

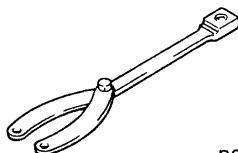
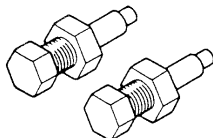
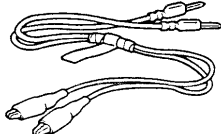
SERVICE SPECIFICATIONS

Item		Standard value
Idling speed (rpm): N or P range	4G94 (MPI)	750 ± 100
Idle-up speed (rpm): N or P range	4G94 (MPI)	850 ± 100
Register resistance (for blower motor) Ω	HI – LO (between terminals 1 and 3)	2.54
	HI – ML (between terminals 1 and 6)	1.24
	HI – MH (between terminals 1 and 4)	0.6
Air conditioner compressor air gap mm		0.3 – 0.5
Refrigerant temperature switch operating temperature ($^{\circ}\text{C}$)	Continuity	Slightly below 150
	No continuity	150 or higher (until temperature falls to 120 when OFF)

LUBRICANTS

Items	Specified lubricants	Quantity
Compressor oil mL	SUN PAG 56	150 ± 10
Pipe coupling	SUN PAG 56	As required
Refrigerant (g)	R134a (HFC-134a)	550 ± 20

SPECIAL TOOLS

Tool	Number	Name	Use
 B991367	MB991367	Special spanner	For use on the air conditioner compressor armature locknut
 B991386	MB991386	Pin	
 B991529	MB991529	Diagnosis code check harness	For inspecting the air conditioner using a voltmeter

TROUBLESHOOTING

BASIC FLOW OF TROUBLESHOOTING

Refer to [How to Use Troubleshooting/Inspection Service Points](#).

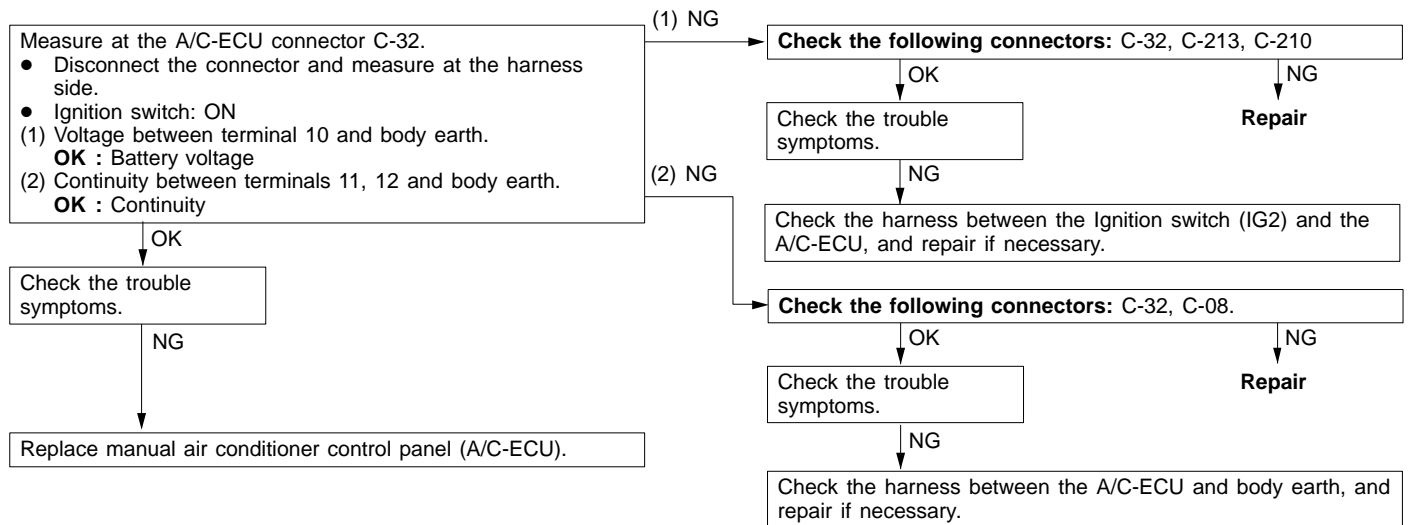
INSPECTION CHART FOR TROUBLE SYMPTOMS

Trouble symptom	Inspection procedure
Air conditioner not working at all	1
Blower motor not working	2
Air cannot be switched between inside and outside	3
Rear defogger not working	4

INSPECTION PROCEDURE FOR TROUBLE SYMPTOM

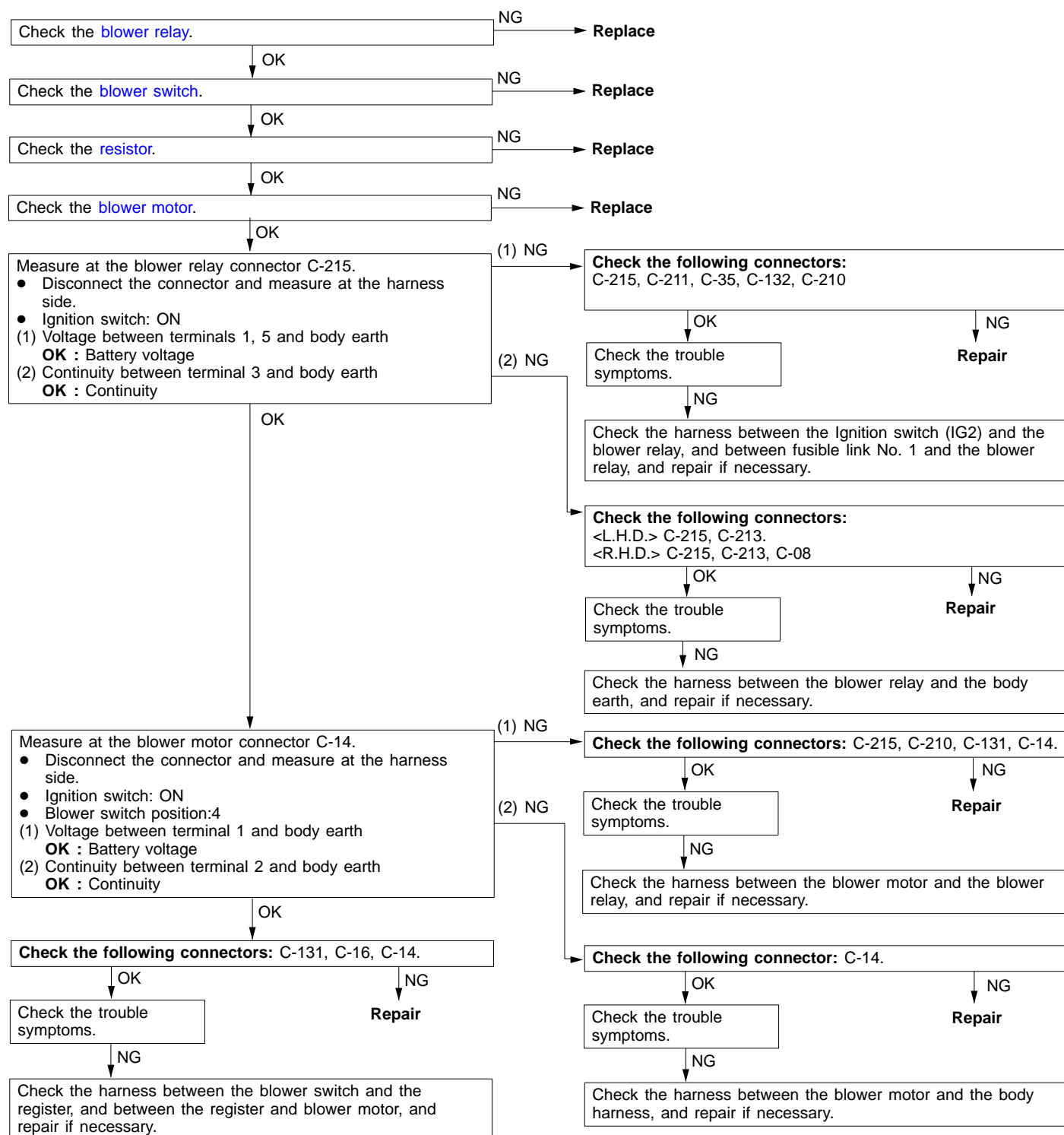
Inspection procedure 1

Air conditioner not working at all.	Probable cause
The A/C-ECU power supply system (including earth) may be defective.	<ul style="list-style-type: none"> Harness or connector fault A/C-ECU fault



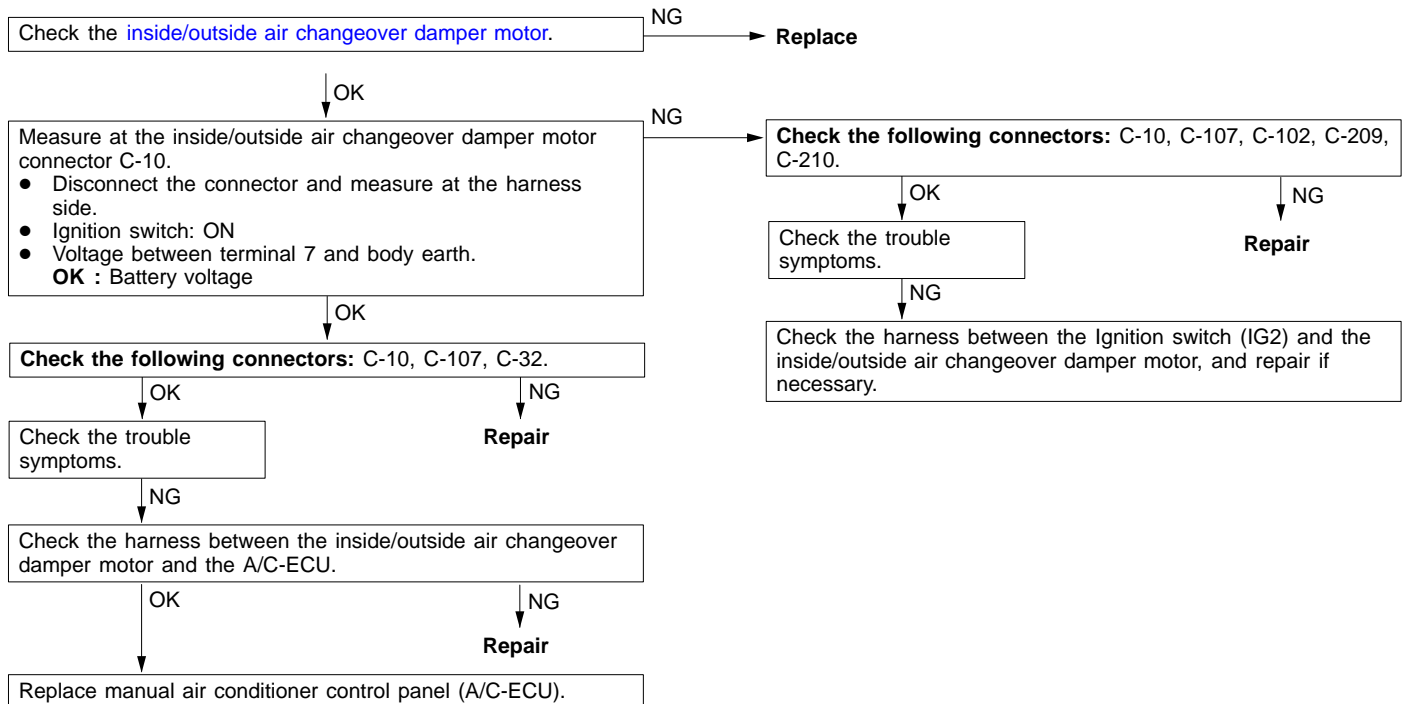
Inspection procedure 2

Blower motor not working	Probable cause
If the blower motor does not work, the blower motor circuit system may be defective.	<ul style="list-style-type: none"> Blower motor fault Harness or connector fault A/C-ECU fault



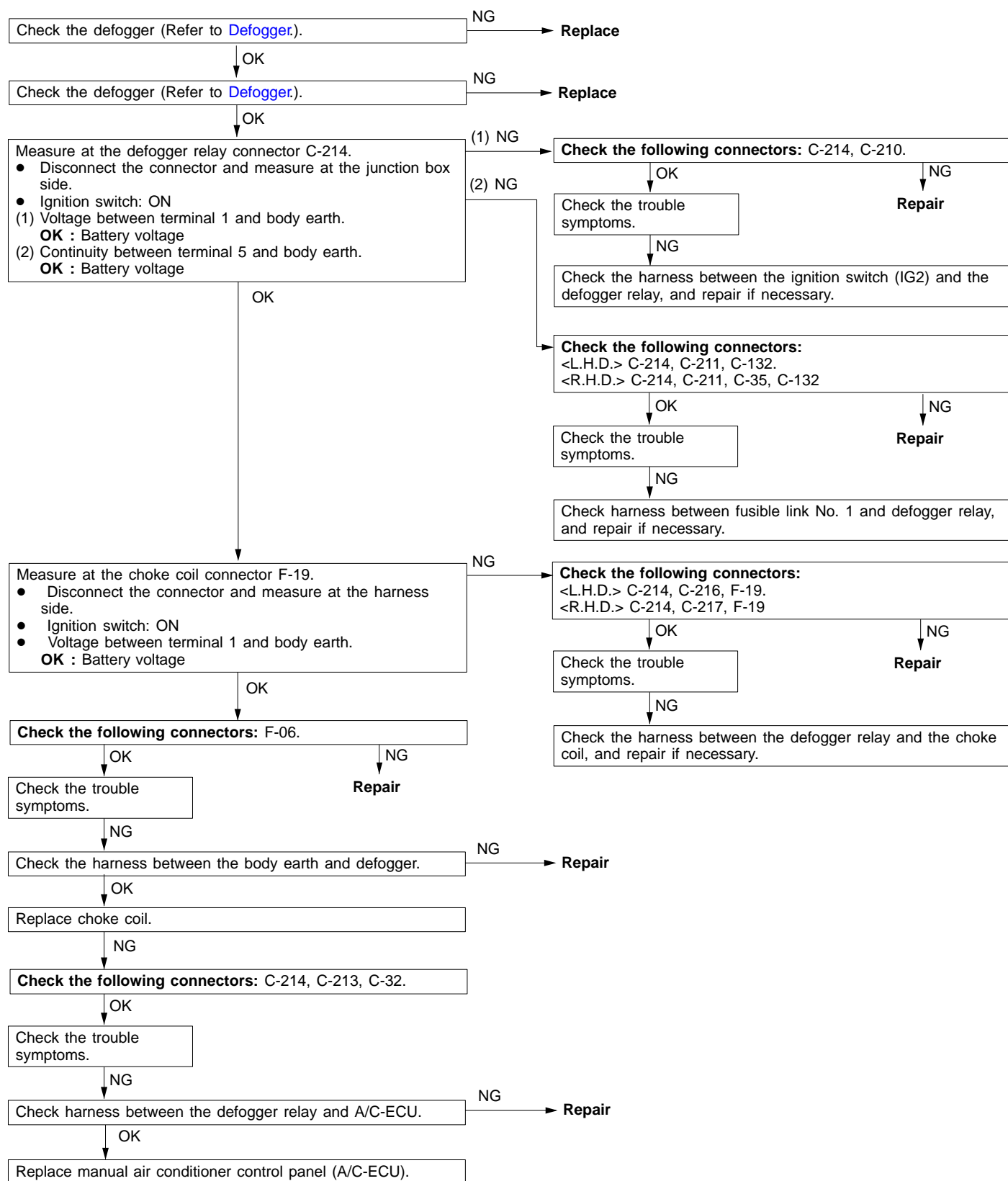
Inspection procedure 3

Air cannot be switched between inside and outside.	Probable cause
If the air cannot be switched between the inside and outside even though the inside/outside switch is ON, the inside/outside changeover damper motor system may be defective.	<ul style="list-style-type: none"> • Inside/outside air changeover damper motor fault • Harness or connector fault • A/C-ECU fault



Inspection procedure 4

Rear defogger not working.	Probable cause
If the rear window defogger does not work even though the rear defogger switch is ON (a 20-minute timer operates), the defogger relay system may be defective.	<ul style="list-style-type: none"> Defogger relay fault Harness or connector fault A/C-ECU fault



CHECK AT THE ENGINE-ECU TERMINAL <M/T>

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26

Y1676AU

41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56

Y1678AU

Terminal no.	Check item	Check when	Normal state
21	Fan controller output	A/C switch: OFF	5 V
		A/C switch: ON	0 V
22	A/C compressor output	A/C compressor relay: OFF	0 V
		A/C compressor relay: ON	Battery voltage
24	A/C-ECU input (A/C2)	At A/C low load	Battery voltage
45	A/C-ECU input (A/C1)	A/C ON (When dual pressure switch is ON)	Battery voltage

CHECK AT THE ENGINE-ECU TERMINAL <A/T>

1	2	3	4		5	6	7	8
9	10	11	12	13	14	15	16	17
24	25	26	27	28	29	30	31	32

Y1675AU

41	42	43			44	45	46
47	48	49	50	51	52	53	54
58	59	60	61	62	63	64	65

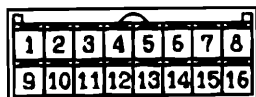
Y1677AU

71	72	73	74			75	76	77
78	79	80	81	82	83	84	85	86
90	91	92	93	94	95	96	97	98

Y1679AU

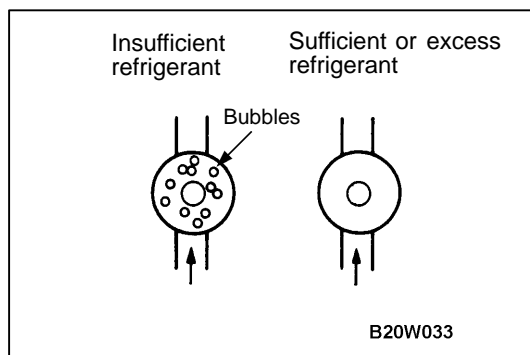
Terminal no.	Check item	Check when	Normal state
18	Fan controller output	A/C switch: OFF	5 V
		A/C switch: ON	0 V
21	A/C compressor output	A/C compressor relay: OFF	0 V
		A/C compressor relay: ON	Battery voltage
61	A/C-ECU input (A/C2)	At A/C low load	Battery voltage
83	A/C-ECU input (A/C1)	A/C ON (When dual pressure switch is ON)	Battery voltage

CHECK AT THE A/C-ECU TERMINAL



Y0769AU

Terminal no.	Check item	Check when	Normal state
1	Rear defogger switch	Defogger switch: ON	0 V
		Defogger switch: OFF	Battery voltage
2	Inside/outside air changeover damper motor (outside air)	When damper moved to inside circulation position	0 V
		When damper moved to outside air induction position	Battery voltage
3	Inside/outside air changeover damper motor (inside air)	When damper moved to inside circulation position	Battery voltage
		When damper moved to outside air induction position	0 V
4	–	–	–
5	–	–	–
6	Illumination power supply	Lighting switches: ON	Battery voltage
7	–	–	–
6	Blower switch (LO)	Blower switch: LO	Battery voltage
9	–	–	–
10	Ignition switch (IG2) power supply	Ignition switch: ON	Battery voltage
11	Illumination earth	Any time	0 V
12	Earth	Any time	0 V
13	Air thermo sensor (outlet side)	When temperature around sensor 25°C (1.5kΩ)	2.2 V
14	Air thermo sensor (inlet side)	When temperature around sensor 25°C (1.5kΩ)	2.2 V
15	–	–	–
16	Air thermo sensor earth	Any time	0 V



ON-VEHICLE SERVICE

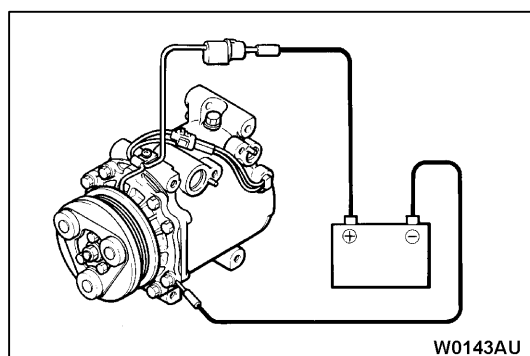
REFRIGERANT LEVEL TEST THROUGH PERFORMANCE TEST

4. Start the engine.
5. Turn on the A/C switch, and set the A/C control to MAX. COOL.
6. Adjust the engine speed to 1,500 r/min.
7. Check the refrigerant level (bubble state) through the sight glass.

Item	State
Insufficient refrigerant	Many bubbles are seen. If refrigerant is extremely low, it appears white.
Sufficient or excess refrigerant	No bubbles are seen

NOTE

1. If insufficient, replenish the refrigerant as follows.
 - a) Replenish until bubbles disappear from the sight glass.
 - b) After the bubbles disappear from the sight glass, replenish 100g of refrigerant.
2. If excessive, replenish the refrigerant as follows.
 - a) Drain the refrigerant until bubbles can be seen through the sight glass.
 - b) Replenish until bubbles disappear from the sight glass.
 - c) After the bubbles disappear from the sight glass, replenish 100g of refrigerant.



MAGNETIC CLUTCH TEST

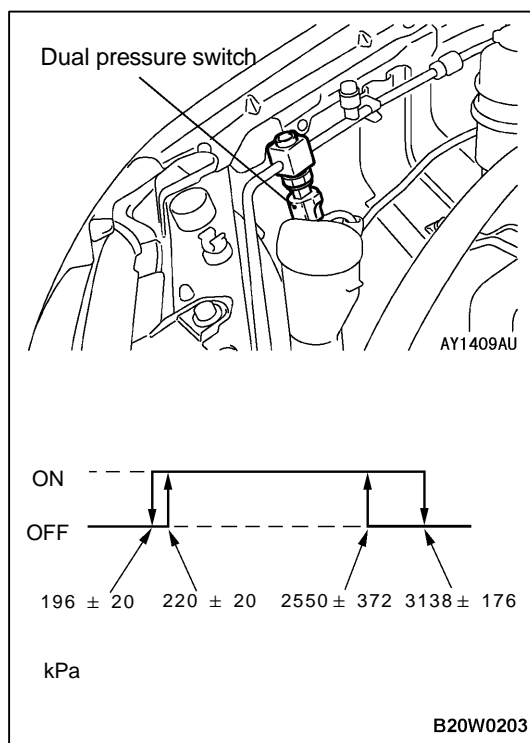
1. Disconnect the connector to the magnetic clutch.
2. Connect battery (+) voltage directly to the connector for the magnetic clutch.
3. If the magnetic clutch is normal, there will be "click". If the pulley and armature do not make contact ('click'), there is a malfunction.

RECEIVER DRIER TEST

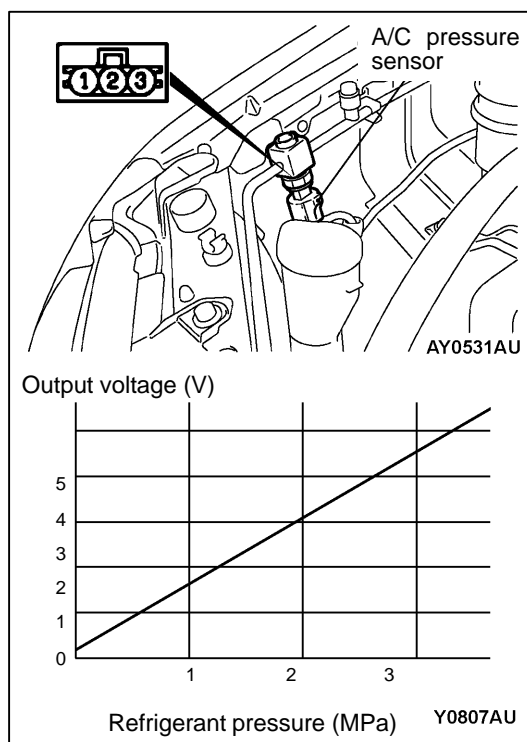
Operate the unit and check the piping temperature by touching the receiver drier outlet and inlet.

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

Replace the receiver drier.

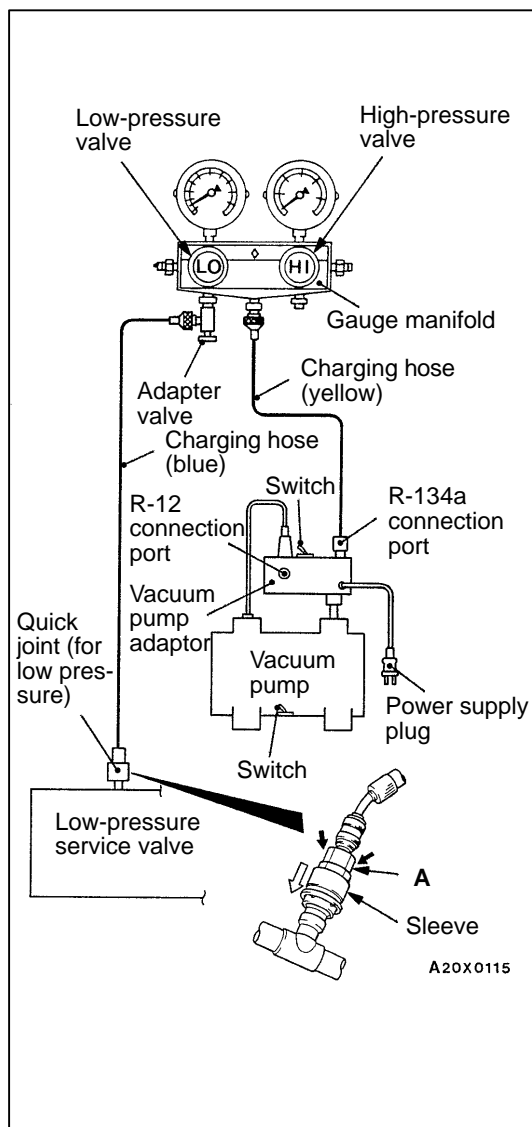
COMPRESSOR DRIVE BELT ADJUSTMENTRefer to [On-vehicle Service](#).**DUAL PRESSURE SWITCH CHECK**

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](#).
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.

**A/C PRESSURE SENSOR CHECK**

1. Attach a vacuum gauge to the high pressure service valve.
2. Start the engine and turn on the air conditioner switcher.
3. At this time, check that the voltage between terminal No. 2 of the A/C pressure sensor and body earth is as shown in the figure.

NOTETolerance should be $\pm 5\%$.



CHARGING

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

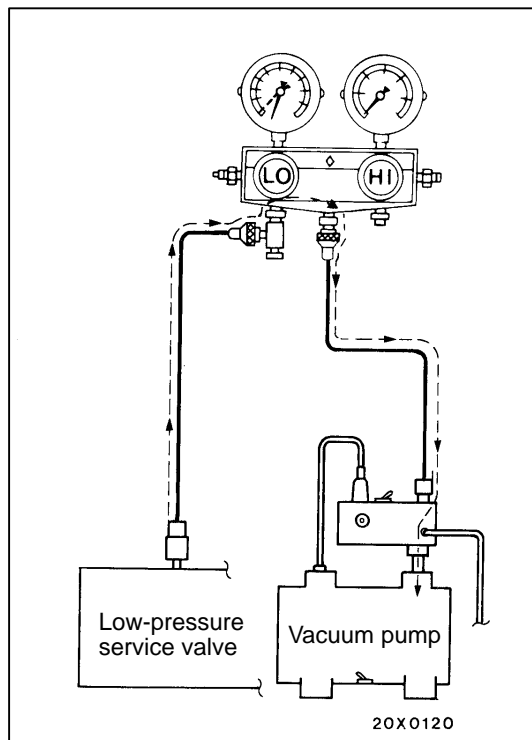
(1) Use tools that are suited to R134a.

(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 R134a 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.

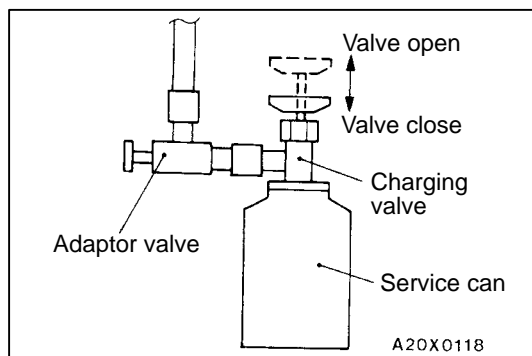
Caution

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

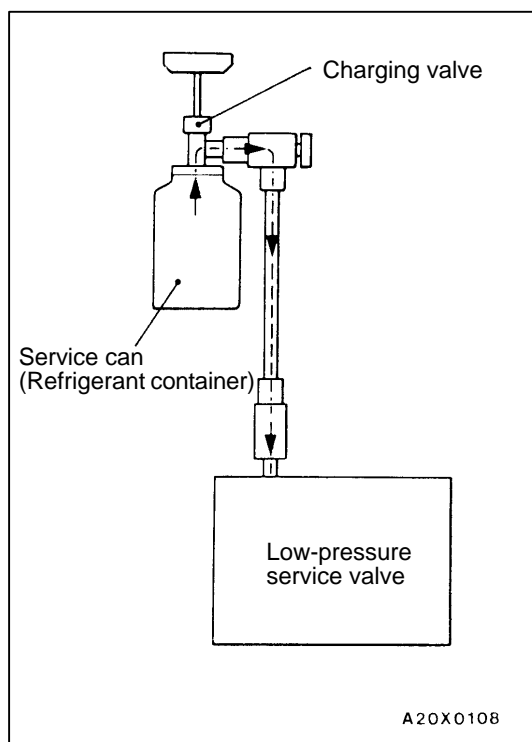
15. Carry out a leak test. (Good if the negative pressure does not drop.)

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 can.
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.

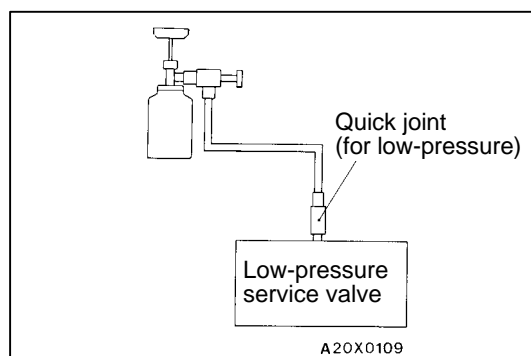
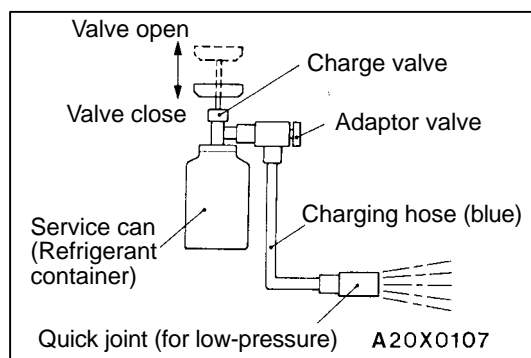
Caution

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

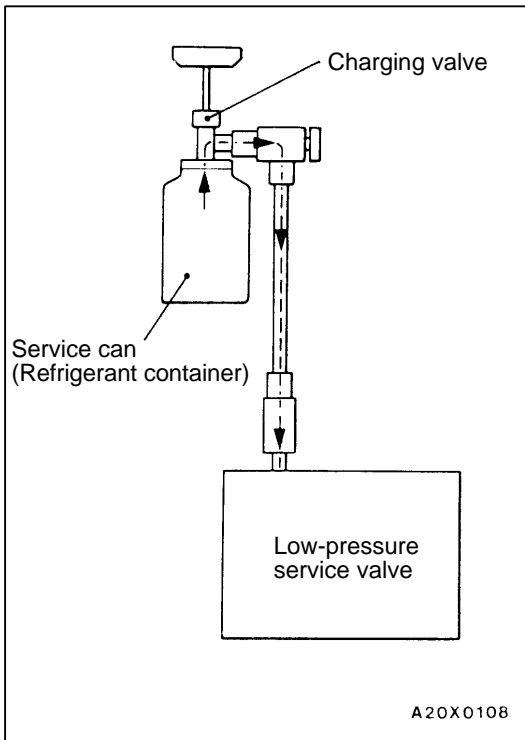
If the service can is not emptied completely, keep the handles of the charging valve and adaptor valve closed for the next charging.

**CORRECTING LOW REFRIGERANT LEVEL**

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.

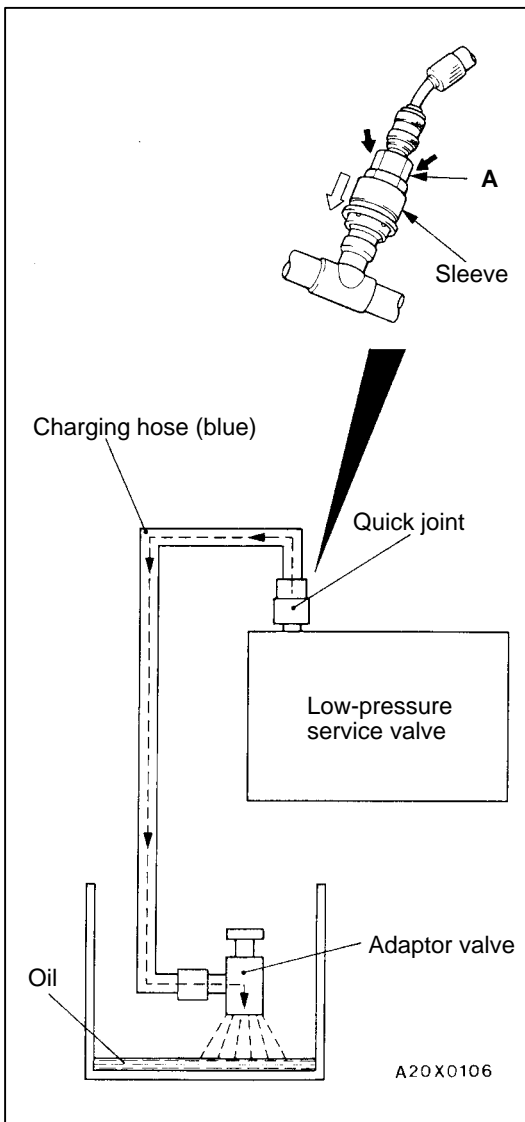
Caution

If the service can is inverted, liquid refrigerant may be drawn 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.

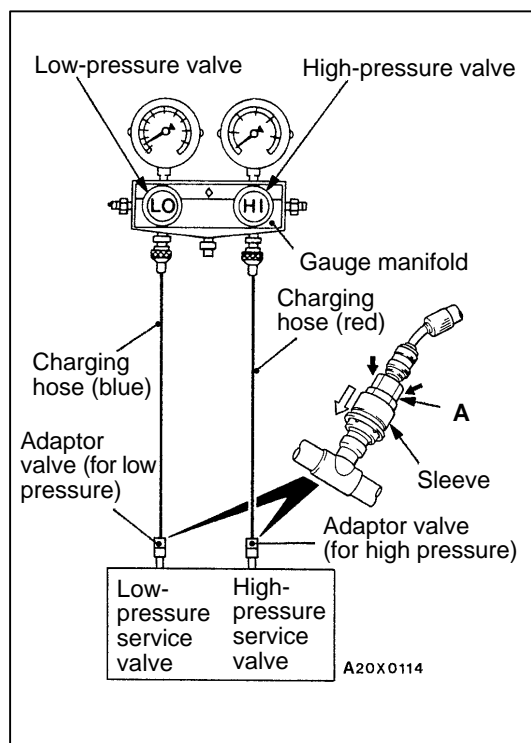
When a compressor is installed at the factory, it contains 140 ml of refrigerant oil. While the A/C system is in operation, the oil is carried through the entire system by the refrigerant. Some of this oil will be trapped and retained in various parts of the system.

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: 180 mL

**PERFORMANCE TEST**

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

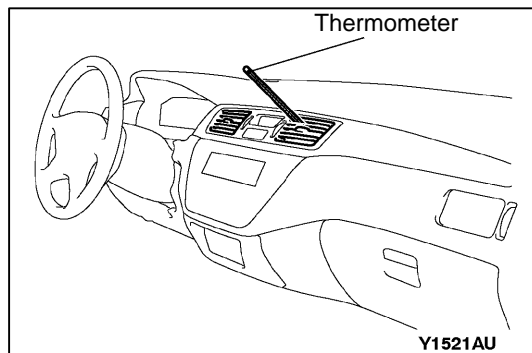
The high-pressure service valve is on liquid pipe A and the low-pressure service valve is on the suction hose.

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. Keep engine speed to idling speed with A/C clutch engaged.
9. Engine should be warmed up with doors and all windows opened.



10. Insert a thermometer in the center A/C 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.

MAIN**Group
55****55A****Performance Temperature Chart**

Garage ambient temperature °C	20	25	30	35
Discharge air temperature °C	8 – 11	12 – 16	17 – 21	22.5 – 27.5
Compressor high-pressure kPa	740 – 840	950 – 1,050	1,160 – 1,300	1,360 – 1,550
Compressor low-pressure kPa	150 – 190	190 – 240	240 – 300	300 – 375

REFRIGERANT LEAK REPAIR

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.

COMPRESSOR NOISE

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.

HANDLING TUBING AND FITTINGS

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

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

Sharper bends will reduce the flow of refrigerant. The flexible hose lines should be routed so that they are at least 80 mm 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.

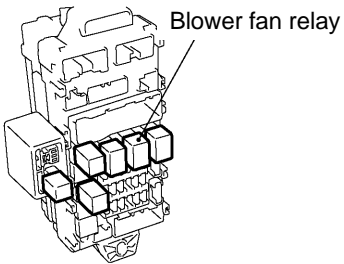
Unified plumbing connections with O-rings, these O-rings are not reusable.

ADJUSTMENT

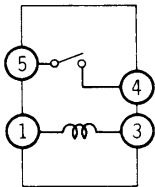
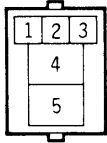
1. Select a quiet area for testing. Duplicate conditions as much as possible. Switch compressor on and off several times to clearly identify compressor noise. To duplicate high ambient conditions (high head pressure), restrict air flow through condenser. Install manifold gauge set to make sure discharge 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.

BLOWER RELAY CONTINUITY CHECK

System voltage	Terminal No.			
	1	3	4	5
When current is not supplied				
When current is supplied				



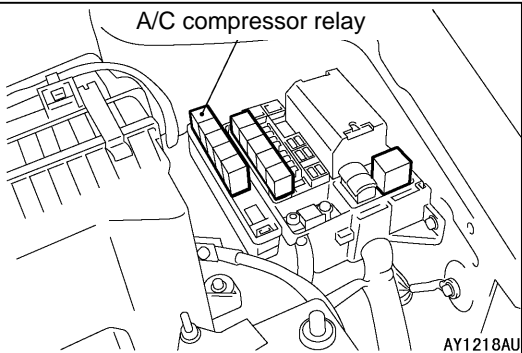
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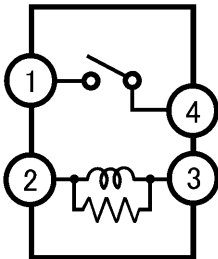
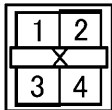
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A/C COMPRESSOR RELAY CONTINUITY CHECK

System voltage	Terminal No.			
	3	2	1	4
When current is not supplied				
When current is supplied				



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FAN CONTROLLER CHECK

Refer to [Radiator](#).

IDLE-UP OPERATION CHECK

1. Set the vehicle in the pre-inspection condition:
Engine coolant temperature: 80 – 90 °C
Lamps, electric cooling fan and all accessories: OFF
Transmission: N range
2. Check that the idle speed is within the standard value.

Standard value: 750 ± 50 r/min

NOTE

The idle speed is controlled by the ISC system and should not be adjusted.

3. The idle speed should be within the standard value when the A/C switch is turned on and the A/C is operating.

Standard value:

850 ± 50 r/min

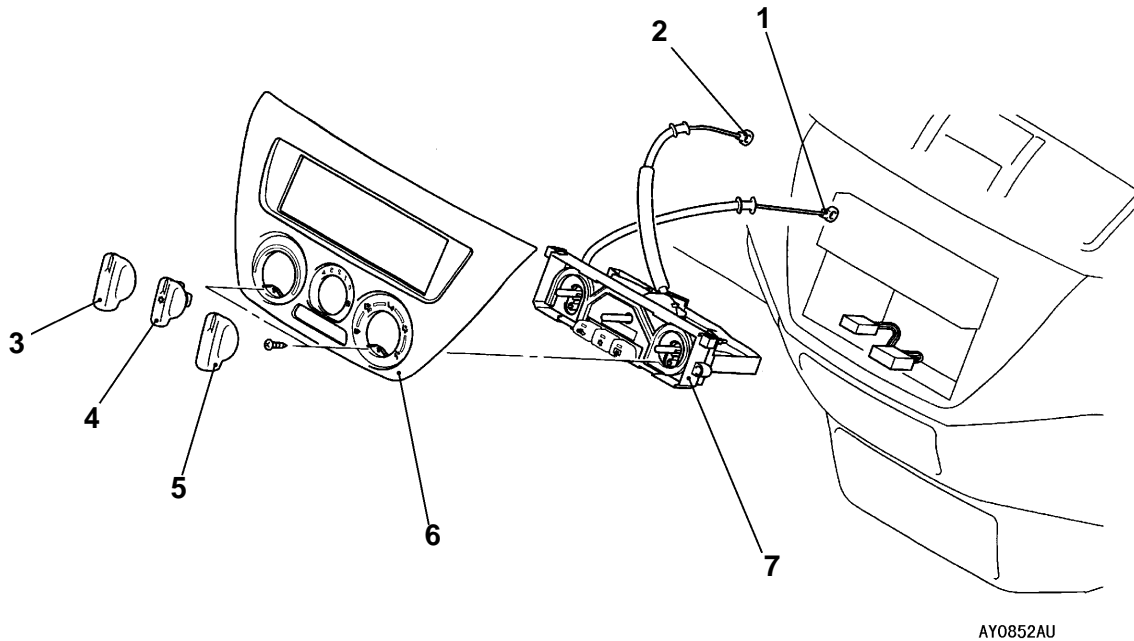
HEATER CONTROL ASSEMBLY (A/C-ECU) AND A/C SWITCH

REMOVAL AND INSTALLATION

MAIN

Group
55

55A

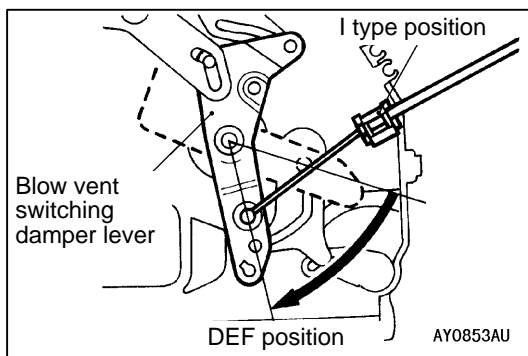


Removal steps



1. Air mix door cable connection
2. Blow vent switching damper cable connection
3. Temperature adjustment knob

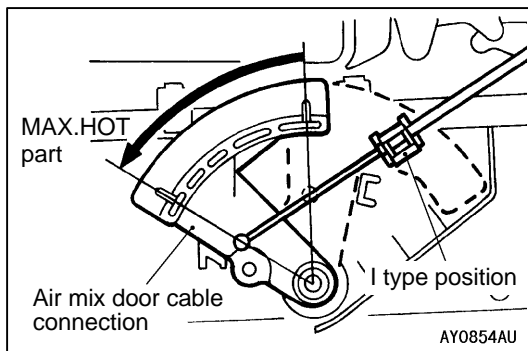
4. Air volume adjustment knob
5. Blow vent switching knob
6. Center panel
7. Control panel assembly



INSTALLATION SERVICE POINTS

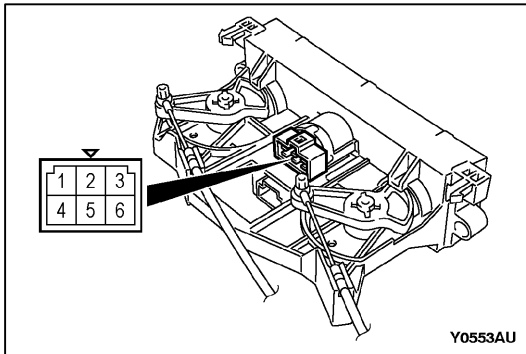
►A◄ BLOW VENT SWITCHING DAMPER CABLE CONNECTION

1. Set the heater control assembly's blow vent switching knob to the DEF position.
2. Set the heater unit's blow vent switching damper relay to the DEF position (turn the damper relay to the left until it stops) and install the cable.
3. Line up the I cable assembly with the heater unit case and secure with a clip.



►B◄ AIR MIX DOOR CABLE CONNECTION

1. Turn the heater control assembly's temperature adjustment knob all the way to the HOT side.
2. Set the heater unit's air mix door relay to the MAX HOT position (turn the damper relay all the way to the right until it stops) and attach the cable.
3. Line up the I cable assembly with the heater unit case and secure with a clip.

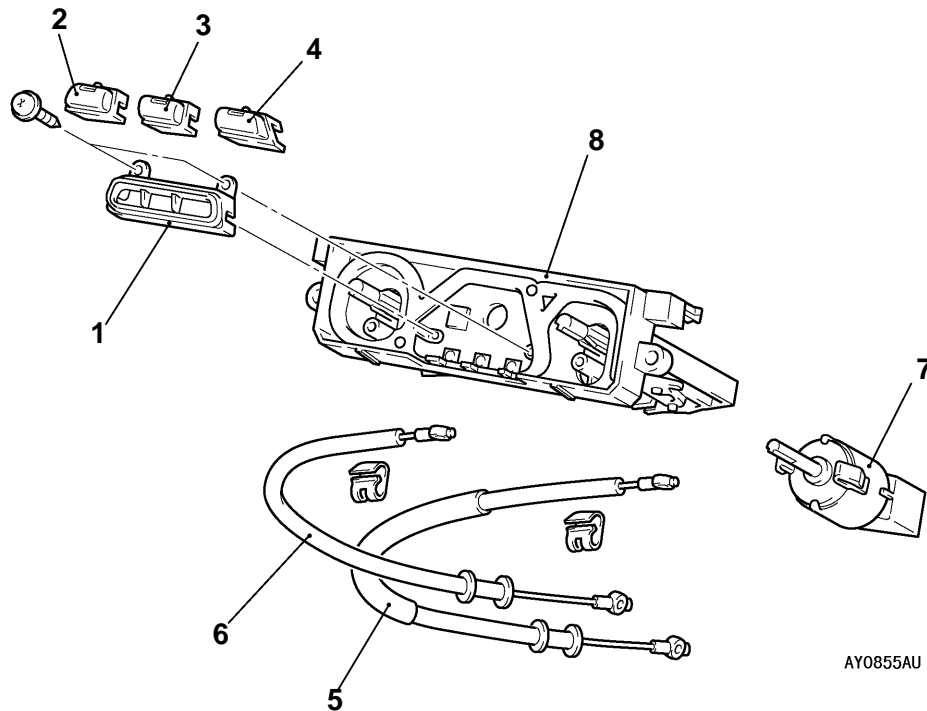


INSPECTION

Blower switch continuity check

Switch position	Terminal no.				
	1	2	4	5	6
0 (OFF)					
1	○	○			
2		○	○		
3		○		○	
4		○			○

DISASSEMBLY AND REASSEMBLY



Disassembly steps

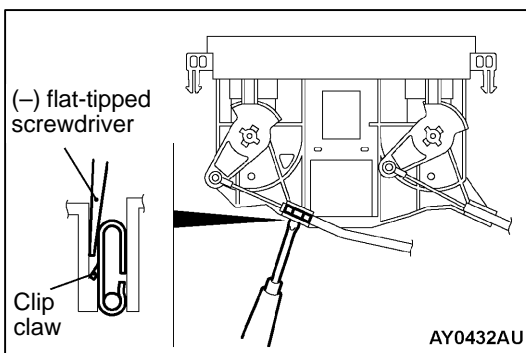
1. Switch panel
2. Rear window defogger switch
3. Air conditioner switch
4. Inside/outside air changeover switch
5. Blow vent changeover damper cable

6. Air mix damper cable
7. Blower switch assembly
8. Manual air conditioner control panel (A/C-ECU)

ASSEMBLY SERVICE POINTS

◀A▶ BLOW VENT CHANGEOVER DAMPER CABLE AND AIR MIX DAMPER CABLE REMOVAL

Insert a flat-tipped screwdriver into the clip through the inside of the control base and prise out the clip claw to disconnect the cables.

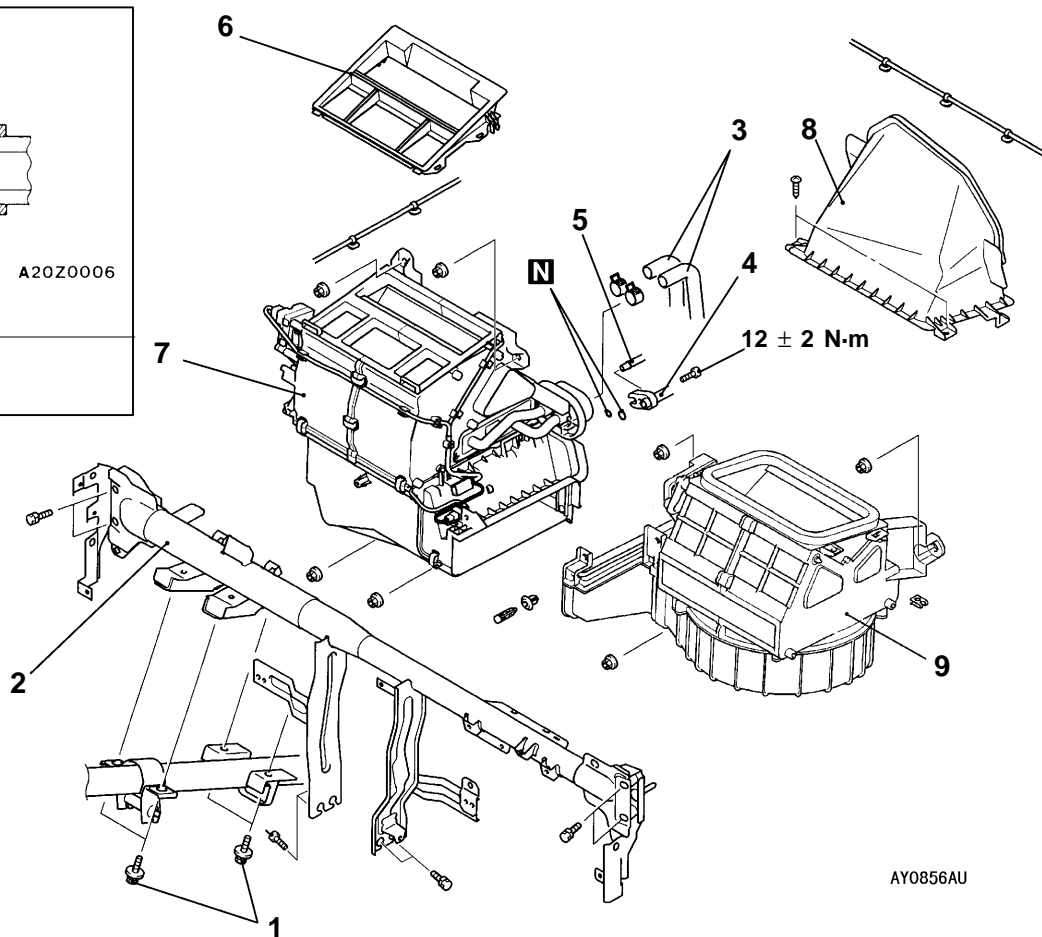
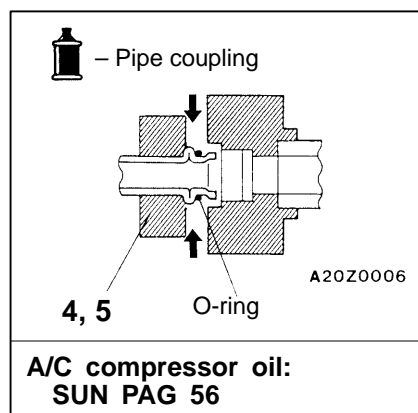


HEATER UNIT AND BLOWER ASSEMBLY

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operations

- Refrigerant [Draining](#) and [Refilling](#).
- Coolant Draining and Refilling (Refer to [On-vehicle Service](#).)
- Instrument Panel Removal and Installation (Refer to [Instrument Panel](#).)
- Front Seat Removal and Installation (Refer to [Front Seat](#).)
- Floor Console Removal and Installation (Refer to [Floor Console](#).)
- Floor Carpet Removal and Installation



Heater unit and blower assembly removal steps

1. Steering shaft attachment bolt
2. Front deck crossmember
3. Heater hose connection
4. Flexible suction hose connection

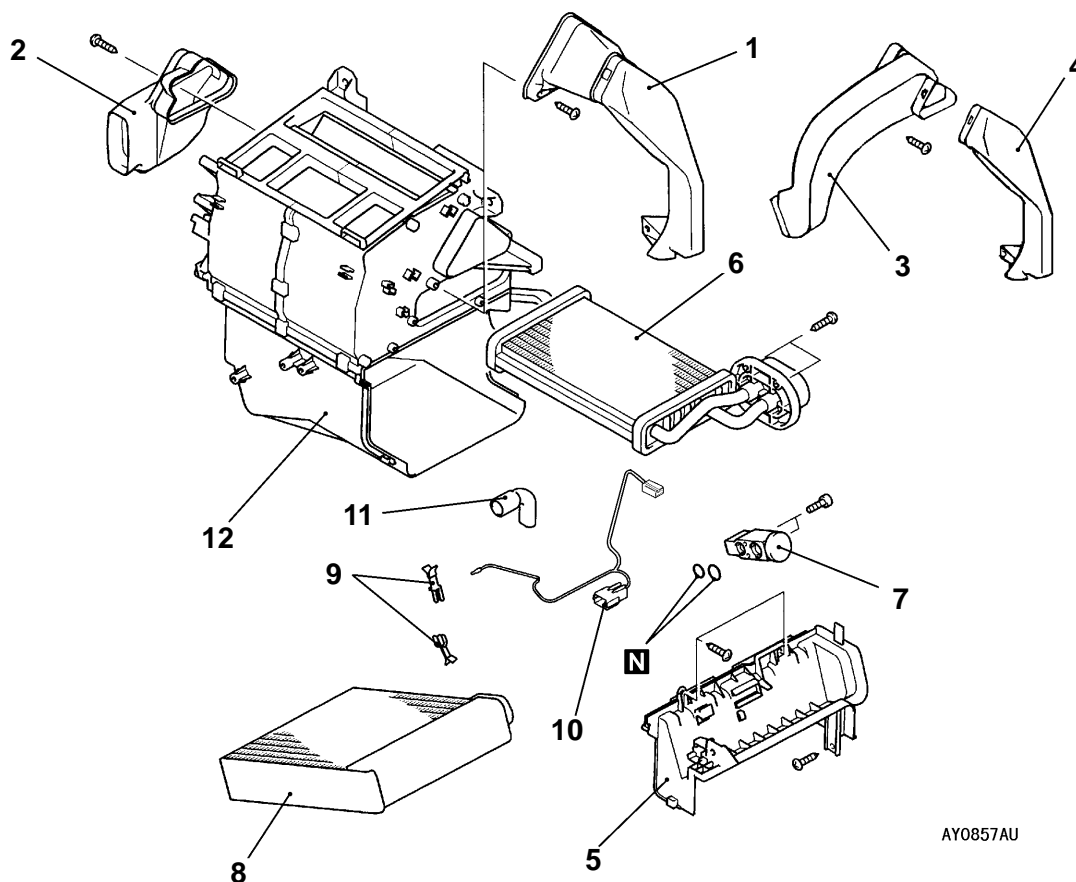
5. Liquid pipe B connection
6. Center duct
7. Heater unit
8. Intake duct
9. Blower assembly

REMOVAL SERVICE POINTS**◀A▶ FLEXIBLE SUCTION HOSE AND LIQUID PIPE B DISCONNECTION**

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

Caution

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

DISASSEMBLY AND REASSEMBLY

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Disassembly steps

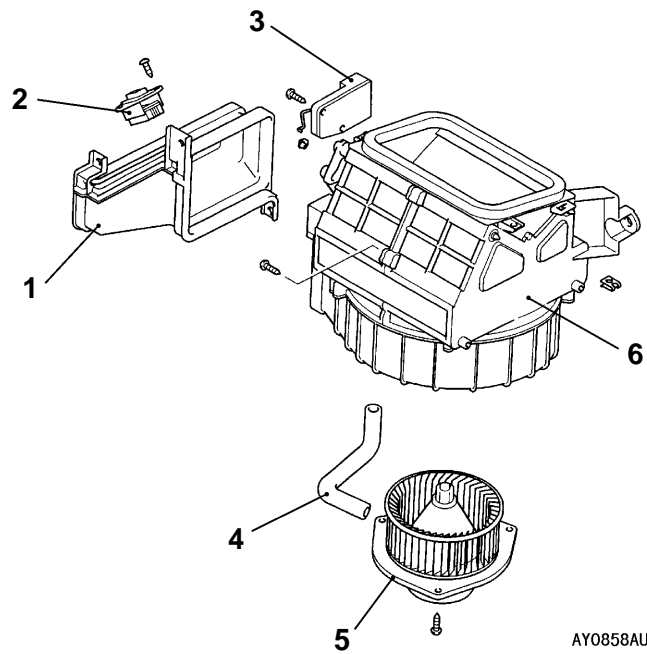
- | | |
|---|---------------------------|
| 1. Right-hand foot duct | 6. Heater core |
| 2. Left-hand foot duct | 7. Expansion valve |
| 3. Left-hand foot duct <Rear duct mounted vehicle> | 8. Evaporator |
| 4. Left-hand upper rear heater duct A <Rear duct mounted vehicle> | 9. Air thermo sensor clip |
| 5. Evaporator cover | 10. Air thermo sensor |
| | 11. Drain plug |
| | 12. Heater case |

DISASSEMBLY AND REASSEMBLY

MAIN

Group
55

55A



Disassembly steps

1. Joint duct
2. Resistor
3. Inside/outside air changeover damper motor
4. Hose
5. Blower motor
6. Blower case

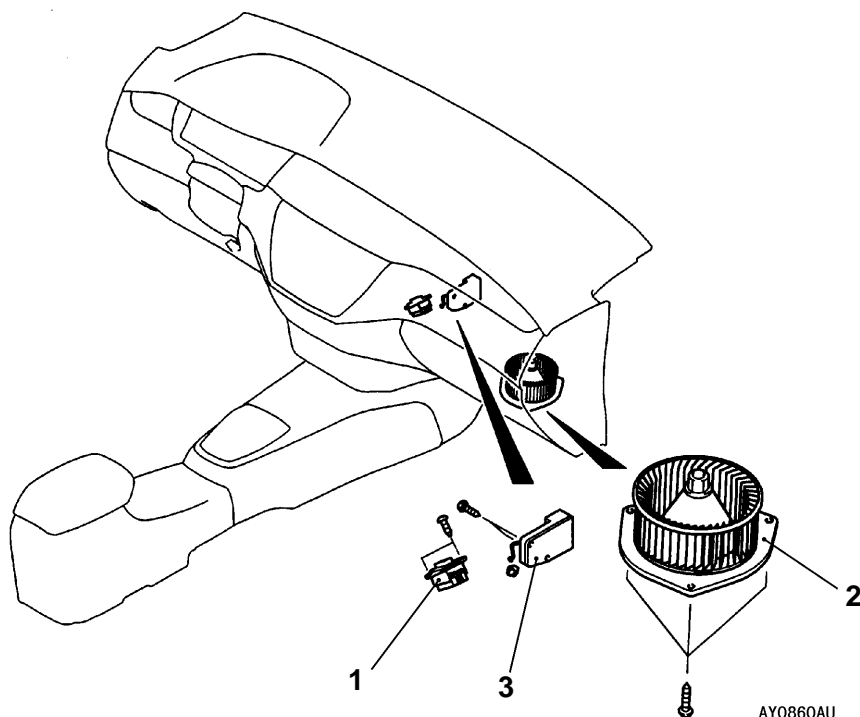
RESISTOR, BLOWER MOTOR AND INSIDE/OUTSIDE AIR CHANGEOVER DAMPER MOTOR

REMOVAL AND INSTALLATION

MAIN

Group
55

55A



Resistor removal steps

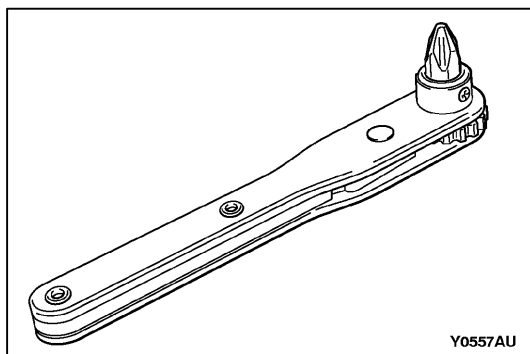
- Glovebox (Refer to [Instrument Panel.](#))
- 1. Resistor

Blower motor removal steps

- 2. Blower motor

Inside/outside air changeover damper motor removal steps

- Glovebox (Refer to [Instrument Panel.](#))
- 3. Inside/outside air changeover damper motor

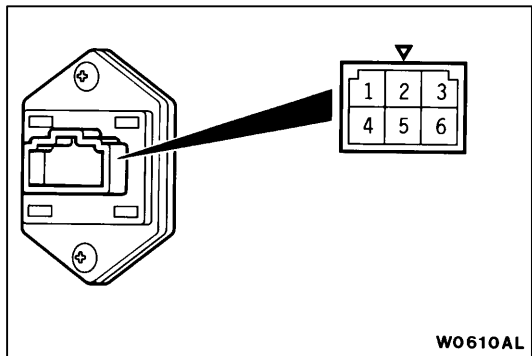


REMOVAL SERVICE POINTS

◀A▶ BLOWER MOTOR REMOVAL

NOTE

A normal plate-type ratchet driver is recommended.

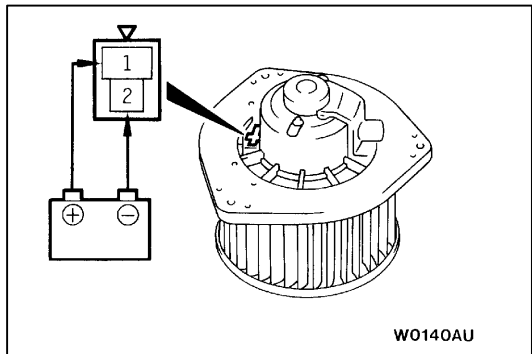


INSPECTION

Resistor Check

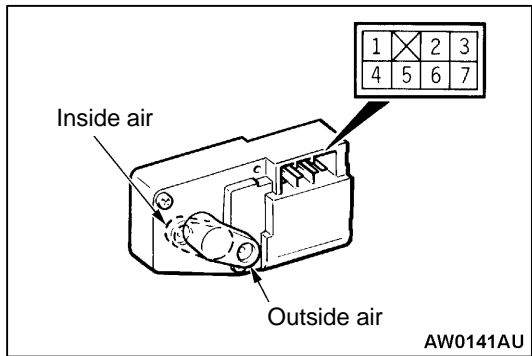
Standard values:

Test terminals	Standard value (Ω)
HI – LO (between terminals 1 and 3)	2.54
HI – ML (between terminals 1 and 6)	1.24
HI – MH (between terminals 1 and 4)	0.6



Blower Motor Check

Check that the motor is running when the battery voltage is applied between the terminals. Check that the motor is not producing any abnormal noise at that time.



Inside/Outside Air Changeover Damper Motor Check

Battery connection terminal lever operation			Operating the lever
4	6	7	
	⊖	⊕	Turn to outside air side
⊖		⊕	Turn to cabin air side

Caution

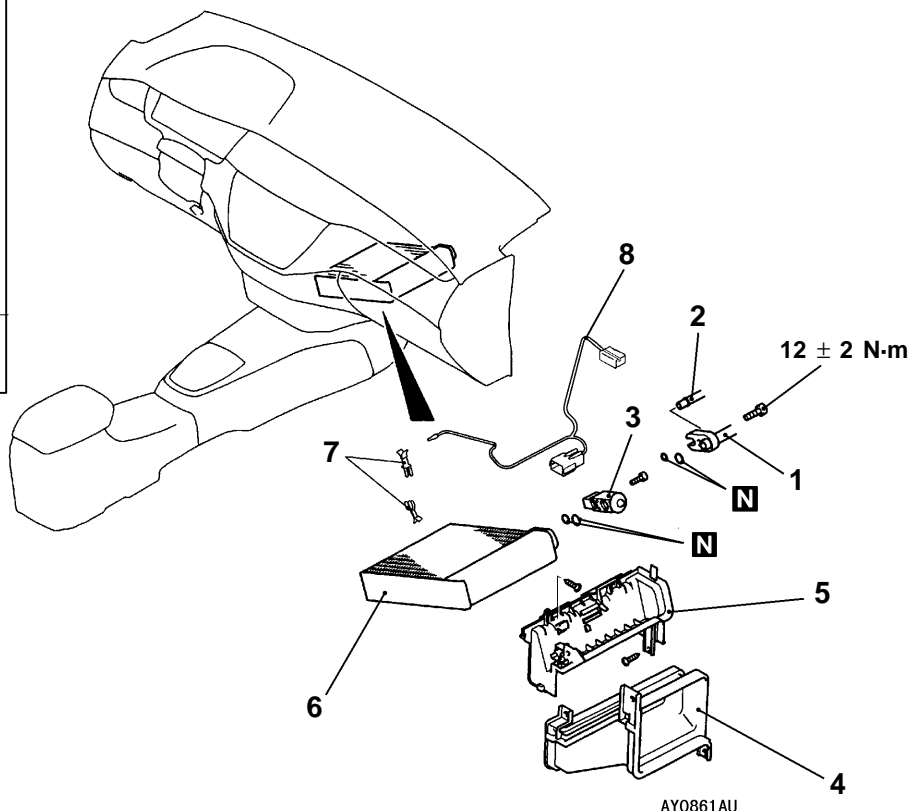
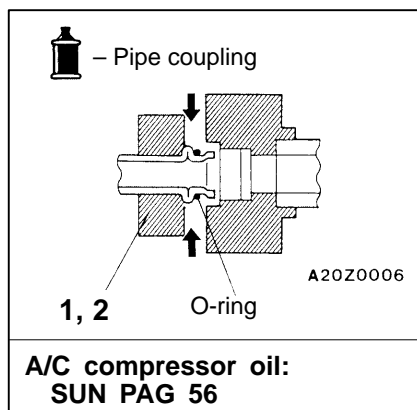
When the lever is in the OFF position, no power is supplied.

EVAPORATOR AND AIR THERMO SENSOR

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operations

- Refrigerant [Draining](#) and [Refilling](#).



Disassembly steps

- Glovebox (Refer to [Instrument Panel](#).)
- 1. Flexible suction hose connection
- 2. Liquid pipe B connection
- 3. Expansion valve
- 4. Joint duct

- 5. Evaporator cover
- 6. Evaporator
- 7. Air thermo sensor clip
- 8. Air thermo sensor

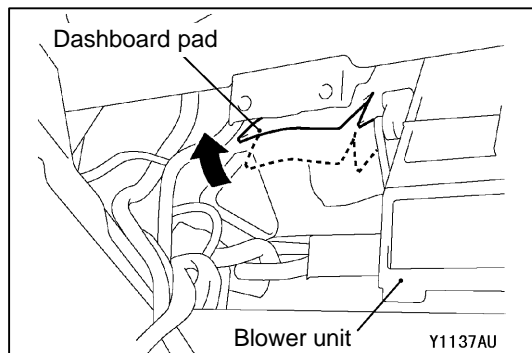
REMOVAL SERVICE POINTS

◀A▶ WHEN DISCONNECTING THE FLEXIBLE SUCTION HOSE, LIQUID PIPE B, AND THE EXPANSION VALVE

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

Caution

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



◀B▶ EVAPORATOR REMOVAL

1. When removing the evaporator, cut and fold back the dashboard pad as in the diagram. (The thickness of the pad interferes with the removal of the evaporator.)
2. Remove the evaporator.

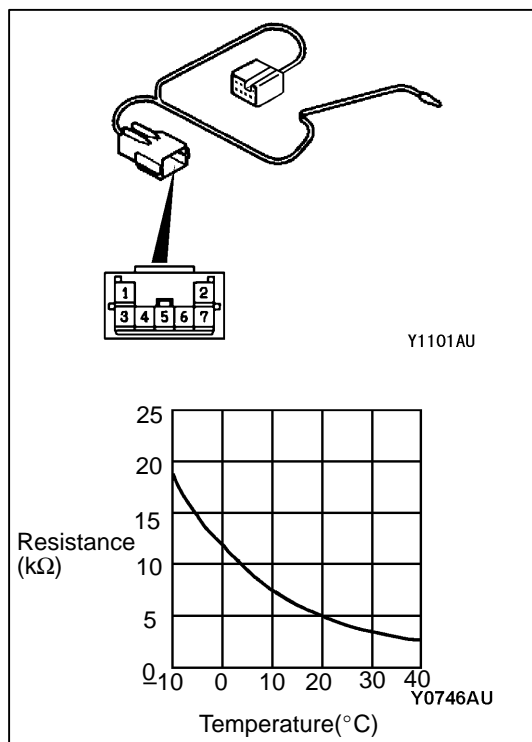
Caution:

Do not cut the upper side of the pad.

INSTALLATION SERVICE POINTS

▶A◀ EVAPORATOR INSTALLATION

After installing the evaporator, glue the cut dashboard panel pad with an adhesive agent.



INSPECTION

Air thermo sensor inspection

Measure the resistance between connector terminals 4 and 5 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.

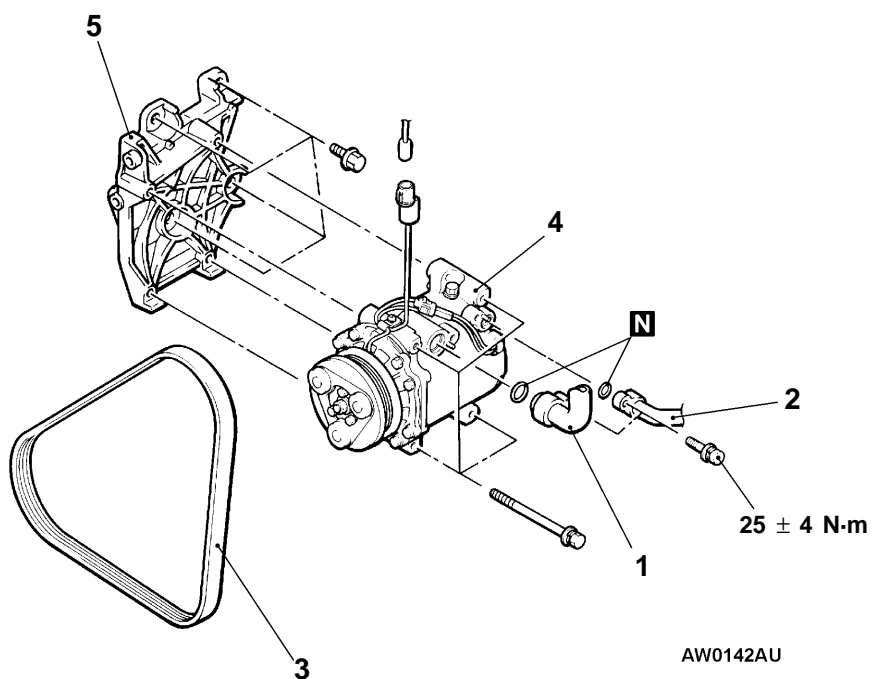
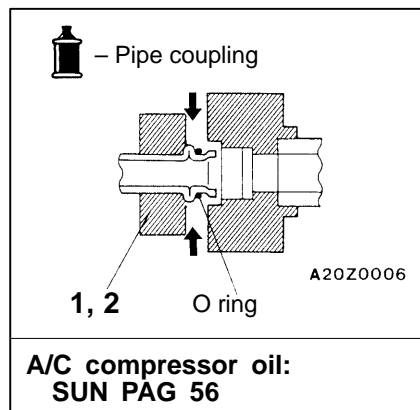
COMPRESSOR

REMOVAL AND INSTALLATION

Before Removal
Refrigerant Draining.

After Removal

- Refrigerant Replenishing.
- Drive Belt Tension Check (Refer to Engine Adjustment.)



Removal steps

1. Flexible suction hose connection
2. Flexible discharge hose connection
3. Drive belt

4. Compressor
5. Compressor bracket

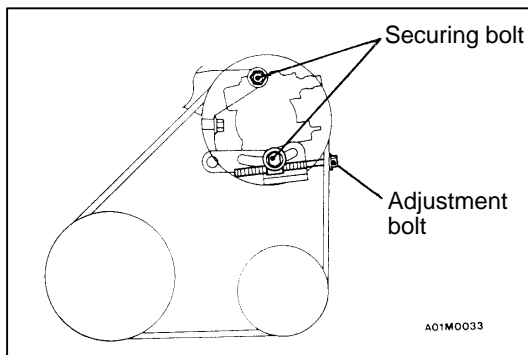
REMOVAL SERVICE POINTS

◀A▶ DISCONNECTION OF FLEXIBLE SUCTION HOSE AND FLEXIBLE DISCHARGE HOSE

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

Caution

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



◀B▶ DRIVE BELT REMOVAL

1. Loosen the bolt securing the drive belt.
2. Loosen the adjusting bolt and remove the drive belt.

◀C▶ COMPRESSOR REMOVAL

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

INSTALLATION SERVICE POINTS

▶A◀ COMPRESSOR INSTALLATION

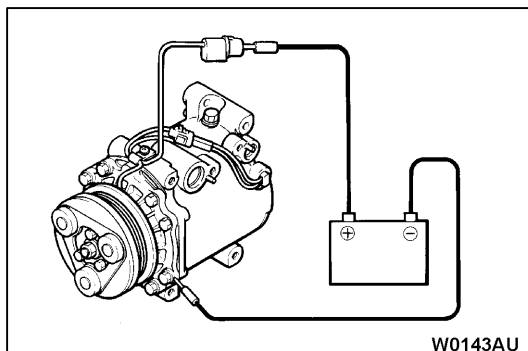
When installing a new compressor, first adjust the oil level as follows.

1. Measure the oil in the compressor you removed.
(X cm³)
2. Drain the amount of oil calculated by the following formula from the new compressor. Now install the compressor.

$$150 \text{ cm}^3 - X \text{ cm}^3 = Y \text{ cm}^3$$

NOTE

- (1) 150 cm³ indicates the amount of oil sealed in the new compressor at the factory.
- (2) Y cm³ indicates the amount of oil in the refrigerant line, compressor, and cooling unit.



INSPECTION

Compressor Magnetic Clutch Operation Check

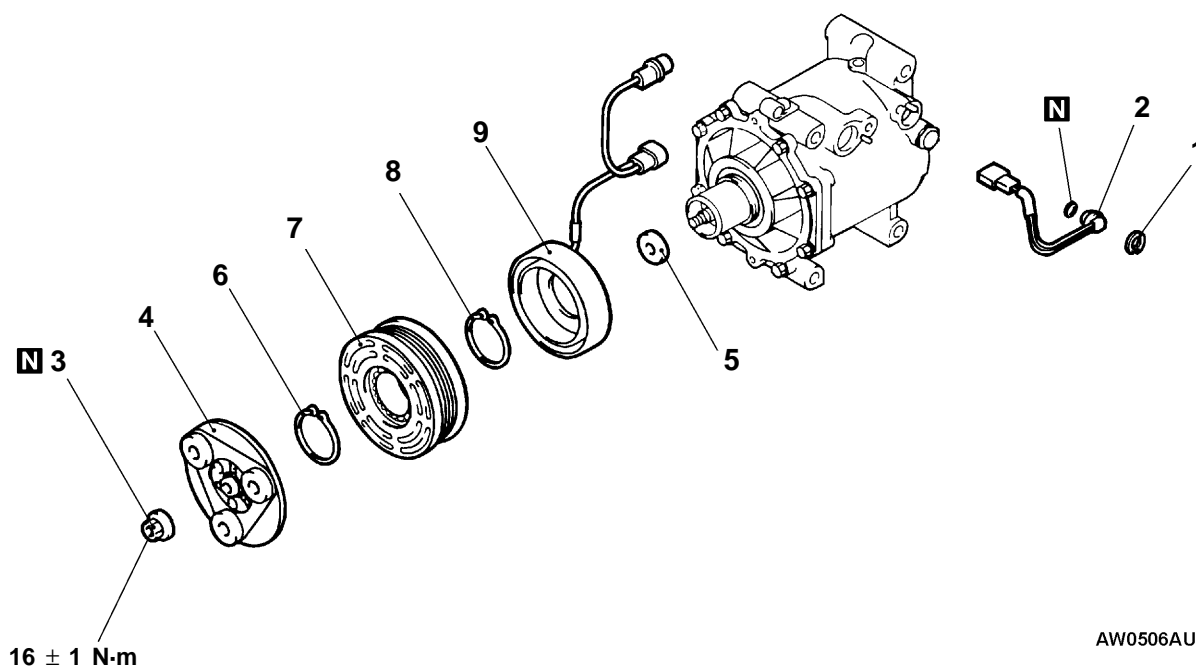
Connect the compressor connector terminal to the battery positive (+) terminal and ground the battery's negative (-) terminal to the compressor unit. At that time, the magnetic clutch should make a definite operating sound.

DISASSEMBLY AND REASSEMBLY

MAIN

Group
55

55A



Cooling temperature switch dismantling steps

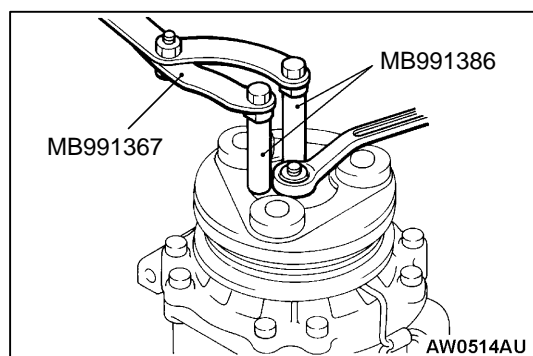
1. Snap ring
2. Cooling temperature switch

Magnetic clutch dismantling procedure

- D◀ • Air gap adjustment

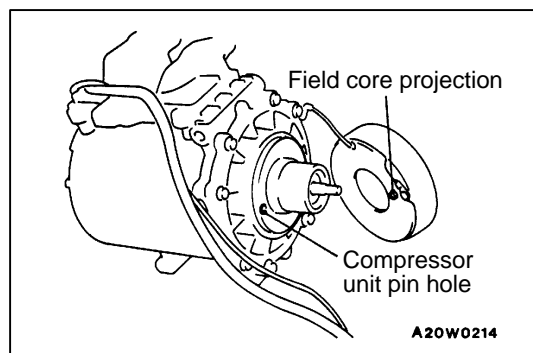
- ◀A► ►C◀ 3. Self-locking nut
4. Armature
5. Shim
►B◀ 6. Snap ring
7. Rotor
►A◀ 8. Snap ring
9. Field core

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ASSEMBLY SERVICE POINT

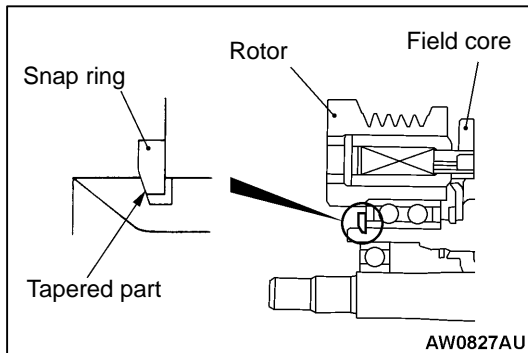
◀A► DISMANTLING OF SELF-LOCKING NUT



ASSEMBLY SERVICE POINTS

►A◀ FIELD CORE ATTACHMENT

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

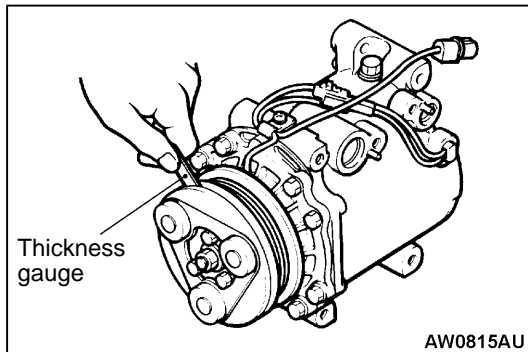


►B◄ SNAP RING INSTALLATION

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

►C◄ SELF-LOCKING NUT INSTALLATION

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



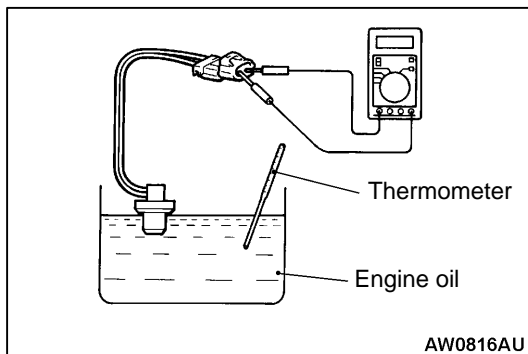
►D◄ AIR GAP ADJUSTMENT

Apply voltage from the battery to the magnetic clutch and check that the clutch air gap is inside the typ. value. If outside the typ. value, use a shim to adjust the gap.

Standard value: 0.3 – 0.5 mm

NOTE

The shims are available in 0.05 mm steps across the thickness range 0.35 – 0.70 mm, and in 0.1 mm steps of thickness.



INSPECTION

Cooling temperature switch

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

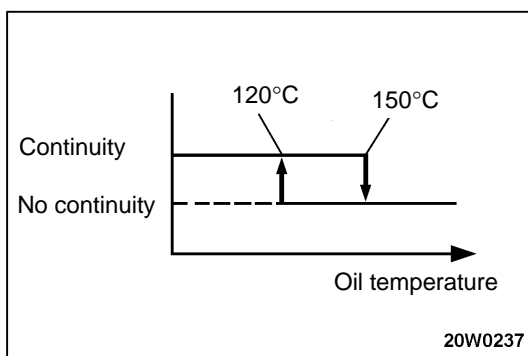
Caution

Do not heat more than necessary.

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

Standard value:

Item	Temperature
Continuity	Slightly below 150°C
No continuity	150°C or higher (until temperature falls to 120°C when OFF)



CONDENSER ASSEMBLY AND CONDENSER FAN ASSEMBLY REMOVAL AND INSTALLATION

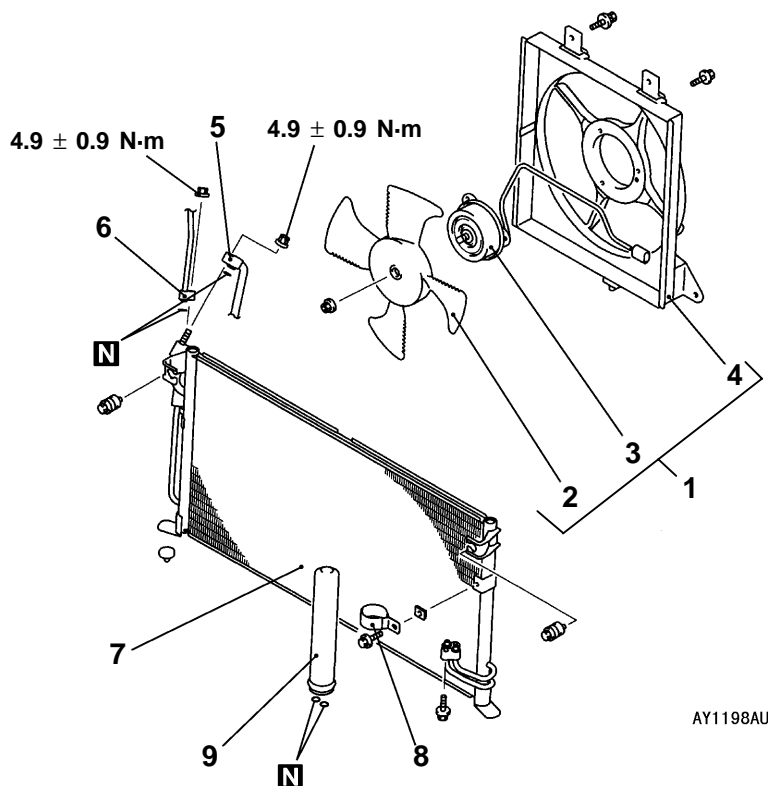
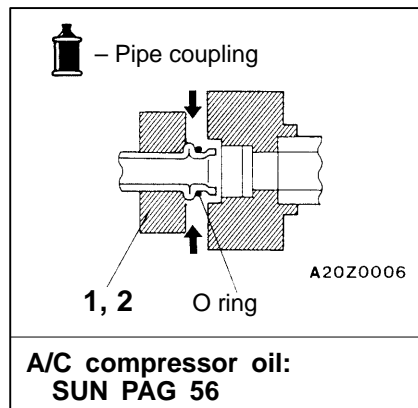
Pre-removal and Post-installation Operations

- Refrigerant [Draining](#) and [Refilling](#).
- [Air Cleaner Removal and Installation](#).

MAIN

Group
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55A



Condenser fan assembly removal steps

1. Condenser fan assembly
2. Fan
3. Fan motor
4. Shroud



Condenser assembly removal steps

5. Flexible discharge hose connection
6. Liquid pipe A connection
7. Condenser assembly
8. Clamp
9. Receiver

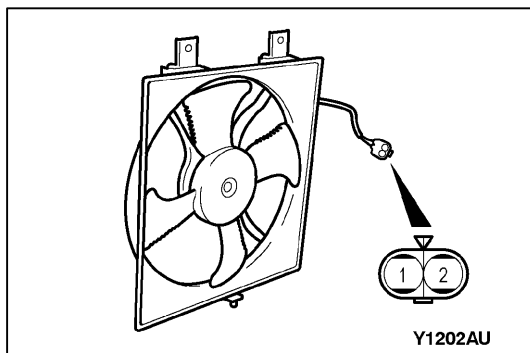
REMOVAL SERVICE POINTS

◀A▶ FLEXIBLE SUCTION HOSE AND LIQUID PIPE A DISCONNECTION

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

Caution

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



Condenser Fan Motor Check

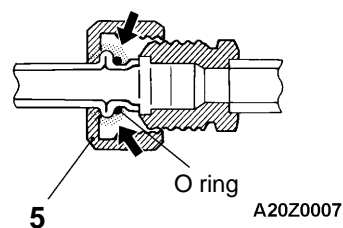
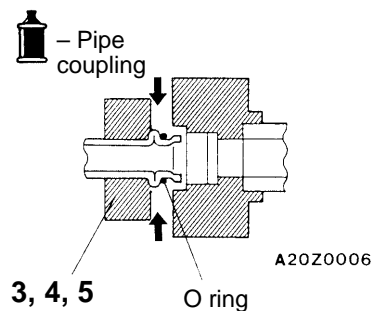
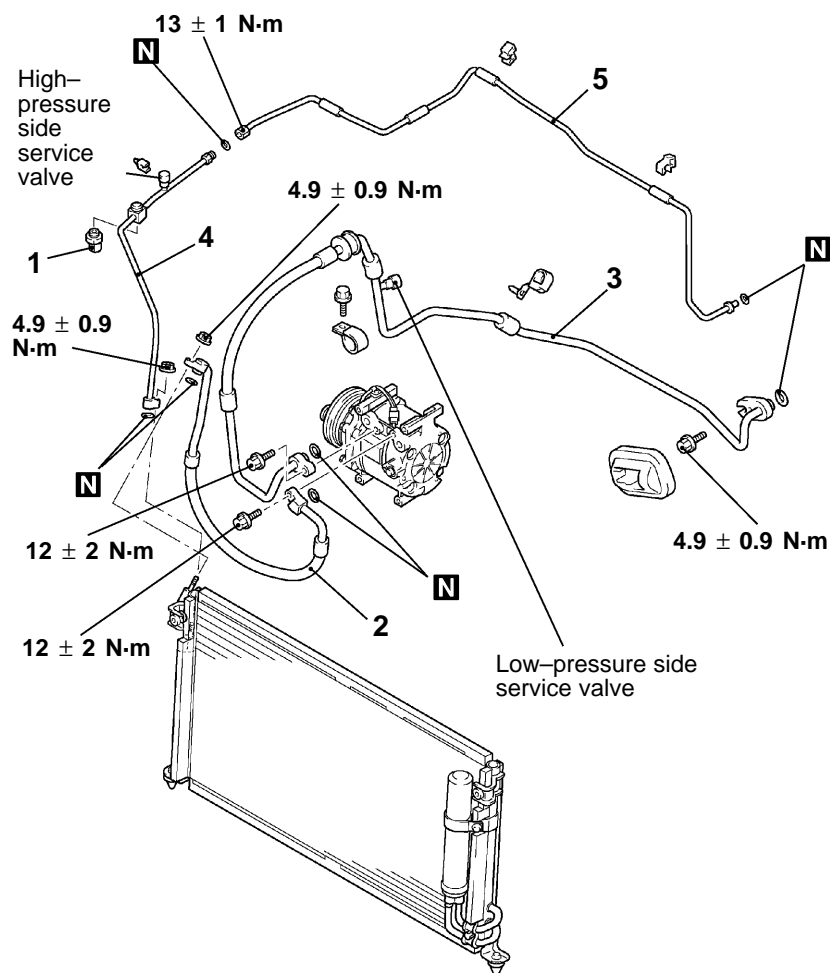
Battery connection terminal Lever operation		Fan motor operations
1	2	
\oplus	\ominus	Rotates

REFRIGERANT LINES

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operations

- Refrigerant **Draining** and **Refilling**.
- **Radiator Grill Removal and Installation.**
- **Air Cleaner Removal and Installation.**



A/C compressor oil: SUN PAG 56

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Removal steps

1. A/C pressure sensor
2. Flexible discharge hose
3. Flexible suction hose

4. Liquid pipe A
5. Liquid pipe B

REMOVAL SERVICE POINTS

◀A▶ REMOVAL OF HOSES AND PIPES

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

Caution

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

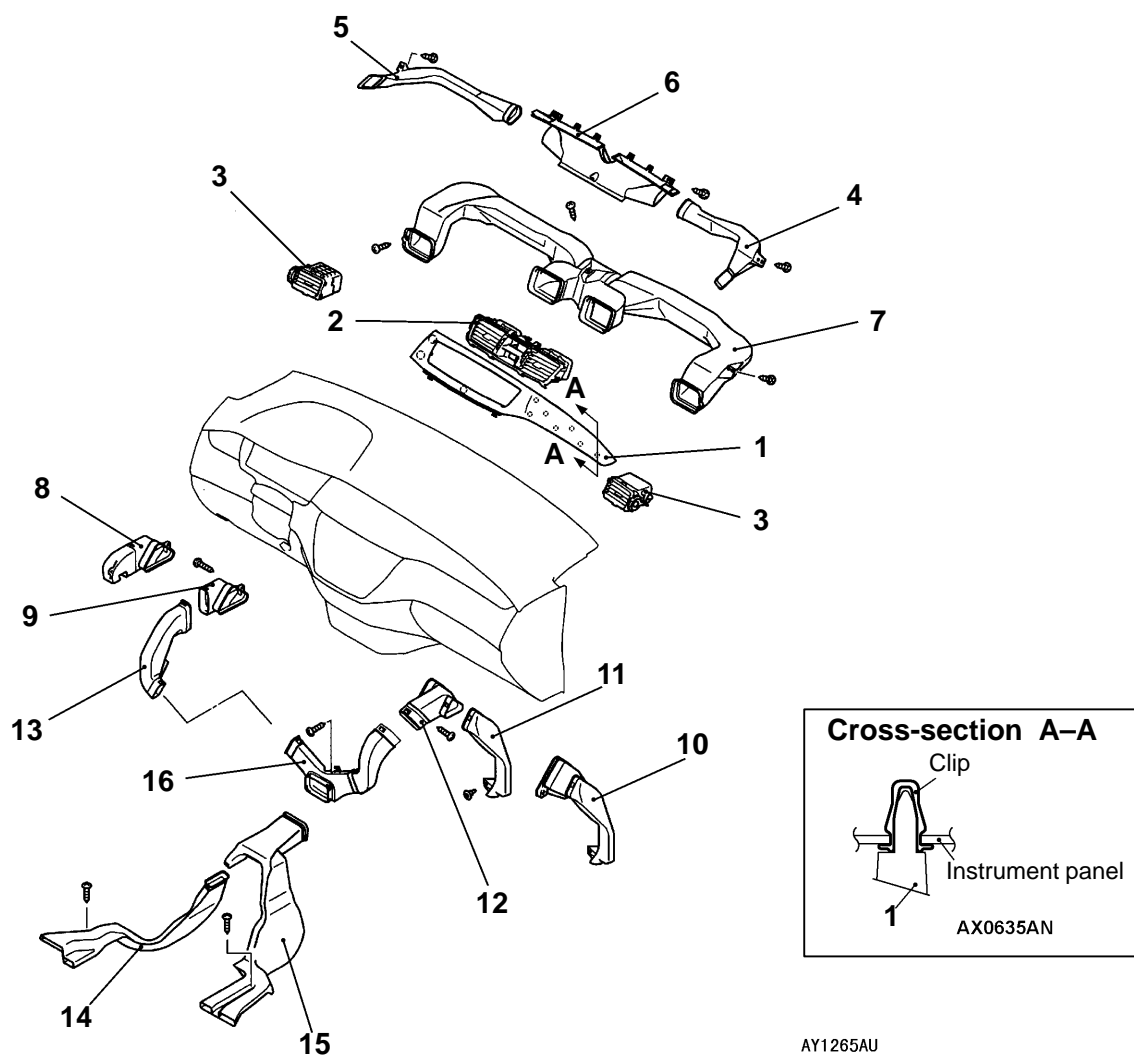
MAIN

Group
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DUCTS

REMOVAL AND INSTALLATION



Air outlet removal steps

1. Center air outlet panel
2. Center air outlet
3. Side air outlet

Defroster nozzle and distribution duct removal steps

- [Instrument Panel](#)
- 4. Right-hand side side defroster duct
- 5. Left-hand side side defroster duct
- 6. Defroster nozzle
- 7. Distribution duct

Foot duct removal step

- Console cover and glovebox
(Refer to [Instrument Panel](#).)
- 8. Left-hand foot duct
- 9. Foot duct LH <Rear duct mounted vehicle>

- Under cover
(Refer to [Instrument Panel](#).)
- 10. Right-hand foot duct
- 11. Foot duct RH
<Rear duct mounted vehicle>
- 12. Rear heater duct A RH upper side
<Rear duct mounted vehicle>

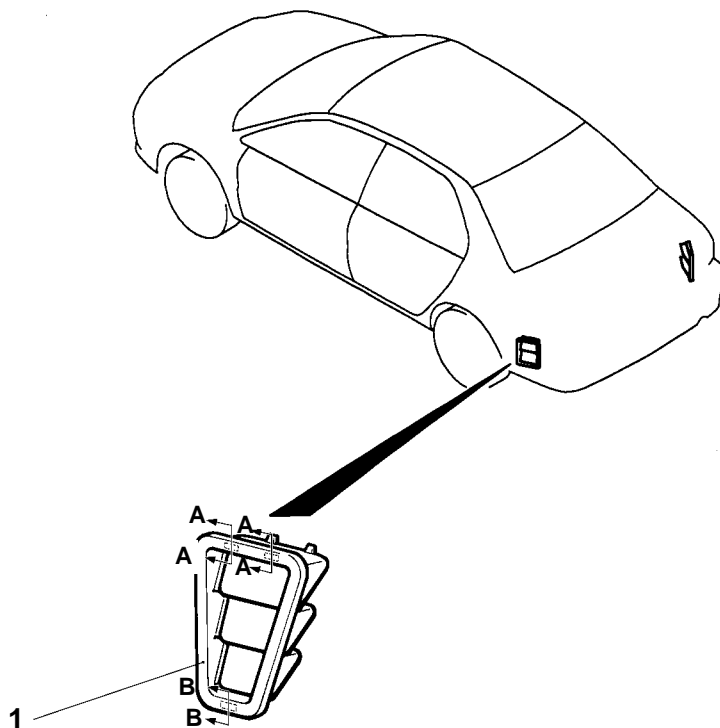
Rear heater duct removal steps <Rear duct mounted vehicle>

- Console cover
(Refer to [Instrument Panel](#).)
- [Front Seat](#)
- Floor carpet and floor pads
- 13. Rear heater duct A LH
- 14. Left-hand rear heater duct B
- 15. Right-hand rear heater duct B
- 16. Rear heater duct A RH lower side

VENTILATION

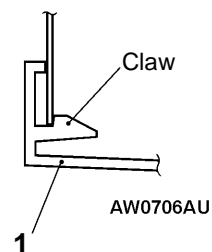
REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operations
Rear Bumper Removal and Installation.



1. Rear ventilation duct

Cross-section A-A



Cross-section B-B

