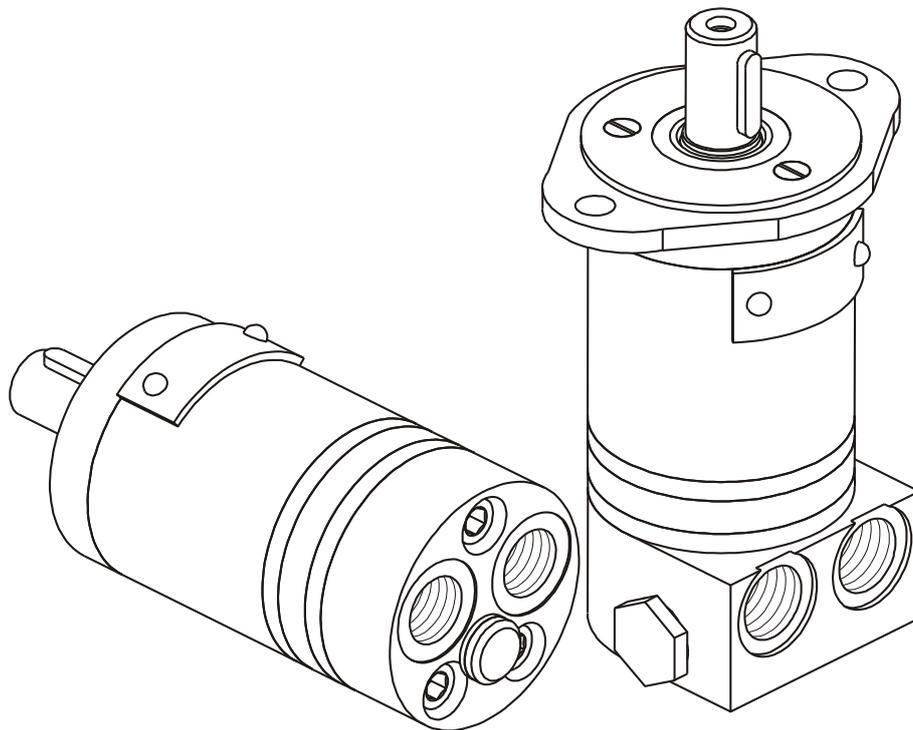
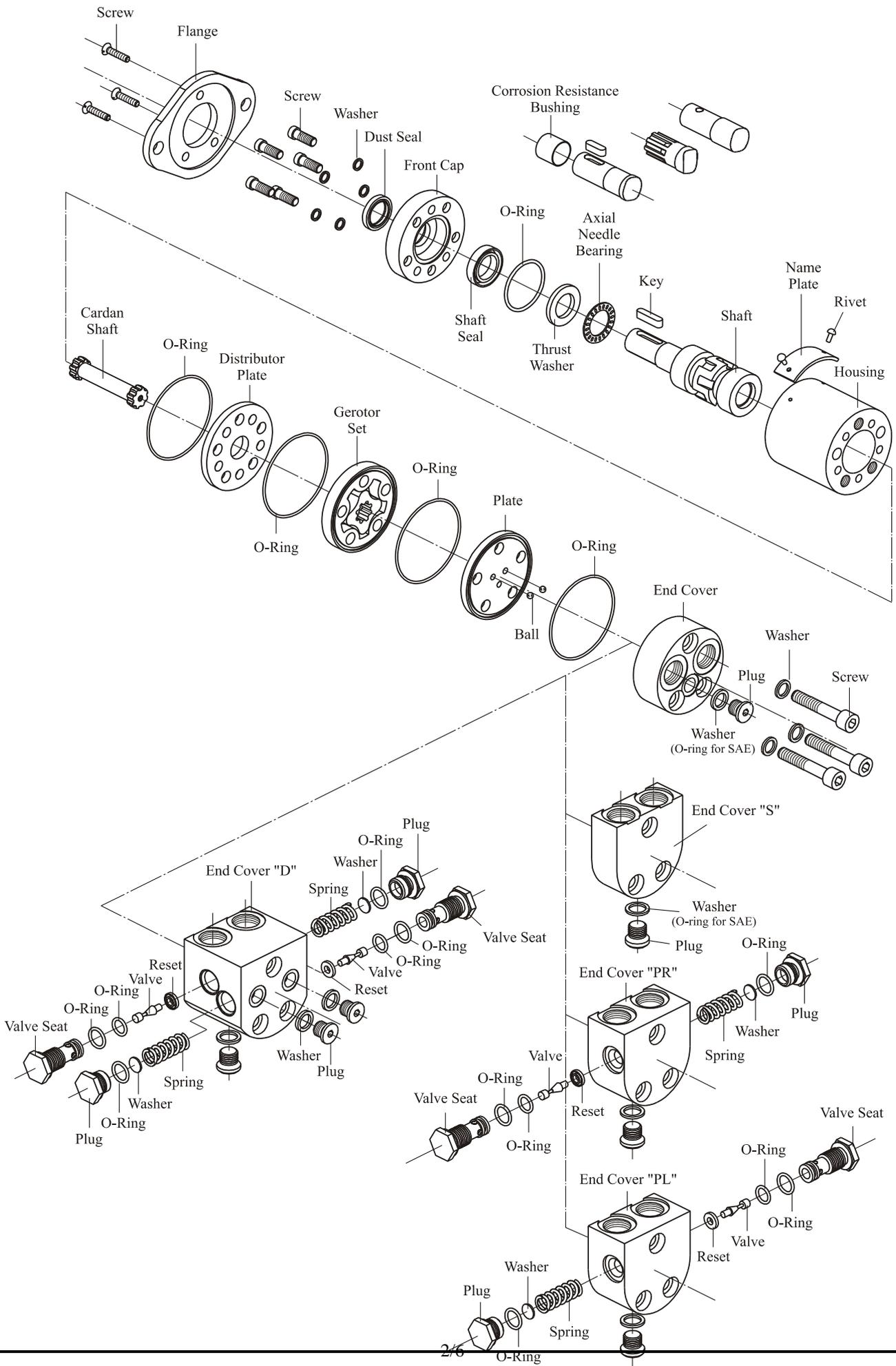


# SERVICE MANUAL

## *Hydraulic Motors type MM and MLHM*





Instructions in this manual are for MM and MLHM motors.

Cleanliness is extremely important when repairing these motors. Work in clean area!

Before disassembly, drain oil from motor.

Remove key when used. For motors with drain unscrew drain plug and remove washer (O-ring for MLHM...4,5,7,8).

Although not all drawings show the motor in disassembly devise (vise), we recommend that you keep motor clamped during disassembly.

To ensure correct assembling make a marking line across the motor parts.

1. For F-flanged motors only! Unscrew the screws M6x14 and remove flange.

2. Place the motor in disassembly devise with output shaft down.

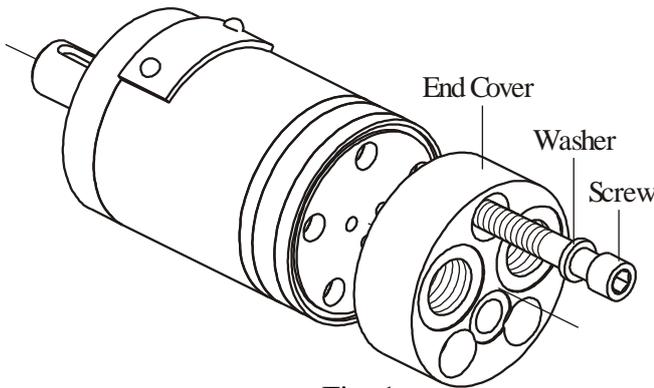
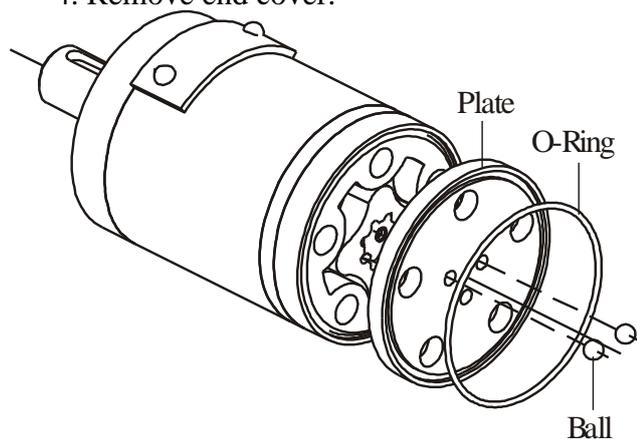


Fig. 1

3. Unscrew screws using S6 Allen head spanner. Remove washers (see Figure 1).

Note: The screws are assembled with Loctite to hold them in place. A higher torque is required to break screws loose.

4. Remove end cover.



Ball - 3 -

Fig. 2

5. Remove plate. Remove O-ring from plate groove (For MM 8 the plate has O-rings from both sides!) Remove balls (2 pcs.) (see Figure 2).

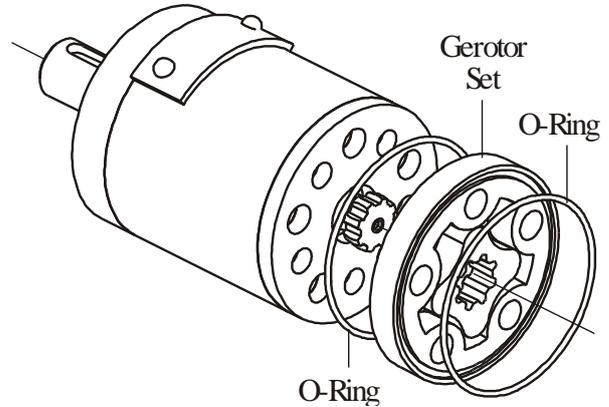


Fig. 3

6. Remove the roll-gerotor set carefully to prevent dropping of rotor from stator. Do not dismount!

Remove O-rings from gerotor set grooves (see Figure 3).

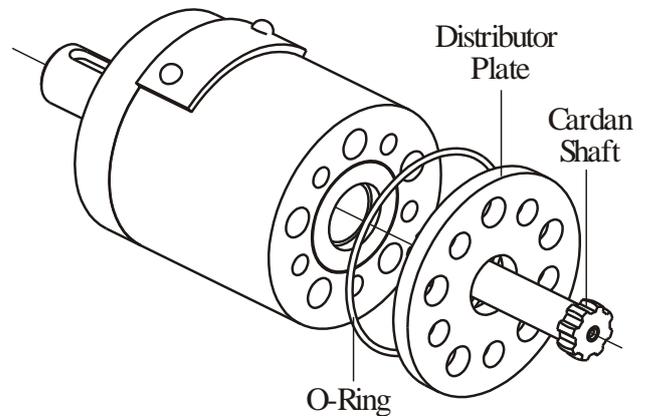


Fig. 4

7. Remove cardan shaft (see Figure 4).

8. Remove distributor plate. Remove O-ring from plate groove (For MM 8 the plate has O-rings from both sides!)

Reposition motor in disassembly devise with shaft upwards.

9. Unscrew screws using S5 Allen head spanner (see Figure 5).

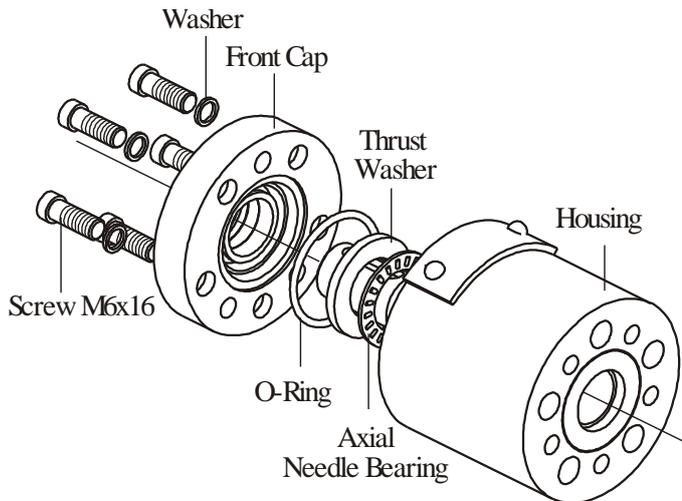


Fig. 5

10. Remove Front cap from housing. Dust seal and Shaft seal will come off with cap.

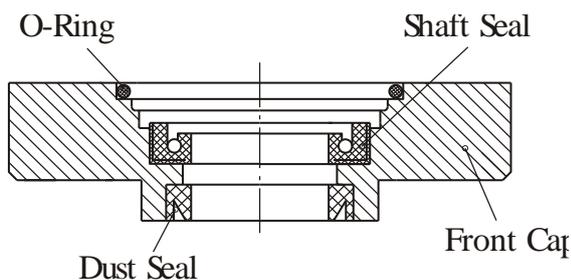


Fig. 6

11. Remove with screwdriver Dust seal and Shaft seal from Front cap (see Figure 6). Work from outer side for both seals.



12. Remove shaft from housing.

13. Remove thrust washer and needle bearing from shaft.

### 1. CLEANING:

Wash all parts (except seals) in a weak solvent on carbon base and then degrease.

### 2. MEASURING AND REPLACEMENT:

Measure all parts and compare actual dimensions with the nominal ones given in the technical documentation. Replace any parts with scratches or burrs that could cause leakage or damage with new ones. Use new seals when reassembling motor.

### 3. LUBRICATION:

Lubricate all seal parts which should be reassembled with light film of petroleum jelly.

### Seal Kits:

SK41 5129 0080 for MM...  
 SK41 5129 1408 for MM...P  
 SK41 5129 1809 for MM...D

SK41 5123 0001 for MLHM...  
 SK41 5123 0003 for MLHM...4(7)  
 SK41 5123 0649 for MLHM...P  
 SK41 5123 0653 for MLHM...4(7) P  
 SK41 5123 1297 for MLHM...D  
 SK41 5123 1299 for MLHM...4(7) D

To ensure correct assembling orient motor parts according to previously drawn marking line.

1. Lubricate output shaft with hydraulic oil.
2. Lubricate lightly all internal housing surfaces with hydraulic oil. Mount shaft in housing.
3. Place the motor in reassembly device with output shaft up.
4. Install needle bearing, then thrust washer on the shaft.

Place front cap on clean soft surface. Lubricate shaft seal and dust seal with light film of clean petroleum jelly (Shell Retinax Grease HDX2).

5. Place shaft seal in the front cap and firmly push with Seal driver (see Fig.7).

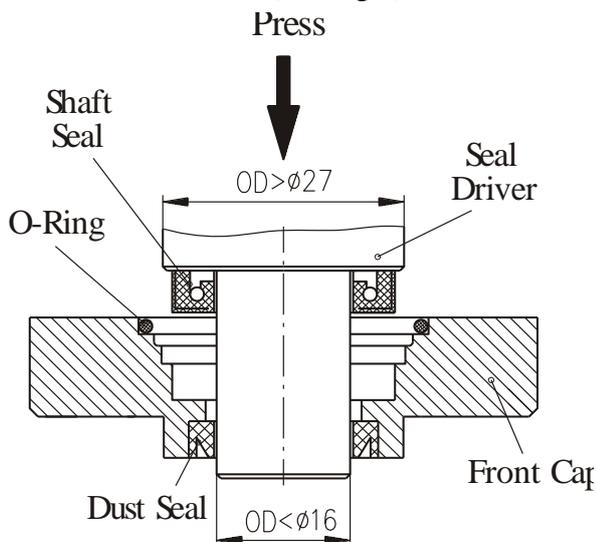


Fig. 7

6. Turn on the front cap to 180°. Carefully press dust seal into place. Lips of shaft seal and dust seal must face outward. Lubricate the O-ring and fit it to the front cap.

**Important:** Check seal condition after installing in housing. If damaged, cut or improperly installed, replace with new ones.

7. Install the front cap incl. assembled seals on the shaft. Prevent the seals against damages.

8. Install in the front cap 6 screws M6x16 with washers and alternately torque them to 8÷10 Nm (see Fig.5).

9. Reposition motor in reassembly device with shaft down.

10. Install cardan shaft into splines of output shaft.

11. Lubricate and install O-ring in the groove of the distributor plate (see Fig.3). Install the plate with O-ring side to the housing.

### Timing Procedure

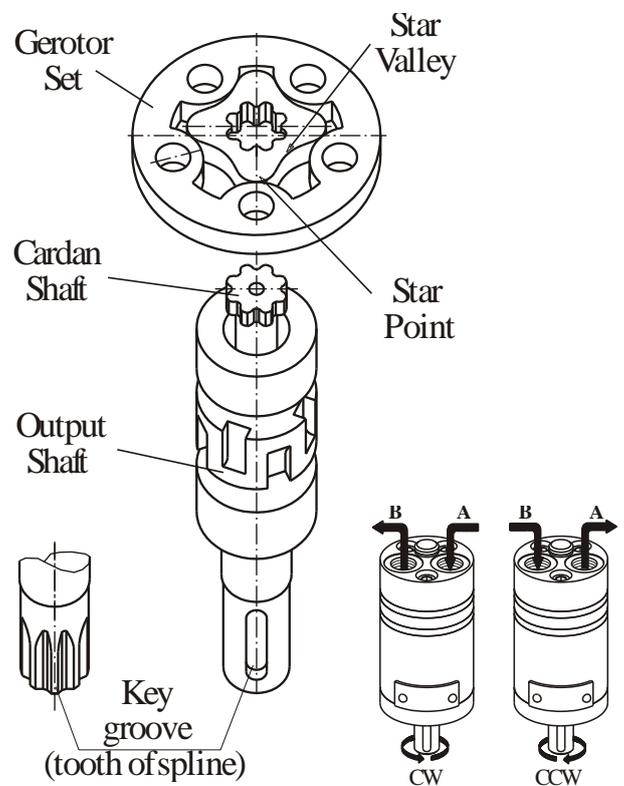


Fig. 8

12. Lubricate O-rings (2 pcs.) and place them in seal grooves of both stator sides.

13. Place gerotor set on distributor plate aligning any star point with the shaft key groove (tooth of external spline) (see Fig.8).

**Reverse Rotation:** Reverse rotation is obtained by aligning any star valley with the shaft key groove (tooth of external spline)

14. Stave 2 chamfers by the side of groove for O-ring 54,5x1,5 using a hammer, stamp and 5

mm ball. Lubricate and install O-ring in the groove of the plate. Install the plate with O-ring side to the cover. Align the screw holes in the plate with the screw holes of the gerotor set. Place the balls into the plate. (see Fig.2).

Note: For MM8 and MLHM8 version the plate has two O-ring grooves.

15. Install the end cover (see Fig.1). For end covers "S", "PL(R)" and "D" orient the port face right to the name plate of the housing !

16. Install in the end cover screws with washers and alternately torque them to  $2,5 \div 3$  daNm. Before mounting the screws apply 2 or 3 drops of LOCTITE 222 or 243 at top of thread.

17. Install washer (O-ring for MLHM...4,5,7,8) on drain plug. Tighten plug with S4 Allen wrench with torque  $0,8 \div 1$  daNm.

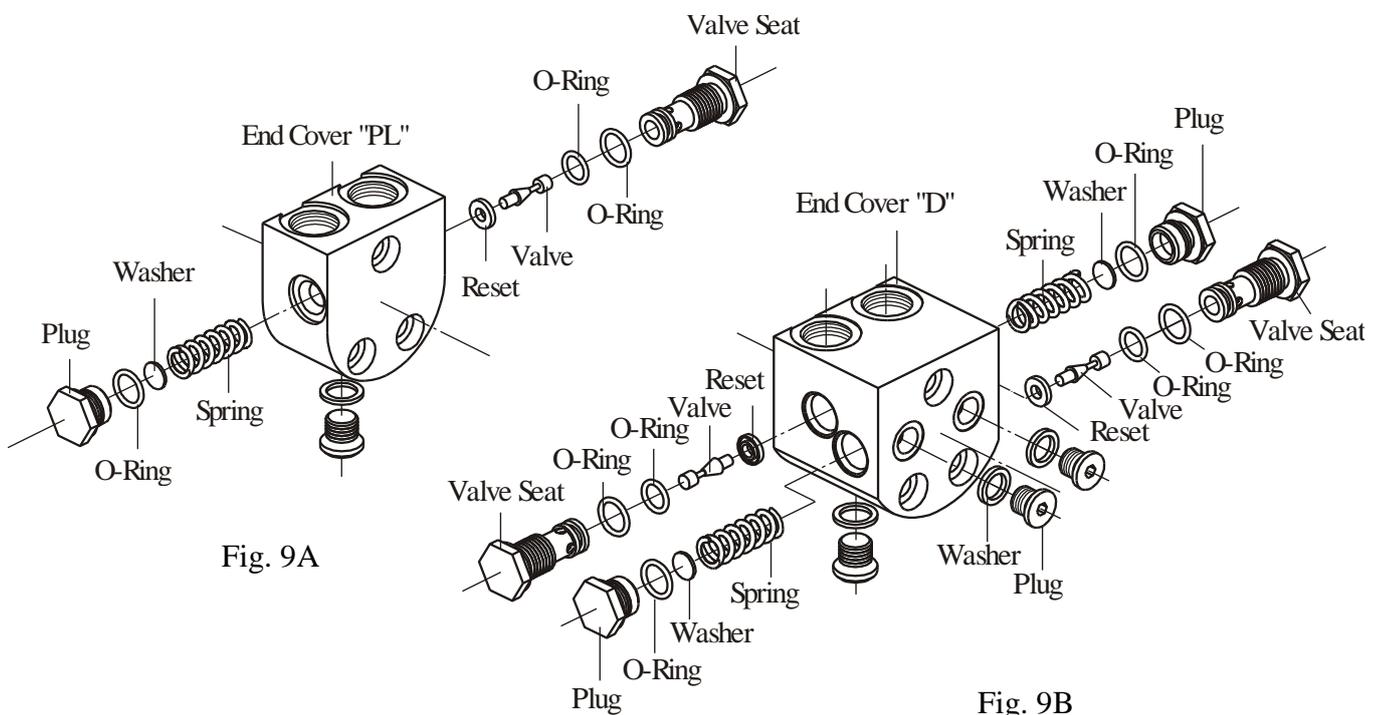
18. For "F"-flanged motors install in the flange 3 screws M6x14 torque them to  $5 \div 6$  Nm.

19. Install key in shaft key groove.

### **Disassembly and reassembly of MMP...L(R), MMD, MLHM...PL(R) and MLHM...D (with integrated Crossover Relief Valve):**

These motors are the same as the standard motors except end cover. Follow the same disassembly and reassemble procedures as for the standard motor.

Disassembly: Unscrew Valve seat and Plug using a S19 wrench. Remove and clean the other parts . Remove the O-rings from the grooves of the Valve seat and the Plug (see Fig.9A and 9B).



Reassembly: Install O-rings 11,2x1,8 and 9x1,8 in the relevant grooves of valve seat. Lubricate the valve and mount it into the valve seat hole, place on it the rest with the slot directed to its conical part. Screw the valve seat in the housing acc.to the required side for protection (L or R) with  $2 \div 2,3$  daNm torque using a S19 torque wrench.

Install O-ring on the plug. Mount the washer and spring in the inner hole of plug. Tighten plug with S6 torque wrench with torque  $2 \div 2,3$  daNm.