

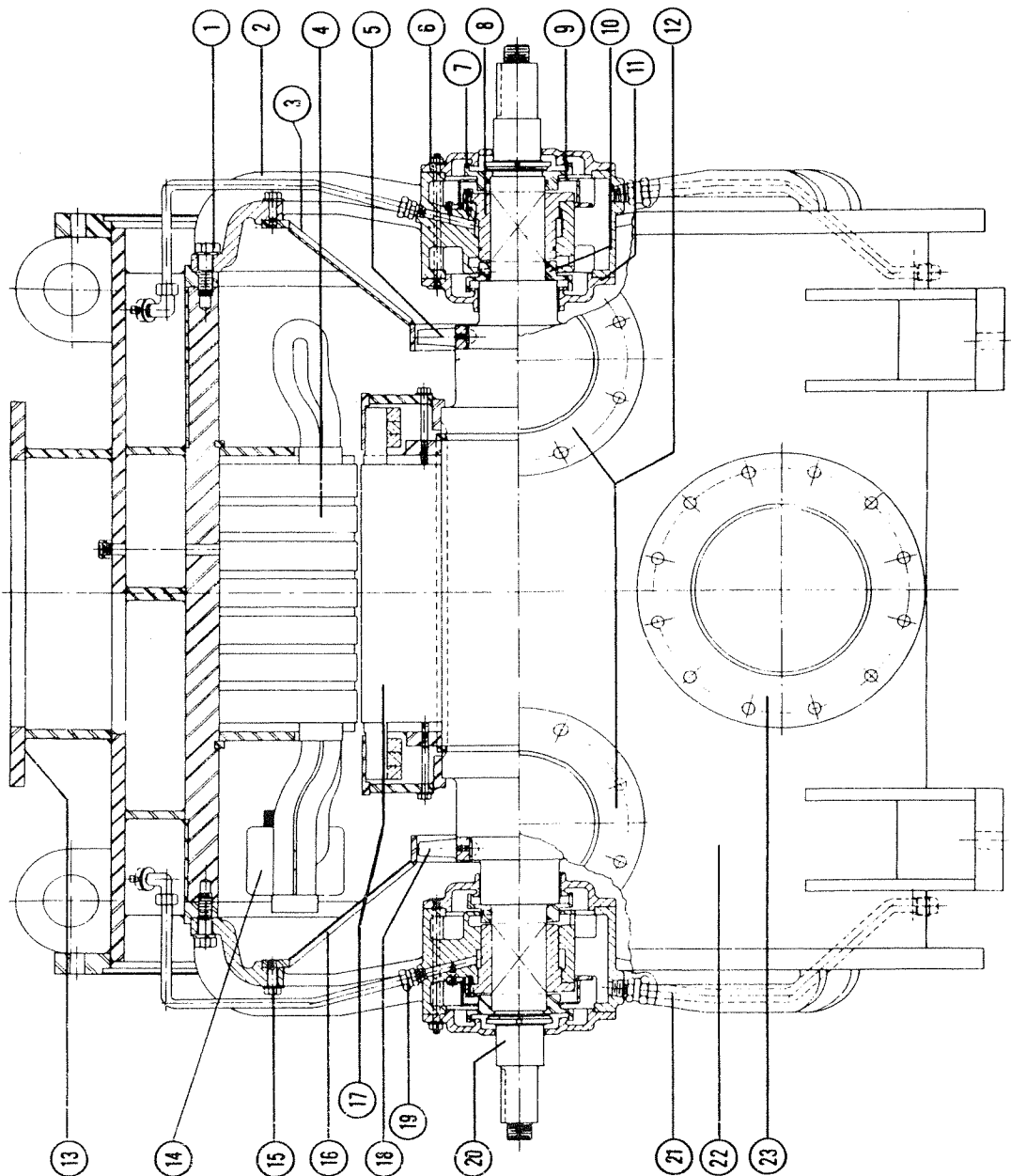
HERMETIC MOTOR INSTRUCTION MANUAL

ABX

**Hermetic
Refrigerant Gas Cooled
Frames 2600-3300
Type ABX**

R913

HERMETIC TYPE ABX SQUIRREL CAGE MOTORS
SLEEVE BEARING OIL LUBRICATED
REFRIGERANT GAS COOLED



1. Bolts and Lock washers - Bearing Bracket
2. Bearing Bracket
3. Air Deflector - Opposite Connection End
4. Stator
5. Fan *
6. Bearing Cap - Outside
7. Oil Thrower - Outside
8. Bearing - Sleeve
9. Oil Seal
10. Oil Thrower - Inside
11. Bearing Cap - Inside
12. Port (s) - Refrigerant Gas Inlet Cooling
(May be quantity of 1 or 2 and located on either side of motor.)
13. Mounting Flange - Terminal Board
14. Stator End Coil Connections
15. Cap Screws and Lock washers - Air Deflector
16. Air Deflector - Connection End
17. Rotor
18. Fan *
19. Pipe - Oil Inlet
20. Shaft
21. Pipe - Oil Drain
22. Housing
23. Port - Refrigerant Gas Outlet Cooling

* Each motor contains one fan designed for clockwise rotation and another designed for counterclockwise rotation. Refer to reverse side of this page for proper fan selection and location.

CONNECTION END

OPPOSITE CONNECTION END

1. Motor Serial Number
2. Part Name

HERMETIC TYPE ABX SQUIRREL CAGE MOTORS

GENERAL

Hermetic motors are of squirrel cage design. Before making electrical connection, check the nameplate for proper data. Motors may be furnished for across the line or reduced voltage starting.

The motors are equipped with sleeve bearings which are pressure lubricated. The shaft acting as a pump, builds up an oil film, which is termed thick film hydrodynamic lubrication.

WINDING

Hermetic motors are equipped with a winding specifically designed for service in refrigerant gas systems. The proper winding procedures and use of materials are required in the repair of these motors.

BEARING AND LUBRICATION

The bearing is pressure lubricated. A pressure of 15 PSI is desired for best operating conditions. The oil enters at top of the bearing chamber (oil inlet) and flows to the shaft bearing journal through two holes 180 degrees apart on the horizontal centerline. The oil flows along the grooves on each side of the bearing. The shaft journal acting as a pump builds up an oil film in the bearings. The shaft rides on the oil film which is termed thick film hydrodynamic lubrication. The oil flows to each end of the bearing. The tight end bearing is equipped with a thrust face on each end. Radial grooves permit an ample flow of oil to lubricate the thrust face. Two thrust faces are provided since direction of thrust for a given installation is indeterminate. After leaving the thrust face, the oil goes to the drain and sump system. The oil flow should be no less than one pint per minute.

ASSEMBLY

The dismantling and reassembly of hermetic motors for replacement of mechanical parts can be readily accomplished in the field.

The sequence for removal of bearing assembly, is as follows:

1. Bearing cap nuts
2. Copper sealing washer
3. Outside bearing cap and gasket
4. Bearing lock nut
5. Bearing lock washer
6. Outside oil thrower with "O" ring
7. Oil seal cap screws
8. Oil seal
9. Bearing cap screws
10. Insert bearing cap screws in tapped holes in bearing. Turn bolts and bearing will be pulled from bearing bracket.
11. Bearing bracket bolts
12. Bearing bracket (use puller holes provided)
13. Inside thrower set screws
14. Inside oil thrower
15. Inside bearing cap and gasket

Stator-Rotor Assembly Alignment

The stator and rotor cores may be offset from the motor center line. When properly assembled, the ends of the rotor core must be aligned with the ends of the stator core within $\pm 1/16"$.

Motor Rotation — Thrust Bearing Location

Motor rotation is defined by standing at the end of the motor with gas ports on the right hand side. Rotor rotation must always be such that an imaginary arrow on the rotor end ring would point to the gas ports when such arrow is in the upper quadrant of the rotor.

The thrust bearing may be unidirectional; therefore, it is imperative that the thrust bearing used is of proper rotation and properly located. The shortest of the two bearing journals on the shaft is the thrust bearing journal - tight end.

Unidirectional thrust bearings have tapered lands to the right or left of the thrust face oil groove dependent on rotation. For clockwise rotation, when viewed from the flanged end of the thrust bearing, the tapered lands in the upper quadrant are to the right of the thrust face oil grooves.

End Play

A check for proper end play is made. BLT/RIE motor is assembled using the following procedure:

- A. Assemble inside end cap on tight end of shaft. (This step required so that removal of inside thrower step B will not be necessary after check.)
- B. Assemble inside oil thrower with "O" ring on tight end of shaft. Apply a uniform pressure to thrower to seat the thrower to shaft shoulder. Lock the thrower in position by tightening set screws.
- C. Assemble outside thrower on tight end of shaft and lock in position with bearing lock nut.
- D. Measure the distance between inside and outside oil thrower at four locations. Any variation in excess of .001 inches in readings indicates a runout on either the shaft shoulders or thrower faces. The runout should be corrected before further assembly is accomplished.
- E. Measure sleeve bearing length at four positions.
- F. The difference between value obtained in step D and step E should be between .012 to .020 inches for 3300 Frame, and .008 to .016 for 2600 Frame.

Rotor Fans

The rotor fans are of propeller type design. Each motor contains one fan designed for clockwise rotation and another designed for counter-clockwise rotation. The proper fan must be mounted on the appropriate end of the shaft. The fan action of each fan must yield a direction of refrigerant gas flow from each end of the motor toward the center of the motor.

REQUIRED ORDER INFORMATION

1. Motor Serial Number
2. Part Name



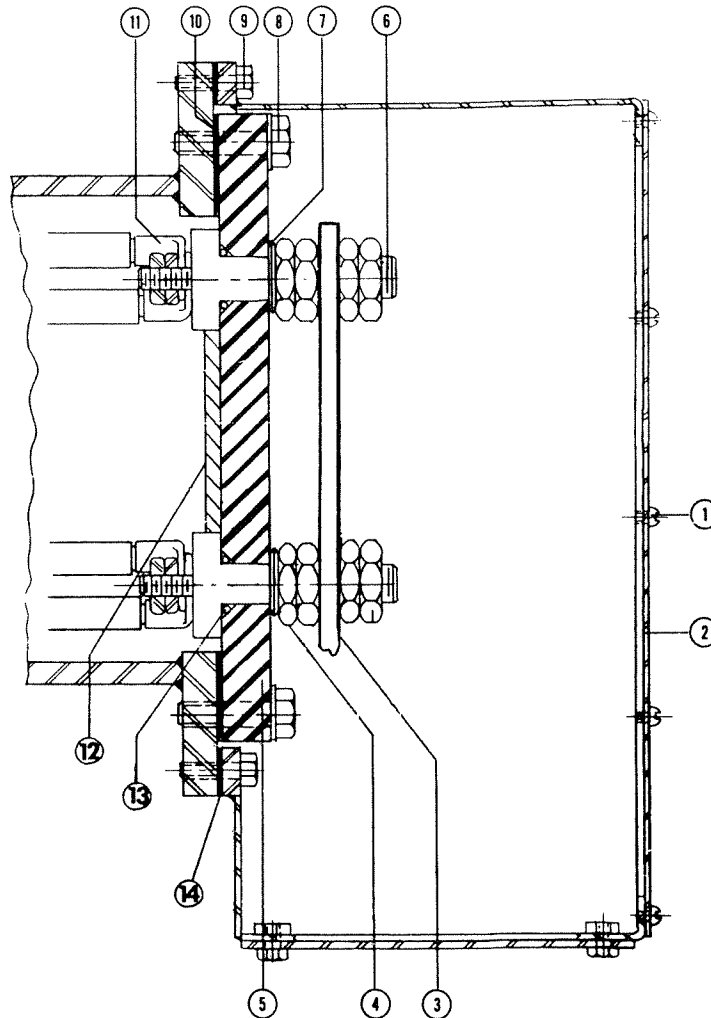
HERMETIC TYPE ABX SQUIRREL CAGE MOTORS

TERMINAL BOARD ASSEMBLY

SERVICE MANUAL
SECTION 15, Page 133
May, 1979
Supersedes
January 15, 1958

Hermetic
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R913A



1. Screws – Conduit Box Cover
2. Box – Conduit
3. Connection Strap
4. Jam Nuts – Brass
5. Terminal Board
6. Studs – Terminal
7. Washers – Spring and Flat
8. Bolts – Terminal Board
9. Bolts – Conduit Box
10. Terminal Board Gasket
11. Lugs – Stator Winding Cable
12. Insulator Block
13. O-Ring – Terminal Stud
14. Gasket – Conduit Box

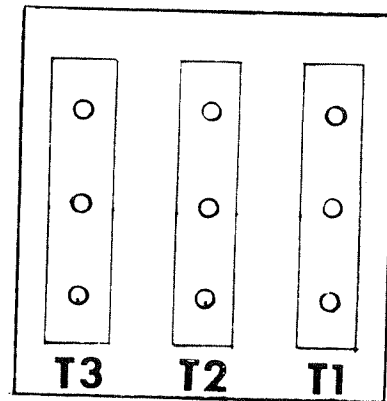
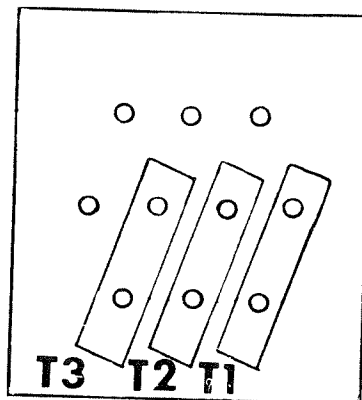
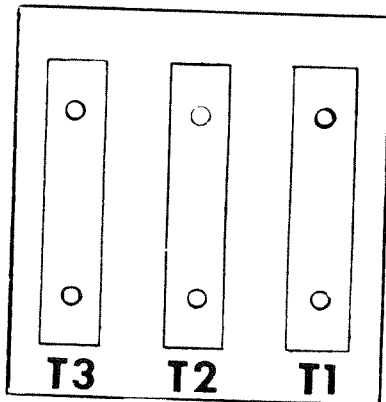
REQUIRED ORDER INFORMATION

1. Motor Serial Number
2. Part Name



Connection	Low Voltage	High Voltage
Star		
Delta		

Dual Voltage



Single Voltage

In all cases connect:

- L1 to T1
- L2 to T2
- L3 to T3

REQUIRED ORDER INFORMATION

1. Motor Serial Number
2. Part Name



LOUIS ALLIS
 Milwaukee Wisconsin 53201

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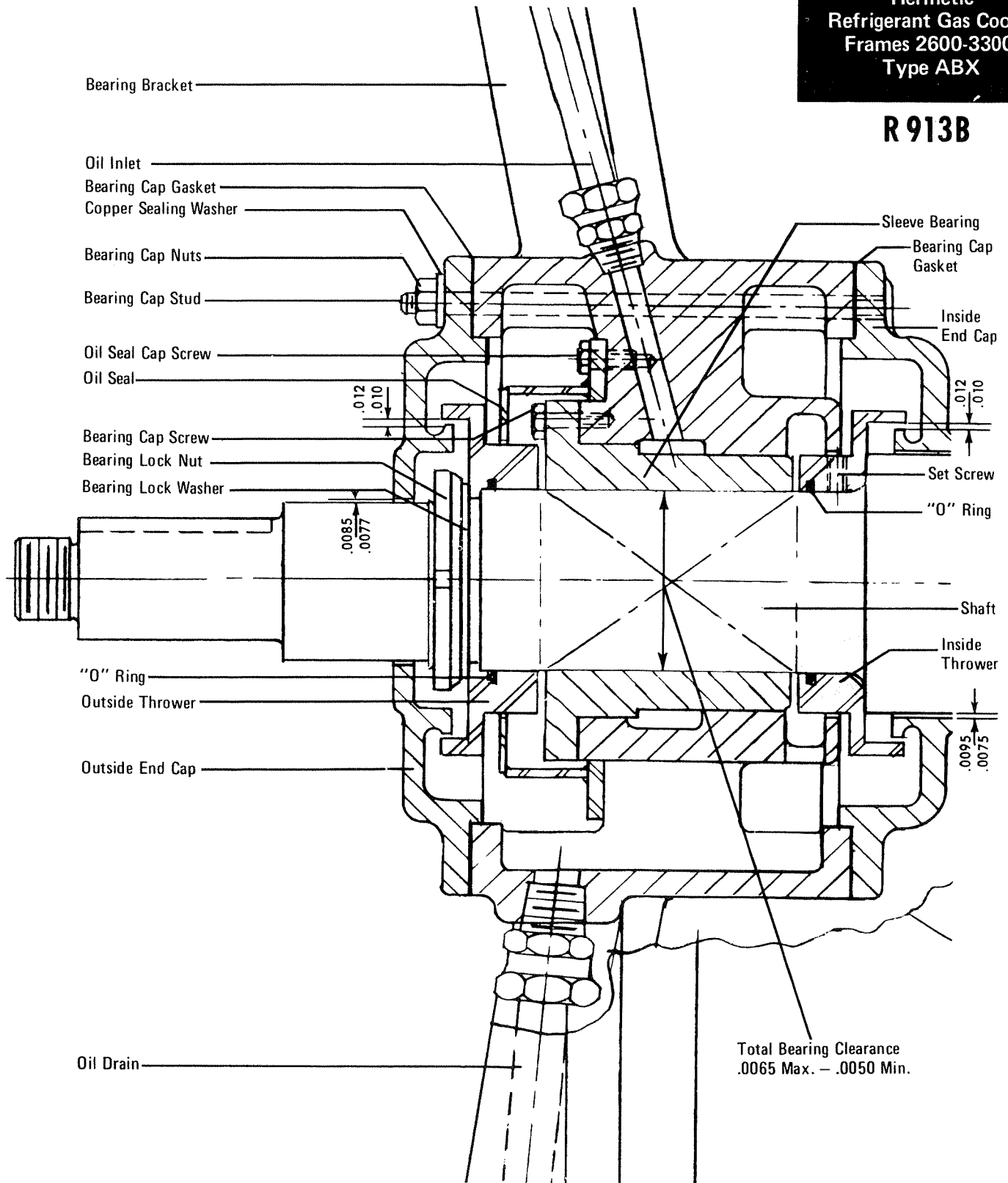
HERMETIC TYPE ABX SQUIRREL CAGE MOTORS

BEARING CONSTRUCTION

SERVICE MANUAL
SECTION 16, Page 235.1
May, 1979
Supersedes
January 15, 1958

**Hermetic
Refrigerant Gas Cooled
Frames 2600-3300
Type ABX**

R 913B



REQUIRED ORDER INFORMATION

1. Motor Serial Number
2. Part Name

DESIGN FEATURES

Construction

Sleeve bearings used in Hermetic type motors are of one piece construction. The bearing is a push fit in the bearing bracket and held in position by three bearing retaining bolts. Both bearings are identical for motors built in the 2600 frame. Motors built in the 3300 frame have a different bearing on the loose end compared to the tight end. Refer to pictures shown below.

The inside slinger is a push fit on the shaft and held in position by set screws. Note that the inside cap must be placed in position on the shaft before inside slinger is placed in position.

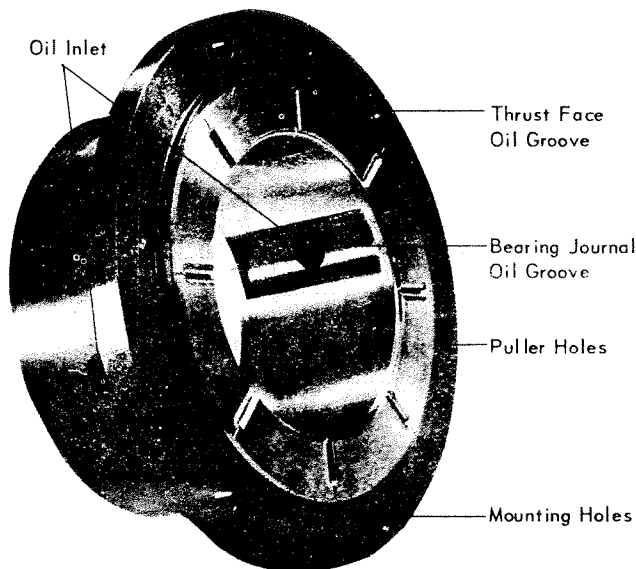
The outside slinger is designed to be a push fit on the shaft. It is held in position by the bearing lock washer and lock nut. Both the inside and outside slinger are equipped with an "O" ring to make the shaft to slinger fit oil tight.

The shaft shoulder on one end of the motor is machined to restrict the end play (tight end). The end play is held to a tolerance of 0.012 to 0.020 inches for frame 3300 and .006 to .012 for frame 2600. The opposite bearing assembly will have a nominal clearance of 1/8 inch.

PROCEDURE FOR DISASSEMBLY

The sequence for removal of bearing assembly is as follows:

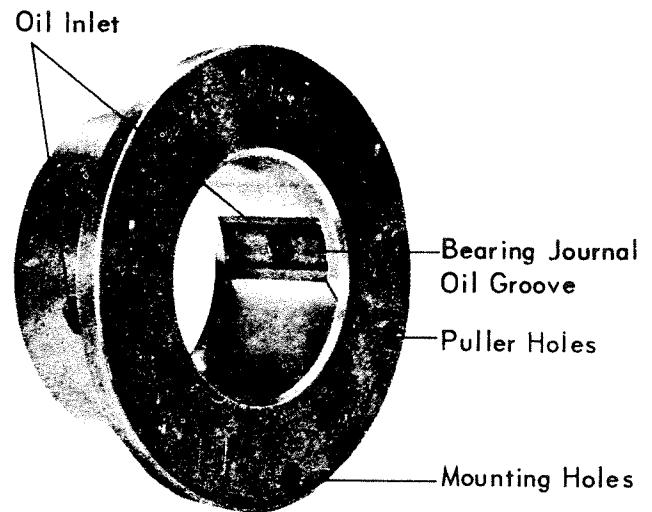
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|--------------------------------------|--|
| 1. Bearing cap nuts | 9. Bearing cap screws |
| 2. Copper sealing washer | 10. Insert bearing cap screws in tapped holes in bearing. |
| 3. Outside bearing cap | Turn bolts and bearing will be pulled from bearing bracket . |
| 4. Bearing lock nut | 11. Bearing bracket bolts |
| 5. Bearing lock washer | 12. Bearing bracket (use puller holes provided) |
| 6. Outside oil thrower with "O" ring | 13. Inside thrower set screws |
| 7. Oil seal cap screws | 14. Inside oil thrower |
| 8. Oil Seal | 15. Inside bearing cap |



Sleeve Bearing

2600 Frame - Both Ends (Without Tapered Lands)

3300 Frame - Tight End Only – Suitable for Unidirectional Rotation (With Tapered Lands for only CW or CCW Rotation)



Sleeve Bearing

3300 Frame - Loose End Only

REQUIRED ORDER INFORMATION

1. Motor Serial Number
2. Part Name



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