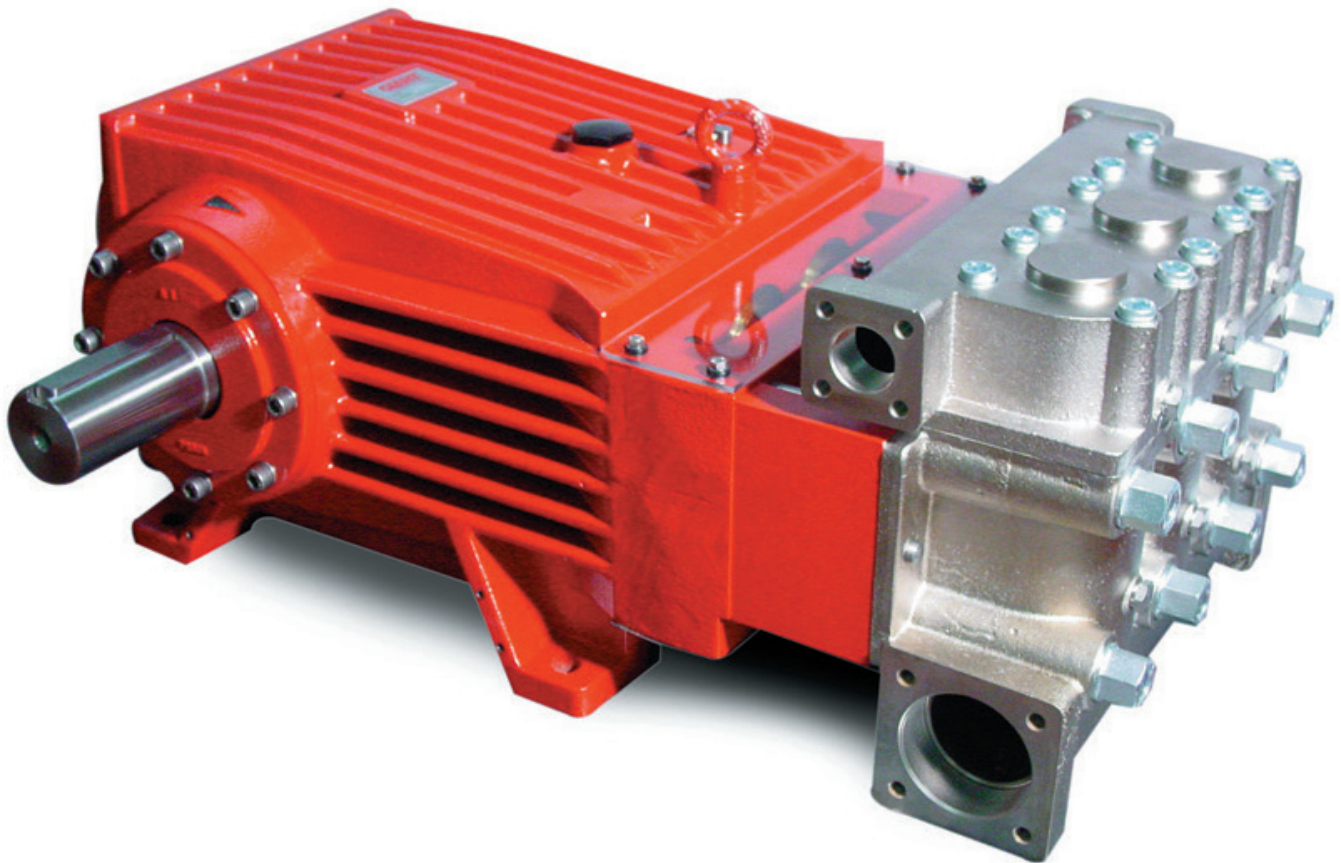


Models

Triplex Ceramic
Plunger Pump
Models Manual

GP8045/GP8048



GIANT
Performance Under Pressure

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Updated 08/18

INSTALLATION INSTRUCTIONS

The stated figures are for maximum pressure and maximum speed (RPM) and apply for interval operation with cold water.

Required NPSH refers to water (specific weight 1kg/dm³, viscosity 1°E) at maximum permissible pump revolutions.

Fluid medium: Clean water filter with 50µm.

**higher water temperatures possible with separate crankcase cooling system; the manufacturer is to be contacted in this case.

Operation and Maintenance

Check oil level prior to starting and ensure trouble-free water supply.

Important! If there is a **danger of frost**, the water in the pump and in the pump fittings (particularly the unloader valve) must be emptied. The second discharge port can also be used and the pump run “dry” for 1-2 minutes for this purpose.

Oil: Use only 3.3 Gallons (12.5 liters) of ISO VG 220 GL4 (e.g. Aral Degol BG220) or SAE 90 GL4 gear oil (Giant p/n 01154). Initial change after 50 operating hours and then every 1000 operating hours after one year at the latest.

Important! When operating in damp places or with high temperature fluctuations, oil must be changed immediately should condensate (frothy oil) occur in the gear box.

NPSH values must be observed.

Cooling the Gear Oil

Important! The water input pressure must not exceed 2 bar when using the integrated system for cooling the gear oil (standard version).

If a separate cooling circuit (maximum 29 PSI [2 bar]) is installed, it is then possible to have an input pressure of up to maximum 145 PSI (10 bar) on the suction side.

Make sure that suction pulsation is sufficiently dampened - water column resonance must be avoided.

Important! The pumps can be run without gear oil cooling in continuous operation **up to** a power rating of **107 hp (80 kW)** or with major intermittent operation).

If operation power **exceeds 107 hp (80 kW)** or if continuous operation is the case, 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 amount which is fed into the cooling system depends on the pump speed and is approximately 1.85 GPM (7.0 L/min) at 580 RPM. The cooling water is sucked in by one of the pumping chambers and pumped away.

Specifications Model GP8045

	U.S.	(Metric)
Volume.....	Up to 48.9 GPM	(185 LPM)
Discharge Pressure	Up to 4350 PSI	(300 bar)
Power Consumption	143 BHP	(107 kW)
Speed		Up to 580 RPM
Inlet Pressure.....	Up to 29 PSI*	(2.0 bar)*
Plunger Diameter.....	1.77"	(45mm)
Plunger Stroke.....	2.83"	(72mm)
Crankshaft Diameter.....	2.76"	(70mm)
Key Width	0.55"	(14mm)
Crankshaft Mounting.....		Either side
Shaft Rotation.....	Top of pulley towards manifold	
Temperature of Pumped Fluids.....	Up to 86 °F	(30 °C)
Inlet Ports.....		(2) 3" BSP
Discharge Ports		(2) 1-1/4" BSP
Weight.....	771 lbs.	(350kg)
Crankcase Oil Capacity	3.3 Gal.	(12.5 liters)
Fluid End Material.....	Nickle plated Spheroidal Cast Iron	

*If operating the pump below 100 HP (75 kW) the oil cooler system can be removed and the inlet pressure can be increased to 145 PSI (10 bar).

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.

GP8045 HORSEPOWER REQUIREMENTS					
RPM	GPM	1000 PSI	2000 PSI	3000 PSI	4350 PSI
300	25.3	17.4	34.9	52.3	75.9
400	33.7	23.2	46.5	69.7	101.1
500	42.2	29.1	58.2	87.3	126.6
580	48.9	33.7	67.5	101.2	146.7

SPECIAL NOTE:
The theoretical gallons per revolution (gal/rev) is 0.0843. To find specific outputs at various RPM, use the formula:

$GPM = 0.0843 \times RPM$

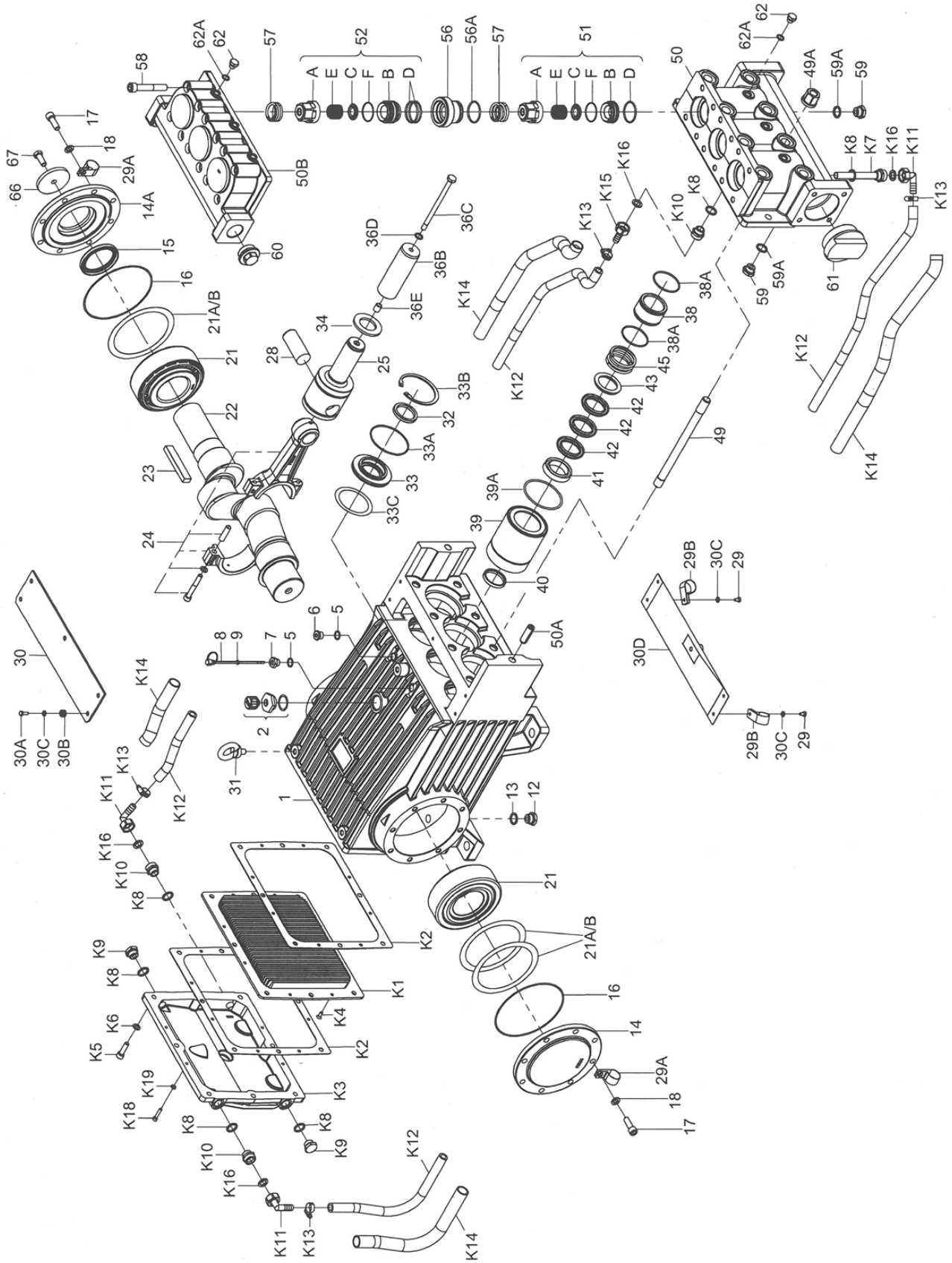
HORSEPOWER RATINGS:

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 horse power requirements, use the following formula:

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

EXPLODED VIEW -- GP8045 / GP8048



GP8045 / GP8048 Parts List

<u>Item</u>	<u>Part</u>	<u>Description</u>	<u>Qty</u>	<u>Item</u>	<u>Part</u>	<u>Description</u>	<u>Qty</u>
1	05380	Crankcase	1	43	05396	Support Ring (GP8045)	3
2	06893	Oil Filler Plug Assembly	1	45	05721	Tension Spring (GP8048)	3
5	22929	Copper Washer	2	45	07636	Tension Spring (GP8045)	3
6	06273	Oil Drain Plug	1	49	05072	Stud Bolt	8
7	05381	Plug, Oil Dip Stick	1	49A	05073	Hexagon Nut	8
8	05035	Oil Dip Stick Assembly	1	50	05397	Valve Casing	1
9	01009	O-Ring	1	50A	13162	Centering Stud	2
12	07109	Plug, 1/2" BSP	2	50B	05398	Discharge Casing	1
13	06272	Copper Ring	2	51	05976	Suction Valve Assembly	3
14	05036	Bearing Cover, Closed	1	51A	05595	Spring Tension Cap	3
14A	05298	Bearing Cover, Open	1	51B	05978	Suction Valve Seat	3
15	05112	Radial Shaft Seal	1	51C	05314	Valve Plate	3
16	05037	O-ring	2	51D	05408	O-Ring	3
17	05038	Inner Hexagon Screw	16	51E	05450	Valve Spring	3
18	05039	Spring Ring	16	51F	05596	O-Ring	3
21	05044	Tapered Roller Bearing	2	52	05977	Discharge Valve Assembly	3
21A	05042	Fitting Disc	1-5	52A	05595	Spring Tension Cap	3
21B	05043	Fitting Disc	1-5	52B	05979	Discharge Valve Seat	3
22	05299	Crankshaft	1	52C	05314	Valve Plate	3
23	05300	Fitting Key	1	52D	05408	O-Ring	6
24	05047	Connecting Rod Assembly	3	52E	05450	Valve Spring	3
25	05048	Crosshead c/w Plunger	3	52F	05596	O-Ring	3
28	05049	Crosshead Pin	3	56	04090	Discharge Valve Adapter	3
29	05051	Hexagon Screw	4	56A	05408	O-Ring	3
29A	05382	Bracket 1 - Cooling Hose	2	57	07173	Tension Spring	6
29B	05383	Bracket 2 - Cooling Hose	2	58	05087	Hexagon Socket Screw	12
30	05052	Cover Plate	1	59	07109	Plug, 1/2" BSP	2
30A	07225-0100	Screw, 316 S.S	5	59A	06272	Copper Gasket	2
30B	13136	Grommet	5	60	06909	Plug, 1-1/4" BSP	1
30C	08280	Washer	9	61	05088	Plug, 3" BSP	1
30D	05050	Splash Cover	1	62	05302	Plug, 1/4" BSP	6
31	07623	Eye Bolt	3	62A	06934	Copper Gasket	6
32	05058	Radial Shaft Seal	3	66	05303	Disc for Crankshaft	1
33	05055	Seal Retainer	3	67	13433	Hexagon Screw	1
33A	05056	O-Ring	3	78	05052	Oil Cooler Assembly	
33B	05054	Clip Ring	3			(K1-K19)	1
33C	05059	Fitting Disc	3	K1	05026	Cooling Vane Plate	1
34	05060	Oil Shield	3	K2	05027	Seal for Gear Cover	2
36B	05384	Plunger Pipe (GP8048)	3	K3	05028	Gear Cover	1
36B	05385	Plunger Pipe (GP8045)	3	K4	05029	Hexagon Head Countersunk	
36C	05062	Tension Screw	3			Screw	4
36D	07665	Copper Washer	3	K5	07381	Hexagon Socket Screw	8
36E	06900	Centering Sleeve	3	K6	08041	Washer	8
38	05386	Seal Case	3	K7	05030	Connection for Oil Cooler	1
38A	04840	O-Ring	6	K8	06272	Copper Seal	6
39	05388	Seal Sleeve (GP8048)	3	K9	07109	Plug, 1/2" BSP	2
39	05389	Seal Sleeve (GP8045)	3	K10	05031	Connecting Branch	3
39A	05066	O-Ring	3	K11	05032	U-Joint Connector w/Nut	3
40	05390	Seal Ring (GP8048)	3	K12	05033	Tube for Cooler	2
40	13290	Seal Ring (GP8045)	3	K13	05402	Hose Clamp	4
41	05391	Pressure Ring (GP8048)	3	K14	05403	Hose Guard	2
41	05392	Pressure Ring (GP8045)	3	K15	05404	Hose Coupling Nut	1
42	05393	Sleeve (GP8048)	9	K16	05405	Flat Gasket for Oil Cooler	4
42	05394	Sleeve (GP8045)	9	K18	04158	Hexagon Socket Screw	4
43	05395	Support Ring (GP8048)	3	K19	05053	Washer	4

Specifications Model GP8048

	U.S.	(Metric)
Volume	Up to 56.3 GPM	(213 LPM)
Discharge Pressure	Up to 3770 PSI	(260 bar)
Power Consumption	142 BHP	106 kW
Speed	Up to 580 RPM	580 RPM
Inlet Pressure.....	Up to 29 PSI*	(2.0 bar)*
Plunger Diameter.....	1.89".....	48mm
Plunger Stroke.....	2.83".....	72mm
Crankshaft Diameter.....	2.76".....	70mm
Key Width	0.55".....	14mm
Crankshaft Mounting.....	Either side	
Shaft Rotation.....	Top of pulley towards manifold	
Temperature of Pumped Fluids.....	Up to 86 °F	(30 °C)
Inlet Ports.....	(2) 3" BSP	
Discharge Ports	(2) 1-1/4" BSP	
Weight.....	771 lbs.	(350kg)
Crankcase Oil Capacity	3.3 Gal.	(12.5 liters)
Fluid End Material.....	Nickle plated Spheroidal Cast Iron	

*If operating the pump below 100 HP (75 kW) the oil cooler system can be removed and the inlet pressure can be increased to 145 PSI (10 bar).

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.

GP8048 HORSEPOWER REQUIREMENTS					
RPM	GPM	1000 PSI	2000 PSI	3000 PSI	3770 PSI
300	29.4	20.3	40.6	60.8	76.4
400	39.2	27.0	54.1	81.1	101.9
500	49.0	33.8	67.6	101.4	127.4
580	56.8	39.2	78.3	117.5	147.7

SPECIAL NOTE:
The theoretical gallons per revolution (gal/rev) is 0.0979. To find specific outputs at various RPM, use the formula:

$GPM = 0.0979 \times RPM$

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:

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

GP8045/GP8048 PUMP REPAIR KITS

Plunger Packing Kits

Valve Assembly Kit - GP8045 & GP8048

GP8045 - #09626

Item	Part #	Description	Qty.
38A	04840	O-Ring	6
39A	05066	O-Ring	3
40	13290	Seal Ring	3
42	05394	V-Sleeve	9

Inlet Valve Kit - #09818

Item	Part #	Description	Qty.
51	05976	Inlet Valve Assembly	3
56A	05408	O-Ring	3

GP8048 - #09627

Item	Part #	Description	Qty.
38A	04840	O-Ring	6
39A	05066	O-Ring	3
40	05390	Seal Ring	3
42	05393	V-Sleeve	9

Discharge Valve Kit - #09819

Item	Part #	Description	Qty.
52	05977	Discharge Valve Assembly	3
56A	05408	O-Ring	3

Oil Seal Kit - #09584

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

GP8045/GP8048 Lubrication Information/Torque Specification/Tool List

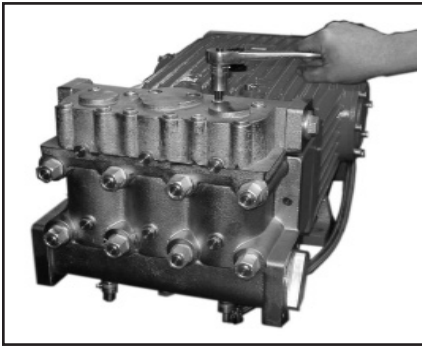
Item #	Part #	Description	Lubrication	Torque	Tool
1	05380	Crankcase	Molycote Cu-Paste	N/A	
17	05038	Hexagon Socket Screw	N/A	64 ft.-lbs. (87 Nm)	10mm allen wrench
24	05047	Connecting Rod Hex Screw	N/A	37 ft.-lbs. (50 Nm)	8mm allen wrench
32	05058	Radial Shaft Seal	Loctite 403	N/A	
33B	05054	Clip Ring	N/A	N/A	Industrial Snap Ring Pliers
36C	05062	Tension Screw	Loctite 243	30 ft.-lbs. (40 Nm)	16mm socket
49	05072	Stud Bolt	Loctite 243	N/A	
49A	05073	Hexagon Nut (manifold)	N/A	265 ft.-lbs. (360 Nm)	30mm socket
51/52	05399/05406	Valve Assemblies	N/A	N/A	valve puller
51B/52B	05978/05979	Valve Seats	Molycote Cu-Paste	N/A	
58	05087	Hexagon Socket Screw	Molycote Cu-Paste	132 ft.-lbs. (180 Nm)	12mm allen wrench
79	07662	Tool for Valve	N/A	N/A	
K4	05029	Hex Countersunk Screw	N/A	132 in.-lbs. (15 Nm)	
K5	07381	Hexagon Socket Screw	N/A	N/A	8mm allen wrench
K9	07109	Plug, 1/2" BSP	N/A	N/A	

GP8000 Trouble Shooting

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 excess strain or whether lubrication intervals were too long. Only specified lubricants are to be used

GP8045/GP8048 PUMP REPAIR INSTRUCTIONS

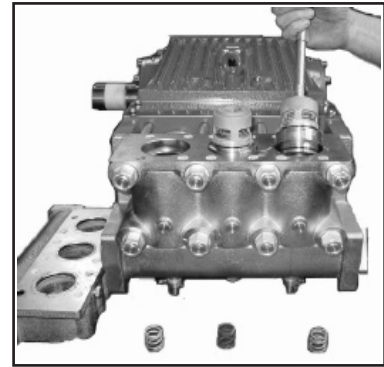
Valve Inspection and Repair



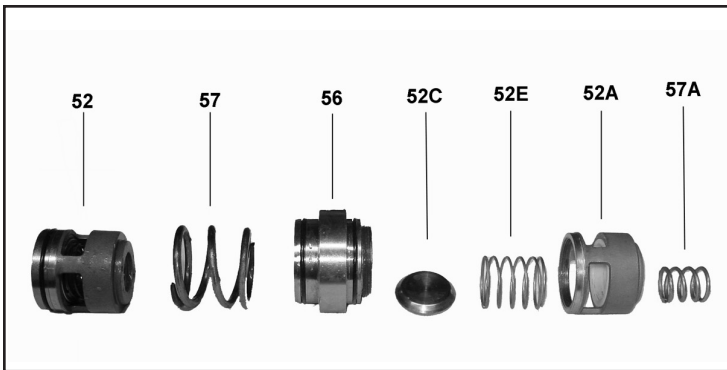
1) Remove bolts (58).



2) Remove discharge casing (50B) up and away.

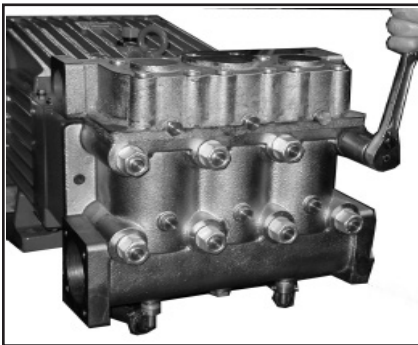


3) Take out pressure springs (57A). Pull out assembled valves (51 & 52) with fitting tool.



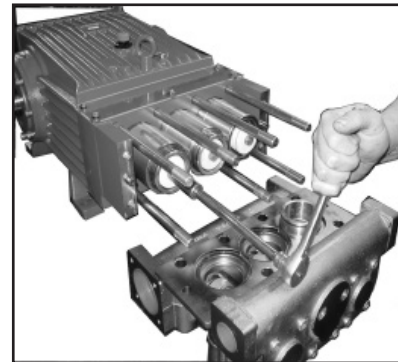
4) The spring tension cap (51A, 52A) is screwed together with the valve seat (51B or 52B). Screw off spring tension cap. Takeout springs (51E, 52E) and valve plate (51C, 52C). Check sealing surfaces and O-rings (51D, 52D). Replace worn parts. Coat threads of valve seat with silicon grease or molycote anti-seize Cu-7439 when reassembling. Before refitting the valves, clean the sealing surfaces in the casing and check for any damage. Tighten caps (58) at 133 Ft-lbs (180 Nm); check torque tension after 8-10 operating hours.

To Check Seals and Plunger Pipe



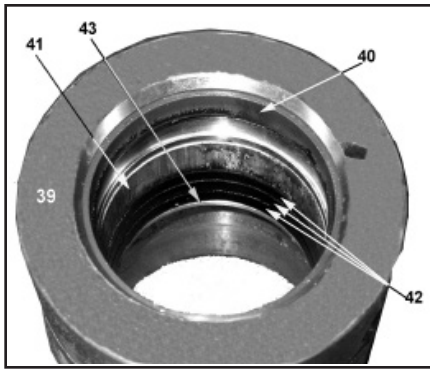
5) Remove hexagon nuts (49A) and valve casing together with seal case (38) from crankcase (1). If necessary, carefully tap the valve casing (50) past the centering stud (50A) using a rubber hammer.

IMPORTANT! If necessary, support the valve casing by resting it on wooden blocks or by using a pulley.



6) Remove tension screw (36C) and take seal sleeve (39) together with all mounted parts out of the drive. Pull plunger pipe out of the seal assembly and check for any damage. Carefully, remove seal rings (40) and sleeves (42) with a screw driver.

GP8045/GP8048 PUMP REPAIR INSTRUCTIONS

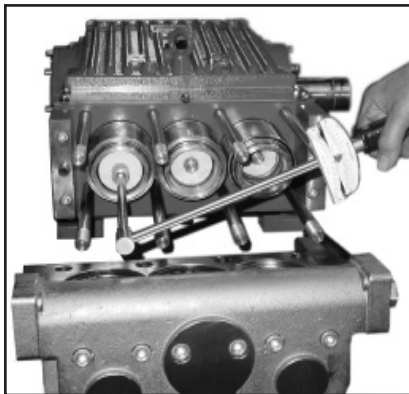


7) **Important!** Be careful not to damage the seal sleeve (39) and pressure ring (41). Check the inner diameter of the pressure ring for wear and if necessary replace together with seals (40) and (42). Clean all parts. New parts should be lightly coated with silicon grease before installation. Insert the seal unit (40, 41, 42 43) into the sleeve. Push the ceramic plunger 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.



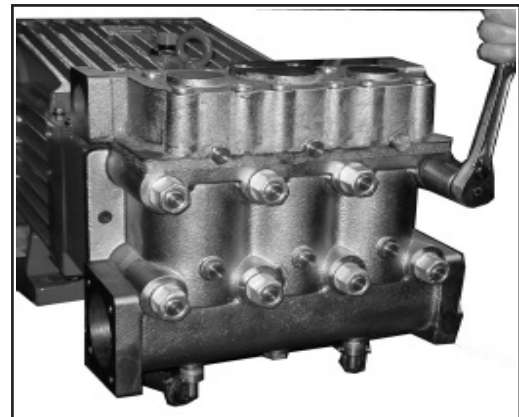
8) Take out the seal case (38) from the valve casing (if necessary secure 2 screwdrivers in the front O-ring groove to extract seal case). Coat seals with silicon grease before installing.

Important! Mounting surfaces of the crankcase and the 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, pressure and valve casing.



9) Coat the seal sleeve lightly with anti-corrosive grease (e.g. molycote no. Cu-7439) in its fitted area towards the crankcase. Insert the seal sleeves in to their crankcase fittings. Coat the threads of the tension screw (36C) lightly with thread glue and insert it together with a new copper ring (36D) through the ceramic pipe. Turn the pump per hand until the plunger (25) rests against the plunger pipe. Tighten the tension screw at 30 Ft.-lbs. (40 Nm).

Important! Thread glue must never come between the plunger pipe (36B) and centering sleeve (36E). Overtensioning of the plunger pipe by excessive tightening of the tension screw and/or dirt or damage on the mounting surfaces can lead to plunger pipe breakage. Insert the seal tension spring (45) and O-ring (39A) in to the seal sleeve (39).



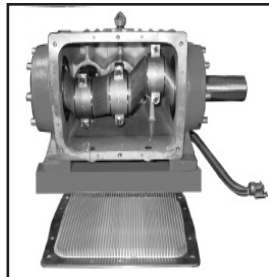
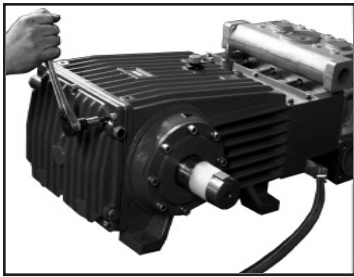
Replacing Valve Casing:

10) Put seal cases (38) in the centering holes of the valve casing, then push valve casing carefully on to centering studs (50A). Tighten hexagon screws (49A) evenly and crosswise at 265 Ft.-lbs. (360 Nm).

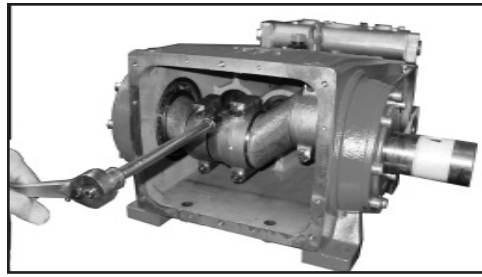
Important! The torque tension on the screws (49A) must be checked after 8-10 operating hours; the pump must be at zero pressure. Thereafter, the tension is to be checked every 200 operating hours.

GP8045/GP8048 PUMP REPAIR INSTRUCTIONS

To Dismantle Crankcase Gear

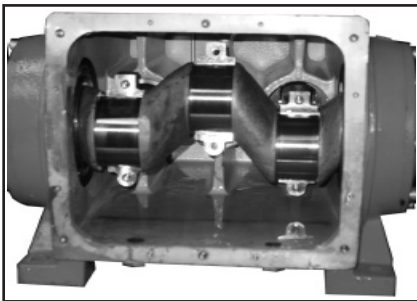


11) Take out plungers and seal sleeves as described above. Drain the oil by taking off the plug (12). After removing the clip ring (33B), lever out the seal retainer (33) with a screwdriver. Open hose adapter (K11) and remove gear cover (K3). Remove the cooling vane plate (K1) by removing the screws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

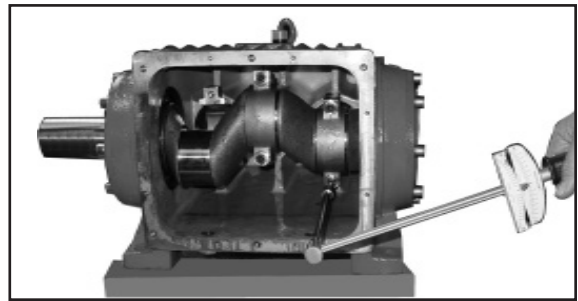


12) Remove the connecting rod screws (24).

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.



13) 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.

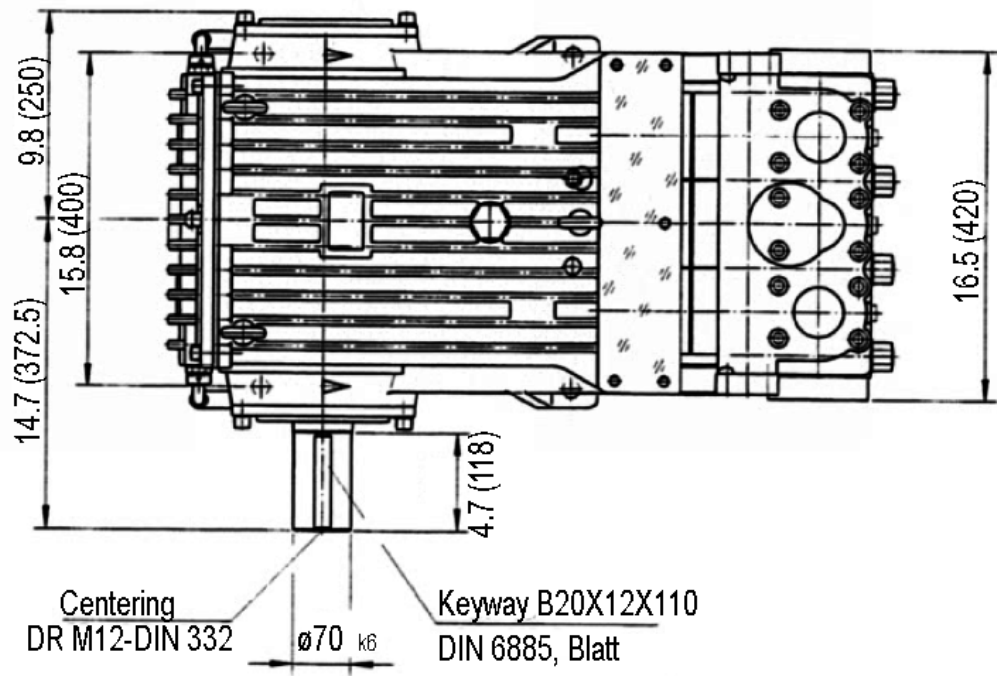
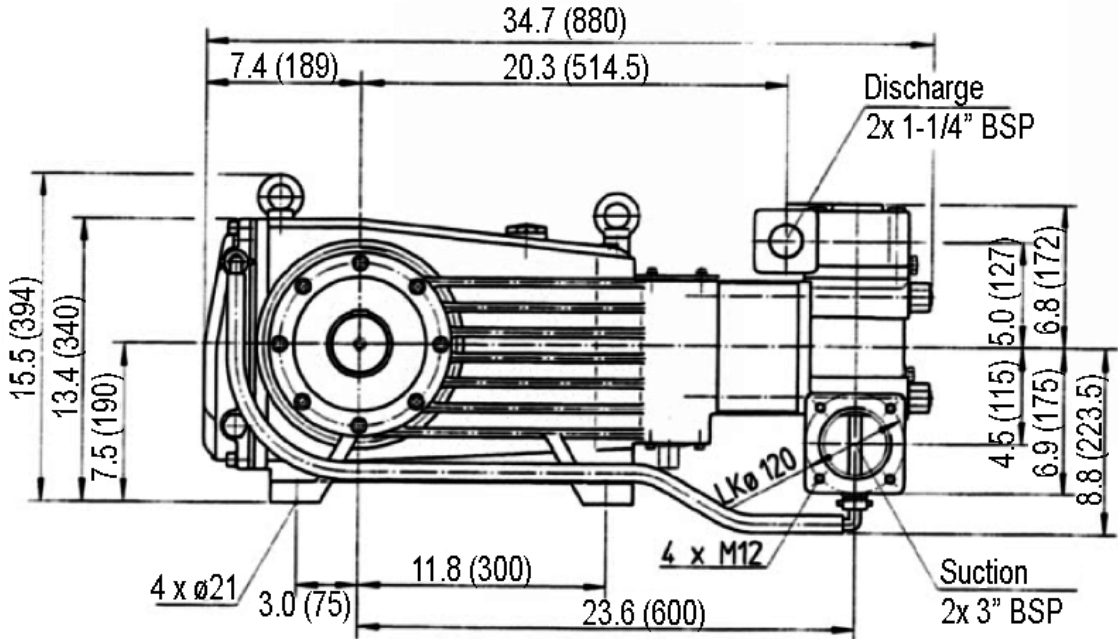


14) Reassemble in reverse order. Thread the long end of the crankshaft together with the inner bearing rings into the crankcase; then mount outer bearing ring (20) and spacer ring (22A). Mount connecting rod halves in their exact original position and tighten at 37 Ft-lbs. (50 Nm). **Important!** Connecting rods must be able to move slightly sideways on the stroke journals.

14) Mount bearing cover (14A) and tighten screws (17) to 64 Ft-lbs. (87 Nm). 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. (87 Nm). 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.

Dimensions - GP8045 / GP8048 - 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.

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