

GP7170-4000 REPAIR INSTRUCTIONS

NOTE: Always take time to lubricate all metal and non-metal parts with a light film of oil before reassembling. This step will help ensure proper fit, at the same time protecting the pump non-metal parts (elastomers) from cutting and scoring.

To Check Valves

- 1) Loosen and remove screws (54) with a 10mm allen wrench.
- 2) Remove discharge casing (48) and valve tension springs (53).
- 3) Remove the discharge valves (51) by screwing supplied valve-puller into the top of the spacer pipe (51E) and firmly sliding upward with the puller handle. NOTE: The pressure valve adapter (52) will typically come out attached to the discharge valve. To remove, firmly grasp both pieces and rock them back and forth to break the O-ring seal on the O.D. of the valve seat.
- 4) Remove the inlet valves using the same procedure as above.
- 5) Unscrew the valve seat (51A) from the spacer pipe (51E). Remove the valve spring (51D) and valve spring guide (51F) and inspect for wear. Replace parts as necessary.
- 6) Check surfaces of valve plate (51C), valve seat (51A), O-rings (51B) and replace worn parts.
- 7) To reinstall the inlet valves (51), screw the valve puller back into the top of the valve assembly (51). Lower the valve into the chamber and press firmly into the bottom of the chamber to ensure the valve is seated properly. Install the tension spring (53).
- 8) To reinstall the discharge valves, press the discharge valve (51) into the pressure valve adapter (52). Push the entire assembly into the chamber. Reinstall the tension spring (53).
- 9) Reinstall the discharge casing (48) and tighten bolts (54) to 155 ft-lbs. in a criss-cross pattern starting with the centermost 4 bolts and working outward.

To Change Seals

- 10) Loosen nuts (49A) with a 24mm socket wrench.
- 11) With a rubber mallet tap the back of the valve casing (50) and pull the valve casing off the stud bolt (49).
- 12) Remove cover plate (30) with a 10mm socket wrench.
- 13) By gripping hex flats, separate plunger assembly (36) from crosshead (25) by means of two open-end wrenches (size 22mm and 27mm).

CAUTION: Do not loosen the 3 plunger bases (36A) before the valve casing has been removed otherwise the plunger assembly (36) could hit against the spacer pipe (52) when the pump is being turned.

- 14) Remove the intermediate casing (37) from the crankcase (1).
- 15) Use two screwdrivers to pry the seal case (47) out of the intermediate casing (37). Remove pressure ring (43), V sleeves (44), sleeve support ring (45), seal tension spring (46), and O rings (47A). Inspect parts for wear and replace as necessary.
- 16) Remove the seal sleeve (38), O ring (39), pressure ring (40), V sleeve (44), O ring (42) and drip return ring (41) from the crankcase (1). Inspect parts for wear and replace as necessary.
- 17) Inspect the plunger pipe for cavitation, cracks, or any other signs of wear. If replacing plunger pipe, tighten plunger bolt (36C) to 26 ft-lbs.
- 18) Reassemble all parts in reverse order taking care to lubricate all seals and O rings with silicone grease prior to installation. Reinstall plunger pipe assemblies (36) into intermediate casing (37). When installing the intermediate casing (37) and valve casing (50) be sure that the parts rest on the studs (50A) and that they have not fallen out.
- 19) Reinstall valve casing (50) and tighten nuts (49A) to 103 ft-lbs.

To Change Oil Seals

- 20) Remove C-clip (33B) from crankcase (1) and remove seal retainer (33).
- 21) Remove O ring (33A) and radial shaft seal (32) and replace as necessary.
- 22) Reinstall seal retainer (33) and secure with C-clip (33B) in crankcase.

NOTE: Seal life can be increased if the pretensioning 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.

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To Disassemble Gear End

- 23) Remove entire manifold and intermediate casing assembly using procedures described above. Take out plunger assembly (36). Drain oil.
- 24) After removing the C-clip (33B), pry out seal adapter (33) with a screwdriver.
- 25) Check seals (32) and surfaces of plunger base (25).
- 26) Remove crankcase cover (4). Loosen inner hexagon screws (24A) on the connecting rods (24) and push con rod halves as far into the crosshead guide as possible.

CAUTION: Connecting rods (24) are marked for identification. Do not twist connecting rod halves. Connecting rod is to be reinstalled in the same position on crankshaft journals.

- 27) Check surfaces of the connecting rod (24) and crankshaft (22).
- 28) Take out bearing cover (14) to one side and push out crankshaft (22) taking particular care that the connecting rod (24) doesn't bend.
- 29) Reassemble in reverse order: Regulate axial bearing clearance - minimum 0.1mm, maximum 0.15mm-by means of fitting disc (20A). The crankshaft (22) should turn easily with little clearance. Tighten inner hexagon screws (24A) to 30 ft.-lbs.

CAUTION: Connecting rod (24) has to be able to be slightly moved sidewise at the stroke journals.

- 30) Reassemble cover (4) and seal (5) onto crankcase (1). Fasten with hexagon screws (10).
- 31) Reinstall shim (33C), and seal adapter (33) with radial shaft seal (32), and o-ring (33A) onto crankcase (1).

CAUTION: Radial shaft seal (32) must always be installed so that the seal-lip on the inside diameter faces the oil.

- 32) Reinstall remainder of fluid end as described above.

GP7170-4000 TORQUE SPECIFICATIONS

Position	Item #	Description	Torque Amount (ft.-lbs.)
36C	07664	Plunger Tensioning Screw	26
49A*	13160	Nut	103
54	05250	Inner Hexagon Screw	155

*Important - Check torque bi-weekly on item 49A

Preventative Maintenance Check-List & Recommended Spare Parts List						
Check	Daily	Weekly	50hrs	Every 500 hrs	Every 1500 hrs	Every 3000 hrs
Oil Level/Quality	X					
Oil Leaks	X					
Water Leaks	X					
Belts, Pulley		X				
Plumbing		X				
	Recommended Spare Parts					
Oil Change			X	X		
Plunger Spare Parts (1 kit/pump) (See page 5 for kit list)					X	
Oil Seal Kit (1 kit/pump) (See page 5 for kit list)					X	
Valve Spare Parts (1 kit/pump) (See page 5 for kit list)						X