

AIR CONDITIONING SYSTEM

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PRECAUTIONS

1. When handling refrigerant (R-12), the following precautions should be observed:
 - (a) Always wear eye protection while handling refrigerant.
 - (b) Keep the refrigerant container (service drum) below 40° C (104° F).
 - (c) Do not handle refrigerant in an enclosed area having an open flame.
 - (d) Discharge refrigerant slowly when purging the system.
 - (e) Be careful the liquid refrigerant does not contact the skin.
2. If liquid refrigerant gets in the eyes or on the skin:
 - (a) Do not rub the eye or skin.
 - (b) Wash the area with a lot of cool water.
 - (c) Apply clean petroleum jelly to the skin.
 - (d) Rush to a physician or hospital for immediate professional treatment.
 - (e) Do not attempt to treat yourself.

When tubing:

- (a) Apply a few drops of refrigeration oil to the seats of O-ring fitting.
- (b) Tighten the O-ring fittings at the specified torque.
- (c) Tighten the nut using two wrenches to avoid twisting tube.

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
No cooling or warm air	Magnetic clutch does not engage		
	(a) HEATER and A/C fuse (10A) blown	Replace fuse and check for short	
	(b) Magnetic clutch faulty	Check magnetic clutch	19-13
	(c) A/C switch faulty	Check switch	19-40
	(d) Thermistor faulty	Check thermistor	19-40
	(e) Idling stabilizer amplifier faulty	Check amplifier	19-43
	(f) Wiring or ground faulty	Repair as necessary	
	(g) Empty refrigerant	Check refrigerant pressure (Pressure should be 2.11 kg/cm ² or 30 psi minimum)	19-44
		Check pressure switch	19-44
	(h) Thermo switch (only for 4-wheel drive model)	Check thermo switch	19-44
	Compressor does not rotate properly		
	(a) Drive belt loose or broken	Adjust or replace drive belt	4-43
	(b) Compressor faulty	Check compressor	19-13
	Blower does not operate	Troubleshoot heater	17-31
	Expansion valve faulty	Check expansion valve	19-36
	Leak in system	Check system for leak	19-7
	Fusible plug on receiver blown or clogged screen	Check receiver	19-35
Cool air comes out intermittently	Magnetic clutch slipping	Check magnetic clutch	19-13
	Expansion valve faulty	Check expansion valve	19-36
	Wiring connection faulty	Repair as necessary	
	Excessive moisture in the system	Evacuate and charge system	19-6

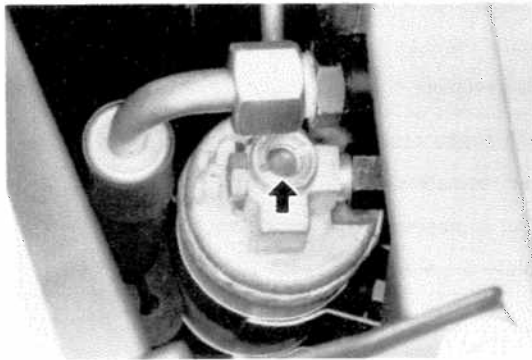
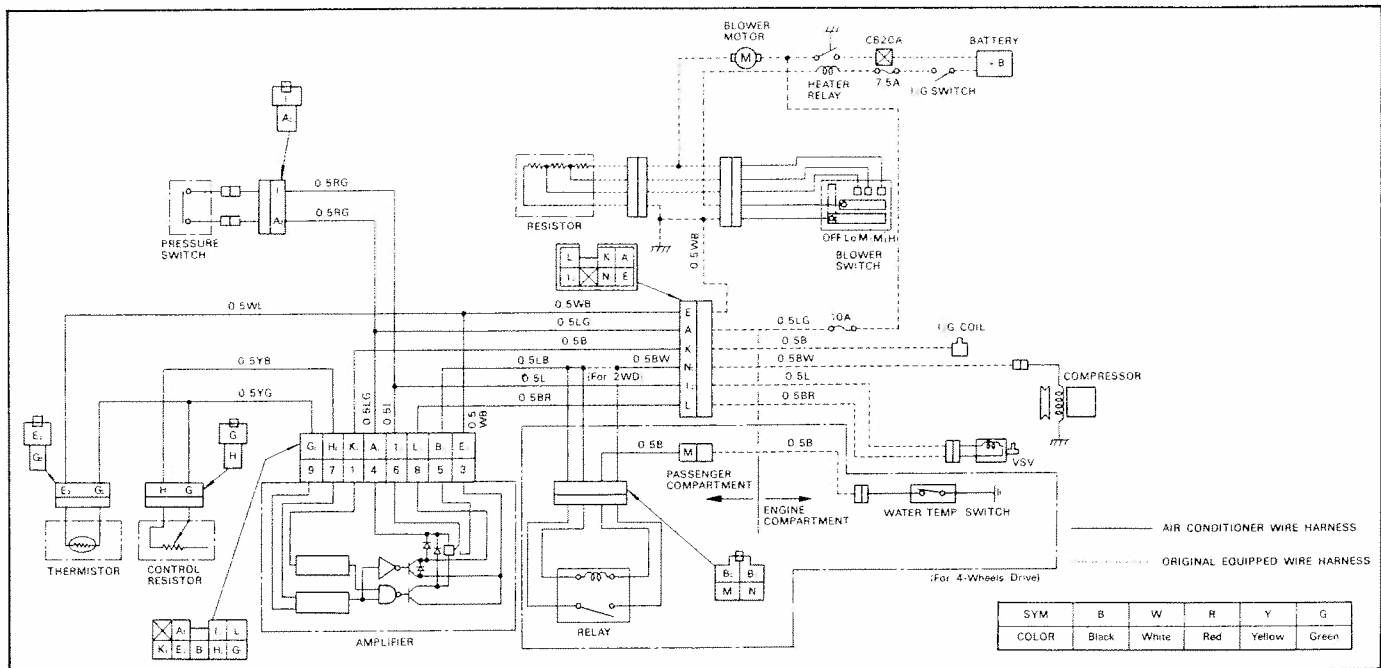
TROUBLESHOOTING (CONT'D)

Problem	Possible cause	Remedy	Page
Limited amount of cool air at high speed	Thermistor faulty	Check thermistor	19-40
	Idling stabilizer amplifier faulty	Check amplifier	19-43
Cool air comes out only at high speed	Condenser clogged	Check condenser	19-34
	Drive belt slipping	Check or replace drive belt	4-43
	Compressor faulty	Check compressor	19-13
	Insufficient or too much refrigerant	Check refrigerant charge	19-4
	Air in system	Evacuate and charge system	19-6
Insufficient cooling	Condenser clogged	Check condenser	19-34
	Drive belt slipping	Check or replace drive belt	4-43
	Magnetic clutch faulty	Check magnetic clutch	19-13
	Compressor faulty	Check compressor	19-13
	Expansion valve faulty	Check expansion valve	19-36
	Thermistor faulty	Check thermistor	19-40
	Idling stabilizer amplifier faulty	Check amplifier	19-43
	Insufficient or too much refrigerant	Check refrigerant charge	19-4
	Air or excessive compressor oil in system	Evacuate and charge system	19-6
Insufficient velocity of cooled air	Receiver clogged	Check receiver	19-35
	Evaporator clogged or frosted	Check evaporator	19-37
	Air leakage from cooling unit or air duct	Repair as necessary	
	Air inlet blocked	Repair as necessary	17-32
	Blower motor faulty	Replace blower motor	

SPECIAL TOOLS AND TEST EQUIPMENT

Tool	SST No.	Use
Manifold gauge set	Commercial	To evacuate and charge system
Ohmmeter	Commercial	To check magnetic clutch
P-type magnetic clutch tool kit	07110-77011	To repair magnetic clutch
Pressure plate remover	07112-71010	To remove pressure plate
Key remover	07112-45020	To remove shaft key
Hexagon wrench	07110-61050 or Commercial	To remove service valves and front housing
Valve plate removing tool	07112-35010 or Commercial	To remove valve plate
Cylinder installation rings	07115-25020	To measure shoe clearance
Key installing tool	07114-45010	To install shaft key
Shoe gauge	07115-15030	To adjust shoe clearance
Rubber seal replacer	07114-34010	To install rubber seal
Seal plate replace	07114-35010 or Commercial	To install seal plate
Test nozzle	07115-71010	To check compressor

AIR CONDITIONING SYSTEM CIRCUIT

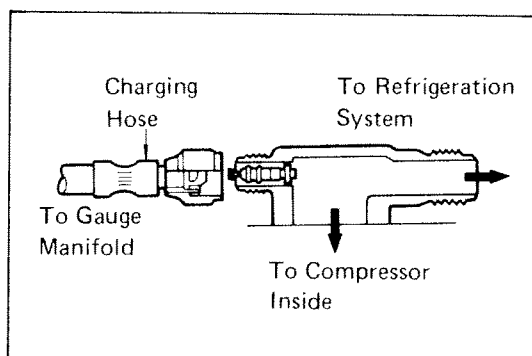


REFRIGERATION SYSTEM

Checking of Refrigerant Charge

1. RUN ENGINE AT FAST IDLE
2. OPERATE AIR CONDITIONER AT MAXIMUM COOLING FOR A FEW MINUTES
3. CHECK AMOUNT OF REFRIGERANT
Observe the sight glass on the receiver.

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



Installation of Manifold Gauge Set

NOTE: Fittings for attaching the manifold gauge set are located on the compressor service valves.

1. CLOSE BOTH HAND VALVES OF MANIFOLD GAUGE SET
2. INSTALL CHARGING HOSES OF GAUGE SET TO SERVICE VALVES

Connect the low pressure hose to the suction service valve and the high pressure hose to the discharge service valve. Tighten the hose nuts by hand.

NOTE: Do not apply compressor oil to the seat of the connection.

Discharging of Refrigeration System

1. CONNECT MANIFOLD GAUGE SET TO COMPRESSOR
2. PLACE FREE END OF CENTER HOSE IN A SHOP TOWEL
3. DISCHARGE SYSTEM
 - (a) Slowly open the high pressure hand valve to adjust refrigerant flow. Do not open valve very much.

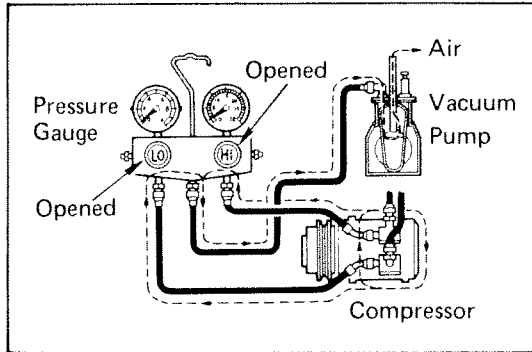
CAUTION: If refrigerant is allowed to escape too fast, compressor oil will be drawn out of the system.

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

Evacuating and Charging of Refrigeration System

NOTE:

- (a) Whenever the air conditioning system has been exposed to the atmosphere, it must be evacuated.
- (b) After the installation of a component, the system should be evacuated for approximately 15 minutes. A component in service that has been opened for repair should be evacuated for 30 minutes.



1. EVACUATE SYSTEM

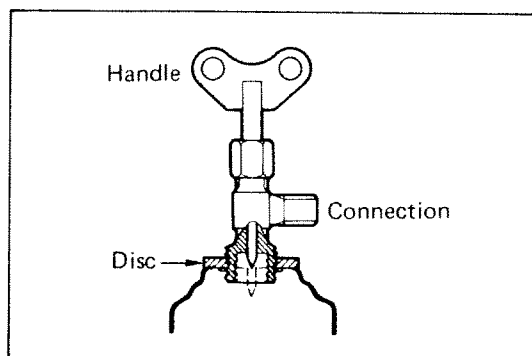
- (a) Connect the manifold gauge set. (See page 19-5)
- (b) Install the center hose of gauge set on the vacuum pump inlet.
- (c) Run the vacuum pump, and then open both hand valves.
- (d) After about ten minutes, check that the low pressure gauge reads more than 600 mm Hg (23.62 in. Hg) of vacuum.

If the reading is not more than 600 mm Hg (23.62 in. Hg), close both valves and stop the vacuum pump. Check the system for leaks and repair as necessary.

If no leaks are found, continue pumping the system down.

- (e) After the low pressure gauge indicates more than 700 mm Hg (27.56 in. Hg) of vacuum, continue evacuating for 15 minutes.
- (f) Close both hand valves, and stop the vacuum pump. Disconnect the hose from the vacuum pump.

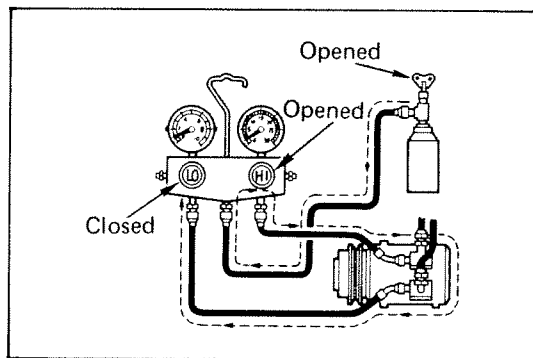
The system is now ready for charging.



2. INSTALL REFRIGERANT CAN TAP VALVE

CAUTION: Observe precautions listed in the front of this section.

- (a) Before installing the valve on the refrigerant container, turn the handle counterclockwise until the valve needle is fully retracted.
- (b) Turn the disc counterclockwise until it reaches its highest position.
Screw down the valve on the refrigerant container.
- (c) Connect the center hose to the valve fitting. Turn the disc fully clockwise by hand.
- (d) Turn the handle clockwise to make a hole in the sealed tap.
- (e) Turn the handle fully counterclockwise to fill the center hose with air. Do not open the high and low pressure valves.
- (f) Loosen the center hose nut connected to the center fitting of the manifold gauge until a hiss can be heard. Allow air to escape for a few seconds, and then tighten the nut.



3. LEAK TEST SYSTEM

NOTE: After finishing the evacuation of the system, check the system for leaks.

- (a) Install the refrigerant can tap valve as described in step 2.
- (b) Open the high pressure valve to charge the system with refrigerant vapor.
- (c) When the low pressure gauge reads 1 kg/cm² (14 psi), close the high pressure valve.
- (d) 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.

- (e) After checking and repairing the system, perform the following:
 - Turn the can tap handle fully clockwise.
 - Disconnect the center hose from the can valve fitting.
 - Evacuate the system for at least 15 minutes. (see step 1, page 19-6)

4. CHARGE EMPTY SYSTEM (LIQUID)

NOTE: This step is to charge an empty system through the high pressure side with refrigerant in a liquid state. When the refrigerant container is held upside down, refrigerant will enter the system as a liquid.

CAUTION:

- Never run the engine when charging the system through the high pressure side.
- Do not open the low pressure valve when the system is being charged with liquid refrigerant.

- (a) Close both high and low pressure valves completely after the system is evacuated.
- (b) Install the refrigerant can tap valve as described in step 2.
- (c) Open the high pressure valve fully, and keep the container upside down.
- (d) Charge the system with more than one can (400 g, 0.88 lb) to the specified amount. Then, close the high pressure valve.

Specified amount: 650 – 750 g (1.43 – 1.65 lb)

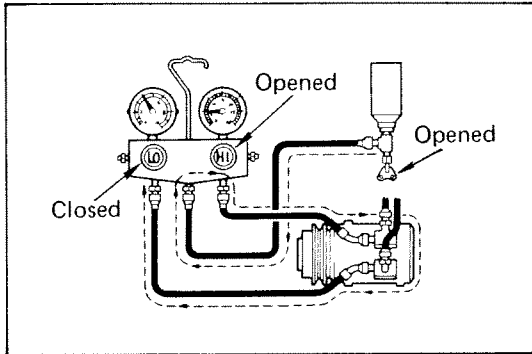
NOTE:

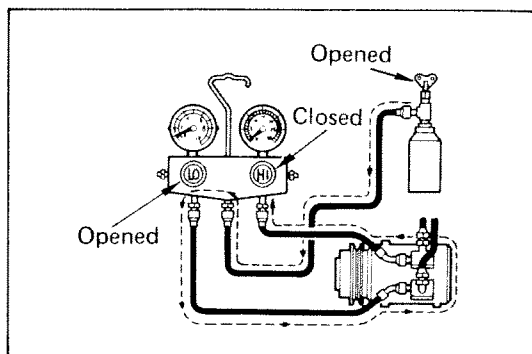
- A fully charged system is indicated by the receiver sight glass being free of any bubbles.
- If the low pressure gauge does not show a reading, the system is blocked and must be repaired.

5. CHARGE EMPTY SYSTEM OR PARTIALLY CHARGED SYSTEM (VAPOR)

NOTE:

- This step is to charge the system through the low pressure side with refrigerant in a vapor state. When the refrigerant container is placed rightside up, refrigerant will enter the system as a vapor.
- Put the refrigerant container in a pan of warm water (maximum temperature 40°C (104°F) to keep vapor pressure in the container slightly higher than the vapor pressure in the system.





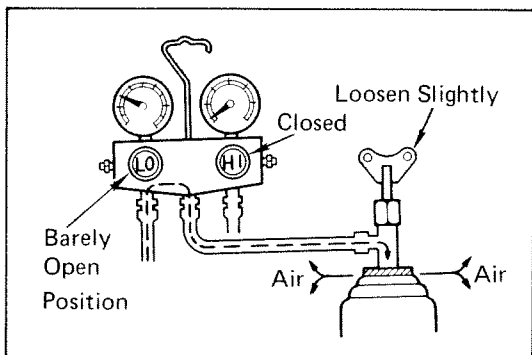
- (a) Install the refrigerant can tap valve as described in step 2.
- (b) Open the low pressure valve. Adjust the valve so that the low pressure gauge does not read over 4.2 kg/cm² (60 psi).
- (c) Run the engine at fast idle, and operate the air conditioner.

CAUTION: Be sure to keep the container in the upright position to prevent liquid refrigerant being charged into the system through the suction side. This may damage the compressor.

- (d) Charge the system with more than one can (400 g, 0.88 lb) to the specified amount. Then, close the low pressure valve.

Specified amount: 650 – 750 g (1.43 – 1.65 lb)

NOTE: A fully charged system is indicated by the receiver sightglass being free of any bubbles.



6. IF NECESSARY, CHARGE SYSTEM WITH ANOTHER REFRIGERANT CONTAINER

- (a) When the refrigerant container is empty, close the pressure valves.
- (b) Remove the can tap valve from the container.
- (c) Attach the can tap valve to a new refrigerant container.
- (d) Purge the air from the center hose by barely opening the low pressure valve and loosening the valve disc.
- (e) Make a hole in the sealed tap of the new container and charge the system.

7. WHEN SYSTEM IS FULLY CHARGED, DISCONNECT MANIFOLD GAUGE SET

- (a) Close both low and high pressure valves.
- (b) Close valve at refrigerant container. If using one pound cans of R-12, allow remaining refrigerant to escape by slowly removing charge line.
- (c) Turn off engine.
- (d) Using a shop rag, quickly remove both hoses from the compressor service valves.

WARNING: Care must be taken to protect eyes and skin when removing high pressure hose.

- (e) Put the cap nuts on the service valve fittings.

Performance Test

1. INSTALL MANIFOLD GAUGE SET

- (a) Close the HI and LO hand valves.
- (b) Connect the red charging hose to the discharge service valve of the compressor.
- (c) Connect the blue charging hose to the suction service valve of the compressor.

2. RUN ENGINE AND OPERATE AIR CONDITIONER

- (a) Run the engine at 2,000 rpm.
Set the blower switch at HI, temperature level at COOL and air flow control level up.
- (b) Keep all windows and doors open.

3. POSITION THERMOMETERS

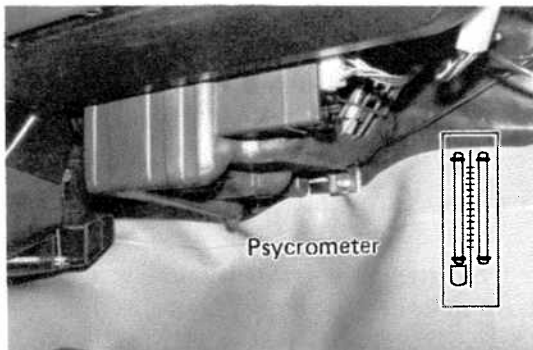
- (a) Place a dry bulb thermometer in the cool air outlet.
- (b) Place a psychrometer close to the inlet of the cooling unit.

4. WAIT UNTIL AIR CONDITIONING SYSTEM STABILIZES

- (a) Check that reading on high pressure gauge is 14.0 — 15.5 kg/cm² (199 — 220 psi).

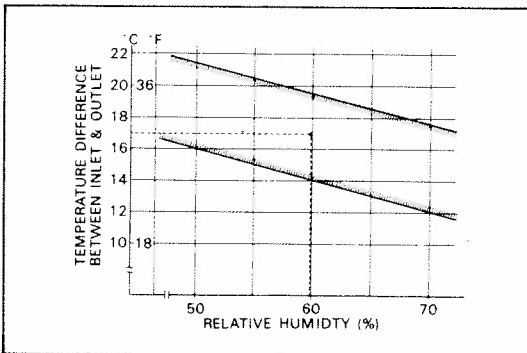
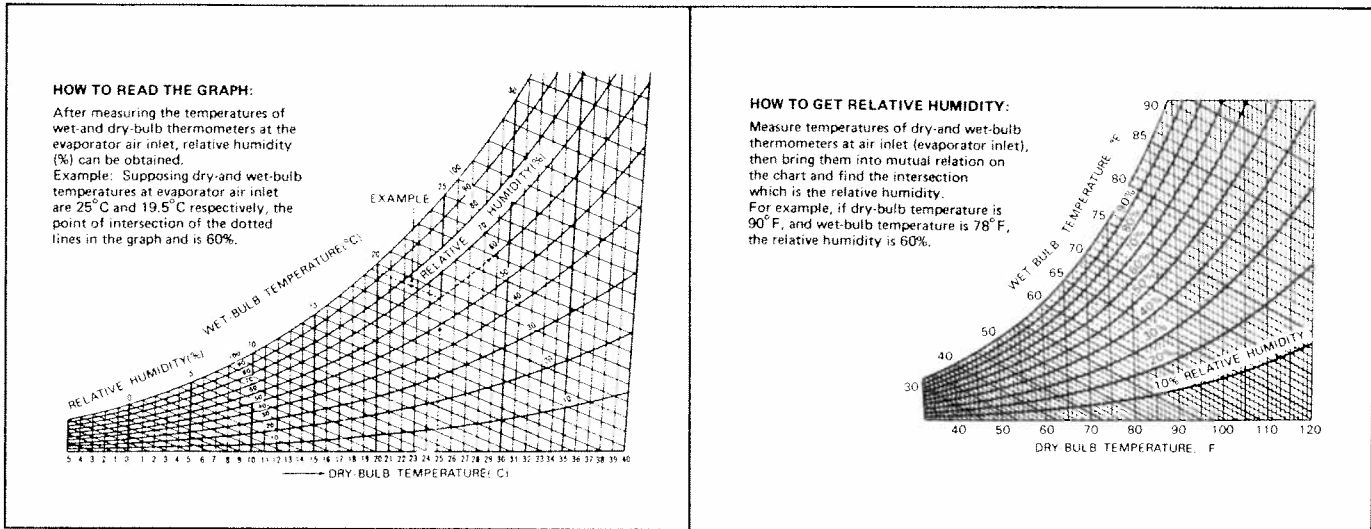
If the reading is too high, pour water on the condenser.
If the reading is too low, cover the front of the condenser.

- (b) Check that reading on dry bulb thermometer at the air inlet is 25 — 35°C (77 — 95°F).



5. CHECK PERFORMANCE OF AIR CONDITIONING SYSTEM

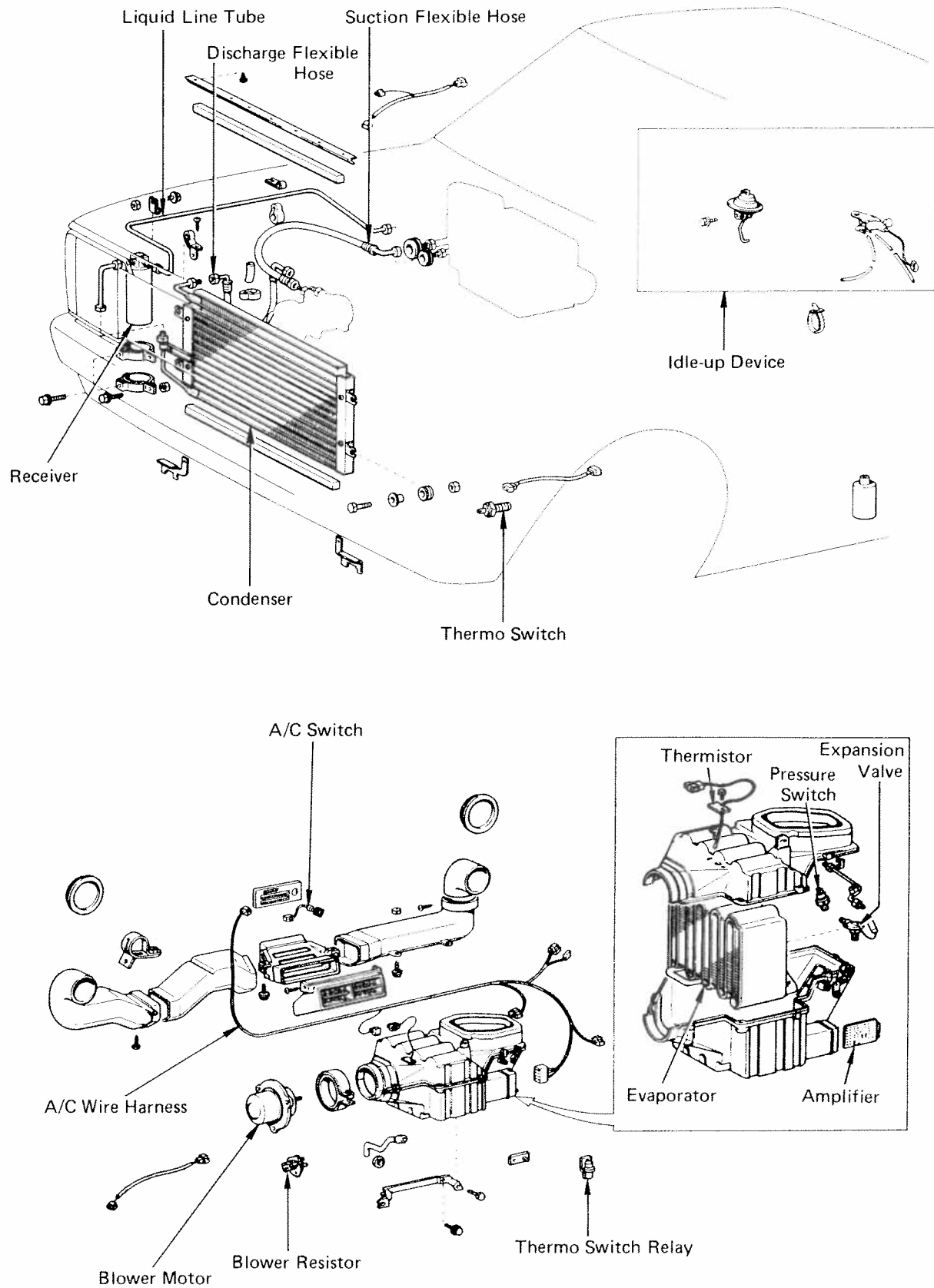
- (a) Calculate the relative humidity from the psychrometric chart by comparing the wet and dry bulb readings of the psychrometer at the air inlet.



- (b) Measure the dry bulb temperature at the cool air outlet, and calculate the difference between the inlet dry bulb and outlet dry bulb temperatures.
- (c) Check that the crossing point of the relative humidity and temperature difference is between the two hatched lines shown.

If the crossing point is within the two lines, the cooling performance is satisfactory.

SYSTEM COMPONENTS



COMPRESSOR

(See illustration on page 19-12)

ON-VEHICLE INSPECTION

1. INSTALL MANIFOLD GAUGE SET

- Close the HI and LO hand valves.
- Connect the red charging hose to the discharge service valve of the compressor.
- Connect the blue charging hose to the suction service valve of the compressor.

2. RUN ENGINE AT FAST IDLE

3. CHECK COMPRESSOR FOR FOLLOWING:

- High pressure gauge reading is not low and low pressure gauge reading is not higher than normal.
- Metallic sound.
- Leakage from shaft seal.

NOTE: A slight amount of leakage from the front seal is considered normal.

If any of the above checks prove faulty, repair the compressor.

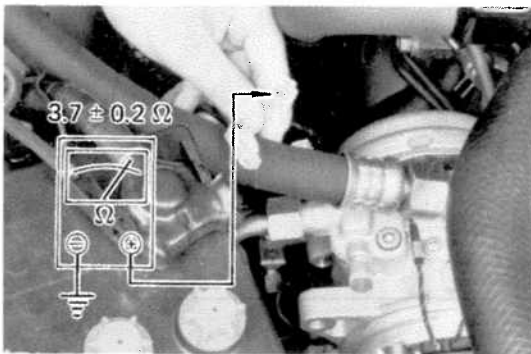
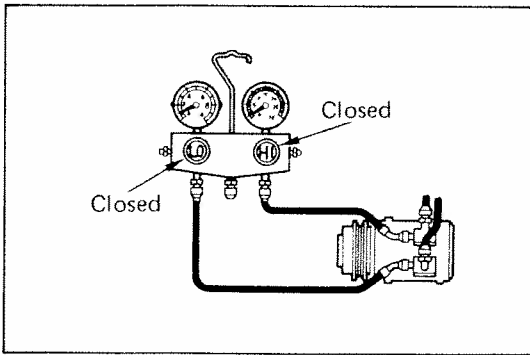
4. CHECK MAGNETIC CLUTCH

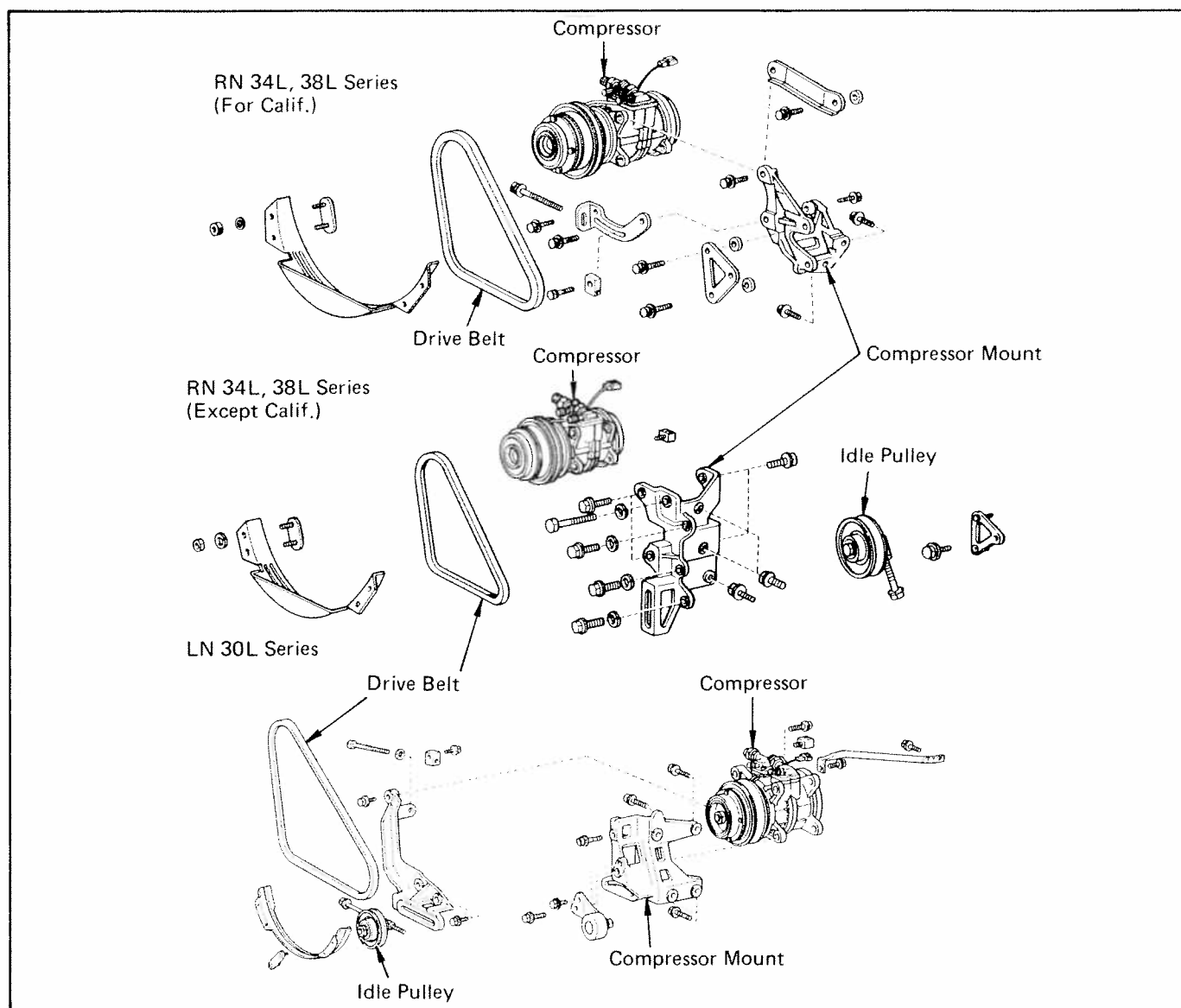
- Inspect the pressure plate and the rotor for signs of oil.
- Check the clutch bearings for noise and grease leakage.

- Using an ohmmeter, measure the resistance of the stator coil between the clutch lead wire and ground.

If the resistance is not within tolerance, replace the coil.

Standard resistance at 20° C (68° F): $3.7 \pm 0.2 \Omega$





REMOVAL OF COMPRESSOR

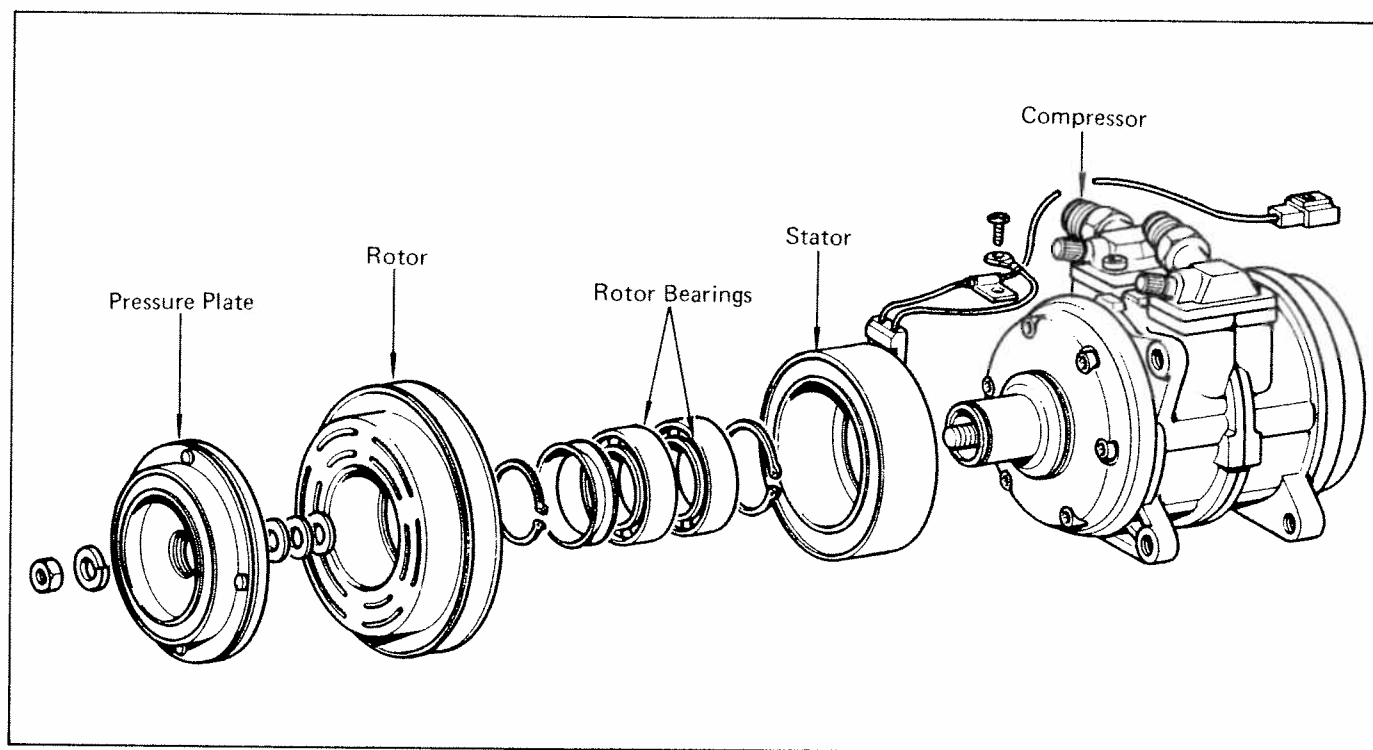
1. RUN ENGINE AT IDLE WITH AIR CONDITIONING ON FOR 10 MINUTES
2. DISCONNECT NEGATIVE CABLE FROM BATTERY
3. DISCONNECT CLUTCH LEAD WIRE FROM WIRING HARNESS
4. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 19-5)

5. DISCONNECT TWO FLEXIBLE HOSES FROM COMPRESSOR SERVICE VALVES

Cap the open fitting immediately to keep moisture out of the system.

6. REMOVE COMPRESSOR

- (a) Loosen the drive belt.
- (b) Remove the compressor mounting bolts and the compressor.

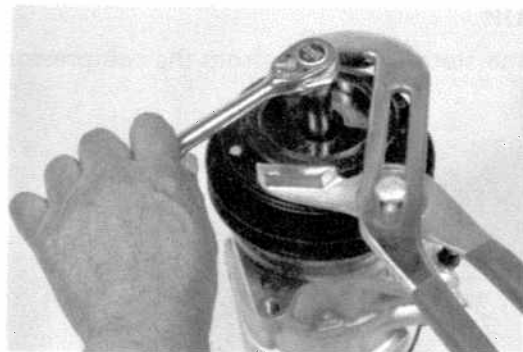


DISASSEMBLY OF MAGNETIC CLUTCH

1. REMOVE PRESSURE PLATE

- (a) Using a socket and holding bar*, remove the shaft nut.

*SST 07110-77010 or Commercial bar or pliers



- (b) Using a pressure plate remover* and socket, remove the pressure plate.

*SST 07112-71010



- (c) Remove the shims from the shaft.

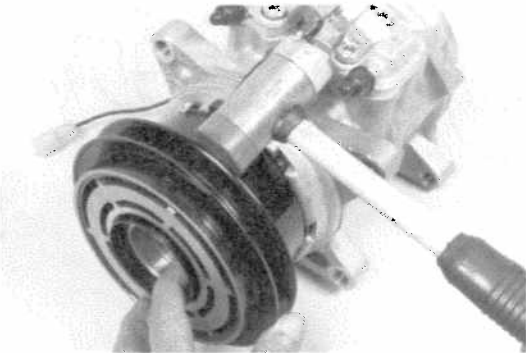




2. REMOVE ROTOR

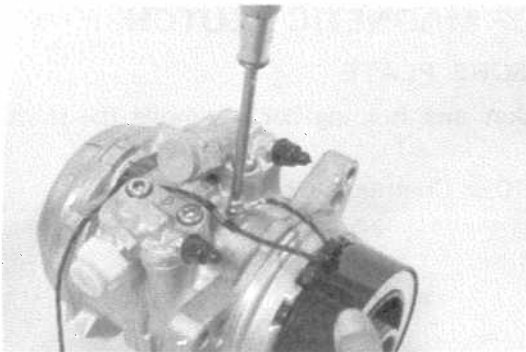
(a) Using snap ring pliers*, remove the snap ring.

*SST 07114-84020 or Commercial pliers



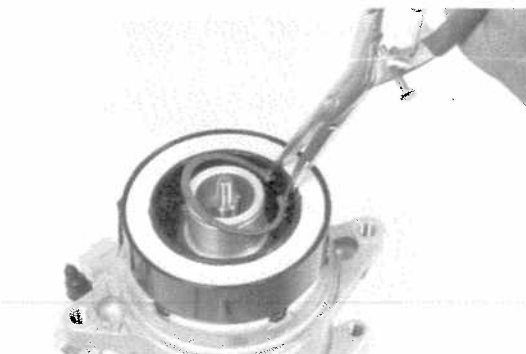
(b) Using a plastic hammer, tap the rotor off the shaft.

CAUTION: Be careful not to damage the pulley when tapping the rotor.



3. REMOVE STATOR

(a) Disconnect the stator lead wires from the compressor housing.



(b) Using snap ring pliers*, remove the snap ring. Remove the stator.

*SST 07114-84020 or Commercial pliers



4. REMOVE ROTOR BEARINGS

NOTE: Press the bearing out only if they are to be replaced.

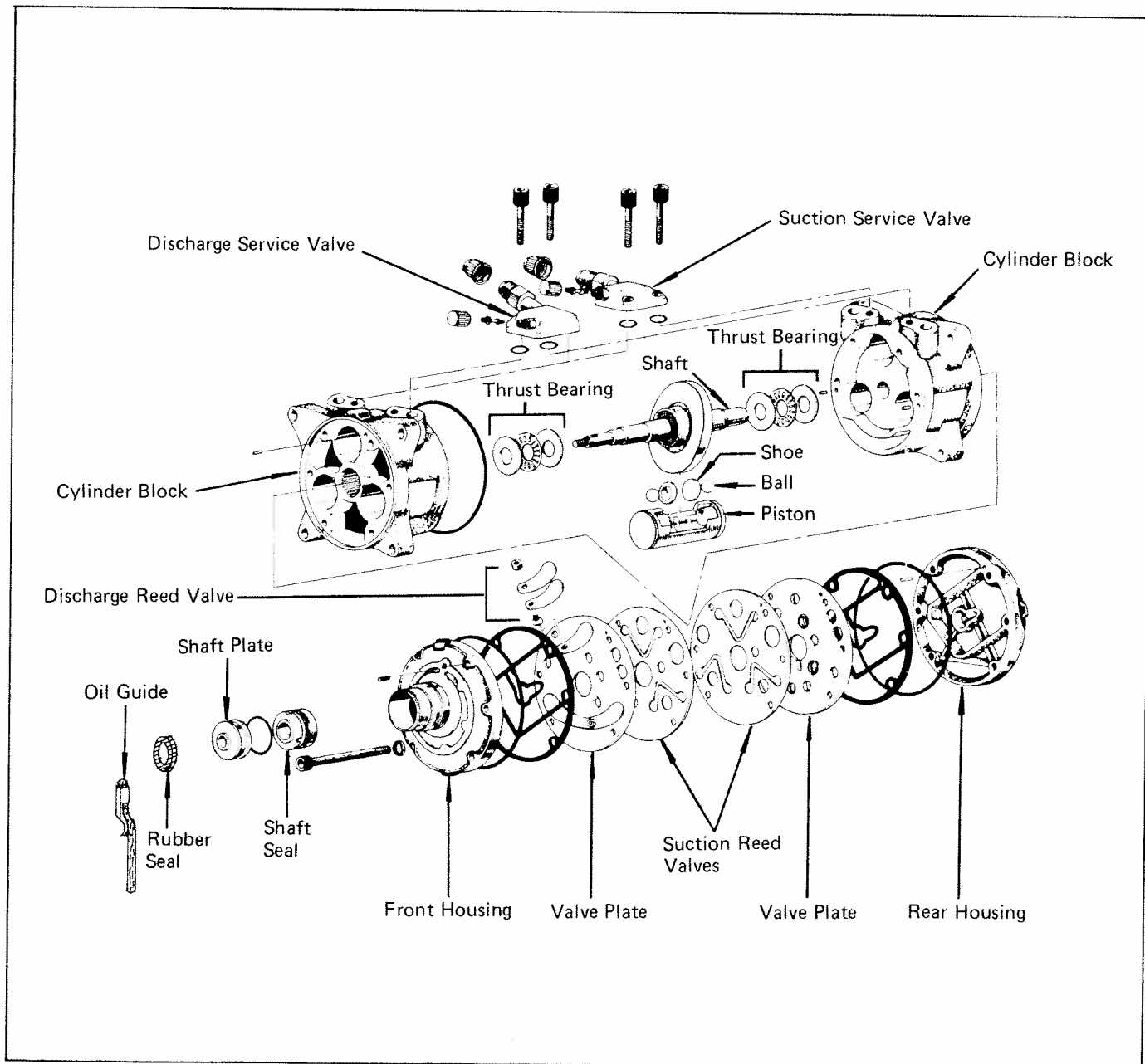
(a) Remove the bearing snap ring from the rotor.

(b) Using two bearing removers*, press out two bearings.

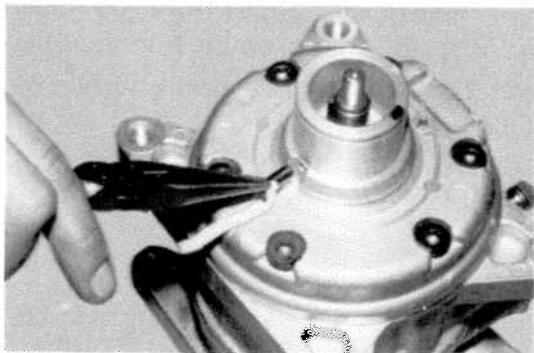
*SST 07110-77011 or Commercial removers

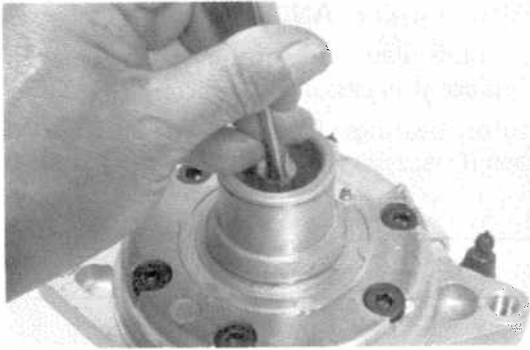
5. INSPECT PRESSURE PLATE AND ROTOR

- (a) Inspect the pressure plate and rotor surfaces for wear or scoring. Replace if necessary.
- (b) Check the rotor bearings for wear or leakage of grease. Replace if necessary.

**DISASSEMBLY OF COMPRESSOR****1. IF NECESSARY, REMOVE OIL GUIDE**

Using pliers, pull out the oil guide (for oil drain).

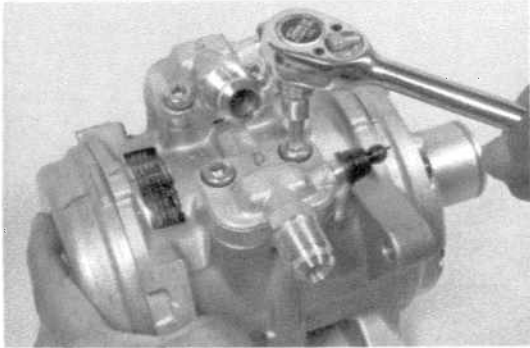


**2. REMOVE KEY**

Using a hammer and punch, drive the key from the shaft.

NOTE: If available, use a key remover* to remove the key from the shaft.

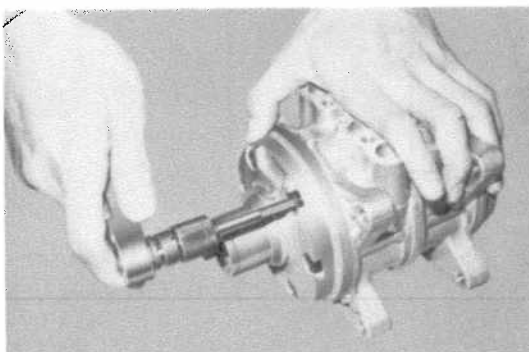
*SST 07112-45020

**3. REMOVE TWO SERVICE VALVES**

(a) Using a hexagon wrench*, remove the bolts holding two service valves.

(b) Remove the O-rings from the service valves and discard them.

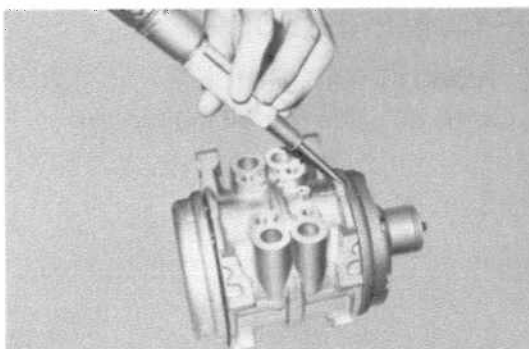
*SST 07110-61050 or Commercial wrench

**4. DRAIN OIL INTO CONTAINER****5. REMOVE FRONT HOUSING**

(a) Using a hexagon wrench*, remove six through bolts.

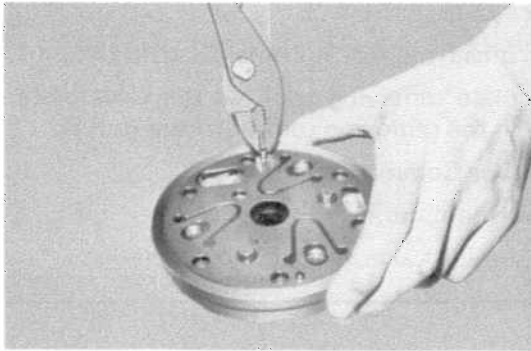
NOTE: Do not reuse the six washers.

*SST 07110-61050 or Commercial wrench



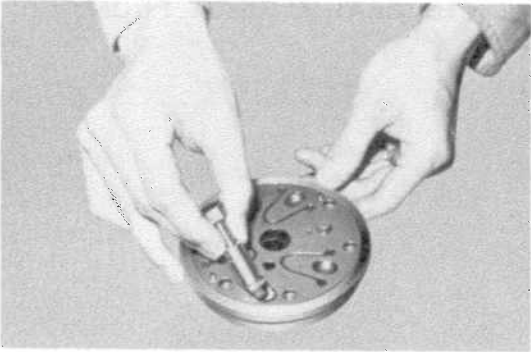
(b) Using a hammer and punch, remove the front housing by tapping on the protrusion on the front housing.

CAUTION: Be careful not to scratch the sealing surface of the front housing.



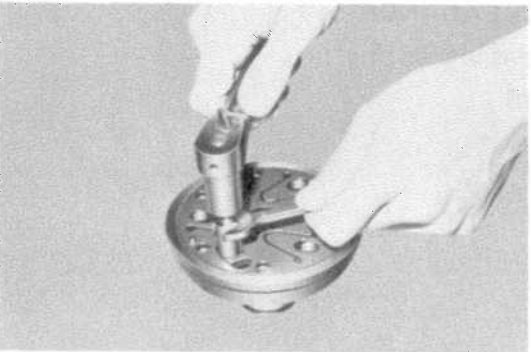
6. REMOVE FRONT VALVE PLATE

- (a) Remove two pins from the front housing. Discard the pins.



- (b) Install the valve plate removing tool* in the valve plate.

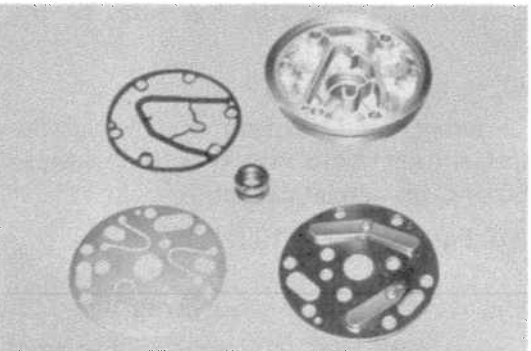
*SST 07112-35010 or Commercial tool



- (c) Using removing tool, remove the valve plate.

CAUTION:

- Remove the seal plate only if it is to be replaced. Pushing the seal plate on to the lapping surface will damage it.
- Be sure to handle the shaft seal carefully, and do not scratch the carbon seal.

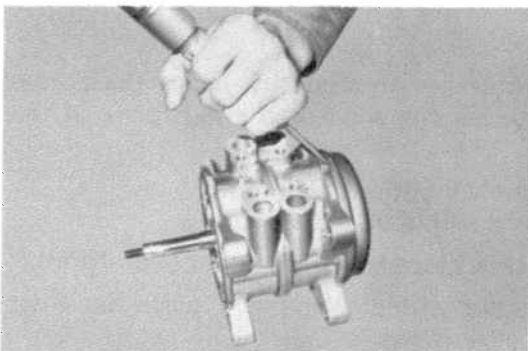


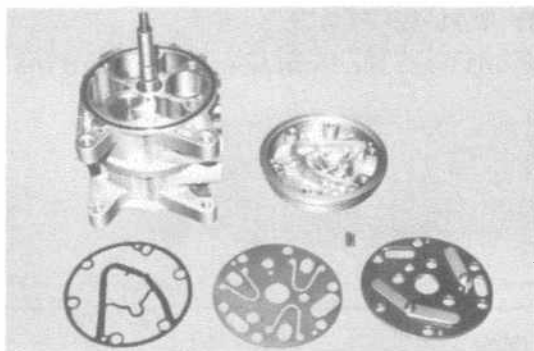
- (d) Remove the suction valve, valve plate, gasket and shaft seal.

7. REMOVE REAR HOUSING

Using a hammer and punch, remove the rear housing by tapping on the protrusion on the rear housing.

CAUTION: Be careful not to scratch the sealing surface of the rear housing.



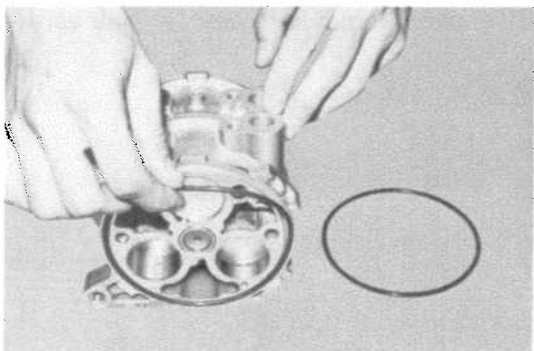


8. REMOVE REAR VALVE PLATE

- (a) Remove two pins from rear housing. Discard the pins.
- (b) Install valve plate removing tool* in the valve plate. After installing the removing tool, turn the tool 90°.

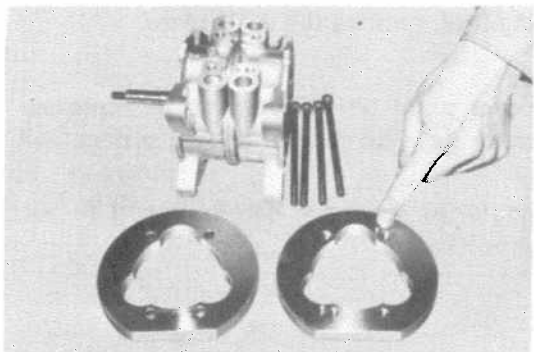
*SST 07112-35010 or Commercial tool

- (c) Using removing tool, remove the valve plate.
- (d) Remove the suction valve, valve plate and gasket.



9. REMOVE FRONT AND REAR O-RINGS FROM CYLINDER BLOCK

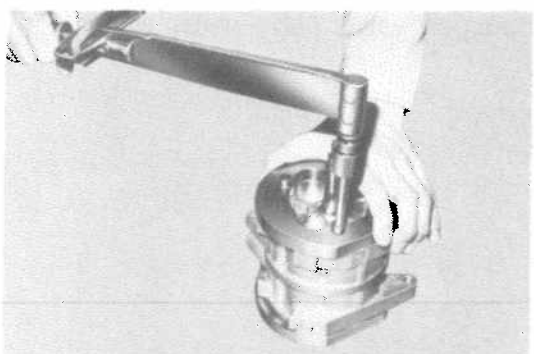
Discard the O-rings.



10. CHECK SHOE CLEARANCE

- (a) Install two pins in rear ring*.

*SST 07115-25020



- (b) Attach front and rear rings* to the sides of the cylinder blocks.

*SST 07115-25020

- (c) Using a torque wrench and hexagon wrench*, gradually tighten four through bolts in two or three passes.

*SST 07110-61050 or Commercial wrench

Torque: 250 – 270 kg-cm (18.1 – 19.5 ft-lb)

- (d) Set one of the pistons to top dead center.
- (e) Set magnet stand with dial indicator on the ring* with its needle on the piston.

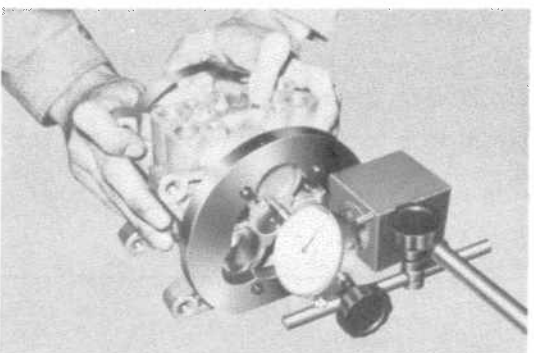
*SST 07115-25020

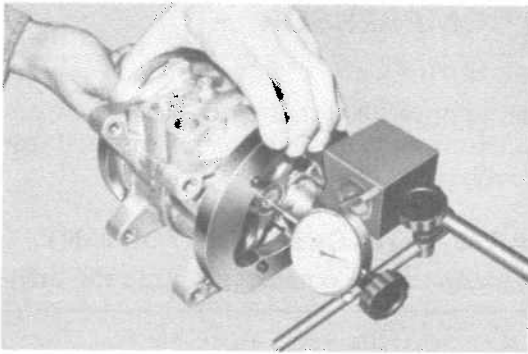
- (f) Move the piston in and out by hand. Check the clearance between the shoes and swash plate of the shaft.

**Standard clearance: 0.005 – 0.025 mm
(0.0002 – 0.0010 in.)**

- (g) Measure the shoe clearance of the other two pistons.

If the clearance is not within tolerance, replace the shoes and adjust the shoe clearance.



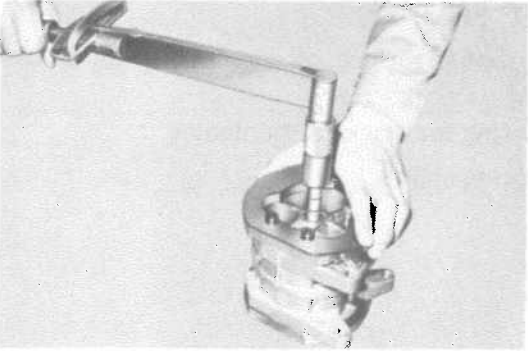


11. CHECK SHAFT CLEARANCE

- (a) Set the needle of the dial gauge on the front end of the shaft.
- (b) Move the shaft in and out along its axis. Check the shaft clearance.

Standard clearance: 0

If any clearance exists, replace the thrust bearings.

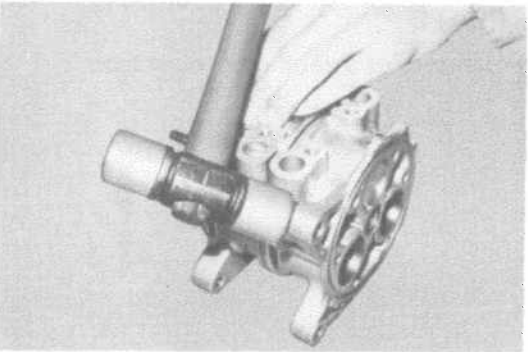


12. CHECK SHAFT ROTATING TORQUE

- (a) Install key and key installing tool* on the shaft.
*SST 07114-45010
- (b) Using a torque wrench, measure the starting torque three or four times and use the average.

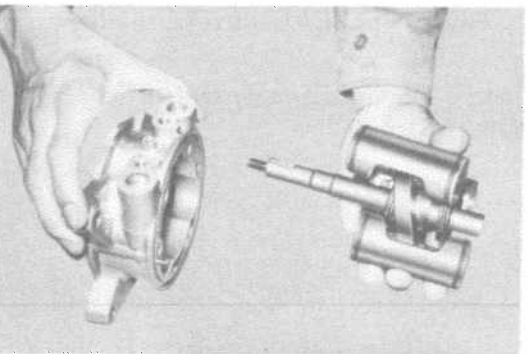
Specified starting torque: Less than 0.5 kg-m (43 in.-lb)

If the torque is not less than specified, disassemble the cylinder block and adjust the shoe clearance.

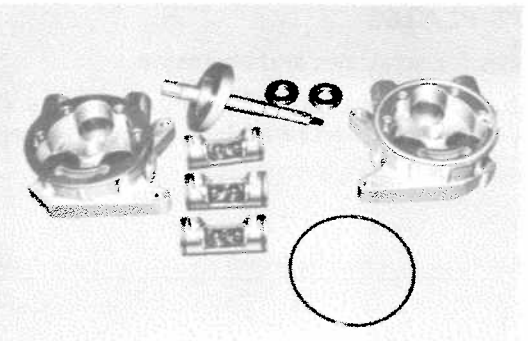


13. IF NECESSARY, DISASSEMBLE CYLINDER BLOCKS

- (a) Using a plastic hammer, carefully tap the rear half of the cylinder block to separate it from the front half.



- (b) Mark the piston heads with a felt pen to assure correct reassembly.
- (c) Remove the shaft and pistons by pushing up on the shaft.



- (d) Remove and discard the O-ring.

- (e) Remove the pistons with balls and shoes.

NOTE: Be sure not to change the combination of pistons, balls and shoes.

- (f) Remove the thrust bearings.

INSPECTION OF COMPRESSOR

1. CLEAN SLIDING SURFACES

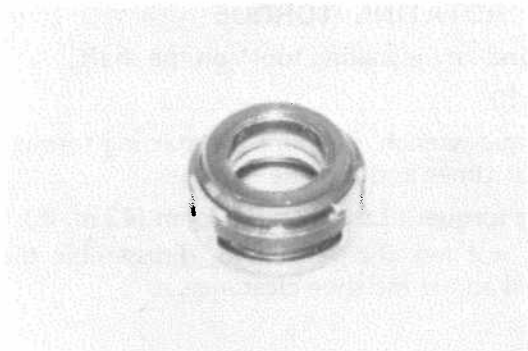
Using an oil stone, remove oil dirt and rust from the front and rear housings, front and rear cylinders, front and rear valve plates and swash plate.

2. CLEAN ALL PARTS WITH CLEANING SOLVENT

Wipe off the solvent and apply compressor oil to the disassembled parts.

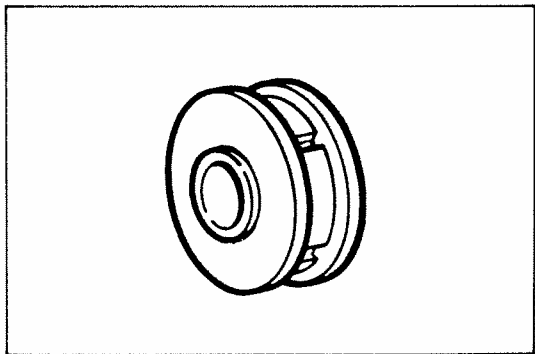
3. INSPECT SHAFT SEAL

- (a) Check the lapping surface of carbon disc for cracks or scratches.
- (b) Check the O-ring for cracks or hardening.
- (c) Check the spring action.



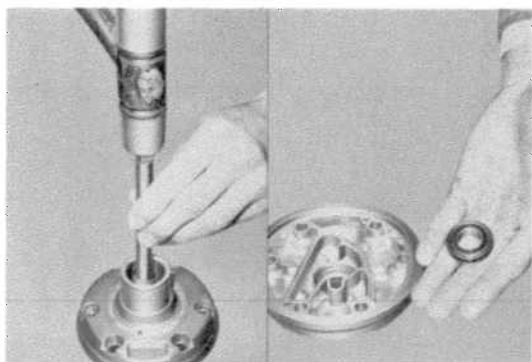
4. INSPECT SEAL PLATE

Check the sealing surfaces for scratches or corrosion.



5. IF NECESSARY, REMOVE SEAL PLATE AND RUBBER SEAL

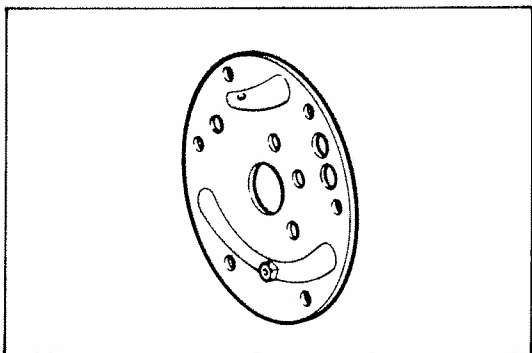
Using a hammer and a 20 mm diameter rod, drive out the seal plate and rubber seal.

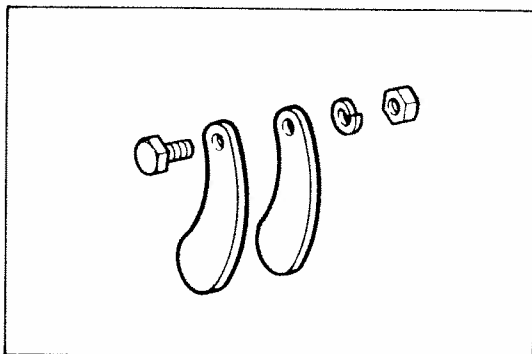


6. INSPECT VALVE PLATES

Check both surfaces for scratches and corrosion.

If plates are scratched or corroded, disassemble plates and polish them with a fine oil stone or replace them (See step 8, page 19-23).



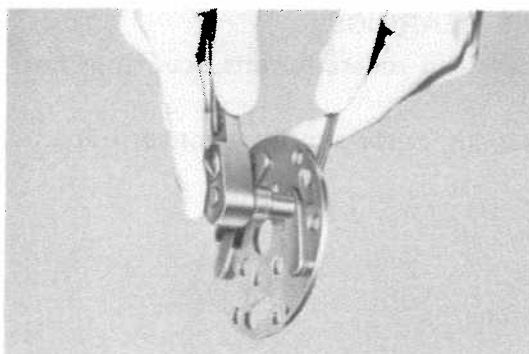


7. INSPECT REED VALVES

(a) Check the reed for cracks, scratches, deformation or corrosion.

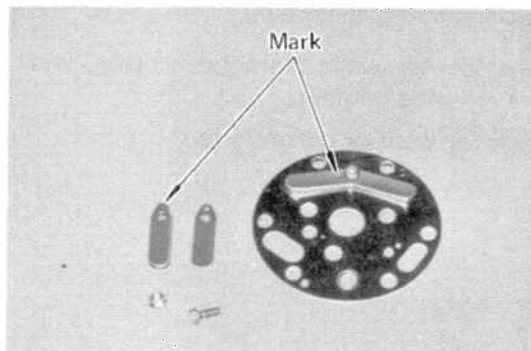
(b) Check the restrainer for deformation or corrosion.

If valves are damaged, disassemble the valve plate and replace the valves (See step 8).



8. IF NECESSARY, DISASSEMBLE AND ASSEMBLE VALVE PLATE

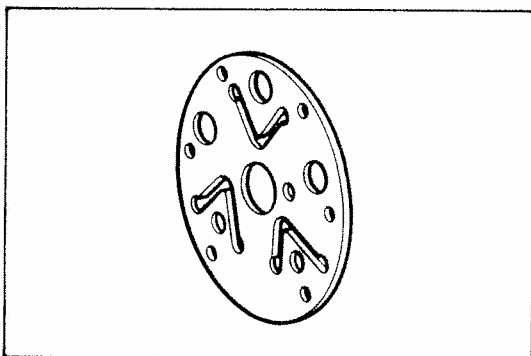
(a) Remove the restrainers and discharge reed valve from the valve plate.



(b) Assemble the reed valve and retainer on the valve plate with the mark as shown.

(c) Torque the nut and bolt.

Torque: 40 — 50 kg-cm (35 — 43 in.-lb)



9. INSPECT SUCTION VALVES

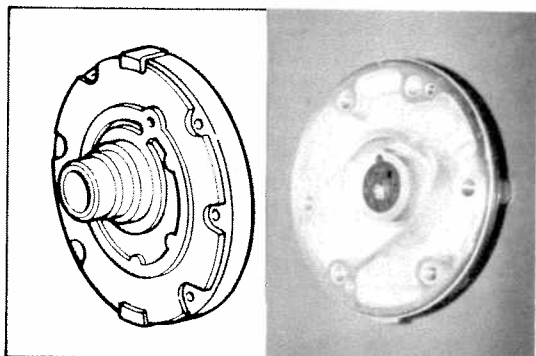
Check the reed for cracks, scratches, deformation or corrosion.

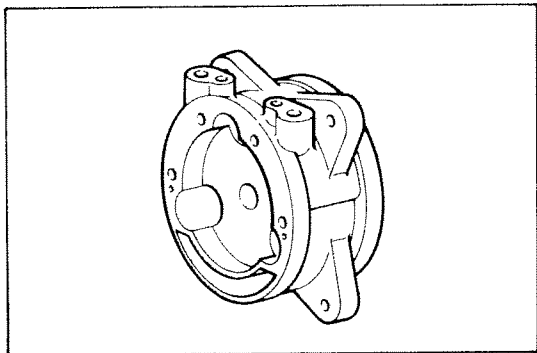
10. INSPECT FRONT AND REAR HOUSINGS

(a) Check the sealing surfaces for cracks, scratches or deformation.

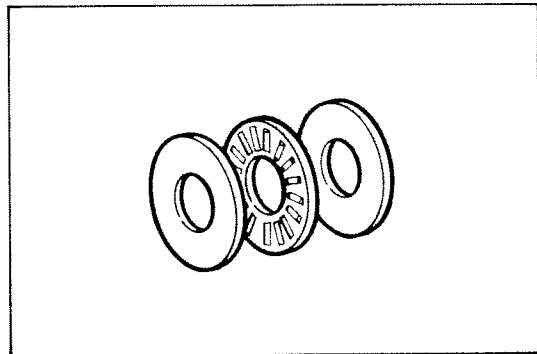
(b) Check the oil pump housing for wear or scoring.

(c) Check the oil pump for wear, scoring or corrosion.

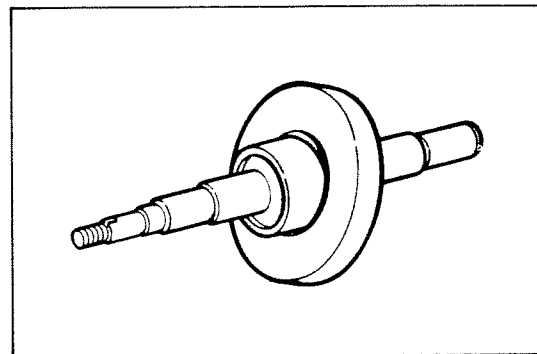


**11. INSPECT CYLINDER BLOCKS**

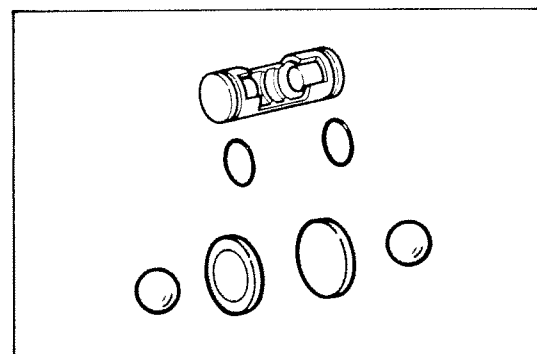
- (a) Check the cylinder bore for scratches or corrosion.
- (b) Check the radial bearings for poor contact, worn-out needle, scoring or pits.
- (c) Check the mating surfaces between the front and rear cylinder blocks for cracks or scratches.

**12. INSPECT THRUST BEARINGS**

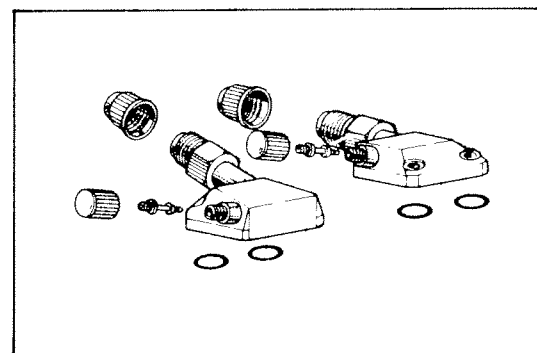
- (a) Check the races and rollers for pits, scoring or flaking.
- (b) Check the bearings for abnormal wear or corrosion.

**13. INSPECT SHAFT**

- (a) Check the surface of swash plate for scoring, wear or signs of uneven shoe contact.
- (b) Check the shaft for wear or deformation.

**14. INSPECT PISTONS, SHOES AND BALLS**

- (a) Check the machined surface for scratches or scoring.
- (b) Check the piston clearance.
- (c) Check the shoe for wear or cracks.
- (d) Check the ball for flaking or wear.

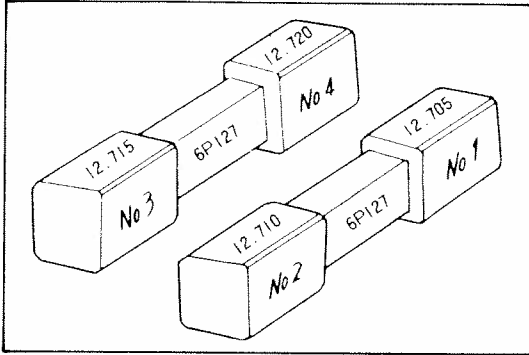
**15. INSPECT DISCHARGE AND SUCTION SERVICE VALVES**

- (a) Check the flare portion for scratches and deformation.
- (b) Check the groove for O-ring for cracks or scratches.
- (c) Check the schrader valve for gas leakage.

ASSEMBLY OF COMPRESSOR (See illustration on page 19-17)

NOTE:

- Do not reuse gaskets, O-rings or washers. Use the overhaul gasket kit.
- Before starting the assembly procedure, make sure all parts and workbench are clean.



1. ADJUST SHOE CLEARANCE

When adjusting the shoe clearance, select and use a suitable shoe gauge* according to the following selection table.

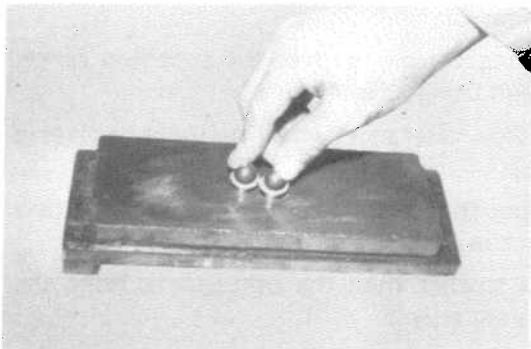
*SST 07115-15030

Shoe gauge	Applications
No. 1	When using the old shaft of which swash plate is rather worn. (See step 1 (a), page 19-26)
No. 2	When assembling the old shaft, pistons, balls and new shoes. (See step 1 (b) or 1 (d), page 19-26)
No. 3	When replacing the shaft, pistons, balls and shoes with new parts. (See step 1 (c), page 19-26)
No. 4	When adjusting the shoe clearances with No. 3 gauge if shaft rotating torque of compressor is larger than standard.

NOTE:

- When checking the shoe clearance, coat the shoes and shoe gauge with compressor oil.

Compressor oil: **DENSOIL 6, SUNISO No. 5GS, or equivalent**



- When honing the shoe faces, lubricate the oil stone with compressor oil.

- (a) Adjust the shoe clearance when using the old shaft of which swash plate is rather worn.
- Using a No. 1 gauge, attempt to fit the gauge between the shoes on all pistons.
 - If the gaps are smaller than the No. 1 gauge, adjust the gaps to fit by honing the shoe face until the gauge fits.
 - Repeat this operation until all fits are equal.
 - Temporarily assemble the cylinder, then check the shaft rotating torque (See steps 2 and 3, page 19-27).

If the shaft rotating torque is within the specified range, assemble the compressor.

If the shaft rotating torque is over the specified range, repeat this operation using No. 2 gauge.

- (b) Adjust the shoe clearance when replacing shoes and/or balls.
- Using a No. 2 gauge, attempt to fit the gauge between the shoes on all pistons.
 - If the gaps are smaller than the No. 2 gauge, adjust the gaps to fit by honing the shoe face until the gauge fits.
 - Repeat this operation until all fits are equal.
 - Temporarily assemble the cylinder, then check the shaft rotating torque (See steps 2 and 3, page 19-27).

If the shaft rotating torque is within the specified range, assemble the compressor.

If the shaft rotating torque is over the specified range, repeat this operation using a No.3 or No.4 gauge.

- (c) Adjust the shoe clearance when replacing the shaft, pistons, balls and shoes.
- Using a No. 3 gauge, attempt to fit the gauge between the shoes on all pistons.
 - If the gaps are smaller than the No. 3 gauge, adjust the gaps to fit by honing the shoe face until the gauge fits.
 - Repeat this operation until all fits are equal.
 - Temporarily assemble the cylinder, then check the shaft rotating torque (See steps 2 and 3, page 19-27).

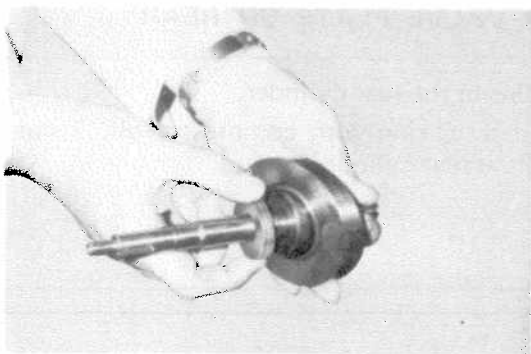
If the shaft rotating torque is within the specified range, assemble the compressor.

If the shaft rotating torque is over the specified range, repeat this operation using a No.4 gauge.

- (d) Adjust the shoe clearance when partially replacing shoes or balls.

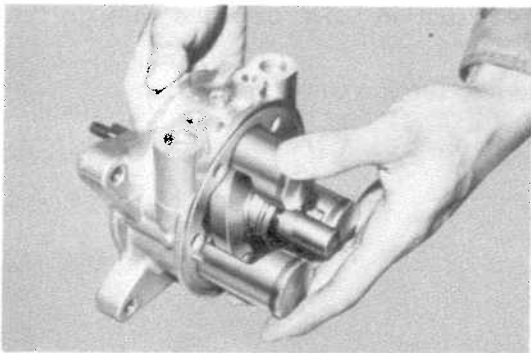
After replacing the shoes or balls, measure the new gaps between the shoes.

If the new gap is smaller than the other gaps, hone the shoes until all gaps are equal.



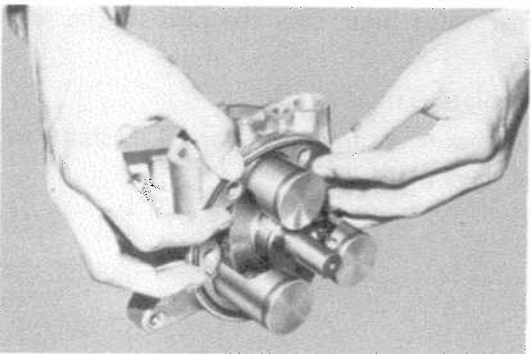
2. ASSEMBLE CYLINDER BLOCK

- (a) Lubricate the swash plate of the shaft, thrust bearings, pistons, balls, shoes and radial bearings of cylinder with clean compressor oil.
- (b) Install the thrust bearings on the shaft.

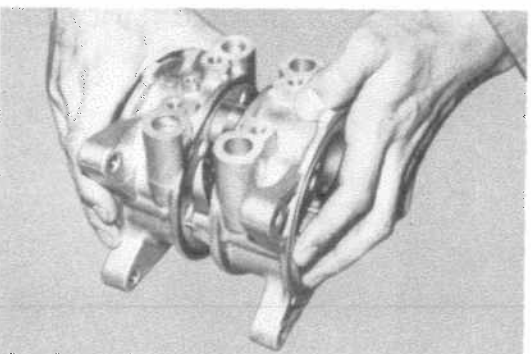


- (c) Install the pistons on the swash plate of the shaft.
- (d) Insert the shaft and piston assemblies into the front cylinder.

NOTE: Make sure the pistons are inserted in their cylinders marked during disassembly.



- (e) Lubricate a new O-ring with compressor oil. Install the O-ring in the front cylinder.

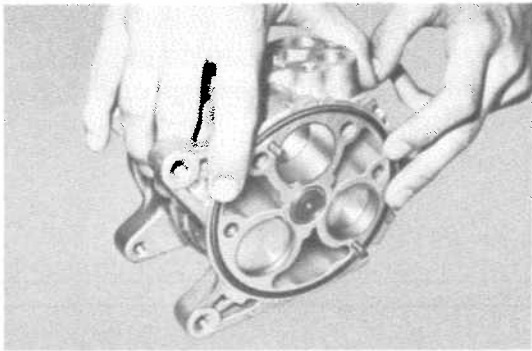


- (f) Assemble the rear and front cylinders.

3. CHECK SHOE CLEARANCE, SHAFT CLEARANCE AND SHAFT ROTATING TORQUE

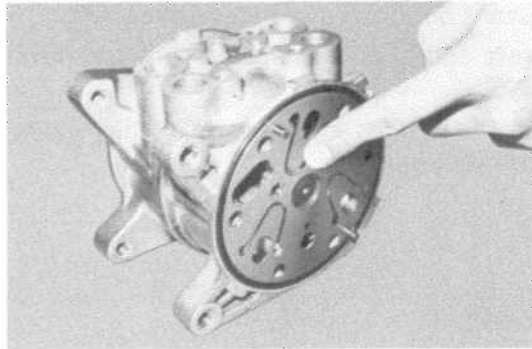
Perform steps 10 through 12, page 19-20.

Adjust the shoe clearance as necessary.



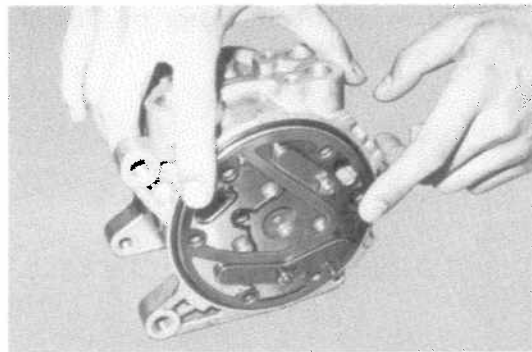
4. INSTALL REAR VALVE PLATE ON REAR CYLINDER

- (a) Install two pins in the rear cylinder.
- (b) Lubricate a new O-ring with compressor oil. Install the O-ring in the rear cylinder.



- (c) Install the rear suction valve over the pins on the rear cylinder.

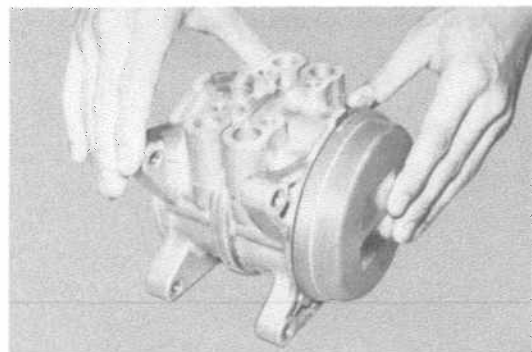
NOTE: Front and rear suction valves are the same.



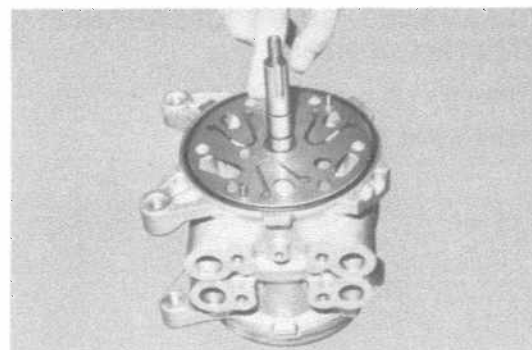
- (d) Install the rear valve plate over the pins on the rear cylinder.

NOTE: Rear valve plate is marked "R".

- (e) Lubricate the gasket with compressor oil. Install the gasket on the valve plate.

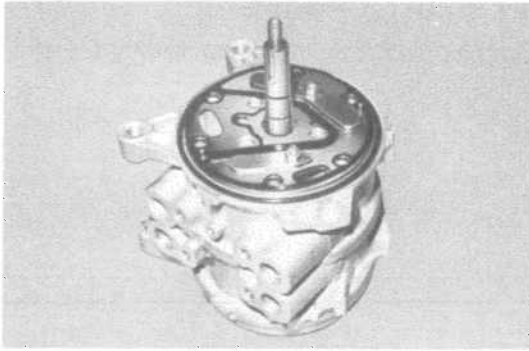


5. INSTALL REAR HOUSING ON REAR CYLINDER



6. INSTALL FRONT VALVE PLATE ON FRONT CYLINDER

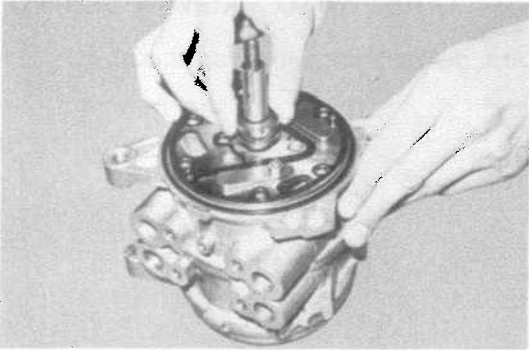
- (a) Install two pins in the front cylinder.
- (b) Lubricate a new O-ring with compressor oil. Install the O-ring in the rear housing.
- (c) Install the front suction valve over the pins on the front cylinder.



- (d) Install front valve plate over the pins on the front cylinder.

NOTE: The front valve plate is marked "F".

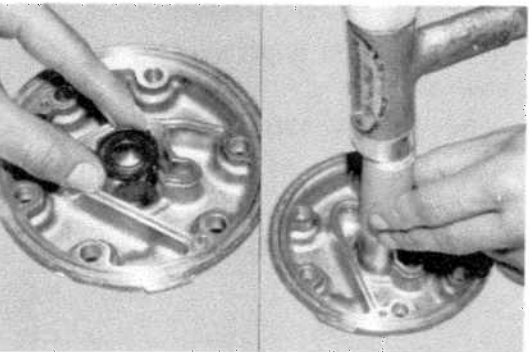
- (e) Lubricate the gasket with compressor oil. Install the gasket on the valve plate.



7. INSTALL SHAFT SEAL

- (a) Lubricate the shaft seal with compressor oil. Install the shaft seal on the shaft.
- (b) Lubricate the carbon ring with compressor oil. Install the carbon ring on the shaft.

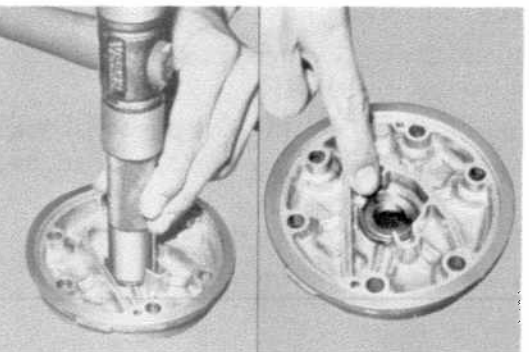
NOTE: Do not touch the seal surface of the carbon ring with your fingers.



8. IF SEAL PLATE WAS REMOVED, INSTALL NEW RUBBER SEAL AND SEAL PLATE

- (a) Using a driver* and plastic hammer, tap in the new rubber seal.

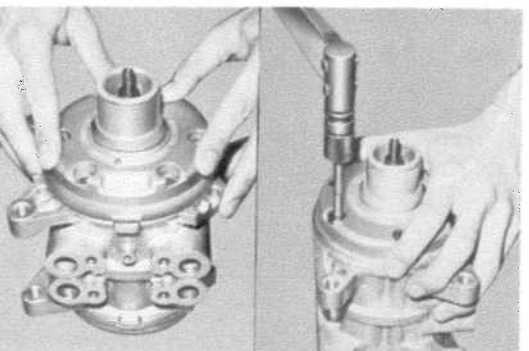
*SST 07114-34010 or Commercial driver



- (b) Lubricate the seal plate and new O-ring with compressor oil. Install the seal plate and O-ring in the front housing with your fingers.

- (c) Using a plastic hammer and driver*, tap in the seal plate.

*SST 07114-35010 or Commercial driver

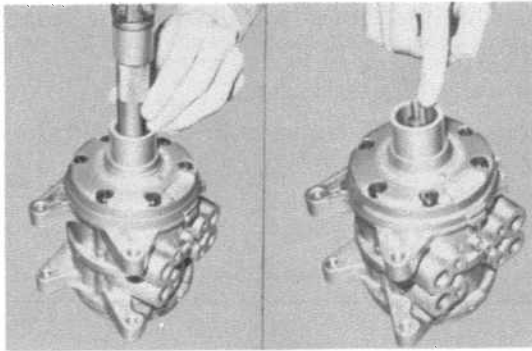


9. INSTALL FRONT HOUSING ON FRONT CYLINDER AND TIGHTEN SIX THROUGH BOLTS

Using a torque wrench and hexagon wrench*, gradually tighten six through bolts in two or three passes.

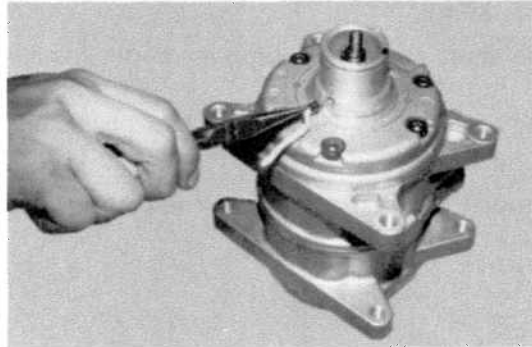
*SST 07110-61050 or Commercial wrench

Torque: 250 – 270 kg-cm (18.1 – 19.5 ft-lb)

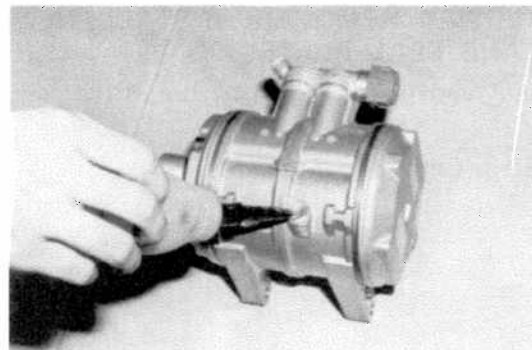
**10. INSTALL KEY IN SHAFT GROOVE**

Using a plastic hammer and key installing tool*, tap the key lightly.

*SST 07114-45010

**11. INSTALL NEW OIL GUIDE INTO FRONT HOUSING**

Using pliers, push the oil guide into the front housing.

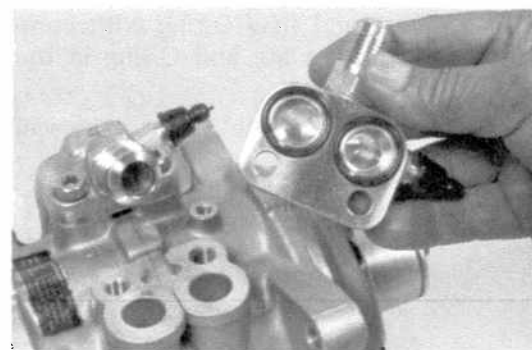
**12. POUR COMPRESSOR OIL INTO COMPRESSOR**

Compressor oil: **DENSOIL 6, SUNISO No.5GS, or equivalent**

Compressor oil capacity: **100 – 130 cc (3.4 – 4.4 oz)**

After filling with compressor oil, install the oil plug using a torque wrench.

Torque: 100 – 140 kg-cm (8 – 10 ft-lb)

**13. INSTALL SERVICE VALVES**

(a) Lubricate the new O-rings with compressor oil. Install the O-rings in the service valves.

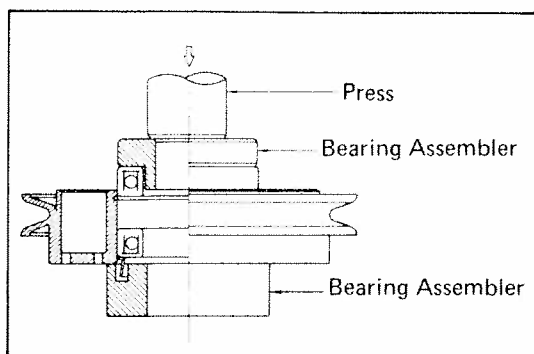
(b) Install the service valves on the compressor. Using a torque wrench and hexagon wrench*, tighten the bolts.

Torque: 250 – 270 kg-cm (18.1 – 19.5 ft-lb)

*SST 07110-61050 or Commercial wrench

**14. CHECK SHAFT ROTATING TORQUE**

Perform step 12, page 19-21.



ASSEMBLY OF MAGNETIC CLUTCH (See illustration on page 19-15)

1. INSTALL TWO BEARINGS IN ROTOR

- (a) Using two bearing assemblers*, press a shield ring and two new bearings into the rotor boss until fully seated.

*SST 07110-77011 or Commercial assemblers

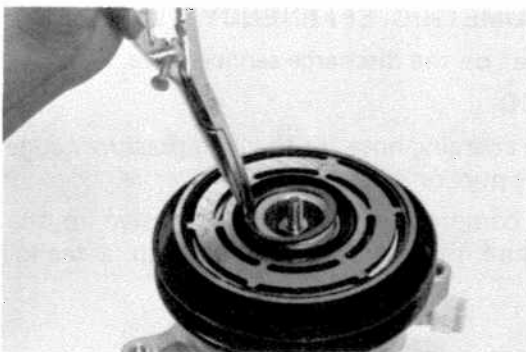
- (b) Install the bearing snap ring into the rotor groove.

2. INSTALL STATOR

- (a) Install the stator on the compressor.
- (b) Using snap ring pliers*, install the snap ring.

*SST 07110-77011 or Commercial pliers

- (c) Connect the stator lead wires to the compressor housing.



3. INSTALL ROTOR

- (a) Install the rotor on the compressor shaft.
- (b) Using snap ring pliers*, install the snap ring.

*SST 07110-77011 or Commercial pliers

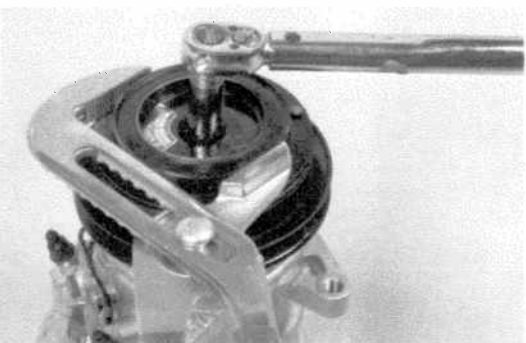


4. INSTALL PRESSURE PLATE

- (a) Adjust the clearance between the pressure plate and rotor by placing the shims on the compressor shaft.

Standard clearance: 0.4 – 0.7 mm (0.016 – 0.028 in.)

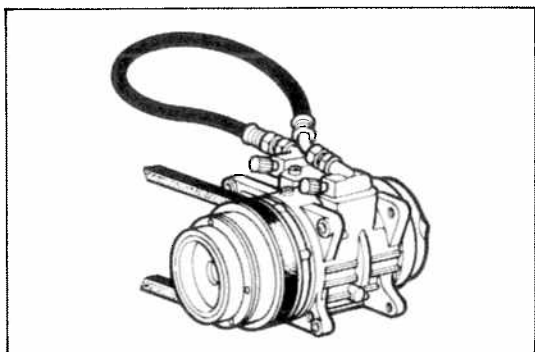
If the clearance is not within tolerance, add or reduce the number of shims to obtain the standard clearance.



- (b) Using a torque wrench and holding bar*, install the shaft nut.

*SST 07110-77011 or Commercial bar or pliers

Torque: 150 – 175 kg-cm (11 – 12 ft-lb)



PERFORMANCE TEST OF COMPRESSOR

1. PERFORM BREAK-IN OF COMPRESSOR

- (a) Set up the compressor on a test bench or mount it on the engine.
- (b) Connect a flexible hose to the discharge and suction service valves.

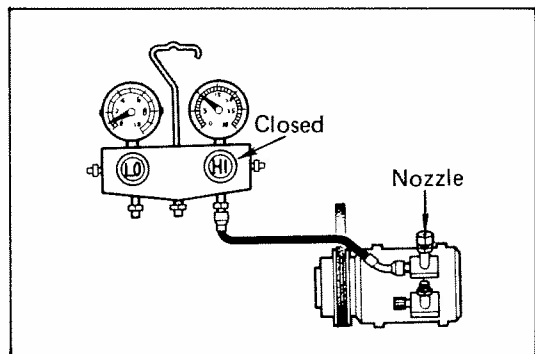
Torque: Discharge side 200 – 250 kg-cm (15 – 18 ft-lb)
Suction side 300 – 350 kg-cm (22 – 25 ft-lb)

- (c) Engage the magnetic clutch and rotate the compressor for 15 minutes at less than 1,000 rpm.

CAUTION: Never rotate the compressor over 1,000 rpm to prevent overheating.

- (d) While the compressor is rotating, check for unordinary sounds.

If necessary, disassemble and check the compressor.

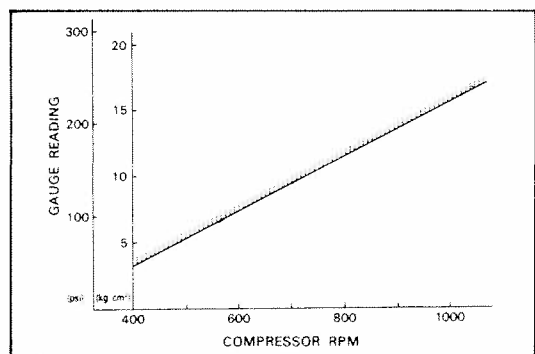


2. PERFORM VOLUMETRIC EFFICIENCY TEST

- (a) Install nozzle* on the discharge service valve.

*SST 07115-71010

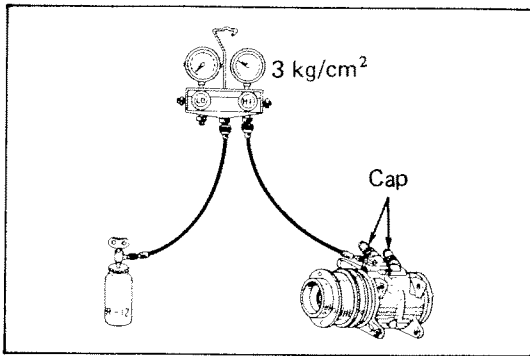
- (b) Connect the charging hose for the high pressure gauge to the service port on the valve.
- (c) Rotate the compressor in the range shown in the figure. Measure the compressor rpm with a tachometer.



- (d) After the compressor has reached constant speed (approx. 10 sec.), check the reading on the high pressure gauge for each rpm. The gauge reading should be in the hatched area shown.

If the reading is below, disassemble the compressor and check for a faulty valve plate, reed or gasket.

If the reading is above, check the nozzle hole for small particles.



3. PERFORM GAS LEAKAGE TEST

- (a) Put caps on both service valves.
- (b) Charge the compressor with refrigerant through the charging valve until the pressure is 3 kg/cm² (43 psi).
- (c) Using gas leak detector, check the compressor for leaks.

If leaks are found, check and replace the gasket, O-ring or shaft seal.

4. FILL COMPRESSOR WITH CLEAN COMPRESSOR OIL

- (a) Remove the service valve and drain the compressor oil.
- (b) Fill with new oil.

Compressor oil: DENSOIL 6, SUNISO No. 5GS or equivalent.

Compressor oil capacity: 155 — 185 cc (5.2 — 6.3 oz)

5. EVACUATE COMPRESSOR AND CHARGE WITH REFRIGERANT (See page 19-6)

Make sure caps are tight and free from moisture and contaminants.

NOTE: When storing a compressor for an extended period, charge the compressor with refrigerant or dry nitrogen gas to prevent corrosion.

INSTALLATION OF COMPRESSOR (See illustration on page 19-14)

1. INSTALL COMPRESSOR WITH MOUNTING BOLTS
2. INSTALL DRIVE BELT (See page 4-43)
3. CONNECT TWO FLEXIBLE HOSES TO COMPRESSOR SERVICE VALVES

Torque: Discharge line 200 — 250 kg-cm (15 — 18 ft-lb)
Suction line 300 — 350 kg-cm (22 — 25 ft-lb)

4. CONNECT CLUTCH LEAD WIRE TO WIRING HARNESS
5. CONNECT NEGATIVE CABLE TO BATTERY
6. EVACUATE AND CHARGE AIR CONDITIONING SYSTEM (See page 19-6)

CONDENSER

(See illustration on page 19-12)

ON-VEHICLE INSPECTION

1. CHECK CONDENSER FINS FOR BLOCKAGE AND DAMAGE

If the fins are clogged, wash them with water and dry with compressed air.

CAUTION: Be careful not to damage the fins.

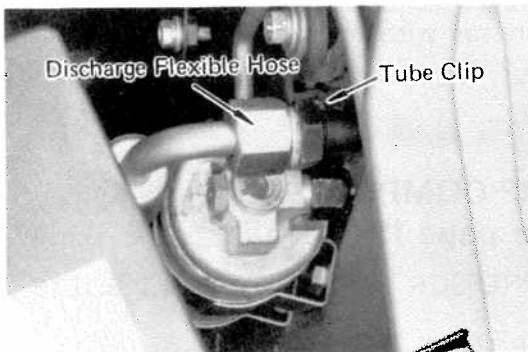
If the fins are bent, straighten them with a screwdriver or pliers.

2. CHECK CONDENSER FITTINGS FOR LEAKAGE

Repair as necessary.

REMOVAL OF CONDENSER

1. DISCHARGE REFRIGERANT VERY SLOWLY FROM SYSTEM (See page 19-5)
2. REMOVE FRONT GRILLE
3. DISCONNECT DISCHARGE FLEXIBLE HOSE FROM CONDENSER INLET FITTING



4. DISCONNECT LIQUID LINE TUBE FROM CONDENSER OUTLET FITTING

Disconnect the liquid line tube and remove the tube clip.

NOTE: Cap the open fittings immediately to keep moisture out of the system.

5. REMOVE CONDENSER

Remove four bolts.

INSTALLATION OF CONDENSER

1. INSTALL CONDENSER

Install four bolts making sure the rubber cushions fit on the mounting flanges correctly.

2. CONNECT LIQUID LINE TUBE AND DISCHARGE FLEXIBLE HOSE TO CONDENSER

Torque: Liquid line tube

120 — 150 kg-cm (9 — 11 ft-lb)

Discharge flexible hose

200 — 250 kg-cm (15 — 18 ft-lb)

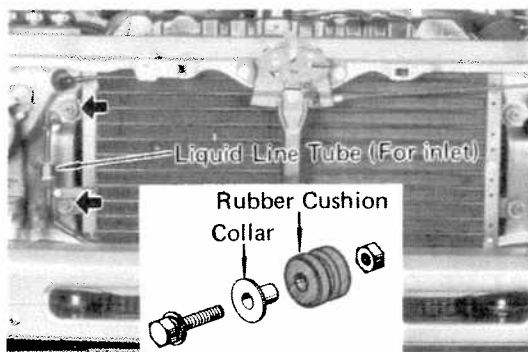
Install the tube clip.

3. INSTALL FRONT GRILLE

4. IF CONDENSER IS REPLACED, ADD COMPRESSOR OIL TO COMPRESSOR

Add 40 — 50 cc (1.4 — 1.7 oz)

5. EVACUATE, CHARGE AND TEST AIR CONDITIONING SYSTEM (See page 19-6)



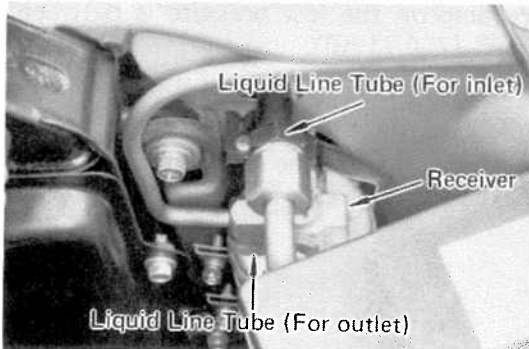
RECEIVER

(See illustration on page 19-12)

ON-VEHICLE INSPECTION

CHECK SIGHT GLASS, FUSIBLE PLUG AND FITTINGS FOR LEAKAGE

Use a gas leak tester. Repair as necessary.



REMOVAL OF RECEIVER

1. DISCHARGE REFRIGERANT VERY SLOWLY FROM SYSTEM (See page 19-5)

2. DISCONNECT TWO LIQUID LINE TUBES FROM RECEIVER

NOTE: Cap the open fittings immediately to keep moisture out of the system.

3. REMOVE RECEIVER FROM RECEIVER HOLDER

INSTALLATION OF RECEIVER

1. INSTALL RECEIVER IN RECEIVER HOLDER

NOTE: Do not remove the blind plugs until ready for connection.

2. CONNECT TWO LIQUID LINE TUBES TO RECEIVER

Torque: 120 – 150 kg-cm (9 – 11 ft-lb)

3. IF RECEIVER IS REPLACED, ADD COMPRESSOR OIL TO COMPRESSOR

Add 20 cc (0.7 oz)

4. EVACUATE, CHARGE AND TEST AIR CONDITIONING SYSTEM (See page 19-6)

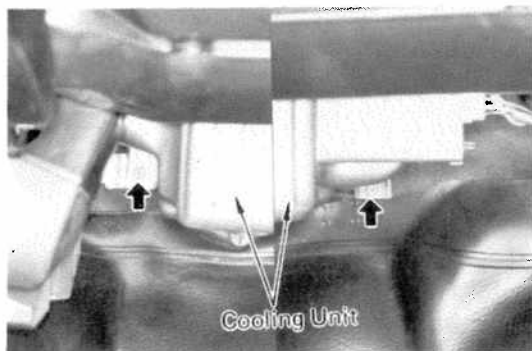
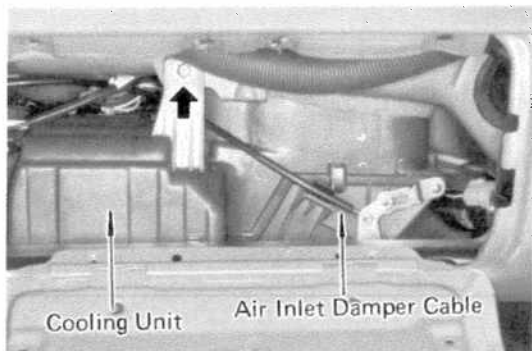
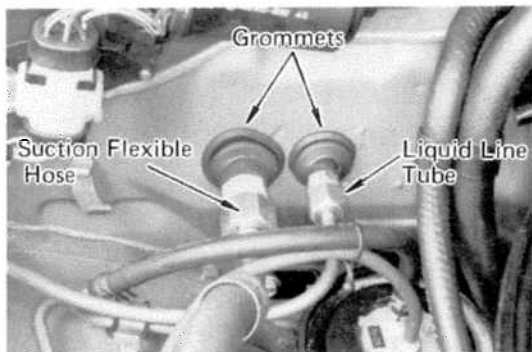
COOLING UNIT (See illustration on page 19-12)

ON-VEHICLE INSPECTION OF EXPANSION VALVE

1. CONNECT MANIFOLD GAUGE TO COMPRESSOR
2. CHECK EXPANSION VALVE OPERATION
 - (a) Run the engine at fast idle with the air conditioning ON.
 - (b) Check that reading on the low pressure is between $0.5 - 5.0 \text{ kg/cm}^2$ (7 - 71 psi).

If the reading is too low, check and replace the expansion valve and/or receiver.

If the reading is too high, tighten the remote bulb holders and/or replace the expansion valve.



REMOVAL OF COOLING UNIT

1. DISCONNECT NEGATIVE CABLE FROM BATTERY
2. DISCHARGE REFRIGERANT VERY SLOWLY FROM SYSTEM (See page 19-5)
3. DISCONNECT SUCTION FLEXIBLE HOSE FROM COOLING UNIT OUTLET FITTING
4. DISCONNECT LIQUID LINE TUBE FROM COOLING UNIT INLET FITTING

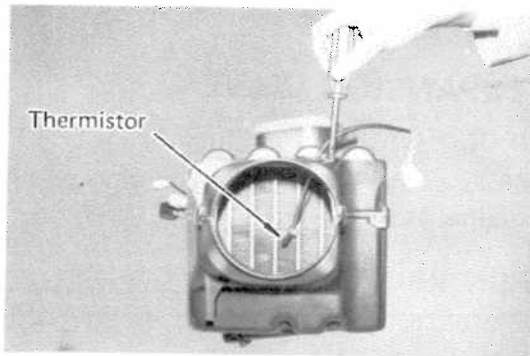
NOTE: Cap the open fittings immediately to keep moisture out of the system.

5. REMOVE GROMMETS FROM INLET AND OUTLET FITTINGS
6. REMOVE FOLLOWING COMPONENTS:
 - (a) Glove box assembly
 - (b) Side air duct
 - (c) Air inlet damper cable
7. REMOVE COOLING UNIT
Remove three bolts.
8. REMOVE IDLING STABILIZER AMPLIFIER

DISASSEMBLY OF COOLING UNIT

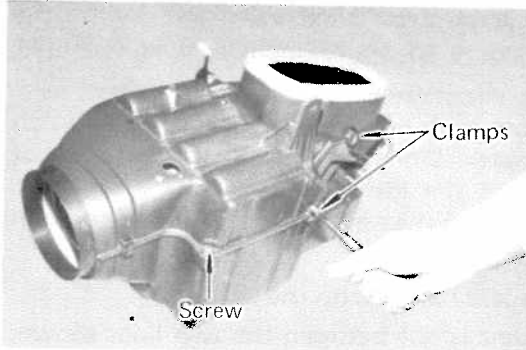
1. REMOVE THERMISTOR

Unscrew the tapping screws.

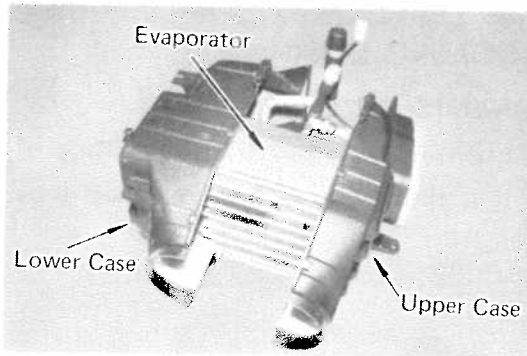


2. REMOVE UPPER AND LOWER CASES FROM EVAPORATOR

(a) Remove seven clamps and two screws.



(b) Remove upper and lower cases from the evaporator.



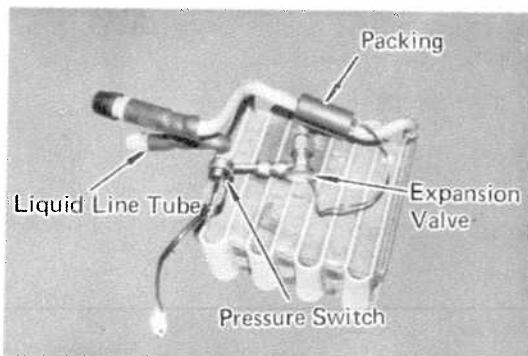
3. REMOVE COMPONENTS FROM EVAPORATOR

(a) Disconnect the liquid line tube from inlet fitting of the expansion valve.

(b) Remove the packing and the clamp fastening the remove bulb.

(c) Disconnect the expansion valve from the inlet fitting of the evaporator.

(d) Remove the pressure switch, if required.



Evaporator

INSPECTION OF EVAPORATOR

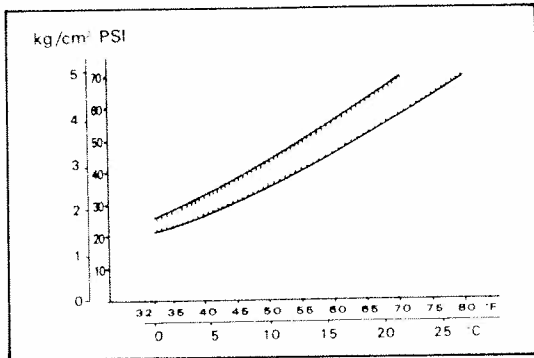
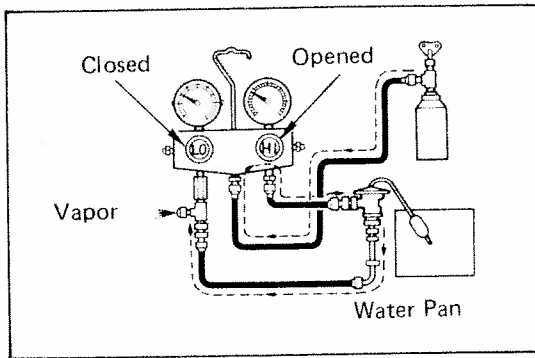
1. CHECK EVAPORATOR FINS FOR BLOCKAGE

If the fins are clogged, clean them with compressed air.

CAUTION: Never use water to clean the evaporator.

2. CHECK FITTINGS FOR CRACKS OR SCRATCHES

Repair as necessary.



Expansion Valve

INSPECTION OF EXPANSION VALVE

1. CONNECT MANIFOLD GAUGE

Connect the manifold gauge set to the expansion valve and refrigerant container as shown.

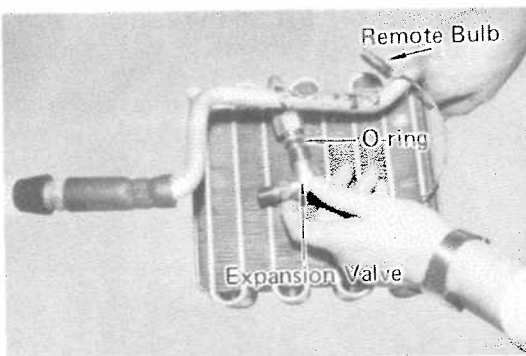
2. CHECK EXPANSION VALVE

- Close both manifold gauge hand valves.
 - Pierce the refrigerant container to release the pressure.
 - Open the high pressure hand valve and adjust the high side pressure to approximately 5 kg/cm² (71 psi).
 - Dip the remote bulb of the expansion valve in a pan filled with water. While varying the temperature of the water, read the low pressure gauge and at the same time measure the temperature of the water with a thermometer.
 - Compare the two readings on the chart.
- If the crossing point is not between the two lines shown, replace the expansion valve.

ASSEMBLY OF COOLING UNIT

1. INSTALL COMPONENTS ON EVAPORATOR

- Connect the expansion valve to the inlet fitting of
- NOTE: Be sure that the O-ring is positioned on tube fitting.



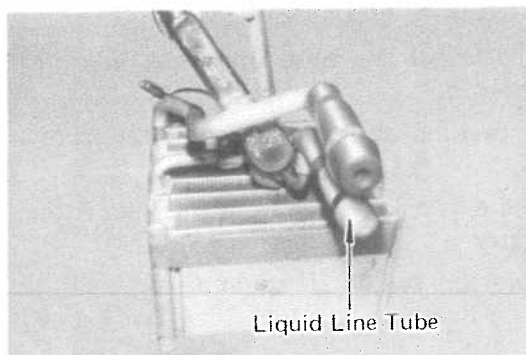
- Connect the liquid line tube to the inlet fitting of the expansion valve. Torque the nut.

Torque: 120 – 150 kg-cm (9 – 10 ft-lb)

- Install the pressure switch, if removed.

Torque: 120 – 150 kg-cm (9 – 10 ft-lb)

- Install the clamp fastening the remove bulb and packing.



2. INSTALL UPPER AND LOWER CASES ON THE EVAPORATOR

3. INSTALL COVER AND THERMISTOR

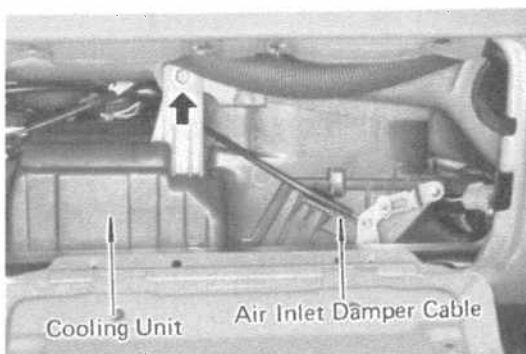
INSTALLATION OF COOLING UNIT

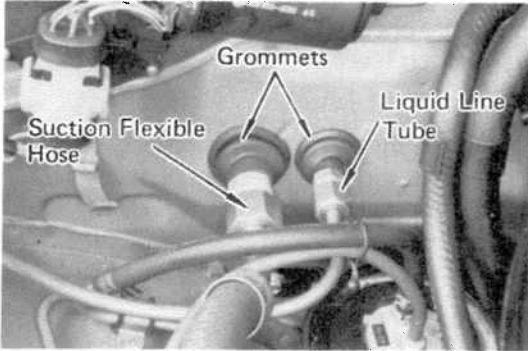
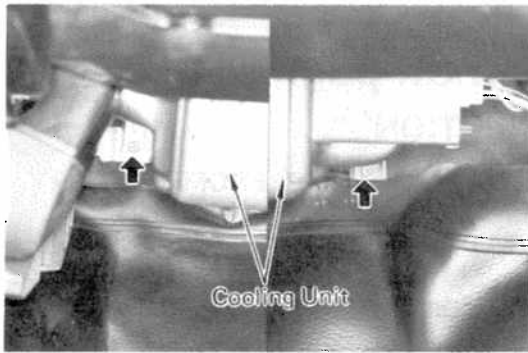
1. INSTALL IDLING STABILIZER AMPLIFIER

2. INSTALL COOLING UNIT

Install the cooling unit with three bolts.

CAUTION: Be careful not to pinch the wiring harness while installing the cooling unit.





3. **INSTALL FOLLOWING COMPONENTS:**
 - (a) Air inlet damper cable
 - (b) Side air duct
 - (c) Glove box assembly
4. **INSTALL GROMMETS ON INLET AND OUTLET FITTINGS**
5. **CONNECT LIQUID LINE TUBE TO COOLING UNIT INLET FITTING**
Torque: 120 – 150 kg-cm (9 – 11 ft-lb)
6. **CONNECT SUCTION FLEXIBLE HOSE TO COOLING UNIT OUTLET FITTING**
Torque: 300 – 350 kg-cm (22 – 25 ft-lb)
7. **IF EVAPORATOR IS REPLACED, ADD COMPRESSOR OIL TO COMPRESSOR**
Add 40 – 50 cc (1.4 – 1.7 oz)
8. **CONNECT NEGATIVE CABLE TO BATTERY**
9. **EVACUATE, CHARGE AND TEST AIR CONDITIONING SYSTEM (See page 19-6)**

REFRIGERANT LINES

(See illustration on page 19-12)

ON-VEHICLE INSPECTION

1. **INSPECT HOSES AND TUBES FOR LEAKAGE**
Use a gas leak tester. Replace, if necessary.
2. **CHECK THAT HOSE AND TUBE CLAMPS ARE NOT LOOSE**
Tighten or replace, as necessary.

REPLACEMENT OF REFRIGERANT LINES

1. **DISCHARGE REFRIGERANT VERY SLOWLY FROM SYSTEM (See page 19-5)**
2. **REPLACE FAULTY TUBE OR HOSE**
NOTE: Cap the open fittings immediately to keep moisture out of the system.
O-ring fittings are used at the tube and hose connections. Tighten the connections at the specified torque.

Tightening torque for O-ring fitting

Fitting size	Torque
3/8 in. tube for liquid line	120 – 150 kg-cm (9 – 11 ft-lb)
1/2 in. tube for discharge line	200 – 250 kg-cm (15 – 18 ft-lb)
5/8 in. tube for suction line	300 – 350 kg-cm (22 – 25 ft-lb)

3. **EVACUATE, CHARGE AND TEST AIR CONDITIONING SYSTEM (See page 19-6)**

A/C CONTROL SWITCH (See illustration on page 19-12)

ON-VEHICLE INSPECTION

1. DISCONNECT NEGATIVE CABLE FROM BATTERY
2. REMOVE ASH TRAY AND AIR DUCT (LEFT SIDE)
3. DISCONNECT A/C CONTROL SWITCH CONNECTOR
4. CHECK A/C CONTROL SWITCH OPERATION

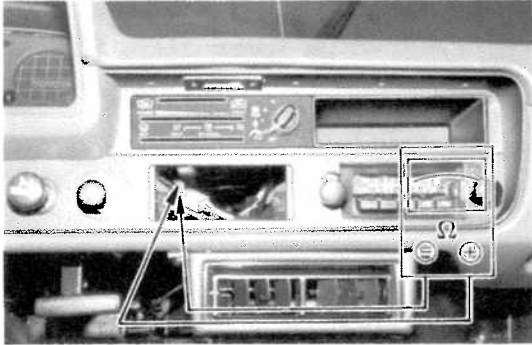
(a) Using an ohmmeter, check for infinity when placing the A/C control switch lever at "OFF" position.

If not, replace the A/C control switch.

(b) Using an ohmmeter, measure the resistance of A/C control switch while sliding the control lever from "A/C" position to "COOL" position. Check that the reading decreases smoothly from 3 kilo-ohm to zero ohm.

If abnormal, replace the A/C control switch.

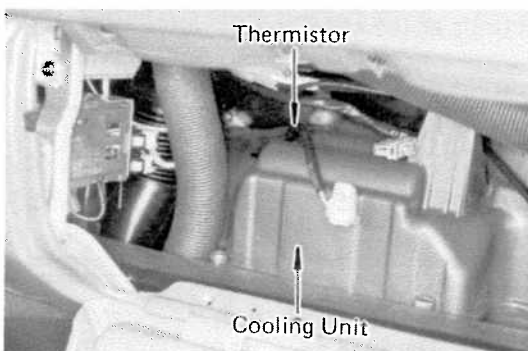
5. CONNECT A/C CONTROL SWITCH CONNECTOR
6. INSTALL ASH TRAY AND AIR DUCT (LEFT SIDE)
7. CONNECT NEGATIVE CABLE TO BATTERY

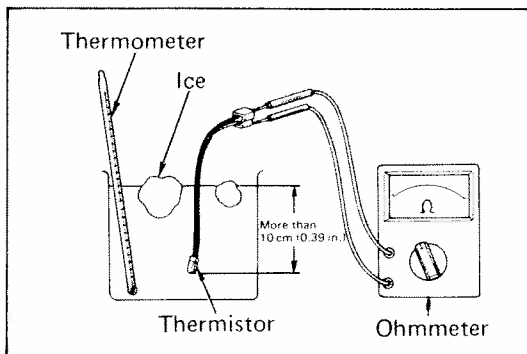


THERMISTOR (See illustration on page 19-12)

REMOVAL OF THERMISTOR

1. DISCONNECT NEGATIVE CABLE FROM BATTERY
2. REMOVE GLOVE BOX
3. REMOVE THERMISTOR
 - (a) Disconnect connector.
 - (b) Remove screw and thermistor from cooling unit.





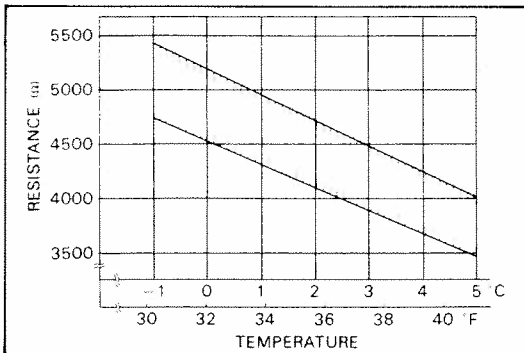
INSPECTION OF THERMISTOR

CHECK THERMISTOR OPERATION

- (a) Place the thermistor in cold water. While varying the temperature of the water, measure the resistance at the connector and at the same time, measure the temperature of the water with a thermometer.

- (b) Compare the two readings on the chart.

If the crossing point is not between the two lines shown, replace the thermistor.



INSTALLATION OF THERMISTOR

1. INSTALL THERMISTOR

- (a) Install the thermistor with a screw.
- (b) Connect connector

2. INSTALL UNDERTRAY

3. CONNECT NEGATIVE CABLE TO BATTERY

BLOWER RESISTOR

(See illustration on page 19-12)

ON-VEHICLE INSPECTION

1. DISCONNECT NEGATIVE CABLE FROM BATTERY

2. REMOVE ASH TRAY

3. DISCONNECT BLOWER RESISTOR CONNECTOR

4. CHECK RESISTANCE OF BLOWER RESISTOR

- (a) Using an ohmmeter, measure the resistance between HI and M2.

Resistance: 0.5 Ω

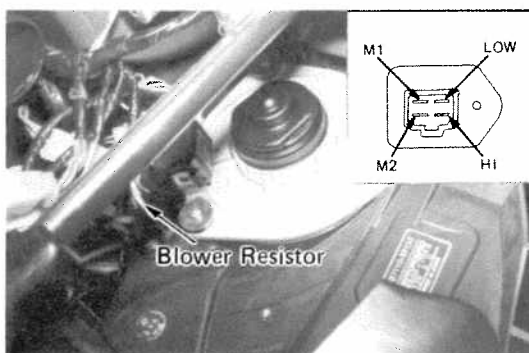
- (b) Using an ohmmeter, measure the resistance between M2 and M1.

Resistance: 1.5 Ω

- (c) Using an ohmmeter, measure the resistance between M1 and LOW.

Resistance: 3.2 Ω

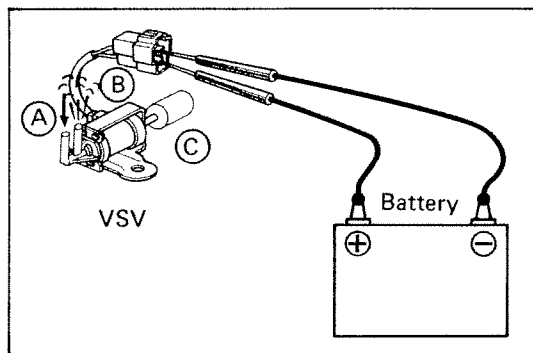
If defective, replace the blower resistor.



VACUUM SWITCHING VALVE(VSV) (See illustration on page 19-12)

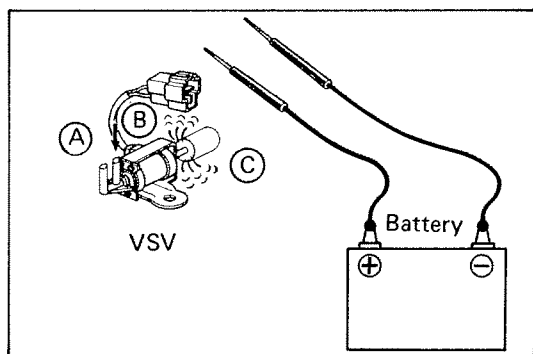
INSPECTION OF VSV

1. DISCONNECT VACUUM HOSES AND CONNECTOR FROM VSV



2. CHECK VACUUM CIRCUIT CONTINUITY IN VSV BY BLOWING AIR INTO PIPE

- (a) Connect the VSV terminals to the battery terminals as shown.
- (b) Blow into pipe (A) , and check that air comes out of pipe (B) .



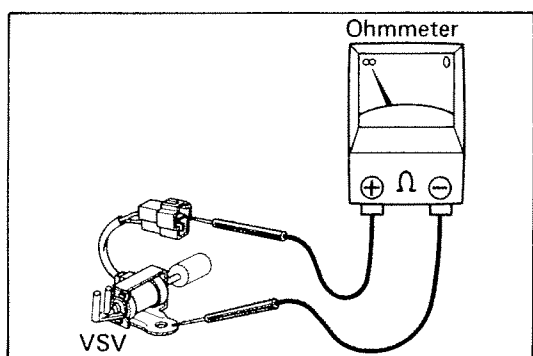
- (c) Disconnect the battery.
- (d) Blow into pipe (B) and check that air comes out of filter (C) — not out of pipe (A) .

If a problem is found, replace the VSV.

3. CHECK FOR SHORT-CIRCUIT

Using an ohmmeter, check that there is no continuity between each terminal and the VSV body.

If a short circuit is found, repair or replace the VSV.

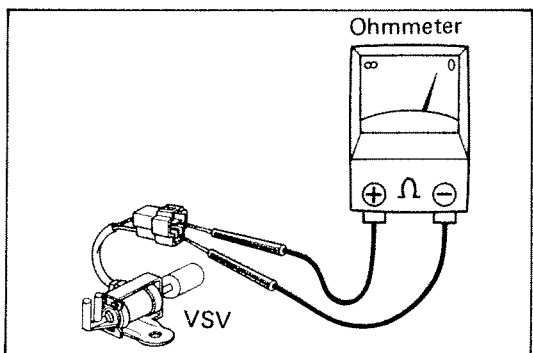


4. CHECK FOR OPEN CIRCUIT

Using an ohmmeter, measure the resistance between two terminals of the VSV.

Specified resistance: 38 — 43 Ω at 20°C (68°F)

If the resistance is not within specification, replace the VSV.



IDLING STABILIZER AMPLIFIER (See illustration on page 19-12)

INSPECTION OF IDLING STABILIZER AMPLIFIER

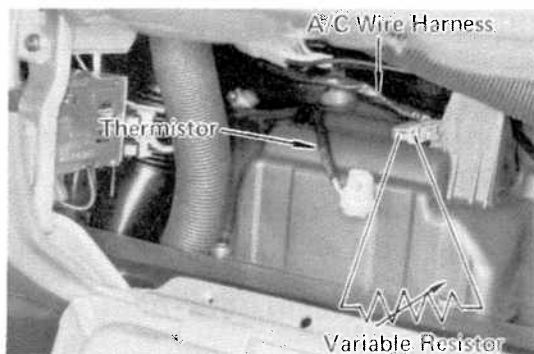
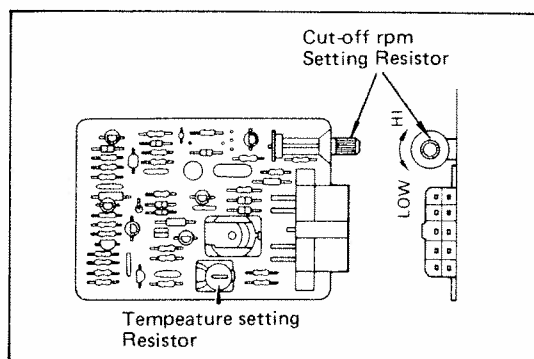
1. CHECK ENGINE SPEED DETECTING CIRCUIT

- (a) Run the engine, and operate the air conditioner.
- (b) Check that the magnetic clutch disengages at the specific engine revolution.

Cut-off rpm: 700 – 800 rpm

If the cut-off rpm is too high, turn the rpm knob counter-clockwise to adjust the cut-off point.

If the cut-off rpm is too low, turn the rpm knob clockwise to adjust the cut-off point.



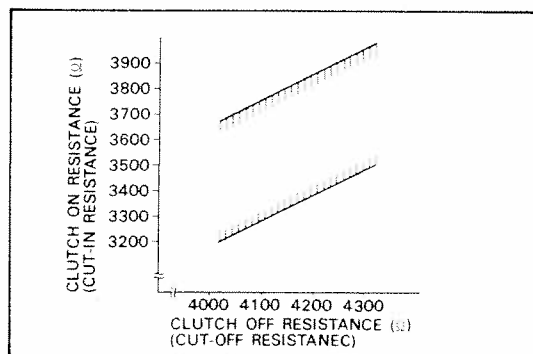
2. CHECK TEMPERATURE DETECTING CIRCUIT

- (a) Remove the glove box.
- (b) Disconnect the thermistor connector and connect variable resistor.
- (c) Run the engine and operate the air conditioner to get maximum cooling.
 - Air intake control: RECIRC
 - Air flow control: VENT
 - Temperature control: COOL
 - Blower control: HI
- (d) Measure the resistance of the variable resistor when the magnetic clutch cuts-off and cuts-in.

If the resistance is not between the two lines shown, adjust the amplifier.

If the cut-off or cut-in resistance is too high, turn the TEMP adjusting screw clockwise.

If the resistance is too low or the evaporator is frosted, turn the TEMP adjusting screw counterclockwise until the magnetic clutch engages at the standard resistance.



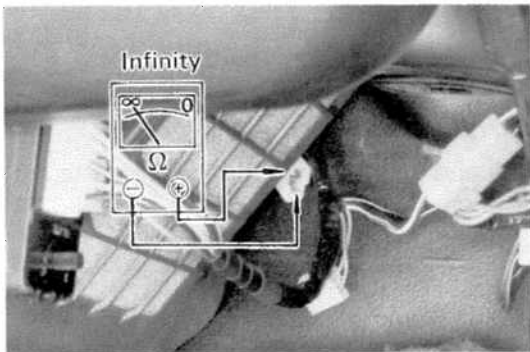
PRESSURE SWITCH (See illustration on page 19-12)

INSPECTION OF PRESSURE SWITCH

1. CHECK REFRIGERANT PRESSURE

- (a) Connect the hoses of the manifold gauge set to the compressor service valves and observe the gauge reading.
- (b) The gauge reading must be more than 2.11 kg/cm² (30 psi) when the ambient temperature is higher than 0°C (32°F).

If the pressure is less than 2.11 kg/cm² (30 psi), charge the refrigerant. (See page 19-6)



2. CHECK PRESSURE SWITCH

- (a) Disconnect the lead wires of pressure switch.
- (b) Using an ohmmeter, check the continuity between two terminals of the pressure switch. The ohmmeter must indicate zero ohm.

If there is no continuity, replace the pressure switch. (See page 19-37)

3. REINSTALL REMOVED PARTS IN REVERSE ORDER

THERMO SWITCH (For 4-wheels drive model only)

INSPECTION OF THERMO SWITCH

1. CHECK THERMO SWITCH

- (a) Disconnect the lead wire of thermo switch.
- (b) Using an ohmmeter, check the continuity between the terminal of thermo switch and ground. The ohmmeter must indicate zero ohm when engine coolant temperature is less than 101°C (213°F).

If there is no continuity, replace the thermo switch.

2. REINSTALL REMOVED PARTS IN REVERSE ORDER

