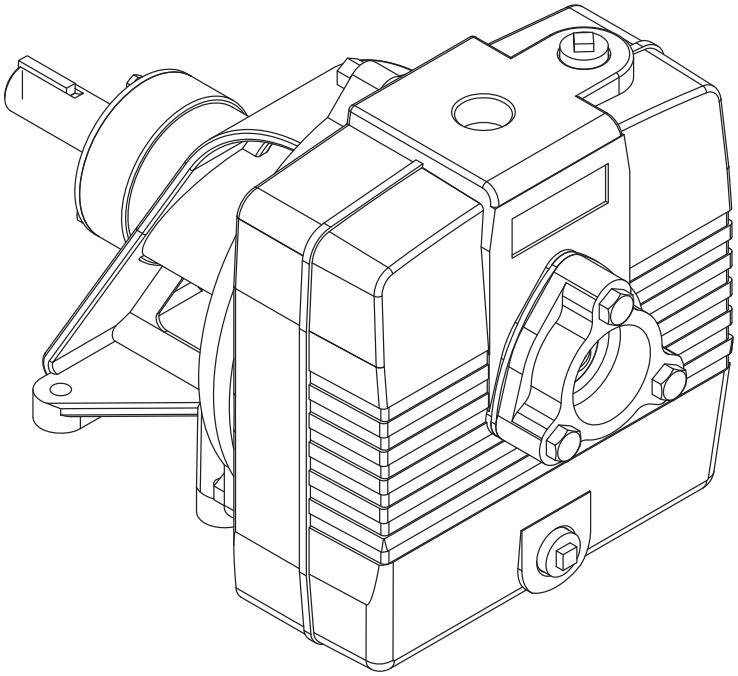
INSTALLATION, SERVICE & PARTS MANUAL



Series: PF10ICU

2" x 2"
Universal Drive /Frame Mtd

Power-Flo Pumps & Systems

a Power-Flo Technologies company

877-24PUMPS • www.powerflopumps.com

ISP No: PF10ICU - 1/2021

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 imminenty hazardous situation which, if not avoided, WILL result in death or serious injury.***

⚠WARNING ***"Warning" indicates an imminenty 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 DECONTAMINATED 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 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.

⚠ 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** us these pumps in water over 160˚F. **Do not** exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

⚠ DANGER Operation against a closed discharge valve will cause premature bearing and seal failure. Heat build up on self-priming and end suction pumps may cause dangerous pressures. A high temperature switch or pressure relief valve is recommended to be be installed in pump case.

⚠WARNING Carefully read instruction manuals supplied with motor or engine before operating or servicing.

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

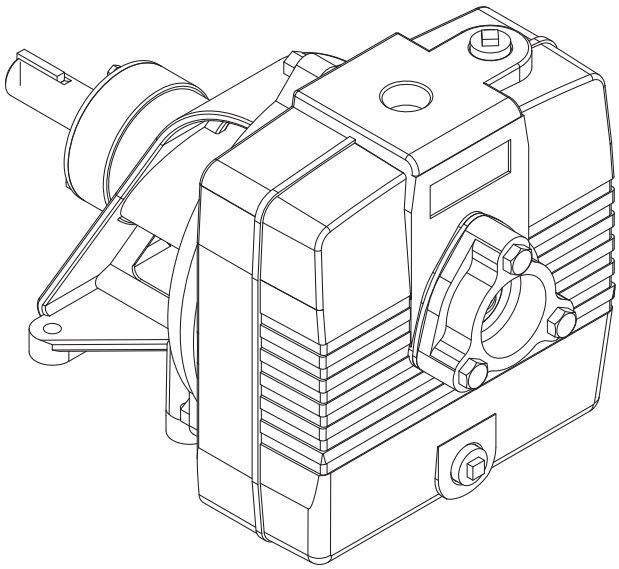
⚠WARNING Pumps constructed with or fitted with bronze/brass may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications.

WARNING:
CANCER AND REPRODUCTIVE HARM-
WWW.P65WARNINGS.CA.GOV

IMPORTANT!
Prior to installation, record Model Number, MFG Date, and/or serial number, from pump name plate for future reference.

Model:
Serial:
MFG Date:

Specifications



DISCHARGE	2" x 2" NPT, Female
LIQUID TEMPERATURE	160°F Continuous
VOLUTE	Cast Iron, Class 30, Removable Optional Bronze
BODY	Cast Iron, Class 30
PEDESTAL	Cast Iron, Class 30
SHAFT	Stainless Steel
SHAFT SLEEVE	Stainless Steel
IMPELLER	Open trash type, dynamically balanced Material: Cast Iron, Class 30
O-RINGS	Buna-N
HARDWARE	Steel & Stainless Steel
PAINT	Air dry enamel
SEAL	Single Mechanical with Lip Seal, Material: Graphite/Ceramic-NBR-304
BEARING-DRIVE END	Single Row, Ball, Grease Lubricated
BEARING-PUMP END	Single Row, Ball, Grease Lubricated
CHECK VALVE	Neoprene Flap type valve, with steel weight

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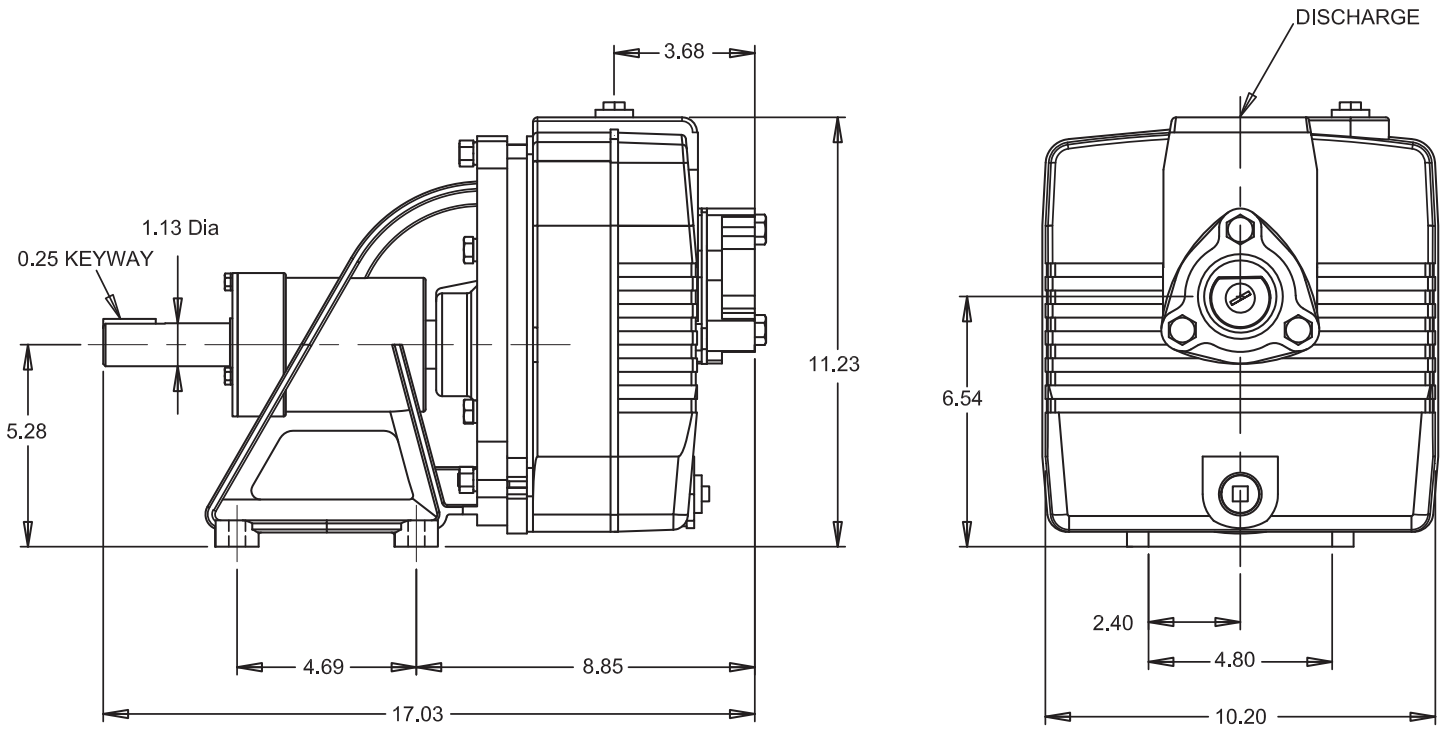
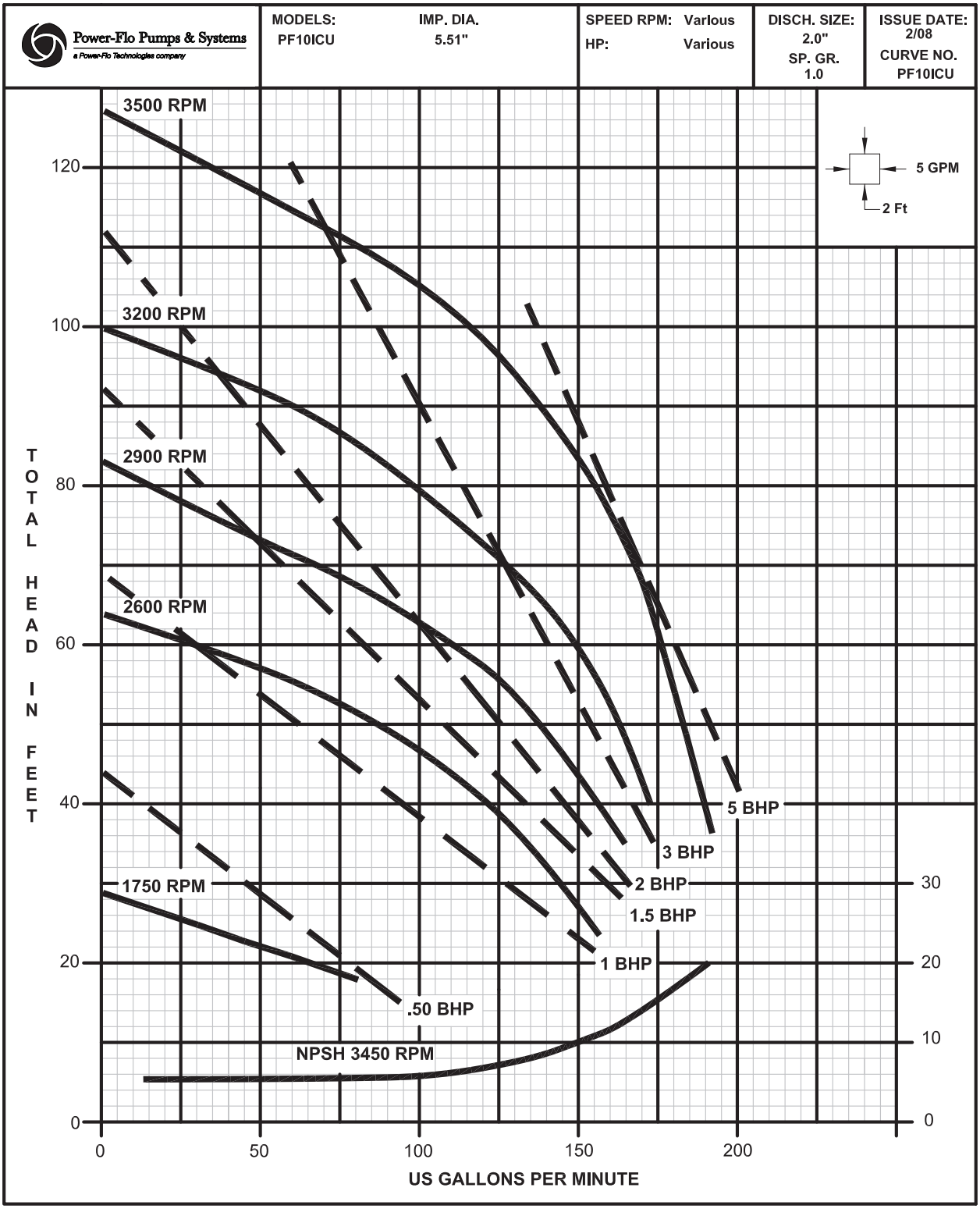
Dimensions



Model	Weight	
PF10ICU	88 lbs	

Not for pumping flammable liquids or hazardous materials that is not compatible with pump materials.

Performance



Receiving, Installation & Service

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.

Location
Locate pump as near as possible to the liquid being pumped. Do Not place pump more that 25 feet above the surface of the liquid supply.

Be sure pump is level. Mount pump firmly so not to move due to vibration. Permanently grout onto a cement foundation, flex coupled and v-belt driven units. Flex coupled units should be realigned after grouting to eliminate excessive wear on the coupling.

A minimum of 18 inches in front of pump case to permit easy removal and access to the interior of the pump. On v-belt units, allow a minimum of 10 inches at the shaft end to permit easy removal of pedestal or rotating assembly.

Controls
Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

Motor Connection
All wiring of motor and control, overload protection and grounding should be in accordance with the National Electrical Code, State and Local codes. Make motor connection per label located on motor or motor manufactures manual.

Rotation
All units rotate "clockwise" as viewed from shaft end of pump. It is necessary to slide one half of the flex coupling back when checking rotation to eliminate the possibility of unscrewing the impellers which are threaded on the shaft.

Suction


CAUTION! - Pump should not be operated without a suction strainer to prevent foreign matter from being drawn into impeller. The strainer should be cleaned regularly.

The use of pipe the same size as the port size is highly recommended. Using a smaller pipe line can cause internal damage. Make sure all lines have air-tight joints. The smallest air leak in the suction line may prevent the pump from priming. All horizontal suction lines should slope up to the pump to avoid trapped air pockets. All piping should be properly supported.

Discharge
Connect discharge hose or pipe to the discharge port. Make sure all lines have air-tight joints.

Priming
Remove pipe plug (15) in top of body (16) and fill the pump body completely with solids free liquid. In freezing weather prime pump with warm water.

DO NOT operate pump without priming first. Operating dry will damage seal.

Starting
To start pump, apply power to motor per the Motor or Engine manufacture's instructions.

Shutdown
Discontinue operation by stopping the engine as stated in Engine Manual or by disconnecting electric power to motor. It is recommended to drain and flush pump if pump has been operating in freezing weather.

Service
Turn off and lock out power before servicing pump.

Check Valve
Disconnect suction piping and remove hex nuts (30), lockwashers (31) and suction flange (22). Remove gasket (18), weights (17), (19), screw (20) and lockwasher (21) and replace if worn or damaged.

To replace, the *HINGE* section of gasket is at the *TOP* and the *LARGE* weight is on the pump side of gasket.

Body, Volute & Impeller
Disconnect suction and discharge piping. Remove hex nuts (4) and lockwashers (5) then remove body (16), o-ring (9) and seal plate (6) from pedestal (25).
Pull volute (13) and gasket (14) from seal plate (6). Remove cap screw (12) and washers (32). Unscrew the impeller (11) from shaft (23) in the right hand direction. Take note of the size and quantity of shims (10) & (29) used. To replace lip seal (26), press out of seal plate (6).

To reassemble, use the required number of shims (10) and (29) to result in an impeller-to-volute clearance of .010" to .020".

Shaft Seal

Remove rotating member, spring and retaining ring of seal (8) from shaft (23). To remove stationary, remove cap screws (43) and lockwashers (42) and pull seal plate (6) from pedestal (25). Press stationary out of seal plate. If any part shows wear or damage replace complete seal (8). Replace shaft sleeve (28) if worn or damaged.

Handle all seal parts with care. Do Not damage lapped faces.

Replace seal plate (6) onto pedestal (25). Lightly oil shaft (23) and inner surface of stationary. Press over shaft and into seal plate (6).

Oil inner surface of rotating member and with lapped surface facing pedestal, slide rotating member onto shaft until lapped faces of stationary and rotating member are together.

Replace the rest of the seal. Replace shims (10), (29) and impeller (11), making sure that spring is properly seated against impeller.

Pedestal & Shaft

Remove capscrews (34), lockwashers (33) and bearing cap (36) from pedestal (25). Remove shaft, slinger and bearing assembly. To replace bearing (37) remove retaining ring (35) and slinger (2). Press off bearings (37) and (38) from shaft (23).

REASSEMBLE REMAINDER OF PUMP IN OPPOSITE ORDER.

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.

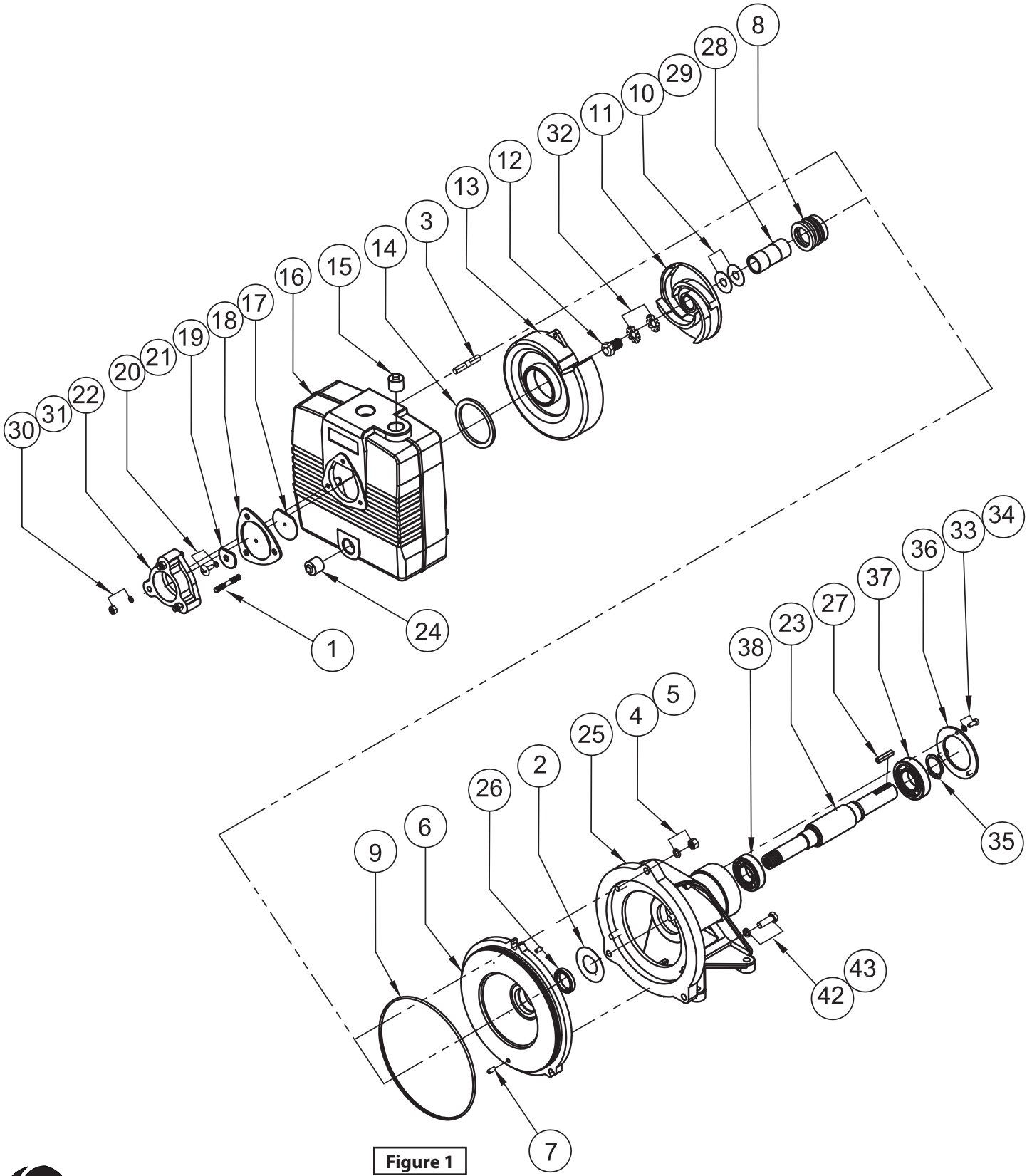


Figure 1

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

ITEM		QTY	DESCRIPTION	PF10ICU PART No.
1		3	Stud, 5/16-18 x 2.25" Lg, Stainless	♦
2		1	Slinger, NBR, 1-5/16 x 2-3/8 x 1/4	PF005163
3		3	Stud, 3/8-16 x 2.00" Lg. Stainless	♦
4		3	Hex nut, 3/8-16, Stainless	♦
5		3	Lockwasher, 3/8, Stainless	♦
6		1	Seal plate	PF033727
7		2	Volute pin	PF017715
8	◊	1	Shaft seal, Graphite/Ceramic-NBR-304	PF019146
9	◊	1	O-ring, NBR, Φ224x3.55mm	PF017713
10	◊	1	Shim, .010, Φ38xΦ26x0.254mm	PF001349
11	☆	1	Impeller, Cast Iron, 5.50" Dia.	PFCI10CCEIMP
			Impeller, Bronze	PFBRZ10CCEIMP
12		1	Hex Hd screw, 1/2-20 x 1.00" Lg, Stainless	♦
13	☆	1	Volute, Cast Iron (STD)	PFCI10CCEVOL
			Volute, Bronze (Optional)	PFBRZ10CCEVOL
14	◊	1	Volute gasket, Rubber, Φ90xΦ73x4.5mm	PF019245
15		1	Pipe plug, 1.25" NPT	♦
16		1	Body, Cast Iron	PFCI10CCETNK
*	♦		Check Valve Assy Includes items; 17, 18, 19, 20, 21, 22	PF017718-2
17	♦	1	Weight, 2.50" O.D.	PF001338
18	♦◊	1	Gasket, Neoprene, Neoprene, Φ102x3mm	PF017712
19	♦	1	Weight, 1.56" O.D.	PF001339
20	♦	1	Rd Hd Screw, 1/4-20 x .625" Lg	♦
21	♦	1	Lockwasher, 1/4" Stainless	♦
22	♦	1	Suction Flange	PF018100
23	☆	1	Shaft, Stainless	PF033756
24		1	Pipe plug, 3/4" NPT	♦
25		1	Bearing Frame	PF019643
26	❍	1	Lip seal, TC	PF026322
27	❍	1	Key, Steel, 1/4" Sq. x 1.25" Lg	PF021092
28	◊	1	Shaft sleeve, stainless, 2.906" Lg x 2.25" OD x 1" ID	PF033757
29	◊	1	Shim, Stainless, .031, Φ38xΦ26x0.78mm	PF001348
30		3	Hex nut, 5/16-18, Stainless	♦

♦ = Aquire standard hardware locally.
◊ = Seal/Gasket Kit
♦ = Check Valve Assembly
❍ = Bearing Frame Kit
☆ = Supplied as individual items

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.

ITEM		QTY	DESCRIPTION	PF10ICU PART No.
31		3	Lockwasher, 5/16	♦
32		2	Shakerproof washer, 1/2", Stainless	♦
33		3	Hex Hd screw, 10-32 x .50" Lg., Stainless	♦
34		3	Lockwasher, #10 Stainless	♦
35		1	Retaining ring	PF019851
36		1	Bearing cap	PF019845
37	❍	1	Outer Bearing, 6207ZZ, 72mm OD	PF019847
38	❍	1	Inner Bearing, 6206ZZ, 62mm OD	PF019846
42		4	Lockwasher, 5/16, stainless	♦
43		4	Hex screw, 5/16-18 x 1.00" Lg., stainless	♦
Repair Kits				
♦	**Check Valve Assembly** - Includes Items; 17, 18, 19, 20, 21, 22			PF017718-2
◊	**Seal & Gasket Kit** - Includes Items; 8, 9, 10, 14, 18, 28, 29			PF10ICUSEAL-KIT
❍	**Bearing Frame Kit** - Includes Items; 26, 27, 37, 38			PF10ICUPED-KIT

Parts sold in Repair kits **Only**, *except those indicated with ☆, which are sold as individual items.*

♦ = Aquire standard hardware locally.
◊ = Seal/Gasket Kit
♦ = Check Valve Assembly
❍ = Pedestal 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
Little or no discharge and will not prime	1. Pump body not filled with water 2. Total head too high 3. Suction head higher than pump designed for 4. Impeller partially or completely plugged 5. Leak in suction line 6. Foot-valve too small 7. Impeller damaged 8. Foot-valve or suction line not submerged deep enough in water, pulling air 9. Insufficient inlet pressure or suction head 10. Suction piping too small 11. Body gasket leaking 12. Suction or discharge line valves closed 13. Piping damaged 14. Clogged strainer or foot-valve	1. Fill pump body with water. 2. Shorten suction head 3. Lower suction head, install foot-valve and prime 4. Disassemble pump and clean out impeller 5. Repair or replace suction line 6. Match foot-valve size to piping or install one larger size foot-valve 7. Disassemble pump and replace impeller 8. Submerge lower in water 9. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line partially closed. 10. Increase pipe size to pump inlet size or larger 11. Replace 12. Open 13. Clean or replace 14. Clean or replace
Loss of suction after satisfactory operation	1. Air leak in suction line 2. When pump was last turned off, water siphoned out of pump body 3. Suction head higher than pump designed for 4. Insufficient inlet pressure or suction head 5. Clogged foot-valve, strainer or pump 6. Defective wearplate	1. Repaire or replace suction line 2. Refill (reprime) pump body before restarting 3. Lower suction head, install foot-valve and prime 4. Increase inlet pressure by adding more water to tank or increasing back pressure by turning gate valve on discharge line to partially closed. 5. Unclog or replace 6. Replace
Pump overloads driver	1. Total head lower than pump rating, unit delivering too much water 2. Specific gravity and viscosity of liquid being pumped different than the pump rating	1. Increase back pressure by turning gate valve on discharge line to partially closed position that will not overload motor. 2. Consult factory
Pump vibrates and/or makes excessive noise	1. Mounting plate or foundation not rigid enough 2. Foreign material in pump causing unbalance 3. Impeller bent 4. Cavitation present 5. Piping not supported to relieve any strain on pump assembly	1. Reinforce 2. Disassemble pump and remove 3. Replace impeller 4. Check suction line for proper size and check valve in suction line if completly open, remove any sharp bends before pump and shorten suction line 5. Make necessary adjustments
Pump runs but no fluid	1. Air leak in suction piping 2. Pump located too far from fluid source 3. Gate valve closed 4. Clogged strainer 5. Fouled foot-valve 6. Discharge height too great 7. Fouled impeller 8. Faulty mechanical seal	1. Replace 2. Replace 3. Open 4. Clean or Replace 5. Clean or Replace 6. Lower the height 7. Clean or Replace 8. Replace
Pump leaks at shaft	1. Worn mechanical seal 2. Seal not installed properly	1. Replace 2. Follow service instructions for installing seal

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.

LIMITED WARRANTY

Manufacturer warrants, to the immediate purchaser and subsequent initial owner during the warranty period, every new pump to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of eighteen (18) months from date of manufacture or twelve (12) months from date of installation (which ever comes first). Failure due to wear due to exessive abrasives is not covered. The initial owner is the purchaser who first uses the pump after its initial installation, or for non-permanent installation, the first owner who uses the pump. The date of installation 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. 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.