

Series P510D / P611C

Direct Drive
Triplex Plunger Pump
Operating Instructions/
Repair and Service
Manual



P611-C Shown

GIANT

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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.
3. The discharge plumbing from the pump should be properly sized to the flow rate to prevent line pressure loss to the work area.

NOTE: An anti-Seize material must be applied to the motor/engine shaft to ensure trouble free disassembly of the pump from the shaft.

4. The Giant Industries, Inc. model P510D/P611C pumps must be operated in a counter-clockwise direction of rotation when viewing from the outboard bearing side of the pump. Required horsepower for your system can be obtained from the specification chart on page 3.

5. Before beginning the operation of your pumping system, remember to check that the crankcase and seal areas have been properly lubricated per the recommended schedules. Do not run the pump dry. Cavitation will result in severe damage to the pump. Always remember to check that all plumbing valves are open and that the pumped media can flow freely to the inlet of the pump.

6. Electric lead cords that are too long and have too light of a gauge can cause high amp draw on electrically driven pumps.

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 comes to the center of the sight glass.. **DO NOT OVERFILL.**
2. When operating a direct drive pump at speeds above 1725 RPM and/or temperatures between 120 °F and 140 °F, use the following guidelines:
 - a) 25 PSIG Inlet Pressure
 - b) 3/4" I.D. Inlet Line
 - c) Giant Synthetic Oil (part # 01150)
3. The pump operation must not exceed the rated pressure, volume or RPM. A pressure regulating unloader is included with your P510D/P611C pumps. Over tightening of the unloader will cause severe pressure spikes, which are damaging to the complete system. This will also cause the motor/engine to bog down and/or stall out when the shut-off gun is closed.
4. The crankcase oil should be changed after the first 50 hours of operation, then at regular intervals of 250 hours or less depending on operating conditions.

NOTE: The number of operating hours allowed between oil changes will be affected by conditions such as high ambient temperature, high humidity and severity of use (operating at maximum RPM and pressure for extended periods of time. You must decrease the number of hours between changes when operating under these conditions.

5. Acids, alkaline substances, or abrasive fluids cannot be pumped unless approval in writing is obtained before operation from Giant Industries, Inc.
6. Run the pump dry approximately 10 seconds to drain the water before exposure to freezing temperatures.
7. Do not allow the pump to remain in the bypass mode for more than 5 minutes. Seal damage will occur if this time is exceeded.
8. All electrical cords and/or extension cords utilized in the operation of this unit must be properly grounded and protected from all moisture. Failure to do so will cause electrical shock and severe personal injury.

Specifications

Model P510D/P611C

Volume	See Rating chart below
Discharge Pressure	See Rating chart below
Inlet Pressure	Up to 40 PSI ¹
RPM	Up to 3450 RPM
Plunger Diameter	18mm
Temperature of Pumped Fluids	Up to 140 °F
Inlet Ports	3/4" BSPP
Discharge Ports	3/8" NPT
Shaft Rotation	Counterclockwise
Crankshaft Bore	5/8" Bore (P510D)
.....	3/4" Bore (P611C)
Weight	10 lbs.
Crankcase capacity	12 fl.oz.

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) For vacuum inlet pressures, please consult the factory.
 - 2) Operating direct drive pumps at speeds above 1725 RPM and/or when the temperature of the pumped fluid is between 120 °F and 140 °F requires:
 - a. A minimum inlet pressure of 25 PSIG;
 - b. A minimum inlet line size I.D. of 3/4";
 - c. Use of Giant Products High Temperature Synthetic Crankcase Oil (part #01150) or an equivalent (such as Mobil 1 Formula 15W-50 Synthetic oil).

P510-D HORSEPOWER REQUIREMENTS						
RPM	GPM	500 PSI	800 PSI	1000 PSI	1200 PSI	1500 PSI
3450	2.20	0.80	1.30	1.60	2.00	2.40

P611C HORSEPOWER REQUIREMENTS						
RPM	GPM	500 PSI	800 PSI	1000 PSI	1200 PSI	1500 PSI
3200	2.80	1.00	1.60	2.10	2.50	3.10
3450	3.00	1.10	1.80	2.20	2.70	3.30

HORSEPOWER RATINGS:

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

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

$$\frac{\text{GPM} \times \text{PSI}}{1350} = \text{hp}$$

P510-D/P611-C MODELS PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	07478	Crankcase	1	23	07240	Support Ring	3
2	07426	Sight Glass with Gasket	1	24	*07992	Valve Casing	1
3A	07450	Oil Fill Cap with Gasket	1	25	07407	Stud Bolt	8
3B	08253	Oil Drain Plug with Gasket	1	26	07408	Stud Nut	8
5	07400	Crankshaft P510-C/D	1	27	07379	Valve Plug	2
5	07475	Crankshaft P611-C/D	1	27A	07474	Valve Plug with 1/4" FNPT	
6	07402	Connecting Rod	3			Threaded Gauge Port	1
7	07493	Cylinder Pin	3	28	12007	O-ring	6
8	07481	Plunger Assembly with Insert	3	29	07920	Guide Plug	1
8A	07486	Plunger Insert (closed)	3	30	07914	Piston Body	1
9	07430	Retaining Ring, Crankcase	2	31	07915	O-ring	1
10	07431	Ball Bearing	1	32	07916	Backup Ring	1
11	07432	Retaining Ring, Crankshaft	1	33	07416	Ball	1
12	07433	Spacer Ring	1	33A	07043	Bypass Valve Seat	1
13	07434	Crankshaft Seal	1	34	07917	Disc	1
14	07455	Bearing Housing	1	35	07918	Adjusting Spring	1
15	07456	O-ring	1	36	07919	Pressure Spring	1
16	07459	Radial Shaft Seal	1	37	07047	Adjusting Plug	1
17	07457	Bearing	1	38	07048	Adjusting Screw	1
18	07373	Valve Spring	4	39	07937	O-ring	1
18A	07374	Valve Spring	3	40	07044	Lock nut	2
19	07375	Valve Cone	6	40A	07939	Nut M8 x 1.25	1
19A	07458	Red Outlet Valve Cone	1	41	07045	Handwheel	2
20	07041	Pressure Ring	3	42	07046	Cover	1
21	08249	Oil Seal	3	43	07419	Outlet Fitting	1
22	07241	V-Sleeve	3				

*Note: Pumps manufactured before October,
1991, use valve casing # 07042

P510-D/P611-C SERIES REPAIR KITS

Plunger Packing Kit (Part # 09038)

Qty.	Part #	Description
3	07241	V-Sleeve

Valve Assembly Kit (Part # 09154)

Qty.	Part #	Description
6	07375	Valve Cone
4	07373	Valve Spring
3	07374	Valve Spring
1	07458	Valve Cone

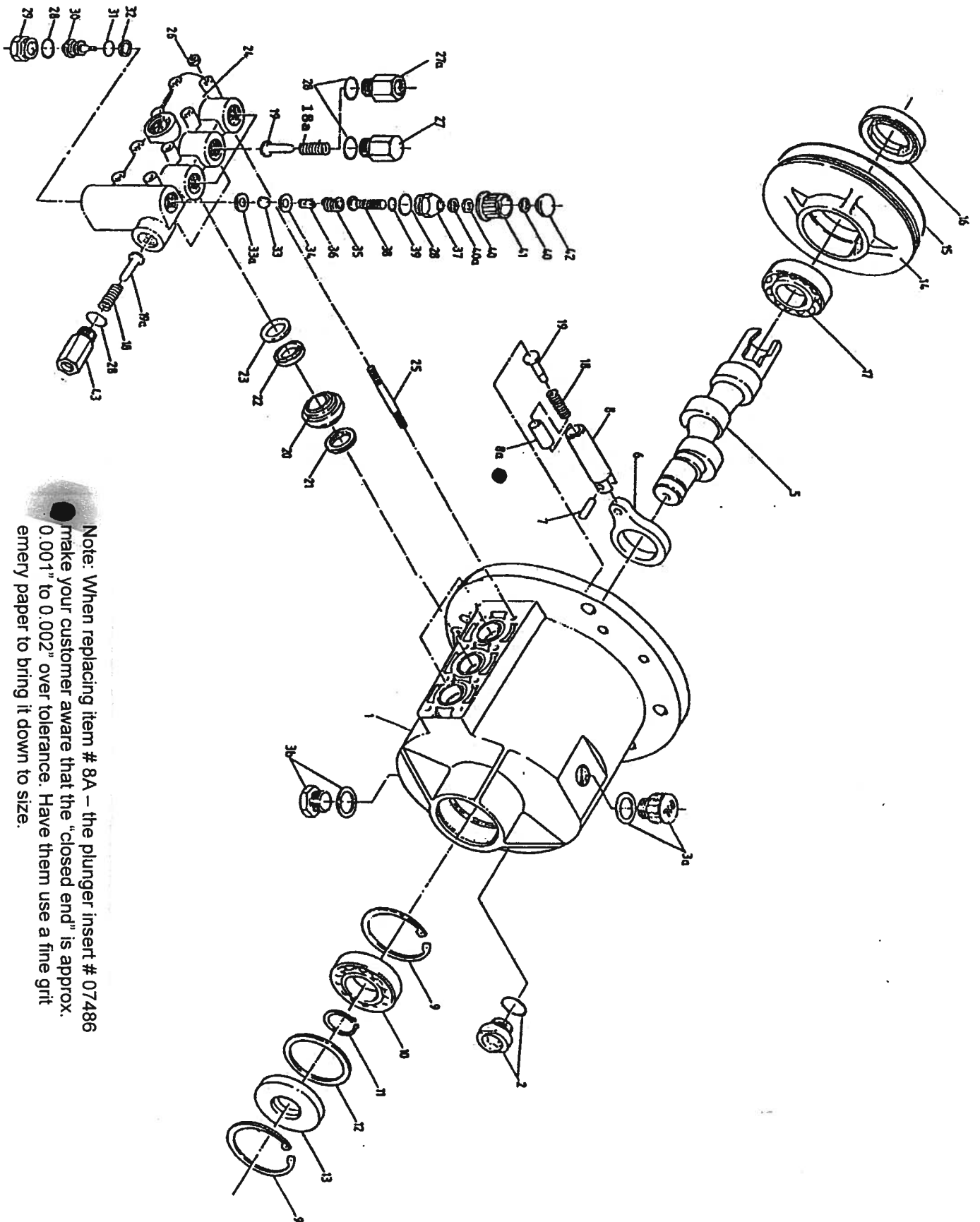
Small Engine Mounting Kit (Part # 09103)

Qty.	Part #	Description
1	07466	Engine Plate
4	07467	Socket Head Screw
4	07468	Countersunk Tooth Washer

Oil Seal Kit (Part # 09131)

Qty.	Part #	Description
3	08249	Oil Seal

Exploded View - P510-D/P611-C



Note: When replacing item # 8A – the plunger insert # 07486 make your customer aware that the "closed end" is approx. 0.001" to 0.002" over tolerance. Have them use a fine grit emery paper to bring it down to size.

REPAIR INSTRUCTION

Disassembly sequence of fluid end of P510-D/P611-C pump

Note: Always take time to lubricate all metal and nonmetal parts with a light film of oil before assembly. This step will help ensure the proper fit, at the same time it will also protect the nonmetal parts (elastomers) from cutting and scoring the pump.

1. Using a 19mm wrench, remove the three discharge valve plugs (item #27). The discharge valve springs (item #18A) and the valve cones (item #19) can now be lifted out of the pump housing. Inspect the springs, valve cones, and valve plug o-rings (item #28) for wear, and replace as necessary.
2. With a crescent wrench, remove the adjusting screw assembly (item #'s 40, 40A, 37, 28, 39, 41, 42 and 38). Using a small screwdriver carefully remove the cover (item #42) from the handwheel (item #41). With a 13mm socket wrench remove the hex nut (item #40). Now remove the handwheel (item #41) and the remaining hex nuts (item #'s 40 and 40A) from the adjusting screw. Unscrew the adjusting screw (item #38) from the adjusting screw plug (item #37). Inspect the o-rings (item #'s 28 and 39) for wear and replace them as necessary.
3. Remove the adjusting spring (item #35), pressure spring (item #36), washer (item #34) and bypass valve ball (item #33) from the manifold. Inspect the parts for wear and replace as necessary.
4. With a 19mm socket wrench, remove the guide plug with o-ring (item #'s 28 and 29). Remove the piston (item #30), O-ring (item #31) and backup ring (item #32). Inspect the parts for wear and replace as necessary.
5. Remove the outlet fitting (item #43) with a 22mm wrench. Pull the valve spring (item #18) and valve cone (item #19A) from the outlet port and replace them as necessary. Inspect the outlet fitting o-ring (item #28) for wear, and replace it as necessary.
6. The pump manifold can be removed by unscrewing the manifold stud nuts (item #26) with a 10mm socket wrench. When the nuts are removed, the manifold should easily slide away from the crankcase (item #1). Any resistance may be overcome by gently tapping the back side of the manifold with a rubber mallet.
7. The valve cone (item #19) and valve spring (item #18) can now be removed from the plunger. Inspect the valve cone and spring for wear, and replace as necessary.
8. Remove the sleeve support ring (item #23), v-sleeve (item #22) and the pressure ring (item #20). Inspect the parts for wear and replace as necessary.

THIS COMPLETES THE FLUID END DISASSEMBLY OF THE GIANT P510-D/P511-C PUMP.

9. **Note:** Major crankcase repairs require special tools and this repair should be executed by a distributor or an authorized repair center. Refer to step 18 through 26 for assistance to an experienced pump technician in disassembly of the crankcase when necessary.

REASSEMBLY SEQUENCE OF THE GIANT P510-D/P511-C PUMP

10. Replace the sleeve support ring (item #23) and v-sleeve (item #22) into the pump manifold. Care should be taken to insure that the support ring is installed into the manifold first, with the beveled side facing upward. The v-sleeve should then be placed on top of the support ring with the concave side facing down. A light film of oil applied to the v-sleeves will minimize the chance of damage to the v-sleeves during reassembly.

11. Replace valve spring (item #18) and valve cone (item #19) into the plunger. Manifold housing should now be placed evenly over plungers and pressed firmly against the crankcase. Replace the stud nut (item #26) and tighten securely in a crossing pattern.
12. Replace the outlet valve cone (item #19) and valve spring (item #18) into the outlet port. Replace the outlet fitting (item #43) and tighten securely.
13. Assemble the adjusting screw with o-ring (item #'s 38 and 39) into adjusting screw plug (item #37). Assemble o-ring (item #28) onto the adjusting screw plug (item #37).
14. Drop ball (item #33) onto seat. Replace the washer (item #34) with the concave side toward the ball. Next, replace both springs (item #'s 36 and 35). Replace adjusting screw assembly (form #13 above) and tighten down with a crescent wrench. Replace both hex nuts (item #40) and lock the two nuts against each other.
15. Insert the piston (item #30) with the o-ring (item #31) and backup ring (item #32) into the manifold. Screw in the guide plug with the o-ring (item #'s 29 and 28) and tighten.
16. Lastly, replace the discharge valve cones (item #19), and discharge springs (item #18A) into the pump housings. Insert the valve plugs (item #27) and tighten securely.
17. Check the sight glass to insure the proper oil level and reinstall the pump into your system.
18. Remove the drain plug with gasket (item #3B) and drain the oil from the crankcase.
19. With a 19mm box end wrench, remove the oil sight glass. The pump manifold should have been previously removed from crankcase.
20. Carefully slide a wooden dowel or 3/8" socket extension through the sight glass hole of the crankcase. When the wooden dowel makes contact with the bearings housings (item #14), on the other side of the crankcase, firmly tap the wooden dowel until the bearings housings breaks free form the crankcase.
21. Inspect the radial shift seal (item #16) and the o-ring (item #15) for wear and replace them as necessary.
22. To remove the crankshaft oil seal (item #13), first remove the retaining ring (item #9) using snap ring pliers. The crankshaft seal and spacer ring (item #12) can now be pulled out of the crankcase.
23. To remove the ball bearing (item #10), first remove the crankshaft retaining ring (item #11) using snap ring pliers. Next, while rotating the crankshaft, carefully tap the solid end of the crankshaft with a rubber mallet. It is important that the crankshaft be rotated continuously during the tapping to avoid binding and resultant damage to the connecting rods. Once the crankshaft is free of the front ball bearing (item #10), the crankshaft can be threaded through the connecting rods and out the back of the pump.
24. The rear bearing (item #17) will remain on the crankshaft and can be removed with a standard bearing puller available from Snap-On-Tools ..
25. The front of the bearing can now be removed by first removing the snap ring (item #9) from inside of the crankcase using snap ring pliers. With a rubber mallet, gently tap the bearing loose until it falls into the crankcase. Remove the plunger/connecting rod assembly (item #'s 6,7,and 8) from the crankcase. Remove the oil seals (item #21) from the crankcase. Inspect them for wear and replace them as necessary.
26. To reassemble the back end, simply reverse the procedure of steps 10 through 18.

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 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.



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