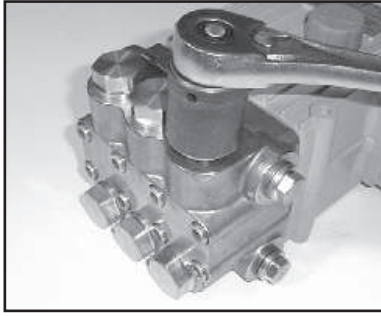
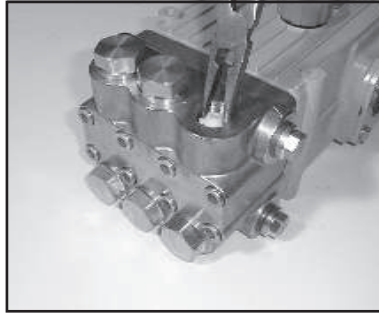


## CP420 & CP425 PUMP REPAIR INSTRUCTIONS

*Note: All o-rings and seals must not come into contact with mineral oil. Use silicone grease only.*



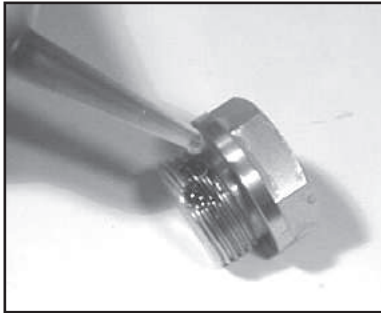
- 1) With a socket wrench, remove the three discharge valve plugs and three inlet valve plugs (32). Inspect the o-ring (33) for wear and replace if damaged.



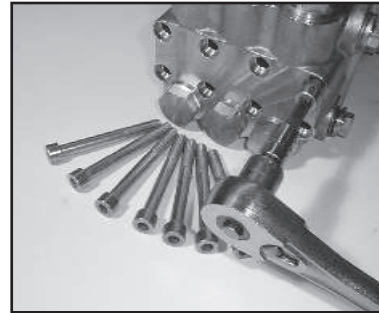
- 2) Using needle nose pliers, remove the inlet and discharge valve assemblies (27A). Note: It may become necessary to remove the valve seat (27) from the valve casing using a slidehammer.



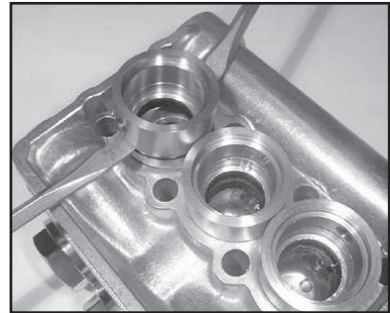
- 3) By inserting a small screw driver between the valve seat (27) and the valve spring retainer (30), the valve assembly can be separated.



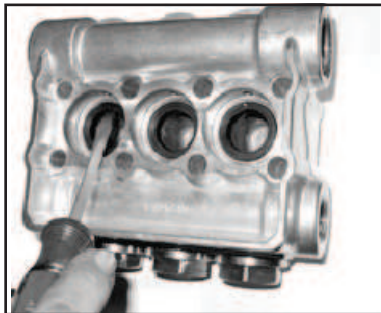
- 4) Remove the o-ring (31). Inspect all parts for wear and replace as necessary. Apply one drop of loctite 243 to the valve plugs (32) and tighten to 107 ft.-lbs. (145 NM).



- 5) Use a 8mm allen wrench to remove the 8 socket head cap screws (34). Carefully slide the valve casing (26) out over the plungers.



- 6) Remove seal adaptors (20) and weep return rings (25) from the valve casing.



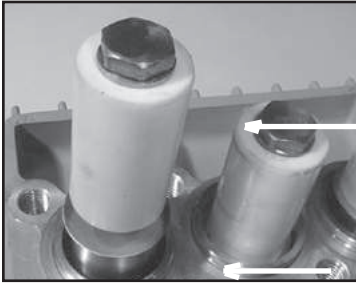
- 7) Remove the pressure rings (24) and grooved seals (23) from the valve casing (26).



- 8) Remove the weep grooved seal (23B) together with pressure ring (24) out of the seal adaptor (20). Check O-rings (21). Coat new seals and o-rings with silicone grease.

**IMPORTANT!** The grooved seal (23) on the high-pressure side is to be fitted carefully into the valve casing (26) using a screwdriver. Under no circumstances must the seal surface in the valve casing or the seal lip be damaged.

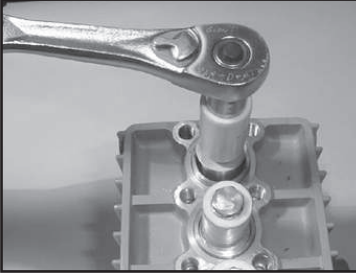
## CP420 & CP425 PUMP REASSEMBLY INSTRUCTIONS



9) Check surfaces of plunger (16). Damaged surfaces cause accelerated seal wear. Deposits of all kinds must be removed from the plungers.

**IMPORTANT!** Plunger surfaces are not to be damaged. If there are lime deposits in the pump, care must be taken that the drip-return bore in parts (25) and (26) ensure trouble-free drip-return.

**IMPORTANT!** Glue must never come between the plunger pipe (16B) and the centering support on the plunger (16A). The plunger pipe is not to be strained by excessive tightening of the tension screw or through damage to the front surface as this can lead to breakage.



10) If the plunger pipe (16B), is damaged or worn, remove tension screw (16D) and plunger pipe (16B). Check and clean plunger surface (16A) and check flinger (16H). Cover thread of tension screw (16D) with a thin film of Loctite and tighten carefully to 22 ft.-lbs. (28 Nm).

11) If oil leaks under the plunger (16), the oil seals (19) need to be replaced. Remove oil plug (5) and drain oil.

12) Remove crankcase cover (3). Remove valve casing (26), seal casing (21), seal adaptors (20) as well as plunger pipes (16B) and oil scrapers (16H) as described previously.

13) Take off screws on connecting rods (15), separate the back connecting rod half from the crankshaft and front connecting rod half by screwing a screw into the center back bore on the connecting rod.

**Be careful not to mix up the connecting rod halves.** Push connecting rod shaft as far as possible into the crosshead guide.

14) Take off screws (10) and remove bearing covers (7+8) with the help of a screwdriver.

Take out the crankshaft carefully threading it through the connecting rods (15), making sure not to bend the connecting rods. Remove and dismantle connecting rods and plungers (16) paying attention not to damage the plungers.

15) Pry out gear seal (19) using a screwdriver.

16) To reinstall, press the gear seal (19) into the drive casing first. Then insert connecting rods with plungers. Thread in the crankshaft. Mount bearing covers (7, 8) together with the roller bearing (12) and fix with screws (10).

17) Mount bearing cover (8) and adjust clearance by fitting shims (8A/8B) under the bearing cover (8) to ensure the crankshaft turns easily with very little play.

18) Fit the connecting rod halves and tighten screws (15) at 97 in.-lbs. (11 Nm). Mount crankcase cover (3) together with o-ring (4).

19) When refitting the valve casing, tighten hexagon socket screws (34) at 30 ft.-lbs (40 Nm) in the pattern shown below.

20) **Switching the orientation of the crankshaft.** Should you need to change the orientation of the crankshaft, remove the valve casing, turn seal adaptors (20) 180° around, turn valve casing 180° around and remount. Interchange plug (5B) and oil filler plug (2), and turn gear cover 180° around.

