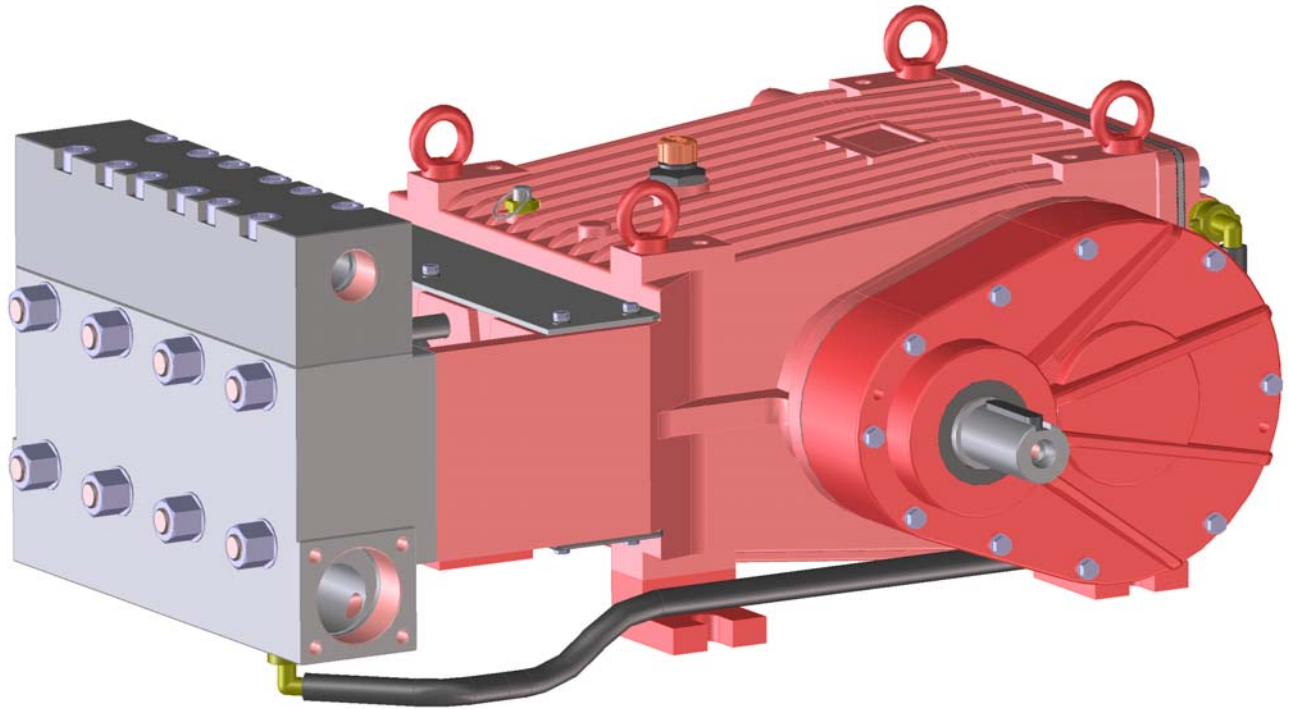


Model GP8035

Triplex Ceramic
Plunger Pump
Models Manual



Gearbox Version Shown



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Installation Instructions

Installation of the Giant Industries, Inc., pump is not a complicated procedure, but there are some basic steps common to all pumps. The following information is to be considered as a general outline for installation. If you have unique requirements, please contact Giant Industries, Inc. or your local distributor for assistance.

1. The pump should be installed flat on a base to a maximum of a 15 degree angle of inclination to ensure optimum lubrication.
2. The inlet to the pump should be sized for the flow rate of the pump with no unnecessary restrictions that can cause cavitation. Teflon tape should be used to seal all joints. If these pumps are to be operated at temperatures in excess of 86° F, it is important to insure a positive head to the pump to prevent cavitation.
3. The discharge plumbing from the pump should be properly sized to the flow rate to prevent line pressure loss to the work area. It is essential to provide a safety bypass valve between the pump and the work area to protect the pump from pressure spikes in the event of a blockage or the use of a shut-off gun.
4. Use of a dampener is necessary to minimize pulsation at drive elements, plumbing, connections, and other system areas. The use of a dampener with Giant Industries, Inc. pumps is optional, although recommended by Giant Industries, Inc. to further reduce system pulsation. Dampeners can

also reduce the severity of pressure spikes that occur in systems using a shut-off gun. A dampener must be positioned downstream from the unloader.

5. Crankshaft rotation on Giant Industries, Inc. pumps should be made in the direction designated by the arrows on the pump crankcase. Reverse rotation may be safely achieved by following a few guidelines available upon request from Giant Industries, Inc. Required horsepower for system operation can be obtained from the charts on pages 3 and 6.
6. Before beginning operation of your pumping system, remember: Check that the crankcase and seal areas have been properly lubricated per recommended schedules. Do not run the pump dry for extended periods of time. Cavitation will result in severe damage. Always remember to check that all plumbing valves are open and that pumped media can flow freely to the inlet of the pump.

Important! 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).

Finally, remember that high pressure operation in a pump system has many advantages. But, if it is used carelessly and without regard to its potential hazard, it can cause serious injury.

IMPORTANT OPERATING CONDITIONS **Failure to comply with any of these** **conditions invalidates the warranty**

1. Prior to initial operation, add oil to crankcase so that oil level is between the two lines on the oil dipstick. **DO NOT OVERFILL.**
Use Industrial synthetic gear lube oil (ISO VG 220), such as Mobil Gear 630, Shell Oamala oil 220 or Texaco Meropa 220.
Crankcase oil should be changed after the first 50 hours of operation, then at regular intervals of 500 hours or less depending on operating conditions.
2. Pump operation must not exceed rated pressure, volume, or RPM. A pressure relief device must be installed in the discharge of the system.
3. Acids, alkalines, or abrasive fluids cannot be pumped unless approval in writing is obtained before operation from Giant Industries, Inc. Pump fluid should be filtered to 300 micron.

4. Run the pump dry approximately 10 seconds to drain the water before exposure to freezing temperatures.

5. **Important!** 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.

To empty the cooling circuit, remove the L-joints (K11) on the pump head (50). Blow out the circuit liquid at the joint connection (K11/K7) using compressed air.

The torque tension on the valve casing nuts (49A) should be checked after approximately 200 operating hours. Please see page 8 for torque values.

Specifications - Model GP8035

	U.S.	(Metric)
Volume	Up to 29.1 GPM	(110 LPM)
Discharge Pressure	Up to 7250 PSI	(500 bar)
Crankshaft Speed		Up to 580 RPM
Inlet Pressure	Up to 29 PSI	(2.0 bar)*
Plunger Diameter	1.38"	35mm
Plunger Stroke	2.83"	72mm
Pinion Shaft Diameter	1.81"	46mm
Fitting Key		B20 x 12 x 110, DIN 6685
Crankshaft Mounting		Either side
Pinion Shaft Rotation		Towards Gear End of pump
Temperature of Pumped Fluids	Up to 86 °F	(30 °C)**
Inlet Ports		(2) 2" BSP
Discharge Ports		(2) 1" BSP
Weight	794 lbs.	(360kg)
Crankcase Oil Capacity	3.7 Gal.	(14.0 liters)
Fluid End Material		Nickle plated Spheroidal Cast Iron

(The specifications above are based on maximum pressure and maximum RPM for intermittant duty using cold water.)

* If a separate cooling circuit is installed, the maximum inlet pressure would be 145 PSI (10 Bar).

** If higher temperatures are needed, use a separate cooling circuit. Consult factory

Consult the factory for special requirements that must be met if the pump is to operate beyond one or more of the limits specified above.

GP8035 HORSEPOWER REQUIREMENTS					
RPM	GPM	1000 PSI	2500 PSI	5000 PSI	7250 PSI
300	15.1	10.4	26.0	51.9	75.3
400	20.1	13.8	34.6	69.2	100.3
500	25.1	17.3	43.3	86.5	125.4
580	29.1	20.1	50.2	100.3	145.5

HORSEPOWER RATINGS:

The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

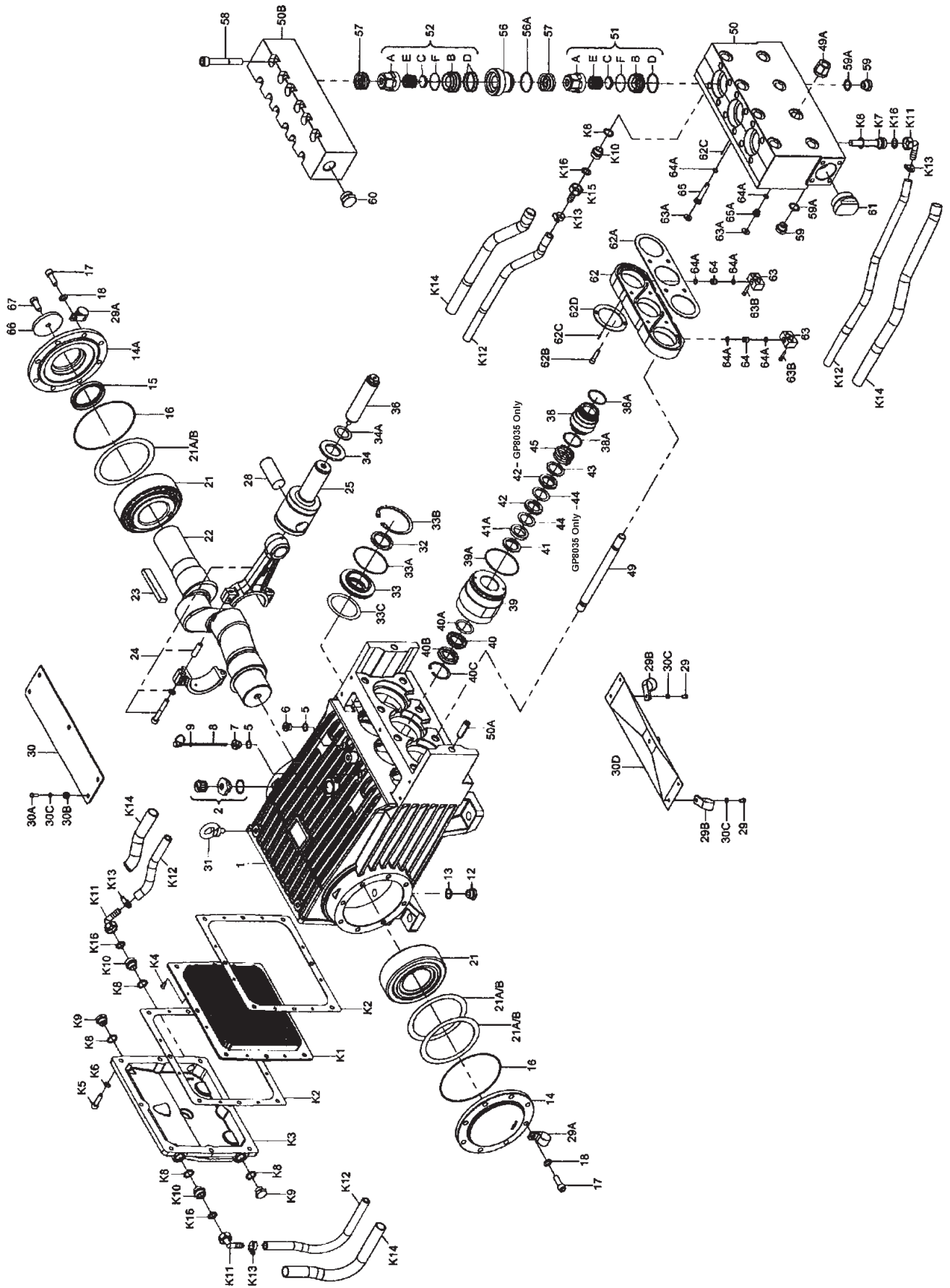
We recommend a 1.15 service factor be specified when selecting an electric motor as the power source. To compute specific pump horsepower requirements, use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1450} = \text{HP}$$

SPECIAL NOTE:
 The theoretical gallons per revolution (gal/rev) is 0.050.
 To find specific outputs at various RPM, use the formula:

GPM = 0.050 x RPM

Exploded View - GP8035 Pump



Part List - GP8035 Pump

Item	Part	Description	Qty	Item	Part	Description	Qty
1	05380	Crankcase	1	50A	13162	Centering Stud	2
2	06893	Oil Filler Plug Assy. with Vent	1	50B	05836	Discharge Casing	1
5	22929	Seal	2	51	05837	Inlet Valve Assy.	3
6	12256	Plug	1	51A	05595	Spring Tension Cap	3
7	05656	Plug, 3/8" BSP	1	51B	05838	Inlet Valve Seat	3
8	05035	Oil Dipstick Assy	1	51C	05752	Valve Plate	3
9	01009	O-Ring	2	51D	05408	O-Ring	3
12	07109	Plug, 1/2" BSP	2	51E	05450	Valve Spring	3
13	06272	Copper Gasket, 1/2" BSP	2	51F	05596	O-Ring	3
14	05036	Bearing Cover Closed	1	52	05839	Discharge Valve Assy	3
14A	05298	Bearing Cover Open	1	52A	05595	Spring Tension Cap	3
15	05112	Radial Shaft Seal	1	52B	05840	Discharge Valve Seat	3
16	05037	O-Ring	2	52C	05752	Valve Plate	3
17	05038	Hexagon Socket Screw	16	52D	05408	O-Ring	6
18	05039	Spring Ring	16	52E	05450	Valve Spring	3
21	05044	Tapered Roller Bearing	2	52F	05596	O-Ring	3
21A	05042	Fitting Disc	5	56	05409	Discharge Valve Retainer	3
21B	05043	Fitting Disc	5	56A	05408	O-Ring	3
22	05299	Crankshaft	1	57	07173	Tension Spring	6
23	05300	Fitting Key	1	58	05753	Hexagon Socket Screw	12
24	05047	Connecting Rod Assembly	3	59	07109	Plug, 1/2" BSP	3
25	05048	Crosshead c/w Plunger	3	59A	06272	Copper Gasket, 1/2" BSP	3
28	05049	Crosshead Pin	3	60	13044	Plug, 1" BSP	1
29	05051	Hexagon Screw	4	61	05841	Plug, 2" BSP	1
29A	05381	Bracket 1 for Cooling Hose	2	62	05842	Intermediate Casing	1
29B	05383	Hose Shell for Cooling Hose	2	62A	05843	Flat Seal	1
30	05052	Cover Plate	1	62B	05754	Hexagon Socket Screw	4
30A	07225-0100	Hexagon Screw	5	62C	22764	Serrated Pin	4
30B	13136	Grommet	5	62D	05844	Flat Leakage Seal	3
30C	08280	Washer	9	63	05845	Drip Return Joint	2
30D	05050	Splash Cover	1	63A	05757	Leakage Seal	2
31	07623	Eye Bolt	3	63B	05811	Hexagon Socket Screw	4
32	05058	Radial Shaft Seal	3	64	05846	Drip Return Nipple	2
33	05055	Seal Retainer	3	64A	05812	O-Ring	6
33A	05056	O-Ring	3	65	05847	Drip Return Connection	1
33B	05054	Clip Ring	3	65A	05848	Drip Return Plug	1
33C	05059	Fitting Disc	3	66	05303	Disc for Crankshaft	1
34	05060	Oil Shield	3	67	13433	Hexagon Screw	1
34A	05830	Locking Disc	3	79	07662	Tool for Valve	1
36	05743	Plunger Pipe	3				
38	05831	Seal Case	3	78	05849	Oil Cooler	1
38A	05408	O-Ring	6	K1	05026	Cooling Vane Plate	1
39	05832	Seal Sleeve	3	K2	05027	Seal for Gear Cover	2
39A	05056	O-Ring	3	K3	05028	Gear Cover	1
40	05744	Sleeve	3	K4	05029	Hexagon Head Countersunk Screw	8
40A	05745	O-Ring	3				
40B	05746	Pressure Ring	3	K5	07381	Hexagon Socket Screw	8
40C	06584	Clip Ring	3	K6	08041	Washer	6
41	05833	Pressure Ring	3	K7	05741	Connection for Oil Cooler	1
41A	05747	Guide Ring	3	K8	06272	Copper Gasket, 1/2" BSP	6
42	05748	Rope Packing	6	K9	07109	Plug, 1/2" BSP	2
43	05749	Support Disc	3	K10	05031	Connecting Branch	3
44	05751	Support Ring	6	K11	05032	Hose Adaptor	4
45	06098	Tension Spring	3	K12	05033	Tube for Cooler	2
49	05834	Stud Bolt	8	K13	05402	Hose Clamp	4
49A	05073	Hexagon Nut	8	K14	05403	Hose Guard	2
50	05835	Valve Casing	1	K15	05404	Hose Coupling Nut	1
				K16	05405	Flat Gasket for Oil Cooler	4

Pump Repair Kits - GP8035

Plunger Packing Kit - # 09707

Item	Part #	Description	Qty.
38A	05408	O-Ring	6
39A	05056	O-Ring	3
40	05744	Sleeve	3
40A	05745	O-Ring	3
41A	05747	Guide Ring	3
42	05748	Rope Packing	6
44	05751	Support Ring	6

Discharge Valve Kit - #09710

Item	Part #	Description	Qty.
52B	05840	Discharge Valve Seat	1
52C	05752	Valve Plate	1
52D	05408	O-Ring	2
52E	05450	Valve Spring	1
52F	05596	O-Ring	1
56A	05408	O-Ring	1

Inlet Valve Kit - #09709

Item	Part #	Description	Qty.
51B	05838	Inlet Valve Seat	1
51C	05752	Valve Plate	1
51D	05408	O-Ring	1
51E	05450	Valve Spring	1
51F	05596	O-Ring	1
56A	05408	O-Ring	1

Oil Seal Kit - #09584

Item	Part #	Description	Qty.
32	05058	Radial Shaft Seal	3
33A	05056	O-Ring	3

Tool List and Torque Specifications - GP8035				
Item	Part #	Description	Torque - Ft-lbs (NM)	Tool Needed
17	5038	Hexagon socket screw	64 (87)	10 mm allen wrench
24	5047	Connecting rod hexagon socket screw	37 (50)	8 mm allen wrench
33B	5054	Clip ring	n/a	Industrial snap ring pliers
36	5743	Tension screw, plunger assembly	33 (45)	16 mm socket
49A	5073	Hexagon nut, manifold	265 (360)	30 mm socket
49A	05837/05839	Valve Assemblies	n/a	Valve Puller - p/n 07662
58	5753	Hexagon socket screw	132 (180)	12 mm allen wrench
K5	7381	Hexagon socket screw	n/a	8 mm allen wrench

GP8035 Troubleshooting		
Problem	Cause	Solution
Pressure drops, water leaks	V-sleeves leak	Replace V-sleeves, examine surface of plunger
Pressure drops, pump becomes loud	Discharge or suction valve leaks	Replace valve
	Steam formation (cavitation)	Reduce suction height, reduce flow resistance in inlet line, clean inlet filter, lower water temperature
Irregular pressure	Worn valves	Examine valves
	O-Ring on the valves or inlet valve adapter leaks	Examine O-ring, examine valve casing for unevenness on the sealing surfaces
Oil leaks at visible part of plunger	Gear sealing is leaky	Examine seals and running surface of plunger
Dirty mile-colored frothy oil	Oil has mixed with water	Replace oil immediately, find and fix the cause
Oil leakage on the crankshaft	Shaft seal ring leaks	Check seal and shaft
Noise increases without loss of pressure	Worn bearing	Dismantle gear, examine all parts, replace worn parts, check oil level. If service life was too short, check for excess strain or whether lubrication intervals were too long. Only specified lubricants are to be used

Repair Instructions - GP8035 Pump

To Check Valves

Loosen screws (58) and lift discharge casing (50B) up and away. Take out pressure springs (57). Pull out assembled valves (51 and 52) with fitting tool (p/n 07662).

Dismantling valves: the spring tension cap (51A, 52A) is screwed together with the valve seat (51B/52B). Remove 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.

Coat threads of valve seat with silicon grease or molycote anti-seize Cu-7439 when reassembling. Before refitting the valves, clean the sealing surfaces in the casing and check for any damage.

Tighten screws (58) at 132 Ft-lbs (180 NM); check torque tension after 8-10 operating hours.

To Check Seals and Plunger Pipe

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 centering stud (50A) using a rubber hammer.

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

Take off flat leakage seal (62D) and check.

Remove plunger (36) from crosshead with plunger base (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 centering and top-surface of crosshead with plunger base (25). Take out tension spring (45). Carefully remove the whole seal unit (41-44) by using socket wrench or backside of a screwdriver. Check plunger surface and seals. Check O-rings (39A).

Renew damaged parts.

After removing off clip-ring (40C) and pressure ring (40B), check leakage seal (40) and O-ring (40A) and renew (if necessary).

Important! Be careful not to damage seal sleeve (39) pressure ring (41) and guide ring (41A). Check the inner diameter of the pressure ring and guide ring for wear and if necessary replace together with seals (42) and support ring (44). Clean all parts. New parts should be lightly coated with silicon grease before installation.

Insert the seal unit (41-45) into the seal sleeve (39). Push the plunger (36) carefully through the seals from the crankcase side. If necessary, the seals can be held tightly using a suitable pipe support held on the other side of the seal sleeve.

Take out the seal case (38) from the intermediate casing (62) and check O-rings (38A). If necessary, secure 2 screwdrivers in the front O-ring groove to extract seal casing from intermediate casing. Coat O-rings with silicon grease before installing.

Repair Instructions - GP8035 Pump

Important! Mounting surfaces of the crankcase, seal sleeves, intermediate casing and valve casing must be clean and free of damage. The components must lie exactly and evenly on one another. The same exactness applies for all centering positions in the crankcase, intermediate casing, pressure-and valve casing.

Coat the seal sleeve lightly with anticorrosive grease (e.g. molycode no. Cu-7439) in its fitted area towards the crankcase. Insert seal sleeves in to their crankcase fittings.

Important! Watch the even milled surfaces on the seal sleeves. They must be positioned vertically on each other.

Turn the pump (by hand) until the plunger (25) rests against the plunger (36). Tighten plunger (36) to 33 Ft-lbs. (45 NM).

Insert the seal tension spring (45) in to the seal sleeve (39).

Mounting Valve Casing:

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

Important! The flat leakage seal (62D) must be positioned with its 3mm diameter bore onto the notched pin (62C) on the intermediate casing. The leakage return bores in the intermediate casing and in the seal sleeves must remain clear of the cutouts in the seal (62D).

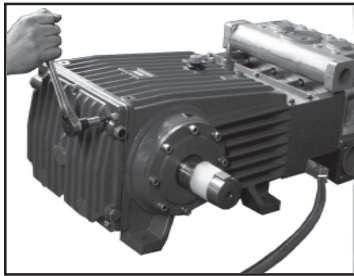
Push valve casing (50) together with intermediate casing (62) carefully on to the centering studs (50A).

Tighten hexagon nuts evenly and crosswise to 265 Ft-lbs. (360 NM).

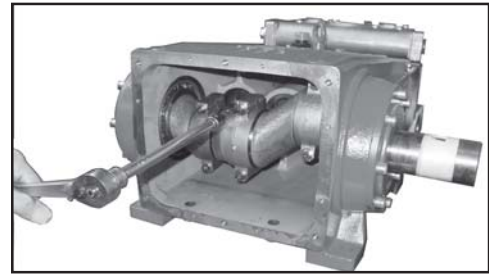
Important! The torque tension on the screws (49A) must be checked after 8-10 operating hours; the pump must be at zero pressure. Thereafter the tension is to be checked every 200 operating hours.

Repair Instructions - GP8035 Pump

To Dismantle Crankcase Gear

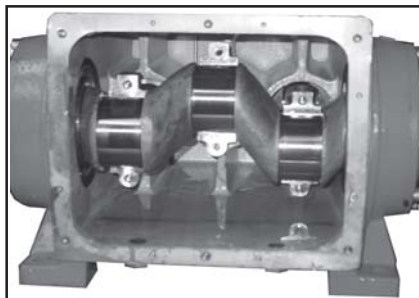


10) Take out plungers and seal sleeves as described above. Drain the oil by taking off the plug (12). After removing the clip ring (33B), lever out the seal retainer (33) with a screwdriver. Open hose adapter (K11) and remove gear cover (K3). Remove the cooling vane plate (K1) by removing the screws (K4)

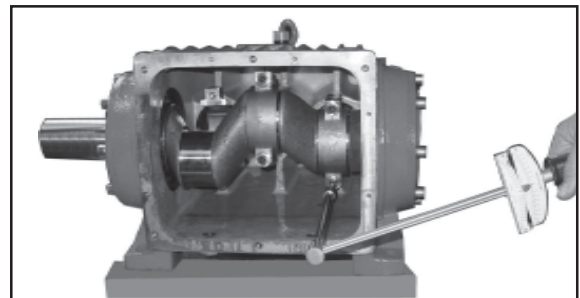


11) Remove the connecting rod screws (24).

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



12) Push connecting rod halves together with the crosshead as far as possible into the crosshead guide. Take out bearing cover (14/14A) and push out crankshaft taking particular care that the con rod doesn't get bent. Check surfaces on the connecting rods (24), crankshaft (22) and crossheads (25). Check the surfaces of the crosshead guides in the crankcase for any unevenness.



13) Reassemble in reverse order. Thread the long end of the crankshaft together with the inner bearing rings into the crankcase; then mount outer bearing ring (20) and spacer ring (22A). Mount connecting rod halves in their exact original position and tighten at 37 Ft-lbs.

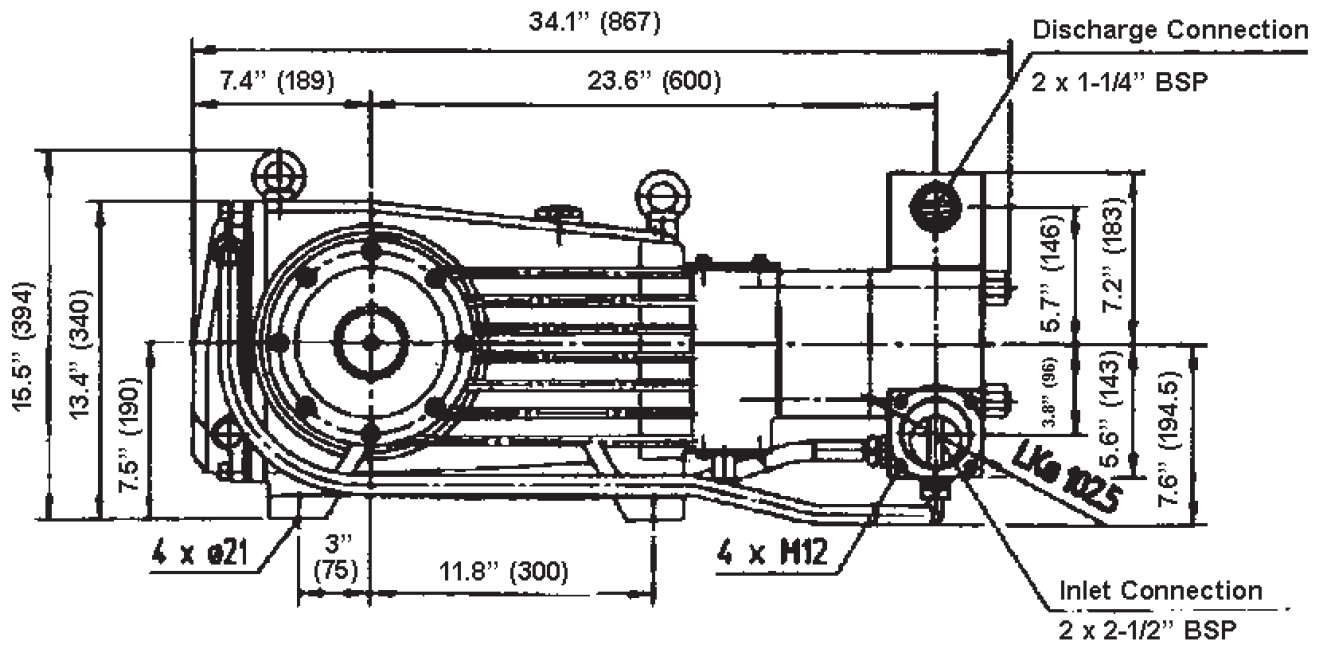
Important! Connecting rods must be able to move slightly sideways on the stroke journals.

Repair Instructions - GP8035 Pump

14) Mount bearing cover (14A) and tighten screws (17) to 64 Ft-lbs. 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 rod must sit exactly in the middle of each crank pin. Fit the bearing cover (14) and tighten the screws (17) at 64 Ft-lbs. Seal (32A) must always be installed so that the seal lip on the inside diameter faces the oil. Possible axial float of the seal adapter (33) to be compensated with shims (33C).

Mount cooling plate (K1) and gear cover (K3) with their respective seals (K2). When assembling the cooling circuit line, make sure that the oil cooler connection (K7) is always joined to the upper connection (K3) of the gear cover.

Pump Dimensions - GP8035 Pump - Inches (mm)



GIANT INDUSTRIES LIMITED WARRANTY

Giant Industries, Inc. pumps and accessories are warranted by the manufacturer to be free from defects in workmanship and material as follows:

1. For portable pressure washers and self-service car wash applications, the discharge manifolds will never fail, period. If they ever fail, we will replace them free of charge. Our other pump parts, used in portable pressure washers and in car wash applications, are warranted for five years from the date of shipment for all pumps used in NON-SALINE, clean water applications.
2. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
3. Six (6) months from the date of shipment for all rebuilt pumps.
4. Ninety (90) days from the date of shipment for all Giant accessories.

This warranty is limited to repair or replacement of pumps and accessories of which the manufacturer's evaluation shows were defective at the time of shipment by the manufacturer. The following items are NOT covered or will void the warranty:

1. Defects caused by negligence or fault of the buyer or third party.
2. Normal wear and tear to standard wear parts.
3. Use of repair parts other than those manufactured or authorized by Giant.
4. Improper use of the product as a component part.
5. Changes or modifications made by the customer or third party.
6. The operation of pumps and or accessories exceeding the specifications set forth in the Operations Manuals provided by Giant Industries, Inc.

Liability under this warranty is on all non-wear parts and limited to the replacement or repair of those products returned freight prepaid to Giant Industries which are deemed to be defective due to workmanship or failure of material. A Returned Goods Authorization (R.G.A.) number and completed warranty evaluation form is required prior to the return to Giant Industries of all products under warranty consideration. Call (419)-531-4600 or fax (419)-531-6836 to obtain an R.G.A. number.

Repair or replacement of defective products as provided is the sole and exclusive remedy provided hereunder and the MANUFACTURER SHALL NOT BE LIABLE FOR FURTHER LOSS, DAMAGES, OR EXPENSES, INCLUDING INCIDENTAL AND CONSEQUENTIAL DAMAGES DIRECTLY OR INDIRECTLY ARISING FROM THE SALE OR USE OF THIS PRODUCT.

THE LIMITED WARRANTY SET FORTH HEREIN IS IN LIEU OF ALL OTHER WARRANTIES OR REPRESENTATION, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND ALL SUCH WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED BY THE MANUFACTURER.



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