

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.

# 3/4-Inch Electric Self-Priming Utility Pump

Refer to form 1806-634-00 for General Operating and Safety Instructions.

## Description

This self-priming (to 20 ft. lift) centrifugal pump is designed to handle many water transfer services such as storm draining, light irrigation, emergency water supply, pressure boosting, swimming pool and spa tub draining, etc. Pump features portable light weight construction with integral carry handle. Unit is equipped with an intermittent duty electric motor which has an 8' power cord and 3-prong grounding plug attached. Also supplied are two 3/4" NPT x 3/4" garden hose adapters and a 3/4" NPT suction strainer. Casing working pressure to 75 psi (517 kPa). Handles liquids from 40° F to 160° F (4° to 71° C). For use with nonflammable, non-abrasive liquids compatible with pump component materials.

Lift pump only by integral carry handle, not by power cord. Disconnect suction and discharge lines before lifting.

## EXTENSION CORDS

Use an extension cord only when necessary. Be sure extension cord is in accordance with proper wire gauge size listed below. Use only UL-listed, 3-wire grounded type cord approved for outside use.

AWG Wire Size				Fuse
#18	#16	#14	#12	Size

Max. Length 10' 50' 100' 160' 15 Amp

**⚠ WARNING** Improper use of an extension cord may result in serious personal injury or death. Never attempt to change electrical plug or alter length of power cord with a splice. Equipment failure or

## Specifications

- Construction . . . . .Cast alum.
- Impeller . . . . .Valox®
- Seal . . . . .Carbon,ceramic, S.S. w/Buna-N elastomers
- Power supply 115VAC, 60 Hz
- Motor . . . . .1/2 HP, 1.0 SF 7500 RPM, ODP, Universal Brush
- Weight . . . . .18 lbs.

## Performance Chart

GPM of Water at Total Head in Feet						Max. Head*
20'	40'	60'	80'	100'	128'	
22gpm	20	16	11	6	6	128'

(\* Shut-off, to convert to psi divide by 2.31.

## Installation

Carefully read all tags, decals, and markings on pump assembly, and perform all duties indicated.

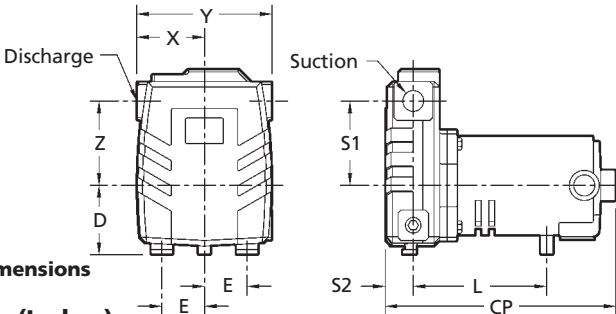


Figure 1 – Dimensions

## Dimensions (Inches)

Suc*	Dis*	CP**	D	E	L	S1	S2	X	Y	Z
3/4"	3/4"	9.59	2.88	1.77	5.55	3.50	1.16	2.81	5.63	3.50

All dimensions have a tolerance of ± 1/8"

(\* Standard NPT (female) pipe thread.

(\*\*) This dimension may vary due to motor manufacturer's specifications.

# 3/4-Inch Electric Self-Priming Utility Pump

## Installation (cont.)

***injury to personnel could result if all connections are not waterproof and compatible with electric current used. Never allow any portion of cord or receptacle ends to sit in water or in damp locations.***

### GARDEN HOSE

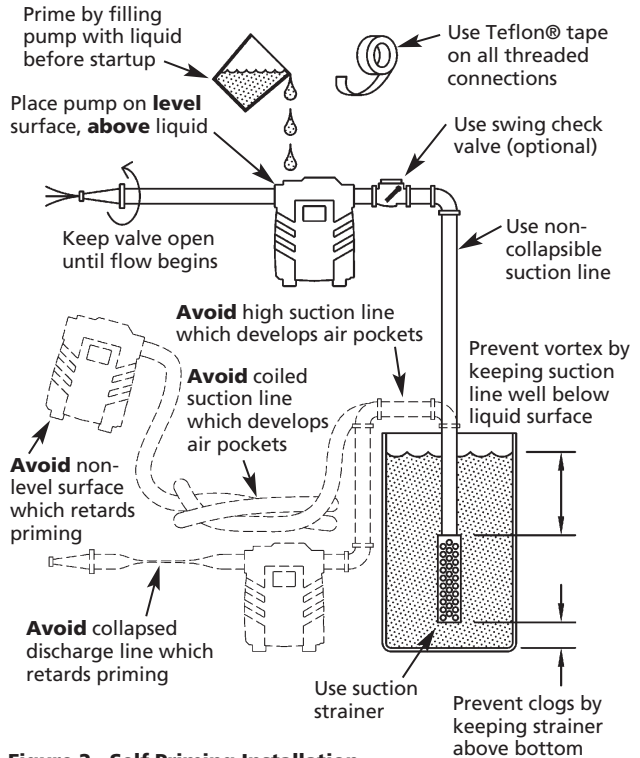
Threaded adapters are furnished for attaching garden hose to pump when conditions permit its use. Suction line may be either galvanized pipe, rigid plastic pipe, or reinforced hose. On self-priming applications ordinary garden hose may collapse if used as a suction line, restricting flow of liquid to pump causing shaft seal failure.

### SELF-PRIMING APPLICATION

Refer to Figure 2.

All suction connections must be airtight to assure priming and efficiency. Never position pump more than 20 feet above source of liquid. Make suction line as short and straight as possible with slope running constantly upward toward pump. If slope drops down to pump at any point, an air pocket may be created, which could result in loss of prime, inefficient pumping and/or damage to pump.

Level mounting of pump is essential for proper operation.



**Figure 2 - Self Priming Installation**

### PRESSURE BOOSTER APPLICATION

Refer to Figure 3.

When used properly, this pump will boost pressure for applications such as car washing or spraying tall trees or structures.

Pressure boosting will normally be accomplished by attaching a short suction hose (about 10 ft. long) to an

outside garden hose fixture, and by attaching a length of hose between pump discharge and hose end device (spray nozzle). Both hoses must be kink-free and as short as possible to maximize performance.

**⚠ CAUTION** **Attempting to pump more liquid than a standard household hose fixture**

# Models 5670-96

## Installation (cont.)

*can supply (about 8 gallons per minute), will cause pump to cavitate, resulting in pressure loss and damage to pump. For best pressure boost, hose nozzle should limit flow from pump to about 3 gallons per minute.*

## Maintenance

**⚠ WARNING** *Make certain that unit is disconnected from power source before attempting to service or remove any component!*

### MECHANICAL SEAL REPLACEMENT

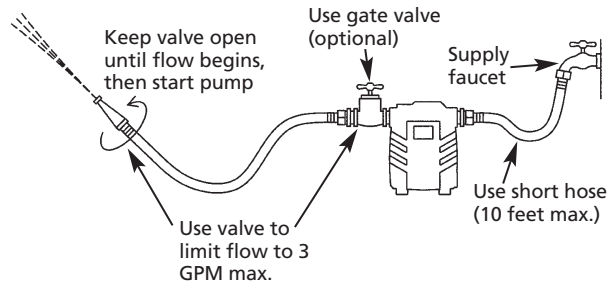
Refer to Figure 6.

**IMPORTANT:** Always replace both seal seat (Ref. No. 8) and seal head (Ref. No. 7) to insure proper mating of mechanical seal components!

1. Unthread fasteners (Ref. No. 4) and remove pump casing (Ref. No. 13) and casing seal (Ref. No. 11) from motor (Ref. No. 1).
2. Unscrew impeller (Ref. No. 10) from motor shaft by turning impeller in counterclockwise direction.

**NOTE:** To prevent motor shaft from turning during disassembly, carefully insert screwdriver through vent hole in bottom of motor housing to stop rotation of fan.

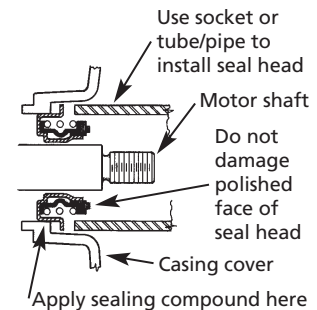
3. Pry old seal seat from



**Figure 3 - Pressure Booster Installation**

4. Wet rubber portion of new seal seat with a light coating of soapy water.
5. Press seal seat squarely into recess in impeller. If seal seat does not press squarely into recess, it can be adjusted by pushing on it with a piece of pipe. Always use a piece of cardboard between pipe and seal seat to avoid scratching lapped, highly polished surface of seal seat (handle it carefully).
6. After seal seat is in place, ensure that it is clean and has not been marred.
7. Casing cover (Ref. No. 6) can now be pulled from motor and placed face-down on workbench. To remove seal head, press on it from rear of casing cover with screwdriver or other suitable means.

8. Clean casing cover recess before inserting a new seal head.
7. Press seal head squarely into cavity in casing cover by placing a 1-1/16" socket or an appropriate diameter section of tube/pipe against outside metal flange of seal, not against polished face (see figure 4).



**Figure 4 - Mechanical Seal Replacement**

**NOTE:** A sealing compound (such as silicon or Permatex®) may be used to

# 3/4-Inch Electric Self-Priming Utility Pump

## Maintenance (cont.)

assure a water-tight fit on outside of seal head.

**CAUTION** *Do not touch or wipe polished face of seal head.*

8. After seal head is in place, ensure that it is clean and has not been marred. Carefully guide motor shaft through seal while returning casing cover back onto motor flange.
9. Replace any shim washers (Ref. No. 9) which may have been removed during disassembly.
10. Carefully screw impeller back in place being careful to not damage seal seat or shims. Tighten impeller until it is against shaft shoulder.
11. Remount casing seal and casing on motor flange.

**IMPORTANT:** Always inspect casing seal whenever unit is disassembled. Replace when cracked or worn.

### MOTOR BRUSH REPLACEMENT

Motor brushes (Ref. No. 2) wear out and must be periodically replaced. Brushes, when replaced as recommended, will help keep pump operating at peak efficiency and prolong motor life. Failure to replace brushes will result in damage to

motor and significantly reduce motor life. Replacement of worn brushes is considered normal maintenance and is not covered by pump warranty.

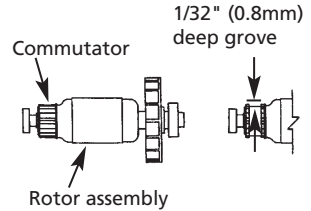
Check brushes for wear after every 100 hours of use, or more often if pump application requires frequent starting and stopping of motor. When either brush is worn to 1/4" (6,4 mm) or less in length, both brushes require replacement.

1. To remove brushes, unscrew brush caps (Ref. No. 3) and pull brushes from brush holders. Tag each brush so that if reused, they will be returned to their original locations.
2. Inspect brush holders and, if cracked, replace entire motor.

**IMPORTANT:** It is recommended that motor commutator be inspected for excessive wear, grooving or pitting each time brushes are replaced. Refer to "Mechanical Seal Replacement" section to disassemble pump.

3. To allow commutator inspection, remove fasteners in motor to release bearing plate. Rotor assembly may now be pulled from motor housing.
4. Carefully examine motor

commutator for excessive wear (see figure 5). If commutator is grooved deeper than 1/32" (0,8 mm), replace entire motor. If commutator is not excessively worn, reinstall rotor assembly, reassemble pump, and proceed to next step.



**Figure 5 - Motor Commutator Inspection**

5. Insert new brushes into brush holders, and screw brush holder caps into housing until fully seated (do not over-tighten).

### SHIM ADJUSTMENT

When installing a replacement impeller (Ref. No. 10) or motor (Ref. No. 1), it may be necessary to adjust number of shims (Ref. No. 9) to insure proper running clearance between impeller and casing (Ref. No. 13). Too much clearance will retard or prevent priming and reduce performance. Interference between parts may destroy pump or motor. Proceed as follows:

**NOTE:** A proper running clearance is less than 0.010".

# Models 5670-96

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## Maintenance (cont.)

1. Temporarily add enough shims to make impeller rub casing after reassembly.

**NOTE:** To rotate motor shaft, carefully insert screwdriver

through vent hole in bottom of motor housing and spin fan.

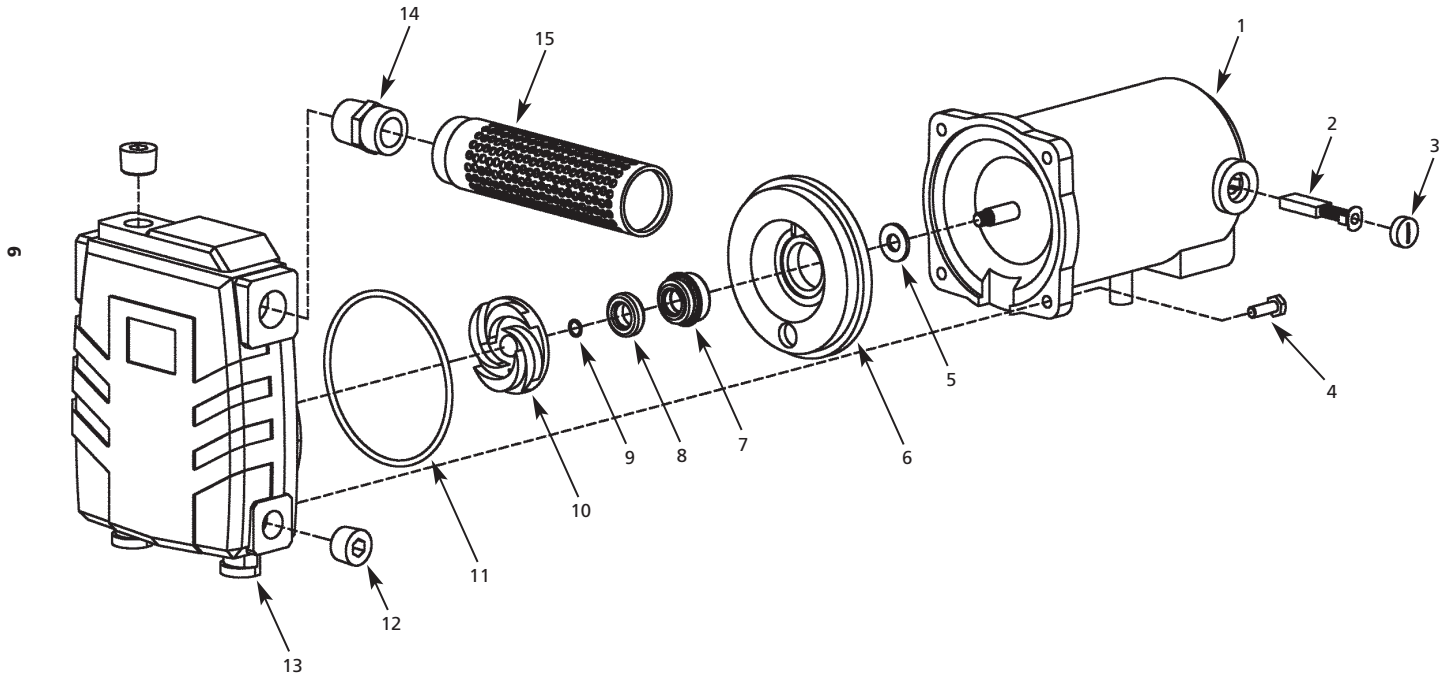
2. Disassemble and remove one shim. This should ensure clearance is less than 0.010".

3. Reassemble and ensure impeller no longer rubs casing.

**For Repair Parts, contact dealer where pump was purchased.**

Please provide the following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list



**Figure 6 - Repair Parts Illustration**

**Repair Parts List**

<b>Ref. No.</b>	<b>Description</b>	<b>Part Number</b>	<b>Qty.</b>
1	Motor	1626-102-00	1
2 & 3	Brush kit for motor (contains 2 brushes with springs and 2 caps)	5670-350-90	1
4	Fastener	*	4
5	Slinger washer	N/A	1
6	Casing cover	5670-020-00	1
7 & 8	† Shaft seal assembly -Buna N	1641-051-90	1
9	Shim kit (contains 4 shims 0.016" and 1 shim 0.010" thick)	1806-024-90	1
10	Impeller	5670-010-00	1
11	Casing seal -Buna N	* (see Ref. No. 16)	1
12	Pipe plug	*	2
13	Casing (Includes Ref. Nos. 4 and 12)	5670-001-96	1
14	3/4" NPT x 3/4" Garden hose adapter kit (contains 2)	1696-074-90	1
15	3/4" NPT Suction strainer	1678-002-00	1
16	Seal kit -Buna N (contains all required seals)	5670-301-90	1

(\*) Standard hardware item, available locally.

(†) Seal head and seat available as set only.

(N/A) Not available

