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
Aerating Fountain

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 3 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.


GEMINI


PHOENIX


TRI-STAR


COMET


SUNBURST


CONSTELLATION


ROCKET


EQUINOX


GENESIS


SATURN

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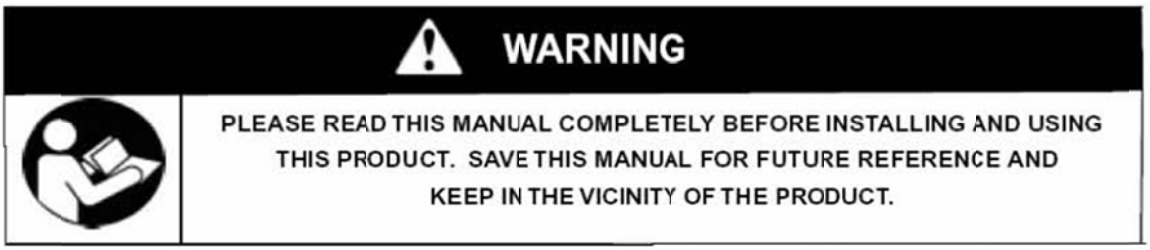
SAFETY INSTRUCTIONS



ALL ELECTRICAL WORK MUST BE PERFORMED BY A QUALIFIED LICENSED ELECTRICIAN AND CONFORM WITH ALL APPLICABLE ELECTRICAL SAFETY CODES

Tous travaux électriques doivent être effectués par un électricien professionnel qualifié et conforme à tous les codes applicables sécurité électrique

ALWAYS SWITCH OFF/DISCONNECT ALL EQUIPMENT IN THE WATER BEFORE SERVICING OR PERFORMING ANY MAINTENANCE

Toujours éteindre l'équipement dans l'eau avant entretien ou de tout entretien

DO NOT OPERATE THE FOUNTAIN WHEN PEOPLE ARE IN THE WATER

Ne pas utiliser la fontaine quand les gens sont dans l'eau

CAUTION: KEEP HANDS CLEAR OF THE IMPELLER WHEN OPERATING!

ATTENTION: Garder les mains loin du turbine lors de l'utilisation!

WARNINGS

- 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^{o} to 40^{o} C/10^{o} to 104^{o} F.
- It is possible for the water to become slightly polluted in the rare case that an oil leak 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.
- Avant d'entrer, pataugeant dans ou en nageant dans l'eau dans laquelle Aérateurs Otterbine ou fontaines sont installées, assurez-vous qu'ils sont physiquement déconnectés de leur source d'alimentation électrique.
- Aérateurs situés dans ou à proximité des bassins de jardin et des emplacements similaires doivent être équipés de disjoncteur.
- La plage de température admissible pour cet appareil est-12 o à 40 oC/10 o à 104 oF aux.
- Il est possible pour que l'eau devient légèrement polluées dans les rares cas où une fuite d'huile se produit.
- Si le cordon d'alimentation est endommagé, il doit être remplacé par un cordon spécial ou de montage disponible à partir Otterbine / Barebo, Inc ou une autorisation Otterbine / Barebo, les ventes Inc et centre de service.

INSPECT AERATOR EQUIPMENT

Immediately report any shipping damage to the carrier that delivered your aerator.

Inspect your aerator and verify the following:
Unit - Check the nameplate located on the housing of the aerator unit to make sure you have received the correct horsepower and voltage aerator.

Power Control Center - Verify the PCC is compatible with the aerator unit horsepower and voltage. Refer to the electrical specifications on the nameplate located inside on the door of the PCC.

Power Cable Assembly - Verify the correct cable gauge and length.

For proper warranty consideration return your Otterbine warranty registration card.

ELECTRICAL/PCC INSTALLATION

ELECTRICAL INSTALLATION MUST BE PERFORMED BY A QUALIFIED LICENSED ELECTRICIAN AND CONFORM TO ALL APPLICABLE LOCAL AND NATIONAL CODES

DISCONNECT EQUIPMENT FROM ELECTRICAL SUPPLY BEFORE SERVICING OR PERFORMING MAINTENANCE

Use Only OTTERBINE power cord. Do not splice or repair the cord, replacement is necessary if damage occurs.

The standard Power Control Center includes a fiberglass NEMA 4X enclosure with twenty-four hour timer control in the auto setting or manual control of the aerator unit, the required motor short circuit, ground fault and overcurrent protection, surge protection, and personnel GFCI protection (except 460V 60Hz. applications). On 460V units EPD (Equipment Protection Device) is an optional accessory to provide 5, 10 or 30 mA ground fault protection.

Caution: GFCI Protection is required. If GFCI protection is not used, serious or FATAL electrical shock may occur.
Attention: GFCI/RCD de protection est nécessaire. Graves ou mortelles choc électrique peut se produire s'il n'est pas utilisé.

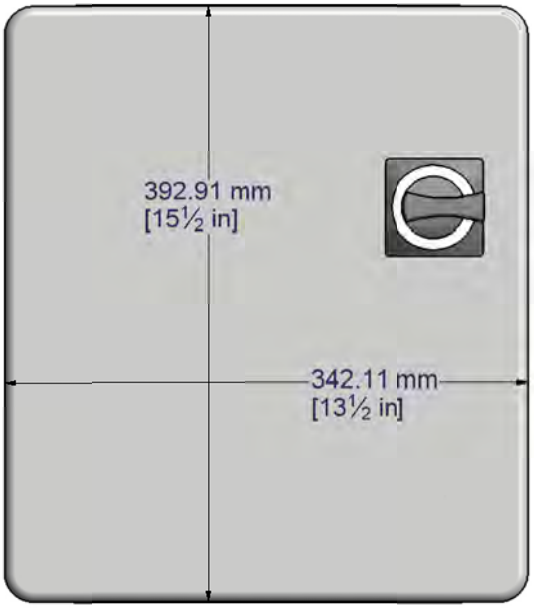
A. Feeder
1. Proper feeder circuit protection in accordance with all applicable local and national codes **must** be provided to the power control center.
2. Be certain to properly size feeder conductors to allow for no more than 5% voltage drop for the entire circuit from the feeder source to the aerator unit. Failure to do so may damage the aerator and void product warranty.

60Hz. Electrical Specifications			
HP	**Volts**	**Phase**	**Full Load Amps**
1	115	1	15.0
1	208/230	1	6.8
2	208/230	1	11.5
3	208/230	1	12.9
3	208/230	3	8.2
3	380	3	4.7
3	460	3	4.3
5	208/230	3	14.8
5	380	3	7.8
5	460	3	7.4
5	575	3	6
50Hz. Electrical Specifications			
1	230	1	7.5
2	230	1	12.0
3	230	1	14.0
3	380/415	3	4.2
5	380/415	3	7

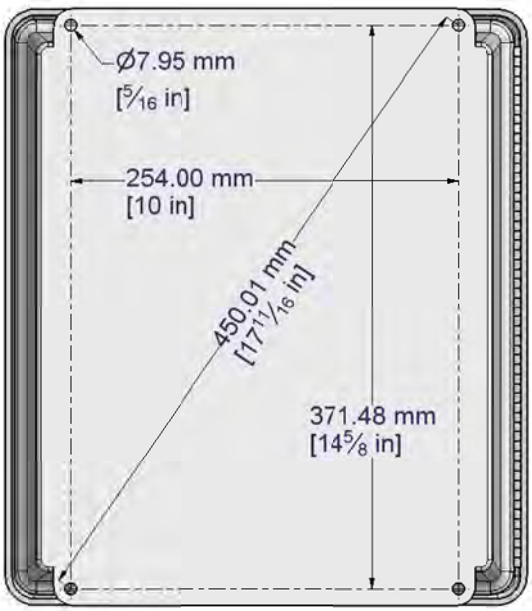
B. PCC Location
1. The power control center should be mounted where easily visible from the shoreline where the aerator is located.
Important: The power control center **shall not** be accessible from the water.
Important: Le Centre de Contrôle de la puissance ne doit pas être accessible à partir de l'eau

C. PCC Mounting

1. To prevent damage to the enclosure mount the enclosure using all four (4) mounting holes.
2. Whenever possible do not mount the PCC in direct sun light.



OVERALL DIMENSION

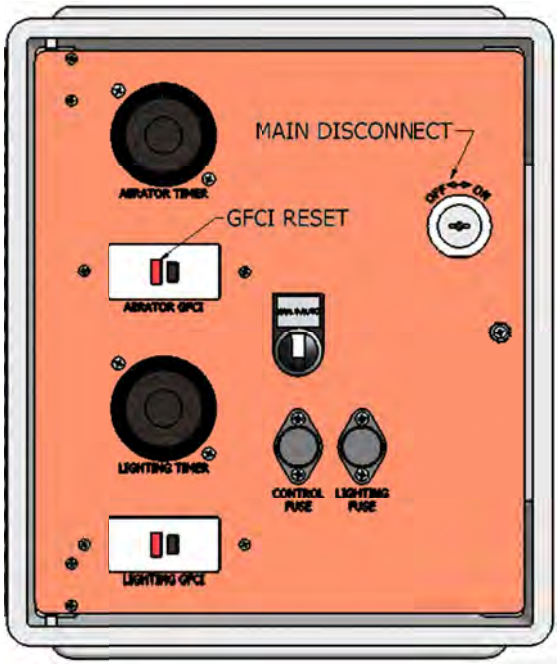


MOUNTING HOLE LAYOUT

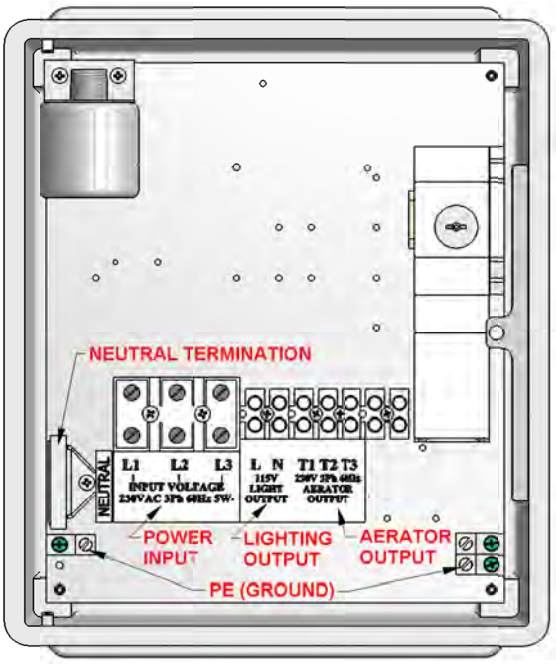
D. PCC Cables & Connections

1. Only Otterbine Barebo, Inc. factory approved power cord is to be used from the PCC to the aeration unit with no junction boxes or splices. **Only** use power cord gauges and lengths specified by Otterbine at the time of cable purchase. (Contact your Otterbine Distributor for proper cable sizing)
2. It is recommended that all exposed cable between the PCC and the shoreline be installed in non-metallic conduit. It is **important** that aerator and lighting cables be installed in individual conduits to avoid induced interference between cables which causes random GFCI tripping.
3. **Always** use strain relief cord connectors to attach the Otterbine cable to the PCC.
4. Cables and conduits must only enter into the bottom of the PCC.
5. Factory connections may loosen during shipping. Verify tightness of all screw terminal connections before energizing.
6. Power input and output wiring connections are accessed from the bottom of the enclosure. The terminal blocks for the cable connections are located behind the hinged swing panel. Loosen the captive screw on the right center of the swing panel for access.

Terminal Torque Values: **Input** – 45 in/lb. Maximum, **Output** – 30 in/lb. Maximum



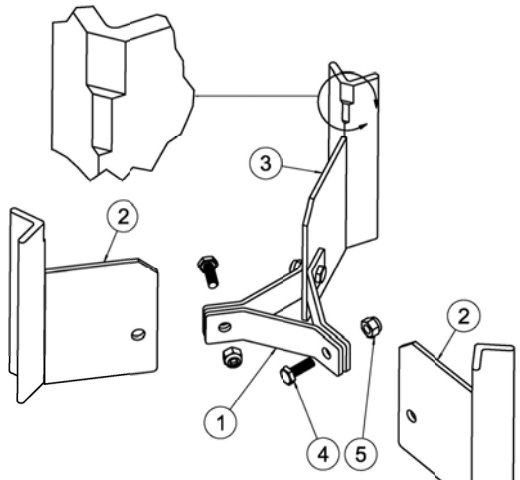
VIEW OF SWING PANEL



VIEW OF SUB-PANEL

HIGH VOLUME UNIT ASSEMBLY

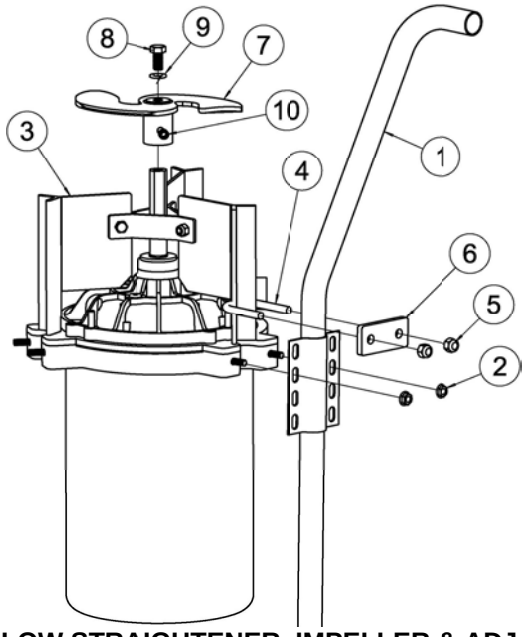
Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Flow Straightener Mounting Bracket	40-0112	3
2	Flow Straightener "A"	40-0113	2
3	Flow Straightener "B"	40-0114	1
4	1/4-20 x 3/4" S/S Hex Bolt	EP5103	3
5	1/4-20 S/S Locknut	C2-112	3



FLOW STRAIGHTENER

A. Assemble Flow Straightener (shown above)
1. Assemble the Flow Straightener Assembly on a flat surface as shown above. Tighten the hardware.

Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Adjustable Support Arm	C2-304	1
2	1/4"-20 S/S Flange Nut	26-0001	6
3	Flow Straightener Assembly		1
4	Flow Straightener S/S U-Bolt	20-0011	3
5	5/16-18 S/S Nylon Hex Nut	GP1208	9
6	Flow Straightener Plate	40-0111	3
7	1HP 60Hz High Volume Impeller 2HP 60Hz/1HP 50Hz High Volume Impeller 3HP 60Hz/2HP 50Hz High Volume Impeller 5HP 60Hz/3HP 50Hz High Volume Impeller 5HP 50Hz High Volume Impeller	50-0013-001 50-0013-002 50-0013-003 50-0013-005 50-0013-006	1
8	3/8-16 x 3/4" S/S Hex Bolt	C2-111	1
9	3/8 Split Washer Washer	EP6301	1
10	Impeller Set Screw	40-0002	1



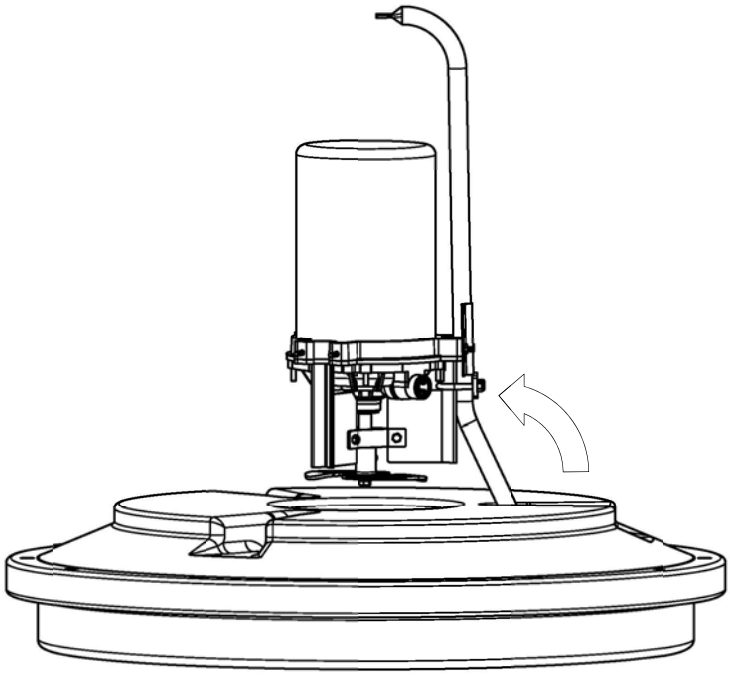
FLOW STRAIGHTENER, IMPELLER & ADJ. ARM

B. Install Adjustable Support Arm (below left)
1. Attach the adjustable support arm to the mounting ring using (2) 1/4" flange nuts. Torque to 10-12 ft.-lbs. Center the bolts in the second row of slots.

C. Install Flow Straightener
1. Center the flow straightener assembly on top of the power unit. Align the "B" Flow Straightener (3 shown above) with the stud on the motor base plate. Secure to the Support Arm with a U-Bolt, mounting Plate and locknuts (4, 5 & 6). Tighten the locknuts evenly.

D. Install Impeller
1. Place the impeller onto the motor shaft.
2. Align the set screw (10) to a flat on the shaft. Tighten the set screw using a hex key driver.
3. Install impeller bolt and split lock washer (8 & 9) Torque the bolt to 35 ft.-lbs.

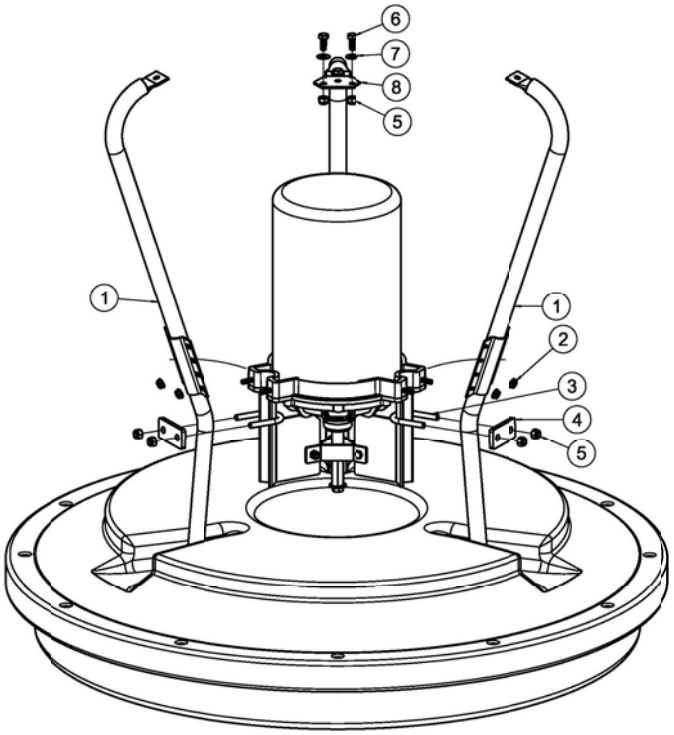
E. Placing Power Unit in Float (shown below)
1. Place the float on a flat surface with the top side down.
2. Invert the power unit assembly and insert the top of the adjustable support arm through one of the pockets in the float. The support assembly should be standing upright in the float.



PLACE POWER UNIT IN FLOAT

F. Install Remaining Support Arms (shown on right)
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 triangle should form where they come together at the support arm brace.

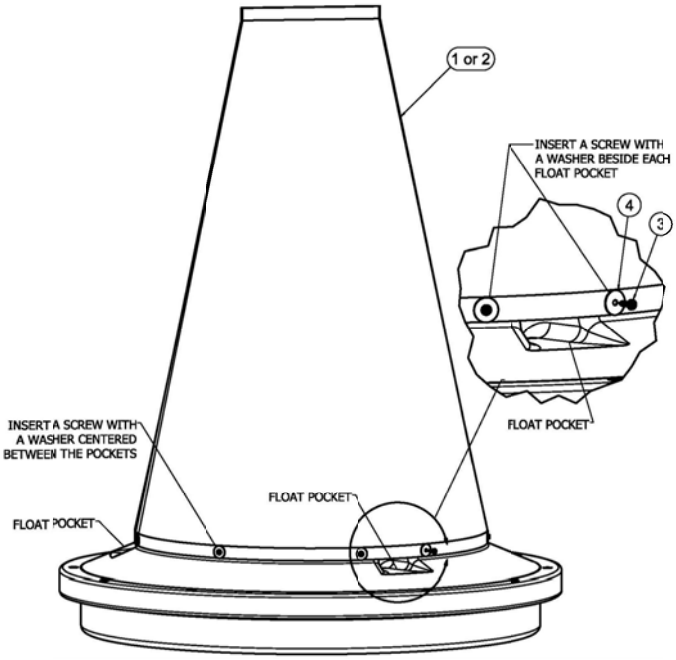
Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	C2 Support Arm	C2-303	2
2	1/4"-20 S/S Flange Nut	26-0001	6
3	Flow Straightener S/S U-Bolt	20-0011	3
4	Flow Straightener Plate	40-0111	3
5	5/16-18 S/S Nylon Hex Nut	GP1208	9
6	5/16-18 x 3/4" S/S Hex Bolt	106-302	3
7	5/16" S/S Flat washer	28-0018	3
8	Support Arm Brace Plate	C2-301	1



ATTACH REMAINING SUPPORT ARMS

G. Screen Installation
1. Pull screen over motor unit and support arms until it reaches the first ridge on the float (next page)
2. Route the cord/cords through the float pockets where the support arms fit into the float. Choose one pocket for all cables. Pull approximately two inches of the screen past the Mounting Ring to adequately cover the pockets.
3. Fasten the screen to the float with the washers and screws provided. Fasten a screw and washer on both sides of each float pocket. Screw the three remaining screws and washers through the screen into float between the each pocket.

Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
	1/4" Screen Kit	F-900-002F	
	1/2" Screen Kit	F-800-001B	
1	C2 1/4" Screen	15-0001	1
2	C2 1/2" Screen	15-0002	1
3	8-32 x 3/4" S/S Sheet Metal Screw	BP2803B	9
4	#10 x 1" Fender Washer	800-011	9



ATTACH SCREEN

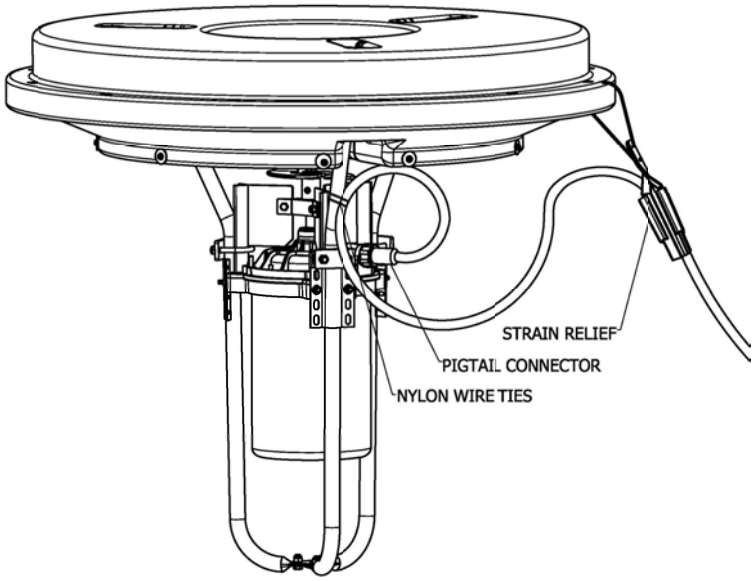
PHYSICAL INSTALLATION

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

Concept 2 Otterbine aerators require **a minimum 40"/1m** of water depth. If the water is too shallow or fluctuations in water depth occur, it will be necessary to remove a portion of the pond bottom beneath the aerator.

A. Attach your Otterbine power cable to the aerator.

1. Align the pigtail connector on the cable up to the pin configuration on the bulkhead on the aerator. Thread the nut onto the bulkhead, hand tighten only, do not use tools on the pigtail connector nut. Do not over tighten. **Over tightening may cause the connector to fracture and possibly cause an electrical short circuit.**
2. All ratings use 4 pin connectors.
3. A small amount of silicon compound has been factory applied to the female end of the aerator connector. The compound and is necessary to make a waterproof seal between the two connectors.**DO NOT REMOVE COMPOUND!** When servicing the aerator make sure to re-apply compound. (Otterbine P/N: 48-0001).
4. **Install the cable strain relief device.** Pass the wire hoop from the strain relief through one of the holes in the float. Reattach wire hoop to strain relief.
5. For additional protection fasten the power cable to a support arm using the cable ties provided.



B. Pre-Startup Checks (To be performed by a qualified technician)

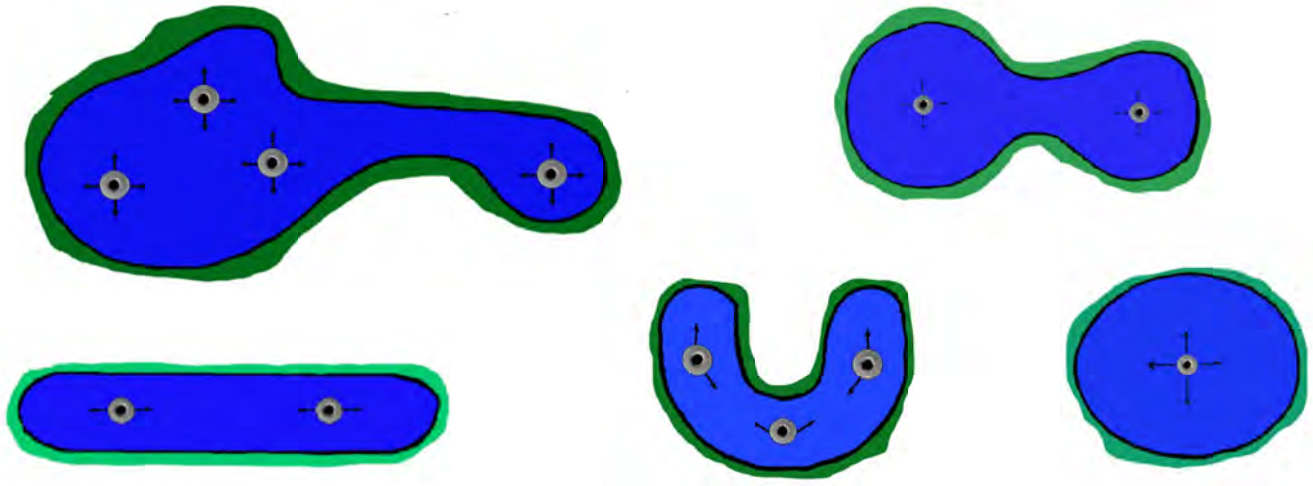
1. Factory connections may loosen during shipping. Verify tightness of all screw terminal connections before energizing.
2. Apply power to the PCC. Verify the voltage to the PCC at the input terminals is correct and matches the nameplate rating of the aerator.

For 115V & 230V Single Phase & 230V Three Phase Units: The voltage between L1 on the input terminal block to the neutral terminal must measure a nominal 120V.

3. Allowing the main door to be open and with the swing panel door closed turn on main disconnect. (See page 7)
4. Activate the GFCI/s located on the swing panel by pressing the “RESET” button.
5. With the aerator unit on the shore check for correct motor rotation. Briefly “bump” (turn on only long enough to establish operation and direction of rotation) the MOA (Manual-Off-Auto) switch to “MAN” (See Page 12) while observing the motor shaft rotation. **(IMPORTANT! Aerator Shaft rotation MUST BE CCW looking at the top/impeller end of the unit)**.

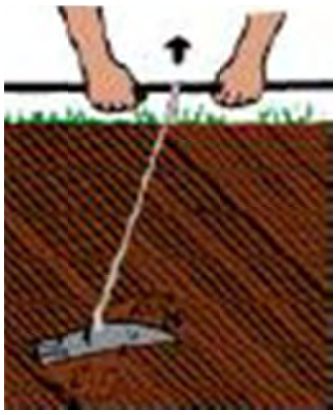
C. Launching the Aerator

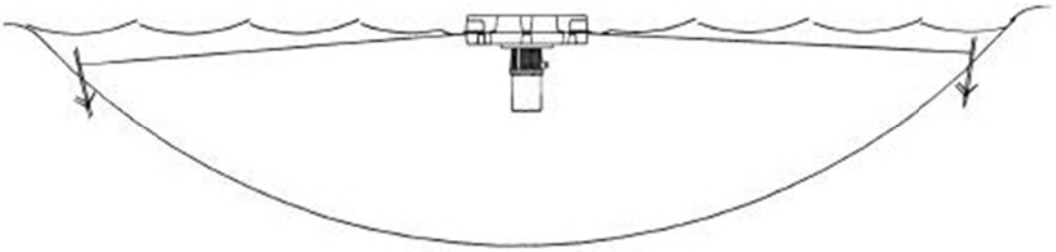
1. It is important to choose the correct location for your Otterbine aerator. Placement affects how well your Otterbine aerator is able to keep your pond clean. The following diagrams represent the most common types of ponds and the most effective aerator placement.



2. Select the method of securing your aerator, mooring (see step C3) or anchoring (see step C4). Mooring provides for easier installation and servicing of the aerator.

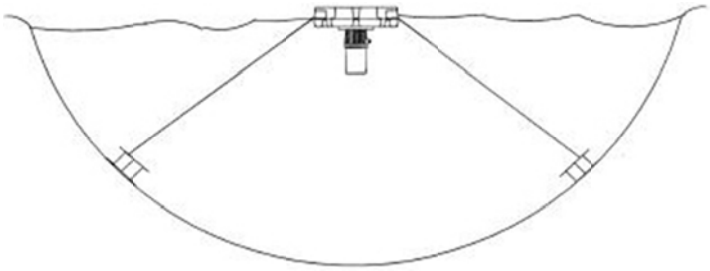
3. **Mooring:** The following items are required to moor your Otterbine aerator. Use only brass and stainless steel hardware. Otterbine recommends using 1/4"(0.63cm) or 1/2"(1.25cm) polypropylene rope or stainless steel cable for mooring lines. At the mooring points you will need a wooden stake, 1/2"(1.25cm) steel bar or a "duck bill" type earth anchor. The earth anchor allows the mooring lines to be hidden beneath the surface of the water. Install all anchoring points. Pound the first mooring point securely into the ground at the outer edge of the pond. If you are mooring with an earth anchor position the earth anchor two feet into the pond. The duckbill earth anchors are driven into the ground, using a drive rod and a heavy hammer, drive downward until they reach approximately two feet into the pond bottom. Remove the drive rod and pull up on cable. This planes or rotates the anchor into the load-lock position (see diagram on left). Fasten all of the mooring lines securely to the outer holes in the float. Launch the aerator into the water. Walk one mooring line around to the other side of the pond and pull your Otterbine aerator into the previously chosen location. Secure the aerator leaving enough slack in the lines to allow the aerator to turn 90 degrees 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 5.





Mooring the Aerator

4. **Anchoring:** The following items are required to anchor your Otterbine aerator. Use only stainless steel and brass hardware. Otterbine recommends using 1/4"(0.63cm) or 1/2"(1.25cm) polypropylene rope or stainless steel cable for anchoring lines, two 60 - 80 lb. (27 - 36 kilo) weights for anchors and a small boat. Fasten all of the mooring lines securely to opposite outer holes in the float. Launch your aerator into the water upside down with the motor housing facing up. Place the anchors into the boat and tow the aerator into the predetermined location. Anchor location will vary depending on the depth of your pond (See chart). Drop the anchors with lines attached into the water at opposite locations. Secure the aerator leaving enough slack in the lines to allow the aerator to turn 90 degrees or 1/4 turn. The slack in the lines will allow for proper start up, wave action and fluctuations in the water level. Flip the unit over and proceed to step 5.



Anchoring the Aerator

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

SYSTEM STARTUP

DO NOT ALLOW THE AERATOR TO OPERATE "DRY" OUT OF THE WATER

IMPORTANT: Otterbine aerators are designed to run in a Counterclockwise direction facing the top impeller end. Current unbalance for three phase systems shall not exceed 5%.
IMPORTANT: Aérateurs Otterbine sont conçus pour fonctionner dans le sens antihoraire regardant l'extrémité supérieure de la turbine. Courant de déséquilibre pour les trois systèmes de la phase ne doit pas dépasser 5%

A. User Control Functions
1. Main Disconnect Switch

MAIN DISCONNECT OFF
Removes Power to the Aerator for Maintenance/Servicing/Repair, Timers are not powered (Time of Day Needs to be Reset)

MAIN DISCONNECT ON
Power Applied, Mode of Operation Now Dependent on the Position of MOA Switch, Timers are Operating

MAIN DISCONNECT TRIPPED
Indicates a Fault Motor/Wiring Short Circuit Or Motor Current Overload

2. MANUAL-OFF-AUTO switch.

MOA IN OFF
Aerator & Lighting Will Not Function, Timers are Powered and Operating, GFCI's may be Reset

MOA IN AUTO
Allows Automatic Control of Aerator & Lighting by Timers & Other Control Options

MOA IN MANUAL
Turns on Aerator, Bypasses Timer & Non-Critical Control Functions

3. Timer operation.

a. Push **in** (towards center) all tripper pins on the timer dial. (As Shown)
b. Pull **out** only 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, 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.

c. Turn the outer dial clockwise to align the time of day to the stationary arrow positioned at "2 o'clock". Close the panel and turn the main disconnect on. When the main disconnect is off or in the case of power failure the timer/s will not operate and the time of day will need to be reset.
d. Set the "manual-off-auto" switch to the MANUAL or AUTO position. The MANUAL 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.

B. Energizing the Unit (To be performed by a qualified technician)

1. Single Phase Units: Correct motor rotation is factory determined and not field adjustable. Start the unit and record the operating voltage & amperage, power control center serial number and cable length and gauge on the label inside the power control panel.

2. Three Phase Units: Verify correct motor rotation (Counter Clockwise looking at the top/impeller end of the unit). Check current readings on each phase. Verify three phase operating currents are balanced within 5%. When correct, record the operating voltage & amperage, power control center serial number and cable length and gauge on the label inside the power control panel.

To calculate the percent of current unbalance:

Determine the Average Current:

a. Measure each of the three phase currents
b. Add the three phase amperage values together.
c. Divide the sum by three.
d. This is the average current value.

Determine Current Unbalance:

a. Select the phase current with the greatest difference from the average (calculated above).
b. Determine the difference between this phase current and the average current value.
c. Divide the difference by the average.
d. Multiply the result by 100 to determine percent of unbalance.

3. Use connection diagram 1, 2 or 3 at right which results in the lowest current unbalance. Roll the motor cable leads on the aerator output terminal block in the same direction to avoid motor reversal. If the current unbalance is not corrected by rolling leads, locate the source of the unbalance and correct it.

a. When the phase farthest from the average stays on the same power lead after being moved the primary cause of unbalance is the power source.

b. When the phase farthest from the average moves on each of the hookups with a particular motor lead, then the primary cause of unbalance is the "motor side" of the circuit. Consider: damaged cable, leaking splice, poor connection, or a faulty motor as possible causes.

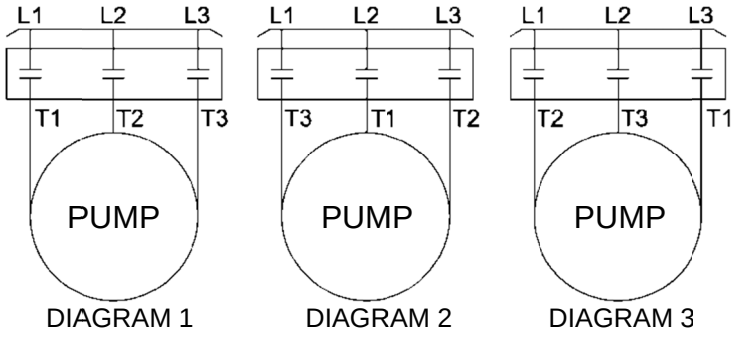


DIAGRAM 1 DIAGRAM 2 DIAGRAM 3

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.
WARNING: Use the oil level gauge. Do not overfill motor housing with oil, may cause damage.

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. 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** pumps higher volumes of water and the spray pattern will not freeze easily. The unit 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.

Maximum Cable Lengths (From Service Entrance to C2 Unit)

Concept 2 Maximum Cable Lengths											
	HP	Electrical Rating	Running Amps	12AWG / 4mm²		10AWG / 6mm²		8AWG / 10mm²		6AWG / 16mm²	
				Feet	Meters	Feet	Meters	Feet	Meters	Feet	Meters
60Hz.	1	115V 1Ph 60Hz	13.4			150	45.72	250	76.2		
	1	208/230V 1Ph 60Hz	6.8	375 / 425	114 / 130	600 / 675	183 / 206	950 / 1000	290 / 305		
	2	208/230V 1Ph 60Hz	12.3	200 / 225	61 / 68.6	325 / 375	99.1 / 114	525 / 600	160 / 183	825 / 925	251 / 282
	3	208/230V 1Ph 60Hz	14.3			275 / 325	83.8 / 99.1	450 / 500	137 / 152	725 / 800	221 / 244
	3	208/230V 3Ph 60Hz	8.5	350 / 375	107 / 114	550 / 625	168 / 191	900 / 1000	274 / 305		
	3*	380V 3Ph 60Hz	4.7	1000	304.8						
	3*	460V 3Ph 60Hz	4.3	1000	304.8						
	5	208/230V 3Ph 60Hz	14.8	200 / 225	61 / 68.6	325 / 350	99.1 / 107	500 / 575	152 / 175		
	5*	380V 3Ph 60Hz	7.8	700	213.36	1000	304.8				
	5*	460V 3Ph 60Hz	7.4	900	274.32	1000	304.8				
	5*	575V 3Ph 60Hz	6	1000	304.8						
50Hz.	1	220-240V 1Ph 50Hz	8	350	106.68	550	167.64	875	266.7		
	2	220-240V 1Ph 50Hz	12	225	68.58	350	106.68	575	175.26		
	3	220-240V 1Ph 50Hz	14			300	91.44	500	152.4		
	3*	380/415V 3Ph 50Hz	4.2	1000 / 1000	305 / 305						
	5*	380/415V 3Ph 50Hz	7	775 / 850	236 / 259	1000 / 1000	305 / 305				

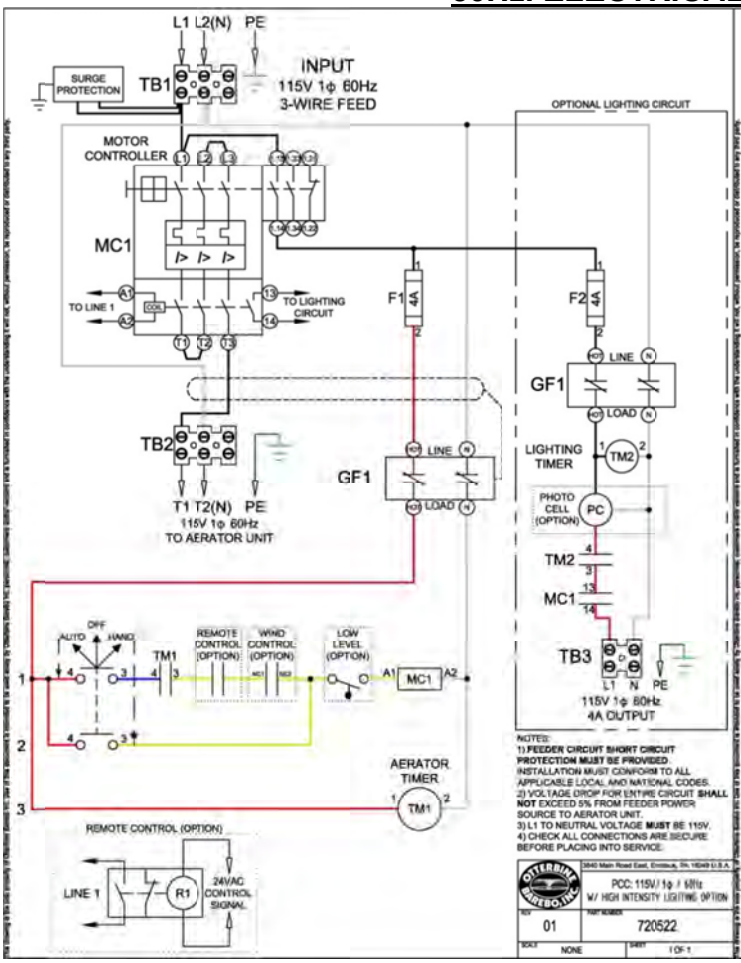
!IMPORTANT! Cable lengths are based on a 5% cable voltage drop between the PCC and the motor unit. It is important to consider the total voltage drop is 5% **including** the branch circuit to the PCC.

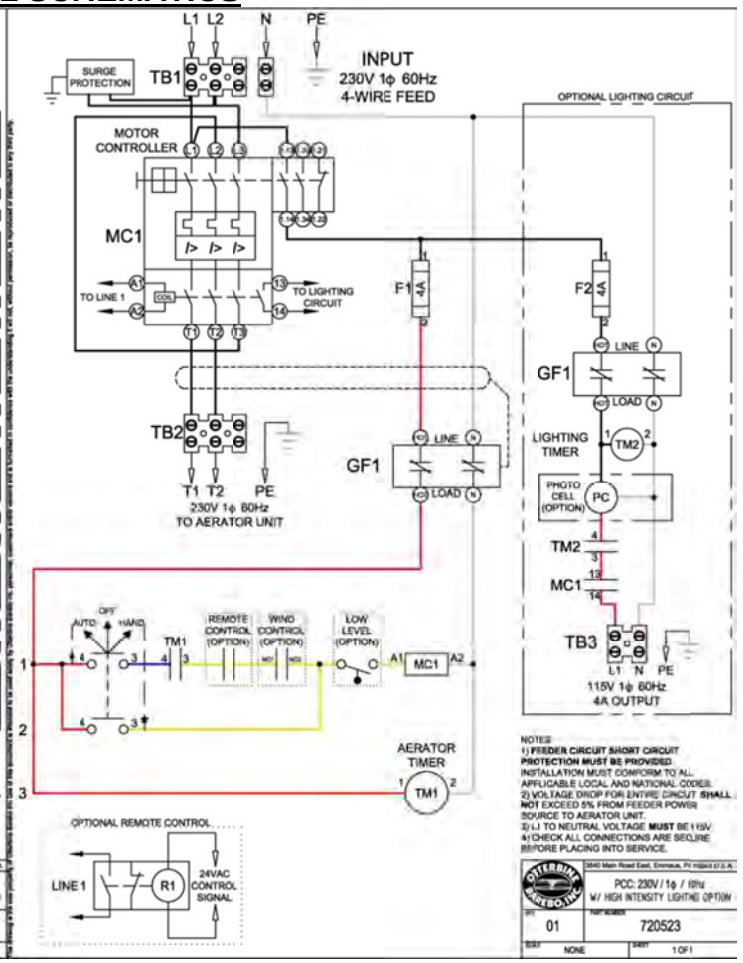
(*Cable for these systems may be available in longer lengths, call the factory to inquire)

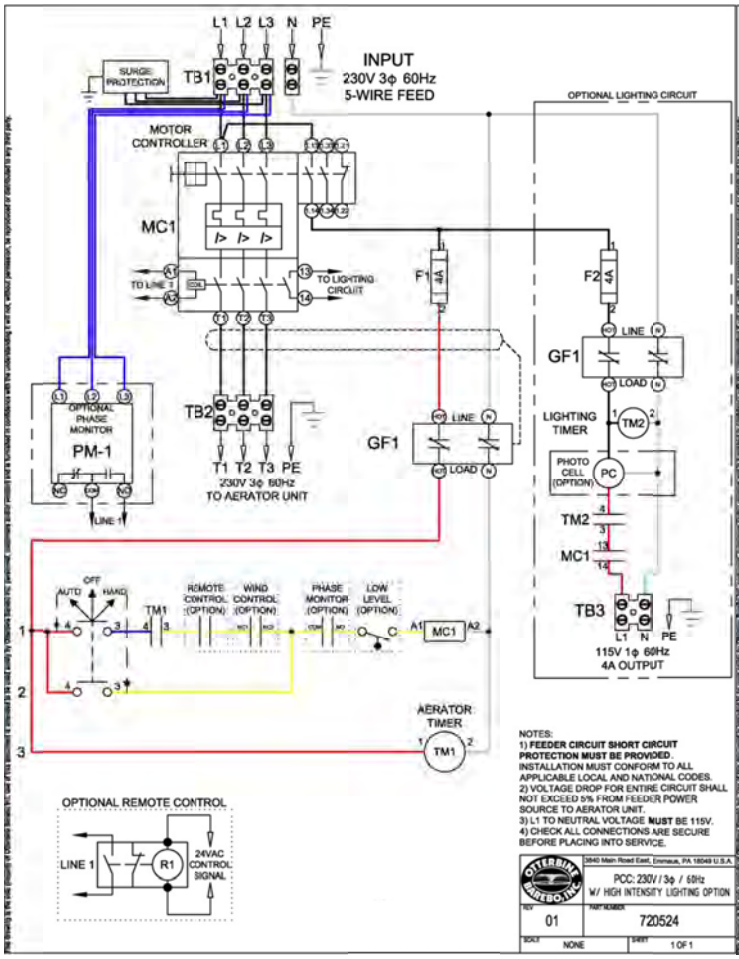
TROUBLESHOOTING GUIDE

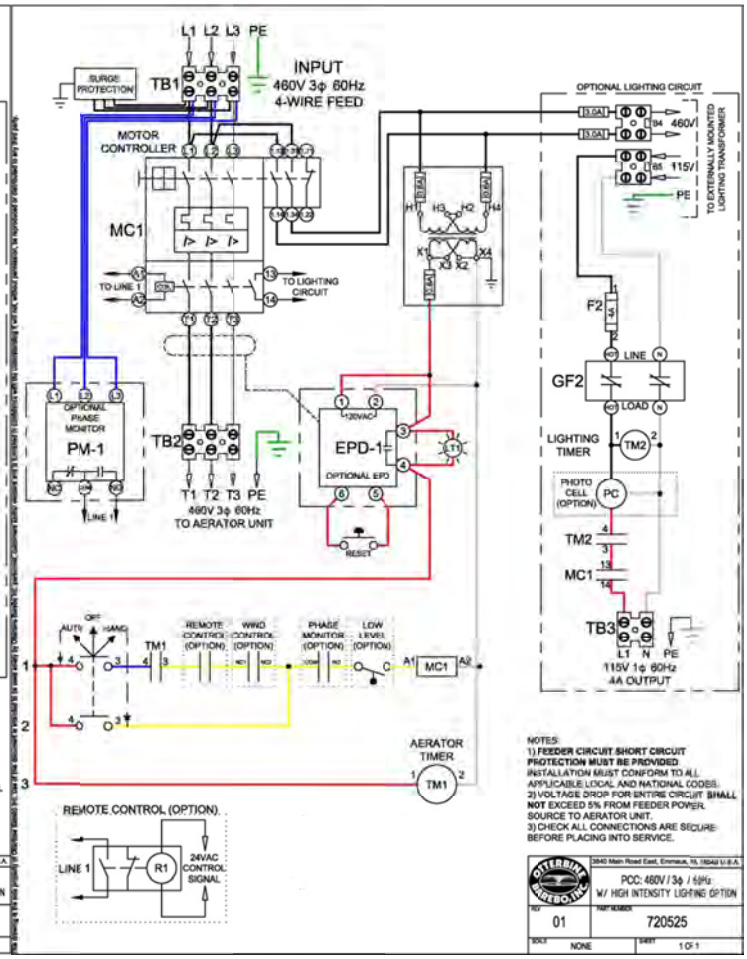
Small spray pattern (Spray drops **gradually**, i.e. minutes or hours).	Clogged intake	Remove debris
	Clogged screen	Remove debris
	Loose impeller	Tighten impeller bolt
Cavitation or low spray pattern. (Spray drops **suddenly,** less than one second.)	Low line voltage	Check voltage at the PCC & at the aerator. Make sure the unit is within the specified voltage range.
	Check for air bubbles surfacing around float	Make sure mooring and anchoring lines are securely tightened
	Debris between slinger and Impeller	Remove debris
Motor will not start	Breaker/fuse has tripped	Check circuit breaker or fuse, reset and/or replace, if necessary. Check voltage.
	Loose or broken terminals	Look for loose or broken terminals.
	Low voltage	Measure power to starter. Check acceptable maximum cable length (see below)
	Defective power cable	Check cable. If defective, call distributor.
	GFCI has Tripped	Reset and test GFCI device. If device trips again call electrician or distributor

60Hz. ELECTRICAL SCHEMATICS

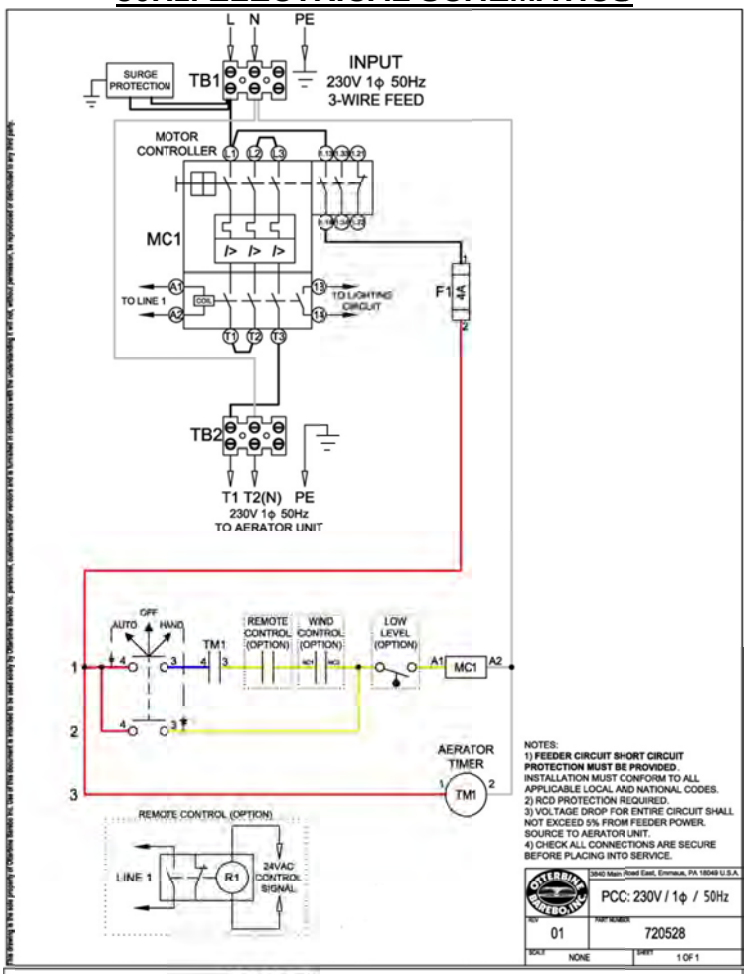


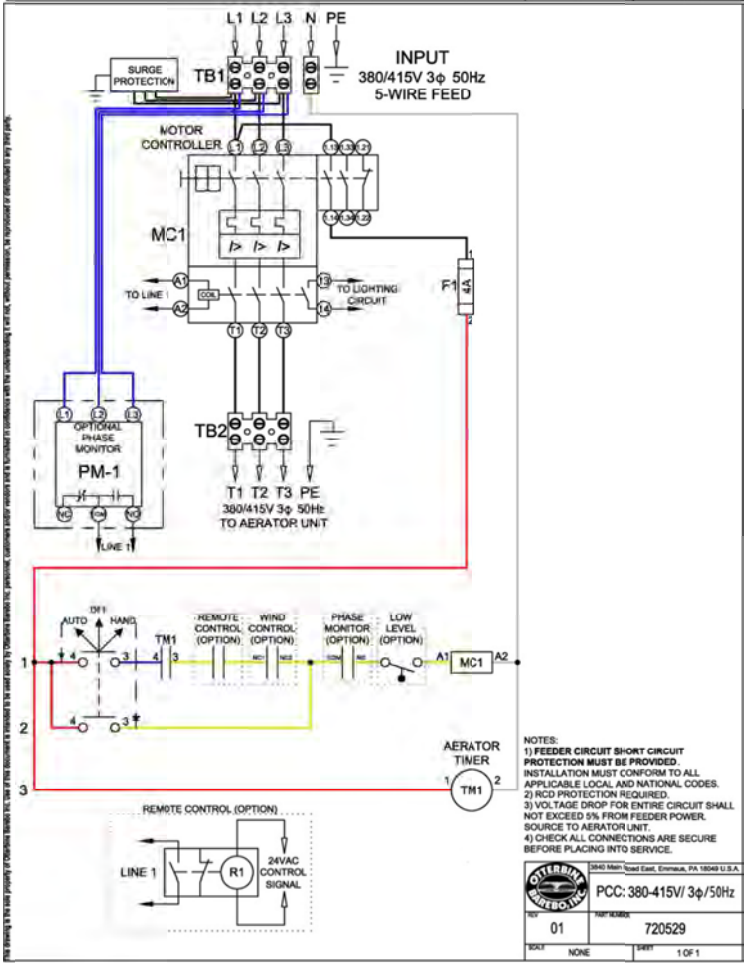






50Hz. ELECTRICAL SCHEMATICS





High Volume Industrial Aerator Domestic Technical Data

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 International Technical Data

HP	Electrical Rating	Motor RPM	Runnin-g 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

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 guarantee 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 (circle one): 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!

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