

# BP8085 Repair Instructions

## To Check Valves

Remove screws (58), lift discharge casing (50B) up and away. Take out discharge valve tension element (53). Pull out assembled valves (51), discharge valve adaptor (56) and suction valve tension element (52) with fitting tool (part number 04967).

**Dismantling valves:** the spring tension cap (51A) is screwed together with the valve seat (51E). Screw off spring tension cap, take out springs (51C) and valve plate (51D).

Examine o-rings and the sealing surfaces on the pressure rings and guide rings. Replace worn parts.

Coat threads of the valve seat with silicon grease or molycote anti-seize Cu-7439 when reassembling. Before refitting the valves and tension elements, clean the sealing surfaces in the casing and check for any damage. Tighten screws (58) at 132.7 ft.-lbs. (180 Nm).

Check torque tension after 8-10 operating hours.

## To Check Seals and Plunger Pipe

**Important!** If necessary, support the pump head by resting it on wooden blocks or by using a pulley.

Screw off hexagon nuts (49A), remove pump head together with seal case (38) from intermediate casing (53). If necessary, carefully tap the valve casing (50) past the centring stud (50A) using a rubber hammer. Pull the seal case (38) out of the valve casing (50) (if necessary using two screwdrivers placed into the front o-ring groove). Examine o-rings (38A) and coat with silicon grease before fitting.

Remove tension screw (36C) and take the intermediate casing (53) together with all mounted parts out of the drive.

Pull plunger pipe out of seal assembly and check for any damage.

Clean parts from positions 38 to 44, examine them and replace if necessary. Coat new parts generously with silicone grease before fitting.

Insert the seal unit (40, 41, 42, 44) into the intermediate casing. Push the ceramic plunger carefully through the seals from the crankcase side. If necessary, the seals can be held on the other side of the seal sleeve using a suitable pipe support.

Coat the pressure sleeves (46) lightly with anti-corrosive grease (e.g. molycote no. Cu-7439) and screw it into the adjusting ring. Coat the step of the plunger pipe (36A) cover with silicon grease and put it onto the back end of the plunger pipe. Lightly coat the preassembled parts with silicon grease or molycote anti-seize Cu-7439 and insert it into the pressure sleeve.

Pay attention that the sealing surfaces on the intermediate casing, crankcase and valve casing are clean and without damage. The components must lie exactly and evenly on one another. The same exactness applies to all centering positions in the crankcase, pressure and valve casing. Fit o-rings (36F, G) into the seal ring (36D) and push these past the tension screw (36C). Lightly coat tension screw (36C) with screw glue and, together with seal ring (36D), place into the ceramic pipe. Turn the pump manually until the plunger (25) touches against the plunger pipe. Tighten tension screw at 29.5 ft.-lbs. (40 Nm).

**Important!** Thread glue must never come between the plunger pipe (36B) and centring sleeve (36E). Overtensioning of the plunger pipe by excessive tightening of the tension screw and/or dirt or damage on the mounting surfaces can cause the plunger pipe to fracture.

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## Mounting the Valve Casing:

Put seal cases (38) in the centring holes of the valve casing. Then carefully push the valve casing onto the centring studs (50A).

Tighten hexagon screws (49A) evenly and crosswise at 132.8 ft.-lbs. (180 Nm).

**Important!** With no pressure in the pump, the torque tension on the screws (49A) must be checked after 8-10 operating hours. Thereafter the tension is to be checked every 200 operating hours.

## To Dismantle Crankcase Gear

Take out the plungers, intermediate casing and seals as described above.

Drain the oil by removing plug (12).

After removing the clip ring (33B), lever out the seal retainer (33) with a screwdriver.

Screw off gear cover (K3) and remove the cooling vane plate (K1) by taking off the screws (K4). Then remove connecting rod screws (24).

**Important!** The connecting rods are marked 1 to 3 for identification. Do not twist the connecting rod halves or interchange them. When reassembling, the connecting rods must be fitted in their exact original position on the crankshaft journals.

Push connecting rod halves together with the crosshead as far as possible into the crosshead guides.

Take off the bearing cover (14/14A) and press out the crankshaft from the drive side.

Be careful not to bend the connecting rods.

Check running surfaces on the connecting rods (24), crankshaft (22) and crossheads (25).

Also check the surfaces of the crosshead bores in the crankcase for any unevenness.

Reassemble in reverse order.

Thread the long end of the crankshaft together with the inner bearing rings into the crankcase. Then mount the outer bearing ring (20) and spacer ring (22A).

Fit the connecting rod halves in their exact original position and tighten at 36.9 ft.-lbs. (50 Nm).

**Important!** A little clearance must be present to enable slight sideward movement of the connecting rods on their journals.

Fit bearing cover (14A) and tighten screws (17) at 64.2 ft.-lbs. (87 Nm).

Adjust axial play (clearance) on the crankshaft to minimum 0.1 mm / max. 0.15 mm using shims (21A/21B). The shaft should turn easily with little clearance. Connecting rods must sit exactly in the middle of each crank pin. Fit the bearing cover (14) and tighten the screws (17) at 64.2 ft.-lbs. (87 Nm).

Possible axial float of the seal adaptor (33) is to be compensated with shims (33C).

Fit cooler plate (K1) and gear cover (K3) with their respective seals (K2).