

INSTRUCTION MANUAL AND REPAIR
PARTS LIST FOR MH39 HIGH PRESSURE PUMP

Aug. 1/87

GENERAL OPERATING INSTRUCTIONS

1. Never run the pump dry.
2. Do not use rusty supply barrels.
3. Make sure suction strainer is always clean.
4. Maximum operating pressure is 600 P.S.I.

FLOW RATES AND HORSEPOWER REQUIREMENTS

The MH39 is a positive displacement pump; therefore, the pump delivery is directly proportional to the speed regardless of pressure. Pump output is 3.5 U.S.G.P.M. per 100 R.P.M.

<u>ELECTRICAL HORSEPOWER REQUIREMENTS @ P.S.I.</u>						
<u>R.P.M.</u>	<u>G.P.M.</u>	<u>200</u>	<u>300</u>	<u>400</u>	<u>500</u>	<u>600</u>
200	7.0	1.40	1.93	2.30	2.75	3.30
300	10.5	2.00	2.90	3.50	4.10	4.90
400	14.0	2.80	3.80	4.75	5.50	6.60
500	17.5	3.50	4.80	5.95	6.80	8.30
600	21.0	4.30	5.80	7.10	8.25	10.00
700	24.5	5.00	6.40	7.80	9.30	11.00
800	28.0	5.75	7.00	8.50	10.60	13.70

LUBRICATION-OIL

New pumps are lubricated prior to shipping but are shipped without oil. Prior to running fill crankcase with oil to halfway mark. Generally the following instructions should be followed:

1. Change the oil in crankcase as required.
2. Use only a non-foaming, non-detergent #1 compressor oil, not a heavy duty detergent motor oil.

LUBRICATION-GREASE

Proper greasing is most important for proper pump operation and maintenance of pressure. This is especially important if hot water is used. Use a good high temperature water pump grease.

PRIMING

The pump is self priming with suction heads up to 10 feet. If difficulty is experienced in priming remove the suction line and hold a water hose under pressure to the suction inlet so that the piston chamber receives some water.

PIPING

SUCTION PLUMBING MUST BE AIR TIGHT

The suction connection is located at the centre of the pump just beneath the air chamber. A suction strainer should always be used with the pump.

The suction inlet is located at the side of the suction chamber. By moving the end plate around the inlet can be changed from right to left.

PRESSURE PIPING

There are 3 pressure outlets. Two of these have a 1/2 inch outlet, the other has a 1 inch outlet.

Pipe dope or teflon tape should be used on all high pressure joints.

A good high pressure hose is recommended for use at high pressure.

INLET AND OUTLET THREADS

All inlet and outlet threads are N.P.T.

BY-PASS AND PRESSURE REGULATING VALVE

The pump comes equipped with a by-pass and pressure regulating valve (unless specifically ordered without it). This valve is located at the side of the suction chamber and has a lever (3943D) for removing the pressure entirely and a screw top (3943A) for regulating the pressure. Turning the screw top down increases output pressure - turning the screw top up reduces output pressure.

This valve also acts as a by-pass valve and if desired the hose which is connected to the outlet side of this valve may be returned to the supply tank so that excess fluids may be reused. When used in this manner, the gun must be opened and pressure released every few minutes or the pump will become overheated and ruin packings and seals.

NOTE: When using an unloader valve the regulator top (3943A) should be screwed down so that no water flows through the regulating valve. The pressure is then regulated by the unloader valve.

V PACKING

The V packings into which the pistons operate are made of BUNA-N and Duck and are spring loaded.

THE FOLLOWING APPLIES TO PUMPS WITH STAINLESS STEEL PISTONS:

At all times, when replacing V packings, the condition of the pistons should be checked. If in good condition, with only minor surface scratches, they should be hand repolished. If badly scratched or worn they should be repolished on a lathe.. Worn pistons will cause a loss of pressure. Deeply grooved pistons will leak and cut the V packings. Pumps having ceramic pistons cannot be polished.

MATERIALS HANDLED

As the pump has stainless steel pistons (or ceramic pistons) stainless steel valves and an all bronze body it will normally handle a very wide range of abrasive, acidic or caustic materials. However, after running any material which might attack the above materials or the V packing, the pump should be flushed immediately with clear water for 5 to 10 minutes.

PUMP DISASSEMBLY & REPAIR

REPLACEMENT OF PACKINGS

Remove crankcase nuts (3927) and pull entire fluid end of pump forward over the pistons. With fluid end free, remove old packings and wash head thoroughly. Wash gland nuts and position properly. Replace packed head over pistons and work it into place by moving pistons back and forth, with a pulley on the crankshaft. Once in place tighten crankcase nuts. Pistons and packings should be well greased before reassembling the head to the crankcase.

REPLACEMENT OF VALVES (3937)

Remove chamber bolts. Entire suction chamber can now be lifted off and valves serviced.

NOTE: It is essential that the proper size O-rings be used in the 2 grooves on each valve. They must also be well seated in the groove so that on tightening the piston chamber bolts, they are not squeezed out of the grooves.

REPAIR TO VALVES (3937)

The entire valve can be disassembled by tapping down on the valve disc and forcing the valve cover (3937B) off the valve seat (3937F). To reassemble place parts in order and squeeze together gently in a vise.

NOTE:

Do not hold valve seat (3937F) in a vise so as to burr or distort this part as sealing depends upon this part being free of all burrs and distortion.

REPAIR TO BY-PASS AND PRESSURE CONTROL VALVE

The entire valve can be disassembled for service by removing the two retaining bolts (3943F). Make sure all parts are placed back in same order on reassembly.

DISASSEMBLY OF POWER END FOR REPLACEMENT OF BEARINGS, CRANKSHAFT, CONNECTING RODS AND PISTONS

Remove back cover (398) exposing connecting rods. Remove connecting rod bolts (3920) and push connecting rods forward through oil seals so that crankshaft is free. Do not mix up con rod caps. They must be replaced in exact order that they were removed. Remove bearing cover screws and tap crankshaft through oil seal at one end so entire crankshaft can be removed. Make appropriate repairs and reassemble.

WINTER STORAGE:

If the pump is to be exposed to freezing weather the entire pump should be drained or a mixture of anti freeze run through the pump.

IMPORTANT: TO OBTAIN MAXIMUM PERFORMANCE, DRIVE BELTS MUST BE TIGHT AT ALL TIMES.

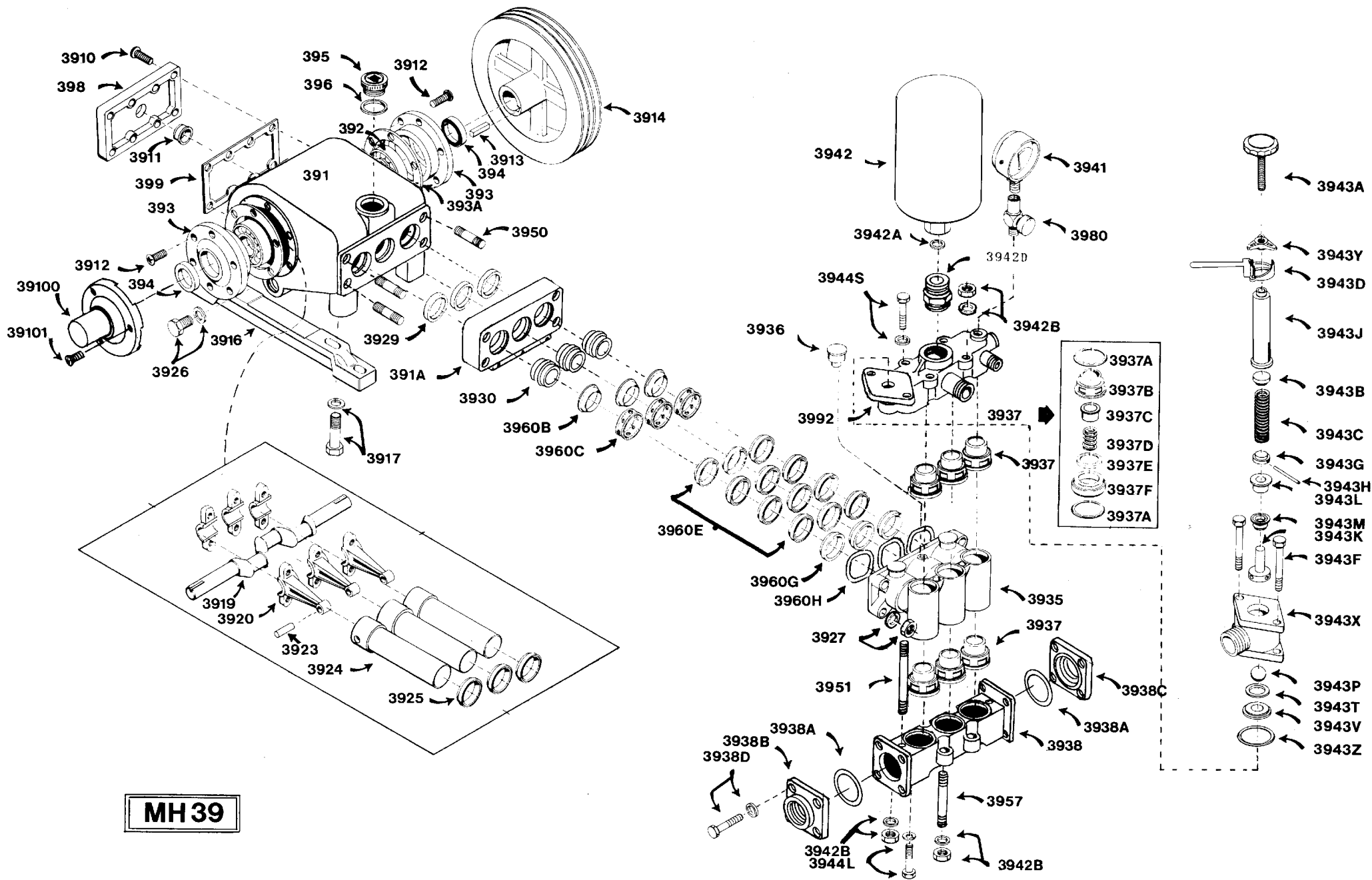
REPAIR PARTS - MH39 PUMP

Aug. 1/87

<u>PART #</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
391	Crankcase	1
391A	Crankcase Extension	1
392	Ball Bearing	2
393	Bearing Cover	2
393A	Gasket	2
394	Crankshaft Oil Seal	2
395	Oil Filler Cap	1
396	Oil Cap Gasket	1
398	Back Cover	1
399	Back Cover Gasket	1
3910	Back Cover Screws	8
3911	Oil Gauge Window	1
3912	Bearing Cover Screws	12
3913	Pulley Key	1
3914	12" Pulley	1
3915	Set Screw	2
3916	Pump Rail	2
3917	Bolt & Washer	4
3919	Crankshaft	1
3920	Connecting Rod Complete	3
3923	Piston Pin	3
3924	Piston	3
3925	Piston Wiper	3
3926	Oil Plug & Washer	2
3927	Crankcase Nut & Washer	4
3929	Piston Seal	3
3930	Gland Nut	3
3935	Piston Chamber	1
3936	Grease Cup	3
3937	Complete Valve	6
3937A	Valve O Ring	12
3937B	Valve Cover	6
3937C	Valve Spring Seat	6
3937D	Valve Spring	6
3937E	Valve Disc	6
3937F	Valve Seat	6
3938	Suction Chamber	1
3938A	Suction Part O Ring	2
3938B	Blank Cover Plate	1
3938C	Suction Inlet Plate - Threaded	1
3938D	Suction Plate Bolts	8
3941	Gauge 0 to 1000 PSI	1
3942	Air Chamber	1
3942A	Air Chamber Gasket	1
3942B	Chamber Nut & Washer	2
3943	Complete Control Valve	1
3943A	Pressure Adjusting Cap	1
3943B	Upper Spring Seat	1
3943C	Spring	1
3943D	Lever	1
3943F	Retaining Bolts - S.S.	2

<u>PART #</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
3943G	Lower Spring Seat	1
3943H	Seat Pin	1
3943J	Spring Case	1
3943K	Control Spindle	1
3943L	Spindle Cage	1
3943M	Diaphragm	1
3943P	Control Ball	1
3943T	Seat Packing	1
3943V	Control Seat	1
3943X	Control Seat Case	1
3943Y	Control Stop	1
3943Z	Control Case O Ring	1
3944L	Chamber Bolt & Washerlong	2
3944S	Chamber Bolt & Washer (short)	2
3950	Crankcase Studs	4
3951	Chamber Studs (long)	2
3960	Packing Kit	1
3960B	Buna-N Flange	3
3960C	Grease Ring	3
3960E	Buna-N V-Packing	12
3960G	Bottom Adaptor	3
3960H	Wave Spring	3
3942D	Air Chamber Adaptor	1
3980	Needle Valve	1
3990	Belt Tension Bolt	2
3992	Discharge Chamber	1
39100	Crankshaft Protector	1
39101	Crankshaft Protector Screws	3

* * * * * WARRANTY * * * * *
 *
 * Based on the logical assumption that manufacturing and *
 * material deficiencies will manifest themselves within 90 *
 * days time, all MH39 power sprayers are guaranteed 90 days *
 * from date of purchase, by the original purchaser, against *
 * defective material and workmanship (but not against dam- *
 * age or wear caused by misuse, abrasion, negligence, *
 * accident, faulty installation, or tampering in a manner *
 * to impair its normal operation) when the equipment is in- *
 * stalled and operated in accordance with factory recommen- *
 * dations and instructions. *
 *
 * All such defective parts will be repaired or replaced *
 * free of charge if returned prepaid to the factory or *
 * authorized service depot. In all cases within the guar- *
 * antee period where examination indicates damage due to *
 * causes other than defectiveness repairs will be made at a *
 * reasonable charge. *
 * * * * *



MH 39