

INSTRUCTION MANUAL AND REPAIR
PARTS LIST FOR Y51CN HIGH PRESSURE PUMP

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 850 P.S.I.

FLOW RATES AND HORSEPOWER REQUIREMENTS

The Y51CN is a positive displacement pump; therefore, the pump delivery is directly proportional to the speed regardless of pressure. Pump output is .62 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>100</u>	<u>200</u>	<u>300</u>	<u>400</u>	<u>500</u>	<u>600</u>	<u>700</u>	<u>800</u>
200	1.10	.125	.226	.288	.357	.416	.500	.547	.624
300	1.65	.187	.341	.431	.535	.747	.750	.820	.935
400	2.20	.250	.454	.577	.713	.834	1.000	1.090	1.250
500	2.75	.312	.567	.720	.890	1.040	1.250	1.365	1.560
600	3.3	.374	.680	.864	1.066	1.243	1.500	1.640	1.870

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 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.

PIPINGSUCTION 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.

PRESSURE PIPING

There are 3 pressure outlets. The ones normally used are located on either side of the suction inlet and take a standard 3/8" male pipe thread. If only one is used the other should be capped with a 3/8" plug. A good pipe dope or teflon tape should be used on all pressure piping.

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

INLET AND OUTLET THREADS

All threads are N.P.T.

BY-PASS AND PRESSURE REGULATING VALVE (51CN43)

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 (51CN43D) for removing the pressure entirely and a screw top (51CN43A) 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 (51CN43A) should be screwed down so that no water flows through the regulating valve. The pressure is then regulated by the unloader valve.

PRELOADED V PACKINGS - SELF-ADJUSTING

The V packings into which the pistons operate are made of BUNA-N and Duck and will have a long life under normal operating conditions. These packings are preloaded by means of the Spring (5143C) and are self adjusting.

NOTE:

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.

MATERIALS HANDLED

As the pump has stainless steel 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 metals 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 (5127) and pull entire fluid end of pump forward over the pistons. With fluid end free, remove old packings and wash head thoroughly. Insert new packings in proper order and screw gland nut into piston chamber firmly (but do not overtighten) to hold packings in place. Replace head over pistons and work it into place by moving pistons back and forth, with a pulley on the crankshaft. Once in place tighten the crankcase nuts and tighten the gland nuts with the tool provided so that there are no leaks. It is a good idea to run grease over the pistons and packings before reassembling the head to the crankcase.

REPLACEMENT OF VALVES (5137)

Remove Chamber bolts (5144). Entire suction chamber can now be lifted off and valves service.

NOTE: 3 back valves face downward
3 front valves are face upward

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 (5137)

The entire valve can be disassembled by tapping down on the valve disc and forcing the valve cover (5137B) off the valve seat (5137F). All parts are available for replacement. To reassemble place parts in order and squeeze together gently in a vise.

NOTE:

Do not hold valve seat (5137F) 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 (5143F). 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 (51CN8) exposing connecting rods. Remove connecting rod bolts (5120) 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 - 51CN PUMP

August 1/85

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
51CN1	Crankcase	1
512	Ball Bearing	2
513	Bearing Cover	2
513A	Gasket	2
514	Crankshaft Oil Seal	2
515	Oil Filler Cap	1
516	Oil Cap Gasket	1
51CN7	Piston Cover	1
51CN8	Back Cover	1
51CN9	Back Cover Gasket	1
5110	Back Cover Screws	6
5111	Oil Gauge Window	1
5112	Bearing Cover Screws	8
5113	Pulley Key	1
5114	8" Pulley	1
5115	Set Screw	1
5116	Pump Rail	2
5117	Bolt & Washer	4
5119	Crankshaft	1
5120	Connecting Rod Complete	3
5123	Piston Pin	3
5124	Piston	3
5125	Piston Wiper	3
5126	Oil Plug Washer	1
5127	Crankcase Nut & Washer	2
5129	Piston Seal	3
51CN30	Gland Nut	3
51CN35	Piston Chamber	1
5136	Grease Cup	3
5137	Complete Valve	6
5137A	Valve O Ring	12
5137B	Valve Cover	6
5137C	Valve Spring Seat	6
5137D	Valve Spring	6
5137E	Valve Disc	6
5137F	Valve Seat	6
5138	Suction Chamber	1
5139	Cap & Packing	1
5141	Gauge 0 to 1500 PSI	1
5142	Air Chamber	1
5142A	Air Chamber Gasket	1
51CN43	Complete Control	1
51CN43A	Pressure Adjusting	1
51CN43B	Upper Spring Seat	1
5143C	Spring	1
51CN43D	Lever	1
51CN43E	Lever Bolts	2
5143F	Retaining Bolts - S.S.	2

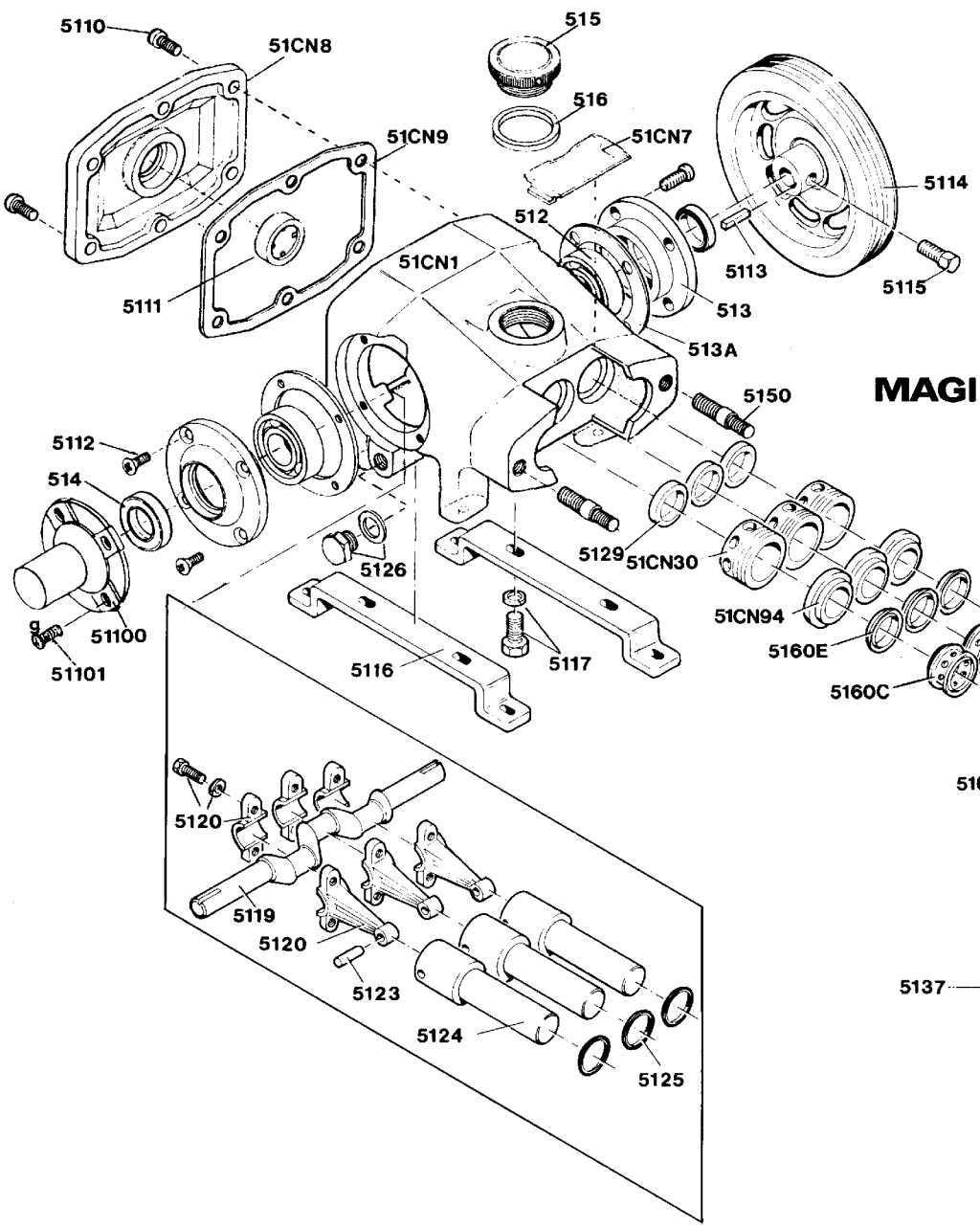
<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
51CN43G	Lower Spring Seat	1
51CN43H	Seat Pin	1
51CN43J	Spring Case	1
51CN43K	Control Spindle	1
5143L	Spindle Cage	1
5143M	Diaphragm	1
5143P	Control Ball	1
51CN43T	Control Seat O-Ring	1
5143U	Control Shield Packing	1
51CN43V	Control Seat	1
5143W	Diaphragm Shield	1
5143X	Control Seat Case	1
5143Z	Control Case O Ring	1
5144L	Chamber Bolt & Washer (long)	4
5144S	Chamber Bolt & Washer (short)	4
5150	Crankcase Studs	2
5160	Packing Kit	1
5160C	Grease Ring	3
5160E	Buna-N V-Packing	15
51CN60G	Bottom Adaptor	3
51CN60H	Packing Spring	3
5171	NPT/Hose Adaptor	1
5172	3/8" - 90 degree Elbow	1
5180	Needle Valve	1
5191	3/8" NPT Plug	1
51CN94	Packing Washer	3
51100	Crankshaft Protector	1
51101	Crankshaft Protector Screws	4

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W A R R A N T Y
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* Based on the logical assumption that manufacturing and
* material deficiencies will manifest themselves within 90
* days time, all 51CN power sprayers are guaranteed for 90
* days from date of purchase, by the original purchaser
* against defective material and workmanship (but not against
* damage or wear caused by misuse, abrasion, negligence,
* accident, faulty installation, or tampering in a manner to
* impair its normal operation) when the equipment is installed
* and operated in accordance with factory recommendations 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 guarantee period
* where examination indicates damage due to causes other than
* defectiveness repairs will be made at a reasonable charge.

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- 5137A
- 5137B
- 5137C
- 5137D
- 5137E
- 5137F
- 5137A

