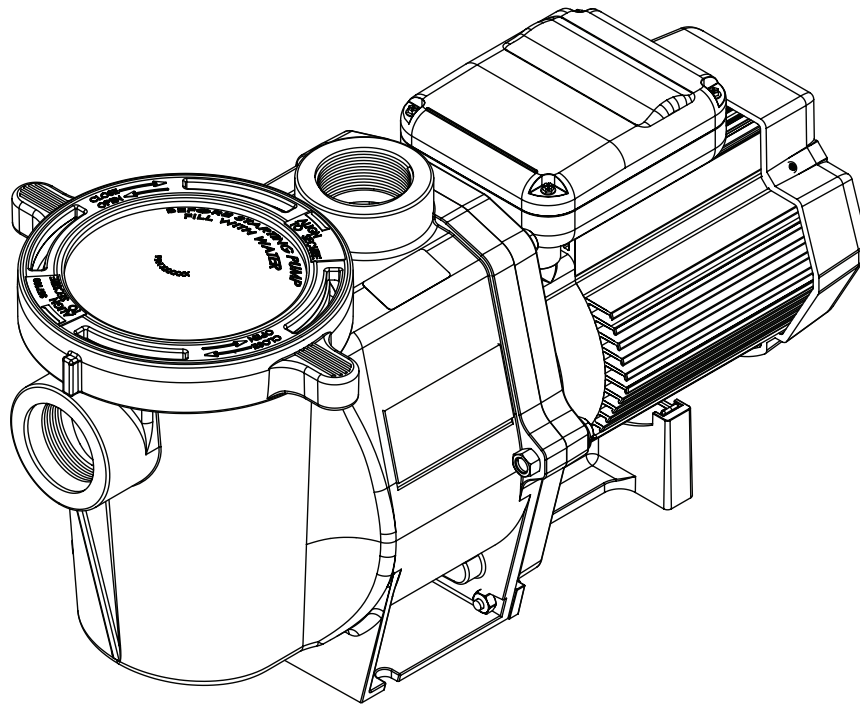




AQUATIC ECO-SYSTEMS®

SPARUS™ 160

ENERGY EFFICIENT AQUACULTURE DUTY PUMP



## INSTALLATION AND USER'S GUIDE

IMPORTANT SAFETY INSTRUCTIONS  
*READ AND FOLLOW ALL INSTRUCTIONS*  
SAVE THESE INSTRUCTIONS

## CUSTOMER SERVICE / TECHNICAL SUPPORT

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If you have questions about ordering Pentair Aquatic Eco-Systems, Inc. replacement parts and products, please use the following contact information:

### Customer Service

Monday to Thursday: 8 AM to 7 PM EST  
Friday: 8 AM to 5 PM EST

### Web site

Visit [www.pentairaes.com](http://www.pentairaes.com)

### US

Phone: (877) 347-4788  
FAX: (407) 886-6787

### International

Phone: (407) 886-3939  
FAX: (407) 886-4884

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# IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS



## IMPORTANT NOTICE

This guide provides installation and operation instructions for this product. Consult Pentair with any questions regarding this equipment.

**Attention Installer:** This guide contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment after installation. This pump is for use for aquaculture installations ONLY. Do not use with any type of swimming pool, hot tub, or spa.

**Attention User:** This manual contains important information that will help you in operating and maintaining this product. Please retain it for future reference. Warnings and safety instructions for Pentair Aquatic Eco-Systems pumps and other related products are available at:

<http://www.pentairaes.com> or call U.S. (877) 347-4788 • International (407) 886-3939 for additional free copies of these instructions.

## READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS



This is the safety alert symbol. When you see this symbol on your system or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

### **⚠ DANGER**

Warns about hazards that can cause death, serious personal injury, or major property damage if ignored.

### **⚠ WARNING**

Warns about hazards that may cause death, serious personal injury, or major property damage if ignored.

### **⚠ CAUTION**

Warns about hazards that may or can cause minor personal injury or property damage if ignored.

**NOTE** indicates special instructions not related to hazards.

Carefully read and follow all safety instructions in this manual and on equipment. Keep safety labels in good condition; replace if missing or damaged.

When installing and using this electrical equipment, basic safety precautions should always be followed, include the following:

### **⚠ WARNING**

**RISK OF ELECTRICAL SHOCK.** Connect only to a branch circuit protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI.

### **⚠ WARNING**

This unit must be connected only to a supply circuit that is protected by a ground-fault circuit-interrupter (GFCI). Such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of an electric shock. Do not use this pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

## General Warnings

- Never open the inside of the drive motor enclosure. There is a capacitor bank that holds a 230 VAC charge even when there is no power to the unit.
- The pump is not submersible.
- The pump is capable of high flow rates; use caution when installing and programming to limit pumps performance potential with old or questionable equipment.
- Code requirements for the electrical connection differ from state to state. Install equipment in accordance with the current National Electrical Code and all applicable local codes and ordinances.
- Before servicing the pump; switch OFF power to the pump by disconnecting the main circuit to the pump.
- This appliance is not intended for use by persons (including children) of reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.

### **⚠ DANGER**

FAILURE TO FOLLOW ALL INSTRUCTIONS AND WARNINGS CAN RESULT IN SERIOUS BODILY INJURY OR DEATH. **THIS PUMP SHOULD BE INSTALLED AND SERVICED ONLY BY A QUALIFIED SERVICE PROFESSIONAL. INSTALLERS, OPERATORS AND OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS IN THE OWNER'S MANUAL BEFORE USING THIS PUMP. THESE WARNINGS AND THE OWNER'S MANUAL MUST BE LEFT WITH THE PRODUCT OWNER.**

### **⚠ DANGER**

SUCTION ENTRAPMENT HAZARD: STAY OFF THE MAIN DRAIN AND AWAY FROM ALL SUCTION OUTLETS!



THIS PUMP PRODUCES HIGH LEVELS OF SUCTION AND CREATES A STRONG VACUUM AT THE MAIN DRAIN AT THE BOTTOM OF THE BODY OF WATER. THIS SUCTION IS SO STRONG THAT IT CAN TRAP ADULTS OR CHILDREN UNDER WATER IF THEY COME IN CLOSE PROXIMITY TO A DRAIN OR A LOOSE OR BROKEN DRAIN COVER OR GRATE.

### **⚠ DANGER**



**RISK OF ELECTRICAL SHOCK OR ELECTROCUTION: PUMPS REQUIRE HIGH VOLTAGE WHICH CAN SHOCK, BURN, OR CAUSE DEATH. BEFORE WORKING ON PUMP!** Always disconnect power to the pump at the circuit breaker from the pump before servicing the pump. Failure to do so could result in death or serious injury to service person, system users or others due to electric shock.

# IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS

**NOTE: ALL SUCTION PLUMBING MUST BE INSTALLED IN ACCORDANCE WITH THE LATEST NATIONAL AND LOCAL CODES, STANDARDS AND GUIDELINES.**

**⚠ WARNING** A clearly labeled emergency shut-off switch for the pump must be in an easily accessible, obvious place. Make sure users know where it is and how to use it in case of emergency.

## For Installation of Electrical Controls at Equipment Pad (ON/OFF Switches, Timers and Automation Load Center)

**⚠ CAUTION** Install all electrical controls at equipment pad, such as on/off switches, timers, and control systems, etc. to allow the operation (startup, shut-down, or servicing) of any pump or filter so the user does not place any portion of his/her body over or near the pump strainer lid, filter lid or valve closures. This installation should allow the user enough space to stand clear of the filter and pump during system start-up, shut down or servicing of the system filter.



**⚠ CAUTION** This pump has been evaluated for use with water only.

**⚠ CAUTION** Before operation, be sure to completely rinse the pump volute with water.

## Cord Connected Models Only

**⚠ WARNING** **RISK OF ELECTRICAL SHOCK.** This pump is supplied with a grounding conductor and grounding type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.

**⚠ WARNING** Pumps improperly sized or installed or used in applications other than for which the pump was intended can result in severe personal injury or death. These risks may include but not be limited to electric shock, fire, flooding, suction entrapment or severe injury or property damage caused by a structural failure of the pump or other system component.

**⚠ WARNING** The pump can produce high levels of suction within the suction side of the plumbing system. These high levels of suction can pose a risk if a person comes within the close proximity of the suction openings. A person can be seriously injured by this high level of vacuum or may become trapped and drown. It is absolutely critical that the suction plumbing be installed in accordance with the latest national and local codes for aquaculture systems.

## ⚠ DANGER



## HAZARDOUS PRESSURE: STAND CLEAR OF PUMP AND FILTER DURING START UP

Circulation systems operate under high pressure. When any part of the circulating system (i.e. locking ring, pump, filter, valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the pump housing cover,

filter lid and valves to violently separate which can result in severe personal injury or death. Filter tank lid and strainer cover must be properly secured to prevent violent separation. Stand clear of all circulation system equipment when turning on or starting up pump.

Before servicing equipment, make note of the filter pressure. Be sure that all controls are set to ensure the system cannot inadvertently start during service. Turn off all power to the pump. **IMPORTANT: Place filter manual air relief valve in the open position and wait for all pressure in the system to be relieved.**

Before starting the system, fully open the manual air relief valve and place all system valves in the “open” position to allow water to flow freely from the tank and back to the tank. Stand clear of all equipment and start the pump. **IMPORTANT: Do not close filter manual air relief valve until all pressure has been discharged from the valve and a steady stream of water appears.** Observe filter pressure gauge and be sure it is not higher than the pre-service condition.

## General Installation Information

- All work must be performed by a qualified service professional, and must conform to all national, state, and local codes.
- Install to provide drainage of compartment for electrical components.
- These instructions contain information for a variety of pump models and therefore some instructions may not apply to a specific model. All models are intended for use in aquaculture applications. The pump will function correctly only if it is properly sized to the specific application and properly installed.

# SAVE THESE INSTRUCTIONS

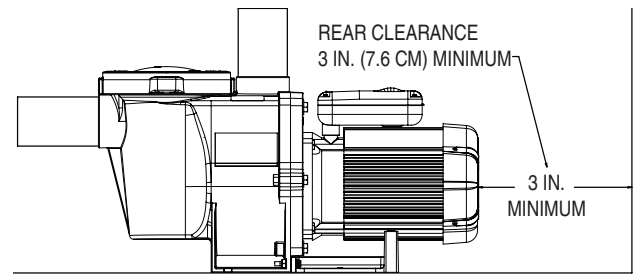
# INSTALLATION

Only a qualified plumbing professional should install the Sparus™ 160 Energy Efficient Aquaculture Duty Pump. Refer to “Pump Warning And Safety Instructions” on pages ii - iii for additional installation and safety information.

## Location

Be sure the pump location meets the following requirements:

- Pump inlet as close as possible to water level.
- Short, direct suction piping returns (reduces friction loss).
- Install pump in a sheltered, well ventilated area to protect from excess moisture (i.e., rain, splashing water, etc.) and flooding.
- Install and secure pump on level concrete slab or firm surface (reduces vibration noise).
- Pump location should allow access for servicing and maintenance.

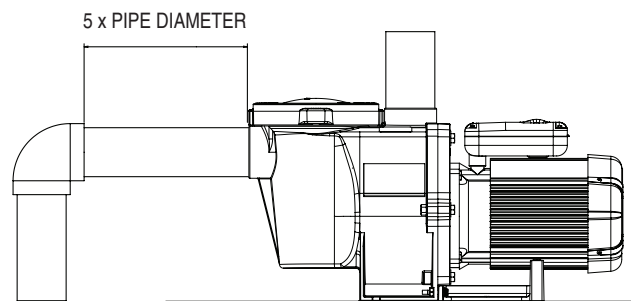


Pump Rear Clearance

## Piping

1. Be sure all plumbing connections are clean and tight to avoid possible air leaks and entrainment of air on the suction side of the pump.
2. Gas supersaturation conditions resulting from air entrainment can be harmful to aquatic animal health.
3. Use larger pipe sizes for improved plumbing. Suction pipe diameter should be the same, or larger, as the return line diameter.
4. Plumbing on the suction side of the pump should be as short as possible.
5. Install piping as close to the water level as possible.
6. Run straight, horizontal piping for the suction side of the pump. The length of the piping should be equal to five (5) pipe diameters.

*Example: If system is plumbed with 3 in. diameter PVC pipe, then a straight section of pipe 15 in. long should be used for suction side of the pump.*



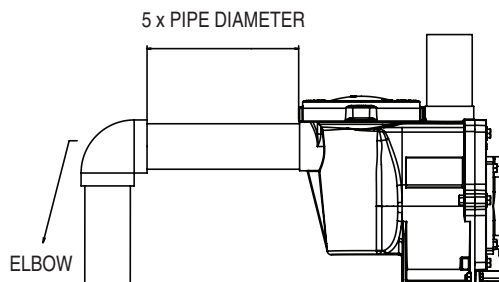
Minimum Pipe Diameter

## Valves

1. Install gate valves on suction and discharge pipes for maintenance of flooded suction systems- install no closer than five (5) times the suction pipe diameter.
2. Use a check valve in the discharge line when using this pump for any application where there is significant height to the plumbing after the pump.
3. Be sure to install check valves when plumbing in parallel with another pump. This helps prevent reverse rotation of the impeller and motor.



Before operation, be sure to completely rinse the pump volute with water.



ELBOW

## Fittings

1. Install fittings (valves, elbows, tees, etc.) in the suction line no closer than five (5) times the pipe diameter to the front of the pump (e.g. 3" pipe = 15 in).
2. Do not install 90° elbows directly into pump inlet.

## Electrical

- Install all equipment in accordance with the National Electrical Code and all applicable local codes and ordinances.
- A means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
- If the supply cord is damaged, it must be replaced to avoid a hazard. The supply cord can be purchased separately from the manufacturer, its service agent or a qualified electrician.

## Electrical Wiring Installation

### **WARNING**



**RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.** This pump must be installed by a licensed or certified electrician or a qualified service professional in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to users, installers, or others due to electrical shock, and may also cause damage to property.

**Always disconnect power to the pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to service people, users or others due to electric shock.**

Read all servicing instructions before working on the pump.

To connect the pump to an AC power source (for non-cord connected pumps):

1. Be sure all electrical breakers and switches are turned off before wiring motor.
2. Be sure that the supply line voltage matches the motor voltage listed on the motor plate (example 230 VAC or 115 VAC). If they do not match, permanent motor damage may occur.
3. Size wiring for pumps according to the National Electrical Code. When in doubt, use a heavier gauge (larger diameter) wire. Heavier gauge will allow the motor to run cooler and more efficiently.
4. Use strain relief and be sure all electrical connections are clean and tight.
5. Cut the wires to the appropriate length so they do not overlap or touch when connected.
6. Permanently ground the motor using the green ground wire, as shown below. Use the correct wire size and type specified by National Electrical Code. Make sure the ground wire is connected to an electrical service ground.
7. Bond the motor to the structure in accordance with the National Electrical Code. UL requires use of a solid copper bonding conductor not smaller than 8 AWG. Run a wire from the external bonding screw or lug to the bonding structure. Connect the wire from the accessible wire connector on the motor to all metal parts of the structure and to all electrical equipment, metal conduit, and metal piping within 5 feet (1.5 m) of the inside walls of the structure. For Canada, a 6 AWG or larger solid copper bonding conductor is required.
8. The pump should be permanently connected to either a circuit breaker, 2-pole timer or 2-pole relay. If AC power is supplied by a GFCI circuit breaker, use a dedicated circuit breaker that has no other electrical loads.

**Note:** When the pump is started and stopped by removing power with a relay or timer, a two-pole device should be used to apply and remove power to both POWER LINE TERMINALS.



# MAINTENANCE



**DO NOT** open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.



To prevent damage to the pump and for proper operation of the system, clean pump strainer and system regularly.

## Pump Strainer Basket

The strainer basket (or 'strainer pot'), is located in front of the pump housing. The strainer basket must be kept clean and free of debris. Inspect basket through the lid on the top of the housing.

Be sure to visually inspect the strainer basket every 1 to 4 weeks. Dirty strainer baskets reduce filter and heater efficiency and put abnormal stress on the pump motor. Bacterial fouling could cause the lid to not be clear.

## Cleaning the Pump Strainer Basket

1. Turn off the pump at the circuit breaker.
  2. Relieve pressure in the system.
  3. Turn the lid and clamp counter-clockwise and remove from the pump.
  4. Remove debris and rinse out the basket. Replace the basket if it is cracked.
  5. Put the basket back into the housing. Be sure to align the notch in the bottom of the basket with the rib in the bottom of the volute.
  6. Fill the pump pot and volute up to the inlet port with water.
  7. Clean the lid and clamp, O-ring, and sealing surface of the pump pot.
- Note:** It is important to keep the lid O-ring clean and well lubricated.
8. Reinstall the lid by placing the clamp and lid on the pot. Be sure the lid O-ring is properly placed.
- Seat the clamp and lid on the pump then turn clockwise until the locking ring handles are horizontal.
9. Turn the power "ON" at the circuit breaker.
  10. Open the manual air relief valve on the top of the filter. Stand clear of the filter.
  11. Wait until all pressure is relieved. Start the pump.
  12. Bleed air from the filter until a steady stream of water comes out of the filter air relief valve. Close the manual air relief valve.



### THIS SYSTEM OPERATES UNDER HIGH PRESSURE.

When any part of the circulating system (e.g., Lock Ring, Pump, Filter, Valves, etc.) is serviced, air can enter the system and become pressurized. Pressurized air can cause the lid to separate which can result in serious injury, death, or property damage. To avoid this potential hazard, follow above instructions.



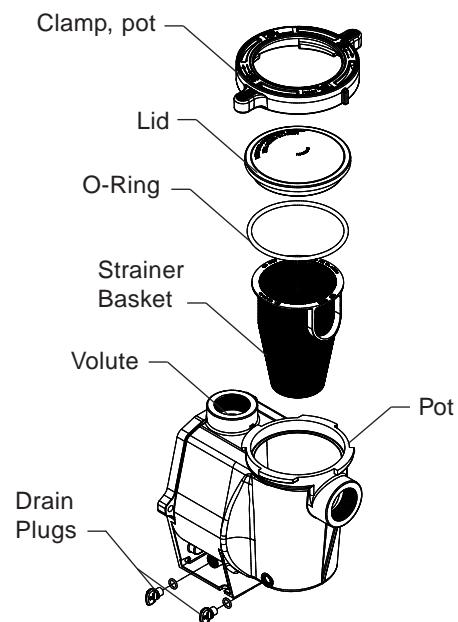
## Winterizing

- In mild climate areas, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.
- You are responsible for determining when freezing conditions may occur. If freezing conditions are expected, take the following steps to reduce the risk of freeze damage. **Freeze damage is not covered under warranty.**

To prevent freeze, damage follow the procedures below:

1. Shut off electrical power for the pump at the circuit breaker.
2. Drain the water out of the pump housing by removing the two thumb-twist drain plugs from the housing. Store the plugs in the pump basket.
3. Cover the motor to protect it from severe rain, snow and ice.

**Note:** Do not wrap motor with plastic or other air tight materials during winter storage. The motor may be covered during a storm, winter storage, etc., but never when operating or expecting operation.



Strainer Pot Assembly

# SERVICING

## ⚠ WARNING

Always disconnect power to the pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to service people, users or others due to electric shock. Read all servicing instructions before working on the pump.

## ⚠ WARNING

**DO NOT** open the strainer pot if pump fails to prime or if pump has been operating without water in the strainer pot. Pumps operated in these circumstances may experience a build up of vapor pressure and may contain scalding hot water. Opening the pump may cause serious personal injury. In order to avoid the possibility of personal injury, make sure the suction and discharge valves are open and strainer pot temperature is cool to touch, then open with extreme caution.

## ⚠ CAUTION

Be sure not to scratch or mar the polished shaft seal faces; seal will leak if faces are damaged. The polished and lapped faces of the seal could be damaged if not handled with care.

## Motor Care

### Protect from heat

1. Shade the motor from the sun.
2. Any enclosure must be well ventilated to prevent overheating.
3. Provide ample cross ventilation.

### Protect against dirt

1. Protect from any foreign matter or splashing water.
2. Do not store (or spill) chemicals on or near the motor.
3. Protect from any foreign matter or splashing water.
4. Avoid sweeping or stirring up dust near the motor while it is operating.
5. If a motor has been damaged by dirt it voids the motor warranty.
6. Clean the lid and clamp, O-ring, and sealing surface of the pump pot.

### Protect against moisture

1. Protect from splashing or sprayed water.
2. Protect from extreme weather.
3. Protect from any foreign matter or splashing water.
4. If a motor has become wet - let it dry before operating. Do not allow the pump to operate if it has been flooded.
5. If a motor has been damaged by water it voids the motor warranty.

## Shaft Seal Replacement

The Shaft Seal consists primarily of two parts, a spring-loaded member, and rotating ceramic seal. The pump requires little or no service other than reasonable care, however, a shaft seal may occasionally become damaged and must be replaced.

**Note:** The polished and lapped faces of the seal could be damaged if not handled with care.

*Illustrated parts view on the next page*

## Pump Disassembly

### Tools required:

- 3/32 inch Allen head wrench
- Two (2) 9/16 inch open end wrenches
- No. 2 or 3 Phillips head screwdriver
- Adjustable wrench
- 1/4 inch Allen head wrench

To remove and repair the motor subassembly, follow the steps below:

1. Turn off the pump circuit breaker at the main panel.
2. Drain the pump by removing the drain plugs. No tools are required.
3. Use the 9/16 inch wrenches to remove the six bolts that hold the housing (strainer pot/volute) to the rear subassembly.
4. Gently pull the two pump halves apart, removing the rear subassembly.
5. Use a 3/32 inch Allen head wrench to loosen the two holding screws located on the diffuser.
6. Hold the impeller securely in place and remove the impeller lock screw by using a Phillips head screwdriver. The screw is a left-handed thread and loosens in a clockwise direction.
7. Use a 1/4 inch Allen wrench to hold the motor shaft in the rear of the motor. The motor shaft has a slot on the end which is accessible through the center of the fan cover.
8. To unscrew the impeller from the shaft, twist the impeller counterclockwise.
9. If the seal needs replacing, remove the white-colored, rotating portion of the mechanical seal from the impeller.
10. Remove the four bolts from the seal plate to the motor, using a 9/16 inch wrench.
11. Place the seal plate face down on a flat surface and tap out the carbon spring seat.
12. Clean the seal plate, seal bore, and the motor shaft.



## Pump Reassembly

1. When installing the replacement shaft seal, use silicone sealant on the metal portion before pressing into the seal plate, being careful to keep off of the seal face. Be sure the seal is fully seated and allow 24 hours for sealant to cure. (Complete seal plate w/seal replacement kit available, P/N 350101SS).
2. Before installing the rotating portion of the seal into the impeller, be sure the impeller is clean. Use a light density soap and water to lubricate the inside of the seal. Press the seal into the impeller with your thumbs and wipe off the ceramic and carbon faces with a clean cloth.
3. Remount the seal plate to the motor.
4. Grease the motor shaft thread and screw impeller onto the motor shaft.
5. Screw in the impeller lock screw (counterclockwise to tighten).
6. Remount the diffuser onto the seal plate. Be sure the plastic pins and holding screw inserts are aligned.
7. Grease the diffuser O-ring and seal plate gasket prior to reassembly.
8. Assemble the motor subassembly to the pump housing by using the two (2) through bolts for proper alignment. Do not tighten the through bolts until all six (6) bolts are in place and finger tightened.
9. Fill the pump with water.
10. Reinstall the pump lid and plastic clamp. Refer to "Cleaning the Pump Strainer Basket" on page 3.
11. Prime the pump. Follow the Restart Instructions in the next section for start up.

## Restart Instructions

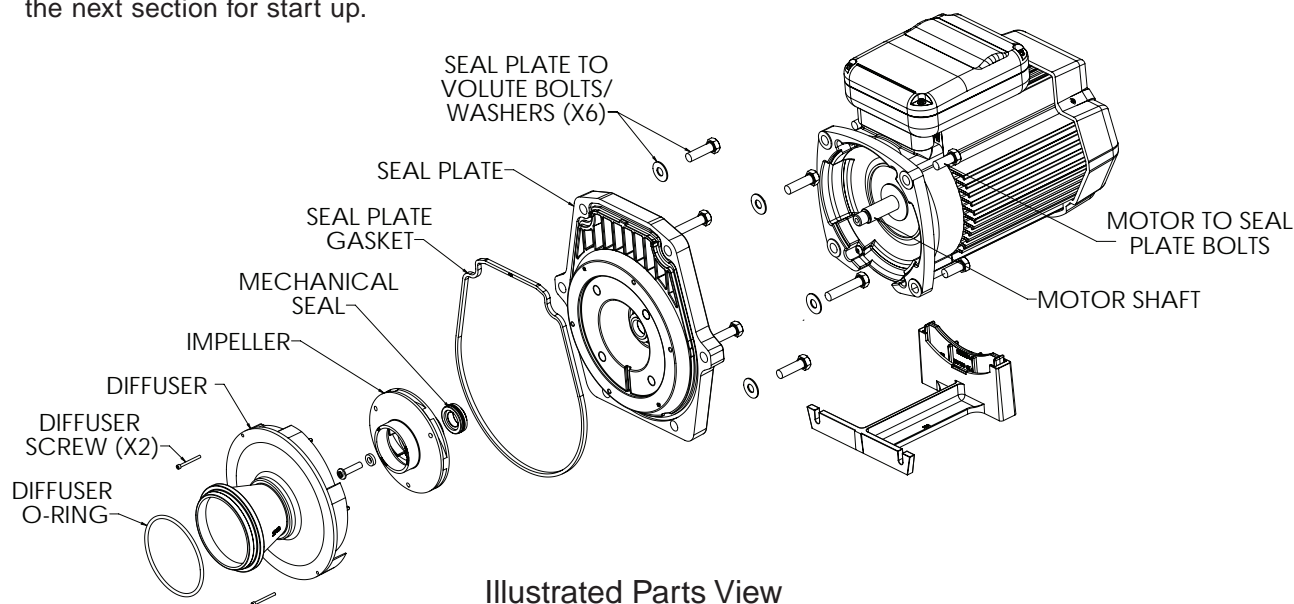
If pump is installed below the water level, close return and suction lines prior to opening the strainer pot on the pump. Be sure to re-open valves prior to operating.

### Priming the Pump

The pump strainer pot must be filled with water before the pump is initially started. Follow the steps below to prime the pump:

1. Remove the pump lid plastic clamp. Remove the pump lid.
2. Fill the pump strainer pot with water.
3. Reassemble the pump lid and locking ring onto the strainer pot. The pump is now ready to prime.
4. Open the air relief valve on the filter, and stand clear of the filter.
5. Turn on the pump.
6. When water comes out of the filter air relief valve, close the valve. The system should now be free of air and recirculating water throughout the system.
7. For variable speed and two speed pumps, pump should run on high speed for priming.

The pump should not run longer than 8 minutes if priming is not achieved.



Illustrated Parts View

### CAUTION

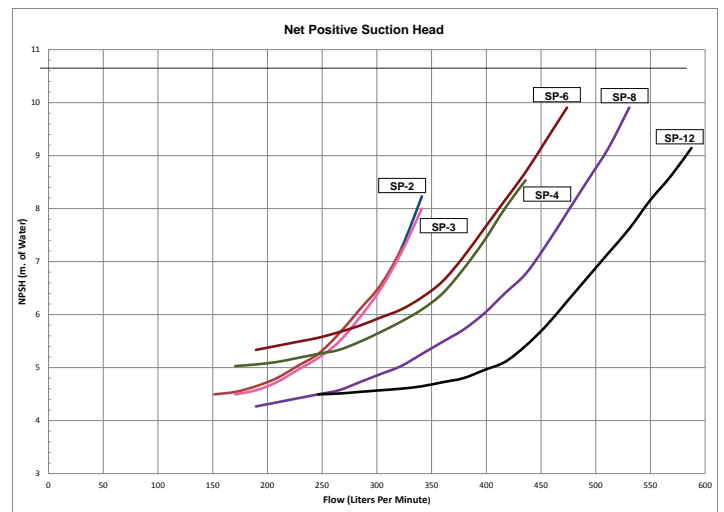
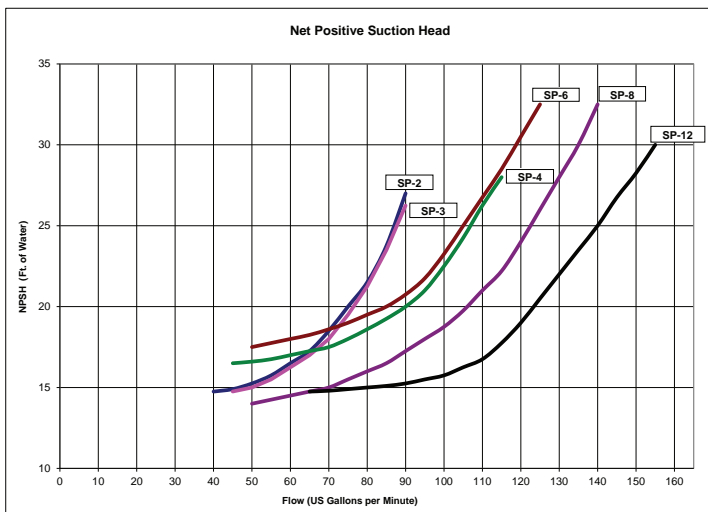
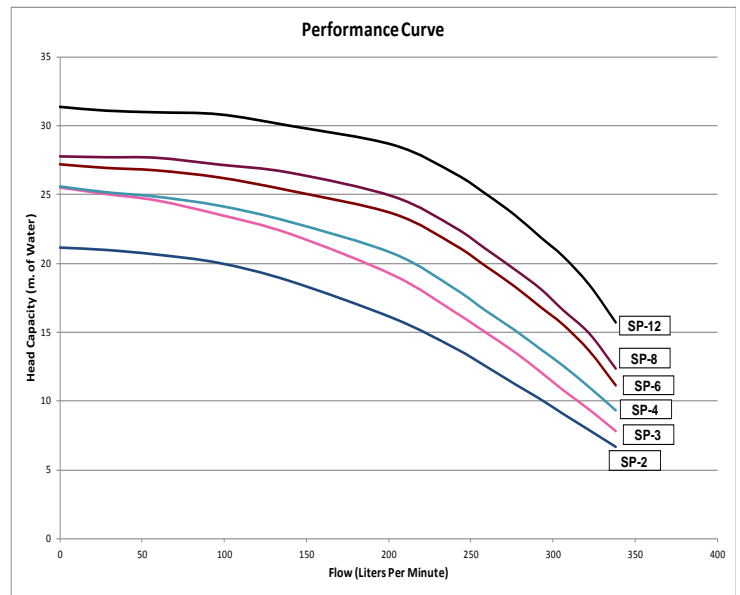
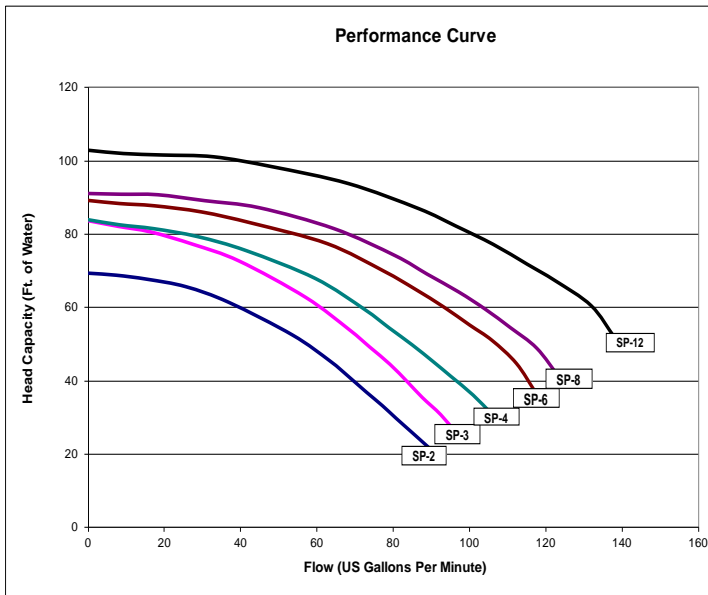
**DO NOT run the pump dry.** If the pump is run dry, the mechanical seal will be damaged and the pump will start leaking. If this occurs, the damaged seal must be replaced. ALWAYS maintain proper water level. If the water level falls below the suction port, the pump will draw air through the suction port, losing the prime and causing the pump to run dry, resulting in a damaged seal. Continued operation in this manner could cause a loss of pressure, resulting in damage to the pump case, impeller and seal and may cause property damage and personal injury.

## TROUBLESHOOTING

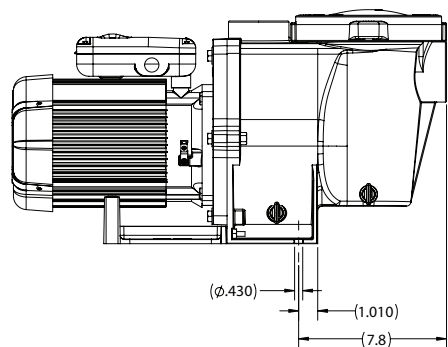
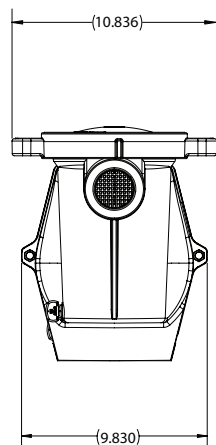
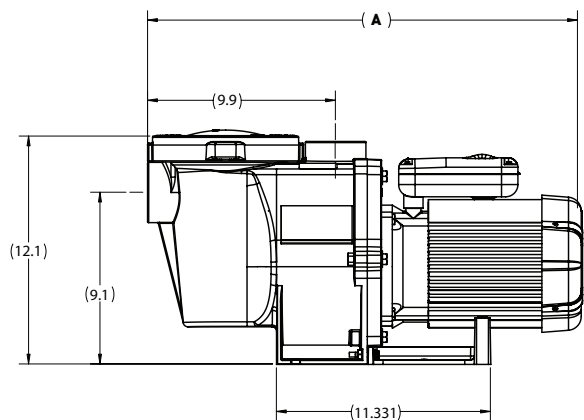
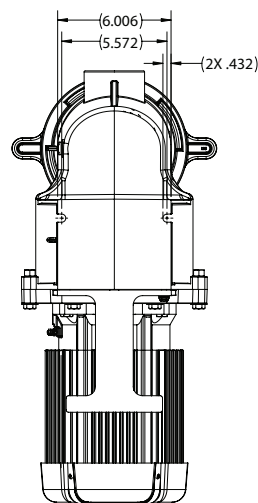
Problem	Possible Cause	Corrective Action
<b>Pump will not prime</b>	Air circulating in system.	Check suction piping and valve on any suction gate valves. Secure lid on pump strainer pot and be sure lid gasket is in place. Check water level to make sure suction port is not drawing air. Be sure suction lines, pump strainer, and pump volute are full of water. Be sure valve on suction line is working and open, (some systems do not have valves).
<b>Pump gasket defective</b>	Defective gasket.	Replace gasket.
<b>Reduced capacity and/or head</b>	Air pockets or leaks in suction line  Pump will not prime — too much air	Check suction piping and valve on any valve suction gate valves. Secure lid on pump strainer pot and make sure lid gasket is in place. Check water level to make sure suction port is not drawing air. Clean pump strainer pot. Check to see if impeller or diffuser are clogged.
<b>Clogged Impeller</b>	Debris in impeller	Switch OFF electrical power at the circuit breakers to the pump. Remove the nuts that secure the volute to the seal plate. Slide the motor and seal plate away from the volute. Clean debris from impeller. If debris cannot be removed, complete the following steps. (1) Remove impeller reverse screw and O-ring. (2) Remove, clean and reinstall impeller. (3) Reinstall anti-spin bolt. Reinstall diffuser and O-ring. Reinstall motor and seal plate into volute. Reinstall hardware around seal plate and volute and tighten securely.
<b>Pump strainer clogged</b>	Debris in pump strainer basket.	Clean suction trap.
<b>Gas supersaturation in aquatic life.</b>	Vacuum leaks in suction line.	Check plumbing connections and suction piping. Check to be sure suction port is not drawing air into the system.

# TECHNICAL DATA

## Pump Performance Curves



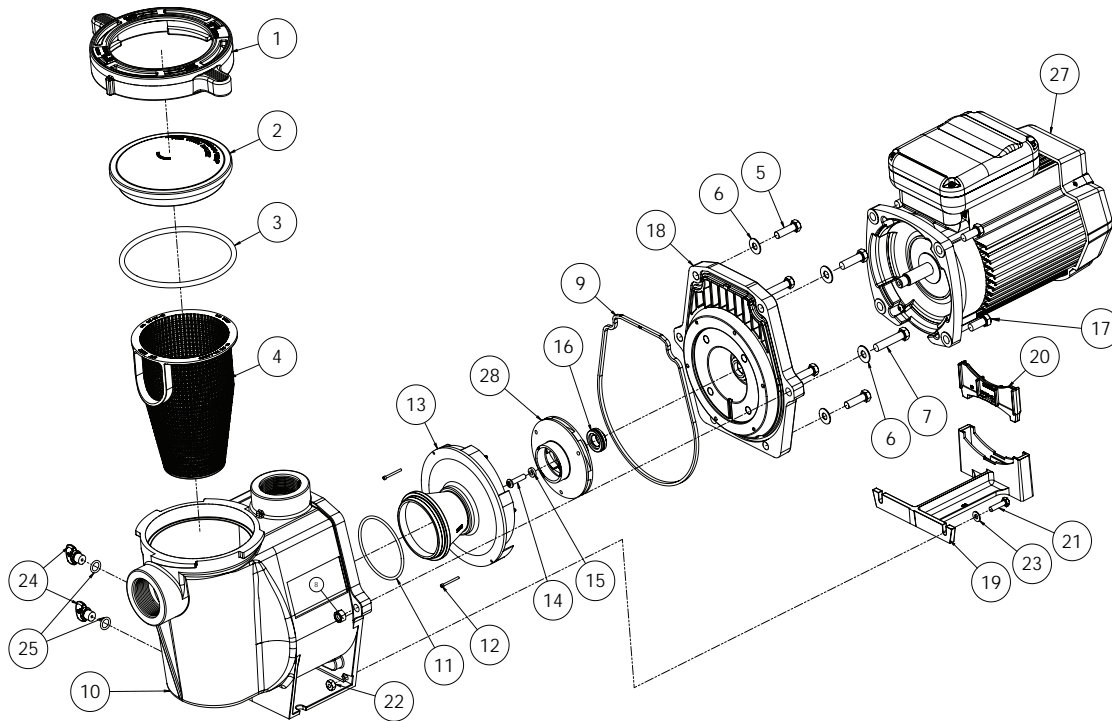
Dimensional Drawings



MOTORS	DIM “A”
Standard Motors	
½ and ¾ HP	24.61”
1 HP	24.86”
TEFC Motors	
1½ HP	21.75”
2 HP	22.16”
3 HP	22.86”

# REPLACEMENT PARTS

## Illustrated Parts List



Item No.	P/N	Description
1	357150	Clamp, Cam & Ramp, Black
2	357151	Cover, Clear, SP Pump
3	350013	O-Ring, SP Cover
4	070387	Strainer Basket, SP
5	070430	Bolt 3/8-16 x 1.25in Hex Head SS, 4 Req.
6	072184	Washer, 3/8 x 13/16 OD, SS, 6 Req.
7	070431	Bolt 3/8-16 x 1.75in Hex Head SS, 2 Req.
8	071403	Nut, 3/8-16 Hex Head, SS, 2 Req.
9	357100	Black Gasket for Seal Plate
10	357157	Volute, SP Pump & Pot, Black
11	355227	O-Ring Parker No. 2.238, SP Pump
12	071660	Diffuser Screw, 4-40 x 1 1/8in SP, 2 Req.
13	072927SS	Diffuser Assy., SP-2--8
13	072928SS	Diffuser Assy., SP-12

Item No.	P/N	Description
14	071652	Reverse Thread Screw, 1/4-20 x 1in Phillips
15	075713	Rubber Washer, SP Pump
16	353096Z	Type 6A 316SS EPDM Ceramic, Salt Water Resistant
17	070429	Bolt 3/8-16 x 7/8in SS Hex Head, 4 Req.
18	357158SS	Seal Plate SS SP, Black
18a	350101SS	Seal Plate SS Kit SP, Black
19	357159	Foot, SP Pump Black
20	357160	Foot Insert, SP Pump Black
21	071657	Screw 1/4-20 Hex Head, SS, 2 Req.
22	071406	Nut, 1/4-20 Hex Head, SS, 2 Req.
23	072183	Washer, 1/4 x 5/8 OD, SS, 2 Req.
24	357161	Drain Plug, Black, 2 Req.
25	192115	O-Ring, Drain Plug, 2 Req.
26	353100	Power Cord 6 ft. 14-3, NEMA 5-15P Plug, SP-2--3

**MOTOR TABLE**

27	355009S	SPE-2, SPE-3
27	355011S	SPE-4
27	355013S	SPE-6
27	355015S	SPE-8
27	355017S	SPE-12
27	354806S	SPKT-2, SPKT-3, SPKT-4
27	354808S	SPKT-6
27	354810S	SPKT-8
27	354812S	SPKT-12
27	354824S	SPET-6
27	354816S	SPET-8
27	354818S	SPET-12

**IMPELLER TABLE**

28	073126SS	SP-2
28	073127SS	SP-3
28	073128SS	SP-4
28	073129SS	SP-6
28	073130SS	SP-8
28	073131SS	SP-12

## AGENCY MATERIAL LIST

Part Description	Part No.	Wetted Contact Area in <sup>2</sup>	Material Type Including Metal Alloy
Volute	357157	413	Polypropylene
Seal Plate	357158SS	58	Polypropylene
Seal Plate Inserts for Diffuser	353083	0.01	316 Stainless Steel
Diffuser	072927SS, 072928SS	92	Polypropylene
Diffuser Bushing Insert	353082	3.75	316 Stainless Steel
Drain Plug	357161	0.03	Polypropylene
Lid	357151	28	Lexan
O-Ring	350013, 355227, 192115	2.5	Neoprene
Basket	070387	142.5	Polypropylene
Sealplate Gasket	357100	4.5	Buna N
Screws	071660, 071652	0.1	Stainless Steel
Mechanical Seal	353096	0.15	Carbon Face/Ceramic Buna Rubber, 316 Stainless Steel
Impellers	073126SS, 073127SS, 073128SS, 073129SS, 073130SS & 073131SS	103	PPO (Poly Phenyl Oxide)
Impeller Insert	353081	0.80	316 Stainless Steel







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