OZOTECH™

Enhanced Oxygen Generator
EOG 200 One Plug Kit

Part Number: 31515-03

Operation & Maintenance Manual

OZOTECH, Inc. • 1015 South Main Street, Yreka, CA 96097 • Ph. 530.842.4189 • ozotech.com

061025

Table of Contents

1.0 Caution

Read the following safety guidelines thoroughly before attempting to operate or install your equipment. Keep these instructions for reference. Heed all warnings. Follow all instructions.

Only qualified personnel should be allowed to set up, maintain and operate this equipment.

As with all electrical devices, this equipment should never be allowed to come in contact with water.

The equipment must be operated using a properly grounded electrical circuit that is protected by either a fuse or circuit breaker.

Do not use an extension cord to supply power to this equipment.

To reduce the risk of fire and electric shock, do not expose this product to rain or moisture.

Do not alter the product from its original construction. Doing so will cause the unit to function outside of the manufacturer's specifications, may cause damage to the unit, could cause harm to the user, and will void warranty terms.

*Ozotech, Inc., assumes no liability for damages or injuries incurred by misuse of this product.

Special Note:
This unit is not intended to aid in the mitigation of microorganisms and is not duly registered as a pesticidal device. Please follow all instuctions within this manual for use.

1.1 Symbol Definitions

Read the Manual – Mandatory action that must be taken to avoid hazards.

Warning/Caution - An appropriate safety instruction must be followed or caution to a potential hazard exists.

Electrical Hazard – Safety instruction must be followed to avoid coming into contact with electricity.

Dear Valued Customer:

Welcome to the Enhanced Oxygen Generator (EOG) user manual. This manual covers the 31515-03 EOG 200 kit.

Congratulations on your purchase! This comprehensive user manual is designed to be your ultimate guide to unlocking the full potential of your new EOG 200 kit. Whether you're a first-time user or an experienced water treatment professional, this manual will provide you with the knowledge and insights you need to get the most out of your EOG 200 kit.

What's Inside

In this manual, you'll find clear and concise instructions on how to set up, operate, and maintain your EOG 200 kit. We've organized the content in a logical sequence, from initial unboxing to advanced usage techniques, making it easy for you to navigate and find exactly what you need. Each section is accompanied by illustrative diagrams, helpful tips, and troubleshooting suggestions, all aimed at enhancing your experience.

Your Feedback Matters

We're dedicated to continuous improvement, and your feedback is invaluable to us. If you have suggestions for improving this manual please contact us. If you encounter any challenges, please reach out to your local dealer.

Thank you for choosing Ozotech.

Ownership Data

Manufacturer Information:
Ozotech, Inc., 1015 S. Main St., Yreka, CA, 96097

Model Number:	
Serial Number:	
Invoice Date:	
Installation Date:	

2.0 Installation and Operation

Your generator requires special operating conditions in order to maintain performance and reliability. Your ozone generator is designed to be operated under a negative pressure situation.

Warranty coverage of your equipment is contingent upon strict compliance with the operating conditions specified in this manual.

2.1 Operating Environment

For best operating performance and longevity, it is important to choose a cool, dry, clean operating environment for your EOG. If possible, mount your EOG in an area free of airborne dust and moisture. Consideration of these factors will result in trouble-free operation, lower maintenance, and higher efficiency.

Keep the inside of the generator chassis clean and dry. Dust particles and condensation pose a challenge to the consistent operation of all ozone generators. Make a note to inspect the internal cleanliness of the equipment when scheduled maintenance is performed. Find complete unit care and maintenance information in Section 3.0.

2.2 Installation

Components Included in 31515-03 EOG 200 One Plug Kit

Ozotech Part Numbers Listed

Control Valve Inlet Check Valve

47026

Brine Elbow Check Valve

47070

Components Sold Separately

Clack® Order Numbers Listed

WS1 or WS1.25 Control Valve with a Relay Driver

Air Blockers

K-Injector
Light Green
V3010-1K

1.050" D1047

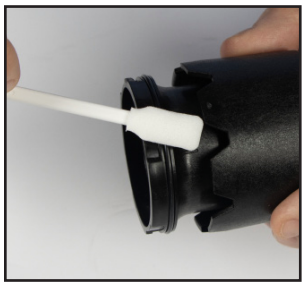
32mm D1047-02

1.320" D1047-01

NOTE: Manufacturer recommends an Air Blocker on each control valve for maximum performance and longevity.

Control Valve Preparation Instructions:

WS1 or WS1.25 Clack® control valves with Relay Driver output required.

1. 

Grease the control valve riser O-ring, Air Blocker riser O-ring and outside O-ring.

2. 

Attach Air Blocker to the bottom of the control valve. Insert and twist to lock.

3. 

Remove red clip and brine elbow from the control valve. Then remove Refill Retainer assembly.

4. 

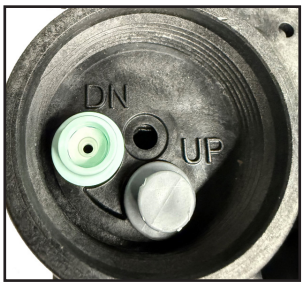
Place the black check valve into the brine elbow. Make sure the black check valve is in all the way.

5. 

Install the brine elbow back into control valve with the red clip.

6. 

Put the white inlet check valve into the inlet side of the control valve.

7. 

Replace injector with a Clack® K in the DN position.

WARNING: The control valve must be manufactured as a Downflow Brining

Components Included in the EOG 200 One Plug Kit

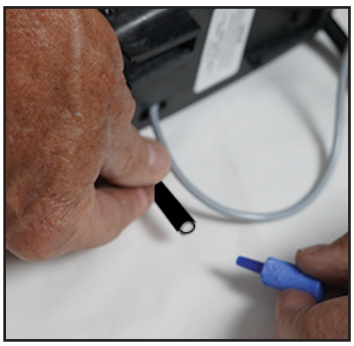
EOG 200 | Inlet Filter | Clamp Ring | Port Clip | Power Supply

Tool Needed

#2 Phillips Screwdriver

EOG 200 Kit Installation Instructions:

1a. Place inlet filter into the black inlet tube.
1b. Install clamp ring into the EOG 200 center/top of backplate receiver.
1c. Install port clip into the EOG 200 side/bottom of backplate receiver.
1d. Loosen clamp ring #2 Phillips screw, slide clamp over valve injector cap.
1e. Rotate the EOG 200 counterclockwise to secure port clip to valve body inlet. Tighten clamp ring Phillips screw.

1a. 

1b. 

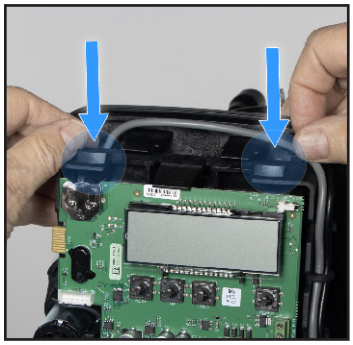
1c. 

1d. 

1e. 

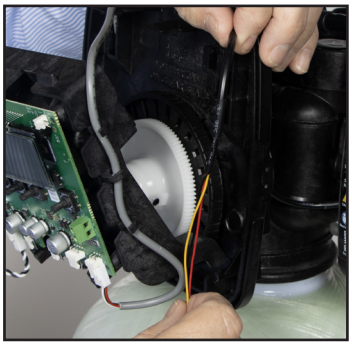
2. Unplug the power supply from the wall outlet. Remove the front cover from the valve backplate and the EOG unit. **2a.** Lift up on the two (2) locking tabs and tilt the drive bracket assembly forward. Remove original power supply from the circuit board and valve backplate if present.

2. 

2a. 

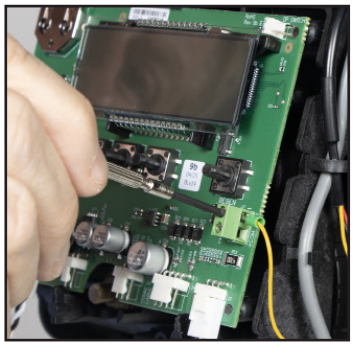
3. Unscrew the Philips screw on the bottom of the EOG unit and remove the cover.

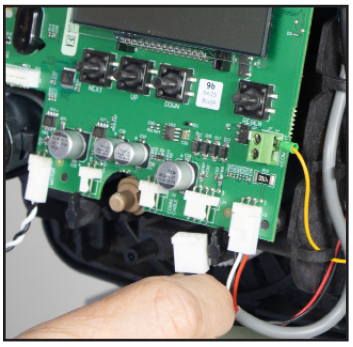
4. Route the black interconnect cable and yellow pilot wire from the EOG through the backside of backplate slot and up through the strain relief channel to keep the wiring in place. **3a.** Leave enough wire length and connect the pilot wire to the relay driver terminal block on the circuit board. Make sure the wire is flush into the strain relief channel for proper drive bracket installation.

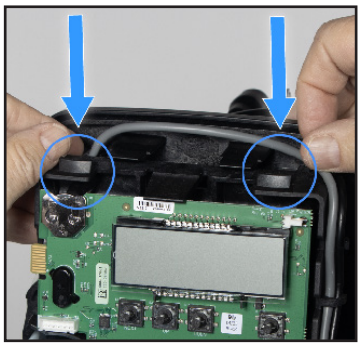
4. 

4a. 

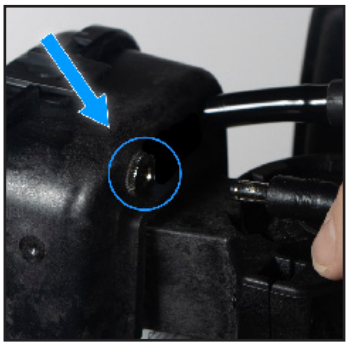
5. Secure yellow pilot wire into RLY 1 (top) terminal. **5a.** Plug the EOG 4-pin Molex connector into the 4-pin "POWER" on the circuit board. **5b.** Push the drive bracket assembly back in place until it "clicks".

5. 

5a. 

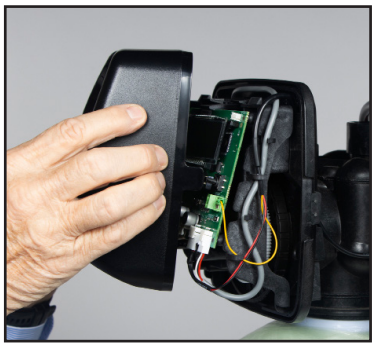
5b. 

6. Plug the male DC connector from the included power supply into the female DC jack located at the back of the EOG 200. Then plug into a wall outlet.



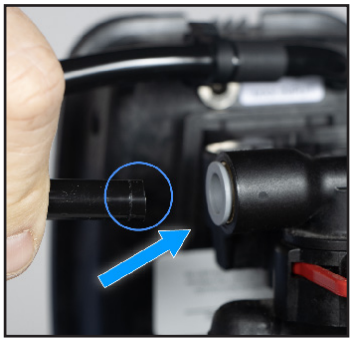
7. Push and hold the red button on the EOG board until the LED light is solid green.

8. Replace covers on both the EOG 200 and the Clack® control valve.

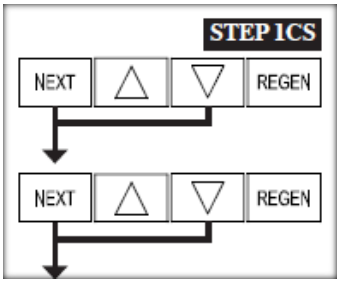


9. Replace the Philips screw on the bottom of the EOG 200 unit.

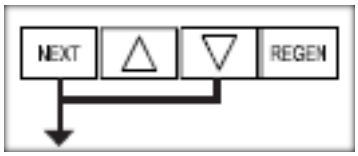
10. Insert black tube from the EOG 200 into the 3/8” push to connect elbow on the control valve.



2.3 Control Valve Service/OEM Level Programming



Step 2CS - Valve Type: Use ↓ or ↑ to select 1.0 for 1” valve, 1.25 for 1.25” valve



Set the System Type “FILTERING REGEN” mode.
→Default: Softening

Set cycle step 1, “BACKWASH” to desired time.
→Default: 8 Minutes
→Example: 14 Minutes
→Set to your desired number based on your water condition

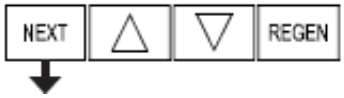
2.3 Control Valve Service/OEM Level Programming

Set cycle step 2, “BRINE” to desired time.
→Default: 60 Minutes
→Example: 40 Minutes
→Set to your desired number based on your water condition

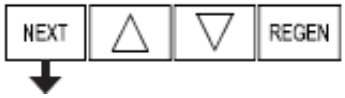
Set cycle step 3, “BACKWASH” to oFF.
→Default: 8 Minutes

Set cycle step 4, “RINSE” to oFF.
→Default: 8 Minutes

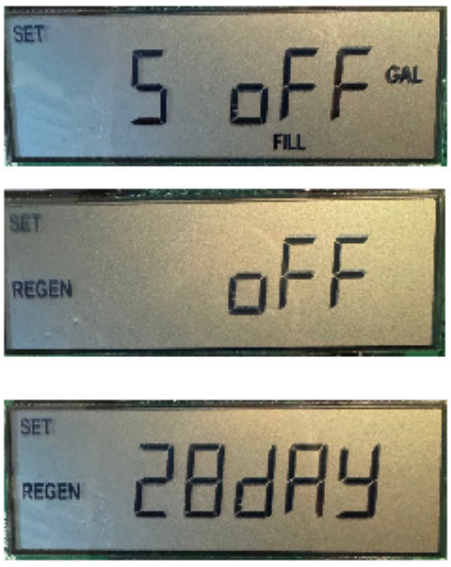
Set cycle step 5, “FILL” to oFF.
→Default: 0.95 GAL



Set Regen Trigger
→Default: oFF



Set Regeneration Type
→Default: 28 days



2.3 Control Valve Service/OEM Level Programming

PROGRAMMING the Clack Control Valve
To operate the EOG during regeneration, refer to the specific service manual for your Clack circuit board model. There are several options to the relay driver activation through programming on the Clack “EE” circuit board, for the EOG, use **TIME on**:

1. **TIME on:** Relay driver activates after a set time at the beginning of a regeneration and then deactivates after a set amount of time in the regeneration. The start of regeneration is defined as the first backwash cycle or Dn brine cycle, whichever comes first.

Set Relay Driver:
→Default: oFF

Set Relay Driver to “SET TIME” on

Set the time during regeneration to activate this relay driver output. (mm:ss)
→Default: 0:01 Minutes
→Example: 15:00 Minutes
→Set to 1 minute longer than your backwash time setting

Note: This example has been set to activate the relay driver to energize the EOG 15 minutes after the start of regeneration. Turn on the EOG one 1 minute into the BRINE draw cycle based on BACKWASH cycle time.

Set duration of relay driver closure. (mm:ss)
→Default: 0:01 Minutes
→Example: 38:00 Minutes
→Set to 2 minutes less than your draw time setting

Note: This example has set to run the EOG for 38 minutes into BRINE cycle. Turns off the ozone generator 1 minute before the cycle ends.

Example: BRINE cycle time:	40 Minutes
Turn on 1 minute into BRINE	1 Minute
Turn off 1 minute before end of BRINE	1 Minute
	38 Minutes

2.4 Operation

The EOG 200 kit will automatically turn on and off by the Clack® control PCB defined timing schedule. The EOG control board utilizes an on-board diagnostic LED light to convey real-time status of the unit. The control board within the EOG has several inputs and outputs. The following key addresses the various LED statuses regarding the operation of the EOG 200 kit.

LED Light Indicator Key:

Green Light Blinking Slowly: Standby mode; unit is powered, pilot input is OFF.

Green Light Blinking Quickly: High voltage startup (up to 3 seconds).

Green Light Solid: High voltage is ON & stable; CD cell(s)producing ozone.

Red Light Solid: Unstable operation; CD cell may need cleaning.

Green/Red Light Alternating Twice/Second: HV is ON, but operating current is low. If persistent, CD cell(s) may need cleaning.

Red Light Flashing: NO or NC contacts are shorted. Remove short condition.

Orange Light: 1-year timer has expired; perform recommended maintenance, then reset timer by pressing red “alarm reset” button on PCB once.

Control Input:
The EOG PCB is activated to produce ozone when a pilot input signal is applied across “+” and “pilot” terminals.

Auxiliary Outputs:
The NO/NC auxiliary outputs have a 3 second on and off-delay, after the pilot signal is activated or deactivated. These outputs are capable of providing a maximum of 60mA @ 70°F and are intended to be used as a control circuit only.

Fusing:
The control PCB is equipped with automatically resetting on-board fuses. If these fuses trip, due to a short of the HV transformer, or an excessive load on the auxiliary output(s), remove the excessive load/cause of short, and cycle main power on/off to reset. If the HV transformer is shorted, the LED indicator will stay solid red until the condition is remedied. If either NO or NC output is active and experiences excessive load, the LED indicator will quickly flash red until the condition is removed.

3.0 Maintenance

The EOG 200 kit is delivered factory tested, calibrated, and adjusted for maximum efficiency and long life. Simple maintenance and appropriate operating conditions are the only requirements to keep the unit functioning within manufacturer's specifications.

Performing any other modifications or adjustments to internal components will cause the unit to function outside of manufacturer's specifications and will cause damage to the unit not covered under warranty terms.

Regular maintenance is required and is dependent on the application and humidity levels. Check with your OEM distributor representative for best practice recommedations.

3.1 Ozone Generator Maintenance

Perform the following general maintenance procedure:

1. Disconnect the EOG 200 kit from the power source.
2. Remove cover.
3. Inspect the inside of the generator for dust and moisture.
4. Thoroughly clean and dry the inside of the generator.
5. Replace top cover.
6. Replace any in-line and brine elbow check valves.
7. Clean or replace the CD cell.

Normally, the EOG controller board will signal cell maintenance after one year of service by changing the LED indicator light to orange. Once service has been performed, the timer can be reset by pressing red "alarm reset" button on PCB once. However, if the cell is serviced or replaced prior to the one-year service signal, a "forced reset" of the timer should be performed by following the instuctions below.

3.2 Forced One-Year Service Timer Reset Instructions:

Follow these instructions to perform a forced reset of the EOG board:

1. Disconnect power from the EOG 200 kit.
2. Press and hold reset button while re-powering the EOG 200 kit.
3. Pulsing orange LED will indicate timer rest function is active.
   * Press reset button again to complete reset. LED will pulse green when finished.
4. The EOG 200 kit is now ready to operate as normal.

Notice: This feature only applies to EOG 200 kits manufactured after May 2020 (See program rev code on side of transformer and/or date code in serial number).

To abort the timer reset once timer reset function is active (pulsing orange), disconnect then reconnect power without pressing any buttons.

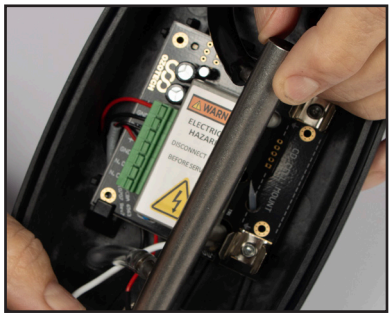
3.3 Cleaning the Corona Discharge Cell

__CAUTION:__ UNPLUG POWER SUPPLY TO THE EOG 200 KIT BEFORE PERFORMING SERVICE

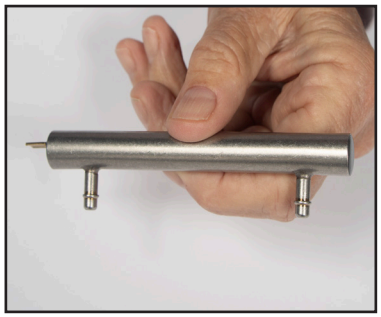
1. Remove any cable ties that may be securing the CD cell into the grounding clips. **1a.** Disconnect the cell from the unit by removing cell-to-board electrical connections and the **1b.** CD cell from it's mounting clips. **1c.** Remove the tubing from the cell barbs. **1d.**The cell is now free from the generator.

1a.

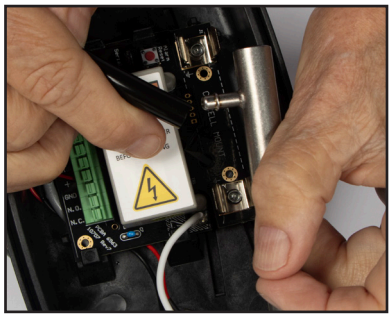
1b.



1c.



1d.



2 . Connect the longer piece of clear tubing from your cleaning kit to one of the cell barbs. **2a.** Attach the shorter piece of clear tubing from the kit to the open CD cell barb. **2b.** Insert the tubing adapter, attached to the syringe, into the open end of the short piece of tubing. Fill the beaker included in your kit with warm water. **2c.** Place the open end of the long clear tube into the beaker. Now you're ready to flush the cell.

2a.

2b.

2c.

3 . Flush water through the cell by pulling back and pushing the syringe plunger. Water may become cloudy or discolored as the nitric byproducts are released from the CD cell during flushing. Discard and replace warm water in the beaker as cloudiness continues. Flush the CD cell until the water is clear.

4. Remove both pieces of tubing from the CD cell barbs. To dry the cell, place the nozzle of the compressed air into one of the barbs of the CD cell. Depress the trigger on the can to dry the cell until all moisture is evacuated from the cell.

5. Follow steps 1 to 1d. in reverse order to replace the clean CD cell into the ozone generator. Restore power to the ozone generator once all covers are replaced.

3.4 Replacing a Corona Discharge Cell

__CAUTION:__ UNPLUG POWER SUPPLY TO EOG 200 KIT BEFORE PERFORMING SERVICE

1. With the cover of your unit removed, remove the CD cell from the ozone generator:

a. Disconnect any electrical connections between the CD cell and the electronics board.

b. Remove and discard any shipping ties that may be securing the CD cell(s).

c. Disconnect the air inlet and ozone outlet hoses from the CD cell barb fittings.

d. Pull the CD cell straight up from the retaining clips.

2. Replace with a new CD cell in reverse order, making sure all air and electrical connections are secure.

New CD cell as installed on the EOG 200 Kit

4.0 Spare/Replacement Parts

Part #	Description
33218-R	Replacement CD cell and adapter kit*
47049	Check valve, 3/16” In/Out, Kynar
47070	Draw elbow check valve
47026	Inlet check valve
34054	Air inlet filter
40081-1	Power supply, 100-240Vac 50/60Hz to 15Vdc/2A, Type C
40081-2	Power supply, 100-240Vac 50/60Hz to 15Vdc/2A, Type G
47044-1	CD cell maintenance kit*

* Denotes recommended spare maintenance parts with initial purchase. Followed by additional quantity recommended for one year’s scheduled maintenance.

5.0 Specifications

Specification	EOG 200
Operating Voltage	15 Vdc via 120/240Vac 50/60Hz switching power supply
Power Consumption	600mA @ 15Vdc (7.2 Watts) nominal
Ozone Output	220 mg/hr
Size	6.8” x 4.4” x 5.4”
Shipping Weight	2 lbs.
Enclosure	ABS

6.0 Troubleshooting Guide

System	Possible Cause	Solution
Unit doesn't turn on	Unit is not connected to power source, or is connected to improper power source	Refer to input power requirements on pg. 19, and Figure 1 on pg. 23 for proper electrical connections.
	Electrical short circuit	Visually inspect unit and check for loose connections. Inspect printed circuit board (PCB) for burn marks. Inspect HV wire from PCB to CD cell for disconnection or burn marks. Repair any and all problems prior to placing unit back into service, or contact dealer for service.
	Unit is connected to improper power source	Refer to pg. 19 to ensure that unit is plugged into proper voltage source.
Unit turns on, but no ozone output	Frequency driver high voltage lead not connected to ozone cell	Connect red flag terminal to CD cell spade connection.
	Water has been allowed to back up into the CD cell and has caused a direct short	Clean and dry CD cell using cleaning procedure in Section 3.3 on page 16.
		Replace CD cell.
	Cell is plugged with build-up of nitrous byproducts and particulate matter. Usually caused by the lack of proper air preparation	Clean and dry CD cell using cleaning procedure in Section 3.3 on page 16.
		Replace CD cell.
	Frequency driver is defective	Contact OEM or dealer for service.

7.0 Limited Warranty

Ozotech, Inc. (“Ozotech”) warrants to the original purchaser (“Purchaser”) that Purchaser’s new Ozotech product(s) (“Product”) shall be free of manufacturer’s defects in workmanship and materials for a period of (12) twelve months from the date of delivery to the original purchaser subject to the terms and conditions herein.

All Ozotech parts, repairs, or replacements, will be warranted for the balance of the original warranty period. To the extent permitted by law, any warranty obligation with regard to any equipment not originally manufactured by Ozotech shall be limited to any warranty actually extended to Ozotech by its manufacturer(s) or supplier(s).

Performance of Ozotech Products is warranted to be in accordance with stated ratings when properly installed under normal conditions of operation as outlined in the related Product manual.

Ozotech, Incorporated assumes no liability for damages incurred by deliberate or incidental misuse of this product, or damages incurred in transit.

Click to read our Limited Product Warranty

8.0 Service Returns

If the need arises to return your equipment for service, the following procedure must be followed to ensure accurate and timely processing of repairs.

- ✓ Obtain model number/name, and serial number of unit to be returned.
- ✓ Contact Ozotech, Inc. and request a Return Material Authorization (RMA) form. Make sure to give the factory representative an accurate and current shipping address along with current contact inforation including phone number and email address.
- ✓ Provide a description detailing the problem with the unit. Be as specific as possible.
- ✓ After receipt of RMA form, enclose the signed form along with the unit, packaged for shipment. Use the original packaging materials if possible. If not, please package the product to ensure against shipping damage.
- ✓ Clearly write the RMA number on the outside of the shipping package.
- ✓ Verify that the address is correct and current.
- ✓Shipments that are not factory authorized will be refused.

It is recommended that you ship with a reputable and reliable shipping company, and that the contents of the package are insured. Ozotech, Inc. accepts no responsibility for damage or loss of equipment in transit.

ALL FREIGHT CHARGES INTO THE FACTORY MUST BE PREPAID.
If the repair is covered under warranty, the factory will pay return shipping charges (surface rates only) to the address listed on the RMA, within the Continental United States.

If the repair is not covered under warranty, the returning party is responsible for payment of return shipping and handling charges, as well as labor and equipment costs associated with the repair.

9.0 Figure 1.0

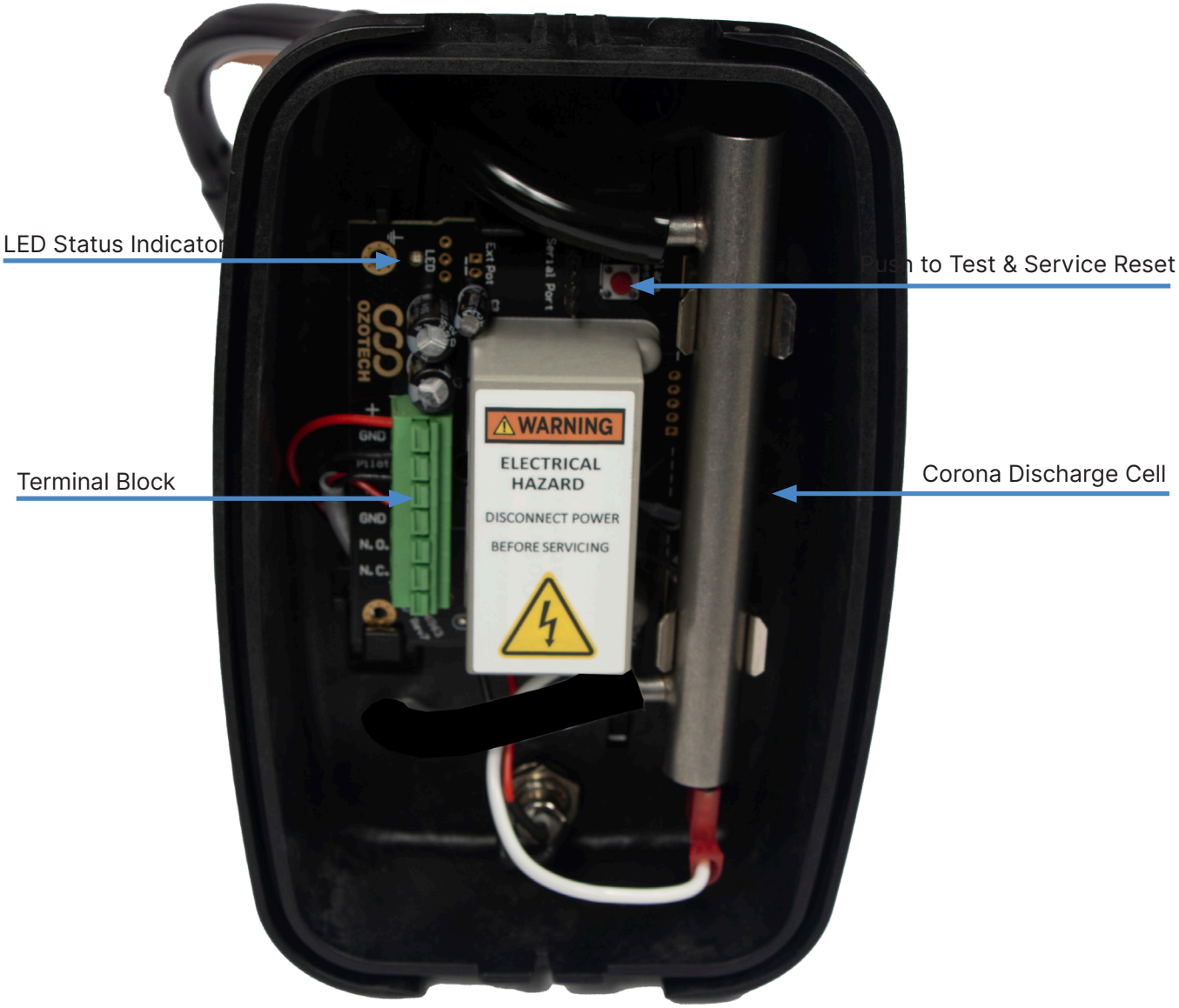


Figure 1: EOG 200 Kit internal layout