

INSTALLATION MANUAL

Pool Ozone Generator Pump Suction-Side Installation and Operation Manual

MANUFACTURED BY



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4-0687 Rev. A

Suction-Side Installation & Operation Instructions

Warning:

Please read the following information. Failure to do so could result in damage to your pool's plumbing system and/or pool equipment.

Note: The suction side installation kit can be used with any ultraviolet style of ozone generator, such as a ZO-900, as well as DEL's Eclipse 1 or 2 models. However, we do not recommend installing an Eclipse 4 via the pump suction due to the high concentration of ozone being produced.

The following information covers installation of residential pool ozone generators via the pump suction kit. Your ozone generator is sold separately and comes complete with its own manual. If you are using an injector manifold, a Total Eclipse generator, and/or an MDV you cannot use this suction-side kit.

General Information: Utilizing the pump's suction is simple and effective means for the introduction of ozone into water. Incorporating a shut-off valve, ozone gas check valve, and flow restrictor, the ozone generator is plumbed directly into the drain fitting of the pump's strainer basket. Ozone produced by the ozone generator is drawn into the water by the pump's impeller. The impeller further mixes the ozone into the water and propels it on through the system. The liquid/gas mixture then enters the filter housing where the unmixed gas is bled (via the filter's internal air bleed valve). If you have an older filter, which is not equipped with an internal air bleed valve, contact Del for an external bleed device.

Successful installation and operation of a pump suction system requires proper attention to the following key items:

- a) **Pump materials:** Ozone is a strong oxidizer. Introducing it directly into the impeller housing of a pump, in high concentrations, may shorten the life of some pump materials. Consult Pump manufacturer for assessment and recommendations if problems arise.
- b) **Filter type:** Sand Filters - This system introduces ozone gas and air into the pool's plumbing system before the filter. The risk being that this gas can collect in the filter forcing out the water, and making operate inefficiently. This is why all new are internally vented. However, if you have an older style filter without an internal bleed valve, you will have to add a vent to your filter. Contact Del Ozone if you have any questions. Sand filters have control valves either on the side or top. Top mounted controls will be exposed to ozone gas and may thus be adversely affected. Coating gaskets and O-Rings with silicone gasket sealer can help prevent deterioration.

Cartridge and DE filters do not require special consideration.

- c) **Protection from loss of pump prime:** As with any typical pump installation, a check valve (not included) should be installed prior to the pump to protect against loss of prime. This is particularly important when ozone is introduced through the pump's suction side. Without a check valve, it is possible for air to be drawn through the ozone generator and drain water from the pump back to the pool (when the main pump is not running). Installing a check valve (not included) in the water line on the suction side (pool side) of the pump, as well as the check valve (included) in the ozone line, will prevent this from occurring.

Installation Instructions:

1. Follow the electrical connection and mounting instructions for your ozone generator, as detailed in the manual that comes with your ozone generator.
2. With the pool circulation system off, install the supplied ball valve (see figure 1 for two options).
 - A. For new pool installations or complete renovations, the preferred plumbing method is with a $\frac{3}{4}$ " standpipe. Since the standpipe originates from below water level, there is no possibility for a loss of prime in the pump, due to the "water-lock" below grade. Install a $\frac{3}{4}$ " x $\frac{1}{4}$ " FPT Reducer Coupling on the standpipe (not included). Apply Teflon tape to the threads on the ball valve assembly. Carefully thread the ball valve assembly into the Reducer Coupling.
 - B. For retrofit installations, remove the drain plug from the pump's skimmer basket. Apply Teflon tape to the threads of the ball valve assembly. Thread the ball valve assembly into the pump strainer's drain. It is especially recommended in this plumbing configuration to plumb in a light duty check valve (1/4-1psi, not included in this parts bag), on the suction side (pool side) of the pump to protect the pump from loss of prime.
3. Attach flow restrictor tube to your ozone generator (see Figure 1). Ensure that the arrow on the check valve (in the flow restrictor assembly) is pointing towards the direction of suction (away from the ozone generator). Use the clear tubing to connect between the flow restrictor barb end and the barb fitting on the shut-off valve. Trim and discard any excess tubing.
4. Ensure that the shut-off valve is closed (with the handle perpendicular to the body of the valve), and start the pump. Establish proper filtration flow and check all connections for leaks.

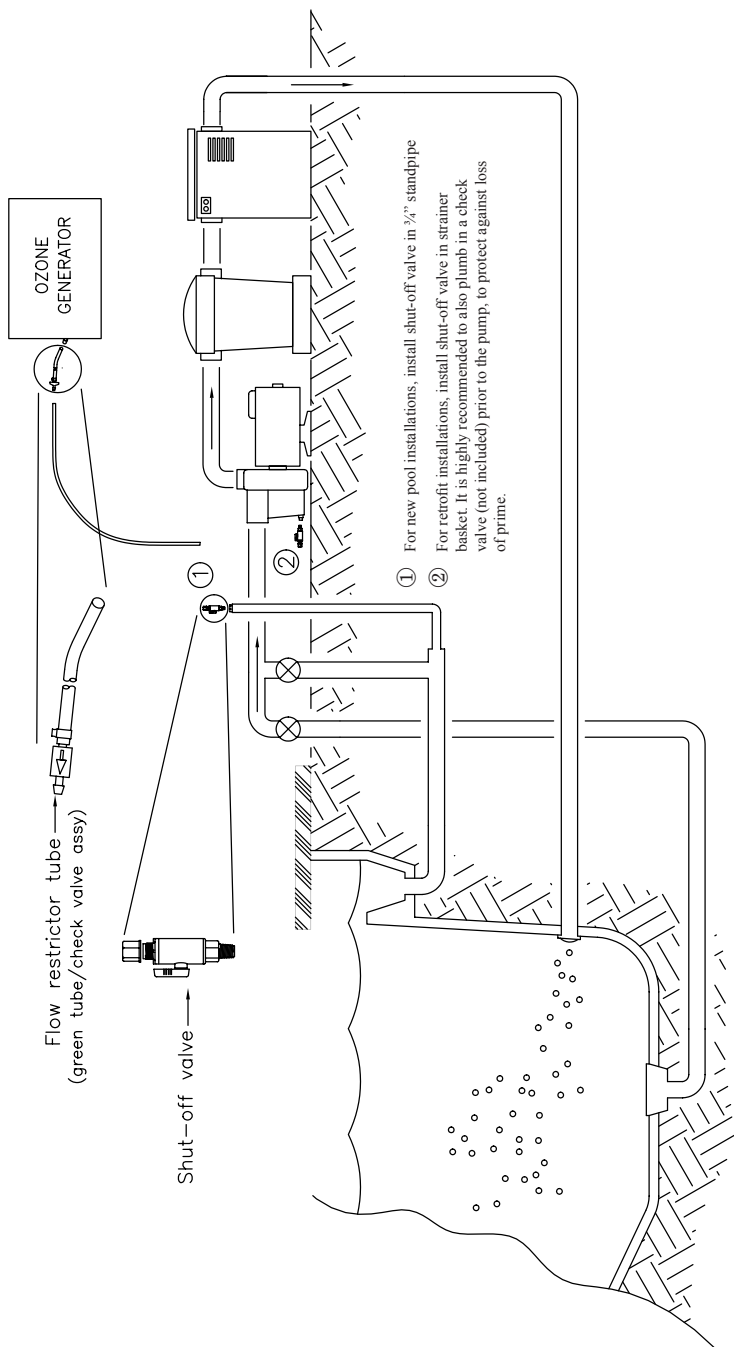


Figure 1: Installation Diagram

5. Completely open shut-off valve (with the handle parallel to the body of the valve), to allow the gas stream to be drawn into the pump. The flow restrictor tube will allow the correct amount of gas to be drawn into the system. After a few minutes check that a bubble stream is entering the pool from one or more of the pool returns. If no bubbles are returning to the pool, ensure that the flow restrictor tube is installed in the proper direction (see item #6) and the shut-off valve is open.
6. Shut off the pump and check to be sure that the pump does not lose prime.
7. If pump does not lose prime, start up the pump again and allow the system to operate.

Installation is now complete.

Operation and Maintenance:

The system should operate automatically, coming on with the filtration pump and mixing ozone with the water. It is normal for the tubing to discolor and become brittle with exposure to ozone and the elements. The only periodic maintenance that should be required for the suction side injection system is to replace the ozone tubing and check valve every 1-2 years. Because the ozone check valve is a part of the "Restrictor Tube" assembly, it is advised that you purchase the entire restrictor tube assembly as a replacement part to avoid leaving out the other components of the assembly (see page 4 for part number). Refer to the trouble-shooting guide below for answers to commonly asked questions about suction side installations.

Refer to ozone generator operations manual for operation, maintenance and trouble shooting of the ozone generator.

with the direction of water flow.

5. The water condensate drain at the base of the destruct cartridge will release approximately 3 tsp. of water per day. 1/4" ID tubing may be connected to the drain to divert water to a more suitable location.
6. Allow all PVC glue to dry completely per manufacturer's instructions before running water through MDV.

Operation and Maintenance:

1. Loss of pump prime or excessive noise while pump is running.

- 1.1. Some amount of noise is to be expected since air is entering the pump and passing through the plumbing.
- 1.2. Check the suction side plumbing for leaks that may be introducing air from outside (other than the ozone system).

- 1.3. Maximize water flow from the pump by enlarging eyeball return fittings.
- 1.4. Decrease air draw from the ozone system by partially closing the shut-off valve.

2. Loss of prime when pump shuts off.

- 2.1. As a result to having an opening to air via the ozone supply tubing, it is possible for water to drain from the pump back into the pool causing the pump to lose prime. Appropriate steps should be taken to prevent water backflow via the suction side of the pump, such as installing a light duty spring check (1/4-1psi. not included), or flapper style check valve (not included) before the pump.

3. Loss of air/ozone draw – bubbles stop coming back into the pool.

- 3.1. Any condition that restricts flow (such as dirty filters), or reduces flow (such as low voltage or a worn pump), may affect the air suction. Correct the flow reduction in the system.
- 3.2. The shut off valve may be closed. Ensure that the valve is open (handle should be parallel to the body of the valve) to allow air/ozone to be drawn into the pump.
- 3.3. Maximize water flow from the pump by enlarging eyeball return fittings.

| PART NO. | DESCRIPTION |
|----------|--|
| 4-0308 | Eclipse Manual, EC-1/2/4 (available online at www.delozone.com) |
| 4-0449 | MANUAL, ZO-900 (available on line at www.delozone.com) |
| 7-0021 | Black Nylon Squeeze CVlamps for 1/4" ID Tubing |
| 7-0075 | Tubing, 1/4" IDx3/8" OD, PVC, Clear |
| 7-0073 | Valve, Ball, 1/4" MPTx3/8" TB, PVC |
| 9-0544 | Flow Restriction Tube Assembly for the ZO-900 |
| 9-0544EC | Flow Restriction Tube Assembly for the Eclipse-1 and Eclipse-2 |

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: (805) 541-1601. 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.

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: _____

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