

MCD

Corona Discharge Ozone Generators

MANUFACTURED BY



3428 Bullock Lane
San Luis Obispo, CA 93401

IMPORTANT SAFETY INSTRUCTIONS

When installing and using DEL Models MCD, basic safety precautions should always be followed:

Be sure all the electrical power is shut OFF at the main circuit breaker before installing the MCD.

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. All permanent 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 MCD.
5. If the MCD 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 MCD is connected to an independent electrical supply, then a G.F.C.I. must be installed between the MCD and the electrical supply.
6. Do not bury cord.
7. **WARNING:** To reduce the risk of electric shock, replace a damaged cord immediately.
8. The MCD must be mounted indoors or, under a cover, sheltered from natural elements (rain, sun, sprinklers).
9. The MCD must be mounted above the water line.
10. Mount the MCD so that it is inaccessible to anyone in the spa.
11. Mount the MCD using the mounting tabs such that the MCD is vertical with the vents facing downward.
12. Install a check valve in the tubing between the MCD and the vacuum source.**
13. Plastic ozone supply tubing is supplied with the MCD. Never replace this tubing with metal tubing.
14. Do not operate the MCD unless sufficient air flow is being drawn through the unit.
15. **WARNING:** Short term inhalation of high concentrations of ozone and a long term inhalations of low concentrations of ozone can cause harmful physiological effects. Do not inhale ozone gas produced by this device.
16. **SAVE THESE INSTRUCTIONS.**

** A condensate may collect in dips or loops in the tubing. For best results install the MCD just above the vacuum source and use a short, straight piece of tubing to make the connection. If condensation appears in the tubing, **DO NOT DRAIN IT**, the moisture may be moderately corrosive. Disconnect the power to the MCD and allow the liquid to be drawn out or dried up before removing the tubing.

SAVE THESE INSTRUCTIONS.

MCD MAINTENANCE INSTRUCTIONS

The MCD is equipped with a replaceable ozone generating electrode and power supply. For optimum performance, we recommend the electrode and power supply be replaced every two years. It is also recommended that the electrode o-ring, hose barb insert, and fuse be replaced at the same time.

New replacement parts can be ordered from your local dealer using the following DEL part numbers (determine the exact model of your MCD by referring to the specification sticker on the back of the unit).

| | |
|--|---------|
| MCD-50 Ozone Electrode & Power Supply | 5-PAO24 |
| MCD-250 Ozone Electrode & Power Supply | 5-PAO21 |
| O-ring, Hose Barb Insert, & Fuse Kit | 9-0566 |

Follow the steps below to replace the old electrode, power supply, o-ring, hose barb insert, and fuse. REFER TO FIGURE 1 ON OPPOSITE PAGE.

STEP 1 - Remove the MCD from your spa.

1. Shut off power to the MCD or to the spa, and disconnect the MCD power cord from the spa control pack.
2. Disconnect the ozone tubing from the MCD ozone outlet hose barb.
3. Remove the screw from the bottom mounting tab.
4. Back the upper mounting tab screw out about two turns and lift the MCD up and off of the spa.

STEP 2 - Remove the MCD Cover

1. Remove the cover screw on the back side of the base of the MCD.
2. Using a flathead screwdriver or fingers, pry the two cover tabs outward to release the cover from the base.
3. Lift the cover up.
4. Slide cover forward and off.

STEP 3 - Remove the old CD electrode, power supply, hose barb insert, & fuse.

1. Remove power supply mounting screws.
2. Disconnect power supply connector (red & black wires).
3. Lift CD electrode up and out of hose barb insert (o-ring and hose barb insert may remain attached to electrode).
4. Remove and discard CD electrode (with o-ring), power supply, & hose barb.
5. Carefully pull circuit board vertically out of base slot & remove old fuse.

STEP 4 - Install the new CD electrode, power supply, hose barb insert, & fuse.

1. Insert new fuse and carefully push circuit board back into base seat.
2. Insert new hose barb insert making sure to align the hose barb correctly and insert it completely into its slotted hole.
3. Install power supply and mounting screws. Route power supply wires through pegs.
4. Place new o-ring onto CD electrode outlet (reference old electrode location).
3. Install CD electrode by inserting into hose barb and gently pushing into cradle.
4. Connect CD electrode to power supply connector.
5. Slide cover into position while lifting the base of the cover up.
6. Lower cover over CD electrode and snap cover tabs into place.
7. Replace cover screw.
8. Reinstall the MCD into the spa, reconnect ozone supply tubing to hose barb and reconnect the power cord.

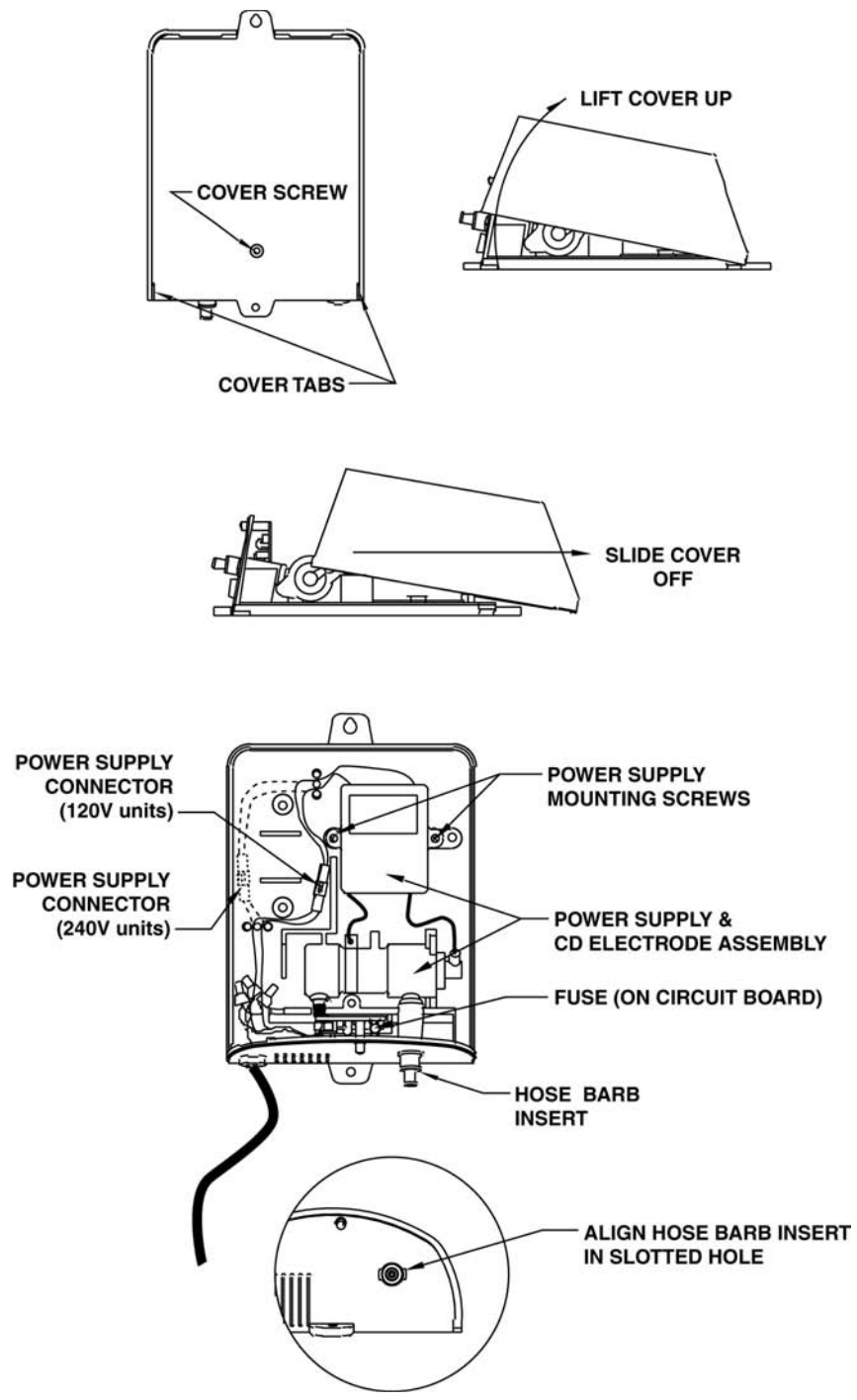


Figure 1. MCD Component Locations

DELQUIK BASIC WATER CHEMISTRY CHART

| PROBLEM | DESCRIPTION | CAUSE | REMEDY |
|---------------------------------|---|--|---|
| Green Algae | <ol style="list-style-type: none"> 1. Green water 2. Green spots on surface 3. Slippery surface | <ol style="list-style-type: none"> 1. Low ozone, bromine or chlorine levels 2. Low algaecide levels | <ol style="list-style-type: none"> 1. Superchlorinate 2. Brush spa (removing algae) 3. Vacuum spa (removing algae) 4. Increase oxidizer residual 5. Increase algaecide level |
| Black Algae | <ol style="list-style-type: none"> 1. Black spots on spa surface | <ol style="list-style-type: none"> 1. Low oxidizer levels 2. Low algaecide levels | <ol style="list-style-type: none"> 1. Superchlorinate 2. Brush spa (removing algae) 3. Increase ozone, chlorine or bromine residual 4. Increase algaecide level |
| Unpleasant Odor Burning Eyes | <ol style="list-style-type: none"> 1. Chlorine-like odor 2. Burning sensation in eyes | <ol style="list-style-type: none"> 1. Combined chlorine; 2. pH out of balance | <ol style="list-style-type: none"> 1. Balance pH to 7.2-7.6 2. Superchlorinate |
| Colored Water | <ol style="list-style-type: none"> 1. Water in newly filled spa turns black, blue or brown when first treated with ozone | <ol style="list-style-type: none"> 1. Copper, iron, or manganese in water being oxidized by chlorine or ozone | <ol style="list-style-type: none"> 1. Adjust pH to 7.2-7.6 2. Run filter continuously and backwash as required 3. Vacuum settled material 4. Use sequestering agent for prevention |
| Hard Water | <ol style="list-style-type: none"> 1. Cloudy water 2. Scaling | <ol style="list-style-type: none"> 1. Excessive hardness of makeup water or building up of dissolved minerals in the water caused by continued use of spa chemicals | <ol style="list-style-type: none"> 1. Clean filter 2. Filter continuously 3. Adjust pH to 7.2-7.6 4. Use scale inhibitor 5. Dilute with makeup water |

LIMITED WARRANTY INFORMATION

The limited warranty, set forth below applies to products 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 Ozone 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

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 its option, the defective product(s) and return them freight collect. Buyer's acceptance of the product and use thereof constitutes acceptance of these terms.