SOLAR ECLIPSE

Ozone + UV Sanitation System
Installation & Operations Manual

DEL ozone™
advanced **sanitation solutions**

3580 Sueldo Street, San Luis Obispo, CA 93401 | 800.676.1335 | o3info@delozone.com | **www.delozone.com**

4-2005-01 Rev.C

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS.

- Read this manual completely before attempting installation. Failure to install in accordance with the installation instructions could void warranty and result in injury or death.
- All permanent electrical connections should be made by a qualified electrician.
- A pressure wire connector is provided on the outside of the unit to permit connection to a minimum No. 6 AWG (13.3 mm2) solid bonding conductor between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipes, or conduit within 5 feet (1.5 meters) of the unit as needed to comply with local requirements.
- Install at least 5 feet (1.5 meters) from wall of pool. Install ozone generator no less than one (1) foot above maximum water level to prevent water from contacting electrical equipment. Install in accordance with the installation instructions.
- Follow all applicable electrical codes.
- Electric shock hazard. Be sure to turn power OFF and disconnect from power source before any service work is performed. Failure to do so could result in serious injury or death.
- The Solar Eclipse must be installed in an outdoor location, or indoors in a forced air ventilated room, and installed so that the orientation is exactly as shown in Figure 3. Install to provide water drainage of generator to protect electrical components.
- Mount the Solar Eclipse so that it is inaccessible to anyone in the pool. Never attempt any servicing while unit is wet.
- Warning - Short-term inhalation of high concentrations of ozone and long term inhalation of low concentrations of ozone can cause serious harmful physiological effects. DO NOT inhale ozone gas produced by this device.
- For your safety, do not store or use gasoline, chemicals or other flammable liquids or vapors near this or any other appliance.
- To maintain cosmetic integrity, protect this unit from direct prolonged sunlight exposure.
- To reduce the risk of injury, do not permit children to use this product, unless they are closely supervised at all times.
- **ENVIRONMENTAL NOTICE** - Hg-Lamp CONTAINS MERCURY. Manage in accordance with disposal laws. See: www.lamprecycle.org

SAVE THESE INSTRUCTIONS!

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SECTION 1 General Information

1A. Description

The Solar Eclipse Ozone and UV Sanitation System described in this manual is designed to provide the benefits of ozonated and UV treated water in an environmentally safe and effective manner. The high quality, specially engineered components ensure efficient water sanitation output and reliable performance. As a result of proper use, the Solar Eclipse virtually eliminates the unpleasant effects of traditional chemicals. The Solar Eclipse ozone generators are safe and harmless to your equipment when installed properly.

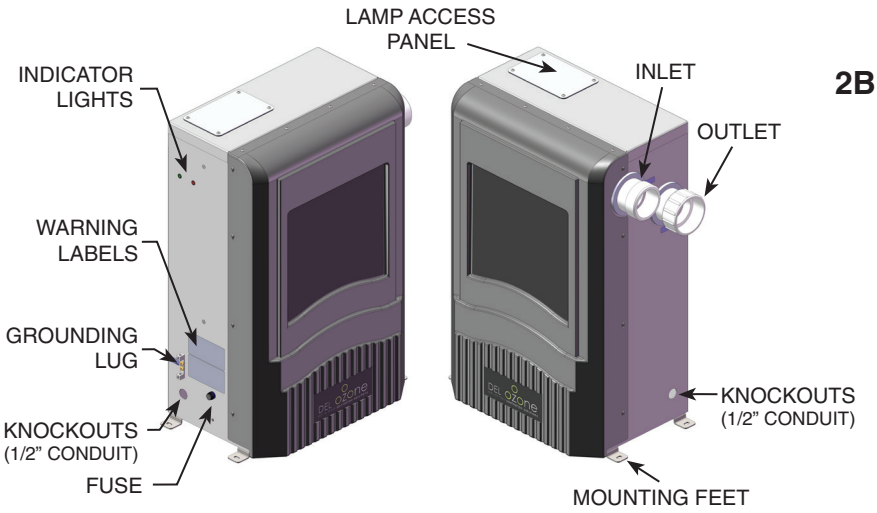

Figure 1: Overview

1B. Specifications

Power Requirements:
240V, 60 Hz, 1Ø, 0.06 Amp

Shipping Weight:
Approx. 41 lbs / 18.6 kg

Location Requirements:
Mounting: Floor Mounted
Ambient Temp.: 30°F - 120°F (0°C - 50°C)

1C. Warranty Summary

Limited Warranty:
Two year limited warranty. See last page for details.

SECTION 2 Installation

2A. Pool Preparation

To achieve optimal performance from the ozone system, the pool must be as clean as possible to start with.

1. Backwash or clean filters one day before starting the ozone generator.
2. Superchlorinate pool water using a chlorine based shock treatment prior to ozone system start-up.
3. Test pool chemistry and adjust pH between 7.4 and 7.6. Adjust total alkalinity between 80 and 120 ppm.
4. Run pool filtration continuously for 24 hours prior to starting ozone system.

2B. Location

The Solar Eclipse unit is designed for floor mounting. Locate the unit in a clean, protected area, either indoors or outdoors (preferably out of direct sunlight). If possible, locate the unit out of reach of sprinklers or drainage spouts. Allow sufficient access for maintenance (2 ft clearance above and 1 ft around the unit) and all plumbing and electrical hookups.

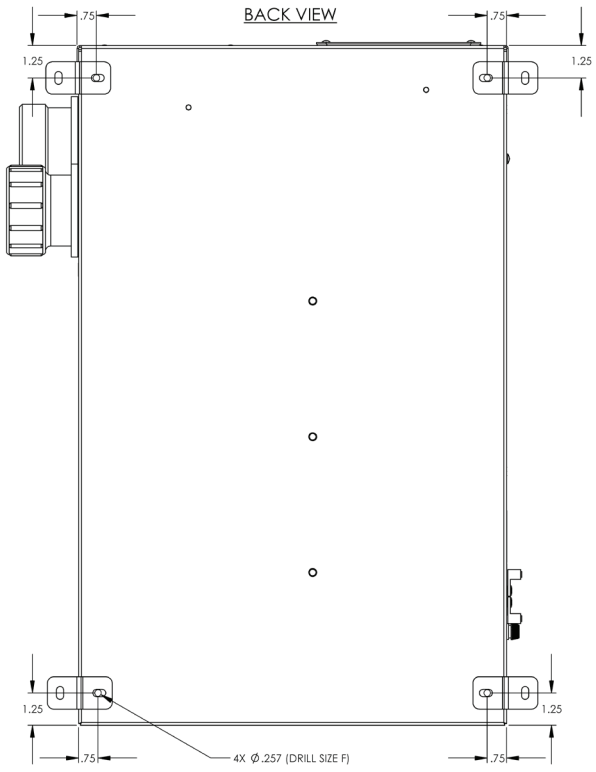

Figure 2: Wall Mounting Hole Pattern

2C. Mounting

2C-1. Floor Mounting

The Solar Eclipse is shipped with the Mounting Feet installed in the floor mounting position. Adjust the position of the feet if necessary and tighten the screws. Mount the Solar Eclipse to the equipment pad through the slots provided in the feet using appropriate hardware for the mounting surface.

2C-2. Wall Mounting

The Solar Eclipse unit does not have holes for wall mounting but can be mounted on the wall if desired.

1. Drill holes in the back of the enclosure approximately as shown in Figure 2.
2. Remove Cover with a #2 Phillips driver and clean out debris.
3. Install Mounting Feet in drilled holes with hardware provided.
4. Mount unit to wall through the slots provided in the Feet using appropriate hardware for the mounting surface.

2D. Electrical

2D-1. Main Power

Connect the Solar Eclipse to the pool timing clock so that the Solar Eclipse operates simultaneously with the pool pump. The Solar Eclipse has four available Knockouts for a 1/2" conduit fitting, two on the back and one on each side. Remove only the ideal Knockout for the installation and install the proper conduit fitting. Remove the Cover (Refer to Section 4C-1) and locate the Terminal Block (Refer to Figure 5) on the left side of the enclosure. Connect Line 1, Line 2, and Ground to the Terminal Block as indicated by the label on the Generator Bracket. Refer to the IMPORTANT SAFETY INSTRUCTIONS at the beginning of this manual for important wiring information.

2D-2. Grounding Lug

Using a solid copper conductor, connect to the Grounding Lug on the left side of the Solar Eclipse to an appropriate earth contact.

2E. Plumbing

The Solar Eclipse can easily be added into the pool's plumbing loop. All the components are contained inside the enclosure so only the water inlet and outlet need to be installed into the pool's return line.

2E-1. Plumbing the Solar Eclipse

The Solar Eclipse must be installed in the pool's main return line after all other pool equipment (pump, filter, heater, and cleaner). Figure 3 shows the most basic installation. For installation with additional sanitizers and pool cleaners contact DEL Technical Support (see Section 6A).

The Solar Eclipse will come with one half of a union fitting installed on Inlet and Outlet, the other half of the fittings will be located in the Solar Eclipse parts bag. Use the union fittings provided to connect the Solar Eclipse inlet and outlet to your pool's

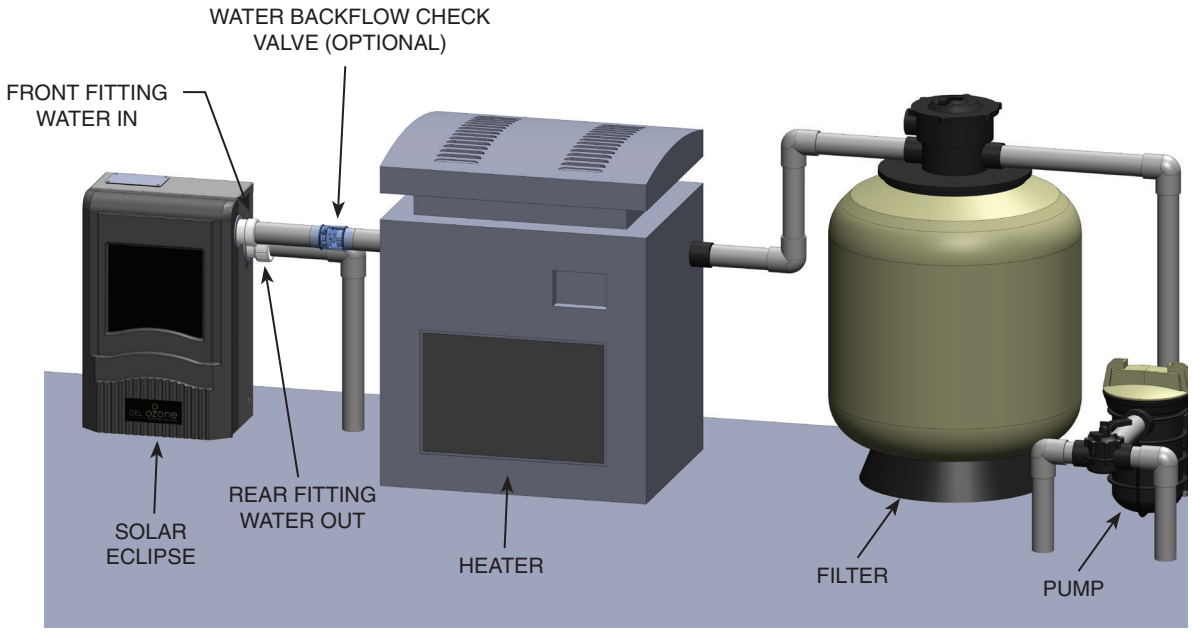

Figure 3: Solar Eclipse Location in Pool Loop

plumbing as shown above in Figure 3.

2E-2. Water Backflow Check Valve
If the pool equipment is mounted above the water line, a check valve must be installed between the pump outlet and the Injector Manifold to prevent the pump from draining and losing its prime (when not in use).
Note: If a 1/3# DELCheck™ is used, do not install immediately after chlorine feeders.

SECTION 3 Operation

3A. Initial System Start-Up

Upon completing all of the system connections and cleaning the pool as outlined in Section 2, you are ready to start the Solar Eclipse.

1. Check electrical connections.
2. Turn on pool circulation system and verify the Solar Eclipse has power.
3. Remove cover. Confirm that fittings are not leaking, contact Tech Support (Section 6A) if leaks are found.
4. Replace cover.

3B. Normal Operation

Indicator Lights: The Solar Eclipse has two external indicator lights, red and green, on its left side. When the Solar Eclipse has power, the green Power Light will illuminate. The red Vacuum Indicator may be on momentarily. Once adequate water is flowing and vacuum is established, the red Vacuum Indicator will go out. If the red Vacuum Indicator light is still lit after the pump has reached steady flow, refer to Trouble Shooting (Section 5).

3C. System Shut-Down

The following sequence of steps must be followed for servicing or for storage.
1. Shut off power at the breaker.
2. Shut off water to the unit.
3. Remove Cover if servicing.
4. Disconnect all electrical, plumbing, and mounting connections for storage.

3D. Winterizing

If the pool will be shutting down for the winter months and the Solar Eclipse will remain exposed to freezing temperatures, the unit must be drained to prevent freeze damage to the wetted components. To drain the Solar Eclipse, follow the steps below.
1. Remove the Cover.
2. Fully loosen the black Union Fitting at the bottom of the UV Reactor.
3. Gently separate the Injector Manifold from the UV Reactor to allow the water to drain out of the drain holes in the bottom of the enclosure.
4. Allow all the water to drain from the Solar Eclipse before tightening the black union fitting to reconnect the Injector Manifold to the UV Reactor. Make sure the union o-ring is properly seated in its groove before tightening.

3E. Water Chemistry

Regular chlorine testing should be performed as normal. Ozone will be eliminating the majority of contaminants. Therefore, only a small amount of chemicals will need to be added – just enough to maintain a residual level of 0.5 - 1.0 ppm chlorine. Ozone is pH neutral and will not cause pH or total alkalinity fluctuations.

SECTION 4 Maintenance & Service

4A. System Electromechanical Overview

Refer to Figures 4, 5, and 6.

4A-1. Ozone Module
The Solar Eclipse is constructed with 6 Corona Discharge Ozone Modules. Each Ozone Module has a green light to indicate that the Ozone Power Supply is operating properly. (Refer to Figure 5 for a more detailed view)

4A-2. Ultraviolet Lamps
There are two lamps in the UV Reactor of the Solar Eclipse. If the UV Lamp Access Panel is removed while the unit is running, a slight glow can be seen near the top of the lamps. (Refer to Figure 6 for a more detailed view)

4A-3. Injector Manifold
Water flowing through the Injector Manifold generates the vacuum that draws ozone into the water. The DELCheck™ spring loaded valve automatically adjusts for various water flow rates to keep the Solar Eclipse operating over a wide range of conditions.

4A-4. Ozone Gas Line
Gas from the Ozone Modules is drawn through the Ozone Gas Line by the Injector and into the water.

The Ozone Check Valve in this line prevents water from migrating back to the Ozone Modules when the Solar Eclipse is not running.

4A-5. Ozone Module Filters and Orifice
The air entering the Ozone Modules passes through individual Filters and an Orifice on each Module inlet. The Filters and Orifices are held in place by the rubber Filter Cap. (Refer to Figure 5 for a more detailed view)

4A-6. Injector Tube Adapter
This connects the Ozone Gas Line to the Injector Manifold. When servicing this component, do not tighten past 10 in-lbs or the component may be damaged.

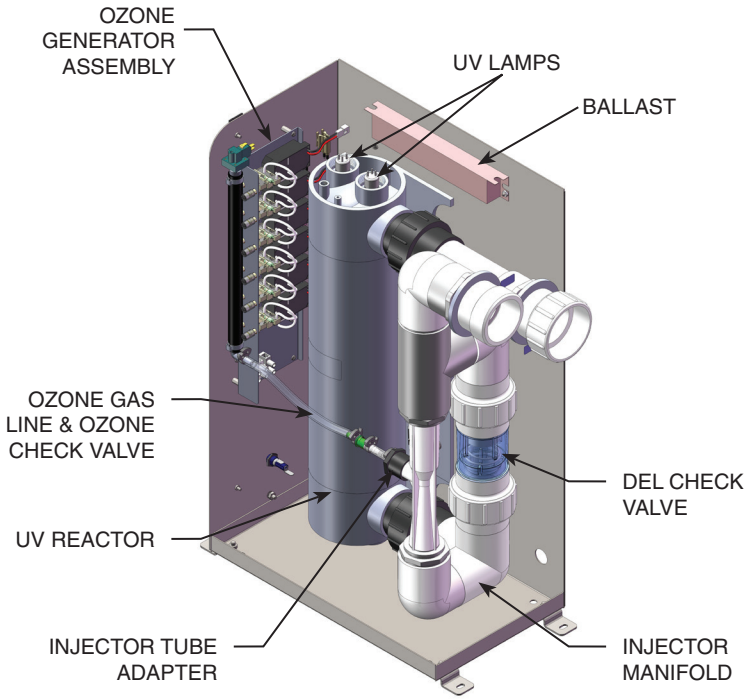

Figure 4: Solar Eclipse Electro-Mechanical Overview

4B. System Maintenance

All system maintenance must be performed with either the UV Access Panel or Enclosure Cover removed. You will need a size 2 phillips head driver to remove these components

4B-1. Ozone Module Maintenence
The green Ozone Module Lights on the Ozone Modules indicate that the Ozone Power Supply is operating properly. When an indicator light goes out, replace the corresponding Ozone Module.

4B-2. Ozone Module Replacement Interval
Ozone module life expectancy is 5 years. Even if the Ozone Module Light(s) are glowing, the Ozone Module may be producing little or no ozone after this period of time due to contamination within the corona discharge ozone chamber.

4B-4. Ozone Gasline Replacement Interval
Replace the Ozone Gas Line every year or sooner, if needed. If there is evidence of water leaking past the Ozone Check Valve toward the Ozone Modules, shut down the Solar Eclipse immediately and replace the Ozone Gas Line. If water entered the Solar Eclipse, allow the unit to dry completely before restarting the unit.

WARNING: Trace amounts of nitric acid may be present in the Ozone Gas Line. Wear proper safety equipment (gloves and eye protection) and avoid direct contact with any condensation in the line.

4C. Ozone Module Servicing - Refer to Figure 5

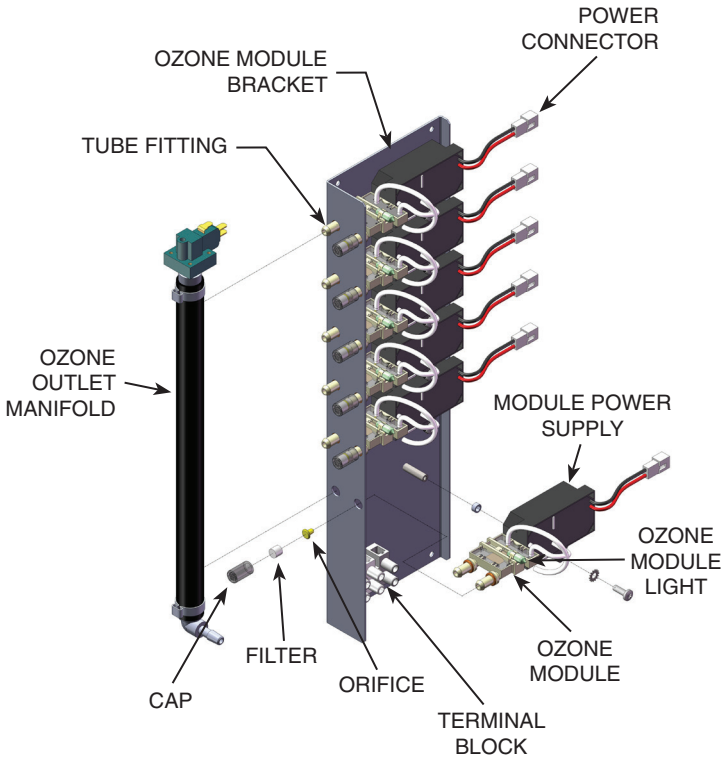

Figure 5: Ozone Generator Subassembly

4C-1. Removing the Cover

The Solar Eclipse may be serviced without disconnecting any of the plumbing or wiring. Simply remove the cover as follows:

1. Shut down the pool system power, verify that pump is off, then disconnect power to the ozone generator.
2. Remove the 12 screws that border the edge of the cover.
3. Carefully lift and pull the cover off of the Solar Eclipse.
4. The Base will remain firmly mounted with all the components fully accessible for servicing.

4C-2. Replacing an Ozone Module

1. Open the Solar Eclipse as described in Section 4C-1.
2. Locate the Ozone Modules on the left wall of the enclosure.
3. Remove the Filter Cap Assembly from the right tube fitting of the Ozone Module. Make sure you keep the Cap, Filter and Orifice together.
4. While holding the Ozone Outlet Manifold, gently pull the left tube fitting out of the manifold and both tube fittings through the holes in the Ozone Module Bracket. Let the Module hang down.
5. Locate the Power Connector (black and red wires) from the Module Power Supply and disconnect from the wire harness.
6. Unscrew the Ozone Module from the Module Bracket and remove the Module assembly from the unit.
7. Install the new Ozone Module by reversing the above steps.

4D. UV Reactor Service and Maintenance

The UV Lamps are housed in a Quartz Tube. If the Quartz Tube becomes dirty, its ability to transmit UV rays from the Lamp will be diminished. The Quartz Tube(s) should be removed from the UV Reactor every six (6) months and cleaned if necessary.

4D-1 Lamp Removal

1. Open the Solar Eclipse as described in Section 4C-1.
2. Once the pump is turned OFF, verify that the filter's pressure gauge located on the filter is indicating ZERO pressure in the circulation system. Do not go to the next step until the pressure gauge shows ZERO. If the pressure does not recede, simply unscrew the Top Union nut 1-2 turns.

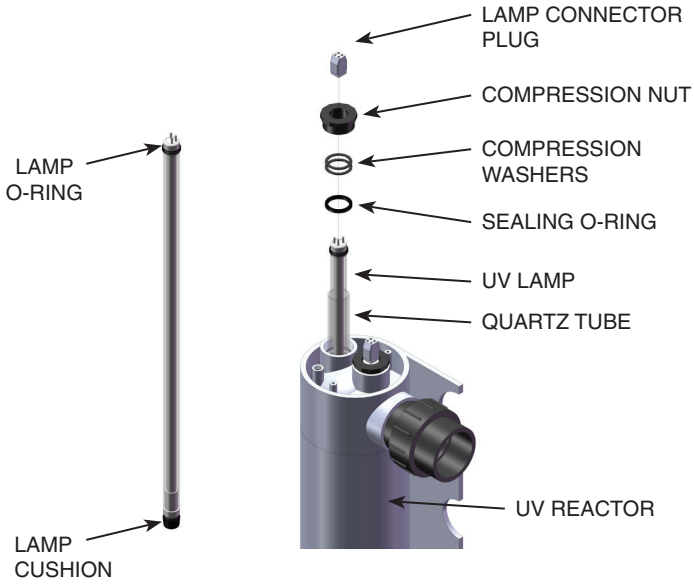

Figure 6: UV Reactor Subassembly

Note: If your Solar Eclipse is installed below water level, the bypass valves must all be CLOSED to prevent water from draining into the open unit when a Quartz Tube is removed.

3. Allow the UV Lamp to cool before handling. Unplug the Lamp Connector Plug attached to the top of the lamps.
4. Slowly pull the UV Lamp out of the Quartz Tube by the white ceramic prong end. ***DO NOT TOUCH THE UV LAMP GLASS WITH YOUR BARE HANDS.*** Oils on your hands can cause hot spots on the Lamp and shorten its life. Use a soft clean cotton cloth or clean cotton gloves to handle the UV Lamp. Note that there are two Lamp O-Rings near the top of the UV Lamp, and a black Lamp Cushion on the bottom. Leaving the Lamp Cushion and Lamp O-Rings on the lamp, carefully place the removed UV Lamp in a clean, dry and safe location. Repeat this process for the other UV Lamp.

4D-2 Quartz Tube Removal and Cleaning

1. Remove the plastic Compression Nut along with the Sealing Ring.
2. Inspect the Sealing Ring for nicks or hardness and the Compression Washers for cracks and replace if necessary.
3. DO NOT HANDLE THE QUARTZ TUBE UNTIL IT COOLS. Grasp the inside of the Quartz Tube and pull straight up to remove it.
4. Clean the Quartz Tube exterior with a mild solution of muriatic acid (available at all pool supply stores) and water in a ratio of four parts water to one part acid (4:1).

CAUTION: Follow the directions for use and handling of muriatic acid on the acid bottle label, being careful to protect your eyes, wear rubber gloves, and avoid breathing acid fumes. **NOTE:** DO NOT USE ABRASIVE CLEANERS as they can scratch the high quality quartz glass. If lime or hardwater calcium deposits are encountered, use household tub and shower lime removal.

5. After cleaning the Quartz Tube, wash it off and wipe dry. Inspect the Quartz Tube for cracks. Replace if cracks are found.
6. Make sure the inside of the Quartz Tube is dry before replacing the UV Lamp(s). **Note:** DAMAGES CAUSED BY BROKEN QUARTZ TUBES ARE NOT COVERED UNDER YOUR LIMITED WARRANTY.

4D-3 Quartz Tube Installation

1. Place the Sealing Ring on the Quartz Tube 3/8 in. (9.5 mm) from the open end.
2. Insert the Quartz Tube into the UV Reactor carefully until it seats in the bottom of the UV Reactor. **Note:** The Quartz Tube will rest on a spring in the bottom of the UV Reactor. Gently press the Quartz Tube downward and feel for the spring to push back to confirm that it is properly seated.
3. Place the Compression Washers on the Quartz Tube so they sit on the Sealing Quad Ring.
4. Screw the Compression Nut into the threads till it is finger tight. DO NOT OVERTIGHTEN.
5. Turn the circulation pump ON and check the Quartz Tube seal for leaks.
6. Correct any leak found by carefully tightening the Compression Nut one turn. If the leak persists, remove the Compression Nut, Compression Washers and the Sealing Ring. Inspect all components and replace if necessary.
7. Re-install the Sealing Ring, Compression Washers, and Compression Nut and check the unit for leaks again.
8. Turn the circulation pump OFF once you have confirmed that the Quartz Tube is not leaking.

4D-4 Re-installing the UV Lamp(s)

Make sure to handle the lamp as described in section 4D-1.

1. TURN OFF YOUR PUMP IF YOU HAVE NOT DONE SO.
2. Slowly lower the UV Lamp down into the Quartz Tube until it is seated in the bottom of the tube.
3. Connect the Lamp Connector Plug to the pins on the lamp. **NOTE:** Do not force the Lamp Connector Plug onto the pins. If force is needed, it means that the components are misaligned.

NOTE: To replace a UV Lamp, follow only Sections 4D-1 and 4D-4

ENVIRONMENTAL NOTICE - Hg-Lamp CONTAINS MERCURY. Manage in accordance with disposal laws. See: www.lamprecycle.org

SECTION 5 Trouble Shooting

Knowledge of electrical applications is required for trouble shooting. Contact a certified electrician if you are unsure of your ability to service the equipment. Improper servicing will void generator warranty. If any condition persists contact DEL Technical Support (see Section 6A).

Symptom: Green Indicator not lit when pool system is on.

1. No power to the Solar Eclipse from the Power Source:
   a. Check circuit breaker at the power distribution box.
   b. Check for loose connections or wiring breaks in the lines leading to the Terminal Block.
   c. Fuse in the unit has blown and needs to be replaced. Fuse is a 1 Amp slow blow, 1/4” x 1.25” long, glass fuse.
   d. Indicator lights have burnt out.

Symptom: Red Indicator will not go out.

1. Insufficient flow through Solar Eclipse.
   a. Verify that pump is running properly and that filter and skimmers are clean.
   b. Clear any blockages in return line.

Symptom: Green Ozone Module Light is not illuminated when unit is running.

1. This means that the power supply of that specific ozone module is no longer drawing power and needs to be replaced. Refer to Section 4C-2 for instructions on how to replace the corresponding ozone module.

Symptom: One or both the UV Lamps are not lit when unit it running.

1. Check Lamp Connector Plug for complete connection.
2. Water fouling has shorted lamp connections.
3. Bad UV Lamp.
4. Bad Ballast.

SECTION 6 Contact Information

6A. Contact Information:

For technical assistance:
Call: (805) 541-1601 ext. 293 or (800) 676-1335 ext. 293
Email: warrantysupport@delozone.com
Or visit our website: www.delozone.com

Be prepared with the following information:

- Name
- Address
- DEL Model #
- Date Purchased

6B. Ordering Information:

To locate a dealer nearest you call 1.800.676.1335, ext. 232 or visit www.delozone.com.

6C. Standard Replacement Parts List:

1. UV Lamps *(18 months)* 9-1097-01
2. Ozone Gas Line *(1 year)*.....9-1087-01
3. Sealing Ring.....7-1755-01
   (Inspect part during Quartz Tube maintenence, replace if cracked or brittle)
4. UV Reactor Union O-ring 7-1762-01
   (Inspect part during Quartz Tube maintenence, replace if cracked or brittle)

Note: The warranty is void if the parts listed above are not replaced at recommended intervals.

DEL OZONE Solar Eclipse™
LIMITED WARRANTY

The limited warranty set forth below applies to products manufactured by DEL OZONE – 3580 Sueldo Street, San Luis Obispo, California 93401, and sold by DEL OZONE or its authorized dealers. This limited warranty is given only to the first retail purchaser of such products and is not transferable to any subsequent owners or purchasers of such products.

DEL Ozone warrants that it or its authorized dealers will repair or replace, at its option, any part of such products proven to be defective in materials or workmanship within:

Two (2) years from the date of retail purchase of such products, all parts except:
Eighteen (18) months on UV Lamps
Twelve (12) months on Ozone Gas Line and Ozone Check Valve assembly

ANY REPAIR OR REPLACEMENT WILL BE WARRANTED ONLY FOR THE BALANCE OF THE ORIGINAL WARRANTY PERIOD.

NOTE: USE ONLY DEL AUTHORIZED DEL REPLACEMENT PARTS. USE OF ANY OTHER PART(S) WILL VOID THIS WARRANTY.

Any replaced parts must be returned to DEL OZONE for warranty evaluation.

THIS LIMITED WARRANTY DOES NOT INCLUDE ANY OF THE FOLLOWING:

(a) Any repair or replacement of such parts necessitated by faulty installation, improper maintenance, improper operation, misuse, abuse, negligence, accident, fire, flood, repair materials, and/or unauthorized accessories.

(b) Any such products installed without regard to required local codes and accepted trade practices.

(c) Damage to unit caused by water backflow;

(d) Any implied warranty of merchantability or implied warranty of fitness for particular purpose, and such warranties are hereby disclaimed.

(e) DEL Ozone shall not be liable under any circumstances for loss of use of such product, loss of profits. direct damages, indirect damages, consequential damages, and / or incidental damages.

This warranty gives you specific legal rights. You may have other rights which vary from state to state.

TO OBTAIN WARRANTY SERVICE:

DEL OZONE
3580 Sueldo, San Luis Obispo, CA 93401
Customer Service Number: (800) 676-1335 x 293
Fax Number: (805) 597-5452
E mail warrantysupport@delozone.com

PROVIDE:

1. Customer name, mailing address, and telephone.
2. Installer/Mechanical Contractor or Dealer name.
3. Unit Part Number, Serial Number or Manufacture Date, and date of purchase.
4. The date of failure.
5. A description of the failure.

After this information is provided, DEL Ozone may release a *RETURN GOODS AUTHORIZATION (RGA) NUMBER.* After receiving the RGA number the part in question must be returned to DEL Ozone, freight prepaid, with the RGA number clearly marked on the outside of the package. All preauthorized defective parts must be returned to DEL Ozone within thirty (30) days. Under no circumstances may any product be returned to DEL Ozone without prior authorization. Returns without the assigned RGA number on the outside of the package will be refused and shipped back to the sender at their expense. Upon receipt of preauthorized returned goods, DEL Ozone will repair or replace, at DEL Ozone's option, the defective product(s) and return them (freight prepaid for products under warranty). Buyer's acceptance of the product and use thereof constitutes acceptance of these terms.

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DEL OZONE™

advanced **sanitation solutions**

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