

EATON

Hydraulics

ME Low Speed High Torque Motor

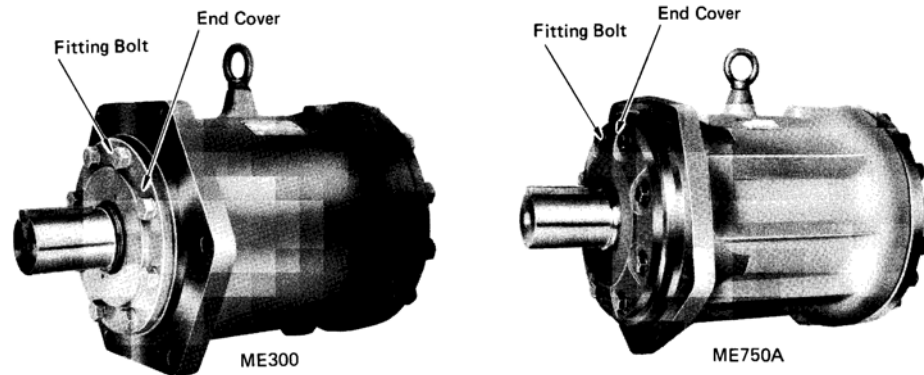
Shaft Seal Replacement



Preparatory Work

Servicing in the field is confined to the replacement of the motor shaft oil seal and to renewal of the complete motor unit. All servicing must be carried out in a clean working area, the motor is a precision hydraulic assembly and must be treated as such. Any further disassembly work beyond repairing the ME motor shaft seal may result in a loss of product warranty. For more detailed product repairs, please contact an authorized Eaton Service Center.

Fig. 1. Motor Appearance



1. Preparatory Work

- Choose a clean working area. A parts storage box is required.
- Clean all tools and parts required for the work prior to the replacement.
- Clean the exterior of the motor.
- Remove dirt, oils attached on motor shaft and oil seal area.
- Wire-brush the paints on the mating area of casing or cover.
- Remove the shaft key and dress out scores, burrs and sharp edges on key groove.
- Before disconnecting pipings, clean the port area.
- All ports must be plugged to avoid dirt.

2. Shaft Seal Replacement

ME100, ME150, ME175, ME300, ME350, ME600A, ME750A, ME850, ME1300A, ME3100, MK300, MK600

Stand the motor vertically with shaft uppermost (see the Figs. 2 and 3) and start the disassembly following the procedures described below (the motor must be placed securely);

2-A. Disassembling Procedures

- Unscrew and remove the end cover bolts.
- Place a screwdriver under the lip of the end cover and carefully lever the cover out of the casing.
- Using a driver, remove the shaft seal.
- Remove O-ring on the end cover or on the casing (in case of ME750A and ME850).
- During the works of b-d above, shims placed on the cup of taper roller bearing might be taken onto the end cover when it is removed. Take care that any of shims are not lost.
- Examine the seal running area on the shaft and dress out any scores with a fine oil stone. During this work, cover the motor to avoid getting dirt into the motor.
- Dress out any scores or burrs on O-ring groove, oil seal housing etc.
- Cleanse the removed end cover, bolts etc. with clean kerosene and dry naturally or by a blower.
- Take utmost care all through the above work that no dirt enters the motor because the end cover is off.

2-B. Reassembling Procedure

Clean the new oil seal and O-ring and fit them in the following procedure after the old ones are removed. (See Figs. 2 and 3.)

- Fit the seal and O-ring on end cover. In case of ME750A and ME850, O-ring is fitted into the groove on the casing.
- Grease the O-ring as fitted and the lip of oil seal and place the end cover on the casing. Take care that the seal lip does not contact the edge of key groove.
- Fit the securing bolts with washers and tighten them to the torque designated. The tightening torque and bolt size for each more size are listed in the Table 1. Apply LOCTITE (#222 purple) if available after degreasing the bolt threads.

Table 1

| MOTOR | BOLT | PART NO. | NO. OF BOLT | TIGHTENING TORQUE | | |
|-----------------|----------------------------|----------|-------------|-------------------|--------|----|
| | | | | (kgf-m) | lbf.ft | |
| ME100 | Hex, socket head cap screw | M 8x20 | DW0023A-020 | 4 | 3 | 22 |
| ME150 ME175 | Hex, socket head cap screw | M 10x30 | DW0024A-030 | 8 | 4.7 | 34 |
| ME300 ME350 | Hex, head bolt | M 10x30 | DW0016A-030 | 8 | 4.7 | 34 |
| ME600A | Hex, head bolt | M 12x35 | DW0017A-035 | 8 | 8 | 58 |
| ME750A ME850 | Hex, head bolt | M 12x30 | DW0017A-030 | 8 | 8 | 58 |
| ME1300A | Hex, head bolt | M 12x25 | DW0017A-025 | 8 | 8 | 58 |
| ME3100 | Hex, head bolt | M 14x35 | DW0018A-035 | 12 | 13 | 94 |
| MK300 | Hex, socket head cap screw | M 10x35 | DW0024A-035 | 16 | 4.7 | 34 |
| MK600 | Hex, socket head cap screw | M 14x40 | DW0026A-040 | 16 | 13 | 94 |

Fig. 2. Fitting of End Cover
ME100, ME150, ME175,
ME300, ME350, ME600A,
ME1300A, ME3100, MK300,
MK600

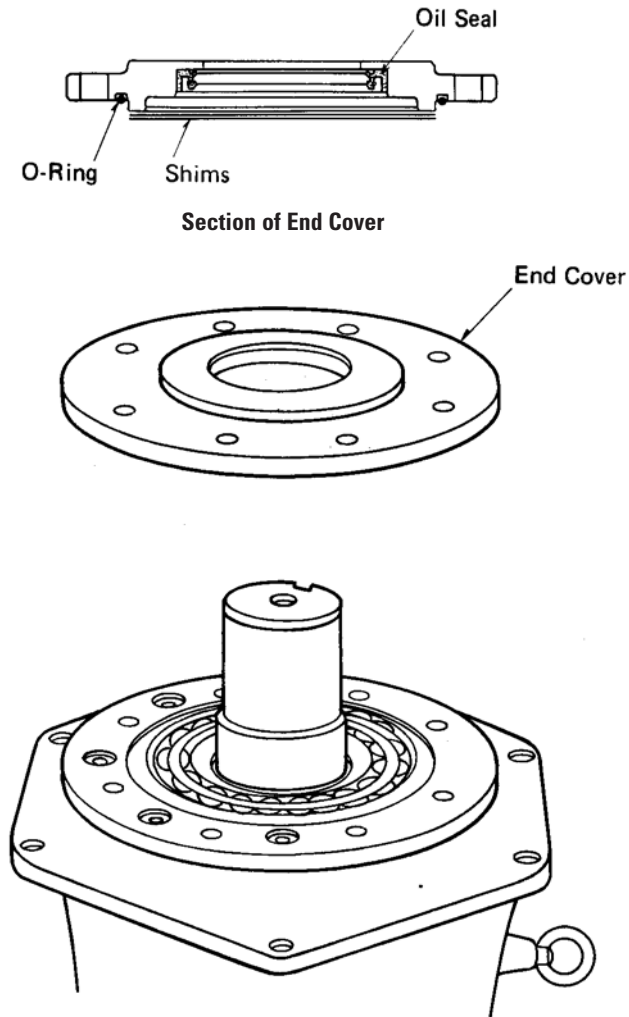


Fig. 3. Fitting of End Cover
ME750A, ME850

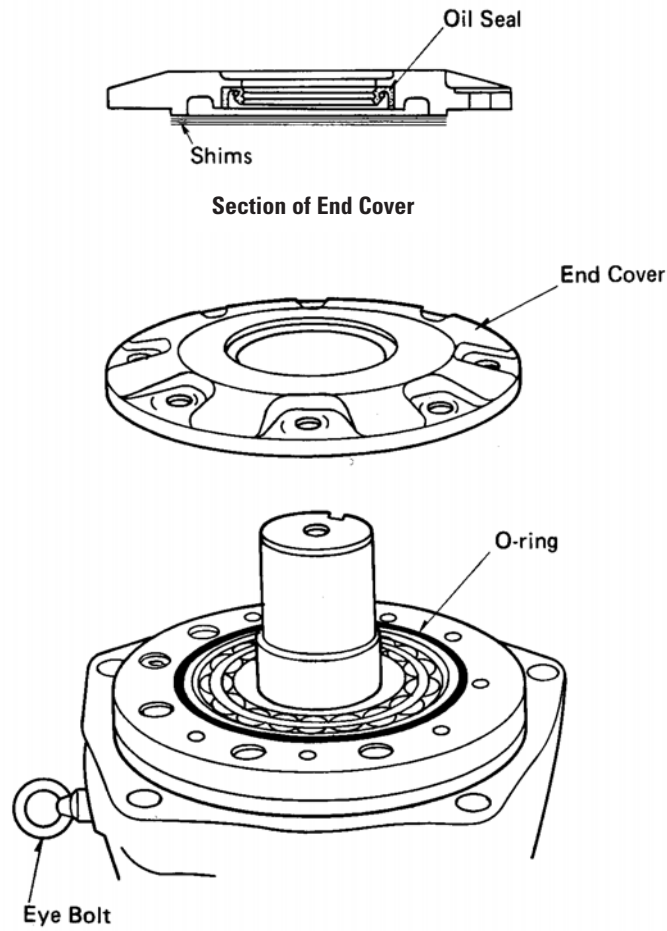
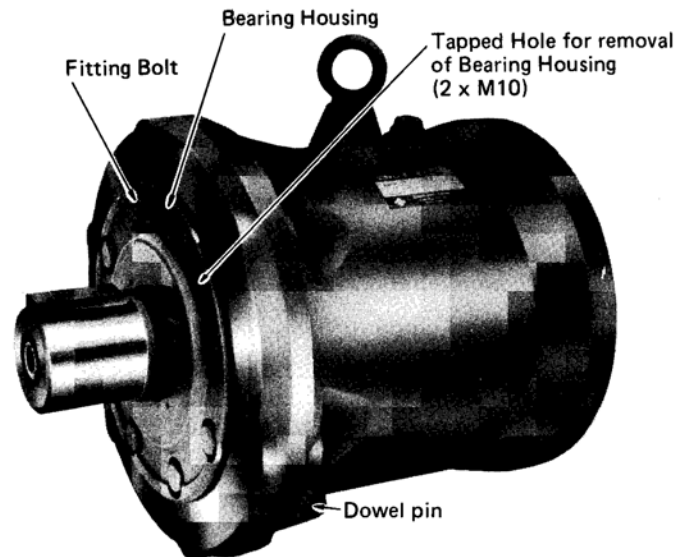


Fig. 4. Motor Appearance



3. Shaft Seal Replacement
ME1900, ME2600, ME4100

After the preparatory work as described on page 2, item 1 is done, stand the motor vertically with the shaft uppermost. Disassemble the motor in the following procedure.

3-A. Disassembling Procedure

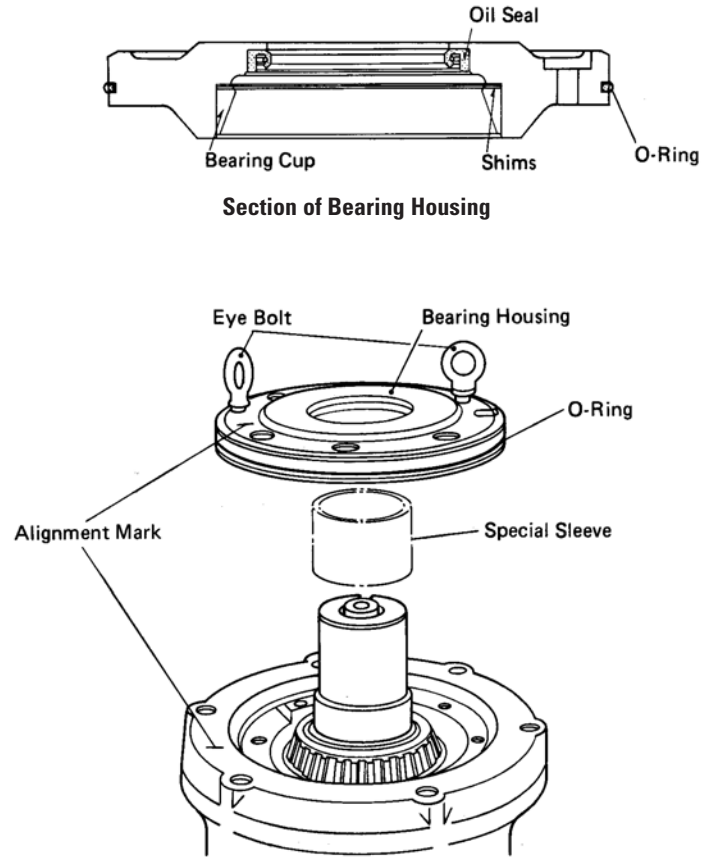
- a) Unscrew and remove the bearing housing, bolts and seal washers. Make alignment marks on the bearing housing to ensure re-assembly in the same relationship. (See Fig. 5)
- b) Fit two M10 eyebolts into the two threaded holes in the bearing housing. Attach a suitable hoist and lift the housing squarely out of the motor casing. Cover the motor with a piece of clean cloth to prevent dirt from entering the body.
- c) Using a driver remove the shaft oil seal.
- d) Remove the O-ring on the bearing housing.
- e) Take care that the bearing cup and pre-load shims are not disturbed during this operation.
- f) Examine the seal running area on the shaft and dress out any scores with a fine oil stone.
- g) Clean out the oil seal recess and O-ring groove and ensure any sharp edges or roughness are removed.
- h) Cleanse, with clean kerosene the removed bearing housing and bolts, dry naturally or by a blower.

3-B. Reassembly Procedure

Clean the new oil seal and O-ring and fit them in the following procedure.

- a) Fit the oil seal and O-ring on the bearing housing. Take care that O-ring or seal lip are not bruised.
- b) Oil the seal lip and O-ring and lower the housing squarely over the shaft and into the motor casing. Take care that the seal lip does not contact the edges of the shaft key way or splines. Use a simple sleeve for this purpose. (See Fig. 5)
- c) Use new seal washers for housing bolts and tighten them. Take the following cares in doing this work (See Fig. 5):
 - (i) The bolts used differ in each motor size, and each bolt must be fitted at the designated position. The bolt sizes to be used and the required tightening torque is listed on page 6, in Table 2. The fitting positions for each bolt are shown in Fig. 6.
 - (ii) The tightening torque must be confirmed on a torque wrench.
 - (iii) Apply LOCTITE (#222, purple) on degreased bolt threads.

Fig. 5. Fitting of Bearing Housing



ME1900, ME2600,
ME4100 cont.

Fig. 6. Bolt Locations

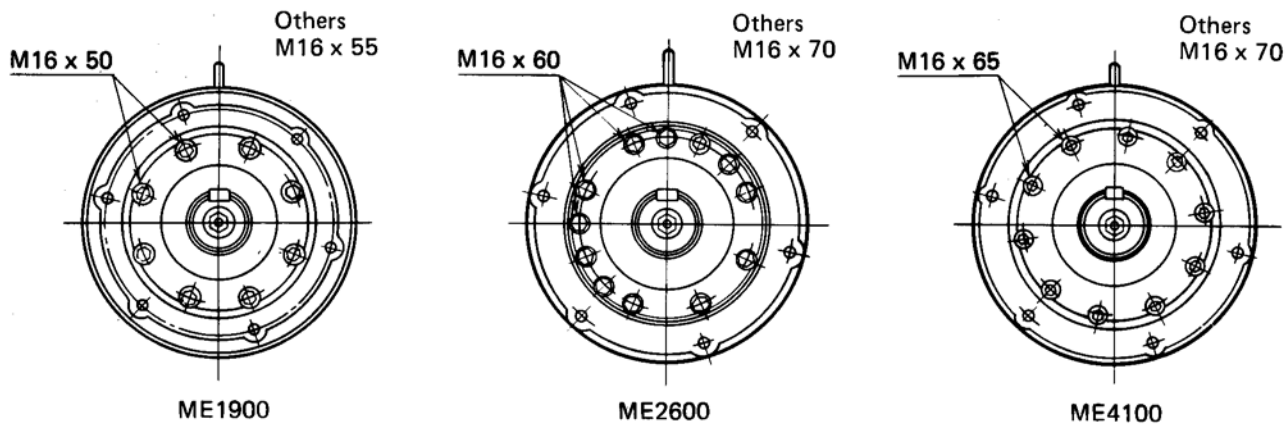


Table 2

| MOTOR | BOLT | PART NO. | NO. OF BOLT | TIGHTENING TORQUE | TIGHTENING TORQUE |
|--------|----------------|--------------------|-------------|-------------------|-------------------|
| | | | | (kgf-m) | lbf.ft |
| ME1900 | Special Bolt | M16x55 T22117-003 | 6 | 14 | 101 |
| | Special Bolt | M16x50 T22117-002 | 2 | 14 | 101 |
| ME2600 | Hex, head bolt | M16x70 DW0019A-070 | 8 | 14 | 101 |
| | Hex, head bolt | M16x60 DW0019A-060 | 4 | 14 | 101 |
| ME4100 | Hex, head bolt | M16x70 DW0019A-070 | 8 | 14 | 101 |
| | Hex, head bolt | M16x65 DW0019A-065 | 2 | 14 | 101 |

Required Parts and Tools

A. Replacement Parts

The parts required for replacement are listed in Table 3. Seal Kit No. is also in the Table. Please use Seal Kit No., when you order parts.

Table 3

| MOTOR | OIL SEAL PART NO. | O-RING PART NO. | SEAL WASHER PART NO. | SEAL WASHER Q'TY | SEAL KIT NO. |
|---------|-------------------|-------------------|----------------------|------------------|--------------|
| ME100 | TCN40-62-11 | IAG95 | | | DZ2126A |
| | DW0050A-040 | DW0003B-095 | | | DZ2126A |
| ME150 | TCN60-82-12 | IAG125 | | | DZ2162A |
| ME175 | DW0050A-060 | DW0003B-125 | | | DZ2042A |
| ME300 | TCN60-82-12 | IAG125 | | | DZ2043A |
| ME350 | DW0050A-060 | DW0003B-125 | | | DZ2044A |
| ME600A | TCN75-100-13 | IAG145 | | | DZ2046A |
| | DW0050A-075 | DW0003B-145 | | | DZ2046A |
| ME750A | TCN75-100-13 | Special O-Ring | | | DZ2048A |
| ME850 | DW0050A-075 | T20160 | | | DZ2050A |
| ME1300A | TCN85-110-13 | IAG195 | | | DZ2138A |
| | DW0050A-085 | DW0003B-195 | | | DZ2138A |
| ME1900 | MHSA105-135-14 | 1/4 x 11 1/2 x 12 | M16 | 8 | DZ2054A |
| | DW0052A-105 | DW0005B-079 | DW0034A-16 | 8 | DZ2054A |
| ME2600 | MHSA120-150-14 | 1/4 x 12 1/2 x 13 | M16 | 12 | DZ2056A |
| | DW0052A-120 | DW0005B-081 | DW0034A-016 | 12 | DZ2056A |
| ME3100 | MHSA105-135-14 | Special O-Ring | | | DZ2057A |
| | DW0052A-105 | DK0018A | | | DZ2057A |
| ME4100 | MHSA135-165-14 | 1/4 x 15 x 15 1/2 | M16 | 10 | DZ2059A |
| | DW0053A-135 | DW0005B-086 | DW0034A-016 | 10 | DZ2059A |
| MK300 | TCN55-78-12 | Special O-Ring | | | DZ2060A |
| | DW0050A-055 | DA0189A | | | DZ2060A |
| MK600 | TCN70-95-13 | Special O-Ring | | | DZ2061A |
| | DW0050A-070 | DB0078A | | | DZ2061A |

• The quantity for oil seal and O-ring is one each.

• The seal material for the standard motor is nitrile rubber. In case phosphate ester is used as fluid viton seal must be used. Please inquire with us in such a case.

B. Tools

- Torque wrench [capability 3~14 kgf-m (20-110lbf-ft) torque]
- Eyebolt M10 2 pcs.
- Driver
- Special sleeve (for shaft).....preferable
- Lithium grease
- LOCTITE (#222, purple)
- Hammer (copper head)
- Box wrench (for M10, M12, M14, M16) or Hex wrench (for M8, M10, M14)

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