COMPRESSOR

On-Vehicle Inspection (Magnetic Clutch)

INSPECT MAGNETIC CLUTCH FOR FOLLOWING

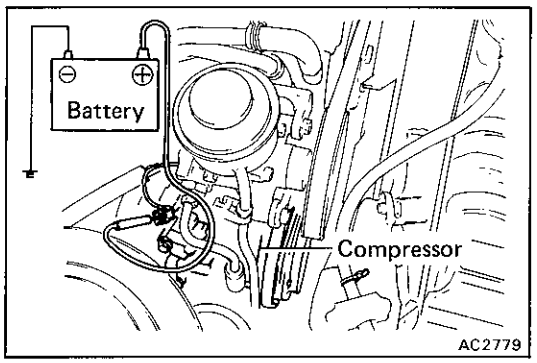
(a) Inspect the pressure plate and the rotor for signs of oil.

(b) Check the clutch bearings for noise and grease leakage.

(c) Connect the positive (+) lead from the battery to the terminal on the magnetic clutch connector and the negative (—) lead to the body ground.

(d) Check that the magnetic clutch is energized.

If the magnetic clutch is not energized, replace the magnetic clutch.



(Compressor)

1. **INSTALL MANIFOLD GAUGE SET**
(See page AC-19)

2. **RUN ENGINE AT APPROX. 2,000 RPM**

3. **INSPECT COMPRESSOR FOR FOLLOWING**

(a) High pressure gauge reading is not lower and low pressure gauge reading is not higher than normal.

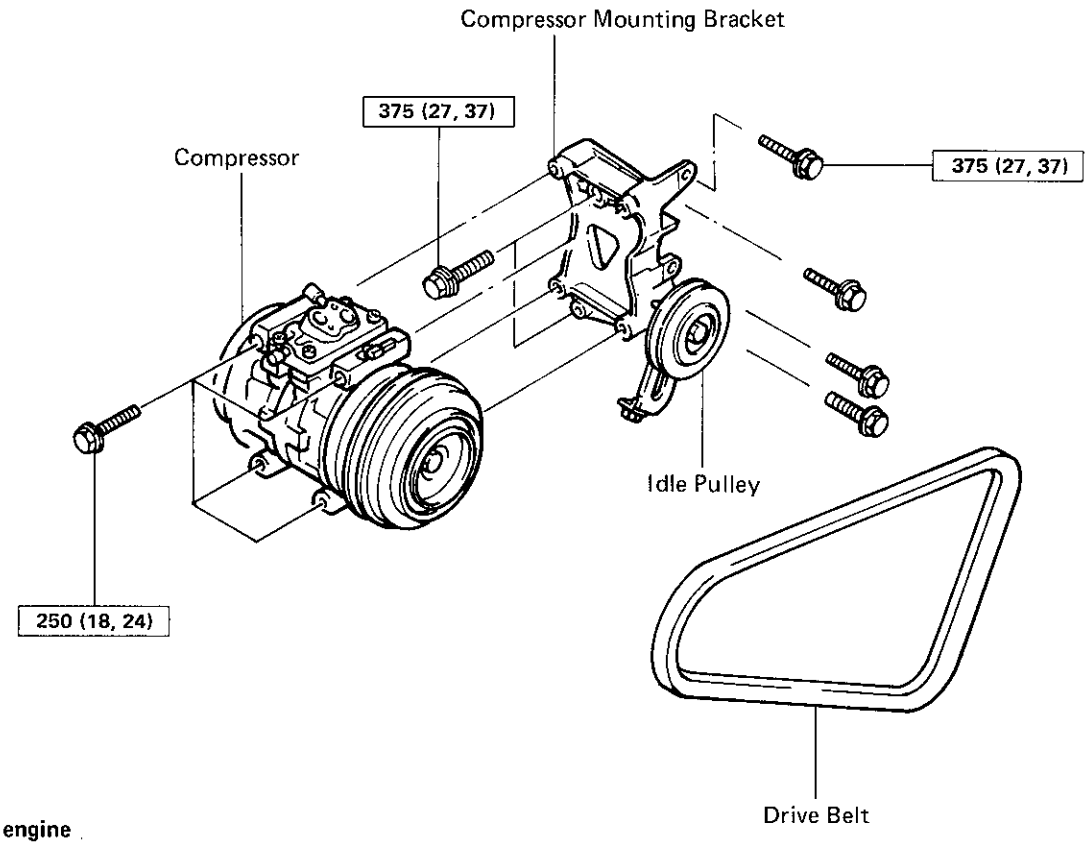
(b) Check that the metallic sound.

(c) Check that the leakage from shaft seal.

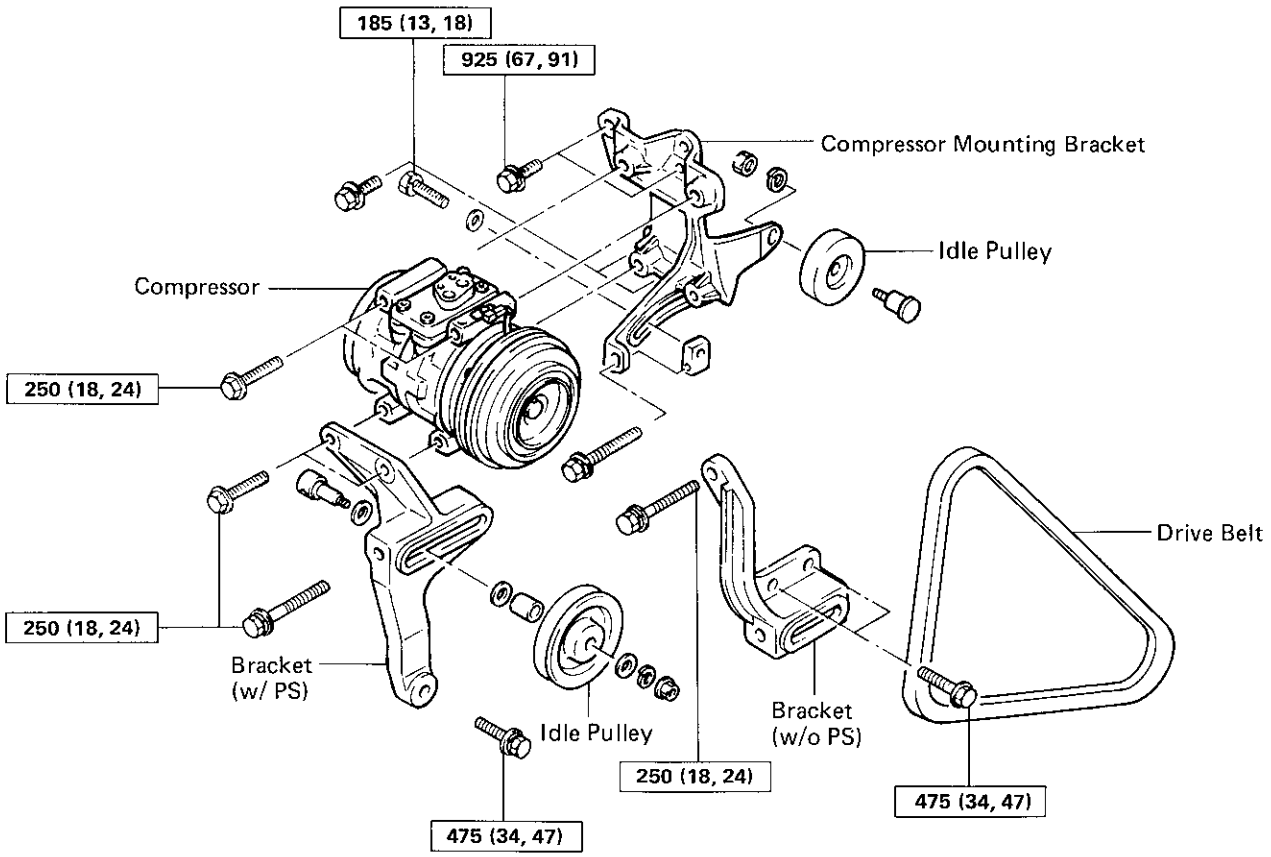
If defects are found, replace the compressor.

COMPONENTS

22R engine



2L-T, 3L engine

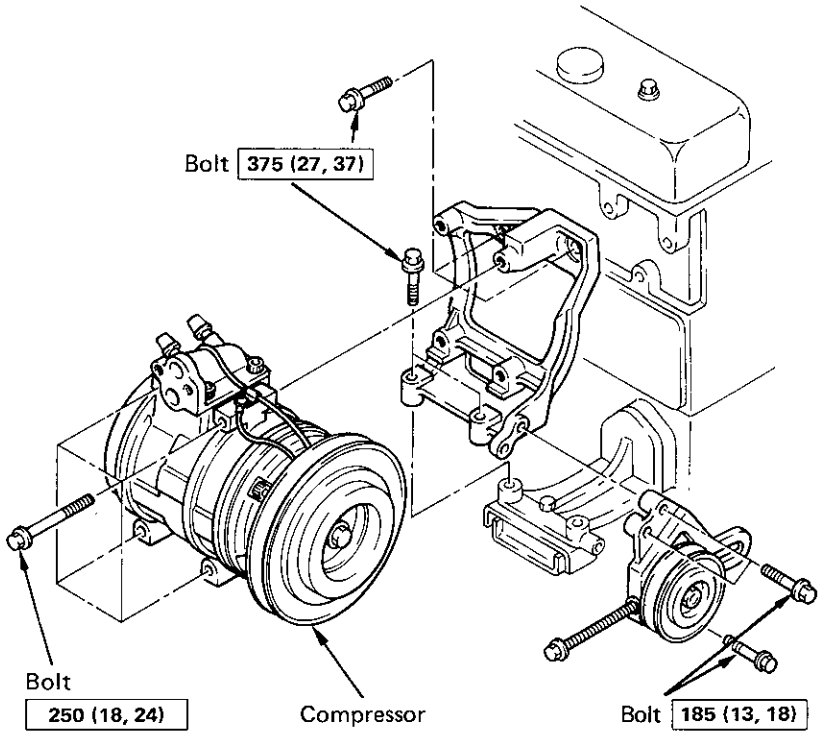


kg-cm (ft-lb, N·m) : Specified torque

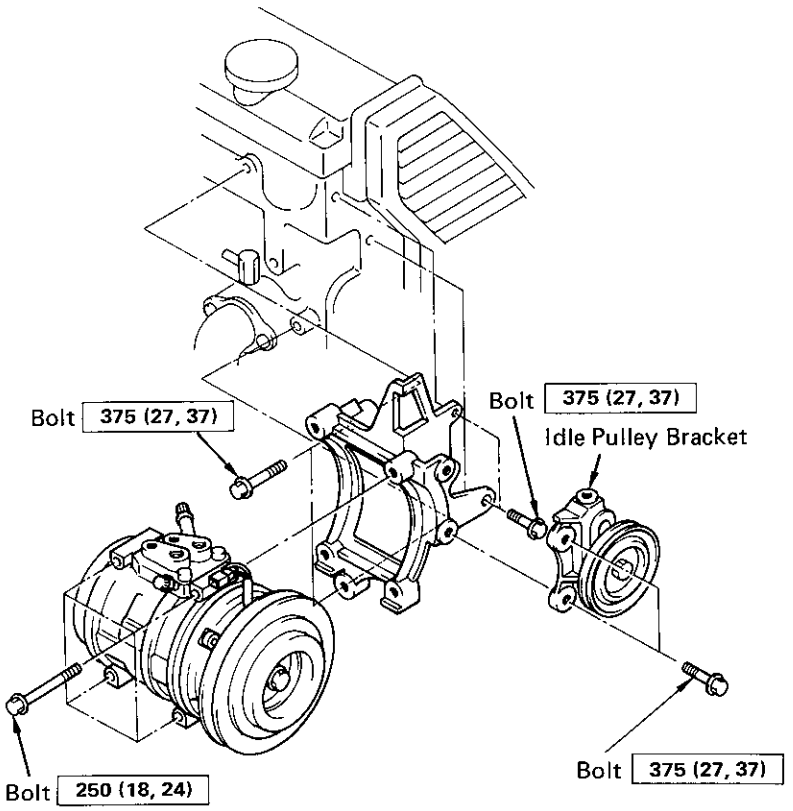
AC2791
AC2792

COMPONENTS (CONT'D)

3F engine

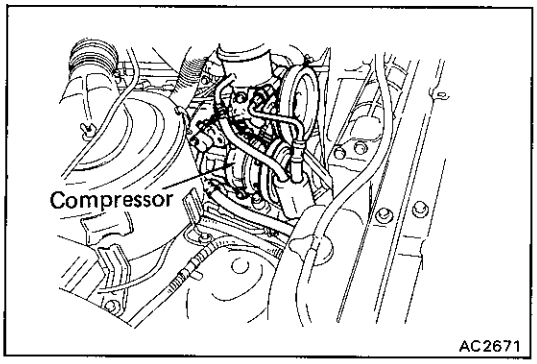


1PZ, 1HZ engine



kg-cm (ft-lb, N·m) : Specified torque

AC2793
AC2794

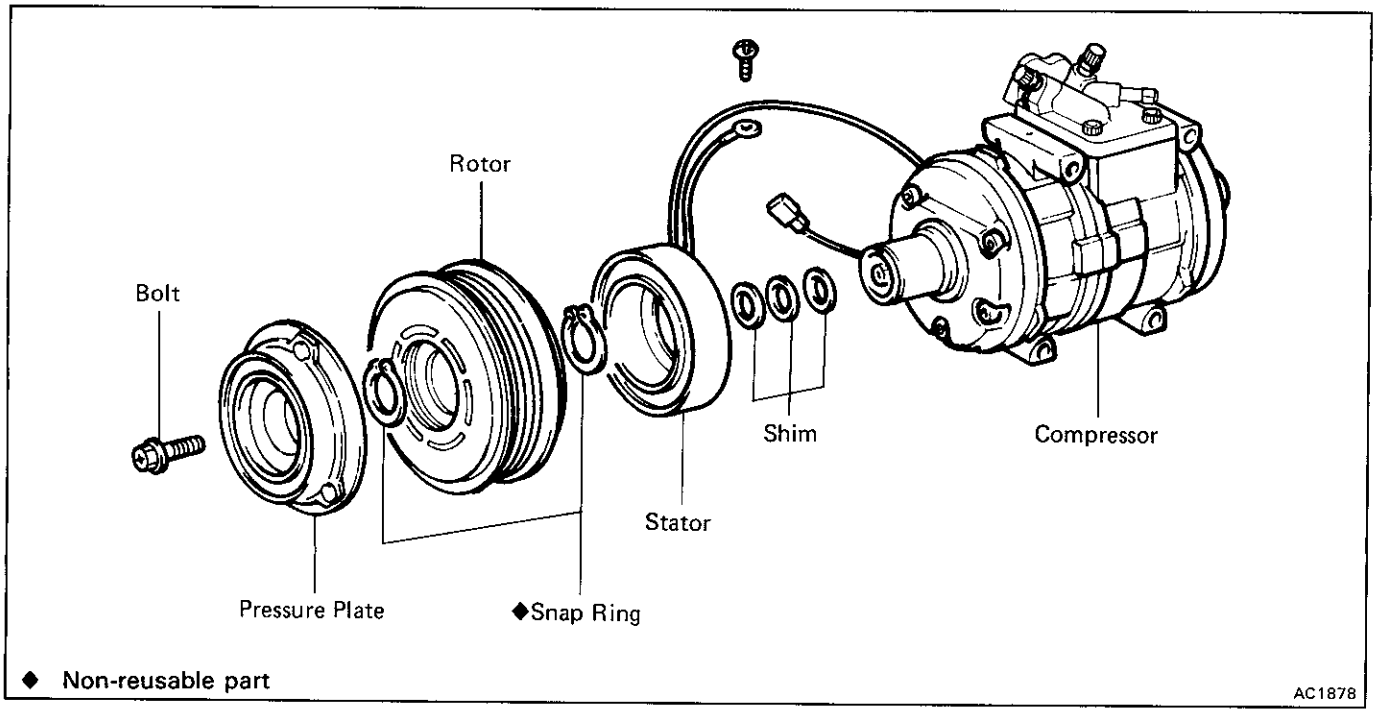


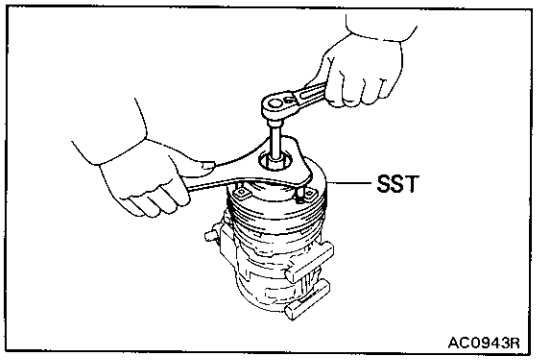
1. **RUN ENGINE AT IDLE WITH A/C ON FOR TEN MINUTES**
2. **STOP ENGINE**
3. **DISCONNECT NEGATIVE CABLE FROM BATTERY**
4. **REMOVE UNDER COVER**
5. **DISCONNECT CONNECTOR FROM MAGNETIC CLUTCH**
6. **DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM**
7. **DISCONNECT TWO HOSES FROM COMPRESSOR SERVICE VALVES**

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

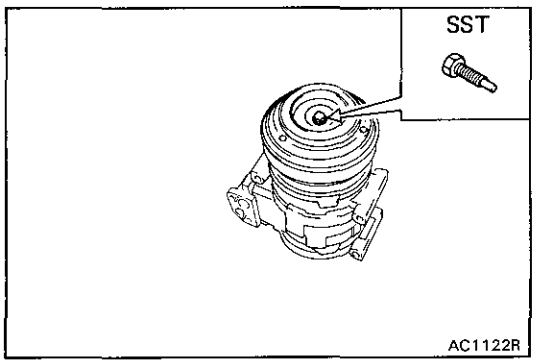
8. **REMOVE COMPRESSOR**
   (a) Loosen the drive belt.
   (b) Remove the compressor mounting bolts and the compressor.

DISASSEMBLY OF MAGNETIC CLUTCH

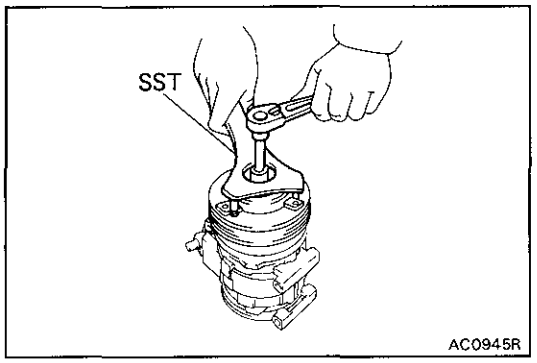




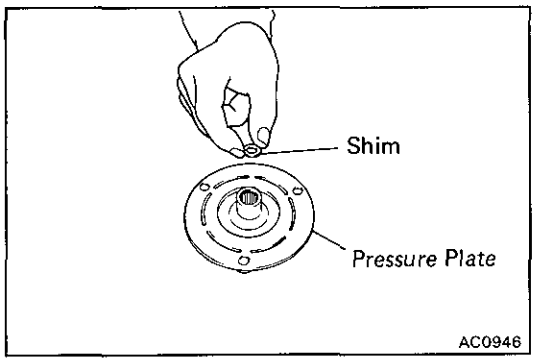
1. **REMOVE PRESSURE PLATE**
   (a) Using SST, remove the shaft bolt.
   SST 07112-76060



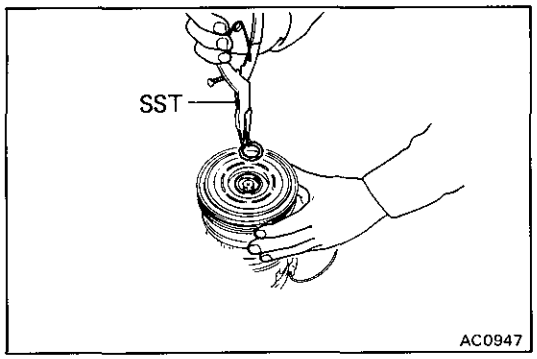
(b) Install SST to the pressure plate.
SST 07112-66040



(c) Using SST, remove the pressure plate.
SST 07112-76060

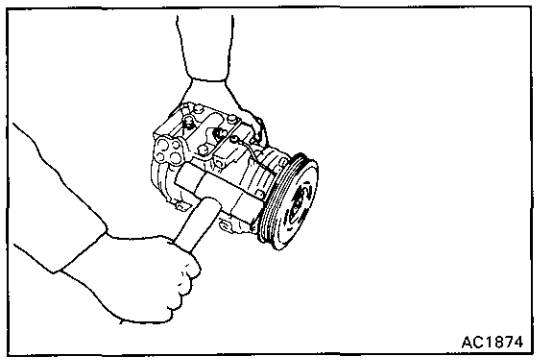


(d) Remove the shims from the pressure plate.



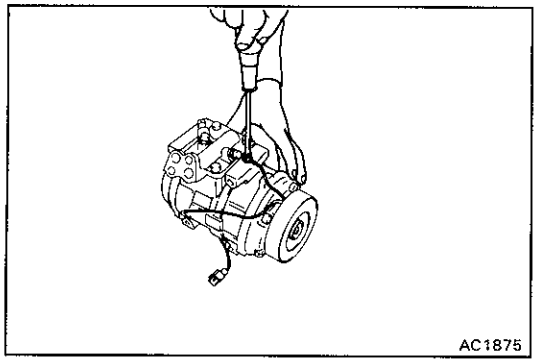
2. REMOVE ROTOR

(a) Using SST, remove the snap ring.
SST 07114-84020



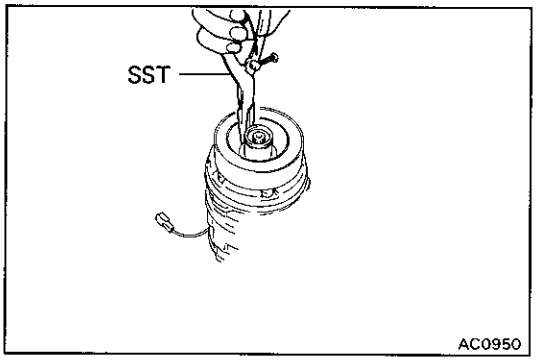
(b) Using a plastic hammer, tap the rotor off the shaft.

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



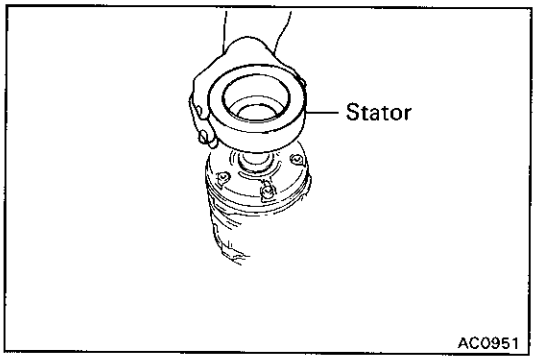
3. REMOVE STATOR

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



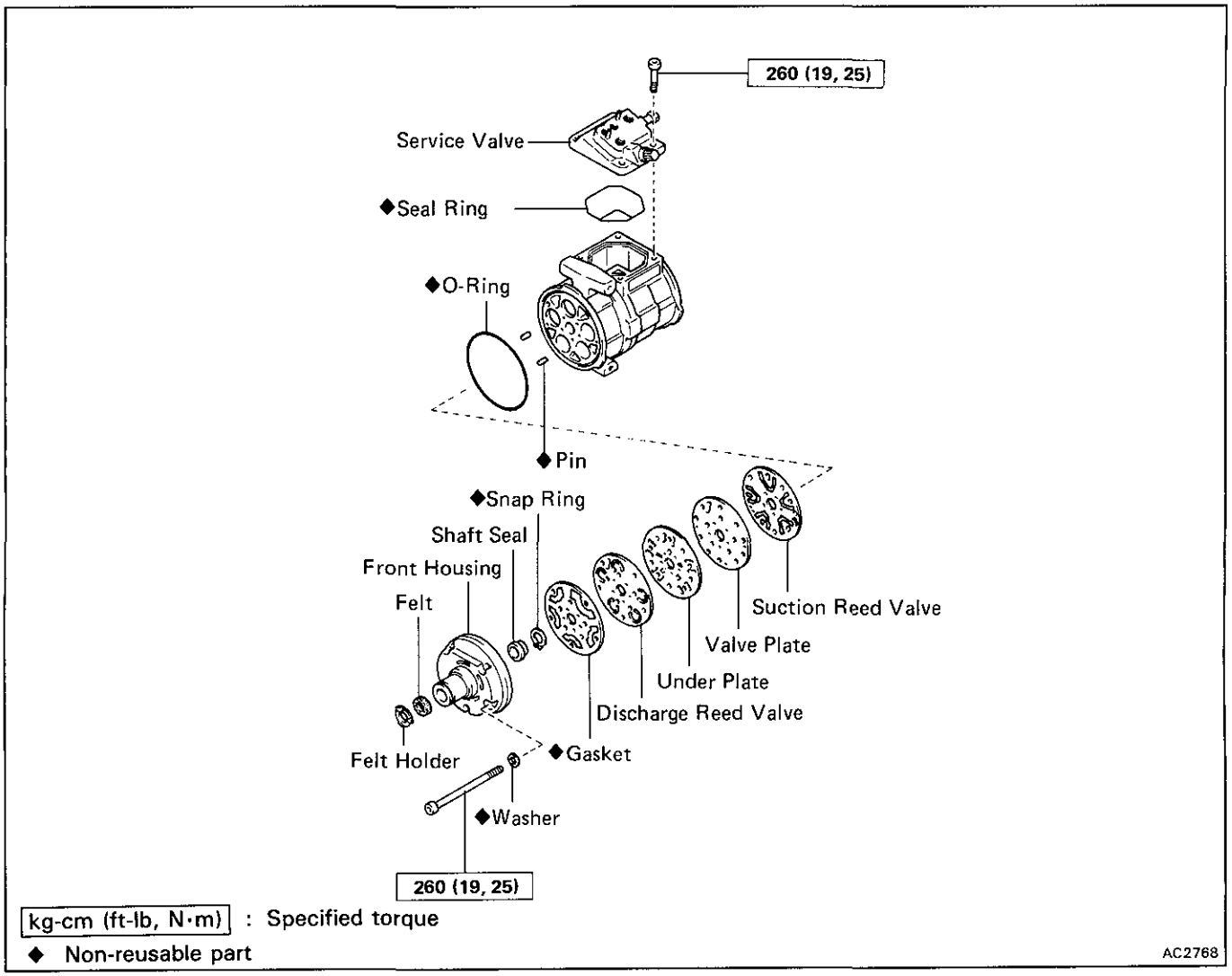
(b) Using SST, remove the snap ring.

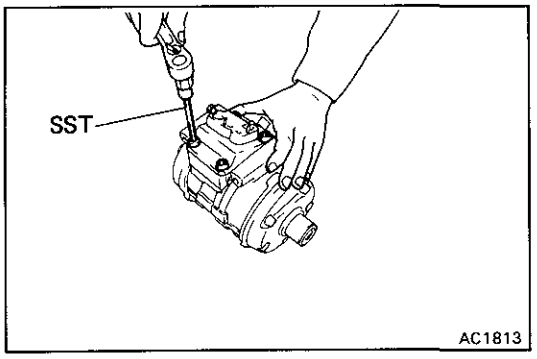
SST 07114-84020



(c) Remove the stator.

REPLACEMENT OF SHAFT SEAL

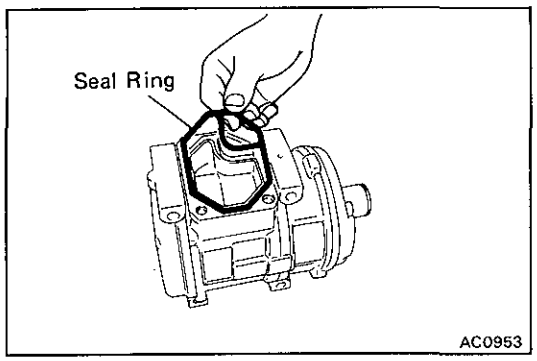




1. **REMOVE SERVICE VALVE**

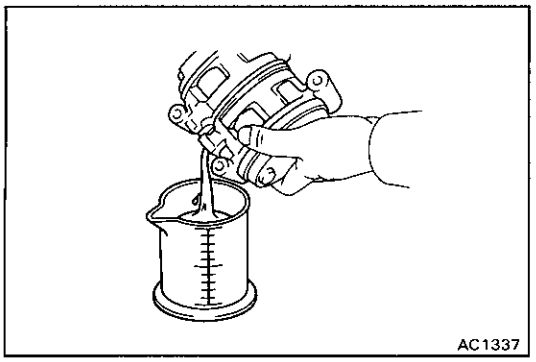
(a) Using SST, remove four bolts holding the service valve.

SST 07110-61050



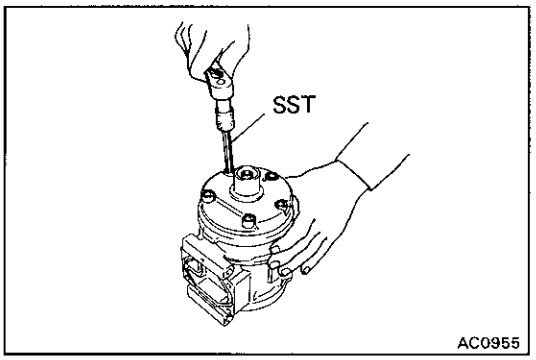
(b) Remove the seal ring from the cylinder block.

Discard the seal ring.


AC1337

2. DRAIN COMPRESSOR OIL INTO MEASURING FLASK

Measure the quantity of drained oil because the same amount should be replaced later.



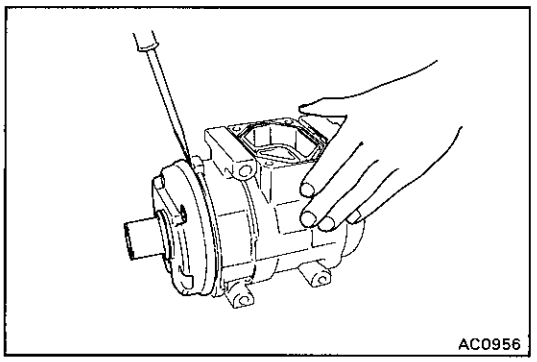
AC0955

3. REMOVE FRONT HOUSING

(a) Using SST, remove five through bolts.

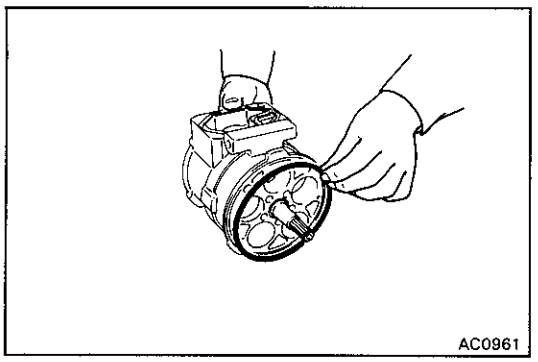
HINT: Do not reuse five washers.

SST 07110-61050

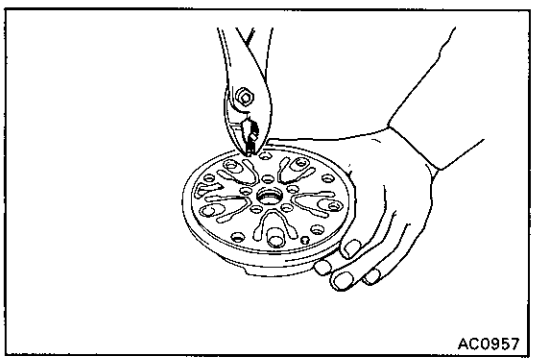

AC0956

(b) Using a screwdriver, remove the front housing.

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

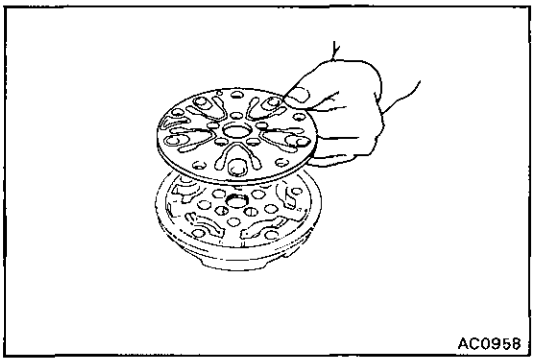

AC0961

4. REMOVE O-RING

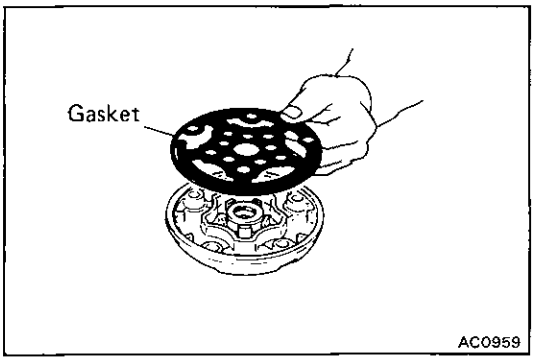

AC0957

5. REMOVE FRONT VALVE PLATE

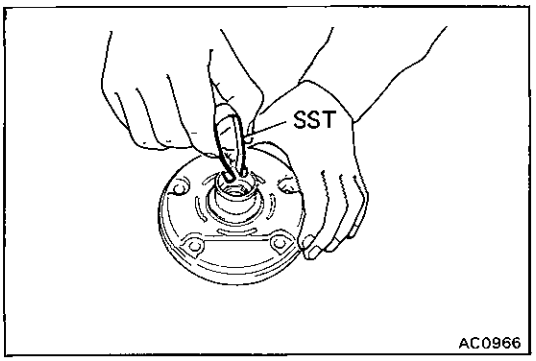
(a) Remove two pins from the front housing. Discard the pins.



(b) Remove the front valve plate with reed valves.



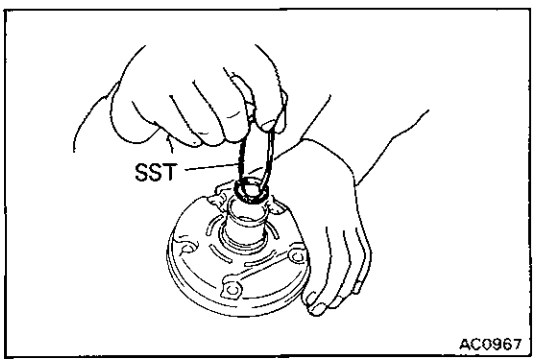
6. REMOVE GASKET



7. REMOVE FELT

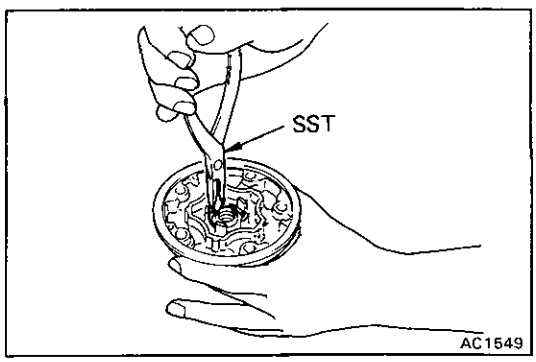
(a) Set SST on the felt.

SST 07112-15020



(b) Using SST, pull the felt with felt holder out of front housing.

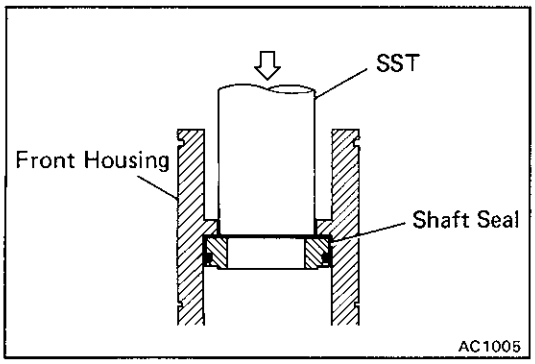
SST 07112-15020



8. REMOVE SHAFT SEAL

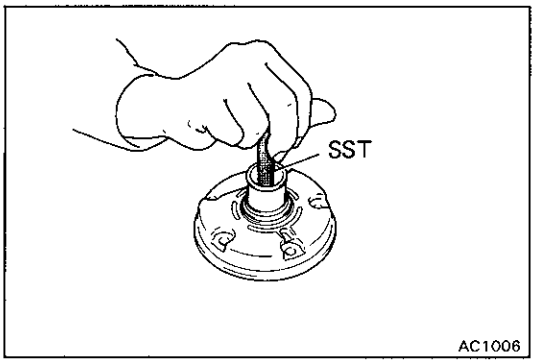
(a) Using SST, remove the snap ring from the front housing.

SST 07114-84010



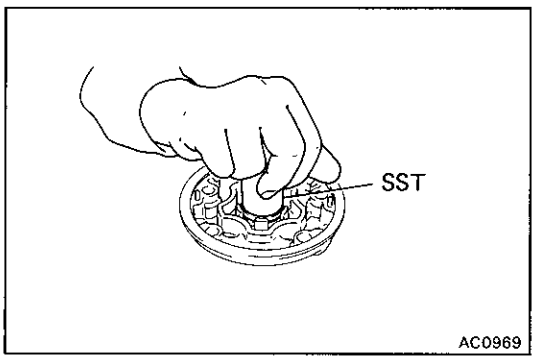
(b) Set SST on the shaft seal.

SST 07112-85030



(c) Using SST, put the shaft seal out of the front housing.

SST 07112-85030

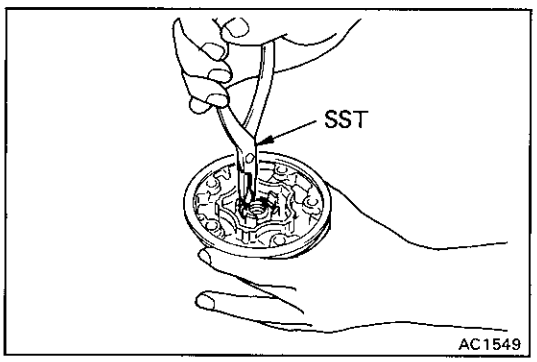


9. INSTALL SHAFT SEAL

(a) Fit shaft seal on SST, and install the shaft seal into the front housing.

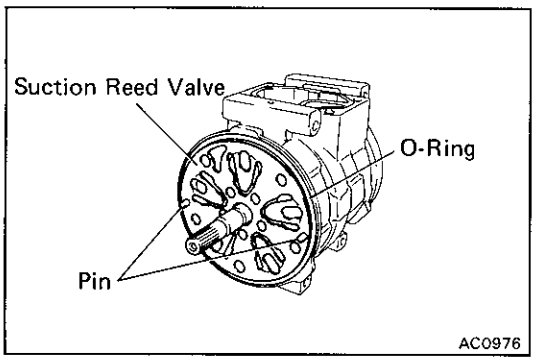
SST 07112-85020

HINT: Clean up the surface of the shaft seal with compressor oil.



(b) Using SST, install the snap ring into the front housing.

SST 07114-84010

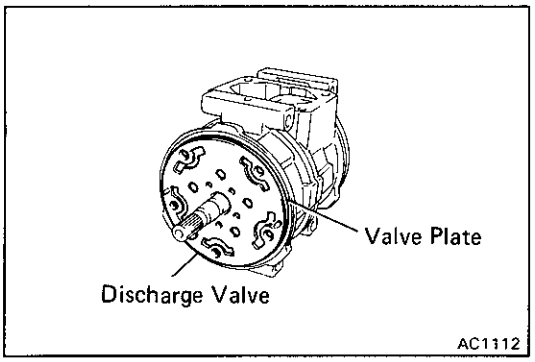


10. INSTALL FRONT VALVE PLATE ON FRONT CYLINDER

(a) Install two pins in the front cylinder.

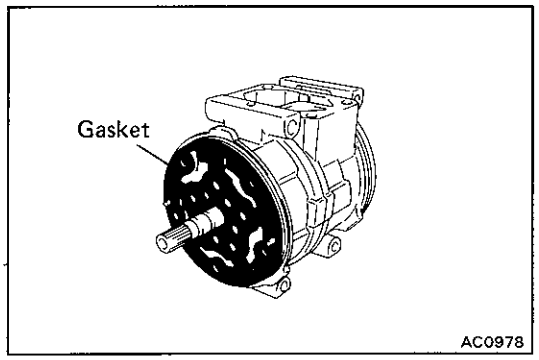
(b) Lubricate a new O-ring with compressor oil and install it in the front housing.

(c) Install the front suction reed valve over the pins on the front cylinder.

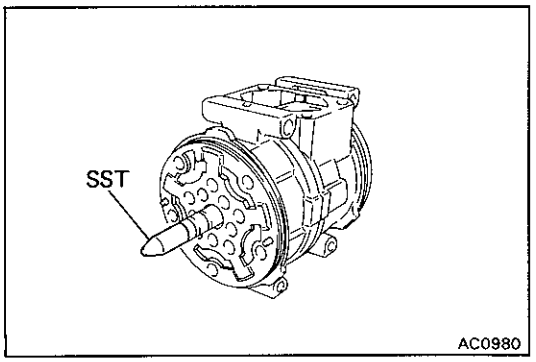


(d) Install the front valve plate with the discharge reed valve over the pins on the front cylinder.

HINT: The front valve plate is marked with an "F".



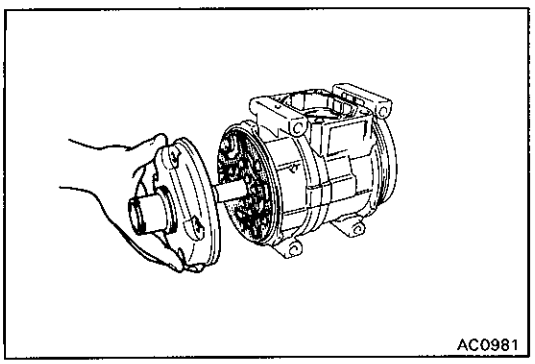
(e) Lubricate a new gasket with compressor oil and install the gasket on the valve plate.



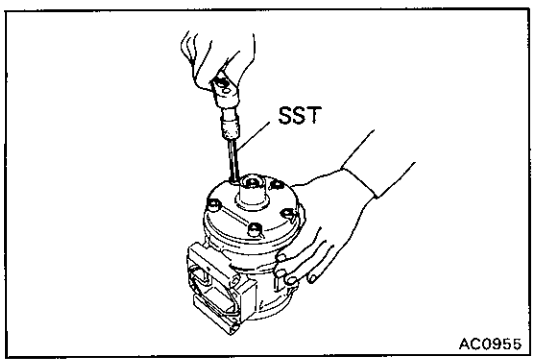
11. INSTALL FRONT HOUSING ON FRONT CYLINDER

(a) Set SST on the shaft to protect the seal lip.

SST 07112-85010



(b) Install the front housing on the front cylinder.

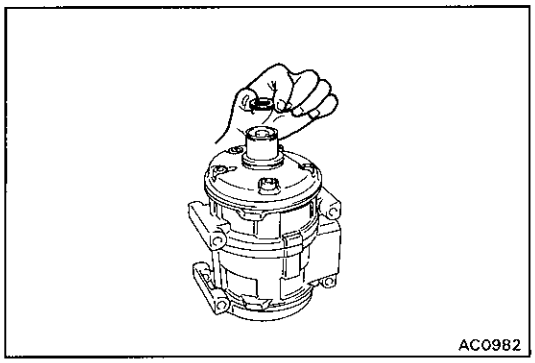


12. TIGHTEN FIVE THROUGH BOLTS

Using SST, gradually tighten the five through bolts in two or three passes.

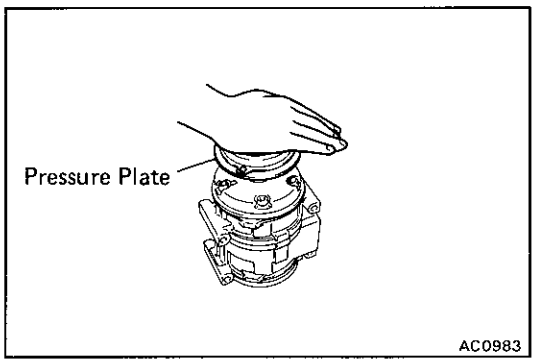
SST 07110-61050

Torque: 260 kg-cm (19 ft-lb, 25 N·m)


AC0982

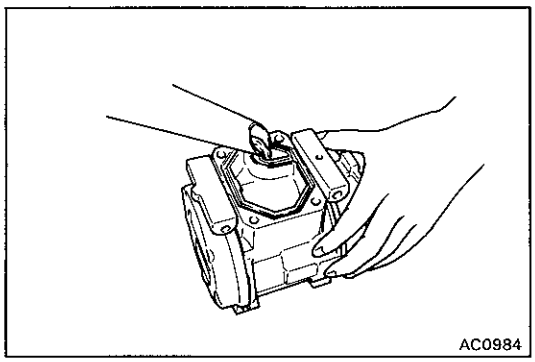
13. INSTALL FELT

(a) Set the felt with felt holder to the front housing.



AC0983

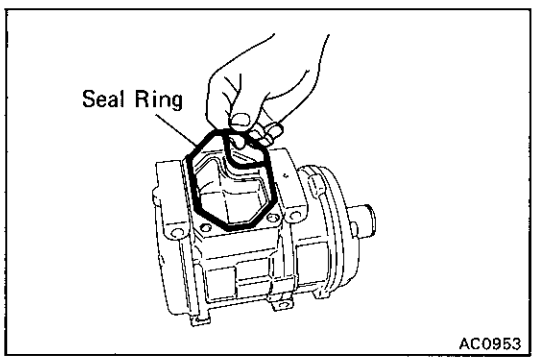
(b) Using pressure plate of magnetic clutch, install the felt.


AC0984

14. POUR COMPRESSOR OIL INTO COMPRESSOR

Add the same quantity of oil as was removed, plus 20 cc (0.7 fl.oz), into the compressor.

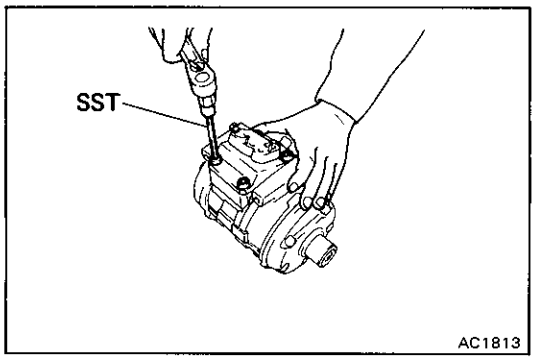
Compressor oil: DENSOOIL 6, SUNISO No.5GS or equivalent



AC0953

15. INSTALL SERVICE VALVE

(a) Lubricate new seal ring with compressor oil.
Install the seal ring in the service valve.

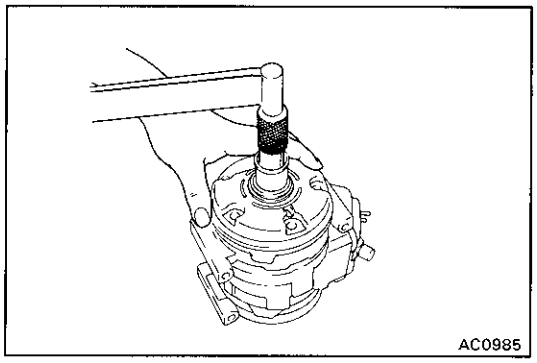


AC1813

(b) Install the service valve on the compressor.
Using SST, tighten the bolts.

SST 07110-61050

Torque: 260 kg-cm (19 ft-lb, 25 N·m)


AC0985

16. **CHECK SHAFT STARTING TORQUE**

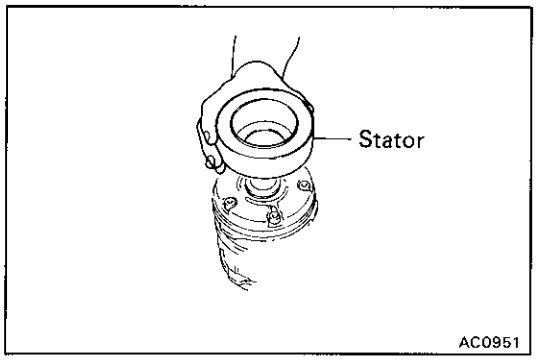
Torque: 30 kg-cm (26 in.-lb, 2.9 N·m) or less

ASSEMBLY OF MAGNETIC CLUTCH

(See page AC-25)

1. **INSTALL STATOR**

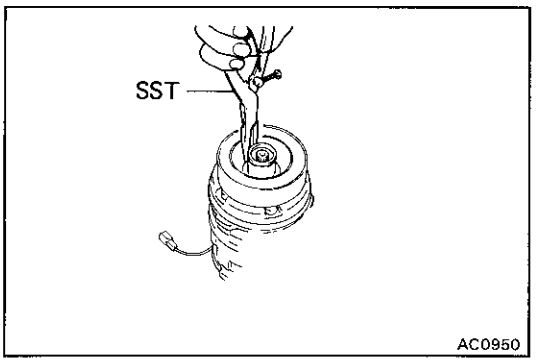
(a) Install the stator on the compressor.



AC0951

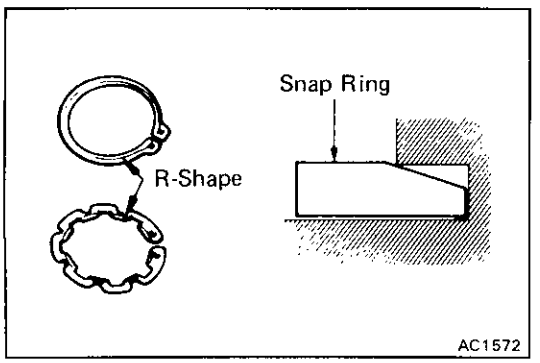
(b) Using SST, install a new snap ring.

SST 07114-84020



AC0950

NOTICE: The snap ring should be installed so that its beveled side faces up.

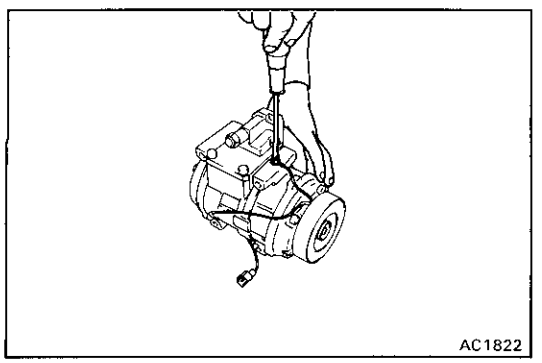


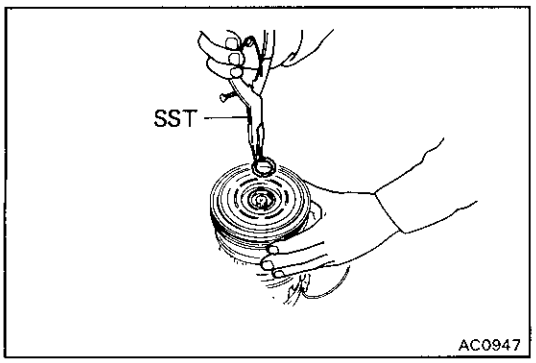
AC1572

(c) Using SST, fasten the magnetic clutch lead wire to the cylinder block.

Torque: 35 kg-cm (30 in.-lb, 3.4 N·m)

SST 07110-61050


AC1822

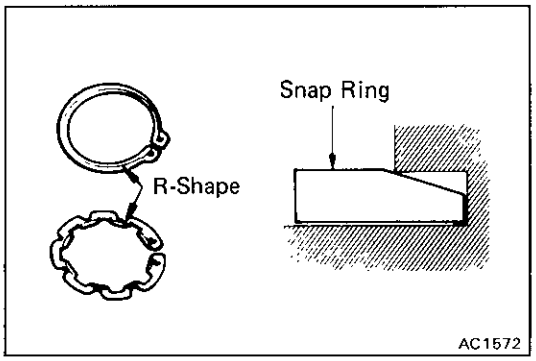


2. **INSTALL ROTOR**

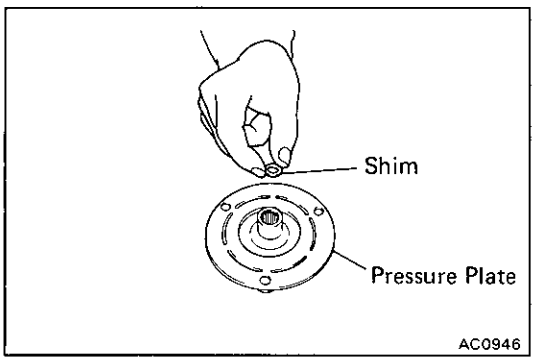
(a) Install the rotor on the compressor shaft.

(b) Using SST, install a new snap ring.

SST 07114-84020

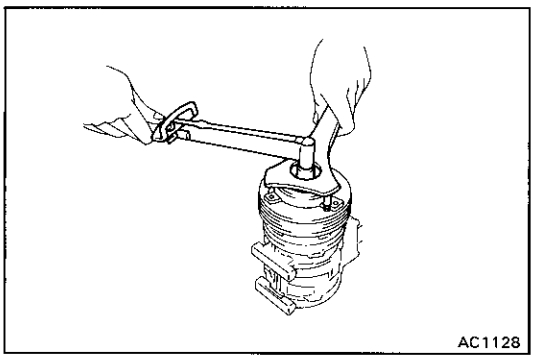


NOTICE: The snap ring should be installed so that its beveled side faces up.



3. **INSTALL PRESSURE PLATE**

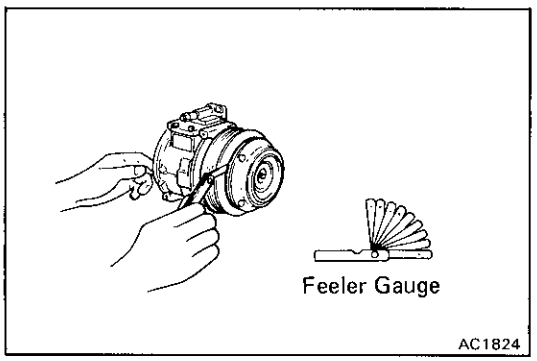
(a) Put the shims on the pressure plate.



(b) Using SST, install the shaft bolt.

SST 07112-76060

Torque: 135 kg-cm (9.8 ft-lb, 13 N·m)

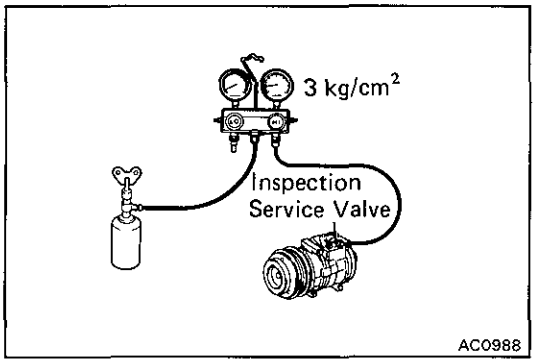


4. **CHECK CLEARANCE OF MAGNETIC CLUTCH**

Using a feeler gauge, check the clearance between the pressure plate and rotor.

Standard clearance: 0.5 ± 0.15 mm (0.020 ± 0.0059 in.)

If the clearance is not within tolerance, charge the number of shims to obtain the standard clearance.



PERFORMANCE TEST OF COMPRESSOR

1. **PERFORM GAS LEAKAGE TEST**

   (a) Install the inspection service valve on the service valve.

   HINT: Use only a TOYOTA supplied inspection service valve to perform the gas leakage test.

   Part No. Suction side 88376-17020
   Discharge side 88376-22020

   (b) Charge the compressor with refrigerant through the charge valve until the pressure is 3 kg/cm² (43 psi, 294 kPa).

   (c) Using a gas leak tester, check the compressor for leaks.

   If leaks are found, check and replace the compressor.

2. **EVACUATE COMPRESSOR AND CHARGE WITH REFRIGERANT**

   Make sure the caps are tight and the compressor is free from moisture and contamination.

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

INSTALLATION OF COMPRESSOR

(See page AC-23, 24)

1. **INSTALL COMPRESSOR WITH THREE MOUNTING BOLTS**

   Torque: 280 kg-cm (20 ft-lb, 27 N·m)

2. **INSTALL DRIVE BELT**
   (See page AC-20)

3. **CONNECT TWO HOSES TO COMPRESSOR SERVICE VALVES**

   Torque: Discharge line 250 kg-cm (18 ft-lb, 25 N·m)
   Suction line 250 kg-cm (18 ft-lb, 25 N·m)

4. **CONNECT CLUTCH LEAD WIRE TO WIRING HARNESS**

5. **CONNECT NEGATIVE CABLE TO BATTERY**

6. **EVACUATE AIR FROM AIR CONDITIONING SYSTEM**

7. **CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT AND CHECK FOR GAS LEAKAGE**

   Specified amount:
   Single A/C 900 ± 50 g (31.74 ± 1.76 oz)
   Dual A/C 1,600 ± 50 g (56.43 ± 1.76 oz)