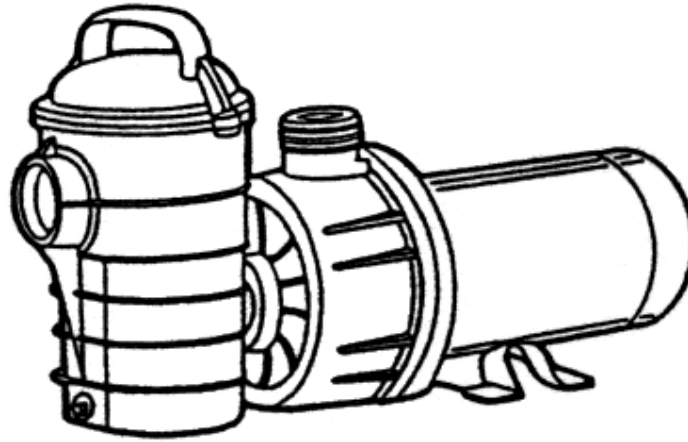




Sea Horse[®] Centrifugal Pump



Installation and User's Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Warranty Policy

- Warranty period starts from date of purchase and must be validated with copy of original purchase receipt.
- Warranty requests by phone will not be honored.
- Warranty items returned without copy of original purchase receipt will not be honored.
- Products purchased from EBay, Craig's List, etc. cannot be honored for warranty unless returned by original purchaser with proof of purchase.
- All items must first be returned to Lifeguard Aquatics for inspection, evaluation, and processing to determine if product qualifies for warranty replacement or repair. No warranty (repair, replacement, or credit) will be issued prior to inspection of product.
- **Please contact us first for warranty assistance. Many times the product can be repaired without the cost and time involved in sending it back.** If absolutely necessary, return product **FREIGHT PREPAID** for warranty evaluation and processing. Call or email our office to obtain RMA number and shipping address.

Lifeguard Aquatics

Tel (562)404-4129

Fax (562)404-4159

Email: info@lifegardaquatics.com

- **3 year warranty** from date of purchase on **Quiet One Pump Motors Only.**
- **60 day warranty** from date of purchase **on Shafts and Impellers for All Types of Pumps.**
- **60 day warranty** from date of purchase on all **Ultraviolet Bulbs.**
- **60 day warranty** from date of purchase on all **Test Strips.**
- **1 year warranty** from date of purchase on **All Other Products.**

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IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS



IMPORTANT NOTICE

This guide provides installation and operation instructions for the Sea Horse® pump. Consult Lifeguard Aquatics 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 or left on or near the pump.

Attention User: This manual contains important information that will help you in operating and maintaining this product. Please retain it for future reference.

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

Do not permit children to use this product.

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.

CAUTION

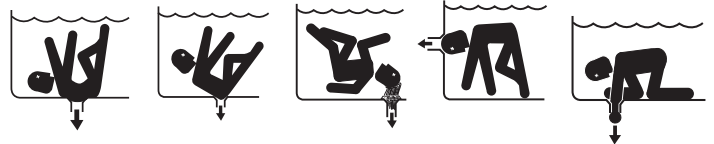
This pump is for use with permanent swimming pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently-installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it is capable of being readily disassembled for storage and reassembled to its original integrity.

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 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 POOL SERVICE PROFESSIONAL. INSTALLERS, POOL 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 POOL 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.

THE USE OF UNAPPROVED COVERS OR ALLOWING USE OF THE POOL OR SPA WHEN COVERS ARE MISSING, CRACKED OR BROKEN CAN RESULT IN BODY OR LIMB ENTRAPMENT, HAIR ENTANGLEMENT, BODY ENTRAPMENT, EVISCERATION AND/OR DEATH. The suction at a drain or outlet can cause:

Limb Entrapment: When a limb is sucked or inserted into an opening resulting in a mechanical bind or swelling. This hazard is present when a drain cover is missing, broken, loose, cracked or not properly secured.

Hair Entanglement: When the hair tangles or knots in the drain cover, trapping the swimmer underwater. This hazard is present when the flow rating of the cover is too small for the pump or pumps.

Body Entrapment: When a portion of the body is held against the drain cover trapping the swimmer underwater. This hazard is present when the drain cover is missing, broken or the cover flow rating is not high enough for the pump or pumps.

Evisceration/Disembowelment: When a person sits on an open pool (particularly a child wading pool) or spa outlet and suction is applied directly to the intestines, causing severe intestinal damage. This hazard is present when the drain cover is missing, loose, cracked, or not properly secured.

IMPORTANT PUMP WARNING AND SAFETY INSTRUCTIONS

Mechanical Entrapment: When jewelry, swimsuit, hair decorations, finger, toe or knuckle is caught in an opening of an outlet or drain cover. This hazard is present when the drain cover is missing, broken, loose, cracked, or not properly secured.

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

WARNING TO MINIMIZE THE RISK OF INJURY DUE TO SUCTION ENTRAPMENT HAZARD:

- A properly installed and secured ANSI/ASME A112.19.8 approved anti-entrapment suction cover must be used for each drain.
- Each suction cover must be installed at least three (3') feet apart, as measured from the nearest point to nearest point.
- Regularly inspect all covers for cracks, damage and advanced weathering.
- If a cover becomes loose, cracked, damaged, broken or is missing, replace with an appropriate certified cover.
- Replace drain covers as necessary. Drain covers deteriorate over time due to exposure to sunlight and weather.
- Avoid getting hair, limbs or body in close proximity to any suction cover, pool drain or outlet.
- Disable suction outlets or reconfigure into return inlets.

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.

The Virginia Graeme Baker (VGB) Pool and Spa Safety Act creates new requirements for owners and operators of commercial swimming pools and spas.

Commercial pools or spas constructed on or after December 19, 2008, shall utilize:

(A) A multiple main drain system without isolation capability with suction outlet covers that meet ASME/ANSI A112.19.8a Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs and either:

- (i) A safety vacuum release system (SVRS) meeting ASME/ANSI A112.19.17 Manufactured Safety Vacuum Release systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems and/or ASTM F2387 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming pools, Spas and Hot Tubs or
- (ii) A properly designed and tested suction-limiting vent system or
- (iii) An automatic pump shut-off system.

Commercial pools and spas constructed prior to December 19, 2008, with a single submerged suction outlet shall use a suction outlet cover that meets ASME/ANSI A112.19.8a and either:

- (A) A SVRS meeting ASME/ANSI A112.19.17 and/or ASTM F2387, or
- (B) A properly designed and tested suction-limiting vent system, or
- (C) An automatic pump shut-off system, or
- (D) Disabled submerged outlets, or
- (E) Suction outlets shall be reconfigured into return inlets.

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.



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 swimming pool applications. The pump will function correctly only if it is properly sized to the specific application and properly installed.

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 swimming pools.

Warnings and safety instructions for Lifeguard Aquatics pumps and other related products are available at:
<http://www.lifeguardaquatics.com/literature> or call (562) 404-4129 for additional free copies of these instructions.

Please refer to <http://www.lifeguardaquatics.com> for warning and safety instructions related to this product.

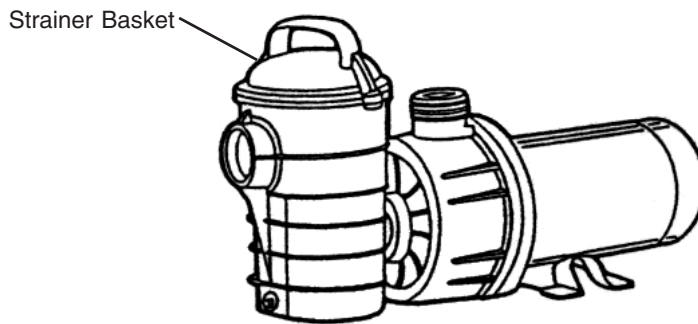
SAVE THESE INSTRUCTIONS

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Introduction

Pump Overview

The Sea Horse centrifugal pump is designed to operate for years with proper maintenance. The pump housing, bracket diffuser, hair and lint pot and impeller are made from high quality thermoplastic materials. These materials have been selected for their corrosion-resistant nature. When installed, operated and maintained in accordance with these instructions, your pump will provide years of service.



Sea Horse Booster Pump

Your centrifugal pump is driven by an electric motor. The motor is directly attached to the pump impeller. As the electric motor turns, it causes the impeller to turn and this causes the water to flow. The water flows into the hair and lint pot inlet and through the basket assembly to prestrain large particles. The flow then enters the center of the pump housing. If the pump does not contain the hair and lint pot assembly, the flow simply enters the center of the pump housing. The flow goes through the impeller and out the pump discharge port.

Two Speed Pump Models

The performance of this pump will be the same at high speed as the same model single speed pump, both hydraulically and prime wise. At low speed, the pump will produce one half the flow and 1/4 the pressure of high speed. However, the pressure required by the filter and pool plumbing at half flow will also be greatly reduced due to much lower system friction. These lower friction losses result in great energy savings. At one half flow (low speed) the electrical energy savings are 60% for equal amounts of circulated water.

Turn motor to low speed for quiet operation and electrical cost savings. Since the pump should be operated mostly at low speed for cost saving, minor adjustments may be required in the automatic chlorine dispenser, the skimmers and the heater due to the lower flow. (See the equipment manufacturer's operation manuals.)

Pool owners should use high speed for vacuuming the pool, quick filtering action, priming the system, and to keep up with heavy bathing loads.

SPA and Tub owners will want to use high speed for good jet action.

Pump Strainer Basket

The strainer basket, sometimes referred to as the 'Hair and Lint Pot', is located in front of the pump housing. Inside the chamber is the basket which must be kept clean of leaves and debris at all times.

Regardless of the length of time between filter cleaning, it is important to visually inspect the hair and lint pot basket at least once a week. A dirty basket will reduce the efficiency of the filter and heater and also put an abnormal stress on the pump motor.

Installation

1. Check carton for any evidence of damage due to rough handling in shipment. If carton or any pump components are damaged, notify freight carrier immediately.
2. After inspection, carefully remove pump from carton.
3. The pump should be secured to a flat solid foundation, high enough to prevent flooding of the motor. A sheltered location is best, being sure to allow for adequate ventilation.
4. Provide space and lighting for routine maintenance access. Do not mount electrical controls directly over pump.
5. The pump should be installed as near to the pool or spa as practical. Avoid installing the pump more than a few feet above the water level. Suction lifts of more than five feet will cause very long priming times. Pump will not lift more than 8 feet.
6. The location should provide for adequate floor drainage to prevent flooding.
7. Provide for the need to remove the pump for potential service by providing valves or other means to disconnect the pump suction and discharge.
8. Never store pool chemicals within 10 ft. of your pool filter and pump. Pool chemicals are corrosive and should always be stored in a cool, dry, well ventilated area.

WARNING

Chemical fumes and/or spills can cause severe corrosive attack to the filter and pump structural components. Structurally weakened filter or pump components can cause filter, pump or valve attachments to separate and could cause severe bodily injury or property damage.

9. Assemble piping and pipe fittings to pump and valve. All piping must conform to local and state plumbing and sanitary codes.
10. Use threaded seal tape or pipe sealants on all male connections of pipe and fittings. Use only pipe sealant compounds suited for plastic pipe. Support pipe to prevent strains on filter, pump or valve. **DO NOT USE PETROLEUM BASED PRODUCTS.**
11. Avoid over tightening the pipe threads when connecting fittings to the pump. Proper procedure is to apply a pipe sealant to the thread and then install hand tight plus 1-1/2 turns. **DO NOT OVER TIGHTEN.**
12. Long piping runs and elbows restrict flow. For best efficiency, use the fewest possible fittings, large diameter pipe (at least 1-1/2") and locate equipment as close to the pool as possible. The pump suction line should not be smaller than the pipe size on the inlet of the pump.

13. It is essential that the suction line be free of air leaks and air traps.
14. Suction fittings must conform to ASME/ANSI A 112.19.8 M Standards. Use double suction fittings.
15. The maximum operating pressure of this unit is 25 pounds per square inch. Never operate this pump above this pressure.

This pump is not intended to be operated in series with other pumps.

⚠ WARNING

DO NOT permit children to use this product.

16. Wiring of this pump should be performed by a licensed electrician in accordance with the National Electrical Code or your local electrical code.

⚠ WARNING

Never work on pump while it is running or power is still connected; hazardous voltage can cause severe or fatal injury. A suitable ground fault interrupter should always be installed at the power supply source of the unit.

⚠ WARNING

Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard. Do not ground to a gas supply line.

17. The pump motor must be wired for the proper voltage in accordance with the wiring diagram supplied with the motor.

⚠ WARNING Wiring the motor with the incorrect supply voltage will cause damage to the motor and void the warranty.

18. The wiring to the motor should be kept as short as possible and large enough NOT to cause an excessive voltage drop. Use the wire size table as a guide in selecting minimum conductor size.
19. Install, ground and bond wire according to local or National Electrical Code requirements.

Electrical Requirements

This section describes how to wire the Sea Horse pump.

Note: Before installing this product, read and follow all warning and safety instructions starting on page ii.

Electrical Requirements and Wiring

When pump is mounted permanently within five (5) ft. of the inside walls of a swimming pool, you **MUST** use a No. 8 AWG or larger conductor to connect to bonding conductor lug.

Wiring Installation

Risk of electrical shock or electrocution.

WARNING



This pool pump must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the all 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 pool users, installers, or others due to electrical shock, and may also cause damage to property.

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

1. Make sure all electrical breakers and switches are turned off before wiring motor.
2. Make sure that the wiring voltage matches the motor voltage (230 VAC or 115 VAC). If they do not match permanent damage to the motor will occur.
3. Choose a wire size from the Table 1 (page 5). When in doubt use a heavier gauge (larger diameter) wire. Heavier gauge will allow the motor to run cooler and more efficiently.
4. Make sure all electrical connections are clean and tight.
5. Cut wires to the appropriate length so they don't overlap or touch when connected to the terminal board.

WARNING

Never work on pump while it is running or power is still connected; hazardous voltage can cause severe or fatal injury. A suitable ground fault interrupter should always be installed at the power supply source of the unit.

WARNING

Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard. Do not ground to a gas supply line.

6. The pump motor must be wired for the proper voltage in accordance with the wiring diagram supplied with the motor.

Wiring the motor with the incorrect supply voltage will cause damage to the motor and void the warranty.

7. The wiring to the motor should be kept as short as possible and large enough NOT to cause an excessive voltage drop. Use the wire size Table 1 as a guide in selecting minimum conductor size.
8. Install, ground and bond wire according to local or National Electrical Code requirements.

Wiring Installation (continued)

9. Bond the motor to the pool structure in accordance with the National Electrical Code. Use a solid No. 8 AWG or larger copper conductor. Run a wire from the external bonding screw on the motor to the pool bonding structure.
10. Connect the pump permanently to a circuit. Make sure no other lights or appliances are on the same circuit.

Table 1. – RECOMMENDED FUSING AND WIRING DATA						
Motor Nameplate Full Load Amps*	Branch Circuit	Volts/Hz/ Phase	Dist. in Ft. (m) (Service to Motor)			Temp Rating C°
			0-100'	101-200'	201-300'	
			(0-30)	(31-60)	(61-90)	
12.0 or Less	15A	115/60/1	14 (2)	12 (3)	10 (5.5)	75
12.1 - 16.0	20A	115/60/1	10 (5.5)	8 (8.4)	6 (14)	75
16.1 - 20.0	25A	115/60/1	10 (5.5)	8 (8.4)	6 (14)	75
12.0 or Less	15A	230/60/1	14 (2)	12 (3)	10 (5.5)	75
*Amps ratings are found on the motor nameplate.						
Notice: Values given are for Pump motor only. Do not put any other accessories on this circuit.						

GROUNDING

Permanently ground motor. Use green terminal provided under motor canopy or access plate; use size and type wire required by code. Connect motor ground terminal to electrical service ground. On cord connected circuits, check for proper grounding.

BONDING

The National Electrical Code Article 680-22 requires that the motor be electrically bonded to appropriate permanently installed pool or spa/hot tub structure by a solid copper conductor no smaller than No. 8 AWG. Bonding wire should be connected from the accessible wire connector on the motor shell to all metal parts of the swimming pool spa or hot tub structure and to all electrical equipment, metal conduit and metal piping within five (5) feet of the inside walls of a swimming pool spa or hot tub. A grounding lug is provided on the exterior of the motor shell for this purpose.

WARNING

For cord and plug-connected units – Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.

WARNING

For cord and plug-connected units – To reduce the risk of electric shock, replace damaged cord immediately.

WARNING

For cord and plug-connected units –To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.

INITIAL START UP

1. Relieve all system pressure and open all air bleeders on total hydraulic system prior to starting the pump. See filter owner's manual.
2. Ensure that all fittings, clamps, closures and couplings are tight and in accordance with equipment manufacturer's recommendations.
3. Open suction and discharge valve to allow free flow of water. On flooded suction pumps with strainer pot, the water source is higher than the pump. The water will flow into the pump strainer pot and the pot will fill with water. On pumps without strainer pot, the water will fill the pump housing.
4. On non-flooded suction systems, the pump lid will have to be removed by rotating the lid counter-clockwise to a stop and lifting the lid.
5. The pump strainer pot should be filled with water up to suction opening on the pump.
6. It is good practice to lubricate the lid o-ring with silicone lubricant each time the lid is removed. The o-ring should be cleaned and inspected every time the strainer pot is opened.
7. The lid should be replaced on the pot by aligning the lid ears with the slots on the strainer pot. Press the lid down and twist the lid clockwise to engage the lid.
8. The pump is now ready to prime. Energize the motor and the pump will prime. The time to prime will depend on the suction lift and the distance and size of suction piping. Turn off power if the pump does not prime within five minutes and refer to the Troubleshooting Guide section of this manual.

NOTICE: Never run the pump dry. Running dry may damage the seals and pump housing. Continued operation in this matter could cause a loss of pressure, resulting in damage to the pump case, impeller, and seal and may cause property damage and personal injury.

Maintenance

This section describes how to maintain the Sea Horse pump.

Cleaning the Pump Strainer Basket

The strainer basket in the pump should be inspected and cleaned twice each week. Remove the clear lid and the basket and clean debris from basket. Inspect the lid o-ring; if damaged replace. The pump seal requires no lubrication. Refer to motor service centers for motor servicing.

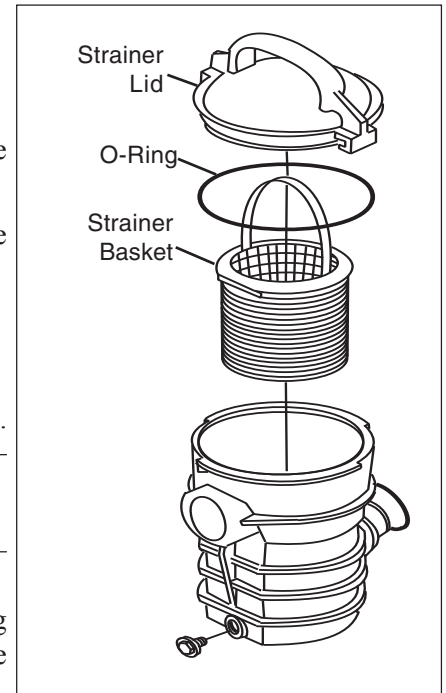
⚠ WARNING

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

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

1. Turn off motor.
2. Close the inlet and discharge valves.
3. Relieve pressure in the system.
4. Turn the lid and locking ring in a counter-clockwise direction and remove them from the pump.
5. Remove the debris from the basket and rinse out the basket. Replace the basket if it is cracked.
6. Replace the basket.
7. Fill the pump pot and volute up to the inlet port with water.
8. Clean the lid and locking ring, O-ring, and sealing surface of the pump pot.



NOTE

It is important that the O-ring be kept clean and well lubricated.

9. Reinstall the lid by placing the lid and locking ring on the pot.
 - a. Make sure the lid O-ring is properly placed. Seat the lid and locking ring on the pump then turn clockwise until the locking ring handles are horizontal.
10. Open the inlet and discharge valves.
11. Turn the power "ON" at the house circuit breaker. Reset the pool time clock to the correct time.

⚠ WARNING



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 off which can result in serious injury, death, or property damage. To avoid this potential hazard, follow these instructions.

12. Open the manual air relief valve on top of the filter.
13. Stand clear of the filter. Start the pump.
14. Bleed air from the filter until a steady stream of water comes out. Close the manual air relief valve.

Winterizing

NOTICE: Allowing the water to freeze in pump will damage the pump and cause potential water damage / flooding and potential property damage.

1. If the air temperature drops below 35° F (1.67° C), the water in the pump can freeze and cause damage. Freeze damage is not covered under warranty.
2. Drain all water from pump housing and piping when freezing temperatures are expected. A drain plug is provided to drain the pump. If the pump has a strainer pot, both the strainer drain plug and the housing drain plug should be removed. If pump has no strainer pot, then only remove the housing plug.
3. If the pump can be removed and placed in an inside dry location this should be done. Cover the motor to protect it from severe rain, snow and ice.
4. For an outdoor unprotected location, it is best to protect the equipment in a weatherproof enclosure.
5. Do not wrap the motor with plastic because condensation could form inside the motor.
6. In installations where the pump cannot be drained, a 40% propylene glycol 60% water solution will protect to -50° F.

NOTICE: Do not use anti-freeze solutions except propylene glycol; as other anti-freeze is highly toxic and will damage the pump.

Electric Motor Care

1. Protect from heat.
 - a. Shade the motor from the sun.
 - b. Any enclosure must be well ventilated to prevent overheating.
 - c. Provide ample cross ventilation.
2. Protect against dirt.
 - a. Protect from any foreign matter or splashing water.
 - b. Do not store (or spill) pool chemicals on or near the motor.
 - c. Avoid sweeping or stirring up dust near the motor while it is operating.
 - d. If a motor has been damaged by dirt it voids the motor warranty.
3. Protect against moisture.
 - a. Protect from splashing pool water and lawn sprinklers.
 - b. Protect from the weather.
 - c. If a motor has become wet, let it dry before operating. Do not allow the pump to operate if it has been flooded.
 - d. If a motor has been damaged by water it voids the motor warranty.

NOTE

- **DO NOT** wrap motor with plastic or other air tight materials. The motor may be covered during a storm, for winter storage, etc., but never when operating, or expecting operation.
- When replacing the motor, be certain that the motor support is correctly positioned to support the size of motor being installed.

This section describes how to service the Sea Horse pump.

Risk of electrical shock or electrocution

WARNING



This pool pump must be installed by a licensed or certified electrician or a qualified pool serviceman 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 pool users, installers, or others due to electrical shock, and may also cause damage to property.

Always disconnect power to the pool pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool 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.

Pump Disassembly

1. All moving parts are located in the rear subassembly of this pump.
Tools required:
 - a. Adjustable wrench.
 - b. Flat-blade screw driver.
 - c. 3/4 inch socket wrench.
 - d. 5/16 inch open end wrench.
 - e. 1/4 inch open end wrench.
2. To remove and repair the motor subassembly perform the following procedures:
 - a. Turn off the pump circuit breaker at the main panel. Close suction and discharge valves to relieve system pressure.
 - b. Drain the pump by removing the drain plugs. **CAUTION! Use extreme care when handling the mechanical seal. The mating seal surfaces are polished and are easily damaged.**
 - c. The mechanical seal can be changed without disconnecting piping by removing six (6) bolts and pulling the motor with pump bracket diffuser and impeller assembly away from front pump housing body. Using a 5/16" open end wrench, remove the six (6) bolts that secure the main pump body (strainer pot/volute) to the rear subassembly.
 - d. GENTLY pull the two pump halves apart, removing the rear subassembly. Remove impeller and rotating portion of seal by holding motor shaft and rotating the impeller counter-clockwise when facing the shaft extension on the motor.
 - e. The rotating portion of the seal can now be removed from the impeller. Clean the impeller hub and lubricate with soapy water. Wipe off shining carbon sealing surface of new mechanical seal with a clean tissue to remove oily fingerprints or other foreign materials. The new rotating seal can be pressed back onto the impeller.

Pump Disassembly, continued.

- f. To remove the stationary ceramic seal seat, first loosen the four motor bolts which run through the entire length of the motor into the bracket diffuser. Remove the bracket diffuser from the motor. Press the ceramic seat and rubber gasket out of the bracket diffuser.
- g. Clean the bracket diffuser seal area and lubricate with soapy water. Press the new ceramic seal and gasket into the bracket diffuser, being sure it is fully seated. Wipe off the ceramic sealing surface with a clean tissue to remove oily fingerprints or foreign substances.



Be sure not to scratch or mar the polished shaft seal faces; seal will leak if faces are damaged.

Pump Reassembly/Seal Replacement

1. Place the bracket diffuser on the motor and carefully align the four motor through bolts. Secure the housing onto the motor being careful not to overtighten the bolts. Gradually bring bolts up to final tightness by moving across diametrically and in a criss-cross pattern.
2. Screw the impeller with new rotating seal onto the motor shaft. Rotate the motor shaft to make sure the impeller is not touching the bracket diffuser.
3. Clean the bracket diffuser o-ring and check to make sure it is in position. Replace the motor and bracket diffuser on the front pump housing body and bolt into position with six (6) bolts. Gradually bring bolts up to final tightness by moving across diametrically and in a criss-cross pattern.
CAUTION! DO NOT overtighten the bolts.
4. Fill the pump with water.
5. Reinstall the pump lid and locking ring.
6. Reprime the system. Refer to initial start-up procedures to restart the pump.

The Shaft Seal

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

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



In mild climate area, when temporary freezing conditions may occur, run your filtering equipment all night to prevent freezing.



Restart Instructions

If the Sea Horse pump is installed below the water level of the pool, close return and suction lines prior to opening hair and lint pot on pump. Make sure to reopen valves prior to operating.

 **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 in your pool (half way up skimmer opening). If the water level falls below the skimmer opening, the pump will draw air through the skimmer, losing the prime and causing the pump to run dry, resulting in a damaged seal. Continued operation in this matter could cause a loss of pressure, resulting in damage to the pump case, impeller, and seal and may cause property damage and personal injury.

Priming the Pump

1. The pump strainer pot must be filled with water before the pump is initially started. Follow these steps to prime the pump.
 - a. Remove the pump lid and locking ring.
 - b. Fill the pump strainer pot with water.
 - c. Reassemble the pump lid and locking ring onto the strainer pot. The pump is now ready to prime.
 - d. Open the air release valve on the filter, and stand clear of the filter.
 - e. Turn on the switch or time clock.
 - f. When water comes out of the air release valve, close the valve. The system should now be free of air and recirculating water to and from the pool.
 - g. This pump will prime within 13 minutes. Do not allow your pump to run longer than this time without developing full flow. If the pump does not prime, see the “Troubleshooting” section on page 10.
 - h. Two speed pumps should run on high speed for priming.

Troubleshooting

Use the following troubleshooting information to resolve possible Sea Horse pump problems.

⚠ WARNING



RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

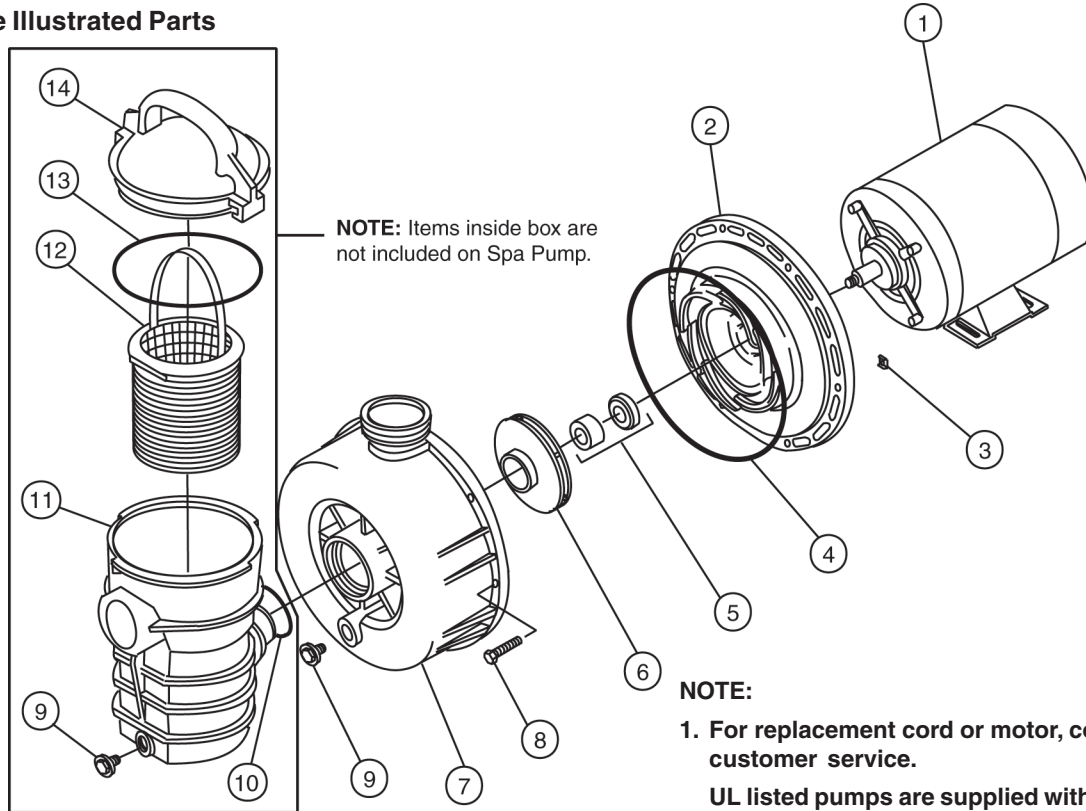
1. If you are not familiar with your pool filtering system and/or heater:
 - a. **DO NOT** attempt to adjust or service without consulting your dealer, or a qualified pool professional.
 - b. Read the entire Installation & User's Guide before attempting to use, service or adjust the pool filtering system or heater.
2. **SWITCH OFF power to the pump before attempting service or repair.**

Problems and Corrective Actions

Problem	Cause	Remedy
Pump will not prime	<ol style="list-style-type: none"> 1. No water in strainer pot. 2. Strainer pot lid is not tight. 3. Damaged lid o-ring. 4. Water level is below skimmer. 5. Strainer basket or skimmer basket is clogged. 6. Closed valve in piping system. 7. Pump is on low speed (two speed units only). 8. Air leak in suction line. 	<p>Add water to pot. Tighten lid. Replace o-ring. Adjust pool water level. Clear basket. Check all valves and open all necessary valves. Adjust to high speed. Find & fix leak.</p>
Low Flow-High Filter Pressure	<ol style="list-style-type: none"> 1. Filter is dirty. 2. Restriction in return line. 	<p>Clean filter. Open return line restriction.</p>
Low Flow-Low Filter Pressure	<ol style="list-style-type: none"> 1. Strainer basket or skimmer basket is clogged. 2. Clogged impeller. 3. Air leak in suction line. 4. Restriction in suction line. 	<p>Clean basket. Clean obstruction. Find & fix leak. Find and open restriction.</p>
Motor does not turn	<ol style="list-style-type: none"> 1. Power switch is off. 2. Circuit breaker has tripped. 3. Pump is in "Off-mode" on a timer controlled circuit. 4. Motor terminal connections are incorrect. 5. Motor shaft is locked by bad bearing. 6. Impeller is locked by debris. 	<p>Check power switch & reset. Check circuit breaker & reset, if re-trips, contact electrician. Check timer mode. Have terminal connections checked by electrician. Have motor bearings replaced or replace pump. Clean impeller.</p>
Motor Over-Heating	<ol style="list-style-type: none"> 1. Electrical supply connections are incorrect. 2. Wiring to pump is undersized. 	<p>Have terminal connections checked by electrician. Consult electrician to rewire pump.</p>

Technical Data

Sea Horse Illustrated Parts



NOTE:

1. For replacement cord or motor, consult factory customer service.

UL listed pumps are supplied with a 3' long power supply cord.

CUL listed pumps are supplied without a power supply cord.

ITEM #	P/N	DESCRIPTION	QTY.
1	—	MOTOR (SEE NOTE 1)	1
2	354632	BRACKET, DIFFUSER ¾ HP	1
2	354633	BRACKET, DIFFUSER 1, 1½ HP	1
3	354542	SQ. NUT #10-24 s/s	6
4	354634	O-RING 3/16 in. PUMP BRACKET	1
5	354545	SEAL-MECHANICAL 5/8 in.	1
6	353002	IMPELLER ASSY. ½ HP	1
6	354552	IMPELLER ASSY. ¾ HP	1
6	355122	IMPELLER ASSY. 1 HP, 1½ HP	1
7	354630	HOUSING BODY	1
8	354541	SCREW-SLOTTED HEX #10-24, 1-3/8 in.	6
9	U178-920P	PLUG, DRAIN ¼ in.	2
10	273062	O-RING	1
11	354530	POT	1
12	354548	BASKET ASSY.	1
13	354533	O-RING, LID	1
14	354531	LID	1
NOT SHOWN			
	155233	POWER SUPPLY LABEL, 3' STANDARD CORD	1
	155238	POWER SUPPLY LABEL, 3' TWIST LOCK CORD	1



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