



# Water Works With Otterbine



## **High Volume Industrial Aerator Owner's Manual**

A Guide to More Dependable  
Water Quality Management  
With Otterbine Barebo Inc.'s  
1-5 Horsepower Surface Spray  
Industrial Aerator

## Welcome Aboard!

Welcome to the growing family of people who depend on aerating fountains for better water quality control and aesthetic improvement. Otterbine Barebo, Inc. moves its aerating fountain line into the next century with a revolutionary platform. This design offers an industry first five-year warranty with virtually no maintenance, reduced float visibility, and interchangeable spray patterns. All Otterbine products are safety tested and approved by ETL, ETL-C and CE

## Water Quality Specialists

Barebo, Inc. is a team of scientists, engineers, and crafts persons who specialize in efforts to improve water quality. Otterbine aerating fountains are built at Barebo, Inc.'s 25,000 square foot factory in Emmaus, Pennsylvania. Each step in assembly is followed by a quality assurance check to maintain high quality.

The **Concept<sub>3</sub>** line of Otterbine aerators, made of stainless steel and high tech engineering plastics, reflects the results of aerator research and development programs that started in 1956, plus the experience gained through thousands of installations on commercial fish farms, golf courses, parks, and architectural applications.

## Follow the Guidelines

You'll find guidelines for installing, operating, and maintaining your aerating fountain in the following pages. We strongly recommend that you read, understand, and apply these guidelines. They will help you get better performance and dependability from your Otterbine aerating fountain.



COMET<sub>3</sub>



SUNBURST<sub>3</sub>



GEMINI<sub>3</sub>



GALAXY<sub>3</sub>



PHOENIX<sub>3</sub>



TRI-STAR<sub>3</sub>



ROCKET<sub>3</sub>



SATURN<sub>3</sub>



GENESIS<sub>3</sub>

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Revised 10/24/2003

**WARNING:** PHYSICALLY disconnect the unit and lights from their electrical source before entering, wading in or swimming in the water in which they are installed.

# Aerator Equipment

Unpack and inspect your aerator, report any damage to the carrier that delivered your aerator. Make sure you have received the following:

1. **Aerator** - you will find a label located on the housing of the aerator. Check the label to make sure you have received the correct horsepower and voltage aerator.
2. **Power Control Center** (where applicable) - you will find a label inside of the Power Control Center door. This label lists the voltage and horsepower of the control center. Verify that the aerator and control center are the same horsepower and voltage.
3. **Power Cable** - verify that you have received the correct length.
4. **Warranty Registration Card** - make sure to fill in your Otterbine warranty registration card and send it back to the factory so that we can send you our bi-annual customer newsletter, which will keep you up to date on all the latest aeration news. **WARRANTY IS VOID UNLESS CARD IS RETURNED.**

## Electrical/PCC Installation

This weather resistant NEMA 3R Power Control Center comes complete with a twenty-four hour on/off timer, magnetic contactor with overload relay, surge arrestor, disconnect, overcurrent protection, HOA switch, and ground fault protection (where applicable). All internal connections are pre-wired. All electrical specifications are located on the door of the Otterbine Power Control Center. Otterbine recommends that all **ELECTRICAL WORK BE DONE BY A QUALIFIED, LICENSED ELECTRICIAN**. Make sure that all electrical work conforms with local, state and national electrical codes.

**NOTE:** Otterbine suggests coordinating electrical installation with physical installation. The electrician will need to be on hand for a two minute dry-run test of the unit and will also need to check the running amperage after installation. **These electrical tests are a crucial part of the installation process and should not be ignored.**

### A. Install the Otterbine Power Control Center as close to the pond as possible.



**CAUTION:** The Power Control Center should not be accessible from the water.

**ATTENTION:** la boîte de control ne doit pas être accessible de l'eau.

**WARNING:** Screw connections may loosen during shipping, verify that all screw connections are tight before energizing PCC.

**CAUTION:** Otterbine recommends that the PCC not be mounted in direct sun light when installed outdoors.

### B. Your Otterbine Power Control Center can be mounted indoors or outdoors.

1. When mounting outdoors Otterbine suggests that you use a piece of exterior plywood and sturdy 4 x 4 post(s).
2. When mounting indoors the PCC can be mounted directly to the wall.



**C. Attach incoming power to the top of the disconnect**, neutral to the neutral bar (needed in 115V 1Ph 60Hz, 230V 1Ph 60Hz, and 230V 3Ph 60Hz PCC's; L1 to neutral must always be 115 volts) and earth ground to the ground lug. Otterbine recommends that all exterior incoming power cable and exterior aerator cable be encased in conduit.

**D. Attach aerator power cable to the contact points on the overload relay with the green ground wire to the ground lug in the Power Control Center.** Make sure to always use Otterbine aerator cable. If Otterbine aerator cable is not used, the **WARRANTY IS VOID**.

**CAUTION:** Each cable should be in its own conduit to avoid nuisance tripping of the GFCI device.

**NOTE:** Wiring schematics are located on the following pages. Please note on all 460V units EPD/GFCI (Equipment Protection Device/Ground Fault Circuit Interrupter) is an optional accessory.

**WARNING:** All Otterbine submersible aeration systems must be installed in conformance with all local, state and national electrical codes. Otterbine aeration systems require the use of GFCI for safe operation. If the proper grounding and GFCI protection are not used, serious or FATAL electrical shock may occur.

**ADVERTISSEMENT:** Otterbine® fortement suggere qu'au panneau de branchement électrique un interrupteur avec control de defaut de masse soit installé, ou les personnes se trouverai près de l'eau.

**SATELLITE CONTROLLERS:** Custom control panels are available as an option for customers using computerized irrigation controllers. These panels will interface with the computer and allow you to run your units(s)/lights(s) remotely. See your local Otterbine distributor or call Otterbine directly for more information.

**WARNING:** A full three phase power supply is recommended for all three phase motors, consisting of three individual transformers or one three phase transformer. So called "open" delta or wye connections are not true three phase power supplies and are likely to cause problems of current unbalance. Open delta or wye power and phase converters often suffer from line unbalance which can cause poor motor performance, nuisance tripping or premature motor failure. **WARRANTY IS VOID** if a factory authorized phase converter is not used.



Earth Ground Symbol (used in PCC)

## Timer Operation

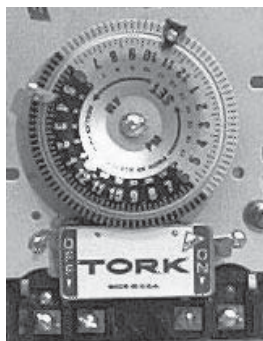
**Note:** There are two types of the timers used depending on the voltage and frequency of your unit. Refer to the appropriate timer instructions.



Timer Type A

### Timer Type A (60Hz)

1. Push **in** (towards center) all of the tripper pins on the timer dial.
2. Pull **out** all of the tripper pins on the dial that are between the times you want the unit to run. Example: If you want the unit on from 7:00AM - 5:00PM, you would then pull out all of the tripper pins between those times. When the dial rotates to a tripper pin that is in, it will turn off.
3. Turn the dial clockwise to set the time of day. Close the panel and apply power. In case of power failure, reset timer.

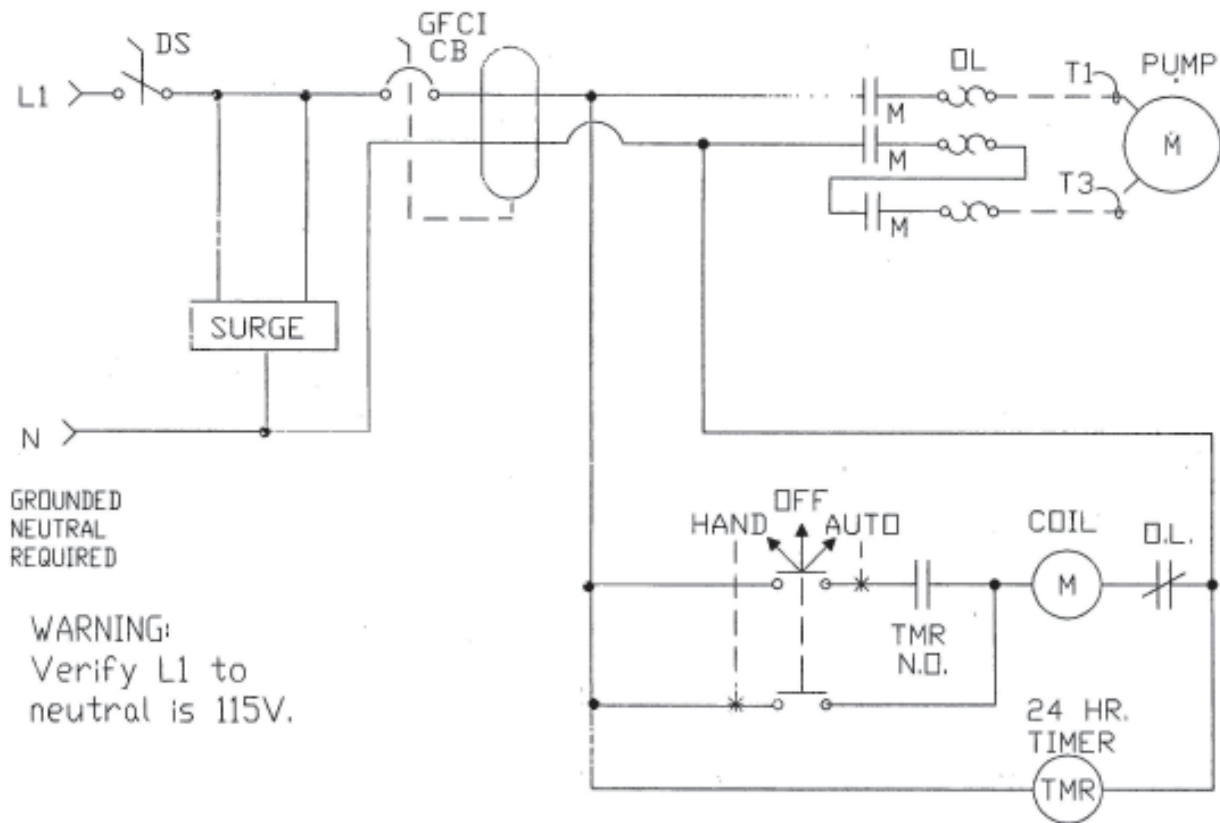


Timer Type B

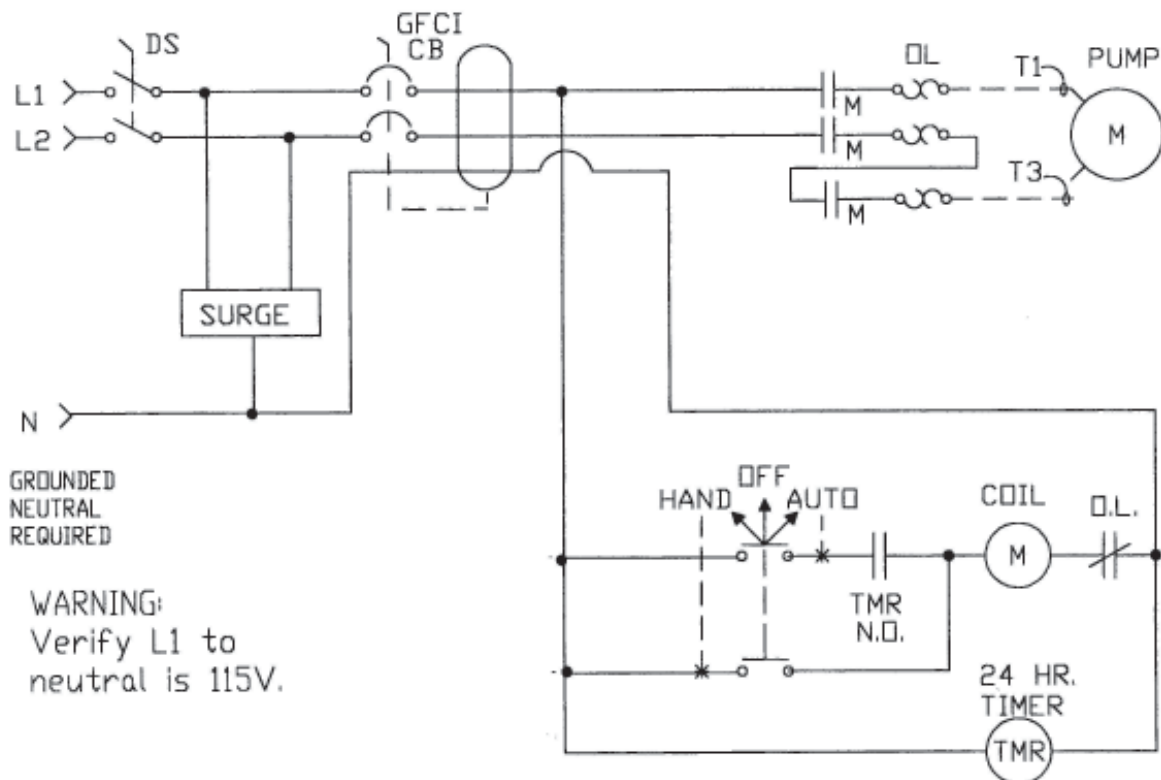
### Timer Type B (50Hz)

1. Set the timer trippers to the desired run time. Light colored tripper turns the unit on, Dark colored tripper turns the unit off. To move the trippers, loosen the set screw by hand and adjust
2. Turn the dial counter clockwise and align the actual time of day with the time tab point located off of the center of the face and pointing down. To manually operate the timer move the manual selector switch to the on or off position. Close panel and apply power. In case of power failure, reset timer.

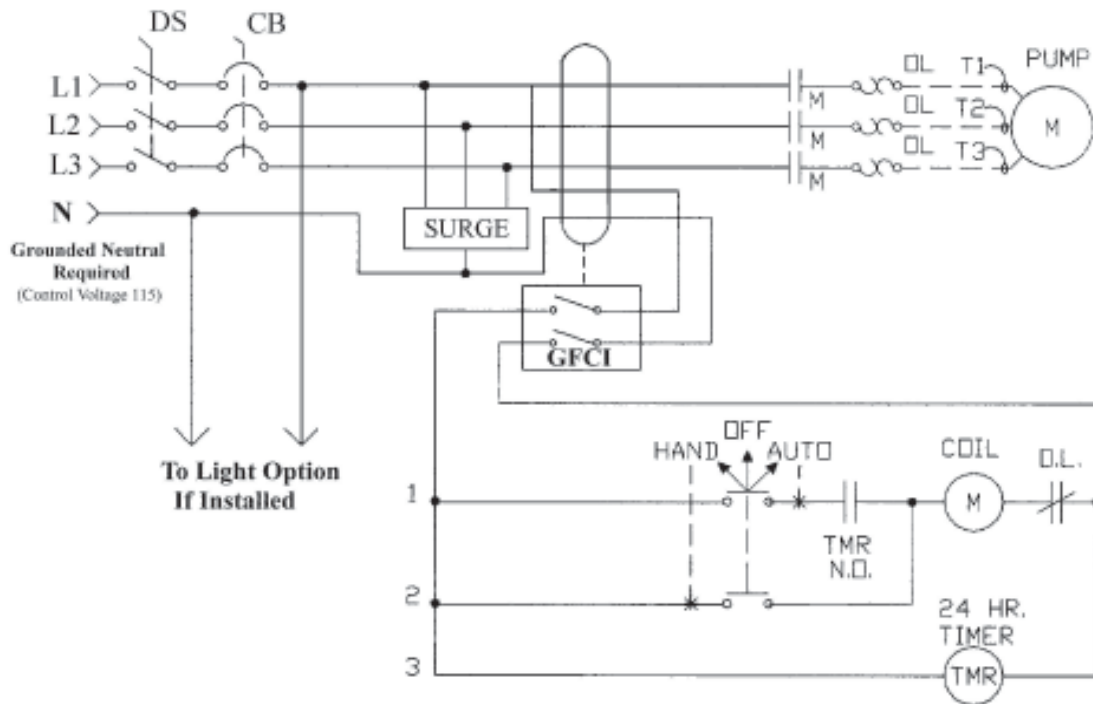
### 115 Volt 1 Phase 60 Hertz Schematic



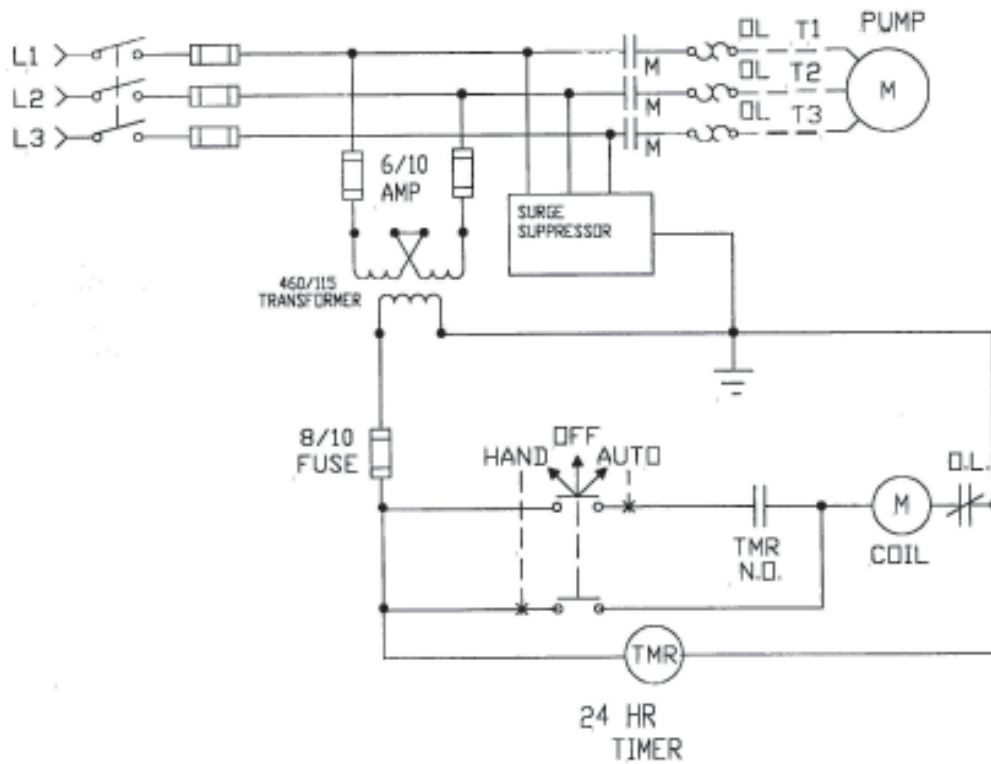
### 208-230 Volt 1 Phase 60 Hertz Schematic



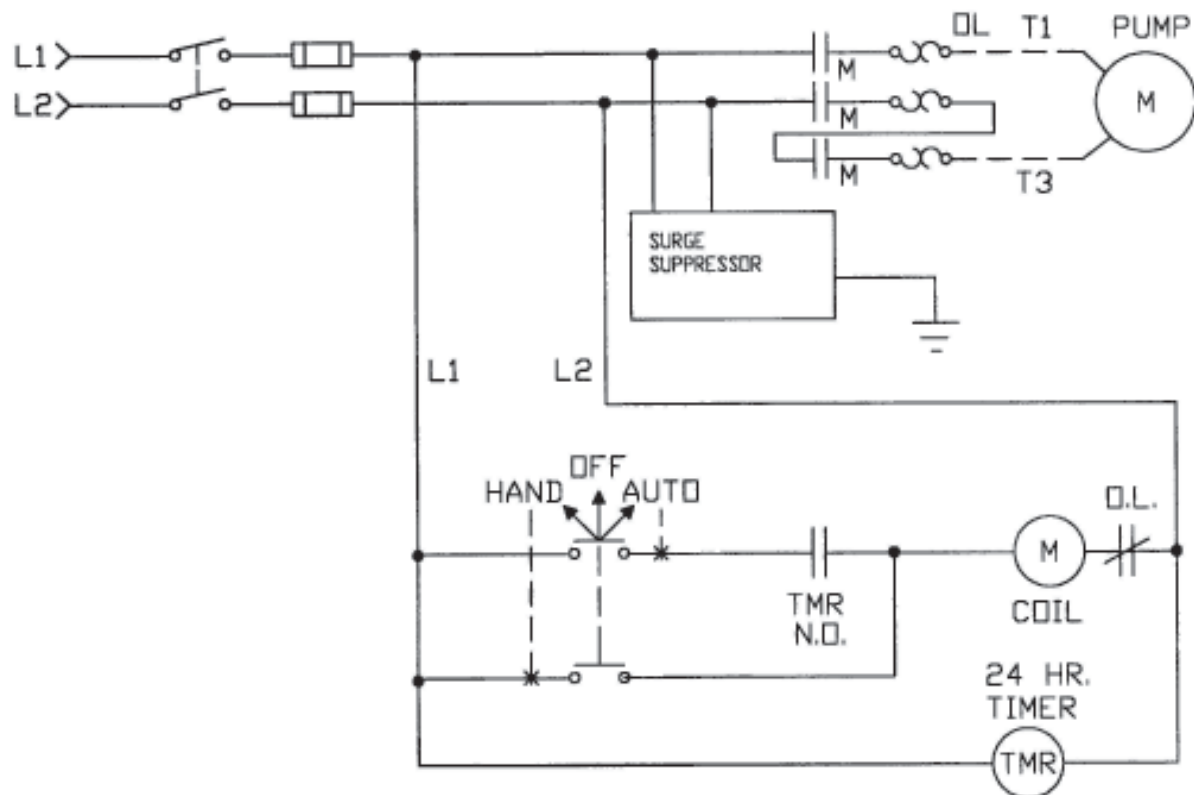
## 208-230 Volt 3 Phase 60 Hertz Schematic



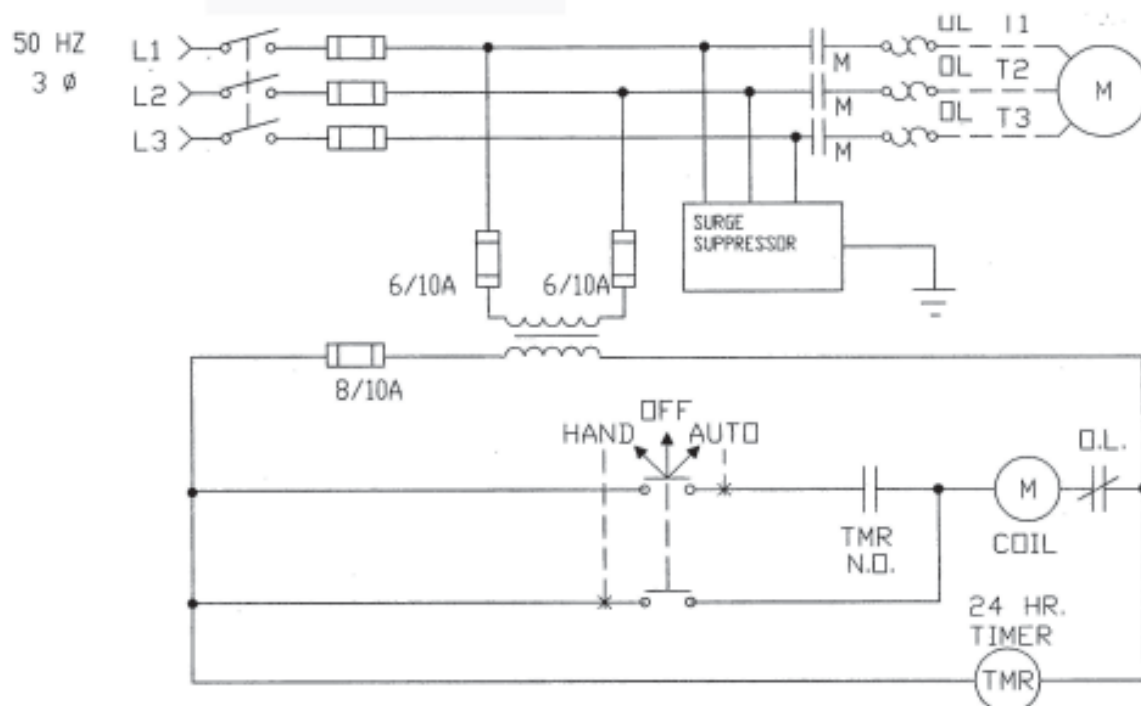
## 460 Volt 3 Phase 60 Hertz Schematic



## 220 Volt 1 Phase 50 Hertz Schematic



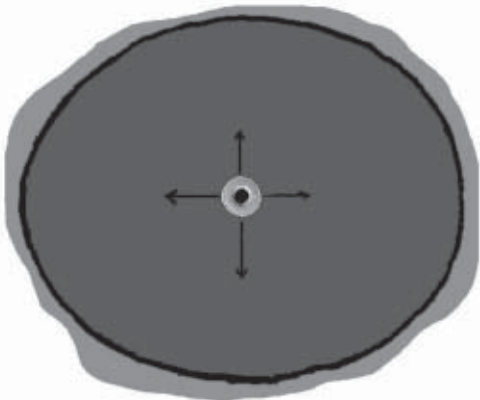
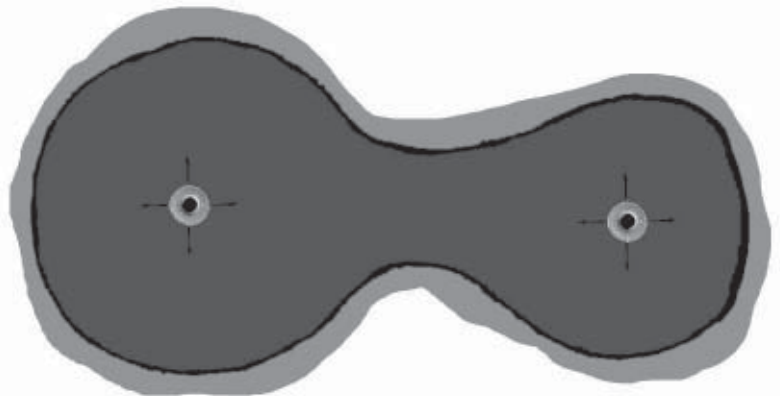
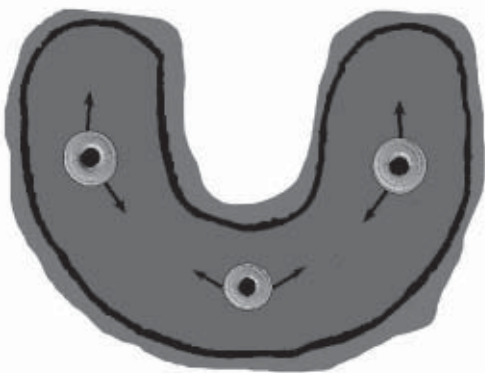
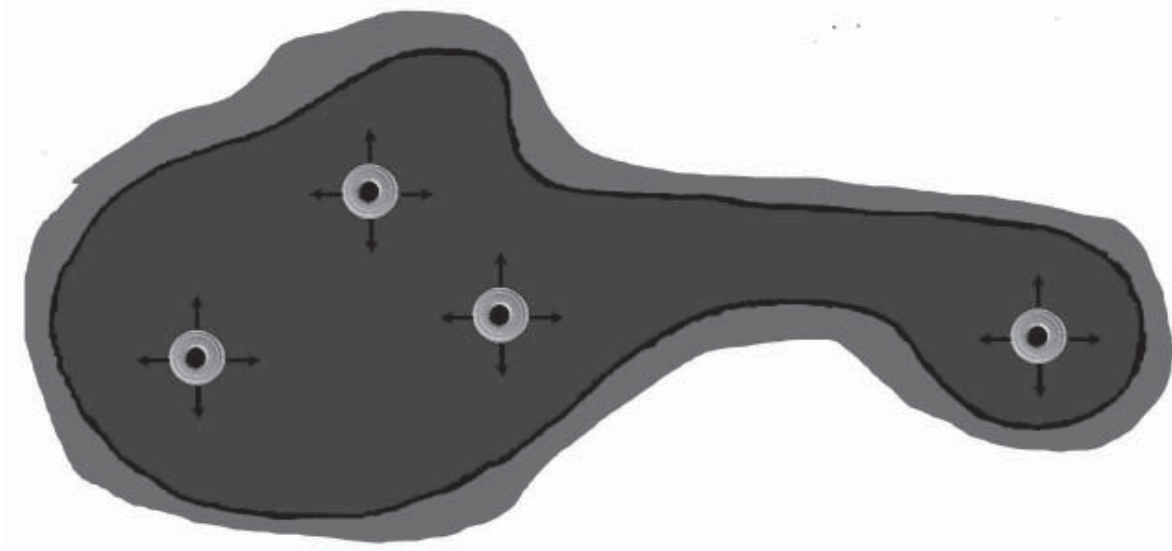
## 380/415 Volt 3 Phase 50 Hertz Schematic





## Aerator Placement

**Aerator Placement** -Placement is crucial to how quickly and efficiently your Otterbine aerator is able to clean your pond. The following diagram shows the most common ponds and the most effective aerator placement in these ponds.



## Physical Installation

Prior to installation please measure your water depth. All 1-5 HP Otterbine aerators require at least **40"/1m** of water to run properly. If the water is too shallow, dig out a portion of the pond bottom directly under the aerator. If high waves or large fluctuations in water depth occur, it may be necessary to allow for more than the required **40"/1m**. Shorter support arms are available upon request. The shorter support arms change the minimum operating depth to **31"/77.5 cm**.

**WARNING:** DISCONNECT POWER BEFORE INSTALLING, REMOVING, OR SERVICING UNIT

**A. Attach your Otterbine power cable to the aerator.** Align the pigtail connector on the cable up to the pin configuration on the bulkhead on the aerator. **HAND TIGHTEN** the coupling nut onto the bulkhead connector. **DO NOT OVER TIGHTEN -- OVER TIGHTENING WILL CAUSE A FRACTURE IN THE CONNECTOR AND COULD LEAD TO A SHORT CIRCUIT--**see Figure 1.

**NOTE:** You will notice a small amount of silicon compound on the female end of the aerator connector. This compound has been applied during assembly and is needed in order to make proper seal between the two connectors. **DO NOT REMOVE COMPOUND!** When servicing the aerator make sure to re-apply compound (Otterbine part# 48-0001).

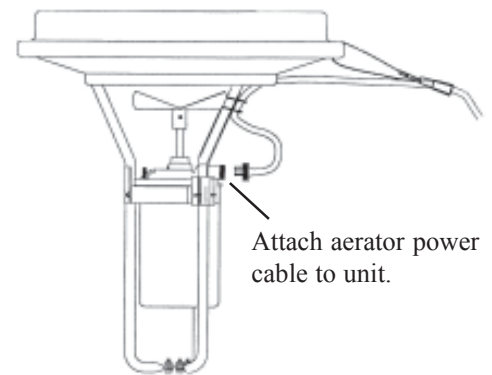


Figure 1



**CAUTION: KEEP HANDS CLEAR OF THE IMPELLER  
WHEN TRYING TO START THE AERATOR!  
ATTENTION: BARDER VOS MAINS À DISTANCE DE  
LA TURBINE PORSQUE VOUS ESSAYEZ DE  
DEMARRER P'AERATEUR**

**B. Have your electrician perform an on-shore dry-run test:**

- 1. Check and compare the actual power supply at the site to the information on the aerator's nameplate in regard to: motor voltage, phase, and frequency. IF THIS INFORMATION DOES NOT MATCH, DO NOT OPERATE THE UNIT!**
- 2. With the aerator on dry land, attach the power cable to the aerator and the starter in the Power Control Center (PCC).**
- 3. Turn the disconnect handle on the exterior of the PCC to the "ON" position.**

4. Energize the unit by turning the "Hand/Off/Auto" switch to the "Hand" position. Run unit 2 minutes to break in seals. **DO NOT RUN UNIT FOR MORE THAN 2 MINUTES -- MOTOR DAMAGE CAN OCCUR.** Check for COUNTER CLOCKWISE rotation at this time.

5. Turn the "Hand/Off/Auto" switch to "Off" and the disconnect switch to "Off".

6. IF Steps 1-5 are successful, you are ready to install the unit in the water. Proceed with following instructions.

**CAUTION:** OTTERBINE® aerators are designed to run in a COUNTER CLOCKWISE DIRECTION and CURRENT UNBALANCE BETWEEN THE LEGS ON 3 PHASE UNITS SHOULD NOT EXCEED 5%. Steps "L-M" on page 14 determine current unbalance.

**ATTENTION:** les aerateurs Otterbine® sont designes pour fonctionner dans le sens contraire des aiguilles d'une montre et tout desequilibre entre chacune des phases de l'alimentation ne doit pas depasser 5% voir "L-M" page 14 pour determiner le desequilibre.

C. **Install the cable strain relief device.** Pass the wire hoop through one of the holes in the float and around the aerator power cable. Re-attach the cable strain relief --see Figure 2.

D. **Attach your aerator power cable to one of the support arms with the ty-raps provided.** In corrosive, brackish, and salt water applications use two ty-raps to attach your power cable to the support arm--see Figure 2.

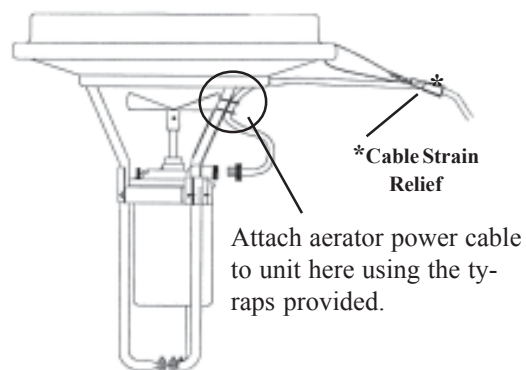


Figure 2

There are two different methods of securing your aerator, anchoring and mooring. Otterbine suggests mooring as it will be easier to install and service the aerator. On the next page you will find instructions for mooring the aerator; if you prefer to anchor your aerator, please see "Anchoring Your Aerator."

#### MOORING YOUR AERATOR:

- A. Proceed to page 12, follow steps E-K.
- B. Proceed to page 14, follow steps L-O.

#### ANCHORING YOUR AERATOR:

- A. Proceed to page 13, follow steps E-K.
- B. Proceed to page 14, follow steps L-O.

## Mooring the aerator

An illustration showing how to moor an aerator is given in Figure 3.

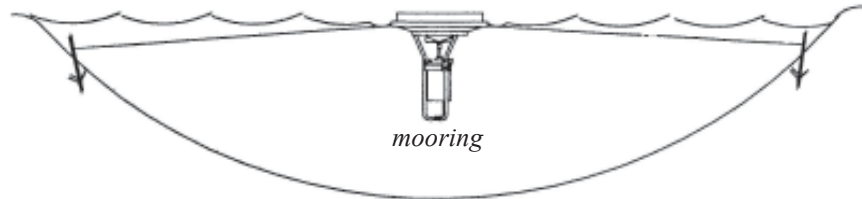


Figure 3

### E. You will need the following items in order to moor your Otterbine aerator.

1. Use all brass and stainless steel hardware in the installation of your Otterbine aerator.
2. Otterbine recommends using 1/4"/.63 cm or 1/2"/1.25 cm polypropylene rope or stainless steel cable for your mooring lines.
3. At the mooring points themselves you will need a wooden stake, 1/2"/1.25 cm of rebar or a "duck bill" type earth anchor --see Figure 4.



Figure 4

- Duckbill Earth Anchors are driven into the ground, using a drive rod and heavy hammer, compacting the earth as they drive downward, until they reach the recommended depth. After removing drive rod, installer pulls up on cable. This planes or rotates the anchor into load lock position, like a toggle bolt in undisturbed earth.

**F. Choose a suitable location for your Otterbine aerator.** See the aerator location chart on **page 9** to determine the best aerator location for the most efficient and effective aeration.

**G. Secure your first mooring point.** If you are using a stake or 1/2"/1.25cm rebar, make sure to pound the mooring point securely into the ground on the outer edge of the pond. If you are mooring with an earth anchor, you will need to place the earth anchor two feet into the pond and then pound the earth anchor about two feet into the pond bottom. The earth anchor will allow your mooring lines to be virtually unnoticeable as it will be hidden two feet beneath the surface of the water.

**H. Attach the mooring lines to the holes in the float.** Use a strong, tight knot as it will secure the Otterbine aerator in its place.

**I. Launch your aerator into the water. Walk one mooring line around to the other side of the pond.**

**J. Pull your Otterbine aerator into your previously chosen location.**

**K. Put in the other anchor or stake.** Tie down your Otterbine aerator leaving enough slack in your lines to allow the aerator to turn 90° or 1/4 turn. The slack in the lines will allow for proper start up, wave action, and fluctuations in the water level. Proceed to step L (**page 14**).

## Anchoring the Aerator

An illustration showing how to anchor an aerator is given in Figure 5.

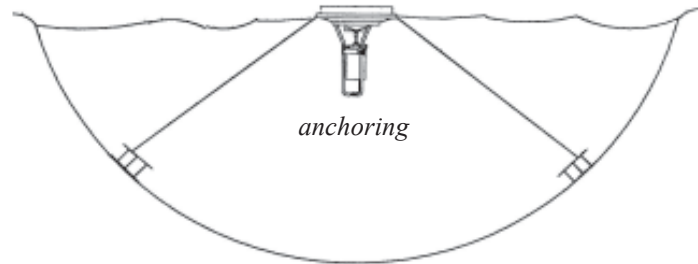


Figure 5

### E. You will need the following items to anchor your Otterbine aerator:

1. Use all stainless steel and brass hardware in the installation of your Otterbine aerator.
2. Otterbine recommends using 1/4"/.63 cm or 1/2"/1.25 cm polypropylene rope or stainless steel cable for your anchoring lines.
3. Two 60 - 80 pound anchors/two 27 - 36 kilo anchors.
4. Small boat.

**F. Choose a suitable location for your Otterbine aerator.** See aerator location chart on page 9 so that you can place your aerator in the best location for the most efficient and effective aeration.

**G. Launch your aerator into the water upside down, with the motor housing sticking up into the air.** Take a piece of rope and pass it through one of the holes on the float.

**H. In a small boat tow the aerator into your previously chosen location.**

**I. Determine where to locate the anchors.** Where the anchors are located will vary depending on the depth of your pond. See the chart below to determine the best location for your anchors.

MAXIMUM DEPTH		DISTANCE BETWEEN ANCHORS	
feet	meters	feet	meters
5'	1.5m	11'	3.4m
6'	1.8m	15'	4.6m
7'	2.1m	20'	6.1m
8'	2.4m	30'	9.1m
9'	2.7m	40'	12.0m
10'	3.0m	55'	16.7m
11'	3.3m	70'	21.2m
12'	3.6m	85'	26.8m
13'	3.9m	100'	30.3m
14'	4.2m	120'	36.4m
15'	4.6m	140'	42.4m

**J. Drop in the first anchor line.** Place your aerator in the desired location and securely tie the anchor line to one of the holes on the outside edge of the float.

**K. Drop in the second anchor line.** Securely tie the anchor line to the hole on the outside edge of the float which is directly opposite of the first anchor line that was tied onto the float. Make sure the unit can rotate 90° or 1/4 turn. The slack in the anchoring lines will allow for proper start up, wave action, and fluctuations in the water level. Flip the unit over. Proceed to step L (page 14).



**L. Energize your unit.**

**M. Have your electrician do the following while the unit is in the water under load:**

**1 PHASE UNITS:** Record running voltage & running amperage, power control center serial #, and cable length and size on the sticker inside the power control panel. Go to step N.

**3 PHASE UNITS:**

**1. Check the direction of the rotation.** Three-phase motors can run in either direction depending on how they are connected to the power supply. When the three cable leads are first connected to the power supply, there is a 50% chance that the motor will run in the right direction.

**2. Verify correct motor rotation (Counter Clockwise).** Rotation can be changed by exchanging any two of the three motor leads. **FAILURE TO DO THE ABOVE MAY CAUSE THE MOTOR TO FAIL PREMATURELY. MOTOR FAILURE DUE TO REVERSED POLARITY (ROTATION) WILL NOT BE COVERED UNDER WARRANTY.**

**3. Check current readings in amps on each leg using the three possible hook-ups.** Roll the motor leads across the starter in the same direction to avoid motor reversal. **EXAMPLE:**

**4. Calculate the percent of current unbalance:**

A B C	⇒	A B C	⇒	A B C
1 2 3		3 1 2		2 3 1

**A. Add the three line amp values together.**

**B. Divide the sum by three, yielding current average.**

**C. Pick the amp value that is furthest from the average current** (either high or low).

**D. Determine the difference between this amp value (line C) and the average (line B).**

**E. Divide this difference (line D) by the average (line B).**

**F. Multiply the result (line E) by 100 to determine percent of unbalance.**

**5. Current unbalance should not exceed 5% at the service factor load.** If unbalance cannot be corrected by rolling leads, locate source of unbalance & correct it. IF Leg furthest from average stays on the same power lead, THEN the primary cause of unbalance is the power source. IF leg furthest from average moves on each of the hookups with a particular motor lead, THEN the primary cause of unbalance is the "motor side" of starter. Consider: damaged cable, leaking splice, poor connection, or faulty motor as possible causes.

**6. Record running voltage & running amperage, power control center serial #, and cable length and size on the sticker inside the power control panel.** Proceed to step N.

**N. If GFCI or EPD is installed, have the electrician test the device for proper operation.**

**O. Lock your enclosure with a padlock to prevent any type of vandalism.** Set the "hand-off-auto" switch located on the outside of your Power Control Center to the HAND or AUTO position. The HAND position on the switch will let your aerator run continuously. The AUTO position on the switch will allow the timer inside your aerator to operate the unit. See **page 5** for timer operating instructions. Your aerator should be running at this point and installation is complete.

**CAUTION:** The aerator should be allowed to run continuously for 12 hours after installation. This will allow the aerator to properly "break in."

**ATTENTION:** L'aérateur doit être permis de fonctionner continuellement pendant 12 heures après l'installation. Cela permettra à l'aérateur d'être correctement rodé.

## High Volume Assembly

Item No.	Description	Part Number	Qty
1	Flow Straightener "A"	40-0113	2
2	Flow Straightener "B"	40-0114	1
3	Flow Straightener Mounting Bracket	40-0112	3
4	Flow Straightener Mounting Plate	40-0111	3
5	1HP 60Hz High Volume Impeller	50-0013-001	1
	2HP 60Hz/1HP 50Hz High Volume Impeller	50-0013-002	1
	3HP 60Hz/2HP 50Hz High Volume Impeller	50-0013-003	1
	5HP 60Hz/3HP 50Hz High Volume Impeller	50-0013-005	1
6	Impeller Set Screw	24-0005	1
7	Support Arm	C2-303	2
8	Support Arm, Adjustable	C2-304	1
9	Support Arm Brace Plate	C2-301	1
10	1/4"-20 x 3/4" Hex Bolt, S/S	EP5103	3
11	1/4"-20 Nylon Locknut, S/S	C2-112	3
12	5/16"-18 Nylon Locknut, S/S	GP1208	9
13	Flow Straightener U-Bolt, S/S	20-0011	3
14	3/8"-16 x 3/4" Hex Bolt, S/S	C2-111	1
15	3/8" Split Lock Washer, S/S	EP6301	1
16	1/4"-20 Serrated Flange Nut, S/S	26-0001	6
17	5/16" Flat Washer, S/S	28-0018	3
18	5/16"-18 x 3/4" Hex Bolt, S/S	106-302	3

## High Volume Assembly

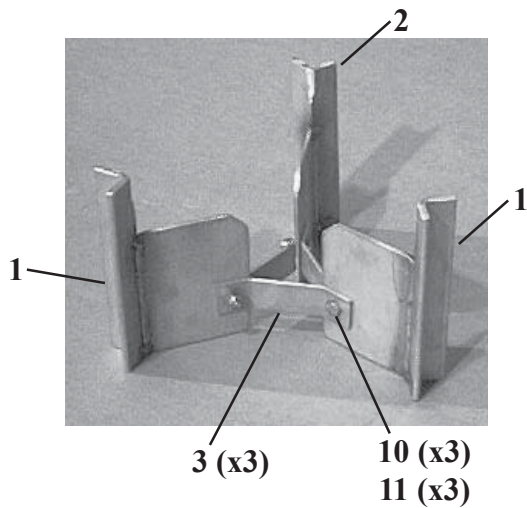


Figure 6

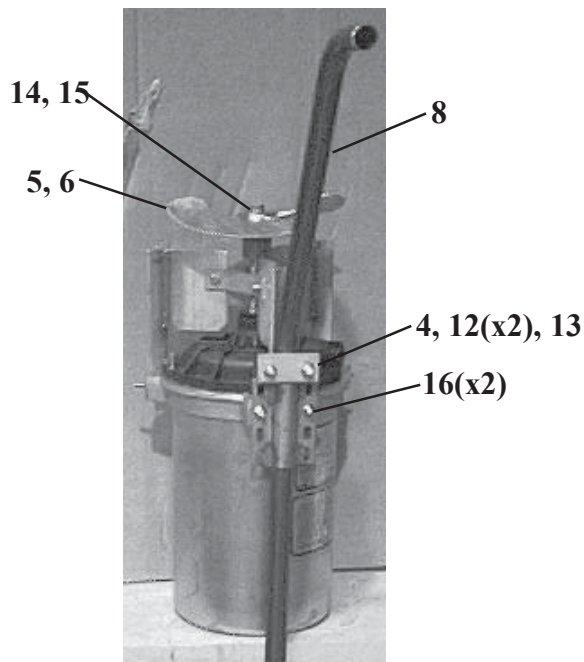


Figure 7

### A. Flow Straightener Assembly - See Figure 6

1. Assembly the Flow Straightener Assembly on a flat surface as seen in Figure 6. Tighten the hardware.

### B. Installing Adjustable Support Arm. - see Figure 7

1. Attach the adjustable support arm to the mounting ring using (2) 1/4" flange nuts. Torque to 10-12 ft-lbs.

**NOTE:** Use the second set of holes down from the top of the support arm when assembling the support arms to the motor unit. Center the mounting ring's bolts in the middle of the slots.

### C. Installing High Volume Impeller and Flow Straightener Assembly - see Figure 7

1. Place the Flow Straightener Assembly on the Power Unit and secure to the Support Arm with a U-Bolt, a mounting Plate and two nylon locknuts. Make sure the "B" Flow Straightener is placed on the power unit by the stud on the motor base plate. Tighten the locknuts evenly.

2. Install the impeller onto the motor shaft.

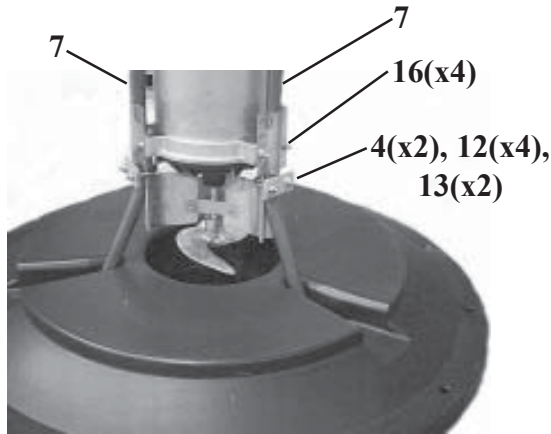
3. Turn the impeller until the set screw is flush against the middle of the flat part of the motor shaft. Using a hex key driver, tighten the set screw.

**NOTE:** Use a drop of removable lock-tight on the impeller bolt.

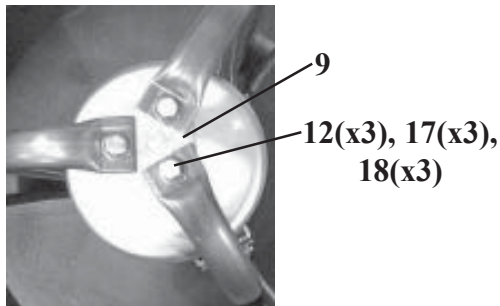
3. Secure the impeller to the motor shaft with the impeller bolt and split lock washer. Torque the bolt to 35 ft-lbs.

**continued on next page**

## High Volume Assembly - continued



**Figure 8**



**Figure 9**

### **D. Placing Power Unit in Float. - see Figure 8**

1. Place the float on a flat surface with the top side down.
2. Insert the top of the support arm, which is attached to the power unit into one of the pockets in the float. At this point, the support arm./motor assembly should be able to stand upright in the float without being held.

### **E. Installing remaining Support Arms - see Figure 8&9**

1. Insert the top of the second and third support arms into the pockets of the float.
2. Attach each of these arms to the mounting ring with (2) 1/4" flange nuts. Use the second set of holes down from the top of the support arm. Torque to 10-12 ft-lbs.
3. Secure the Flow Straightener to the two Support Arms just installed with a U-Bolt, a mounting Plate and two nylon locknuts for each. Tighten the locknuts evenly.
4. Attach the bottom of the support arms to the support arm brace with (1) 5/16" locknut, (1) 5/16" flat washer, and (1) 5/16" hex bolt for each of the three arms. Torque the bolts to 15-17 ft-lbs.

**NOTE:** When the support arms are assembled correctly, a perfect triangle should form where they come together at the support arm brace.

## Screen Installation

All Otterbine aerators can be made available with either a 1/4" or 1/2" screen which helps to keep debris away from the aerator intakes and, therefore, decreases the probability of your Otterbine aerator clogging.

### 1/4" Screen Kit #F-900-002F:

QTY	DESCRIPTION	PART #
9	1" Fender Washers	800-011
9	S/S Sheet Metal Screws	BP2803B
1	C2 1/4" Screen	15-0001

### 1/2" Screen Kit #F-800-001B:

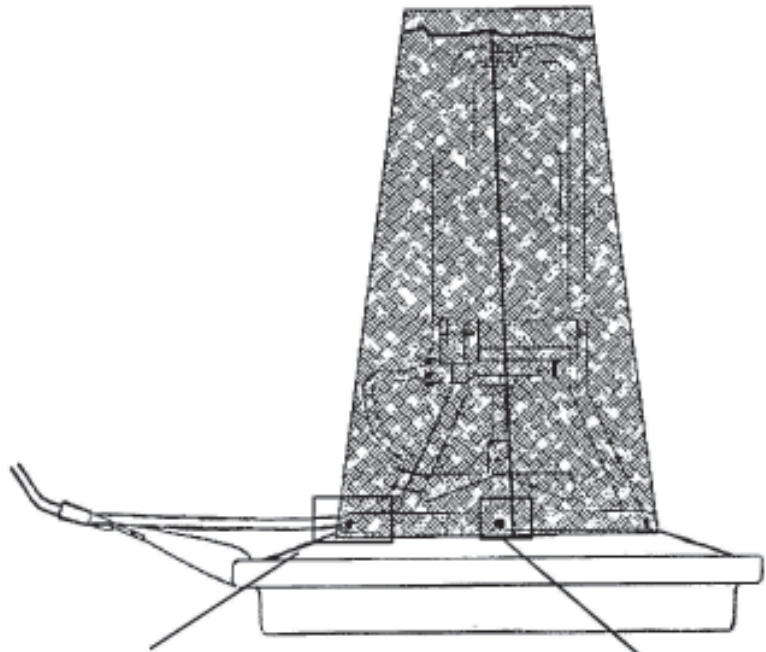
QTY	DESCRIPTION	PART #
9	1" Fender Washers	800-011
9	S/S Sheet Metal Screws	BP2803B
1	C2 1/2" Screen	15-0002

**A. Pull screen over motor unit and support arms until it reaches the first ridge on the float - see Figure 10**

**B. Make sure the cord/cords are running through the cord trough where the float arms fit into the float (choose one cord trough for all of your cables - see Figure 10).** Pull approximately two inches of the screen past the Mounting Ring. This is to insure that all of the cord troughs are adequately covered.

**C. Fasten the screen to the float with the washers and screws provided.** Fasten one screw and one washer on both sides of each cord trough - see Figure 10.

**D. Screw the remaining screws and washers through the screen into float between the cord troughs - three places --see Figure 10.**



(1) Cord troughs are located on the float where the support arm meets the float. Fasten one screw and one washer on both sides of each cord trough (use six screws and six washers).

Figure 10

(2) Place a washer and screw between each cord trough (three screws and three washers).



## Otter Rock Installation

Otterbine offers optional rock float covers for all aerators. These covers can be ordered from any Otterbine distributor (see list at back of owner's manual).

QTY	DESCRIPTION	PART #
2	Otter Rock tie down bolt	BP2803B
1	Otter Rock decorative float cover	C2-ROCK

**A. Place Otter-rock float cover on the float and push down.**

**B. Locate the two holes on the inner circle of the rock cover.**

**C. Insert the two Otter Rock tie down bolts into the holes in the rock cover and attach the cover to the float --see Figure 11.**

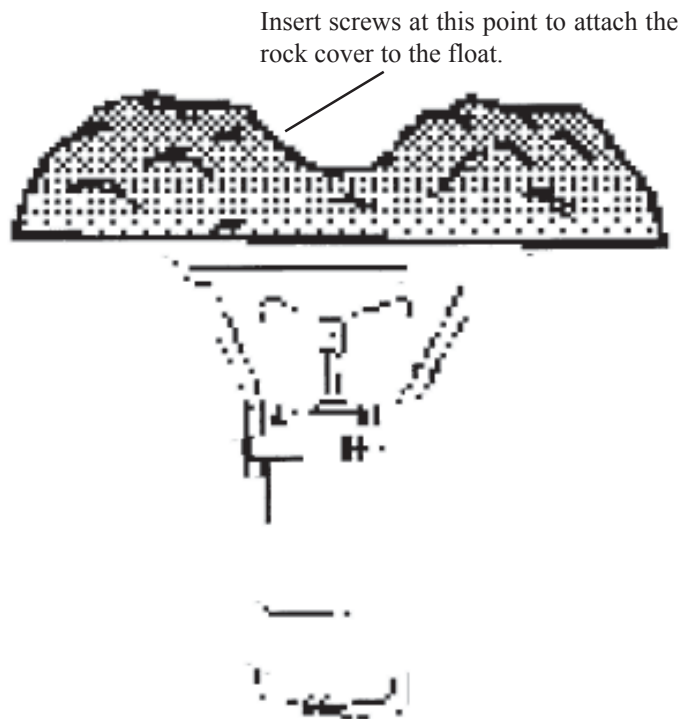


Figure 11

## Trouble Shooting Guide

SYMPTOM	POSSIBLE CAUSE	CORRECTION
1) Small spray pattern (Spray drops <b>gradually</b> , i.e. minutes or hours).	Clogged intake  Clogged screen  Loose impeller	Remove debris  Remove debris  Tighten impeller bolt
2) Motor will not start	Breaker/fuse has tripped   Loose or broken terminals   Low voltage   Defective power cable   GFCI device has tripped	Check circuit breaker or fuse, reset and/or replace, if necessary. Check voltage.   Look for loose or broken terminals.   Measure power to starter. Check acceptable maximum cable length (see table of contents)   Check cable. If defective, call distributor.   Reset and test GFCI device. If device trips again call elec./dist.
3) <b>High Volume</b> model aerators where spray pattern drops suddenly and then comes back to full pattern after restart our after several hours of operation.	This unit is designed to pump a tremendous amount of water. When the unit is put into a pond that is shallow the current that can be created will cause this phenomenon. <b>The unit is designed to perform like this.</b>	A High Volume unit can easily be changed into a Sunburst spray pattern if a more aesthetically pleasing spray pattern is desired. Please see a local Otterbine distributor or call Otterbine direct at 1-800-AER8TER or (215) 965-6018.

To insure proper operation of the Otterbine aerator it **MUST** have the **FULL PROPER VOLTAGE**. If actual voltage does not match the unit nameplate, consult the factory before installing or running the aerator.

## High Volume Industrial Aerator Technical Data - Domestic

Subject to change without notice (Updated 9/18/2001)

HP	Electrical Rating	Motor RPM	Running Amps	Spray Height (feet)	Spray Width (Feet)
1	115V 1Ph 60Hz	1725	13.4	2	5
1	208-230V 1Ph 60Hz	1725	6.8	2	5
2	208-230V 1Ph 60Hz	1725	11.5	2	7
3	208-230V 1Ph 60Hz	1725	12.9	3	9
3	208-230V 3Ph 60Hz	1725	8.2	3	9
3	460V 3Ph 60Hz	1725	4.1	3	9
5	208-230V 3Ph 60Hz	1725	14.4	4	11
5	460V 3Ph 60Hz	1725	7.5	4	11
5	575V 3Ph 60Hz	1725	6.0	4	11

## High Volume Industrial Aerator Technical Data - International

Subject to change without notice (Updated 8/26/2002)

HP	Electrical Rating	Motor RPM	Running Amps	Spray Height (meters)	Spray Width (meters)
1	220V 1Ph 50Hz	1425	7.5	0.6	1.4
2	220V 1Ph 50Hz	1425	12	0.6	2
3	220V 1Ph 50Hz	1425	13.3	0.8	2.6
3	380/415V 3Ph 50Hz	1425	4.2	0.8	2.6
3	380V 3Ph 60Hz	1680	4.7	0.8	2.6
5	380/415V 3Ph 50Hz	1425	7.2	1.1	3.5
5	380V 3Ph 60Hz	1680	7.6	1.1	3.5

**HP - Horsepower**

**V - Voltage**

**Ph - Phase**

**Hz - Hertz**

**RPM - Revolutions per Minute**

## Maximum Cable Lengths (from service entrance to unit)

HP	Electrical Rating	12awg Cable feet (meters)	10awg Cable feet (meters)	8awg Cable feet (meters)
1	115V 1Ph 60Hz	110 (34)	175 (53)	275 (84)
1	208-230V 1Ph 60Hz	425 (130)	685 (209)	1075 (328)
2	208-230V 1Ph 60Hz	250 (76)	400 (122)	645 (197)
3	208-230V 1Ph 60Hz	n/a	360 (110)	575 (175)
3	208-230V 3Ph 60Hz	410 (125)	650 (198)	1050 (320)
3	460V 3Ph 60Hz	1650 (503)	2600 (792)	4200 (1280)
5	208-230V 3Ph 60Hz	235 (72)	375 (114)	590 (180)
5	460V 3Ph 60Hz	900 (274)	1425 (434)	2275 (693)
5	575V 3Ph 60Hz	1400 (427)	2250 (686)	3550 (1082)
1	220/240V 1Ph 50Hz	370 (113)	590 (180)	950 (290)
2	220/240V 1Ph 50Hz	230 (70)	375 (114)	590 (1880)
3	220/240V 1Ph 50Hz	n/a	335 (102)	530 (162)
3	380/415V 3Ph 50Hz	1325 (404)	2100 (640)	3325 (1013)
3	380V 3Ph 60Hz	1175 (358)	1875 (572)	3000 (914)
5	380V 3Ph 60Hz	725 (221)	1175 (358)	1850 (564)

## Maintenance

Your Otterbine aerator requires periodic maintenance:

- A. **Once a year**, disconnect the unit from the power source and physically inspect the aerator and underwater cable for any cuts, cracks or breaks. These may cause oil leaks and/or electrical shorts. Inspect and clean the pumping chamber components and screen.
- B. **After every three running seasons**, a simple oil change is necessary to keep your unit running smoothly. Otterbine oil must be used for this oil change. Please contact your local Otterbine distributor to order a maintenance kit, p/n C2-MKIT.

When a unit is properly cared for, it will give you years of trouble free service. If a problem does arise, please contact your Otterbine distributor or the factory directly at 1-800-AER8TER.



## Winterization

If you live in a region of the country that experiences long periods of cold weather you may want to take your aerator out of the water. Otterbine strongly suggests that you take the following three units out of the water:

-ROCKET<sub>2</sub>  
-PHOENIX<sub>2</sub>  
-TRI-STAR<sub>2</sub>

These models are especially prone to freezing in. If an aerator becomes frozen-in, there is a possibility of motor damage. **Damage caused to the motor due to freezing will not be covered under warranty.**

The **High Volume** and the **Sunburst<sub>2</sub>** pump higher volumes of water and the spray pattern will not freeze as easily. These units will freeze in if the weather stays severe for a long enough period of time. You can decrease the chance of freezing in if you run these units 24 hours a day during long periods of extremely cold weather.

### WARNING:

- Before entering, wading in or swimming in the water in which Otterbine Aerators or Fountains are installed, make sure they are **PHYSICALLY** disconnected from their electrical power sources.
- Aerators located in or near garden ponds and similar locations must be equipped with Ground Fault Circuit Interrupter.
- The permissible temperature range for this equipment is -12° to 40° C/10° to 104° F.
- It is possible for the water to become slightly polluted in the rare case that an oil leakage occurs.
- If the power cord is damaged, it must be replaced by a special cord or assembly available from Otterbine/ Barebo, Inc. or an authorized Otterbine/Barebo, Inc. sales and service center.
- Les aerateurs situes a courte distance ou proche etangs de jardin et semblable endriots doivent etre équipés avec un interrupteur avec control de defaut.
- La gamme de température permet pour cet équipement est de -12 a 40C/10 a 104F.
- Si la corde électrique est abimeé, elle doit etre remplacée par une corde special ou assemblage disponible d'Otterbine®/Barebo, Inc. ou par un centre de service de vente autorise par Otterbine®/Barebo, Inc.
- L'eau pourrait devenir legerement pollue dans le tres rure cas ou l'huile fuirait.

**Limited 3 year (moving and related parts)  
+ 5 year (non-moving parts) Warranty  
Otterbine® Product**

**WARRANTY:** Barebo, Inc 3840 Main Road East, Emmaus Pennsylvania 18049, U.S.A. hereby warrants, subject to the conditions hereinbelow set forth, that should the **OTTERBINE** product prove defective by reason of improper workmanship or materials at any time during the warranty period the Purchaser at retail will be guaranteed that **BAREBO** will repair or replace the said **OTTERBINE** product as may be necessary to restore it to satisfactory operating condition, without any charge for materials or labor necessarily incident to such repair or replacement, provided that:

- a) The enclosed Warranty Registration Card should be mailed to **BAREBO** within fifteen (15) days of the original receipt by the Purchaser at retail in order to avoid delays;
- b) The **OTTERBINE** product must be delivered or shipped, prepaid, in its original container or a container offering an equal degree of protection, to **BAREBO** or a facility authorized by **BAREBO** to render the said repair or replacement services or, if purchased from an authorized **OTTERBINE** dealer, to such dealer;
- c) The **OTTERBINE** product must not have been altered, repaired or serviced by anyone other than **BAREBO**, a service facility authorized by **BAREBO** to render such service, or by an authorized **BAREBO** dealer, and the serial number of the **OTTERBINE** product must not have been removed or altered: and
- d) The **OTTERBINE** product must not have been subjected to lightning strikes and other Acts of God, vandalism, freezing-in, accident, misuse or abuse, and must have been installed in conformance with applicable electrical codes (including proper electrical protection), and also installed, operated and maintained in accordance with guidelines in the Owner's Manual shipped with the Otterbine product.

No implied warranties of any kind are made by **BAREBO** in connection with this **OTTERBINE** product, and no other warranties, whether expressed or implied, including implied warranties of merchantability and fitness for a particular purpose, shall apply to this **OTTERBINE** product. Should this **OTTERBINE** product prove defective in workmanship or material, the retail Purchaser's sole remedy shall be repair or replacement as is hereinabove expressly provided and, under no circumstances, shall **BAREBO** be liable for any loss, damage or injury, direct or consequential, arising out of the use of, or inability to use, the **OTTERBINE** product, including but not limited to retail Purchaser's cost, loss of profits, goodwill, damages due to loss of product or interruption of service, or personal injuries to Purchaser or any person.

**MODEL :**    **High Volume Industrial Aerator**

**HORSEPOWER (circle one):**    **1      2      3      5**

**VOLTAGE (circle one):**    **115      208-230      380      415      460      575**

**PHASE (circle one):**    **Single      Three**                      **HERTZ (circle one):**    **50      60**

**CORD GAUGE & LENGTH** \_\_\_\_\_

**UNIT SERIAL NUMBER** \_\_\_\_\_

**PANEL SERIAL NUMBER** \_\_\_\_\_

**OPTIONS** \_\_\_\_\_



## **Water Works With Otterbine!**

**Otterbine/Barebo, Inc.  
3840 Main Rd. East  
Emmaus, PA. 18049  
U.S.A.**

**1-800-AER8TER • (610) 965-6018**

**FAX: (610) 965-6050**

**e-mail: [aeration@otterbine.com](mailto:aeration@otterbine.com)**

**[www.otterbine.com](http://www.otterbine.com)**