

# GP7645GB, GP7650GB & GP7655GB Repair Instructions

## TO CHECK VALVES

Loosen plugs (58), take out tension spring (57) and then remove the complete valve assembly (#51 & 52) with either a valve tool or an M16 hexagon screw. Check sealing surfaces and replace worn parts. The discharge valve seat (# 52E) can be used on both sides. If you re-use it, make sure you switch the O-Ring (#51D) to the opposite side. Check O-rings and support rings. Tighten plugs (58) to 107 ft.-lbs. (145 NM).

## TO CHECK SEALS AND PLUNGER PIPE

Loosen nuts (49A) and remove pump head (50). Separate the plunger connection (36A) from the crosshead (25) by means of an open-end wrench (size 36mm). Pull seal sleeves (39) out of their fittings in the crankcase (1). Take the seal case (38) out of the seal sleeve (39). Examine the plunger parts (36A-36D), seals (42 & 39A) and O-rings (38A & 38B). When replacing the plunger pipe (36B), tighten tension screws (36C) to 30 ft. lbs. (40 NM). Replace worn parts; grease seals with Silicone before installing.

**CAUTION:** Don't loosen the (3) plunger connections (36A) before the valve casing has been removed otherwise the tension screw (36C) could hit against the valve adapter (56) when the pump is being turned. Seal life can be increased if the pre-tensioning allows for a little leakage. This assists lubrication and keeps the seals cool. It is therefore not necessary to replace seals before the leakage becomes too heavy and causes output and operating pressure to drop.

## MOUNTING VALVE CASING

Check O-rings (38A & 38B) on the seal case (38). Clean surfaces of seal sleeves in gear box and sealing surfaces of valve casing (50). Push the valve casing carefully on the O-rings of the seal case and centering studs (50A). Tighten nuts (49A) to 103 ft. lbs. (140 NM).

## TO DISASSEMBLE GEAR

Take out plunger (36) and seal sleeves (39) as described above. Drain the oil. After removing the circlip ring (33B), lever out seal retainer (33) with a screw driver. Check seals (32 & 33A) and surfaces of crosshead (25).

**Important!** Seal (32) must always be installed so that the seal-lip on the inside diameter faces the oil. Possible axial float of the seal retainer (33) should be compensated with the shims (33C).  
Remove the crankcase cover (4). Loosen inner hexagon screws on the connecting rods (24).

**Note:** Connecting rods are marked for identification. Do not twist connecting rod halves. Each connecting rod is to be reinstalled in the same position (and orientation) on the crankshaft journals.  
Push the connecting rod halves as far into the crosshead guide as possible. Take out the bearing cover (14).

## TO DISMANTLE REDUCTION GEAR

Remove screws (G4). Remove the gear cover (G2). It may be necessary to tap the cover off with a rubber mallet. Remove screw (G11) and take off the spacer ring (G7) and tension disc (G10). Push the cogwheel (G9) off the shaft by screwing two screws into both thread bores. Unscrew hexagon screws (10) and remove the shaft cover (21) and bearing cover (14). Finally, take the crankshaft (22) out of the crankcase by tapping it towards the bearing cover side, opposite the gearbox, using a rubber hammer.

Check the surfaces of connecting rods (24), crankshaft (22) and crossheads (25). Check the surfaces of the crosshead guides in the crankcase for any unevenness.

Reassemble in reverse order. Regulate axial bearing clearance to a minimum of 0.1mm and a maximum 0.15mm by means of fitting discs (20A). Insert the crankshaft by passing it through on the bearing cover side. Press in the outer bearing ring (20). The crankshaft should turn easily and with little clearance. Fit the bearing cover (14) and tighten screws (24) to 30 ft.-lbs. (40 Nm).

**Important!** The connecting rod has to be able to slightly move sidewise at the crankshaft journal.

Heat the ball bearings (G13) before pressing them onto the pinion (G12). Slightly press the cogwheel (G9) onto the crankshaft, so that the pinion (G12) together with the bearing (G13) can still be inserted.

When mounting, place the pinion (G12) onto the cogwheel so that they correctly interlock. Carefully tap the cogwheel and the pinion simultaneously onto the crankshaft and into the bearing seat.

Fit tension disc (G10), and spacer ring (G7) and tighten screw (G11) with Loctite.

Fit seal (G14) on to the cylindrical pins (G3).

Push the gear cover (G2) carefully on to the bearing (G13). Make sure the radial shaft seal (G17) does not get damaged during fitting on to the pinion.

**Important!** Before putting into operation again, turn the reduction gear shaft by hand at least four full turns to make sure that the gear is correctly aligned.