This code is output when the air mixing damper control motor could not turn as far as the set aperture.	<ul style="list-style-type: none"> • Air mixing damper control motor fault • Connector or harness fault • A/C-ECU fault



Code 42 Mode selection damper control motor drive system	Probable cause
This code is output when the mode selection damper control motor could not turn as far as the set aperture.	<ul style="list-style-type: none"> • Mode selection damper control motor fault • Connector or harness fault • A/C-ECU fault



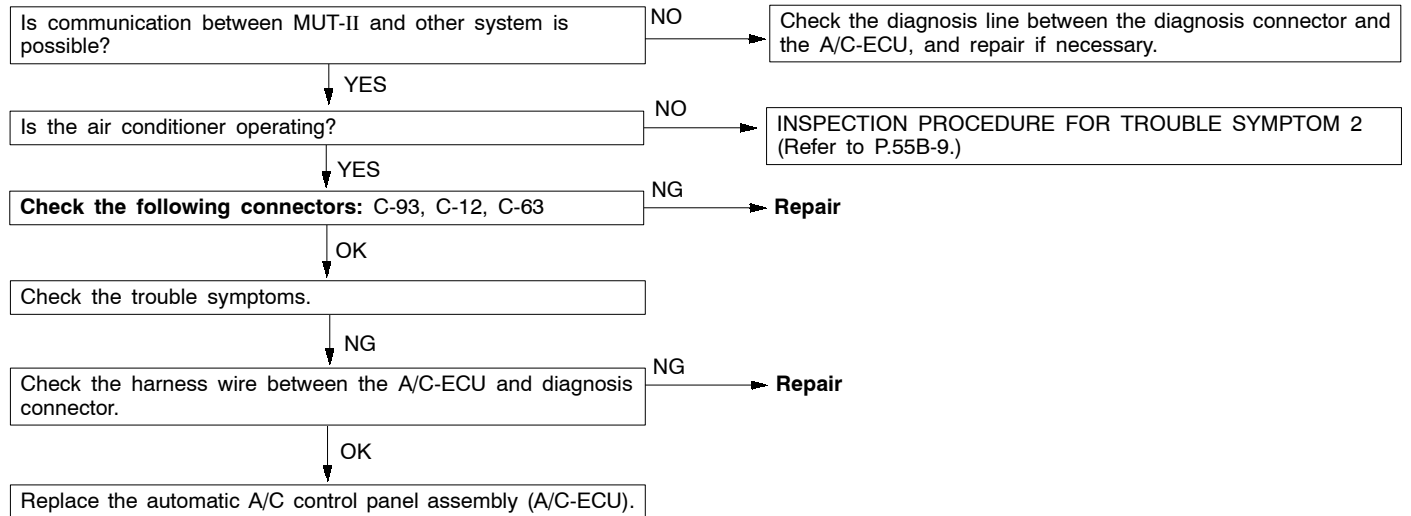
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure No.	Reference page
Communication with MUT-II is not possible.	1	55B-8
The air conditioner does not operate at all.	2	55B-9
The air conditioner display does not appear on the display.	3	55B-9
A/C outlet air temperature can not be set.	4	55B-10
The blower motor does not operate.	5	55B-11
The blower motor does not operate at high speed.	6	55B-12
The blower air volume can not be changed.	7	55B-13
Air outlet vent cannot be changed.	8	55B-14
Outside/Inside air changeover is not possible.	9	55B-14
The condenser fan motor does not operate <4G64>.	10	55B-15
The condenser fan motor does not operate <4D56>.	11	55B-16

INSPECTION PROCEDURES FOR TROUBLE SYMPTOMS

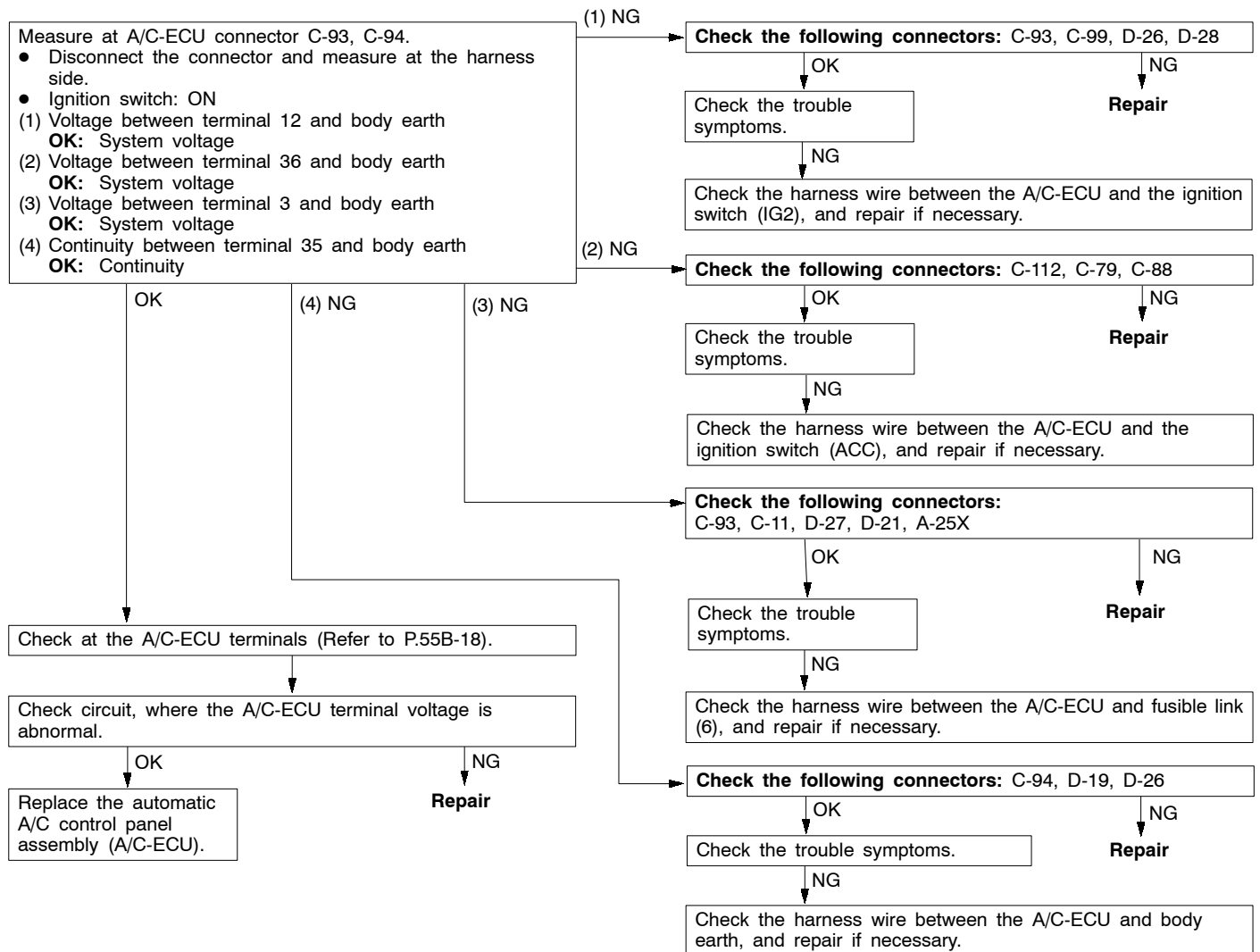
Inspection procedure 1

Communication with the MUT-II is not possible.	Probable cause
If communication with all other systems is not possible, there is a high possibility that there is a malfunction of the diagnosis line. If only the A/C system can not communicate with the MUT-II, the diagnosis line between the diagnosis connector and the A/C-ECU may be defective.	<ul style="list-style-type: none"> • Malfunction of harness or connector • Malfunction of the A/C-ECU



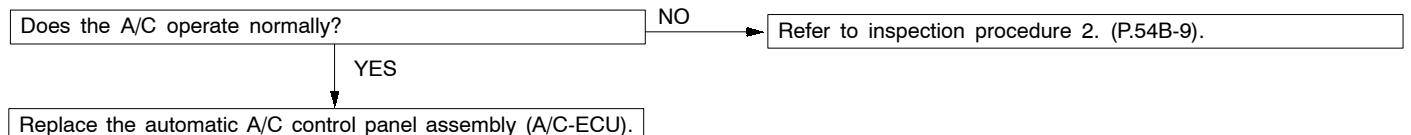
Inspection procedure 2

The air conditioner does not operate at all.	Probable cause
The power supply system (including earth) for the A/C-ECU may be defective. In addition, the A/C-ECU may be inoperative due to a defective harness (such as short).	<ul style="list-style-type: none"> Malfunction of harness or connector Malfunction of the A/C-ECU



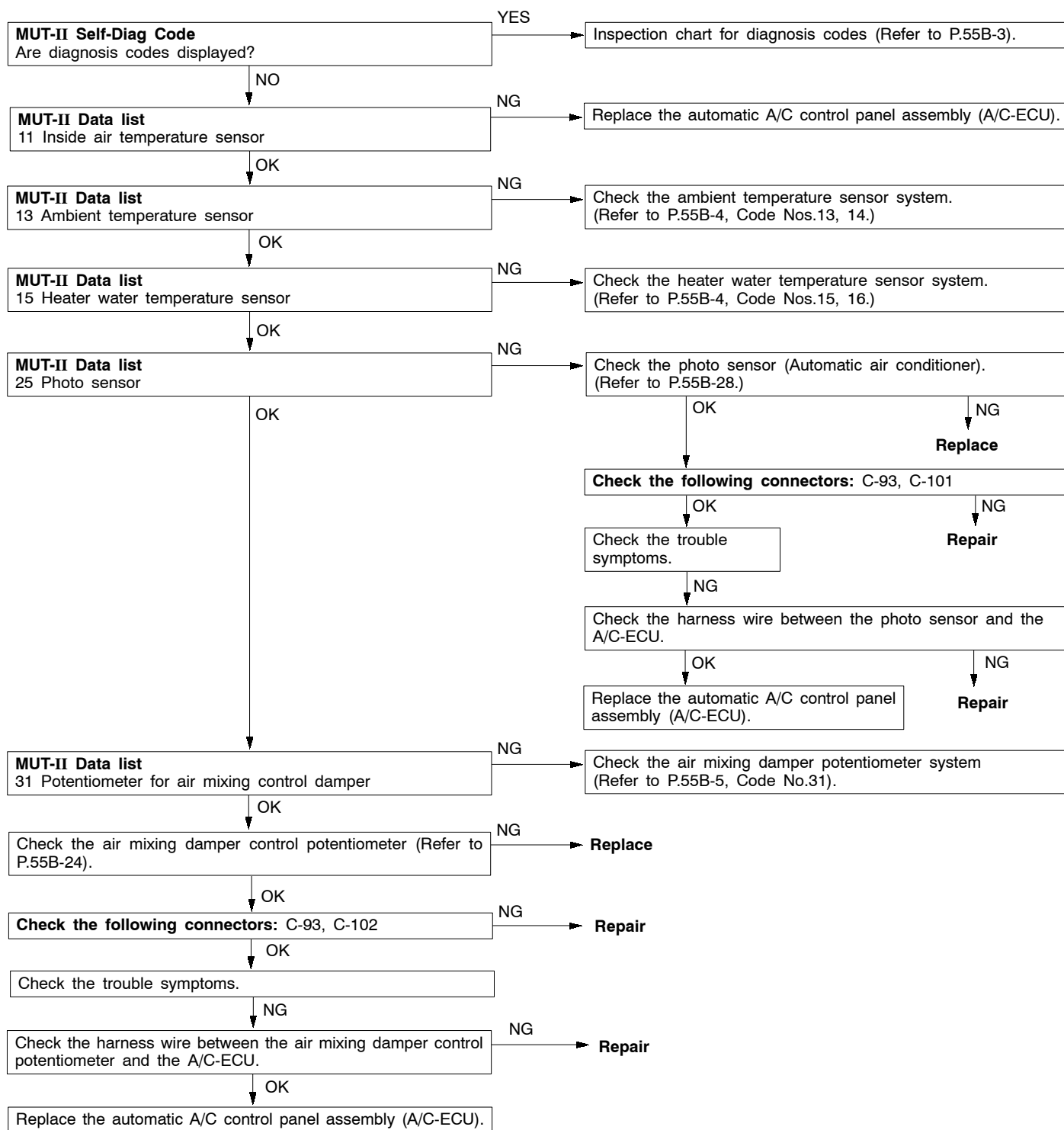
Inspection procedure 3

The air conditioner display does not appear on the display.	Probable cause
Check the harness wires between the A/C-ECU and the center display, and repair if necessary.	<ul style="list-style-type: none"> Malfunction of harness or connector Malfunction of the A/C-ECU



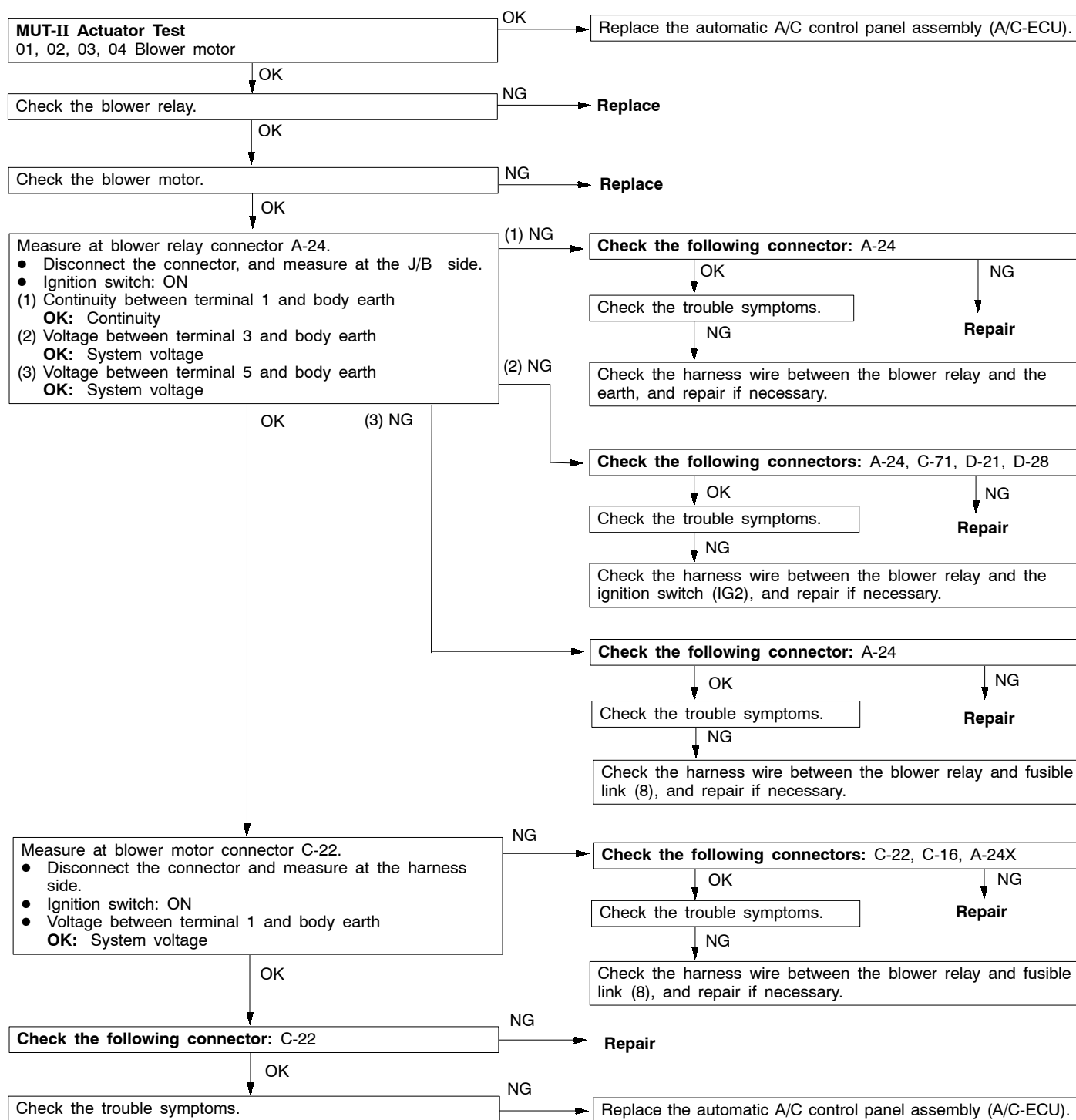
Inspection procedure 4

A/C outlet air temperature can not be set.	Probable cause
If the air outlet temperature can not be changed after a A/C temperature is set, sensor(s) or the air mixing damper may be defective.	<ul style="list-style-type: none"> • Malfunction of the inside air temperature sensor • Malfunction of the ambient temperature sensor • Malfunction of the heater water temperature sensor • Malfunction of the photo sensor • Malfunction of the air mixing damper control motor • Malfunction of harness or connector • Malfunction of the A/C-ECU



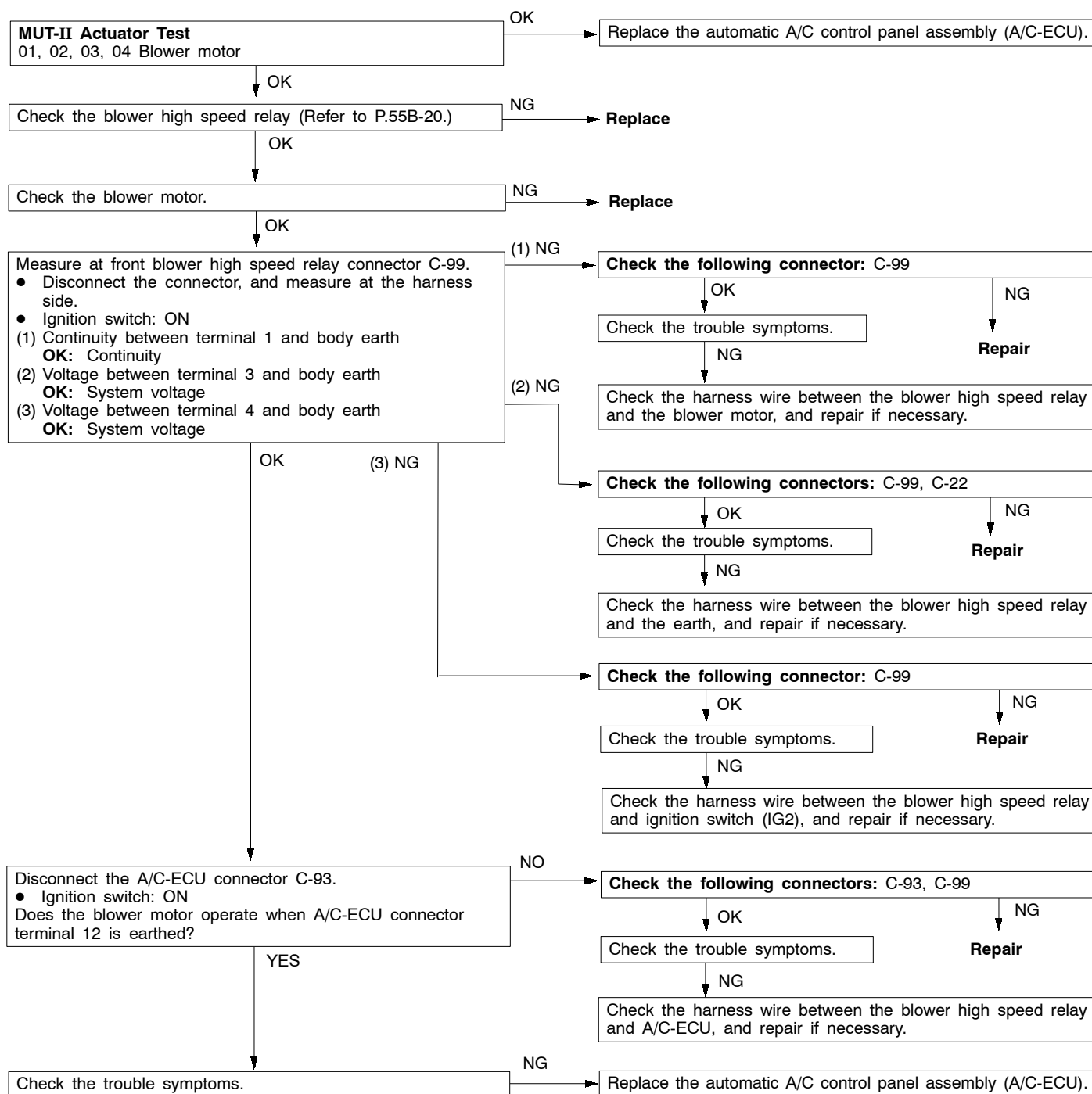
Inspection procedure 5

The blower motor does not operate.	Probable cause
If no air comes out of the blower even though the blower switch is on, the cause is probably a malfunction of the front blower relay circuit.	<ul style="list-style-type: none"> • Malfunction of the front blower relay • Malfunction of the blower motor • Malfunction of harness or connector • Malfunction of the A/C-ECU



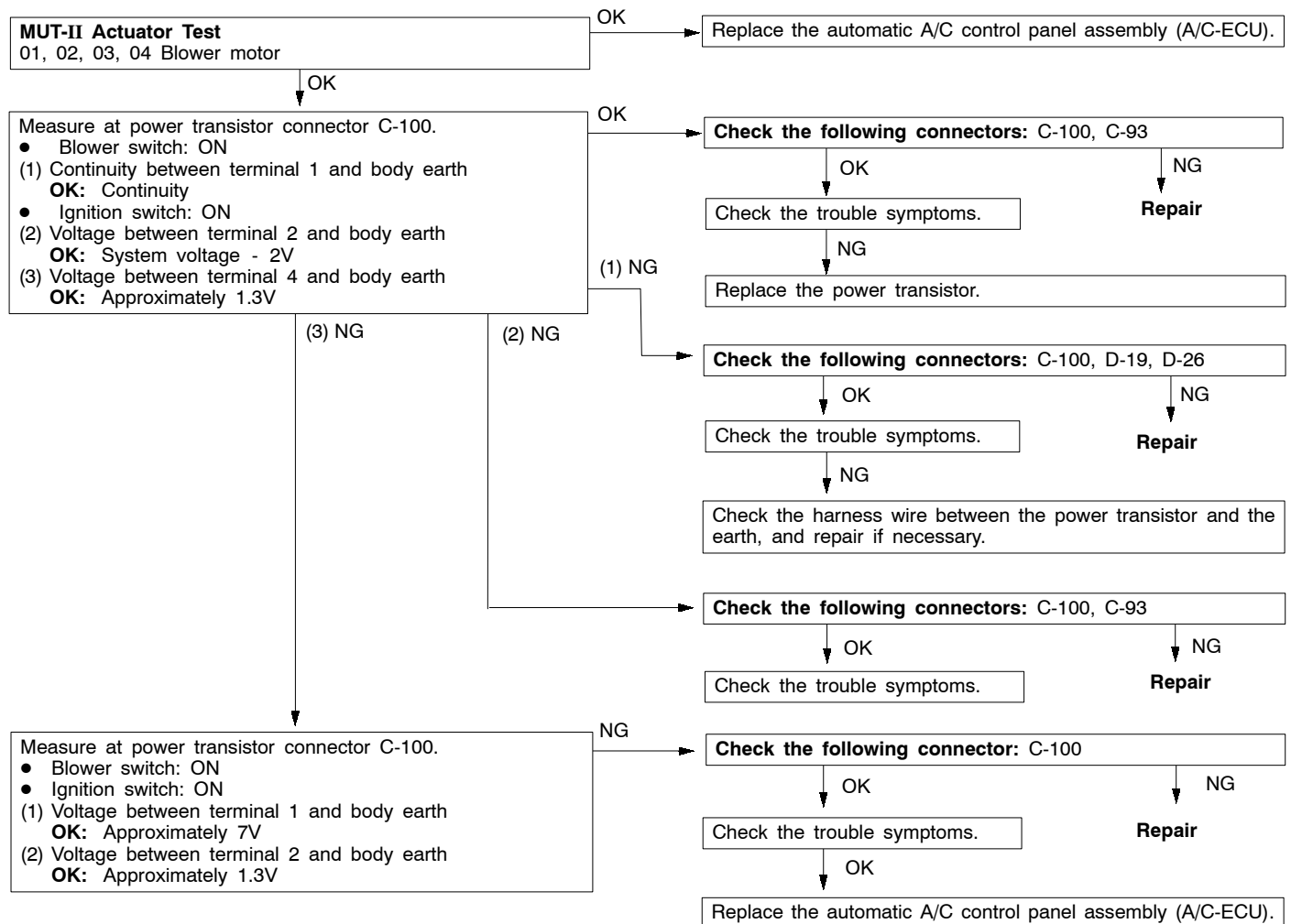
Inspection procedure 6

The blower motor does not operate at high speed.	Probable cause
If the blower motor does not operate at high speed when the temperature is set to 17 or 32, the blower high speed relay circuit system may be defective.	<ul style="list-style-type: none"> • Malfunction of the blower high speed relay • Malfunction of harness or connector • Malfunction of the A/C-ECU



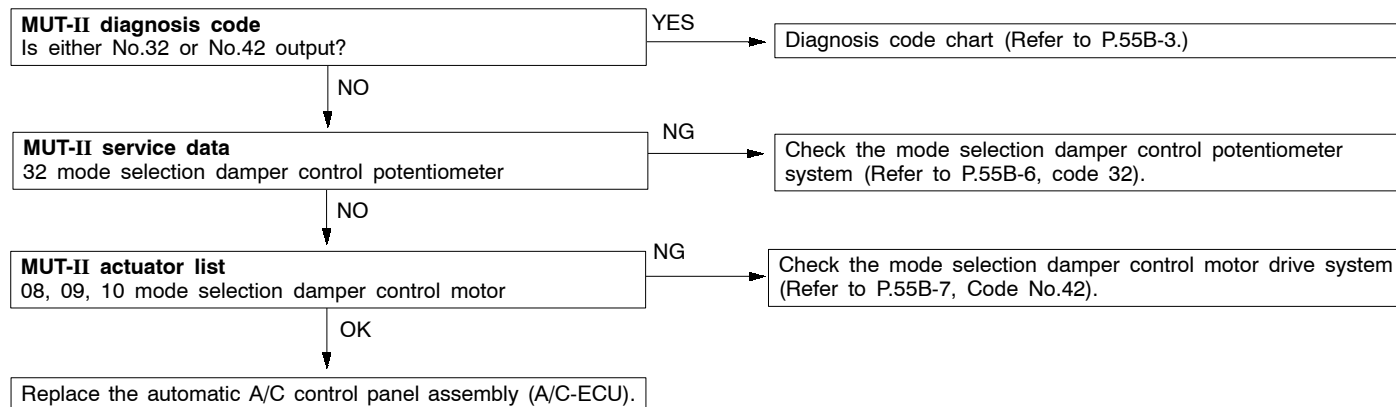
Inspection procedure 7

The blower air volume can not be changed.	Probable cause
If the air volume can not be controlled, the power transistor circuit may be defective.	<ul style="list-style-type: none"> • Malfunction of the power transistor • Malfunction of harness or connector • Malfunction of the A/C-ECU



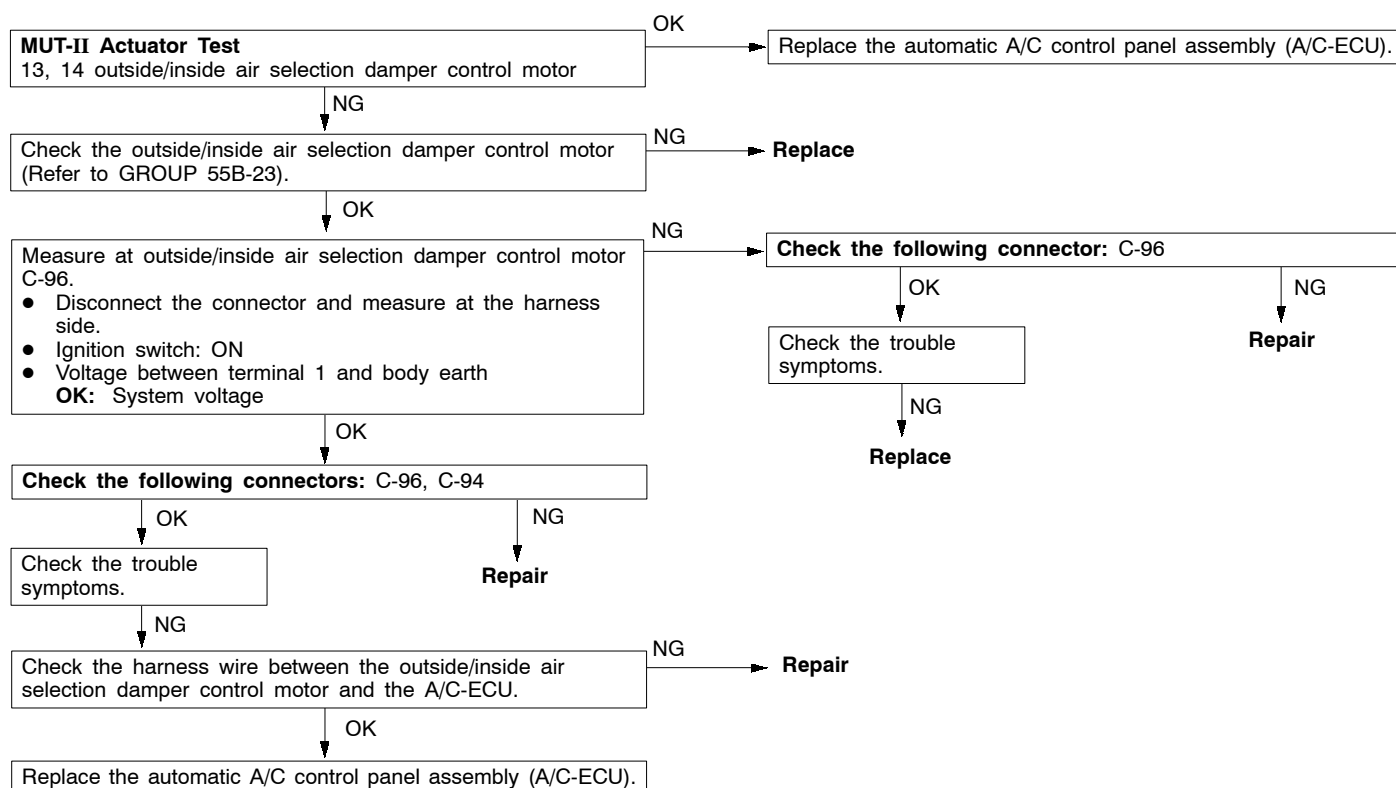
Inspection procedure 8

Air outlet vent cannot be changed.	Probable cause
When the air outlet vents cannot be changed even if the changeover switch is operated, the mode selection damper control circuit may be defective.	<ul style="list-style-type: none"> • Malfunction of the mode selection damper control motor • Malfunction of the mode selection damper control potentiometer • Malfunction of harness or connector • Malfunction of the A/C-ECU



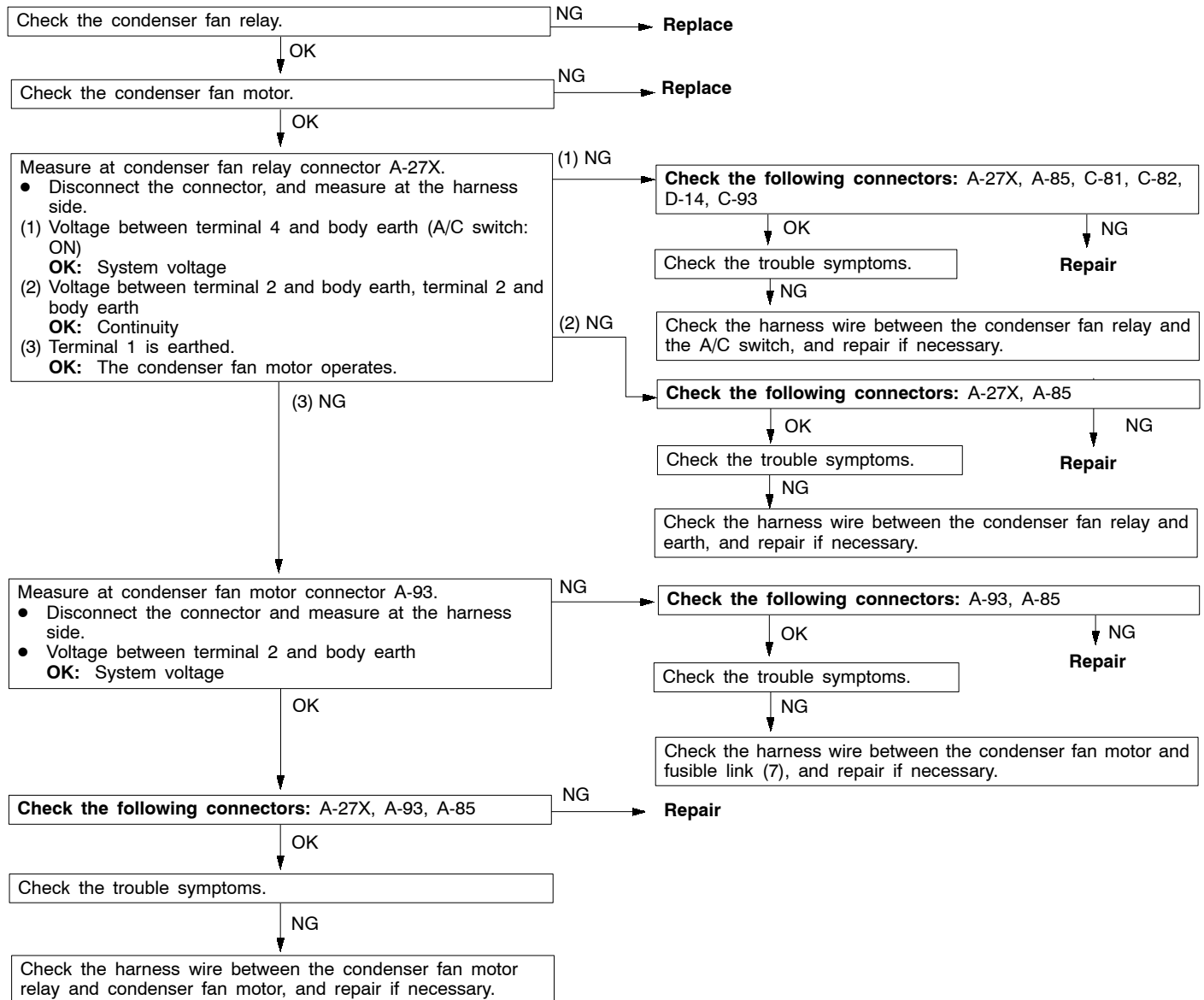
Inspection procedure 9

Outside/inside air changeover is not possible.	Probable cause
When inside air cannot be changed to outside air or vice versa even if its changeover switch is on, the outside/inside air selection damper control system may be defective.	<ul style="list-style-type: none"> • Malfunction of the outside/inside air selection damper control motor • Malfunction of harness or connector • Malfunction of the A/C-ECU



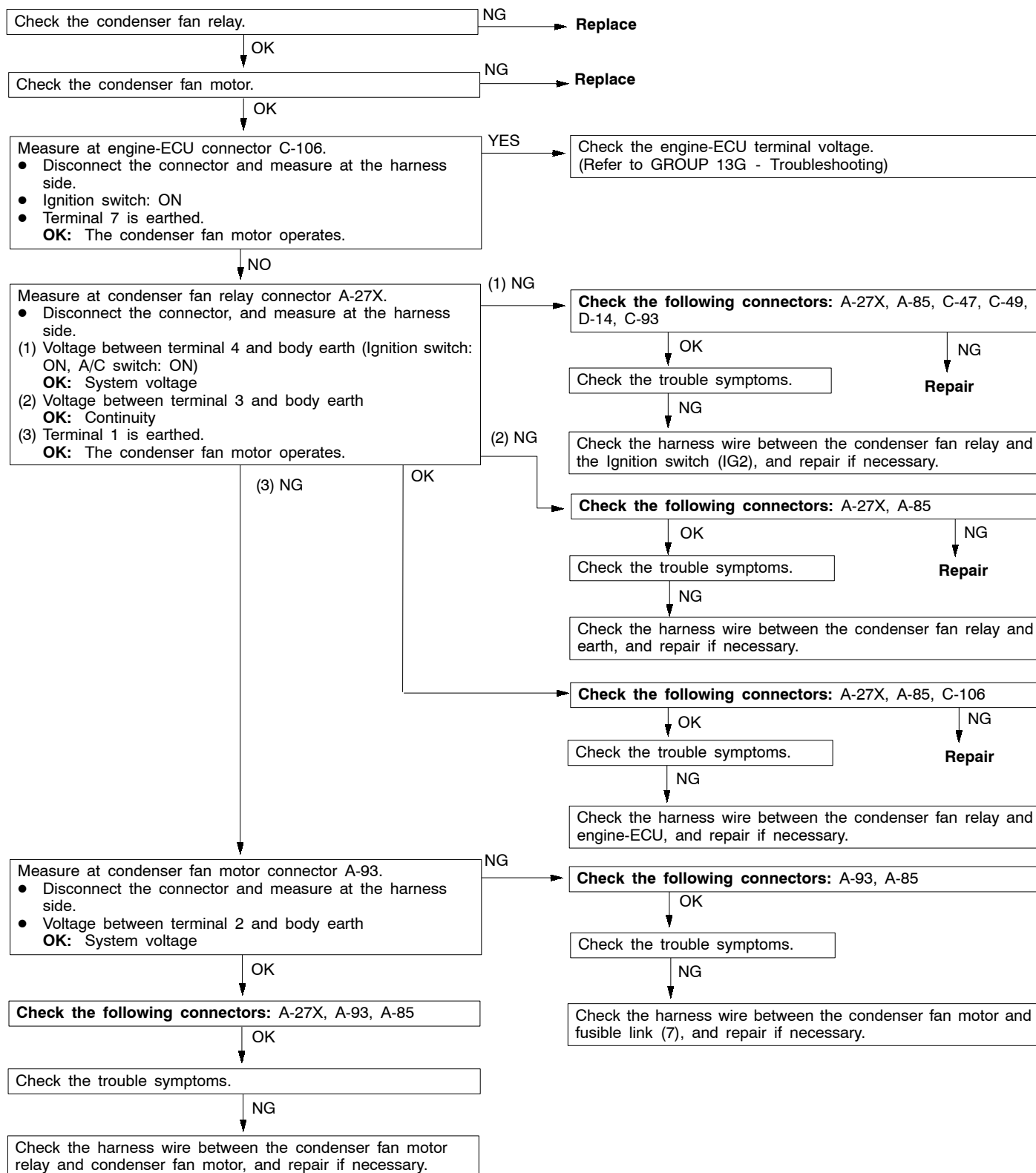
Inspection procedure 10

The condenser fan motor does not operate <4G64>.	Probable cause
If the condenser fan does not operate, the condenser fan relay or motor may be defective.	<ul style="list-style-type: none"> • Malfunction of the condenser fan relay • Malfunction of the condenser fan motor • Malfunction of harness or connector



Inspection procedure 11

The condenser fan motor does not operate <4D56>.	Probable cause
If the condenser fan motor does not operate, the condenser fan relay or motor may be defective.	<ul style="list-style-type: none"> • Malfunction of the condenser fan relay • Malfunction of the condenser fan motor • Malfunction of harness or connector



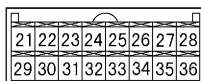
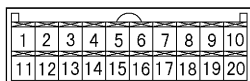
DATA LIST REFERENCE TABLE

Item No.	Check item	Inspection contents	
11	Inside air temperature sensor	Ignition switch: ON	Inside air temperature and temperature displayed on the MUT-II are identical.
13	Ambient temperature sensor	Ignition switch: ON	Outside air temperature and temperature displayed on the MUT-II are identical.
15	Heater water temperature sensor	Ignition switch: ON	Heater core surface temperature and temperature displayed on the MUT-II are identical.
21	Air thermo sensor	Ignition switch: ON	Evaporator outlet temperature and temperature displayed on the MUT-II are identical.
25	Photo sensor	Ignition switch: ON	Amount of incident light is proportional to voltage displayed on the MUT-II.
31	Potentiometer for the air mixing damper control	Ignition switch: ON Damper position: MAX HOT	Opening angle: Approximately 100%
		Ignition switch: ON Damper position: MAX COOL	Opening angle: Approximately 0%
32	Potentiometer for the mode selection damper control	Ignition switch: ON Damper position: FACE	Opening angle: Approximately 0%
		Ignition switch: ON Damper position: FOOT	Opening angle: Approximately 50%
		Ignition switch: ON Damper position: FOOT/DEF	Opening angle: Approximately 75%
		Ignition switch: ON Damper position: DEF	Opening angle: Approximately 100%

ACTUATOR TEST TABLE

Item No.	Check item	Drive Contents
01	Blower motor	Stopped
02		Low speed
03		Medium speed
04		High speed
05	Air mixing damper control motor	Opening angle: Approximately 0%
06		Opening angle: Approximately 50%
07		Opening angle: Approximately 100%
08	Mode selection damper control motor	FACE
09		FOOT
10		DEF
11	Compressor ON/OFF	OFF
12		ON
13	Outside/inside air selection damper control motor	Outside air
14		Inside air

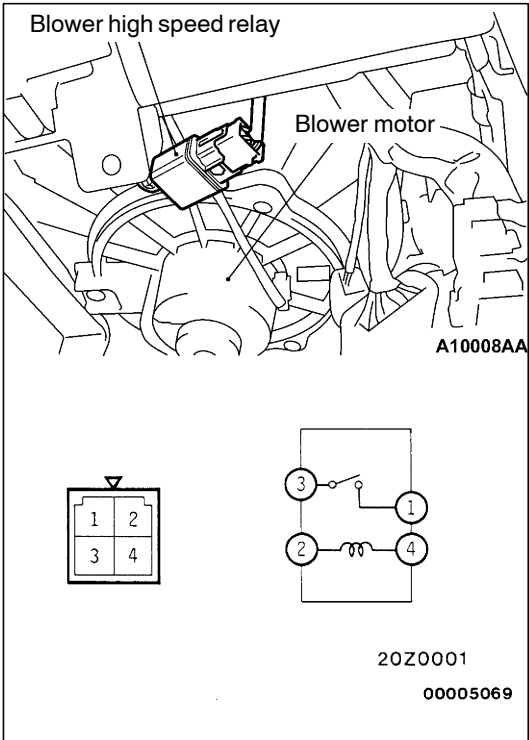
CHECK AT A/C-ECU TERMINALS



W0763AU

Terminal No.	Check item	Check conditions	Normal condition
1	Power transistor collector output	When blower switch OFF position	System voltage
		When blower switch LO position	Approximately 7V
		When blower switch HI position	Faint voltage (0.5 V)
2	Power transistor base output	When blower switch OFF position	0 V
		When blower switch LO position	Approximately 1.3V
		When blower switch HI position	Approximately 2.5V
3	Backup power supply	At all times	System voltage
4	Input from heater water temperature sensor	When sensor temperature: 25°C (4 kΩ)	2.3 - 2.9 V
5	Input to air mixing damper control potentiometer	When the damper is moving to the MAX. HOT position	4.7 - 5.0 V
6	Input to mode selection damper control potentiometer	When the damper flap is moving to the DEF position	4.8 - 5.2 V
7	Input from ambient temperature sensor	When sensor temperature: 25°C (4 kΩ)	2.3 - 2.9 V
8	Input from air thermo sensor	Sensor temperature: 25°C (4 kΩ)	2.3 - 2.9 V
9	Photo sensor (-)	Illuminance 1000 lux	5.0 - 7.6 mV
		Illuminance 100 lux	0.5 - 0.76 mV
10	Sensor power supply	At all times	4.8 - 5.2 V
12	Blower high speed relay	Blower switch: HI	1.5V or lower
		Blower switch: except HI	System voltage
13	Earth	At all times	Continuity
16	Power supply to ignition switch (IG2)	Ignition switch: ON	System voltage
17	Diagnosis output	Ignition switch: ON	A voltmeter needle fluctuates between 0 and 12 V.
18	Diagnosis control output	Ignition switch: ON	System voltage - 2V
19	Photo sensor (+)	At all times	0 V
20	Earth to potentiometer	At all times	0 V
21	Mode selection damper control motor (FACE)	When the damper flap is moving to the FACE position.	10 V
		When the damper flap is moving to the DEF position.	Faint voltage (0.5 V)
22	Air mixing damper control motor (MAX COOL)	When the damper flap is moving to the MAX COOL position.	10 V
		When the damper flap is moving to the MAX HOT position.	Faint voltage (0.5 V)

Terminal No.	Check item	Check conditions	Normal condition
23	Outside/inside air selection damper control motor (Outside)	When the damper flap is moving to the outside position.	10 V
		When the damper flap is moving to the inside position.	Faint voltage (0.5 V)
24	Mode selection damper control motor (DEF)	When the damper flap is moving to the DEF position.	10 V
		When the damper flap is moving to the FACE position.	Faint voltage (0.5 V)
25	Air mixing damper control motor (MAX HOT)	When the damper flap is moving to the MAX HOT position.	10 V
		When the damper flap is moving to the MAX COOL position.	Faint voltage (0.5 V)
26	Outside/inside air selection damper control motor (Inside)	When the damper flap is moving to the inside position.	10 V
		When the damper flap is moving to the outside position.	Faint voltage (0.5 V)
29	Illumination earth	At all times	Continuity
30	Power supply to illumination	Lighting switch: ON	System voltage
34	A/C output	When the A/C is OFF	0 V
		When the A/C is ON	System voltage
35	Earth	At all times	Continuity



ON-VEHICLE SERVICE

BLOWER HIGH SPEED RELAY CONTINUITY CHECK

Battery voltage	Terminal No.			
	2	4	1	3
Power is not supplied	○	○		
Power is supplied	⊕	⊖	○	○

IDLE-UP INSPECTION <4D56>

- (1) Before the check, set the following conditions.
- Engine cooling water temperature: 80 - 90°C
 - Lamps, electric cooling fan, accessories operations: OFF
 - Transmission: N range
- (2) Confirm that the idling speed is set to the typical value.

Standard value: 750 ± 30 r/min

NOTE
The idling speed does not need adjusting as it is automatically controlled by the ISC system.

- (3) Check that the idling speed conforms with the standard value when the A/C switch is turned ON and the air conditioning operates.

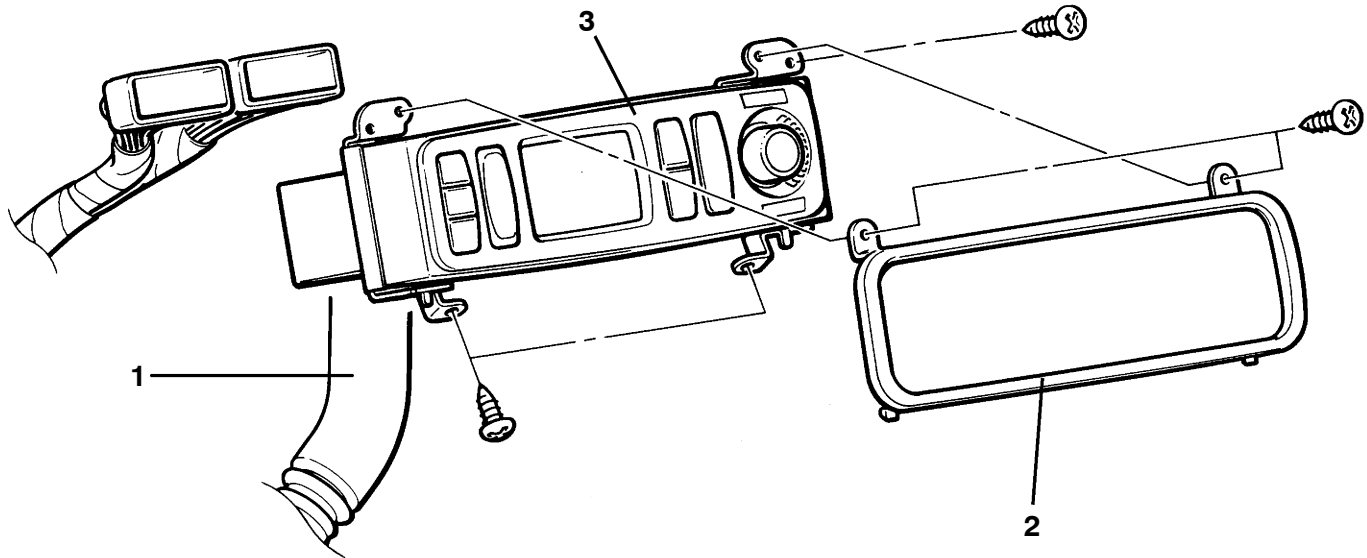
Standard value: 850 ± 50 r/min

AUTOMATIC AIR CONDITIONER CONTROL PANEL ASSEMBLY (A/C-ECU)

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operations

- Driver Side Under Cover, Meter Bezel Assembly, Glove Box Assembly, Center Under Cover Removal and Installation (Refer to GROUP 52A - Instrument Panel.)*



20V0175

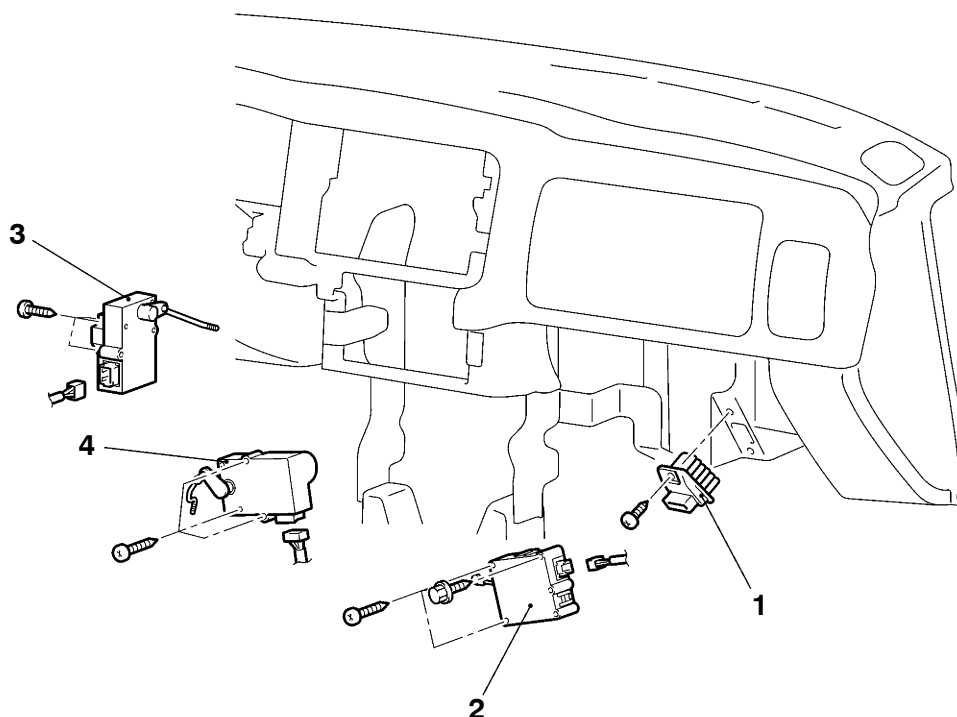
Removal steps

1. Aspirator hose
2. Heater control bezel

3. Automatic air conditioner control panel assembly (A/C-ECU)

NOTE:

*: Refer to the 2000 PAJERO SPORT Workshop Manual (Pub. No. PWJE9812-A)

MOTOR**REMOVAL AND INSTALLATION**

A10009AA

Power transistor removal steps

- Glove box assembly (Refer to GROUP 52A.)*
1. Power transistor

Outside/inside air selection damper control motor removal steps

- Glove box assembly (Refer to GROUP 52A.)*
2. Outside/inside air selection damper control motor

Mode selection damper control motor removal steps

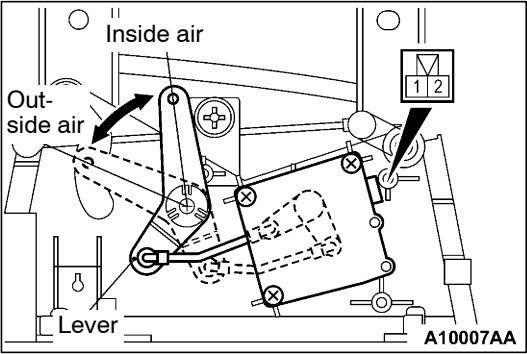
- Driver side under cover (Refer to GROUP 52A.)*
3. Mode selection damper control motor

Air mixing damper control motor removal steps

- Front floor console, Glove box assembly (Refer to GROUP 52A.)*
 - Driver side under cover (Refer to GROUP 52A.)*
 - Meter bezel assembly (Refer to GROUP 52A.)*
 - Center reinforcement A (Refer to GROUP 52A.)*
4. Air mixing damper control motor

NOTE:

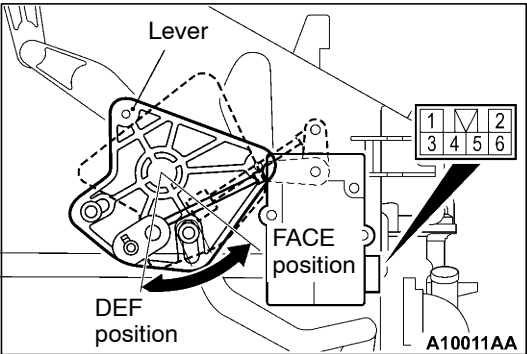
*: Refer to the 2000 PAJERO SPORT Workshop Manual (Pub. No. PWJE9812-A)



INSPECTION
OUTSIDE/INSIDE AIR SELECTION DAMPER CONTROL
MOTOR CHECK

Battery connection terminal lever operation		Operating the lever
1	2	
⊕	⊖	Turn to outside air side
⊖	⊕	Turn to cabin air side

Caution
When the lever is in the inside air position or outside air position, no power is supplied.



MODE SELECTION DAMPER CONTROL MOTOR
CHECK

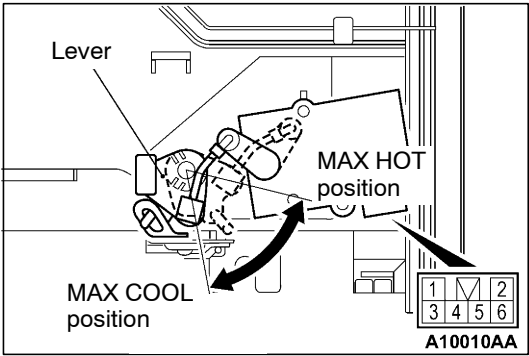
Battery connection terminal		Lever operation
1	3	
⊕	⊖	Turn to DEF. side.
⊖	⊕	Turn to FACE side.

NOTE
When the lever is in the FACE position or DEF position, no power is supplied.

POTENTIOMETER CHECK

When measuring the resistance between connector terminals nos. 2 and 5, and between terminals 5 and 6 under the same conditions as the mode selection damper control motor check, confirm that the resistance gradually fluctuates within the standard value range.

Standard value: 0.18 - 4.82 kΩ



AIR MIXING DAMPER CONTROL MOTOR CHECK

Battery connection terminal		Lever operation
1	3	
⊕	⊖	Turn to COOL side.
⊖	⊕	Turn to HOT side.

NOTE
When the lever is in the MAX HOT position or MAX COOL position, no power is supplied.

Potentiometer Check

When measuring the resistance between connector terminals nos. 2 and 5, and between terminals 5 and 6 under the same conditions as the air mixing damper motor check, confirm that the resistance gradually fluctuates within the standard value range.

Standard value: 0.18 - 4.82 kΩ

HEATER UNIT

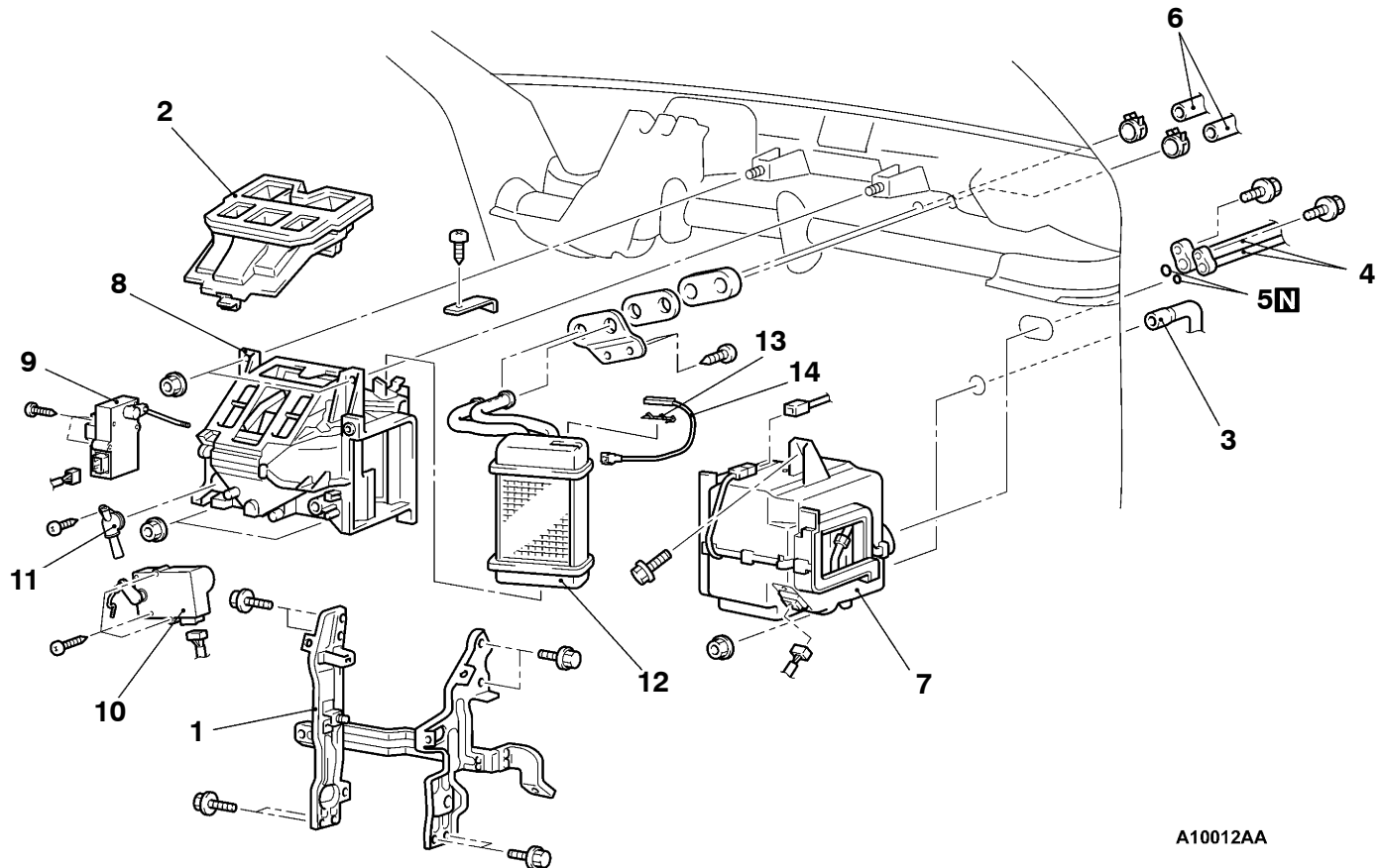
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

- Refrigerant Discharging and Charging
- Engine Coolant Draining and Refilling
- Instrument Panel Removal and Installation
- Joint Duct Removal and Installation

Caution: SRS

When removing and installing the heater unit from vehicles equipped with SRS, do not let it bump against the SRS diagnostic unit or the components.



A10012AA

Removal steps

1. Center reinforcement
2. Center ventilation duct
3. Drain hose
4. Liquid pipe B and suction pipe connection
5. O-ring
6. Heater hose connection
7. Evaporator



8. Heater unit
9. Mode selection damper control motor
10. Air mixing damper control motor
11. Aspirator
12. Heater core
13. Heater water temperature sensor clip
14. Heater water temperature sensor



REMOVAL SERVICE POINTS**◀A▶ LIQUID PIPE B/SUCTION PIPE DISCONNECTION**

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

◀B▶ CLIP/HEATER WATER TEMPERATURE SENSOR REMOVAL

Remove the clip from the side of the heater unit and lift the heater water temperature sensor out of the heater unit.

INSTALLATION SERVICE POINTS**▶A◀ HEATER WATER TEMPERATURE SENSOR/CLIP INSTALLATION**

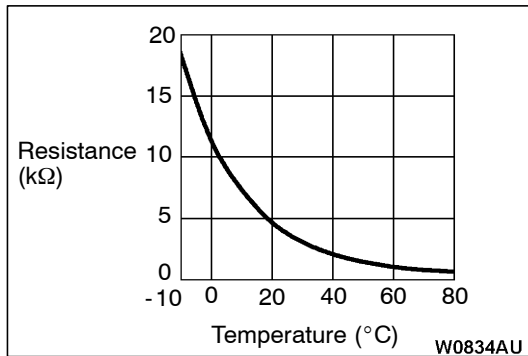
Insert the heater water temperature sensor into the mounting hole on the side of the heater unit and secure the sensor with the clip.

NOTE

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

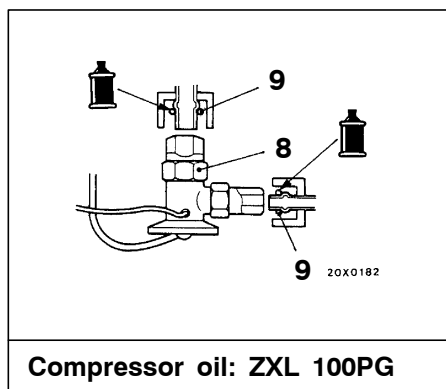
INSPECTION**HEATER WATER TEMPERATURE SENSOR CHECK**

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

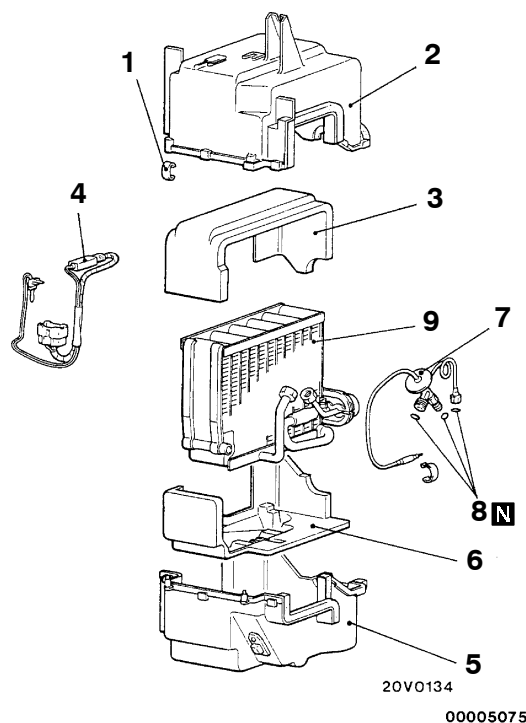


EVAPORATOR

DISASSEMBLY AND REASSEMBLY



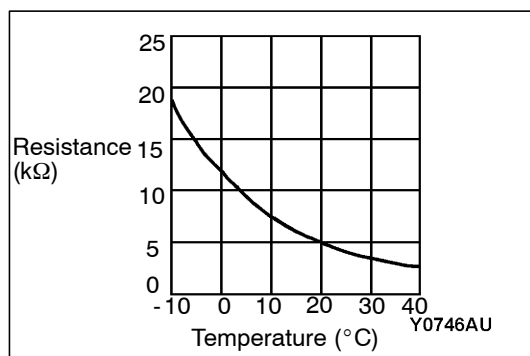
Compressor oil: ZXL 100PG



Disassembly steps

1. Clip
2. Evaporator cover (upper)
3. Lining, upper
4. Thermostat
5. Evaporator cover (lower)

6. Lining, lower
7. Expansion valve
8. O-ring
9. Evaporator



INSPECTION

AIR THERMO SENSOR CHECK

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

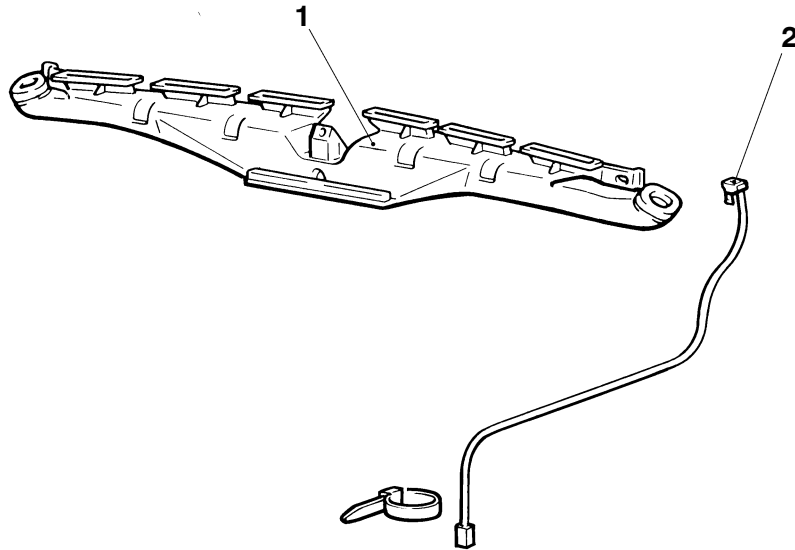
NOTE

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

PHOTO SENSOR

REMOVAL AND INSTALLATION

- Instrument Panel Removal and Installation (Refer to GROUP 52A.)*



A10014AA

Removal steps

1. Defroster nozzle
2. Photo sensor

NOTE:

*: Refer to the 2000 PAJERO SPORT Workshop Manual (Pub. No. PWJE9812-A)

INSPECTION

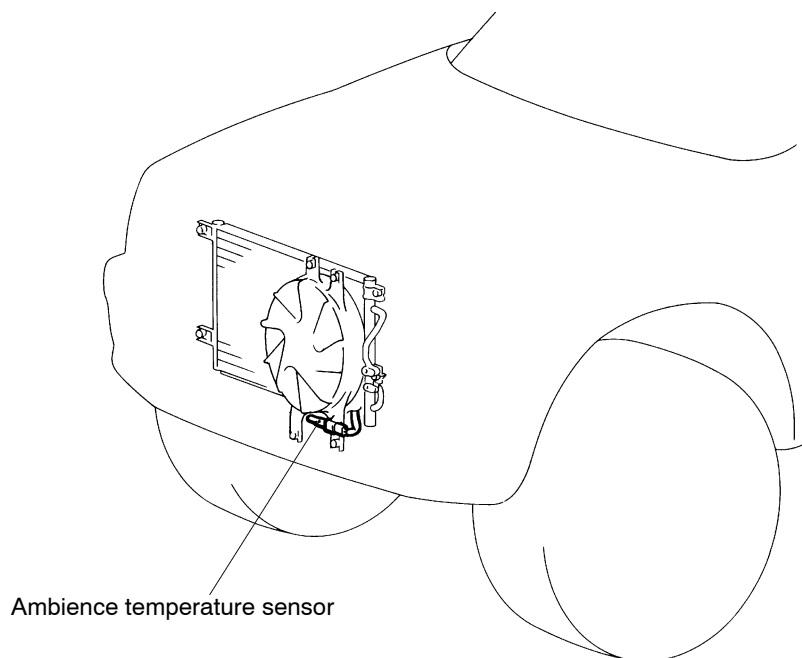
PHOTO SENSOR CHECK

When the full automatic air conditioner is operating, cover the insulation sensor photo-sensor with your hand. If the blower speed drops, it is normal. If the blower speed does not drop, replace the photo sensor.

AMBIENCE TEMPERATURE SENSOR

REMOVAL AND INSTALLATION

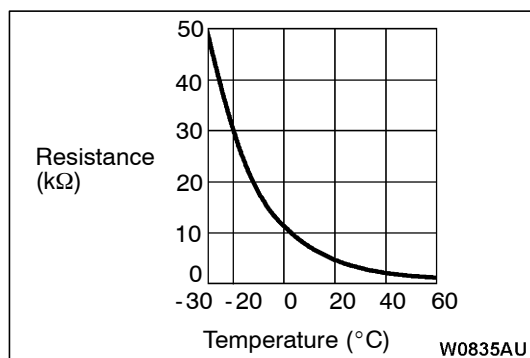
- Front Bumper (Refer to GROUP 51.)*



AV0202AA

NOTE:

*: Refer to the 2000 PAJERO SPORT Workshop Manual (Pub. No. PWJE9812-A)



INSPECTION

AMBIENCE TEMPERATURE SENSOR CHECK

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

NOTES