

INSTRUCTION MANUAL AND REPAIR
PARTS LIST FOR Y81CN 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 600 P.S.I.

FLOW RATES AND HORSEPOWER REQUIREMENTS

The Y81CN is a positive displacement pump; therefore, the pump delivery is directly proportional to the speed regardless of pressure. Pump output is .50 U.S.G.P.M. per 100 R.P.M.

R.P.M.	<u>ELECTRICAL HORSEPOWER REQUIREMENTS @ P.S.I.</u>						
	<u>G.P.M.</u>	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>	<u>500</u>	<u>600</u>
200	1.00	.115	.208	.265	.237	.383	.460
300	1.50	.172	.344	.401	.491	.573	.688
400	2.00	.230	.416	.535	.655	.765	.915
500	2.50	.280	.520	.660	.817	.955	1.145
600	3.00	.343	.625	.700	.980	1.145	1.370

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 (81CN43)

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 (81CN43D) for removing the pressure entirely and a screw top (81CN43A) 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 (81CN43A) 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 (81CN60H) 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 (81C27) 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 (81C37)

Remove Chamber bolts (81C44L). 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 (81C37)

The entire valve can be disassembled by tapping down on the valve disc and forcing the valve cover (81C37B) off the valve seat (81C37F). 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 (81C37F) 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 (81C43F). 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 (81CN8) exposing connecting rods. Remove connecting rod bolts (81C20) 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 - Y81CN PUMP

June/85

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
81CN1	Crankcase	1
81C2	Ball Bearing	2
81C3	Bearing Cover	2
81C3A	Gasket	2
81C4	Crankshaft Oil Seal	2
81C5	Oil Filler Cap	1
81C6	Oil Cap Gasket	1
81CN7	Piston Cover	1
81CN8	Back Cover	1
81CN9	Back Cover Gasket	1
81C10	Back Cover Screws	6
81C11	Oil Gauge Window	1
81C12	Bearing Cover Screws	8
81C13	Pulley Key	1
81C14	8" Pulley	1
81C15	Set Screw	1
81C16	Pump Rail	2
81C17	Bolts & Washers	4
81C19	Crankshaft	1
81C20	Connecting Rod Complete	3
81C23	Piston Pin	3
81C24	Piston	3
81C26	Oil Plug & Washer	1
81C27	Crankcase Nut Washer	2
81C29	Piston Seat	3
81CN30	Gland Nut	3
81CN35	Piston Chamber	1
81C36	Grease Cup	3
81C37	Complete Valve	6
81C37A	O-Ring	12
81C37B	Valve Cover	6
81C37C	Valve Spring Seat	6
81C37D	Valve Spring	6
81C37E	Valve Disc	6
81C37F	Valve Seat	6
81C38	Suction Chamber	1
81C39	Cap & Packing	1
81C41	Gauge 0 to 1000 PSI	1
81C42	Air Chamber	1
81C42A	Air Chamber Gasket	1
81CN43	Complete Control Valve	1
81CN43A	Pressure Adjusting Cap	1
81C43B	Upper Spring Seat	1
81C43C	Spring	1
81CN43D	Lever	1
81CN43E	Bolts	1
81C43F	Retaining Bolts - S.S.	2

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>NO. OF PARTS</u>
81CN43G	Lower Spring Seat	1
81CN43H	Seat Pin	1
81CN43J	Spring Case	1
81CN43K	Control Spindle	1
81C43L	Spindle Cage	1
81C43M	Diaphragm	1
81C43P	Control Stem	1
81C43T	Seat Packing	1
81C43V	Control Seat	1
81C43X	Control Seat Case	1
81C43Z	Control Case O-Ring	1
81C44L	Chamber Bolt & Washer(Long)	4
81C50	Crankcase Studs	2
81C60	Packing Kit	1
81C60C	Grease Ring	3
81C60E	Buna-N V-Packing	15
81CN60G	Bottom Adaptor	3
81CN60H	Spring	1
81C80	Needle Valve	1
81C91	3/8" NPT Plug	1
81C94	Packing Washer	3
81C100	Crankshaft Protector	1
81C101	Crankshaft " 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 Y81CN 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.
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 * 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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