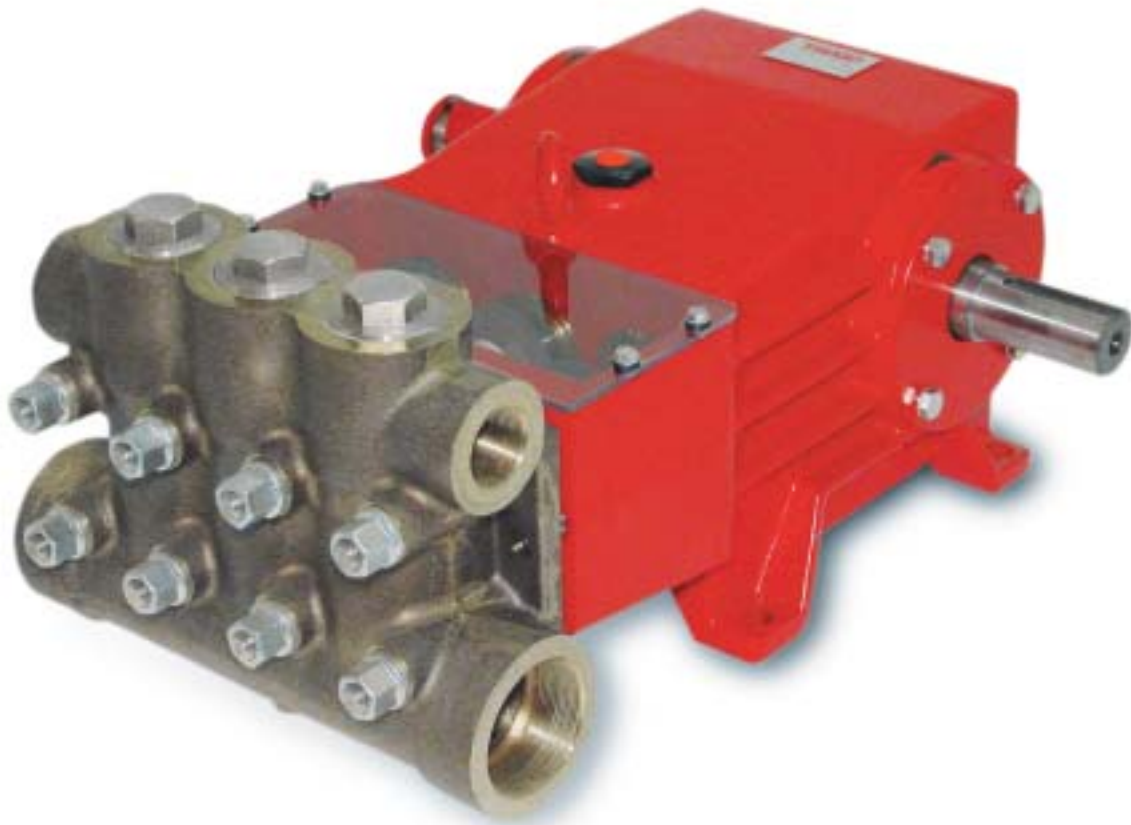


# Model

# GP6145-3100

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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<sup>o</sup> 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 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 the crankcase so that oil level is between the two lines on the oil dipstick. **DO NOT OVER-FILL.**

**Use Giant Recommended Oil** (p/n 01154), which is equivalent to SAE 85-90W Industrial Gear Lube Oil.

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 from Giant Industries, Inc. before operating.

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

**NOTE: Contact Giant Industries for Service School Information. Phone: (419)-531-4600**

# Specifications

## Model GP6145-3100

Volume .....	46.5 GPM .....	175.9 L/min
Discharge Pressure .....	1740 PSI .....	120 bar
Crankshaft Speed .....		800 RPM
Inlet Pressure (max.) .....	Up to 90 PSI .....	6.2 bar
Plunger Diameter .....	1.77" .....	45mm
Plunger Stroke .....	1.89" .....	48mm
Crankshaft Diameter .....	1.65" .....	42mm
Key Width .....	0.47" .....	12mm
Crankshaft Mounting .....		Either side
Shaft Rotation .....		Top of pulley towards manifold
Temperature of Pumped Fluids (max). ...	140 °F .....	60 °C
Inlet Ports .....		(2) 1-1/4" BSP
Discharge Ports .....		(2) 1" BSP
Weight .....	309 lbs. ....	140 Kg
Crankcase Oil Capacity .....	1.1 Gal. ....	4.2 Liters
Fluid End Material .....		Aluminum-Bronze-Nickle

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.

### HORSEPOWER RATINGS:

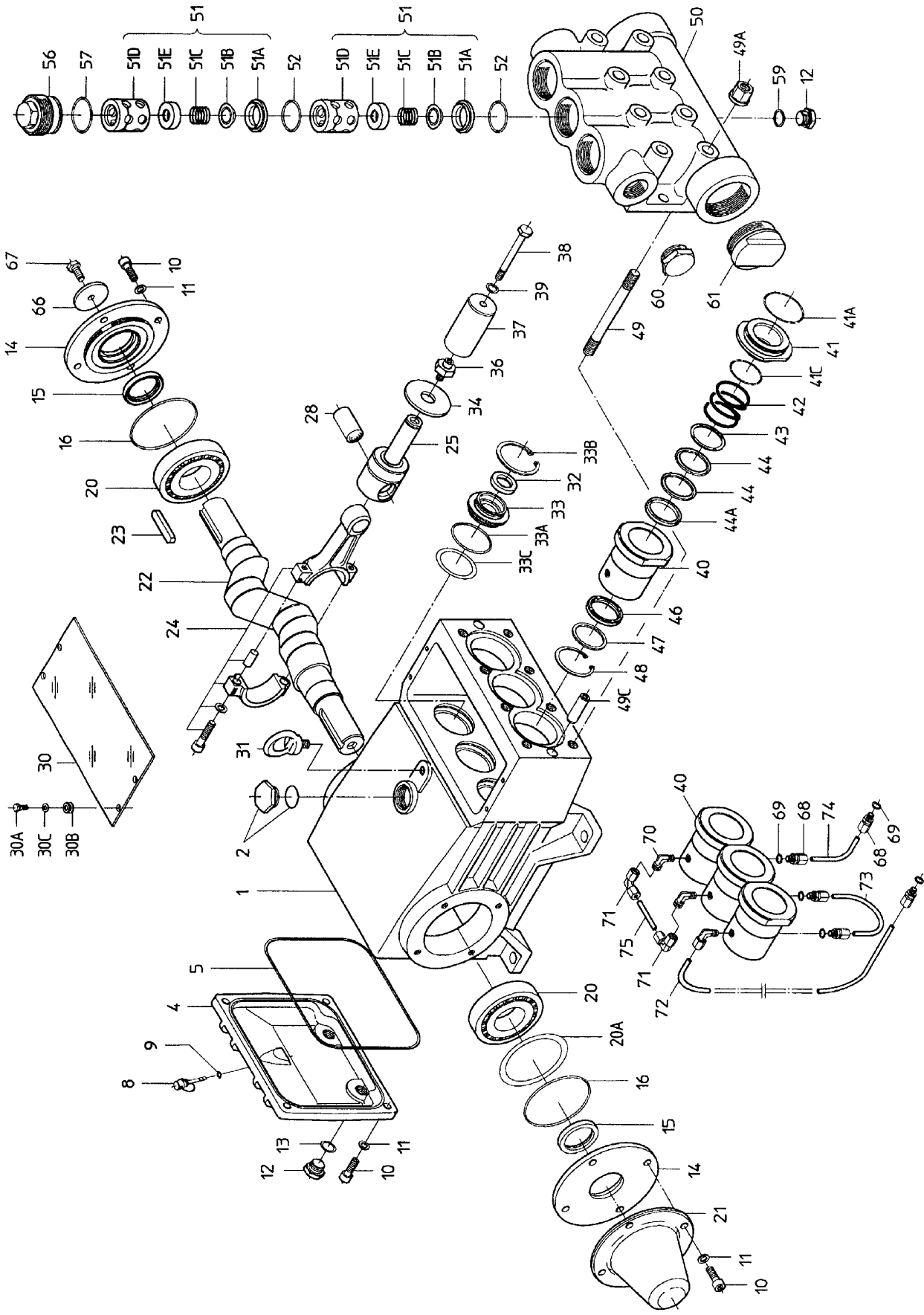
The rating shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

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:

$$HP = (GPM \times PSI) / 1450$$

<b>GP6145-3100 HORSEPOWER REQUIREMENTS</b>					
<b>RPM</b>	<b>GPM</b>	<b>500 PSI</b>	<b>1000 PSI</b>	<b>1500 PSI</b>	<b>1740 PSI</b>
400	23.3	8.0	16.1	24.1	28.0
500	29.1	10.0	20.1	30.1	34.9
600	34.9	12.0	24.1	36.1	41.9
700	40.7	14.0	28.1	42.1	48.8
800	46.5	16.0	32.1	48.1	55.8

# Exploded View - GP6145-3100



Subject to Change Without notice

## GP6145-3100 PARTS LIST

ITEM	PART	DESCRIPTION	QTY.	ITEM	PART	DESCRIPTION	QTY.
1	13200	Crankcase	1	41	05160-0100	Seal Case	3
2	13000	Oil Filler Plug Assy	1	41A	07721-0001	O-Ring for 41, Viton	3
4	13201	Crankcase Cover	1	41C	13141-0001	O-Ring for 41, Viton	3
5	13202	O-Ring for 4	1	42	13297	Tension Spring, red	3
8	06894	Oil Dipstick	1	43	13395	Sleeve Support Ring	3
9	01009	O-Ring for 8	1	44	13294	Sleeve	6
10	22706	Hexagon Screw	12	44A	13293	Pressure Ring	3
11	06725	Spring Washer	12	46	05057	Compact Ring	3
12	07109-0400	Drain Plug	3	47	05161-0100	Support Ring	3
13	07182	Copper Seal Ring, 1/2"	2	48	05474	Clipping	3
14	12549	Bearing Cover	2	49	13159	Stud Bolt	8
15	07877	Radial Shaft Seal	2	49A	06958	Hexagon Nut	8
16	08055	O-Ring for 14	2	49C	13162	Centering Stud	2
20	13206	Taper Roller Bearing	2	50	12563-3000	Valve Casing	1
20A	13207	Fitting Disc	1-5	51	05164-0100	Valve Assembly (51A-E)	6
21	13208	Shaft Protector	1	51A	12564-0100	Valve Seat	6
22	06895	Crankshaft	1	51B	12565-0100	Valve Plate	6
23	08213	Fitting Key	1	51C	12566	Valve Spring	6
24	06896	Connecting Rod Assembly	3	51D	12567-0100	Spacer Pipe	6
25	06897	Crosshead Assembly	3	51E	05475	Valve Spring Guide	6
28	06898	Crosshead Pin	3	52	05166-0001	O-Ring for 51, Viton	6
30	13214	Cover Plate	1	56	05171-0100	Tension Plug	3
30A	07225-0100	Hexagon Screw	4	57	05167-0001	O-Ring for 56, Viton	3
30B	13136	Grommet	4	59	06807	Steel Seal for 12	1
30C	08280	Disc	4	60	13151-0100	Plug, 1-1/4" BSP	1
31	07623	Eye Bolt	1	61	12568	Plug, 2-1/2" BSP	1
32	06118	Radial Shaft Seal	3	66	13362	Disc for Crankshaft	1
33	13216-0100	Seal Retainer	3	67	13358	Hexagon Screw	1
33A	07721	O-Ring for 33	3	68	06588	Screw-in Pipe Connection	5
33B	13217-0100	Clipping for 33	3	69	07204-0100	Steel Seal Ring	5
33C	12551	Fitting Disc	3	70	06768	Elbow for Drip Return	3
34	13218	Oil Scraper	3	71	05476	Elbow w/Nuts for Drip Return	2
36	05156-0100	Plunger Connection	3	72	05477	Leakage Pipe, Curved	1
37	05157	Plunger Pipe	3	73	05478	Pipe Bend, 180 Deg.	1
38	05158-0100	Tensioning Screw	3	74	05479	Pipe Bend, 90 Deg.	1
39	07755-0100	Gasket, Steel, 1/4"	3	75	05480	Leakage Pipe. Straight	1
40	05159-0100	Seal Sleeve	3				

## GP6145-3100 REPAIR KITS

### Plunger Packing Kits - #09632

Item	Part #	Description	Qty.
41A	07721-0001	O-Ring	3
41C	13141-0001	O-Ring	3
44	13294	Sleeve	6
44A	13293	Pressure Ring	3
46	05057	Compact Ring	3

### Valve Assembly Kit - #09633

Item	Part #	Description	Qty.
51A	12564-0100	Valve Seat	6
51B	12565-0100	Valve Plate	6
51C	12566	Valve Spring	6
52	05166	O-Ring	6
57	05167	O-Ring	3

### Oil Seal Kit - #09625

Item	Part #	Description	Qty.
32	06118	Radial Shaft Seal	3
33A	07721	O-Ring	3

## GP6145-3100 REPAIR INSTRUCTIONS

### To Check Valves

Loosen plugs (56) and take out complete valve (51) with a slide hammer (provided with pump). With a bent piece of wire, take out o-rings (52) located between the suction and discharge valves. To dismantle the valves, carefully tap the valve plate (51B) with a bolt until the valve seat (51A) is pushed out of the spacer pipe (51D). Check the sealing surfaces and replace all worn parts. Check the o-rings.

When reinstalling the valve, particular care must be taken so that the o-rings sit properly in their fittings in the valve casing. Tighten the plugs (56) to 160 ft.-lbs.(220 N-M)

### To Check Seals and Plunger Pipe

Loosen nuts (49A) and remove the pump head. Separate the plunger connection (36) from the crosshead assembly (25) by means of two open-end wrenches (size 22mm and 27mm). Pull seal sleeves (40) out of their fittings in the crankcase (1). Take seal case (41) out of seal sleeve (40). Examine plunger (37) and sleeves (44). Check the o-rings (41A and 41C). Replace worn parts. Grease seals with Silicone before reinstalling. Replace plunger (37) and tighten tension screw (38) to 29 ft.-lbs.(40 N-M)

**IMPORTANT: Do not loosen the three plunger screws (36) before the valve casing (50) has been removed; otherwise, the tension screw (38) could hit against the spacer pipe (51D) when the pump is being turned.**

For the pumps, the seal unit (43, 44, 44A) is loaded by a spring (42). Seal life can be increased if the loading allows for a little leakage. This assists lubrication and keeps the seals cool. It is therefore not necessary to replace the seals before the leakage becomes too heavy and causes output and operating pressure to drop. When reassembling, tighten plunger (37) to 33 ft.-lbs.(45 N-M)

Check o-rings on seal case (41). Clean surfaces of seal sleeves in gear box and sealing surfaces of valve casing. Push valve casing carefully onto o-rings of seal case and centering studs (49C). Tighten nuts (49A) to 103 ft.-lbs.(140 N-M)

### To Disassemble Gear End

Take out plunger and seal sleeves as described above. Drain oil. After removing the clipping (33B), pry out seal retainer (33) with a screw driver. Check seals (32) and surfaces of crosshead (25). Remove crankcase cover (4). Loosen inner hexagon screws on the connecting rods (24) and push connecting rod halves as far into the crosshead guide as possible.

**IMPORTANT:** Connecting rods are marked for identification. Do not twist conn-rod halves. Conn-rod is to be reinstalled in the same position on shaft journals. Check surfaces of connecting rod and crankshaft (22). Take out bearing cover to one side and push out crankshaft taking particular care that the connecting rod does not get bent.

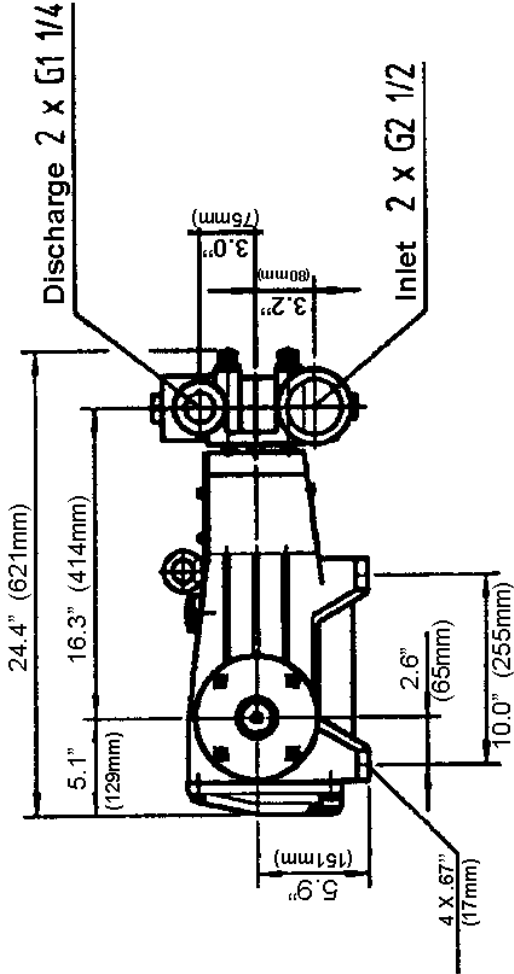
Reassemble in reverse order: Regulate axial bearing clearance - minimum 0.1mm, maximum 0.15mm - by means of fitting disc (20A). Shaft should turn easily with little clearance. Tighten inner hexagon screws (24) to 29 ft.-lbs.(40 N-M)

**IMPORTANT: Connecting rod has to be able to be slightly moved sidewise at the stroke journals.**

## GP6145-3100 TORQUE SPECIFICATIONS

<u>Position</u>	<u>Item#</u>	<u>Description</u>	<u>Torque Amount</u>
24	06896	Inner Hexagon Screw	29 ft.-lbs.
38	05158-0100	Tensioning Screw	33 ft.-lbs.
49A	06958	Nut, Valve Casing	103 ft.-lbs.
56	05171-0100	Tensioning Plug	220 ft.-lbs.

GP6145-3100 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 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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