

Annual Maintenance Procedure

FOR USE WITH ECO1 & ECO2

Maintenance of the ozone system is critical to its longevity and operating efficiency. Follow the steps below to perform the preventative annual maintenance. If you have additional questions regarding the maintenance of your ozone installation, please consult the operation manual or contact your dealer.

Before you start:

System Shutdown Procedures

- Step 1:** Turn off power to any peripheral system hydraulic components and air prep system.
- Step 2:** Turn the Main Power switch on the ozone generator to the "OFF" position. The LED display on the front cover should *not* be illuminated.
- Step 3:** Disconnect the power to the ozone system at the service disconnect box (if so equipped), main circuit breaker or by disconnecting the power cord.

Recommended Tools

- Nut Drivers: 5/16", 11/32"
- Screwdrivers: Phillips and flat-head
- O-Ring Removal Pick
- Hex Key: 7/64"
- Marking Pen
- Wrench: 5/8" or adjustable
- 1" Ball hone (optional)
- Cloth Shop Towel
- Denatured Alcohol
- Teflon Sealing Tape

Video Walkthroughs

Visit our video channel at:
<http://www.youtube.com/ClearWaterTech>
These, and other procedures are shown.



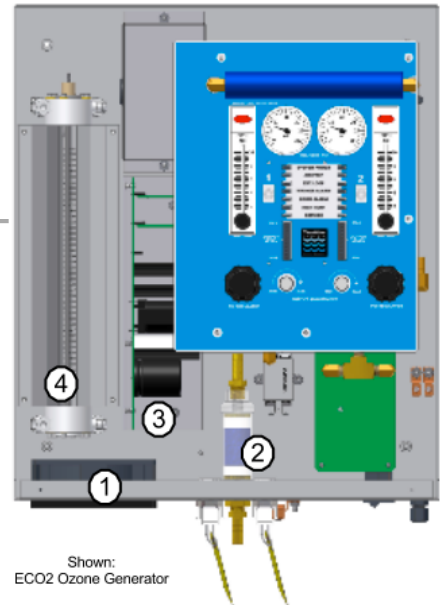
Included in this maintenance kit:

Pictured are the contents of an ECO2 maintenance kit and an overview image of the ECO2 ozone generator.

Numbered items correspond to descriptions below and their installed locations within the ozone generator.

ECO1 & ECO2 systems will have similar maintenance kits and generator layouts.

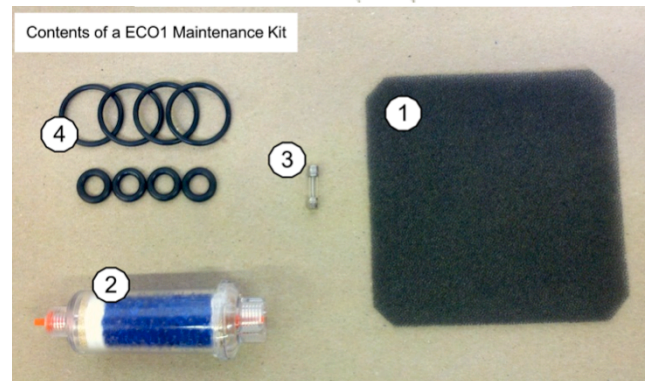
They will have differences in quantity of parts, however the steps will be the same.



Shown:
ECO2 Ozone Generator

Maintenance Will Involve the Following:

- 1. Cooling Filter:** Clean or replace the cooling fan filter elements as required.
- 2. Inline Particulate Filter:** Remove colored protective caps before installing the new filter. Re-tape threads with Teflon tape. Orientation is universal.
- 3. Fuses:** Save the replacement fuses for use as needed.
- 4. Reaction Chamber O-Ring Replacement:** See page 2 for reaction chamber maintenance instructions.



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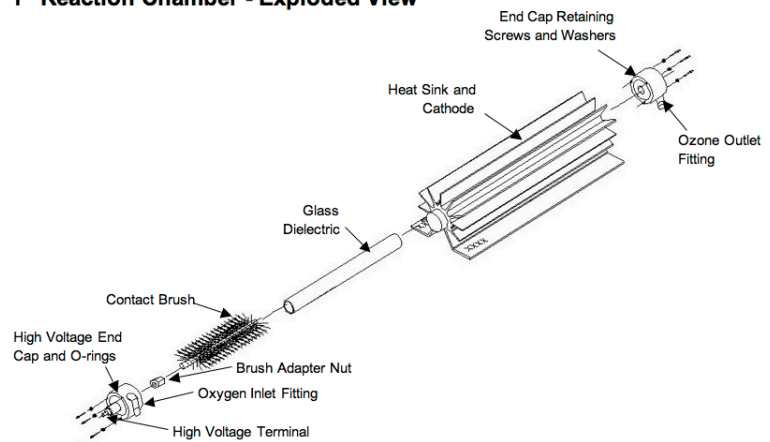
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Reaction Chamber Removal and Disassembly:

1" Reaction Chamber - Exploded View



Note: Read through all the steps before disassembling the reaction chamber.

- Step 1:** Make sure all power to the ozone generator has been disconnected according to the "System Shutdown Procedures" outlined above.
- Step 2:** Disconnect the high voltage lead from the reaction chamber(s).
- Step 3:** Disconnect the tubing connections on both ends of the reaction chamber(s).
- Step 4:** Remove the 4 nuts securing each chamber and remove the reaction chamber from ozone generator.
- Step 5:** Make note or mark the position of the end caps and their elbow fittings on the reaction chambers, during re-assembly the end caps will need to return to original positions.
- Step 6:** Remove retaining screws and washers from the two end caps (3 each).
- Step 7:** Using a gentle back-and-forth twisting motion, remove the non-high voltage end cap (the one *without* the high voltage attachment screw) from the heat sink/cathode assembly. A flat-head screwdriver may be used to gently pry the end cap off, as long as equal pressure is applied to each side of the end cap.
- Step 8:** Remove the high voltage end cap and dielectric from the heat sink/cathode assembly.
- Step 9:** The high voltage end cap can be removed by holding the glass and turning the end cap counter-clockwise approximately 6 turns. Pull the end cap off the glass. Push the contact brush out of the dielectric glass. A screwdriver can be used to push the brush, and pliers to pull it out once the opposing end is exposed.
- Step 10:** Inspect the dielectric, end caps and cathode for breakage, corrosion or debris; then follow the assembly and re-installation steps below.

Reaction Chamber Assembly and Re-installation:

- Step 1:** Remove o-rings from end caps, clean the dielectric glass, end caps and interior of the stainless steel cathode cylinder. Use denatured alcohol, shop towels to clean and be sure to remove all old o-ring debris. A 1" ball hone can be used to clean the major debris out of the cathode if there is heavy buildup.
- Step 2:** Prepare the end caps for re-assembly by replacing the o-rings. Thread the hex brush adapter nut, with contact brush attached, onto the end of the high voltage end cap (cap with the high voltage attachment screw) center screw. Re-tape the threads of the elbow fittings if needed.
- Step 3:** Using a gentle twisting motion, press the *non*-high voltage end cap onto the heat sink/cathode assembly until flush with the heat sink cooling fins. Turn the end cap to the correct orientation.
- Step 4:** Slide the three end cap retaining screws with washers through the holes in the non-high voltage end cap, aligning them with the heat sink screw bosses. Thread screws into screw bosses until heads are snug against the end cap.
- Step 5:** Next we focus on assembling the rest of the subcomponents, before installing them into the reaction chamber. *Slowly* insert the brush (installed onto the high voltage end cap) into the dielectric glass. **Note:** Go slowly in order to prevent or minimize bending the center wire of the brush during this procedure. It is normal for the bristles to bend flat against the dielectric glass. Fully seat the dielectric glass into the high voltage end cap. Clean the glass with denatured alcohol once more, and do not retouch the glass without re-cleaning.
- Step 6:** Hold the reaction chamber upright on a flat surface, empty high voltage side up. Grasp the high voltage end cap and lower the glass into the reaction chamber. Press directly downwards on the high voltage end cap to fully seat the dielectric assembly; the end caps should be flush with the heat sink cooling fins. Turn the end cap to the correct orientation.
- Step 8:** Slide the three end cap retaining screws with washers through the holes in the end cap, aligning them with the heat sink screw bosses. Thread screws into screw bosses until heads are snug against the end cap.
- Step 9:** Re-install the complete reaction chamber assembly into the ozone generator by securing the reaction chamber to its mounts, securing delivery line and connecting the high voltage insulated wire.



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