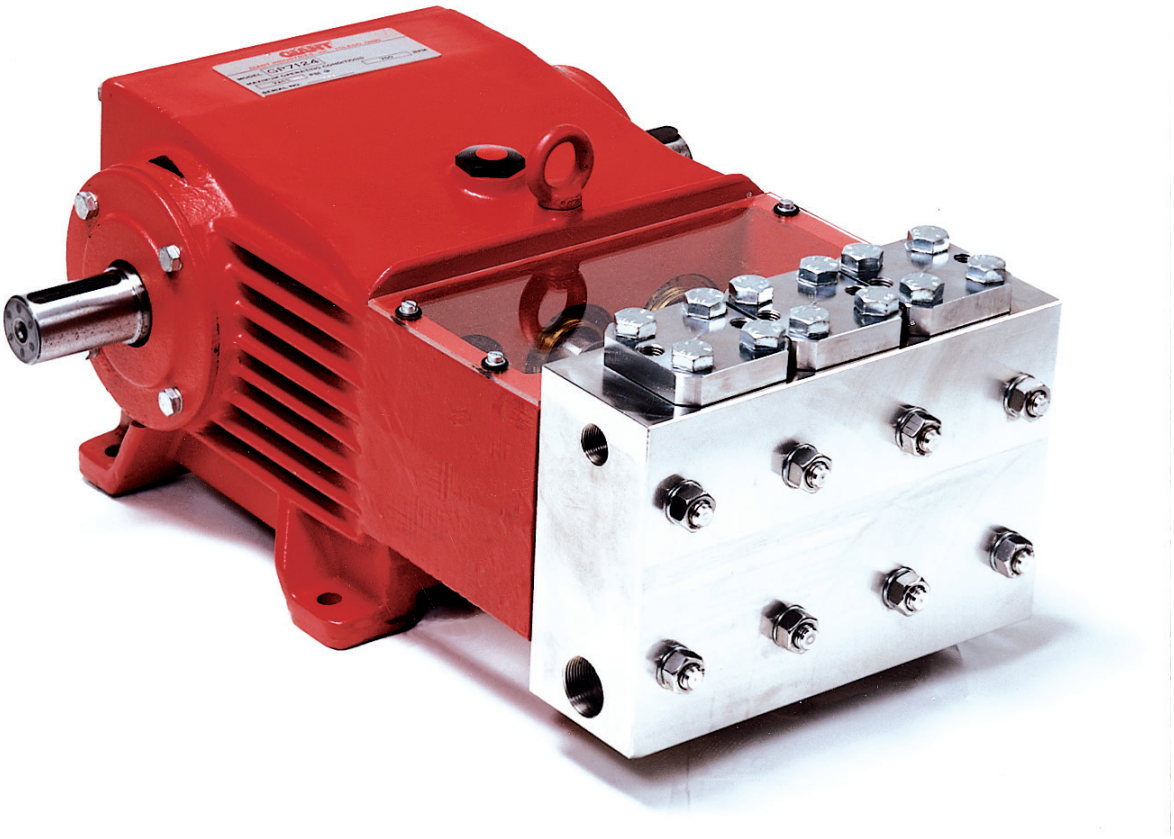
Model GP7128-4100

Triplex Ceramic Plunger Pump Operating Instructions/ Repair and Service Manual



GIANT
Performance Under Pressure

Contents:

INSTALLATION INSTRUCTIONS

Performance
1) Figures given for maximum pressure and maximum speed (rpm) apply to intermittent operation with cold water.
When the pump is used in continuous operation and/ or with water warmer than 104°F (40°C), these values must be reduced by 10%.

Performance data for intermittent operation, data for continuous operation on request.

For information on intermittent operation and calculating of the performance data, see the Giant Industries assembly instructions.

NPSHR / Inlet pressure
Required NPSH refers to water at 68 °F (20 °C) at maximum permissible pump speed.
The inlet pressure on the suction side must not exceed 29 PSI (2 bar).

Level of noise emission
Emission sound pressure level: ≤ 91 dB(A)

Fields of application
The fields of application of these pump types correspond to the specifications in the assembly instructions Giant Industries.

Ambient conditions
Ambient temperature: 41 °F < $T_{Amb.}$ < 86 °F
Ambient temperature: 5 °C < $T_{Amb.}$ < 30 °C

Oil filling
- Filling quantity: **1.7 gal (6.5 l)**
- Quality: Industrial gear oil **ISO VG 220** or automotive gear oil **SAE 90 GL4 (Giant's p/n 01154)**
- Intervals: first oil change after **50 operating hours** then every **1000 operating hours**, but at the latest after **12 months**

Installation/ Putting into Operation

Shaft protector
When the pump is in operation, the open shaft end must be covered up by shaft protector (21), the driven shaft side and coupling by a contact-protector and the plunger room by cover (30).

Direction of pump rotation
Set the direction of rotation of the drive unit according to the direction of rotation arrow on the crankcase.

Suction line filter
Recommended mesh size 50 µm.

Operation
For informations, see assembly instructions Giant Industries.

GP7128 Torque Specifications			
Position	Thread	Lubrication Information	Torque Amount
1		Molycote Cu-Paste	
10	M10		33 ft.-lbs. (45 Nm)
12	1/2" BSP		59 ft.-lbs. (80 Nm)
15		Loctite 403	
17	M12		64 ft.-lbs. (87 Nm)
24	M10		30 ft.-lbs. (40 Nm)
32		Loctite 403	
36A		Loctite 243	33 ft.-lbs. (45 Nm)
36C	M10	Loctite 243	30 ft.-lbs. (40 Nm)
39		Copper Paste / Crankcase Side	
49		Loctite 649 / Crankcase Side	
49A	M16		133 ft.-lbs. (180 Nm)
58C	M16	Anti-Sieze 350	155 ft.-lbs. (210 Nm)

Specifications
Model GP7128-4100

Flow	17.9 GPM	67.7 L/M
Discharge Pressure	5945 PSI[1]	410 Bar [1]
Power Consumption	73.2 HP	54.6 kW
Crankshaft Speed		750 RPM
Inlet Pressure (maximum)	-4.35 to 29 PSI	-0.3 to 2 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	434 lbs.	197 Kg
Crankcase Oil Capacity	1.7 Gal.	6.5 Liters
Fluid End Material		Stainless Steel
NPSHR	21.3 ft. of head	6.5 mWs

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: **[1]This 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 104 °F (40 °C), these values must be reduced by 10%.**

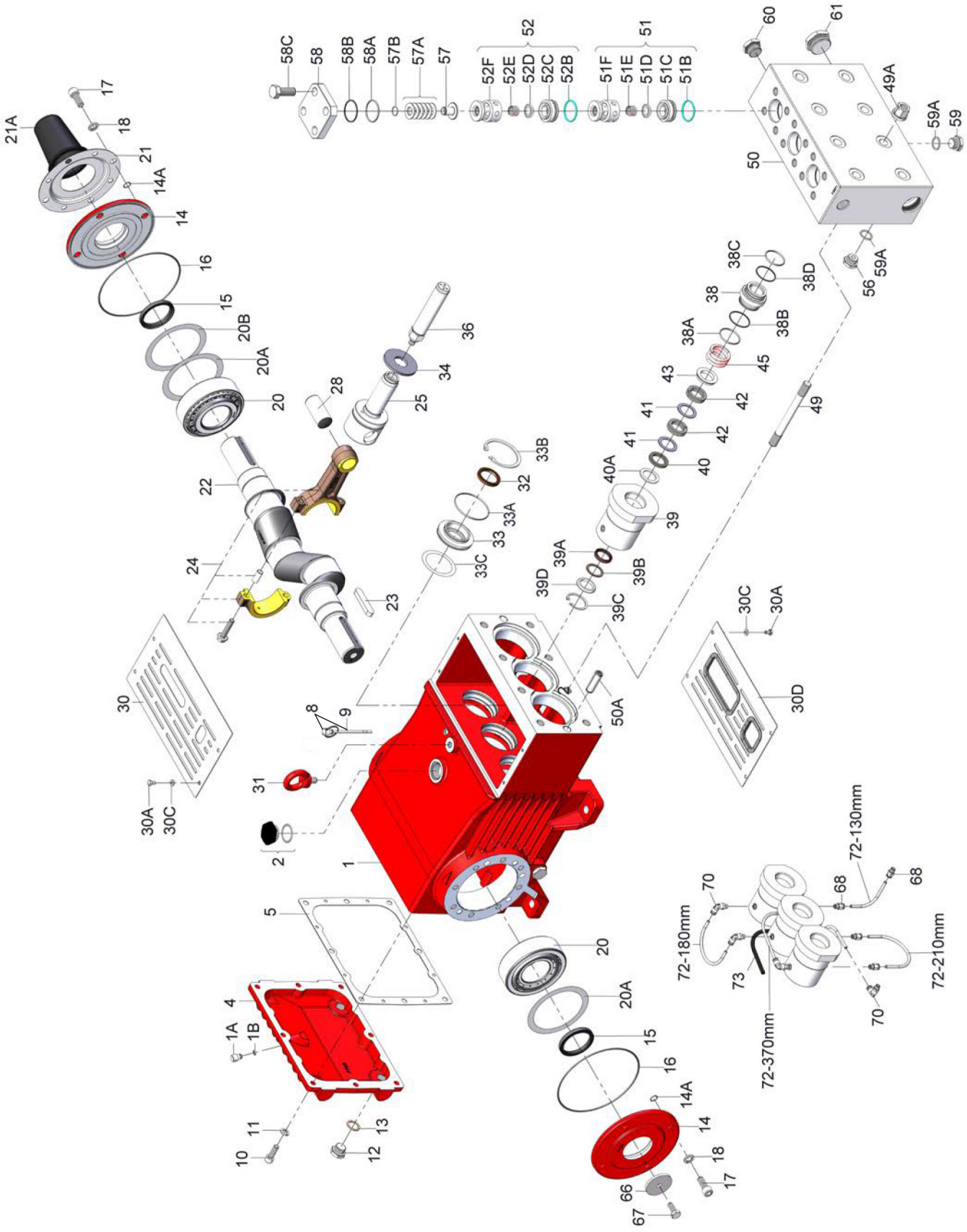
GP7128-4100 Horsepower Requirements Electric Motor					
RPM	**GPM**	**3000 PSI**	**4000 PSI**	**5000 PSI**	**5945 PSI**
300	7.2	14.9	19.9	24.8	29.5
400	9.6	19.9	26.5	33.1	39.4
550	13.1	27.1	36.1	45.2	53.7
600	14.3	29.6	39.5	49.3	58.6
650	15.5	32.1	42.8	53.5	63.6
700	16.7	34.6	46.1	57.6	68.5
750	17.9	37.0	49.4	61.7	73.4

HORSEPOWER RATINGS:
The ratings shown in the chart above reflect the horsepower requirements for electric motors. We recommend motors with a 1.15 service factor.

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

$$\frac{\text{GPM X PSI}}{1450} = \text{hp}$$

Exploded View - GP7128-4100 Pump



GP7128-4100 PARTS LIST

ITEM	PART	DESCRIPTION	QTY.
1	05769	Crankcase	1
1A	05525	Head for Oil Dipstick	1
1B	01009	O-Ring, Dipstick	1
2	13000	Oil Filler Plug Assembly	1
4	07601	Crankcase Cover	1
5	05798	Seal for Cover	1
8	07603	Oil Dip Stick Assembly	1
9	01009	O-Ring, Dip Stick	1
10	22706	Inner Hexagon Screw	8
11	06725	Spring Washer	8
12	07109-0400	Drain Plug	6
13	06272	Copper Seal	6
14	05770	Bearing Cover	2
14A	12204	O-Ring	8
15	05771	Radial Shaft Seal	2
16	05772	O-Ring, Bearing cover	2
17	05642	Inner Hexagon Screw	8
18	05039	Spring Washer	8
20	05773	Taper Roller Bearing	2
20A	05774	Fitting Disc (Shim)	1-8
20B	04570	Fitting Disc (Shim)	1
21	05645	Holder for Shaft Protector	1
21A	05646	Shaft Protector	1
22	05575	Crankshaft	1
23	07614	Key	1
24	05777	Connecting Rod Assembly	3
25	05778	Crosshead Assembly	3
28	05779	Crosshead Pin	3
30	05713	Cover Plate	1
30A	05051-0100	Hexagon Screw	8
30C	08280	Disc	8
30D	05714	Cover	1
31	07623	Eye Bolt	1
32	07624	Radial Shaft Seal	3
33	06950	Seal Retainer	3
33A	07627	O-Ring for 33	3
33B	06951	Circlip for 33	3
33C	07249	Shim	3
34	13137	Flinger	3
36	06427	Plunger	3
38	05354	Seal Case	3
38A	06577	O-Ring, Seal Case	3
38B	07693	Support Ring for 38A	3
38C	06736	O-Ring for 39	3
38D	12056	Support Ring for 38C	3
39	03784	Seal Sleeve	3
39A	03785	Grooved Ring	3
39B	03786	Flinger	3
39C	06584	Clip Ring	3
39D	03787	Support Disc	3
40	05442	Guide Ring	3
40A	05441	Pressure Ring	3
41	05440	Support Ring	6
42	05439	Spiral Ring	6
43	03788	Spacer Disc	3
45	07173	Tension Spring	3
49	13159	Stud Bolt	8
49A	06958	Hexagon Nut	8
50	03628	Valve Casing	1
50A	13162	Cylinder Stud	2
51	04727	Inlet Valve Assembly (51B-F)	3
51B	05193	O-Ring	3
51C	04725	Inlet Valve Seat	3
51D	13130	Valve Plate	3
51E	07062-0100	Valve Spring	3
51F	13147	Spacer Pipe	3
52	04728	Discharge Valve Assembly (52B-F)	3
52B	05193	O-Ring	3
52C	04726	Discharge Valve Seat	3
52D	13130	Valve Plate	3
52E	07062-0100	Valve Spring	3
52F	13147	Spacer Pipe	3
56	03439	Plug, 1/2” BSP-1/8” BSP	1
57	04695	Plate Spring Retainer	3
57A	04698	Plate Spring	18
57B	07853	O-Ring	3
58	03788	Plug	3
58A	07700-0001	O-Ring, Viton	3
58B	07693	Support Ring	3
58C	07702	Hexagon Screw	12
59	07109-0400	Plug, 1/2” BSP	4
59A	06807	Ring	4
60	13150-0100	Plug, 3/4” BSP	1
61	13151	Plug, 1-1/4” BSP	1
66	13362	Disc for Crankshaft	1
67	13358	Hexagon Screw	1
68	04785	Connector	4
70	03440	L-Joint	4
72	03441	Hose	1
73	03442	Spiral Hose	2
	07662	Tool for valve assembly	
	17212	Crankcase Assembly (1-34/49/49A/50A/66/67)	
	04671	Manifold Assembly (50-61 w/out 50A)	
	03046	Plunger Replacement Kit (36-45)	

GP7128-4100 Pump Repair Kits

Plunger Packing Kit - 09464A

Item	Part #	Description	Qty.
38A	06577	O-Ring, Seal Case	3
38B	07693	Support Ring	3
38C	06736	O-Ring	3
38D	12056	Support Ring	3
39A	03785	Grooved Ring	3
39B	03786	Flinger	3
39C	06584	Clip Ring	3
40	05442	Guide Ring	3
41	05440	Support Ring	6
42	05439	Spiral Ring	6

Oil Seal Kit # 09221

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

Valve Assembly Kit - #09520A

Item	Part #	Description	Qty.
51B	05193	O-Ring	3
51C	04725	Inlet Valve Seat	3
51D	13130	Valve Plate	3
51E	07062-0100	Valve Spring	3
52B	05193	O-Ring	3
52C	04726	Discharge Valve Seat	3
52D	13130	Valve Plate	3
52E	07062-0100	Valve Spring	3
58A	07700-0001	O-Ring, Viton	3
58B	07693	Support Ring	3

GP7128-4100 Repair Instructions

Maintenance and Servicing
For the type of threadlocker used and the required tightening torques, observe the table in the exploded view.

Special tools required
The following special tools are required for assembly:
- Extraction tool (07662)
- Pull-out tool size 3
- Snap-ring tongs

Suction and Discharge Valves
Loosen screws (58C), take plugs (58) out of valve casing with two screws.
Take out tension spring (57) and complete valve (51, 52) using either tool (15.0038) or stud bolt (size M16).
Valve seats (51C and 52C) are pressed out of spacer pipe (51F, 52F) by hitting the valve plate (51D, 52D) with a bolt.
Check surfaces of valve plate, valve seat, O-rings (51B, 58A) and support ring (58B) for damage.
Replace worn parts.

When reassembling:
The suction valve seat (51C) is 1 mm 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 to the required torque.

Seals and Plunger
Loosen nuts (49A), pull off pump head.
Remove the cover plate (30).
Using an open-end spanner SW27, separate the plunger (36) from the crosshead (25).
Pull the sealing sleeve (39) out of the fits of the drive housing.
Pull the seal cartridge (38) out of the seal sleeve (39).
Remove the tension spring (45) and seal assembly (41,42,43, 43A) from the seal sleeve.
Check plunger (36) and seals (39A, 42).
Replace worn parts; tighten tensioning screw (36C) at to the required tightening torques.
When replacing the plunger (36), tighten the new plunger to the specified torque.
Apply silicone grease to the seals before installation.

Don’t loosen the 3 plungers (36, 36A) 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 pre-tensioning 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:
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.
Push valve casing carefully onto O-rings of seal case and centring studs (50A).
Tighten nuts (49A) to the required torque.

If required, supplementary assembly instructions can be requested from the manufacturer Giant Industries, Inc.

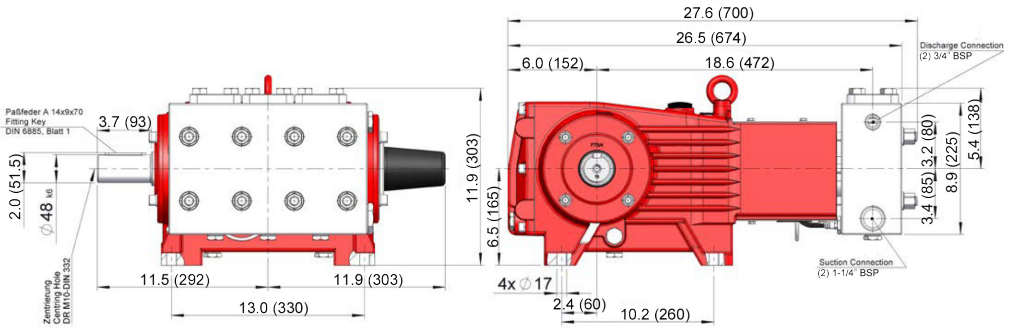
Malfunctions / Remedy
For informations, see assembly instructions Giant Industries, Inc.

Materials Used

Valve Casing:	AISI 303
Plunger:	metal-coated stainless steel
Valves:	High-Grade Stainless Steel
Seals:	Nitrile with fabric reinforcing
O-Rings:	Nitrile / Viton

Paint
The pump drive is painted in RAL 3001 as standard.

GP7128-4100 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. Five (5) years from the date of shipment for all pumps used in portable pressure washers with NON-SALINE, clean water applications.
2. Two (2) years from the date of shipment for Giant pumps used in car wash applications.
3. One (1) year from the date of shipment for all other Giant industrial and consumer pumps.
4. Six (6) months from the date of shipment for all rebuilt pumps
5. 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.

WARNING: This product might contain a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm.
For more information go to www.P65Warnings.ca.gov

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Performance Under Pressure