

Repair Instructions - GP5136-5100 and GP5145-5100 Pumps

Note: Always take time to lubricate all metal and nonmetal parts with a light film of oil before reassembly. This step will ensure proper fit, at the same time protecting the pump's nonmetal parts (i.e., the elastomers) from cutting and scoring.

To Check Valves

1. Remove inner hexagon screws (48A) with an allen wrench. Remove discharge plugs (48) with a screw driver. Check o-rings (48B) on discharge plugs and replace as necessary.
2. Pull out pressure ring (48C). Remove the spring tension cap (47F) from the discharge valve plate (47D) lying underneath by screwing in the 10mm screw. Take out the valve spring (47E) and valve plate (47D). Pull out the discharge valve seat (47C) by means of slide hammer. Check sealing areas of the valve plate and the valve seat for damage and replace worn parts. Check o-ring (47A) and replace as necessary.
3. Unscrew spacer pipe (46G) out from the spring tension cap (46F) located in the suction valve lying underneath. Remove the suction valve assembly (46) by screwing in a 10mm screw. Check o-ring (46A) and replace as necessary. If the inlet valve seat (46C) remains in the valve casing (43), remove it with a slide hammer. Check the sealing areas of the inlet valve plate (46D) and the inlet valve seat (46C) for damage and replace worn parts.
4. After reassembling the above items, tighten the inner hexagon screws (48A) to 35 ft.-lbs. (47 Nm).

To Check Seals and Plunger Pipes

1. Loosen the eight inner hexagon screws (49) and pull off the valve casing (43) to the front. Pull seal sleeves (35) out of the guides in the crankcase and over the plunger pipes (29B). Remove sleeve support ring (41), sleeves (40) and grooved rings (40A for GP5145-5100 and 36 for GP5136-5100). For GP5145-5100, remove scraper (40B). Replace worn parts as necessary.
2. If a plunger pipe (29B) is worn out, loosen the tension screw (29C) and pull off the plunger pipe to the front. Clean the contact surfaces of the crosshead assembly (25) thoroughly. Place the new plunger pipe carefully through oiled seals back into the seal case. Check o-rings (35A and 35B). For GP5136-5100, also check 37B and replace as necessary.
3. Push the seal sleeves (35) together with the plunger pipe (29B) back into the crankcase guide. Turn the crankshaft (22) carefully until the crosshead assembly (25) comes up against the plunger pipe. Put a new steel ring (29D) onto the tension screw (29C). Cover the thread of the tension screw and the oil scraper and apply a liquid adhesive such as lock-tite. Tighten tension screw to 26 ft.-lbs.. (35 Nm).

Important!!

Do not get any adhesive between the plunger pipe (29B) and the centering sleeve (29A). The plunger pipe should not be strained by excessive force on the tension screw (29C) or through damage to the front surface of the plunger. If these conditions are ignored, the plunger pipe will probably break.

4. Tighten the inner hexagon screws (49) to the valve casing (43) to 85 ft.-lbs. (120 Nm).

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To Disassemble Gear End

1. Loosen inner hexagon screws (49) for the valve casing (43) with an allen wrench. Carefully remove valve casing from the crankcase (1).
2. Drain oil from the crankcase (1) by removing drain plug (12) with a 3/4" wrench.
3. Loosen inner hexagon screws (10) for the crankcase cover (4) with an allen wrench and remove crankcase cover.
4. Loosen hexagon screws (17) for the bearing covers (14) with a wrench and remove bearing cover.
5. Loosen connecting rod screws (24) with an allen wrench. Push the stems of the connecting rods as far as possible into the crosshead guides. Carefully push out the radial shaft seals (31).

Important!!

Connecting rods (24) are marked for identification. Do not twist connecting rod halves. Connecting rods must be reinstalled in the same position on the crankshaft (22) journals.

6. While slightly turning the crankshaft (22), hit it out carefully to one side with a rubber hammer.

Important!!

Do not bend connecting rod (24) shank.

7. Check the surfaces of the crankshaft (22), connecting rods (24), crosshead assemblies (25) as well as the radial shaft seals (15 and 31) and taper roller bearings (20).

To Reassemble Gear End

1. Using a soft tool, such as brass or wooden dowel, press in the outer bearing ring until it lines up with the outer edge of the bearing hole. Assemble the bearing cover (14) together with the shaft seal (15) and o-ring (16).
2. Fit the crankshaft (22) with pressed-on bearing parts through the bearing hole on the opposite side. press in outer bearing ring and push it inwards with the bearing cover (14) while keeping the crankshaft in the vertical position and turning it slowly so that the taper rollers of the bearings touch the edge of the outer bearing ring.
3. Adjust axial bearing clearance with fitting discs (20A/B/C) as necessary. The crankshaft (22) should turn easily with very little clearance. Tighten inner hexagon screws on the connecting rods (24) to 22 ft.-lbs. (30 Nm).

Important!!

There should be enough clearance for the connecting rods (24) to move sideways a little on the journals.

Important!!

The 1/2" BSP connection in the crankcase serves the purpose of draining leakage water. The connection should not be closed. See the drawing below.

