

OZONE GENERATOR FOR SPAS

INSTALLATION & OPERATIONS MANUAL

For Models:

Platinum

MANUFACTURED BY



San Luis Obispo, CA 93401

DEL Ozone · ONE YEAR LIMITED WARRANTY

The limited warranty set forth below applies to products manufactured by DEL Ozone, 3428 Bullock Lane, San Luis Obispo, California 93401, and sold by DEL Ozone and 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 one (1) year of the date of retail purchase of such products ANY REPAIR OR REPLACEMENT WILL BE WARRANTED ONLY FOR THE BALANCE OF THE ORIGINAL WARRANTY PERIOD. NOTE: USE ONLY DEL AUTHORIZED REPLACEMENT PARTS. USE OF ANY OTHER PART(S) WILL AUTOMATICALLY VOID THIS WARRANTY. THIS LIMITED WARRANTY DOES NOT INCLUDE ANY OF THE FOLLOWING: (a) any labor charges for trouble-shooting, removal, or installation of such parts; (b) any repair or replacement of such parts necessitated by faulty installation, improper maintenance, improper operation, misuse, abuse, negligence, accident, fire, repair materials, and/or unauthorized accessories; (c) any such products installed without regard to required local codes and accepted trade practices; (d) ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE, AND SUCH WARRANTIES ARE HEREBY DISCLAIMED; AND (e) DEL Ozone SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR LOSS OF USE OF SUCH PRODUCTS, LOST PROFITS, DIRECT DAMAGES, INDIRECT DAMAGES, CONSEQUENTIAL DAMAGES AND/OR INCIDENTAL DAMAGES. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

TO OBTAIN WARRANTY SERVICE:

Contact DEL Ozone, 3428 Bullock Lane, San Luis Obispo, CA 93401 Customer Service Number: (800) 676-1335 x248. When filing a claim, you must provide: 1) your name, mailing address and telephone number; 2) the selling dealer's name; 3) proof of date of purchase; 4) the date of failure; and 5) a description of the failure.

After this information is provided, DEL Ozone will issue a RETURN GOODS AUTHORIZATION (RGA) NUMBER. After receiving this 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 pre-authorized 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*. You must call or write first or your returned goods shipment will be refused. Upon receipt of pre-authorized returned goods, DEL Ozone will repair or replace, at DEL's option, the defective product(s) and return them freight collect. To validate your warranty, fill in the enclosed warranty registration card and return it to DEL Ozone within ten (10) days of your purchase. Buyer's acceptance of the product and use thereof constitutes acceptance of these terms.

IMPORTANT SAFETY INSTRUCTIONS

Proper installation and safe use of your DEL spa ozonator is your responsibility. Read and follow this Owner's Manual carefully for important installations, operation and safety information. Basic safety precautions should always be followed, including the following:

1. **READ AND FOLLOW ALL INSTRUCTIONS**
2. All electrical connections should be made by a qualified electrician.
3. Follow all applicable electrical codes.
4. Be sure all the electrical power is shut off at the main circuit breaker before installing the ozonator.
5. Connect to a grounded grounding-type receptacle only.
6. If the ozonator electrical connections will be attached directly to the spa controls, be sure the spa controls are protected by a Ground Fault Circuit Interrupter (G.F.C.I.). If the DEL spa ozonator is connected to an independent electrical supply, then a G.F.C.I. must be installed between the ozonator and the electrical supply.
7. Do not bury the cord.
8. **WARNING:** To reduce the risk of electric shock, replace a damaged cord immediately.
9. Per U.L. requirements, the ozonator must be mounted indoors, or under a cover, sheltered from the natural elements (e.g.: rain, sun, sprinkler).
10. For ozonators equipped with a standard "three-prong" plug (NEMA 5-15P), the ozonator must be mounted above the water line, at least five (5) feet away from the spa and at least one (1) foot above the water level.
11. Mount the ozonator so that it is inaccessible to anyone in the spa. Never attempt any servicing while wet.
12. To reduce the risk of injury, this unit should be mounted where it is inaccessible to children.
13. Plastic ozone supply tubing is supplied with the ozonator. Never replace this tubing with metal tubing, as ozone will damage it.
14. Do not operate the ozonator unless sufficient air flow (~2 scfh) is being drawn through the unit.
15. **WARNING:** Short term inhalation of high concentrations of ozone and long term inhalations of low concentrations of ozone can cause serious harmful physiological effects. Do not directly inhale ozone gas produced by this device (i.e. do not inhale directly from tubing or ozonator).

SAVE THESE INSTRUCTIONS.

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HOW THE DEL SPA OZONATOR WORKS

The Spa Eclipse Platinum ozonator that you have just purchased is a high-output ozonator capable of sanitizing spas up to 1200 gallons. When used in conjunction with a small residual of chlorine (.5-1 PPM), the Platinum will simply provide you with the healthiest, clearest and purest water available.

Ozone is created and introduced into your spa through the use of a suction creating venturi injector or simply an ozone jet. Many spas manufactured today are “ozone ready” and will plumb easily to your Spa Eclipse Platinum ozonator. The spa kit includes parts necessary to connect the Platinum to your existing spa if your spa is ozone ready. If your spa is not ozone ready, you may need additional parts. Contact the retail store where you purchased this unit or call DEL Ozone customer support for further help.

Ozone is introduced to the spa when your circulation/filtration pump is running. Please note that the ozone check valve is correctly plumbed so that water does not back up into the ozonator. In addition, the use of a Hartford Loop may be required to prevent water from potentially backing up into the ozonator. Please refer to pages 8 and 11 for information on creating a Hartford Loop.

INSTALLATION PARTS

(1) manual, (5') ozone supply tubing, (4) screws (1) ozone supply check valve, (4) gold hose clamps

TOOLS AND MATERIALS NEEDED FOR INSTALLATION

PVC Cement
Electrical Drill
Teflon Tape

PVC Tee (w/threaded end)
Hacksaw or PVC Hose Cutter

Tape Measure
Screwdriver

UNIT ASSEMBLY

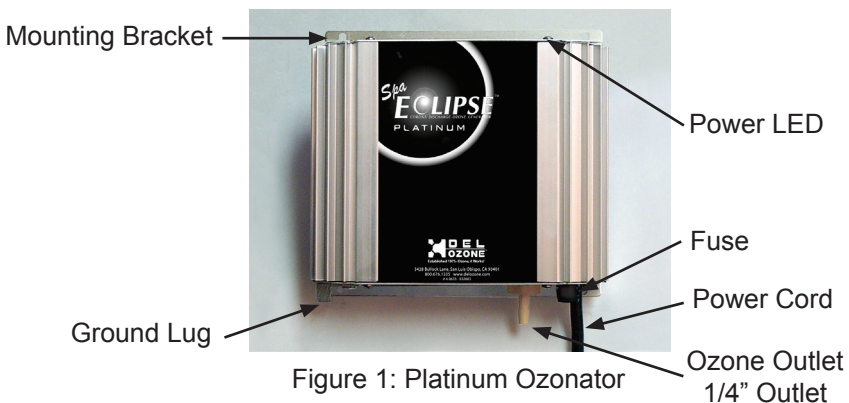


Figure 1: Platinum Ozonator

INSTALLATION

MOUNTING

Note: For ozonators equipped with a standard “three-prong” plug (NEMA 5-15P), the ozonator must be mounted above the water line, at least five (5) feet away from the spa and at least one (1) foot above the water level.

Find a suitable location underneath the skirt of the spa to mount the ozonator. To prevent water from backing up into the ozonator (in case of check valve failure) mount the unit close to the water surface and include a Hartford Loop (see page 11) that rises above the water level. Locate the unit so that electrical and ozone supply tubing connections can be made easily. The ozonator must be mounted indoors or under a cover, protected from natural elements. **NOTE:** If the ozonator is used on an indoor spa, the unit needs the optional Mixing Degas Valve (MDV) or have adequate ventilation.

Attach the **Platinum Spa Eclipse** to a solid surface using screws (included).

OZONE SUPPLY TUBING

Your ozonator includes 5' of tubing. Connect one end to the ozonator and cut the tubing 4' foot from the ozonator. Insert the check valve (with the arrow pointing away from the ozonator) and reconnect the pieces. The check valve permits ozone to flow through the tubing in one direction while preventing water from backing up into the ozonator.

There are various locations where the other end of the ozone supply tubing can be connected. Review the following sections to determine which location is most applicable to your spa.

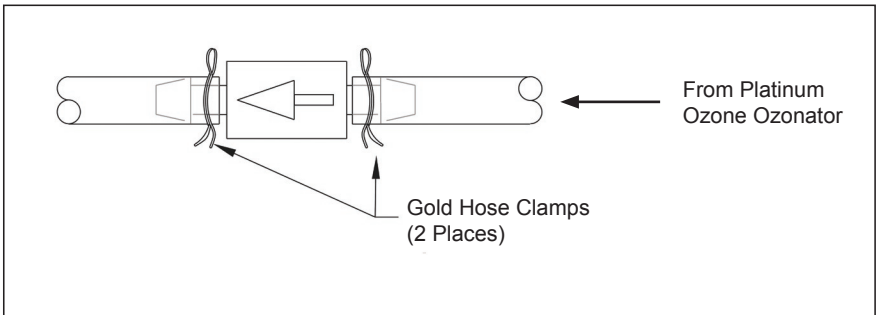


Figure 1A: DEL Check Valve

OZONE SUPPLY TUBING CONNECTION LOCATIONS:

OZONE-READY SPAS

If your spa is factory equipped with an ozone injection point, follow the manufacturer's installation instructions or check with your dealer. After installation, you will need to test the suction at the injection point. Refer to the section titled "DEL Suction Test" for instructions on performing this test.

NON OZONE-READY SPAS:

LOCATION "A" & "B" (see Figures 2 & 3): This location can be used if the air control valves on your spa completely close.

LOCATION "C" (see Figure 2): This location is used if the air control valve does not have a completely closed position.

LOCATION "D" (see Figure 5): This connection procedure is used on spas which have a two-speed pump and where the venturi air line is inaccessible or will not provide sufficient suction to operate the ozonator properly. A DEL RIGID INJECTOR MANIFOLD (DEL Part Number IU-201) is required and can be ordered from your local dealer. This connection is also used if an air blower is provided to "supercharge" the jets.

LOCATION "E" (see Figure 5): Use this location on spas with a single-speed pump. A DEL ADJUSTABLE INJECTOR MANIFOLD (DEL Part Number IU-206) is required and can be ordered from your local dealer.

NOTE: Locations "D" and "E" provide the most efficient method for dispersing ozone into the spa's water.

OZONE SUPPLY TUBING CONNECTION:

Once a suitable location has been chosen, follow the appropriate connection instructions below.

LOCATIONS "A", "B", "C":

NOTE: In the case where there are two air control valves, it may be helpful to determine which one has the best air suction. To do this, operate the pump on low speed with both air control valves open. Observe the action of the jets. The lowest jet with the most bubbles will suggest the best location in the air venturi line for the ozone supply tubing connection.

INSTALLATION FOR LOCATIONS “A” & “B”:

Turn off the electrical power and drain the spa at least 12 inches below the selected “A” (Figure 2) or “B” (Figure 3) location. The installation instruction for locations “A” & “B” are identical except that location “A” utilizes a vertical air venturi line and location “B” utilizes a horizontal air venturi line. Use the spa’s venturi air line which provides the best suction and is connected to the lowest jet. (See NOTE on page 5).

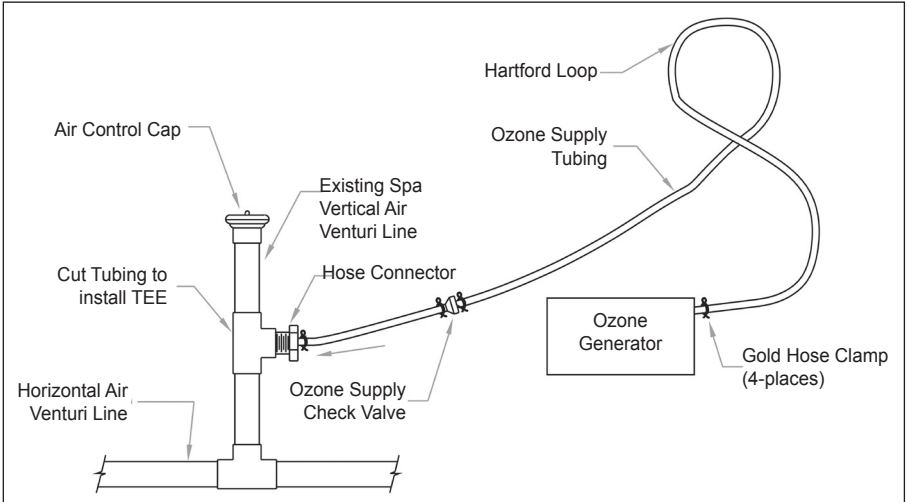


Figure 2: Vertical Air Venturi Line (Location “A”)

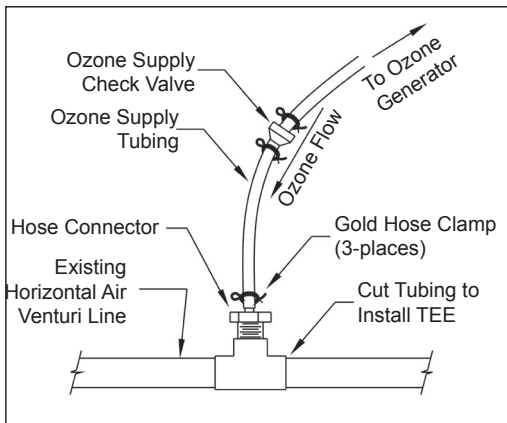


Figure 3: Horizontal Air Venturi Line (Location “B”)

PLASTIC HOSE CONNECTOR INSTALLATION:

A plastic hose connector installed onto the air venturi line may be used when the spa is not “ozone ready”. If the spa is plumbed with flexible PVC pipe, an appropriately sized PVC tee fitting, with the center having 1/2” female threads (not included) must be installed (see Figure 3). The plastic hose connector threads into the tee fitting. The plastic hose connector can be purchased from your dealer using DEL part number 7-0127 (see Figure 7). Select a convenient location, that provides enough room to work, to install the PVC tee fitting with 1/2” female threads (not included). Cut the existing air venturi line at the selected “A” or “B” location (see Figures 2 & 3). Glue the fitting into place. Be sure to use “FLEX-TO-RIGID” PVC Cement. Wrap Teflon tape on the plastic hose connector threads and install into the tee fitting.

SADDLE CLAMP ASSEMBLY INSTALLATION:

If the spa is plumbed with rigid PVC pipe or if there are any rigid locations on the air venturi line such as a tee or elbow fitting, a saddle clamp assembly can be utilized. Please contact your local dealer to order DEL part number 9-0001. To use the saddle clamp assembly, find a suitable location to secure it. Possible locations are shown in Figure 4. Be sure the chosen location is part of the air venturi system and that there is enough clearance to tightly secure the saddle clamp. Drill a 3/8” diameter hole at the chosen location. BE CAREFUL not to drill through the back of the pipe or fitting. Push the nipple into the hole and secure by tightening down the saddle clamp.

Fully close the air control valve to provide maximum suction. If the spa is equipped with adjustable jets be sure that they are all completely open. When final electrical connections have been made, fill the spa to its normal operating level and turn the power back on. Proceed to the DEL SUCTION TEST section before final connection of ozone supply tubing is made.

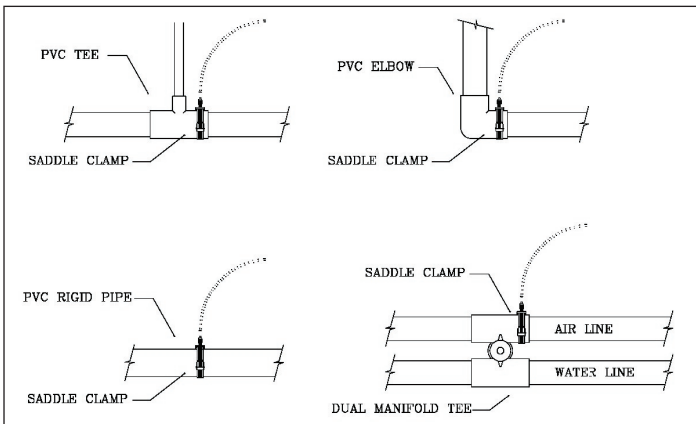


Figure 4: Possible Saddle Clamp Locations

INSTALLATION FOR LOCATION “C”:

Turn off the electrical power and drain the spa at least 12 inches below the air venturi line which provides the best suction and is connected to the lowest jet. Cut the PVC flex tube approximately 3” to 4” from the air control valve. Install an appropriately sized PVC reducer fitting (not included), with 1/2” female threads on one end. Be sure to use FLEX-TO-RIGID- PVC Cement whenever working with PVC flex tubing. Wrap Teflon tape on the plastic hose connector threads and install into the reducer fitting, securing ozone supply tubing. This entire assembly should be secured as close to the top of the spa waterline as possible. **NOTE:** This installation will cause ozone to be drawn only through the jet(s) dedicated to this venturi air line no matter what position the air control valve is in.

See **ELECTRICAL CONNECTION** to complete installation. When final electrical connections have been made, fill the spa to its normal operating level and turn the power back on. Proceed to the DEL SUCTION TEST section before final connection of ozone supply tubing is made.

INSTALLATION FOR LOCATION “D” (TWO-SPEED PUMPS):

For the location “D” connection, a DEL RIGID INJECTOR MANIFOLD (DEL Part Number IU-201) is required - contact your local dealer (See Figure 5).

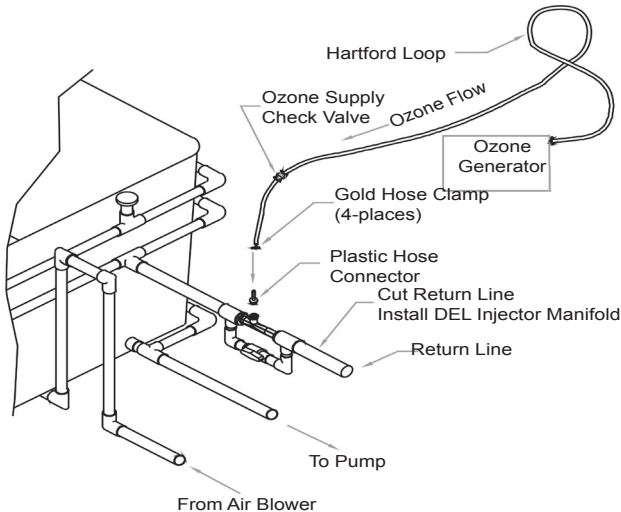


Figure 5: DEL Injector Manifold Installation Diagram

Turn off the electrical power and completely drain the spa. The DEL RIGID INJECTOR MANIFOLD must be installed in the spa's return line after all other equipment (pump, filter and heater). It should be installed as close to the spa as possible.

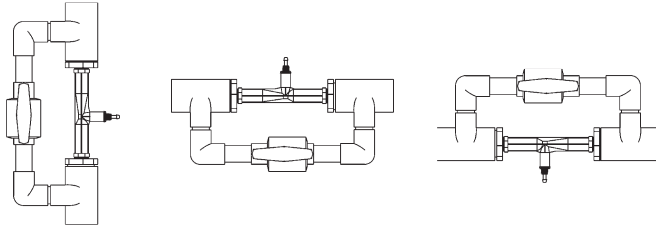


Figure 6: Injector Mounting Diagram

Locate an appropriate section of the return line, hold the injector manifold against the pipe and mark the length. Subtract 2-2/3" from the overall length, mark this point, and cut out the section. Install the injector manifold with PVC cement. The injector manifold can be installed in either a vertical or horizontal position in the return line.

Make sure the water flow arrow on the ball valve is pointed toward the spa. Locate the plastic hose connector, wrap 3 layers of teflon tape on the threads (do not use thread sealant), and install it hand tight into 1/2" female pipe thread fitting of the DEL Rigid Injector Manifold. Tighten the plastic hose connector 1/2 turn with a wrench. Secure one end of the ozone supply tubing to the barb end of the plastic hose connector with a supplied gold hose clamp. Locate the ozone supply check valve and install it into ozone supply tubing by cutting tubing in two separate places approximately 4' from the ozonator and insert the check valve between each cut, securing both ends of the check valve with gold hose clamps as shown in Figure 7.

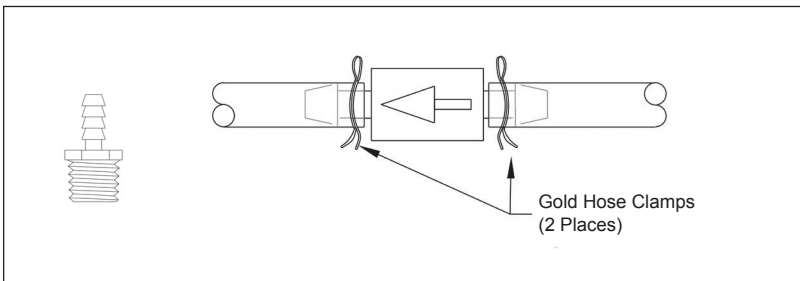


Figure 7: Plastic Hose Connector & Check Valve

See **ELECTRICAL CONNECTION** to complete installation. When the final electrical connections are completed, refill the spa to its normal operating level (check for leaks as the spa is filling), and turn the power back on. Proceed to the DEL SUCTION TEST section before final connections of ozone supply tubing are made.

INSTALLATION FOR LOCATION “E” (SINGLE-SPEED PUMPS)

For the location “E” connection, a DEL ADJUSTABLE INJECTOR MANIFOLD (DEL Part Number IU-206) is required. The injector manifold must be installed on the spa return line after all the spa equipment (See Figure 5). Refer to the instructions for installing a DEL RIGID INJECTOR MANIFOLD, Installation for Location “D”, above.

ELECTRICAL CONNECTION

The electrical cord should be wired to the pump controller so that the generator comes on only when the pump is on (for two speed pumps the generator should be wired to the low speed control). Ozonators supplied with a special plug should be connected to the appropriate electrical outlet on the spa pack on ozone-ready spas.

The Platinum Spa Eclipse requires the addition of a minimum 8 AWG grounding wire, to comply with local requirements (this wire must be connected from the open ground lug of the power supply cartridge to a grounding point).

DEL SUCTION TEST

The DEL suction test is used to determine if the selected venturi location will provide enough suction for proper ozonation of the spa, and for setting the position of the ball valve on the DEL adjustable injector manifold in location “E”. To test the suction, disconnect the ozone supply tubing from the ozonator. With the spa running, place your thumb over the end of the tubing and check how much suction is applied to your thumb. The suction should be strong enough to lightly “suck” your thumb to the end of the tubing.

FAILED DEL SUCTION TEST

Very little or no suction may be caused by the list of possible problems below. Review the list then test for suction again.

1. Dirty filter: Clean the filter and test again
2. Clogged jets: Clean and test again
3. Closed adjustable jets: Open completely and test again
4. Jet nozzle orifices too small: Remove orifice reducers or drill larger orifices.
5. Injector Manifold installed before heater or pump: All Injector Manifolds must be installed AFTER all spa support equipment. Failure to do this will result in poor suction as well as damaged equipment.
6. Spa pump sized either too large or too small for number or sizes of jets located in spa.
7. Check Valve is installed backwards.

HARTFORD LOOP INSTALLATION

Make a loop with the ozone supply tubing and secure it above (or as close to) the spa water level. This loop will prevent water from backing up into the ozonator should the check valve fail. A Hartford Loop must be installed to validate the warranty. If a single loop cannot be secured above the water line, make two complete eight (8) inch diameter loops with the ozone supply tubing and secure as high as possible.

FINAL CHECK

Recheck the ozonator installation. Be sure all electrical connections are correct, the unit is mounted properly and the ozone supply tubing is connected. When the spa pump comes on, the green LED on the top of the unit will turn on.

The spa's mechanical system will run exactly as before. **Note:** If the pump is above the water level of the spa and there is not a flapper valve in the strainer basket housing, the pump may lose its prime on an injector installation. Most pump/filter systems have this valve. If yours does not, add a DEL CHECK 1/3# check valve (DEL part number C0-0101, not included) between the spa outlet and the strainer basket housing. Continue to follow the instructions for the pump, filter, heater, etc., that come with your spa.

Once the ozonator is functioning properly, there is nothing the spa owner must do to operate it. It should be hooked up so that it operates automatically with the spa system. If it does not, refer back to the electrical section.

MAINTENANCE

There are no end-user servicable parts on the Platinum ozonator except for a fuse. See the Trouble Shooting Section for help replacing the fuse.

TROUBLE SHOOTING

SYMPTOM: *Cloudy water condition even though the unit appears to be operating properly.*

PROBABLE CAUSE	CORRECTIVE ACTION
1. Unit and pump not operating long enough	1A. Increase operating time (min. 6 hours is recommended)
2. Total alkalinity not correct	2A. Adjust total alkalinity betw. 80-150 ppm
3. pH not correctly balanced	3A. Check for proper pH betw. 7.2-7.6
4. Not enough suction	4A. Perform DEL Suction Test. Remove air control cap and check condition of "O" ring - replace and tighten cap snugly
5. Too much suction	5A. Adjust the jets to reduce suction
6. Dirty, loose, cracked filter	6A. Check/replace filter as needed
7. Metals or minerals in water	7A. Ozone may react with metals/minerals in the water (this is common when new water is added) causing cloudy water. Check alkalinity, pH, and clean filter. Run filtration system and ozone for 24 hours and clean filter.

SYMPTOM: *Pump loses prime when system is off.*

PROBABLE CAUSE	CORRECTIVE ACTION
1. No flapper valve in pump strainer	1A. Add flapper valve

SYMPTOM: *System on/off – water backing into ozonator*

When your system is in its "on" cycle a suction of air is being pulled through the tubing from the ozonator to the return line.

When the system is in its "off" cycle water tends to flow back in the tubing towards the ozonator. Therefore, mounting your ozone unit as high as possible in relation to the spa water level is important. There is also a one-way check valve provided to prevent the back flow of water from reaching the ozonator. As a secondary precaution, a Hartford loop in the tubing, also hanging above water level, will help prevent water damage to the ozonator (see pg. 6, Fig. 2).

SYMPTOM: *The green LED not lit*

No power to the ozonator. Check the electrical connections and then the fuse.

NOTES:

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DEL Ozone WARRANTY REGISTRATION CARD Product Serial Date:

Fill out completely and return to DEL Ozone within ten (10) days of purchase.

Customer Info:

Name _____ Phone () _____

Address _____

City _____ State _____ Zip _____

Dealer Info:

Dealer Name _____ Phone () _____

Dealer Address _____

City _____ State _____ Zip _____

Purchase/Product Info:

Purchase Date: _____ Date Installed: _____

Product Purchased:

Platinum

Comments/Questions: _____

DO NOT FORGET TO CUT OUT AND MAIL THIS CARD
FOR INSTANT WARRANTY COVERAGE!

DEL Ozone
ATTN: Warranty Dept.
3428 Bullock Lane
San Luis Obispo, CA 93401-9787