



Water Works With Otterbine



CONCEPT₃ **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 **Concept₃** 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.



COMET₃



SUNBURST₃



GEMINI₃



CONSTELLATION₃



PHOENIX₃



TRI-STAR₃



ROCKET₃



SATURN₃



GENESIS₃

Table of Contents:

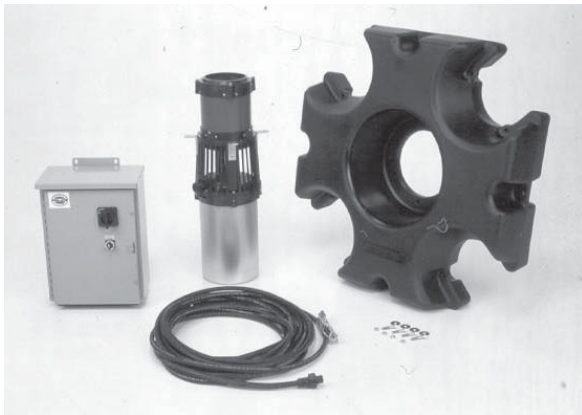
Aerator Equipment	4
Electrical/PCC Installation	4-5
Timer Operation	5
Power Control Center Schematics	6-8
Aerator Placement	9
Mounting the Float/Supplemental Float to the Unit	10
Comet Stabilizer Plates Mounting	11
Physical Installation	12-13
Mooring	14
Anchoring	15
Electrical Tests	16
Open Throat Pump Chambers Parts List	17
Sunburst Pump Chamber/Assembly Instructions	18
Gemini Pump Chamber/Assembly Instructions	19
Saturn Pump Chamber/Assembly Instructions	20
Decorative Pump Chambers Parts List	21
Rocket Pump Chamber/Assembly Instructions	22
Phoenix Pump Chamber/Assembly Instructions	23
Tri-Star Pump Chamber/Assembly Instructions	24
Constellation Pump Chamber/Assembly Instructions	25
Comet Pump Chamber/Assembly Instructions	26
Genesis Pump Chamber/Assembly Instructions	27
Power Unit Parts List	28
Power Unit Diagram	29
Screen Installation	30
Trouble Shooting	31
Technical Data - Domestic	32-34
Technical Data - International	35-36
Maximum Cable Lengths	37
Maintenance	37
Winterization and Special Warnings	38
Otterbine Warranty	39

Revised 04/12/2007

WARNING: PHYSICALLY disconnect the unit and lights from their electrical source before entering, wading or swimming in the water in which they are installed. Only factory approved power cord is to be used. Do not splice or repair the cord, replacement is necessary if damage occurs.

Aerator Equipment

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



1. Unit - you will find a label located on the housing of the unit. Check the label to make sure you have received the correct horsepower and voltage aerator.

2. Float - including hardware kit to mount float to the unit or extra hardware kit if float already mounted to unit

3. Power Control Center - you will find a label inside of the Power Control Center door. This label lists the voltage and horsepower of the control center. Verify that the aerator and control center are the same horsepower and voltage.

4. Power Cable Assembly - verify that you have received the correct length.

5. Warranty Registration Card - make sure to fill in your Otterbine warranty registration card and send it back to the factory so that we can send you our bi-annual customer newsletter, which will keep you up to date on all the latest aeration news. **WARRANTY IS VOID UNLESS CARD IS RETURNED.**

Electrical/PCC Installation

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

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

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



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

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

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

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

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

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

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

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

IMPORTANT NOTES:

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. Do not use power cord gages and lengths other than those specified on p.37 of this manual.
2. Each cable should be in its own conduit to avoid nuisance tripping of the GFCI device.
3. Wiring schematics are located on the following pages. Please note on all 460V units EPD/GFCI (Equipment Protection Device/Ground Fault Circuit Interrupter) is an optional accessory.

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

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

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

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



Earth Ground Symbol (used in PCC)

Timer Operation



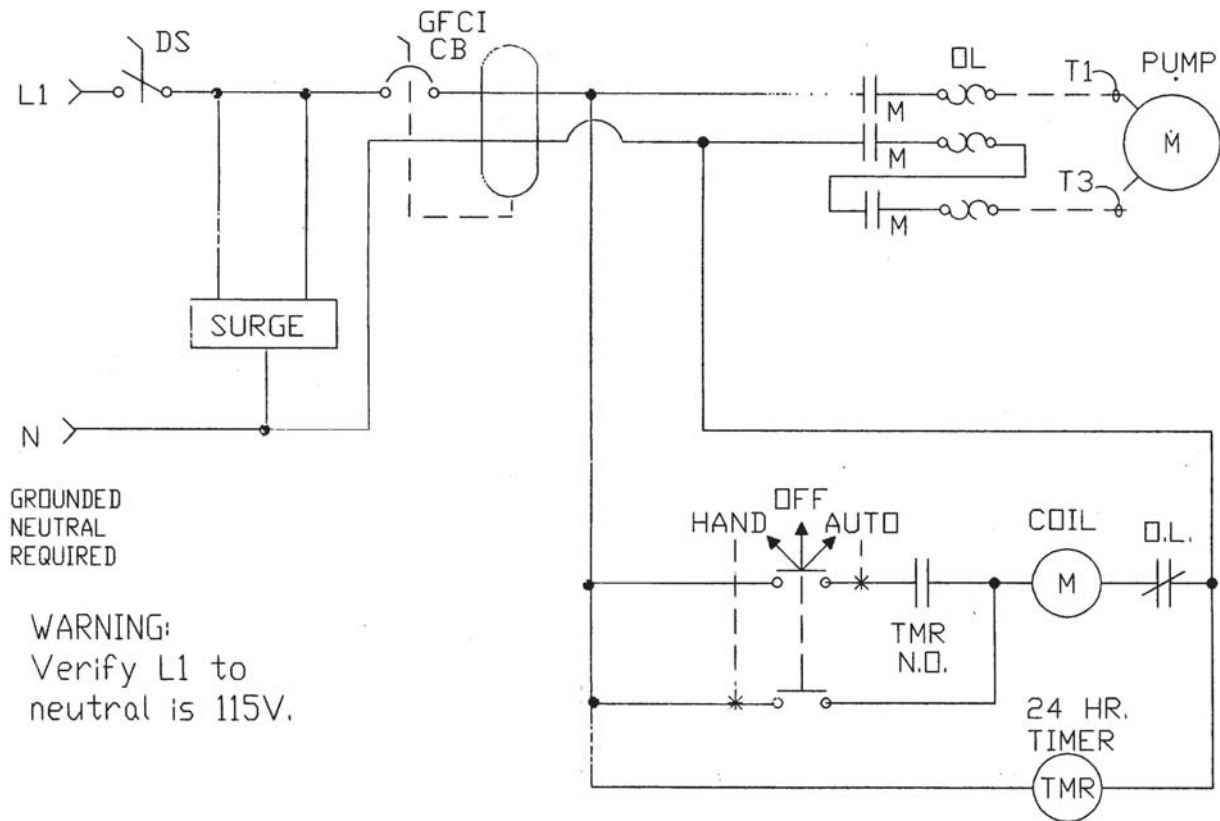
Grasslin Timer

Grasslin Timer 60Hz, P/N: 31-0070

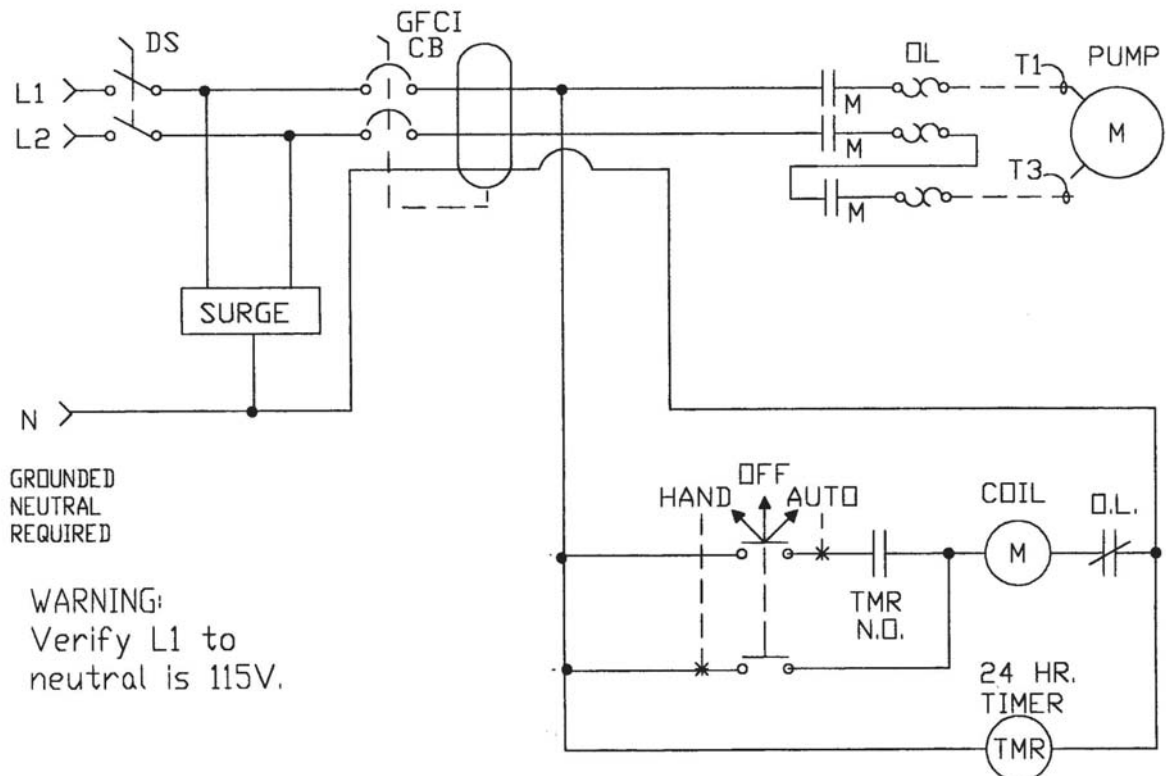
Grasslin Timer 50Hz, P/N: 31-0180

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

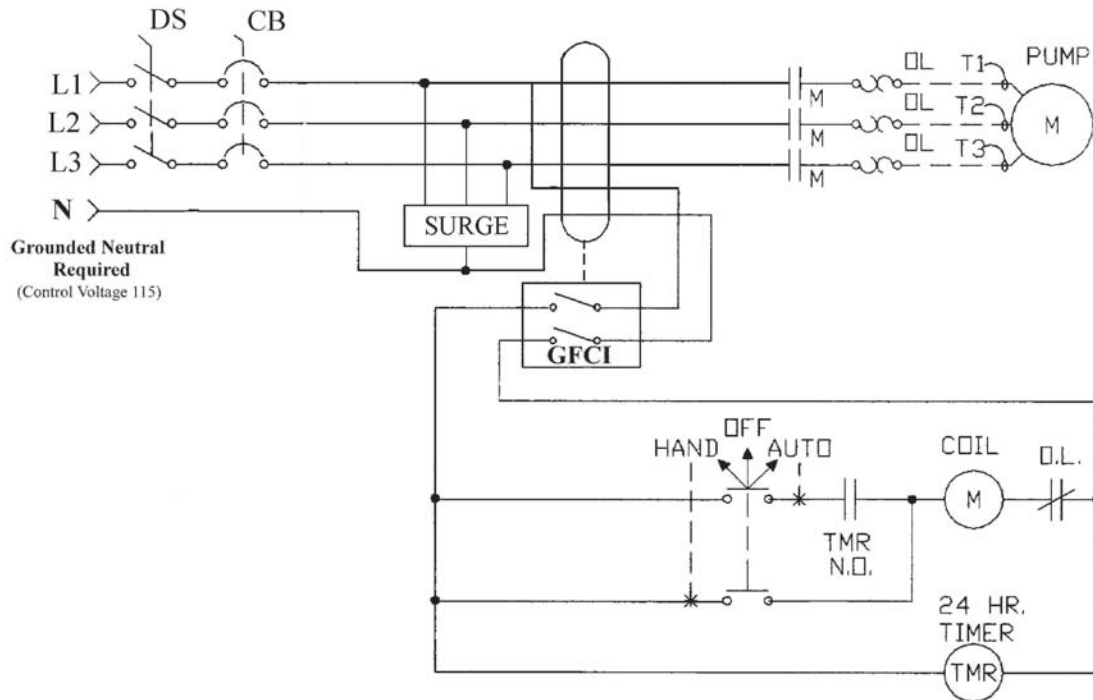
115 Volt 1 Phase 60 Hertz Schematic



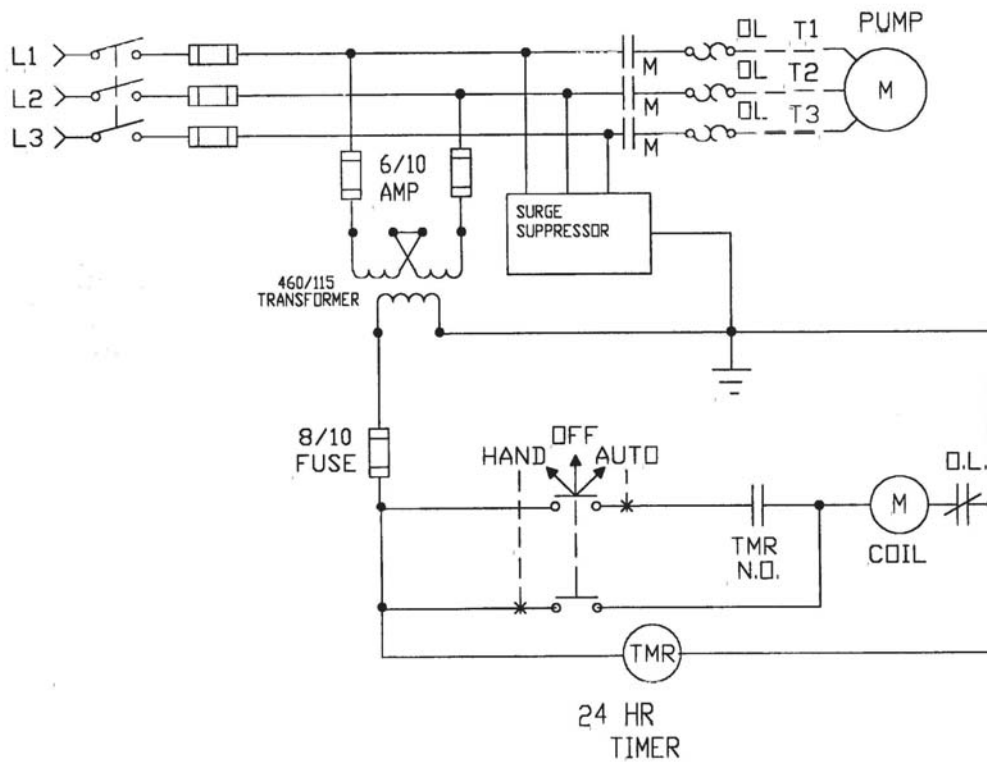
208-230 Volt 1 Phase 60 Hertz Schematic



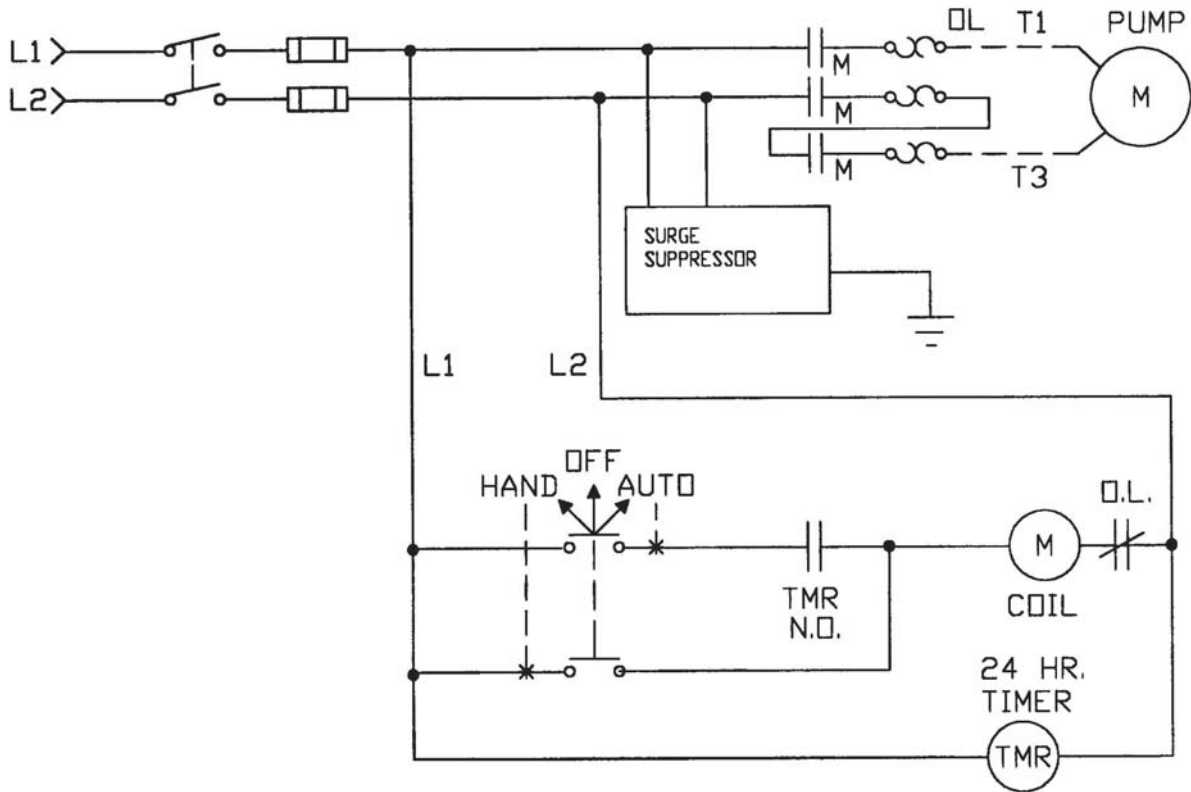
208-230 Volt 3 Phase 60 Hertz Schematic



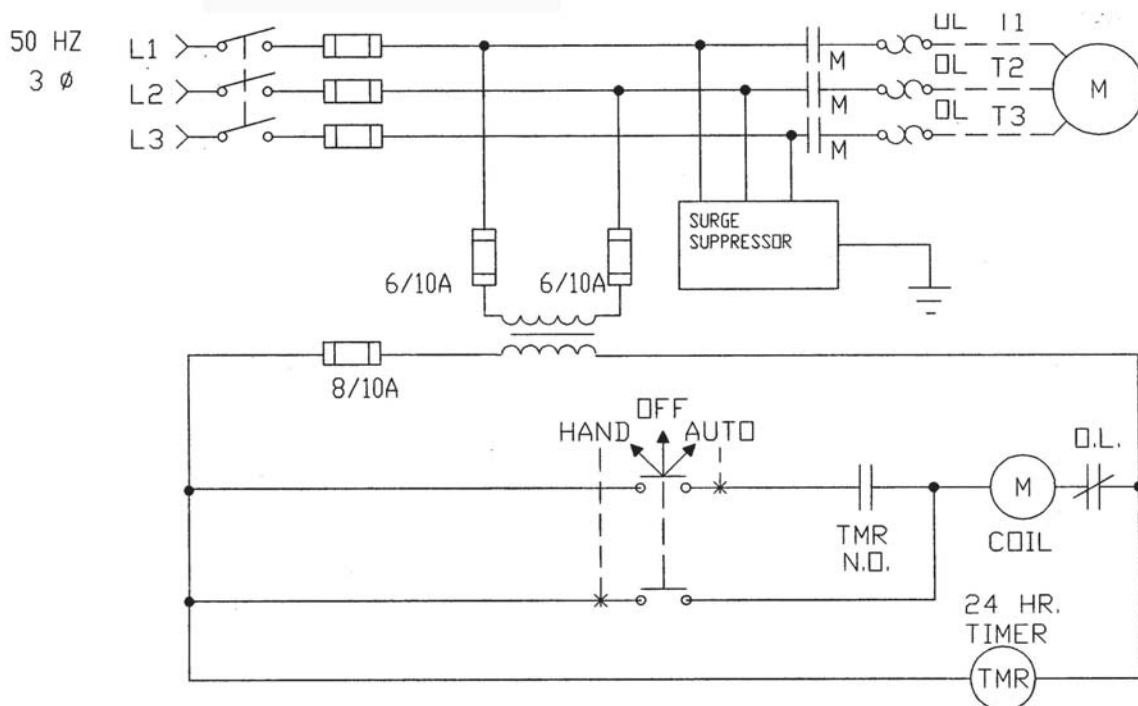
460 Volt 3 Phase 60 Hertz Schematic



220 Volt 1 Phase 50 Hertz Schematic

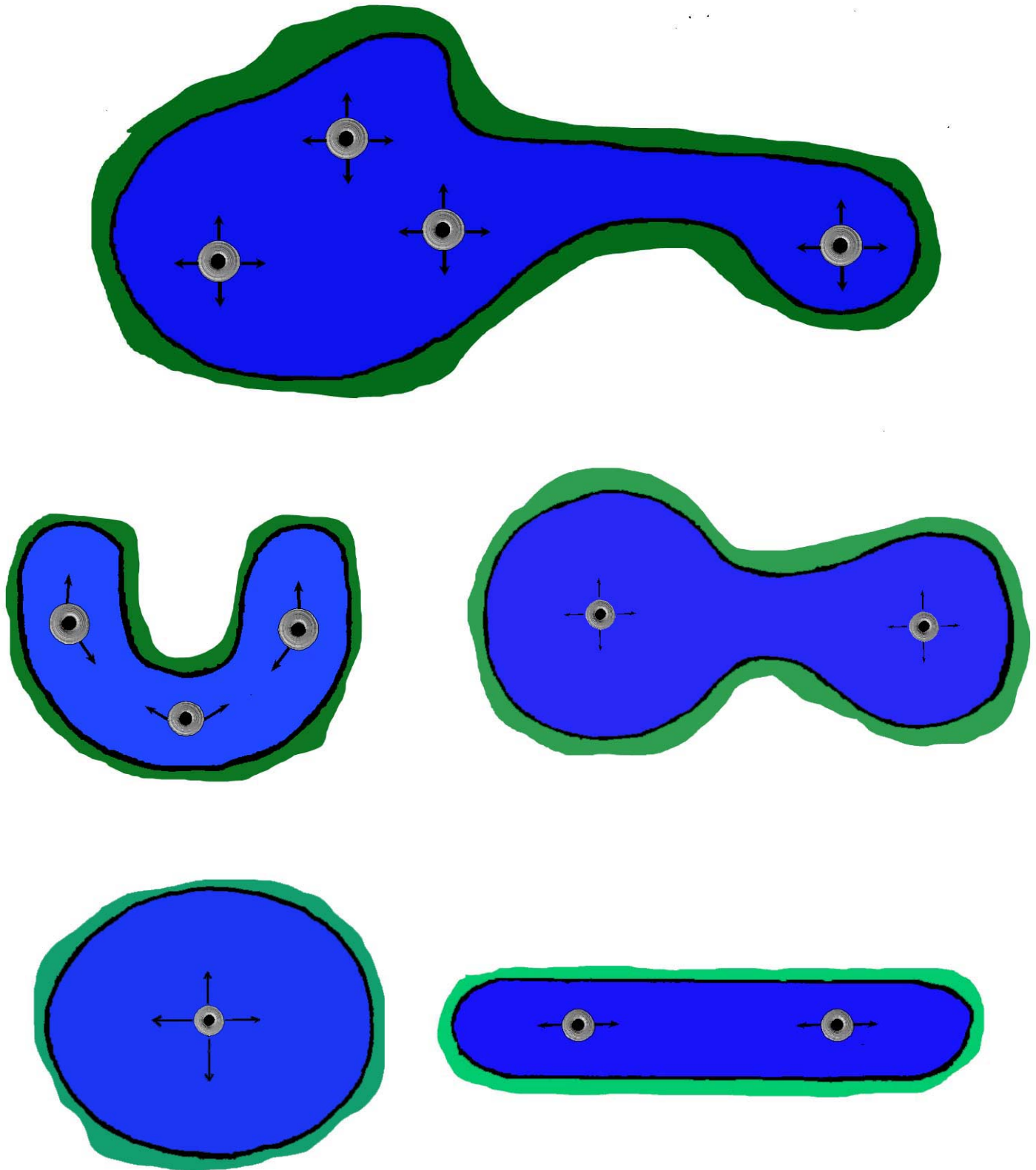


380/415 Volt 3 Phase 50 Hertz Schematic



Aerator Placement

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



Mounting the Float to the Unit (Figure 1)

NOTE: Failure to complete assembly as directed could result in damage to the unit.

*For a Genesis Pump Chamber, the float must be mounted before the Genesis Throat Assembly can be mounted to the unit (See page 27 for Genesis Pump Chamber).

*For 5HP "Open Throat" Units (Sunburst, Gemini, Saturn), mount the Supplemental Float to the Main Float before installing on Unit (See Supplemental Float Instructions below)

A. The unit will be received with the pumping chamber already mounted. Mount Supplemental Float first, if applicable. 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.

B. 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 mounting bracket on the unit. Repeat this for the three remaining holes.

C. Place a flat washer and a nylon locknut onto each of the four hex bolts from Step B. Tighten each nylon locknut. **CAUTION:** Do not overtighten, may cause damage to the float and/or pump chamber.

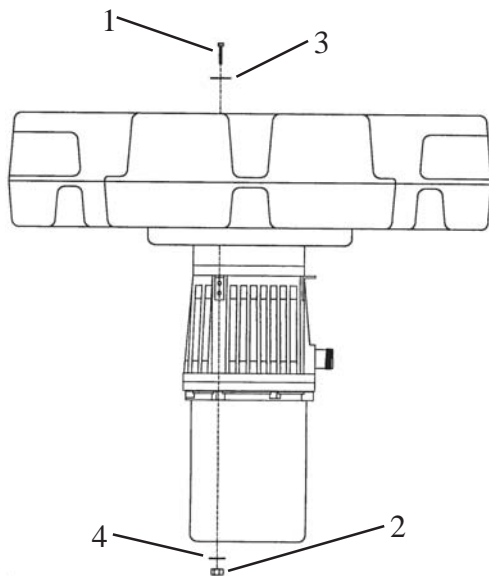
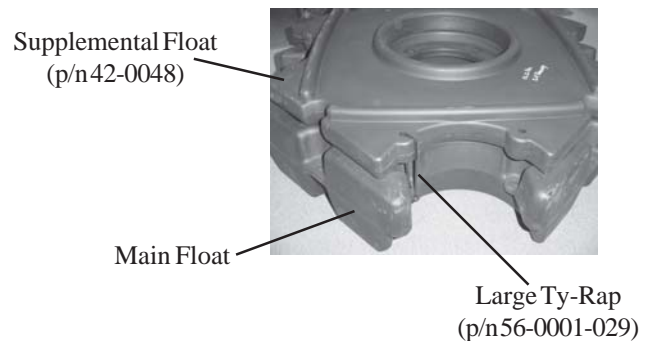


Figure 1

Supplemental Float Instructions

*If the Supplemental Float is already mounted to the Main Float, continue with Step A above.

1. Place Main Float on the ground 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. Go to Step A above to continue float mounting.



Float Part Numbers/Color

42-0018 Black

42-0027 Granite

42-0028 Sandstone

Item No	Description	Qty	Part Number
Not Shown	Float Mounting Hardware Kit	1	12-0071
1	S/S Hex Bolt, M8 x 45mm	5	22-0022
2	S/S Nylon Locknut, M8	5	26-0007
3	S/S Fender Washer, M8 (5/16")	5	28-0008
4	S/S Flat Washer, M8 (5/16")	5	28-0018
5	Ty-Rap (used to secure power cable)	3	GP5008

NOTE: Quantities include extra hardware.

Comet Stabilizer Plates Mounting (Figure 1a)

NOTE: These instructions are for the Comet spray pattern ONLY. If you have any other spray pattern continue with Physical Installation on page 12. The stabilizer plates steady the spray pattern and prevent it from rocking back and forth.

A. 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 in Figure 1a.

B. Mount each of the four stabilizer plate assemblies from Step A to the top side of an outer hole in the float using an eyebolt, a fender washer, and a nylon locknut as shown in Figure 1a. **CAUTION:** Do not overtighten, may cause damage to the float.

C. The eyebolts are to be used to moor the unit into place.

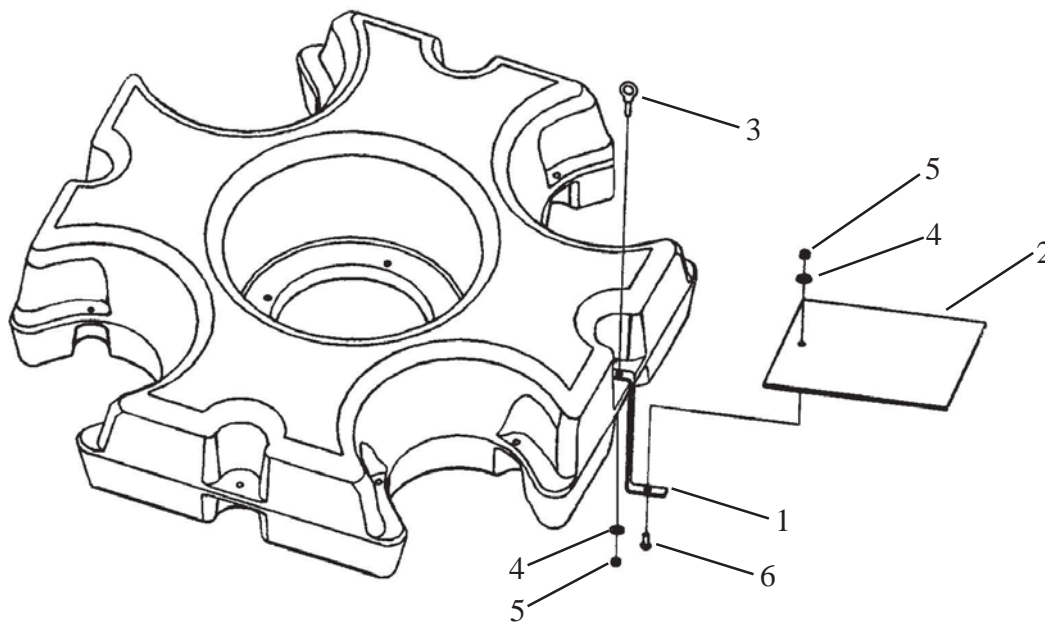


Figure 1a

Comet Stabilizer Plates Kit, P/N 12-0097

Item No	Description	Qty	Part Number
1	Stabilizer Plate Bracket, S/S	4	40-0115
2	Stabilizer Plate	4	41-0127
3	S/S Eyebolt, 5/16"-18 x 1-3/8" Fully Threaded	4	22-0027
4	S/S Fender Washer, 5/16"	8	28-0008
5	S/S Nylon Locknut, 5/16"-18	8	GP1208
6	S/S Hex Bolt, 5/16"-18 x 3/4"	4	106-302

Physical Installation

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

Prior to installation please measure your water depth. All 1-5 HP Concept₃ Otterbine aerators require at least **30"/75cm (40"/100cm if unit has lights)** of water depth to run properly. If the water is too shallow, dig out a portion of the pond bottom directly under the aerator. If high waves or large fluctuations in water depth occur, it may be necessary to allow for more depth.

NOTE: Power must be applied to unit immediately after placement into the water and operated continuously for the forty-eight (48) hour duration. Do not allow any AFL aerator to be placed into the water until the unit is fully operational.

A. Attach your Otterbine power cable to the aerator. Align the pigtail connector on the cable up to the pin configuration on the bulkhead on the aerator. **HAND TIGHTEN** the coupling nut onto the bulkhead connector. **DO NOT OVER TIGHTEN -- OVER TIGHTENING WILL CAUSE A FRACTURE IN THE CONNECTOR AND COULD LEAD TO A SHORT CIRCUIT--**see Figure 2.

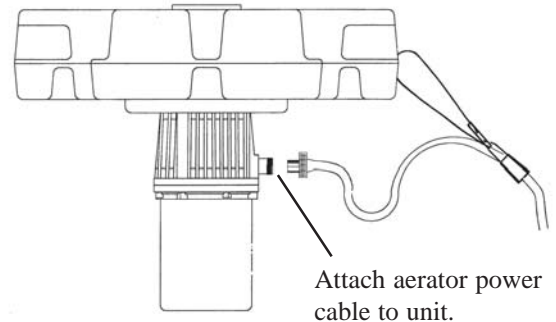


Figure 2

NOTES:

1. 5HP single phase units have a 3 pin bulkhead connector and a 3 pin pigtail connector on the power cable. **DO NOT USE** a 4 pin bulkhead connector or a 4 pin pigtail connector for 5HP single phase units.
2. You will notice a small amount of silicon compound on the female end of the aerator connector. This compound has been applied during assembly and is needed in order to make proper seal between the two connectors. **DO NOT REMOVE COMPOUND!** When servicing the aerator make sure to re-apply compound (Otterbine part# 48-0001).



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

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

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

4. Energize the unit by turning the "Hand/Off/Auto" switch to the "Hand" position. Run unit 1 minute to break in seals. **DO NOT RUN UNIT FOR MORE THAN 1 MINUTE -- MOTOR DAMAGE CAN OCCUR.** Check for COUNTER CLOCKWISE rotation at this time.

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

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

CAUTION: OTTERBINE® aerators are designed to run in a COUNTER CLOCKWISE DIRECTION and CURRENT UNBALANCE BETWEEN THE LEGS ON 3 PHASE UNITS SHOULD NOT EXCEED 5%. Steps "L-M" on page 16 determine current unbalance.

ATTENTION: les aerateurs Otterbine® sont designes pour fonctionner dans le sens contraire des aiguilles d'une montre et tout desequilibre entre chacune des phases de l'alimentation ne doit pas depasser 5% voir "L-M page 16 pour determiner le desequilibre.

C. 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 Figure 3.

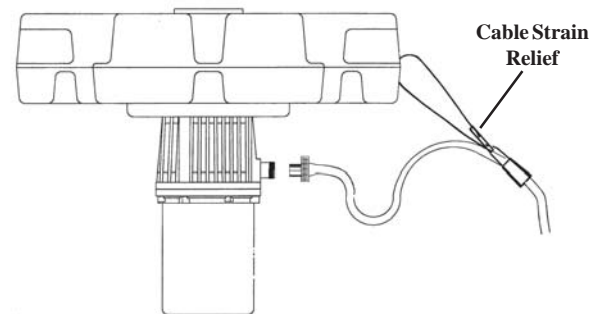


Figure 3

D. Attach your aerator power cable to one of the holes in the float after the strain relief with the ty-raps provided. In corrosive, brackish, and salt water applications use two ty-raps to attach your power cable to the float--see Figure 3.

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

MOORING YOUR AERATOR:

- A. Proceed to page 14, follow steps E-K.
- B. Proceed to page 16, follow steps L-O.

ANCHORING YOUR AERATOR:

- A. Proceed to page 15, follow steps E-K.
- B. Proceed to page 16, follow steps L-O.

Mooring the Aerator

An illustration showing how to moor an aerator is given in Figure 4.

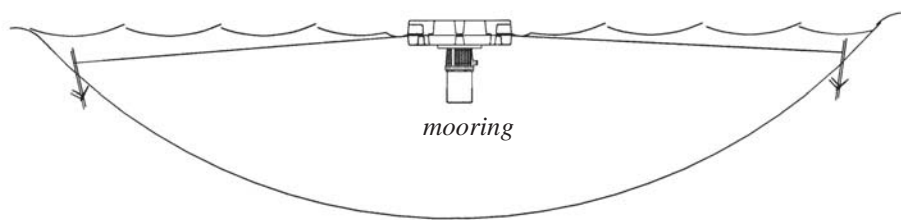


Figure 4

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

1. Use all brass and stainless steel hardware in the installation of your Otterbine aerator.
2. Otterbine recommends using 1/4"/.63 cm or 1/2"/1.25 cm polypropylene rope or stainless steel cable for your mooring lines.
3. At the mooring points themselves you will need a wooden stake, 1/2"/1.25 cm of rebar or a "duck bill" type earth anchor --see Figure 5.

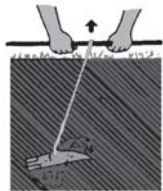


Figure 5

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

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

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

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

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

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

K. Put in the other anchor or stake. Tie down your Otterbine aerator leaving enough slack in your lines to allow the aerator to turn 90° or 1/4 turn. The slack in the lines will allow for proper start up, wave action, and fluctuations in the water level. Proceed to step L (**page 16**).

Anchoring the Aerator

An illustration showing how to anchor an aerator is given in Figure 6.

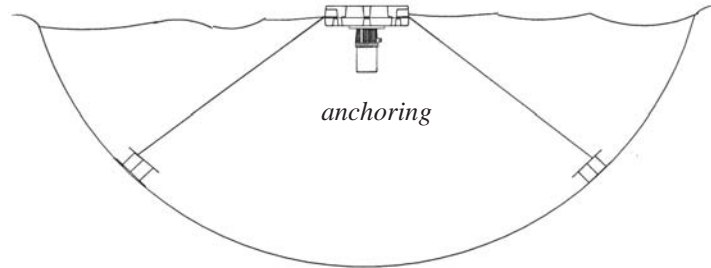


Figure 6

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

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

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

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

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

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

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

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

K. Drop in the second anchor line. Securely tie the anchor line to the hole on the outside edge of the float which is directly opposite of the first anchor line that was tied onto the float. Make sure the unit can rotate 90° or 1/4 turn. The slack in the anchoring lines will allow for proper start up, wave action, and fluctuations in the water level. Flip the unit over. Proceed to step L (page 16).

L. Energize your unit.

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

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

3 PHASE UNITS:

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

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

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

4. Calculate the percent of current unbalance:

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

A. Add the three line amp values together.

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

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

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

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

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

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

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

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

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

CAUTION: The aerator should be allowed to run continuously for 48 hours after installation. This will allow the aerator to properly "break in."

ATTENTION: L'aérateur doit être permis de fonctionner continuellement pendant 48 heures après l'installation. Cel permettra a l'aérateur d'être proprement rodé.

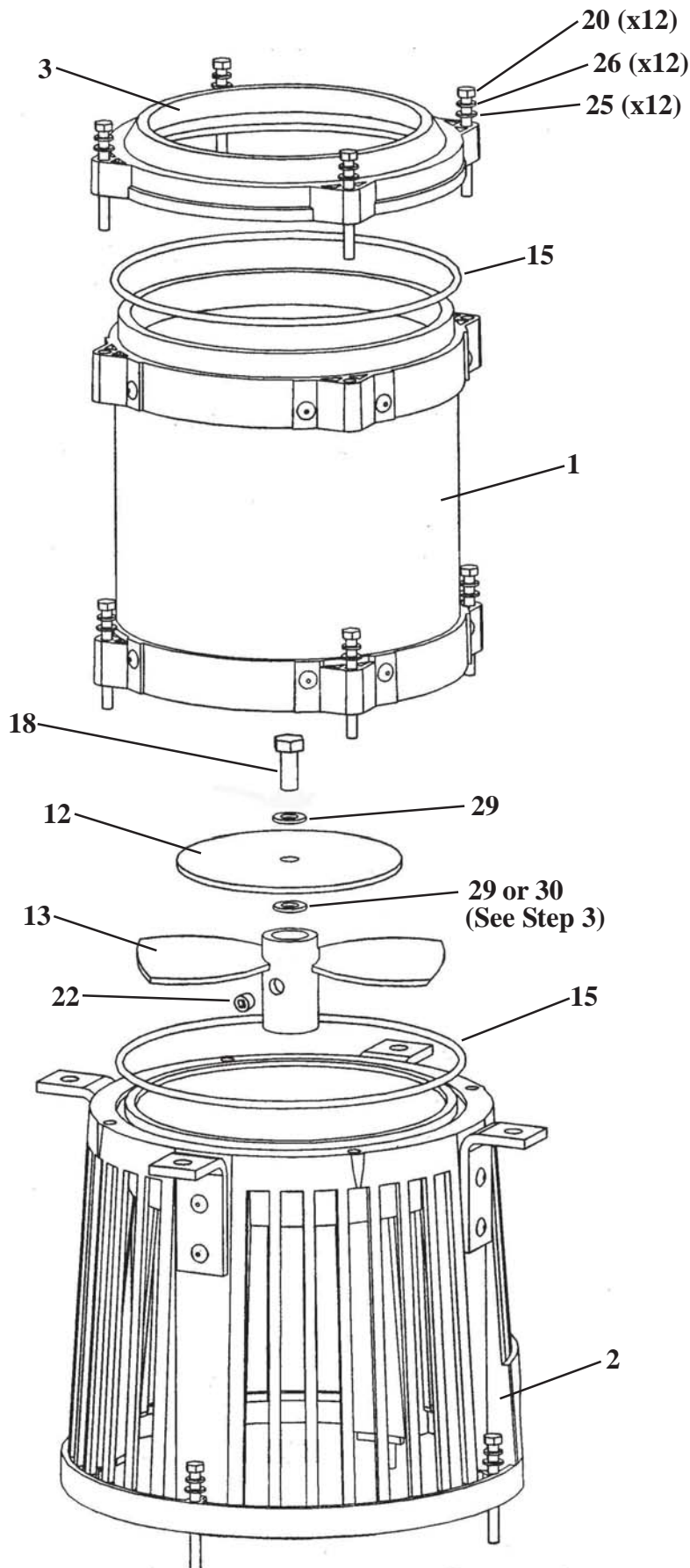
Open Throat Pump Chambers

The pump chamber drawings on the following pages are for reference purposes only. The pump chamber is mounted to the power unit at the factory. Use this table for each drawing as noted.

Item No.	Description	Part Number	Qty per Sunburst Chamber (Fig. 7)	Qty per Gemini Chamber (Fig. 8)	Qty per Saturn Chamber (Fig. 8a)
1	Throat Assembly	10-0060	1	1	1
2	Standoff Strainer Assembly *	10-0061	1	1	1
3	Sunburst Ring	42-0019	1	0	1
12	Slinger Disc	47-0003	1	1	0
13	SNB Impeller, 1HP 60Hz SNB Impeller, 2HP 60Hz/1HP 50Hz SNB Impeller, 3HP 60Hz/2HP 50Hz SNB Impeller, 5HP 60Hz/3HP 50Hz SNB Impeller, 5HP 50Hz	50-0012-001 50-0012-002 50-0012-003 50-0012-005 50-0012-055	1	1	1
15	O-Ring #260	49-0015	2	1	2
18	M8 x 20 S/S Hex Bolt	22-0019	1	1	0
20	M5 x 50 S/S Hex Screw	24-0013	12	8	12
22	M8 x 8 S/S Set Screw	24-0015	1	1	1
25	M5 S/S Flat Washer	28-0016	12	8	12
26	M5 S/S Split Lock Washer	28-0017	12	8	12
29	M8 (5/16") S/S Fender Washer Impeller Spacer, 3HP 60Hz/2HP 50Hz ONLY	28-0008	1 1	1 1	0 0
30	Impeller Spacer, 5HP 60Hz/3HP 50Hz/5HP 50Hz	40-0107	1	1	0

* Mounted to power unit using (4) M5 Nylon Locknuts (P/N 26-0006)

Sunburst Pump Chamber - Figure 7

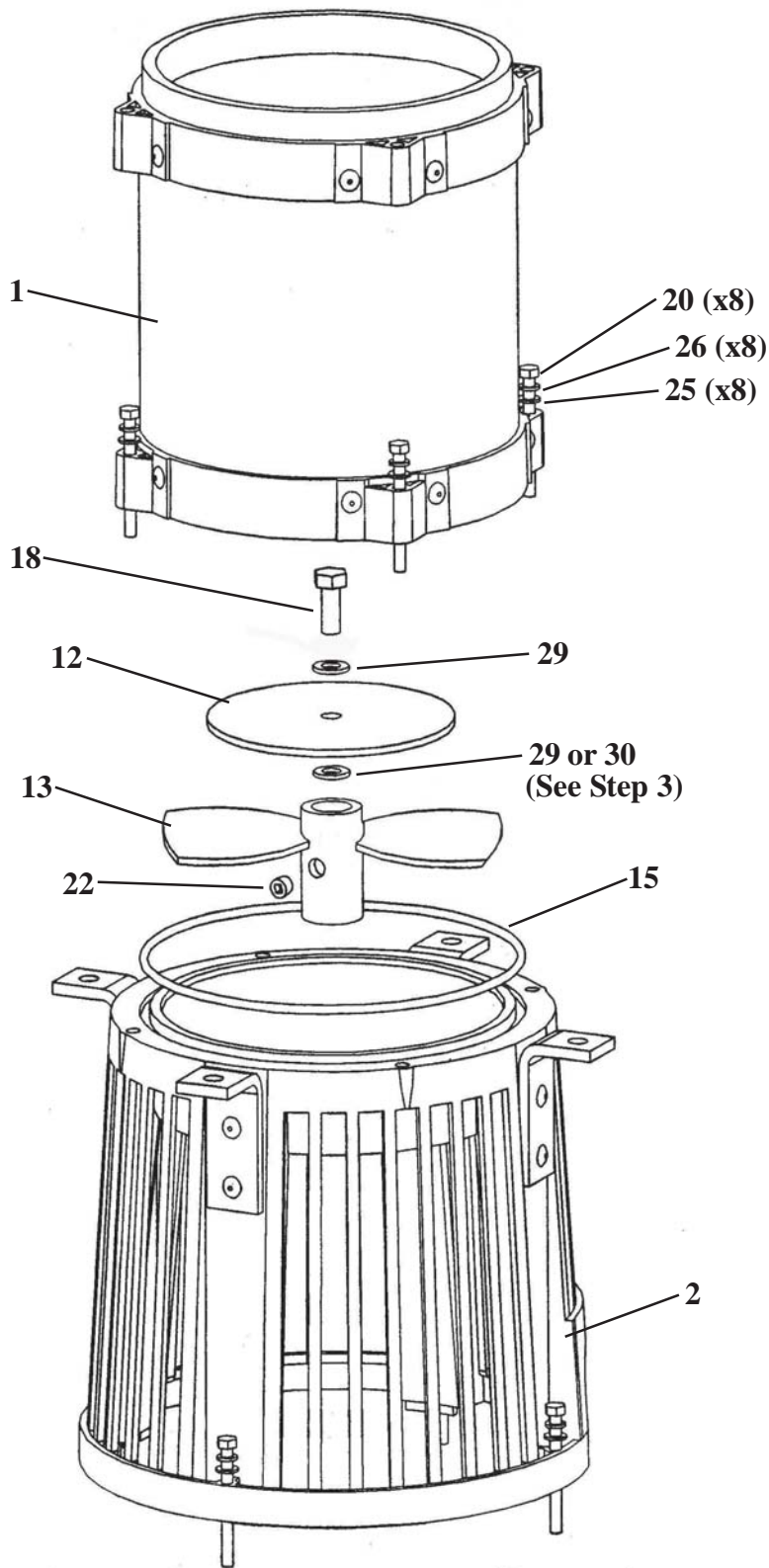


Sunburst Assembly Instructions

1. Mount 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. 29 or 30). 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 - Figure 8

Gemini Assembly Instructions



1. Mount 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.

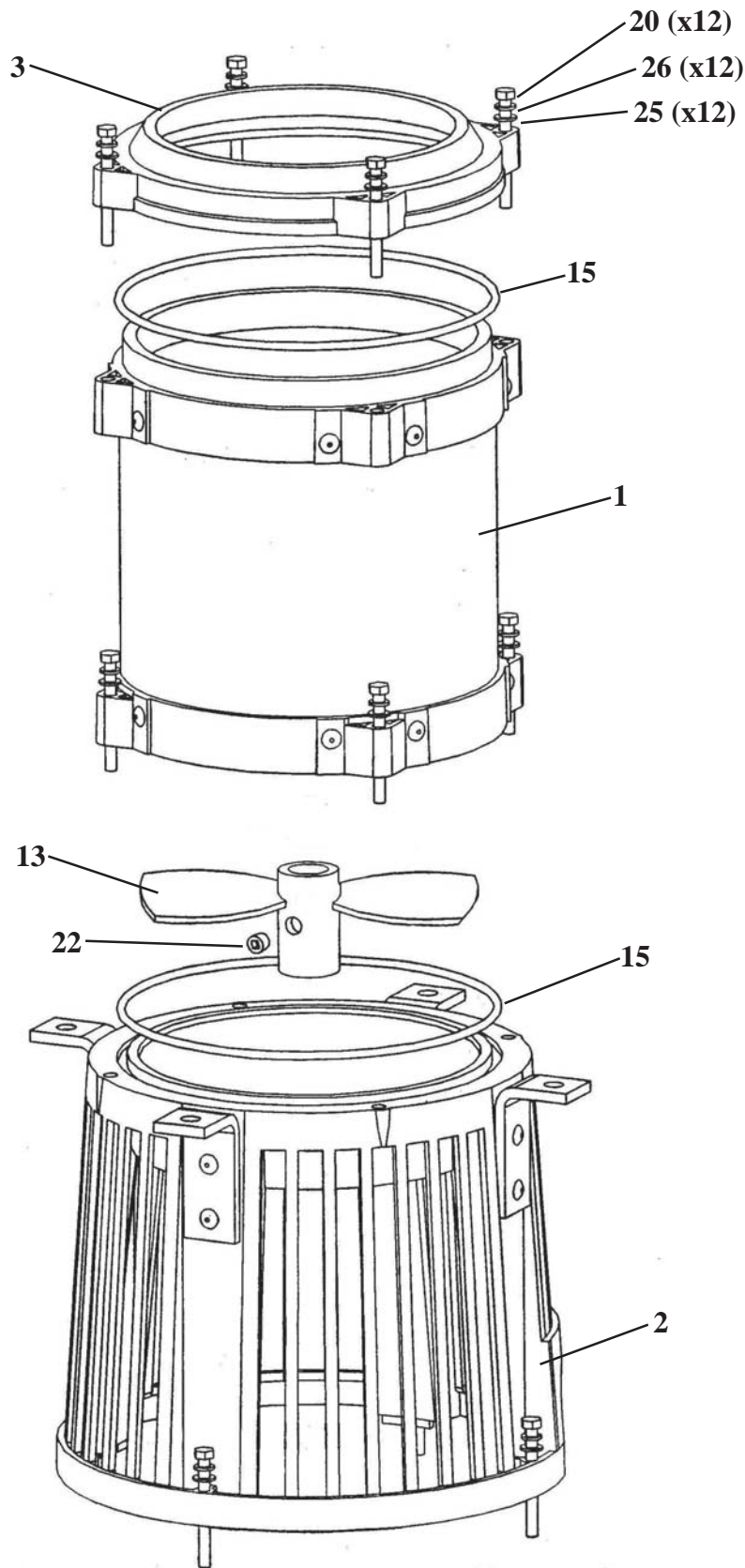
3. Mount the Slinger Disc to the shaft using (1) M8x20 S/S Hex Bolt and (1) M8 S/S Fender Washer. An Impeller Spacer is ONLY used with 3HP 60Hz/2HP 50Hz, 5HP 60Hz/3HP 50Hz, and 5HP 50Hz impellers (Item No. 29 or 30). Tighten the bolt to 35 ft-lbs (47 N-m).

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 - Figure 8a

Saturn Assembly Instructions



1. Mount 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.

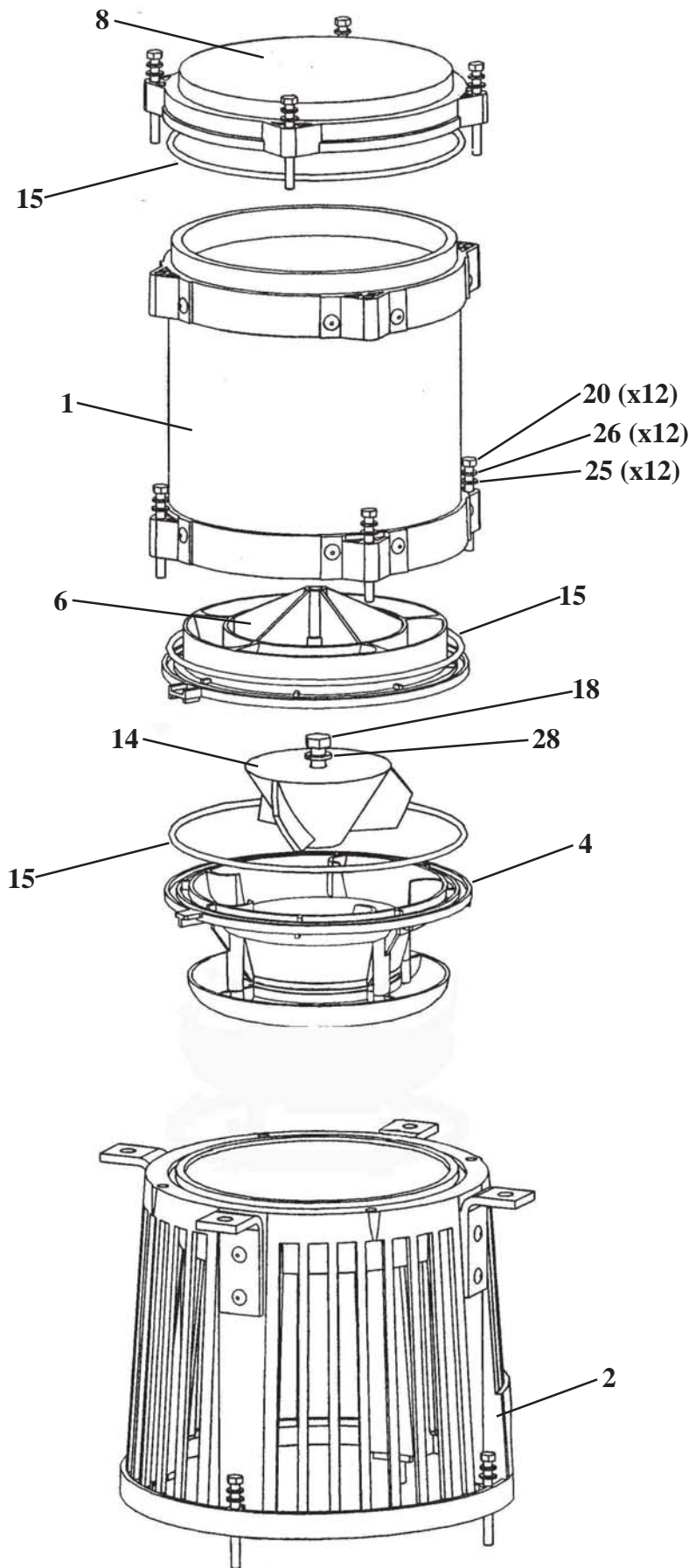
Decorative Pump Chambers

The pump chamber drawings on the following pages are for reference purposes only. The pump chamber is mounted to the power unit at the factory, except the Genesis Chamber. Use this table for each drawing as noted.

Item No.	Description	Part Number	Qty per Rocket Chamber (Fig. 9)	Qty per Phoenix Chamber (Fig. 10)	Qty per Tri-Star Chamber (Fig. 11)	Qty per Constellation Chamber (Fig. 11a)	Qty per Comet Chamber (Fig. 11b)	Qty per Genesis Chamber (Fig. 11c)
1	Throat Assembly	10-0060	1	1	1	1	1	0
2	Standoff Strainer Assembly *	10-0061	1	1	1	1	1	1
4	Lower Pump Chamber Assembly	10-0065	1	1	1	1	1	1
6	Upper Pump Chamber	42-0023	1	0	0	0	1	0
7	PHX/TRI Flow Diverter Assembly	10-0062	0	1	1	0	0	0
8	Rocket Diffuser	41-0104	1	0	0	0	0	0
9	Phoenix Diffuser	41-0105	0	1	0	0	0	0
10	Tri-Star Diffuser	41-0106	0	0	1	0	0	0
11	Tri-Star Diffuser Pipe	41-0108	0	0	1	0	0	0
14	Decorative Impeller, 1HP 60Hz Decorative Impeller, 2HP 60Hz/1HP 50Hz Decorative Impeller, 3HP 60Hz/2HP 50Hz Dec Impeller, 5HP 60Hz/3&5HP 50Hz	50-0010-001 50-0010-002 50-0010-003 50-0010-005	1	1	1	1	1	1
15	O-Ring #260	49-0015	3	2	2	2	3	1
16	O-Ring #131	49-0017	0	0	1	0	0	0
17	O-Ring #156 (thin)	49-0018	0	1	1	1	0	0
18	M8 x 20 S/S Hex Bolt	22-0019	1	1	1	1	1	1
20	M5 x 50 S/S Hex Screw	24-0013	12	8	8	8	12	8
23	M8 S/S Nylon Locknut	26-0007	0	1	1	1	0	0
25	M5 S/S Flat Washer	28-0016	12	8	8	8	12	8
26	M5 S/S Split Lock Washer	28-0017	12	8	8	8	12	8
27	M8 (5/16") S/S Flat Washer	28-0018	0	1	1	1	0	0
28	M8 (5/16") S/S Split Lock Wshr	28-0019	1	1	1	1	1	1
32	Decorative Impeller Shim (not shown)	40-0099	2 or 3	2 or 3	2 or 3	2 or 3	2 or 3	2 or 3
33	Constellation Diffuser	42-0032	0	0	0	1	0	0
34	Constellation / Genesis Nozzle	10-0068	0	0	0	8	0	16
35	Constellation Flow Diverter Assembly	10-0069	0	0	0	1	0	0
36	Comet Diffuser	41-0123	0	0	0	0	1	0
37	Genesis Throat Assembly	10-0073	0	0	0	0	0	1

* Mounted to power unit using (4) M5 Nylon Locknuts (P/N 26-0006)

Rocket Pump Chamber - Figure 9

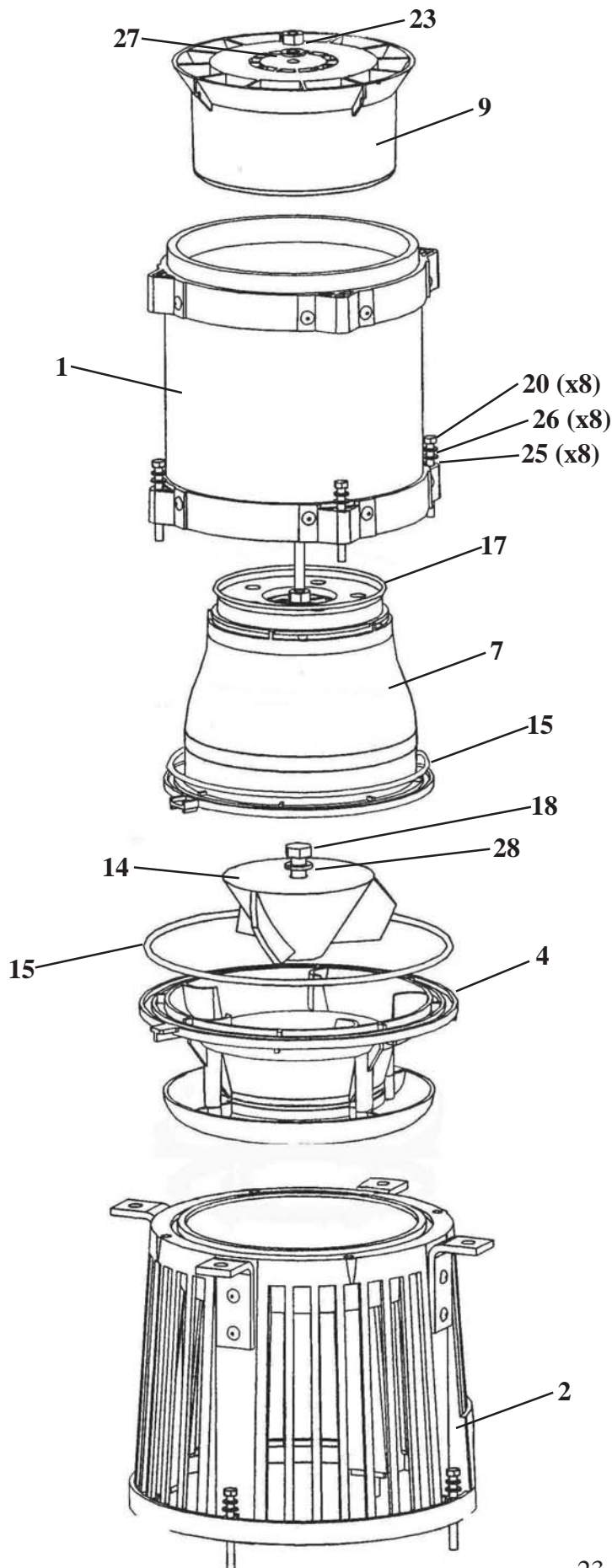


Rocket Assembly Instructions

1. Mount 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 place 1, 2 or 3 Shims (Item No. 32) 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-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 - Figure 10

Phoenix Assembly Instructions



1. Mount 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 No. 32) 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.

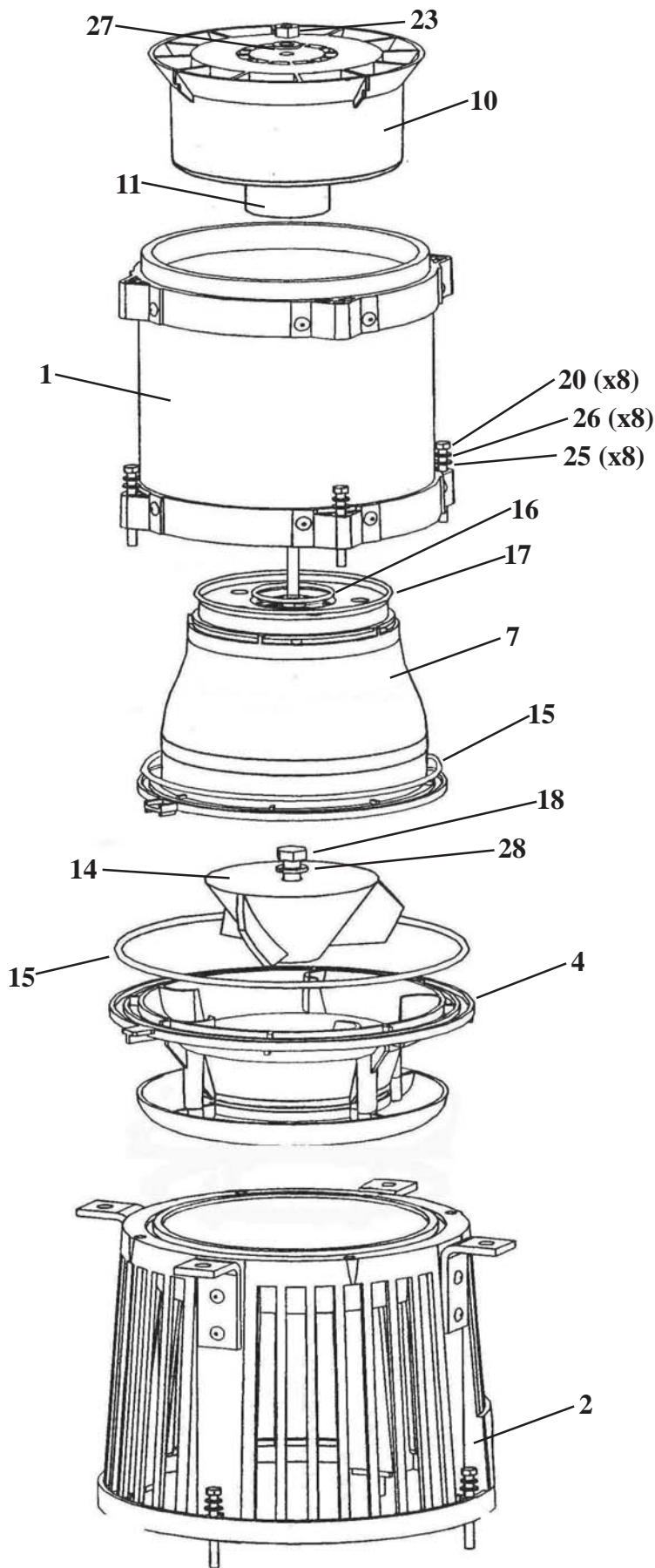
6. Place an O-ring in the groove of the Upper Pump Chamber.

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 an O-ring on the top of the Flow Diverter.

9. Slide the Phoenix Diffuser onto the Carriage Bolt so that it is seated on the Flow Diverter Assembly and secure using a M8 S/S Flat Washer and a M8 S/S Nylon Locknut. Tighten the locknut so the four legs on the Diffuser are just touching the top of the Throat Assembly. Do not overtighten, may cause damage.

Tri-Star Pump Chamber - Figure 11



Tri-Star Assembly Instructions

1. Mount 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 place 1, 2 or 3 Shims (Item No. 32) 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.

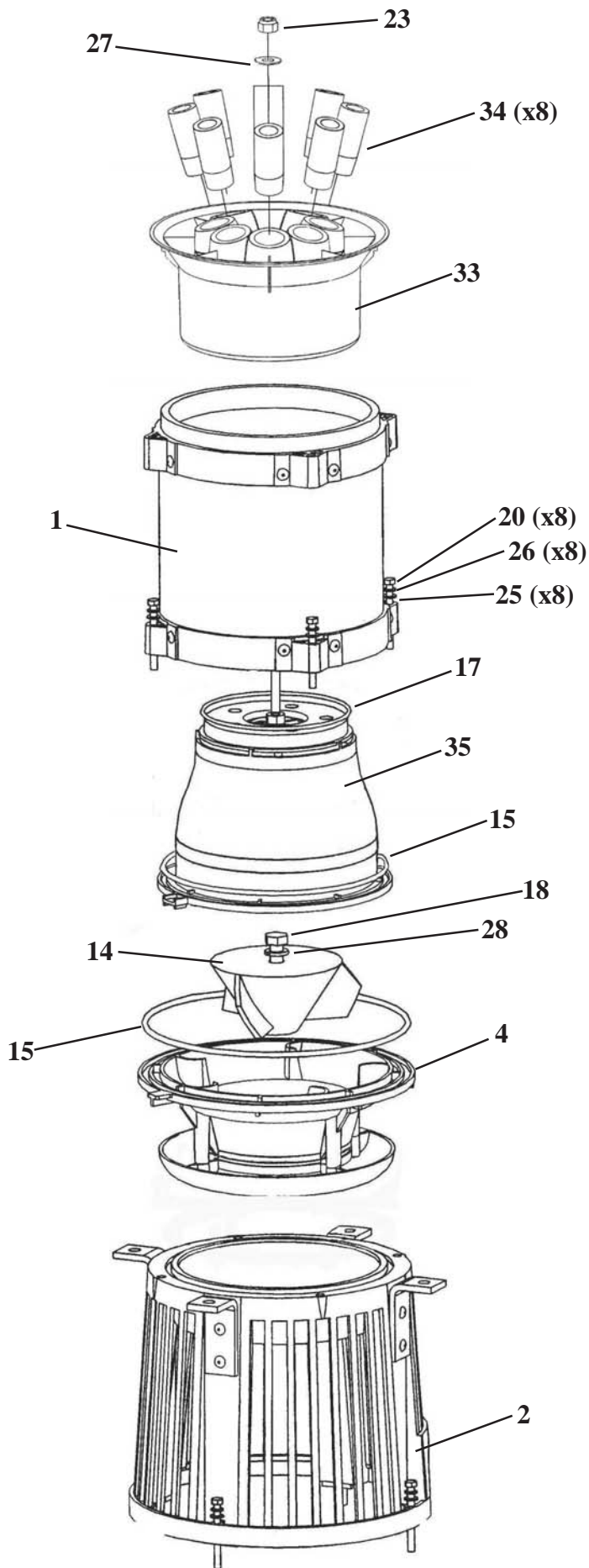
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-rings.

8. Place an O-ring on the top and inside 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 so that it is seated on the Flow Diverter Assembly/Tri-Star Diffuser Pipe and secure using a M8 S/S Flat Washer and a M8 S/S Nylon Locknut. Tighten the locknut so the four legs on the Diffuser are just touching the top of the Throat Assembly. Do not overtighten, may cause damage.

Constellation Pump Chamber - Figure 11a



Constellation Assembly Instructions

1. Mount 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 No. 32) 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.

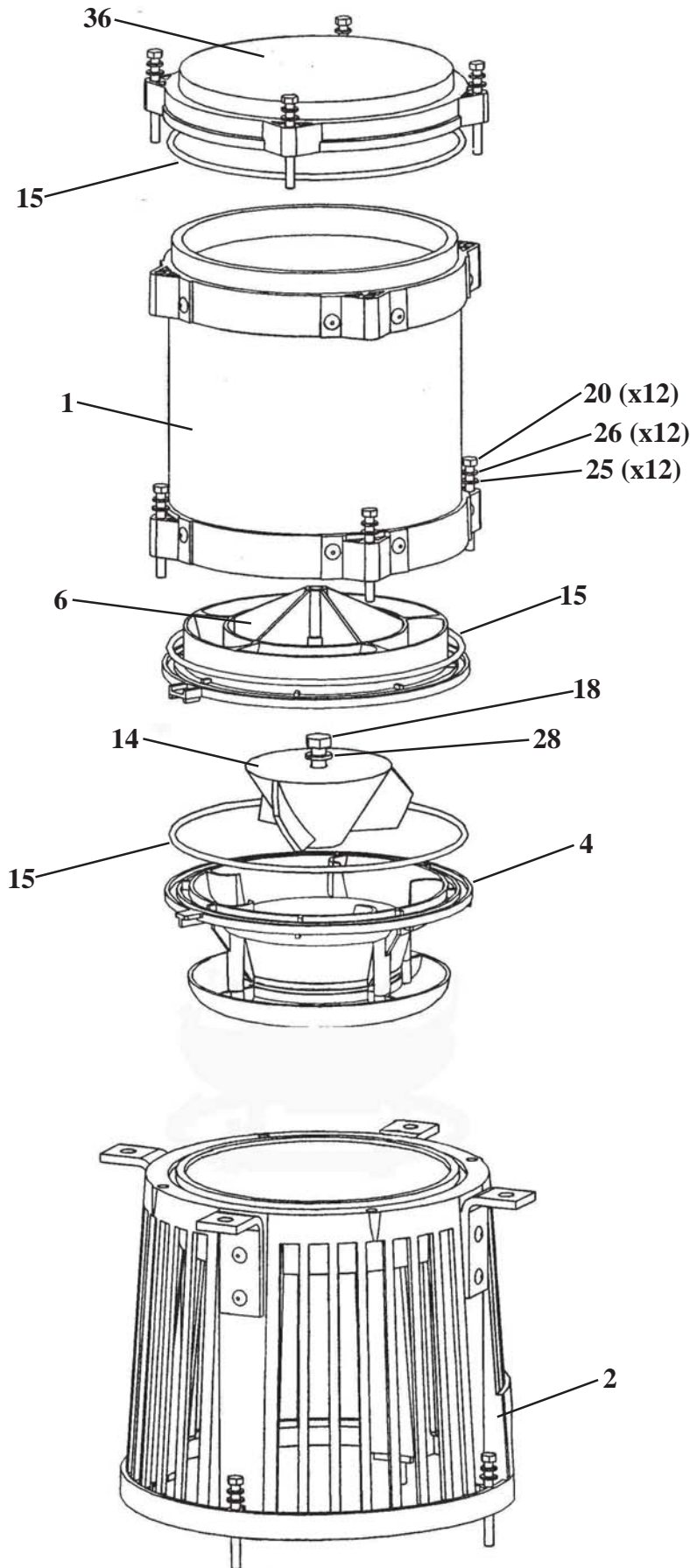
7. Place the Throat Assembly onto the Upper Pump Chamber and secure using (4) M5x50 S/S Hex Screws, (4) M5 S/S Flat Washers, and (4) M5 S/S Split Lock Washers. Tighten the screws evenly in order to properly compress the o-rings.

8. Place an O-ring on the top of the Flow Diverter Assembly.

9. Slide the Constellation Diffuser onto the Carriage Bolt so that it is seated on the Flow Diverter Assembly and secure using a M8 S/S Flat Washer and a M8 S/S Nylon Locknut. Tighten the locknut so the four legs on the Diffuser are just touching the top of the Throat Assembly. Do not overtighten, may cause damage.

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

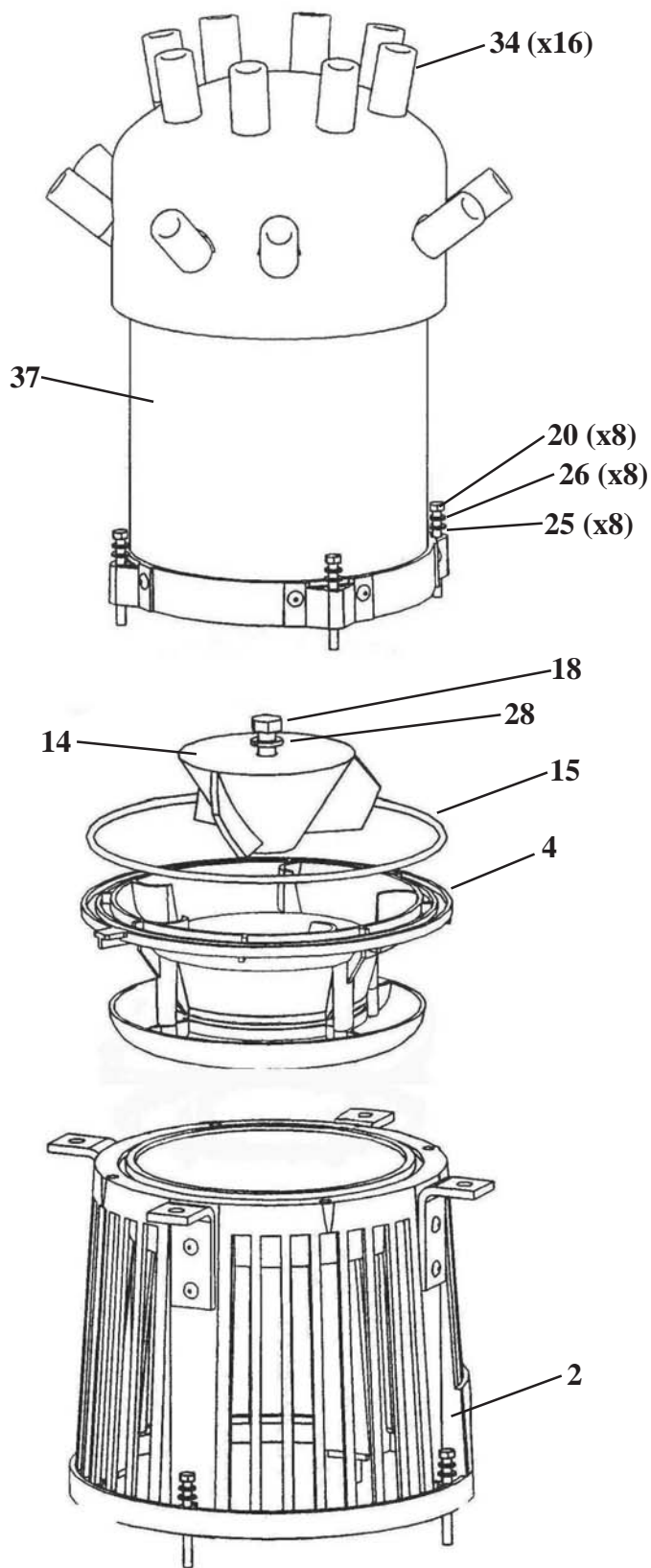
Comet Pump Chamber - Figure11b



Comet Assembly Instructions

1. Mount 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 No. 32) 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-rings.
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 Assembly Instructions



1. Mount 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 No. 32) 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 OVER-TIGHTEN, MAY CAUSE DAMAGE). Repeat for the remaining fifteen Genesis Nozzles. NOTE: Place teflon tape on the threads of the Genesis Nozzle.

Power Unit

The power unit drawing on the following page is for reference purposes only. The power unit is pre-assembled at the factory. Use this table for Figure 12.

Item No.	Description	Part Number	Qty
1	Motor Base Plate	42-0013	1
2	Open Seal Hub	42-0051	1
3	Can Ring	42-0020	1
4	S/S Motor Housing	47-0001	1
5	Single Rotary Shaft Seal	49-0041	1
6	Seal Retaining Ring	46-0002	1
7	Rubber Slinger	47-0020	1
8	1HP 1Ph Motor	30-0029-110	1
	2HP 1Ph Motor	30-0029-210	1
	3HP 1Ph Motor	30-0029-310	1
	3HP 3Ph Motor	30-0029-330	1
	5HP 1Ph Motor	30-0029-510	1
	5HP 3Ph Motor	30-0029-530	1
	5HP 575V 3Ph Motor	30-0029-535	1
9	Bulkhead Connector Assembly	09-0013	1
	Bulkhead Connector Assembly, 5HP 1Ph	09-0014	1
10	O-Ring Motor Base Plate	49-0038	1
11	1/4"NPT S/S Plug	46-0105-250	2
12	Ground Clip	47-0002	1
13	M8 x 30 Self Sealing Hex Bolt	22-0020	4
14	M4 x 16 Panhead Phillips Screw	24-0010	4
15	#8 x 1" Self Tapping Flathead Screw	24-0014	4
16	M5 Nylon Locknut *	26-0006	4
17	M4 Flat Washer	28-0014	4
18	M4 Split Lock Washer	28-0015	4
19	Crimp Connector, Small	33-0028-001	**
	Crimp Connector, Medium	33-0028-002	**
20	Capacitor/Start Switch, 1HP 1Ph	15-0024	1
	Capacitor/Start Switch, 2HP 1Ph	15-0025	
	Capacitor, 3HP 1Ph & 5HP 1Ph	36-0005	
	Capacitor 5HP 1PH, NEW MOTOR	36-0006	2
21	Ring Connector, 12-10awg ***	33-0029	1

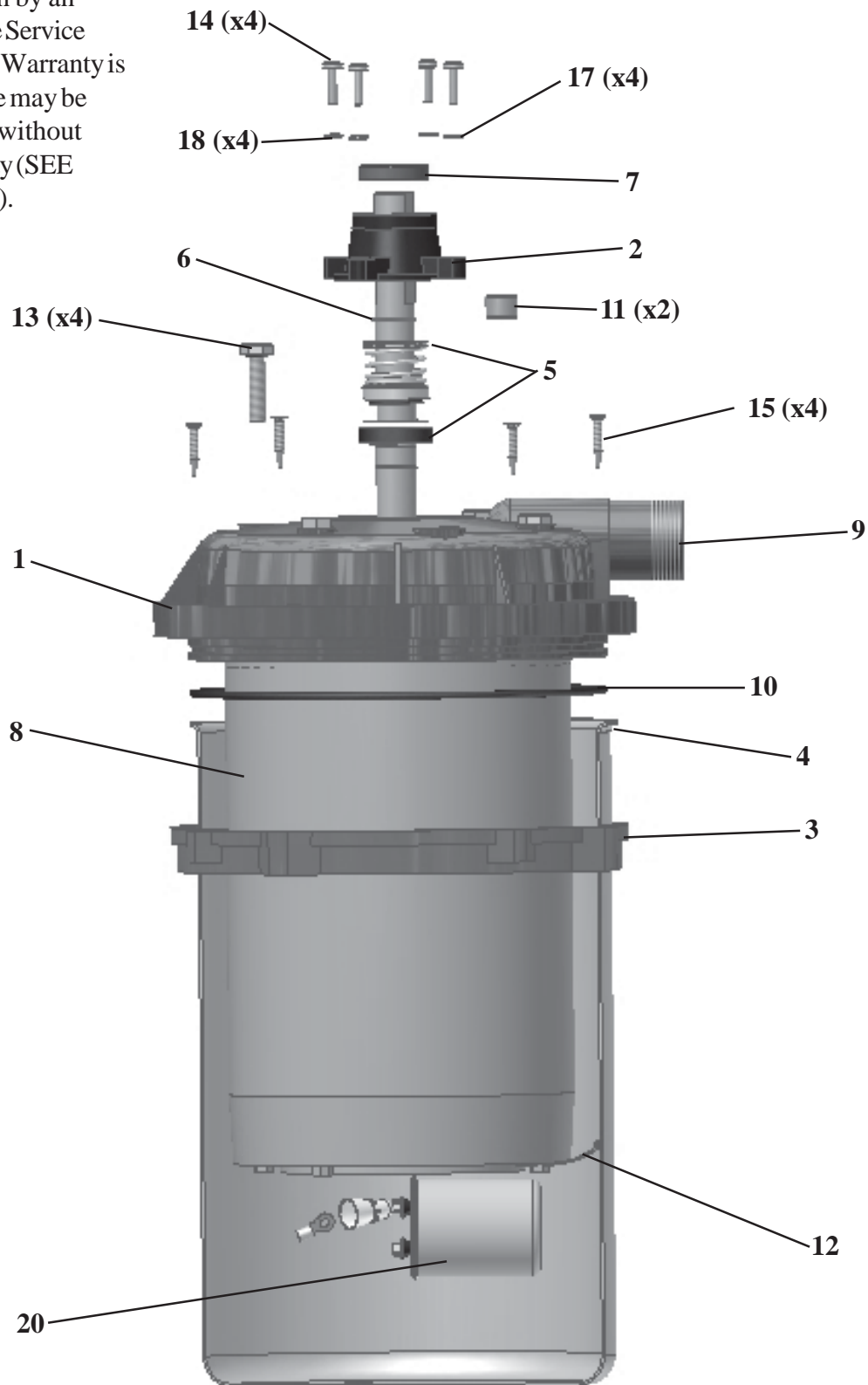
* Locknuts used to mount Standoff Strainer Assembly (P/N 10-0061) to the Power Unit

** Quantity and size of crimp connector dependent on HP and voltage of unit

*** Part of Bulkhead Connector Assembly (Item No. 7)

Power Unit - Figure 12

Note: The Power Unit should ONLY be worked on by an Authorized Otterbine Service Center otherwise the Warranty is VOID. An oil change may be done by the end user without effecting the Warranty (SEE Maintenance Section).



Screen Installation - Figure 13

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

1/4" Screen Kit #12-0075:

QTY	DESCRIPTION	PART #
9	1" Fender Washers	800-011
9	S/S Sheet Metal Screws	BP2803B
1	C3 1/4" Screen	15-0022

1/2" Screen Kit #12-0076:

QTY	DESCRIPTION	PART #
9	1" Fender Washers	800-011
9	S/S Sheet Metal Screws	BP2803B
1	C3 1/2" Screen	15-0023

- A. Place the unit upside down on blocks so the pump chamber does not get damaged.**
- B. Pull screen over motor unit until it reaches the lip on the float.**
- C. Make sure the cord/cords are running through the cord bushing in the screen.**
- D. Fasten the screen to the lip on the float with the washers and screws provided so they are evenly spaced around the diameter.**

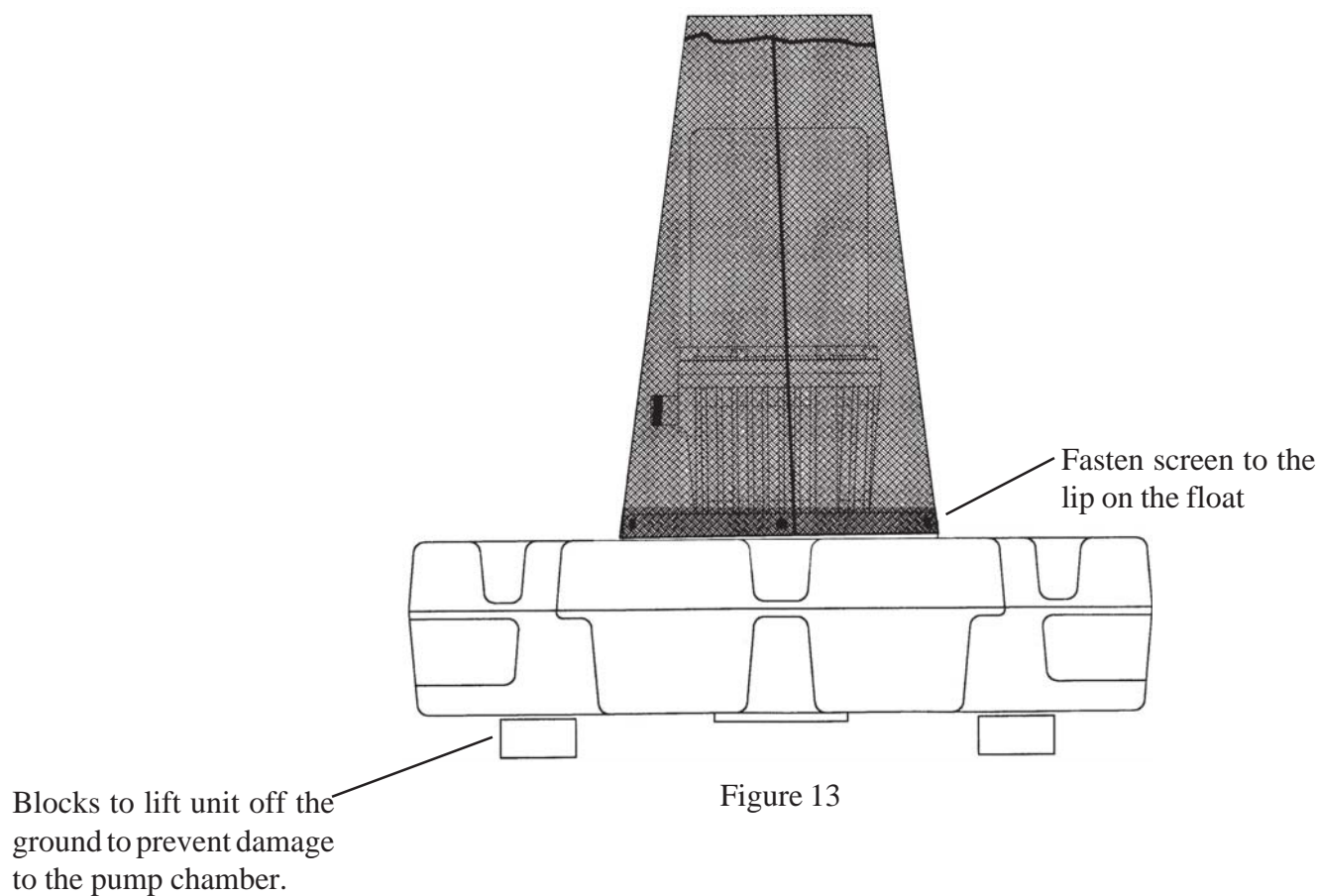


Figure 13

Trouble Shooting Guide

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

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

Concept₃ Technical Data - Domestic

Subject to change without notice (Updated 8/26/2003)

Model	HP	Electrical Rating	Motor RPM	Amps	Spray Height (feet)	Spray Diameter (feet)	Pumping Rate (GPM)	Induced Circ. Rate (GPM)	Min. Operating Depth (inches)
Sunburst	1	115V 1Ph 60Hz	3450	14	4	15	530	5300	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	4	15	530	5300	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	7	24	640	6400	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	10	30	775	7750	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	10	30	775	7750	30
	3	460V 3Ph 60Hz	3450	4.3	10	30	775	7750	30
	5	230V 1Ph 60Hz	3450	23	11	40	1100	11000	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	11	40	1100	11000	30
	5	460V 3Ph 60Hz	3450	7.2	11	40	1100	11000	30
	5	575V 3Ph 60Hz	3450	5.5	11	40	1100	11000	30
Gemini	1	115V 1Ph 60Hz	3450	14	5	10	555	5550	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	5	10	555	5550	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	9	16	665	6650	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	12	24	800	8000	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	12	24	800	8000	30
	3	460V 3Ph 60Hz	3450	4.3	12	24	800	8000	30
	5	230V 1Ph 60Hz	3450	23	15	34	1125	11250	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	15	34	1125	11250	30
	5	460V 3Ph 60Hz	3450	7.2	15	34	1125	11250	30
	5	575V 3Ph 60Hz	3450	5.5	15	34	1125	11250	30
Rocket	1	115V 1Ph 60Hz	3450	14	11-13	5	110	1100	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	11-13	5	110	1100	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	17-19	5	155	1550	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	20-22	8	200	2000	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	20-22	8	200	2000	30
	3	460V 3Ph 60Hz	3450	4.3	20-22	8	200	2000	30
	5	230V 1Ph 60Hz	3450	23	23-25	8	290	2900	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	23-25	8	290	2900	30
	5	460V 3Ph 60Hz	3450	7.2	23-25	8	290	2900	30
	5	575V 3Ph 60Hz	3450	5.5	23-25	8	290	2900	30

Concept₃ Technical Data - Domestic

Subject to change without notice (Updated 8/26/2003)

Model	HP	Electrical Rating	Motor RPM	Amps	Spray Height (feet)	Spray Diameter (feet)	Pumping Rate (GPM)	Induced Circ. Rate (GPM)	Min. Operating Depth (inches)
Saturn	1	115V 1Ph 60Hz	3450	14	1.5	7	400	4000	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	1.5	7	400	4000	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	3	11	480	4800	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	4.5	20	580	5800	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	4.5	20	580	5800	30
	3	460V 3Ph 60Hz	3450	4.3	4.5	20	580	5800	30
	5	230V 1Ph 60Hz	3450	23	5	24	825	8250	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	5	24	825	8250	30
	5	460V 3Ph 60Hz	3450	7.2	5	24	825	8250	30
	5	575V 3Ph 60Hz	3450	5.5	5	24	825	8250	30
Constellation					Lower Upper	Lower Upper			
	1	115V 1Ph 60Hz	3450	14	2 4	18 9	150	1500	30
	1	208-230V 1Ph 60Hz	3450	8.3-7.5	2 4	18 9	150	1500	30
	2	208-230V 1Ph 60Hz	3450	13.7-12.4	2 6	28 14	210	2100	30
	3	208-230V 1Ph 60Hz	3450	15.5-14	3 9	35 17	275	2750	30
	3	208-230V 3Ph 60Hz	3450	9.7-8.6	3 9	35 17	275	2750	30
	3	460V 3Ph 60Hz	3450	4.3	3 9	35 17	275	2750	30
	5	230V 1Ph 60Hz	3450	23	3 10	36 18	400	4000	30
	5	208-230V 3Ph 60Hz	3450	15.1-13.4	3 10	36 18	400	4000	30
	5	460V 3Ph 60Hz	3450	7.2	3 10	36 18	400	4000	30
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

Concept₃ Technical Data - Domestic

Subject to change without notice (Updated 8/26/2003)

Model	HP	Electrical Rating	Motor RPM	Amps	Spray Height (feet)			Spray Diameter (feet)			Pumping Rate (GPM)	Induced Circ. Rate (GPM)	M in. Operating Depth (inches)
Tri-Star					Lower	Middle	Upper	Lower	Middle	Upper			
	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					Lower	Upper		Lower	Upper				
	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					Lower	Upper		Lower	Upper				
	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

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

HP - Horsepower

V - Voltage

Ph - Phase

Hz - Hertz

RPM - Revolutions per Minute

GPM - Gallons per Minute

m³/hr - Cubic Meters per Hour

cm - Centimeters

Model	HP	Electrical Rating	Motor RPM	Amps	Spray Height (meters)			Spray Diameter (meters)			Pumping Rate (m³/hr)	Induced Circ. Rate (m³/hr)	Min. Operating Depth (cm)
Sunburst	1	220/240V 1Ph 50Hz	2875	8.3	1.2			5.0			114.4	1144	75
	2	220/240V 1Ph 50Hz	2875	12.6	2.0			7.3			138.1	1381	75
	3	220/240V 1Ph 50Hz	2875	13.5	2.9			8.6			167.2	1672	75
	3	380/415V 3Ph 50Hz	2875	4.0	2.9			8.6			167.2	1672	75
	3	380V 3Ph 60Hz	3350	4.6	2.9			8.6			167.2	1672	75
	5	380/415V 3Ph 50Hz	2875	7.0	3.2			11.6			237.3	2373	75
	5	380V 3Ph 60Hz	3350	7.6	3.2			11.6			237.3	2373	75
Gemini	1	220/240V 1Ph 50Hz	2875	8.3	2.0			4.0			119.7	1197	75
	2	220/240V 1Ph 50Hz	2875	12.6	2.6			4.7			143.5	1435	75
	3	220/240V 1Ph 50Hz	2875	13.5	3.5			6.9			172.6	1726	75
	3	380/415V 3Ph 50Hz	2875	4.0	3.5			6.9			172.6	1726	75
	3	380V 3Ph 60Hz	3350	4.6	3.5			6.9			172.6	1726	75
	5	380/415V 3Ph 50Hz	2875	7.0	4.4			9.5			242.7	2427	75
	5	380V 3Ph 60Hz	3350	7.6	4.4			9.5			242.7	2427	75
Rocket	1	220/240V 1Ph 50Hz	2875	8.3	3.8-4.4			1.5			23.7	237	75
	2	220/240V 1Ph 50Hz	2875	12.6	4.9-5.5			1.5			33.4	334	75
	3	220/240V 1Ph 50Hz	2875	13.5	5.6-6.2			2.4			43.2	432	75
	3	380/415V 3Ph 50Hz	2875	4.0	5.6-6.2			2.4			43.2	432	75
	3	380V 3Ph 60Hz	3350	4.6	5.8-6.4			2.4			43.2	432	75
	5	380/415V 3Ph 50Hz	2875	7.0	5.6-6.2			2.4			43.2	432	75
	5	380V 3Ph 60Hz	3350	7.6	5.8-6.4			2.4			43.2	432	75
Tri-Star					Lower	Middle	Upper	Lower	Middle	Upper			
	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	7.0	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					Lower	Upper		Lower	Upper				
	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	7.0	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

Model	HP	Electrical Rating	Motor RPM	Amps	Spray Height (meters)		Spray Diameter (meters)		Pumping Rate (m ³ /hr)	Induced Circ. Rate (m ³ /hr)	Min. Operating Depth (cm)
Saturn	1	220/240V 1Ph 50Hz	2875	6.2	0.5		2.1		86.3	863	75
	2	220/240V 1Ph 50Hz	2875	10.8	0.9		3.3		103.6	1036	75
	3	220/240V 1Ph 50Hz	2875	11.6	1.4		6.1		125.1	1251	75
	3	380/415V 3Ph 50Hz	2875	3.4	1.4		6.1		125.1	1251	75
	3	380V 3Ph 60Hz	3350	4.6	1.4		6.1		125.1	1251	75
	5	380/415V 3Ph 50Hz	2875	6.0	1.5		7.0		178.0	1780	75
	5	380V 3Ph 60Hz	3350	7.6	1.5		7.3		178.0	1780	75
Comet	1	220/240V 1Ph 50Hz	2875	8.3	2.8-3.4		1.5		28.0	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	7.0	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
Constellation					Lower	Upper	Lower	Upper			
	1	220/240V 1Ph 50Hz	2875	8.3	0.6	1.2	5.4	2.7	32.4	324	75
	2	220/240V 1Ph 50Hz	2875	12.6	0.6	1.8	7.6	3.7	45.3	453	75
	3	220/240V 1Ph 50Hz	2875	13.5	0.9	2.4	9.6	4.6	59.3	593	75
	3	380/415V 3Ph 50Hz	2875	4.0	0.9	2.4	9.6	4.6	59.3	593	75
	3	380V 3Ph 60Hz	3350	4.6	0.9	2.7	10.6	5.2	59.3	593	75
	5	380/415V 3Ph 50Hz	2875	7.0	0.9	2.4	9.6	4.6	59.3	593	75
	5	380V 3Ph 60Hz	3350	7.6	0.9	2.7	10.6	5.2	59.3	593	75
					Lower	Upper	Lower	Upper			
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	7.0	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
					Lower	Upper	Lower	Upper			

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.

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**: 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 units out of the water:

-ROCKET₃
-PHOENIX₃
-TRI-STAR₃
-CONSTELLATION₃
-COMET₃
-GENESIS₃

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

The **Gemini₃**, **Saturn₃**, and the **Sunburst₃** pump higher volumes of water and the spray pattern will not freeze as easily. These units will freeze in if the weather stays severe for a long enough period of time. You can decrease the chance of freezing in if you run these units 24 hours a day during long periods of extremely cold weather.

WARNING:

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

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 hereinbelow set forth, that should the **OTTERBINE** product prove defective by reason of improper workmanship or materials at any time during the warranty period the Purchaser at retail will be guaranteed that **BAREBO** will repair or replace the said **OTTERBINE** product as may be necessary to restore it to satisfactory operating condition, without any charge for materials or labor necessarily incident to such repair or replacement, provided that:

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

www.otterbine.com