

INSTALLATION MANUAL for MDV

Mixing Degas Vessel (MDV) for MCD-50, Platinum, Spa Eclipse, Phoenix and UV Ozonators



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San Luis Obispo, CA 93401
800-676-1335

MDV / SPA Installation & Operation Instructions

General Information:

The DEL MDV (Mixing Degas Vessel) allows for a higher concentration of ozone to be used on a spa while preventing virtually all ozone bubbles from returning to the spa, eliminating bubble noise and visibility. The MDV eliminates unused ozone from returning to the spa; eliminates the potential of ozone reacting with pool components such as covers, pillows, fittings, or surfaces; and prevents bubbles from gathering under the cover or inside the plumbing. The MDV system utilizes a GAC destruct cartridge that destroys ozone gas removed by the MDV.

Installation instructions for spas using Recirculation Pumps are on pages 1-2 and for 2-Speed Pumps are on pages 3-4.

Disclaimer - This model of MDV is designed to be installed in place of an injector in above ground spas with a recirculation system flowing between 3 and 8 GPM and at pressures below 10 PSI. This unit must be plumbed below the water level in order to work properly. Note that in all instances where ozone injection takes place below water level, check valves are necessary in ozone gas lines. DEL recommends periodic replacement of your check valves to protect your ozonator investment.

If your spa uses a 2-speed pump, rather than a recirculation system, or if your recirculation system flows in excess of 8 GPM, you will have to plumb the MDV in a side stream configuration as detailed in Figure 3. Because spas and plumbing systems can vary greatly, it is impossible for DEL to recommend a specific check valve pressure that will work in all systems. You may need experiment to find the optimal solution for your spa system.

If your plumbing system is above the surface of the water, you will need to use a different model MDV (MDV-10).

Installation (recirculation pump):

1. Disconnect power to the spa. Drain water if necessary.
2. MDV/GAC Mounting:
 - a. Find a suitable location for the MDV under the spa. Allow one or two inches above and several inches below the MDV for plumbing.
 - b. Mount the MDV vertically to a solid surface using (2) Tie Straps, (4) Tie Strap Mounts, and (4) screws as needed.
 - c. When possible, mount the GAC cartridge above the MDV using the stainless steel clip included. Use the flexible tubing provided to connect the top of the MDV to the bottom of the GAC cartridge with the two-loop configuration as shown. If desired, another piece of 1/4" tubing may be connected to the top of the GAC cartridge to redirect any moisture vapor. The tubing loop is designed to cool the water vapor escaping from the MDV to assist the GAC cartridge in destroying any undissolved ozone. Moisture collected in the tubing may have nitric acid and should be disposed of carefully.

3. Recirculation Pump Installation (refer to Figure 1):
 - a. Install the Injector Insert into the inlet fitting of the MDV (Figure 2). Injector Insert will fit past the threads and will snap into place.
 - b. Use appropriate fittings (not provided) to connect the outlet of the recirculation pump to the inlet of the MDV.
 - c. Connect the outlet of the MDV to the return fitting on the spa.

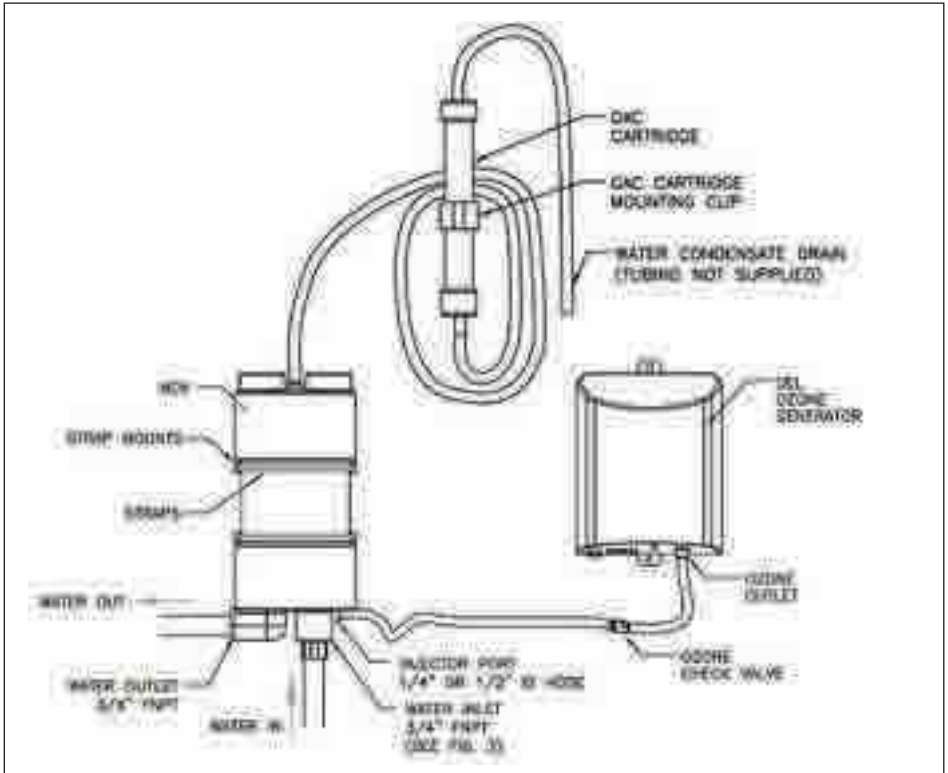


Figure 1. Recirculation Pump Installation

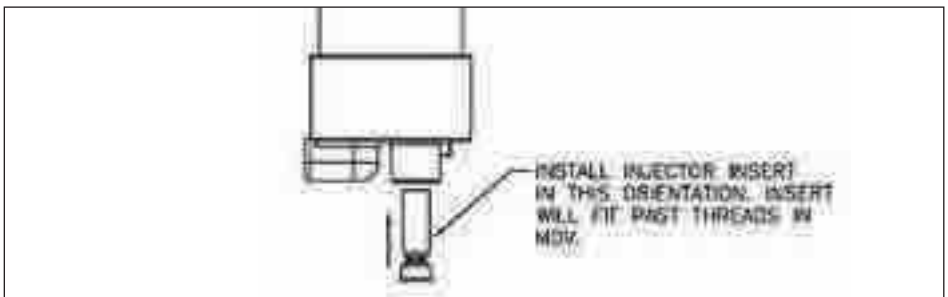


Figure 2. Injector Insert Installation

Installation (2-speed pumps)

1. Disconnect power to the spa. Drain water if necessary.
2. 2-Speed Pump (Figure 3)
 - a. Install the Injector Insert into the inlet fitting of the MDV. Injector Insert will fit past the threads and will snap into place.
 - b. Plumb a DELCheck Valve and T's as indicated in Figure 3. Confirm that the water flow direction arrow on the DELCheck Valve matches the water flow direction.
3. MCD-50 Installation (Figure 1 or 3)
 - a. Mount and connect the MCD-50 or other DEL Ozone Generator as directed in the ozone generator manual.
 - b. Connect the ozone outlet on the MCD-50 to the Injector Port on the MDV.
 - c. Install the Ozone Check Valve in the tubing between the MCD-50 and MDV. Be sure that the arrow on the Check Valve points to the MDV.

Operation

1. Allow any PVC glue to dry completely per manufacturer's instructions before running water through MDV.
2. Start the spa circulation system. Check for leaks and verify proper operation (Note: Do not run heater until proper function is confirmed.)

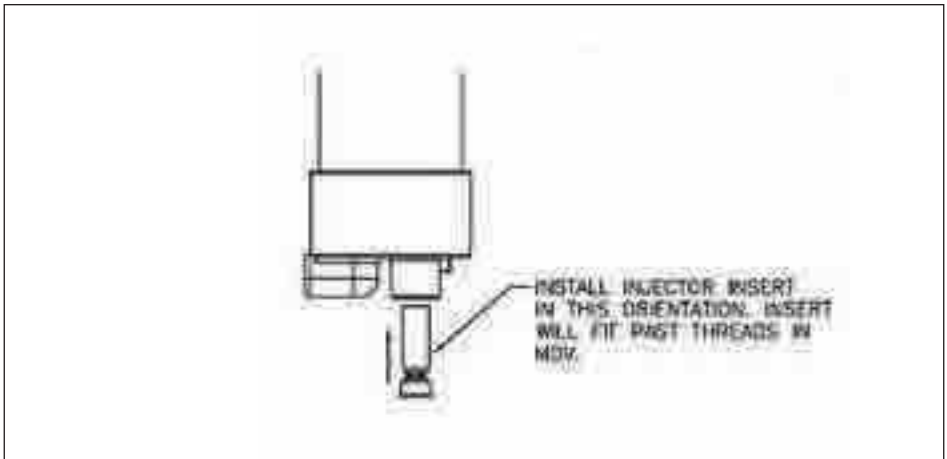


Figure 2. Injector Insert Installation

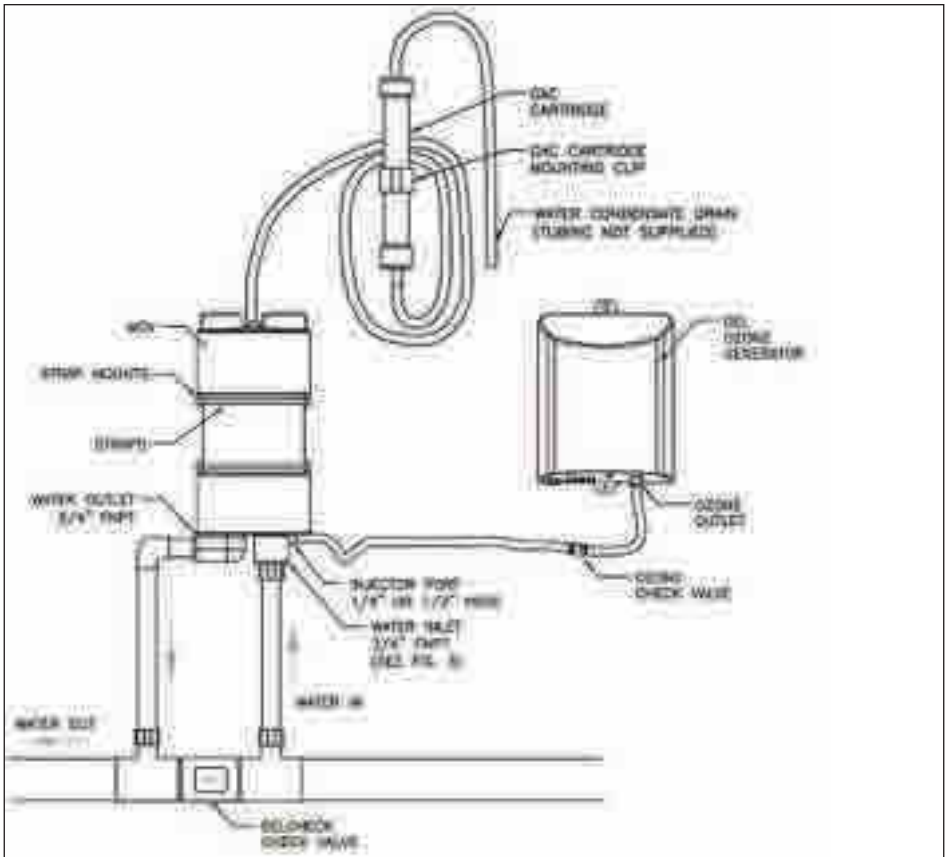


Figure 3. 2-Speed Pump Installation

Troubleshooting:

Symptom: No flow through MDV in the wide open position

- a. Verify that pump is operating correctly. Remove any kinks or obstructions from water line.

Symptom: No suction from ozone generator

- a. Verify that ozone check valve is facing correct direction.
- b. Verify that Injector Insert is installed.
- c. Remove any kinks or obstructions from ozone line.
- d. Remove return jet fitting and/or replace with larger size.

Symptom: Excess water from top of MDV

- a. Verify proper direction of DELCheck valve (2-speed pumps.).

Maintenance:

1. The MDV is maintenance free. The GAC Cartridge must be replaced every 12 months of operation. A new cartridge can be ordered from your dealer/distributor using DEL part number 9-0556.
2. Winterizing, if necessary, can be done by draining water from MDV.
3. If necessary, replacement Tie Straps and Tie Strap Mounts can be ordered from your dealer/distributor using DEL part numbers 7-1036 and 7-1037, respectively.

Notes:

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: _____	
<i>Fill out completely and return to DEL Ozone within ten (10) days of purchase.</i>	
Customer Info:	
Name _____	Phone () _____
Address _____	
City _____	State _____ Zip _____
Dealer Info:	
Dealer Name _____	Phone () _____
Dealer Address _____	
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Purchase/Product Info:	
Purchase Date: _____	Date Installed: _____
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