



## 50Hz SHALLOW POND DIFFUSED AERATOR INSTALLATION / OWNERS MANUAL

### Product Damaged in Delivery

If damage is discovered upon delivery, refuse the shipment until the transportation company's agent has noted damage on the freight bill. Do not sign delivery acknowledgement until the damage is noted. Notify the transportation company immediately to inspect the damaged equipment. Inspections must be requested within 5 days of delivery. Do not move damaged goods from original point of delivery and retain all original packing for inspection. File a FULL VALUE REPLACEMENT claim with the transportation company. If any part of shipment is LOST IN TRANSIT, have the shortage noted on freight bill by agent. Notify your distributor immediately for assistance in repairing or replacing equipment.

### Safety Screw

Occasionally during shipping the installed safety screw is broken. An extra safety screw has been included in the box for replacement, if necessary. Refer to Fig.4 for instructions on how to replace the screw.

### Product Warranty

Aqua Control will repair or replace any defective part for a period of one year from date of receipt. Customer is responsible for return shipping of any goods for warranty inspection. After inspection, if product shows a manufacturing defect, Aqua Control will replace or repair it at no cost to customer. Should inspection indicate non-warranty failure (incorrect voltage, faulty installation procedures, vandalism, customer negligence, etc.) warranty would be void.

### SYSTEMS MATERIAL LIST

Upon receipt, inspect to ensure that all of the components are included. If your aeration system has experienced damage from shipping, promptly report the damage to the carrier that provided delivery. Verify that you have received the following:

- |  |                      |  |
|--|----------------------|--|
| - Compressor                             | - Extra safety screw | - Hose clamps  |
| - Diffuser                               | - Rubber elbow       | - Self-Weighted Air Supply Tubing                        |
| - 3/8 Hose Barb preinstalled SP10 / SP20 |                      | - 3/8 or 5/8 Hose Barb installation required SP30 / SP40 |

### GENERAL INFORMATION

**CAUTION:** The pump is designed for air only. Do not allow corrosive gases or particulate material to enter the pump. Water vapor, oil-based contaminants or other liquids must be filtered out.

**CAUTION:** Ambient temperature should not exceed 40°C (104°F). For operation at higher temperatures, please consult the factory. Keep out of direct sunlight whenever possible.

**CAUTION:** To avoid risk of electrocution, do not use this product where it could become submerged in water or other liquids.

**CAUTION:** Do not block the flow of cooling air around the pump in any way. The life of the pump may be reduced or malfunction could occur if hazard is ignored.

### **GROUNDING INSTRUCTIONS FOR ALL GROUNDED, CORD-CONNECTED PRODUCTS**



#### **DANGER:**

Improper installation of the grounding plug can result in electric shock. If repair or replacement of the cord or plug is necessary, do not connect the grounding wire to either flat blade terminal. The wire with green insulation with or without yellow stripes is the grounding wire.

This product must be grounded. The compressor is equipped with a grounding wire cord with appropriate grounding plug. The plug must be plugged into a properly installed outlet and grounded in accordance with all local codes and ordinances.

Check with a qualified electrician if grounding instructions are not completely understood or if in doubt whether the product is properly grounded. Do not modify the plug provided. If it does not fit the outlet, have the proper outlet installed by a qualified electrician. This product is for use on a nominal 230 Volt 50Hz circuit only.

### **EXTENSION CORDS**

When using an extension cord, be sure to use one in good condition that is heavy enough to carry the current that your product will draw. A No.14 AWG cord no longer than 50 feet can be used. Undersized cord causes a drop in line voltage

resulting in loss of power and overheating. For outdoor use, use an extension cord approved for outdoor use.

**WARNING:** Pump housing surfaces can become hot during operation. Shut off unit and allow to cool before handling.

**CAUTION:** Do not operate if the cord or plug is damaged, the pump is malfunctioning, dropped or damaged in any way.

### **DIFFUSER ASSEMBLY – ALL MODELS**

The following steps still need to be completed prior to installing the Diffuser:

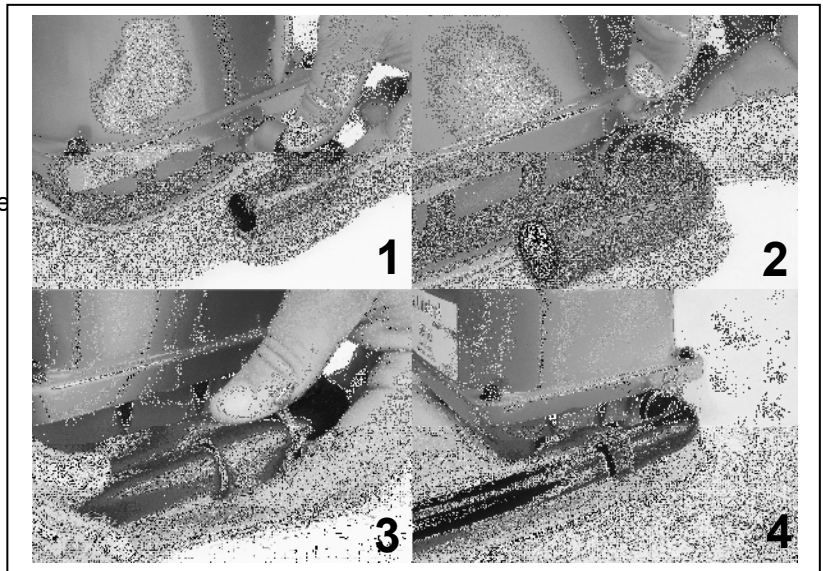
1. Screw Membrane Diffuser Tube to blue check valve (arrow on check valve must point towards tube diffuser) as shown. Hand tighten only.
2. Push self-weighted air tubing onto barb. Tighten together using hose clamp.
3. SP30 / SP40 will need to install the appropriate Hose Barb for the size of tubing being utilized.



### **SELF-WEIGHTED AIR TUBING ATTACHMENT FOR MODEL SP10**

The following steps still need to be completed prior to installing the Diffuser:

4. Slip rubber elbow over the circular discharge outlet of the compressor.
2. Slide first pinch clamp over the rubber elbow and secure around circular discharge outlet.
3. Slide second pinch clamp over the rubber elbow and slide it out of the way. Insert 3/8" Self-Weighted Air Tubing into rubber elbow approximately 1 inch and secure with pinch clamp.
4. Ensure all connections are secured by pinch clamps.



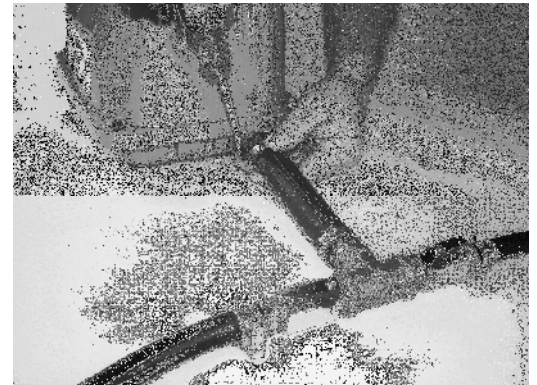
### **MANIFOLD ATTACHMENT FOR MODELS SP20, SP30 AND SP40**

To attach the Manifold, push the 5/8" black air tubing over the circular discharge outlet of the compressor. Tighten securely with accompanying hose clamp.

The Manifold will have either two or three valves. The valves allow for adjusting airflow to specific diffusers. When the pump is turned on, ALL Manifold valves MUST be completely open so not to overload the compressor at start-up. During operation, never completely close any valves.

*Model SP10 does not use a Manifold.*

*Model SP30 / SP40 need appropriate Hose Barb installed for tubing being utilized.*



### **COMPRESSOR INSTALLATION**

The compressor is designed for easy placement on the ground. The pump should be in an upright, level position and remain on a stable, rigid operating surface for proper operation. Do not place the compressor in direct sunlight or in an area with obstructed airflow. The entire system can be hidden behind landscaping and foliage. Do not cover the compressor with a fake

rock or other enclosure, as it needs fresh air to keep cool. In climates that reach over 100°F, shading of the compressor is recommended.

### **DIFFUSER BASE PLACEMENT**

Correct placement of the Stainless Steel Diffuser Base is critical. The ability of the aeration system to affect your pond is dependent upon the position of the Diffuser.

1. Uncoil the roll of self-weighted tubing along the shoreline of your pond. Make sure the tubing has no twist or tangles to make it easier to install the Stainless Steel Diffuser Base.
2. While holding the Stainless Steel Diffuser Base, begin pulling to the desired location in pond. Make sure membrane diffuser is upright.

### **SYSTEM START-UP PROCEDURES**

The purpose of the Diffused Aeration System is to circulate the pond's entire water column. This circulation increases oxygen levels and eliminates drastic temperature fluctuations. **To avoid an oversaturation of Hydrogen Sulfide and Carbon Dioxide and the potential for a fish kill, the procedures below must be followed.**

- Turn on the system and operate for 15 minutes.
- Turn off the system for the remainder of the day.
- Restart the system the next day and operate for 30 minutes.
- Turn the system off for the rest of the day.
- Each day, double the operating time from the previous day until the system is running continuously. This should take approximately 8 days.

### **WINTER OPERATIONS & PRECAUTIONS**

#### **DROWNING DANGER!**

Using an aeration system during freezing conditions in an ice-covered lake causes large holes in the ice with thinning around the edges. Injury or fatality may result if people fall through the ice in these locations. Aqua Control strongly recommends that these areas and the associated dangers be clearly posted in multiple locations around the lake, pond or marina. The owner assumes **all responsibility** for using the Aeration System during winter months.

To prevent the risk of cooling the entire water column in the pond, move the Diffuser(s) to a shallower portion of the pond (typically one-half of the depth of the original placement) and operate there until spring thaw. Moving the Diffuser to shallower water allows warmer water to remain in the lower regions of the pond and prevents the water from becoming too cold for fish.

Bury the self-weighted tubing on shore sloping downhill without any dips in the line and below the frost line or insulated.

If you choose to turn off the system for the winter, simply disconnect the compressor from the air tubing and bring it inside to keep it from freezing.

In the spring, when the system is restarted, the air tubing may still contain ice inside. If this occurs, one cup of denatured alcohol per frozen line to melt the ice enough to allow the compressor to push air through the line until heat generated by the compressor melts the remaining ice.

### **MAINTENANCE**

Use only authorized parts that are supplied or approved by ACI. Use of non-approved parts may result in poor performance, could create a hazardous situation and will void the warranty.

Unplug the system from the outlet and refer servicing to a qualified electrician if the power cord is damaged or frayed or the cabinet is producing unusual noises or odors.

**WARNING:** Always disconnect power before installing or servicing. Failure to do so could result in electrical shock, injury or death. The motor is thermally protected and will automatically restart when it cools if the thermal protection switch is tripped.

**CAUTION:** The filters must be periodically cleaned or replaced. A clogged filter can cause overheating or pump failure.

Any servicing of the unit other than that recommended in the instruction manual must be performed by an Authorized Service Facility. Inspection of filters is suggested every three months. When inspecting filter, also clean inlet port area of filter and housing. Filters can be cleaned with soap and water. Be sure to dry all parts and filter well before reinstalling. If the pump makes an abnormal noise, or the amount of discharged air is greatly decreased, turn off the power immediately.

For repairs or replacement parts, please contact the factory.

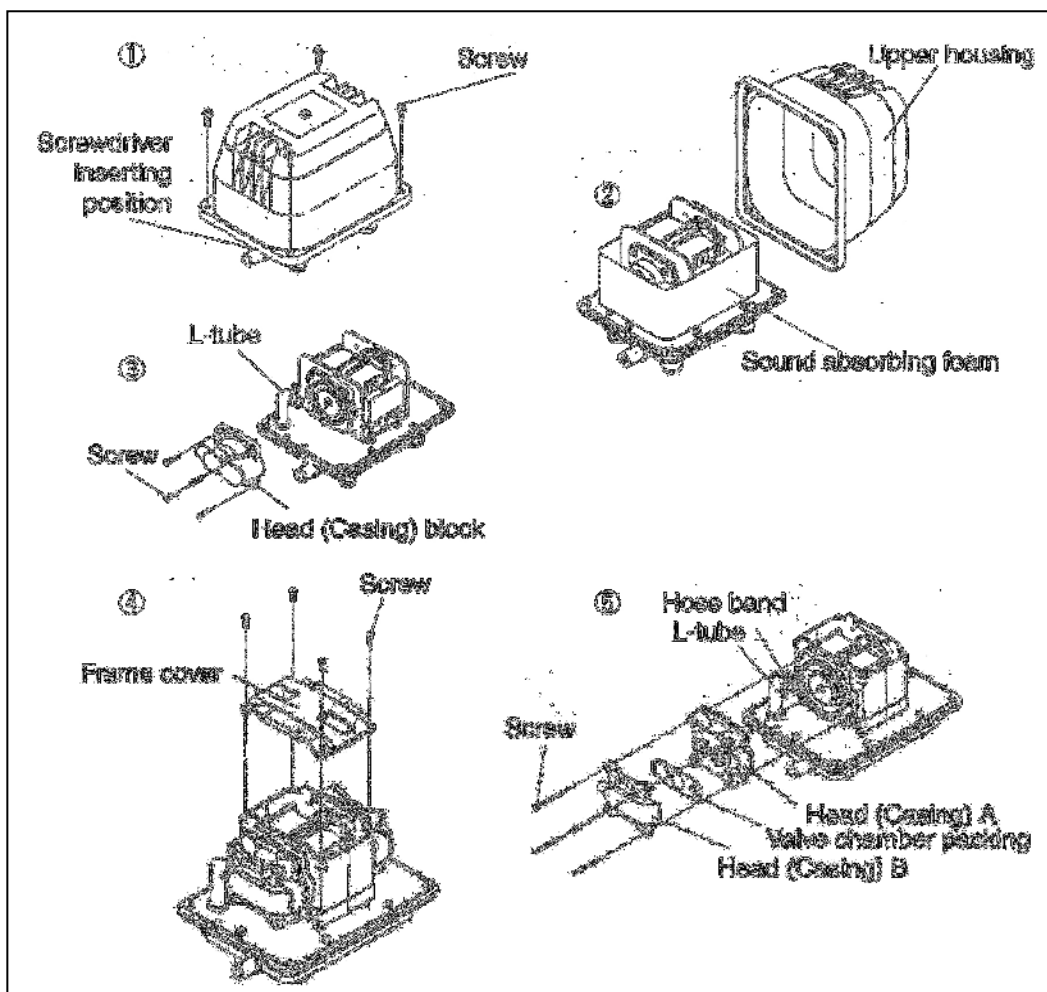
## Changing the Pump (Chamber) Assembly

REPLACEMENT SERVICE KIT PART#	CONTENTS	
SP10 .....	A1351	Head (Casing) block, Diaphragm mounting block, Hex nut (U-Lock nut) / washer, Safety screw / plastic nut
SP20 .....	A1352	
SP30 .....	A1353	
SP40 .....	A1354	

### Remove the Head (Casing) block (Refer to Fig.2)

- Remove the four corner screws and the Upper housing. If stuck, insert screwdriver between exhaust outlet and Upper housing, and gently pry apart.
- Remove the screws from all the corners of frame cover for subsequent removal of the frame cover.
- Undo the hose band and remove the L-tube from the Head (Casing) block.
- Remove screws attaching the Head (Casing) to the pump mechanism, and remove Head (Casing) block

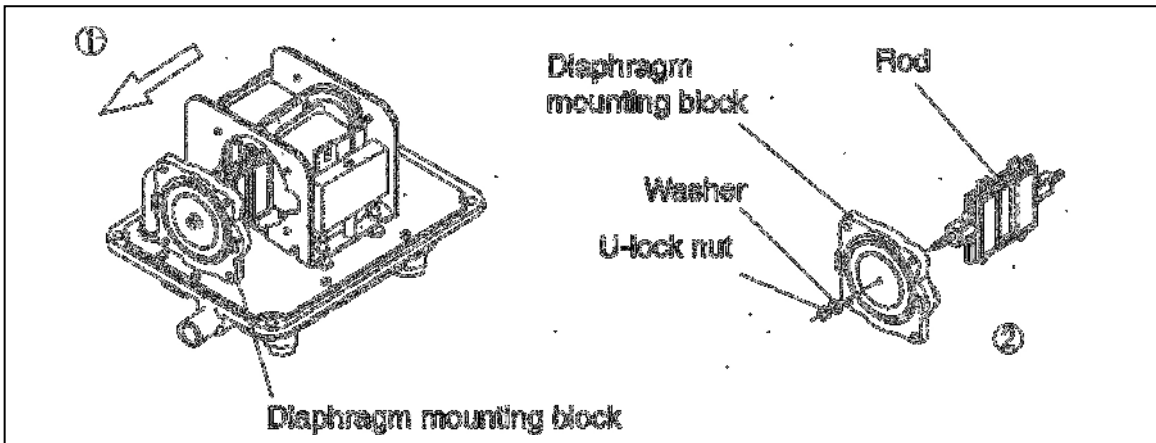
Fig. 2



### Replacing Diaphragm mounting block (Refer to Fig.3)

- After removing Head (Casing) block, remove one of the hex nut (U-lock nut) and washer in the center of the diaphragm.
- Remove one of the Diaphragm mounting blocks from the Rod, and pull out the other Diaphragm mounting block from the pump body together with the Rod without loosening its hex nut (U-lock nut) and washer.
- Then remove the other Diaphragm mounting block from the Rod.
- Reattach a new Diaphragm mounting block on one side of the Rod with new hex nut (U-lock nut) and washer, insert the Rod in accordance with the procedure reverse to that performed when the Rod was removed the pump.
- Reattach washer and new hex nut (U-lock nut) to Rod screw protruding through other Diaphragm mounting block and tighten.

Fig. 3



- After the diaphragm mounting block has been installed, replace with the new Head (Casing) block, reattaching the L-tube and reinstall the 4 screws holding the Head (Casing) on. (Refer to Fig .2 or 3)

**Reinstall the Upper Housing** (Refer to Fig.3)

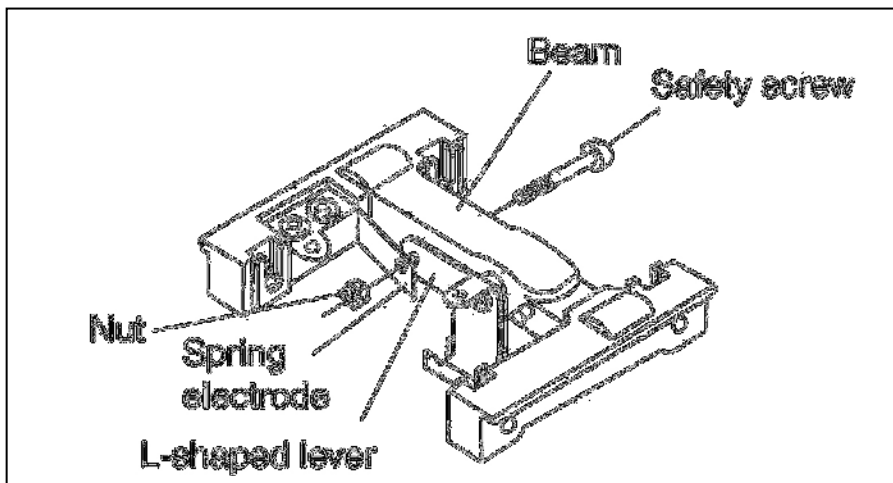
- Reinstall the 4 screws holding the Frame cover on.
- Reinstall the Sound absorbing form
- Reinstall the Upper housing and tighten corner screws.

**Replacement of Safety Screw** (Refer to Fig.4)

The body of the switch is set on the upper part of the Rod. If the Diaphragm is damaged or unit is dropped, the unusual movement of the Rod will cause the upper part of the Rod to touch the L-shaped lever, contacting the spring terminal, breaking the safety screw. This turns the power off, stopping the pump automatically. This is a built in safety device to prevent any further damage to the pump.

<b>REPLACEMENT SAFETY SCREW PART</b>	
ALL.....	A1364

Fig. 4

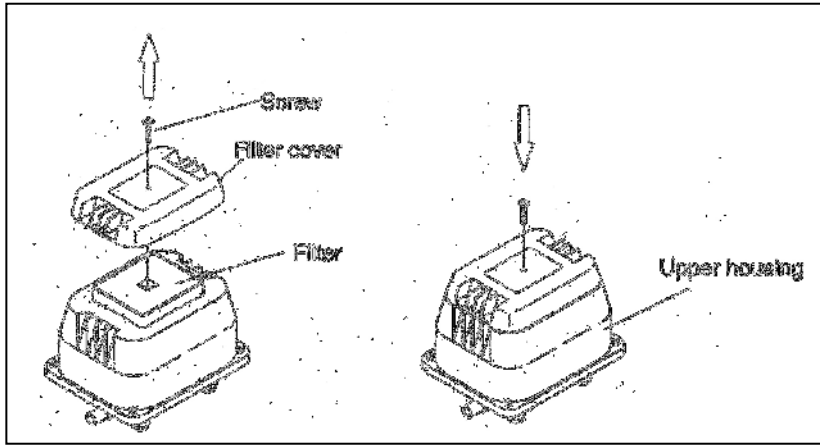


**Cleaning the Filter** (Refer to Fig.1)

<b>REPLACEMENT FILTERPAD PART#</b>	
SP10.....	A1361
SP20.....	A1362
SP 30 & 40 .....	A1363

- Undo the truss screw securing the cover to the pump housing, and remove the Filter pad.
- Gently dust the Filter pad then hand-wash in mild soapy water and be sure to dry well before reinstalling
- Replace the Filter pad and cover. Secure with the truss screw.

Fig. 1



**TROUBLE SHOOTING**

Symptom	Possible cause	Point to check up	Remedy
Pump fails to work	Electrical connection	Plug and outlet	Plug securely into outlet
	Wire cut inside the cord	Check with tester	Change power cord, electromagnet or lead wire
	Safety Screw activated	Check <ul style="list-style-type: none"> <li>• Safety Screw</li> <li>• Chamber Block</li> </ul>	Exchange diaphragm or safety screw/switch
Pump works but makes loud, irregular noise	Diaphragm damaged	Remove upper, lower housing and trace the source of cause	Exchange casing or diaphragm mounting block
	Faulty valve		
	Faulty chamber block		
	Faulty filter	Filter clogged	Clean up filter
	Valve chamber cover out of place	Faulty tube	Repair or replace with new one
Pump works but no air comes from reservoir	Faulty piping connection	Rubber hose out of place, broken	Connect properly or replace with new one
	Pump runs normaly	Air piping clogged	Clean properly