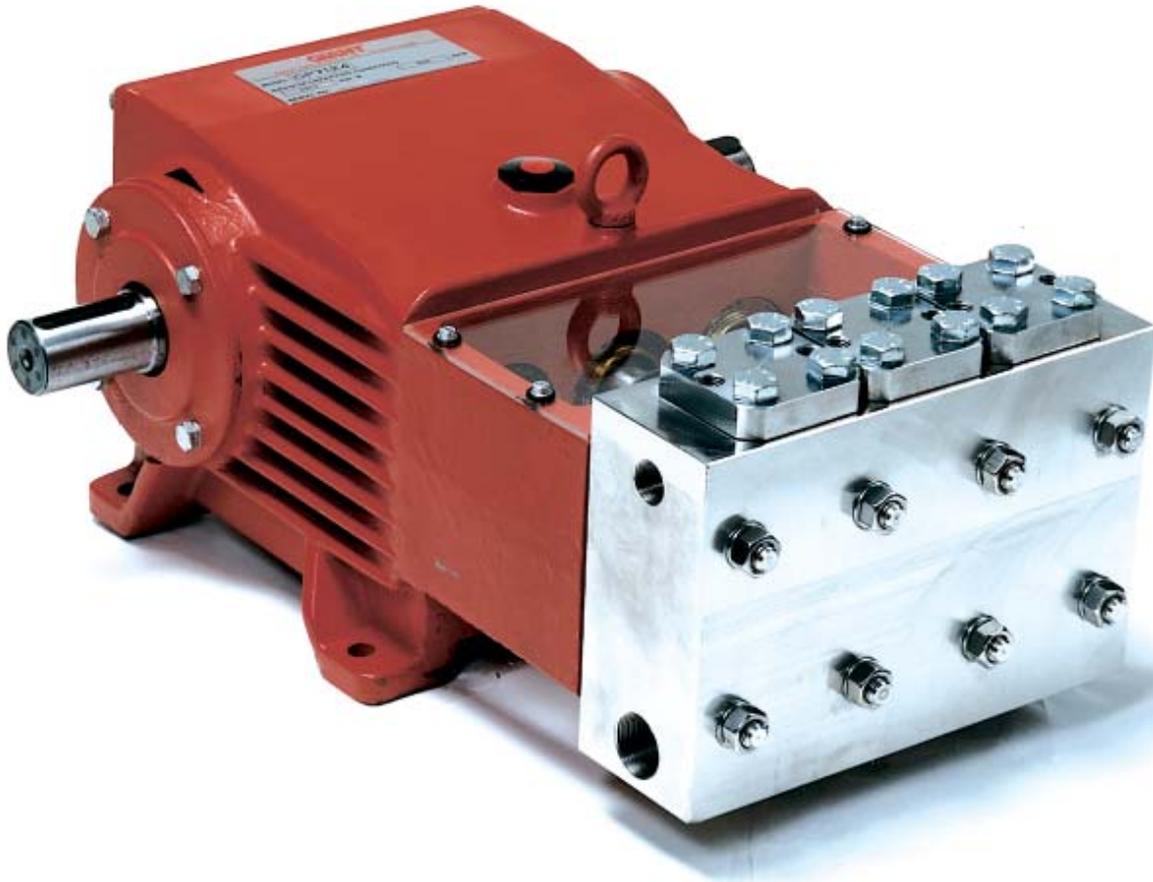


Model GP7128

Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service Manual



GIANT

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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 pumps are to be operated at temperatures in excess of 140^o 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 un-loader.

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 chart on page 3.
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.

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 the oil level is between the two lines on the oil dipstick. **DO NOT OVERFILL. SAE 80 Industrial Gear oil may be used.** Crankcase oil should be changed after the first 50 hours of operation, then at regular intervals of 200 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.
4. Run the pump dry approximately 10 seconds to drain the water before exposure to freezing temperatures.

Specifications Model GP7128

Flow	17.9 GPM	67.7 Liters/minute
Discharge Pressure	5800 PSI ¹	400 Bar ¹
Crankshaft Speed	750 RPM	
Inlet Pressure (maximum)	-4.35 to 145 PSI	-0.3 to 10 Bar
Plunger Diameter	1.1"	28 mm
Plunger Stroke	2.1"	52 mm
Crankshaft Diameter	1.9"	48 mm
Key Width	0.6"	14 mm
Crankshaft Mounting	Either side	
Shaft Rotation	Top of pulley towards manifold	
Temperature of Pumped Fluids	140 °F	60 °C
Inlet Ports	(2) 1-1/4" BSP	
Discharge Ports	(2) 3/4" BSP	
Weight	375 lbs.	170 Kg
Crankcase Oil Capacity	1.6 Gal.	6 Liters
Fluid End Material	Stainless Steel	
Volumetric Efficiency @ 700 RPM	89%	
Mechanical Efficiency @ 700 RPM	83%	

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.

NOTES: ¹This specification for maximum pressure and maximum speed apply to intermittent duty. When the pump is used for continuous duty and/or with water warmer than 100°F, these values must be reduced by 10%.

GP7128 HORSEPOWER REQUIREMENTS					
RPM	GPM	3000 PSI	4000 PSI	5000 PSI	5800 PSI
300	7.2	15.4	20.6	25.7	29.8
400	9.5	20.4	27.1	33.9	39.4
550	13.1	28.1	37.4	46.8	54.3
600	14.3	30.6	40.9	51.1	59.2
650	15.5	33.2	44.3	55.4	64.2
700	16.7	35.8	47.7	59.6	69.2
750	17.9	38.4	51.1	63.9	74.2

HORSEPOWER RATINGS:

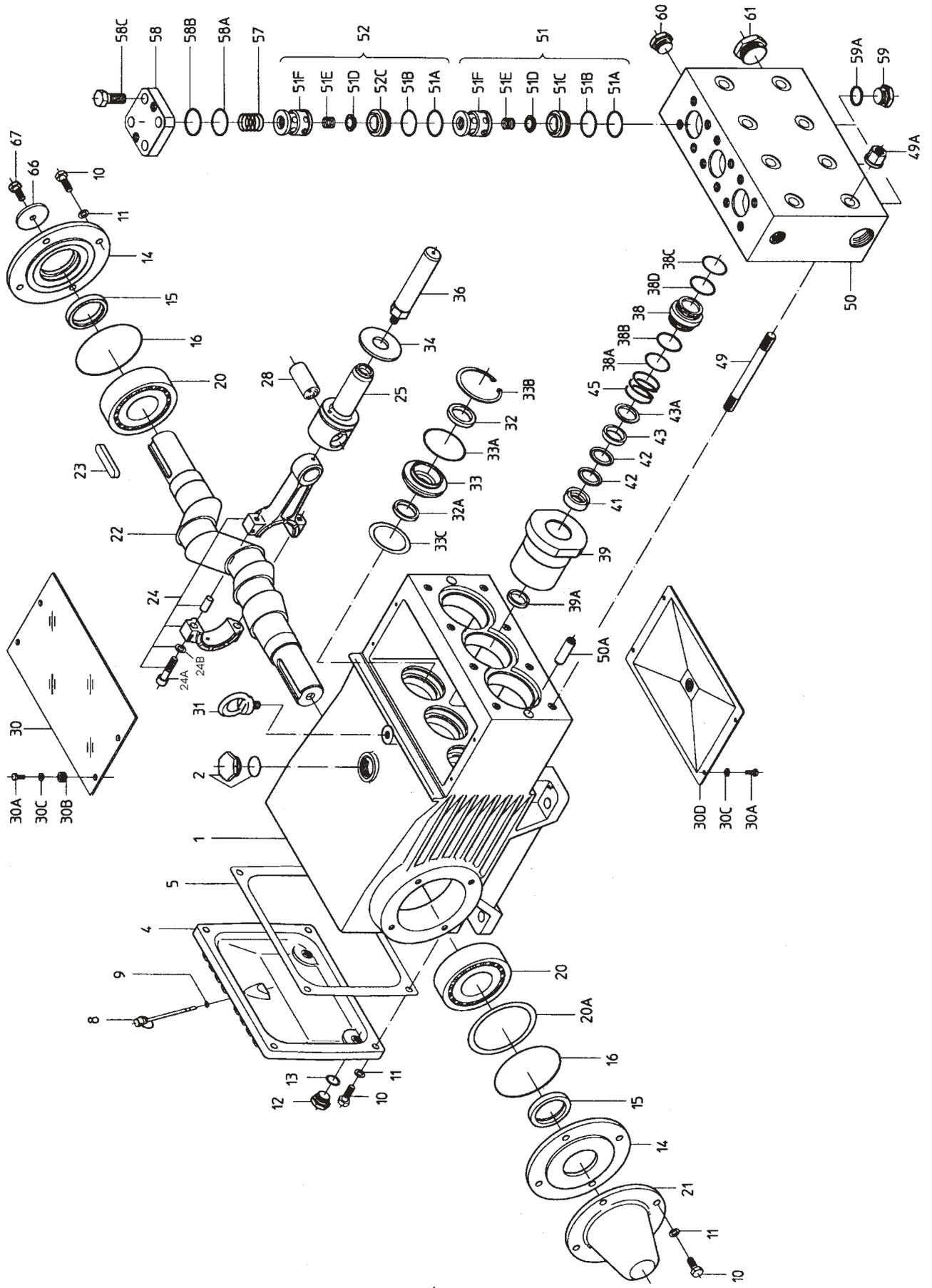
The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

We recommend a 1.1 service factor be specified when selecting an electric motor as the power source.

To compute specific pump horsepower requirements, use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1400} = \text{hp}$$

Exploded View - GP7128 Pump



GP7128 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	07600	Crankcase	1	38A	12055	O-Ring, Seal Case	3
2	13000	Oil Filler Plug Assembly	1	38B	07693	Support Ring for 38A	3
4	07601	Crankcase Cover	1	38C	07354	O-Ring for 39	3
5	07602	Seal for Cover	1	38D	12056	Support Ring for 38C	3
8	07603	Oil Dip Stick	1	39	06426	Seal Sleeve	3
9	01009	O-Ring, Dip Stick	1	39A	13228	Grooved Ring	3
10	22706	Inner Hexagon Screw	12	41	13417	Pressure Ring	3
11	06725	Spring Washer	12	42	13369	V-Sleeve	3
12	07109	Drain Plug	2	43	06862	Sleeve Support Ring	3
13	07182	Gasket, Drain Plug	2	43A	05355	Spacer Ring	3
14	07607	Bearing Cover	2	45	07173	Tension Spring	3
15	07608	Radial Shaft Seal	2	49	13159	Stud Bolt	8
16	07184	O-Ring, Bearing cover	2	49A	13160	Hexagon Nut	8
20	07610	Taper Roller Bearing	2	50	06099	Valve Casing	1
20A	07611	Fitting Disc (Shim)	1-5	50A	13162	Cylinder Stud	2
21	07612	Shaft Protector	1	51	13146	Inlet Valve Assy.	3
22	13405	Crankshaft	1	51A	12056	Support Ring	6
23	07614	Key	1	51B	07354	O-Ring	6
24	13182	Connecting Rod Assy.	3	51C	13131	Inlet Valve Seat	3
24A	07616	Fitting Screw	6	51D	13130	Valve Plate	6
24B	08041	Washer	6	51E	07062	Valve Spring	6
25	13183	Crosshead Assy.	3	51F	13147	Spacer Pipe	6
28	13184	Crosshead Pin	3	52	13148	Discharge Valve Assy.	3
30	07619	Cover Plate	1	57	06078	Compression Spring	3
30A	07225-0100	Hexagon Screw	8	52C	13149	Discharge Valve Seat	3
30B	13136	Grommet	4	58	07699	Plug	3
30C	08280	Disc	8	58A	07700	O-Ring	3
30D	13154	Cover	1	58B	07693	Support Ring	3
31	07623	Eye Bolt	1	58C	07702	Hexagon Screw	12
32	07624	Radial Shaft Seal	3	59	07703	Plug, 3/4"	3
32A	07625	Compact Ring	3	59A	07704	Copper Ring for 59	3
33	07626	Seal Retainer	3	60	13150	Plug, 3/4" BSP	1
33A	07627	O-Ring for 33	3	61	13151	Plug, 1-1/4" BSP	1
33B	07628	Circlip for 33	3	66	13362	Disc for Crankshaft	1
33C	07249	Shim	3	67	13358	Hexagon Screw	1
34	13137	Flinger	3		07662	Tool for valve assembly	
36	06427	Plunger	3		17212	Crankcase Assembly	
38	05354	Seal Case	3			(1-34/49/49A/50A/66/67)	

GP7128 Pump Repair Kits

Plunger Packing Kit - 09464

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
38A	12055	O-Ring, Seal Case	3
38B	07693	Support Ring	3
38C	07354	O-Ring	3
38D	12056	Support Ring	3
39A	13228	Grooved Ring	3
42	13369	V-Sleeve	6
43	06862	Sleeve Support Ring	3

Oil Seal Kit # 09225

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
32	07624	Radial Shaft Seal	3
32A	07625	Ring	3
33A	07627	O-Ring	3

Valve Assembly Kit - #09520

<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
51A	12056	Support Ring	6
51B	07354	O-Ring	6
51C	13131	Inlet Valve Seat	3
51D	13130	Valve Plate	6
51E	07062	Valve Spring	6
52C	13149	Discharge Valve Seat	3
58A	07700	O-Ring	3
58B	07693	Support Ring	6

GP7128 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.



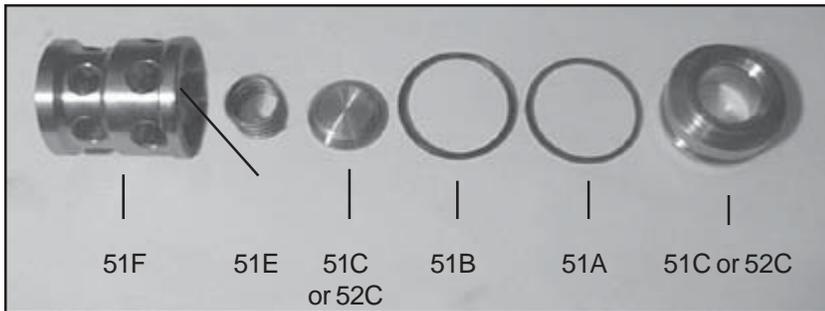
1. Loosen screws (58C), take plugs (58) out of valve casing with two screws.



2. Take out complete valve assemblies (51 and 52) using either tool (part #07662) or stud bolt.



3. Valve seats (51C and 52C) are pressed out of spacer pipe (51F) by hitting the valve plate (51D) with a bolt.



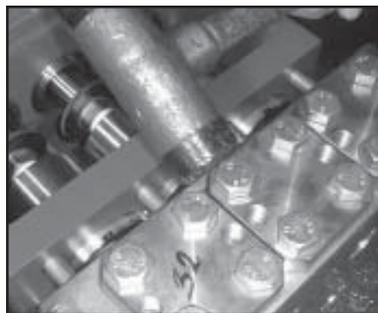
4. Check surfaces of valve plate, valve seat, O-rings (51B, 58A) and replace worn parts.



5. When reassembling: The suction valve seat (51C) is 1mm smaller in diameter than the discharge valve seat (52C). Suction valve seats are marked "S" and always have to be installed first. Discharge valve seats are marked "P" and are always to be installed on top of suction valve. Plugs (58) are to be tensioned down evenly with screws (58C) and crosswise at 156 ft-lbs. (210 NM).

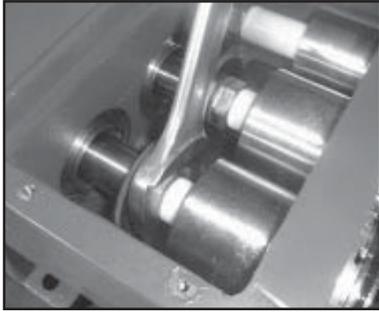


6. Loosen nuts (49A)



7. Remove pump head.

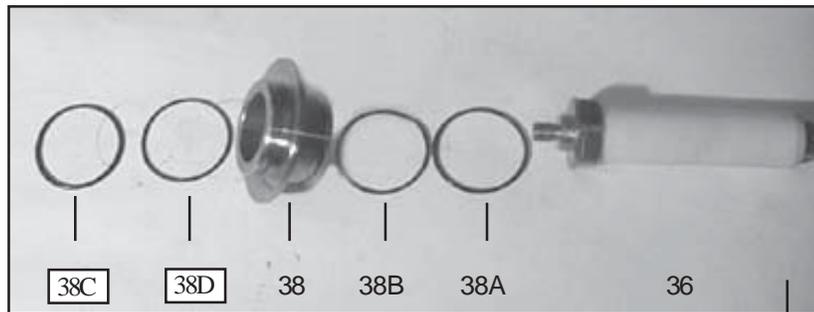
GP7128 Repair Instructions



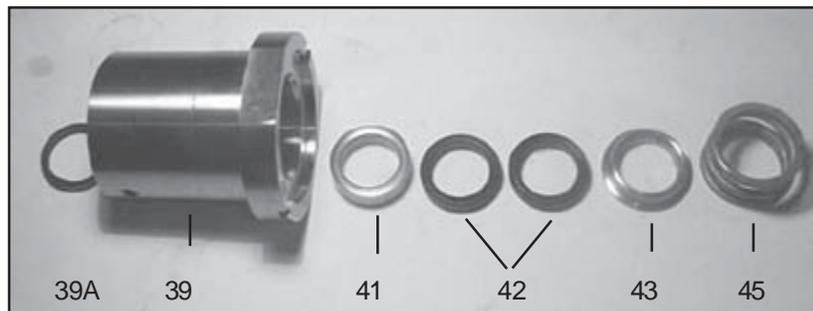
8. Separate plunger (36) from crosshead (25) by means of one open-end wrench.



9. Pull seal sleeves (39) out of their fittings in the crankcase. Take seal case (38) out of seal sleeve (39).



10. If o-rings (38A and 38C) or support rings (38B and 38D) are damaged, replace with new parts. Examine plunger (36) for wear.



11. Take a thin screw driver and pry out the grooved ring (39A). **Note: This seal (39A) will not be reusable, so replace with a new part.** For the seal-pack (41-43A), remove with either a socket wrench or use a screw driver to push against the rear lip of the pressure ring (41) or v-sleeves (42). You will need to remove seals evenly out of the seal sleeve (39). **Be careful not to score the sleeve or metal parts (41 & 43).**

GP7128 Repair Instructions

CAUTION: Don't loosen the 3 plunger (36) before the valve casing has been removed otherwise the plunger (36) could hit against the spacer pipe (51F) when the pump is being turned.
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.

MOUNTING VALVE CASING

NOTE: Replace worn parts; grease seals with silicone before installing.

12. Check O-rings (38A) and support rings (38B) on seal case (38). Clean surfaces of seal sleeves in gear box and sealing surfaces of valve casing. Reassemble seal sleeve (39) by placing plunger (36) in seal sleeve; place pressure ring (41), v-sleeves (42), sleeve support ring (43), and tension spring (45) over plunger (36). Place the seal case onto the seal sleeve and press into the crankcase, making sure that the weep hole on the seal sleeve is facing down. Tighten tensioning screw (36C) for plunger onto crosshead (25) with an open end wrench to 33 ft-lbs. (45NM)
13. Push valve casing carefully onto O-rings of seal case and centering studs (50A). Tighten nuts (49A) to 103 ft-lbs. (140NM).

TO DISASSEMBLE GEAR

14. Take out plunger (36) and seal sleeves (39) as described above. Drain oil.
15. After removing the circlip ring (33B), lever out seal retainer (33) with a screw driver. Check seals (32,32A,33A) and surfaces of crosshead.
16. Remove crankcase cover (4). Loosen inner hexagon screws on the connecting rods (24) and push con rod halves as far into the crosshead guide as possible.

CAUTION: Connecting rods are marked for identification. Do not twist con rod halves. Con Rod is to be reinstalled in the same position on shaft journals.

17. Check surfaces of connecting rod and crankshaft (22). Take out bearing cover (14) to one side and push out crankshaft taking particular care that the connecting rod (24) doesn't bend.

CAUTION: Seal (32A) must always be installed so that the seal-lip on the inside diameter faces the oil.
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 fitting screws (24A) to 30 ft.-lbs. (40 NM)

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

GP7128 Torque Specifications

<u>Position</u>	<u>Item#</u>	<u>Description</u>	<u>Torque Amount</u>
24A	07616	Fitting Screw	30 ft.-lbs. (40NM)
36	07664	Tensioning Screw	33 ft.-lbs. (45NM)
49A	13160	Nut	103 ft.-lbs.(140NM)
58	07699	Plug	156 ft.-lbs.(210NM)

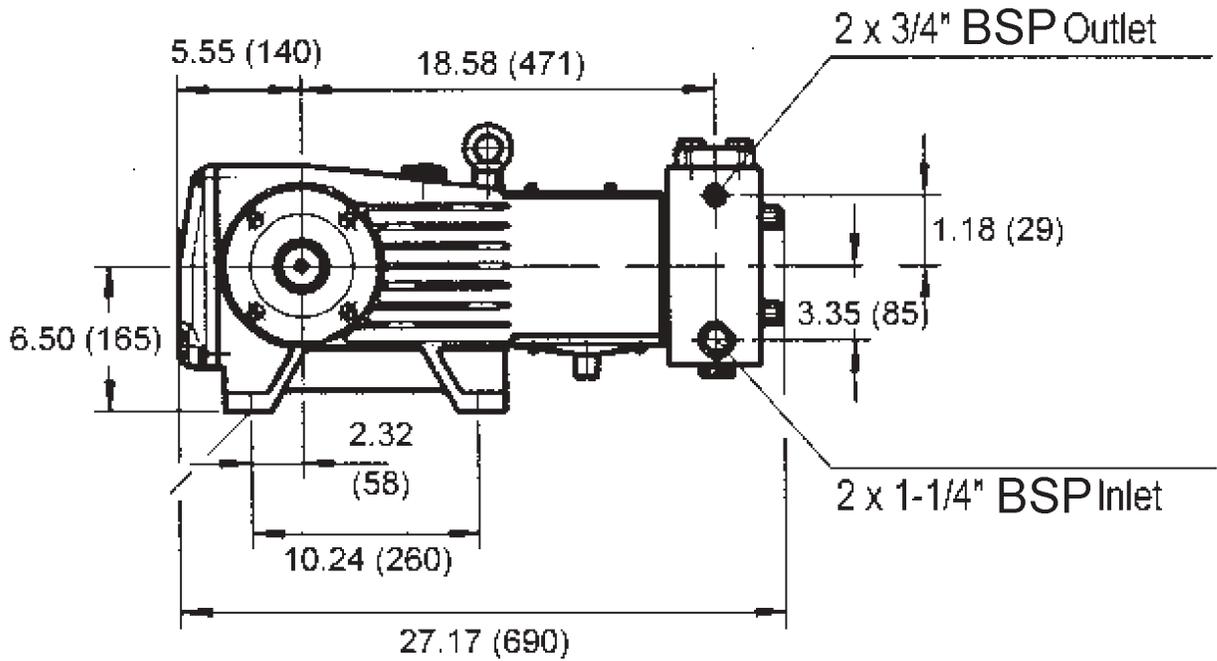
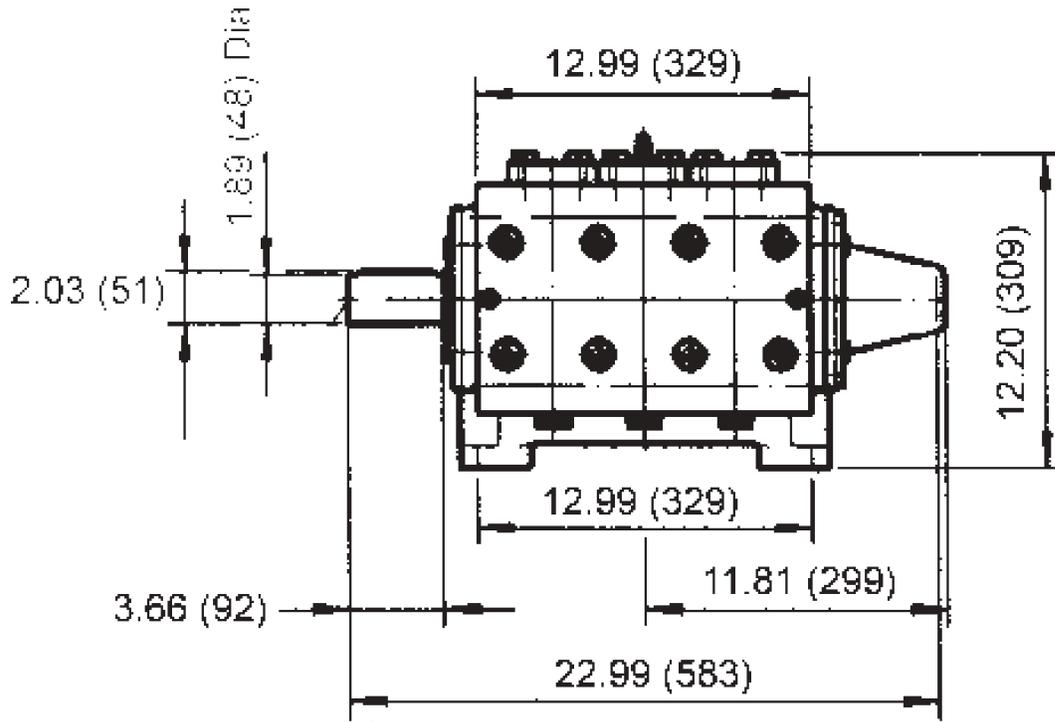
PUMP SYSTEM MALFUNCTIONS

<u>MALFUNCTION</u>	<u>CAUSE</u>	<u>REMEDY</u>
The Pressure and/ or the Delivery Drops	Worn packing seals	Replace packing seals
	Broken valve springs	Replace springs
	Belt slippage	Tighten or Replace belt
	Worn or Damaged nozzle	Replace nozzle
	Fouled discharge valve	Clean valve assembly
	Worn or Plugged relief valve on pump	Clean, Reset, and Replace worn parts
	Cavitations	Check suction lines on inlet of pump for restrictions
	Unloader	Check for proper operation
Water in Crankcase	High Humidity	Reduce oil change intervals
	Worn Seals	Replace seals
Noisy Operating	Worn bearings	Replace bearings, Refill crankcase oil with recommended lubricant
	Cavitation	Check inlet lines for restrictions and/or proper sizing
Rough/Pulsating Operation with Pressure Drop	Worn packing	Replace packing
	Inlet restriction	Check system for stoppage air leaks, correctly sized inlet plumbing to pump
	Accumulator pressure	Recharge/Replace accumulator
	Unloader	Check for proper operation
	Cavitation	Check inlet lines for restrictions and/or proper size
Pump Pressure as Drop at gun Rated, Pressure	Restricted discharge plumbing	Re-size discharge plumbing to flow rate of pump
Excessive Leakage	Worn plungers	Replace plungers
	Worn packing/seals	Adjust or Replace packing seals
	Excessive vacuum	Reduce suction vacuum
	Cracked plungers	Replace plungers
	Inlet pressure too high	Reduce inlet pressure
High Crankcase Temperature	Wrong Grade of Oil	Giant oil is recommended
	Improper amount of oil in crankcase	Adjust oil level to proper amount

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 (1 Gallon) p/n 1154			X	X		
Plunger Packing Kits (1 kit/pump) (See page 5 for kit list)					X	
Valve Assembly Kit (1 kit/pump) (See page 5 for kit list)						X
Oil Seal Kit (1 kit/pump) (See page 5 for kit list)					X	

GP7128 Dimensions - 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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