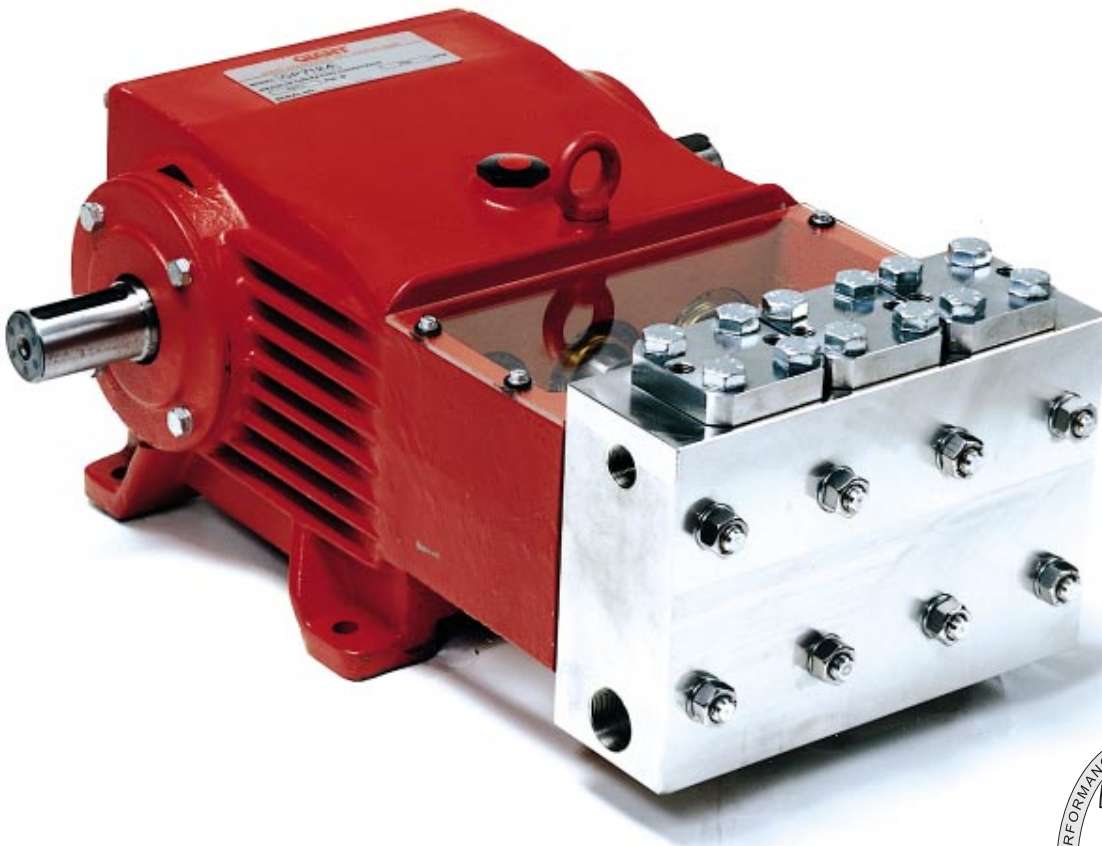


Triplex Ceramic
Plunger Pump
Operating Instructions/
Repair and Service
Manual

Model GP7132 & GP7136



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° 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 pages 3 & 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.

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 500 hours or less depending on operating conditions.

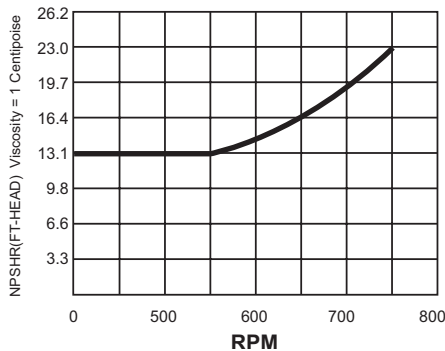
2. Pump operation must not exceed rated pressure, volume, or RPM. A pressure relief device must be installed in the discharge of the system.
3. Acids, alkalines, or abrasive fluids cannot be pumped unless approval in writing is obtained before operation from Giant Industries, Inc.
4. Run the pump dry approximately 10 seconds to drain the water before exposure to freezing temperatures.

Specifications Model GP7132

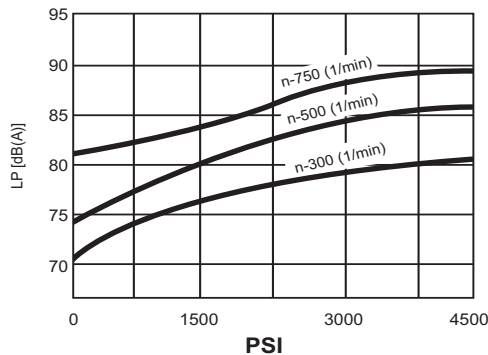
Volume	Up to 23.4 GPM
Discharge Pressure	Up to 4350 PSI
Speed	Up to 750 RPM
Inlet Pressure	Up to 90 PSI
Plunger Diameter	32mm
Plunger Stroke	52mm
Crankshaft Diameter	48mm
Key Width	14mm
Crankshaft Mounting	Either side
Shaft Rotation	Top of pulley towards manifold
Temperature of Pumped Fluids	Up to 140 °F
Inlet Ports	(2) 1 1/4" NPT
Discharge Ports	(2) 3/4" NPT
Weight	374 lbs.
Crankcase Oil Capacity	1.6 Gal.
Fluid End Material	Stainless Steel
Volumetric Efficiency @ 700 RPM	94%
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.

NPSHR Chart



Decible Chart



GP7132 HORSEPOWER REQUIRMENTS

RPM	GPM	1000 PSI	1400 PSI	2000 PSI	2500 PSI	3000 PSI	4350 PSI
300	9.4	6.7	9.4	13.4	16.7	20.1	29.1
400	12.5	8.9	12.5	17.8	22.3	26.7	38.8
550	17.2	12.3	17.2	24.5	30.6	36.8	53.3
600	18.7	13.4	18.7	26.7	33.4	40.1	58.2
650	20.3	14.5	20.3	29.0	36.2	43.5	63.0
700	21.8	15.6	21.8	31.2	39.0	46.8	67.9
750	23.4	16.7	23.4	33.4	41.8	50.1	72.7

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.

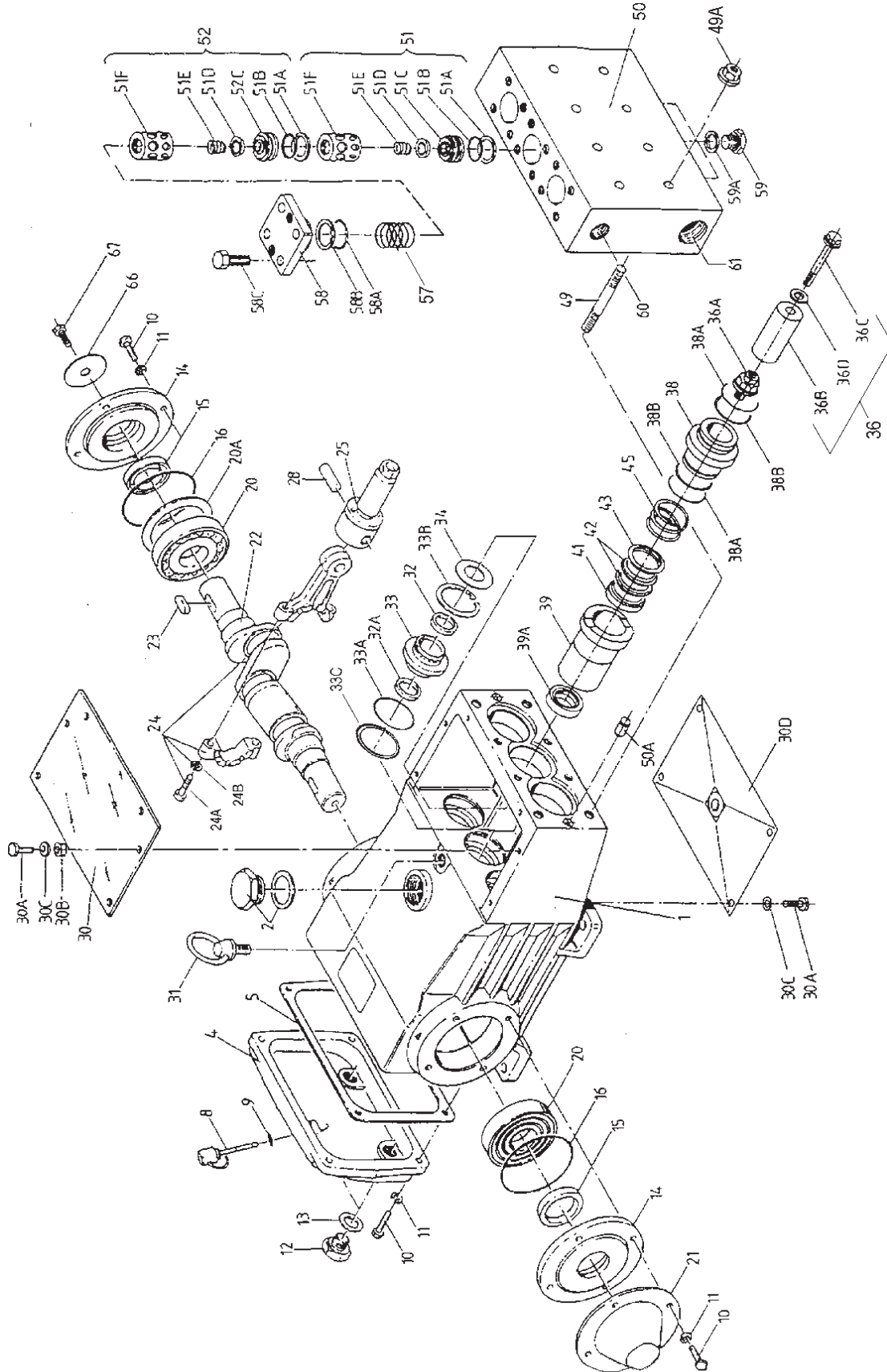
We recommend a 1.1 service factor be specified when selecting an electric motor as the power source.

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

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

1400

Exploded View - GP7132 and GP7136 Pumps



GP7132 and GP7136 PARTS LIST

ITEM	PART	DESCRIPTION	QTY.	ITEM	PART	DESCRIPTION	QTY.
1	07600	Crankcase	1	36D	07665	Copper Ring	3
2	13000	Oil Filler Plug Assembly	1	38	06093	Seal Case	3
4	07601	Crankcase Cover	1	38A	13141	O-Ring, Seal Case	6
5	07602	Seal for Cover	1	38B	13142	Support Ring	6
8	07603	Oil Dip Stick	1	39	06094	Seal Sleeve, GP7132	3
9	01009	O-Ring, Dip Stick	1	39	06794	Seal Sleeve, GP7136	3
10	13133	Hexagon Screw	12	39A	13360	Grooved Ring, GP7132	3
11	06725	Spring Washer	12	39A	13291	Grooved Ring, GP7136	3
12	07109	Drain Plug	2	41	06095	Pressure Ring, GP7132	3
13	07182	Gasket, Drain Plug	2	41	06795	Pressure Ring, GP7136	3
14	07607	Bearing Cover	2	42	06096	V-Sleeve, GP7132	6
15	07608	Radial Shaft Seal	2	42	06796	V-Sleeve, GP7136	6
16	07184	O-Ring, Bearing cover	2	43	06097	Sleeve Support Ring, GP7132	3
20	07610	Taper Roller Bearing	2	43	06797	Sleeve Support Ring, GP7132	3
20A	07611	Fitting Disc (Shim)	1-5	45	06098	Tension Spring	3
21	07612	Shaft Protector	1	49	13159	Stud Bolt	8
22	13405	Crankshaft	1	49A	13160	Nut	8
23	07614	Key	1	50	06798	Valve Casing	1
24	13182	Connecting Rod Assy.	3	50A	13162	Cylinder Stud	2
24A	07616	Fitting Screw	6	51	13146	Inlet Valve Assy.	3
24B	08041	Washer	6	51A	12056	Support Ring	6
25	13183	Crosshead Assy.	3	51B	07354	O-Ring	6
28	13184	Crosshead Pin	3	51C	13131	Inlet Valve Seat	3
30	07619	Cover Plate	1	51D	13130	Valve Plate	6
30A	07225-0100	Hexagon Screw	8	51E	07062	Valve Spring	6
30B	13136	Grommet	4	51F	13147	Spacer Pipe	6
30C	07622	Washer	8	52	13148	Discharge Valve Assy.	3
30D	13154	Cover	1	57	06078	Compression Spring	3
31	07623	Eye Bolt	1	52C	13149	Discharge Valve Seat	3
32	07624	Radial Shaft Seal	3	58	07699	Plug	3
32A	07625	Compact Ring	3	58A	07700	O-Ring	3
33	07626	Seal Retainer	3	58B	07693	Support Ring	3
33A	07627	O-Ring, Seal Retainer	3	58C	07702	Hexagon Screw	12
33B	07628	Circlip, Seal Retrainer	3	59	07703	Plug, 3/4"	3
33C	07249	Shim	3	59A	07704	Copper Ring for 59	3
34	13137	Flinger	3	60	12253	Plug, 3/4" NPT, GP7132	1
36	06091	Plunger Assembly (36A-36D) GP7132	3	60	13150	Plug, 3/4" BSP, GP7136	1
36	06792	Plunger Assembly (36A-36D) GP7136	3	61	12251	Plug, 1-1/4" NPT, GP7132	1
36A	07667	Plunger Base	3	61	13151	Plug, 1-1/4" BSP, GP7136	1
36B	06092	Plunger Pipe, GP7132	3	62	07662	Tool for valve assembly (not shown)	1
36B	06793	Plunger Pipe, GP7136	3	66	13362	Disc for Crankshaft	1
36C	07664	Tensioning Screw	3	67	13358	Hexagon Screw	1

GP7132 and GP7136 PUMP REPAIR KITS

Plunger Packing Kit

09519 (GP7132)

Item	Part #	Description	Qty.
38A	13141	O-Ring, Seal Case	6
38B	13142	Support Ring	6
39A	13360	Grooved Ring	3
42	06096	V-Sleeve	6

Oil Seal Kit

09225

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

Plunger Packing Kit

09544 (GP7136)

Item	Part #	Description	Qty.
38A	13141	O-Ring, Seal Case	6
38B	13142	Support Ring	6
39A	13291	Grooved Ring	3
42	06796	V-Sleeve	6

Valve Assembly Kit

#09520

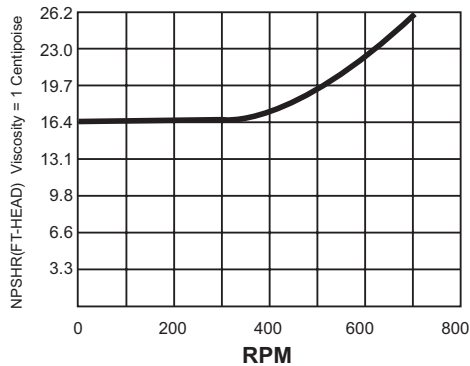
Item	Part #	Description	Qty.
51A	12056	Support Ring	6
51B	07354	O-Ring	6
51C	13131	Inlet Valve Seat	3
51D	13130	Valve Plate	6
51E	07062	Valve Spring	6
52C	13149	Discharge Valve Seat	3
58A	07700	O-Ring	3
58B	07693	Support Ring	6

Specifications Model GP7136

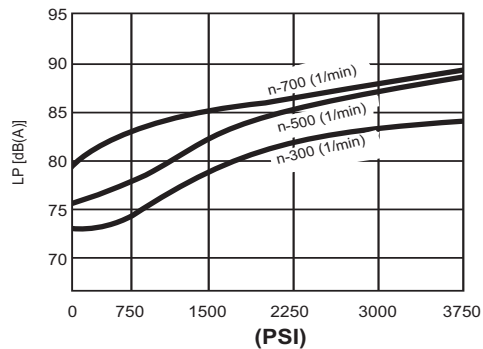
Volume	Up to 28.3 GPM
Discharge Pressure	Up to 3625 PSI
Speed	Up to 750 RPM
Inlet Pressure	-4.35 to 140 PSI
Plunger Diameter	36mm
Plunger Stroke	52mm
Crankshaft Diameter	48mm
Key Width	14mm
Crankshaft Mounting	Either side
Shaft Rotation	Top of pulley towards manifold
Temperature of Pumped Fluids	Up to 140 °F
Inlet Ports	(2) 1 1/4" NPT
Discharge Ports	(2) 3/4" NPT
Weight	374 lbs.
Crankcase Oil Capacity	1.6 Gal.
Fluid End Material	Stainless Steel
Volumetric Efficiency @ 700 RPM	94%
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.

NPSHR Chart



Decible Chart



GP7136 HORSEPOWER REQUIREMENTS						
RPM	GPM	1000 PSI	1400 PSI	2000 PSI	2500 PSI	3625 PSI
300	11.3	8.1	11.3	16.1	20.2	29.3
400	15.0	10.7	15.0	21.4	26.8	38.8
550	20.8	14.9	20.8	29.7	37.1	53.9
600	22.6	16.1	22.6	32.3	40.4	58.5
650	25.0	17.9	25.0	35.7	44.6	64.7
700	26.4	18.9	26.4	37.7	47.1	68.4
750	28.3	20.2	28.3	40.4	50.5	73.3

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:

$$\frac{\text{GPM} \times \text{PSI}}{1714}$$

GP7132 AND GP7136 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.



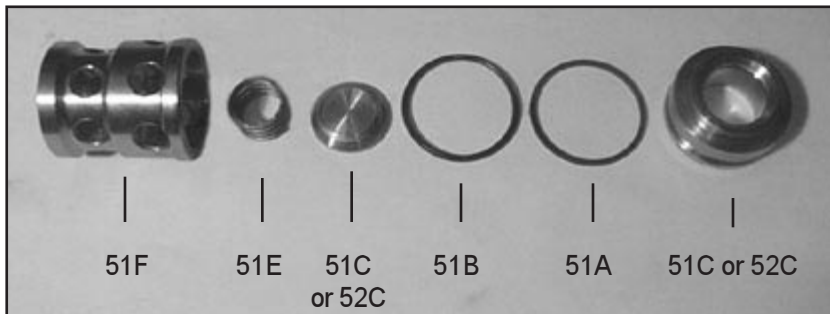
1. Loosen screws (58C), take plugs (58) out of valve casing with two screws.



2. Take out complete valve (51) 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 155 ft-lbs.



6. Loosen nuts (49A)

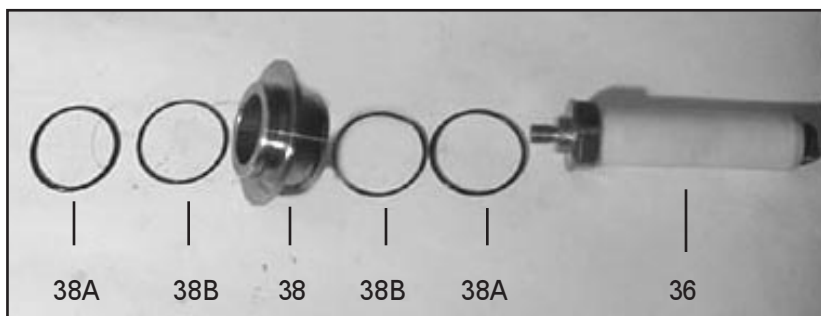


7. Remove pump head.

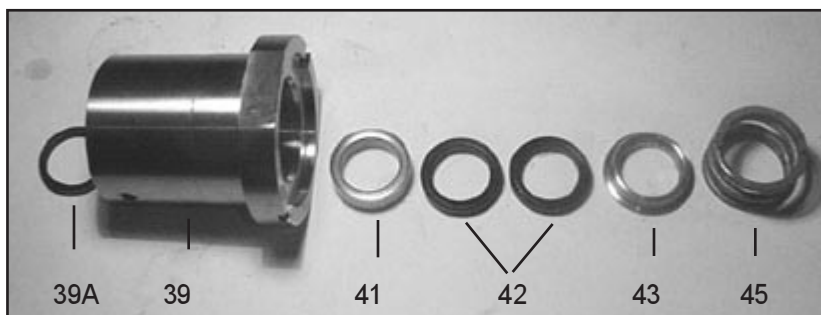
GP7132 AND GP7136 REPAIR INSTRUCTIONS



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) or support rings (38B) 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 (41-43), 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).**

GP7132 AND GP7136 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 26 ft-lbs.
13. Push valve casing carefully onto O-rings of seal case and centering studs (50A). Tighten nuts (49A) to 103 ft-lbs.

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.

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

GP7132 and GP7136 TORQUE SPECIFICATIONS

<u>Position</u>	<u>Item#</u>	<u>Description</u>	<u>Torque Amount</u>
24A	07616	Fitting Screw	30 ft.-lbs.
36C	07664	Tensioning Screw	26 ft.-lbs.
49A	13160	Nut	103 ft.-lbs.
58	07699	Plug	155 ft.-lbs.

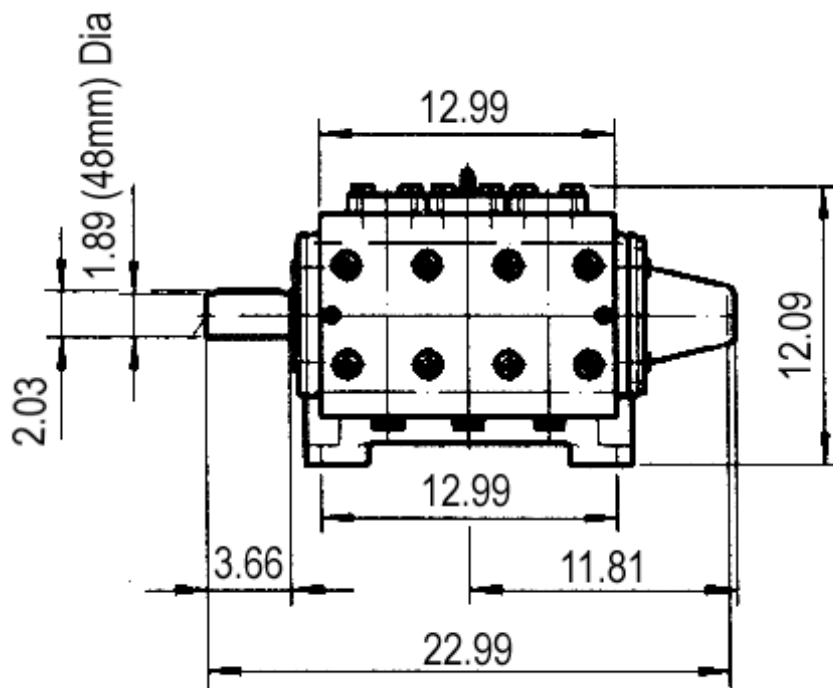
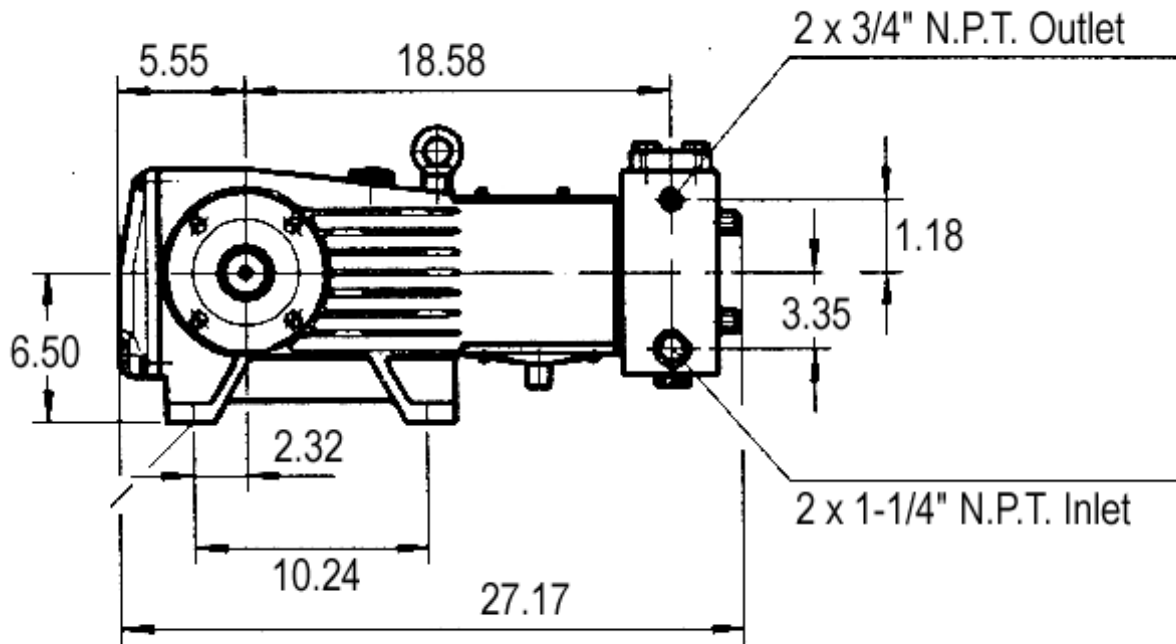
PUMP SYSTEM MALFUNCTION

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

GP7132 and GP7136 Dimensions (Inches)



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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