KURT WORKHOLDING

KHP3 HYDRAULIC PUMP

Installation, Use, and Maintenance Manual

ENGLISH

TABLE OF CONTENTS

IDENTIFICATION PLATE

Please also ensure that the pump's serial number, and RGA number is attached to the paperwork.

Purchase Date: _____ - _____ - _____

Purchase Order: _____

Purchased From: _____

Delivery Date: _____

Serial No.: _____

NOTE: PLEASE REGISTER YOUR WARRANTY ONLINE AT KURTWORKHOLDING.COM

INTRODUCTION

This handbook is intended to give the operator the basic instructions for the use and maintenance of the pump. The 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 Kurt Manufacturing. Regular servicing and correct use of the pump are fundamental in obtaining optimum performance over its life. When contacting us, specify the pump model and serial number; this will help us to respond quickly and effectively.

GUARANTEE

Kurt Manufacturing 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 have an RGA (Return Goods Authorization from Kurt) and sent to Kurt Manufacturing in Minneapolis, Minnesota freight pre-paid. Any pump returned to us must be accompanied by a full written description of such faults or defects as have been discovered.

INSTALLATION GUIDE

Pumps should be installed in a vertical position for optimum functioning of suction and delivery valves. Airlines should be 1⁄4" bore. This air-operated pump will require a pneumatic four-way valve to direct air to the pump or the air-operated pressure to tank line. It may be useful in certain applications to add lubrication oil to the air inlet. If this action is taken, the following specifications are 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

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 follow requirements. Bear in mind the minimum of 1⁄4" bore.

APPLICATION

Kurt Manufacturing air driven hydraulic pumps are designed for operating oil hydraulic circuits. The pump operates simply, a large surface area piston actuated by compressed air. Attached to it is a piston with a smaller surface area in a hydraulic chamber generating high hydraulic pressures. The continuous pumping action is produced by the compressed air being switched by a special valve assembly and regulating the air pressure from 30 psi to 100 psi. 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.

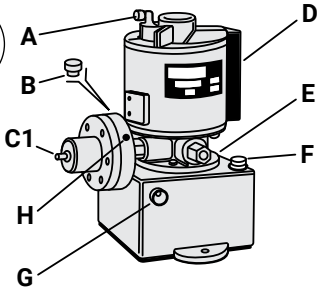
DISPOSAL

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 Filler/Breather
C1	Release Pressure Setting
D	Exhaust Filter
E	Oil outlet 1⁄4" NPT
F	Additional Oil Return Port 1/4" BSPP
G	Oil level sight glass
H	Air Pilot 1/8" NPT

Fig.1



AIR OPERATED PRESSURE RELEASE VALVE

Pressurized oil from the system will be released internally back to tank when pilot air pressure is applied to the 1/8” NPT connection shown here as H.

Commonly, a small pneumatic valve will be used to direct regulated air pressure either to the pump or to the pressure release valve. In this way, the pump is started with the system intact and stopped with the oil pressure vented safely to tank. Varieties of pneumatic valve may be used including solenoid and lever, allowing the power unit to be situated away from the operator.

The adjustment (C1) may be needed when the pilot air pressure is low or if the required oil pressure is at the highest level. Adjusting the screw inward will hold the valve shut with more force but will also require more pilot air pressure to release it.

STARTING UP

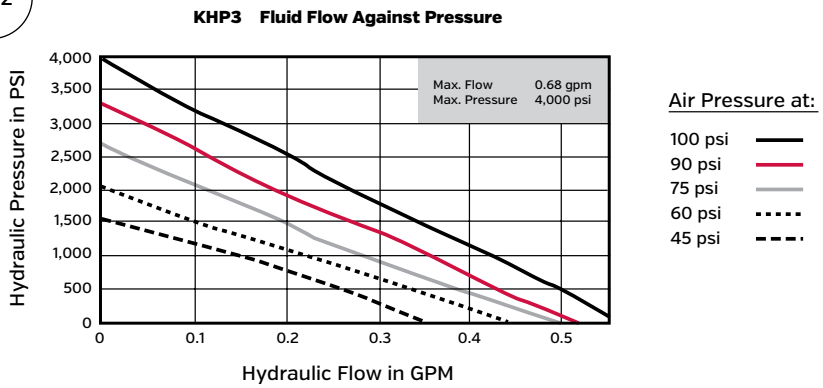
Oil pressure can be determined by regulation of the compressed air, bearing in mind of course the multiplication ratio pre-selected for the pump itself. The KHP3 pump's RATIO is 1:40.

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, allows 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.

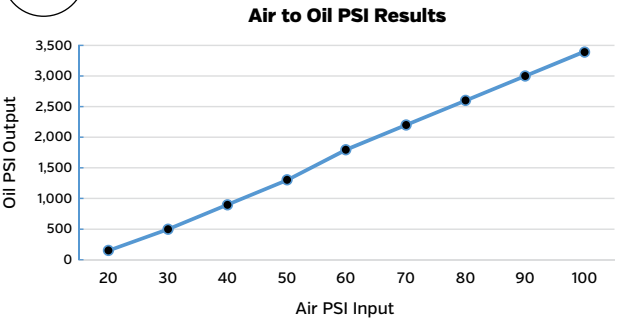
Fig.2

Flow and Pressure Performance Guides



AIR PSI INPUT	OIL PSI OUTPUT
20	150
30	500
40	900
50	1,300
60	1,800
70	2,200
80	2,600
90	3,000
100	3,400

Fig.3



MAINTENANCE

Periodically release the condensation from the air filter. Replace the hydraulic oil every 1,500 hours or whenever the oil is polluted.

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

TROUBLESHOOTING GUIDE

Issue	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 in the airline.
	1.2] Formation of ice on the exhaust side.	1.2] Shut off pump for a short time and drain off water from the filter.
	1.3] Accumulation of waste in the silencer.	1.3] Remove silencer, clean or 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.	5.1] Find leak source and change valve
	5.2] Suction valve seats damaged and leaking.	5.2] Replace suction valve parts.
	5.3] Output valve seats damaged and leaking.	5.3] Replace output valve parts.
	5.4] Worn oil seal.	5.4] Replace seal.

CONTENTS OF THE PACKAGE

The packaging will always contain the following:

1 x air driven hydraulic pump W/FRL attached

1 x installation, use and maintenance manual

1 x KHP-KIT* Vise Fitting Kit (See page 9)

HAND OPERATED

KHP3H Complete Pump and Kit
KHV-71 Hand Valve
KHV-109 Tubing

Fig.4

KHP3H Complete Pump and Kit

FOOT OPERATED

KHP3F Complete Pump and Kit
KHV-108 Foot Valve
KHV-109 Tubing

Fig.5

KHP3F Complete Pump and Kit

ORIGINAL SPARE PARTS

Parts orders must always be accompanied by the following information:

A) The Pump Model

B) The Pump Serial Number (given on the nameplate)

C) The Part Numbers

D) The Quantity Required

E) The Name of the Part (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.

***KHP-KIT Includes: (See Fig.6)**

APD60-109-2	1/8" NPT to #4 JIC
APD60-109-1	1/4" NPT to #4 JIC
APD50-309	SAE-ORB (7/16-20) to #4 JIC
9059-06-04	90° 1/4" BSPP to #6 JIC (for reservoir)

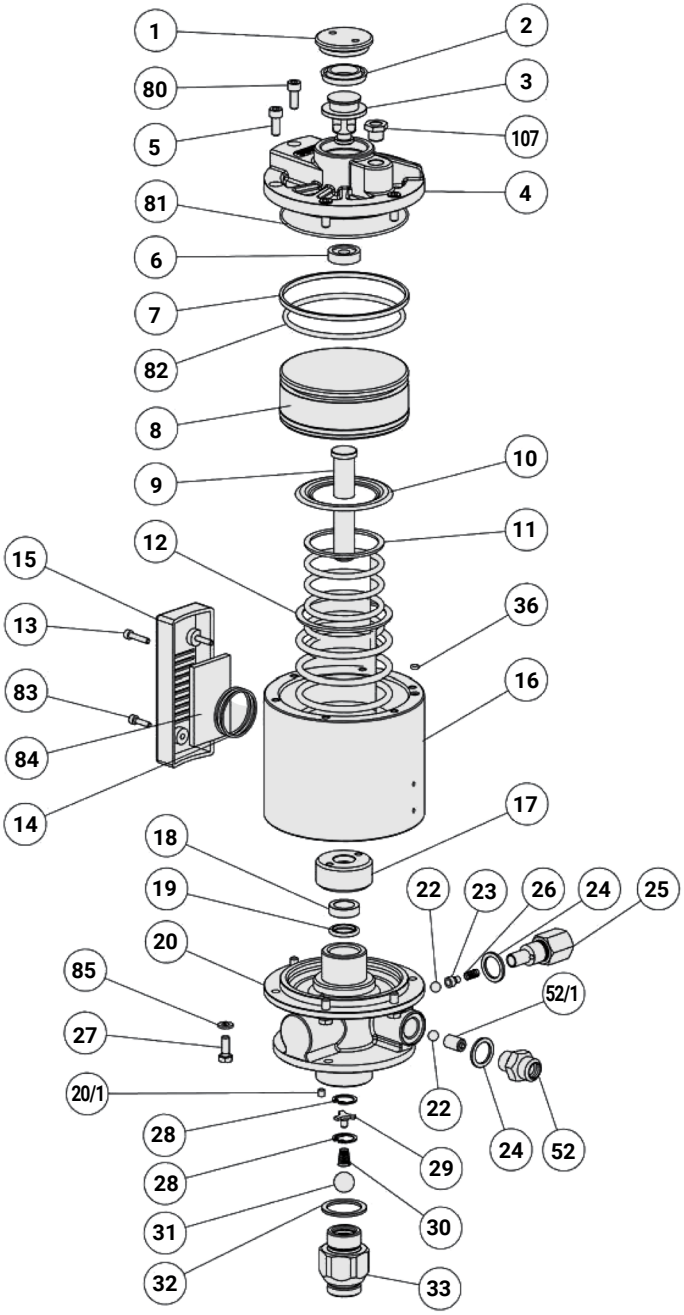
Fig.6

KHP3 PARTS LIST

ITEM#	PART#	DESCRIPTION	QTY.
1	5.084.0001	PLUG	1
2*	3.053.0101	SEAL RING	1
3	5.068.0067	PISTON	1
4	5.034.0097	HEAD	1
5	3.094.0008	SCREW	5
6*	5.050.0001	RUBBER	1
7*	3.051.0073	SEAL RING	2
8	5.068.0044	PISTON	1
9	5.068.0041	PISTON - RATIO 1:40	1
10	5.034.0002	Disk - RATIO 1:40	1
11	5.064.0024	SPRING	1
12	5.064.0025	SPRING	1
13	3.094.0006	SCREW	2
14	5.064.0026	SPRING	1
15	5.093.0001	SILENCER	1
16	5.018.0029	JACKET	1
17	5.034.0005	RING-NUT - RATIO 1:40	1
18	5.014.0013	BUSHING - RATIO 1:40	1
19*	3.051.0069	SEAL RING - RATIO 1:40	1
20	5.028.0018	PUMP BODY - RATIO 1:40	1
20/1	3.041.0010	FILTER	1
22	3.076.0011	BALL	2
23	5.046.0001	CENTERING	1
24*	3.052.0003	WASHER	2
25	5.071.0026	OUTLET CONNECTOR	1
26	5.064.0022	SPRING	1
27	3.094.0203	SCREW	6
28	3.006.0003	SEGER	2
29	5.046.0002	CENTERING	1
30	5.064.0023	SPRING	1
31	3.076.0010	BALL	1
32	* 3.052.0005	WASHER	1
33	5.071.0003	SUCTION CONNECTOR	1
36	* 3.051.0002	O-RING	1
52	5.094.0305	COUPLING	1
52/1	3.094.0403	SCREW	1
80	3.094.0009	SCREW	1
81*	3.051.0072	O-RING	1
82*	3.051.0039	O-RING 2	8
83	3.094.0007	SCREW	1
84	5.041.0005	FILTER	1
85	3.072.0103	WASHER	6
107	5.034.0054	CONNECTOR	1
	Seal Kit KHP3-KIT		8

KHP3 MECHANICAL DRAWING

Fig.7

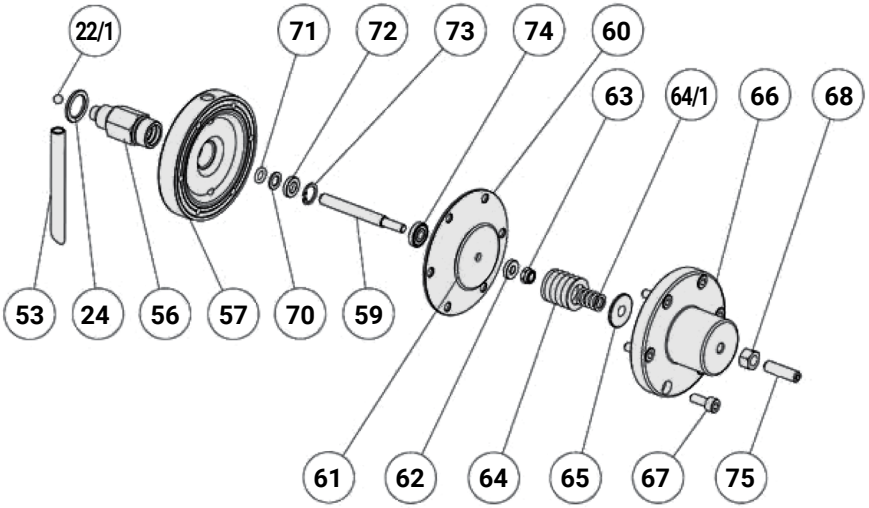


KHP3 SPARE PARTS AND SEAL KITS

ITEM#	PART#	DESCRIPTION	QTY.
22/1	3.076.0012	Ball	1
24	3.052.0003	Washer	1
53	5.090.0002	Pipe	1
56	5.094.0306	Coupling	1
57	5.034.0098	Head	1
59	5.011.0001	Pivot	
60	5.050.0002	Air Diaphragm	1
61	5.008.0010	Disk	1
62	5.008.0011	Washer	1
63	3.031.0051	Nut	1
64	5.064.0027	Spring	1
64/1	5.064.0003	Spring	1
65	5.033.0001	Disk	1
66	5.086.0005	Head	1
67	3.094.0008	Screw	6
68	3.031.0004	Nut	1
70	3.005.0024	Seal Ring	1
71	3.051.0198	O-Ring	1
72	5.014.0049	Bushing	1
73	3.006.0023	Snap Ring	1
74	5.008.0012	Washer	1
75	3.094.0404	Screw 1	1

KHP3 SPARE PARTS AND SEAL KITS MECHANICAL DRAWING

Fig.8



MAINTENANCE LOG/NOTES:

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KURT WORKHOLDING

Thank you for your purchase! If you have any feedback or questions please contact us:

Kurt Industrial Products // A Division Of Kurt Manufacturing

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