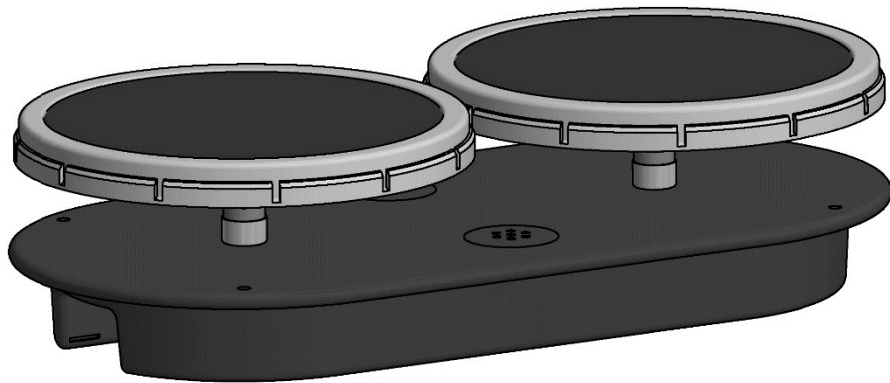
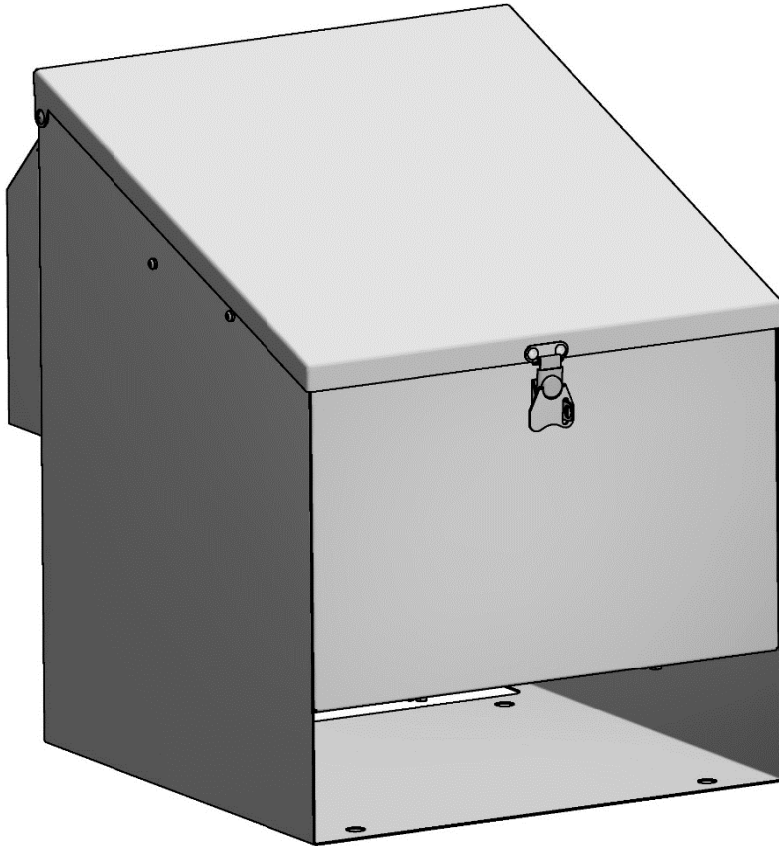




# Otterbine Barebo Inc. AirFlo 3 Diffused Aeration Installation Manual



## AIRF LO 3 EQUIPMENT

### A. Unpack and Inspect

1. Inspect the AirFlo 3 System received and report any shipping damage to the carrier which delivered your Otterbine aeration system.

### B. Check Equipment Received is as Specified

1. Compressor Cabinet: Constructed of 304 Stainless Steel this houses the air compressors, valve manifolds, ventilation fans and the main switch. Check the nameplate to verify you have received the correct AirFlo 3 compressor cabinet and voltage rating for the system ordered. (See Illustration on Page 3)

### C. Tubing

1. Verify that you have received the correct type and quantities of tubing kits, poly unweighted and/or weighted, for your application.

### D. Air Diffuser Manifold Base

1. Check the correct quantity and types, single or dual disc, Diffuser Manifold Base/s were received. (See Page 8)

For proper warranty consideration register on line: [www.otterbine.com/warrantyform](http://www.otterbine.com/warrantyform) or return warranty registration card by mail to **OTTERBINE** within fifteen (15) days of receipt by the Purchaser at retail in order to avoid delays:

## INSTALLATION TOOLS AND EQUIPMENT

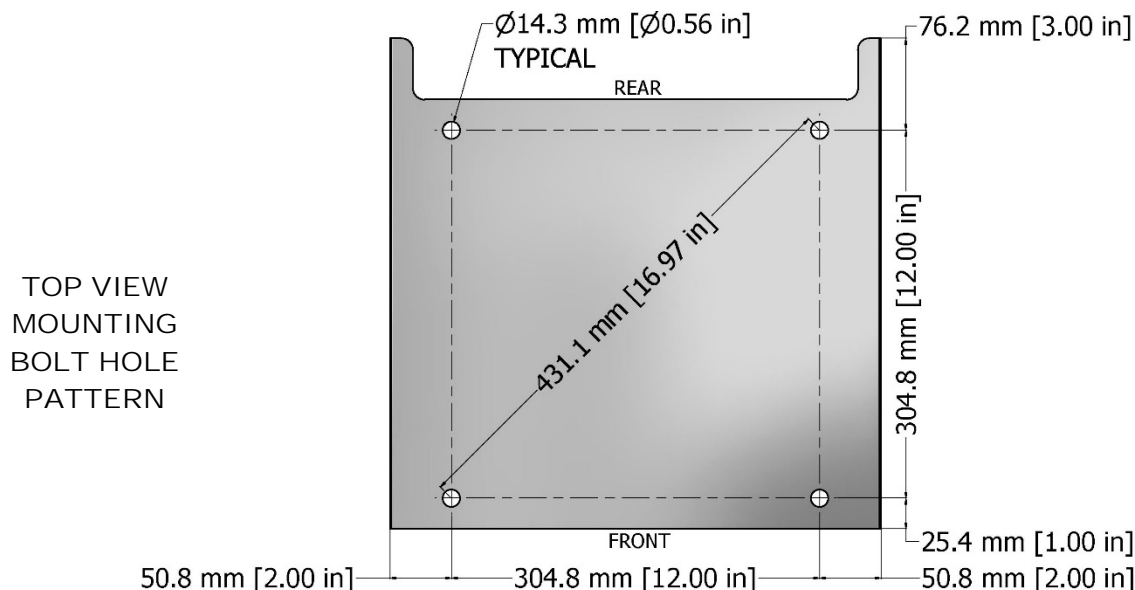
### A. Basic Installation Tools and Materials Required for Installation

1. All-purpose gravel: For weighting the Disc Diffuser Manifold Bases, approximately 20lbs. per Diffuser Manifold Bases.
2. 100' lengths of 1/8" Nylon Rope for installing Disc Diffuser Manifold Bases.
3. Shovel and Pick, Level, possibly a boat or raft.
4. Hand Tools: 5/16" Nut Driver or Wrench, Adjustable Wrench, Pump Pliers, Tubing Cutter or Utility Knife.

## COMPRESSOR CABINET INSTALLATION

### A. Placement

1. Select a location for the AirFlo 3 compressor cabinet where it will not be exposed to flooding or corrosive chemicals.
2. Allow a minimum of 6" (15 cm) clearance on all sides of the AirFlo 3 cabinet to any walls or other obstructions.
3. To provide flexibility for mounting the AirFlo 3 compressor cabinet four (4) mounting holes are provided on the bottom of the cabinet which will accept up to a 1/2" or M14 size bolt. The AirFlo 3 cabinet should be placed directly on a level prepared gravel or concrete base, or equipment pad.



## ELECTRICAL INSTALLATION

**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**

### **CAUTION: GFCI PROTECTION 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

### **WARNING: RISK OF ELECTRIC SHOCK**

The AirFlo 3 must be connected to a grounded, metallic, permanent wiring system  
Ground the compressor cabinet to the ground wire lead provided back to the service using a copper conductor at least the size of the circuit conductors supplying the cabinet.

#### **A. Branch Circuit Sizing (All valves must be in the open position before initial operation)**

1. The branch circuit feeding the Otterbine AirFlo 3 must be sized in accordance with all applicable codes and **must provide GFCI (Ground Fault Circuit Interruption)/RCD (Residual Current Device)** and short circuit protection. Refer to the nameplate label on the compressor cabinet above the electrical connection box for voltage and current requirements. The on/off switch provided with the AirFlo 3 **does not provide personal (GFCI / RCD) electrical shock protection.**

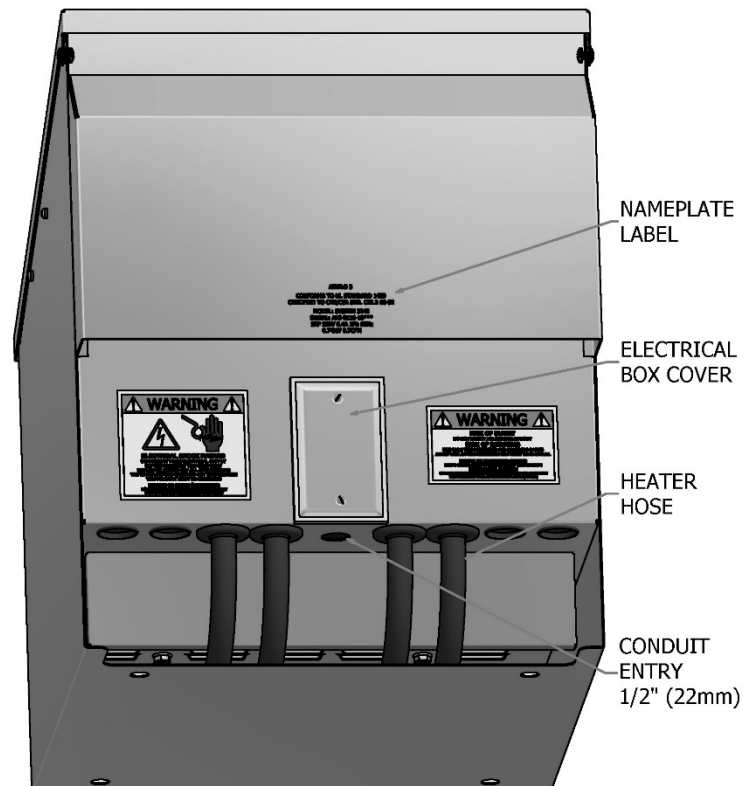
#### **B. Electrical Connection**

1. The AirFlo 3 is not considered to be portable equipment and therefore **flexible cord shall not be used** to connect the cabinet to the power source. The electrical connection must be considered permanent and suitable for a NEMA 3R / IP34 environment.

2. A 1/2" (22mm) trade size conduit entry is located at the bottom rear of the cabinet. If using PVC conduit it is important to provide an expansion coupling at the entry to the compressor cabinet.

3. To make the conduit and wiring connections remove the electrical compartment cover shown on right. Pull the exposed field wiring connection leads inside the electrical compartment before making the conduit connection.

4. When the field conduit and wiring is installed connect the field wiring to the wiring leads provided in the electrical compartment. Refer to electrical schematic provided with the Otterbine AirFlo 3 System. Replace the electrical compartment cover when complete.



**ELECTRICAL COMPARTMENT ON REAR OF COMPRESSOR CABINET**

## TUBING CONNECTIONS

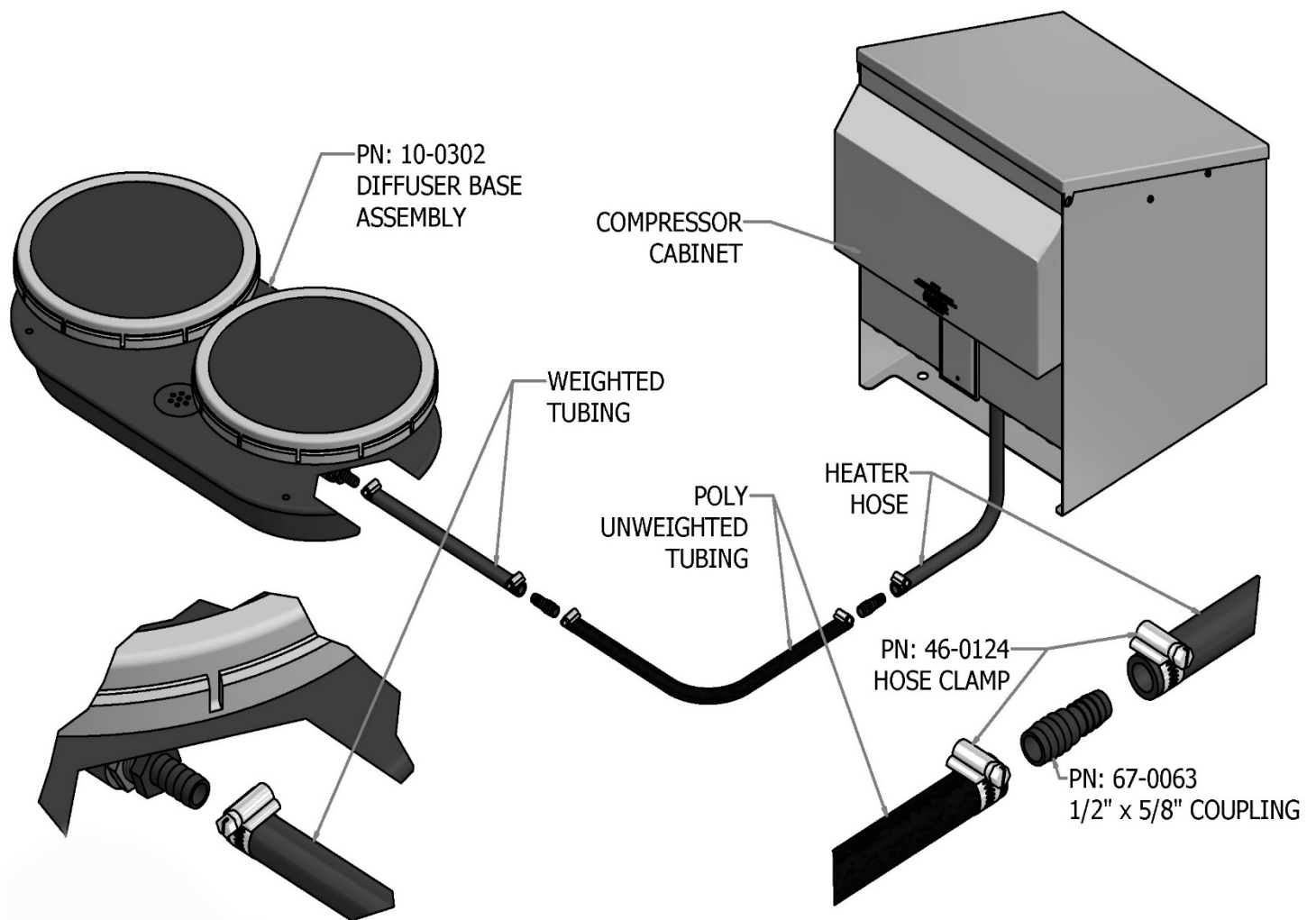
### A. Trenching

1. Determine the location where the air tubing will enter the water and dig a trench back to the compressor cabinet deep enough to bury the Poly Unweighted Tubing.

### B. Tubing Connections

1. Measure the distance between the compressor cabinet and the water's edge, prepare a length of Poly Unweighted Tubing for each diffuser manifold provided.
2. Use the couplings and clamps provided in PN: 12-0019 to couple each length of poly tubing to the heater hose protruding from the rear of the compressor cabinet as shown.
3. Determine the distance between each Diffuser Manifold Base (PN: 10-0301 or PN: 10-0302) location and where the Unweighted Poly Tubing ends. Prepare a length of the Weighted Tubing for each Diffuser Manifold.
4. Use couplings and clamps provided to connect the Weighted Tubing to the Poly Unweighted Tubing as shown below.
5. Using the hose clamps provided to fasten each Diffuser Manifold Base to the Weighted Tubing as shown.

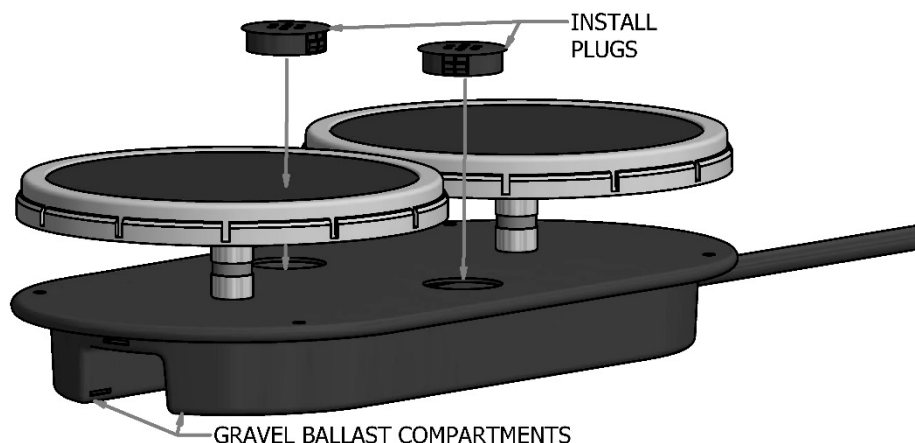
## AIRFLO 3 SYSTEM OVERVIEW



## DISC DIFFUSER BASE INSTALLATION

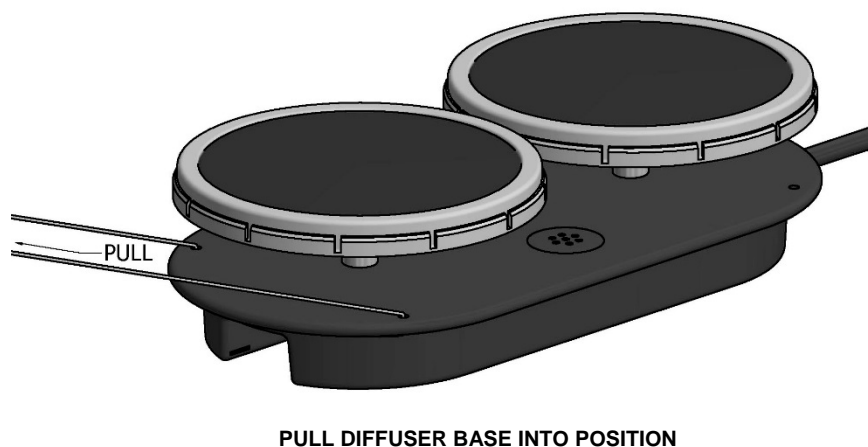
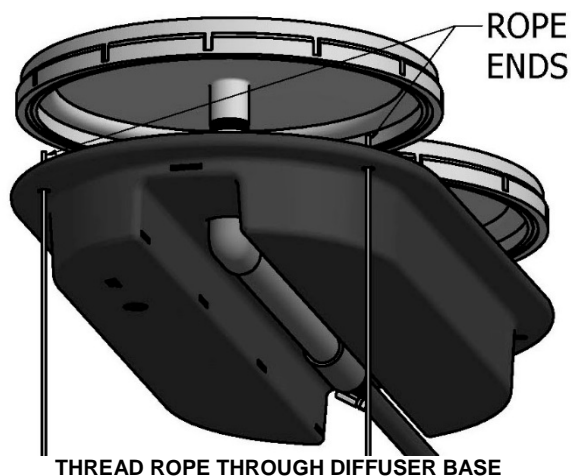
### A. Ballast with Gravel

1. Fill the two (2) gravel compartments of each Diffuser Manifold Base with 10-12 pounds of all-purpose gravel or until full. Install the plugs provided (PN: 41-0276).



### B. Place Diffuser Manifold Base

1. To place the Diffuser Manifold Base from the shore take an appropriate length of 1/8" nylon rope and from the bottom of the base thread each end up through the two (2) holes opposite the weighted tubing as shown.
2. When power is available to the Compressor Cabinet, **FULLY OPEN (TURN COUNTER-CLOCKWISE) ALL VALVES ON ALL MANIFOLDS** (See Page 6) and turn the switch inside to **ON**. Operating the compressor/s while placing the Diffuser Manifold Base will help keep them right side up.
3. While holding both ends of the rope pull the pad into the desired position.
4. To remove the rope, pull one (1) end. If tying two (2) lengths of rope together be certain to pull the correct end with respect to the knot.
5. Use the same method placing the Diffuser Base from a boat except two (2) ropes may be used on each end of the pad.



## AIRFLO 3 SYSTEM OPERATION

### A. CAUTION: The AirFlo 3 May Re-start Automatically

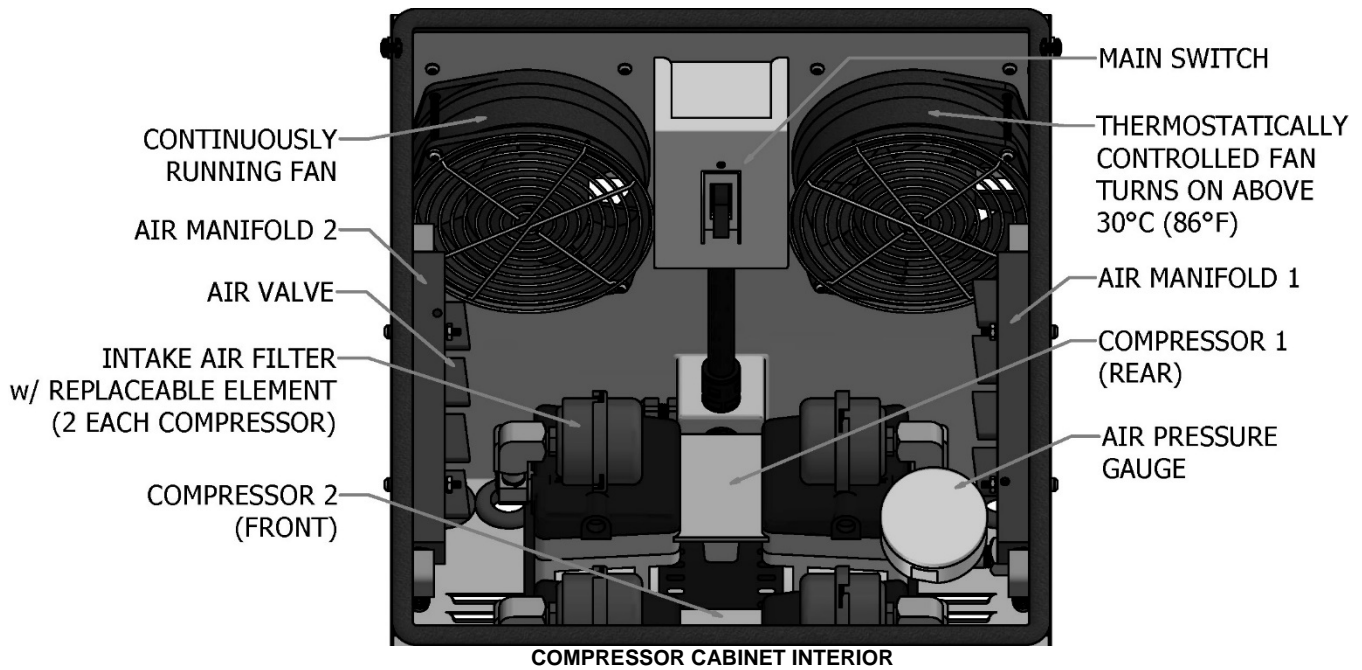
1. In the event of a compressor motor fault the internal motor thermal protection switch may trip shutting off the AirFlo 3 compressor. When cooled sufficiently the thermal switch will reset automatically which may cause the compressor to start suddenly. If this re-occurs, turn the main switch down to OFF and contact an authorized service center.

### B. Cabinet Ventilation

**IMPORTANT:** For proper Compressor Cabinet ventilation the cover must be kept closed and latched during operation.

1. There are two (2) cabinet ventilation fans. The right rear fan is thermostatically controlled and will start only when internal cabinet temperature is above 30°C (86°F).
2. The fan on the left rear will operate continuously under normal conditions. If this fan is not operating when the main switch is ON it must be replaced.





### B. Balancing Diffusers

1. **ALL VALVES MUST BE IN OPEN (VERTICAL) POSITION BEFORE STARTING.** (See below)
2. Turn the Main Switch up to **ON**.
3. The Air Pressure Gauge reading is at the minimum at this point.
4. Beginning with the Diffuser Manifold Bases in the **shallowest** depths, start turning clockwise (closing) the valves until air begins to rise from the deeper bases. Continue slowly adjusting the valves from the shallowest bases to the deepest until the diffused air pattern rising from each base appears to be equal. This will take some trial and error.

**The valve supplying the Diffuser Manifold Base deepest in the water will remain fully open.**

5. **IMPORTANT:** While balancing the diffused air patterns in the water attempt to maintain the **lowest possible** reading on the air pressure gauge. Keeping the air pressure reading low as possible translates to the highest possible volume (CFM) of air being distributed to the Diffuser Manifold Bases.



**MANIFOLD VALVES SHOWN FULLY OPEN IN THE VERTICAL POSITION**

### **IMPORTANT START-UP WARNING: RISK OF FISH KILL**

When the oxygen level is less than 1PPM at the depth of the Diffuser Base, avoid the rapid release of noxious gas having the potential to kill fish by adhering to the Otterbine recommended operation guideline below.

### AIRFLO 3 INITIAL START-UP DAILY OPERATING TIMES

- DAY 1: **1 HOUR**
- DAY 2: **3 HOURS**
- DAY 3: **8 HOURS**
- DAY 4: **24 HOURS**

## **END USER MAINTENANCE**

**ALWAYS SWITCH OFF/DISCONNECT ALL EQUIPMENT FROM THE SUPPLY CIRCUIT BEFORE SERVICING OR PERFORMING ANY MAINTENANCE**

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

**REGULARLY INSPECT THE AIRFLO 3 SYSTEM AND MAINTAIN FOR PROPER OPERATION**

### **A. It is Important to Keep Fresh Air intake Vents Open**

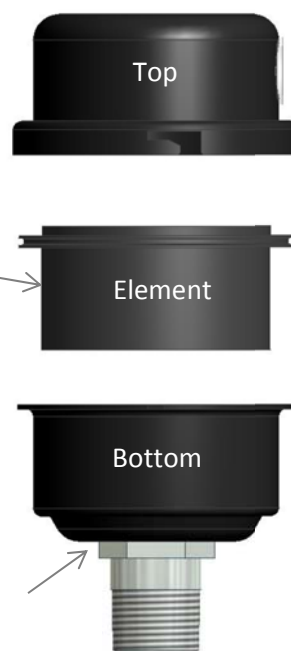
1. Always keep the inside and outside of intake vents clear and free of debris. These are located beneath the compressors on the bottom of the cabinet.

### **B. Compressor Air Filter Element**

1. Check the intake filters (See Compressor Assembly on Page 8) after the first 500 hours of operation to determine how frequently filters shall be checked during future operation. Replace if necessary.
2. The environment in which the AirFlo 3 operates will be a factor determining the air filter element replacement interval. It is suggested to replace the elements a minimum of once a year or more often as necessary.
3. To check and/or replace the filter element remove the top housing. Place a 5/8" wrench on the hex at the base of the bottom filter housing and hold in place while twisting the top housing clockwise.

### **No Lubrication Required**

1. The compressors are oil-less and require NO lubrication.



Air Filter Replacement Element  
Otterbine PN: 46-0162

### **FOR PARTS**

Contact the nearest Otterbine Service Center or the Otterbine factory directly

Visit [www.otterbine.com](http://www.otterbine.com) or

Phone 1-800-237-8837 or 1-610-965-6018

## **SERVICING**

**SERVICE AND REPAIRS TO THE PRODUCT MUST BE PERFORMED BY AN AUTHORIZED SERVICE FACILITY**

Service et la réparation du produit doivent être effectuées par un centre de service autorisé

### **A. Compressor**

1. Under normal operating conditions it is recommended to rebuild the compressor piston and valve assemblies every one (1) year or less in harsh operating conditions.

Service available through your local Otterbine service center

Compressor Rebuild Kit, Otterbine PN: 12-0028

For other service or repair to the compressor contact the nearest GAST distributor.

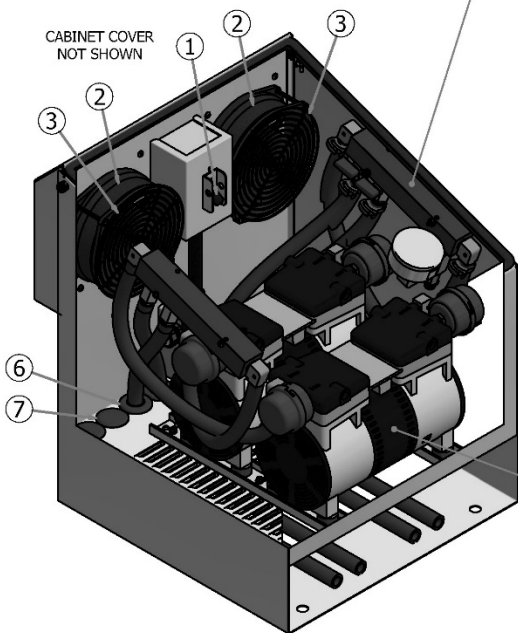
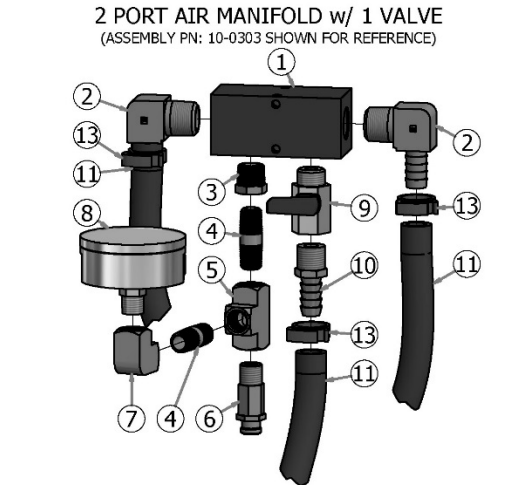
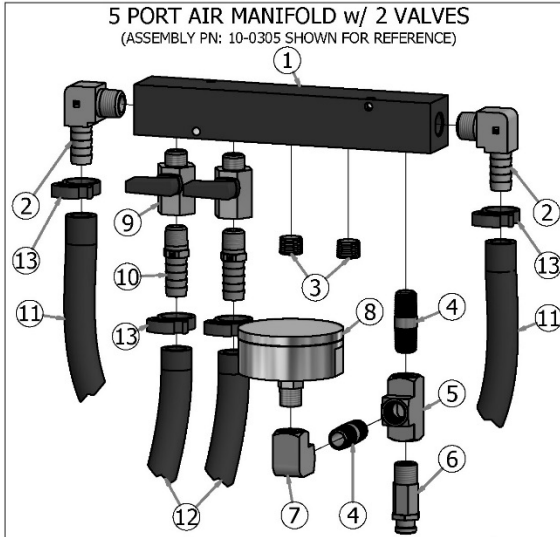
For information refer to the GAST warranty at the end of this manual or visit,

[www.gastmfg.com](http://www.gastmfg.com)

## COMPRESSOR CABINET COMPONENTS EXPLODED VIEWS

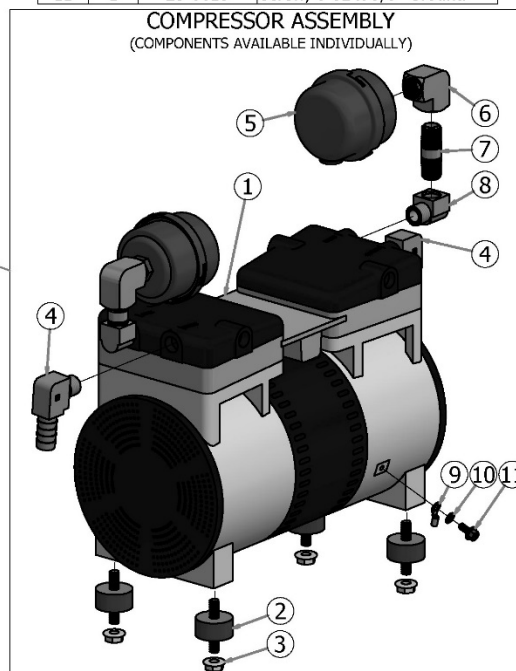
5 Port Air Manifold Parts			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	67-0057	Manifold, 5 Outputs
2	2	67-0061	Elbow, 1/2" Barb to 3/8MNPT
3	2	46-0105-250	Plug, 1/4 NPT Brass
4	2	67-0065	Nipple, 1/4NPT x 1-1/2" Brass
5	1	67-0052	Tee, 1/4NPT Female Brass
6	1	67-0035	Valve, 1/4NPT Pressure Relief
7	1	67-0054	Elbow, 1/4NPT Brass
8	1	67-0055	Gauge, 1/4NPT, 0-60 Air Pressure
9	2	67-0053	Valve, 1/4" NPT Mini Ball
10	2	67-0030	Fitting, 1/2" Barb x 1/4MNPT Adapter
11	2	46-0122	Heater Hose, Short, 16" (41cm)
12	Varies	46-0122	Heater Hose, Long, 30" (76cm)
13	Varies	46-0074	Clamp, 1" Snap Grip Hose

2 Port Air Manifold Parts			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	67-0058	Manifold, 2 Outputs
2	2	67-0067	Elbow, 1/2" Barb to 1/2MNPT
3	1	67-0024	Bushing, 3/8 x 1/4 Brass Reducing
4	2	67-0065	Nipple, 1/4NPT x 1-1/2" Brass
5	1	67-0052	Tee, 1/4NPT Female Brass
6	1	67-0035	Valve, 1/4NPT Pressure Relief
7	1	67-0054	Elbow, 1/4NPT Brass
8	1	67-0055	Gauge, 1/4NPT, 0-60 Air Pressure
9	1	67-0059	Valve, 3/8" NPT Ball
10	1	67-0068	Fitting 1/2" Hose Barb x 3/8MNPT
11	2	46-0122	Heater Hose, Short, 16" (41cm)
12	Varies	46-0122	Heater Hose, Long, 30" (76cm)
13	Varies	46-0074	Clamp, 1" Snap Grip Hose



Compressor Assembly Parts			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	30-0040	Compressor, 1/2HP 115/230V, 1Ph, 50/60Hz
2	4	46-0140	Foot, Vibration Dampener
3	4	26-0001	Nut, 1/4-20 Hex Flange
4	2	67-0060	Elbow, 1/2" Barb to 1/4MNPT
5	2	46-0062	Silencer/Filter, Intake
6	2	67-0054	Elbow, 1/4NPT Brass
7	2	67-0065	Nipple, 1/4NPT x 1-1/2" Brass
8	2	67-0038	Elbow, 1/4NPT Brass Street
9	1	178-003B	Terminal, 16-14 Ring
10	1	28-0022	Washer, M4 Internal Tooth
11	1	25-0013	Screw, 8-32 x 3/8" Ground

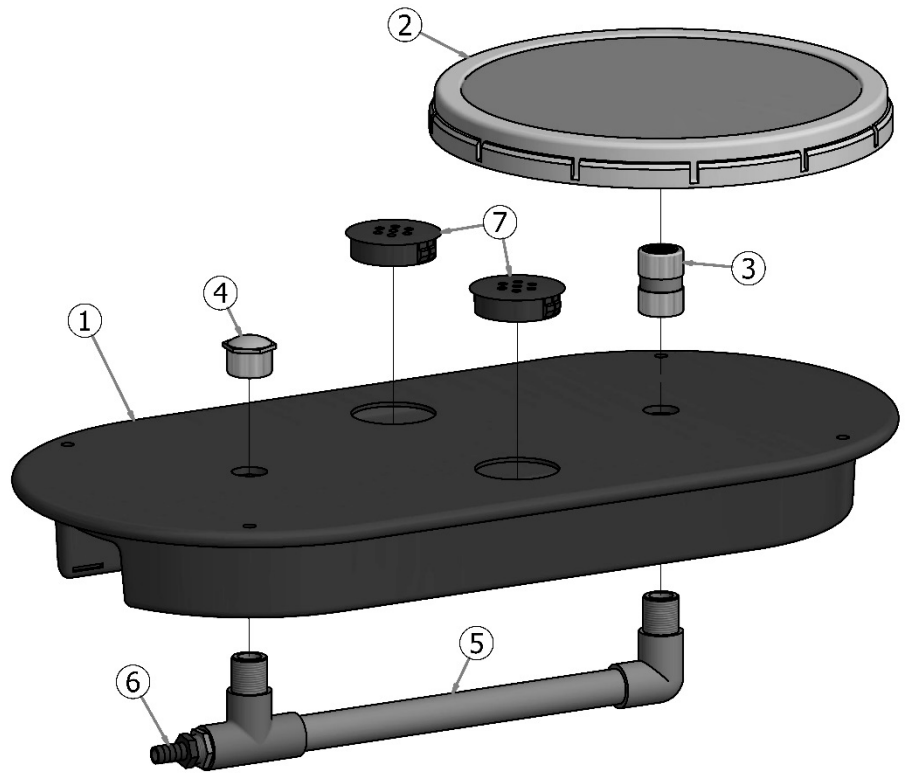
Cabinet Parts			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	31-0290	Switch, Motor Starter
2	2	31-0291	Fan, Cabinet Cooling 115V 50/60Hz
		31-0292	230V 50/60Hz
3	2	46-0072	Grille, Cooling Fan
4	1	34-0013	Cord, Cooling Fan (not shown)
5	1	34-0016	Cord w/ Thermostat, Cooling Fan (not shown)
6	Varies	46-0071	Grommet, Heater Hose
7	Varies	46-0063	Plug, Vinyl





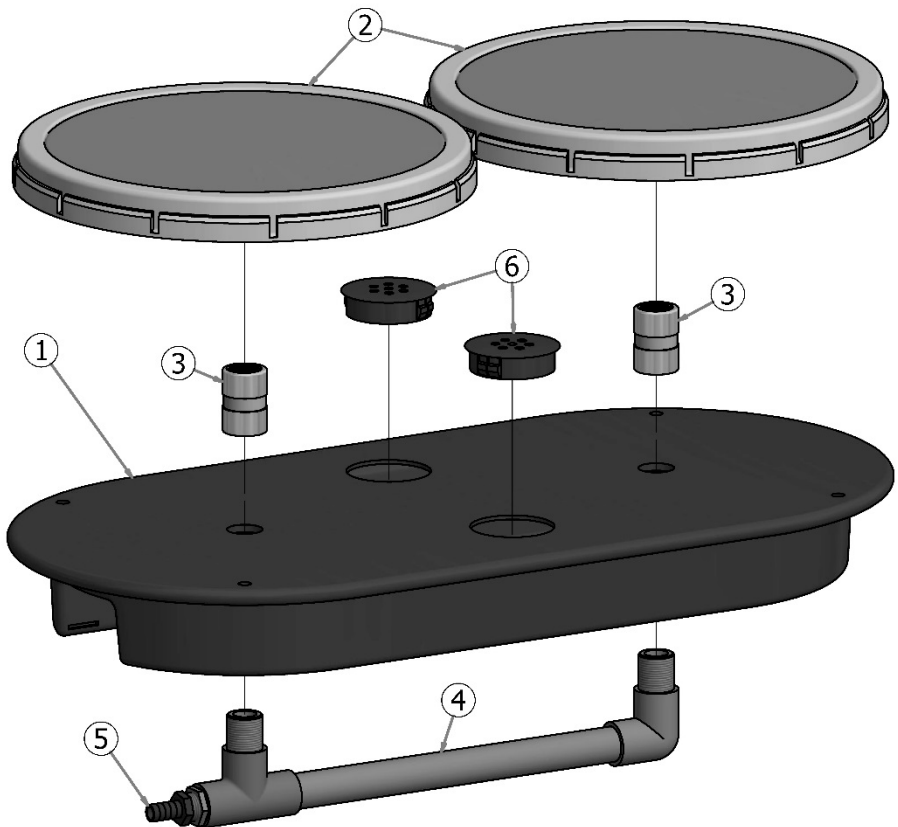
### DISC DIFFUSER BASE COMPONENTS

PN: 10-0301, 1 Disc Diffuser Base			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	42-0008	Base, Diffuser
2	1	46-0069	Disc Diffuser, 12"
3	1	65-0062	Coupling
4	1	65-0063	Cap
5	1	10-0300	Manifold, Diffuser
6	1	67-0064	Adapter, Hose Barb
7	2	41-0276	Plug, Diffuser Base



### PN: 10-0301, SINGLE DISC DIFFUSER BASE

PN: 10-0302, 2 Disc Diffuser Base			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	42-0008	Base, Diffuser
2	2	46-0069	Disc Diffuser, 12"
3	2	65-0062	Coupling
4	1	10-0300	Manifold, Diffuser
5	1	67-0064	Adapter, Hose Barb
6	2	41-0276	Plug, Diffuser Base



### PN: 10-0302, DUAL DISC DIFFUSER BASE

**Limited Warranty**  
**3 Years Compressor, 5 Years Diffuser & Cabinet, 15 Years Tubing**  
**Otterbine® Air-Flo 3**

WARRANTY: Barebo, Inc. 3840 Main Road East, Emmaus Pennsylvania 18049, U.S.A. hereby warrants subject to the conditions here in below set forth, that should the OTTERBINE AirFlo 3 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 AirFlo 3 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 AirFlo 3 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 Air Flo 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 AirFlo 3 must not have been removed or altered: and
- d) The OTTERBINE AirFlo 3 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 AirFlo 3.

No implied warranties of any kind are made by BAREBO in connection with this OTTERBINE AirFlo 3, and no other warranties, whether expressed or implied, including implied warranties of merchantability and fitness for a particular purpose, shall apply to this OTTERBINE AirFlo 3. Should this OTTERBINE AirFlo 3 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 AirFlo 3, 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.

## **GAST COMPRESSOR WARRANTY INFORMATION**

86R & 87R Series Rocking Piston Oil-less Pump

### **WARRANTY POLICY**

Gast finished products, when properly installed and operated under normal conditions of use, are warranted by Gast to be free from defects in material and workmanship for a period of twelve (12) months from the date of purchase from Gast or an authorized Gast Representative or Distributor. In order to obtain performance under this warranty, the buyer must promptly (in no event later than thirty (30) days after discovery of the defect) give written notice of the defect to Gast Manufacturing Incorporated, PO Box 97, Benton Harbor Michigan USA 49023-0097 or an authorized Service Center (unless specifically agreed upon in writing signed by both parties or specified in writing as part of a Gast OEM Quotation). Buyer is responsible for freight charges both to and from Gast in all cases.

This warranty does not apply to electric motors, electrical controls, and gasoline engines not supplied by Gast. Gast's warranties also do not extend to any goods or parts which have been subjected to misuse, lack of maintenance, neglect, damage by accident or transit damage.

THIS EXPRESS WARRANTY EXCLUDES ALL OTHER WARRANTIES OR REPRESENTATIONS EXPRESSED OR IMPLIED BY ANY LITERATURE, DATA, OR PERSON. GAST'S MAXIMUM LIABILITY UNDER THIS EXCLUSIVE REMEDY SHALL NEVER EXCEED THE COST OF THE SUBJECT PRODUCT AND GAST RESERVES THE RIGHT, AT ITS SOLE DISCRETION, TO REFUND THE PURCHASE PRICE IN LIEU OF REPAIR OR REPLACEMENT.

GAST WILL NOT BE RESPONSIBLE OR LIABLE FOR INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND, however arising, including but not limited to those for use of any products, loss of time, inconvenience, lost profit, labor charges, or other incidental or consequential damages with respect to persons, business, or property, whether as a result of breach of warranty, negligence or otherwise. Notwithstanding any other provision of this warranty, BUYER'S REMEDY AGAINST GAST FOR GOODS SUPPLIED OR FOR NON-DELIVERED GOODS OR FAILURE TO FURNISH GOODS, WHETHER OR NOT BASED ON NEGLIGENCE, STRICT LIABILITY OR BREACH OF EXPRESS OR IMPLIED WARRANTY IS LIMITED SOLELY, AT GAST'S OPTION, TO REPLACEMENT OF OR CURE OF SUCH NONCONFORMING OR NON-DELIVERED GOODS OR RETURN OF THE PURCHASE PRICE FOR SUCH GOODS AND IN NO EVENTS SHALL EXCEED THE PRICE OR CHARGE FOR SUCH GOODS. GAST EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE WITH RESPECT TO THE GOODS SOLD. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS SET FORTH IN THIS WARRANTY, notwithstanding any knowledge of Gast regarding the use or uses intended to be made of goods, proposed changes or additions to goods, or any assistance or suggestions that may have been made by Gast personnel.

Unauthorized extensions of warranties by the customer shall remain the customer's responsibility.

CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF GAST PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES.

This warranty can be modified only by authorized Gast personnel by signing a specific, written description of any modifications.

To process any WARRANTY related activity on the AirFlo 3 Product  
Contact the nearest Otterbine Service Center or the Otterbine factory directly  
Visit [www.otterbine.com](http://www.otterbine.com) or  
Phone 1-800-237-8837 or 1-610-965-6018

# *Water Works With Otterbine!*



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

**TOLL FREE: 1-800-AER8TER (237-8837)**

**PHONE: 610-965-6018**

**FAX: 610-965-6050**

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

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