Eco-Logic®

POND & LAKE RECLAMATION SYSTEM

Model 4

Read and Follow All Safety Instructions. Save These Instructions.





Installation,
Operation
& Maintenance

Manufacturers / Engineers / Sales / Service Germicidal Ultraviolet - Equipment & Lamps

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These instructions generally describe the installation, operation and maintenance of the **Eco-Logic®** Pond & Lake Reclamation Equipment. Questions that are not specifically answered by these instructions should be directed to the Factory. Atlantic Ultraviolet Corporation® takes all possible precautions when packaging equipment to prevent damage. Carefully inspect and report all damages. Do not install damaged equipment. Follow all instructions on any labels or tags. Carefully inspect all packing materials before

Follow all instructions on any labels or tags. Carefully inspect all packing materials before discarding to prevent the loss of accessories, mounting hardware, spare parts or instructions.



The information and recommendations contained in this publication are based upon data collected by the Atlantic Ultraviolet Corporation® and are believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. Specifications and information are subject to change without notice.

SAFETY WARNINGS -

- All personnel should be alerted to the potential hazards indicated by the product safety labeling on this unit.
- The following conventions are used to indicate and classify precautions in this manual and on product safety labeling. Failure to observe precautions could result in injury to people or damage to property.

Obey all safe

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



ACAUTION

Danger indicates an **IMMINENTLY** hazardous situation, which, if not avoided, **WILL** result in death or serious injury.



avoided, **MAY** result in minor or moderate injury.



This symbol/pictorial is used to identify an ELECTRICAL SHOCK or ELECTROCUTION hazard.



This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking eyewear.



This symbol/pictorial is used to identify the need to wear protective gloves.



Warning indicates a **POTENTIALLY** hazardous situation, which, if not avoided, **COULD** result in death or serious injury.



Caution used without the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in property damage.



This symbol/pictorial is used to identify an **ULTRAVIOLET LIGHT** hazard.



This symbol/pictorial is used to identify the need to wear approved ultraviolet blocking face shield.



This symbol/pictorial is used to identify components which must not be disposed of in trash

SAFETY INSTRUCTIONS -

AWARNING To guard against injury, basic safety precautions should be observed, including the following:

- 1. Read and follow <u>ALL</u> safety instructions.
- 2. Do not use this equipment for other than its intended purpose as described in this manual.
- 3. Do not alter design or construction.
- 4. Do not remove any labels or devices.
- 5. A DANGER To prevent the risk of severe or fatal electrical shock, special precautions must be taken since water is present near electrical equipment. Always disconnect power before performing any service or maintenance.
- 6. **AWARNING** Avoid exposure to direct or reflected germicidal ultraviolet rays. Germicidal ultraviolet rays are harmful to the eyes and skin.
- 7. Intended for installation in a properly ventilated area with accessibility restricted to authorized personnel only.
- 8. Do not operate if lamp cable, lamp connection, power cord and/or plug are damaged, or if any other damage is visible or suspected
- 9. Electrical power supplied <u>MUST</u> match power requirements listed on the equipment.
- 10. A AWARNING Plug this equipment only into an APPROVED GROUND FAULT CIRCUIT INTERRUPT (GFCI) RECEPTACLE.
- 11. **A AWARNING** Do not operate without proper electrical ground.
- 12. Ozone gas produced by this system is corrosive. Be sure ozone gas is **ONLY** exiting under water.
- 13. Read and follow all notices and warnings on this equipment.
- 14. SAVE THESE INSTRUCTIONS.

SAFETY LABELS -





(Label # 00-0196A1)

CAUTION

It is the user's responsibility to determine and validate the suitability of this equipment for use in the user's system or process.

No warranty or representation is made by the manufacturer with respect to suitability or performance of this equipment or to the results that may be expected from its use.

The user should periodically inspect, clean as necessary and confirm the presence and good legibility of the product safety labels. Contact the factory for replacement labels in the event that any of the labels are missing or illegible.

PRODUCT APPLICATION -

CONSTRUCTION

- The **Eco-Logic**[®] is manufactured in Type 304 stainless steel.
- Equipment enclosure is secured with tamper proof screws to prevent unauthorized entry (See **Figure 1**).
- Key lock switches ensure controlled operation.
- Washable, electrostatic filters ensure years of service without replacement, provided routine cleaning is performed.

PRINCIPLE OF OPERATION

The **Eco-Logic**[®] Pond and Lake Reclamation Systems are designed to aerate a body of water with a controlled combination of air and ozone.

Ozone, a natural occurring form of oxygen, sometimes known as activated oxygen, is a powerful short-lived oxidant, which is primarily used to disinfect drinking water.

Ozone and air are diffused into the lake bottom by means of a patented sinkable hose consisting of hundreds of openings, which release the aeration mixture into the lake bottom. This process begins to circulate stagnant, decaying matter on the bottom of the lake bed and begins breaking up the stratification of the lake's surface water while increasing the lake's concentration of dissolved oxygen.

LIMITATION OF USE

Ultraviolet rays produced inside the ozone cell of this unit are harmful to eyes and skin. Never operate this unit with the ultraviolet lamp exposed or removed from the ozone chamber.

The ozone generator should be installed in a properly ventilated equipment area with accessibility restricted to authorized personnel only.

The ozone gas produced by this system is very corrosive; therefore it is required to check for any possible leaks in the hoses, which inject this gas into your pond to ensure ozone gas is only exiting under water.

INSTALLATION ————

LOCATION OF INSTALLATION

ACAUTION Installer should follow local or state electrical codes to choose the correct wire size for length of run and wire protection as well as any circuit breakers or safety features, which may be required for this type of installation.

- 1. The Pond and Lake Reclamation System is intended for installation either indoors or outdoors close to the water being treated.
- 2. Electrical power supplied to the **Eco-Logic®** Pond and Lake Reclamation System <u>MUST</u> match power requirements listed on the equipment. Use of a voltage surge protector is recommended.
- 3. When installing inside, equipment **MUST** be installed in a properly ventillated area.
- 4. The front panel of this piece of equipment must be accessible after installation to allow enough room for routine maintenance.
- 5. The lamp access cover is located on the right side of equipment. A minimum of "24" is required for lamp removal and replacement.
- 6. Air intakes on the bottom of equipment, should be a minimum of 12" off the floor.
- 7. If wall mounting, proper selection of a vertical surface and hardware is required which will support the unit. Floor mounts should be bolted to a cement pad.
- 8. When installing outside, equipment should be located out of direct sunlight and placed away from sprinkler path.

Figure 1- Model 4 Dimensional Data TAMPER PROOF SCREWS 12 5/16" 36 13/32 18 13/32" 5 3/32" 3/4" FEMALE NPT OUTLET 12 5/32 OUTLET OPTIONAL FLOOR MOUNTING BRACKETS (PN# 401181A) 11 5/32" 14 19/32" SIDE VIEW FRONT VIEW

1) Unit is constructed with (4) 5/16" DIA. Holes on rear wall of enclosure for wall mounting. (Hole pattern measures 24" wide x 8" high)

EQUIPMENT INSTALLATION







IN ORDER TO PERFORM THIS TASK, BE SURE TO WEAR THE FOLLOWING SAFETY EQUIPMENT: SAFETY GLASSES OR A FACE SHIELD, AS WELL AS GLOVES.

- Remove Eco-Logic® from shipping crate. Inspect equipment, power cord and plug for damage. Do not operate if there is any damage to the equipment, powercord or plug. <u>Note: Refer to figures 2 and 3.</u>
- 2. Install **Eco-Logic**® at desired location. If wall mounting, the vertical surface <u>MUST</u> be able to support the weight of the equipment and selection and use of hardware <u>MUST</u> be suitable. If using floor stands (optional) mount/bolt to a cement pad.
- 3. If installed inside, equipment <u>MUST</u> be installed in a properly ventilated area. If installed outside, equipment should be located out of direct sunlight and away from direct path of sprinkler.
- 4. Unroll the Feeder Tubing. **<u>DO NO PULL</u>** from the roll (this will cause twists or kinks). Instead, unroll the tubing as if it were wound on a spool, having an assistant lead the end away from you. Cut the end of the tubing evenly so that you have a square end.
- 5. Remove one half of an inch of the lead keel section from the square cut end of the Feeder Tubing (See Figure 3). Attach this first end to the output fitting located on the bottom panel of the **Eco-Logic**® enclosure. Secure the tubing onto the fitting with the clamp provided.
- 6. Feeder Tubing can be placed in a trench to hide tubing between unit and waters edge; however, tubing should be protected inside a PVC pipe or other pipe to prevent tubing from being crushed.
- 7. Cut the tubing to the desired length for your installation. Factory recommendation is to form a "T" with the Feeder Tube being the center leg of the "T" (and Aeration Tubing creating the top cross of the "T"). (See Figure 4)
- 8. Remember to remove one half inch of the keel segment at each finished end of these tubes to provide clearance for tubing clamps. ("Installation" continued on page 6)

INSTALLATION CONT.

- 9. Unroll the Aeration Tubing, **DO NOT PULL** from roll (this will cause twists or kinks). Instead, unroll the tubing as if it were wound on a spool having an assistant lead the end away from you.
- 10. When forming a "T" layout for the Feeder Tube and Aeration Tube, cut the Aeration Tube in half and prepare each end by removing one half inch of the lead keel. Remember to cut each end of the tubing evenly so there is a flat end (See Figure 4).
- 11. Slide tubing clamp over each finished tube end and insert the tubing ends into the Tee Connector. Tighten each clamp to secure the tubes to the tee.
- 12. Insert the end plugs into each half of the Aeration Tube to cap the open ends and secure the plug with the tubing clamps provided.
- 13. After the assembly of the Feeder Tube and the Aeration Tube has been completed, it can be placed into pond or lake.
- 14. Carefully stretch out the tubing assembly across the lake or pond taking precautions **NOT** to kink, bend or crush the assembly. The Feeder Tube should be laid out first to bring Aeration Branches nearer to center of pond or lake. The aeration branches can then be laid out to span the greatest distance the lengths will allow.
- 15. The use of a small boat or entering the pond directly can be quite helpful when arranging Feeder Tubing and Aeration Tubing Assembly into pond or lake.

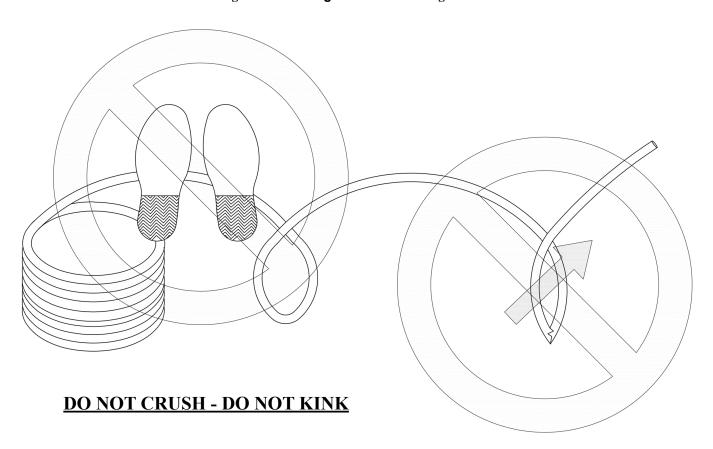
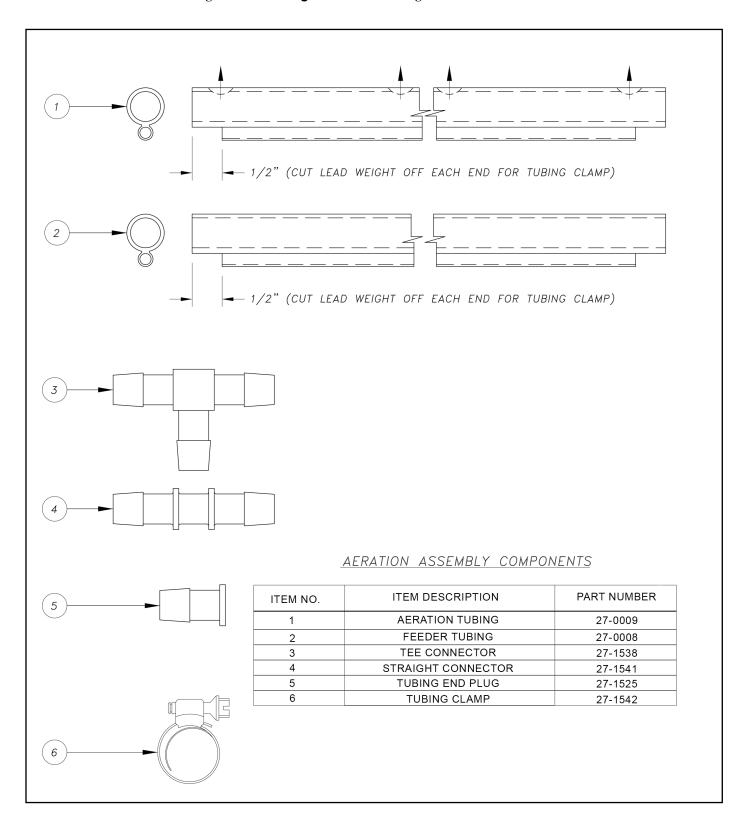


Figure 2- Eco-Logic® Aeration Tubing Caution

Figure 3 - Eco-Logic® Aeration Tubing Installation Guidelines



Eco-Logic® POND & LAKE RECLAMATION SYSTEM POND RECLAMATION SYSTEM OUTPUT ON UNDERSIDE OF MAIN SYSTEM ENCLOSURE 1/2 OF TOTAL AERATION TUBING LENGTH 1/2 OF TOTAL AERATION TUBING LENGTH TUBING LENGTH REQUIREMENTS TYPICAL HOSE BARB **DETAIL AT ALL CONNECTIONS MODEL** FEEDER TUBING ② **AERATION TUBING** ① 4 100 FT. 250 FT.

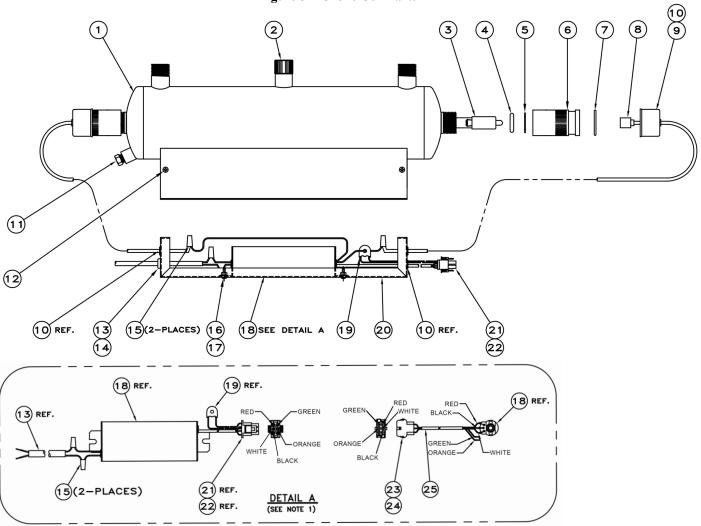
Figure 4 - Eco-Logic® Recommended Aeration Tubing Installation Guidlines

SUGGESTED TUBING LENGTHS AND ASSEMBLY FOR OPTIMUM EFFICIENCY.

*Consult the Factory for optional tubing layouts and **Eco-Logic**® accessories or replacement parts.

*SEE FIGURE 3 FOR ITEM DESCRIPTION AND PART NUMBER

Figure 5 - Ozone Cell Parts



ITEM	QTY.	DESCRIPTION	PART NO.
1	1	MIGHTY*PURE® CHAMBER MP22A	25-1465E3
2	1	SIGHT PORT PLUG	30-1075
3	1	STER-L-RAY® GERMICIDAL LAMP	05-0119A
4	2	O-RING	00-0037B
5	2	WASHER	50-0999
6	2	STATIC GLAND NUTS	25-4039A2
7	2	O-RING	00-1108B
8	2	Steadfast™ LAMP SOCKET & LEAD WIRE	05-1218A2-R
9	2	EASY-OFF™ END CAP	25-1499A1
10	5	SNAP BUSHING, 1/4 ID	35-1341
11	1	DRAIN PLUG	27-1216
12	4	BALLAST HOUSING SCREW	50-1323
13	1	LINE CORD & PLUG	35-1100
14	1	STRAIN RELIEF	35-1043
15	4	WIRE NUT, BLUE	35-1336
16	2	NUT: SPEED NUT/6-32 THREAD	50-1314
17	2	SCREW: 6-32 X 1/2" PANHEAD	50-1325
18	1	Surelite™ BALLAST	10-0056B
19	1	LAMP SENSOR	30-1409A-R
20	1	BALLAST HOUSING	25-1544D
21	1	CONNECTOR, PLUG, 6 PIN	35-1739
22	5	CONNECTOR, CONTACT, PIN	35-1741
23	1	CONNECTOR, SOCKET 6 POS	35-1740
24	5	CONNECTOR, CONTACT, SOCKET	35-1742
25	4.2"	WIRE, CABLE, 5 COND, 22AWG	35-0023

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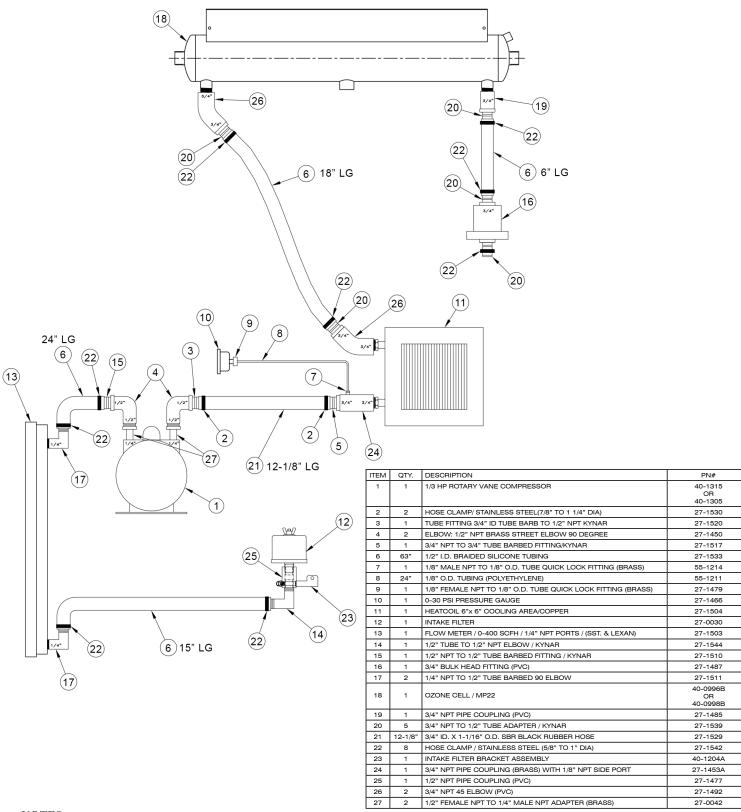
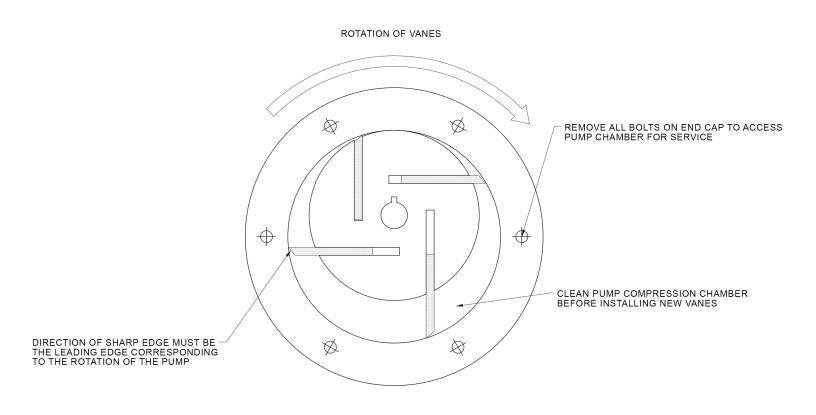


Figure 6 - Eco-Logic® Plumbing Diagram Model 4

- 1) Use Pipe Sealant PN# 27-1535 on threaded ends of each fitting used
- 2) Compressor 40-1315 is used on application requiring 220v 50Hz and Compressor 40-1305 is used on applications requiring 115/220v 50/60Hz

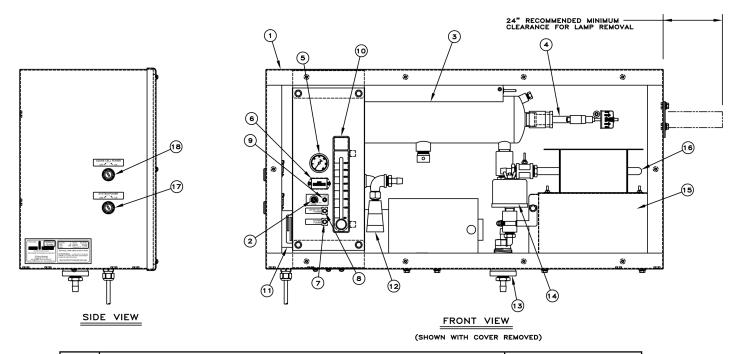
Figure 7 - Vane Replacement for Eco-Logic® Compressors



ECO-LOGIC® MODEL#	PUMP MODEL#	PUMP VOLTAGE (REF)	REPLACEMENT VANE KIT#	QTY REQ'D
4	40-1305	118 VOLTS, 50/60HZ	40-0015	1
4	40-1315	220 VOLTS, 50HZ	40-0015	1

- 1) The vanes installed in these pumps are made from carbon. Handle with care and avoid chipping or damaging the edges.
- 2) Be absolutely certain to install vanes in proper orientation related to motor rotation.
- 3) Clean all prefilters and the pumo chamber when replacing the pump vanes.

Figure 8 - Ozone Generator Model 4 Unit Features



ITEM	DESCRIPTION	Part No.
1	ENCLOSURE (STAINLESS STEEL)	40-1141A
2	DIMMABLE BALLAST CONTROL	10-0056B
3	OZONE CELL (STAINLESS STEEL)	40-0998A
4	OZONE STER-L-RAY ® GERMICIDAL ULTRAVIOLET LAMP	05-0119A
5	PRESSURE GAUGE	27-1466
6	Promate™ ELAPSED TIME INDICATOR	30-1007
7	SYSTEM POWER INDICATOR (GREEN)	35-0050
8	OZONE CELL INDICATOR (AMBER)	35-0009
9	OZONE LAMP INDICATOR (RED)	35-0174A5
10	OZONE FLOW METER	27-1503
11	SYSTEM COOLING BLOWER	40-0104A
12	COMPRESSOR	40-1378
13	3/4" FEMALE NPT OUTLET PORT	27-1487
14	COMPRESSOR AIR INTAKE FILTER	27-0030
15	PERMANENT WASHABLE AIR FILTER	40-9078A
16	HEAT EXCHANGER	40-1193A
17	SYSTEM POWER KEY LOCK SWITCH	35-0065
18	OZONE CELL KEY LOCK SWITCH	35-0065

- 1) Enclosure and cover are constructed of stainless steel type 304. Cover is secured to enclosure with #8-32 screws. Tamper proof screws are available as an option.
- 2) Unit utilizes (1) germicidal ozone producing lamp, instant start, with a rated effective life of 10,000 hours.
- 3) Unit employs key lock switches to insure tamper proof operation for either aeration alone of aeration with ozone.
- 4) Elapsed time indicator provides a visual indication in hours of time that unit is in service.
- 5) Continuous duty compressor produces up to 4 cubic feet per minute of air flow.
- 6) A dimmable electronic ballast is used to control the intensity of the ozone lamp, if reduced ozone output is required.
- 7) Permanent, washable, electrostatic air filter prevents particulate matter from entering into interior of unit.
- 8) Unit is constructed with (4) 1/4" 20 threaded inserts on rear of enclosure for mounting standard wall brackets (included). Optional floor stands are also available from the factory. (PN 40-1181A)

MAINTENANCE CONT. —

NORMAL MAINTENANCE RECOMMENDATIONS

Maintenance recommendations listed below are based upon a normal installation. Maintenance requirements may vary from site to site depending upon unit used and installation environment.

- **Compressors:** We recommend compressor vanes to be replaced at least once per year of operation.
- **Aeration Tubing:** Aeration tubing should be cleaned off with a rag if flow ever appears non-uniformed on the pond's surface. This can be done by removing the tubing from the pond and wiping off the tubing. This task can be performed from either on shore or on board a boat.
- 3. Ozone Cell Lamp: We recommend that the lamp be replaced every 10,000 hours of operation. (See Price Schedule for specific part number and cost for the Ozone Cell Lamp).
- Electrostatic Air In-Take Filter: We recommend the filter be inspected once every 30 days for dirt build-up. The filter can be cleaned using soap and water. Replacement is necessary when cleaning the filter can no longer be achieved or the filter material breaks down. (See Price Schedule for specific part number and cost for the In-Take Air Filter).
- 5. Air In-Take Filter: We recommend the In-Take filter be replaced, once a year.

BREAKAGE

ACAUTION Broken Quartz is **SHARP**.



Wear protective gloves when handling broken ultraviolet lamp(s). In the event of breakage, **DO NOT** use a household vacuum cleaner to pick up quartz fragments. Sweep up debris into a plastic bag and dispose of properly.

DISPOSAL OF MERCURY ADDED LAMPS



Germicidal ultraviolet lamps, like standard fluorescent lamps contain small amounts of mercury. Mercury added lamps should not be placed in the trash. Dispose of properly. For further information regarding the disposal and recycling of lamps containing mercury, along with Federal and State requirements visit www.LampRecycle.org. For more information on **STER-L-RAY**® Germicidal Ultraviolet Lamps, visit Ultraviolet.com or BuyUltraviolet.com.

TROUBLESHOOTING -

AWARNING Always disconnect power to Eco-Logic® before performing any service or maintenance.

IMPORTANT: This unit is to be serviced **ONLY** by qualified, and appropriately licensed, personnel.

Table 1 - Troubleshooting

Problem	Possible Cause	Corrective Action
AL DI CARE LAG M	No electrical power	Verify that the equipment is connected to a live power source.
Algae Blooms Still Exist After Many weeks.	Pump and/or Ozone cell not operating	Check that front panel indicator light marked "Ozone Cell Power" and "Ozone Cell Indicator" are on.
Poor Performance	Germicidal/Ozone Lamp output depreciating	Replace lamp as it nears end of life (EOL) See "Lamp Installation and Replacement."
	Air Filter located between air compressor and air cooler has become fouled.	Clean or Replace.
Pressure Gauge has Increased	Air Filter located between air compressor and air cooler has become full of water	In areas of high humidity, the filter bowl on the air filter housing may begin to fill with water. If this happens, open the drain on the filter bowl and allow the water to drain.
	A kink in the supply tubing in the pond	Locate problem tubing section and straighten out.
Bubble Pattern on Pond's Surface is No Longer Uniform	Aeration Tubing may have debris covering the exit slots.	Wipe off aeration tubing with rag to expose the tubing slots on exit points.



MAINTENANCE NOTES —————

USER ASSISTANCE

Atlantic Ultraviolet Corporation® makes every effort to ensure that the **Eco-Logic®** Pond and Lake Reclamation Equipment is a product of superior quality and workmanship. This manual describes the installation, operation and maintenance of the **Eco-Logic®** Pond and Lake Reclamation Equipment.

Please read and become familiar with the contents of this manual before installing or using this unit. If after reading the manual you still have questions, or concerns, regarding the installation or use of this unit, contact our offices, weekdays between 8:30 am and 5:00 pm Eastern Time, at:

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PATENT NOTICE

No attempt has been made to determine the patent status of applications illustrated or described in this publication. Inclusion in this publication of any design or method of use, which may be patented, is not to be construed as promoting or sanctioning unauthorized use.

WARRANTY & PRODUCT REGISTRATION -

We warrant this product to the original owner to be free from defects in material and workmanship when installed in accordance with Atlantic Ultraviolet Corporation® specifications for a period of time as follows:

UV Water Purifier Chambers – Type 316 stainless steel chambers will have a Twelve (12) year Limited Warranty on the stainless steel chamber, from the date of original purchase while the Type 304 stainless steel chambers will have a Six (6) year Limited Warranty on the stainless steel chamber.

UV Air Disinfection Housing – Three (3) year Limited Warranty on the metal housing, from the date of original purchase.

Ballast – Three (3) year Limited Warranty, from the date of original purchase.

UV lamps and Other parts – One (1) year Limited Warranty from the date of original purchase.

Within the warranty period we shall repair or replace such products, which are returned to us with shipping charges prepaid and which are determined by us to be defective. This warranty will not apply to any product, which has been subjected to misuse, negligence or accident; or misapplied; or modified; or repaired by unauthorized person; or improperly installed. Warranty will be null and void if any of the product's original labels are removed. This Limited warranty excludes the cost of labor.

The Buyer shall inspect the product promptly after receipt and shall notify us at our main office in writing of claims, including claims of breach of warranty, within thirty (30) days after the Buyer discovers or should have discovered the facts upon which the claim is based. Failure of the Buyer to give written notice of a claim within the time period shall be deemed to be a waiver of such claim.

The provisions of the above warranty are our sole obligation and exclude all other remedies or warranties, expressed or implied, including warranties of merchantability and fitness for a particular purpose, whether or not purposes or specifications are described herein. We further disclaim any responsibility whatsoever to the customer, or to any person for injury to person, damage to, or loss of property or value caused by any product which has been subjected to misuse, negligence, accident; or modified or repaired by unauthorized persons; or improperly installed.

Under no circumstances shall the Company be liable for any incidental, consequential or special damages; losses or expenses arising from the contract for this product, or in connection with the use of, or inability to use, our product for any purpose whatsoever.

Be sure to register your product and validate purchase within 30 days — registration is simple and will take less than 2 minutes to do.

NOTE – failure to register your purchase may jeopardize warranty.

Go to Ultraviolet.com and scroll down to the bottom of the page, under "Trust" click the "Warranty Registration Form", complete and click "Submit". Or click on "Warranty Registration PDF" to download the warranty registration card as a PDF, complete and mail to us at 375 Marcus Boulevard, Hauppauge, NY 11788, or simply fax to 631-273-0771. If you prefer to register by phone, please call 631-273-0500 and our customer service staff will be glad to assist you.

For your convenience, record the following information below. The model and serial number can be found on a label located on the **Eco-Logic®** unit. Keep this manual, along with proof of purchase, handy when contacting our offices.

Purchased From:	Date:
Model:	Serial No.: