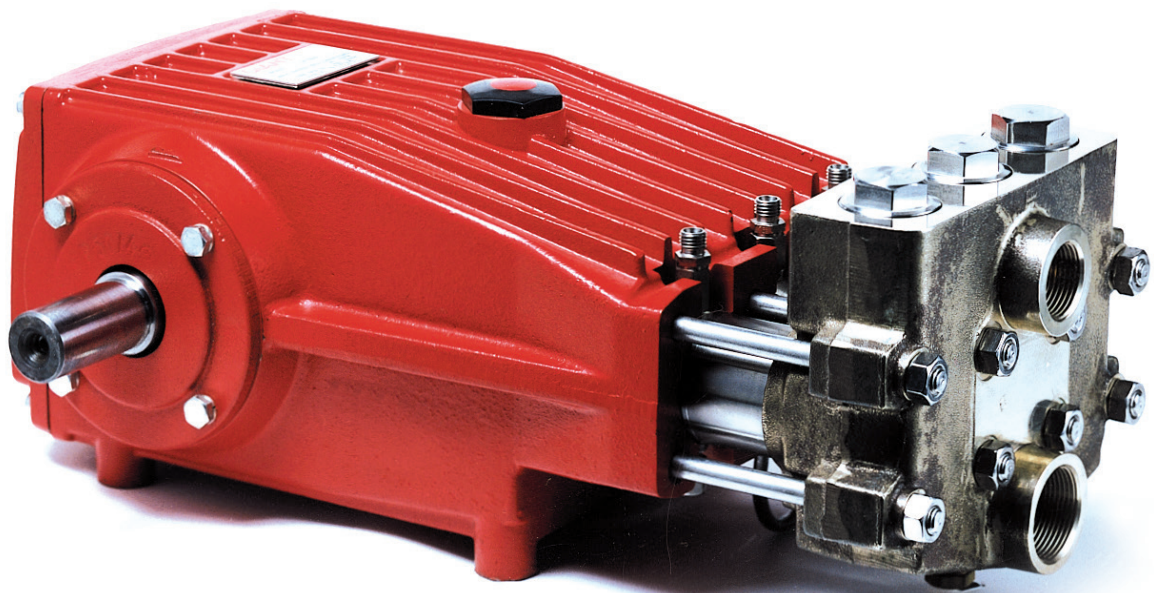


# Model LP121

Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service  
Manual



**GIANT**  
Performance Under Pressure

<b>Contents:</b>	
Installation Instructions:	page 2
Pump Specifications:	page 3
Exploded View:	page 4
Parts List:	page 5
Kits:	page 5
Repair Instructions:	page 6
Torque Specifications:	page 7
Maintenance Checklist:	page 7
Dimensions:	back page
Warranty Information:	back page

# LP121 Specifications

Maximum Flow		Pressure*		Maximum Speed	Maximum Temperature		Power Consumption		Plunger Diameter		Plunger Stroke	
GPM	l/min	PSI	bar	RPM	°F	°C	BHP	kW	in	mm	in	mm
24.8	93.8	1600	110	800	160	70	27.2	20.3	1.42	36	1.57	40

Performance data for intermittent operation, data for continuous operation on request.  
For information on intermittent operation and calculating of the performance data, see page 2.

## NPSHR / Inlet pressure

Required NPSH refers to water at 68°F (20°C) at maximum permissible pump speed.  
Maximum inlet pressure: 29 PSI (2 bar)

## Level of noise emission

Emission sound pressure level: ≤ 84 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: 40°F < T<sub>Amb.</sub> < 86°F  
Ambient temperature: 5°C < T<sub>Amb.</sub> < 30°C

## Oil filling

- Filling quantity: 0.79 gal (3.0 L)
- Quality: Industrial gear oil **ISO VG 220** (e.g. Aral Degol BG220) or automotive gear oil **SAE 90 GL4 (Giant's p/n 01154)**
- Intervals: first oil change after **50 operating hours** then every **500 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 bell housing.  
To cover the exposed crankshaft end with the shaft guard (21) together with the holder (21A) onto the bearing cover screws (17).

### 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 150 µm.

### Materials Used

Valve Casing: Alu-Bronze  
Plunger: Solid Ceramic  
Valves: High-Grade Stainless Steel  
Seals: Nitrile with fabric reinforcing  
O-Rings: Nitrile

LP121 HORSEPOWER REQUIREMENTS					
RPM	GPM	500 PSI	750 PSI	1000 PSI	1600 PSI
400	12.4	4.3	6.4	8.6	13.7
500	15.5	5.4	8.0	10.7	17.1
600	18.6	6.4	9.6	12.8	20.5
700	21.7	7.5	11.2	15.0	24.0
800	24.8	8.6	12.8	17.1	27.4

# LP121 Repair Instructions

## Maintenance and Servicing

For the type of threadlocker used and the required tightening torques, observe the table below.

## Special tools required

The following special tools are required for assembly:

- Pull-out tool size 3 (Ø22)

## Suction and Discharge Valves

Remove tension plugs (48) and remove tension spring (45).

Take out discharge valves (46), pulling them upwards out of the valve casing (43) with snap-ring tongs or any other pull-off device.

Then remove suction valves (46) in the same way. Loosen valve seats (46A) from spacer pipe (46D) by lightly hitting the valve plate (46B) with a plastic stick.

Check sealing surface and replace worn parts. Reassemble preferably with new O-rings (44A) and support rings (44B) and oil them before installing. Tighten tension plugs (48) to the required torque.

## Seals and Plunger

Loosen the 8 nuts (49A) and pull off valve casing (43) to the front.

Pull seal sleeves (35) out of guides in crankcase (1). Remove seal case (37) and tension spring (42) from seal sleeve (35).

Check plunger (29B) surface and seals (36/40). Replace worn seals.

If plunger pipe (29B) is worn out, loosen tension screws (29C) and pull off plunger pipe to the front.

Clean front surface of plunger (25) thoroughly.

Then place new plunger pipe (29B) carefully through the oiled seals (36/40).

Push seal sleeve (35) with plunger pipe (29B) into the crankcase guide.

Turn gear until the plunger (25) comes up against the plunger pipe (29B).

Put a new copper gasket (29D) onto tension screw (29C). Put a thin coat of threadlocker on the gasket and tighten screw to the required torque.



Under no circumstances should threadlocker get between the plunger pipe (29B) and the centring sleeve (29A). Tensioning of the plunger pipe due to eccentric tightening of the tensioning screw or due to dirt or damage to the contact surface can lead to breakage of the plunger pipe.

Tighten the fixing nuts (49A) for the valve casing (43) evenly to the required torque.

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

## Malfunctions / Remedy

For informations, see assembly instructions GIANT PLUNGER PUMPS.

## Materials Used

- Valve Casing: Aluminum-Bronze
- Plunger: Solid ceramic
- Valves: High-Grade Stainless Steel
- Seals: Nitrile with fabric reinforcing
- O-Rings: Nitrile

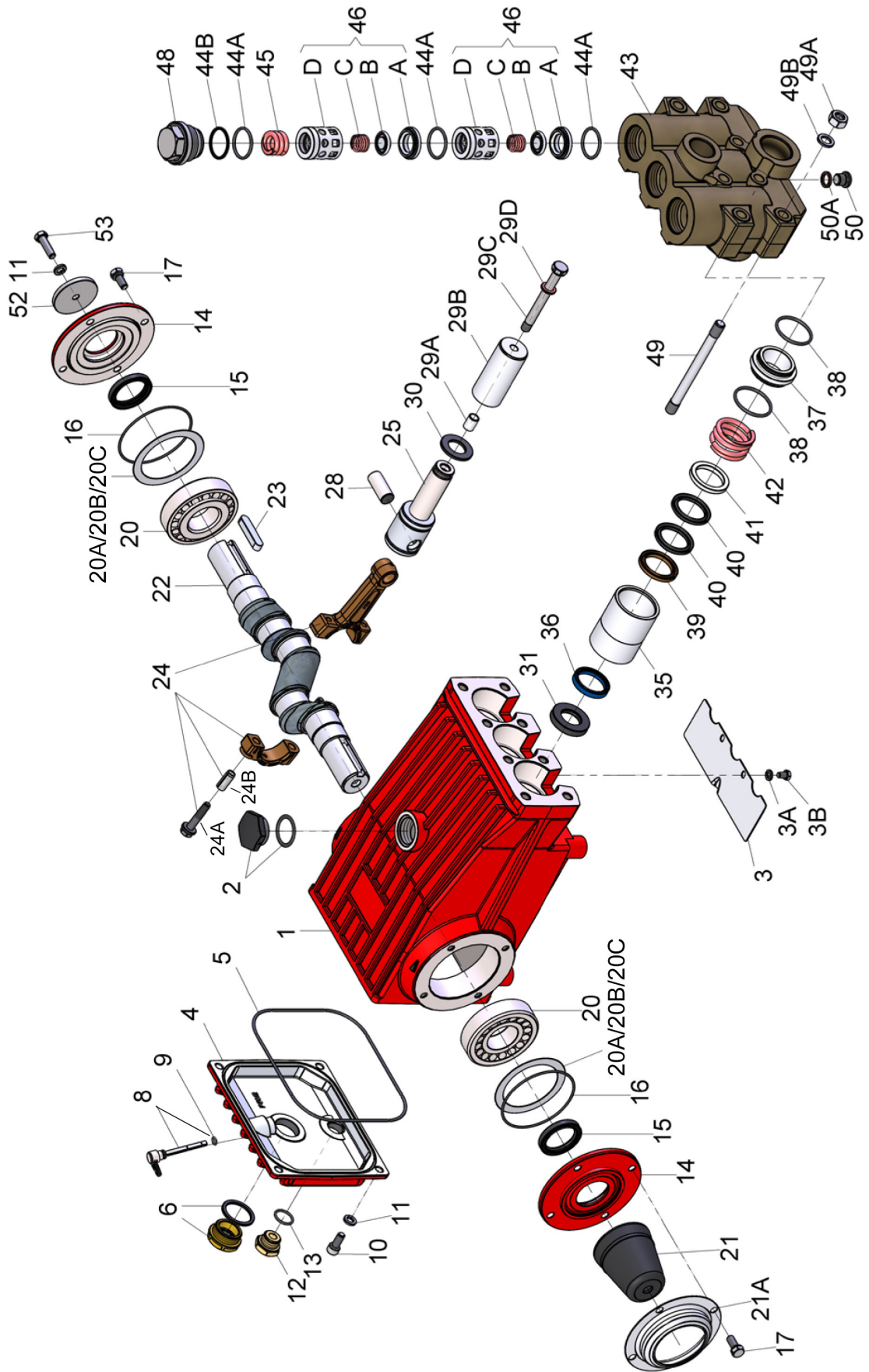
## Paint

The pump drive is painted in RAL 3001 as standard.

## LP121 Torque Specifications

Pos.	Description	Lubrication Info	Torque Amount
1	Crankcase	Molycote Cu-Paste	
6	Oil Sight Glass	Loctite 572	29 ft.-lbs. (40 Nm)
10	Cylinder Screw		221 in.-lbs. (25 Nm)
12	Plug		29 ft.-lbs. (40 Nm)
17	Hexagon Screw		221 in.-lbs. (25 Nm)
24	Connecting Rod Assembly		22 ft.-lbs. (30 Nm)
29C	Tension Screw	Loctite 243	26 ft.-lbs. (35 Nm)
31	Radial Shaft Seal	Loctite 403	
48	Plug		107 ft.-lbs. (145 Nm)
49	Stud Bolt	Loctite 270	
49A	Hexagon Nut		59 ft.-lbs. (80 Nm)

# Exploded View - LP121



## LP121 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	07759	Crankcase	1	29C	13031	Tension Screw	3
2	13000	Oil filler Plug Assembly	1	29D	07755	Copper Ring	3
3	05940	Cover Plate	1	30	07779	Drip Shield	3
3A	07223-0100	Spring Ring	2	31	07133	Radial Shaft Seal	3
3B	05051	Hexagon Screw	2	35	07135	Seal Sleeve	3
4	06085	Crankcase Cover	1	36	13291	Leakage Seal	3
5	07104	O-ring, Crankcase Cover	1	37	07139	Seal Case	3
6	05943	Oil Sight Glass Assembly	1	38	07140	O-Ring	6
8	06086	Oil Dipstick Assembly	1	39	07142	Pressure Ring	3
9	01009	O-Ring, Dipstick	1	40	07144	V-Sleeve	6
10	01010	Cylinder Screw	4	41	07146	Support Ring	3
11	01011-0400	Spring Ring	5	42	07147	Tension Spring	3
12	07109	Plug, 1/2" BSP	1	43	13018	Valve Casing	1
13	06015	O-Ring	1	44A	07150	O-Ring	9
14	07111	Bearing Cover	2	44B	06266	Support Ring for O-Ring	3
15	07112	Radial Shaft Seal	2	45	06078	Compression Spring	3
16	07113	O-Ring	2	46	07060	Valve Assembly (46A-D)	6
17	07114	Hexagon Screw	8	46A	07064	Valve Seat	6
20	07116	Taper Roller Bearing	2	46B	07063	Valve Plate	6
20A	07117	Fitting Disc, 0.1 mm	1-3	46C	07062-0100	Valve Spring	6
20B	13001	Fitting Disc, 0.15 mm	1-3	46D	07066	Spacer Pipe	6
20C	04091	Shim, 0.2 mm (may not be present)	1-3	48	06077	Plug	3
21	05376	Shaft Protector	1	49	07157	Stud Bolt	8
21A	05377	Shaft Guard Holder	1	49A	07158	Hexagon Nut	8
22	13242	Crankshaft	1	49B	07159	Disc	8
23	13243	Fitting Key	1	50	07423	Plug	1
24	13340	Connecting Rod Assembly	3	50A	07161	Copper Ring	1
24A	13227	Hex Screw	3	52	13020	Disc for Crankshaft	1
24B	13278	Spring Washer	3	53	06607	Hexagon Screw	1
25	13341	Crosshead/Plunger Assembly	3		03117	Plunger Conversion Kit, (29B-D/35-42)	
28	13232	Crosshead Pin	3		03189	Pump Head Assembly (43-48/50/50A)	
29A	07125	Centering Sleeve	3				
29B	07130	Plunger Pipe	3				

## LP121 Repair Kits

### Plunger Packing Kit - #09720

<u>Item</u>	<u>Part#</u>	<u>Description</u>	<u>Qty.</u>
36	13291	Leakage Seal	3
38	07140	O-Ring	6
40	07144	V-Sleeve	6

### Oil Seal Kit - #09577

<u>Item</u>	<u>Part#</u>	<u>Description</u>	<u>Qty.</u>
31	07133	Oil Seal	3

### Valve Kit - #09196

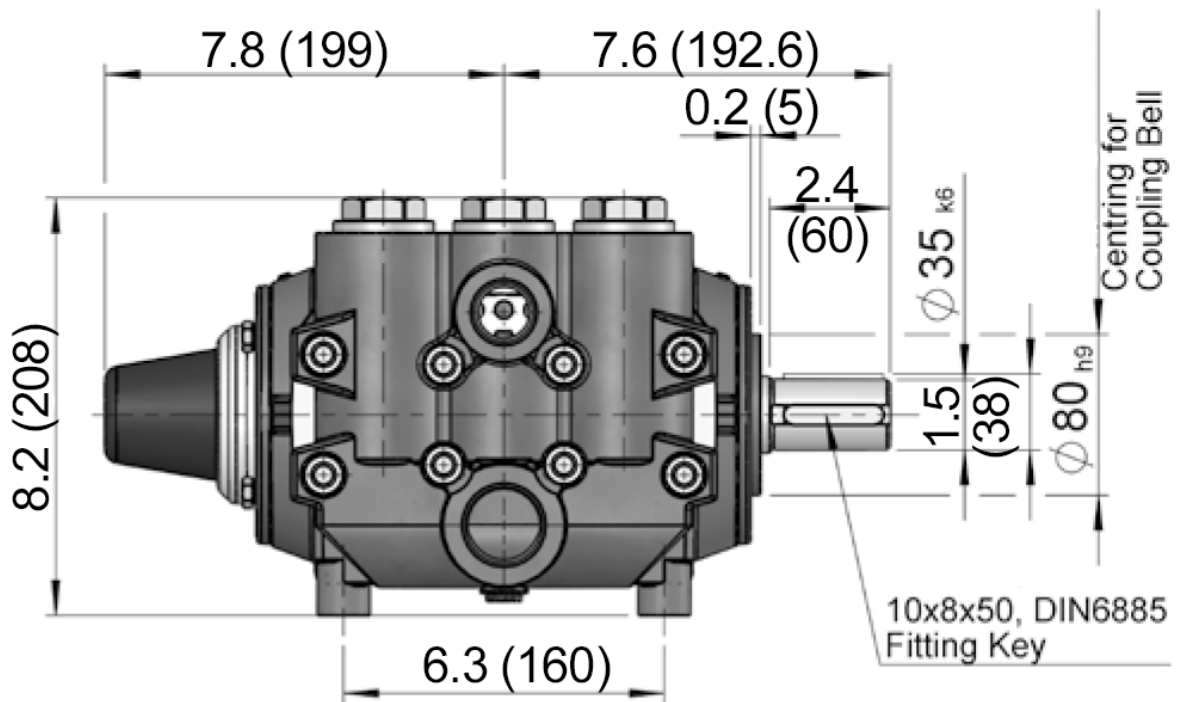
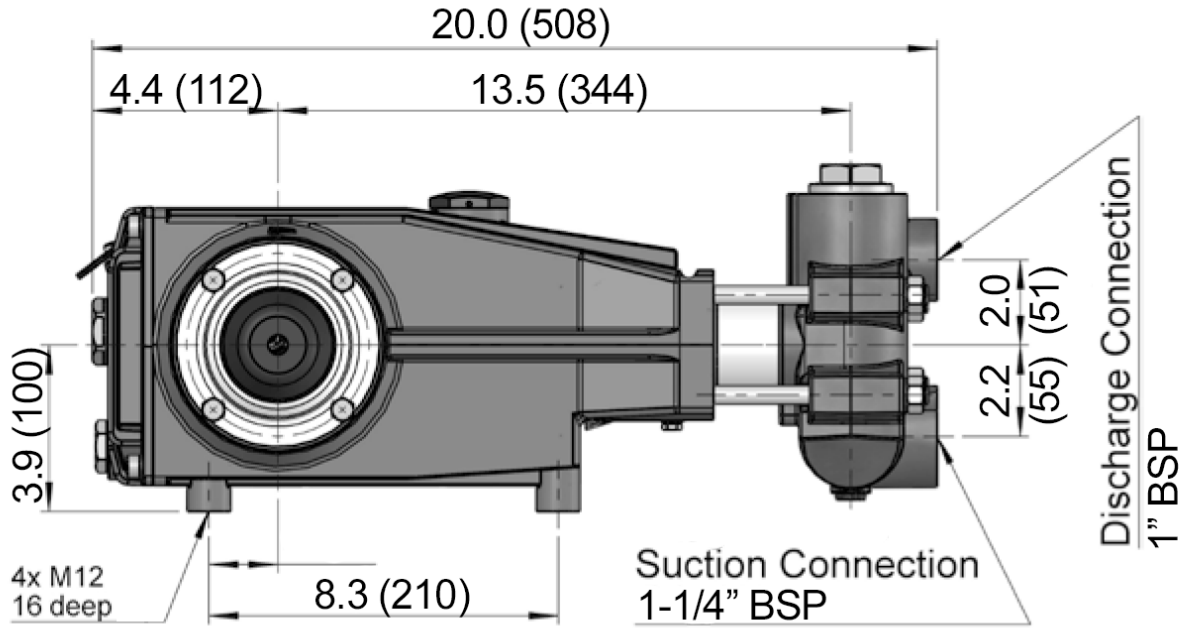
<u>Item</u>	<u>Part#</u>	<u>Description</u>	<u>Qty.</u>
44A	07150	O-Ring	9
44B	06266	Support Ring	3
46A	07064	Valve Seat	3
46B	07063	Valve Plate	3
46C	07062-0100	Valve Spring	3

# 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

<b>Preventative Maintenance Check-List &amp; Recommended Spare Parts List</b>						
<b>Check</b>	<b>Daily</b>	<b>Weekly</b>	<b>50hrs</b>	<b>Every 500 hrs</b>	<b>Every 1500 hrs</b>	<b>Every 3000 hrs</b>
Oil Level/Quality	X					
Oil Leaks	X					
Water Leaks	X					
Belts, Pulley		X				
Plumbing		X				
<b>Recommended Spare Parts</b>						
Oil Change (1 Quart)			X	X		
Seal Kit (1 kit/pump) (See page 5 for kit list)					X	
Valve Spare Parts (1 kit/pump) (See page 5 for kit list)						X

**LP121 Dimensions - mm (in)**



## 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](http://www.P65Warnings.ca.gov)

**GIANT**  
Performance Under Pressure

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