

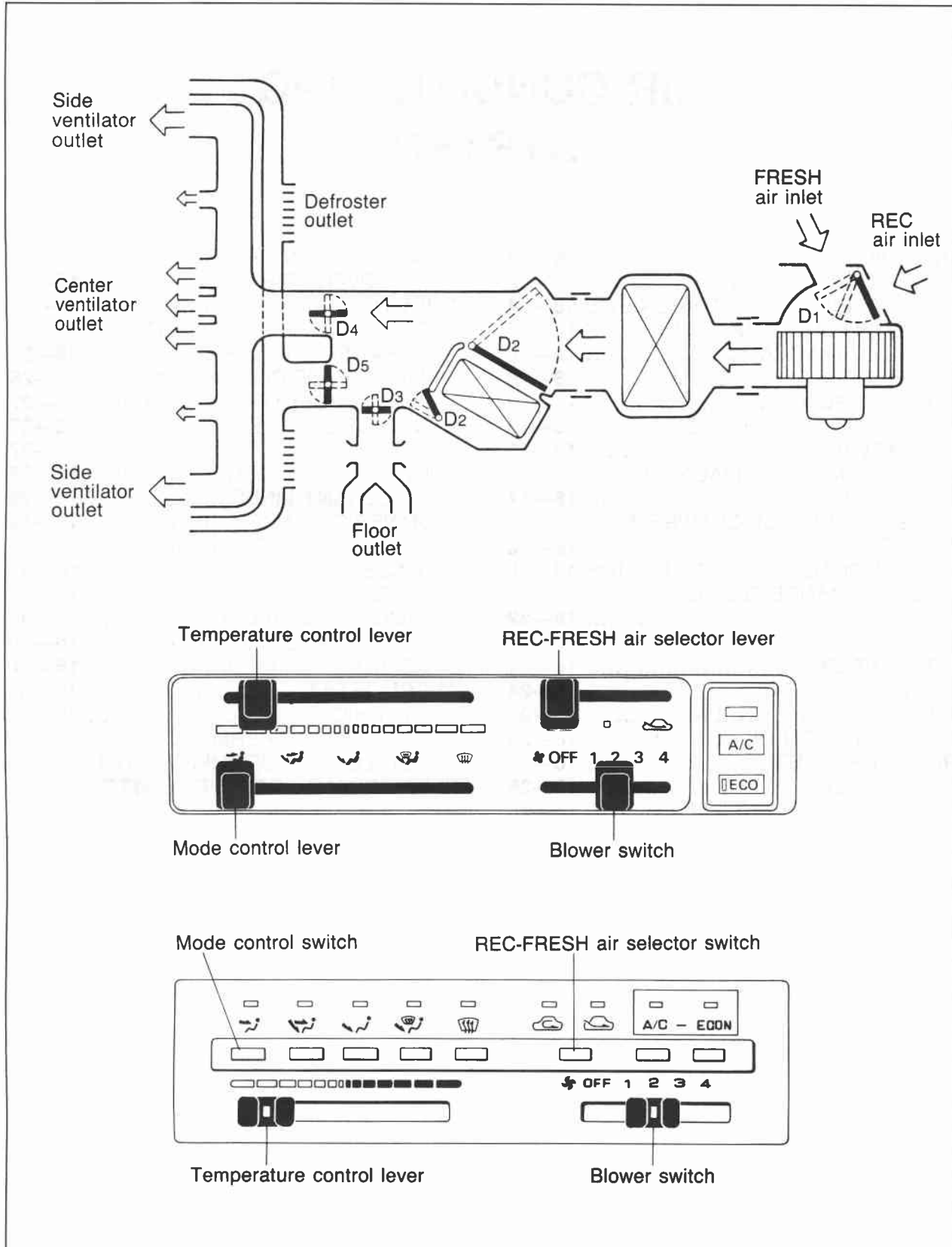
AIR CONDITIONING SYSTEM

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OUTLINE

AIR DISTRIBUTION

Vehicles with air conditioner



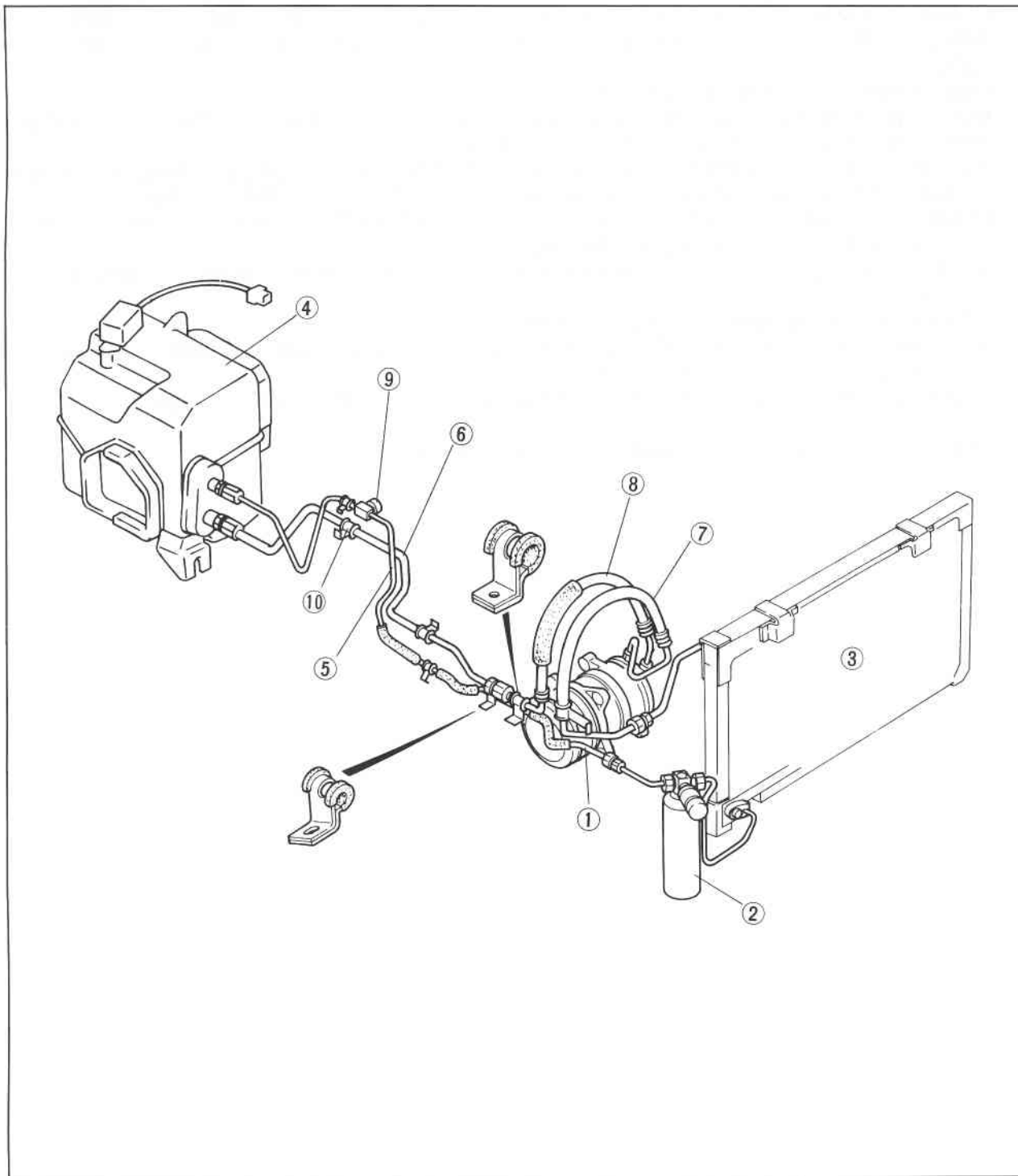
The air distribution is shown in the figure.

1. The door (D1) is used to select either fresh air from outside or recirculated air. Setting the RECIRC/FRESH control lever (switch) to the FRESH position will allow outside air to come inside. Setting the RECIRC/FRESH control lever (switch) to the RECIRC position will allow inside air to recirculate.
2. Outlet airflow is controlled by doors D3, D4, D5.
Moving (pushing) the mode control lever (switch) opens and shuts the doors (D3, D4, D5) and creates the air passage according to the lever position.
 - 1) Setting the lever to the VENT position (push the VENT switch) creates the air passage to the ventilator outlets, and air comes into the passenger compartment from the ventilator outlets.
 - 2) Setting the lever to the BI-LEVEL position (push the BI-LEVEL switch) creates the air passage to the ventilator outlets and to the floor outlets.
 - 3) Setting the lever to the HEAT position (push the HEAT switch) creates the air passage to the floor outlets.
(A little air comes from the defroster outlets.)
 - 4) Setting the lever to the DEF/HEAT position (push the DEF/HEAT switch) creates the air passage to the floor outlets and to the defroster outlets.
 - 5) Setting the lever to the DEF position (push the DEF switch) creates the air passage to the defroster outlets.
3. The cooling or heating temperature is controlled by doors D2.

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16 OUTLINE

AIR CONDITIONING COMPONENTS



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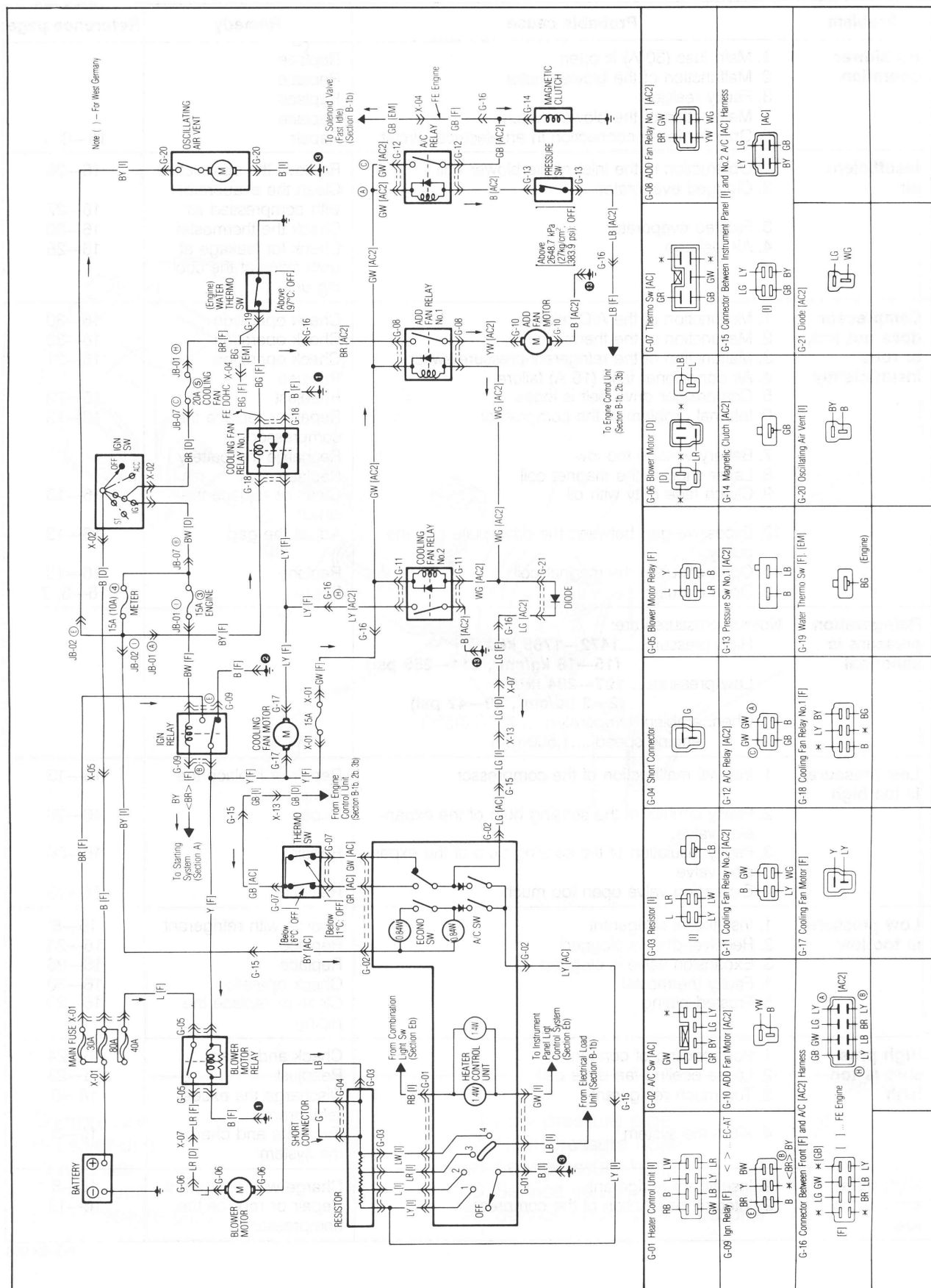
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|-----------------------|----------------------------------|
| 1. Compressor | 6. Low pressure pipe |
| 2. Receiver-drier | 7. High pressure hose |
| 3. Condenser | 8. Low pressure hose |
| 4. Cooling unit | 9. Service valve (High-pressure) |
| 5. High-pressure pipe | 10. Service valve (Low-pressure) |

TROUBLESHOOTING GUIDE

Problem	Probable cause	Remedy	Reference page
No blower operation	1. Main fuse (30 A) is open 2. Malfunction of the blower motor 3. Faulty resistor 4. Malfunction of the blower switch 5. Open or loose connection in an electrical circuit	Replace Replace Replace Replace Repair	16—6, 7
Insufficient air	1. Obstruction in the inlet of the blower unit 2. Clogged evaporator 3. Frosted evaporator 4. Air leakage	Remove the obstruction Clean the evaporator with compressed air Check the thermostat Check for leakage at both sides of the cooling unit	16—26 16—27 16—30 16—26
Compressor does not run, or runs insufficiently	1. Malfunction of the A/C relay 2. Malfunction of the thermostat 3. Malfunction of the refrigerant-pressure switch 4. Air conditioner fuse (15 A) failure 5. Compressor drive belt is loose 6. Internal problem of the compressor 7. Battery voltage too low 8. Layer short in the magnet coil 9. Clutch face dirty with oil 10. Excessive gap between the drive plate and the pulley 11. Open circuit in the magnet coil 12. Open circuit	Check operation Check operation Check operation Replace Readjust Repair or replace the compressor Recharge the battery Replace Clean or replace the clutch Adjust the gap Replace Repair	16—30 16—30 16—31 16—23 16—13 16—13 16—13 16—13 16—6, 7
Refrigeration pressure is abnormal	Normal pressures are: High pressure..... 1472—1765 kPa (15—18 kg/cm², 214—255 psi) Low pressure..... 197—294 kPa (2—3 kg/cm², 29—42 psi) when: ambient temperature.....35°C (95°F) engine speed.....1,500 rpm		
Low pressure is too high	1. Internal malfunction of the compressor 2. Faulty contact of the sensing bulb of the expansion valve 3. Faulty insulation of the sensing bulb of the expansion valve 4. Expansion valve open too much	Repair or replace the compressor Repair Repair Replace	16—13 16—26 16—26 16—26
Low pressure is too low	1. Insufficient refrigerant 2. Receiver-drier is clogged 3. Expansion valve is clogged 4. Faulty thermostat 5. Frosted piping	Charge with refrigerant Replace Replace Check operation Clean or replace the piping	16—8 16—25 16—26 16—30 16—29
High pressure is too high	1. Poor cooling of condenser 2. Loose cooling fan drive belt 3. Too much refrigerant 4. Air in the system	Check and clean Readjust Discharge the excess refrigerant Evacuate and charge the system	16—24 16—23 16—8 16—8
High pressure is too low	1. Insufficient refrigerant 2. Internal malfunction of the compressor	Charge with refrigerant Repair or replace the compressor	16—8 16—13

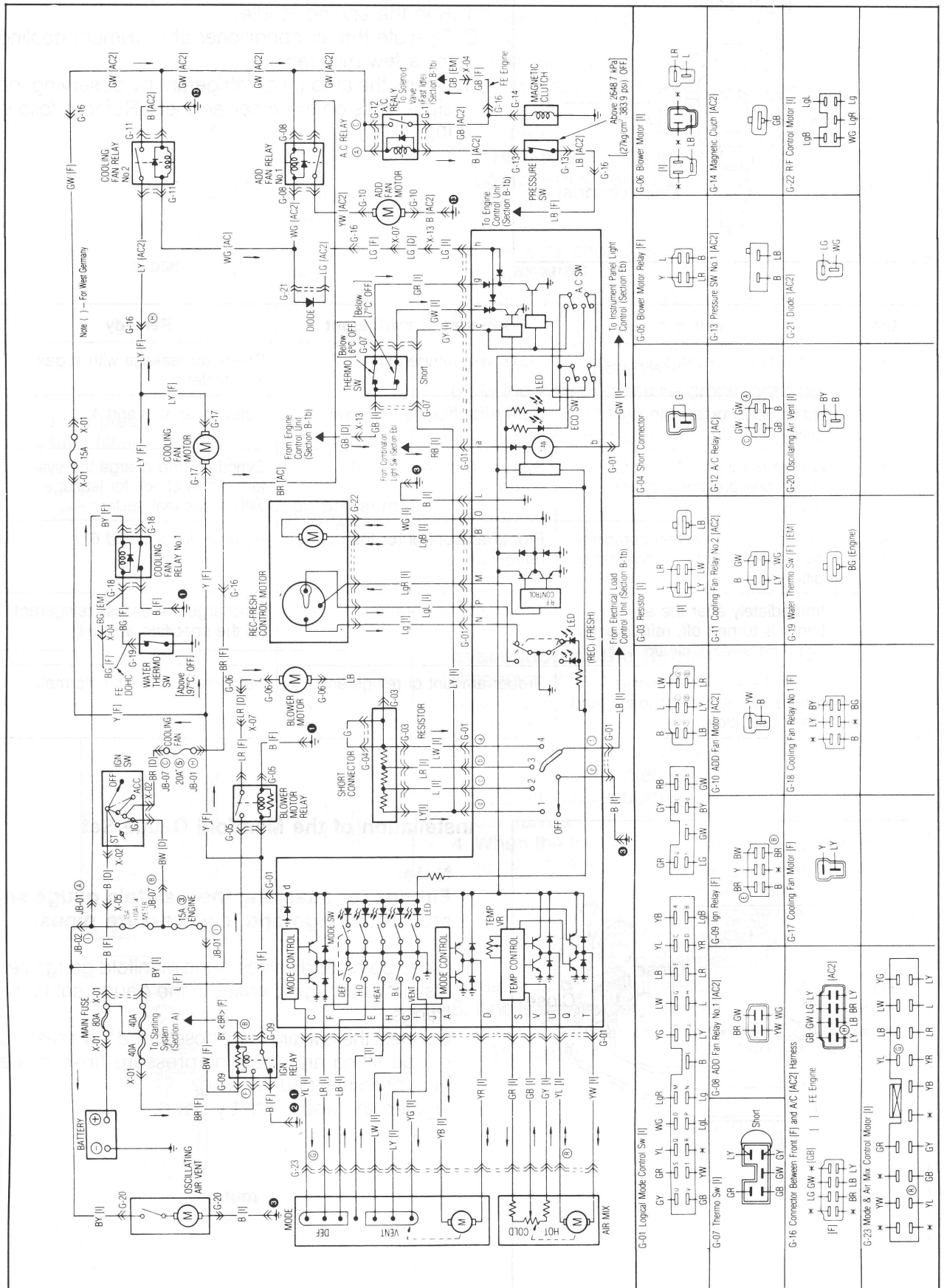
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CIRCUIT DIAGRAM

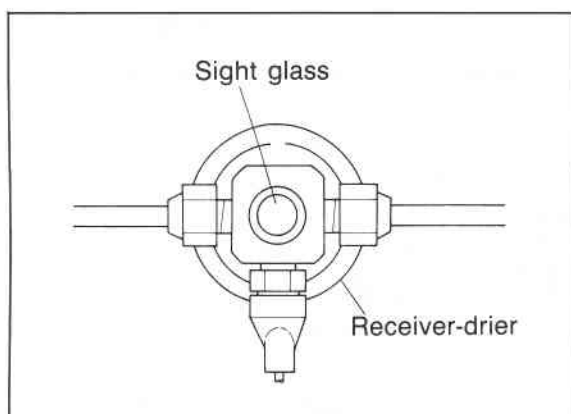


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CIRCUIT DIAGRAM



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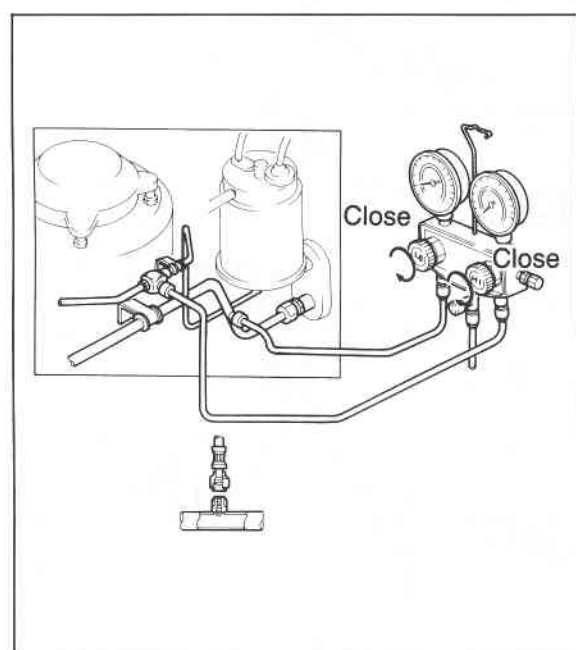
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REFRIGERATION SYSTEM

Checking the Refrigerant Charge

1. Run the engine at idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Check the amount of refrigerant by observing the sight glass on the receiver-drier. (Refer to following table.)

Item	Symptom	Amount of refrigerant	Remedy
1	Bubbles present in sight glass.	Insufficient refrigerant.	Check for leakage with a gas leak tester.
2	No bubbles present in sight glass.	No (or insufficient) refrigerant.	Refer to items 3 and 4.
3	No temperature difference between compressor inlet and outlet.	System is empty or nearly empty.	Evacuate and charge the system. Then check for leakage with a gas leak tester.
4	Temperature between compressor inlet and outlet is noticeably different.	Proper amount of (or too much) refrigerant.	Refer to items 5 and 6.
5	Immediately after the air conditioner is turned off, refrigerant in sight glass stays clear.	Too much refrigerant.	Discharge the excess refrigerant (to the specified amount).
6	When the air conditioner is turned off, refrigerant foams and then stays clear.	Proper amount of refrigerant.	Refrigerant amount is normal.



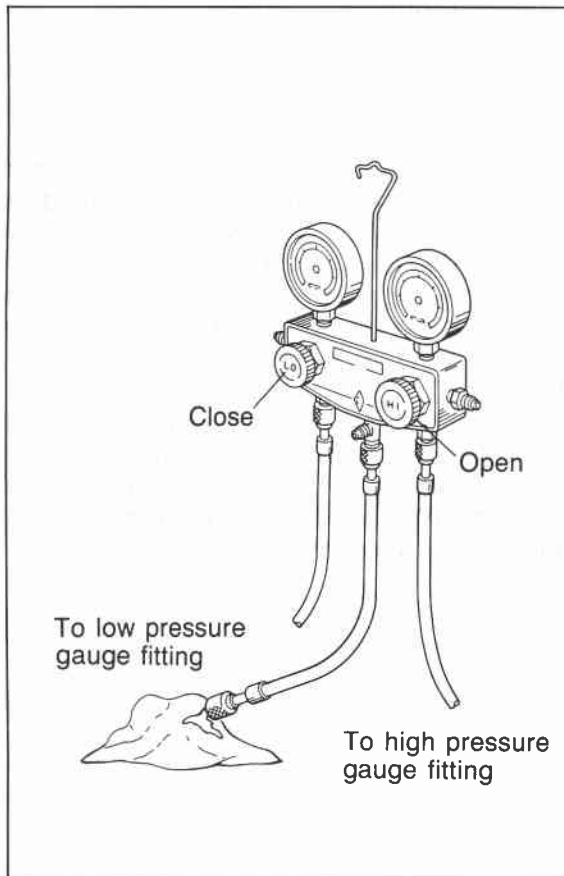
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Installation of the Manifold Gauge Set

Note:

Fittings for attaching the manifold gauge set are on the high and low pressure pipes.

1. Close both hand valves of the manifold gauge set.
2. Install the charging hoses in the gauge set to the fittings.
Connect the low-pressure hose to the low-pressure gauge fitting and the high-pressure hose to the high-pressure gauge fitting.
Tighten the hose nuts by hand.



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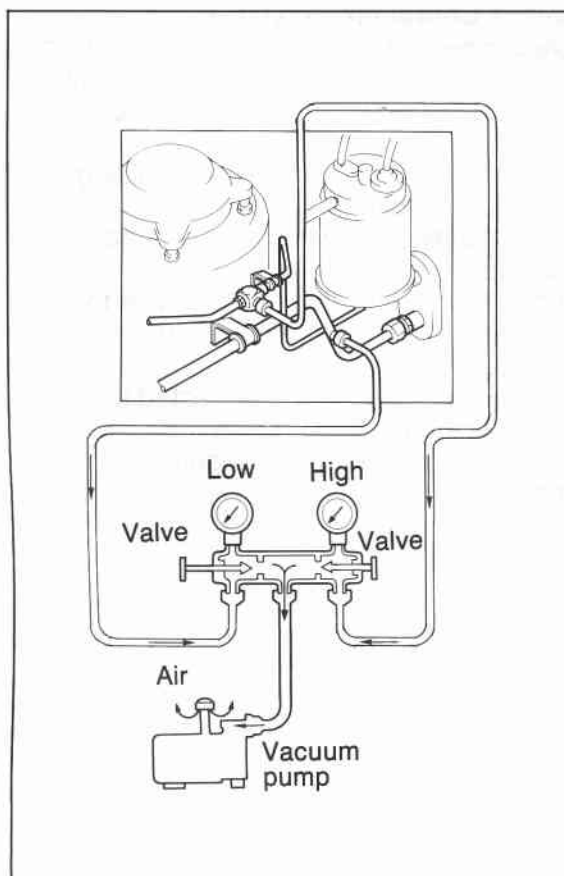
Discharging the Refrigeration System

1. Connect the manifold gauge set to the system.
2. Place the free end of the center hose on a shop towel.
3. Slowly open the high pressure manual valve to adjust the refrigerant flow. Open the valve only slightly.

Caution

If refrigerant is allowed to escape too fast, the compressor oil will be drawn out of the system.

4. Check the shop towel to make sure no oil is being discharged.
If oil is present, partially close the manual valve.
5. After the manifold gauge reading drops below **343 kPa (3.5 kg/cm², 50 psi)**, slowly open the low pressure manual valve.
6. As the system pressure drops, gradually open both the high- and low-pressure manual valves until both gauges read **0 kPa (0 kg/cm², 0 psi)**.

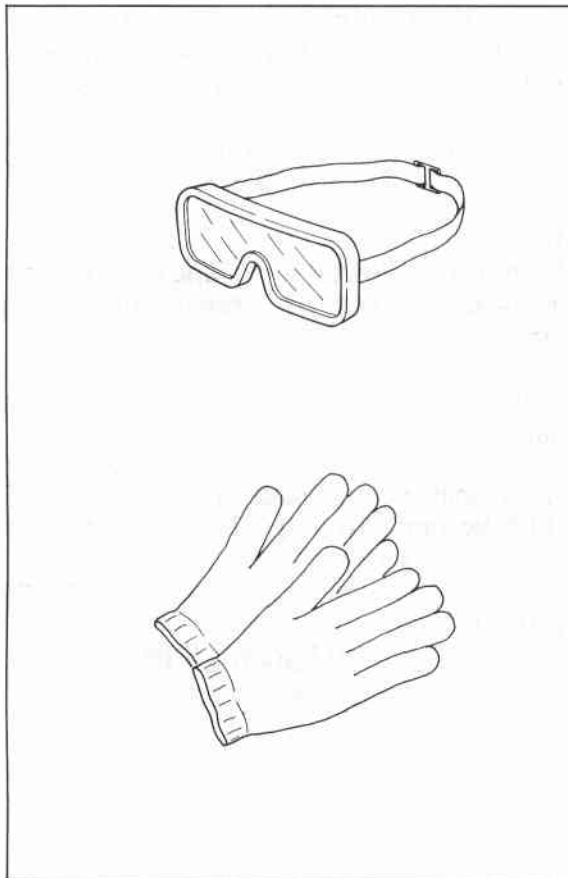


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Evacuation of the Refrigeration System

Whenever the air-conditioning system has been exposed to the atmosphere, it must be evacuated.

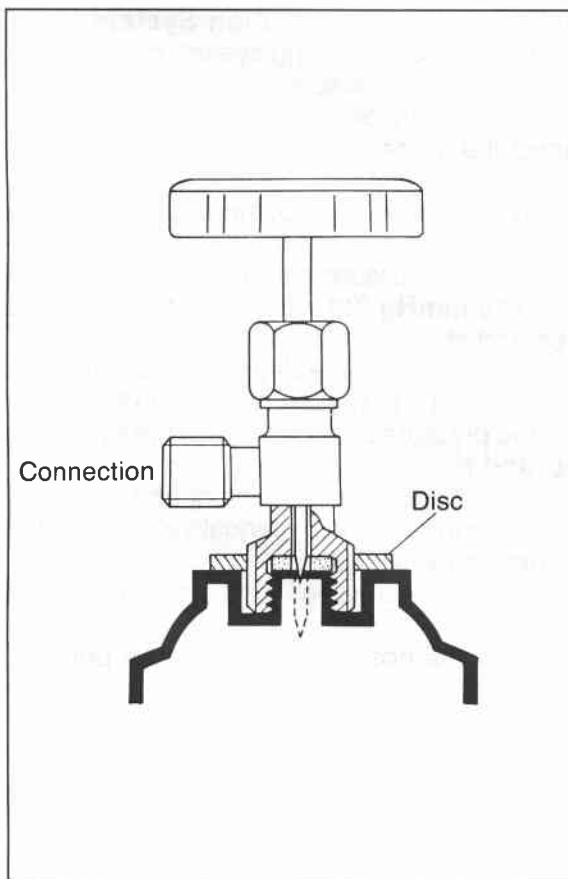
1. Connect the manifold gauge set.
2. Connect the center hose of the gauge set to the vacuum pump inlet.
3. Operate the vacuum pump, then open both manual valves.
4. When the low pressure gauge indicates approximately **710 mmHg (28 inHg)**, close both manual valves and stop the vacuum pump.
5. Check to be sure that the degree of pressure does not change after 10 minutes or more in this condition. If the pressure changes, check the system for leaks, and repair if necessary.
6. If no leaks are found, once again operate the vacuum pump and open both manual valves to obtain **760 mmHg (30 inHg)**.
7. Close both manual valves, and stop the vacuum pump.
Disconnect the hose from the vacuum pump.



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Safety Precautions

1. The R-12 liquid refrigerant is highly volatile. A drop of it on the skin of your hand could result in localized frostbite. When handling the refrigerant, be sure to wear gloves.
2. If the refrigerant splashes into your eyes, wash them with clean water immediately. It is standard practice to wear goggles or glasses to protect your eyes, and gloves to protect your hands.
3. The R-12 container is a highly pressurized vessel. Never leave it in a hot place, and check to be sure that the temperature where it is stored is below **52°C (126°F)**.
4. A halide leak detector is often used to check the system for refrigerant leakage. Remember that R-12, upon coming into contact with flame (this detector burns like propane to produce a small flame), produces phosgene, a toxic gas.



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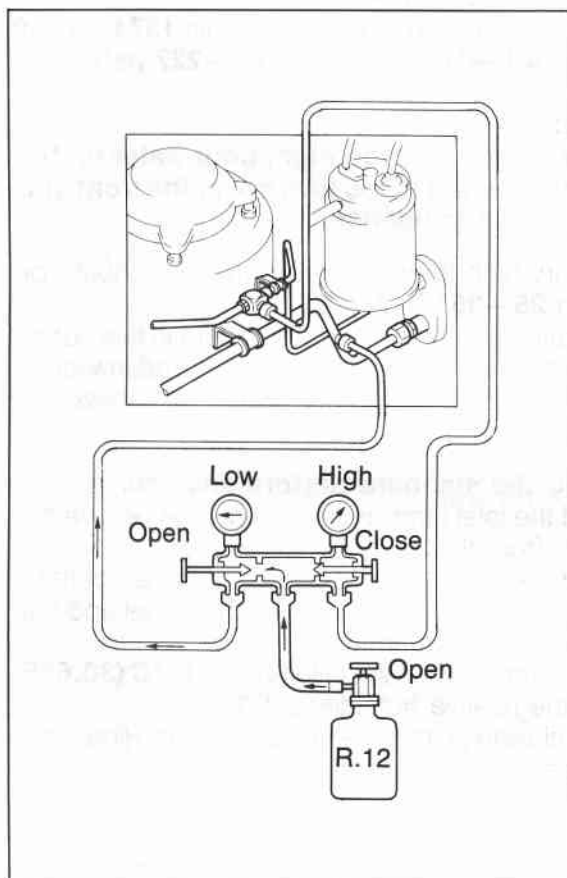
Refrigerant Container Service Valve

1. Before connecting the valve to the refrigerant container, turn the handle fully counterclockwise.
2. Turn the disc counterclockwise until it reaches its highest position.
3. Connect the center hose to the valve fitting. Turn the disc fully clockwise by hand.
4. Turn the handle clockwise to make a hole in the sealed tap.
5. Turn the handle fully counterclockwise to fill the center hose with air. Do not open the high- and low-pressure manual valves.
6. Loosen the center hose nut connected to the center fitting of the manifold gauge. Allow air to escape for a few seconds, then tighten the nut.

Leak-Testing the System

After finishing the evacuation of the system, check it for leaks.

1. Install the refrigerant container valve.
2. Open the high-pressure manual valve to charge the system with refrigerant gas.
3. When the low-pressure gauge reads **98.1 kPa (1 kg/cm², 14.2 psi)**, close the high-pressure manual valve.
4. Using a halide gas leak detector, propane torch, or electric leak detector, check the system for leaks. If a leak is found, repair the faulty component or connection, then evacuate the system.



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Charging the System

1. Close both the high- and low-pressure manual valves completely after the system is evacuated.
2. Install the refrigerant container service valve.
3. Open the low-pressure manual valve and charge the system with refrigerant gas.
4. When charging the system becomes difficult, run the engine at fast idle and operate the air conditioner.

Caution

Be sure to keep the container in the upright position to prevent liquid refrigerant from being charged into the system through the suction side and possibly damaging the compressor.

5. Charge the system to the specified amount, then close the low-pressure manual valve.

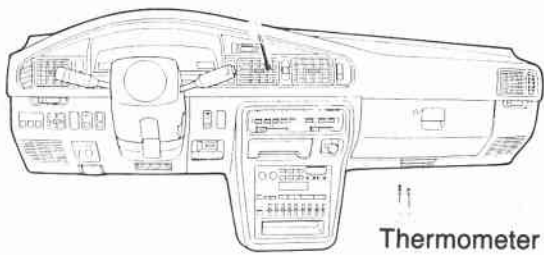
Specified amount: 800 g (28.24 oz)

Note:

If the sight glass on the receiver-drier is free of bubbles, the system is fully charged.

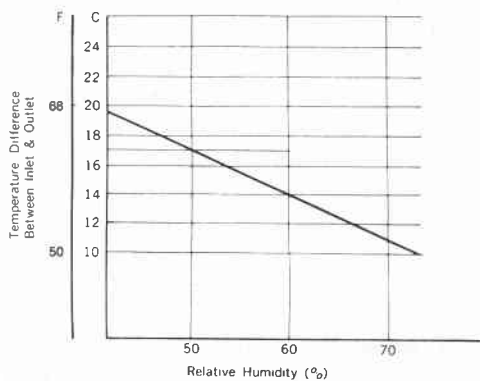
6. Close the low-pressure manual valve and the service valve of the refrigerant container.
7. Stop the air conditioner and the engine.
8. Quickly disconnect both hoses from the gauge fittings.
9. Put the cap nuts on the gauge fittings.

Thermometer (Dry)



Thermometer
(Dry & Wet)

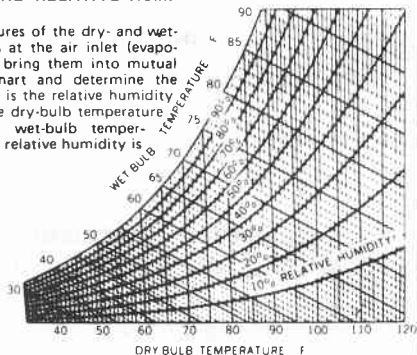
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DETERMINING THE RELATIVE HUMIDITY:

Read the temperatures of the dry- and wet-bulb thermometers at the air inlet (evaporator inlet). Then bring them into mutual relation on the chart and determine the intersection, which is the relative humidity. For example, if the dry-bulb temperature is 90°F, and the wet-bulb temperature is 78°F, the relative humidity is 60%.

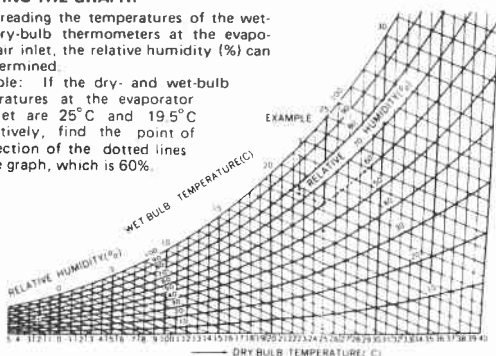


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READING THE GRAPH:

After reading the temperatures of the wet- and dry-bulb thermometers at the evaporator air inlet, the relative humidity (%) can be determined.

Example: If the dry- and wet-bulb temperatures at the evaporator air inlet are 25°C and 19.5°C respectively, find the point of intersection of the dotted lines in the graph, which is 60%.



Performance Test

After finishing repairs, be sure to conduct a performance test of the air conditioning system as follows.

Procedure

1. Connect the manifold gauge set. (Refer to page 16—8)
2. Run the engine and keep the engine speed at **1750 rpm**.
3. Operate the air conditioner at MAX COOLING.
4. Open all windows and doors.
5. Insert a dry-bulb thermometer in the center of the ventilator outlet.
6. Place a dry and wet thermometer close to the inlet of the blower inlet.
7. The high pressure should be within **1374—1569 kPa (14.0—16.0 kg/cm², 200—227 psi)**.

Note:

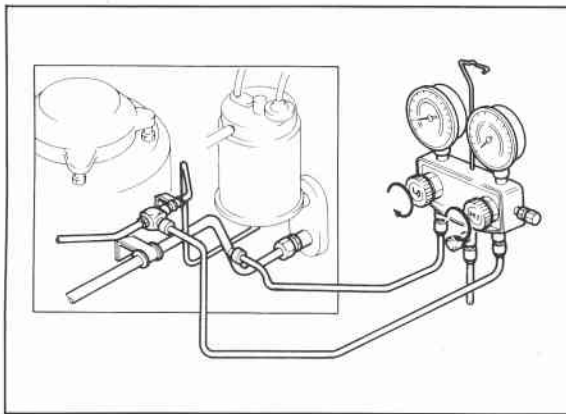
If the pressure is too high, pour water on the condenser; if it is too low, cover the front surface of the condenser.

8. The dry-bulb thermometer at the inlet should be within **25—35°C (77—95°F)**.

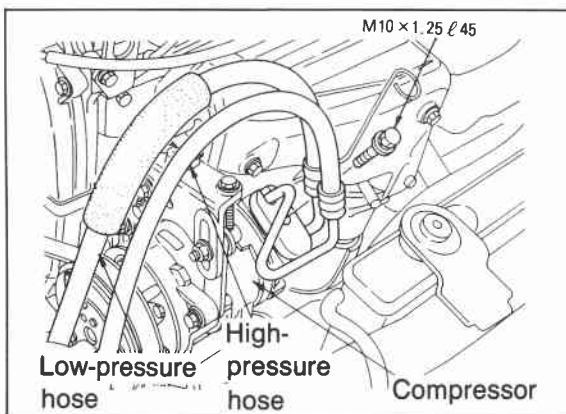
Operate the air conditioning system in this condition until the conditions of the high and low pressure gauges and thermometers are stabilized.

Reading the standard performance curve

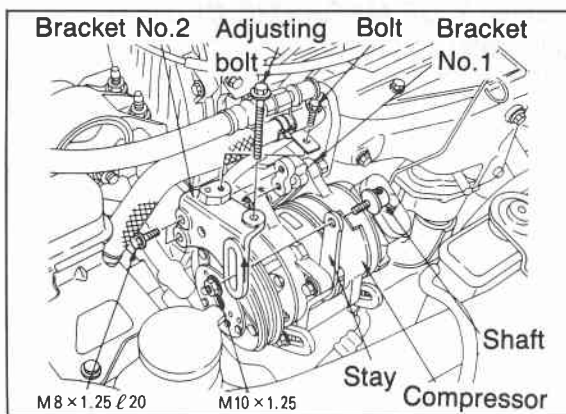
1. Read the inlet temperature and get the relative humidity from the psychrometric chart.
2. Read the cool air temperature at the air outlet.
3. Determine the difference between the inlet and outlet dry-bulb temperature.
4. For example, when the difference is **17°C (30.6°F)** and the relative humidity is **60%**:
If the closing point is the upper part of the line, cooling performance is satisfactory.



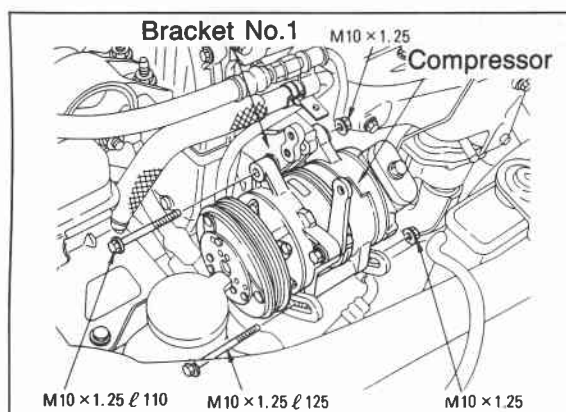
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COMPRESSOR

ON-VEHICLE INSPECTION

1. Connect the manifold gauge set.
2. Run the engine at **1,500 rpm**.
3. Check the compressor flow:
 - a) High pressure is not low and low pressure is not higher than normal.
 - b) Metallic sound.
 - c) Check to be sure that the high-pressure and low-pressure gauges show the same value immediately after the air conditioner is switched OFF. If both gauges show the same value immediately, it can be assumed that the gasket or the valve inside the compressor is damaged.
4. Stop the engine.
5. Check the shaft seal and others for leakage.
6. Inspect the drive plate pulley magnetic clutch for signs of oil.
7. Check the clearance between the drive plate and pulley. (Refer to page 16—21.)
If any of the above checks reveal faults, repair the compressor or magnetic clutch.

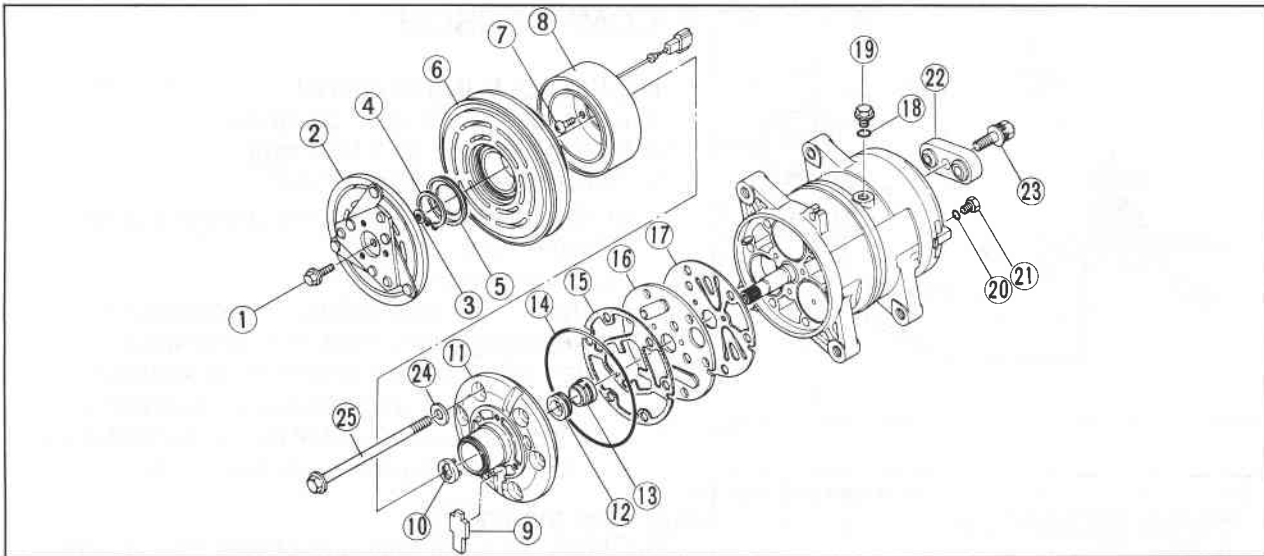
REMOVAL OF COMPRESSOR

1. Perform the Oil Return Operation. (See below.)
2. Disconnect the battery ground cable.
3. Disconnect the clutch lead wire from the wiring harness.
4. Discharge the refrigerant from the refrigeration system.
5. Disconnect the two flexible hoses. Plug the open fittings immediately to keep moisture out of the system.
6. Loosen the drive belt.
7. Remove the compressor mounting bolts and the compressor.

Oil Return Operation

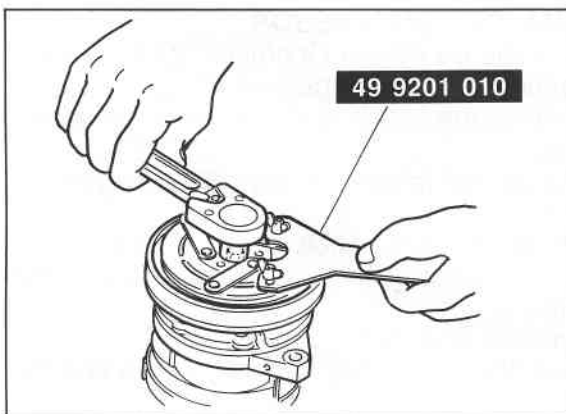
1. If the refrigerant level is low, charge the system to the specified amount.
2. Run the engine and air conditioner at idle and at maximum cooling for at least **20 minutes**.

16 COMPRESSOR



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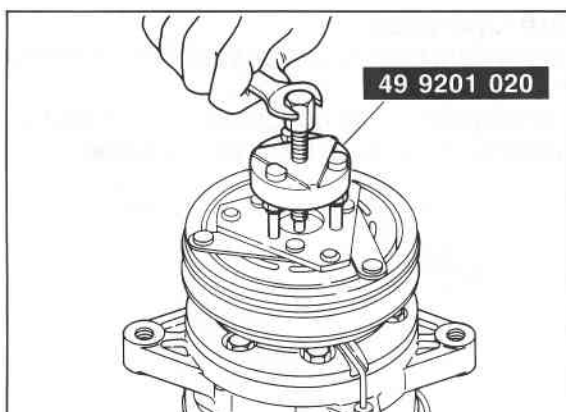
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|--------------------|-------------------------|---------------------|
| 1. Bolt | 9. Felt | 17. Suction valve |
| 2. Drive plate | 10. Shaft seal cover | 18. O-ring |
| 3. Shim | 11. Front cylinder head | 19. Oil filler plug |
| 4. Snap ring | 12. Seal seat | 20. O-ring |
| 5. Cover | 13. Shaft seal | 21. Drain plug |
| 6. Pulley assembly | 14. O-ring | 22. Plate |
| 7. Screw | 15. Gasket | 23. Bolt |
| 8. Coil | 16. Valve plate | 24. Gasket |
| | | 25. Bolt |



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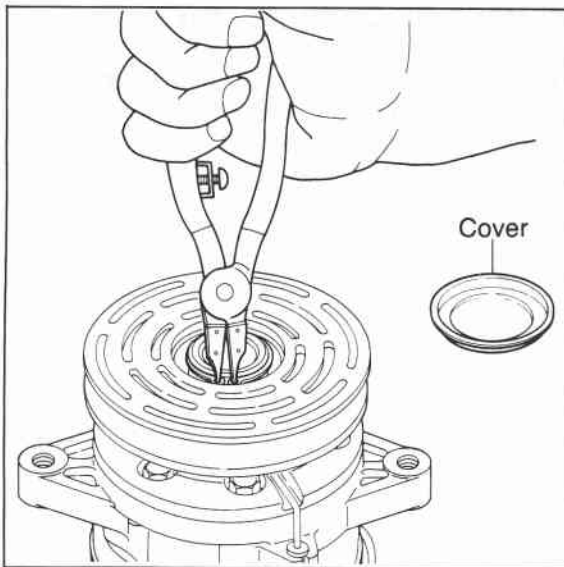
DISASSEMBLY OF MAGNETIC CLUTCH

1. Using the **SST** to prevent drive plate rotation, remove the center bolt.



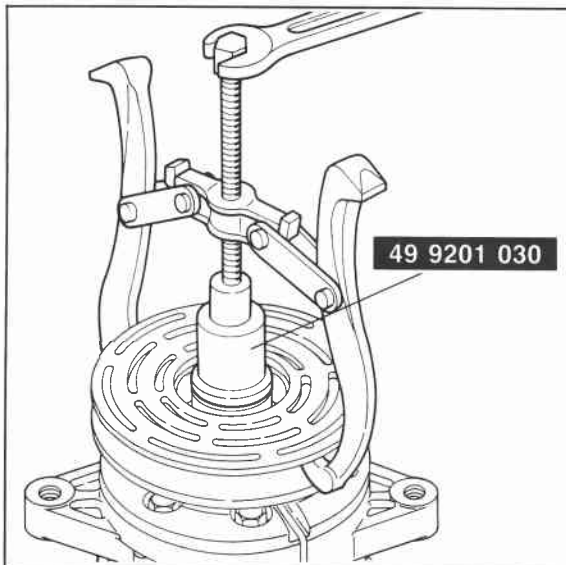
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2. Using the **SST**, remove the drive plate.
3. Remove the shims from either the drive shaft or the drive plate.



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4. Using external snap ring pliers, remove the snap ring and then the cover.



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5. Place the **SST** on the hub of the front head and use it to remove the pulley assembly.

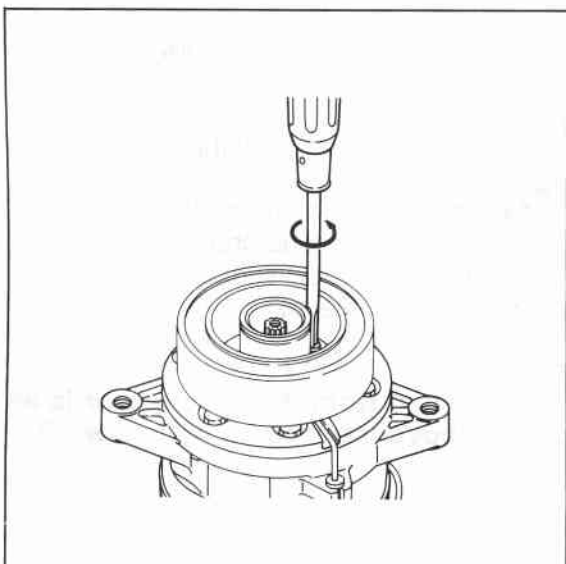
Note:

To keep it from changing shape, hook the pulley puller's hook onto the V-pulley section.

6. Remove the coil lead wire from the wire holder on the compressor.
Remove the coil by removing the screws.

Note:

Do not suspend the coil by holding the lead wire.



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7. Inspection

a) Drive plate

If the frictional surface shows signs of damage due to excessive heat, the drive plate and pulley should be replaced.

b) Pulley assembly

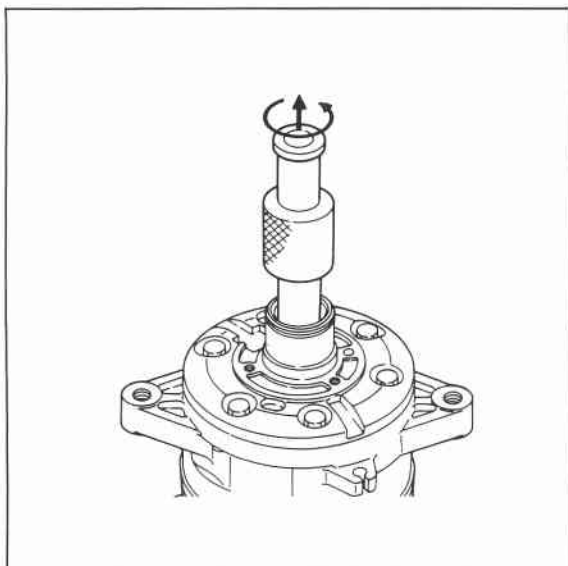
Check the appearance of the pulley assembly. If the frictional surface of the pulley shows signs of excessive grooving due to slippage, both the pulley and drive plate should be replaced. The frictional surfaces of the pulley assembly should be cleaned with a suitable solvent before reinstallation.

c) Coil

Check the coil for a loose connector or cracked insulation.

8. Remove the felt.

16 COMPRESSOR

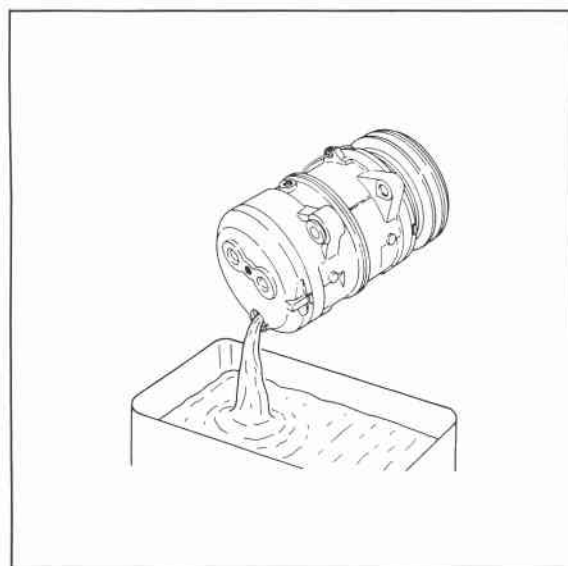
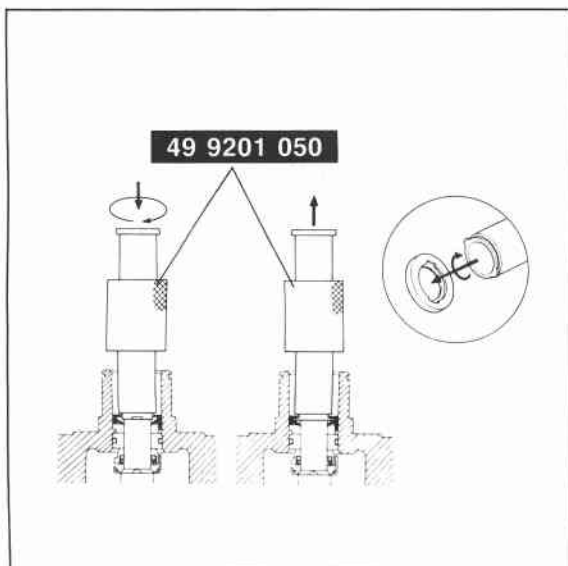


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DISASSEMBLY OF COMPRESSOR

Shaft Seal Assembly

1. Using the **SST**, remove the shaft seal cover as follows: attach the remover hook to the shaft seal cover hook and draw the cover out slowly.



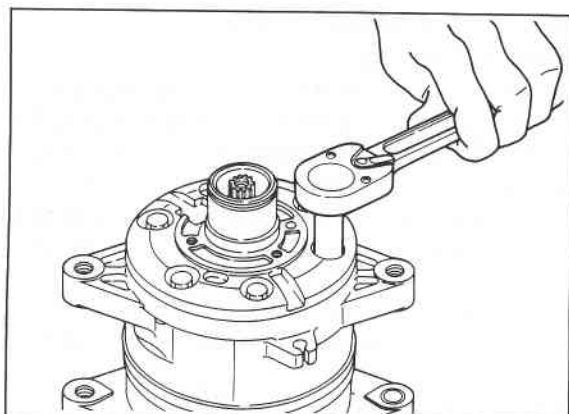
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Compressor Oil

1. Remove the drain plug and the oil filler plug, then drain out the oil.
2. Measure the drained oil with a measuring cylinder.
3. Check the drained oil for any of the following conditions:
 - a) Whether the opacity of the oil has increased.
 - b) Whether the oil color has changed to red.
 - c) Whether foreign matter, such as metal filings, etc., is present in the oil.

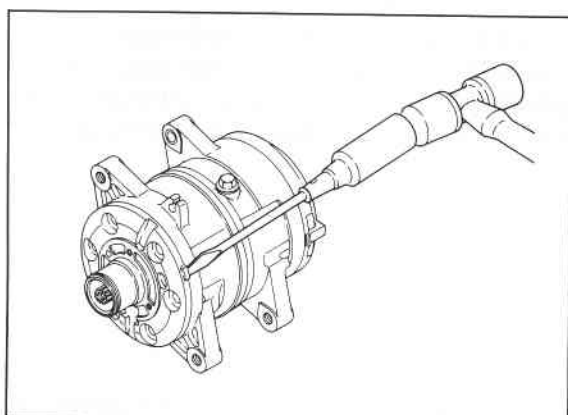
Note:

If the oil drained from the compressor is as described above, replaced it with new oil.



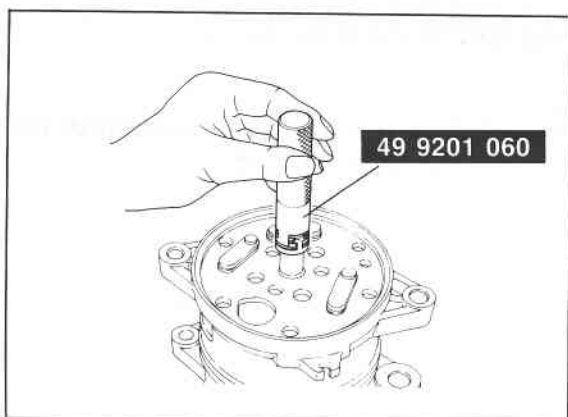
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4. Remove the six screws.



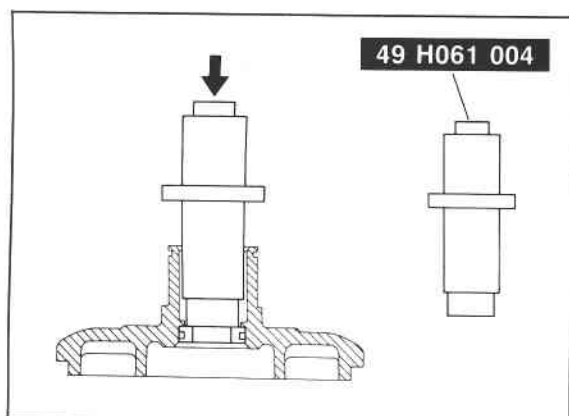
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5. Alternately tap two projections on the circumference of the front head with a screwdriver and plastic mallet, and remove the front head.



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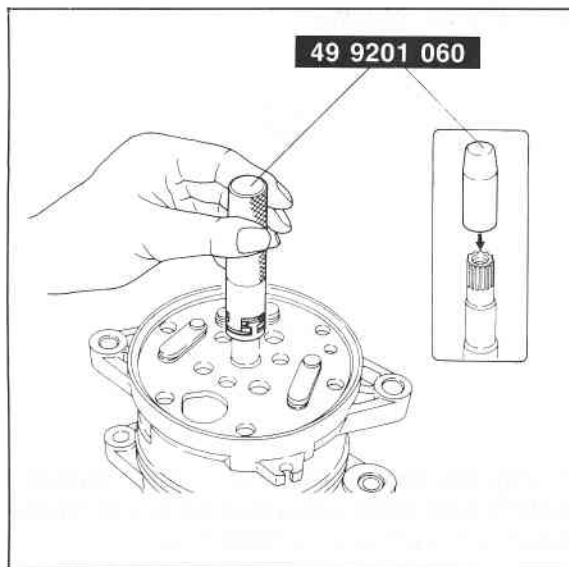
6. Using the **SST**, remove the shaft seal.



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7. Using the **SST**, remove the seal seat.

16 COMPRESSOR



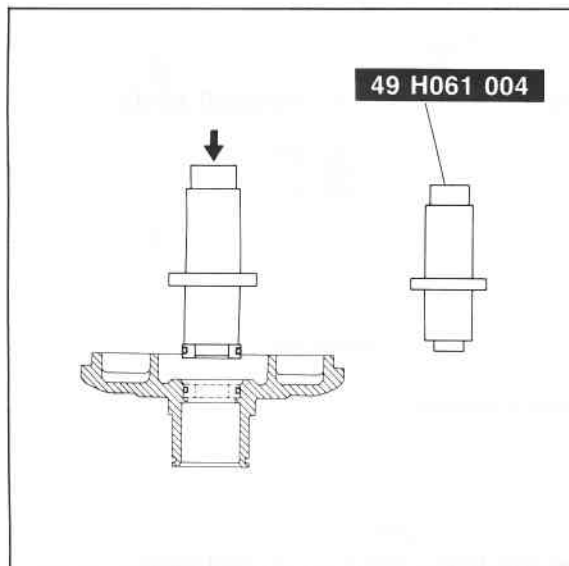
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ASSEMBLY OF COMPRESSOR

Shaft Seal Assembly

The shaft seal assembly should not be reused. Always use a new shaft seal kit when reassembling the compressor. Be extremely careful that the surface of the shaft seal to be installed is not scratched or damaged in any way. Be sure that the seal seat and shaft seal are free of dust or dirt which could damage the shaft seal surface.

1. Clean the sealed section of the compressor.
2. Apply clean compressor oil to the new shaft seal and to the driveshaft.
If the slip faces are dirty, clean them with thinner, and, after drying the clean faces, apply clean compressor oil to them.
3. Fit the **SST** onto the end of the driveshaft.
4. Use the **SST** to install the new shaft seal onto the driveshaft, with chamfered portion of the shaft seal retainer facing the corresponding chamfered part of the drive shaft.

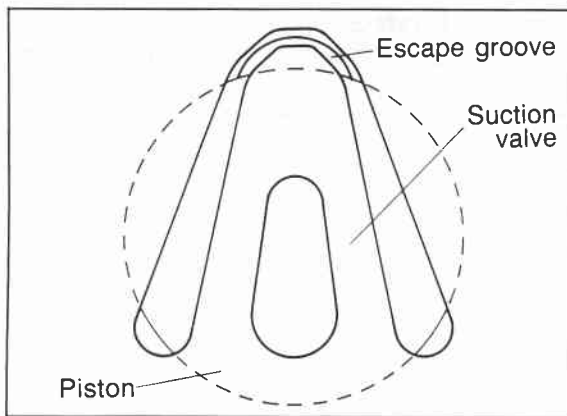


76G16X-612

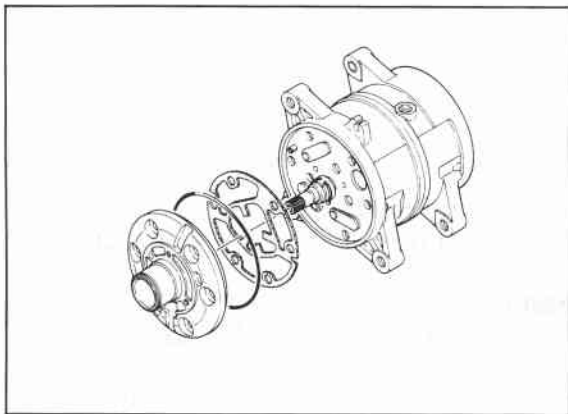
5. Coat the O-ring with clean compressor oil and install it onto the seal seat.
Coat the seal seat with clean compressor oil.
6. Use the **SST** to install the seal seat.

Note:

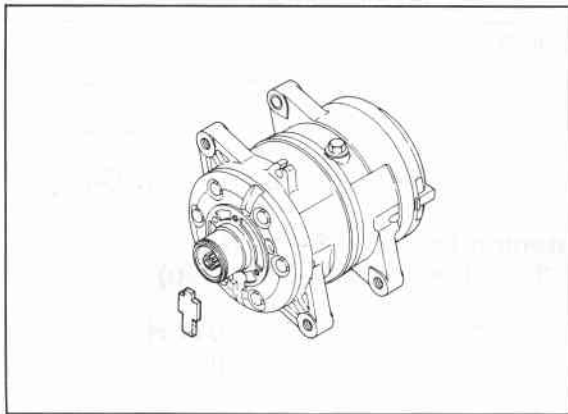
When installing the seal seat, be careful not to damage the seat surface.



69G16X-044



69G16X-045



69G16X-046

Installation of Front Cylinder Head

1. Place the cylinder shaft assembly with the front side upward.
2. Install the front suction valve so that it matches the spring pin.

Note:

Check that the valve tallies with the valve escape groove of each cylinder.

3. Install the front valve plate on the front suction valve.
4. Coat the new gasket with clean compressor oil and install it on the front valve plate.
5. Install the front cylinder head.

In case difficulty is encountered in fitting, install the cylinder head lightly with a plastic mallet.

Note:

When installing the front cylinder head, be careful that you do not scratch the seat surface of the seal seat fitted onto the front cylinder head with the lip of the driveshaft.

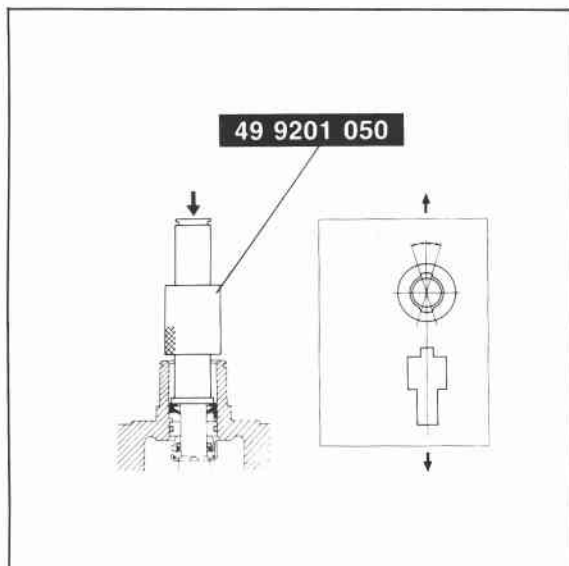
Mount the new gasket on the through-bolts. Insert six through-bolts from the front side and tighten them to **20—24 N·m (2.0—2.4 m·kg, 14.5—17.3 ft·lb)**. Each bolt should be equally tightened more than three times to ensure the specified torque.

The bolts should be tightened in the order shown in the figure.

Place felt on the front cylinder head.

Turn the driveshaft 2 or 3 times by hand, and make sure that it rotates smoothly.

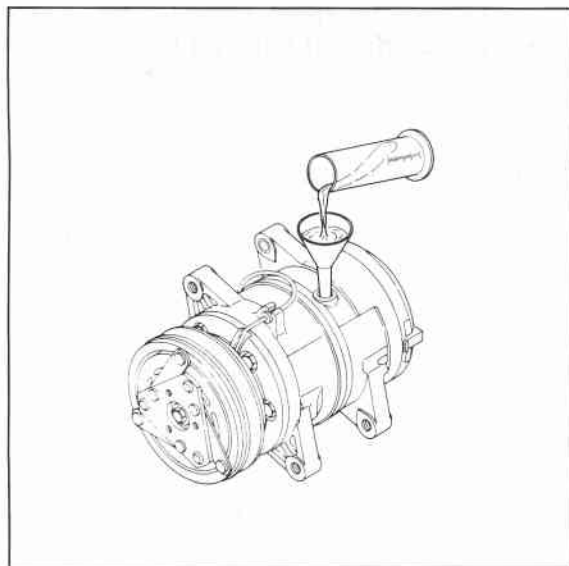
16 COMPRESSOR



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Installation of Shaft Seal Cover

1. Install the guide shaft seal on the drive shaft end.
2. Using the **SST**, install the shaft seal cover.
Direction of the cover is shown in the figure.



69G16X-048

Compressor Oil

Compressor Oil: FREOL DS-83P

1. Tighten the oil drain plug using a new O-ring.

**Tightening torque: 13—15 N·m
(1.3—1.5 m·kg, 9.4—10.8 ft·lb)**

2. Remove the oil filler plug and supply new oil through the filler.

The charging amount is as follows:

Collected amount	Charging amount
More than 60 cc	Same as collected amount
Less than 60 cc	60 cc

3. Tighten the oil filler plug, using a new O-ring.

**Tightening torque: 13—15 N·m
(1.3—1.5 m·kg, 9.4—10.8 ft·lb)**

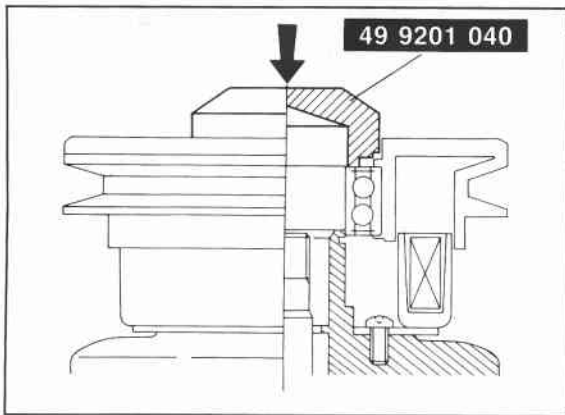
ASSEMBLY OF MAGNETIC CLUTCH

Verify that the felt is installed on the front cylinder head.

1. Install the coil onto the compressor (with the lead wires on top) and tighten the mounting screws.

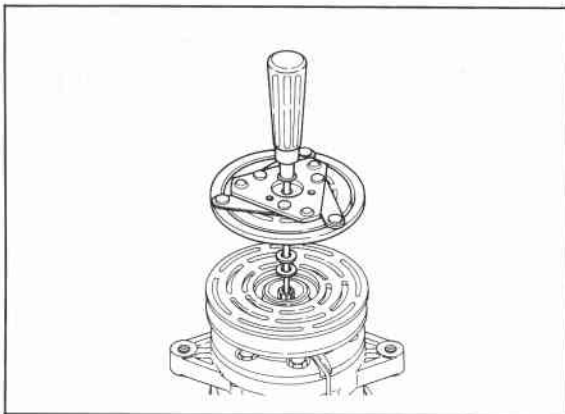
**Tightening torque: 3.9—5.9 N·m
(0.4—0.6 m·kg, 2.9—4.3 ft·lb)**

2. Insert the head wire into the wire holder on the compressor.



76G16X-614

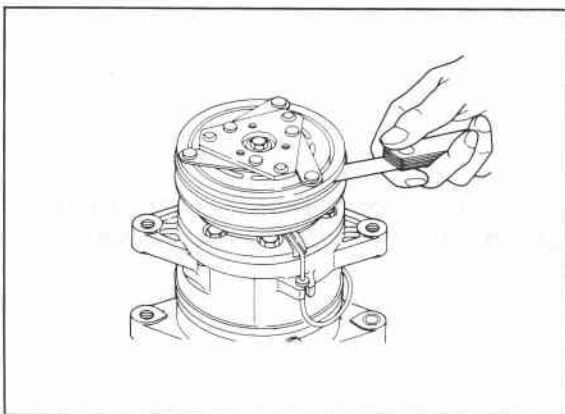
3. Install the pulley assembly by using the **SST**, then install the cover and the snap ring.



76G16X-009

4. Install the drive plate onto the drive shaft together with the original shim(s).
5. Using the **SST (49 9201 010)** to prevent the drive plate rotation, tighten the bolt. (Refer to page 16—14.)

**Tightening torque: 14—16 N·m
(1.4—1.6 m·kg, 10.1—11.5 ft·lb)**

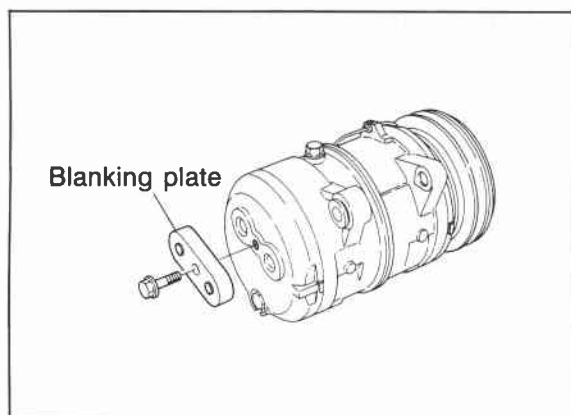


69G16X-051

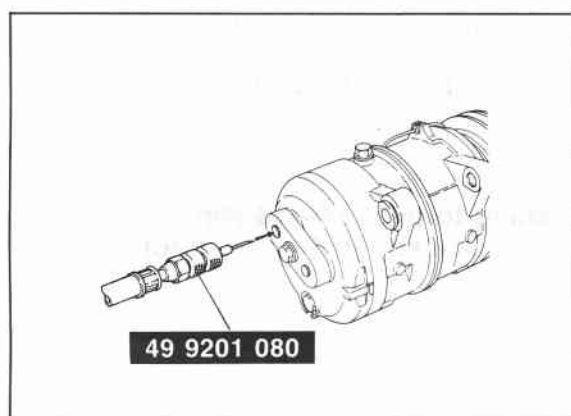
6. Check that clutch clearance is between **0.3—0.6 mm (0.01—0.02 in)**. Adjust clearance by using shim(s), if necessary. Adjusting shims are available in the following thicknesses:
 - 0.1 mm (0.0039 in)
 - 0.3 mm (0.0118 in)
 - 0.5 mm (0.0197 in)

**Standard clearance:
0.3—0.6 mm (0.01—0.02 in)**

16 COMPRESSOR



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PERFORMANCE TEST OF COMPRESSOR

1. Perform the leakage test
 - a) Attach a blanking plate to the open rear fittings.

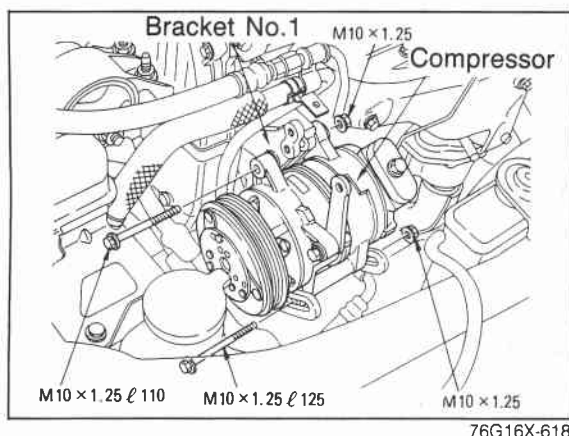
- b) By using the **SST**, supply the refrigerant through the suction side until the pressure becomes **50—147 kPa (0.5—1.5 kg/cm², 7—35 psi)**.
 - c) Using a leak detector, check the compressor for leaks.

2. Evacuate the compressor and charge with refrigerant.
Be sure the blanking plate is tight and free from moisture and contamination.

Note:

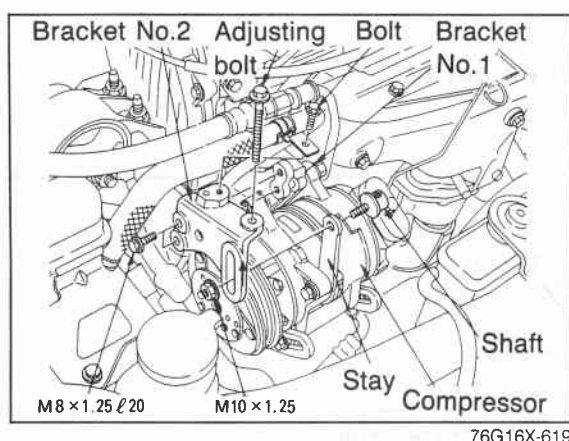
When storing a compressor, charge it with refrigerant or dry nitrogen gas to prevent corrosion.

76G16X-617



INSTALLATION OF THE COMPRESSOR

1. Install the compressor to the bracket No.1.

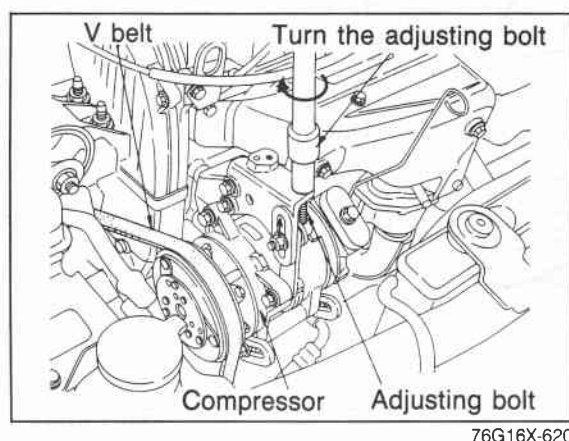


2. Install the bracket No.2 to the bracket No.1 and compressor.

Note

When tighten the bracket No.1 to the bracket No.2, pull up the bracket No.2 fully.

3. Install the adjusting bolt to the bracket No.2.



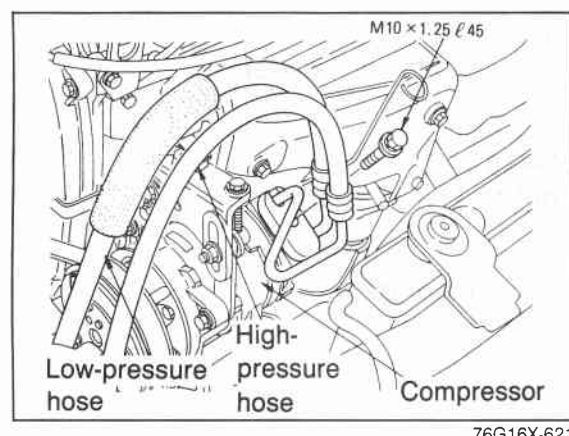
4. Install the air conditioner drive belt, and set the air conditioner drive belt tightening the adjusting volt.

Air conditioner drive belt deflection

(When push the air conditioner belt with 10 kg)

New: 7—9 mm (0.28—0.35 in)

Used: 8—12 mm (0.31—0.47 in)



5. Connect the two hoses to the compressor by tightening the bolt.

16 CONDENSER

CONDENSER

ON-VEHICLE INSPECTION

1. Check the condenser fins for blockage or damage.
If the fins are clogged, clean them with compressed air.
If the fins are bent, straighten them with a screwdriver or pair of pliers.
2. Check the condenser fittings for leakage.
Repair or replace, if necessary.

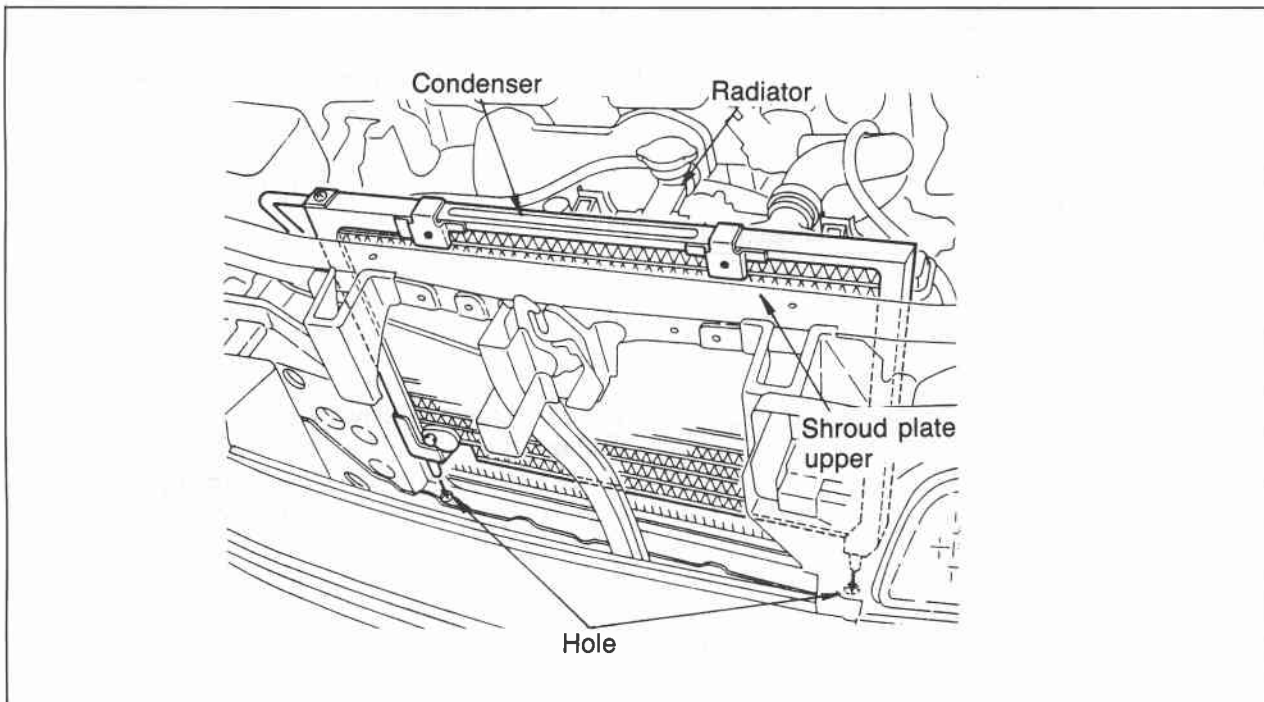
REMOVAL OF CONDENSER

1. Discharge the air conditioning system. (Refer to page 16—9.)
2. Remove the front grille and the air seal cover.
3. Disconnect the discharge flexible hose from the condenser inlet fitting.
4. Disconnect the liquid line pipe from the condenser outlet fitting.

Note:

Plug the open fittings immediately to keep moisture out of the system.

6. Remove the condenser.



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INSTALLATION OF CONDENSER

1. Install the condenser by using the two bolts and two nuts.
2. Connect the liquid line pipe and the discharge flexible hose to the condenser.

Tightening torque:

Liquid line pipe: 15—25 N·m (1.5—2.5 m·kg, 11—18 ft·lb)

Discharge flexible hose: 15—22 N·m (1.5—2.2 m·kg, 11—16 ft·lb)

3. Install the front grille and the air seal cover.
4. If the condenser is replaced with a new one, supply compressor oil.

Compressor oil: 30 cc (1.83 cu in)

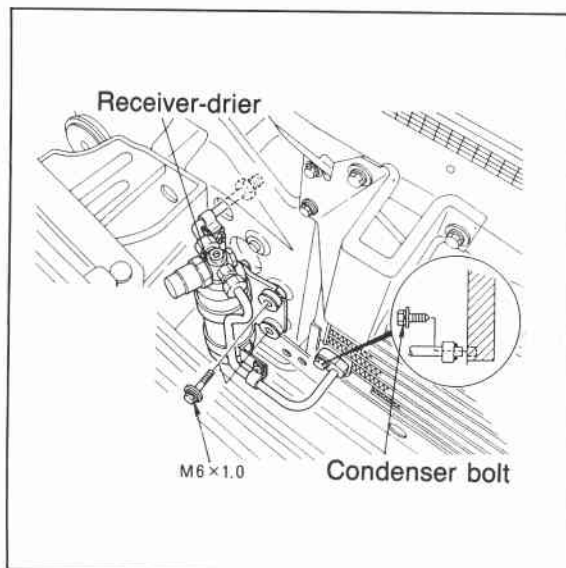
5. Evacuate, charge, and test the air conditioning system.

RECEIVER-DRIER

ON-VEHICLE INSPECTION

1. Use a leak detector to check the sight glass, the fusible plug, and the fittings for leakage. Repair or replace, if necessary.
2. Check the receiver-drier for clogging.
 - a) Run the engine at fast idle with the air conditioner on.
 - b) Check both inlet and outlet temperatures. If there is a great difference between the two temperatures, replace the receiver-drier.

76G16X-622



76G16X-638

REMOVAL OF RECEIVER-DRIER

1. Discharge the air conditioning system. (Refer to page 16—9)
2. Disconnect the two liquid line pipes from the receiver-drier.

Note:

Plug the open fittings immediately to keep moisture out of the system.

3. Remove the receiver-drier from the bracket.

INSTALLATION OF RECEIVER-DRIER

1. Install the receiver-drier onto the bracket.

Note:

Do not remove the blind plugs until ready for connection.

2. Connect the two liquid line pipes to the receiver-drier.

Tightening torque:

15—25 N·m (1.5—2.5 m·kg, 11—18 ft·lb)

3. If the receiver-drier is replaced with a new one, add compressor oil to the compressor.

Compressor oil: 10 cc (0.61 cu in)

16 COOLING UNIT

COOLING UNIT

ON-VEHICLE INSPECTION OF EXPANSION VALVE

1. Connect the manifold gauge set to the gauge fittings on the low- and high-pressure pipes.
2. Operate the engine at **1,500 rpm** and the air conditioner at MAX. COOLING.
3. Check the low and high pressures.
Normal pressures are:

Low: 197—294 kPa
(2—3 kg/cm², 28—43 psi)

High: 1472—1765 kPa
(15—18 kg/cm², 210—260 psi)

If pressure is not as specified, replace the expansion valve.

76G16X-623

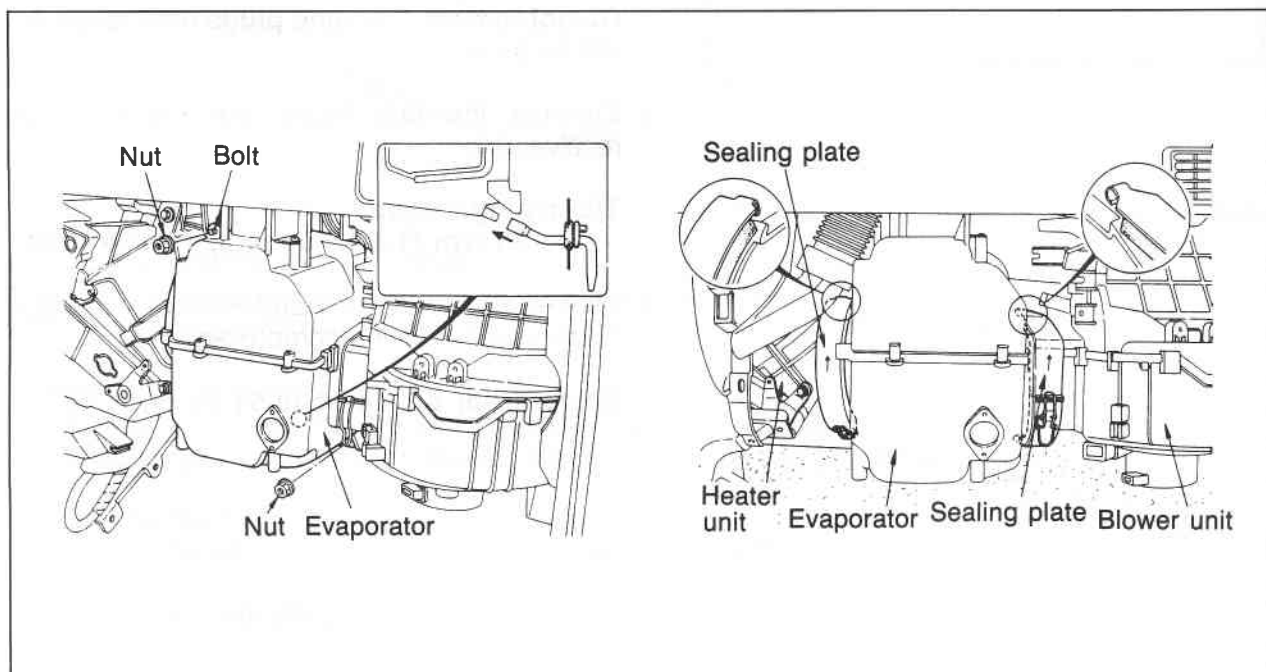
REMOVAL OF COOLING UNIT

1. Disconnect the battery ground cable.
2. Discharge the air conditioning system. (Refer to page 16—9.)
3. Disconnect the suction low-pressure pipe from the evaporator unit outlet fitting.
4. Disconnect the liquid line pipe from the evaporator unit inlet fitting.

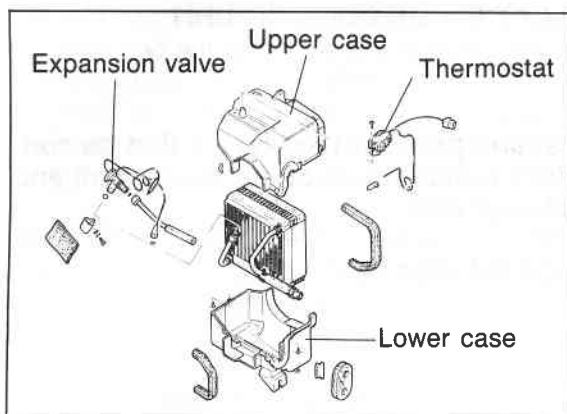
Note:

Plug all open fittings immediately to keep moisture out of the system.

5. Remove the grommets from the expansion valve.
6. Remove the instrument lower panel and the glove box.
7. Remove the sealing plates from both sides of the cooling unit.
8. Disconnect the A/C wiring harness from the evaporator unit.
9. Remove the drain hose from the cooling unit.
10. Remove the two nuts and the cooling unit.



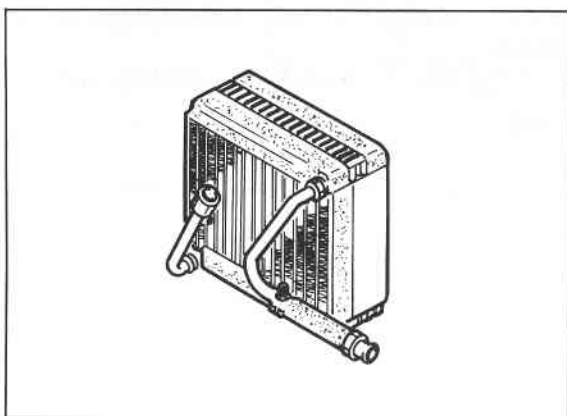
76G16X-624



76G16X-006

DISASSEMBLY OF COOLING UNIT

1. Remove the screws by using a screwdriver.
2. Remove the upper case.
3. Remove the thermostat.
4. Remove the lower case.
5. Remove the expansion valve.



INSPECTION OF EVAPORATOR

1. Check the evaporator fins for blockage. If the fins are clogged, clean them with compressed air.

Caution:

Never use water to clean the evaporator.

2. Check the fittings for cracks or scratches. Repair or replace, if necessary.

ASSEMBLY OF COOLING UNIT

1. Connect the expansion valve to the inlet fitting of the evaporator. Tighten the two bolts by using a wrench.

Note:

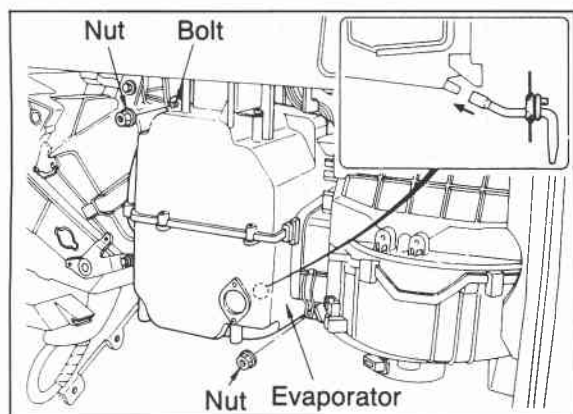
Be sure that the O-ring is positioned on the pipe fitting.

**Specified torque: 2.7—3.4 N·m
(0.27—0.35 m·kg, 2.0—2.5 ft·lb)**

2. Install the lower case onto the evaporator.
3. Install the thermostat in its original position.
4. Install the lower case onto the evaporator.

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16 COOLING UNIT



76G16X-625

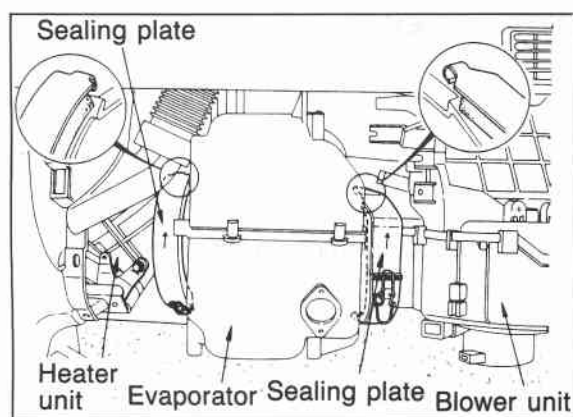
INSTALLATION OF COOLING UNIT

1. Install the cooling unit by using the two nuts.

Note

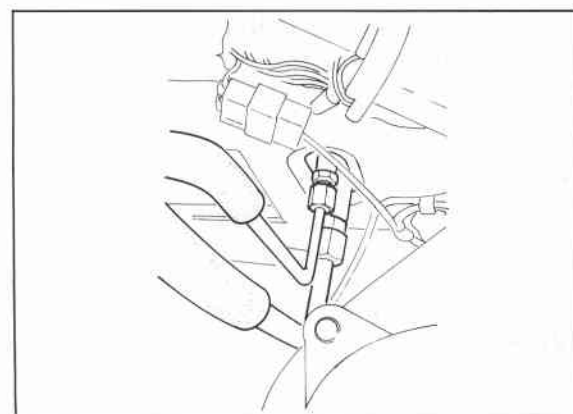
Adjust and position the unit so that its connections match those of the heater unit and the blower unit.

2. Connect the drain hose.



76G16X-626

3. Join the connections on both sides by using the seal plates.
4. Connect the A/C harness to the cooling unit.



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5. Connect the liquid line high-pressure pipe and suction low-pressure pipe to the cooling unit.

Tightening torque:

15—22 N·m (1.5—2.5 m·kg, 11—18 ft·lb)

6. Install the instrument lower panel, shower duct and glove box.
7. If the evaporator is replaced, add compressor oil to the compressor.

Compressor oil: 50 cc (3.05 cu in)

REFRIGERANT LINES**ON-VEHICLE INSPECTION**

1. Check all piping connections for leakage by using a leak detector. Replace if necessary.
2. Check that the hose and pipe clamps are not loose.
Tighten or replace, if necessary.

REPLACEMENT OF REFRIGERANT LINES

1. Discharge the air conditioning system. (Refer to page 16—9)
2. Replace the faulty pipe or hose.

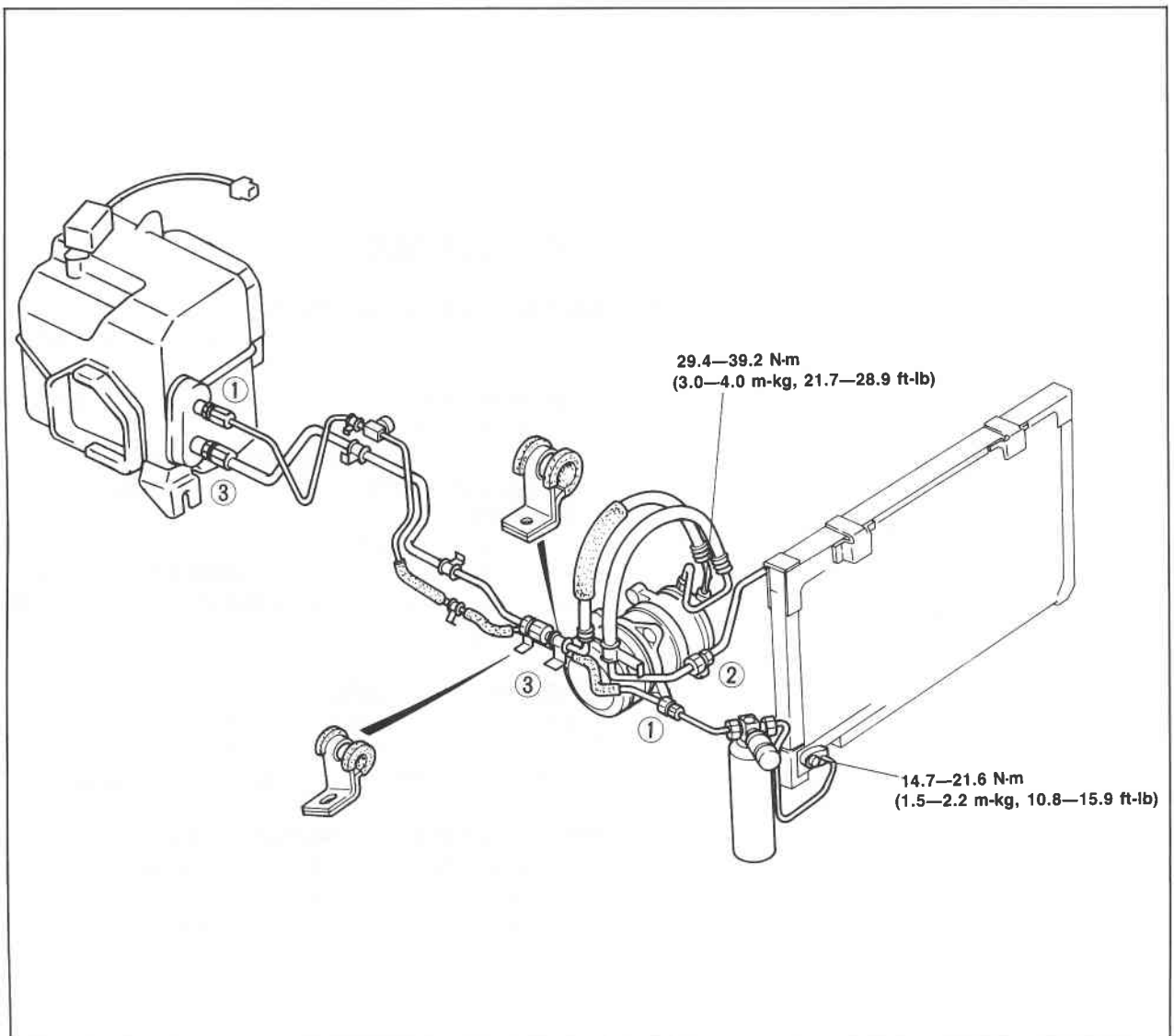
Note:

Plug all open fittings immediately to keep moisture out of the system.

Tightening torque (fittings):

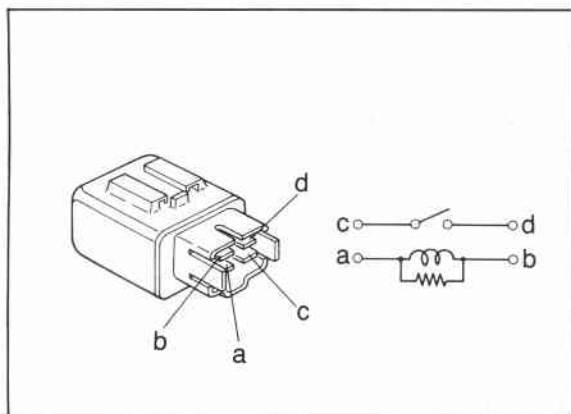
Location	Tightening torque
①	10—20 N·m (1.0—2.0 m·kg, 7.2—14.4 ft·lb)
②	15—25 N·m (1.5—2.5 m·kg, 10.8—18.0 ft·lb)
③	20—29 N·m (2.0—3.0 m·kg, 14.4—21.6 ft·lb)

3. Evacuate, charge, and test the air conditioning system. (Refer to page 16—9.)



76G16X-628

16 A/C RELAY



69G16X-063

A/C RELAY

REMOVAL OF RELAY

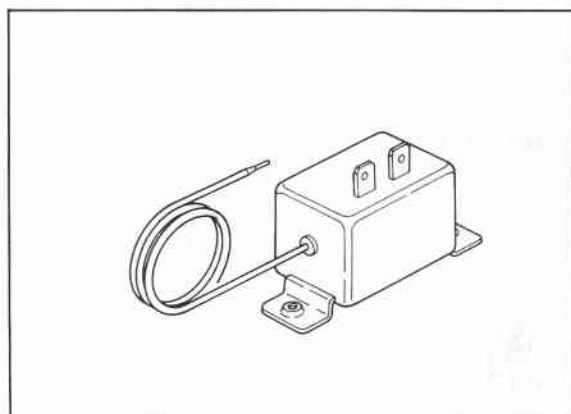
1. Disconnect the negative battery cable.
2. Disconnect the wire harness connector.
3. Remove the relay from the seal plate.

INSPECTION OF A/C RELAY

1. Using a circuit tester, check that there is continuity between terminals (a) and (b).
2. Apply 12 volts across terminals (a) and (b), and check whether there is continuity between terminals (c) and (d). Replace if necessary.

INSTALLATION OF A/C RELAY

1. Install the relay to the seal plate.
2. Connect the wire harness connector.
3. Connect the negative battery cable.



76G16X-007

THERMOSTAT

ON-VEHICLE INSPECTION

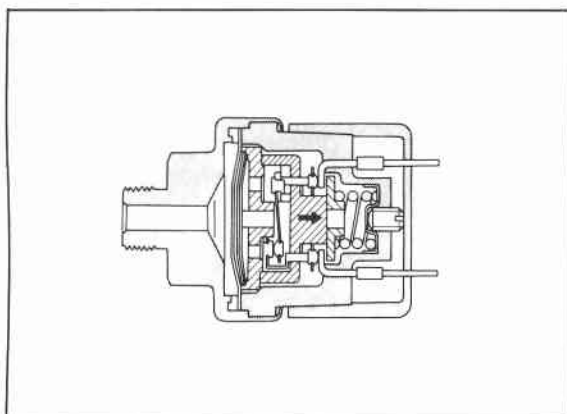
1. Operate the air conditioner at MAX. COOLING.
2. Turn the ECO switch to ON.
3. Block the air inlet of the blower unit with a thick piece of paper.
4. Check whether the relay is turned OFF when the temperature of the evaporator drops below **7°C (44.6°F)**.
5. Turn the ECO switch to OFF.
6. Check whether the relay's turned OFF when the temperature of the evaporator drops below **1°C (33.8°F)**.

REMOVAL OF THERMOSTAT

1. Disconnect the negative battery cable.
2. Disconnect the A/C wiring harness.
3. Remove the thermostat from the cooling unit.

INSTALLATION OF THERMOSTAT

1. Install the thermostat by using the two screws.
2. Connect the A/C wiring harness.
3. Connect the negative battery cable.



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REFRIGERANT PRESSURE SWITCH

- **Low-pressure side**

If the high pressure in the system drops to below **196 kPa (2.0 kg/cm², 28.4 psi)** the switch cuts the compressor power supply and turns on at a pressure above **206 kPa (2.1 kg/cm², 30.0 psi)**.

- **High-pressure side**

If the high pressure in the system exceeds **2,649 kPa (27 kg/cm², 384 psi)** the switch cuts the compressor power supply and turns on at a pressure above **2,060 kPa (21 kg/cm², 299 psi)**.

