

# Pumps

## P54W, P58W & P59W

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Triplex Ceramic  
Plunger Pump  
Operating Instructions/  
Repair and Service  
Manual



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**GIANT**  
Performance Under Pressure

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Updated 10/21

# INSTALLATION INSTRUCTIONS

Required NPSH refers to water: Specific weight 1kg/dm<sup>3</sup> at maximum permissible revolutions.

**For the P59W only**, the NPSHR for the 3/4" BSP front inlet port is 21.3 Feet of head (6.5 mWs). When using the side connections, the NPSHR value is 22.3 Feet of Head (6.8 mWs).

## Operation and Maintenance

Check oil level prior to starting and ensure trouble-free water supply.

**IMPORTANT!** If there is a **danger of frost**, the water in the pump and in the pump fittings (particularly the unloader valve) must be emptied. The second discharge port can also be used and the pump run "dry" for 1-2 minutes for this purpose.

**Oil:** 12.5 fl. oz. (0.37 litres). Only use Giant oil (p/n 01154) or **ISO VG 220 industrial gear oil** (e.g. Aral Degol BG220) or **automobile gear oil SAE 90 GL4**.

Initial change after 50 operating hours and then every 1000 operating hours, after 1 year if used less.

**Caution:** When operating in damp places or with high temperature fluctuations. Oil must be changed immediately (should condensate or frothy oil occur in the gear box).

### Keep NPSH under control.

The maximum inlet pressure is 145 PSI (10 bar). The maximum suction pressure is -4.35 PSI (-0.3 bar). Make sure that suction pulsation is sufficiently dampened; water column resonance must be avoided.

## Safety Rules

Pump operation without safety valve as well as any excess in temperature or speed limits, automatically voids the warranty. The safety valve must be regulated in accordance with the guidelines for liquid spraying units so that the admissible operating pressure can not be exceeded by more than 10%.

When the pump is in operation, the open shaft end must be covered up by shaft protector (17) and the driven shaft side and coupling by a belt guard or coupling bell.

Before any maintenance to the pump takes place, the pressure in discharge line and in pump must be at zero. Close up suction line. Disconnect fuses to ensure that the driving motor does not get switched on accidentally.

With pressure at zero, make sure that all parts on the pressure side of the unit are vented and refilled (before starting the pump). In order to prevent air, or an air/water-mixture being absorbed and to prevent cavitation occurring, the pump-npshr, positive suction head and water temperature must be kept under control.

**Cavitation and/or compression of gases lead to uncontrollable pressure-kicks which can ruin pump and unit parts and also be dangerous to the operator or anyone standing nearby.**

Giant plunger pumps are suitable for pumping clean water and other non-aggressive or abrasive media with a specific weight similar to water.

**Before pumping other liquids - especially inflammable, explosive and toxic media - the pump manufacturer must (under all circumstances) be consulted with regard to the resistance of the pump material. It is the responsibility of the equipment manufacture and/or operator to ensure that all pertinent safety regulations are adhered to.**

# Specifications Model P54W

	<u>U.S.</u>	<u>Metric</u>
Flow .....	4.0 GPM .....	15.1 LPM @ 1450 RPM
Pressure (at 1450 RPM).....	4000 PSI .....	280 Bar
Flow .....	4.8 GPM .....	18.2 LPM @ 1750 RPM
Pressure (at 1750 RPM).....	3250 PSI .....	224 Bar
Power Consumption .....	11.5 HP .....	8.6 kW
Inlet Pressure .....	-4.35 to 145 PSI.....	-0.3 to 10 Bar
Plunger Diameter.....	0.63" .....	16 mm
Stroke .....	0.71" .....	18 mm
Crankcase Oil Capacity .....	12.5 fl.oz .....	0.37 L
Temperature of Pumped Fluids .....	140° F.....	60°C
Inlet Ports .....	(2) 3/8" BSP & (1) 1/2" BSP	
Discharge Ports .....	(2) 3/8" BSP	
Crankshaft Mounting .....	Right Side	
Shaft Rotation.....	Top of Pulley Towards Fluid End	
Weight .....	19.4 lbs .....	8.8 kg
Crankshaft Diameter.....	0.94" .....	24 mm
Volumetric Efficiency @ 1450.....	0.96	
Mechanical Efficiency @ 1450 .....	0.84	
NPSHR.....	23 ft.-head .....	7.0 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.

### 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:

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

<b>P54W HORSEPOWER REQUIREMENTS</b>					
RPM	GPM	2000 PSI	3000 PSI	3250 PSI	4000 PSI
910	2.5	3.4	5.1	5.6	6.8
1025	2.8	3.8	5.8	6.2	7.7
1190	3.3	4.5	6.8	7.3	9.0
1305	3.6	4.9	7.4	8.0	9.9
1450	4.0	5.5	8.2	8.9	11.0
1750	4.8	6.6	9.9	10.7	

# Specifications Model P58W

	<u>U.S.</u>	<u>Metric</u>
Flow .....	5.0 GPM .....	19 LPM @ 1450 RPM
Pressure (at 1450 RPM).....	3500 PSI .....	240 Bar
Flow .....	6.0 GPM .....	22.7 LPM @ 1750 RPM
Pressure (at 1750 RPM).....	2700 PSI .....	186 Bar
Power Consumption .....	12.1 BHP .....	9 kW
Inlet Pressure .....	-4.35 to 145 PSI.....	-0.3 to 10 Bar
Plunger Diameter.....	0.71" .....	18 mm
Stroke .....	0.71" .....	18 mm
Crankcase Oil Capacity .....	12.5 fl.oz. ....	0.37 L
Temperature of Pumped Fluids .....	140° F. ....	60°C
Inlet Ports .....	(2) 3/8" BSP & (1) 1/2" BSP	
Discharge Ports .....	(2) 3/8" BSP	
Crankshaft Mounting .....	Right Side	
Shaft Rotation.....	Top of Pulley Towards Fluid End	
Weight .....	19.4 lbs .....	8.8 kg
Crankshaft Diameter.....	0.94" .....	24mm
Volumetric Efficiency @ 1450.....	0.96	
Mechanical Efficiency @ 1450 .....	0.84	

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:

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

P58W HORSEPOWER REQUIREMENTS					
RPM	GPM	2000 PSI	2500 PSI	2700 PSI	3500 PSI
910	3.1	4.2	5.3	5.7	7.4
1025	3.5	4.8	6.0	6.5	8.4
1190	4.1	5.6	7.0	7.6	9.8
1305	4.5	6.2	7.7	8.3	10.8
1450	5.0	6.8	8.6	9.2	12.0
1750	6.0	8.2	10.3	11.1	

# Specifications Model P59

	<u>U.S.</u>	<u>Metric</u>
Flow .....	7.5 GPM .....	28.3 lpm @ 1450 RPM
Pressure (at 1450 RPM) .....	1900 PSI .....	130 Bar
Flow .....	9.0 GPM .....	32.8 lpm @ 1750 RPM
Pressure (at 1750 RPM) .....	1510 PSI .....	104 Bar
Power Consumption .....	10.1 BHP .....	7.5 kW
Inlet Pressure .....	-4.35 to 145 PSI .....	-0.37 to 10 Bar
Plunger Diameter .....	.87" .....	22 mm
Stroke .....	.71" .....	18 mm
Crankcase Oil Capacity .....	12.5 fl.oz. ....	0.37 L
Temperature of Pumped Fluids .....	140° F .....	60°C
Inlet Ports .....	(2) 1/2" BSP & (1) 3/4" BSP	
Discharge Ports .....	(2) 1/2" BSP	
Crankshaft Mounting .....	Either Side	
Shaft Rotation .....	Top of Pulley Towards Fluid End	
Weight .....	19.4 lbs. ....	8.8 kg
Crankshaft Diameter .....	.94" .....	24 mm
Volumetric Efficiency @ 1450 .....	.0.95	
Mechanical Efficiency @ 1450 .....	.0.80	
NPSHR (center port) .....	21.3 ft.-head .....	6.5 mWs
NPSHR (side port) .....	22.3 ft.-head .....	6.8 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.

### 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

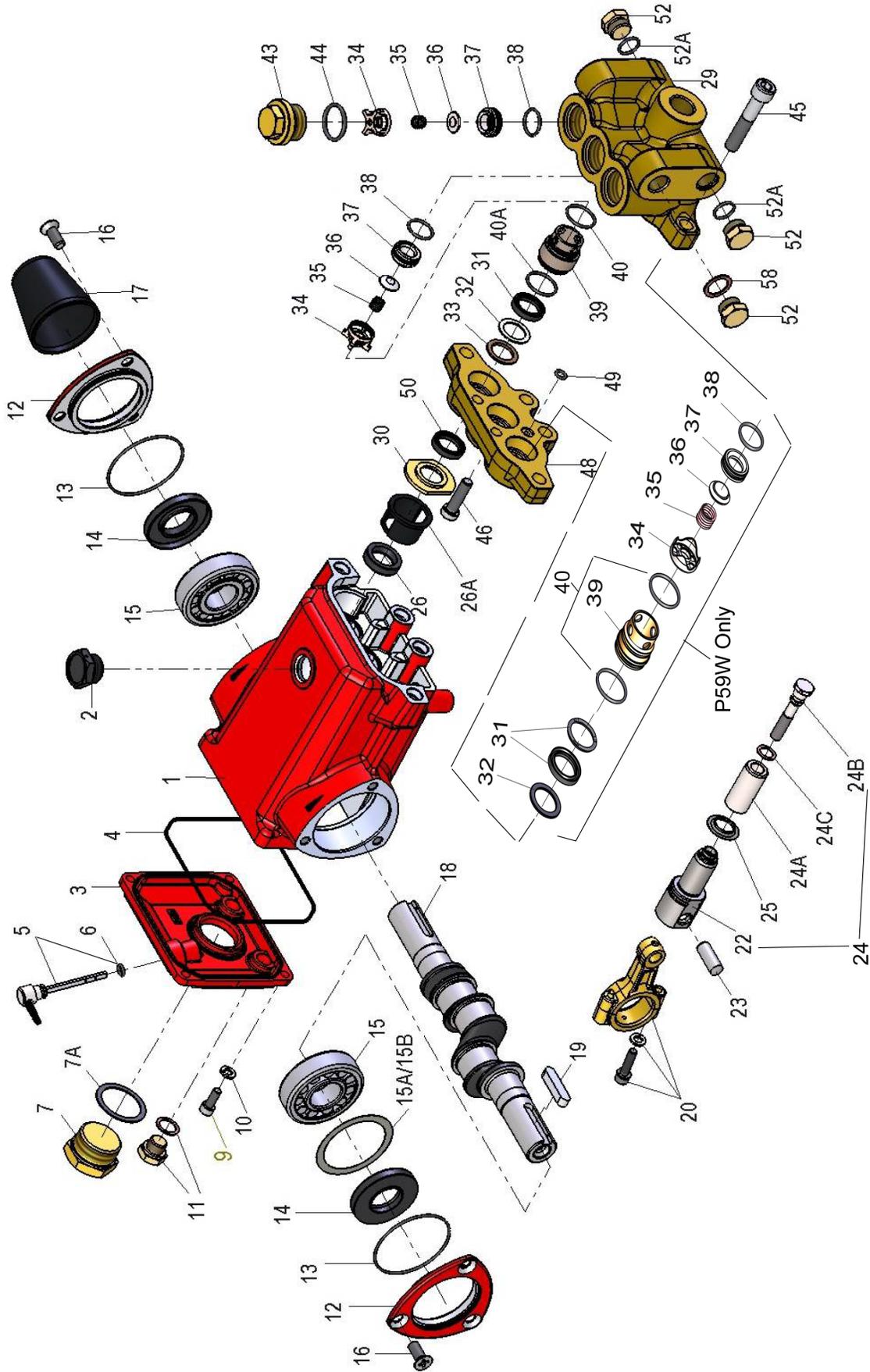
Horsepower ratings shown are the power requirements for the pump. Gas engine power outputs must be approximately twice the pump power requirements shown above.

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:

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

P59W HORSEPOWER REQUIREMENTS					
RPM	GPM	500 PSI	1000 PSI	1510 PSI	1900 PSI
910	4.7	1.6	3.2	4.9	6.1
1025	5.3	1.8	3.6	5.5	6.9
1190	6.1	2.1	4.2	6.3	7.9
1305	7.0	2.4	4.8	7.2	9.1
1450	7.5	2.6	5.1	7.8	9.8
1750	9.0	3.1	6.2	9.4	

# Exploded View - P54W, P58 & P59



## P54W, P58 & P59 PUMP PARTS LIST

A= P54W    B= P58    C= P59

<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	31	06250	Automatic Seal Ring (C)	3
2	07181	Vent/Filler Plug with Seal	1	32	07768	Support Ring (A)	3
3	07183	Crankcase Cover	1	32	07929	Pressure Ring (B)	3
4	07184	O-Ring	1	32	06253	Support Ring (C)	3
5	07185	Oil Dipstick Assembly	1	33	07769	Support Ring (A)	3
6	01009	O-Ring	1	33	12124	Support Ring (B)	3
7	12249	Plug, 1" BSP	1	34	07492	Valve Retainer (A,B)	6
7A	13372-0300	Seal, 1"	1	34	07326-0100	Valve Retainer (C)	6
9	07188	Cylinder Screw with Slot	4	35	07906	Valve Spring (A,B)	6
10	07223-0100	Spring Washer	4	35	07312-0100	Valve Spring (C)	6
11	07190	Oil Drain Plug	2	36	05542	Valve Plate (A,B)	6
12	07192	Bearing Cover	2	36	07327	Valve Plate (C)	6
13	07193	O-Ring	2	37	05541	Valve Seat (A,B)	6
14	01166	Radial Shaft Seal	2	37	06014	Valve Seat (C)	6
15	07760	Cylinder Roller Bearing	2	38	07770	O-Ring (A,B)	6
15A	06245	Shim 0.2mm	1	38	06015	O-Ring (C)	6
15B	06330	Shim 0.1mm	1	39	07771	Seal Case (A)	3
16	07196	Countersunk Screw	6	39	12125	Seal Case (B)	3
17	05375	Shaft Protector	1	39	13386	Seal Case (C)	3
18	13330	Crankshaft	1	40	07489	O-Ring (A)	6
19	13331	Fitting Key	1	40	07489	O-Ring (B)	3
20	07199	Connecting Rod Assembly	3	40	07234	O-Ring (C)	6
22	07777A	Crosshead Assembly	3	40A	12126	O-Ring (B Only)	3
23	01031	Crosshead Pin	3	43	07772	Plug (A,B)	3
24	07763	Crosshead/Plunger Assy. (A)	3	43	07213	Plug (C)	3
24	13332	Crosshead/Plunger Assy. (B)	3	44	07035	O-Ring (A,B)	3
24	13382	Crosshead/Plunger Assy. (C)	3	44	07214	O-Ring (C)	3
24A	07778	Plunger Pipe (A)	3	45	07773	Inner Hexagon Screw	4
24A	07021	Plunger Pipe (B)	3	46	07774	Inner Hexagon Screw (A,B)	2
24A	13383	Plunger Pipe (C)	3	46	13388	Inner Hexagon Screw (C)	2
24B	08456	Tension Screw	3	48	07775	Intermediate Casing (A)	1
24C	07676	Copper Gasket	3	48	12127	Intermediate Casing (B)	1
25	06648	Oil Scraper	3	48	13389	Intermediate Casing (C)	1
26	07206	Radial Shaft Seal	3	49	01009	O-Ring	1
26A	07764	Spacer Sleeve	3	50	07767	Automatic Seal Ring (A)	3
29	07765	Valve Casing (A, B)	1	50	08477	Grooved Seal (B)	3
29	13384	Valve Casing (C)	1	50	13390	Grooved Seal (C)	3
30	07766	Pressure Ring (A)	3	52	13338	Plug, 3/8" BSP (A,B)	3
30	12123	Pressure Ring (B)	3	52	07109	Plug, 1/2" BSP (C)	3
30	13385	Pressure Ring (C)	3	52A	12007	O-Ring (A,B)	2
31	07767	Automatic Seal Ring (A)	3	52A	07182	Gasket (C)	2
31	08477	Grooved Seal (B)	3	58	08486	Copper Crush Washer (A,B)	1

## P54W, P58 & P59 REPAIR KITS

### Seal Kits

<b>P54W</b>		<b># 09167</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
31 & 50	07767	Automatic Seal Ring	6
32	07768	Support Ring	3
40	07489	O-Ring	6
49	01009	O-Ring	1
<b>P58</b>		<b># 09238</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
31 & 50	08477	Grooved Seal	6
32	07929	Support Ring	3
40	07489	O-Ring	3
40A	12126	O-Ring	3
49	01009	O-Ring	1
<b>P59</b>		<b># 09317</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
31	06250	Automatic Seal Ring	3
32	06253	Support Ring	3
40	07234	O-Ring	6
49	01009	O-Ring	1
50	13390	Grooved Seal	3

### Valve Assembly Kits

<b>P54W &amp; P58</b>		<b># 09168</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
34	07492	Tension Cap	6
35	07906	Valve Spring	6
36	05542	Valve Plate	6
37	05541	Valve Seat	6
38	07770	O-Ring	6
<b>P59</b>		<b># 09318</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
34	07326-0100	Tension Cap	6
35	07312-0100	Valve Spring	6
36	07327	Valve Plate	6
37	06014	Valve Seat	6
38	06015	O-Ring	6
<b>Oil Seal Kit</b>		<b>#09202</b>	
<u>Item</u>	<u>Part #</u>	<u>Description</u>	<u>Qty.</u>
26	07206	Radial Shaft Seal	3

## P54W, P58 & P59 TORQUE SPECIFICATIONS

Pos	Item#	Description	Lubrication Info.	Torque Amount
7	12249	Plug, 1" BSP	Loctite 5910	106 in.-lbs. (12 Nm)
9	07188	Cylinder Screw w/Slot		88 in.-lbs. (10 Nm)
11	07190	Oil Drain Plug		22 ft. lbs. (30 Nm)
16	07196	Countersunk Screw		132 in.-lbs (15 Nm)
20	07199	Connecting Rod Assembly		106 in.-lbs. (12 Nm)
24B	08456	Tension Screw	Loctite 243	200 in.lbs. (22.5 Nm)
43	07772 / 07213	Plug	Loctite 243	51 ft.-lbs. (70 Nm)
45	07773	Inner Hexagon Screw		36 ft.-lbs. (49 Nm)
46	07774 / 13388	Inner Hexagon Screw		221 in.-lbs. (25 Nm)

# 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>50 Hrs.</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 (p/n 01154)			X	X		
Plunger Seal Kit (1 kit/pump)					X	
Oil Seal Kit (1 kit/pump)					X	
Valve Repair Kit (2 kits/pump)						X

## REPAIR INSTRUCTIONS - P54W, P58 & P59 PUMPS

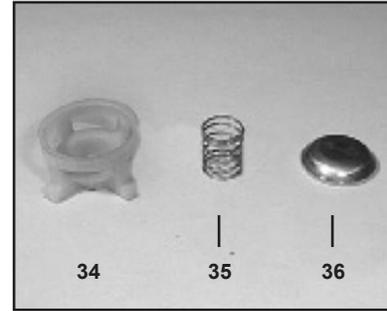
**NOTE:** Always take time to lubricate all metal and nonmetal parts with a light film of oil before reassembly. This step will ensure proper fit, at the same time protecting the pump nonmetal parts (i.e., the elastomers) from cutting and scoring.



1. With a 22mm socket, remove the three discharge valve plugs (43) from the top of the manifold.



2. With a pair of needle nose pliers, remove the discharge valve cage (34), spring (35) and plate (36).



3. Use a slide hammer with a finger attachment to remove the valve seats (37).



4. Inspect the valve seat (37) and valve plate (36) for signs of wear or cavitation and replace as necessary.



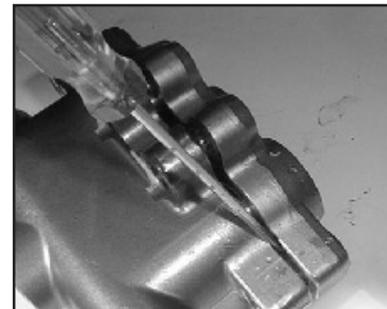
5. Using a 8mm allen wrench, remove the inner hexagon screws (45).



6. With a rubber mallet tap the back of the valve casing (29) and pull the valve casing (29) off the plungers (24A).



7. Using a 6mm allen wrench, remove the two inner hexagon screws (46).

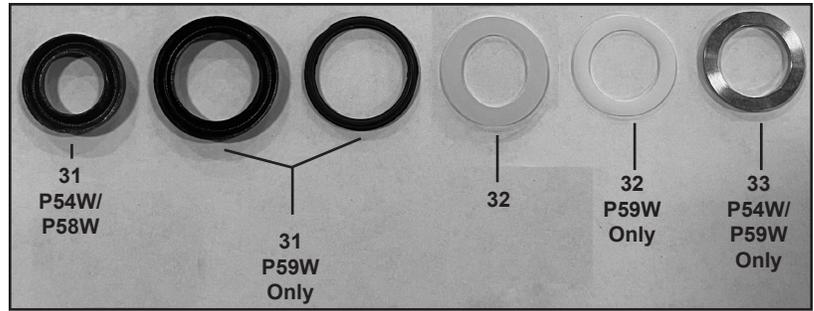


8. Separate the intermediate casing (48) from the valve casing (29)

## REPAIR INSTRUCTIONS - P54W, P58 & P59 PUMPS



9. Remove and inspect the weep seal (50) and replace if necessary.



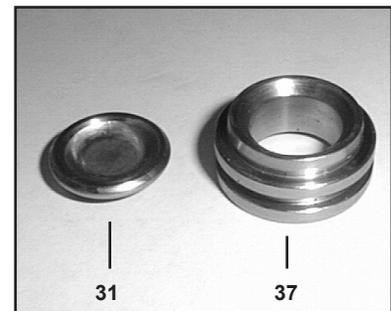
10. Remove and inspect the high pressure seal (31), pressure ring (32) and support ring (33 - P54W and P58 Only). Replace if needed.



11. Remove the seal case (39) from the valve casing (29) and inspect both o-rings (40 and/or 40A) for wear.



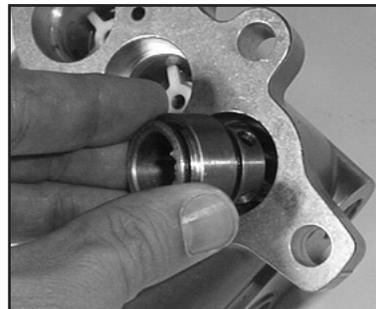
12. Using a needle nose pliers, remove the valve cage (34), spring (35) and valve plate (36) from the valve casing (29). Using a slide hammer with finger attachments, remove the valve seat (37) from the valve casing.



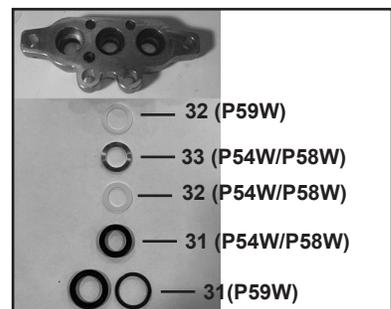
13. Inspect the valve seat (37) and valve plate (36) for wear and cavitation. Replace as needed.



14. Install the inlet valve assembly (34-38) back into the valve casing.



15. Install the seal case (39) with O-rings (40 and/or 40A) into the valve casing (29).



16. Install the high pressure seal (31), pressure ring (32) and support ring (33-P54W and P58 only) into the intermediate casing (48).

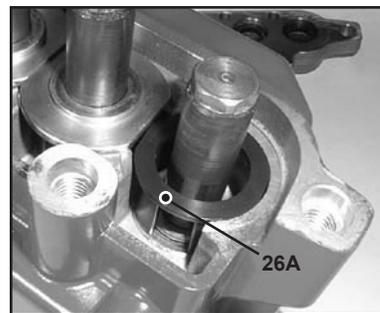
## REPAIR INSTRUCTIONS - P54W, P58 & P59 PUMPS



17. Lubricate the weep seal (50) and install into the intermediate casing (48).

18. If plunger pipe (24A) is damaged, remove tension screw (24B) and take pipe off. Thoroughly clean contact surfaces of plunger pipe (24A) and plunger base (22). Coat thread of tension screw (24B) with a thin layer of loctite. Assemble plunger pipe (24A) on to plunger base (22). Replace copper washer (24C) and tighten tension screw to 200 in-lbs (22.5 NM).

**IMPORTANT:** It is important that no glue gets between the plunger base (22) and plunger pipe (24A). Do not overtighten as damage to the plunger pipe (24A) will occur.



19. Replace the three spacer sleeves (26A) over the plunger with the flanged side toward the valve casing (29).



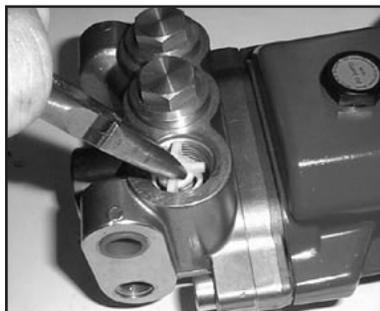
20. Install the pressure rings (30) over the plungers. Make sure that the O-ring (49) is in place.



21. Secure the intermediate casing (48) to the valve casing (29) with the inner hexagon screws (46). Torque the screws to 225 in-lbs (25 NM).



22. Place the valve casing (29) over the plungers. Secure the valve casing with the inner hexagon screws (45). Torque the screws to 36 ft.-lbs (49 NM).



23. Install the three discharge valve assemblies with O-rings (34 - 38).



24. Replace the discharge plugs (43) and torque to 51 ft.-lbs (70 NM).

## REPAIR INSTRUCTION - P54W, P58 & P59 PUMPS

### Maintenance of the Gear End

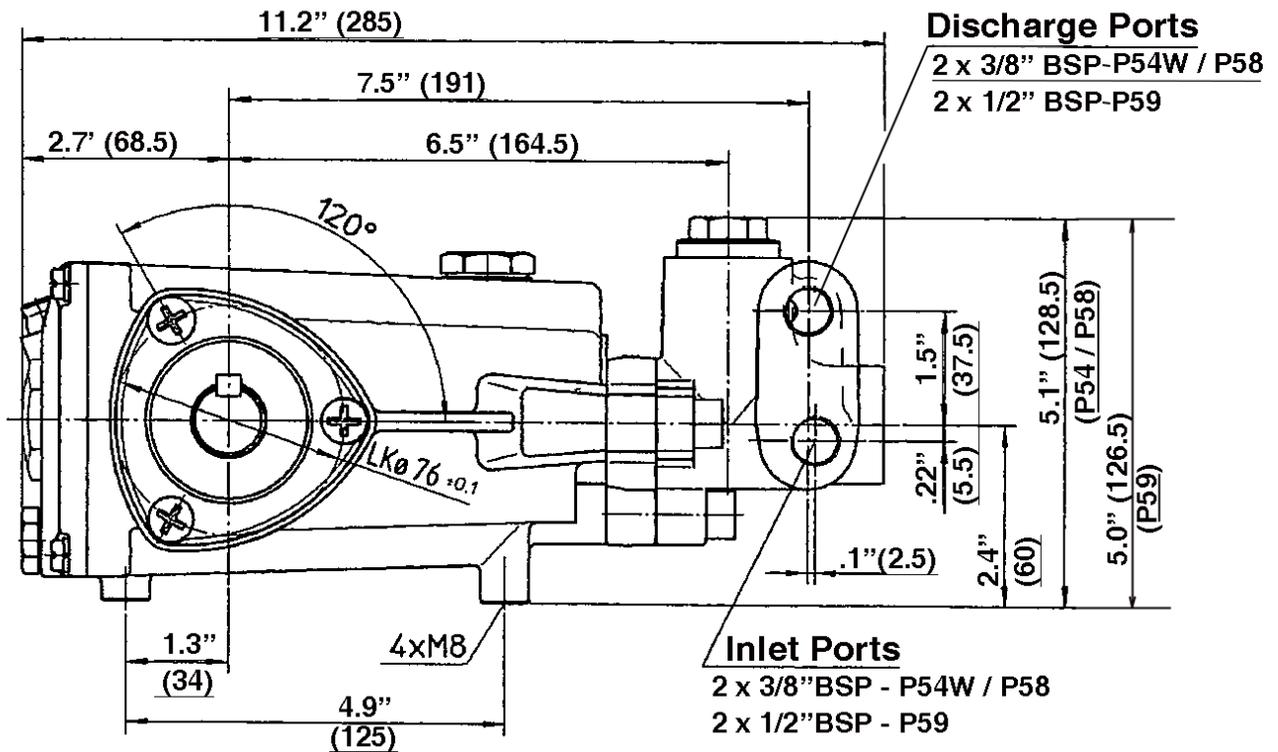
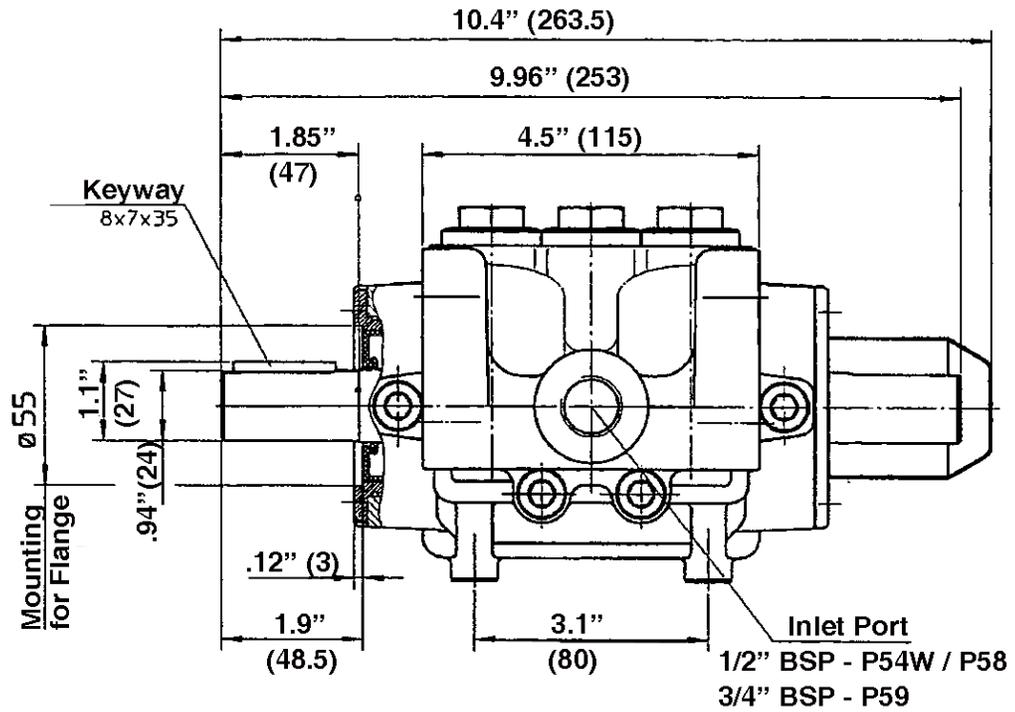
24. With the valve casing (29) and intermediate casing (48) off the pump, remove the crankcase cover screws (9). Inspect the crankcase cover (3) and its o-ring (4) for wear. Replace as necessary.
25. Inspect the dipstick (5) vent hole for signs of clogging. Clean as necessary.
26. To remove the crankshaft (18), first remove the bearing cover plates (12). Remove the key (19).
27. Remove the connecting rod caps (20) with a 5 mm allen wrench and push the front half of the connecting rod (20) and plunger rod assembly (22) forward as far as possible into the crankcase (1) housing.
28. Hold the pump rear assembly with a wooden fixture or other suitable device, in order to secure it while removing the crankshaft (18). Using a plastic mallet, tap the crankshaft from one side while turning it from the other side. This turning ensures that during this sequence the crankshaft does not become wedged against the connecting rods (20). The far side bearing (15) will remain in the crankcase (1). When free, the crankshaft can be removed by hand. The far side crankshaft seal (14) will be removed by this procedure.
29. If necessary, use a bearing puller to remove the crankshaft bearing (15).
30. Remove the connecting rod and plunger rod/crosshead assembly from the rear of the pump by pulling straight out of the crosshead guides.  
**IMPORTANT:** Connecting rods are marked for identification. Do not twist connecting rod halves. Each connecting rod is to be reinstated in the same position on the crankshaft journal.
31. Using a dowel and rubber mallet, tap the oil seals (26) out from the rear of the crankcase (1).
32. To remove the crosshead pin (23) from the crosshead (22), place the assembly on a wooden fixture to avoid damage to the crosshead. Drive out the pin on the opposite side of the mark on the crosshead. On those pumps without a mark on the crosshead, drive out the pin by tapping out the tapered side of the pin.
33. To remove the bearing (15) remaining in the crankcase (1), insert the small end of a bearing tool and tap with a rubber mallet until the bearing and seal (14) are completely removed. The bearing can only be removed from the inside by inserting a bearing tool through the opposite side of the crankcase. The crosshead guide in the crankcase should be inspected for possible damage.
34. To reassemble, place the far bearing (15) in the crankcase bearing housing. With the bearing tool as a driver, tap into the crankcase using a rubber mallet.
35. Before reinserting into the pump, make sure that the crankshaft seal (14) lip does not show signs of wear and that the garter spring is firmly in place on the seal. With the bearing tool, insert the far side seal. Make sure the seal is firmly seated and well oiled. Replace the bearing cover (12) and tighten securely.
36. Replace the connecting rod (20) and plunger rod / crosshead assembly by press-fitting the crosshead pin (23). Make sure to insert the beveled edge of the crosshead pin into crosshead. If the crosshead has a mark, install pin from marked side. The crosshead pin should not extend beyond either side of the crosshead in order to prevent damage to the crosshead bore of the crankcase.
37. Generously lubricate (with oil) the crosshead / plunger assembly into the crankcase. Notice that the connecting rod halves are numbered or colored. Position the connecting rods with their numbers or colors on the upper left-hand side, in the same numerical sequence in which they were removed.

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38. Replace near side bearing (15) on crankshaft (18) by using a bearing tool and mallet to tap into place. Attention must be paid during repair work that the outer bearing ring (15) is placed firmly against the bearing cover (12) on one side. On the opposite side, a correct amount of shims (15A & 15B) are to be inserted between the outer bearing cover (12) and bearing (15) so that the shaft can turn easily with very little clearance.
39. Take the crankshaft end with the bearing and insert the other end through the bearing housing and tap with a rubber mallet until the bearing is seated.
40. When reassembling the connecting rod (20) halves, note that the connecting rod halves are numbered or colored and that the numbers or colors must be matched and aligned. Torque the connecting rod bolts to 106 in-lbs (12 NM).
41. Before installation, apply a small amount of locktite to the O.D. of the crankcase oil seal (26). The oil seal should be installed so that the grooved side of the seal will face the crankcase (1). Tap seal in place using a socket and rubber mallet.
42. Lubricate the weep seal (50) and install into the intermediate casing (48).
43. Replace the three spacer sleeves (26A) over the plunger with the flanged side toward the valve casing (29).
44. Install the pressure rings (30) over the plungers. Make sure that the o-ring (49) is in place.
45. Again lubricate the plungers. Reinstall the intermediate casing (48) and valve casing (29) over the plungers with inner hexagon screws (46). Torque the screws to 221 in-lbs (25 NM).
46. Clean the back edge of crankcase (1) and replace the crankcase cover (3). Be careful not to pinch the crankcase cover o-ring (4).
47. Fill the crankcase (1) with 12.5 oz. (0.37 L) of Giant oil. Check the oil level with the dipstick (5). The oil level should be between the two lines.

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

# P54W, P58W & P59W PUMP 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.

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For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

**GIANT**  
Performance Under Pressure

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