

# SECTION 12-03B Compressor and Clutch—10P15F

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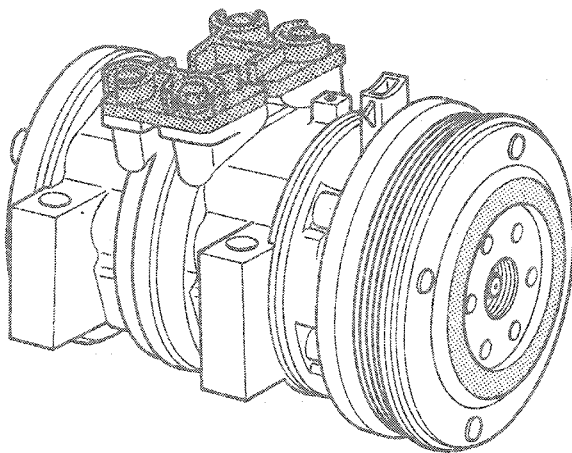
## VEHICLE APPLICATION

Taurus SHO.

## DESCRIPTION AND OPERATION

The 10P15F compressor is a 10 cylinder axial design compressor with mounting brackets for tangential mounting. The compressor shaft is driven by a belt from the engine accessory drive. Five double acting pistons, positioned axially around the compressor shaft, are actuated by a swashplate that is pressed on the compressor shaft. The swashplate uses the rotating action of the shaft to provide a reciprocating driving force to each of the five pistons. This driving force is applied, through balls and shoes, to the mid-point of each of the five double ended pistons.

### Compressor—10P15F



CCL 3367-A

Reed-type suction and discharge valve plates are located between the cylinder assembly and the head at each end of the compressor. The heads are connected with each other by gas-tight passageways which direct refrigerant gas to a common output.

A magnetic clutch is used to drive the compressor shaft. When voltage is applied to the clutch field coil, the clutch plate and hub assembly, (which is solidly coupled to the compressor shaft) is drawn by magnetic force toward the pulley which rotates freely on the compressor front head casting. The magnetic force locks the clutch plate and hub assembly and the pulley together as one unit. The compressor shaft then turns with the pulley. When voltage is removed from the clutch field coil, a rubber bushing in the clutch plate and hub assembly moves the clutch plate away from the pulley, and the compressor shaft ceases to rotate.

## MAINTENANCE

### Adding Refrigerant Oil

The 10P15F compressor uses a special paraffin base refrigerant oil YN-9 (E73Z-19557-A) or equivalent refrigerant oil meeting Ford Specification ESH-M2C31-A2. A total oil charge of 240ml (8 fluid ounces) is used in a new system. It is important that only the specified type and quantity of refrigerant oil be used in the compressor. If there is a surplus of oil in the system, excessive oil will circulate with the refrigerant reducing the cooling capacity of the system. Too little oil will result in poor lubrication of the compressor.

When it is necessary to replace a component of the refrigerant system, the procedures in this Section must be followed to ensure that the total oil charge in the system is correct after the new part is installed. When the compressor is operated, oil gradually leaves the compressor and is circulated through the system with the refrigerant. Eventually a balanced condition is reached in which a certain amount of oil is retained in the compressor and a certain amount is continually circulated. If a component of the system is removed after the system has been operated, some oil will go with it. To maintain the original total oil charge, it is necessary to compensate for this by adding the lost oil to the new replacement part. The procedures for replacing oil follow.

#### During Compressor Replacement

**NOTE:** The suction accumulator / drier and the orifice tube should also be replaced whenever the compressor is replaced.

A new service replacement compressor contains 43ml (1.4 oz) of refrigerant oil YN-9 (E73Z-19557-A) or equivalent refrigerant oil. Prior to installing the replacement compressor, drain the oil from the removed (old) compressor into a clean calibrated container. Then, drain the oil from the new compressor into another clean calibrated container. If the amount of oil drained from the old compressor is between 3 and 5 ounces, pour the same amount of clean refrigerant oil into the new compressor. If the amount of oil drained from the old compressor is greater than 5 ounces, add 5 ounces of clean oil to the new compressor. If the amount of oil removed is less than 3 ounces, pour 3 ounces of clean oil into the new compressor. Use only the specified compressor oil.

This will maintain the system total oil charge within the specified limits.

#### During Component Replacement

**NOTE:** A new accumulator assembly contains 167-207 cc (5.65-6.99 ounces) of oil.

When replacing other components of the air conditioning refrigerant system, measured quantities of the specified refrigerant oil should be added to the component to ensure that the total oil charge in the system is correct before the system is operated.

Clean refrigerant oil YN-9 (E73Z-19557-A) or equivalent should be added to the replacement components as follows:

- Evaporator Core: Add 90ml (3 oz).
- Condenser: Add 30ml (1 oz).
- Accumulator: Drill a 12.7mm (1/2-inch) hole in the accumulator body and drain oil from accumulator through that hole. Drain existing oil from new accumulator then add same amount of oil removed, plus 28 grams (2 oz) of clean refrigerant oil to new accumulator.

Clean refrigerant oil should be poured directly into the replacement component. If any other components, such as an orifice tube or a hose are replaced, no additional refrigerant oil is necessary unless a hose bursts with a fully charged system. Then, the addition of 2 oz. refrigerant oil is recommended. The amount must be determined by the technician. The suction accumulator / drier should also be replaced under these circumstances.

## TESTING

### Compressor Manifold Leak Test

1. Tighten manifold retaining bolts to 18-23 N-m (14-16 lb-ft).
2. Leak test manifold O-ring seals.
3. If no leaks are found during leak test, manifold O-ring seals are good.
4. If a leak is found at manifold and manifold bolts are tightened to 18-23 N-m (14-16 lb-ft), install new manifold O-ring seals following procedure under Suction and Discharge Manifold Removal and Installation. Then, repeat leak test procedure.

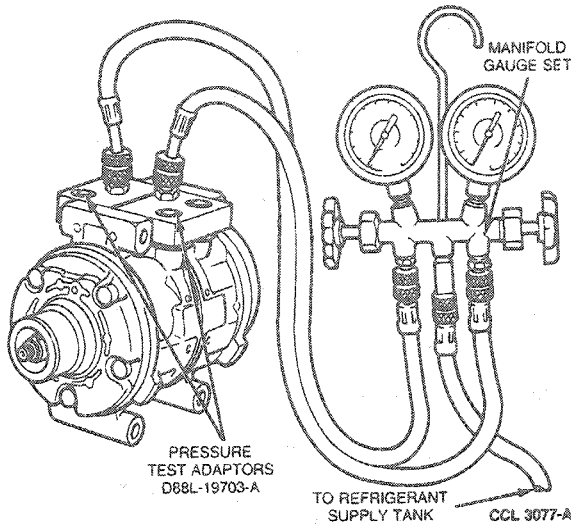
### Compressor External Leak Test

#### Tools Required:

- Pressure Test Plates D88L-19703-A
  - Rotunda Electronic Leak Detector 055-00015
1. Remove compressor from vehicle observing all safety precautions.
  2. Remove complete clutch assembly, including field coil, from compressor.
  3. Install Pressure Test Plates D88L-19703-A or equivalent on compressor.

## TESTING (Continued)

### Compressor Testing for External Leaks



4. Prior to leak testing the shaft seal, rotate the compressor shaft 10 revolutions to distribute oil in the compressor.
5. Connect high- and low-pressure hoses of a manifold gauge set to fittings of pressure test adapters.
6. Attach center hose of manifold gauge set to a refrigerant drum standing in an upright position.
7. Open low-pressure gauge valve, high-pressure gauge valve, and valve on refrigerant drum to allow refrigerant vapor to flow into compressor.
8. Using Rotunda Electronic Leak Detector 055-00015 or equivalent, check for leaks at compressor rear head seal, compressor front head seal, compressor shaft seal, center joint seal and around compressor cylinder bolts. After checking, turn off manifold gauge valves and refrigerant drum valve.
9. If an external leak is found at either head or at shaft seal, service as necessary. If an external leak is found at center joint of compressor body, install a new compressor assembly.
10. If refrigerant leak is found around head of a cylinder bolt, install a new brass washer on the bolt and leak test as outlined. If a leak cannot be corrected with a new brass washer, install a new head, new cylinder bolt, and new brass washers on all bolts.
11. Carefully disconnect manifold gauge hoses from the pressure fitting / adapter(s), allowing the refrigerant in the compressor to escape. Remove the adapter(s) from the compressor.
12. Install compressor as outlined.

### Compressor Rotating Torque Check

The rotational torque of a used compressor should be checked if excessive compressor drag is suspected.

1. Discharge refrigerant system following recommended service procedures. Observe all safety precautions.
2. Remove compressor from vehicle.
3. Rotate compressor shaft and note torque required for one complete rotation. Observe torque while rotating shaft, not starting torque.
4. If rotational torque exceeds 10 N-m (7 lb-ft), replace compressor assembly.
5. If rotational torque is less than specified, excessive drag does not exist in compressor. Install compressor, leak test, and evacuate and charge system.
6. Check system for proper operation.

## REMOVAL AND INSTALLATION

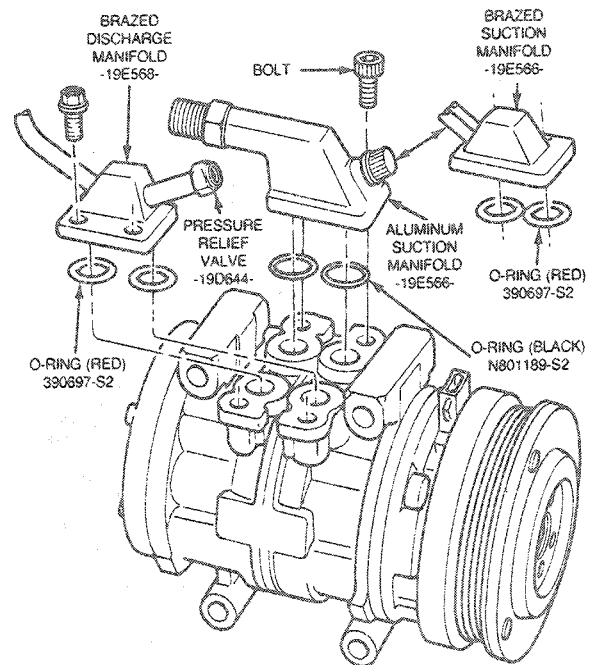
### Suction or Discharge Manifold

**NOTE:** Two different O-rings are used on compressor manifolds and they are not interchangeable. One is **black** and is used with aluminum manifolds. The other O-ring is **red** and is used with brazed steel manifolds. Either O-ring must be replaced with one of the same color.

#### Removal

1. Discharge refrigerant from system following recommended procedures.
2. Remove two bolts attaching manifold to compressor, and remove manifold and O-rings.

#### Suction and Discharge Manifold Installation—Typical



CCL 3061-A

### REMOVAL AND INSTALLATION (Continued)

- When replacing discharge manifold, transfer pressure relief valve to new discharge manifold.

#### Installation

- Lubricate new O-rings with clean refrigerant oil and position them in O-ring grooves of manifold. Use only the same color O-ring as specified for the type of manifold being used.
- Apply Pipe Sealant with Teflon® D8AZ-19554-A (ESG-M4G194-A) or equivalent to threads of manifold retaining bolts.

NOTE: When replacing a compressor, use original manifold bolts from removed compressor to attach manifolds to new compressor. **DO NOT USE THE SHIPPING CAP BOLTS.**

- Position manifold with O-rings to compressor and install two retaining bolts. Tighten bolts to 18-23 N·m (14-16 lb-ft).
- Leak test, evacuate and charge system following recommended procedures. Observe all safety precautions.

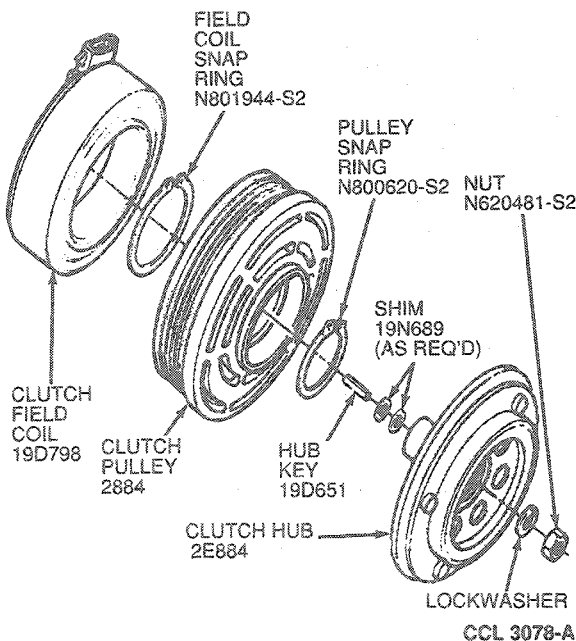
### Compressor

#### Removal and Installation

Refer to Section 12-03A.

### Clutch Hub and Pulley

#### Compressor Clutch Disassembled



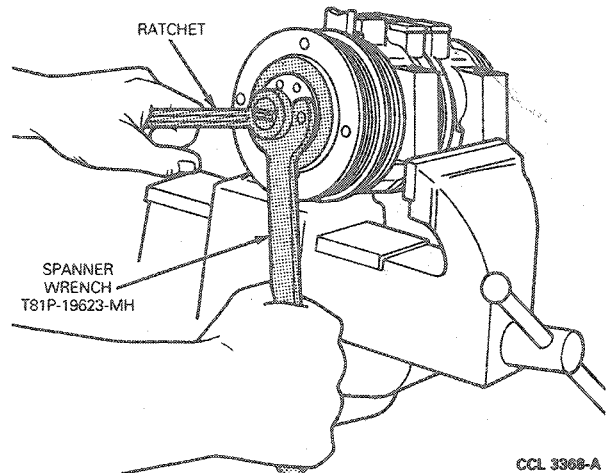
#### Tools Required:

- Spanner Wrench T81P-19623-MH
- Hub Remover T80L-19703-B
- Shaft Protector T80L-19703-G
- Pulley Puller D81P-19703-B or T71P-19703-B
- Pulley and Bearing Tool T80L-19703-J
- Plate Replacer T80L-19703-F

#### Removal

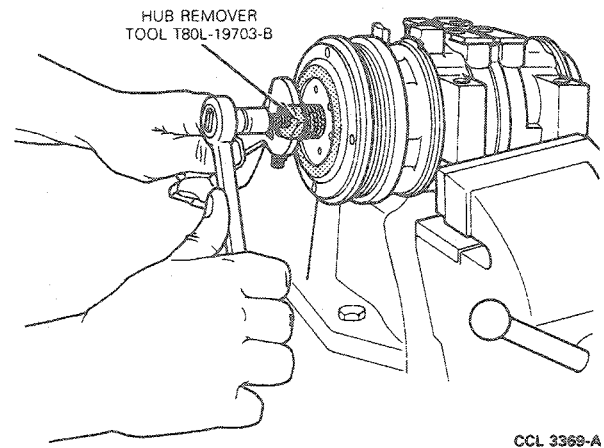
- Remove clutch hub retaining nut and lockwasher. Use Spanner Wrench T81P-19623-MH if necessary.

#### Clutch Hub Nut—Removal



- Remove clutch hub and shims from compressor shaft with Hub Driven Plate Remover T80L-19703-B. Hold tool with a 1-inch wrench and tighten bolt with a 1/2-inch wrench to pull hub from compressor shaft.

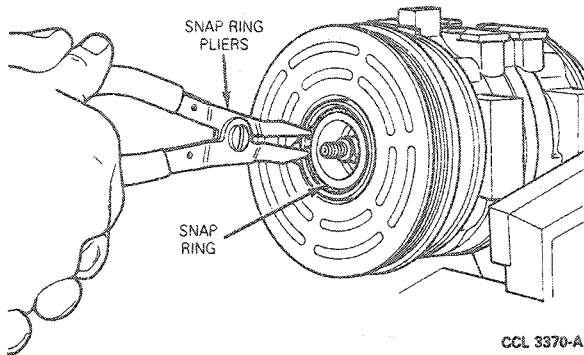
#### Clutch Hub—Removal



- Remove clutch pulley retaining snap ring.

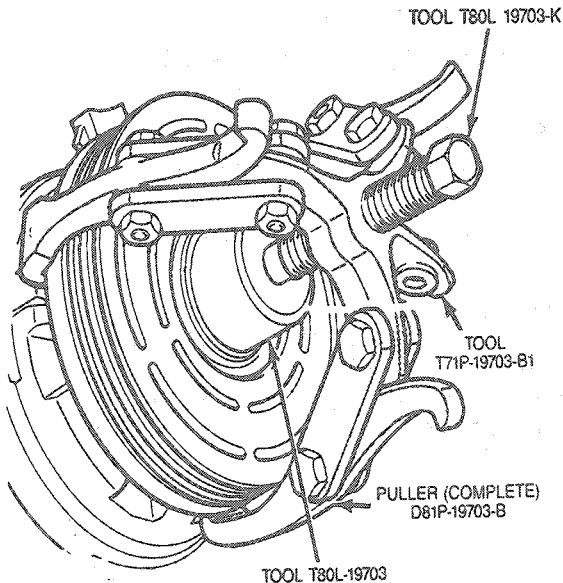
**REMOVAL AND INSTALLATION (Continued)**

**Pulley Snap Ring—Removal**



4. Pull pulley and bearing assembly from compressor. If pulley and bearing assembly cannot be removed by hand, use Shaft Protector T80L-19703-G and Pulley Puller D81P-19703-B or T71P-19703-B to remove pulley.

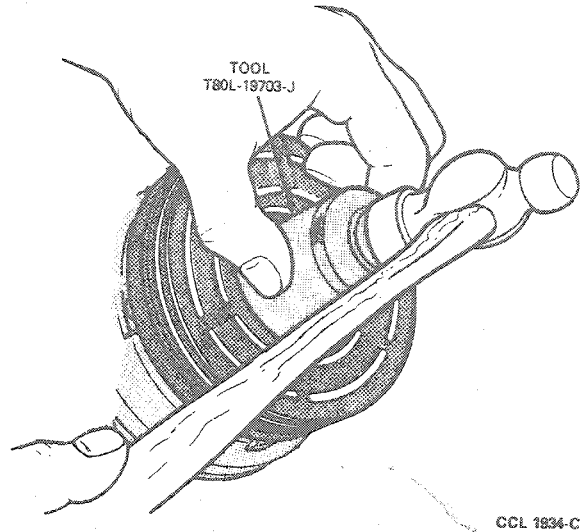
**Removing Clutch Pulley with Puller**



**Installation**

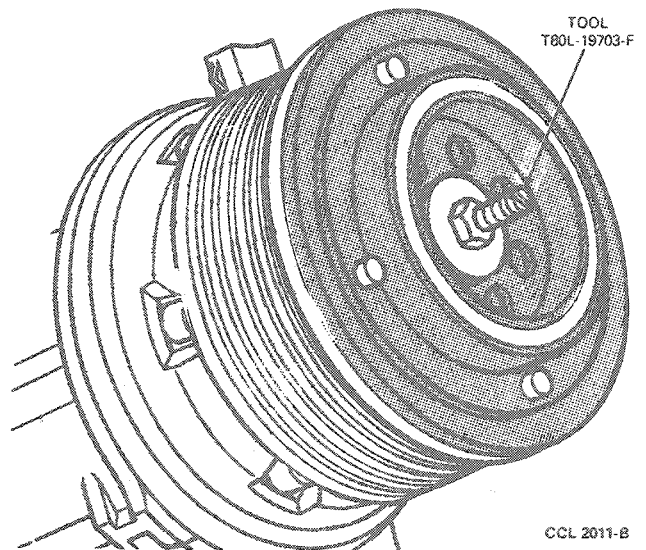
1. Clean the pulley bearing surface of the compressor head to remove any dirt or corrosion.
2. Install pulley and bearing on compressor. The bearing is a slip fit on compressor head and, if properly aligned, should slip on compressor head. If difficulty is encountered installing pulley, gently tap pulley on compressor using Pulley and Bearing Tool T80L-19703-J. Ensure the pulley bearing is aligned with compressor head.

**Clutch Pulley—Installation**



3. Install pulley retaining snap ring with bevel side of snap ring out.
4. Install clutch hub on compressor shaft using two thickest shims of shim pack between clutch hub and end of compressor shaft. Ensure shaft key is aligned with keyway of clutch hub. Use Hub Driven Plate Replacer T80L-19703-F to press hub on compressor shaft, if necessary. **DO NOT ATTEMPT TO DRIVE THE HUB ON THE COMPRESSOR SHAFT** as damage to compressor will result. Use only specified tool if hub will not easily slide on compressor shaft.

**Clutch Hub—Installation**

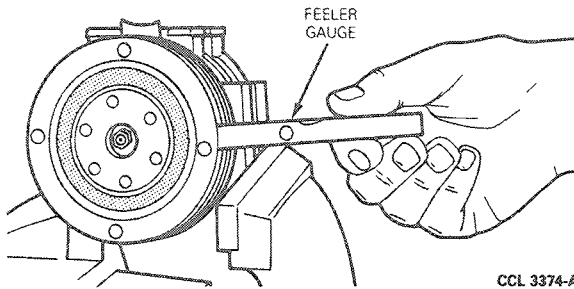


5. Install hub lock washer and retaining nut on compressor shaft. Tighten nut to 13-20 N-m (10-14 lb-ft). **DO NOT USE AIR TOOLS.**

## REMOVAL AND INSTALLATION (Continued)

6. Check air gap between hub and mating pulley surface in three locations equally spaced around pulley. Record air gap readings.

### Clutch Air Gap Check

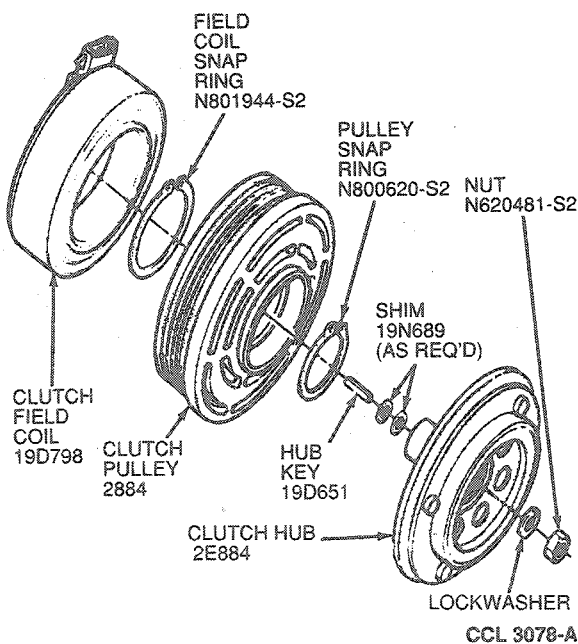


7. Rotate compressor pulley one-half turn (180 degrees) and again check air gap in three equally spaced locations. Smallest air gap must be within specified limits for air gap. Add or remove shims between hub and compressor shaft end as necessary until smallest air gap is within specification.

### Clutch Field Coil

#### Removal

1. Remove clutch hub and pulley.
2. Remove snap ring retaining clutch field coil on the front of compressor.



3. Pull field coil from front of the compressor.

#### Installation

1. Position clutch field coil to compressor, engaging locator pin on compressor head with the hole in the clutch field coil mounting plate.
2. Install snap ring retaining clutch field coil on the compressor with bevel side of snap ring out.
3. Install pulley and hub on compressor and check air gap. Adjust as necessary.

### Clutch Pulley Bearing

NOTE: Clutch pulley bearing is not a serviceable part.

### Shaft Seal and Seat

#### Tools Required:

- Shaft Key Remover T81P-19623-NH
- Snap Ring Pliers T7 1P-19703-T
- Shaft Seal Seat Remover T87P-19623-BR
- Shaft Seal Remover T91P-19623-AH
- Shaft Seal Protector T7 1P-19703-H
- Shaft Seal Replacer T92P-19623-BH or T87P-19623-C
- Rotunda Electronic Leak Detector 055-00015

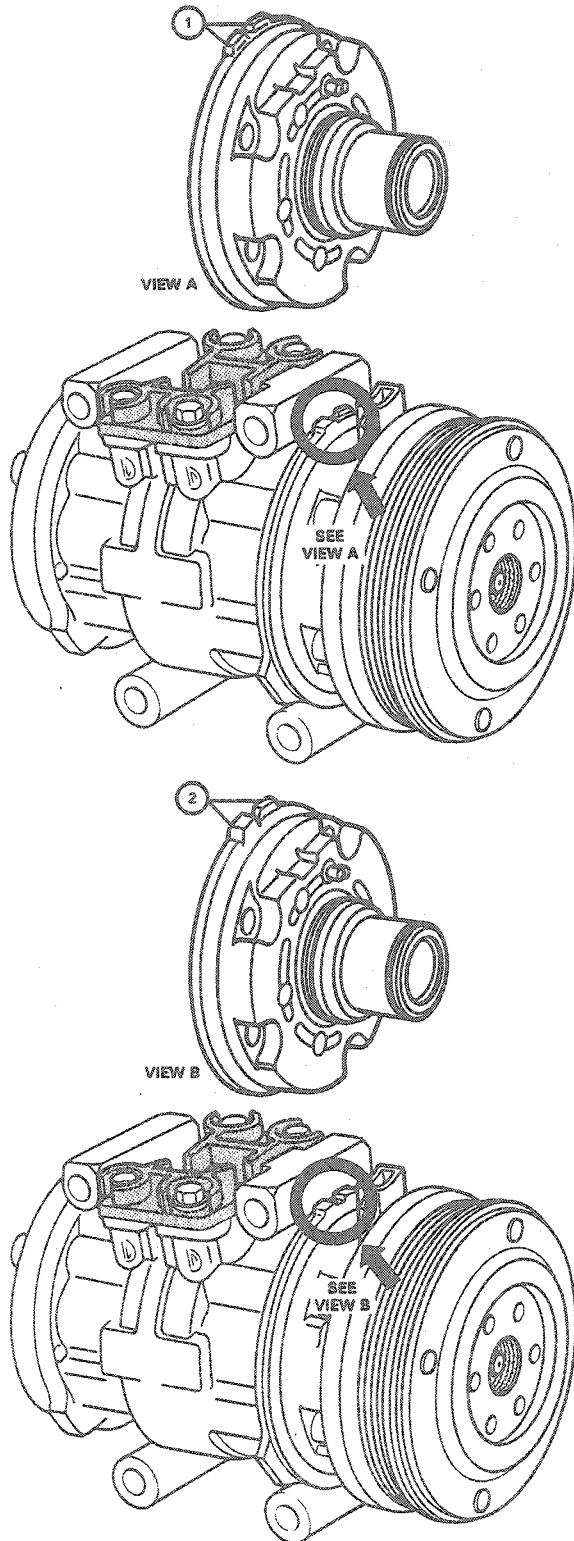
#### Removal

The refrigerant system must be discharged and the compressor removed from the vehicle to perform the shaft seal replacement operation.

The 10P15F compressor uses two different shaft seals. The shaft seal identification marks are located on the compressor front head.

**REMOVAL AND INSTALLATION (Continued)**

**Compressor Shaft Seal Identification**

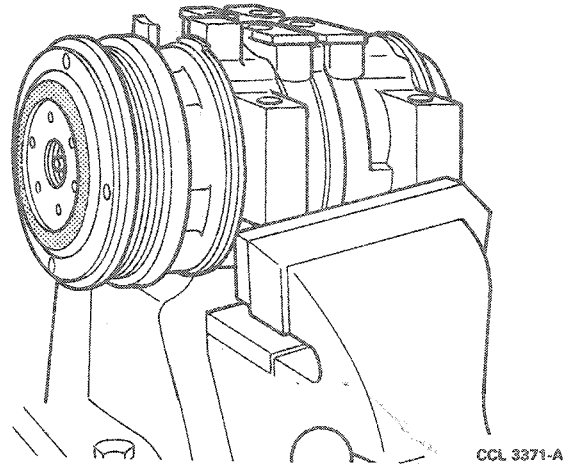


- | ITEM | DESCRIPTION   |
|------|---|
| 1.   | 2 EQUAL SIZE TABS INDICATE OLD SHAFT SEAL DESIGN    |
| 2.   | 1 THICK & 1 THIN TAB INDICATE NEW SHAFT SEAL DESIGN |

CCL 4134-A

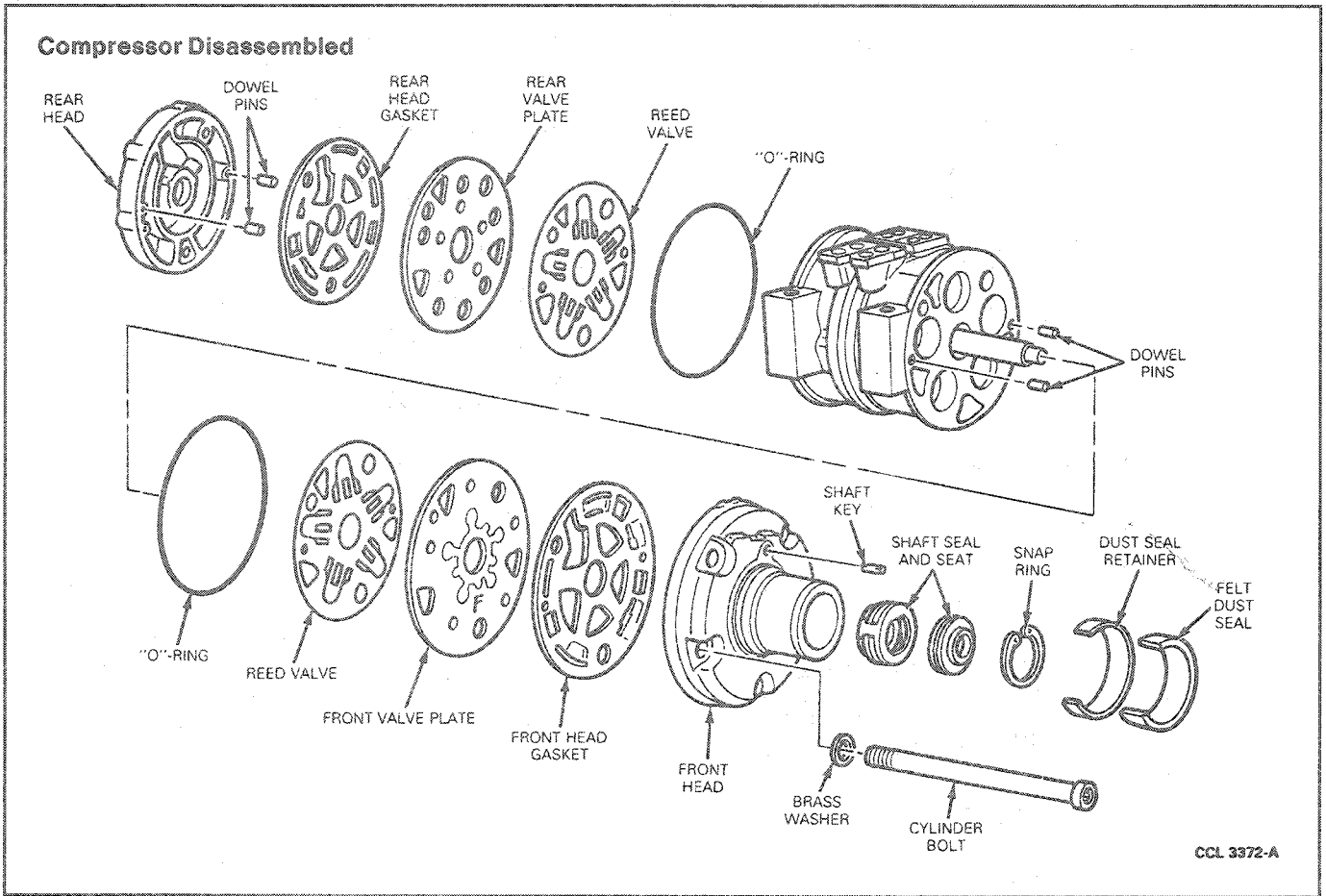
1. Clamp the compressor in a vise as shown and remove clutch hub as outlined.

**Compressor Clamped in Vise for Disassembly**



2. Clean compressor front hub area to remove any accumulation of oil and dirt.
3. Carefully remove felt and retainer from inside nose of compressor.

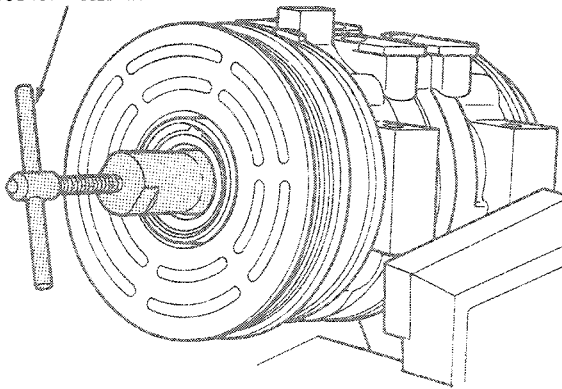
**REMOVAL AND INSTALLATION (Continued)**



4. Remove shaft key with Shaft Key Remover T81P-19623-NH.

**Shaft Key—Removal**

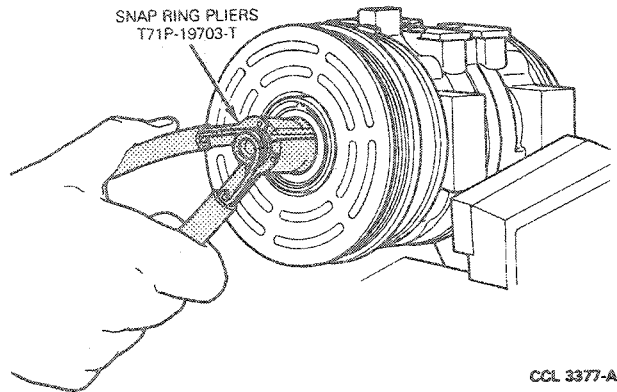
SHAFT KEY REMOVER  
TOOL T81P-19623-NH



5. Remove shaft seal seat retaining snap ring with Snap Ring Pliers T71P-19703-T.

**Seal Seat Retaining Snap Ring—Removal**

SNAP RING PLIERS  
T71P-19703-T



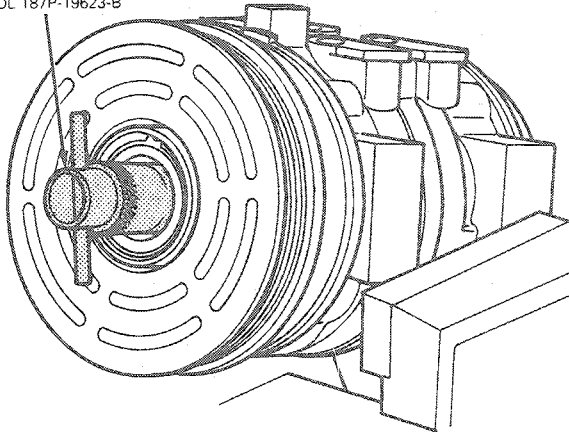
6. Clean inner bore of compressor nose to prevent dirt from entering compressor when shaft seal seat is removed.
7. Remove shaft seal seat with Shaft Seal Seat Remover T87P-19623-BR.



## REMOVAL AND INSTALLATION (Continued)

## Shaft Seal Seat Removal

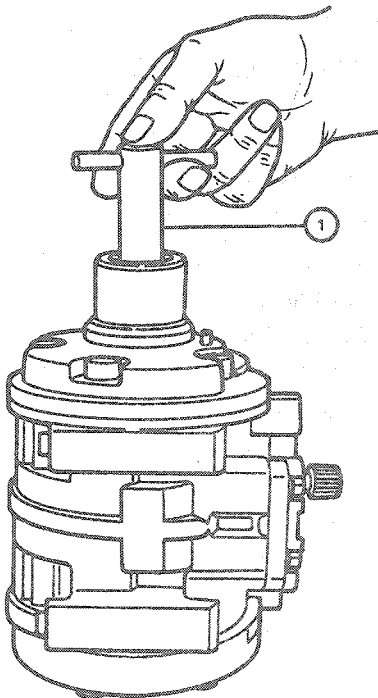
SEAL SEAT REPLACER  
TOOL T87P-19623-B



CCL 3378-A

8. Insert Shaft Seal Remover T91P-19623-AH into compressor nose opening on top of shaft seal. Turn tool 45 degrees while pushing tool inward until tool engages tangs of seal. Then pull shaft seal from compressor with tool.

## Shaft Seal Removal



ITEM DESCRIPTION  
1. SHAFT SEAL REMOVER - T91P-19623-AA

CCL 3711-A

## Installation

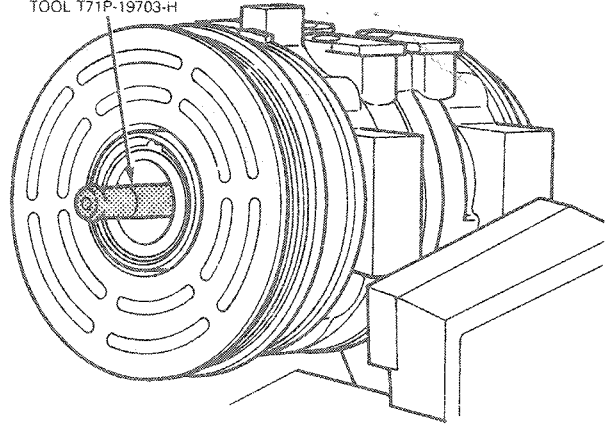
1. Place Shaft Seal Protector T71P-19703-H over the compressor shaft.
2. Lubricate new shaft seal with clean refrigerant oil and place it on protector.

NOTE: DO NOT TOUCH the sealing surface of the shaft seal or seal seat with bare hands. To do so will damage the sealing surface.

NOTE: Check the thin edge of the shaft seal protector for burrs or other damage. Replace the tool if burrs are found as the burrs could damage the internal sealing portion of the shaft seal assembly during installation.

## Shaft Seal Protector Installed

SHAFT SEAL PROTECTOR  
TOOL T71P-19703-H

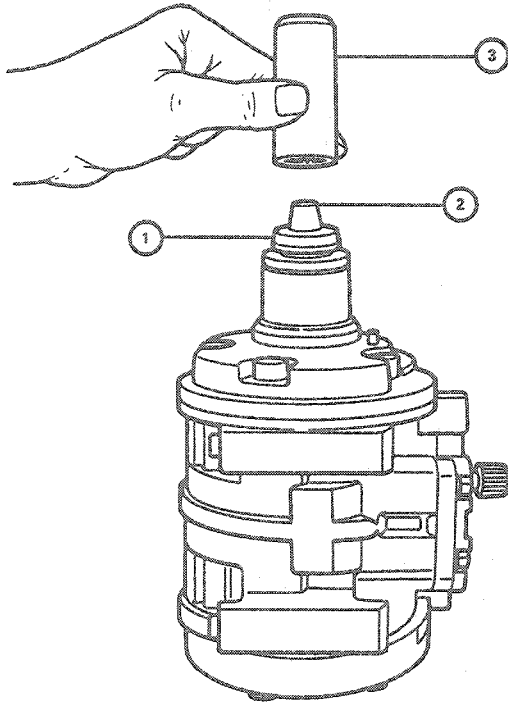


CCL 3380-A

3. Using Shaft Seal Replacer T92P-19623-BH insert the shaft seal into compressor. Rotate seal on compressor shaft while pushing inward until the flats of the shaft are aligned with flats of the shaft seal and the seal is positioned against the stops on the shaft.

## REMOVAL AND INSTALLATION (Continued)

## Shaft Seal—Installation



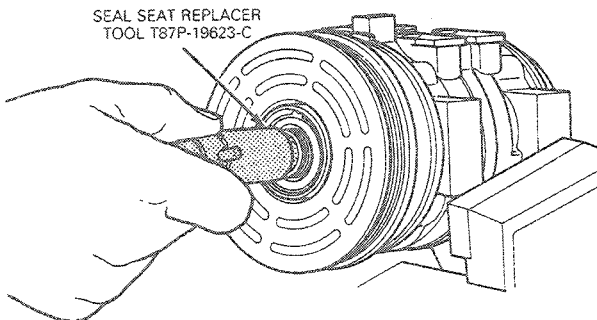
## ITEM DESCRIPTION

1. SHAFT SEAL
2. SHAFT SEAL PROTECTOR - T71P-19703-H
3. SHAFT SEAL REPLACER - T91P-19623-BH

CCL 3712-A

4. Attach shaft seal seat to Shaft Seal Seat Remover T87P-19623-BR and lubricate seal seat and inside of compressor nose with clean refrigerant oil YN-9 (E73Z-19557-A) or equivalent. Then, insert seal seat into compressor. Push seal seat in against seal.

## Shaft Seal Seat—Installation

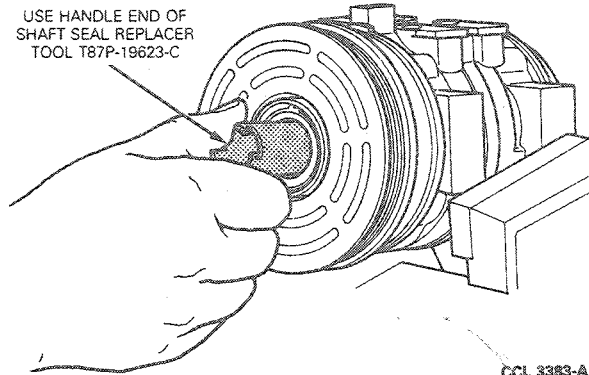


CCL 3382-A

5. Install seal seat retaining snap ring into nose of compressor and push snap ring into groove with handle end of Shaft Seal Remover / Replacer T87P-19623-C.

## Pushing Seal Seat Snap Ring into Groove

USE HANDLE END OF  
SHAFT SEAL REPLACER  
TOOL T87P-19623-C



CCL 3383-A

6. Leak test shaft with Rotunda Electronic Leak Detector 055-00015 or equivalent.
7. Install a new felt strip and retainer into nose of compressor.
8. Install shaft key with rounder end inward.
9. Install clutch shims and clutch hub as outlined.

## MAJOR SERVICE OPERATIONS

## Compressor—Out of Vehicle

## Head Gasket and O-Ring Seal

## Tools Required:

- Shaft Key Remover T81P-19623-NH
- Snap Ring Pliers T71P-19703-T
- Shaft Seal Seat Remover T87P-19623-BR
- Shaft Seal Replacer T87P-19623-C
- Shaft Seal Protector T71P-19703-H
- Rotunda Electronic Leak Detector 055-00015

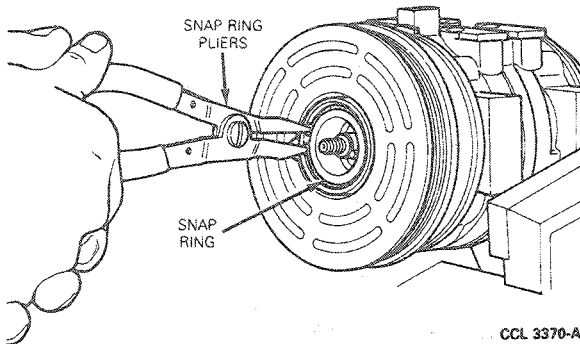
## Disassembly

The refrigerant system must be discharged and compressor removed from vehicle to perform head gasket and O-ring replacement operation.

1. Drain refrigerant oil from compressor through suction and discharge port openings into a calibrated container. Record amount of oil removed from compressor.
2. Clamp compressor in a vise. Remove clutch hub, pulley and shims as outlined.

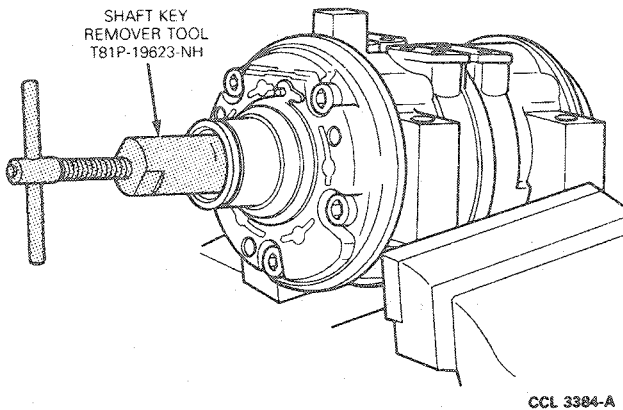
## MAJOR SERVICE OPERATIONS (Continued)

- Remove snap ring retaining clutch field coil on front of compressor. Then pull field coil from front of compressor.



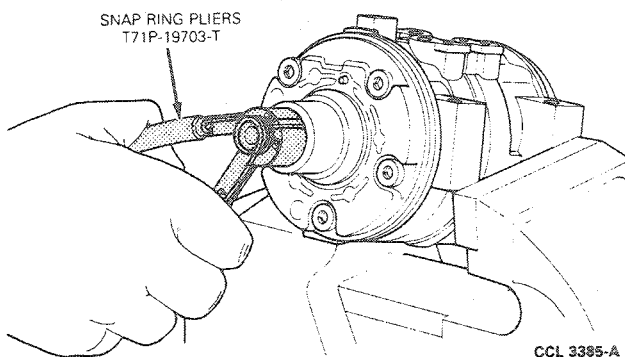
- Carefully remove felt and retainer from inside nose of compressor.
- Clean compressor front hub and head areas to remove any accumulation of oil and dirt.
- Remove shaft key with Shaft Key Remover T81P-19623-NH.

### Shaft Key—Removal



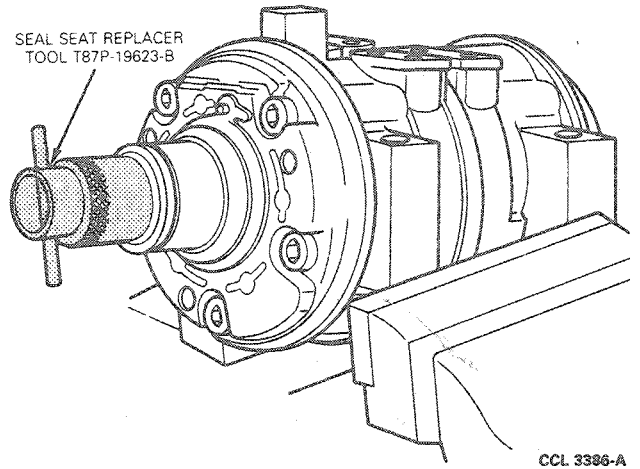
- Remove shaft seal seat retaining snap ring with Snap Ring Pliers T71P-19703-T.

### Seal Seat Retaining Snap Ring—Removal



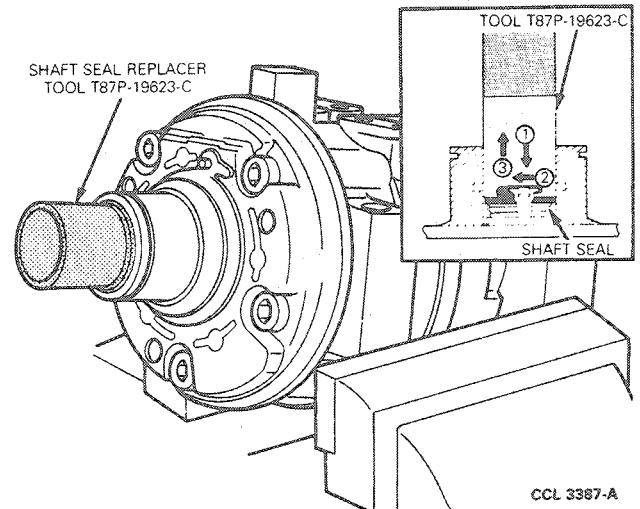
- Clean inner bore of compressor nose to prevent dirt from entering compressor when shaft seal seat is removed.
- Remove seal seat with Shaft Seal Seat Remover T87P-19623-BR.

### Shaft Seal Seat—Removal



- Insert Shaft Seal Remover / Replacer T87P-19623-C into compressor nose opening and on top of shaft seal. Rotate tool clockwise while pushing tool inward until tool engages tangs of seal. Then pull shaft seal from compressor with tool.

### Shaft Seal—Removal



- Hold front and rear heads in position on compressor. Remove five cylinder bolts and washers attaching heads to compressor.
- Remove rear head, head gasket, rear valve plate, reed valve and dowel pins from rear of compressor.
- Remove front head, head gasket, front valve plate, reed valve and dowel pins from compressor.

## MAJOR SERVICE OPERATIONS (Continued)

### Cleaning and Inspection

Clean all components in clean solvent and allow to dry. **Do not blow dry the valve plates or reed valves with compressed air.** Repeat the cleaning process using new cleaning solvent if necessary.

Inspect the cylinder bores for scratches, corrosion or other signs of damage or wear. Replace compressor if any of these conditions exist.

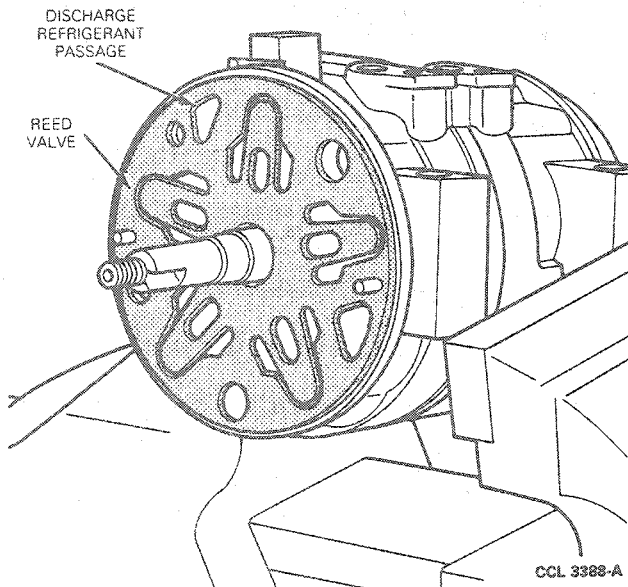
Inspect valve plates for scratches, corrosion or signs of wear or damage. Replace the compressor if valve plate damage is found.

Inspect the reed valves for cracks, scratches, deformation and corrosion. Replace the compressor if reed valve damage is found.

### Assembly

1. Install two dowel pins in front dowel pin holes of the cylinder assembly.
2. Lubricate head O-ring and place it in groove on front of cylinder assembly.
3. Lubricate front reed valve with clean refrigerant oil and place it in position on front of cylinder assembly. Ensure the reed valve is properly positioned on cylinder assembly as shown in the following illustration.

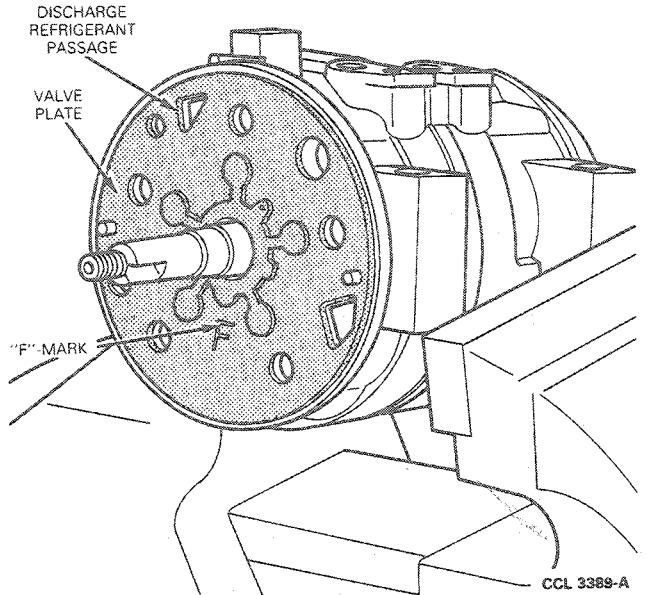
### Reed Valve Installed



**NOTE:** The front and rear reed valves are identical and interchangeable.

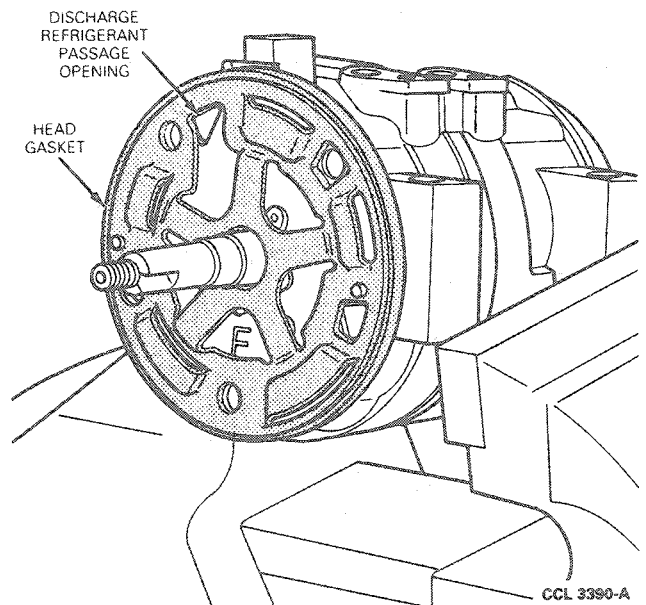
4. Lubricate front valve plate (marked with an "F") and place it in position on cylinder assembly. The "F" mark must be showing when the valve plate is properly installed.

### Front Valve Plate Installation



5. Lubricate front head gasket and place it in position on the cylinder assembly. The front and rear head gaskets are not interchangeable so it is essential that the correct gasket is used. The raised portions of the gasket must be positioned away from the cylinder assembly and the gas passage opening must be positioned to the left of center as shown in the following illustration.

### Head Gasket Installation

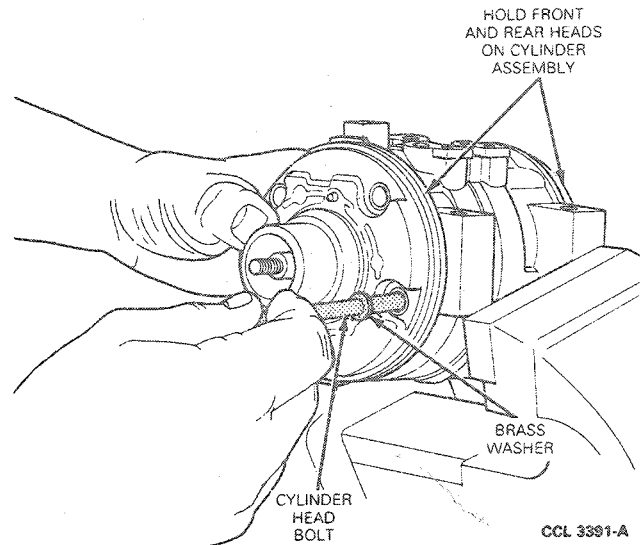


6. Position front head to cylinder assembly aligning dowel pins with dowel pin holes in front head.
7. Install dowel pins in dowel pin holes at rear of cylinder assembly.

## MAJOR SERVICE OPERATIONS (Continued)

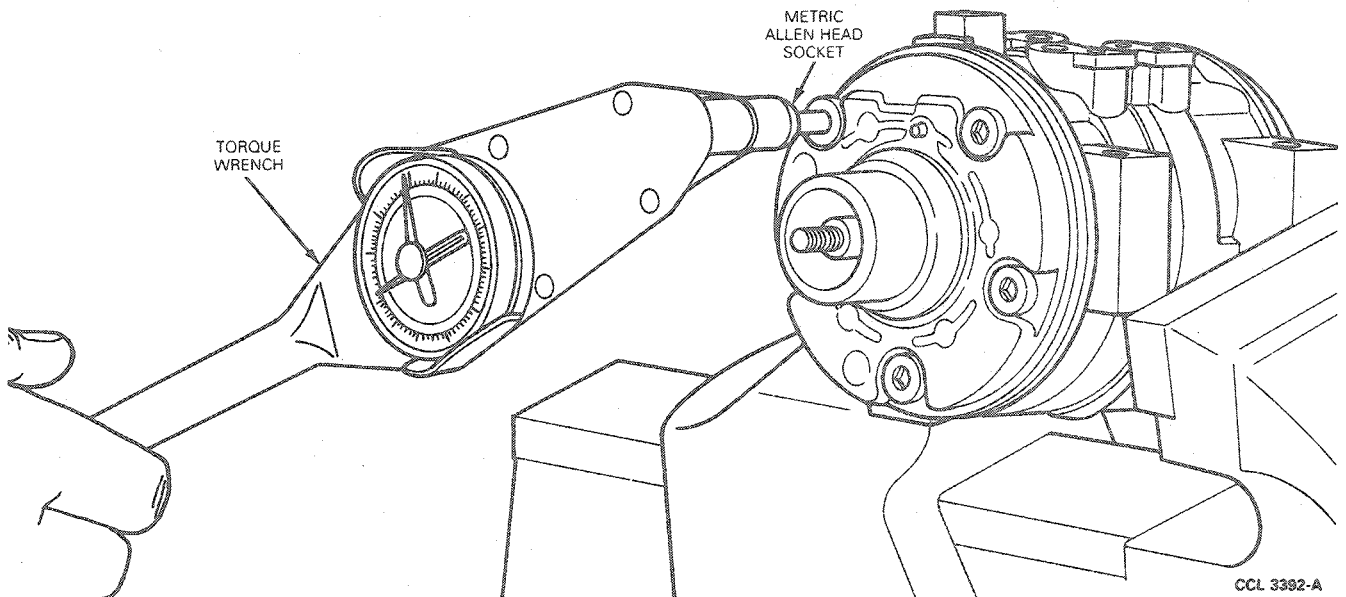
8. Lubricate rear reed valve with clean refrigerant oil and place it in position on the rear of the cylinder assembly. Ensure reed valve is properly positioned on cylinder assembly for cylinder bolts to pass through reed valve to rear head.
9. Lubricate rear valve plate (marked with an "R") and place it in position on rear of cylinder assembly. The "R" mark must be showing when valve plate is properly installed.
10. Lubricate rear head gasket and place it in position on cylinder assembly with raised portion of gasket away from cylinder assembly. Be certain gasket does not block cylinder bolt passages and gas passage opening is positioned to the right of center.
11. Lubricate rear head O-ring and place it in the groove on back of cylinder assembly.
12. Position rear head to cylinder assembly, aligning dowel pins with dowel pin holes in rear head.
13. Hold front and rear heads on the cylinder assembly. Install cylinder bolt until snug. This will prevent the rear head from separating from the cylinder assembly while the other cylinder bolts are installed.

### Holding Cylinder Heads and Installing Cylinder Bolt



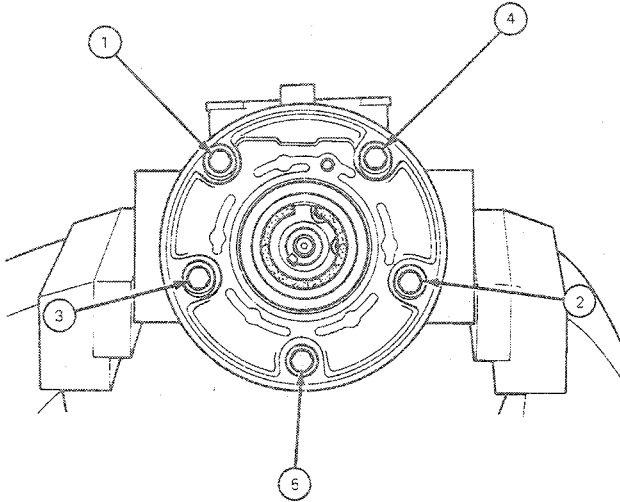
14. Using a torque wrench, tighten five cylinder bolts in three steps: 16 N·m (12 lb-ft), 20 N·m (15 lb-ft) and 25 N·m (19 lb-ft) in a diagonal sequence as shown in the illustration.

### Tightening Cylinder Bolts with Torque Wrench



## MAJOR SERVICE OPERATIONS (Continued)

### Cylinder Bolt Tightening Sequence



CCL 3393-A

15. Lubricate new shaft seal with clean refrigerant oil and carefully attach shaft seal to Shaft Seal Remover / Replacer T87P-19623-C.

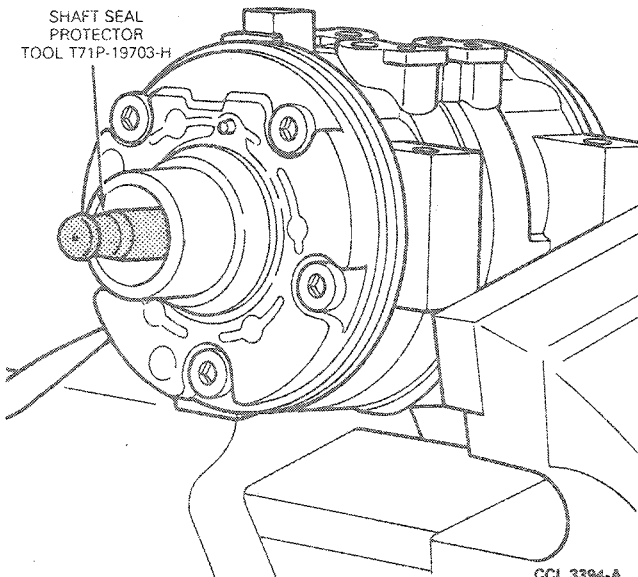
**NOTE:** DO NOT TOUCH the sealing surface of the shaft seal or seal seat with bare hands. To do so will damage the sealing surface.

16. Place Shaft Seal Protector T71P-19703-H over end of compressor shaft.

**NOTE:** Check the thin edge of the shaft seal protector for burrs or other damage. Replace the tool if burrs are found as the burrs could damage the internal sealing portion of the shaft seal assembly during installation.

### Shaft Seal Protector Installed

SHAFT SEAL  
PROTECTOR  
TOOL T71P-19703-H

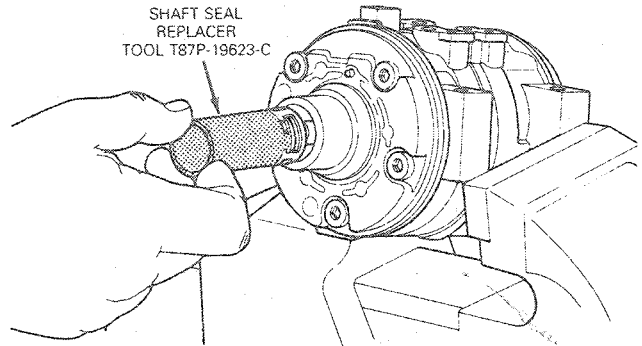


CCL 3394-A

17. Using Shaft Seal Remover / Replacer T87P-19623-C insert shaft seal into compressor. Rotate seal on compressor shaft while pushing inward until flats of shaft are aligned with flats of shaft seal and seal is positioned against stops on shaft.

### Shaft Seal—Installation

SHAFT SEAL  
REPLACER  
TOOL T87P-19623-C

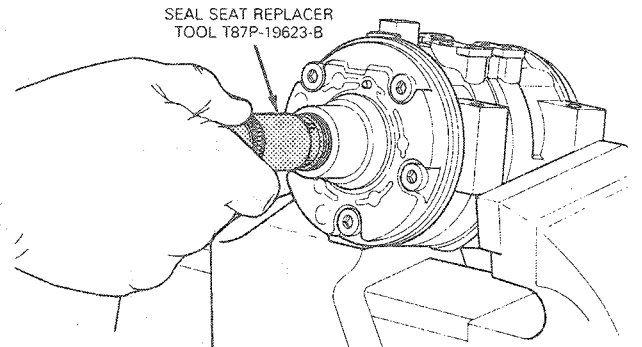


CCL 3395-A

18. Attach shaft seal seat to Shaft Seal Seat Remover T87P-19623-BR and lubricate seat with clean refrigerant oil. Then insert seal seat into compressor. Push seal seat in against the seal.

### Shaft Seal Seat—Installation

SEAL SEAT REPLACER  
TOOL T87P-19623-B

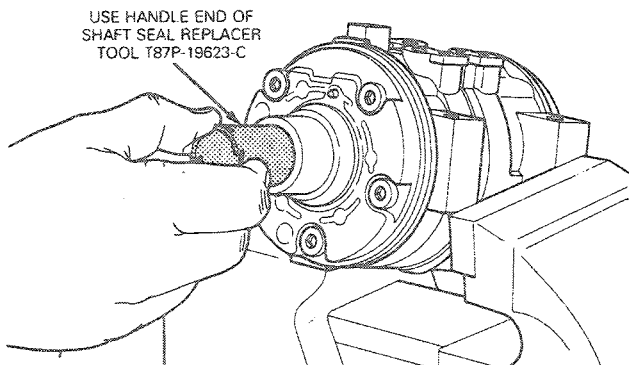


CCL 3396-A

19. Install seal seat retaining snap ring into nose of compressor and push snap ring into the groove with handle end of Shaft Seal Remover / Replacer T87P-19623-C.

### Pushing Seal Seat Snap Ring into Groove

USE HANDLE END OF  
SHAFT SEAL REPLACER  
TOOL T87P-19623-C

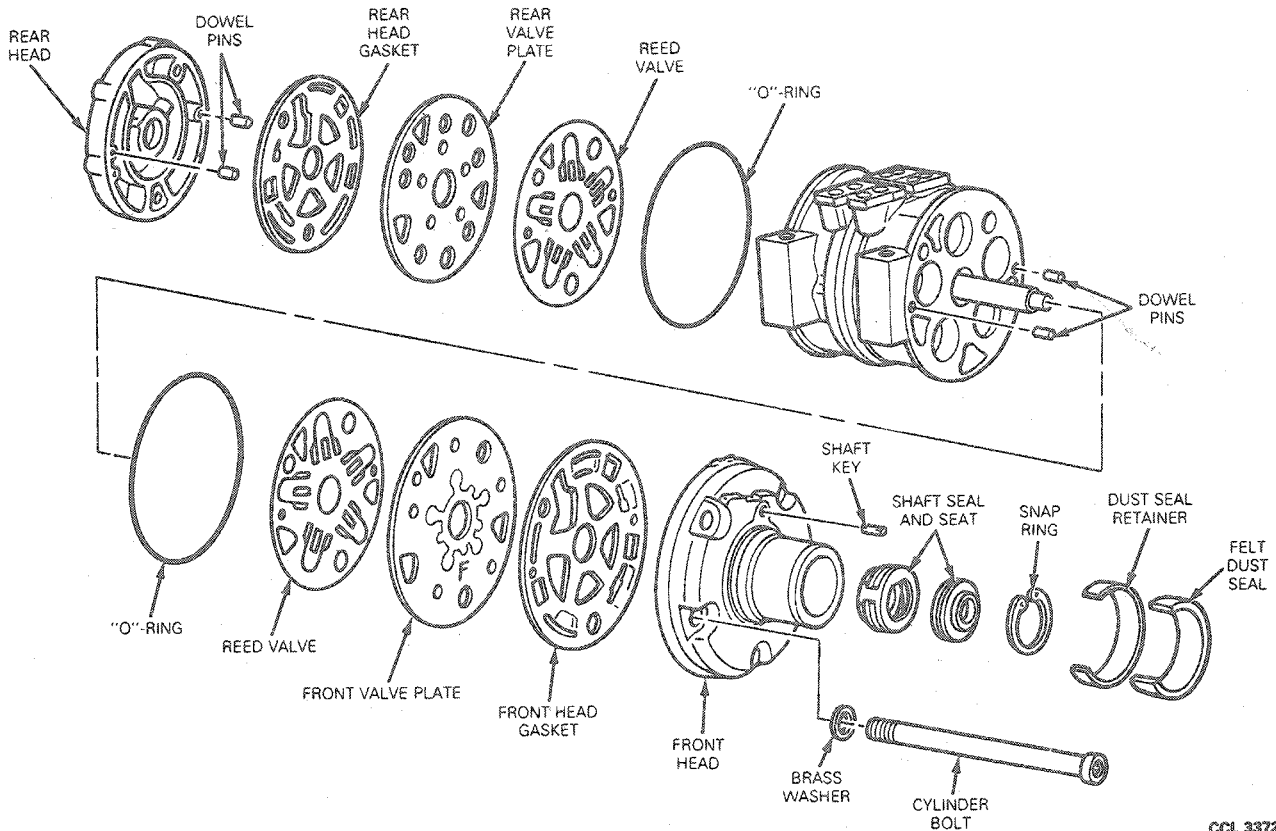


CCL 3397-A

**MAJOR SERVICE OPERATIONS (Continued)**

- 20. Install shaft key with rounded end inward.
- 21. Pour new refrigerant oil into the compressor. Refer to Adding Refrigerant Oil, During Compressor Replacement, as outlined.

- 22. Rotate compressor shaft about 10 revolutions to distribute oil through compressor and around shaft seal. Then leak test the shaft seal with Rotunda Electronic Leak Detector 055-00015 or equivalent.
- 23. Install a new felt strip and retainer into nose of compressor.



CCL 3372-A

- 24. Install clutch field coil with beveled side of snap ring out.
- 25. Install clutch pulley with bevel of snap ring out. Then install shims and clutch hub as outlined.

**Head Replacement**

If it is necessary to replace the front or rear head, refer to Head Gasket and O-Ring Seal, Disassembly.

**SPECIFICATIONS**

**NOTE:** Drive belt tension is maintained by an automatic tensioner. No adjustment is required.

**COMPRESSOR SPECIFICATIONS**

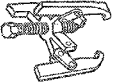

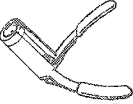
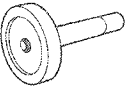

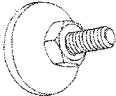
Description	Specification
Type 10P15F (10 Cylinder)	Swashplate, 5 Double Acting Pistons, Axial
Displacement	153cc (9.33 CID)
Rotation	Clockwise
Rotation Torque (Maximum Manifold Removed)	10 N-m (7 Lb-Ft)
Refrigerant Oil Type	ESH-M2C31-A2
System Capacity	8 Fluid Ounces
Part No.	E73Z-19577-A Motorcraft YN-9
Magnetic Clutch Air Gap Between Pulley & Hub	0.021-0.036 inch
Current Draw	4.67 Amps @ 12.8 Volts
Run-out (Maximum)	0.02 inch Radial or Axial

**SPECIFICATIONS (Continued)**




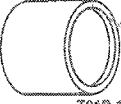
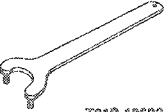
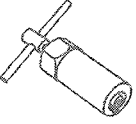
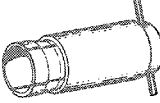



**TORQUE SPECIFICATIONS**

Description	N-m	Lb-Ft
Hose Manifold to Compressor Bolts	18-23	14-16
Clutch Hub Nut	13-20	10-14
Compressor Cylinder Bolts	24.5-26.5	18-19
Suction Hose to Manifold	28-36	21-26
Compressor to Mounting Bracket Bolts	40-55	30-40
Compressor Mounting Bracket to Engine	40-55	30-40
Cylinder Head Bolts	16	12
Cylinder Head Bolts	20	15
Cylinder Head Bolts	25	18

**SPECIAL SERVICE TOOLS**

Tool Number/Description	Illustration
T71P-19703-B Pulley Puller Hub	 T71P-19703-B
T71P-19703-H Shaft Seal Protector	 T71P-19703-H
T71P-19703-T Snap Ring Pliers	 T71P-19703-T
T80L-19703-C Pulley Bearing Replacer	 T80L-19703-C
T80L-19703-E Clutch Pulley Support	 T80L-19703-E
T80L-19703-F Hub Driven Plate Replacer	 T80L-19703-F

(Continued)

Tool Number/Description	Illustration
T80L-19703-G Shaft Protector	 T80L-19703-G
T80L-19703-J Puller and Bearing Tool	 T80L-19703-J
T80L-19703-K Pulley Puller Center Bolt	 T80L-19703-K
T87P-19623-C Clutch Pulley Support	 T81P-19623-J
T81P-19623-MH Spanner Wrench	 T81P-19623-MH
T81P-19623-NH Shaft Key Remover	 T81P-19623-NH
T87P-19623-BR Shaft Seal Seat Remover	 T87P-19623-BR
T87P-19623-C Shaft Seal Remover/Replacer	 T87P-19623-C
T89P-19623-AH Shaft Seal Remover	 T89P-19623-AH
T92P-19623-BH Shaft Seal Replacer	 T90P-19623-BH



**SPECIAL SERVICE TOOLS (Continued)**

Tool Number	Description
D80L-19703-AJ	Pulley Puller Jaws
D81P-19703-B	Complete Pulley Puller
D80L-19703-B	Pulley Hub Driven Plate Remover
D88L-19703-A	Pressure Test Plates

**ROTUNDA EQUIPMENT**

Model	Description
055-00015	Electronic Leak Detector