Water Works With Otterbine

AIRFLO II

Owner's Manual

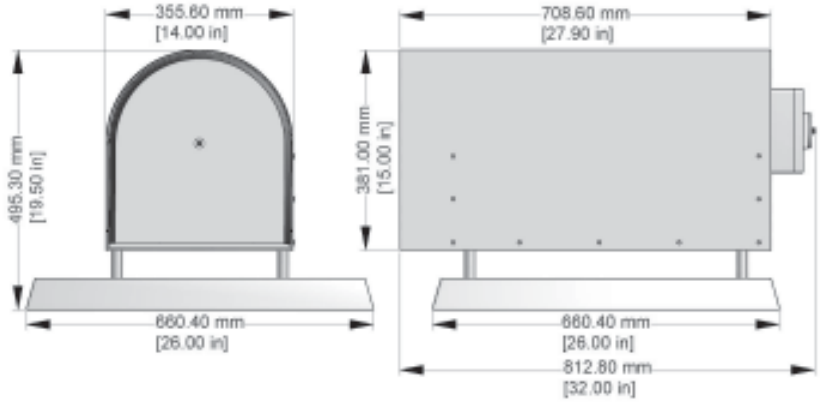
A Guide to More Dependable
Water Quality Management
With Otterbine Barebo Incorporated's
Diffused Air Aeration Systems

www.otterbine.com

Welcome Aboard!
Welcome to the growing family of people who depend on aeration systems for better water quality control and aesthetic improvement. All of us at Otterbine Barebo, Inc. appreciate your confidence in our product.

Water Quality Specialists
Barebo, Inc. is a team of scientists, engineers, and crafts persons who specialize in efforts to improve water quality. Otterbine aeration systems 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.

Follow the Guidelines
You'll find guidelines for installing, operating, and maintaining your aeration system 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 aeration system.



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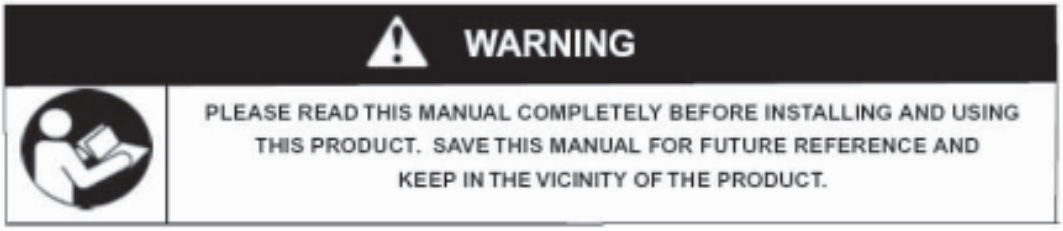
P/N: 75-0002 Revised 11/25/08

AirFlo II Safety Instructions



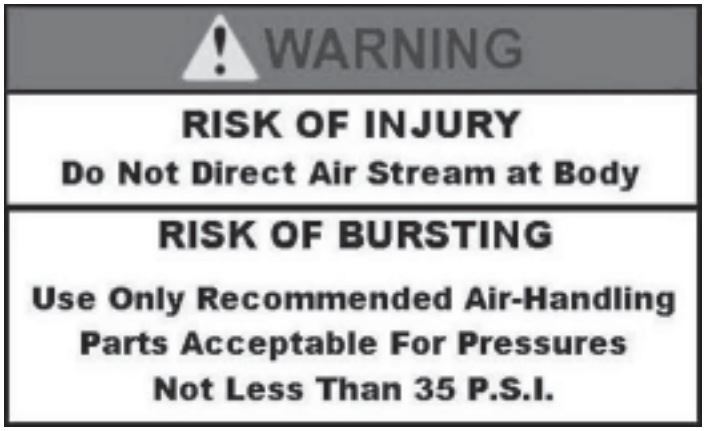
Many Important Safety Messages Are Provided On The Product And In This Manual. Always Read And Obey All Safety Messages.

All Electrical Work Must Be Performed By A Qualified Licensed Electrician and must conform with local and national electrical codes.

Safety messages placed on the AirFlo II housing identify safety hazards and tell you how to avoid the risk of injury. Therefore, it is important to follow instructions. Before performing any type of maintenance, i.e. intake air and muffler filter replacement, diffuser pad cleaning and/or repair, or troubleshooting **always** disconnect electrical power from the AirFlo II unit.

The AirFlo II must be connected to a properly grounded permanent wiring system. In the event of an electrical short circuit, grounding reduces the risk of electrical shock by providing an escape wire for the electrical current.

The circuit feeding the disconnect must be sized in accordance with all applicable codes and provide, GFCI (Ground fault circuit interuption) or RCD (Residual Current Device), short circuit, and overcurrent protection.



The AirFlo II uses a piston compressor which under normal operation will not exceed 35 P.S.I., but is capable of producing very high air pressures. Disconnect power from the unit and make certain air pressure is released from the unit when making plumbing connections or servicing.

AirFlo II Equipment

1. Unpack and inspect: Inspect the AirFlo II System and report any shipping damage to the carrier who delivered your Otterbine aeration system. Make sure you have received the following.

2. Compressor Housing (Figure 6a): This houses the air compressors, air outlet valves, ventilation fan and electrical components. Check the nameplate to verify you have recieved the correct AirFlo 2 system and voltage rating, two 24”(60cm) lengths of heater hose and two hose clamps.

Figure 6a: AirFlo 2 Compressor

3. Tubing: Verify that you have received the correct quantity and type of tubing kits, poly unweighted and/or weighted **(Figure 6b)**.

4. Valve Manifold and Valve Box (Page 9): The typical system includes an irrigation type valve box and valve manifold assemblies. Valve configuration and quantity depend on the type of AirFlo II system ordered.

5. Air Diffuser Manifolds (Figure 6c & 6d): Check that you have the correct quantity and type of diffuser manifold kit(s) ordered with the AirFlo II System, Dome or Stone type diffusers.

Figure 6b: Poly Unweighted (Top) & Weighted Tubing (Bottom)

Figure 6c: AirFlo II Dome Diffuser Kit

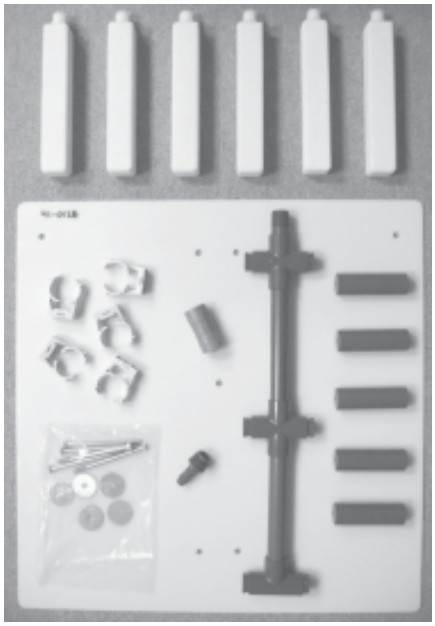


Figure 6d: AirFlo II Stone Diffuser Kit

Installation Tools & Equipment

Some basic tools and materials required for installation:

1. Gravel or Stone: (Aprox. 2 Cu. Ft.)
2. 1/8" Nylon Rope: 30'(10m) to 50'(13m)
3. Hand Tools: 5/16" & 7/16” Nut Driver or Wrench, Adjustable Wrench (1-11/16” jaw capacity)**, Pump Pliers, Tubing Cutter or Utility Knife** (To cut tubing)
4. Level
5. Shovel & Pick
6. Buoys: one empty plastic bottle for each diffuser.
7. Boat or Raft
8. Sand: 30 Lb.(0.85kg) (Dome Diffuser Assembly Only)

Electrical Installation

All Electrical Work Must Be Performed By A Qualified Licensed Electrician And Conform With All Applicable Local And National Electrical Codes

The AirFlo II must be connected to a grounded, metallic, permanent wiring system, or an equipment-grounding terminal or lead on the product.

1. Branch Circuit Sizing: The branch circuit feeding the disconnect switch on the AirFlo II unit must be sized in accordance with all applicable codes and provide GFCI (Ground fault circuit interuption) / RCD (Residual Current Device) and short circuit protection. Refer to the unit nameplate for electrical voltage and current requirements. The electrical disconnect switch provided with the AirFlo II is only a means for electrically disconnecting the power to the unit and does not provide personal (GFCI / RCD) or equipment protection.

2. Conduit Installation: The AirFlo II **is not** considered to be portable equipment and therefore flexible cord should not be used. The **electrical installation must be considered permanent** and suitable for a NEMA 3R / IP34 environment. It is recommended to run at least a 3/4"(19mm) rigid nonmetallic conduit (PVC) from the bottom of the AirFlo II electrical disconnect to the power source buried a minimum of 18"(50cm) below ground surface. Install a conduit expansion fitting just below the disconnect to allow for possible movement of the unit. If using direct burial cable, conduit should be used as a sleeve to protect the cable down to a minimum depth of 24"(70cm).

AirFlo 2 System Specifications

System	Comp. Units	Diffuser Pads	Affected Area		Operating Depth		Volume Influenced		Volts/Amps/Hz. @ 28PSI 1Ø Only
			Acres	m^2	Feet	Meters	GPM	m^3/ hr	
1	1	2	To 1/2 To 1 To 3 To 3	To 2023 To 4047 To 12140 To 12140	4-7 8-14 14-19 20-40	1.2-2.1 2.4-4.3 4.3-5.8 6.1-12.2	2250 3250 3750 4000+	511 738 852 908+	115V/8A/60Hz 230V/3A/60Hz 220V/2.75A/50Hz
2	1	1	To 1/2 To 1 To 3	To 2.02 To 4047 To 12140	8-26 14-26 19-40	2.4-7.9 4.3-7.9 5.8-12.2	4000+ 4000+ 4000+	908+ 908+ 908+	115V/8A/60Hz 230V/3A/60Hz 220V/2.75A/50Hz
3	2	4	To 1 To 5	To 4047 To 20234	4-7 8-18	1.2-2.1 2.4-5.5	2250 3750	511 852	115V/14.5A/60Hz 230V/6A/60Hz 220V/5A/50Hz
4	2	6	To 3 To 8 To 12	To 12140 To 32375 To 48562	4-7 8-18 14-18	1.2-2.1 2.4-5.5 4.3-5.5	2250 3250 3750	511 738 852	115V/14.5A/60Hz 230V/6A/60Hz 220V/5A/50Hz
5	1	3	To 3	To 12140	8-14	2.4-4.3	3250	738	115V/8A/60Hz 230V/3A/60Hz 220V/2.75A/50Hz
6	2	2	To 5	To 20234	19-26 26-40	5.8-7.9 7.9-12.2	4000+	908+	115V/14.5A/60Hz 230V/6A/60Hz 220V/5A/50Hz

Pumping rates may vary due to voltage, elevation and relative humidity. Specifications are subject to change.

Compressor Housing Installation

1. When Selecting A Location: Be certain to select a location for the AirFlo II compressor housing where it **will not** be exposed to flooding, corrosive chemicals such as pesticides and herbicides, or ambient air temperatures above 40 C (104 F). Keep the area around the AirFlo II compressor housing clear of weeds and debris to provide for proper ventilation. Overheating may occur if air intake is blocked. The AirFlo 2 has a built-in high temperature shut-down safety system that will turn off the unit if overheating does occur, when the temperature drops down to an acceptable level the system will automatically re-start.

2. Excavation: The AirFlo II compressor housing unit is pre-mounted on a plastic base that is intended to be set on a level gravel or stone base to provide for drainage and prevent movement **(See Figure 8a).** Dig out an area about 32"(80cm)W x 32"(80cm)L x 4"(10cm)D. Pour the aggregate into the hole allowing it to remain about 1"(2.5cm) higher than the ground surface after compacting the base and ensure the surface is level.

3. Housing Placement: Place the compressor housing with the air intake end (opposite the electrical disconnect) facing the shore area for ease of installation. The AirFlo II housing must be setting on a level surface to help prevent water from entering the housing.

4. Trenching: After determining the location of the valve box (using the guidelines on page 8) dig a trench about 18"(50cm) deep between the compressor housing and the valve box location to bury the unweighted poly tubing.

5. Connect the Tubing: For access to the air flow control valves remove the air intake filter cover by removing the 1/4" nut in the center of the cover . Install a 24"(61cm) length of heater hose (pre-cut and included) on to the valve(s) and secure using the hose clamp(s) provided **(See Figure 8a)**. **It is important not to attach any other type of tubing directly to the compressor, the heat from the compressor will cause a failure.** A minimum of two feet of the high temperature heater hose must be connected between the compressor and the poly tubing. Connect a length of unweighted poly tubing to the heater hose using the brass barbed coupling and two hose clamps. The fittings used to connect to the heater hose must be brass or stainless steel. Use the same procedure to couple to the poly tubing for distances over 100'(47m) to the valve manifold box.

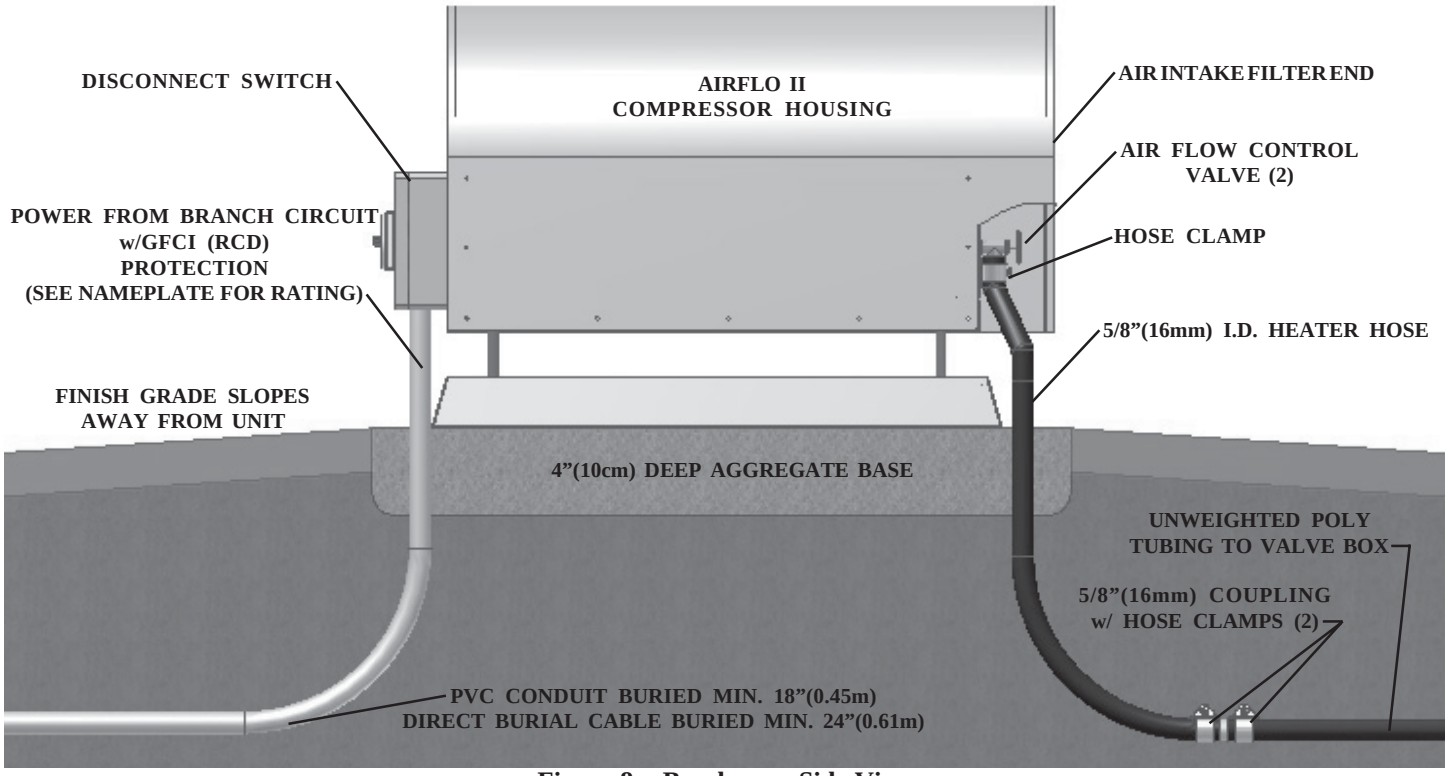


Figure 8a: Breakaway Side View

Valve Box Installation

1. Location: The valve manifold box distributes the air flow through the weighted tubing to the various diffuser manifolds. If possible, place the valve manifold box in a location where it will allow a clear line of sight to the diffuser manifolds it serves. The location is important because the valves will be used for balancing the flow of air to the diffusers. It is also important to locate the valve box where there will be good drainage away from the box.

2. Excavation: The size of the hole you excavate will depend upon the size of valve box you have. Excavate at least 4”(10cm) deeper than the depth of the box to allow room for an aggregate base providing drainage and allow 4”(10cm) to 6”(15cm) extra for the length and width. **(See Figure 9a).** Before placing the box fill the bottom of the hole with at least 4”(10cm) of gravel or stone and enough to keep the top rim flush with the ground surface. When backfilling lightly tamp the soil around the box as you fill in the hole and keep the finished grade sloping away from the top of the valve box entry.

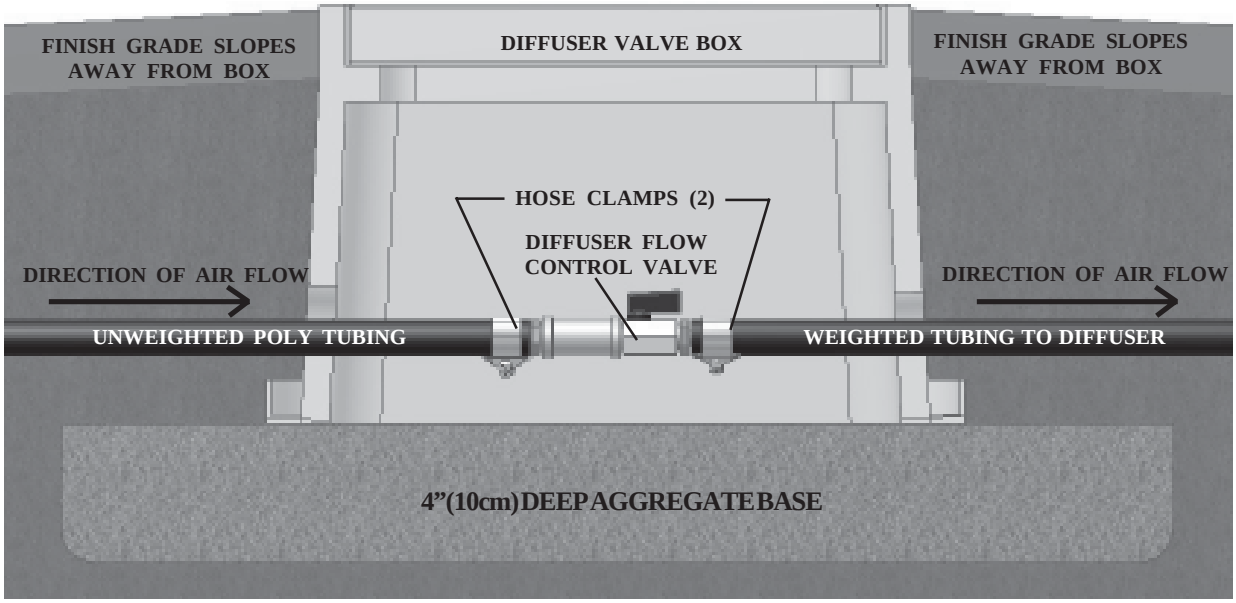


Figure 9a: Valve Box Installation

3. Valve Connections: The valve assembly **(See Figure 9b)** distributes the flow of air from the compressor unit to the diffusers. Connect the poly tubing (4) coming from the compressor unit to the inlet of the valve assembly and fasten with a hose clamp (6). Connect the weighted tubing (1) that runs to each of the diffuser manifolds to a valve outlet and fasten with a hose clamp (3). The couplings (2 & 5) are used to connect multiple lengths of tubing. The valves are used to balance the flow evenly between all of the diffuser manifolds. Valves are closed when the handle is perpendicular to the valve body and full open when it is parallel to the valve body.

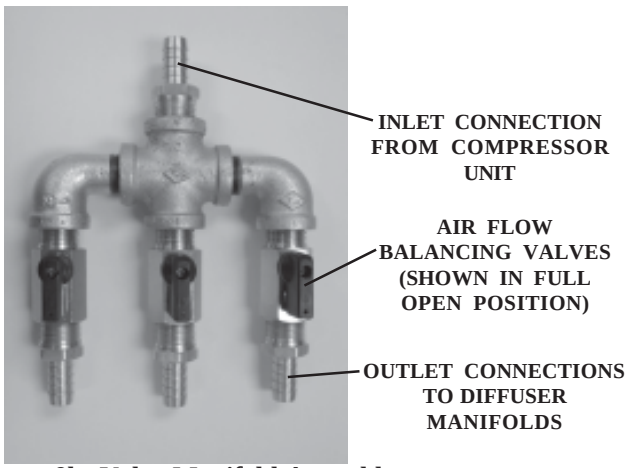


Figure 9b: Valve Manifold Assembly

Item No	Description	Qty.	Part Number
100' Weighted Tubing Kit			**12-0093-100**
1	Weighted PVC Tubing	100'	46-0125-100
2	1/2" Brass Barbed Coupling	1	67-0008
3	Hose Clamp	2	46-0124
100' Unweighted Poly Tubing Kit			**12-0094-100**
4	Unweighted Poly Tubing	100'	46-0080
5	5/8" Brass Barbed Coupling	1	67-0029
6	Hose Clamp	2	46-0124

Dome Diffuser Assembly

Item	Description	Qty.	Part Number
1	Ballasted Sand Base	1	42-0060
2	Sand Base Plug	1	46-0046
3	9" Disc Diffuser	4	46-0016
4	Dome Diffuser Manifold Assembly	1	10-0002
5	Hose Clamp	3	46-0124
6	3/4" PVC Barbed Hose Adapter	1	65-0044
7	Check Valve	1	65-0045
8	3/4" NPT Sch 40 PVC Nipple	1	65-0046

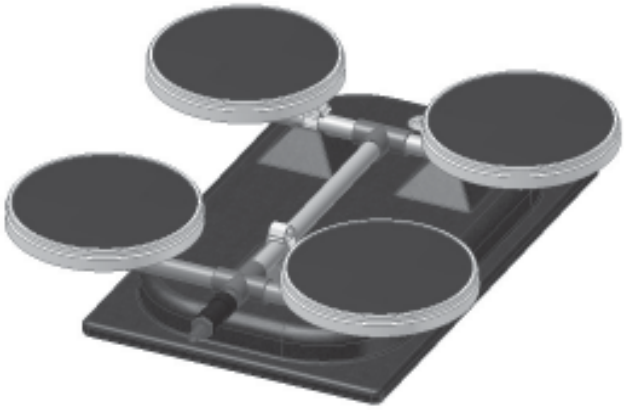


Figure 10a: Dome Diffuser Assembly

1. Fill the Sand Base: The Dome Diffuser Assembly consists of a weighted plastic sand base (1) and a PVC diffuser manifold (4) for the four EPDM bladder type dome diffusers. The diffuser manifold arrives attached to the empty sand base, you will need about 30lb.(0.85kg) sand to fill the base. Stand the base on end with the hole to the top, pour the sand into the hole of the base using a funnel with a large stem. When the base is filled insert the plug provided.

2. Assemble the Check Valve: Thread the check valve (7) on to the pipe nipple (8), the arrows on the check valve indicate the direction of the air flow and must point towards the manifold piping assembly. The check valve will help to prevent the back flow of water into the air line when the compressor is not in operation. Apply thread sealant to the barbed fitting (6) and screw into the check valve, do not over-tighten. **(See Figure 10b)**

2. Assemble the Disc Diffusers: Apply thread sealant to the threads of the dome diffusers (3) and thread into the elbows of the manifold assembly (4). Repeat this for all remaining diffusers. To avoid damage to the PVC fittings only thread the dome in until it is hand-tight, **Do Not Over-Tighten!**

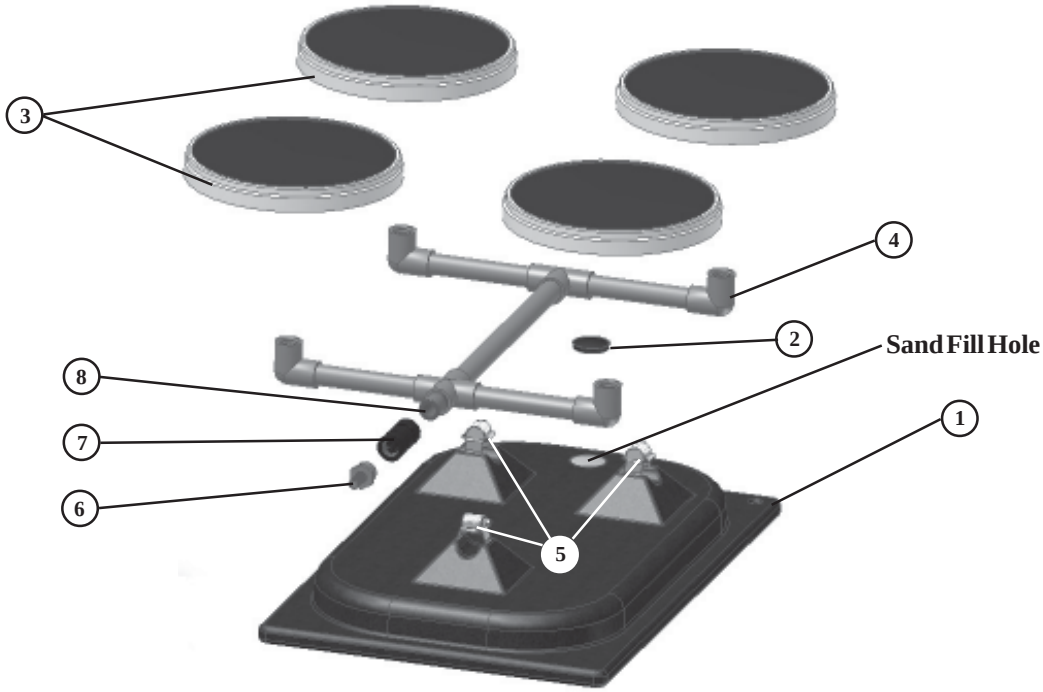


Figure 10b: Exploded View of Dome Diffuser Assembly

Stone Diffuser Assembly

Item	Description	Qty	Part Number
1	Diffuser Manifold Barrier	1	41-0128
2	PVC Barbed Adaptor	1	65-0044
3	Check Valve	1	65-0045
4	Manifold Piping Assembly	1	10-0071
5	Diffuser Stone	6	10-0070
6	PVC Standoff	5	41-0132
7	Self-Locking Pipe Clamp	5	46-0130
8	1/4"-20 S/S Clamp Adaptor	5	46-0111
9	1/4"-20 x 4.5" S/S Hex Bolt	5	22-0028
10	1/4" S/S Fender Washer	5	28-0001

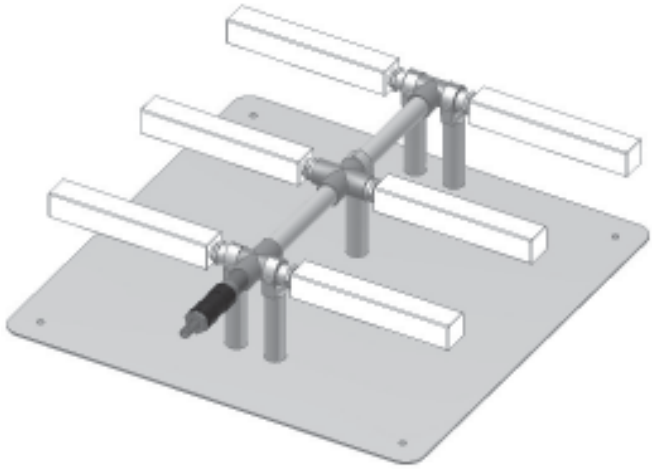


Figure 11a: Completed Diffuser Assembly

1. Mounting Standoffs: Locate the five holes in the center of the manifold barrier (1), place the fender washers on to the hex bolts (9) and insert the bolts through the holes from the bottom of the barrier. Slide the PVC standoffs (6) over the bolts from the top side and thread the pipe clamps (7) on to the bolts **(See Figure 11b)**. The 1/4”-20 S/S threaded adaptor nut (8) is pressed into the pipe clamp for the bolt to fasten to. Do not tighten the bolts. This will be the last step.

2. Assemble the Check Valve: Thread the check valve (3) and PVC barbed adaptor (2) into the manifold piping assembly (4) as shown. Do not overtighten. Make sure the arrow on the check valve is pointing towards the manifold assembly in the direction of the air flow. The check valve will help to prevent the back flow of water into the air line when the compressor is not in operation.

3. Mount the Diffuser Manifold: Insert the manifold piping assembly (4) into the open pipe clamps (7) **(See Figure 11a)**. Compress the sides of each clamp together around the piping until they click closed, locking the manifold in position. Tighten the hex bolts to secure the PVC Standoffs to the Barrier.

4. Install the Diffusers: Thread the six diffuser stones (5) into the manifold piping assembly (4) **(Shown in Figure 11b)**. To avoid damage to the fittings only turn the diffuser in until it is hand-tight, **Do Not Over-Tighten!** Do not apply thread sealant.

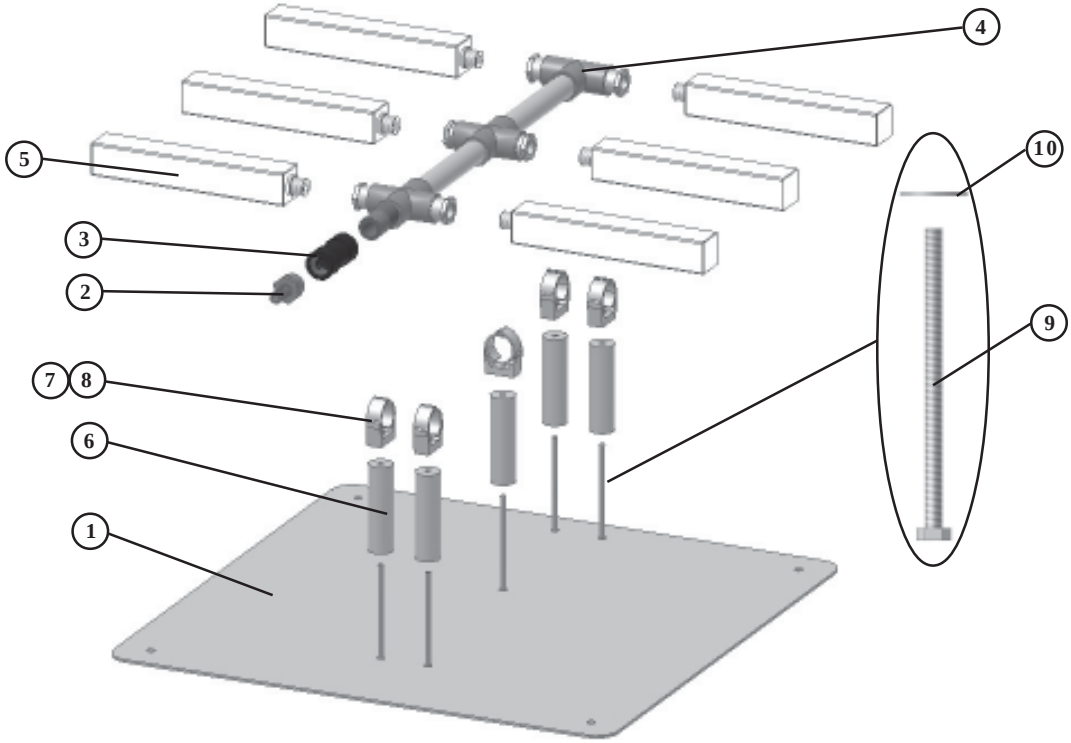


Figure 11b: Exploded View of Diffuser Assembly

Diffuser Placement

Placement is crucial to how quickly and efficiently your Otterbine AirFlo II aerator is able to aerate your pond. **Figure 12a** shows the most common pond shapes and the most effective diffuser placement in these ponds.

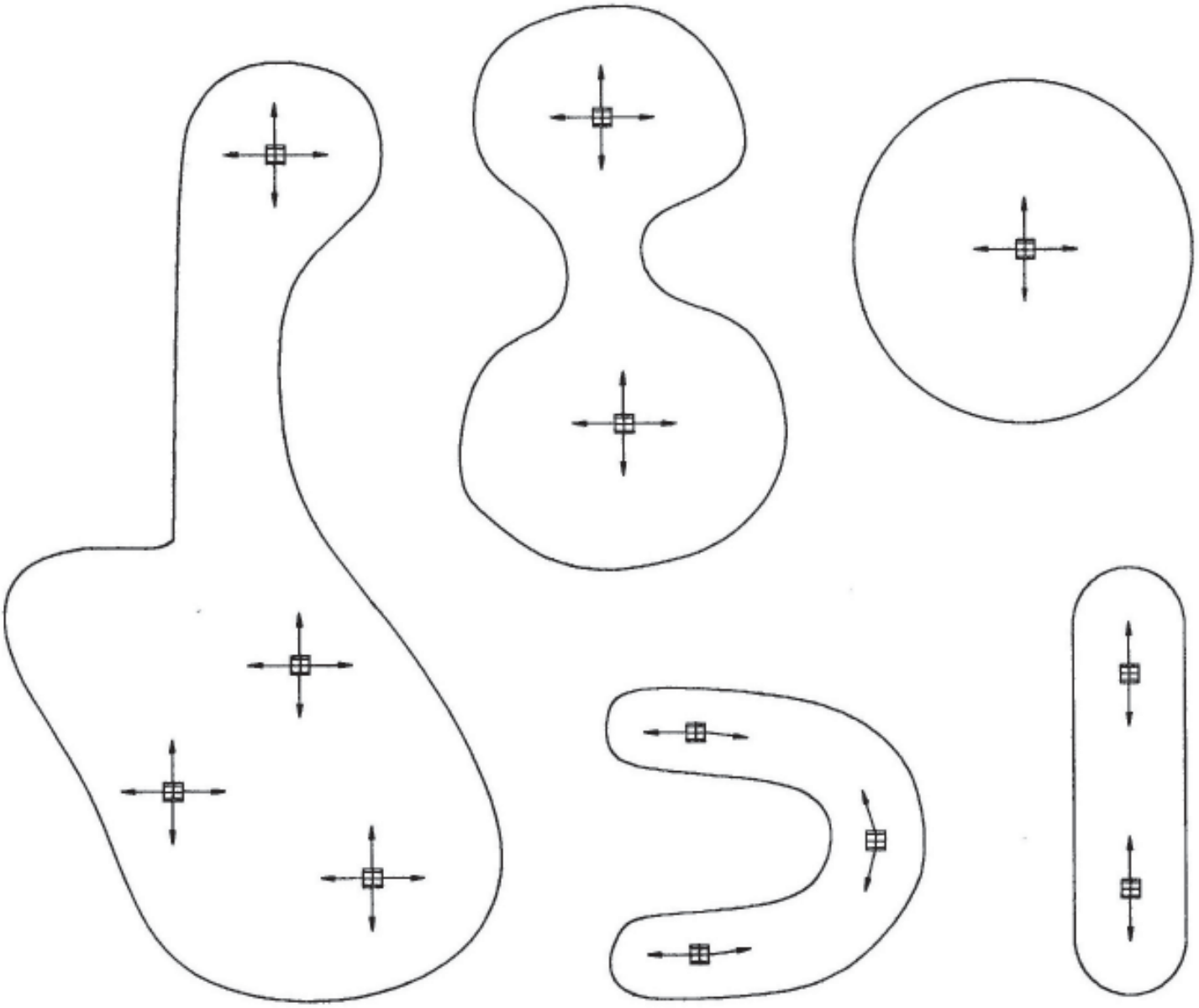


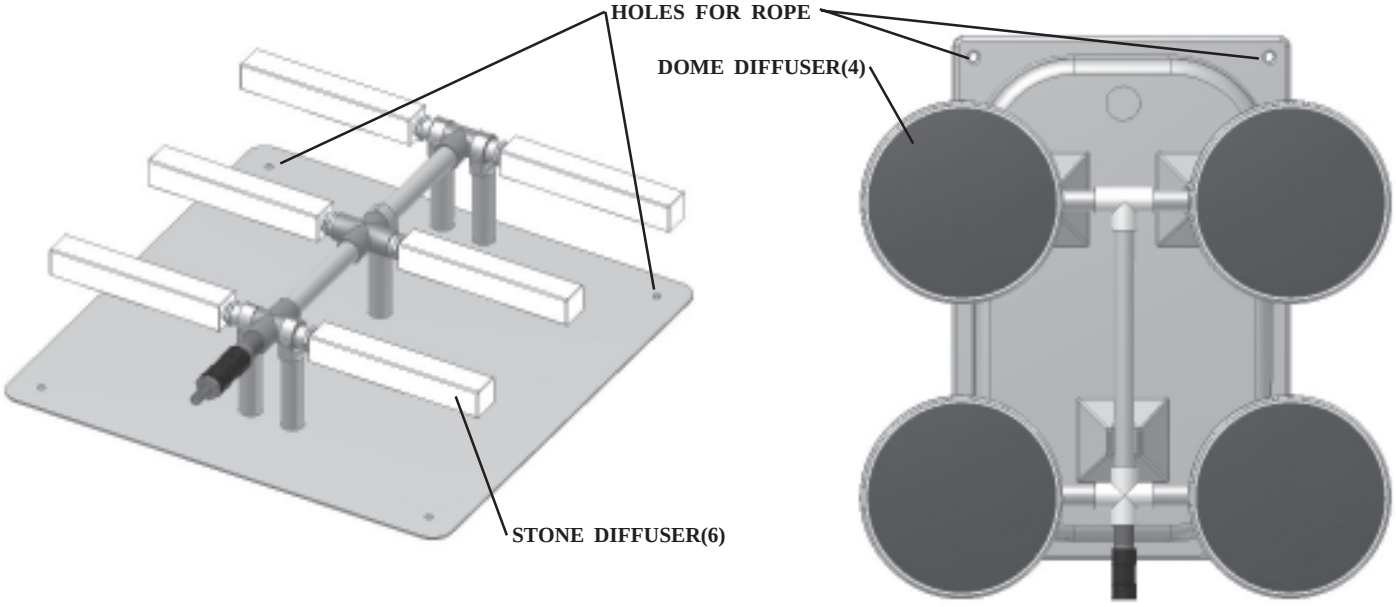
Figure 12a

1. Diffuser Location: Determine where the deepest areas in your pond or lake are for locating the diffuser manifolds. Place some sort of buoy (e.g. anchoring an empty plastic jug with a lid in position using a weight and string) in the areas where you intend to place diffuser assemblies. This will help to get exact placement of the diffuser assemblies and will assist in tubing placement.

Diffuser Installation

1. Connect the Weighted Tubing: Uncoil the weighted tubing by rolling the coil out along the ground. Never lay the coil down and pull the end of the tubing out or throw the tubing out in loops, the tubing will kink and be damaged. Attach one end of the tubing to the barbed fitting on the diffuser assembly and secure with the hose clamps provided. Repeat for each diffuser assembly. Attach any additional lengths of tubing, if necessary, to the tubing from the previous step with the coupling provided and secure with the hose clamps provided until the desired length is achieved. Place the tubing that will be attached to the valve manifold in the valve box and an extra 5'(1.5m) some place near the valve box and secure with a ty-rap. This will help to insure that you have enough tubing.

2. Prepare for Installation: Thread a thin piece of nylon rope through the top of one hole on the base/barrier of the diffuser assembly and back up through the bottom of the opposite hole **(See Figure 13a).** The length of the rope must be at least twice the depth of the location for the diffuser assembly. Place your tubing and diffuser assembly in your boat.



P/N: 10-0072, Stone Diffuser Manifold Assembly

P/N: 10-0001, Disc Diffuser Manifold Assembly

Figure 13a: Diffuser Manifold Assemblies

3. Diffuser Installation: As you paddle out to the diffuser location, feed the weighted tubing into the water. When in position at the diffuser location you marked earlier, lower the diffuser assembly into the water. When the diffuser manifold just touches the pond/lake bottom, very slowly paddle the boat in the direction of the valve box where the weighted tubing enters the water, and simultaneously lower the diffuser assembly to rest completely on the pond/lake bottom. This will help to be certain the diffusers are facing upward towards the surface of the water and not face down on the bottom. To remove the rope from the holes in the diffuser base, release one end of the rope into the water and slowly pull on the other end to thread it back out through the holes. Follow the same procedure if you have more than one diffuser assembly to install.

4. Connect Hose To Valve(s): Upon returning to shore, connect the tubing from each diffuser assembly to the outlet connection(s) of the appropriate valve assembly and secure with the hose clamps provided **(See Figures 9a & 9b).** The portion of tubing between the edge of the water and the valve box may be direct buried or run through PVC pipe in the ground. **The tubing must enter the water below the average winter ice depth in the area!** Proceed to System Start-Up Section.

System Start-up

Electrical Requirements: The circuit feeding the disconnect must be sized in accordance with all applicable codes and provide, GFCI (Ground fault circuit interuption) or RCD (Residual Current Device) and short circuit protection.

1. Inspection: Have an experienced qualified technician present at start-up to inspect the installation and check for correct voltages at the disconnect switch. See nameplate for voltage and current specifications.

2. Check Voltages: Verify that the AirFlo II disconnect switch is off. Only switch on the branch circuit supply feeding the AirFlo II disconnect switch, check to be certain that the correct voltage is present at the switch.

3. Adjust Valves for Start-up:
The two valves located at the compressor housing must be in the fully open position (counter-clockwise) at all times (Compressor Motor may stall and be damaged if the valves are are not open upon start-up). For optimal performance and compressor life it is very important to know which of the diffuser assemblies is the deepest in the water, the deeper a diffuser assembly is the more difficult it becomes for the compressor to deliver air to it, therefore, a valve must be dedicated to each diffuser manifold assembly to properly balance the system. **The valve in the valve box for the deepest diffuser assembly must be in the fully open position (Parallel With the Valve, See Page 8).** For initial start-up the remaining valves in the system should be adjusted to about 1/3 open. The more shallow diffusers will take most of the air if their valves aren't partially closed.

4. Turn-on and Check Current: With the proper voltage present turn on the disconnect switch (Clockwise) and use a clamp-on ammeter to verify the AirFlo II draws the correct currents when in operation. The compressor(s) should be in operation. See nameplate for current specifications.

5. Balance System: Run the compressor(s) for five minutes, with the deepest diffuser manifold valve fully open as mentioned in "Step 3" adjust the remaining air flow valves to obtain an equal distribution of air flow to each diffuser manifold. Using the diffuser manifold with the fully open valve as the reference air flow, visually verify the volume of air bubbling to the water's surface is approximately the same for each diffuser manifold. After the system is in operation for awhile, if you carefully touch each air flow valve, they should be warm. If any of the valves are cool to the touch open them a bit more. A cool valve is an indication of little or no flow passing through the valve. When you are finished replace the valve box cover and the AirFlo II system is ready.

Important Air Flo 2 Start-Up Warning

Warning Potential Fish Kill

If you have an **oxygen reading of less than 1 PPM** at the depth(s) where your diffusers are located, Otterbine suggests the following break-in period and run times when starting the system. *This will avoid the rapid release of noxious gases and potential fish kills.*

Day 1	-	1	Hour Per Day
Day 2	-	3	Hours Per Day
Day 3	-	8	Hours Per Day
Day 4	-	24	Hours Per Day

Be sure to return your warranty card to register your product.

System Maintenance

WARNING:

DISCONNECT THE UNIT FROM THE ELECTRICAL SUPPLY CIRCUIT BEFORE PERFORMING ANY TROUBLESHOOTING, REPAIR OR SERVICE WORK ON THIS EQUIPMENT!!!!

WARNING:

The air compressors used in the AirFlo 2 are OIL-LESS. DO NOT LUBRICATE
Do not use lubricating oils on, in or around the compressors as it will cause damage or poor performance.

For Service or Repair to the GAST compressor contact your nearest GAST Distributor. Refer to the GAST warranty at the end of this section or information can be found at:

Warranty:

Otterbine offers an exceptional 2-Year warranty on the Air Flo 2. A copy of the warranty statement for the unit is listed in the back of this manual

Maintenance:

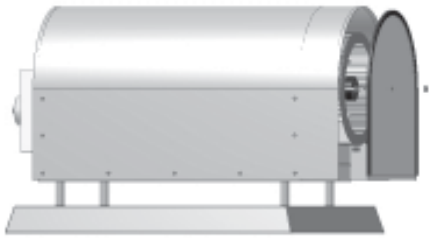
Compressors - Will typically operate 2 years between cylinder cup, o-ring, and retainer replacements and 3 years between electric motor bearing replacement.

Air Filters - Should be cleaned as needed after visual inspection. Depending on the dust, dirt, insects, etc. in the air around the compressor, the cleaning interval may be from 1 month to 1 year. In most cases filters can be cleaned by hand, high pressure air, or washing with solvent. Replacement filters and replacement parts are available through your local Otterbine service center.

Diffusers - Air Stone Diffusers typically operate for 3 years before needing to be changed. However, salt water and very hard water conditions will shorten the maintenance interval. Dome Diffusers are self-cleaning and should not require any maintenance.

COMPRESSOR:		
Every 2 YEARS*	>	Replace Pistons, Cylinder Cups, O-rings, Retainers, and Retainer Screws.
** This maintenance item should be performed by an Authorized Otterbine Service Center.*		
AIR FILTER		
1 MONTH - 1 YEAR (as needed)	>	Change air filter cartridge**
AIR STONE DIFFUSER ASSEMBLY:		
Every 3 YEARS (or less depending on conditions)	>	Replace diffuser stones

**Changing the Air Filter:
To change the air filter simply unscrew the nut in the center of the filter enclosure cover, (same end as tubing air flow valves) and remove the cover to remove air filter. After air filter is replaced, assemble air intake cover and fasten with the nut.



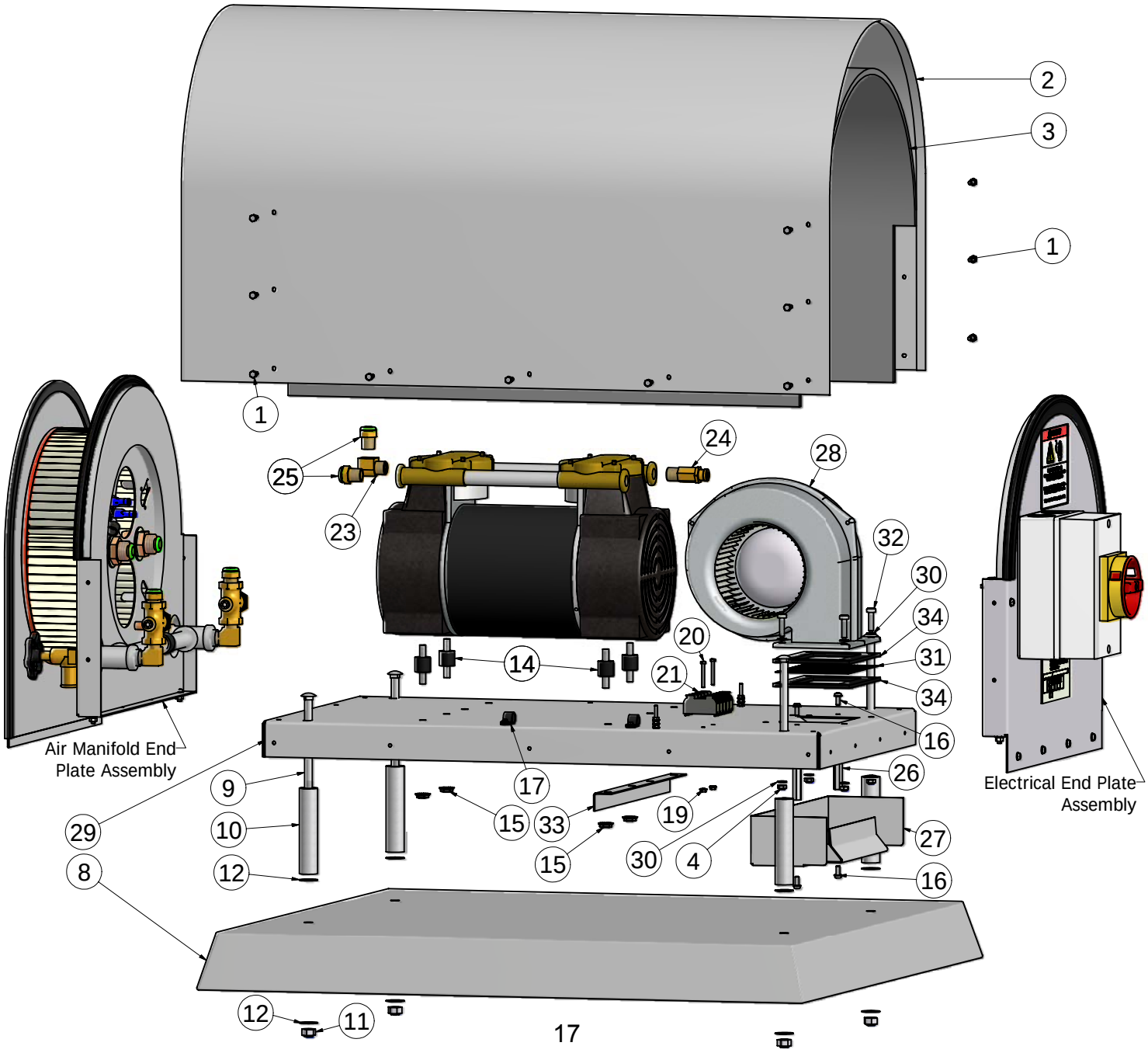
Remove Intake Air Filter Maintenance Cover to Change Air Filter

Troubleshooting

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTIONS
• Decreased air flow (If any of the valves are cool to the touch it is an indication of little or no air flow passing through the valve)	• Clogged inlet filter	• Replace air filter cartridge
	• System unbalanced	• Visually check if the air flow bubbling to the surface from all diffuser assemblies is equally balanced. If necessary, adjust the flow of air to the diffuser assemblies. The valves at the compressor housing unit should be fully opened and adjustments made at the valve manifold in the valve box. Check the temperatures of the valve(s). Hotter temperatures mean more flow.
	• Leak in air lines or valve assembly	• Check for air leaks inside & around compressor housing **(To be performed by a qualified technician).** Inspect air hose between the compressor housing and the valve box and to the diffuser manifolds (look for air bubbles in water not from diffuser). Diffuser manifold assembly may be damaged. Replace damaged stone(s) or diffuser dome bladder(s) if necessary.
	• Compressor and/or housing unit internal components	• Check air pressure at the compressor housing valves with an air pressure gauge. The pressure relief valve limits the air output at the valves to **not** exceed 28PSI. If the air pressure is lower than 28PSI with the gauge attached to one valve and the opposite valve closed, inspect and possibly repair the internal components, air lines, connections including the relief valves and/or the air compressor. Compressor may need rebuilding.
• Compressor doesn't start when powered on.	• Temperature safety switch may trip if unit has been off for only a short duration.	• Allow unit to cool down before switching on.
• Pressure relief valve inside compressor housing releasing air.	• Diffuser manifold may be too deep in the water.	• Check water depth to be sure diffuser isn't too deep. Check diffuser in shallower water. (1PSI = 27.6" water / 28PSI = 64.4'(19.63m)
	• Diffusers may be clogged.	• Change diffuser stones or clean diffuser dome surface.
	• Obstructions in air lines/diffuser manifolds.	• Disconnect weighted hose from diffuser manifold and check for air flow with air pressure gauge. If necessary blow obstruction out with high pressure air. Check the manifold, if necessary remove the diffusers from diffuser manifold piping and blow out with high pressure air.

Base Plate Assembly

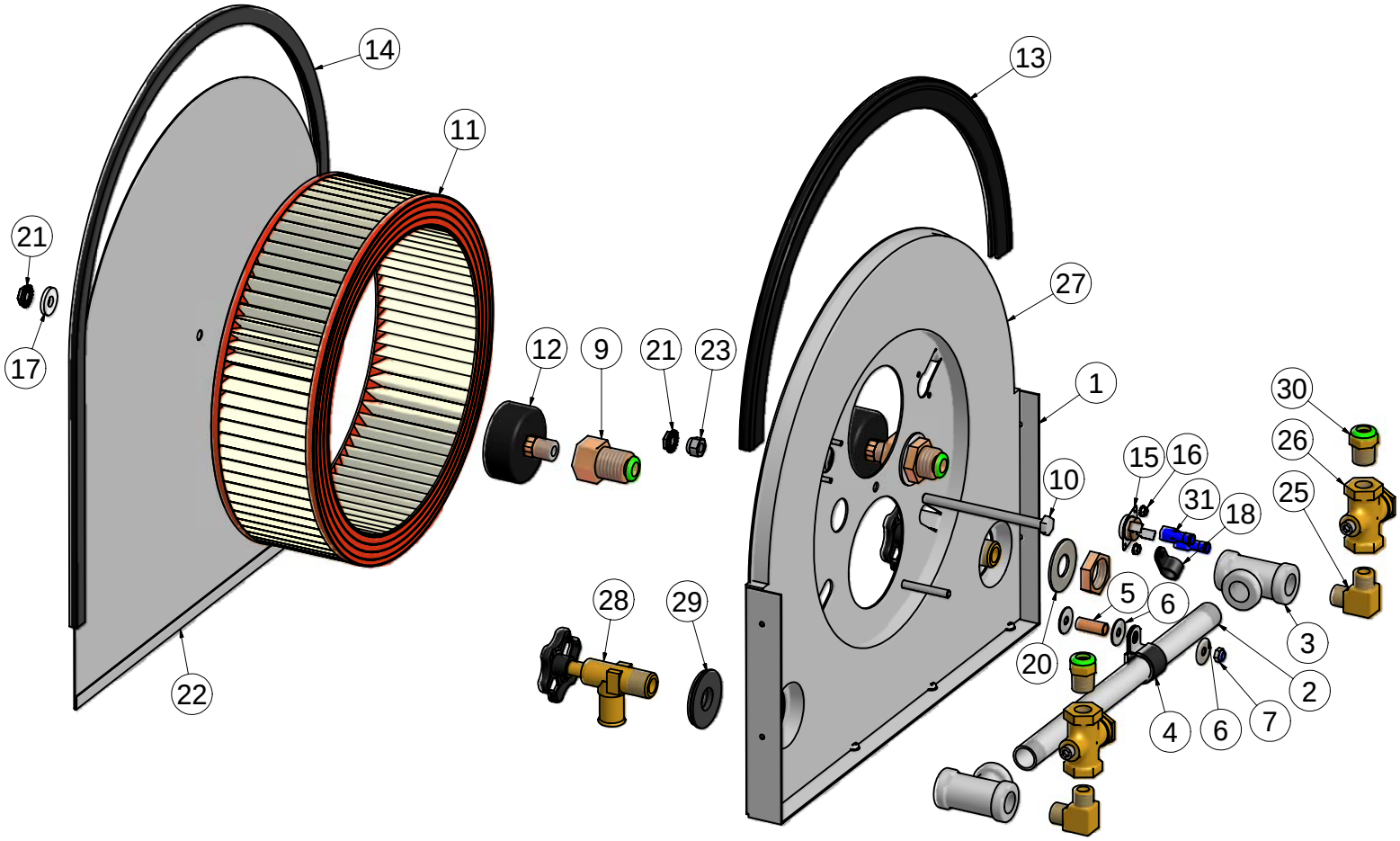
Parts List				Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	18	24-0030	SCREWS, #8 x 1/2" COVER	18	4	24-0033	SCREW, M3 x 8mm KEPS
2	1	47-0014	COVER, COMPRESSOR HOUSING	19	2	26-0012	NUT, M3 KEPS
3	1	46-0039	FOAM, SOUND BARRIER	20	4	24-0032	SCREW, M3 x 25mm
4	4	26-0006	NUT, M5 NYLON LOCK	21	3	33-0042	TERMINAL BLOCK
5	2	67-0024	BUSHING, 3/8 NPT x 1/4 NPT	22	3	33-0044	CONNECTOR, #10 RING
6	2	67-0039	ELBOW, 1/4 NPT	23	1	67-0038	ELBOW, 1/4 NPT STREET
7	2	67-0028	VALVE, 1/4 NPT CHECK	24	1	67-0035	VALVE, 1/4 NPT RELIEF
8	1	41-0153	BASE, PLASTIC	25	2	67-0037	CONNECTOR, 3/8 TUBING x 1/4 NPT
9	4	22-0035	BOLT, 5/16-18 x 5-1/2" CARRIAGE	26	2	21-0003	STANDOFF, 52mm HEX
10	4	40-0124	STAND-OFF, BASE	27	1	47-0021	PLATE, BLOWER BAFFLE
11	4	GP1208	NUT, 5/16-18 NYLON LOCKNUT	28	1	31-0101-115	BLOWER, 115 VOLT (60Hz.)
12	8	28-0018	WASHER, 5/16 SS FLAT			31-0101-230	BLOWER, 230 VOLT (50Hz. & 60Hz.)
13	1	30-0037-115	COMPRESSOR, 115 VOLT 60Hz.	29	1	47-0015	BASE PLATE, COMPRESSOR HOUSING
		30-0037-230	COMPRESSOR, 230 VOLT 50/60Hz.	30	8	28-0016	WASHER, M5 FLAT
14	4	46-0140	MOUNT, COMPRESSOR	31	1	40-0075	SCREEN, SS 3.125 x 4.375
15	4	26-0001	NUT, 1/4-20 FLANGE	32	4	24-0021	SCREW, M5 x 20mm
16	4	24-0018	SCREW, M4 x 10	33	1	40-0126	BRACE, HOUSING BASE ANGLE
17	2	46-0020	STRAP, 7/16" CABLE	34	2	49-0049	GASKET, BLOWER



Air Manifold End Plate Assembly

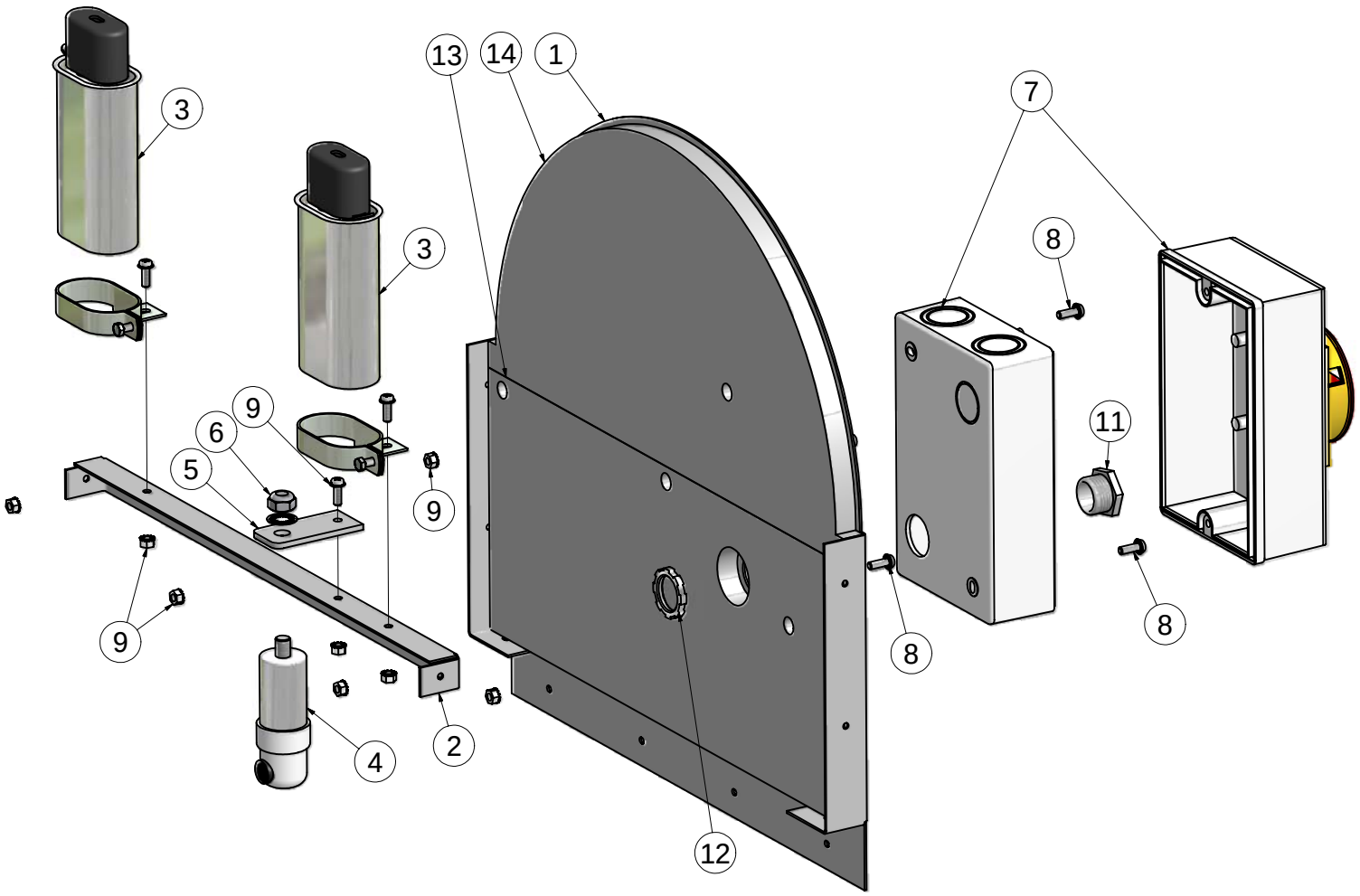
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	47-0017	END PLATE, INTAKE
2	1	67-0020	NIPPLE, 3/8 NPT x 10"
3	2	67-0013	TEE, 3/8 NPT
4	1	46-0144	STRAP, 5/8" LOOP
5	1	45-0018	STANDOFF
6	4	28-0025	WASHER, M5 FENDER
7	1	26-0006	NUT, M5 NYLON LOCK
8	1	22-0006	BOLT, M5 x 35 HEX
9	2	67-0026	BULKHEAD, 3/8 NPT
10	1	22-0035-312	BOLT, 1/4-20 x 3-1/2"
11	1	46-0003	FILTER
12	2	46-0024	MUFFLER, INTAKE
13	1	49-0040	SEAL, 23" EDGE TRIM
14	1	49-0040	SEAL, 34" EDGE TRIM
15	1	31-0184	SWITCH, TEMP
16	2	26-0012	NUT, M3 KEPS

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
17	1	29-0007	WASHER, 1/4" NYLON
18	1	46-0020	STRAP, 3/8" CABLE
19	2	24-0033	SCREW, M3 x 8
20	2	28-0002	WASHER, 7/8" FLAT
21	2	26-0001	NUT, 1/4" FLANGE
22	1	47-0018	COVER, AIR FILTER
23	1	C2-112	NUT, 1/4" NYLON LOCK
24	2	67-0024	BUSHING, 3/8 NPT x 1/4 NPT
25	2	67-0039	ELBOW, BRASS
26	2	67-0028	VALVE, CHECK
27	1	46-0039	FOAM, SOUND BARRIER
28	2	67-0021	VALVE, STOP
29	2	49-0042	GROMMET, 3/8 NPT
30	2	67-0037	CONNECTOR, 1/4 NPT x 3/8" TUBE
31	2	33-0045	CONNECTOR, FEMALE SPADE



Electrical End Plate Assembly

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	47-0016	END PLATE, ELECTRICAL
2	1	40-0125	BRACE, END PLATE
3	1 PER COMP.	 56-0006 56-0007	CAPACITOR, COMPRESSOR 115V, 230V, 60Hz. 220V, 50Hz.
4	1	 56-0008 56-0009	CAPACITOR, BLOWER 230 VOLT 50/60Hz. 115 VOLT 60Hz.
5	1	40-0009	BRACKET, CAPACITOR
6	1	26-0007	NUT, M8 NYLON LOCK
7	1	31-0183	DISCONNECT, 25A 3P
8	8	24-0025	SCREW, M4 x 12 KEPS
9	5	26-0013	NUT, M4 KEPS
10	1	49-0044	O-RING, SEALING
11	1	31-0038	BUSHING
12	1	27-0004	LOCKNUT, BUSHING
13	1	46-0039	FOAM, BOTTOM ELECTRICAL SOUND BARRIER
14	1	46-0039	FOAM, TOP ELECTRICAL SOUND BARRIER



Limited 2 year Warranty
Otterbine® AirFlo II

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** AirFlo II 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** AirFlo II 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 II 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** AirFlo II 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 II must not have been removed or altered: and

d) The **OTTERBINE** AirFlo II 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 II.

No implied warranties of any kind are made by **BAREBO** in connection with this **OTTERBINE** AirFlo II, 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 II. Should this **OTTERBINE** AirFlo II 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 II, 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

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, Inc, 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.

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

Contact an Otterbine Service Center or the Otterbine factory direct to process any warranty related activity on the Air Flo 2 product.

Visit www.otterbine.com for the service center nearest you or call us direct at 1-800-237-8837 or 1-610-965-6018.

AIR FLO II SYSTEM NO. _____

DOMES_____ STONES_____

VOLTAGE _____ PHASE _____ HERTZ _____

TUBE LENGTH _____

SERIAL NUMBER _____

Water Works With Otterbine!

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