

If so, the pump must be run in in this direction to smoothen the bearing areas.

This is done by initially operating the pump at zero pressure for 30 minutes; thereafter the pressure is to be slowly increased over a period of an hour to the desired maximum operating pressure.

Check the oil temperature during this process.

Suction line filter

Recommended mesh size 50 µm.

Gear oil cooling



The pumps can be run without gear oil cooling in continuous operation **up to a power rating of 93.9 HP (70 kW)** or with major intermittent operation at full performance.

If operational power exceeds **93.9 HP (70 kW)** or in continuous operation, the pump must be run with the integrated oil cooling system. The maximum temperature of the water being pumped and which is also fed through the cooling system must not exceed 86 °F (30°C).

The water amount which is fed into the cooling system depends on the pump speed and is approximately 1.9 GPM (7.0 l/min) at 580 pump rpm. The cooling water is sucked in by one of the pumping chambers and pumped away.



If higher medium temperatures or liquids other than water are involved or aggressive media such as seawater, demineralised water etc., pump must be fitted with a separate cooling circuit. The separate cooler must have a cooling efficiency of 1700 watts.

If there is a danger of frost, an appropriate amount of antifreeze must be mixed into the cooling circuit.

Valve Casing



The torque tension on the valve casing nuts (49A) is to be checked after approximately 200 operating hours. Please see the section 'Maintenance and Servicing' concerning the torque values.

The pump must be at zero pressure when checking the torque tension.

Operation

When starting up for work, the pump must run first at zero pressure for approximately 1 minute.



The pump and cooling system must be emptied if there is a danger of frost. Note that travel wind, for example, can cause water in pumps fitted on open vehicles to freeze even if the outside temperature is above freezing point.

Empty the pump through the second unused suction and discharge connection using compressed air, for example.

Bottom plugs (59) on the suction channel can be opened as well.

The pump can also be run "dry" for 1-2 minutes to aid emptying.

Empty the cooling system by removing screw joints (K10) on the pump head (50) and by blowing the hoses (K12) with compressed air on the (K10/K7) side.

Anti-freeze is recommended to guard against frost where a separate cooling circuit is used.



The service life of the seals is maximized if a minimal amount of leakage is present.

A few drops of water can drip from each plunger every minute.

Leakage has to be examined every day; the plunger seals must be changed should leakage become excessive (=constant dripping).

Maintenance and Servicing

For the type of thread locker used and the required tightening torques, observe the table in the exploded view.

Special tools required

The following special tools are required for assembly:

- Assembling tool (code no. 15.0038)

Suction and Discharge Valves

Loosen screws (58), lift discharge casing (53A – GP8135), (50B – GP8140) up and away.

Take out pressure springs (57).

Pull out assembled valves (51 and 52) with fitting tool (p/n 07662).

To dismantle valves:

The spring tension cap (51A, 52A) is screwed together with the valve seat (51B or alternatively 52B).

Screw off spring tension cap, take out springs (51E, 52E) and valve plate (51C, 52C).

Check sealing surfaces and O-rings (51D/F, 52D/F, 56A).

Replace worn parts.

Before re-fitting the valves, clean the sealing surfaces in the casing and check for any damage.

Tighten screws (58) to the required torque.

Check torque tension after 8-10 operating hours.

Seals and Plunger

Screw off hexagon nuts (49A) and hose coupling (K11 and K15), remove pump head together with seal case (38) and intermediate casing (62) from crankcase (1).

If necessary, carefully tap the valve casing (50) past the centring stud (50A) using a rubber hammer.



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

Take off flat leakage seal (62A/D) and check. Screw off Plunger (36) from crosshead w. plunger (25) and take seal sleeve (39) together with all mounted parts out of the drive.

Pull plunger out of seal assembly and check for any damage. Clean centring and top-surface of crosshead with plunger (25).

Take out tension spring (45) Lever whole seal unit (41-44) carefully out of the seal sleeve with a screwdriver from the backside. Check plunger surface and seals.

Check O-rings (39).

Renew damaged parts.

Check Leakage seal (40) and O-ring (40A) after removing off clip-ring (40C) and pressure ring (40B) and renew if necessary.



Make sure that the contact surfaces on the actuator housing, the sealing sleeves, the intermediate housing and the valve housing are clean and without damage.

The components must lie absolutely flat on each other.

The same applies to all centerings in the actuator housing, intermediate housing, pressure housing and valve housing.

Apply a thin coat of anti-corrosion grease (e.g. Anti Size 350) to the sealing sleeve in the area where it fits the drive housing. Insert the sealing sleeves into the fits of the drive housing.



Make sure that the milled surfaces on the sleeves (39) are perpendicular to each other.

New parts should be lightly coated with silicon grease before installation.

Turn the pump by hand until the plunger (25) is in contact with the plunger (36). Tighten the plunger (36) (SW24) to the specified torque.

Insert the seal tension spring (45) into the seal sleeve (39).

Mounting Valve Casing:

Press seal cases (38) with the stepped OD dia. 65 carefully to its stop in the centring holes of the intermediate casing. Mount flat leakage seal (62D).



The flat leakage seal (62D) must be positioned with its $\varnothing 3$ bore onto the notched pin (62C) on the intermediate casing.

The leakage return bores in the intermediate casing and in the seal sleeves must stay open by the cut-outs in the seal (62D).

Push valve casing (50) together with intermediate casing (62) carefully on to the centring studs (50A). Tighten hexagon nuts (49A) evenly and crosswise to the required torque.



The torque tension on the screws (49A) must be checked after 8-10 operating hours; the pump must be at zero pressure.

Thereafter the tension is to be checked every 200 operating hours.

If required, supplementary assembly instructions can be requested from the manufacturer Giant Industries.