

Hydronic Corporation

Air Driven Hydraulic Pumps and Intensifiers

P801 Installation, Use and Maintenance Manual

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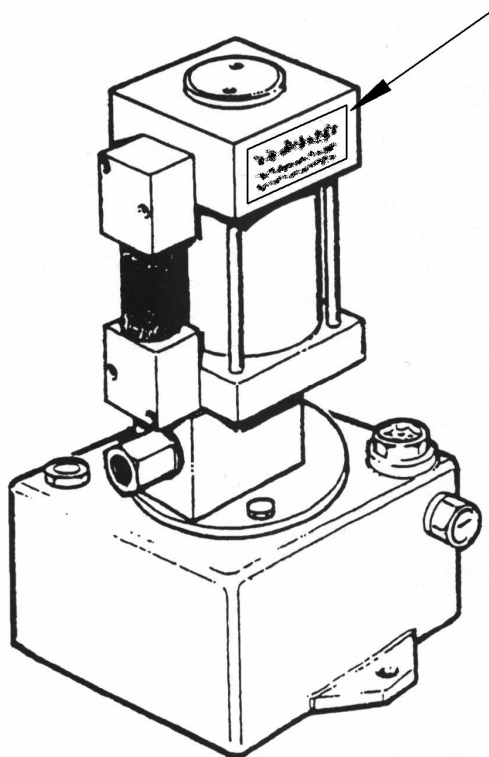
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Introduction

This handbook is intended to give the operator the basic instructions for the use and maintenance of the pump. The air hydraulic pump operator must read this handbook before putting the pump into operation. After correctly installing the pump, keep this manual stored in a safe place. If you have difficulty in understanding any part of this handbook, contact Hydronic Corporation. Regular servicing and correct use of the pump are fundamental in obtaining optimum performance over its life. When contacting our service center, specify the pump model and serial number. This will help us to respond quickly and effectively.

Guarantee

Hydronic pumps are guaranteed both for the quality of materials used and for overall design. The warranty runs for six months of normal use at eight hours per day and five days per week. The warranty itself does not cover seals or defects arising out of operating with unsuitable fluids or at pressures above the specified maximum. The guarantee cannot cover pumps that may have been tampered with. Defective goods must be sent to Hydronic Corporation at Farmington Hills or to the distributor covering the area, freight pre-paid in either case. Any pump returned to us must be accompanied by a full written description of such faults or defects as have been discovered. Please also ensure that the pump's serial number is attached to the paperwork.



Identification Plate

- 1 Pump model and intensification ratio
- 2 Serial number
- 3 Maximum air pressure
- 4 Maximum working oil pressure
- 5 Year of construction

Installation Guide

Pumps should be installed in a vertical position for optimum functioning of suction and delivery valves. Suction, pressure and air lines should be 1/4" bore. Basic pumps can be controlled by a hydraulic directional valve. The following is advised:

- Hydraulic oil having viscosity of 150 to 250 SSU
- Oil temperature 32° F to 150° F
- Air temperature 40° F to 100° F
- Room temperature 40° F to 100° F

Obstructive icing of the silencer may occur under certain temperature/humidity conditions. This can be remedied by the addition of antifreeze oil for pneumatic equipment to a mist lubricator.

Compressed Air System

It will be advisable to fit an air filter/regulator unit having minimum flow capacity of 15 scfm plus a pressure gauge in order to ensure the pump has sufficient air energy to work correctly and provide the hydraulic performance you expect.

Hydraulic System

Valves, pipes, hoses and accessories should all correspond to maximum working pressure of the pump used and be of a size that will fulfill flow requirements. Bear in mind the minimum of 1/4" bore for the suction line.

Application

Hydronic air driven hydraulic pumps are designed for operating oil hydraulic circuits and to cover the widest range of requirements to the best advantage.

The pump itself operates quite simply, using a known pressure intensification principle. A piston with a large surface area is actuated by compressed air.

Attached to it is a piston with a smaller surface area which is driven in a hydraulic chamber generating a high level of hydraulic pressure. The continuous pumping action is produced by the compressed air being switched by a special valve assembly. By regulating the compressed air supply pressure from 30 psi to 100 psi, the maximum hydraulic pressure can be adjusted by the ratio of the pump used. As the hydraulic load of the circuit increases and the oil pressure rises, the pump will slow down and eventually stop. In this way, the maximum load of the circuit will be maintained without air consumption.

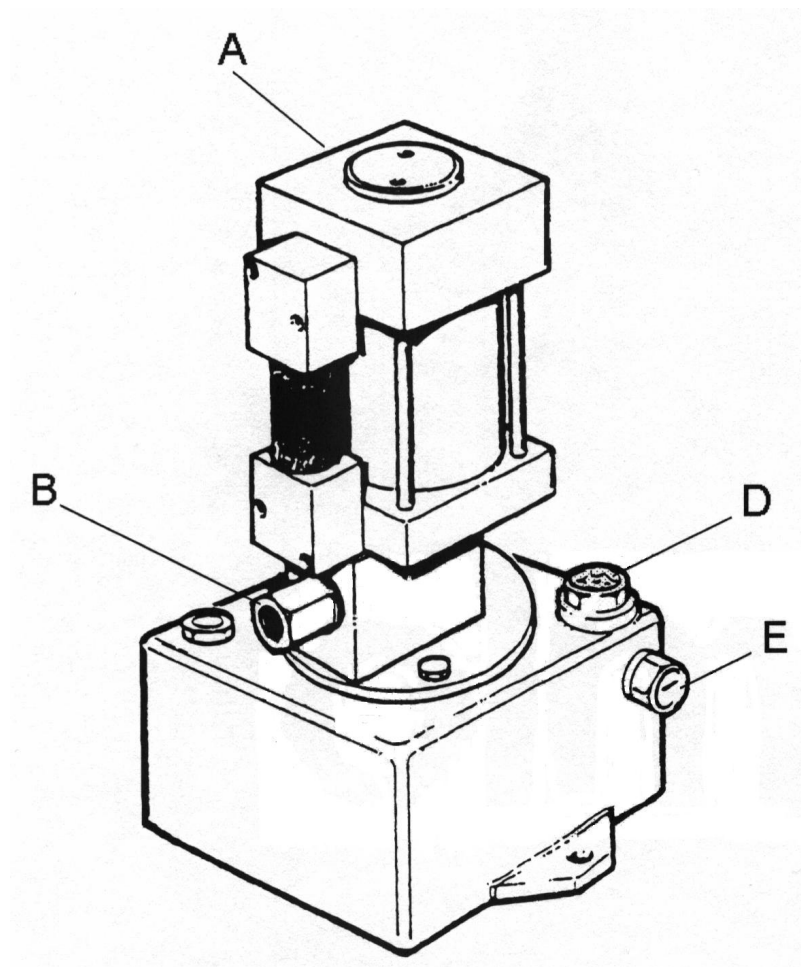
Storage

If the pump is to be kept out of use for a long period, clean the pump in general and drain the oil from the tank. Cover the pump and store it in a dry, well protected place. It is advisable to wrap the pump in a plastic film. To put back into service, check all parts, fill tank with oil and try the pump out to ensure that it working properly. This operation must be carried out by qualified personnel.

Disposal

If the pump is to be scrapped, treat as a special type of waste. Dismantle it and divide it into materials of the same type and dispose of them in accordance with the local laws and regulations in your state.

Description of the standard pump components



- A Air inlet 1/8" NPT
- B Oil outlet 1/4" NPT
- C Oil suction 3/8" NPT
Inside tank
- D Oil filler plug
- E Oil level sight glass
- F 1/8" NPT air breather
On reverse side of
pump block

Starting - Up

Oil pressure can be determined by regulation of the compressed air, bearing in mind of course the multiplication ratio pre-selected for the pump itself.

The models are:	P801-5	RATIO 1:5
	P801-8	RATIO 1:8
	P801-16	RATIO 1:16
	P801-30	RATIO 1:30
	P801-42	RATIO 1:42
	P801-65	RATIO 1:65

It should be remembered that the action of the piston assembly is to be powered down by the compressed air but returned by a large spring. This causes the ratio to be lower at air pressures below the maximum.

Having connected the compressed air supply at a low pressure, allow the pump to operate slowly until primed and oil comes through to the output port. Now shut off the air supply to the pump and securely connect the hydraulic circuit. Switch on the air supply again and allow the pump to run in order to bleed any air out of the hydraulic circuit.

Fault Finding Chart

Fault	Cause	Remedy
1] Pump does not cycle or runs slowly.	1.1] Low pressure in compressed air line.	1.1] Clear any blockage or restriction on the air line.
	1.2] Formation of ice on the exhaust side.	1.2] Shut off pump for an short time and drain off water from the filter.
	1.3] Accumulation of waste in the silencer.	1.3] Remove silencer, clean and replace.
	1.4] Blocked element in air filter/regulator.	1.4] Close down air-supply, dismantle and clean filter.
2] Pump loses air from silencer when stalled.	2.1] Worn valve or seal	2.1] Replace seal or valve.
3] Excess oil leakage from air silencer.	3.1] Worn hydraulic seal	3.1] Replace seal.
4] Pump cycles without pumping oil.	4.1] Blocked oil-intake	4.1] Clean out filter.
	4.2] Bad connection on suction line.	4.2] Check for bad connections or air leaks on suction line.

5] Pump functions but only generates low pressure and does not stall at max. pressure.

5.1] Internal leakage in the circuit.

5.2] Suction valve seats damaged and leaking.

5.3] Output valve seats damaged and leaking.

5.4] Worn oil seal.

5.1] Find leak source and change valve.

5.2] Replace suction valve parts.

5.3] Replace output valve parts.

4.4] Replace seal.

Maintenance

Periodically release the condensation from the air filter. Replace the hydraulic oil every 1500 hours or whenever the oil is polluted.

Warning: Remember that repair work can only be made when pneumatic and hydraulic pressure has been released and you are sure that no pressure remains in the circuit.

Delivery of the pump

Transport

All the material shipped, including the detached parts, has been thoroughly checked before being consigned to the forwarding agent. The pump is shipped in double corrugated cardboard packaging which assures protection of the product.

Unpacking

On receipt of the product, open the packaging and remove the pump. Take care not to damage any part of the pump. Make an initial check on the pump for damage in transit. In case of damage or if in doubt, do not use the pump and contact Hydronic Corporation or your distributor. The packaging [plastic bags, expanded polystyrene, nails, screws, wood, etc.] must not be left within reach of children since they are potential source of danger. Be sure to dispose of pollutant or non-biodegradable materials in the correct way. Materials must be disposed of in accordance with the laws in force.

Gross weight

P801 Basic pump	8 ½ lbs.
P801 with R3 reservoir	13 lbs.
P801 with R4 reservoir	16 lbs.
P801 with R15 reservoir	22 lbs.
P801 with R25 reservoir	25 lbs.

Contents of the package

The packaging will always contain the following:

- 1 x air driven hydraulic pump
- 1 x installation, use and maintenance manual

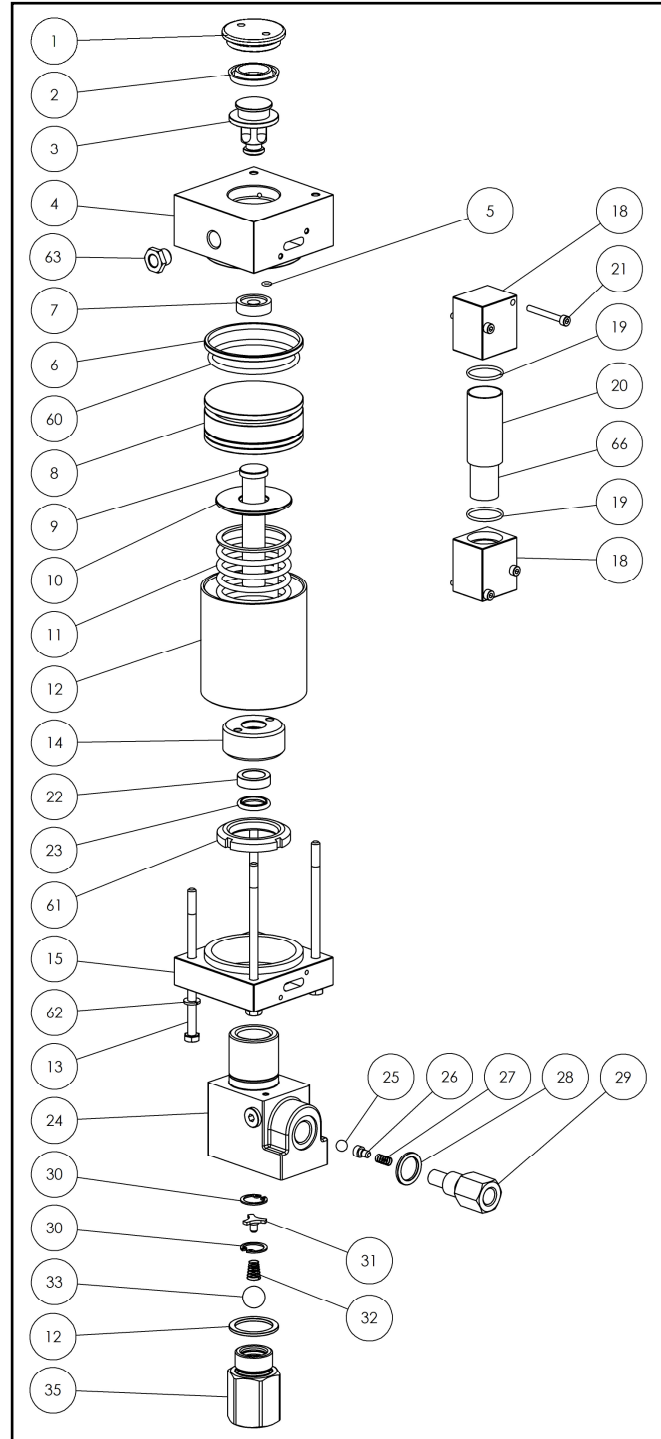
Original spare parts

Parts orders must always be accompanied by the following information:

- A] The pump model B] The pump serial number C] The pump year of construction
(all this data is given on the nameplate)
- D] The part numbers E] The quantity required F] The name of the part
(All this data is given in the parts list)

A clear and correct statement of this data will allow our after-sales service to respond quickly and appropriately. Every spare part must be replaced by professionally qualified staff. The manufacturer declines all responsibility for malfunctions or accidents deriving from any failure of the product when unqualified persons have made any attempt at repair.

Item		Code	Description	Qty
1		5.084.0001	Plug	1
2	*	3.053.0101	Seal Ring	1
3		5.068.0067	Piston	1
4		5.034.0096	Head	1
5	*	3.051.0002	O-Ring	1
6	*	3.051.0060	Seal Ring	2
7	*	5.050.0001	Rubber	1
8		5.068.0036	Piston	1
9		5.068.0038	Piston - Ratio 1:65	1
9		5.068.0039	Piston - Ratio 1:42	1
9		5.068.0040	Piston - Ratio 1:30	1
9		5.068.0041	Piston - Ratio 1:16	1
9		5.068.0042	Piston - Ratio 1:8	1
9		5.068.0043	Piston - Ratio 1:5	1
10		5.008.0007	Disk - Ratio 1:65	1
10		5.034.0007	Disk - Ratio 1:42	1
10		5.034.0007	Disk - Ratio 1:30	1
10		5.034.0007	Disk - Ratio 1:16	1
10		5.034.0008	Disk - Ratio 1:8	1
10		5.034.0009	Disk - Ratio 1:5	1
11		5.064.0021	Spring	1
12		6.018.0028	Jacket	1
13		3.094.0051	Screw	4
14		5.045.0014	Ring-Nut - Ratio 1:65	1
14		5.045.0015	Ring-Nut - Ratio 1:42	1
14		5.045.0015	Ring-Nut - Ratio 1:30	1
14		5.034.0005	Ring-Nut - Ratio 1:16	1
14		5.045.0016	Ring-Nut - Ratio 1:8	1
15		5.086.0002	Head	1
18		5.065.0001	Silencer Block	1
19	*	3.051.0062	O-Ring	2
20		3.041.0001	Filter	1
21		3.094.0005	Screw	4
22		5.014.0010	Bushing - Ratio 1:65	1
22		5.014.0011	Bushing - Ratio 1:42	1
22		5.014.0012	Bushing - Ratio 1:30	1
22		5.014.0013	Bushing - Ratio 1:16	1
22		5.014.0014	Bushing - Ratio 1:8	1
22		5.014.0015	Bushing - Ratio 1:5	1
23	*	3.051.0065	Seal Ring - Ratio 1:65	1
23	*	3.051.0067	Seal Ring - Ratio 1:42	1
23	*	3.051.0068	Seal Ring - Ratio 1:30	1
23	*	3.051.0069	Seal Ring - Ratio 1:16	1
23	*	3.051.0070	Seal Ring - Ratio 1:8	1
23	*	3.051.0085	Seal Ring - Ratio 1:5	1
24		5.028.0002	Pump Body - Ratio 1:65	1
24		5.028.0003	Pump Body - Ratio 1:42	1
24		5.028.0004	Pump Body - Ratio 1:30	1
24		5.028.0005	Pump Body - Ratio 1:16	1
24		5.028.0006	Pump Body - Ratio 1:8	1
24		5.028.0007	Pump Body - Ratio 1:5	1
25		3.076.0011	Ball	1
26		5.046.0001	Centering Ball	1
27		5.064.0022	Spring	1
28	*	3.052.0003	Washer	1
29		5.071.0026	Outlet Connector	1



Item		Code	Description	Qty
30		3.006.0003	Seeger	2
31		5.046.0002	Centering	1
32		5.064.0023	Spring	1
33		3.076.0010	Ball	1
34	*	3.052.0005	Washer	1
35		5.071.0027	Suction Connector	1
60	*	3.051.0102	O-Ring	2
61		3.045.0202	Ring-Nut - Ratio 1:65, 1:42, 1:30, 1:16	1
61		5.034.0030	Ring-Nut - Ratio 1:8 - 1:5	1
62		3.072.0103	Washer	4
63		5.034.0054	Connector	1

*Seal Kits For Complete Overhaul

3.054.0015	<i>Ratio 1:65</i>
3.054.0014	<i>Ratio 1:42</i>
3.054.0013	<i>Ratio 1:30</i>
3.054.0012	<i>Ratio 1:16</i>
3.054.0011	<i>Ratio 1:8</i>
3.054.0010	<i>Ratio 1:5</i>

