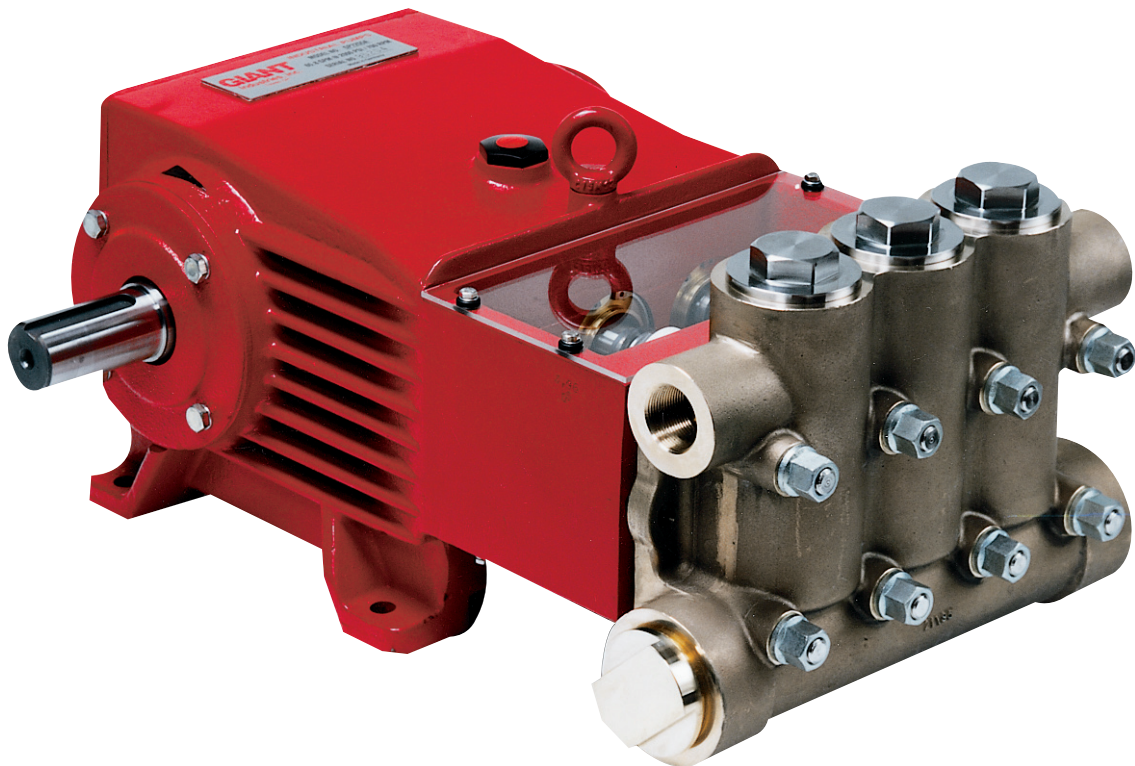


# Model

# GP7142

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Triplex Ceramic  
Plunger Pump  
Operation Manual



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**GIANT**  
Performance Under Pressure

Updated 07/14

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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.

**Important!** Use of both suction connections is imperative in order to ensure cavitation-free operation and optimal suction conditions. If only one connection is used, a safety margin of one meter has to be added to the required NPSH.

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 crankcase so that oil level is between the two lines on the oil dipstick. DO NOT OVERFILL.

**Use Giant Recommended Oil** (p/n 01154), which is equivalent to SAE 80-90W Industrial Gear Lube. 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.

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

# Specifications Model GP7142

	U.S.	(Metric)
Volume* .....	38.4 GPM .....	(145.3 LPM)
Discharge Pressure* .....	2610 PSI .....	(180 bar)
Speed .....		700 RPM
Inlet Pressure (maximum).....	-4.35 to 140 PSI .....	(-0.3 to 10 bar)
Plunger Diameter.....	1.7" .....	42mm
Plunger Stroke .....	2.0" .....	52mm
Crankshaft Diameter.....	1.9" .....	48mm
Key Width .....	0.6" .....	14mm
Crankshaft Mounting.....		Either side
Shaft Rotation .....	Top of pulley towards manifold	
Temperature of Pumped Fluids* .....	Up to 140 °F .....	(60 °C)
Inlet Ports.....		(2) 2-1/2" NPT
Discharge Ports .....		(2) 1-1/4" NPT
Weight.....	375 lbs. ....	(170 kg)
Crankcase Oil Capacity .....	1.6 Gal. ....	(6.0 liter)
Fluid End Material.....		Cast Iron
NPSHR .....	28 feet of head.....	8.5 meters of head

\*For continuous duty and/or with fluid temperature above 104°F (40°C), reduce pressure and flow by 10%

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.

### PULLEY INFORMATION

Pulley selection and pump speed are based on a 1725 RPM motor and "B" section belts. When selecting desired GPM, allow for a ±5% tolerance on pumps output due to variations in pulleys, belts and motors among manufacturers.

1. Select GPM required, then select appropriate motor and pump pulley from the same line.
2. The desired pressure is achieved by selecting the correct nozzle size that corresponds with the pump GPM.

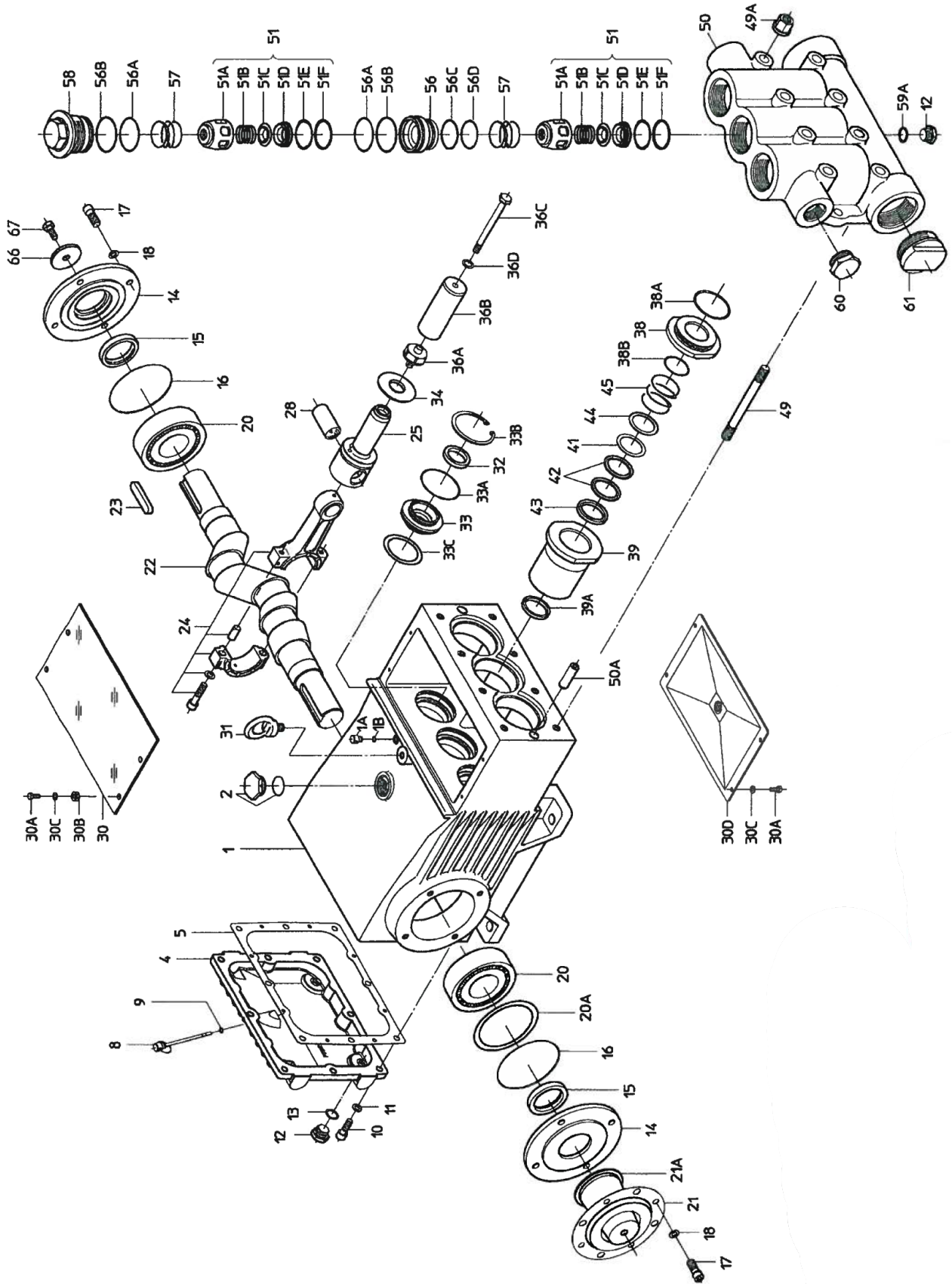
### HORSEPOWER INFORMATION

Horsepower ratings shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above. We recommend that 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:

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

GP7142 HORSEPOWER REQUIREMENTS						
RPM	GPM	800 PSI	1000 PSI	1500 PSI	2000 PSI	2610 PSI
300	16.5	9.1	11.4	17.1	22.8	29.7
400	21.9	12.1	15.1	22.7	30.2	39.4
500	27.4	15.1	18.9	28.3	37.8	49.3
600	32.9	18.2	22.7	34.0	45.4	59.2
700	38.4	21.9	27.4	41.1	54.9	69.1

# Exploded View - GP7142



## PARTS LIST - GP7142

<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	36A	07667	Plunger Connection	3
1A	05525	Head of Oil Dipstick	1	36B	04317	Plunger Pipe	3
1B	01009	O-Ring	1	36C	07664	Tension Screw	3
2	13000	Oil Filler Plug Assembly	1	36D	07665	Copper Ring	3
4	07601	Crankcase Cover	1	38	04321	Seal Case	3
5	05798	Gasket, Crankcase Cover	1	38A	13156	O-Ring	3
8	07603	Oil Dip Stick	1	38B	13141	O-Ring	3
9	01009	O-Ring, Dip Stick	1	39	04322	Seal Sleeve	3
10	22706	Hexagon Screw	8	39A	04323	Compact Ring	3
11	06725	Spring Washer	8	41	07446	Support Ring	3
12	07109	Drain Plug	3	42	07745	V-Sleeve	6
13	07182	Gasket, Drain Plug	2	43	07744	Pressure Ring	3
14	05644	Bearing Cover	2	44	04324	Spacer Ring	3
15	07608	Radial Shaft Seal	2	45	13297	Tension Spring	3
16	07184	O-Ring	2	49	13159	Stud Bolt	8
20	07610	Taper Roller Bearing	2	49A	13160	Hex Nut	8
20A	07611	Fitting Disc (Shim)	1-5	50	07790	Valve Casing	1
21	05645	Shaft Guard Holder	1	50A	13162	Cylinder Stud	2
21A	05646	Shaft Guard	1	51	05274A	Valve Assembly	6
22	13405	Crankshaft	1	51A	13165A	Spacer Pipe	6
23	07614	Key	1	51B	07732-0100	Valve Spring	6
24	13182	Connecting Rod Assy.	3	51C	05314	Valve Plate	6
25	13183	Crosshead Assy.	3	51D	05136A	Valve Seat	6
28	13184	Crosshead Pin	3	51E	07653	O-Ring	6
30	07619	Cover Plate	1	51F	13166	Support Ring	6
30A	07225-0100	Hexagon Screw	8	56	13167	Valve Adaptor	3
30B	13136	Grommet	4	56A	07658	O-Ring	6
30C	08280	Washer	8	56B	07635	Support Ring	6
30D	13154	Cover Plate	1	56C	13166	Support Ring	3
31	07623	Eye Bolt	1	56D	07653	O-Ring	3
32	07624	Radial Shaft Seal	3	57	13173	Tension Spring	6
33	07626	Seal Retainer	3	58	13170	Plug	3
33A	07627	O-Ring	3	59A	07661	Copper Ring	1
33B	07628	Circlip	3	66	13362	Disc For Crankshaft	1
33C	07249	Shim	3	67	13358	Hexagon Screw	1
34	13137	Oil Scraper	3		07662	Valve Removal Tool	
36	04316	Plunger Pipe Assy., (36 A-D)	3			(not shown)	1

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## REPAIR KITS - GP7142

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### Plunger Packing Kit

#### # 09766

Item	Part#	Description	Qty.
38A	13156	O-Ring	3
38B	13141	O-Ring	3
39A	04323	Compact Ring	3
42	07745	V-Sleeve	6

### Oil Seal Kit

#### # 09221

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

### Valve Repair Kit

#### # 09765

Item	Part#	Description	Qty.
51B	07732-0100	Valve Spring	6
51C	05314	Valve Plate	6
51D	05136A	Valve Seat	6
51E	07653	O-Ring	6
51F	13166	Support Ring	6
56A	07658	O-Ring	6
56B	07635	Support Ring	6
56C	13166	Support Ring	3
56D	07653	O-Ring	3

# GP7142 REPAIR INSTRUCTIONS

## TO CHECK VALVES

Loosen plugs (58), take out tension spring (57) and then remove the complete valve (51) with either a valve tool or an M16 hexagon screw. Remove valve adapter (56) and tension spring (57) with pull-out tool size 5. There is an O-ring (51H) under both the suction and the discharge valve each of which can be removed with a bent piece of wire. To disassemble valve, screw the valve assembly (51) out of spring tension cap (51A). Check sealing surfaces and replace worn parts. Check O-rings and support rings. Tighten plugs (58) to 107 ft. lbs (145 Nm).

## TO CHECK SEALS AND PLUNGER PIPE

Loosen nuts (49A) and remove pump head. Separate plunger connection (36A) from crosshead (25) by means of an open-end wrench (size 36). Pull seal sleeves (39) out of their fittings in the crankcase. Take seal case (38) out of seal sleeve (39) and remove tension spring (45). Examine plunger parts (36A-36D), seals (42,39A) and O-rings.

When replacing plunger pipe (36B), tighten tension screws (36C) to 30 ft. lbs (40 Nm). Replace worn parts; grease seals with Silicone before installing.

**CAUTION:** Don't loosen the 3 plunger connections (36A) before the valve casing has been removed otherwise the tension screw (36C) could hit against the spacer pipe (51E) 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. When reassembling tighten plunger screws to 33 ft. lbs (45Nm).

## MOUNTING VALVE CASING

Check O-rings on seal case (38). Clean surfaces of seal sleeves in gear box and sealing surfaces of valve casing. Push valve casing carefully on O-rings of seal case and centering studs (50A). Tighten nuts (49A) to 103 ft. lbs (140 Nm).

## TO DISASSEMBLE GEAR

Take out plunger and seal sleeves as described above. Drain oil. After removing the circlip ring (33B), lever out seal retainer (33) with a screw driver. Check seals (32, 32A, 33A) and surfaces of crosshead. Remove crankcase cover (4). Loosen inner hexagon screws on the connecting rods (24).

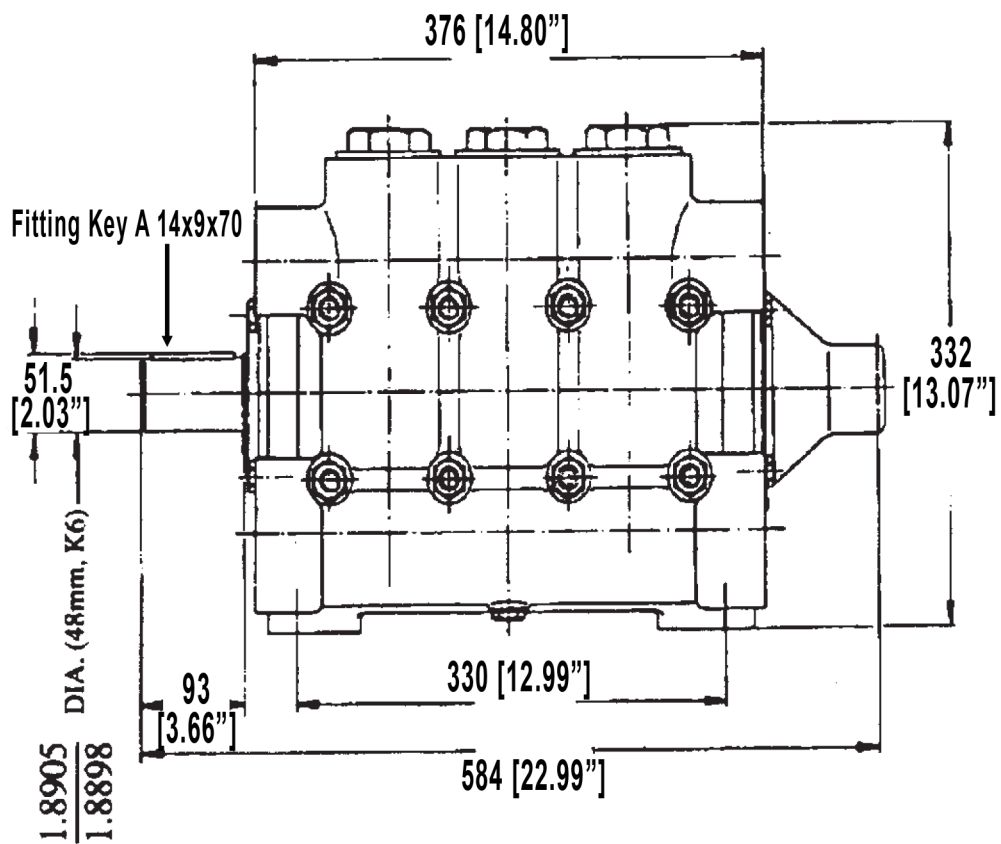
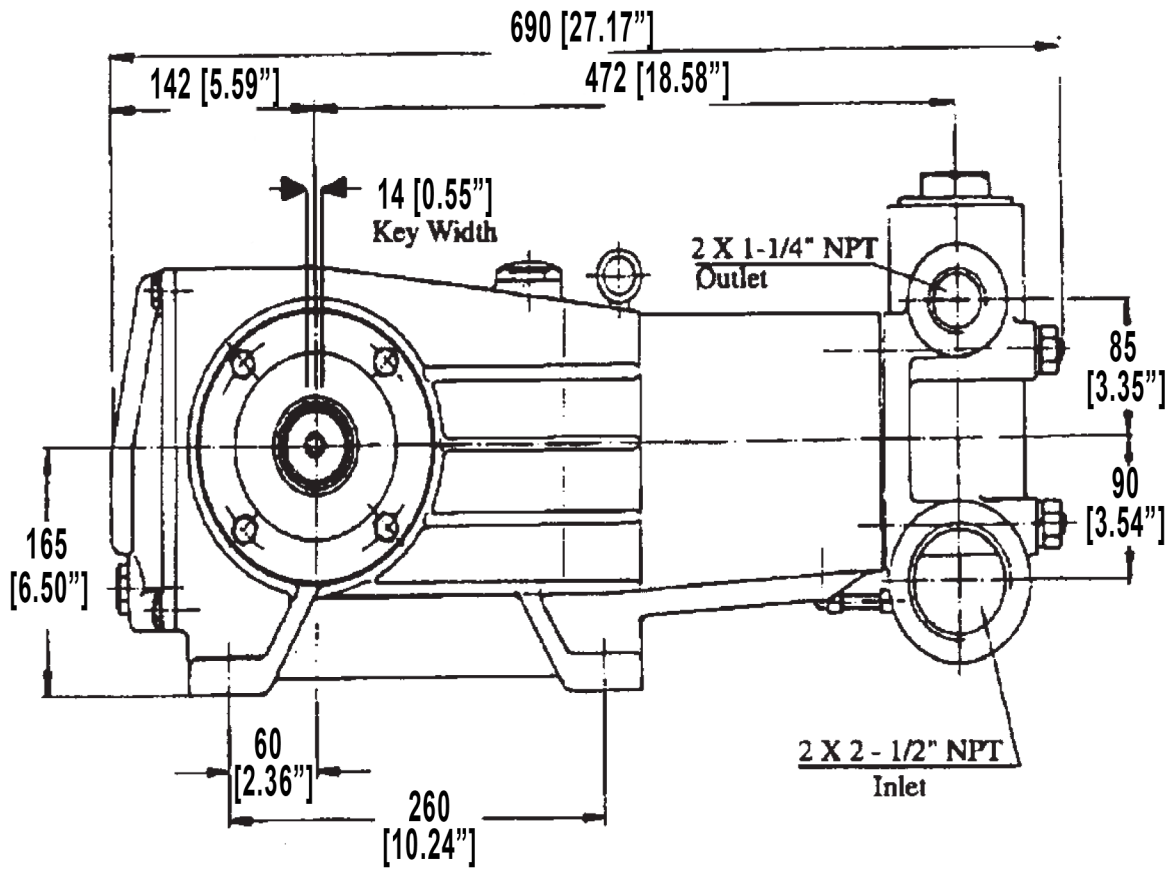
**Note:** Connecting rods are marked for identification. Do not twist conn-rod halves. Conn-rod is to be reinstalled in the same position on shaft journals. Push conrod halves together with the crosshead as far as possible into the crosshead guide. Take out bearing cover to one side and push out crankshaft taking particular care that the conn-rod doesn't get bent. Check surfaces of connecting rod and crankshaft (22). 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 screws (24) to 30 ft. lbs (40 Nm).

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

**Note:** Seal (32) 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).

<b>Preventative Maintenance Check-List &amp; Recommended Spare Part List</b>						
Check	Daily	Weekly	50hr	Every 500 hr	Every 1500 hr	Every 3000hrs
Oil Level / Quality	X					
Oil Leaks	X					
Water Leaks	X					
Belts, Pulley		X				
Plumbing		X				
Recommended Spare Part						
Oil Change (p/n 01154)			X	X		
Plunger Packing Kits (1 kit/ Pump) See page 5 for kit list					X	
Oil Seal Kit (1 kit/Pump) See page 5 for kit list					X	
Valve Assembly Kit ( 1 kit/ pump)See page 5 for kit list						X

GP7142 PUMP DIMENSIONS - MM (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.

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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