

## Sweetwater High Efficiency Pumps SHE1.7 & SHE2.4

**Both are BLUE in color**

SHE1.7 - Available in 115 volt only, 6' cord  
Pulls 1.7 amps  
Contains a saltwater seal  
1 Year warranty  
1 ½" inlet/outlet

SHE2.4 - Available in 115/230 volt, 6' cord  
Pulls 2.4 amps  
Contains a saltwater seal  
1 Year warranty  
1 ½" inlet/outlet

More efficient and has a higher head rating than the Dolphin pump.

Rated for saltwater

Pump end/volute is made of blue polypropylene

# SWEETWATER® CENTRIFUGAL PUMP

## Installation and Service Manual

**WARNING:** Please read completely before you install or operate your new pump! Never run pump dry  
- Never reverse rotation - Never exceed an internal case pressure of: 65 PSI Max Polypropylene 100 PSI Max Noryl

We congratulate you on your choice of the Sweetwater® pump! It has been carefully designed using the advantages of today's technology and carefully constructed to give you the dependability of yesterday.

To insure proper performance, we urge you to carefully follow the instructions in this manual. If you have any questions, call your nearest distributor or Aquatic Eco-Systems, Inc. for assistance.

### PUMP END ASSEMBLY

1. Clean and inspect all pump parts (O-ring, seal seats, motor shaft, etc.).
2. Apply sealant in bracket bore hole and possibly around seal case according to sealant instructions. Note: For SS seal, chamfer the edge of the bracket bore hole.
3. Press carbon graphite seal into bracket while taking care not to damage carbon graphite face.
4. Place slinger (rubber washer) over motor shaft and mount bracket to motor.
5. Carefully lubricate boot or O-ring around ceramic piece and press into impeller. (If ceramic has O-ring, the marked side goes in.) Note: Use glycerine for EPDM.
6. Sparingly lubricate carbon-graphite and ceramic sealing surfaces. Water, glycerine, or a light-weight machine oil may be used, depending on the elastomers used in the pump. Do not use silicon lubricants or grease!
7. Thread impeller onto shaft and tighten! If required, remove motor end-cap and use a screwdriver on the back of motor shaft to prevent shaft rotation while tightening. Replace motor end cap.
8. Electrically, connect the motor so that the impeller will rotate CCW when facing the pump with the motor toward the rear. **Incorrect rotation will damage the pump and void the warranty! For 3 phase power, electrically check rotation of impeller with volute disassembled from bracket. If pump end is assembled and rotation is incorrect, serious damage to pump end assembly will occur even if the switch is "quickly bumped." If rotation is incorrect, simply exchange any two leads.**
9. Seat O-ring, in volute slot and assembly volute to bracket.
10. Install drain plug with its O-ring in volute drain hole.

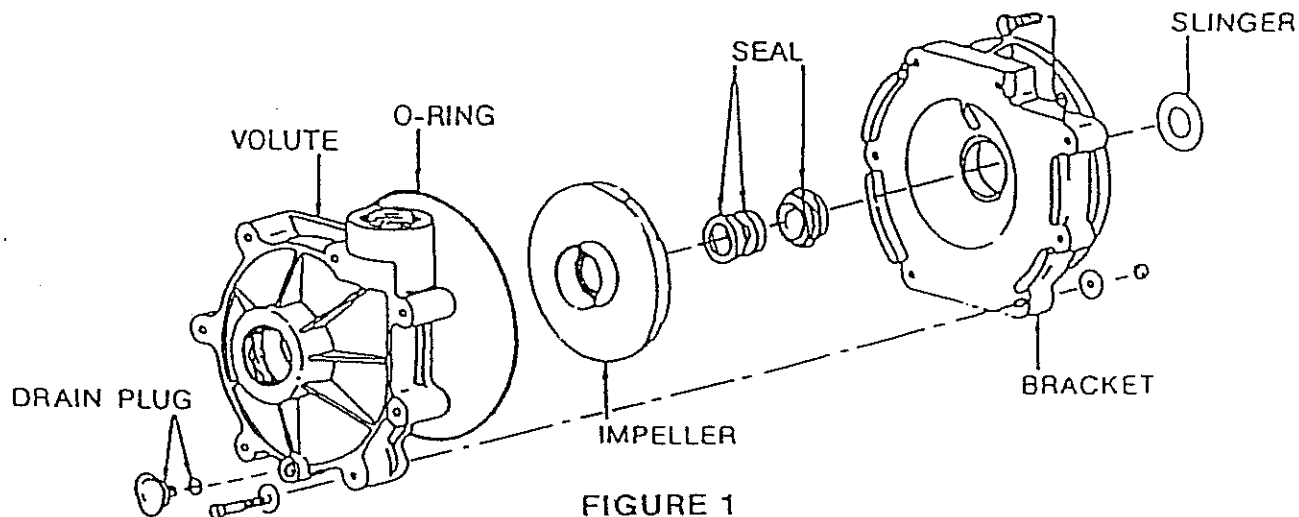


FIGURE 1

## DISASSEMBLY

1. Shut off power to motor before disconnecting any electrical wiring from the back of the motor.
2. Disassemble the bracket-motor assembly from the volute, by removing the 7-1/4 20 x 2-1/2 cap screws. (The volute may be left in-line if you wish.)
3. Remove cap covering shaft at back of motor, and with a large screwdriver, prevent shaft rotation while unscrewing impeller.
4. Remove ceramic piece from impeller.
5. Detach bracket from motor.
6. Remove carbon-graphite seal from bracket by pressing out from the back. Do not dig out from the front!

## INSTALLATION

*Please read carefully! When properly installed the Sweetwater® pump will provide dependable trouble-free service.*

1. Locate pump as near the source to be pumped as possible. A flooded suction situation is preferred. The pump is *not* self-priming, therefore, if the fluid level is below the pump, a foot valve must be installed and the pump primed prior to start-up. (Figure 2)
2. Mount motor base to a secure, immobile foundation.
3. Use only plastic fittings on both the intake and discharge ports. Seal pipe connections with teflon paste. These fittings should be self-supported and in neutral alignment with each port. (i.e. Fittings must not be forced into alignment which may cause premature line failure or damage to the pump volute.)
4. Never restrict the intake. Keep both input and discharge lines as free of elbows and valves as possible. Always use pipe of adequate diameter. This will reduce friction losses and maximize output.
5. The Sweetwater® pump is ***not self-priming!*** It must ***not be run dry!*** We recommend a flooded suction installation.

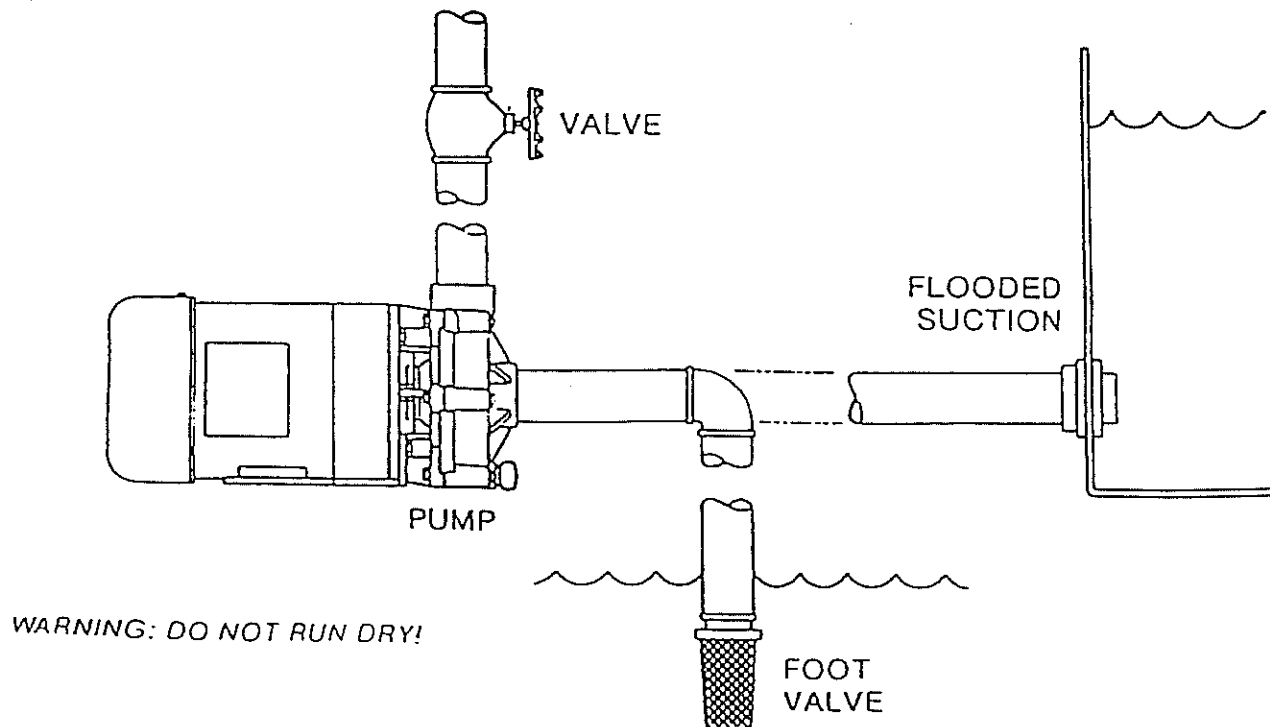


FIGURE 2

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## MAINTENANCE

### Lubrication:

Motor - Lubricate as per instructions on motor.

Rotary Seal - Requires no lubrication after assembly.

Pump must be drained before servicing, or if stored below freezing temperatures. Periodic replacement of seals may be required due to normal carbon wear.

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## ELECTRICAL HOOK-UP

All electrical wiring should meet state and local ordinances. Improper wiring may not only be a safety hazard but may permanently damage the motor and/or pump!

1. Check that supply voltages match the motor's requirements.
  2. Check motor wiring and connect, according to instructions on motor, to match supply voltage. Be sure of proper rotation! (Refer to pump end, assembly instruction #8.) **Improper rotation will severely damage pump and void warranty!**
  3. Power cord should be protected by conduit or by cable and be of proper gauge. It should be no longer than necessary.
  4. Power should be drawn directly from a box with circuit breaker protection, or with a fused disconnect switch.
  5. Always switch off power before repairing or servicing pump and/or motor.
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## TROUBLE SHOOTING AID

### ***Motor Will Not Rotate***

1. Check for proper electrical connections to motor.
2. Check main power box for blown fuse, etc.
3. Check thermal overload on motor.

### ***Motor Hums Or Will Not Rotate At Correct Speed***

1. Check for proper electrical connections to motor and proper cord size and length.
2. Check for foreign material inside pump.
3. Remove bracket and check for impeller rotation without excessive resistance.
4. Remove pump and check shaft rotation for excessive bearing noise.
5. Have authorized serviceman check start switch and/or condenser.

### ***Pump Operates With Little Or No Flow***

1. Check to insure that pump is primed.
2. Check for leaking seal.
3. Improper line voltage to motor or incorrect rotation.
4. Check for clogged inlet port and/or impeller.
5. Defective check or foot valve.
6. Check inlet lines for leakage, either fluid or air.

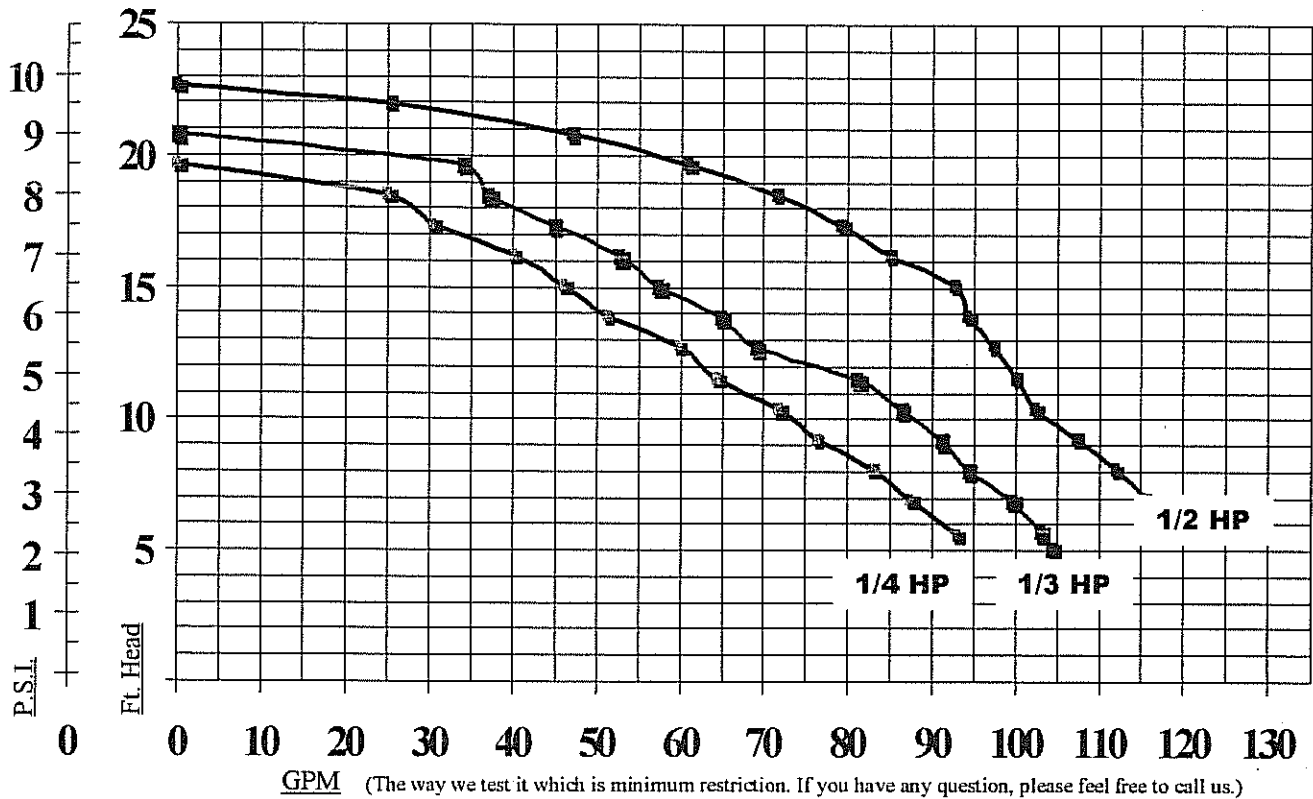
### ***Pump Loses Prime***

1. Defective check or foot valve.
2. Seal leaking.
3. Inlet line air leakage.
4. Fluid supply low.

### ***Motor Or Pump Overheats***

1. Check for proper line voltage and phase, also proper motor wiring.
2. Binding motor shaft or pump parts.
3. Inadequate ventilation.
4. Fluid being pumped should not exceed 194°F (90°C) for extended periods of time.

## WAVE II SERIES PERFORMANCE CURVE



### 1/4 HP

5580 GPH @ 5.544ft. HD  
 3.4 amp @ 115v ; 356watt@115v  
 1.7 amp @ 230v

### 1/3 HP

6174 GPH @ 5.775ft. HD  
 3.7 amp @ 115v ; 396watt@115v  
 1.85 amp @ 230v

### 1/2 HP

6960 GPH @ 6.93ft. HD  
 4.6 amp @ 115v ; 619watt@115v  
 2.3 amp @ 230v  
 (Amps & Watts are shown as maximum levels)

## Kilowatts! Kilowatts! Kilowatts!

What you pay your power company for electricity is based on, the cost of kilowatts per hour, shown as kWh. Normally the rate is around 15 cents per Kilowatt Hour. A 1/4 HP electric motor will use approximately 300 to 350 Watts while running various pond systems. If the motor runs continuously (8,760Hrs/Yr) and under normal full load conditions, the electrical cost to operate, will range from \$395 and \$460 a year. The difference will be dependent on the total system that is used. When comparing only two different motors on any particular system, the electrical cost savings between them could range from \$20 to \$30 per year or \$1.50 to \$2.50 per month.

In other words, when looking at one pond system over another, you could achieve as much a \$65.00 or more a year in savings. The savings you can realize from one motor to another accounts for about 1/2 the system savings or around \$30.00 a year.

Look for the most efficient system. Choose the Right HP Motor for the Right System that will give you the Most Reliability. The W.Lim Corporation has worked with motor, pump and filter designers to provide you with the highest quality products that give the best reliability and efficiency available. One dead fish due to system failure and at even twice the efficiency, and all your savings benefits are gone!

Watts usage IS very important and must be combined with the right products for overall system efficiency. Your properly designed pond with W.Lim products will give you the lowest cost per gallons pumped year after year. Solicit the aid of an experienced contractor or advisor for the most satisfying experience.

If you have any questions on efficient systems contact us or one of our qualified dealers.

SPECIALLY DESIGNED FOR KOI PONDS



# WAVE II SERIES

## Limited Warranty

W. Lim Corporation warrants its **WAVE II SERIES** of centrifugal pumps to be free of defects in material and/or workmanship at the time of purchase for a period of one year. Prior to packaging, ALL WAVE Pumps have been tested at 115v and 60 Hz for approximately 15 minutes to ensure workmanship and quality control. In the event this product malfunctions within one year from the date of purchase, the sole obligation of W. Lim Corporation will be to repair or replace the product. To qualify for two years of warranty you must return the warranty paper, and a copy of the receipt within 10 days, with the date of purchase and the name of company that you purchased the pump from.

### **THIS LIMITED WARRANTY IS SUBJECT TO THE FOLLOWING CONDITIONS AND EXCLUSIONS:**

1. W. Lim Corporation must perform all warranty repairs. Purchaser must retain the purchase receipt and present it with the original copy of this certification as proof of ownership and entitlement to warranty repairs. Unauthorized repairs will not be compensated by W. Lim Corporation, and are not the responsibility of the company. If such repairs damage the product, such damage is not redeemable under this warranty.
2. Problems or damage resulting from failure to comply with instructions in the owner's manual, improper plumbing and positioning, flooding, corrosion or salt build up, incompatibility with fluid chemistry and running unit dry are not covered under this warranty. Malfunction for any other reason-including but not limited to misuse, negligence, accident, tampering with parts, incorrect wiring, or improper installation- will not be redeemed under this warranty.
3. If the label, on the pump, has been tampered with or damaged, then the warranty will be void. Likewise, if the pump has been opened, the warranty will be void as well.
4. Due to the different chemicals, temperature, conditions of the water, etc. that are used and that may affect the condition of the seal, WAVE Pumps seals are only limited to a 10 day guarantee.

5. Purchaser shall bear all shipping, packing, and insurance costs and all other costs, excluding labor and parts necessary to effectuate repairs under this warranty.
6. Periodic check-ups are not covered by this warranty.
7. This is the sole and exclusive manufacturer's warranty. Any and all implied warranties, including any warranties of merchantability and fitness for particular purpose, shall have no greater duration than the duration period of the express written warranty applicable to this product, and shall terminate automatically upon the expiration of such duration period. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. No action shall be brought for breach of any express warranty subsequent to the expiration of this express written warranty. Except as is otherwise provided by applicable law, no action on a warranty implied at law, no action on a warranty implied at law shall be commenced more than one year following the date of purchase.
8. Incidental and consequential damages (specifically including, but not limited to, damages for loss of profits or damages relating to down time of people or equipment) caused by malfunction, defect, or otherwise, and with respect to breach of any express or implied warranty, are not the responsibility of W. Lim Corporation, and, to the extent permitted by law, are hereby excluded both for property damage and, to the extent not prohibited by applicable law, for personal injury damage. 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.
9. The provisions of this warranty are sever-able and if any provision shall be deemed invalid, the remaining provisions shall remain in full force and effect.
10. Rights under this warranty are not assigned without the express prior consent in writing by W. Lim Corporation. Regardless of the terms of any consent in writing, the assignees shall have no greater rights than his assignor had against W. Lim Corporation. Any purported assignment without the consent of the company shall be null and void.
11. This contract shall be governed by and in accordance with the laws of the state of California.
12. This limited warranty is incorporated by reference into the contract of purchase for the products supplied by W. Lim Corporation to purchase under said contract.