

# A/C COMPRESSOR OVERHAUL

1993 Jeep Cherokee

1993 GENERAL SERVICING  
Compressor Servicing

## REFRIGERANT OIL & REFRIGERANT SPECIFICATIONS

NOTE: Due to late changes, always refer to underhood A/C Specification Label in engine compartment or A/C compressor label while servicing A/C system. If A/C Specification Label and specifications in table differ, use label specifications.

### REFRIGERANT OIL & REFRIGERANT CAPACITY TABLE (CARS)

Application	(1) Oil Ounces	Refrigerant Ounces
Chrysler Corp.		
All FWD Cars .....	(2) 7.3 .....	32
Concorde, Intrepid & Vision .....	5.0 .....	28
Laser & Talon .....	5.0 .....	33

(1) - Total system capacity, unless otherwise noted.

(2) - With fixed displacement compressor. Use 8.7 ounces with variable displacement compressor.

### REFRIGERANT OIL & REFRIGERANT CAPACITY TABLE (LIGHT TRUCKS/VANS)

Application	(1) Oil Ounces	Refrigerant Ounces
Chrysler Corp. (Except Jeep)		
Dakota .....	4.6 .....	44
FWD Vans (2)		
With Rear Unit .....	13.4 .....	50
Without Rear Unit .....	6.7 .....	36
Pickup & Ramcharger .....	4.6 .....	44
RWD Vans		
With Rear Unit .....	9.3 .....	65
Without Rear Unit .....	7.3 .....	45
Jeep		
Cherokee .....	4.6 .....	38
Grand Cherokee (2) .....	8.0 .....	28
Wrangler .....	4.6 .....	32

(1) - Total system capacity, unless otherwise noted.

(2) - Models use R-134a refrigerant and PAG (ND8) Refrigerant Oil (Part No. 82300102).

## COMPRESSOR APPLICATIONS

NOTE: Due to late changes, always refer to underhood A/C Specification Label in engine compartment or A/C compressor label while servicing A/C system. If A/C Specification Label and specifications differ, use label specifications.

### COMPRESSOR APPLICATIONS TABLE (CARS)

Application	Compressor
Chrysler Corp.	
Concorde, Intrepid, Laser, Talon & Vision .....	Nippondenso 10PA17 10-Cyl.
Except Concorde, Intrepid, Laser, Talon & Vision .....	Nippondenso 6C-17 6-Cyl., Nippondenso 10PA17 10-Cyl., Sanden TR-105 10-Cyl., Sanden SD-709P 7-Cyl.

COMPRESSOR APPLICATIONS TABLE (LIGHT TRUCKS & VANS)

Application	Compressor
Chrysler Corp. (Except Jeep)	
Dakota, Pickup & Ramcharger .....	Sanden SD-709 7-Cyl.
FWD Vans .....	Nippondenso 10PA17 10-Cyl.
RWD Vans .....	Sanden TR-105 10-Cyl.

(1) - Series codes are determined by fifth character of VIN code.

## BODY DESIGNATIONS

BODY DESIGNATIONS TABLE (CHRYSLER CORP. CARS)

Body Designation (1)	Model
"A" Body .....	Acclaim, LeBaron Sedan & Spirit
"C" Body .....	Dynasty & New Yorker
"G" Body .....	Daytona
"J" Body .....	LeBaron Convertible/Coupe
"LH" Body .....	Concorde, Intrepid & Vision
"P" Body .....	Shadow & Sundance
"S" Body .....	Laser & Talon
"Y" Body .....	Fifth Avenue & Imperial

(1) - Body codes are determined by fifth character of VIN code.

BODY DESIGNATIONS TABLE (CHRYSLER CORP. LIGHT TRUCKS & VANS)

Model	Designation
Caravan .....	"D" & "K" Series
Dakota .....	"N" Series
Pickups (Full Size) .....	"D" & "W" Series
Ramcharger .....	"AD" & "AW" Series
Town & Country .....	"Y" Series
Vans (Full Size) .....	"B" Series
Voyager .....	"H" & "P" Series

## NIPPONDENSO 6C-17 6-CYLINDER

### CLUTCH ASSEMBLY

Removal

- 1) Disconnect negative battery cable. Loosen and remove

compressor drive belt. Disconnect clutch coil lead. With refrigerant lines attached, remove compressor mounting bolts and position compressor for service.

2) Using Clutch Hub Holder (6355), remove crankshaft nut. Using Clutch Hub Puller (6354), remove clutch hub and hub clearance shims.

3) Remove snap ring and pulley assembly. Remove snap ring and clutch coil assembly.

#### Installation

1) Align hole in back of clutch coil with pin in compressor housing. Ensure clutch coil lead is properly routed. To complete installation, reverse removal procedure.

2) Tighten crankshaft nut. Using a feeler gauge, check clutch plate-to-pulley clearance. Clearance should be .020-.035" (.51-.89 mm). If clearance is incorrect, add or remove shims as necessary.

## SHAFT SEAL

#### Removal

1) Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove compressor. Drain oil from compressor, and measure amount of oil drained. Remove compressor clutch assembly.

2) Remove compressor crankshaft key. Remove felt packing from nose of front cover. Clean area around seal.

3) Remove shaft seal snap ring. Using Seal Remover/Installer (6429), remove seal from compressor.

#### Installation

1) Lubricate NEW shaft seal with refrigerant oil. Install Seal Protector (6231) over compressor shaft. Using flat end of Seal Remover/Installer (6429), install shaft seal until seal seats in housing.

2) Install NEW shaft seal snap ring. Install clutch assembly. Using new refrigerant oil, add same amount of oil to compressor as was drained from it. Install compressor. Evacuate and recharge system. Perform leak test. See LEAK TESTING in A/C GENERAL SERVICING PROCEDURES article in the AIR CONDITIONING & HEAT Section.

## NIPPONDENSO 10PA17 & 10PA17A 10-CYLINDER

### CLUTCH ASSEMBLY

#### Removal

1) Remove and discard compressor shaft bolt. Remove clutch plate and shims. Tap on clutch plate using a soft-faced hammer (if necessary).

2) Remove pulley assembly snap ring. Remove pulley assembly. Remove snap ring, and disconnect clutch coil lead. Remove clutch coil.

#### Installation (Chrysler)

1) Install clutch coil so pin in back of coil aligns with hole in front housing. Install snap ring with beveled side away from compressor.

2) Install pulley assembly. Install snap ring with beveled side away from compressor. If reusing original clutch plate and pulley, old shims can be used.

3) If using new components, install several shims so shim pack thickness is .10" (2.5 mm). Install clutch plate and hold it tightly against shims.

4) Using feeler gauge, measure air gap between clutch plate

and pulley surface. On Laser and Talon, clearance should be .014-.026" (.36-.66 mm). On all models except Laser and Talon, clearance should be .020-.035" (.51-.89 mm). Adjust shim thickness to obtain correct clearance. Install NEW compressor shaft bolt and tighten it to 13 ft. lbs. (18 N.m).

5) Once compressor shaft bolt is tightened, recheck clearance between clutch plate and pulley surface in 4 places. Readjust clearance if necessary.

NOTE: On Chrysler models, ensure voltage is correct after installing new clutch. Cycle clutch on for 5 seconds and off for 5 seconds. Repeat cycle 20 times with A/C on, blower fan on high speed and engine speed at 1500-2000 RPM.

## SHAFT SEAL

### Removal

1) Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove compressor. Drain oil from compressor, and measure amount drained. Remove clutch assembly.

2) Remove felt dust seal and dust seal retainer from front head. See Fig. 1. Remove shaft seal snap ring. Position front head (nose up) on cardboard placed on a flat surface. Using brass drift, press shaft seal from front head.

### Installation

1) Lubricate new shaft seal with refrigerant oil. DO NOT touch sealing surfaces. Press seal into front head, and install snap ring. Install felt dust seal and dust seal retainer.

2) Lubricate Shaft Seal Protector (J-34614) and front head "O" ring with refrigerant oil. Install shaft seal protector on crankshaft. Install a new front head "O" ring on cylinder assembly.

3) Install front head on cylinder assembly. Ensure dowel pins are aligned. Use care when guiding shaft seal protector through seal opening. Remove shaft seal protector.

4) Install through bolts using NEW brass washers. Diagonally tighten bolts to 19 ft. lbs. (26 N.m). Using INCH-lb. torque wrench, check compressor shaft rotating torque. Rotating torque should be 26 INCH lbs. (3 N.m). Install clutch assembly.

5) Using new refrigerant oil, add same amount of oil to compressor as was drained from it. Install compressor. Evacuate and recharge system. Perform leak test. See LEAK TESTING in A/C GENERAL SERVICING PROCEDURES article in the AIR CONDITIONING & HEAT Section.

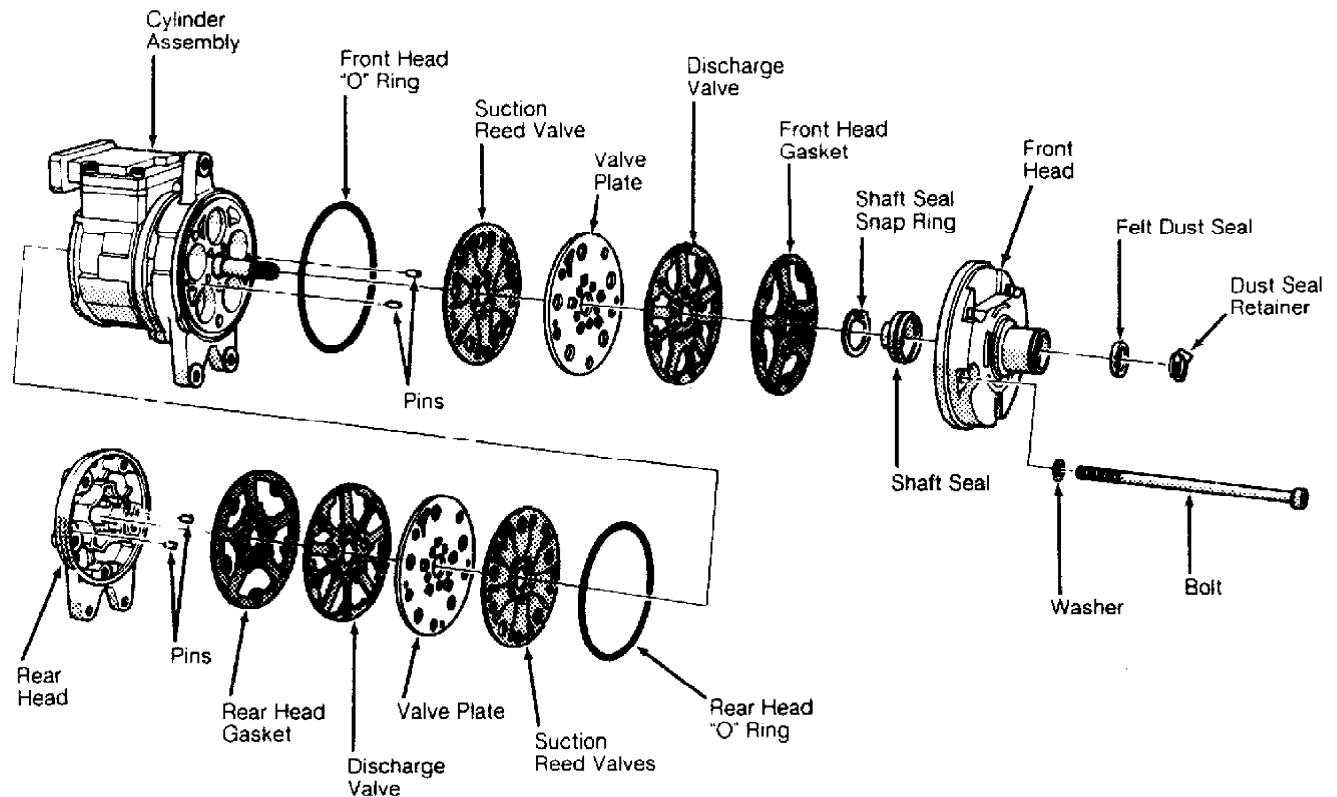


Fig. 1: Exploded View Of Compressor (Nippondenso 10PA17, 10PA17A & 10PA20 10-Cylinder)  
 Courtesy of Ford Motor Co.

## SANDEN SD-709 & SD-709P 7-CYLINDER

### CLUTCH ASSEMBLY

#### Removal

1) Using Spanner (6462), hold clutch and remove compressor shaft nut. Using Puller (6461), remove clutch plate. Remove key from compressor shaft.

2) Remove pulley snap ring. Install jaws of Puller (6141-1) in snap ring groove on pulley. Place Shaft Protector (6141-2) on compressor shaft.

3) Install puller plate on jaws. Thread 2 bolts through puller plate into jaws. Remove pulley from compressor. Remove snap ring and clutch coil.

#### Installation

1) Install clutch coil and snap ring on compressor. Support compressor on rear mounting ears.

2) Using hammer, Handle (6464) and Driver (6143), install pulley assembly. Ensure driver rests on inner race of bearing when installing pulley assembly. Install snap ring.

3) Install shims. Install key in compressor shaft. Using hammer and Shaft Protector (6141-2), install clutch plate on compressor shaft. Tighten compressor shaft nut to 25-30 ft. lbs. (34-41 N.m).

4) Using feeler gauge, measure clearance between clutch plate and pulley assembly in several areas. Clearance should be .016-.031"

(.41-.79 mm). If clearance is not within specification, adjust shim thickness to obtain correct clearance.

## SHAFT SEAL

### Removal

- 1) Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove compressor. Drain oil from compressor, and measure amount drained. Remove clutch assembly.
- 2) Remove key from shaft. Remove felt ring metal retainer and felt ring. Using small screwdriver, remove shims for clutch plate.
- 3) Ensure area around seal is clean. Remove shaft seal snap ring. Using Shaft Seal Remover/Installer (6142), remove shaft seal.
- 4) Install Shaft Seal Remover/Installer (6144) into shaft seal. Press downward on shaft seal remover/installer and rotate it to engage tangs with slots of shaft seal. Pull shaft seal from compressor.

### Installation

- 1) Install Shaft Protector (6141-2) over compressor shaft. Coat shaft protector, new shaft seal and shaft seal seat with refrigerant oil. DO NOT touch sealing surfaces of seal.
- 2) Place seal on seal remover/installer, and twist tool to hold seal. Install seal in compressor, and twist tool in opposite direction to release seal. Remove seal remover/installer. Using shaft seat remover/installer, install shaft seat.
- 3) Install snap ring. Tap on snap ring to ensure it seats in groove (if necessary). Install shims and new felt. To install remaining components, reverse removal procedure. Using new refrigerant oil, fill compressor with the same amount of oil drained from it. Install compressor. Evacuate and recharge system. Perform leak test. See LEAK TESTING in A/C GENERAL SERVICING PROCEDURES article in the AIR CONDITIONING & HEAT Section.

## SANDEN TR-105 10-CYLINDER

### CLUTCH ASSEMBLY

#### Removal

- 1) Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove compressor. Install two 6-mm bolts in holes of clutch plate. Hold 6-mm bolts while removing nut from end of compressor shaft.
- 2) Remove clutch plate and shims. Tap clutch plate from compressor (if necessary). DO NOT pry between clutch plate and pulley to remove clutch plate.
- 3) Remove pulley assembly snap ring. Remove pulley assembly. Disconnect clutch coil lead. Scribe marks on clutch coil and compressor for installation reference. Remove snap ring and clutch coil.

#### Installation

- 1) Install clutch coil on compressor so locating pin engages hole in clutch coil. Install snap ring with beveled side away from compressor.
- 2) Install pulley assembly. Install snap ring with beveled side away from compressor. If reusing original clutch plate and pulley, old shims can be used.
- 3) If new components are used, install several shims so shim pack thickness is .10" (2.5 mm). Install clutch plate and hold it tightly against shims.
- 4) Using feeler gauge, measure air gap between clutch plate

and pulley surface. Proper clearance is .013-.025" (.33-.64 mm). Adjust shim thickness to obtain correct clearance. Tighten compressor shaft nut to 13 ft. lbs. (18 N.m).

5) Once compressor shaft nut is tightened, recheck clearance between clutch plate and pulley surface in 4 places. Readjust clearance if necessary. Install compressor. Evacuate and recharge system. Perform leak test. See LEAK TESTING in A/C GENERAL SERVICING PROCEDURES article in the AIR CONDITIONING & HEAT Section.

NOTE: After installing new clutch, ensure voltage is correct. Cycle clutch on for 5 seconds and off for 5 seconds. Repeat cycle 20 times with A/C on, blower fan on high speed and engine speed at 1500-2000 RPM.

## SHAFT SEAL

### Removal

1) Discharge A/C system using approved refrigerant recovery/recycling equipment. Remove compressor. Install two 6-mm bolts in holes of clutch plate. Hold 6-mm bolts while removing nut from end of compressor shaft.

2) Remove clutch plate and shims. Tap clutch plate from compressor (if necessary). DO NOT pry between clutch plate and pulley to remove clutch plate.

3) Insert 2 jaws of Bearing Remover/Installer (6533) into bearing groove. Install retainer over jaws of bearing remover/installer.

4) Tighten pressure screw of bearing remover/installer against compressor shaft until bearing is removed.

5) Remove felt washer from compressor. Remove shaft seal snap ring. Engage Seal Remover/Installer (6551) in slots of seal case. Lift seal from compressor.

### Installation

1) Place Seal Sleeve Protector (6552) over compressor shaft. Coat seal sleeve protector and seal lip with refrigerant oil. Using seal remover/installer, install seal. Remove seal sleeve protector.

2) Install shaft seal snap ring. Install felt washer. Install bearing in pulley. Using hammer with jaws and retainer of bearing remover/installer, drive bearing into pulley.

3) If reusing original clutch plate and pulley, old shims can be used. If using new components, install several shims so shim pack thickness is .10" (2.5 mm). Install clutch plate and hold it tightly against shims.

4) Using feeler gauge, measure air gap between clutch plate and pulley surface. Proper clearance is .013-.025" (.33-.64 mm). Adjust shim thickness to obtain correct clearance. Tighten compressor shaft nut to 13 ft. lbs. (18 N.m).

5) Once compressor shaft nut is tightened, recheck clearance between clutch plate and pulley surface in 4 places. Readjust clearance if necessary.