Water Works With Otterbine

CONCEPT$_3$

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

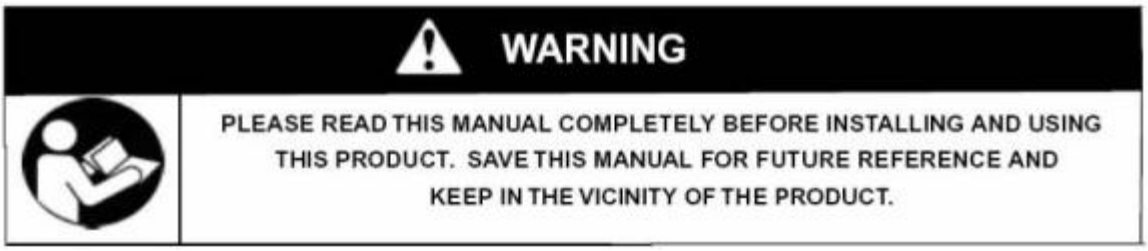

EQUINOX


GENESIS


SATURN

CONTENTS

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.

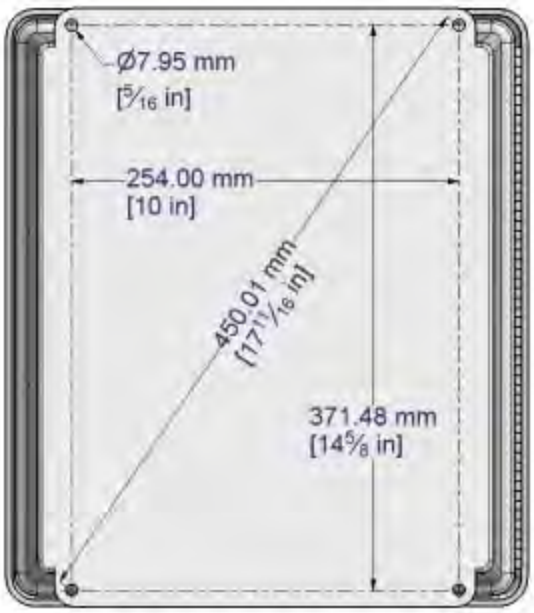
60Hz. Electrical Specifications			
HP	**Volts**	**Phase**	**Full Load Amps**
1	115	1	15.5
1	208/230	1	8.3/7.5
2	208/230	1	13.7/12.4
3	208/230	1	15.5/14
3	208/230	3	9.7/8.6
3	380	3	4.6
3	460	3	4.3
5	230 Only	1	23
5	208/230	3	15.1/13.4
5	380	3	7.6
5	460	3	7.2
5	575	3	5.5
50Hz. Electrical Specifications			
1	230	1	8.3
2	230	1	12.6
3	230	1	13.5
3	380/415	3	4
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

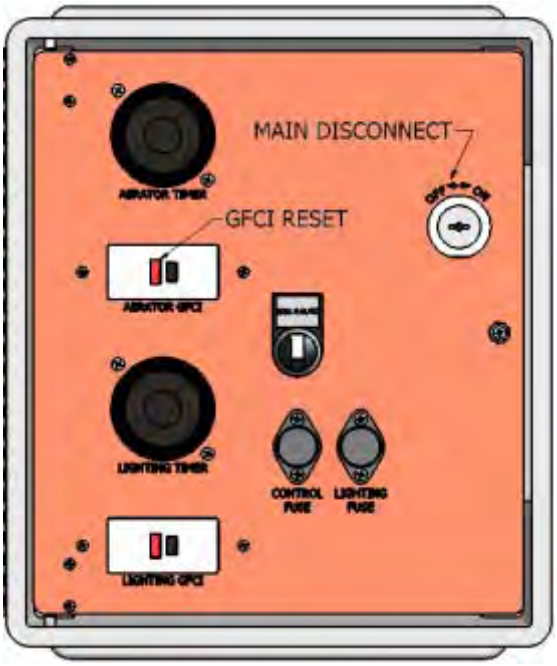


MOUNTING HOLE LAYOUT

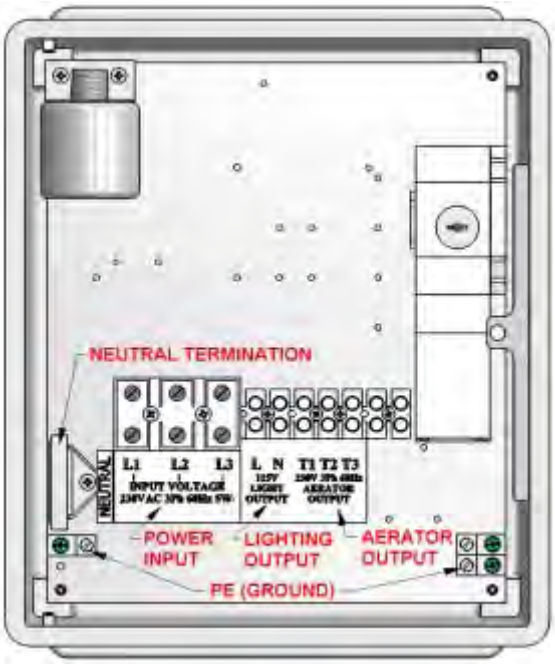
D. PCC Cables & Connections

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

UNIT ASSEMBLY

READ THE INSTRUCTIONS: Improper assembly may result in damage to the unit.

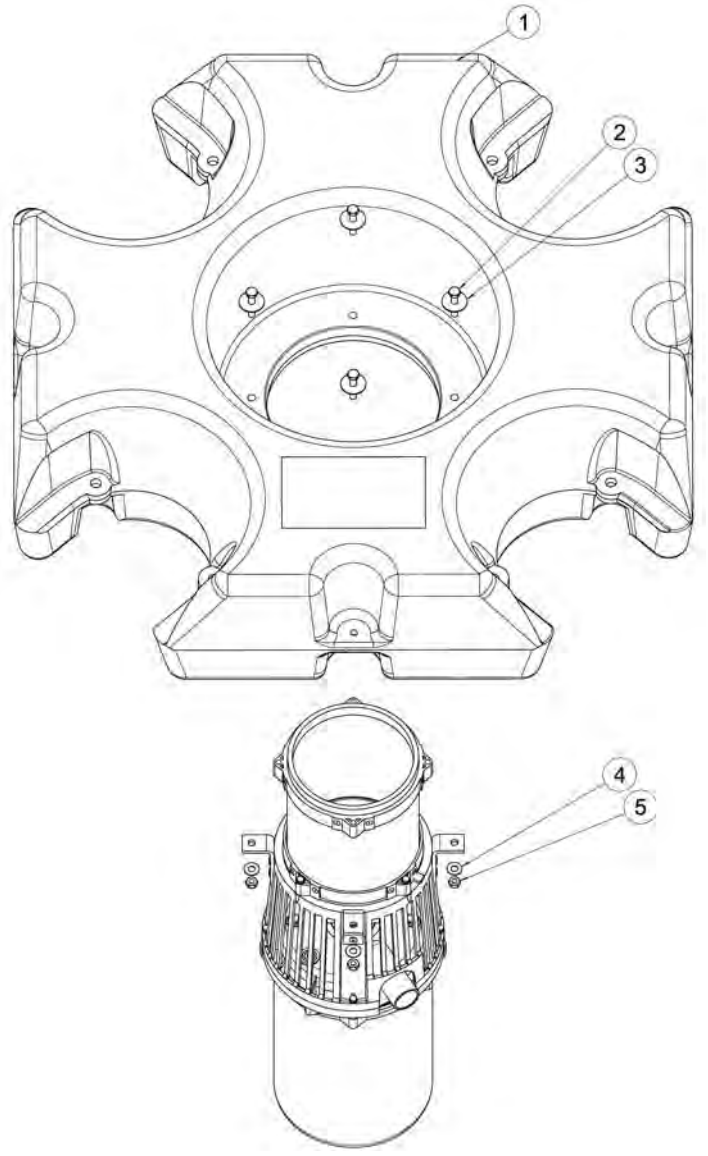
NOTES:
***Genesis Pump Chamber; The Float MUST be mounted before the Genesis Throat Assembly (See page 18).**
(The unit will be received with the pumping chamber already mounted)

***5HP "Open Throat" Units (Sunburst, Gemini, Saturn); If applicable, the Supplemental Float must be mounted to the Main Float before installing on Unit (See Below).**

A. Supplemental Float Assembly
***If the Supplemental Float is already mounted to the Main Float, continue with main float assembly below.**
1. Place Main Float top face down.
2. Place the Supplemental Float on the Main Float as shown in the photo below.
3. Ty-Rap the floats together in four places (1 in each pocket).
4. Continue mounting Main Float.

B. Main Float Assembly
1. Stand the unit upright and place the float onto it so the holes in the float line up with the holes in the mounting brackets.
2. Place a fender washer onto a hex bolt and insert into one of the four holes in the float making sure it also goes through the hole in the steel mounting bracket on the unit. Repeat this for the three remaining holes.
3. Place a flat washer and a nylon locknut onto each of the four hex bolts. Tighten each nylon locknut.

CAUTION: Do not over tighten lock nuts, damage may occur to the float and/or pump chamber.

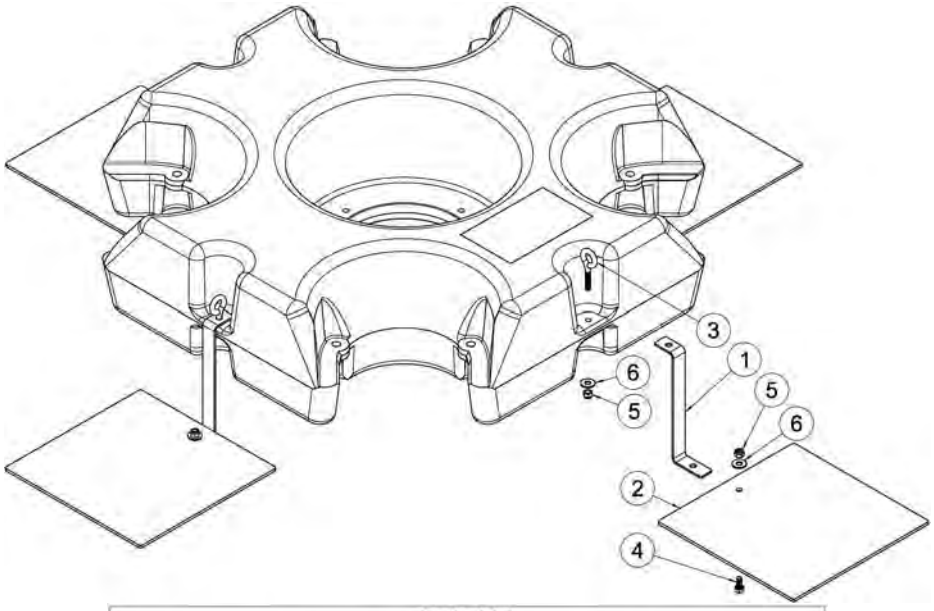



Fasten supplemental Float w/ Ty-Raps

Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Concept 3 Floats		
	Black	42-0018	1
	Granite	42-0027	1
	Float Mounting Hardware Kit	12-0071	
2	M8x45 S/S Hex Bolt	22-0022	5
3	M8 Fender Washer	28-0008	5
4	M8 Flat Washer	28-0018	5
5	M8 Nylon Lock Nut	26-0007	5
6	Ty-rap	GP5008	3

C. Mounting the Stabilizers (Comet Spray Pattern Only)

1. Mount each of the four stabilizer plates to the top side of a bracket using a hex bolt, a fender washer, and a nylon locknut as shown below.
2. Mount each of the four stabilizer plate assemblies from Step C1 to the top side of an outer hole in the float using an eyebolt, a fender washer, and a nylon locknut as shown. **Do not** over tighten. Damage may occur to the float.



Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
	Comet Stabilizer Plates Kit	12-0097	
1	Stabilizer Bracket	40-0115	4
2	Stabilizer Plate	41-0127	4
3	5/16-18x1-3/8" S/S Eyebolt	22-0027	4
4	5/16-18x3/4" S/S Hex Bolt	106-302	4
5	5/16-18 S/S Nylon Lock Nut	GP1208	8
6	5/16" Fender Washer	28-0008	8

D. Screen Installation

Debris Screens help to prevent clogging of the aerator and are available for all Otterbine aerators.

1. Place the unit upside down on blocks so the pump chamber does not get damaged.
2. Pull screen over motor unit until it reaches the lip on the float.
3. Make sure the cable/s are running through the bushing in the screen.
4. Fasten the screen to the lip on the float with the washers and screws provided so they are evenly spaced around the diameter.

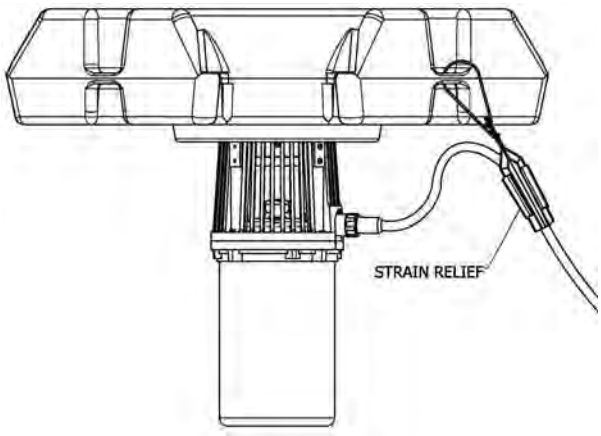
Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
	1/4" Screen Kit	12-0075	1
	1/2" Screen Kit	12-0076	1
1	C3 Screen 1/4" 1/2"	 15-0022 15-0023	1
2	S/S Sheet Metal Screw	BP2803B	9
3	1" Fender Washer	800-011	9

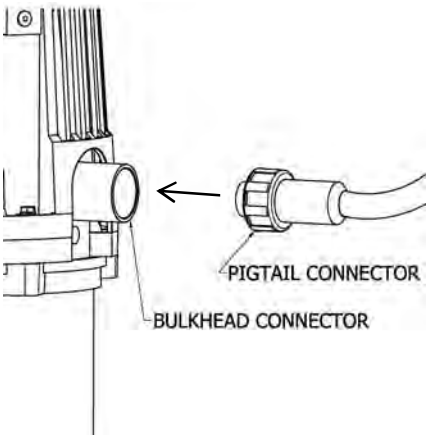
PHYSICAL INSTALLATION

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

Concept 3 Otterbine aerators require **a minimum 30"/75cm (40"/100cm w/ lights)** 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. 5HP, 230V, 1 Phase units have a 3 pin bulkhead connector and a 3 pin pigtail connector on the power cable. All other 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 is necessary to make a waterproof seal between the two connectors. **DO NOT REMOVE COMPOUND!** When servicing the aerator 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 or around the float bracket. Reattach wire hoop to strain relief (see above).
5. For additional protection fasten the power cable, after the strain relief, to a float hole using the cable ties provided.

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

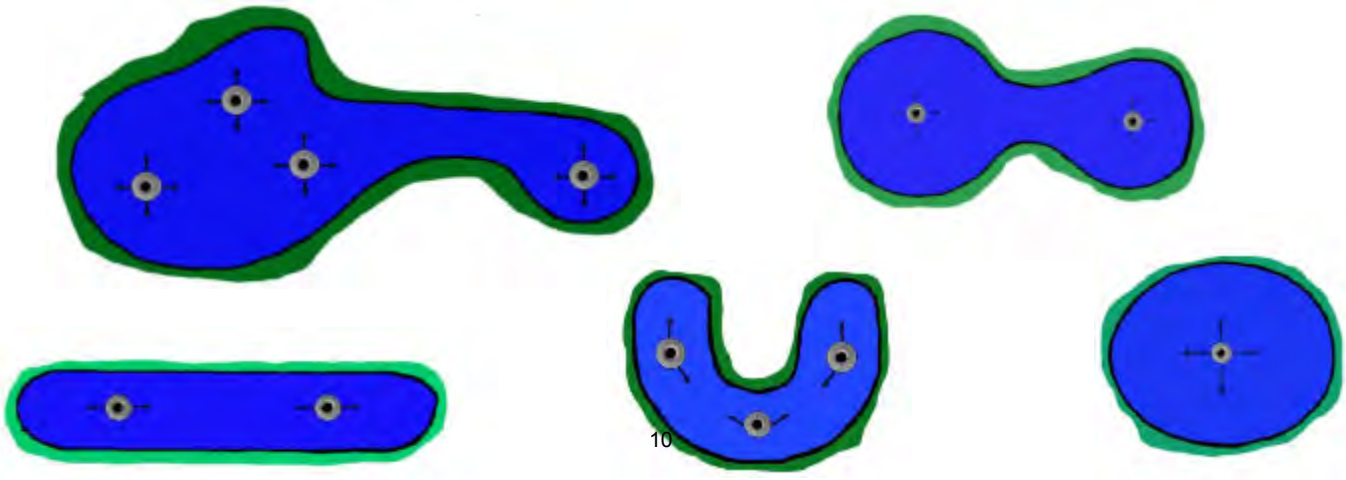
1. Factory connections may loosen during shipping. Verify tightness of all screw terminal connections before energizing.
2. Apply power to the PCC. Verify the voltage to the PCC at the input terminals is correct and matches the nameplate rating of the aerator.

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)**.

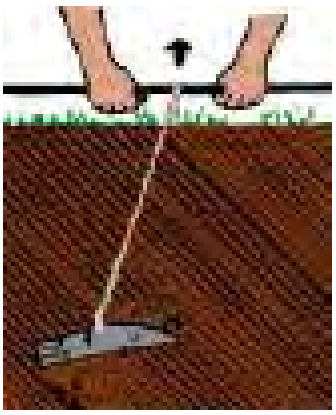
C. Launching the Aerator

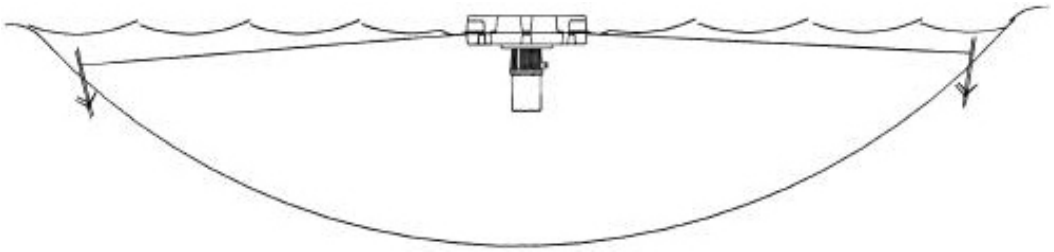
1. It is important to choose the correct location for your Otterbine aerator. Placement affects how well your Otterbine aerator is able to keep your pond clean. The following diagrams represent the most common types of ponds and the most effective aerator placement.



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.

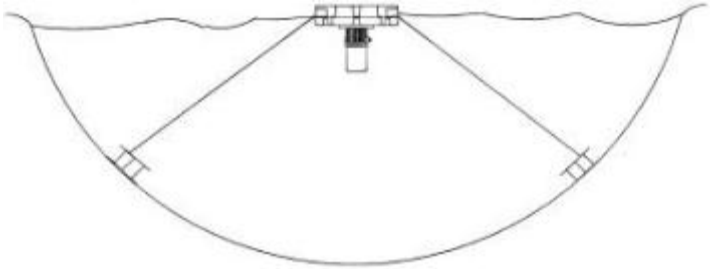
3. **Mooring:** The following items are required to moor your Otterbine aerator. Use only brass and stainless steel hardware. Otterbine recommends using 1/4"(0.63cm) or 1/2"(1.25cm) polypropylene rope or stainless steel cable for mooring lines. At the mooring points you will need a wooden stake, 1/2"(1.25cm) 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 System Startup.





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 System Startup.



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.

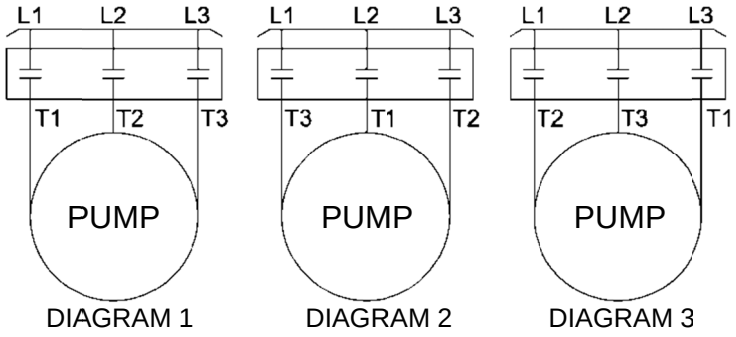


DIAGRAM 1 DIAGRAM 2 DIAGRAM 3

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: 12-0077.
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. Otterbine strongly suggests that you take the following Concept 3 units out of the water:

ROCKET, PHOENIX, TRI-STAR, CONSTELLATION, COMET, GENESIS, EQUINOX, and OMEGA.

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 **Gemini, Saturn,** and **Sunburst** 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.

Maximum Cable Lengths (From Service Entrance to C3 Unit)

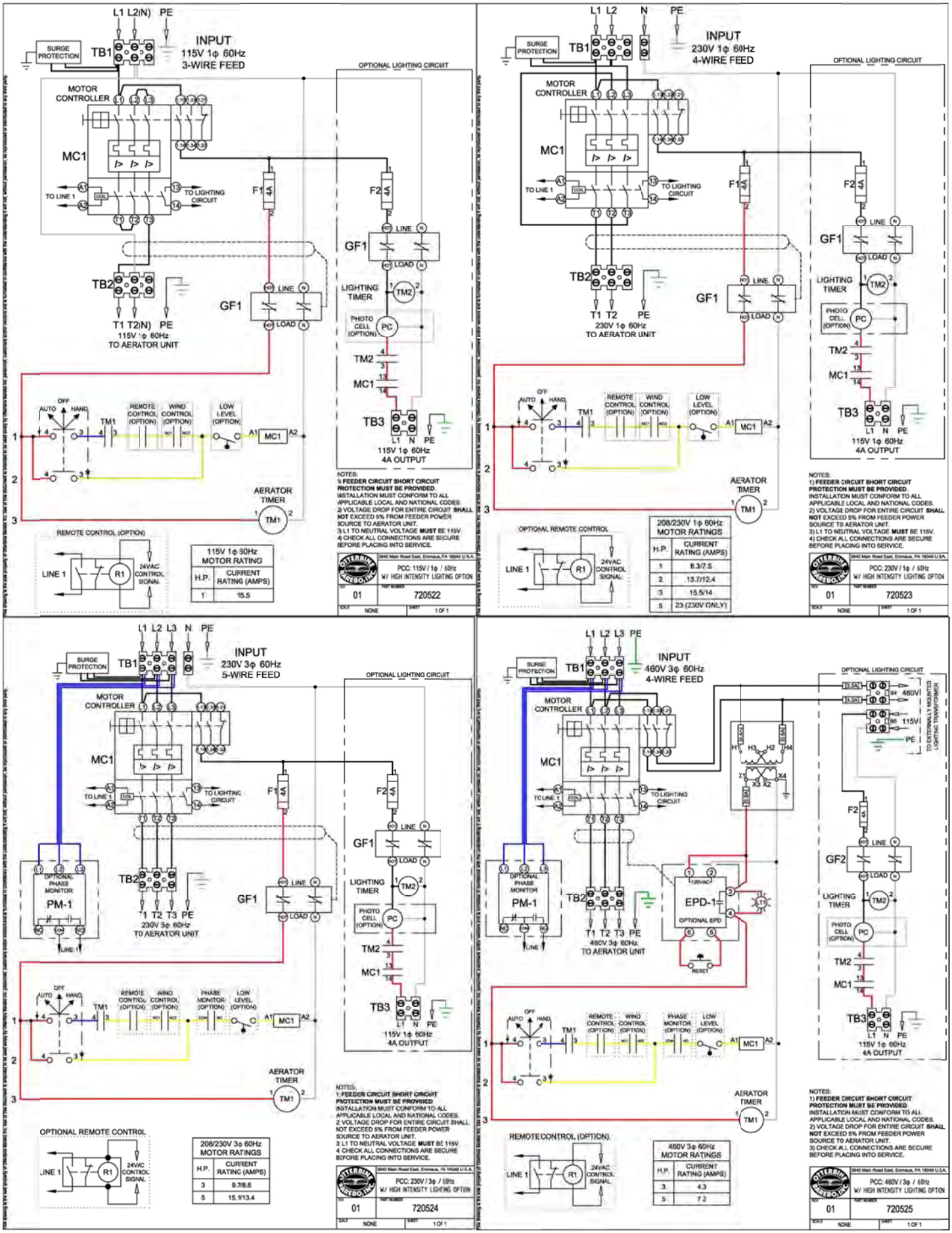
HP	Electrical Rating	12AWG Cable Feet (Meters)	10AWG Cable Feet (Meters)	8AWG Cable Feet (Meters)	6AWG Cable Feet (Meters)
1	115V 1Ph 60Hz		150 (46)	250 (76)	
1	208-230V 1Ph 60Hz	275 (84)	500 (152)	600 (183)	
2	208-230V 1Ph 60Hz	175 (53)	300 (92)	450 (137)	600 (183)
3	208-230V 1Ph 60Hz		250 (76)	425 (130)	600 (183)
3	208-230V 3Ph 60Hz	300 (92)	475 (145)	600 (183)	
3	380V 3Ph 60Hz	600 (183)			
3	*460V 3Ph 60Hz	600 (183)			
5	230V 1Ph 60Hz			300 (92)	500 (152)
5	208-230V 3Ph 60Hz	200 (61)	300 (92)	500 (152)	600 (183)
5	380V 3Ph 60Hz	600 (183)			
5	*460V 3Ph 60Hz	600 (183)			
5	*575V 3Ph 60Hz	600 (183)			
1	220/240V 1Ph 50Hz	300 (92)	500 (152)	600 (183)	
2	220/240V 1Ph 50Hz	200 (61)	325 (99)	525 (160)	600 (183)
3	220/240V 1Ph 50Hz	200 (61)	300 (92)	500 (152)	600 (183)
3	380/415V 3Ph 50Hz	600 (183)			
5	380/415V 3Ph 50Hz	600 (183)			

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

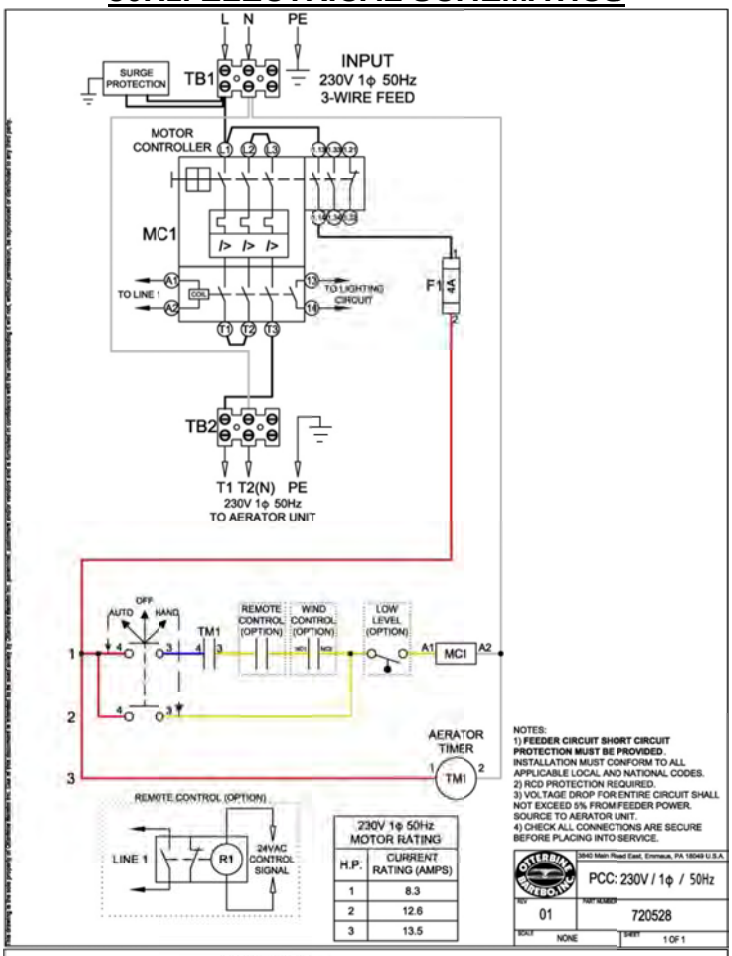
TROUBLESHOOTING GUIDE

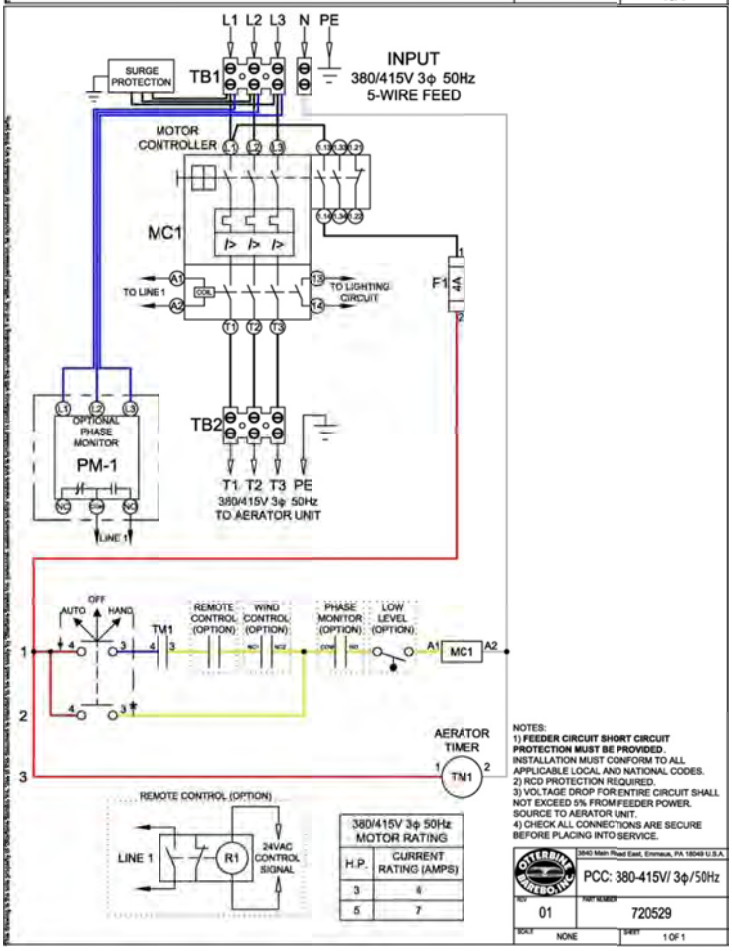
Small spray pattern (Spray drops **gradually**, i.e. minutes or hours).	Clogged intake	Remove debris
	Clogged screen	Remove debris
	Loose impeller	Tighten impeller bolt
Cavitation or low spray pattern. (Spray drops **suddenly,** less than one second.)	Low line voltage	Check voltage at the PCC & at the 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 SCHEMATIC

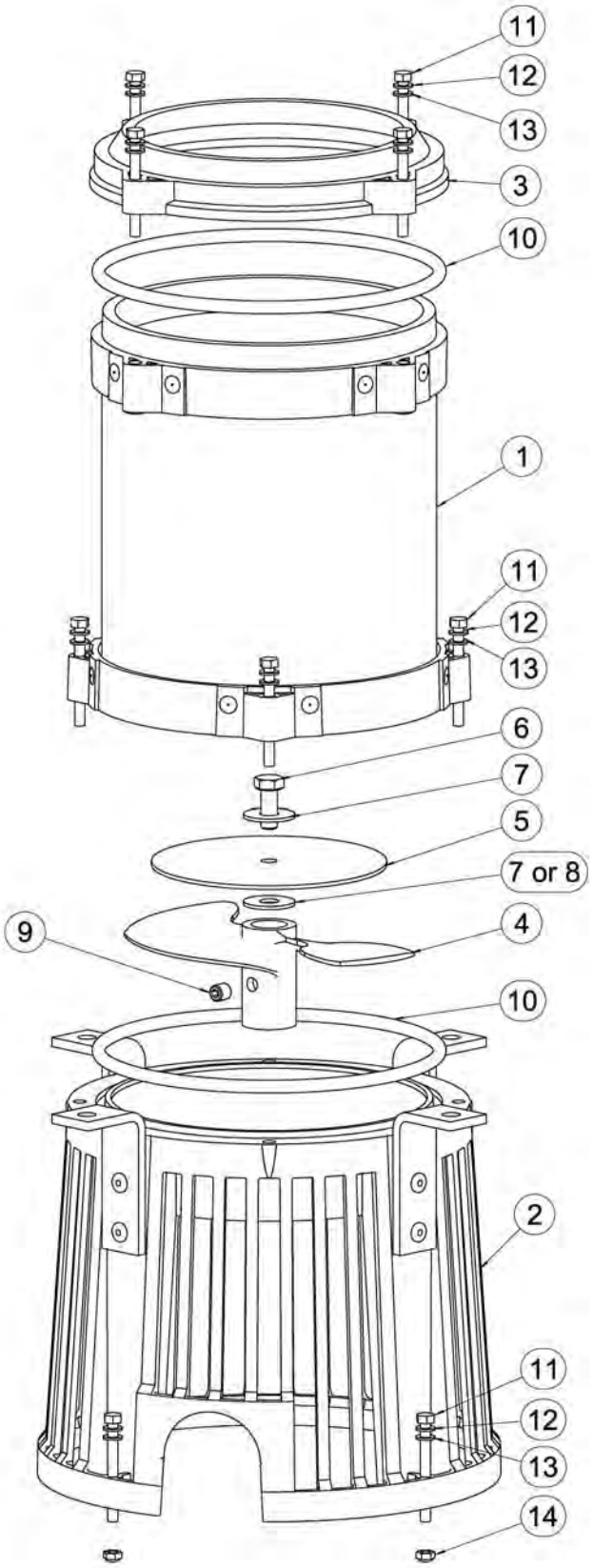


50Hz. ELECTRICAL SCHEMATICS





SUNBURST PUMP CHAMBER

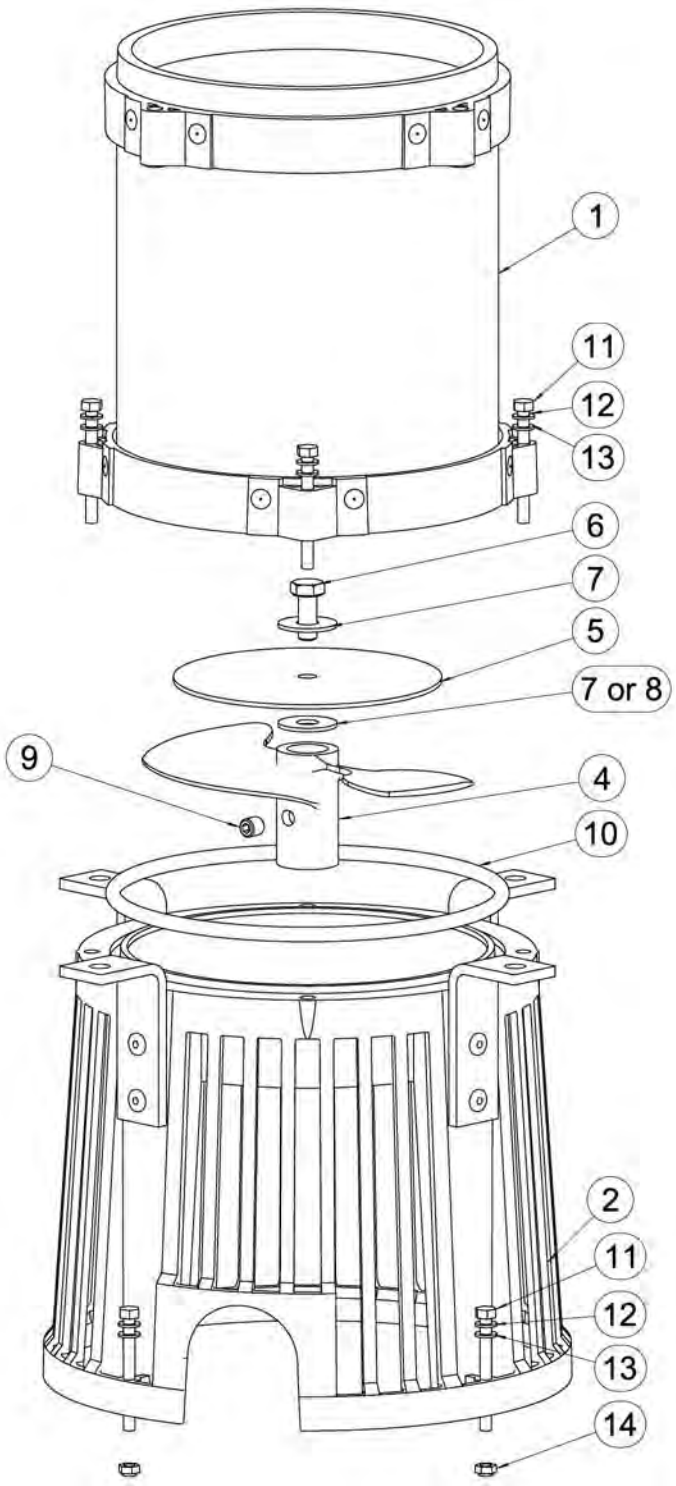


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Sunburst Ring	42-0019	1
4	Sunburst Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0012-001 50-0012-002 50-0012-003 50-0012-005	1
5	Slinger Disc	47-0003	1
6	M8x20 S/S Hex Bolt	22-0019	1
7	M8 (5/16") S/S Fender Washer (3HP Spacer)	28-0008	1
8	M8 (5/16") S/S Fender Washer (5HP Spacer)	40-0107	1
9	M8x8 S/S Set Screw	24-0015	1
10	O-ring #260	49-0015	2
11	M5x50 S/S Hex Bolt	24-0013	12
12	M5 S/S Split Lock Washer	28-0017	12
13	M5 S/S Flat Washer	28-0016	12
14	M5 S/S Nylon Locknut	26-0006	4

Sunburst Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Slide the Impeller onto the motor shaft so the top of the hub is even with the top of the shaft. Tighten the set screw onto one of the flats on the shaft.
3. Mount the Slinger Disc to the shaft using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Fender Washer. An Impeller Spacer is ONLY used with 3HP 60Hz/2HP 50Hz, 5HP 60Hz/3HP 50Hz, and 5HP 50Hz impellers (Item No. 7 or 8). Tighten the bolt to 35 ft-lbs (47 N-m).
4. Place an O-ring in the groove on the top of the Standoff Strainer Assembly.
5. Mount the Throat Assembly to the Standoff Strainer Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.
6. Place an O-ring on the top of the Throat Assembly.
7. Mount the Sunburst Ring to the Throat Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.

GEMINI PUMP CHAMBER

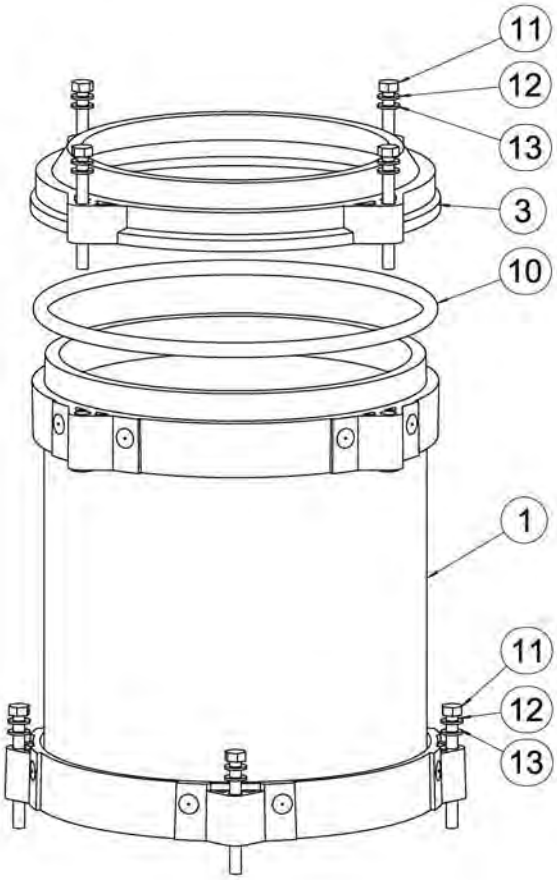


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
4	Sunburst Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0012-001 50-0012-002 50-0012-003 50-0012-005	1
5	Slinger Disc	47-0003	1
6	M8x20 S/S Hex Bolt	22-0019	1
7	M8 (5/16") S/S Fender Washer (3HP Spacer)	28-0008	1
8	M8 (5/16") S/S Fender Washer (5HP Spacer)	40-0107	1
9	M8x8 S/S Set Screw	24-0015	1
10	O-ring #260	49-0015	1
11	M5x50 S/S Hex Bolt	24-0013	8
12	M5 S/S Split Lock Washer	28-0017	8
13	M5 S/S Flat Washer	28-0016	8
14	M5 S/S Nylon Locknut	26-0006	4

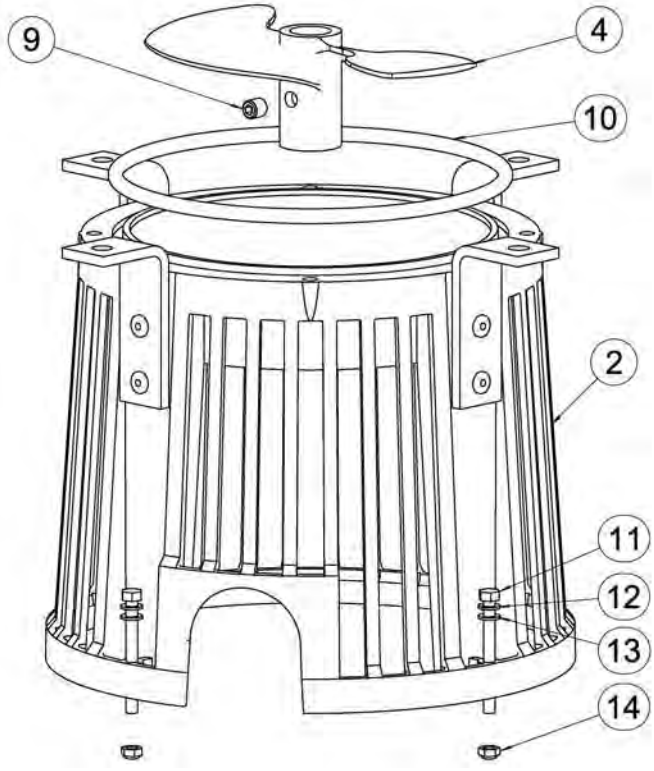
Gemini Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Slide the Impeller onto the motor shaft so the top of the hub is even with the top of the shaft. Tighten the set screw onto one of the flats on the shaft.
3. Mount the Slinger Disc to the shaft using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Fender Washer. An Impeller Spacer is ONLY used with 3HP 60Hz/2HP 50Hz, 5HP 60Hz/3HP 50Hz, and 5HP 50Hz impellers (Item No. 7 or 8). Tighten the bolt to 35 ft-lbs (47 N-m).
4. Place an O-ring in the groove on the top of the Standoff Strainer Assembly.
5. Mount the Throat Assembly to the Standoff Strainer Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.

SATURN PUMP CHAMBER



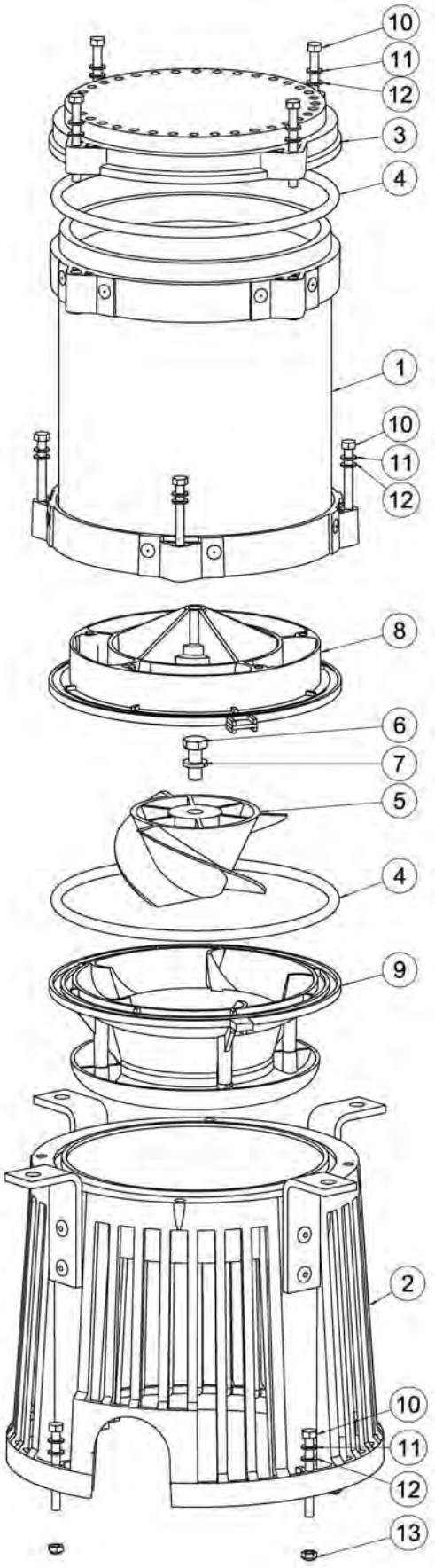
Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Sunburst Ring	42-0019	1
4	Sunburst Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0012-001 50-0012-002 50-0012-003 50-0012-005	1
5	Slinger Disc	47-0003	1
9	M8x8 S/S Set Screw	24-0015	1
10	O-ring #260	49-0015	2
11	M5x50 S/S Hex Bolt	24-0013	12
12	M5 S/S Split Lock Washer	28-0017	12
13	M5 S/S Flat Washer	28-0016	12
14	M5 S/S Nylon Locknut	26-0006	4



Saturn Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly.
NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Slide the Impeller onto the motor shaft so the top of the hub is even with the top of the shaft. Tighten the set screw onto one of the flats on the shaft.
3. Place an O-ring in the groove on the top of the Standoff Strainer Assembly.
4. Mount the Throat Assembly to the Standoff Strainer Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.
5. Place an O-ring on the top of the Throat Assembly.
6. Mount the Sunburst Ring to the Throat Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.

ROCKET PUMP CHAMBER

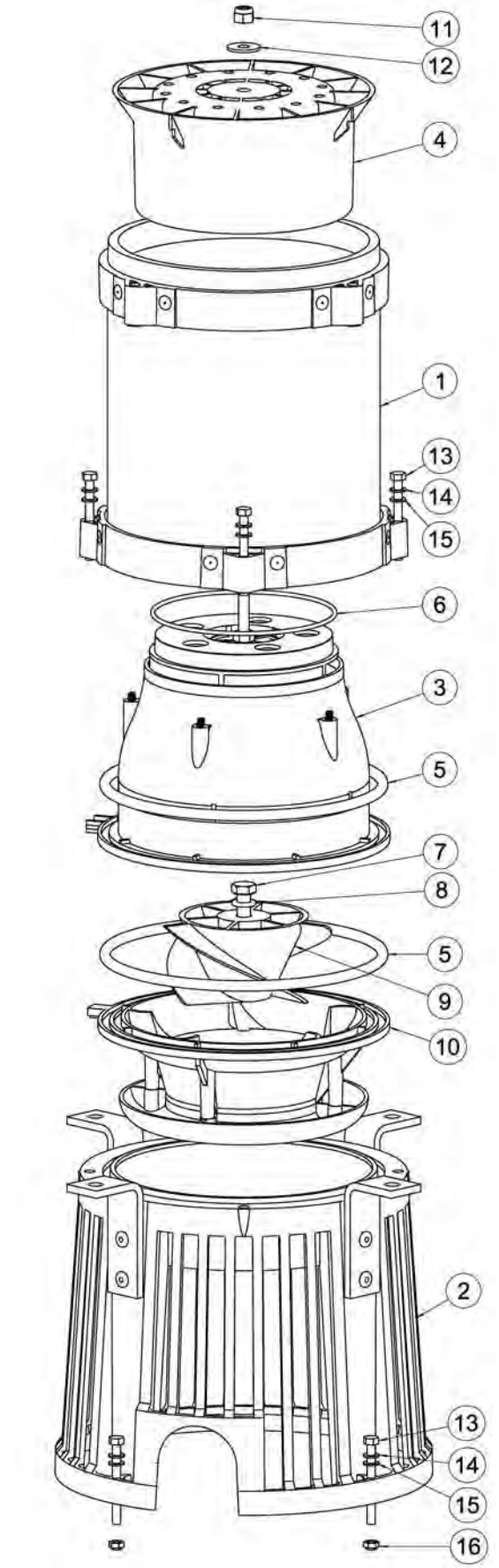


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Rocket Diffuser	41-0104	1
4	O-ring #260	49-0015	3
5	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
6	M8x20 S/S Hex Bolt	22-0019	1
7	M8 (5/16") S/S Split Lock Washer	28-0019	1
8	Upper Pump Chamber	42-0023	1
9	Lower Pump Chamber Assembly	10-0065	1
10	M5x50 S/S Hex Bolt	24-0013	12
11	M5 S/S Split Lock Washer	28-0017	12
12	M5 S/S Flat Washer	28-0016	12
13	M5 S/S Nylon Locknut	26-0006	4
14	Decorative Impeller Shim (not shown)	40-0099	1,2,or3

Rocket Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 (Item 14) Shims as necessary onto the end of the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber.
5. Place the Upper Pump Chamber onto the Lower Pump Chamber Assembly so the tabs on each part align. NOTE: If these tabs do not align the pump will not function properly.
6. Place an O-ring in the groove of the Upper Pump Chamber.
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-rings.
8. Place an O-ring on the top of the Throat Assembly.
9. Mount the Rocket Diffuser to the Throat Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.

PHOENIX PUMP CHAMBER

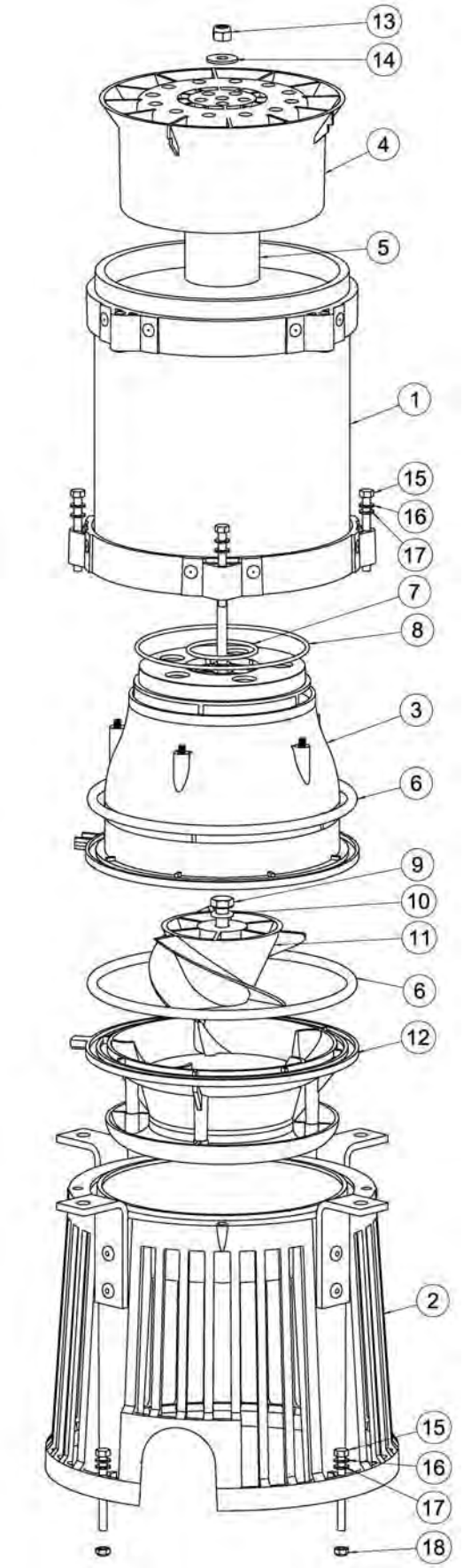


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Phoenix/Tri-Star Flow Diverter	10-0062	1
4	Phoenix Diffuser	41-0105	1
5	O-ring #260	49-0015	2
6	O-ring #156	49-0018	1
7	M8x20 S/S Hex Bolt	22-0019	1
8	M8 (5/16") S/S Split Washer	28-0019	1
9	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
10	Lower Pump Chamber	10-0065	1
11	M8 S/S Nylon Locknut	26-0007	1
12	M8 (5/16") S/S Flat Washer	28-0018	1
13	M5x50 S/S Hex Bolt	24-0013	8
14	M5 S/S Split Lock Washer	28-0017	8
15	M5 S/S Flat Washer	28-0016	8
16	M5 S/S Nylon Locknut	26-0006	4
17	Decorative Impeller Shim (not shown)	40-0099	1,2or3

Phoenix Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 Shims (Item 17) as necessary onto the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber.
5. Place the Phoenix/Tri-Star Flow Diverter Assembly onto the Lower Pump Chamber Assembly so the tabs on each part align. NOTE: If these tabs do not align the pump will not function properly.
6. Place an O-ring in the groove of the Upper Pump Chamber.
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.
8. Place an O-ring on the top of the Flow Diverter.
9. Slide the Phoenix Diffuser onto the Carriage Bolt until seated on the Flow Diverter Assembly and secure using a M8 S/S Flat Washer and a M8 S/S Nylon Locknut. Center the Diffuser on the Throat Assembly, tighten the locknut (11). Do not over tighten, may cause damage.

TRI-STAR PUMP CHAMBER

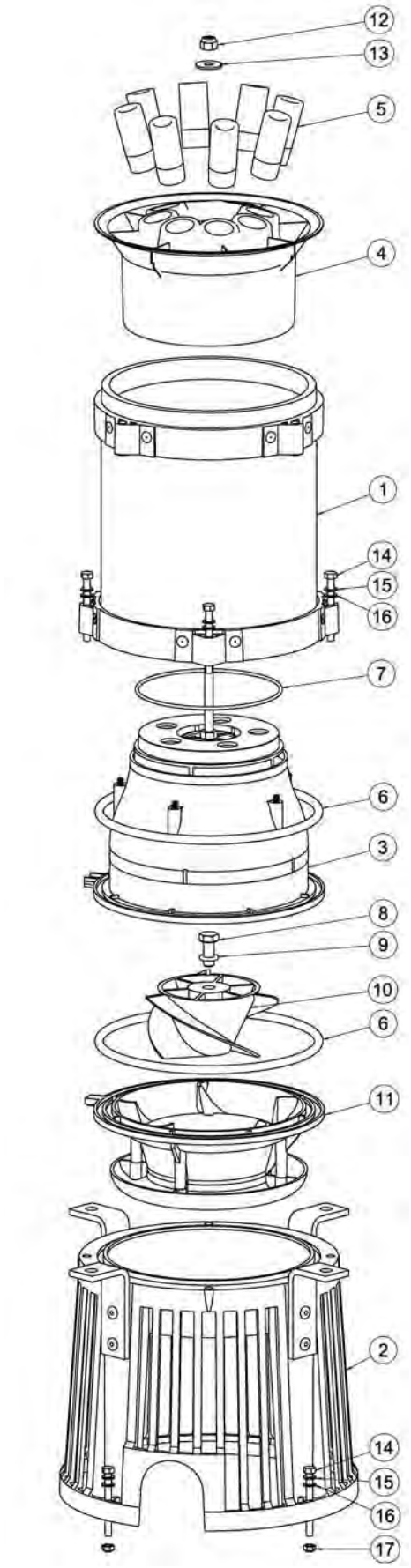


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Phoenix/Tri-Star Flow diverter	10-0062	1
4	Tri-Star Diffuser	41-0106	1
5	Tri-Star Diffuser Pipe	41-0108	1
6	O-ring #260	49-0015	2
7	O-ring #131	49-0017	1
8	O-ring #156	49-0018	1
9	M8x20 S/S Hex Bolt	22-0019	1
10	M8 (5/16") S/S Split Washer	28-0019	1
11	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
12	Lower Pump Chamber	10-0065	1
13	M8 S/S Nylon Locknut	26-0007	1
14	M8 (5/16") S/S Flat Washer	28-0018	1
15	M5x50 S/S Hex Bolt	24-0013	8
16	M5 S/S Split Lock Washer	28-0017	8
17	M5 S/S Flat Washer	28-0016	8
18	M5 S/S Nylon Locknut	26-0006	4
19	Decorative Impeller Shim (not shown)	40-0099	1,2or3

Tri-Star Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 Shims (Item 19) as necessary onto the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber.
5. Place the Phoenix/Tri-Star Flow Diverter Assembly onto the Lower Pump Chamber Assembly so the tabs on each part align. NOTE: If these tabs do not align the pump will not function properly.
6. Place an O-ring in the groove of the Upper Pump Chamber.
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-rings.
8. Place two (2) o-rings on the top inside & outside of the Flow Diverter.
9. Place the Tri-Star Diffuser Pipe in the Flow Diverter Assembly so it rests on the O-ring.
10. Slide the Tri-Star Diffuser onto the Carriage Bolt until seated on the Flow Diverter Assembly/Tri-Star Diffuser Pipe, secure using an M8 S/S Flat Washer and an M8 S/S Nylon Locknut. Center the Diffuser on the Throat Assembly, tighten the locknut (13). Do not over tighten, may cause damage.

CONSTELLATION PUMP CHAMBER

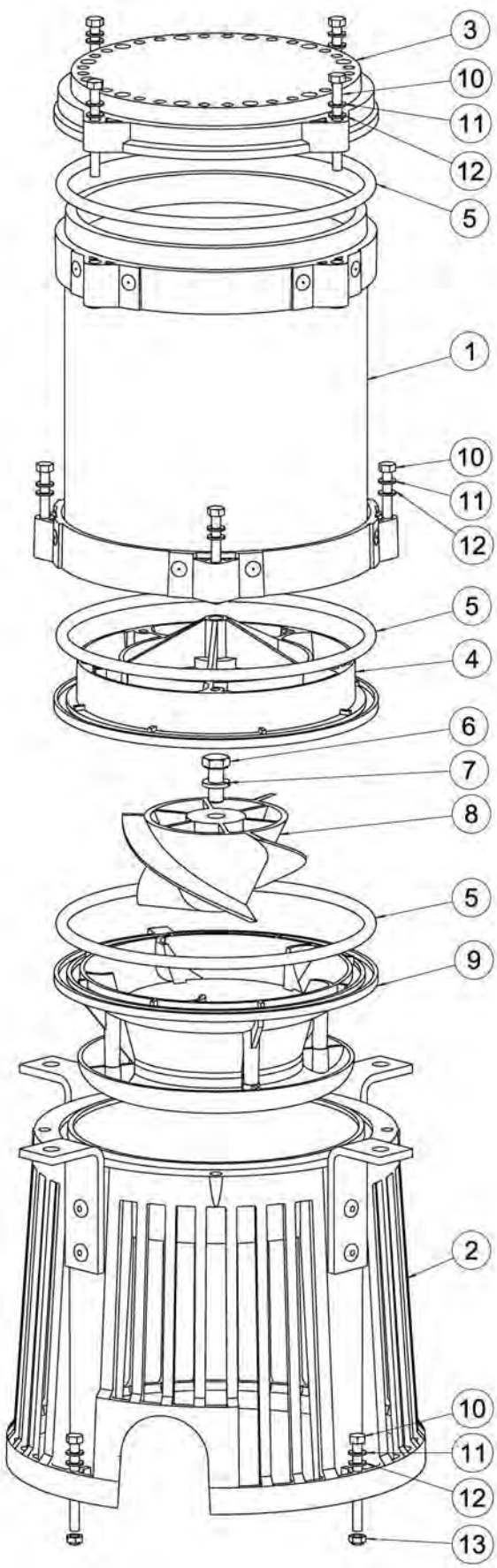


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Constellation Flow Diverter	10-0069	1
4	Constellation Diffuser	42-0032	1
5	Constellation Nozzle	10-0068	1
6	O-ring #260	49-0015	2
7	O-ring #156	49-0018	1
8	M8x20 S/S Hex Bolt	22-0019	1
9	M8 (5/16") S/S Split Washer	28-0019	1
10	Decorative Impeller		1
	1HP, 60Hz	50-0010-001	
	2HP, 60Hz	50-0010-002	
	3HP, 60Hz	50-0010-003	
	5HP, 60Hz	50-0010-005	
11	Lower Pump Chamber	10-0065	1
12	M8 S/S Nylon Locknut	26-0007	1
13	M8 (5/16") S/S Flat Washer	28-0018	1
14	M5x50 S/S Hex Bolt	24-0013	8
15	M5 S/S Split Lock Washer	28-0017	8
16	M5 S/S Flat Washer	28-0016	8
17	M5 S/S Nylon Locknut	26-0006	4
18	Decorative Impeller Shim (not shown)	40-0099	1,2or3

Constellation Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 Shims (Item 18) as necessary onto the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber.
5. Place the Constellation Flow Diverter Assembly onto the Lower Pump Chamber Assembly so the tabs on each part align. NOTE: If these tabs do not align the pump will not function properly.
6. Place an O-ring in the groove of the Upper Pump Chamber.
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.
8. Place an O-ring on the top of the Flow Diverter Assembly.
9. Slide the Constellation Diffuser onto the Carriage Bolt until seated on the Flow Diverter Assembly. Secure using an M8 S/S Flat Washer and S/S Nylon Locknut. Center the Diffuser on the Throat Assembly. Tighten the locknut. Do not over tighten, may cause damage.
10. Thread a Constellation Nozzle into one of the holes in the Galaxy Diffuser and tighten (DO NOT OVER TIGHTEN, MAY CAUSE DAMAGE). Repeat for the remaining seven Galaxy Nozzles. NOTE: Place Teflon tape on the threads of the Constellation Nozzle.

COMET PUMP CHAMBER

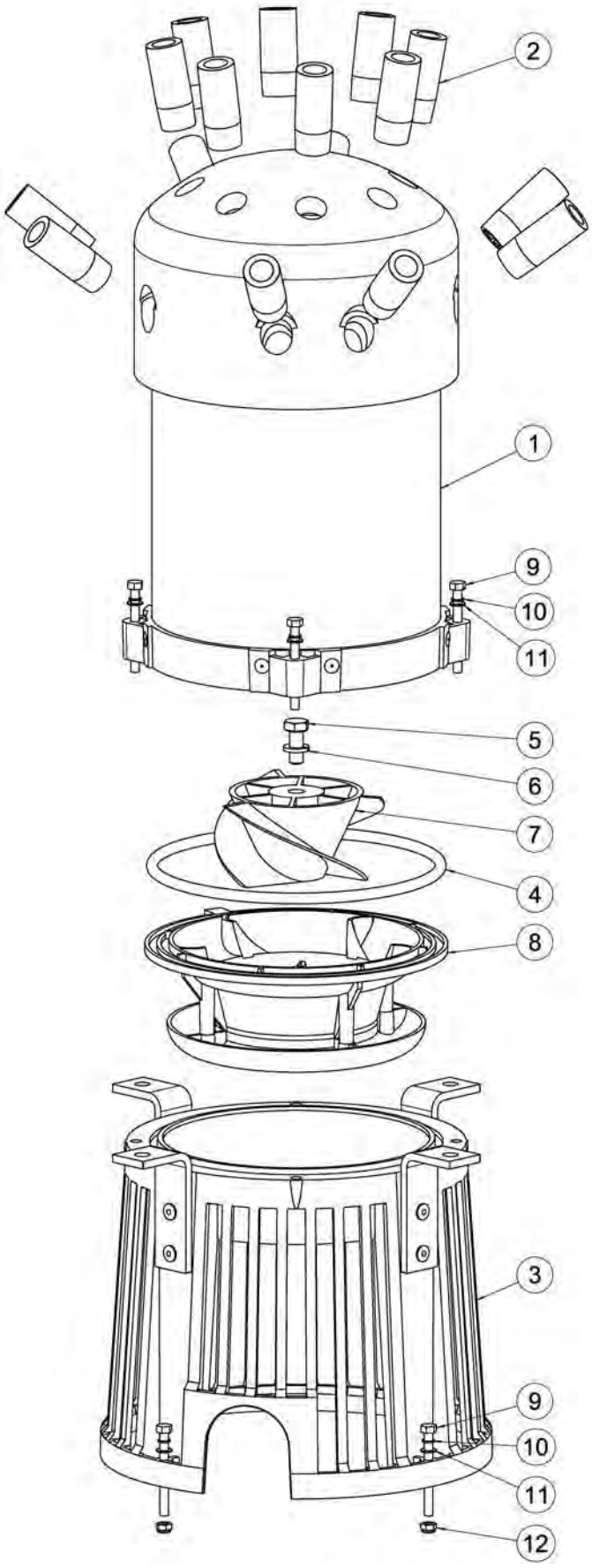


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Throat Assembly	10-0060	1
2	Standoff Strainer Assembly	10-0061	1
3	Comet Diffuser	41-0123	1
4	Upper Pump Chamber	42-0023	1
5	O-ring #260	49-0015	3
6	M8x20 S/S Hex Bolt	22-0019	1
7	M8 (5/16") S/S Split Washer	28-0019	1
8	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
9	Lower Pump Chamber	10-0065	1
10	M5x50 S/S Hex Bolt	24-0013	12
11	M5 S/S Split Lock Washer	28-0017	12
12	M5 S/S Flat Washer	28-0016	12
13	M5 S/S Nylon Locknut	26-0006	4
14	Decorative Impeller Shim (not shown)	40-0099	1,2,or3

Comet Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 Shims (Item 14) as necessary onto the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber.
5. Place the Upper Pump Chamber onto the Lower Pump Chamber Assembly so the tabs on each part align. NOTE: If these tabs do not align the pump will not function properly.
6. Place an O-ring in the groove of the Upper Pump Chamber.
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.
8. Place an O-ring on the top of the Throat Assembly.
9. Mount the Comet Diffuser to the Throat Assembly using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring.

GENESIS PUMP CHAMBER



Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Genesis Throat Assembly	10-0073	1
2	Genesis Nozzle	10-0068	16
3	Standoff Strainer Assembly	10-0061	1
4	O-ring #260	49-0015	1
5	M8x20 S/S Hex Bolt	22-0019	1
6	M8 (5/16") S/S Split Washer	28-0019	1
7	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
8	Lower Pump Chamber	10-0065	1
9	M5x50 S/S Hex Bolt	24-0013	8
10	M5 S/S Split Lock Washer	28-0017	8
11	M5 S/S Flat Washer	28-0016	8
12	M5 S/S Nylon Lock Nut	26-0006	4
13	Decorative Impeller Shim (not shown)	40-0099	1,2,or3

Genesis Assembly Instructions

1. Mount the Standoff Strainer Assembly to the power unit using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, (4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.

2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.

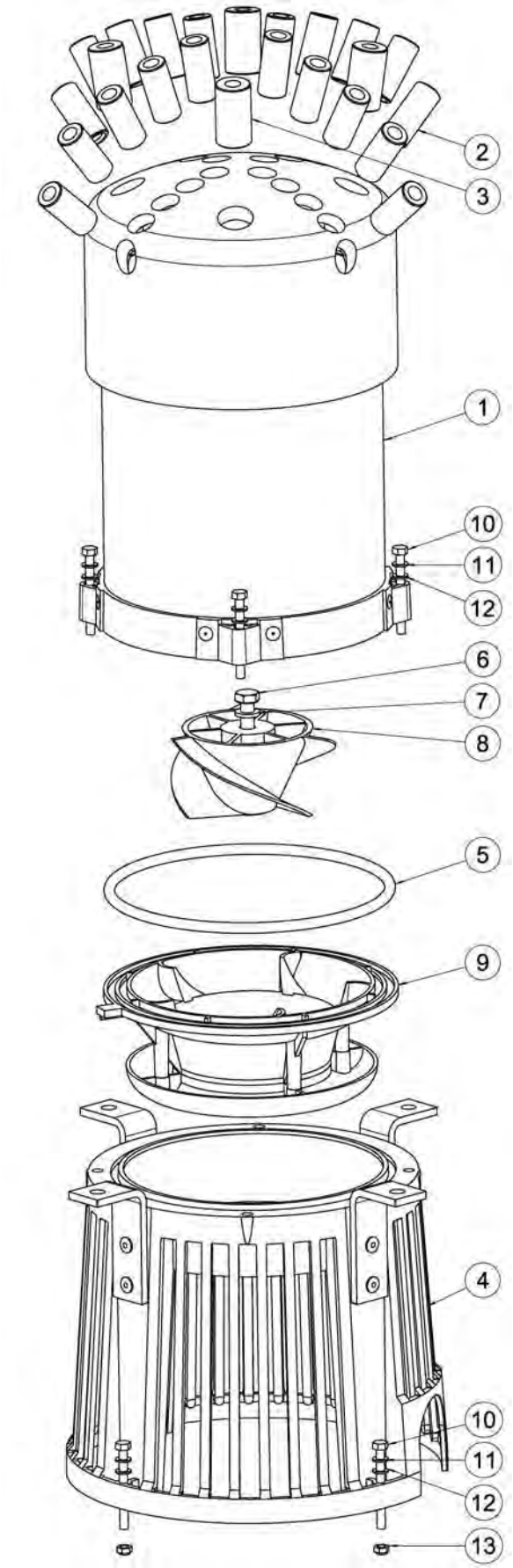
3. Slide the Impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly place 1, 2 or 3 Shims (Item 13) as necessary onto the shaft to raise the Impeller so it no longer rubs. Secure using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.

4. Place an O-ring in the groove of the Lower Pump Chamber Assembly.

5. Place the Genesis Throat Assembly onto the Lower Pump Chamber Assembly and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring. NOTE: The Float must be mounted before the Genesis Throat Assembly is installed (See Float Mounting Instructions).

6. Thread a Genesis Nozzle into one of the holes in the Galaxy Diffuser and tighten (DO NOT OVERTIGHTEN, MAY CAUSE DAMAGE). Repeat for the remaining fifteen Genesis Nozzles. NOTE: Place Teflon tape on the threads of the Genesis Nozzle.

EQUINOX PUMP CHAMBER

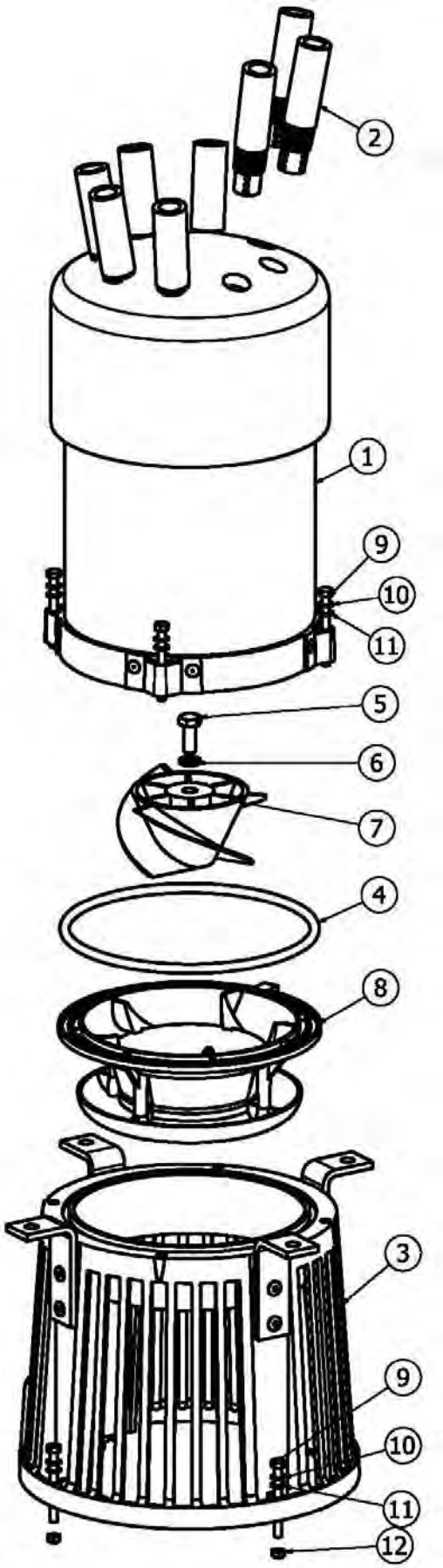


Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Equinox Throat Assembly	10-0008	1
2	1/2"NPT x 1-1/2" Nozzle	41-0023	20
3	3/8"NPT x 1-1/2" Nozzle	41-0022	4
4	Standoff Strainer Assembly	10-0061	1
5	O-ring #260	49-0015	1
6	M8x20 S/S Hex Bolt	22-0019	1
7	M8 (5/16") S/S Split Washer	28-0019	1
8	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
9	Lower Pump Chamber	10-0065	1
10	M5x50 S/S Hex Bolt	24-0013	8
11	M5 S/S Split Lock Washer	28-0017	8
12	M5 S/S Flat Washer	28-0016	8
13	M5 S/S Nylon Lock Nut	26-0006	4
14	Decorative Impeller Shim (not shown)	40-0099	1,2,or3

Equinox Assembly Instructions

1. Mount Standoff Strainer Assembly to the power unit using (7) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers,(4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Place a shim (Item 14) on the top of the motor shaft prior to installing the impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly add another shim (do not use more than four (4) shims). Secure impeller using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber Assembly.
5. Place the Equinox Throat Assembly onto the Lower Pump Chamber Assembly and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring. NOTE: The Float must be mounted before the Equinox Throat Assembly is installed (See Float Mounting Instructions).
6. If replacing nozzles on the Equinox throat assembly place Teflon tape on the threads of the nozzle and DO NOT OVERTIGHTEN, THE THROAT MAY BE DAMAGED.

OMEGA PUMP CHAMBER



Parts List			
ITEM	DESCRIPTION	PART NUMBER	QTY
1	Omega Throat Assembly	10-0053	1
2	Omega Nozzle	41-0115	8
3	Standoff Strainer Assembly	10-0061	1
4	O-ring #260	49-0015	1
5	M8x20 S/S Hex Bolt	22-0019	1
6	M8 (5/16") S/S Split Washer	28-0019	1
7	Decorative Impeller 1HP, 60Hz 2HP, 60Hz 3HP, 60Hz 5HP, 60Hz	 50-0010-001 50-0010-002 50-0010-003 50-0010-005	1
8	Lower Pump Chamber	10-0065	1
9	M5x50 S/S Hex Bolt	24-0013	8
10	M5 S/S Split Lock Washer	28-0017	8
11	M5 S/S Flat Washer	28-0016	8
12	M5 S/S Nylon Lock Nut	26-0006	4
13	Decorative Impeller Shim (not shown)	40-0099	1,2,or3

Omega Assembly Instructions

1. Mount Standoff Strainer Assembly to the power unit using (7) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers,(4) M5 S/S Split Lock Washers, and (4) M5 S/S Hex Nylon Locknuts. Tighten the screws evenly. NOTE: Standoff Strainer Assembly is not part of the Pump Chamber Assembly.
2. Place the Lower Pump Chamber Assembly into the Standoff Strainer Assembly.
3. Place a shim (Item 14) on the top of the motor shaft prior to installing the impeller onto the motor shaft. If the Impeller rubs against the inside wall of the Lower Pump Chamber Assembly add another shim (do not use more than four (4) shims). Secure the impeller using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Split Lock Washer. Tighten the bolt.
4. Place an O-ring in the groove of the Lower Pump Chamber Assembly.
5. Place the Omega Throat Assembly onto the Lower Pump Chamber Assembly and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-ring. NOTE: The Float must be mounted before the Omega Throat Assembly is installed (See Float Mounting Instructions).
6. If replacing nozzles on the Omega throat assembly place Teflon tape on the threads of the nozzle and DO NOT OVERTIGHTEN, THE THROAT MAY BE DAMAGED.

Concept 3 Domestic Technical Data

Model	H.P.	Rating	RPM	Amps	Spray Height (feet)			Spray Diameter (feet)			Pumping Rate (GPM)	Induced Circulation Rate (GPM)
					Lower	Middle	Upper	Lower	Middle	Upper		
Sunburst	1	115V 1Ph 60Hz	3450	14	4			15			530	5300
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	4			15			530	5300
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	7			24			640	6400
	3	208-230V 1Ph 60Hz	3450	15.5-14	10			30			775	7750
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	10			30			775	7750
	3	460V 3Ph 60Hz	3450	4.3	10			30			775	7750
	5	230V 1Ph 60Hz	3450	23	11			40			1100	11000
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	11			40			1100	11000
	5	460V 3Ph 60Hz	3450	7.2	11			40			1100	11000
	5	575V 3Ph 60Hz	3450	5.5	11			40			1100	11000
Gemini	1	115V 1Ph 60Hz	3450	14	5			10			555	5550
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	5			10			555	5550
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	9			16			665	6650
	3	208-230V 1Ph 60Hz	3450	15.5-14	12			24			800	8000
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	12			24			800	8000
	3	460V 3Ph 60Hz	3450	4.3	12			24			800	8000
	5	230V 1Ph 60Hz	3450	23	15			34			1125	11250
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	15			34			1125	11250
	5	460V 3Ph 60Hz	3450	7.2	15			34			1125	11250
	5	575V 3Ph 60Hz	3450	5.5	15			34			1125	11250
Rocket	1	115V 1Ph 60Hz	3450	14	11 - 13			5			110	1100
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	11 - 13			5			110	1100
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	17 - 19			5			155	1550
	3	208-230V 1Ph 60Hz	3450	15.5-14	20 - 22			8			200	2000
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	20 - 22			8			200	2000
	3	460V 3Ph 60Hz	3450	4.3	20 - 22			8			200	2000
	5	230V 1Ph 60Hz	3450	23	23 - 25			8			290	2900
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	23 - 25			8			290	2900
	5	460V 3Ph 60Hz	3450	7.2	23 - 25			8			290	2900
	5	575V 3Ph 60Hz	3450	5.5	23 - 25			8			290	2900
Saturn	1	115V 1Ph 60Hz	3450	14	1.5			7			400	4000
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	1.5			7			400	4000
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	3			11			480	4800
	3	208-230V 1Ph 60Hz	3450	15.5-14	4.5			20			580	5800
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	4.5			20			580	5800
	3	460V 3Ph 60Hz	3450	4.3	4.5			20			580	5800
	5	230V 1Ph 60Hz	3450	23	5			24			825	8250
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	5			24			825	8250
	5	460V 3Ph 60Hz	3450	7.2	5			24			825	8250
	5	575V 3Ph 60Hz	3450	5.5	5			24			825	8250
Constellation	1	115V 1Ph 60Hz	3450	14	2		4	18		9	150	1500
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	2		4	18		9	150	1500
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	2		6	28		14	210	2100
	3	208-230V 1Ph 60Hz	3450	15.5-14	3		9	35		17	275	2750
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	3		9	35		17	275	2750
	3	460V 3Ph 60Hz	3450	4.3	3		9	35		17	275	2750
	5	230V 1Ph 60Hz	3450	23	3		10	36		18	400	4000
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	3		10	36		18	400	4000
	5	460V 3Ph 60Hz	3450	7.2	3		10	36		18	400	4000
	5	575V 3Ph 60Hz	3450	5.5	3		10	36		18	400	4000

Concept 3 Domestic Technical Data

Model	H.P.	Rating	RPM	Amps	Spray Height (feet)			Spray Diameter (feet)			Pumping Rate (GPM)	Induced Circulation Rate (GPM)	Minimum Operating Depth (Inches
					Lower	Middle	Upper	Lower	Middle	Upper			
Comet	1	115V 1Ph 60Hz	3450	14	9 - 11			5			130	1300	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	9 - 11			5			130	1300	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	16 - 18			5			185	1850	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	19 - 21			8			240	2400	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	19 - 21			8			240	2400	30
	3	460V 3Ph 60Hz	3450	4.3	19 - 21			8			240	2400	30
	5	230V 1Ph 60Hz	3450	23	21 - 23			8			325	3250	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	21 - 23			8			325	3250	30
	5	460V 3Ph 60Hz	3450	7.2	21 - 23			8			325	3250	30
	5	575V 3Ph 60Hz	3450	5.5	21 - 23			8			325	3250	30
Tri-Star	1	115V 1Ph 60Hz	3450	14	3	5	8	13	9	2	150	1500	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	3	5	8	13	9	2	150	1500	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	4	7	12	17	10	2	210	2100	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	7	11	16	23	13	3	275	2750	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	7	11	16	23	13	3	275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	7	11	16	23	13	3	275	2750	30
	5	230V 1Ph 60Hz	3450	23	8	13	19	27	15	3	400	4000	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	8	13	19	27	15	3	400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	8	13	19	27	15	3	400	4000	30
	5	575V 3Ph 60Hz	3450	5.5	8	13	19	27	15	3	400	4000	30
Phoenix	1	115V 1Ph 60Hz	3450	14	4		8	17		2	150	1500	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	4		8	17		2	150	1500	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	6		11	20		2	210	2100	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	9		15	28		3	275	2750	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	9		15	28		3	275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	9		15	28		3	275	2750	30
	5	230V 1Ph 60Hz	3450	23	10		18	34		3	400	4000	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	10		18	34		3	400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	10		18	34		3	400	4000	30
	5	575V 3Ph 60Hz	3450	5.5	10		18	34		3	400	4000	30
Genesis	1	115V 1Ph 60Hz	3450	14	3		6	24		8	150	1500	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	3		6	24		8	150	1500	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	5		10	32		11	210	2100	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	6		15	50		20	275	2750	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	6		15	50		20	275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	6		15	50		20	275	2750	30
	5	230V 1Ph 60Hz	3450	23	7		18	62		24	400	4000	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	7		18	62		24	400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	7		18	62		24	400	4000	30
	5	575V 3Ph 60Hz	3450	5.5	7		18	62		24	400	4000	30
Equinox	1	115V 1Ph 60Hz	3450	15	10			35			150	1500	30
	1	208-230V 1Ph 60Hz	3450	7.5	10			35			150	1500	30
	2	208-230V 1Ph 60Hz	3450	11	13			40			210	2100	30
	3	208-230V 1Ph 60Hz	3450	12.5	15			58			275	2750	30
	3	208-230V 3Ph 60Hz	3450	8.5	15			58			275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	15			58			275	2750	30
	5	230V 1Ph 60Hz	3450	20	20			72			400	4000	30
	5	208-230V 3Ph 60Hz	3450	11.2	20			72			400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	20			72			400	4000	30
	5	575V 3Ph 60Hz	3450	5.5	20			72			400	4000	30
Omega	1	115V 1Ph 60Hz	3450	15	8			10			150	1500	30
	1	208-230V 1Ph 60Hz	3450	7.5	8			10			150	1500	30
	2	208-230V 1Ph 60Hz	3450	11	11			16			210	2100	30
	3	208-230V 1Ph 60Hz	3450	12.5	15			21			275	2750	30
	3	208-230V 3Ph 60Hz	3450	8.5	15			21			275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	15			21			275	2750	30
	5	230V 1Ph 60Hz	3450	20	18			22			400	4000	30
	5	208-230V 3Ph 60Hz	3450	11.2	18			22			400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	18			22			400	4000	30
	5	575V 3Ph 60Hz	3450	5.5	18			22			400	4000	30

*Actual pumping rates, all other pumping rates based on empirical data and may vary due to voltage, elevation, and relative humidity.

Concept 3 International Technical Data

Model	H.P.	Rating	RPM	Amps	Spray Height (meters)			Spray Diameter (meters)			Pumping Rate (m^3/hr)	Induced Circulation Rate (m^3/hr)
					Lower	Middle	Upper	Lower	Middle	Upper		
Sunburst	1	220/240V 1Ph 50Hz	2875	8.3		1.2			5.0		114.4	1144
	2	220/240V 1Ph 50Hz	2875	12.6		2.0			7.3		138.1	1381
	3	220/240V 1Ph 50Hz	2875	13.5		2.9			8.6		167.2	1672
	3	380/415V 3Ph 50Hz	2875	4.0		2.9			8.6		167.2	1672
	3	380V 3Ph 60Hz	3350	4.6		2.9			8.6		167.2	1672
	5	380/415V 3Ph 50Hz	2875	7.0		3.2			11.6		237.3	2373
	5	380V 3Ph 60Hz	3350	7.6		3.2			11.6		237.3	2373
Gemini	1	220/240V 1Ph 50Hz	2875	8.3		2.0			4.0		119.7	1197
	2	220/240V 1Ph 50Hz	2875	12.6		2.6			4.7		143.5	1435
	3	220/240V 1Ph 50Hz	2875	13.5		3.5			6.9		172.6	1726
	3	380/415V 3Ph 50Hz	2875	4.0		3.5			6.9		172.6	1726
	3	380V 3Ph 60Hz	3350	4.6		3.5			6.9		172.6	1726
	5	380/415V 3Ph 50Hz	2875	7.0		4.4			9.5		242.7	2427
	5	380V 3Ph 60Hz	3350	7.6		4.4			9.5		242.7	2427
Rocket	1	220/240V 1Ph 50Hz	2875	8.3		3.8 - 4.4			1.5		23.7	237
	2	220/240V 1Ph 50Hz	2875	12.6		4.9 - 5.5			1.5		33.4	334
	3	220/240V 1Ph 50Hz	2875	13.5		5.6 - 6.2			2.4		43.2	432
	3	380/415V 3Ph 50Hz	2875	4.0		5.6 - 6.2			2.4		43.2	432
	3	380V 3Ph 60Hz	3350	4.6		5.8 - 6.4			2.4		43.2	432
	5	380/415V 3Ph 50Hz	2875	4.0		5.6 - 6.2			2.4		43.2	432
	5	380V 3Ph 60Hz	3350	7.6		5.8 - 6.4			2.4		43.2	432
Saturn	1	220/240V 1Ph 50Hz	2875	8.3		0.5			2.1		86.3	863
	2	220/240V 1Ph 50Hz	2875	12.6		0.9			3.3		103.6	1036
	3	220/240V 1Ph 50Hz	2875	13.5		1.4			6.1		125.1	1251
	3	380/415V 3Ph 50Hz	2875	4.0		1.4			6.1		125.1	1251
	3	380V 3Ph 60Hz	3350	4.6		1.4			6.1		125.1	1251
	5	380/415V 3Ph 50Hz	2875	6.0		1.5			7.0		178	1780
	5	380V 3Ph 60Hz	3350	7.6		1.5			7.3		178	1780
Constellation	1	220/240V 1Ph 50Hz	2875	8.3	0.6		1.2	5.4		2.7	32.4	324
	2	220/240V 1Ph 50Hz	2875	12.6	0.6		1.8	7.6		3.7	45.3	453
	3	220/240V 1Ph 50Hz	2875	13.5	0.9		2.4	9.6		4.6	59.3	593
	3	380/415V 3Ph 50Hz	2875	4.0	0.9		2.4	9.6		4.6	59.3	593
	3	380V 3Ph 60Hz	3350	4.6	0.9		2.7	10.6		5.2	59.3	593
	5	380/415V 3Ph 50Hz	2875	4.0	0.9		2.4	9.6		4.6	59.3	593
	5	380V 3Ph 60Hz	3350	7.6	0.9		2.7	10.6		5.2	59.3	593

Concept 3 International Technical Data

Model	H.P.	Rating	RPM	Amps	Spray Height (meters)			Spray Diameter (meters)			Pumping Rate (m^3/hr)	Induced Circulation Rate (m^3/hr)	Minimum Operating Depth (cm)
					Lower	Middle	Upper	Lower	Middle	Upper			
Comet	1	220/240V 1Ph 50Hz	2875	8.3	2.8-3.4			1.5			28	280	75
	2	220/240V 1Ph 50Hz	2875	12.6	4.4-5.0			1.5			39.9	399	75
	3	220/240V 1Ph 50Hz	2875	13.5	5.2-6.8			2.4			51.8	518	75
	3	380/415V 3Ph 50Hz	2875	4.0	5.2-6.8			2.4			51.8	518	75
	3	380V 3Ph 60Hz	3350	4.6	5.8-6.4			2.4			51.8	518	75
	5	380/415V 3Ph 50Hz	2875	4.0	5.2-6.8			2.4			51.8	518	75
	5	380V 3Ph 60Hz	3350	7.6	5.8-6.4			2.4			51.8	518	75
Tri-Star	1	220/240V 1Ph 50Hz	2875	8.3	0.9	1.8	3.0	4.0	2.7	0.6	32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	1.2	2.4	4.0	5.2	3.0	0.6	45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	2.0	3.2	4.6	6.1	3.8	0.9	59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	2.0	3.2	4.6	6.1	3.8	0.9	59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	2.0	3.2	4.7	6.7	3.8	0.9	59.3	593	75
	5	380/415V 3Ph 50Hz	2875	4.0	2.0	3.2	4.6	6.1	3.8	0.9	59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	2.0	3.2	4.7	6.7	3.8	0.9	59.3	593	75
Phoenix	1	220/240V 1Ph 50Hz	2875	8.3	1.2		3.0	5.5		0.6	32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	1.8		4.0	6.4		0.6	45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	2.0		4.2	7.2		0.9	59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	2.0		4.2	7.2		0.9	59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	2.6		4.4	8.1		0.9	59.3	593	75
	5	380/415V 3Ph 50Hz	2875	4.0	2.0		4.2	7.2		0.9	59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	2.6		4.4	8.1		0.9	59.3	593	75
Genesis	1	220/240V 1Ph 50Hz	2875	8.3	1.2		2.1	7.6		3.0	32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	1.5		3.4	10.7		4.0	45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	1.7		4.2	13.7		5.0	59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	1.7		4.2	13.7		5.0	59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	1.7		4.4	14.4		5.8	59.3	593	75
	5	380/415V 3Ph 50Hz	2875	4.0	1.7		4.2	13.7		5.0	59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	1.7		4.4	14.4		5.8	59.3	593	75
Equinox	1	220/240V 1Ph 50Hz	2875	8.3	3.0			10.5			32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	4.0			12.0			45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	4.5			17.0			59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	4.5			17.0			59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	4.5			17.0			59.3	593	75
	5	380/415V 3Ph 50Hz	2875	3.8	5.3			18.3			59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	5.3			18.3			59.3	593	75
Omega	1	220/240V 1Ph 50Hz	2875	8.3	2.70			3.0			32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	3.10			4.1			45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	3.50			5.0			59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	3.50			5.0			59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	4.50			6.4			59.3	593	75
	5	380/415V 3Ph 50Hz	2875	3.8	3.50			5.0			59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	5.50			6.5			59.3	593	75

*Actual pumping rates, all other pumping rates based on empirical data and may vary due to voltage, elevation, and relative humidity.

Abbreviations:
HP – Horsepower
V - Voltage
Ph. - Phase
Hz. - Hertz
RPM - Revolutions per Minute
GPM - Gallons per Minute
m^3/hr. - Cubic Meters per Hour
cm - Centimeters

Limited 5 Year Warranty
Otterbine® Product

WARRANTY: Barebo, Inc 3840 Main Road East, Emmaus Pennsylvania 18049,U.S.A. hereby warrants, subject to the conditions herein below 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.

e) The **OTTERBINE** product must be physically inspected on an annual basis to insure the unit, the connector and the power cable are not damaged and are in proper working condition.

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): Sunburst Gemini Rocket Phoenix
Tri-Star Saturn Comet Constellation
Genesis Omega Equinox

HORSEPOWER (circle one): 1 2 3 5

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

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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