

# Model P57

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service  
Manual



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**GIANT**

Updated 2/98

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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 160° 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 OVERFILL.**

**Giant Industries, Inc. oil or the equivalent Kendall Turbo GT1 (20w-50) 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 P57

Volume .....	Up to 1.4 GPM
Discharge Pressure .....	Up to 6500 PSI
Inlet Pressure .....	Up to 90 PSI
Speed .....	Up to 1420 RPM
Plunger Diameter .....	12mm
Stroke .....	18.1mm
Crankcase Oil Capacity .....	14 fl.oz.
Temperature of Pumped Fluids .....	Up to 160 °F
Inlet Ports .....	(2) 1/2" BSP
Discharge Ports .....	(2) 3/8" BSP
Crankshaft Mounting .....	Either
Shaft Rotation .....	Top of Pulley Towards Fluid End
Weight .....	18 lbs.
Crankshaft Diameter .....	22mm

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

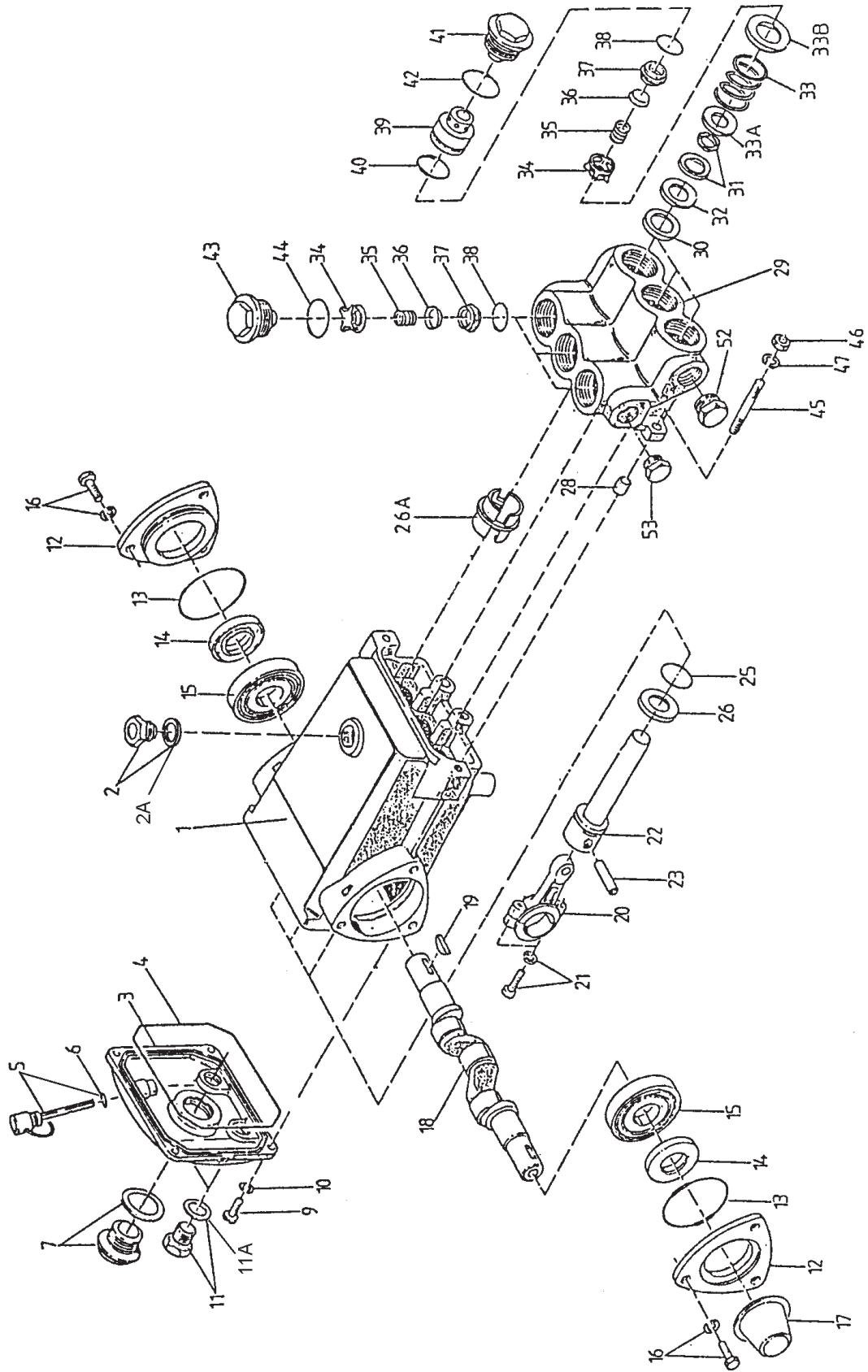
Horsepower ratings shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

We recommend that a 1.1 service factor be specified when selecting an electric motor as the power source. To compute specific pump horsepower requirements, use the following formula:

$$\frac{\text{GPM} \times \text{PSI}}{1460} = \text{hp}$$

<b>P57 PULLEY SELECTION &amp; HORSEPOWER REQUIREMENTS</b>							
<b>PUMP PULLEY</b>	<b>MOTOR PULLEY</b>	<b>RPM</b>	<b>GPM</b>	<b>5000 PSI</b>	<b>5500 PSI</b>	<b>6000 PSI</b>	<b>6500 PSI</b>
7.75"	3.95"	840	0.8	2.7	3.0	3.3	3.6
7.75"	4.45"	955	0.9	3.1	3.4	3.7	4.0
7.75"	4.95"	1070	1.0	3.5	3.8	4.2	4.5
7.75"	5.45"	1190	1.1	3.9	4.3	4.7	5.0
7.75"	5.95"	1305	1.2	4.3	4.7	5.1	5.5
7.75"	6.45"	1420	1.4	4.6	5.1	5.6	6.0

# Exploded View - P57



## P57 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	07180	Crankcase	1	26	08026	Radial Shaft Seal	3
2	07181	Oil Fill Plug Assembly	1	26A	13346	Spacer Sleeve	3
2A	07182	Gasket	1	28	07207	Centering Sleeve	2
3	07183	Cover, Crankcase	1	29	12226	Manifold	1
4	07184	O-Ring, Crankcase Cover	1	30	12130	Pressure Ring	3
5	07185	Oil Dip Stick Assembly	1	31	08354	Grooved Seal	3
6	01009	O-Ring, Dip Stick	1	32	07941	Support Ring	3
7	07186	Oil Sight Glass Assembly	1	33	12132	Pressure Spring	3
9	07188	Screw, Crankcase Cover	4	33A	12133	Support Disc I	3
10	07223	Spring Washer	4	33B	12134	Support Disc II	3
11	07190	Oil Drain Plug Assembly	1	34	07907	Spring Tension Disc	6
11A	07191	Gasket	1	35	07906	Valve Spring	6
12	13402	Bearing Cover	2	36	07491	Valve Plate	6
13	07193	O-Ring, Bearing Cover	2	37	07849	Valve Seat	6
14	01166	Radial Shaft Seal	2	38	07853	O-Ring	6
15	01086	Bearing	2	39	07940	Suction Valve Retainer	3
16	07114	Hex Screw	6	40	07212	O-Ring	3
17	13329	Shaft Protector	1	41	12135	Plug, Inlet	3
18	12128	Crankshaft	1	42	07214	O-Ring	3
19	01024	Woodruff Key	1	43	12136	Plug, Outlet	3
20	07199	Connecting Rod	3	44	07913	O-Ring	3
21	01027	Screw with Washer	6	45	07215	Stud Bolt	4
22	07396	Plunger Assy.	3	46	08040	Hex Nut	4
23	01031	Crosshead Pin	3	47	08041	Spring Ring	4
25	13403	Flinger	3	52	12250	Plug	1
				53	12138	Plug	1

## P57 REPAIR KITS

### Plunger Packing Kit #09313

<u>Qty.</u>	<u>Part #</u>	<u>Description</u>
3	08354	Grooved Seal
3	07941	Support Ring

### Oil Seal Kit #09314

<u>Qty.</u>	<u>Part #</u>	<u>Description</u>
3	08026	Radial Shaft Seal
3	13403	Flinger

### Inlet Valve Assembly Kit #09315

<u>Qty.</u>	<u>Part #</u>	<u>Description</u>
3	07907	Spring Tension Disc
3	07906	Valve Spring
3	07491	Valve Plate
3	07849	Valve Seat
3	07853	O-Ring
3	07212	O-Ring
3	07214	O-Ring

### Discharge Valve Assembly Kit #09316

<u>Qty.</u>	<u>Part #</u>	<u>Description</u>
3	07907	Spring Tension Disc
3	07906	Valve Spring
3	07491	Valve Plate
3	07849	Valve Seat
3	07853	O-Ring
3	07913	O-Ring

## PUMP SYSTEM MALFUNCTION

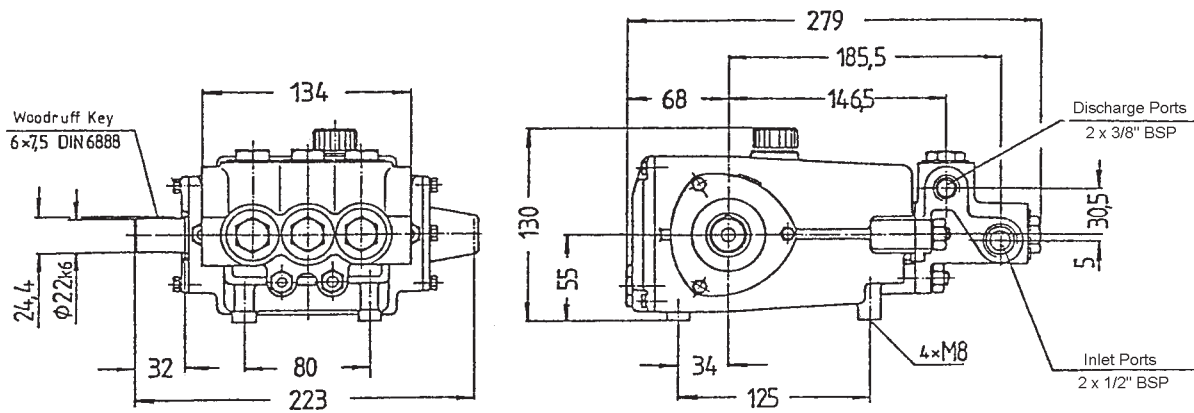
<u>MALFUNCTION</u>	<u>CAUSE</u>	<u>REMEDY</u>
The Pressure and/or the Delivery Drops	Worn packing seals Broken valve spring Belt slippage Worn or Damaged nozzle Fouled discharge valve Fouled inlet strainer Worn or Damaged hose Worn or Plugged relief valve on pump Cavitation  Unloader	Replace packing 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 pump for restrictions  Check for proper operation
Water in crankcase	High humidity Worn seals	Reduce oil change interval Replace seals
Noisy Operation	Worn bearings  Cavitation	Replace bearings, Refill crankcase oil with 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
Pressure Drop at Gun	Restricted discharge plumbing	Re-size discharge plumbing to flow rate of pump
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

## REPAIR INSTRUCTIONS - P57

1. **To Check Suction and Discharge Valves**  
Loosen valve plugs (41 and 43) using a socket wrench. Note the arrangement for reassembly and check the discharge valves underneath and suction valves (in suction valve adapter 39).
2. **To Check V-Sleeves**  
Separate valve casing (29) from the crankcase (1) and pull off over the plungers. If the seals have to be replaced, remove all parts from the valve casing (29) in the suction valve direction. Grease new v-sleeves (31) with grease before installing. Examine the surfaces of the plunger pipes (22) as damaged surfaces cause the seals to wear out quickly.
3. **To Check Plungers and Crankcase**  
If oil leaks at plunger outlet (22), the oil seal (26), the worn plungers and crosshead (plunger assembly) must be replaced. Drain oil and remove crankcase cover (3) and valve casing (29). Take off bearing cover (12) and shaft protector (17) on one side before removing the crankshaft (18). Then remove crankshaft axially by means of a press or a rubber hammer. Do not force the cranks on the shaft when pulling through the connecting rod (20). Do not bend connecting rod. Dismantle crosshead and connecting rod and replace worn parts.  
Reinstall the crankshaft first being particularly careful with the cranks. Then press on the bearing on both sides and finally install radial shaft seal and bearing cover.

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

## P57 SERIES DIMENSIONS



### 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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