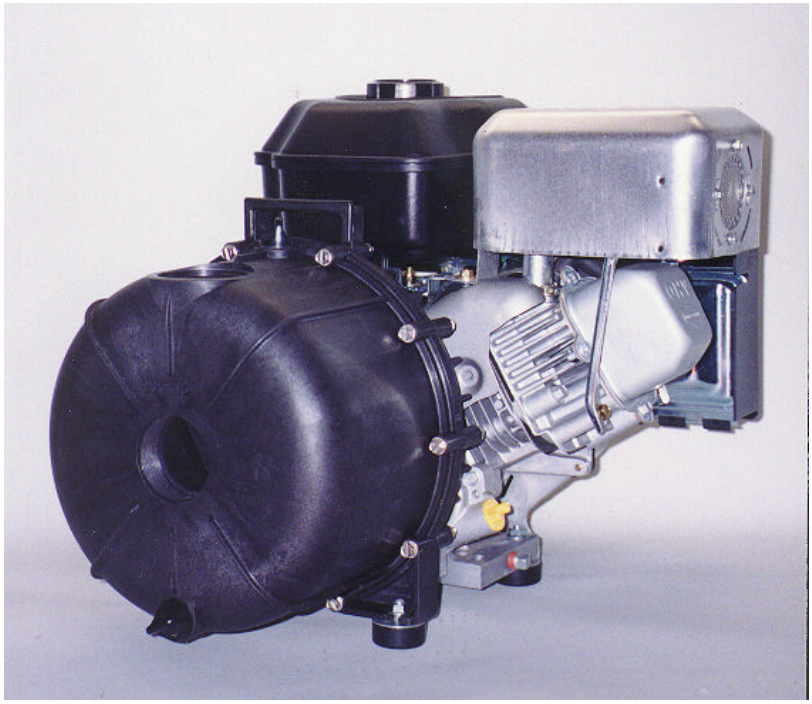
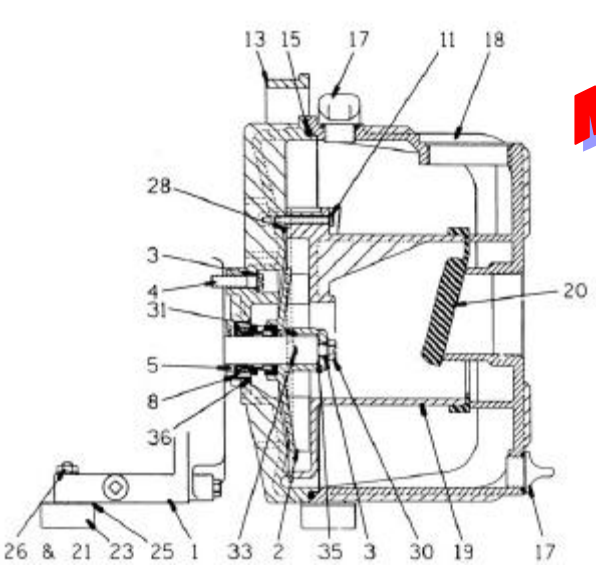
Owner's Manual

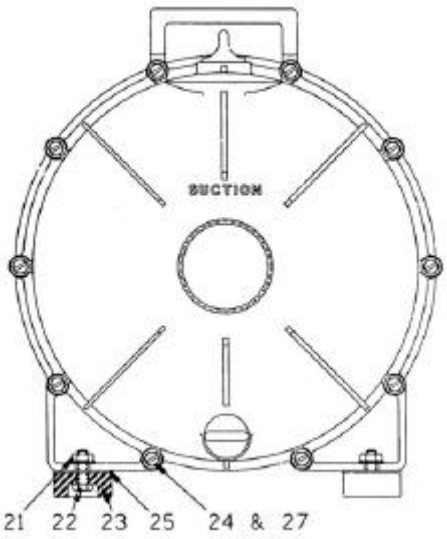
Model 2A3, 2A5

OPERATION AND MAINTENANCE OF SELF-PRIMING PLASTIC PUMP





Model 2A3 2A5



Reference #	*Part Description*	Qty	Part No.
1	¾ Keyway Shaft Engine	1	3.5HP/5.5HP
1 Opt	¾ Keyway Pedestal	1	35-320-C
2	Impeller 2A3, 2A5	1	2-502
3	O-Ring Screw EPDM	5	12-506
3 Alt	O-Ring Screw Viton®	5	12-506-A
4	Bolt Sm Head 5/16-24 x 1.25 SST	4	18-510-A
5	Slinger Buna	1	12-117-B
8	Shaft Seal Sic-Viton®	1	3-258-A
11	Volute Bolt 10-24 x 1.25 SST	1	18-513
13	Bracket Polyprop Black	1	5-505
15	Body O-Ring EPDM	1	12-508
15 Alt	Body O-Ring Viton®	1	12-508-A
17	Plug & O-Ring Assy EPDM	2	11-116-1
17 Alt	Plug & O-Ring Assy Viton®	2	11-116-1A
18	2” NPT Body Polyprop Black	1	6-503
19	2A Volute Polyprop Black	1	1-520
20	2” Check Valve 2A EPDM	1	7-504
20 Alt	2” Check Valve 2A Viton®	1	7-504-A
21	Locknut 5/16 Steel	4	14-167
22	Bolt 5/16 x 3/4 Steel	2	19-232
23	Rubber Feet	4	29-237
24	Body Bolts .25 x 1.25 SST	10	18-511
25	Flat Washer 5/16 x 1 ½ Steel	4	15-138
26	Bolt 5/16 x 1 ½ Steel	2	19-238
27	Hex Nut .25 SST	10	14-310
28	Volute O-Ring Segment EPDM	1	13-509
28 Alt	Volute O-Ring Segment Viton®	1	13-509-A
30	Impeller Bolt 5/16-24 x .75 SST	1	18-512
31	Key 3-16 x 1 SST	1	24-515
33	Volute Screw 6-32 x ½	2	20-514
35	Shim Set of 4	1	22-253-1
36	Seal O-Ring EPDM	1	12-507
36 Alt	Seal O-Ring Viton®	1	12-507-A
Not Shown	Strainer 2” GP	1	44-214
Not Shown	Seal & O-Ring Repair Kit EPDM	1	50-008
Not Shown	Seal & O-Ring Repair Kit Viton®	1	50-008-A
Not Shown	2” NPT Elbow Poly	1	27-368
Not Shown	2” NPT Nipple Poly	2	27-369
Opt	Roll Cage	1	30-118-1
Opt	Wheel Kit	1	55-356

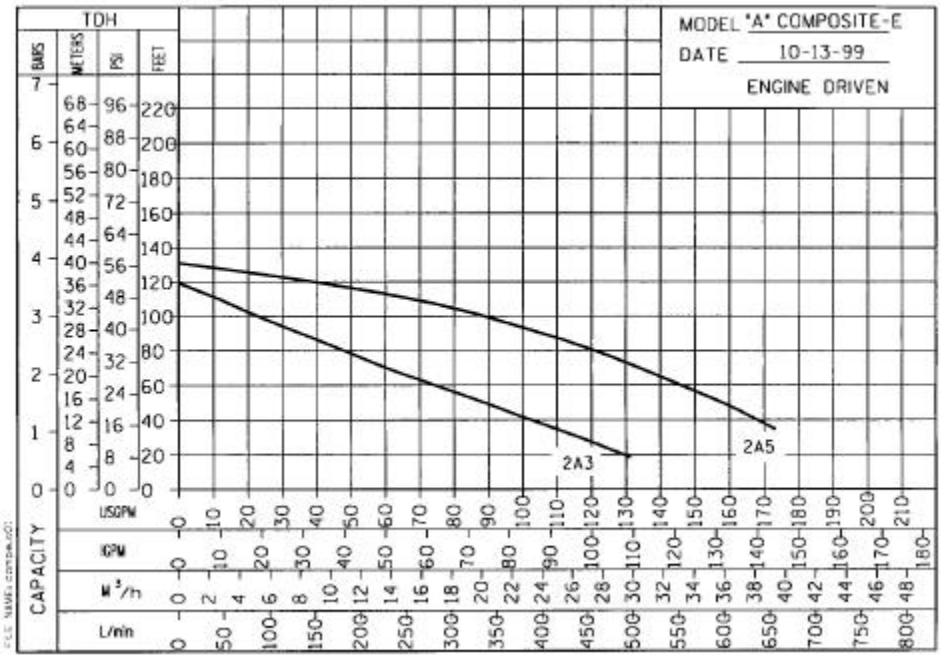
When ordering repair parts, always give the following information:

1. Identify pump model number.
2. Part name and number (not illustration number).
3. Quantity required.
4. Material specifications if other than standard.

Seal and o-ring repair kit contains:

- ✓ Body o-ring
- ✓ Sealing o-rings
- ✓ Volute o-ring segment
- ✓ Plugs
- ✓ Shaft seal
- ✓ Seal o-ring
- ✓ Key
- ✓ Check valve

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Repair and Maintenance Instructions
Model 2A3, 2A5

To disassemble pump follow these steps:

1. Remove body bolts (24) and nuts (27).
2. Remove body (18).
3. Remove two stainless screws (33) and stainless bolt (11) and remove volute (19).
4. Follow these instructions for removing the impeller: Remove the hex head screw (30) in the center of the impeller and pry the impeller off the shaft (use two short screwdrivers and pry behind the impeller with the screwdrivers at 3 o'clock and 9 o'clock).
5. If the mechanical seal (8) needs replacing:
    a. With a screwdriver, pry the seal ring and its rubber boot from the back of the impeller.
    b. Remove the pump bracket (rear housing) (13) by removing the four screws (4) with o-rings (3).
    c. To remove the seal assembly (8) from the rear housing, drive out from behind.
6. To replace the seal component in the rear housing, install the o-ring (36) on the seal and press the seal component into the housing by using an arbor press or drill press. Use a short piece of pipe that fits on the small flange of the seal case so that your are not pressing on the delicate, finely finished seal ring. Do not damage the seal face.
7. To replace the seal component in the impeller hub, lubricate the outside of the rubber boot with vegetable oil or soap and press the seal ring and rubber boot into the hub using your thumbs. Be certain the seal ring is all the way down and even with the back of the impeller so that the ring does not wobble when the impeller rotates on the shaft. Do not damage the surface of the seal ring.
8. Re-assemble the pump in the reverse manner from disassembly. Use thread sealant on the four bolts (4) that bolt the bracket to the engine. Set impeller to volute clearance at .015" to .020" by shimming the impeller. An easy way to adjust this clearance is to shim impeller out till it rubs volute and then remove one or two shims.



Warning!! DO NOT USE PUMP IN EXPLOSIVE ATMOSPHERE
DO NOT PUMP VOLATILE OR FLAMMABLE LIQUIDS

Installation and Operation

Inspection – Look over the unit to see that no Parts are missing or broken in shipment. An engine instruction book and pump instruction and parts list are supplied with each pump. Read instruction book carefully.

Placing Pump – Place the pump on a level, firm foundation, putting it near as possible to the level of the liquid, which is to be pumped, but never higher than 25 feet.

Connecting Hose – Connect the hoses or pipe to the pump with a flexible connector at the pump suction and discharge. Fittings screwed to the pump should be sealed with Teflon tape or pipe dope, turned in hand tight and then one full turn with a pipe wrench. Suction hose should be hard-reinforced hose that will not collapse under vacuum. Tighten hose couplings firmly, using the rubber gaskets furnished with the couplings. Hose and pipes must be supported independent of the pump and the pump must not carry their weight. Do not use quick closing valves or any equipment that may cause hydraulic shock in the suction or discharge lines.

Before Starting

1. A suction strainer should be attached to the suction hose or pipe. It is provided with holes or slots small enough to prevent big stones, etc from damaging the impeller. Keep the strainer clean and off the bottom by suspending it or putting the strainer in a bucket.
2. Fill the engine crankcase with oil as specified in the engine manual.
3. Fill the fuel tank with unleaded gasoline or diesel fuel as specified in the engine manual.
4. Fill the pump with liquid through the priming port on the top of the pump case. Remember the pump is selfpriming only when the pump is filled. It will prime and reprime itself without refilling. Refilling is necessary only if the pump has been drained or if the fluid has been lost. Do not run the pump dry.

Starting - Starting the engine, follow instructions in the engine manual.

Warning – Do not use pump in explosive atmosphere. Do not pump volatile or flammable liquid.

Warning – Use extreme caution in handling corrosive liquids. Provide the safeguards, ventilation and safety equipment recommended by the manufacturer of the liquid and/or prescribed by regulatory bodies.
This pump is glass filled polypropylene material with EPDM elastomers and stainless steel internal hardware, optional Viton® elastomers are available. Any liquids pumped must be compatible with these materials.

Priming Time – With a suction lift from 5 to 10 ft., the pump should discharge liquid in less than minute. A suction lift of 25 ft. (at sea level) should not require more than 3 minutes for initial prime. If pumping does not start within this time, shut off engine and check carefully to find the difficulty.
(See TROUBLES AND THEIR CURES.)

Control – On high suction lifts, a higher engine speed is necessary than on low lifts. Reducing engine speed till the discharge rate slows slightly will save fuel and the engine. (See engine manual.)

Check Valve – If discharge line runs vertically more than 30 ft., it is advisable to install a check valve in the discharge line near the pump to stop destructive liquid hammer when the pump is shutdown. If this is done, it may be necessary to vent the top of pump so that air can be expelled during automatic repriming. This air bleed may be accomplished by providing a ¼" line from the top of the pump back to the liquid source. We will not assume any responsibility for damage to the pump if no check valve is used in the discharge line. Properly fueled and lubricated your pump will run without attention.

Draining – During freezing weather, be sure to drain pump when not running. Unscrew the drain plug and drain all the liquid out of the pump.

Storage – When pump is out of service for long periods, drain and store in dry, well-ventilated room. Pull engine hard against compression so that valves will be sealed. (Never run pump dry for more than half a minute or the shaft seal may be damaged.)

Troubles and Their Cures

If difficulties are experienced, in the majority of cases they can be traced to well-known causes. We suggest you check these points first to save needless expense.

If the Pump fails to prime or fails to deliver:

A. Make sure that pump casing is full of cool liquid.
B. If difficulty continues, remove the suction hose, start engine and hold a flat piece of rubber sheet, or other suitable material against the suction inlet. If the pump develops a strong pull against the material, the trouble is not in the pump;. If there is no pull, the shaft seal may need replacing. Check for worn impeller and or volute. Check for clogged impeller.
C. Examine suction hose or pipe connections. Air leaks in the suction line and connection to pump are the most frequent causes of priming trouble. Use new gaskets in hose coupling. New couplings sometimes require two gaskets. Lining of hard rubber suction hose may collapse and clog the hose.
D. Keep pump as close to the level of the liquid being pumped. It will give best performance on suction lifts of 15 feet, and is not guaranteed to handle any lift over 25 feet at sea level.
E. Be sure strainer is not clogged.
F. There are no parts or valves to go out of adjustment. The only requirement is that the pump case is full of liquid.
G. Keep you pump unit clean and properly serviced. Care in this respect will repay in many years of trouble-free operation.

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