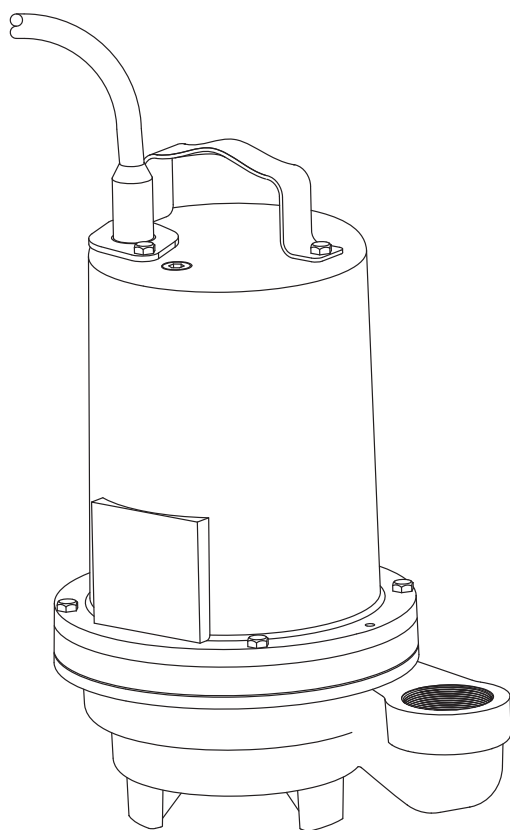


POWER-FLO

Pumps & Systems



**Series: PFSTEP512
PFSTEP522**

**0.5 HP • 3450 RPM • 60 Hz
Submersible Effluent
Pumps**

General Safety Information

Before installation, read the following instructions carefully. Failure to follow instruction and Safety information could cause serious bodily injury, death and/or property damage. Each Power-Flo pump is individually factory tested to insure proper performance. Closely following these instructions will eliminate potential operating problems, assuring years of trouble-free service.

⚠ DANGER "Danger" indicates an imminently hazardous situation which, if not avoided, **WILL result in death or serious injury.**

⚠ WARNING "Warning" indicates an imminently hazardous situation which, if not avoided, **MAY result in death or serious injury.**

⚠ CAUTION "Caution" indicates an potentially hazardous situation which, if not avoided, **MAY result in minor or moderate injury.**

IMPORTANT - Power-Flo Pumps and Systems is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.



ALL RETURNED PRODUCTS MUST BE CLEANED, SANITIZED, OR RECONTAMINATED PRIOR TO SHIPMENT, TO

INSURE EMPLOYEES WILL NOT BE EXPOSED TO HEALTH HAZARDS IN HANDLING SAID MATERIAL. ALL APPLICABLE LAWS AND REGULATIONS SHALL APPLY.

⚠ WARNING Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

⚠ WARNING Installation and servicing is to be conducted by qualified personnel only.

⚠ DANGER **Rotating machinery, Amputation or severe lacerations can result.** Keep clear of suction and discharge openings. **Do not** insert fingers in pump with power connected.

⚠ WARNING Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts

⚠ DANGER Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing.

⚠ DANGER This pump is **not** intended for use in swimming pools or water installations where human contact with pumped fluid. Pumps when used as a decorative water fountain pump **MUST** be used in circuit protected by a Ground Fault Interrupter.

⚠ DANGER Risk of electric shock. To reduce risk of electric shock, always disconnect pump from power source before handling. **Lock out power & tag.**

⚠ WARNING **Do not** use these pumps in water over 104°F. **Do not** exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

⚠ DANGER **Do not** lift, carry or hang pump by the electrical cables. Damage to the electrical cables can cause shock, burnes or death. **Never** handle connected power cords with wet hands. Use appropriate lifting device.

⚠ WARNING Sump and sewage pumps often handle materials which could cause illness or disease. wear adequate protective clothing when working on a used pump or piping. Never enter a basin after it has been used.

⚠ DANGER Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.

⚠ WARNING These pumps are **NOT** to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.

⚠ CAUTION The Uniform Plumbing Code (UPC) states that sewage systems shall have an audio and visual alarm that signals a malfunction of the systems that is required to reduce the potential for property damage.

IMPORTANT!

Prior to installation, record Model Number, MFG Date, Amps, Voltage, Phase and HP, from pump name plate for future reference. Also record the Voltage and Current Readings at Startup:

| 1 Phase Models | |
|----------------|--------|
| Amps: | Volts: |

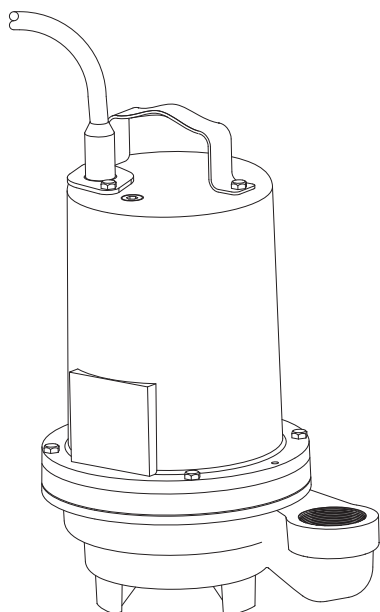
Model Number: _____

MFG Date: _____

PHASE: _____ HP: _____



* Power-Flo is a registered trademark of Power-Flo Technologies Inc. Other brand and product names are trademarks or registered trademarks of their respective holders. Alteration Rights Reserved. 11/2007, 3/08, 6/08, 4/09, 5/09, 2/10, 4/10, 3/11, 6/13, 9/15

Specifications


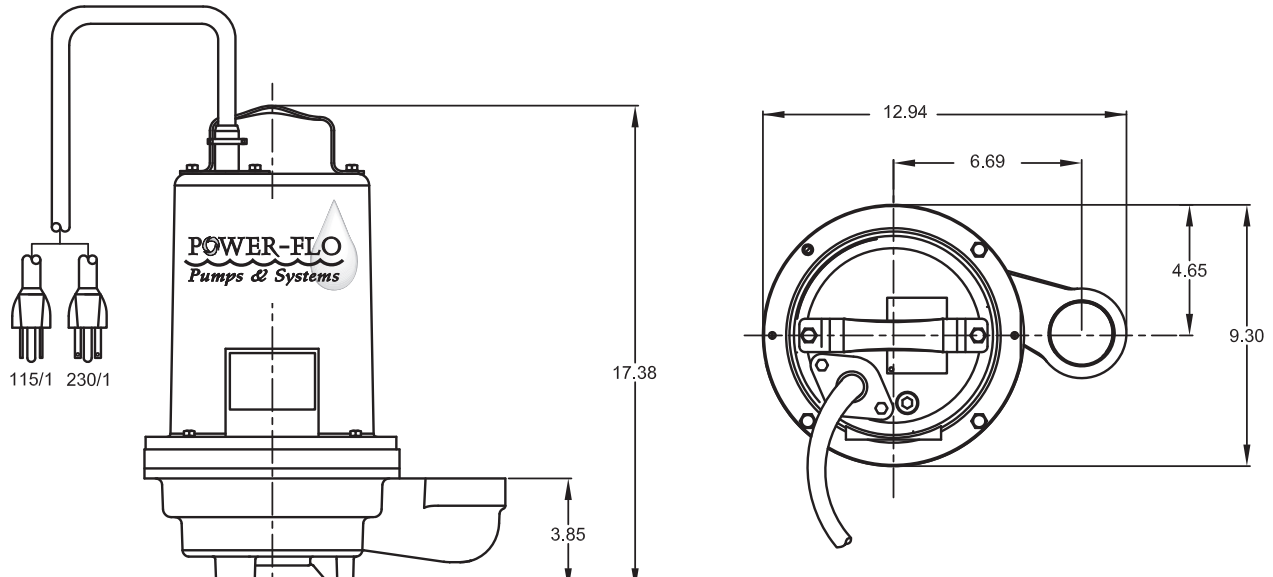
| | |
|---------------------------|--|
| DISCHARGE | 2" NPT Female, Vertical |
| LIQUID TEMPERATURE | 104°F Continuous |
| MOTOR HOUSING | Cast Iron, Class 30 |
| VOLUTE | Cast Iron, Class 30 |
| IMPELLER | Single vane enclosed Polypropylene with stainless steel insert |
| SOLIDS HANDLING | 3/4" spherical |
| SHAFT | Stainless steel |
| SEALPLATE | Cast Iron, Class 30 |
| SQUARE RINGS | Buna-N |
| HARDWARE | Stainless steel |
| SEAL | Outboard, Single mechanical, Oil Filled Carbon/Ceramic/Buna-N |
| UPPER BEARING | Single row, ball, oil lubricated |
| LOWER BEARING | Single row, ball, oil lubricated |
| POWER CORD | 20 Ft. Cord with plug on 120 and 240 volt, Fast Disconnect Design |
| MOTOR | Class B Single phase - Permanent split capacitor Includes overload protection in motor: Trip Off Temp. 248°F (120° C) |

Level Control supplied separately.

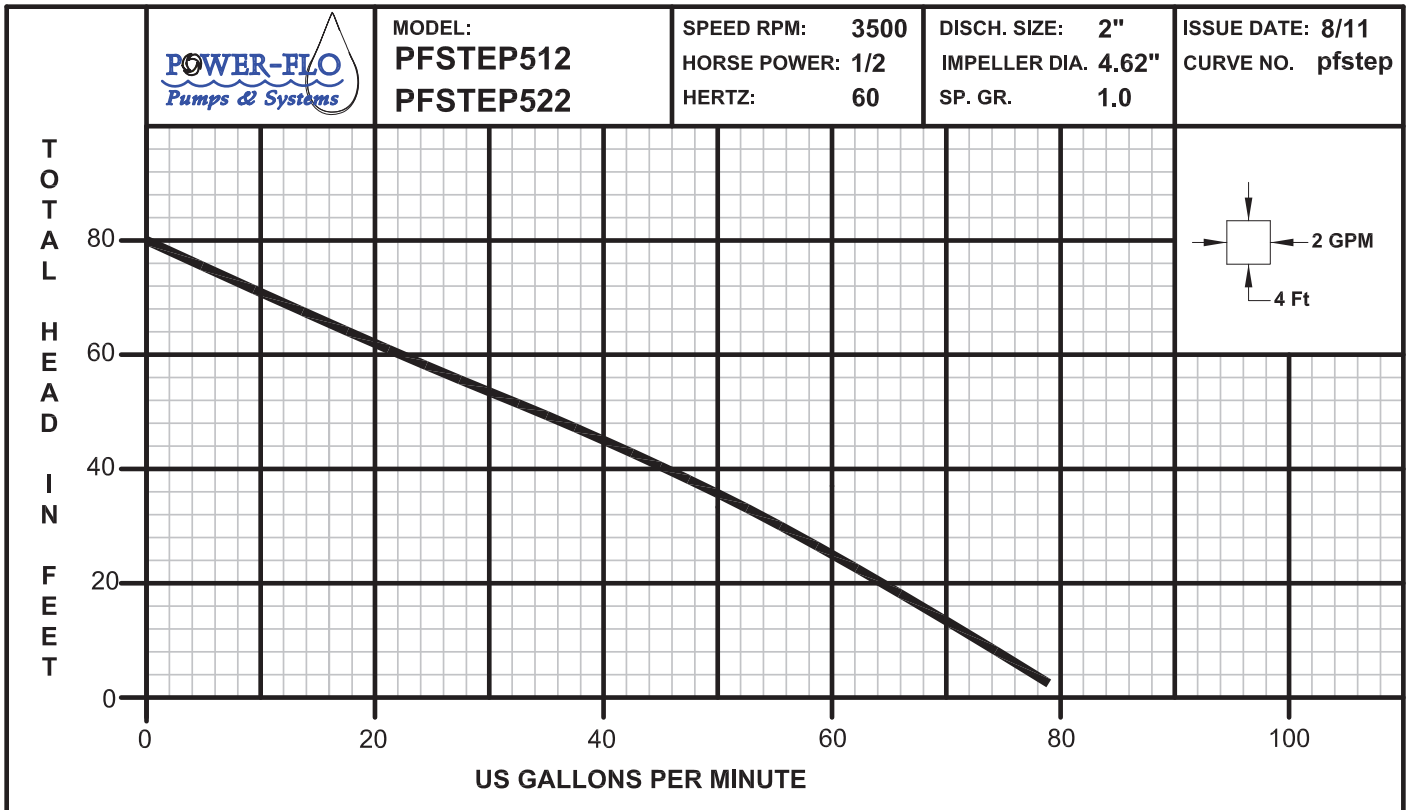
| HP | Volt/ PH | Hz | RPM (Nom) | NEMA Start Code | Full Load Amps | Locked Rotor Amps | Winding Resistance MAIN -- START | Cord Size | Cord Type | Cord O.D |
|-----------|-------------|----|--------------|-----------------------|-------------------|-------------------------|-------------------------------------|--------------|--------------|----------|
| PFSTEP512 | 115/1 | 60 | 3450 | G | 14.0 | 24.7 | 0.96 -- 6.7 | 14/3 | SJTOW | .37 |
| PFSTEP522 | 230/1 | 60 | 3450 | E | 7.0 | 10.2 | 3.95 -- 6.8 | 14/3 | SOW | .53 |

Winding resistance $\pm 5\%$ at terminal block. Rated operation at $\pm 10\%$ voltage at motor

Dimensions



Performance



Receiving & Installation

Receiving Inspection

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

Storage

Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly. Do not pump out of liquid.

Controls

Manual models require a separate approved pump control device or panel for automatic operation. Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

Submergence

The pump should always be operated in the submerged condition. The minimum sump liquid level should never be less than above the pump's volute (See Figure 1).

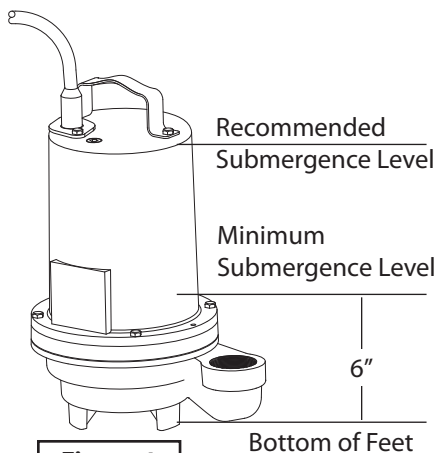


Figure 1

Installation

There are two methods of installing effluent pumps:

- 1.) In a Flex-Hose system, most commonly used in interceptor tanks and.
- 2.) A slide rail in a package system or concrete wet well, which allows the pump(s) to be installed or removed without requiring personnel to enter the wet well.

The sump or basin shall be sealed and vented in accordance with local plumbing codes. ***This pump is designed to pump effluent or wastewater, nonexplosive and noncorrosive liquids and shall NOT be installed in locations classified as hazardous in accordance with the National Electrical Code (NEC) ANSI/NFPA 70 or Canadian Electric Code (CEC).*** The pump should never be installed in a trench, ditch, or hole with a dirt bottom. The legs will sink into the dirt and the suction will become plugged.

The installation should be at a sufficient depth to ensure that all plumbing is below the frost line. If this is not feasible, remove the check valve and size the basin to accommodate the additional backflow volume.

Discharge Piping

Discharge piping should be as short as possible and sized no smaller than the pump discharge. **Do not reduce the discharge pipe size below that which is provided on the pump.** Both a check valve and a shut-off valve are recommended for each pump. The check valve is used to prevent backflow into the sump. The shut-off valve is used to manually stop system flow during pump servicing.

Liquid Level Controls

Typical Discharge Pipe Mounted:

Refer to Figure 2 below which shows a typical installation of a 1 phase 120 or 240 volt pump using a level control mounted to the discharge piping with a piggy-back plug. The level control should have adequate clearance so it cannot hang up in it's swing and that the pump is completely submerged when the level control is in the "Off" mode. By adjusting the cord tether the control level can be changed.

Typical Installation with Wide Angle Level Control

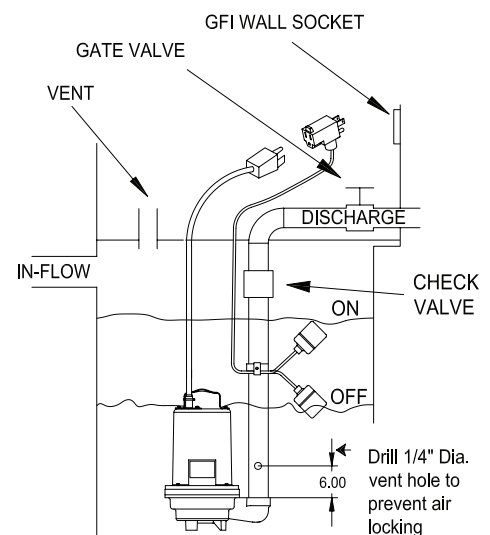


Figure 2

Installation & Service

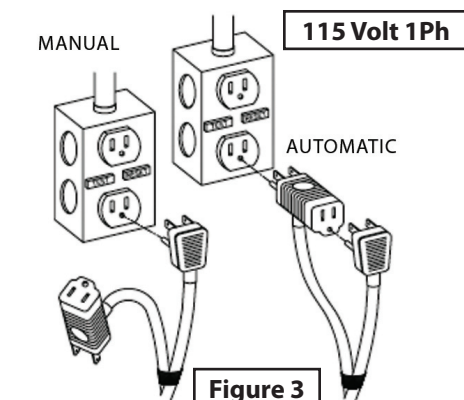


Figure 3

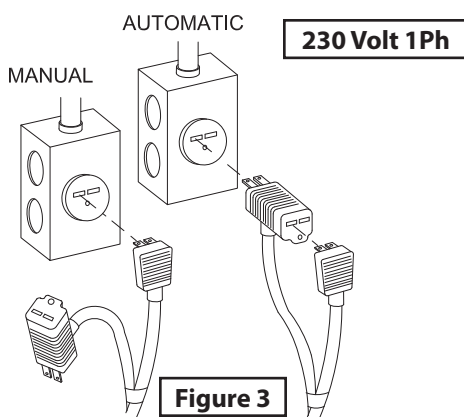


Figure 3

Automatic: Plug float cord into GFI outlet, then plug pump cord into float cord.
Manual: Plug pump cord directly into GFI outlet.

Level Control Basic Instructions:

Plug the level control plug into the GFI receptacle, then plug the pump into the piggy-back plug (See Figure 3). One cycle of operation should be observed, so that any potential problems can be corrected.

It is recommended that the level control float should be set to insure that the liquid in the sump never drops below the top of the motor housing or a minimum level of 6 inches above the basin floor.

Electrical Connections

Power cable:

The power cable mounted to the pump must not be modified in any way except for shortening to a specific application. Any splice between the pump and the control panel must be made in accordance with the electric codes. It is recommended that a junction box, if used, be mounted outside the sump or be of at a minimum Nema 4 construction if located within the wet well. **DO NOT USE THE POWER CABLE TO LIFT PUMP.**

Always rely upon a Certified Electrician for installation.

Overload Protection:

Single Phase - The stator in-winding overload protector used is referred to as an overheating protector and operates on the combined effect of temperature and current. This means that the overload protector will trip out and shut the pump off if the windings become too hot, or the load current passing through them becomes too high.

IMPORTANT! - The overload will then automatically reset and start the pump up after the motor cools to a safe temperature. In the event of an overload, the source of this condition should be determined and corrected immediately.



WARNING! - DO NOT LET THE PUMP CYCLE OR RUN IF AN OVERLOAD CONDITION OCCURS!

If current through the temperature sensor exceeds the values listed, an intermediate control circuit relay must be used to reduce the current or the sensor will not work properly.

TEMPERATURE SENSOR ELECTRICAL RATINGS

| Volts | Continuous Amperes | Inrush Amperes |
|---------|--------------------|----------------|
| 110-120 | 3.00 | 30.0 |
| 220-240 | 1.50 | 15.0 |

Wire Size:

If longer power cable is required consult a qualified electrician for proper wire size.

Pre-Operation

1. **Check Voltage and Phase** - Compare the voltage and phase information stamped on the pump name plate.
2. **Check Pump Rotation** - Improper motor rotation can result in poor pump performance and can damage the motor and/or pump. Incorrect rotation for Single-Phase pumps is unlikely. If the rotation is incorrect contact factory.
3. **Name Plate** - Record the information from the pump name plate to drawing in front of manual for future reference.
4. **Insulation Test** - An insulation (megger) test should be performed on the motor. Before the pump is put into service. The resistance values (ohms) as well as the voltage (volts) and current (amps) should be recorded.
5. **Pump-Down Test** - Be sure pump has been properly wired, lowered into the basin, sump or lift station, check the system by filling with liquid and allowing the pump to operate through its pumping cycle. The time needed to empty the system, or pump-down time along with the volume of water, should be recorded.

Maintenance

No lubrication or maintenance is required. Perform the following checks when pump is removed from operation or when pump performance deteriorates:

- Inspect motor chamber for oil level and contamination.
- Inspect impeller and body for excessive build-up or clogging.
- Inspect motor and bearings.
- Inspect seal for wear or leakage.

Servicing

NOTE: Item numbers in () refer to Figures 10 & 11.

Cooling Oil - Anytime the pump is removed from operation, the cooling oil in the motor housing should be checked visually for oil level and contamination. To check oil, set unit upright. Remove pipe plug (20) from housing (10). With a flashlight, visually inspect the oil in the housing (20) to make sure it is clean and clear, light amber in color and free from suspended particles. Milky white oil indicates the presence of water. Oil level should be just above the motor when pump is in vertical position.

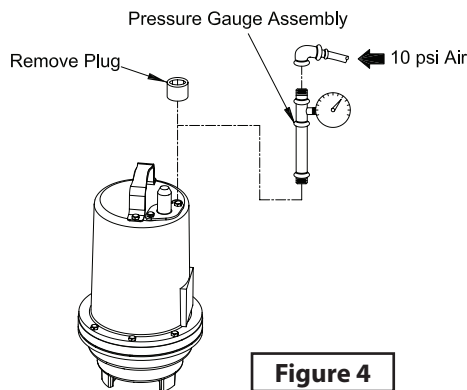
Oil Testing

- Drain oil into a clean, dry container by placing pump on it's side, remove pipe plug (20), from housing (10).
- Check oil for contamination using an oil tester with a range to 30 Kilovolts breakdown.
- If oil is found to be clean and uncontaminated (measuring above 15 KV. breakdown), refill the housing.
- If oil is found to be dirty or contaminated (or measures below 15 KV. breakdown), the pump must be carefully inspected for leaks at the shaft seal, cable assembly, square ring and pipe plug, before refilling with oil. To locate the leak, perform a pressure test.

After leak is repaired, dispose of old oil properly, and refill with new oil.

Pressure Test (If oil has been drained)

Remove pipe plug (20) from housing (10). Apply pipe sealant to pressure gauge assembly and tighten into hole. Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas and inspect joints for "air bubbles".



If, after five minutes, the pressure is still holding constant, and no "bubbles" are observed, slowly bleed the pressure and remove the gauge assembly. Replace oil. Leak must be located and repaired if pressure does not hold.

Pressure Test (If oil has NOT been drained)

Oil should be at normal level. Remove pipe plug (20) from housing (10). Apply pipe sealant to pressure gauge assembly and tighten into hole. Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas above the oil level and inspect joints for "air bubbles". For sealed areas below oil level, leaks will seep oil. If, after five minutes, the pressure is still holding constant, and no "bubbles" /oil seepage is observed, slowly bleed the pressure and remove the gauge assembly. Replace oil. Leak must be located and repaired if pressure does not hold.



Pressure builds up extremely fast, increase pressure by "TAPPING" air nozzle. Too much pressure will damage seal. **DO NOT exceed 10 P.S.I.**



Oil Replacement - Set unit upright and refill with new cooling oil as per table below. Fill to just above motor, but below capacitor as an air space must remain in the top of the housing to compensate for oil expansion. Apply pipe thread compound to threads of pipe plug (20) then assemble to housing (10).



DO NOT overfill oil. Overfilling of housing with oil can create excessive and dangerous hydraulic pressure which can destroy the pump and create a hazard. Overfilling oil voids warranty.



| 96oz - Cooling Oil Recommended Supplier/Grade | |
|--|------------------|
| BP | Enerpar SE100 |
| Conoco | Pale Paraffin 22 |
| Mobile | D.T.E. Oil Light |
| Shell Canada | Transformer-10 |
| Texaco | Diala-Oil-AX |

Disassembly & Assembly Impeller, U-cup, V-ring and Volute:

Disconnect power. Remove cap screws (21) and lock washers (22) vertically lift motor, housing and seal plate assembly from volute (1). Clean out volute (1) if necessary. Inspect gasket (6) and replace if cut or damaged. Check U-cup (33) for damage. If replacement is needed, cut the U-cup from the volute (1) and clean surface of bore. Clean and examine impeller (2), for cracks or breakage and replace if required. To remove impeller (2), place a flat screwdriver in the slot of the end of the shaft to hold the shaft stationary while unscrewing the impeller (2).

Service

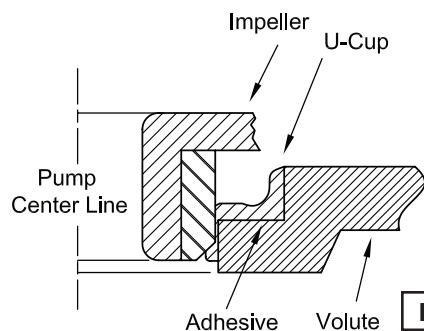
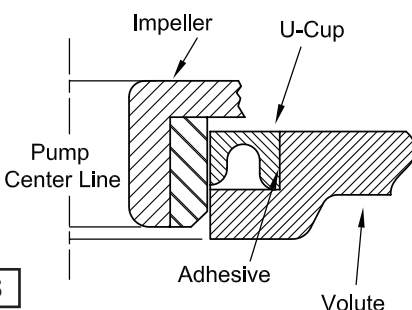


Figure 5



To reassemble, clean the threads with thread locking compound cleaner. Apply removable Loctite® 242 or equivalent to shaft threads. Screw impeller (2) onto the shaft hand tight while using a screwdriver in the slot at the end of the shaft to hold it stationary. Rotate impeller to check for binding. Install U-cup (33) by applying adhesive to bore of volute (1). Be sure not to get adhesive on inside diameter of U-cup (33).

Position gasket (6) on volute flange and position impeller and motor housing assembly on volute (1).

CAUTION! - Be sure the inside lip of the U-cup (33) is not pushed out of place when assembling volute (1) to rest of the pump (see Figure 5).

Position lock washer (22) on cap screw (21) and screw into volute (1). Torque to 100 in-lbs. Check for free rotation of impeller.

Shaft Seal:

To examine or replace shaft seal (5), disassemble volute and impeller as stated. Remove retaining ring, spring and rotating member from shaft (see Figure 6). Inspect for signs of uneven wear pattern on stationary member, chips and scratches on either seal face. Replace the complete seal if any part is damaged.

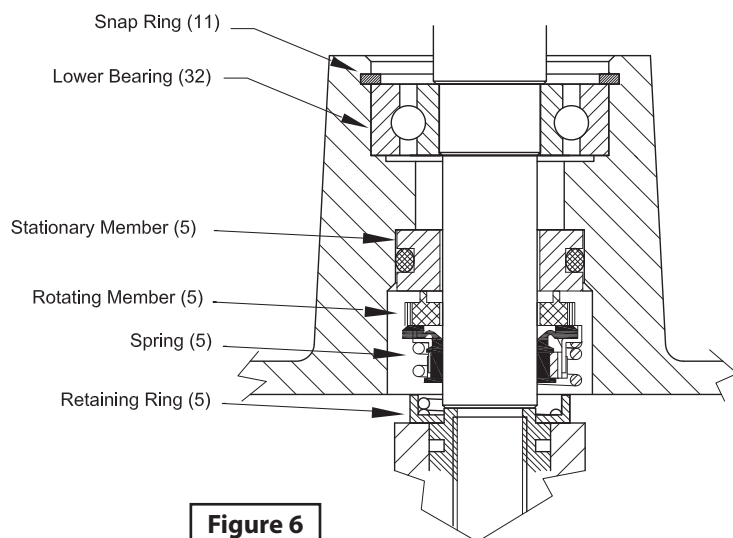


Figure 6

If replacing the seal remove stationary from seal plate (8) by prying out with screw driver.



IMPORTANT! - All parts must be clean before reassembly. Handle seal parts with extreme care. DO NOT damage lapped surfaces.

To reassemble, clean seal cavity in seal plate (8) and oil. Press seal's (5) stationary member firmly into seal plate (8), use a seal tool or pipe. Nothing should come in contact with the seal face except the seal tool. Be sure the stationary is in straight. Lightly oil (**Do not use grease**) shaft and inner surface of bellows. Slide rotating member onto stationary using a seal tool. Place spring and retaining ring onto rotating member. Assemble impeller and volute as described.

Motor, Capacitor, Bearings:

Remove volute and impeller as previously stated and drain oil from housing. Remove shaft seal. Position unit upright, using blocks to avoid resting unit on shaft. Unscrew cable cap screws (18) and remove compression flange and power cord (23). Remove snap ring (14) with a flat head screwdriver.

Pull the terminal block (12) out of the housing (10) using a T-bolt or a pair of pliers and a .25-20 screw in the threads of the terminal block (12) see Figure 7. Leave slack on the motor leads connected underneath. Use needle nose pliers to pull each female connector off of the pins on the underside of the terminal block (12). The voltage should be noted.

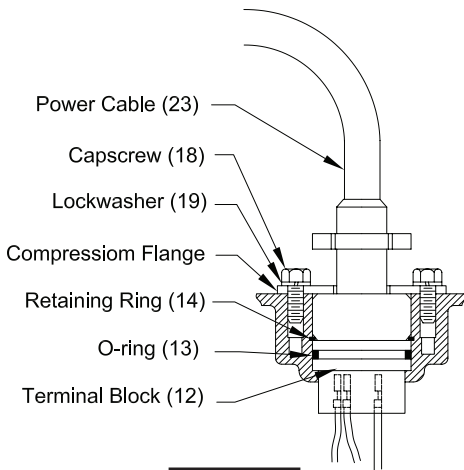


Figure 7

Remove cap screws (7) from seal plate (8) and lift housing (10) from seal plate. Remove square ring (9), replace if cut or damaged. Disconnect capacitor leads from capacitor (24). Remove motor bolts (28), lift cover (27), body (31) and stator assembly (30) from seal plate (8). Remove snap ring (11) to remove rotor assembly (29). Remove bearings (26) and (32) with a wheel puller.

Check motor capacitor (24) with an Ohm meter by first grounding the capacitor by placing a screwdriver across both terminals and then removing screwdriver. Connect Ohm meter (set on high scale) to terminals. If needle moves to infinity (∞) then drifts back, the capacitor is good. If needle does not move or moves to infinity (∞) and does not drift back, replace capacitor (24). Inspect motor winding for shorts and check resistance values. Check rotor for wear. If rotor or the stator windings are defective, the complete motor must be replaced.

Slide rotor/shaft (29) with bearings (26) and (32) into seal plate (8) until bearing (32) seats into seal plate. Install snap ring (11) into seal plate (8).

Place stator (30, 31) over rotor (29), lining up motor bolts with holes in seal plate (8). Place spring washer (34) on bearing (26) and cover (27) onto rotor/stator assembly. Position capacitor (24) so that it will lay on the opposite side of the cable entry boss of the housing (10). Install bracket (25) and reconnect capacitor leads. Torque motor bolts to 17 in-lbs. Set square ring (9) in grove on seal plate (8).

Lower housing (10) down onto seal plate (8) while aligning holes and stringing motor leads through the cord entry bore. Place cap screws (7) through seal plate (8) into housing (6) and torque to 60 in-lbs. Reconnect motor leads to the underside of the terminal block (12), as shown in Figure 8. Note that the pins are numbered underneath the terminal block.

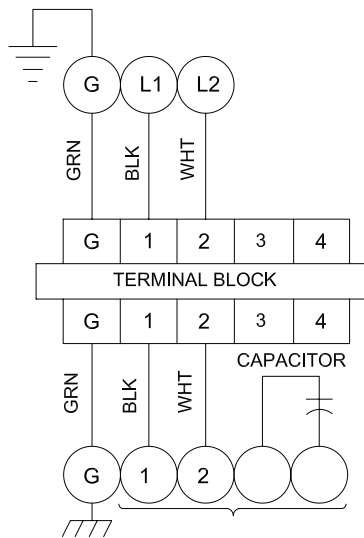


Figure 8 - 120/240 Volt, 1Ph

Place o-ring (13) into groove in terminal block and lubricate with dielectric oil. Press the terminal block (12) into the housing so it seats completely below the snap ring groove.

Place snap ring (14) into groove in cord entry bore of housing.

Power Cable Connection

Check power cord (23) for cracks or damage and replace if required. Refill the cooling oil. Insert female end of cord plug into housing bore **aligning timing mark** with hole in terminal block (12) see Figure (9). Compress cord plug with compression flange by tightening cap screws (18) with lock washers (19) into the housing (10). Torque to 132 in-lbs.

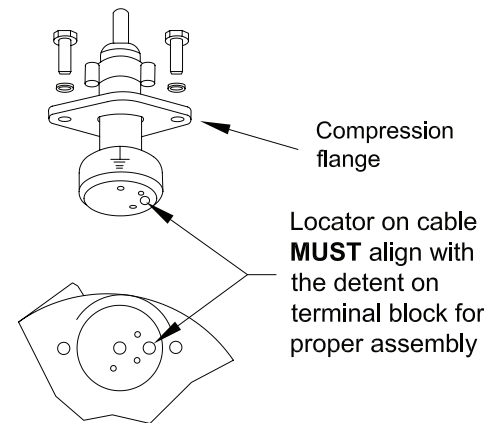


Figure 9

Repair Parts

For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

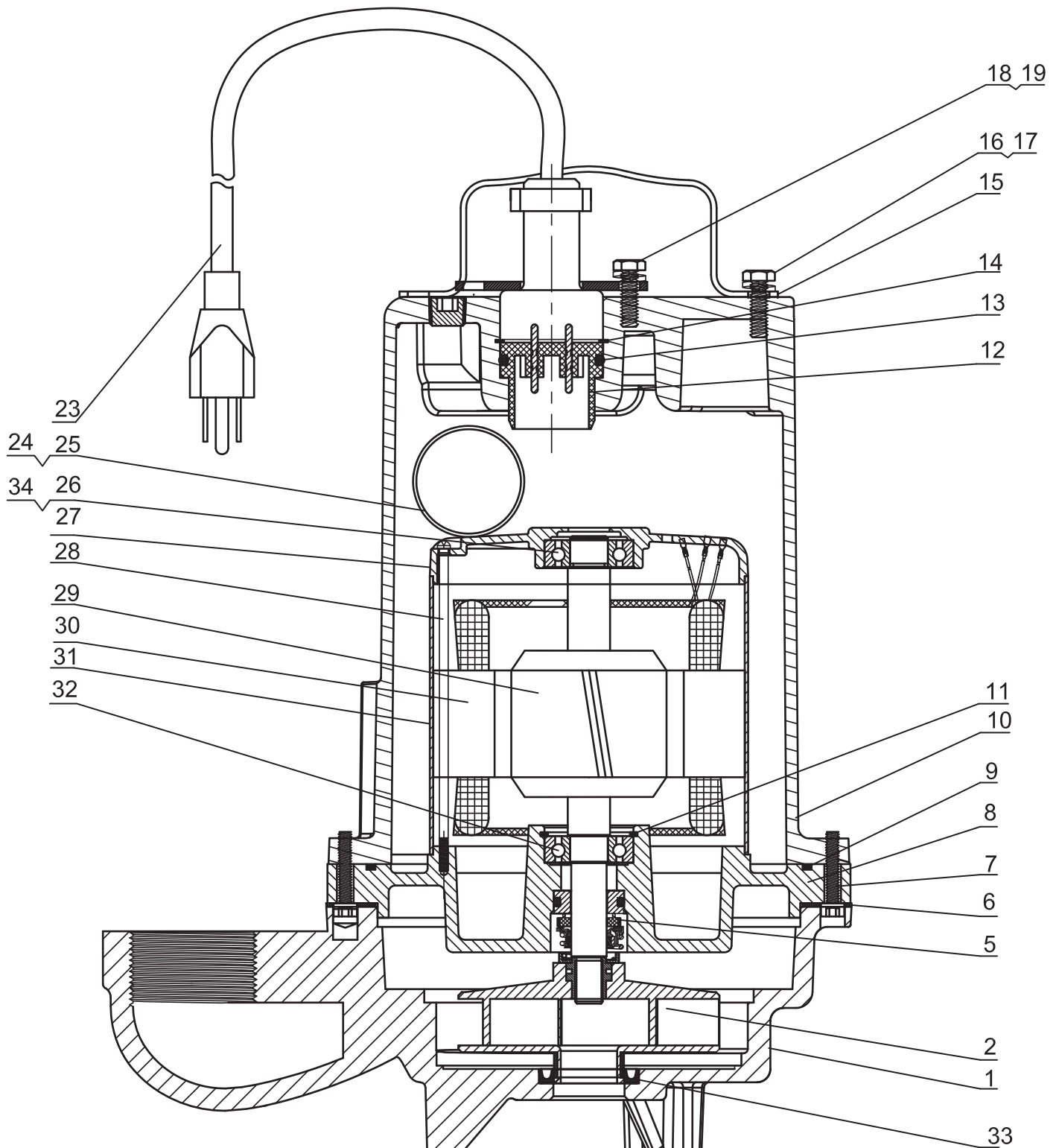


Figure 10

For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

Repair Parts

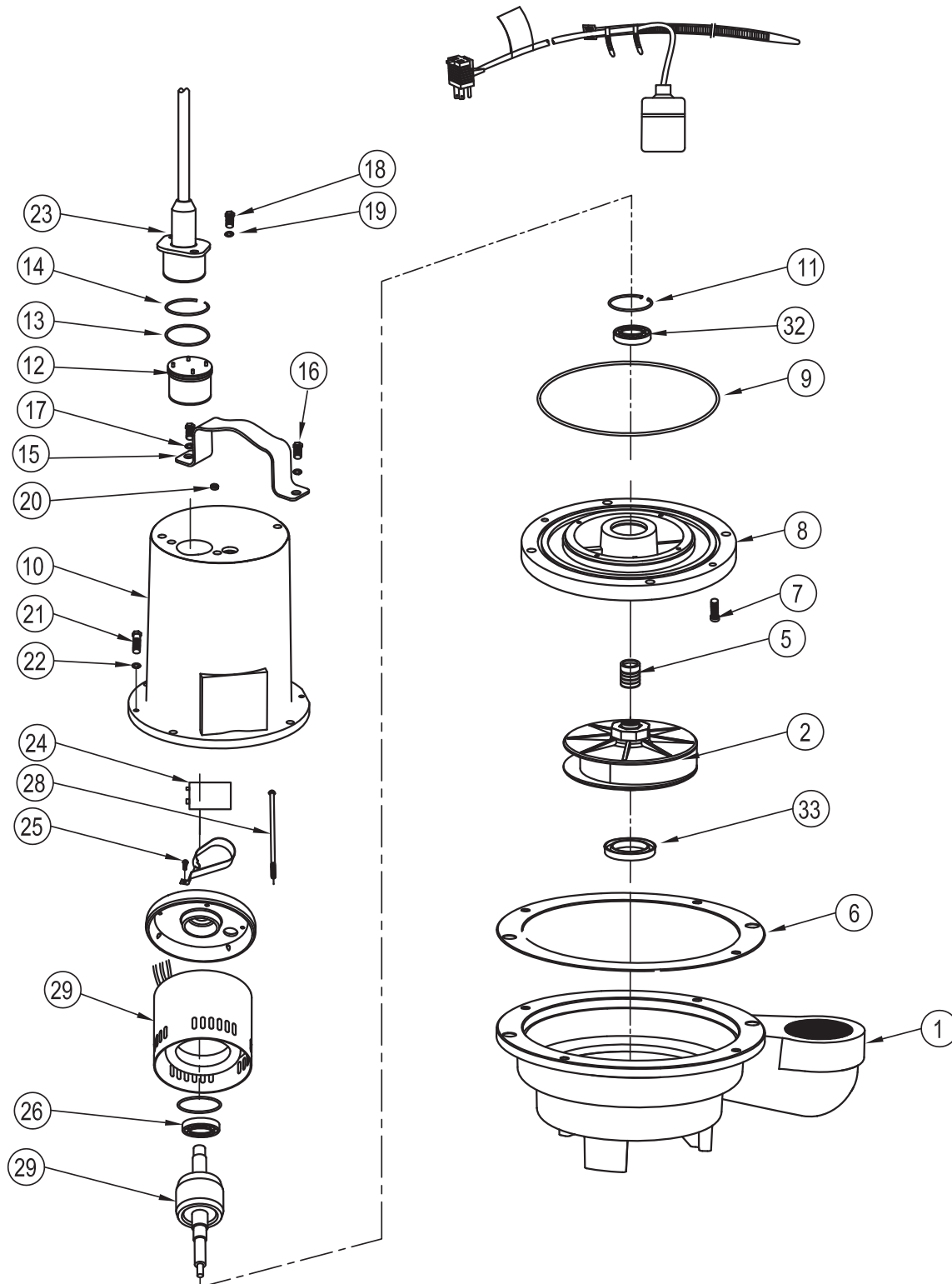


Figure 11

Parts List

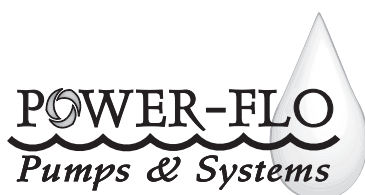
For Repair Part Please supply: Model Number and MFG Date as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

| Ref. No. | Qty | | Name | Part Numbers | |
|---------------------|--|---|--|----------------|----------------|
| | | | | PFSTEP512 | PFSTEP522 |
| 1 | 1 | | Volute | PF103763 | PF103763 |
| 2 | 1 | ◆ | Impeller, 4.62 Dia. | PF103512TE | PF103512TE |
| 5 | 1 | ◆ | Shaft Seal, Carbon/Ceramic/Buna-N, .625", type "C" | PF068988 | PF068988 |
| 6 | 1 | ◆ | Gasket | PF27344 | PF27344 |
| 7 | 2 | | Screw, 1/4-20 x 1 1/4" Lg., Stainless | ◆ | ◆ |
| 8 | 1 | | Seal Plate | PF084532 | PF084532 |
| 9 | 1 | ◆ | Square Ring | PF074498 | PF074498 |
| 10 | 1 | | Housing | PF105196 | PF105196 |
| 11 | 1 | ◆ | Snap Ring | PF85326 | PF85326 |
| 12 | 1 | | Terminal Block, 1 Phase | PF103584 | PF103584 |
| 13 | 1 | ◆ | O-Ring | PF2-31051-224 | PF2-31051-224 |
| 14 | 1 | ◆ | Snap Ring | PF105197 | PF105197 |
| 15 | 1 | | Handle | PF103503 | PF103503 |
| 16 | 2 | | Screw, 5/16-18 x 1" Lg., Stainless | ◆ | ◆ |
| 17 | 2 | | Lock Washer, 5/16 Stainless | ◆ | ◆ |
| 18 | 2 | | Screw, 5/16-18 x 1" Lg., Stainless | ◆ | ◆ |
| 19 | 2 | | Lock Washer, 5/16 Stainless | ◆ | ◆ |
| 20 | 1 | | Pipe Plug, 3/8" NPT | ◆ | ◆ |
| 21 | 4 | | Screw, 5/16-18 x 1 3/4" Lg., Stainless | ◆ | ◆ |
| 22 | 4 | | Lock Washer, 5/16 Stainless | ◆ | ◆ |
| 23 | 1 | ☆ | Power Cord, 115 Volt w Plug, 20Ft - STD | PF103756XA | ---- |
| | | | Power Cord, 115 Volt w Plug, 15Ft | PF103756 | ---- |
| | | | Power Cord, 115 Volt w Plug, 30Ft | PF103756-30 | ---- |
| | | | Power Cord, 115 Volt w Plug, 50Ft | PF103756-50 | ---- |
| | | | Power Cord, 230 Volt w Plug, 20Ft - STD | ---- | PF110949XA |
| | | | Power Cord, 230 Volt w Plug, 15Ft | ---- | PF110949 |
| | | | Power Cord, 230 Volt w Plug, 30Ft | ---- | PF110949-30 |
| | | | Power Cord, 230 Volt w Plug, 50Ft | ---- | PF110949-50 |
| 24 | 1 | ◆ | Capacitor, 20mfd 370v, CBB60 | PF070963C | PF070963C |
| 25 | 1 | | Screw, #8-32 x 3/8" Lg., Stainless | ◆ | ◆ |
| 26 | 1 | | Bearing | included in 29 | included in 29 |
| 28 | 4 | | Screw | included in 29 | included in 29 |
| 29 | 1 | ☆ | Rotor/stator Assy | PF068926 | PF068927 |
| 32 | 1 | ◆ | Bearing | PF17414 | PF17414 |
| 33 | 1 | ◆ | V-Ring | PF068053 | PF068053 |
| OVERHAUL KIT | | | | | |
| ◆ | Kit to include: impeller (2), shaft seal (5), gasket (6), square ring (9), snap ring (11), o-ring (13), snap ring (14), capacitor (24), bearing (32), v-ring (33). | | | PFSTEP-OHK | |

◆ = Acquire standard hardware locally.

◆ = OVERHAUL Kit.

☆ = Supplied as individual items.



Trouble Shooting Chart



Risk of electric shock. Always disconnect the pump from the power source before handling inspections or repairs.

| Symptom | Possible Cause(s) | Corrective Action |
|---|---|---|
| Pump will not run | <p>Blown fuse or other interruption of power; improper voltage.</p> <p>Switch is unable to move to the "turn ON" position due to interference with the side of basin or other obstruction</p> <p>Insufficient liquid level</p> <p>Defective level control</p> | <p>Check that the unit is securely plugged in. Have an electrician check all wiring for proper connections and adequate voltage and capacity.</p> <p>Position the pump or switch so that it has adequate clearance for free operation.</p> <p>Make sure the liquid level is allowed to rise enough to activate level control(s).</p> <p>Remove and replace level controls</p> |
| Pump will not turn off | <p>Discharge is blocked or restricted</p> <p>Check valve is stuck closed or installed backwards</p> <p>Gate or ball valve is closed</p> <p>Total lift is beyond pump's capability</p> <p>Pump impeller is jammed or volute casing is plugged</p> | <p>Check the discharge line for foreign material, including ice if discharge line passes through or into cold areas</p> <p>Remove check valve(s) and examine for freedom of operation and proper installation</p> <p>Open gate or ball valve</p> <p>Try to route piping to a lower level. If not possible, a larger pump may be required. Consult the factory</p> <p>Disconnect unit electrically. Remove the pump from the basin. Detach the pump base and clean the area around the impeller. Rotate impeller by hand. Reassemble and reinstall</p> |
| Pump will not turn off | <p>Level control(s) unable to move to the "turn OFF" position due to interference with the side of basin or other obstacle</p> <p>Defective level control</p> | <p>Position the pump or level control so that it has adequate clearance for free operation</p> <p>Remove and replace level control</p> |
| Pump runs periodically when fixtures are not in use | <p>Check valve is stuck open or is leaking</p> <p>Fixtures are leaking</p> | <p>Remove check valve(s) and examine for freedom of operation and proper installation</p> <p>Repair fixtures as required to eliminate leakage</p> |
| Pump operates noisily | <p>Debris in the impeller cavity</p> <p>Damaged impeller</p> <p>Worn bearings</p> <p>Piping attachments to building are too rigid</p> | <p>Remove the pump from the basin. Detach the pump base and clean the area around the impeller. Reassemble and reinstall</p> <p>Consult the factory for information regarding replacement of impeller</p> <p>Return pump to the factory or authorized repair station for repair</p> <p>Replace a portion of the discharge line with rubber hose or connector</p> |

NOTE: Power-Flo Pumps & Systems assumes no responsibility for damage or injury due to disassembly in the field. Disassembly of the pumps or supplied accessories other than at Power-Flo Pumps & Systems or its authorized service centers, automatically voids warranty.

[illegible]

Notes:

[illegible]

2 YEAR WARRANTY

Manufacturer warrants, to the purchaser and subsequent owner during the warranty period, new pump product to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of 2 years from date of sale. The date of sale shall be determined by a dated sales receipt noting the model and serial number of the pump. The dated sales receipt must accompany the returned pump if the date of the return is more than 2 years from the date of manufacturer. Product will be repaired, replaced or remanufactured at Manufacturer's option. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement. This warranty does not apply to and there shall be no warranty for any material or product that has been disassembled without prior approval of Manufacturer, subjected to misuse, misapplication, neglect, alteration, accident or act of God; that has not been installed, operated or maintained in accordance with Manufacturer's installation instructions; that has been exposed to outside substances including but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.), or other abrasive or corrosive substances, wash towels or feminine sanitary products, etc. in all pumping applications. The warranty set out in the paragraph above is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products.

Contact Manufacturer at: 1-877-24PUMPS or www.powerflopumps.com, Attention: Customer Service Department, to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty. MANUFACTURER EXPRESSLY DISCLAIMS LIABILITY FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR BREACH OF EXPRESSED OR IMPLIED WARRANTY; AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY SHALL BE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.

Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

