OZOTECH™
A Clack Corporation Company

TR-200
Tank Recirculation Kit

Part Number: 30533

Operation & Maintenance Manual

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060326

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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 instructions 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 Tank Recirculation Kit (TR-200) user manual.

Congratulations on your purchase of a TR-200! This comprehensive user manual is designed to be your ultimate guide to unlocking the full potential of your new TR-200. 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 make the most out of your TR-200.

What's Inside

In this manual, you'll find clear and concise instructions on how to set up, operate, and maintain your TR-200. 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

External
It is most important to choose a cool, clean external operating environment. Consideration of these factors should be a priority. Mount your ozone generator, solenoid, and event timer in the best possible operating environment that is available at the chosen site. If possible, mount in an area that is free of airborne moisture particles while still being close to a 115Vac power source.

An optional air dryer attached to the ozone generator air inlet line will help prevent moisture from entering the system, create a higher ozone output than ambient air alone, and prolong maintenance intervals.

Internal
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. For additional maintenance information, refer to Section 3.0.

2.2 Theory of Operation

The TR-200 is designed to provide biological growth management in RO-quality water stored in residential water storage tanks ranging from approximately 200 to 600 gallons. Using intermittent, low-dose ozone treatment and extended contact time within the tank, the system helps maintain water quality and inhibit biological growth.

When the digital event timer activates the TR-200, the solenoid valve opens and the ozone generator turns on. The resulting pressure drop activates the pressure demand recirculation pump, which sends water through the solenoid valve and venturi injector. As water passes through the injector, a vacuum is created at the suction port, drawing ozone gas into the water stream and mixing it throughout the recirculation loop.

The system is typically operated at 35-60 PSI and recirculates approximately 3-4 GPM, depending on pump selection and system configuration. The TR-200 kit is capable of handling flow rates up to 5 GPM and pressures up to 80 PSI.

Treatment schedules are determined by the installer based on water quality and application requirements. As a general guideline, the system should be operated long enough to achieve one complete tank turnover per treatment cycle.

The TR-200 is designed for intermittent ozone dosing rather than maintaining a continuous ozone residual. This low-dose treatment approach, combined with long contact time, provides an effective and economical method for controlling biological growth in stored water.

2.3 Installation

Tool required: #2 Philips screwdriver

1. Mount the provided ozone generator mounting bracket in your chosen operating location using either a mounting strap (not provided) or (2) screws. #8 × 1-1/4″ mounting screws are provided within the product kit.

   NOTE: Ensure a power outlet is within 5-1/2 ft. of the unit's mounting location so the provided power supply cord will reach it.

2. Plug the digital event timer into the power source.

3. Program the ON and OFF times for your TR-200 kit following the programming instructions found here.

4. Slide the ozone generator onto the previously installed mounting bracket.

5. Plumb the solenoid valve and venturi Injector into your tank recirculation plumbing. See the suggested plumbing diagram in Figure 1.0 below. Note the directional flow arrows on the components and within the diagram.

6. Plug the wall transformer into the timer outlet. Connect the wall transformer DC plug to the DC jack of the ozone generator located in the back of the enclosure.

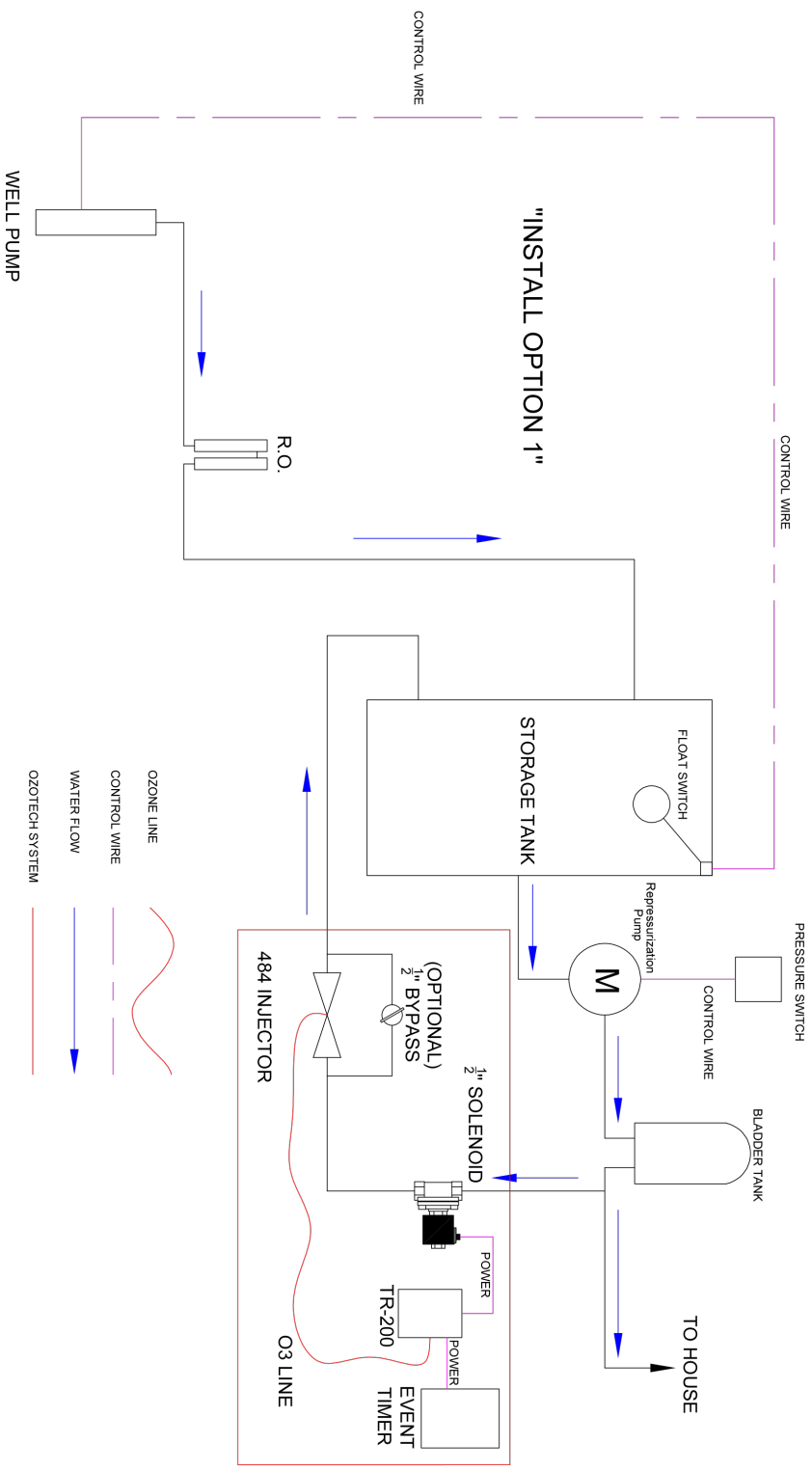


Figure 1.0 Suggested TR-200 Installation Plumbing Diagram

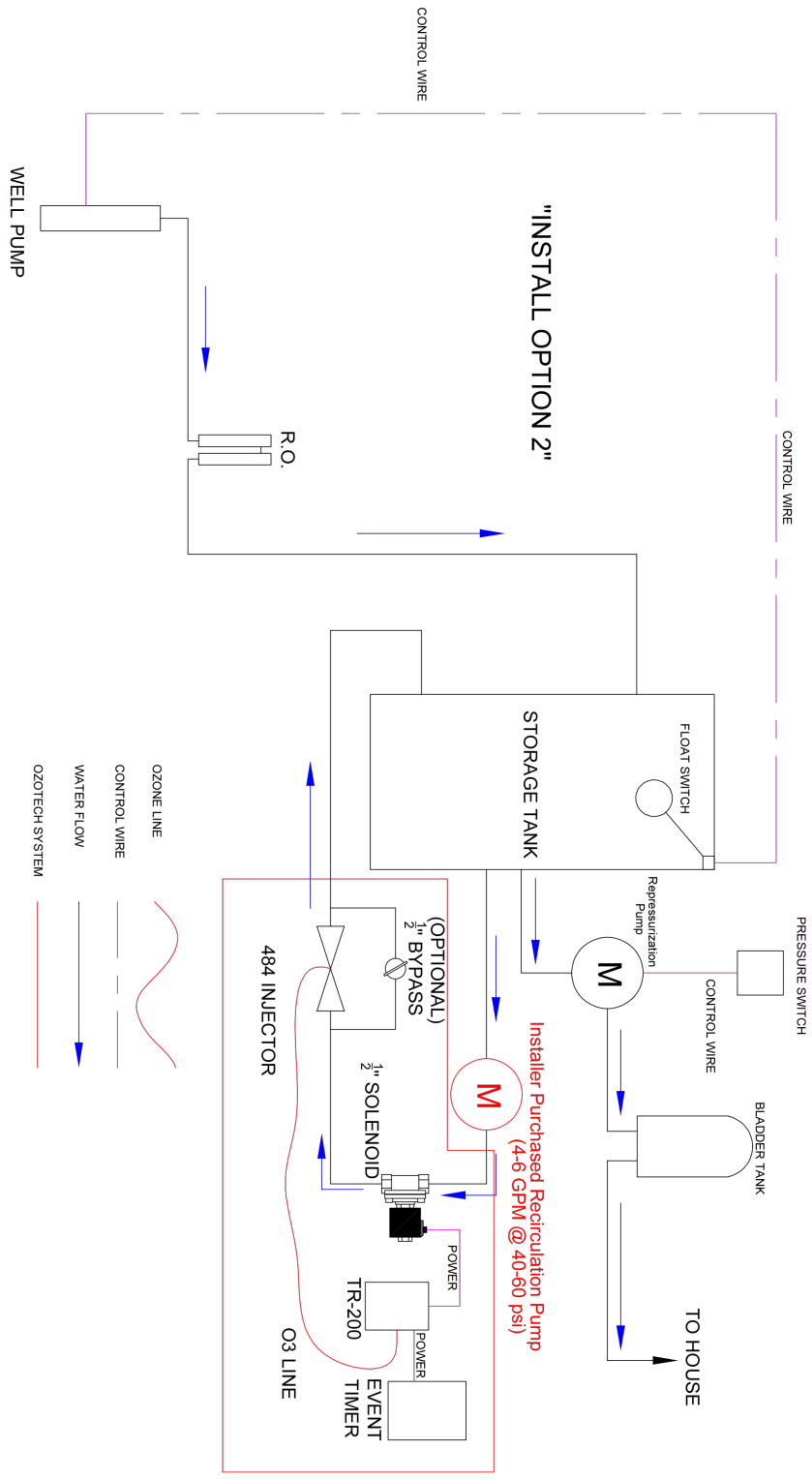


Figure 2.0 Alternate TR-200 Installation Plumbing Diagram

2.4 Operation

The ozone generator will automatically operate via the user-programmed event timer schedule. The ozone generator's control board utilizes an on-board diagnostic LED light to convey the real-time status of the unit. The control board has several inputs and outputs. The following key addresses the various LED statuses regarding the operation of the ozone generator.

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. Allow condition up to 1 minute. 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.

Fusing:
The control PCB is equipped with automatically resetting on-board fuses. If these fuses trip, due to a shorted HV transformer, or an excessive load on the auxiliary output(s), remove the excessive load/cause of short, and cycle the 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 ozone generator 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 the manufacturer's specifications and will cause damage to the unit not covered under warranty terms.

3.1 Ozone Generator Maintenance

Frequency of Maintenance:
Every 12 months, more frequently in high-humidity areas.

Perform the following general maintenance procedure:

1. Disconnect power from the ozone generator.
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. Clean or replace the CD cell (refer to Section 3.3 or 3.4)
6. Replace the top cover.
7. Replace any in-line check valves.

Normally, the control 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 instructions below.

3.2 Maintenance Timer Reset Instructions

Follow these instructions to perform a forced timer reset:

1. Disconnect power from the ozone generator.
2. Press and hold “alarm reset” button while re-powering the unit.
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 ozone generator is now ready to operate as normal.

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

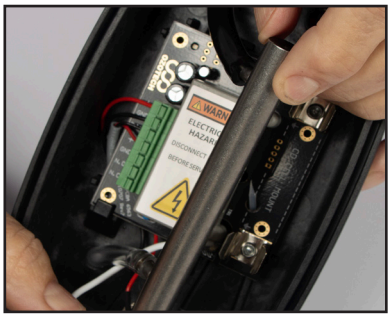
3.3 Cleaning the Corona Discharge Cell

__CAUTION:__ UNPLUG POWER SUPPLY TO THE OZONE GENERATOR BEFORE PERFORMING SERVICE

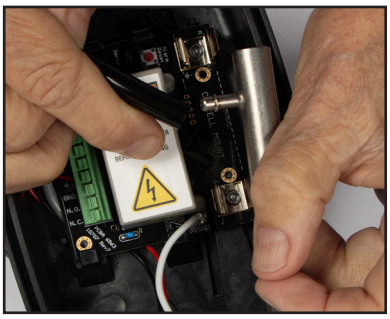
1. Remove any cable ties that may be securing the CD cell into the grounding clips. (1a.) Disconnect the cell from the unit by removing cell-to-board electrical connections and the (1b.) CD cell from it's mounting clips. (1c.) Remove the tubing from the cell barbs. (1d.)The cell is now free from the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

1a.

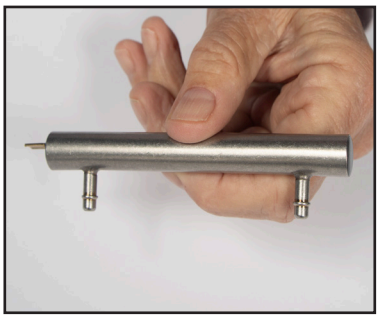
1b.



1c.



1d.



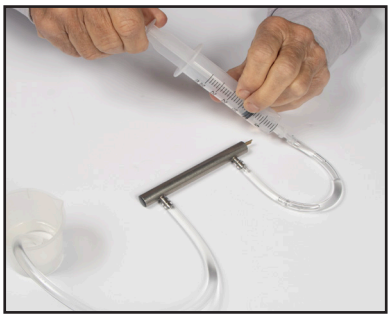
2 . Connect the longer piece of clear tubing from your cleaning kit to one of the cell barbs. (2a.) Attach the shorter piece of clear tubing from the kit to the open CD cell barb. (2b.)Insert the tubing adapter, attached to the syringe, into the open end of the short piece of tubing. Fill the beaker 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 THE OZONE GENERATOR 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.

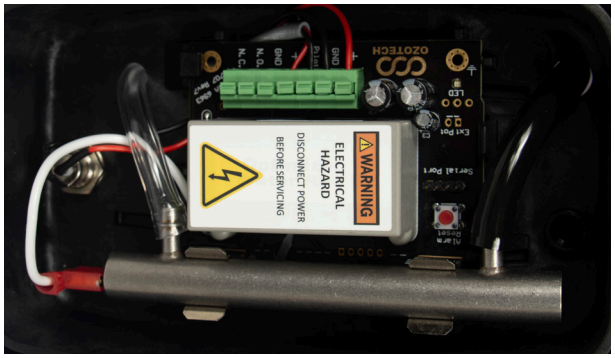


Figure 3.0: New CD cell as installed on the ozone generator

4.0 Spare/Replacement Parts

Part #	Description
33218-R	Replacement CD cell and adapter kit
47049	Check valve, 3/16″ In/Out, Kynar
40080-01	Wall transformer, 100-240Vac, regulated to 12Vdc/2A (U.S. customers only)
47044-1	Corona discharge cell cleaning kit
39503	Solenoid valve, SS, 12Vdc, ½″ In/Out
32005-01	#484 Injector
43410	7-day event timer, 125Vac/10A
33292	½″ Bypass assembly (optional)
30078	Intake air dryer 2.0 (optional)
32099	Intake air dryer 2.0 replacement cartridge

5.0 Specifications

Specification	TR-200
Operating Voltage	15 Vdc via 120/240Vac 50/60Hz switching power supply
Power Consumption	1.8A @ 12Vdc (21.6 Watts) peak 1.6A @ 12Vdc (19.2 Watts) nominal
Ozone Output	220 mg/hr
Size	6.75″L x 4.25″W x 2.5″D
Shipping Dimensions	12″L x 7″W x 5″D
Shipping Weight	4.15 lbs.
Enclosure	ABS

6.0 Troubleshooting Guide

System	Possible Cause(s)	Solution(s)
Unit doesn't turn on	Unit is not connected to power source, or is connected to improper power source	Refer to input power specifications in Section 5.0 on pg. 15 and Figure 4.0 on page 19 for proper electrical connections.
	Electrical short circuit	Visually inspect the 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 the unit back into service, or contact the factory for service.
	Digital event timer is not programmed correctly	Refer to the online manual for programming instructions.
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.
	Solenoid valve not opening	Solenoid wire disconnected.
	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 12.
		Replace CD cell.
	CD 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 12.
		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 information 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 Ozone Generator Internal Layout

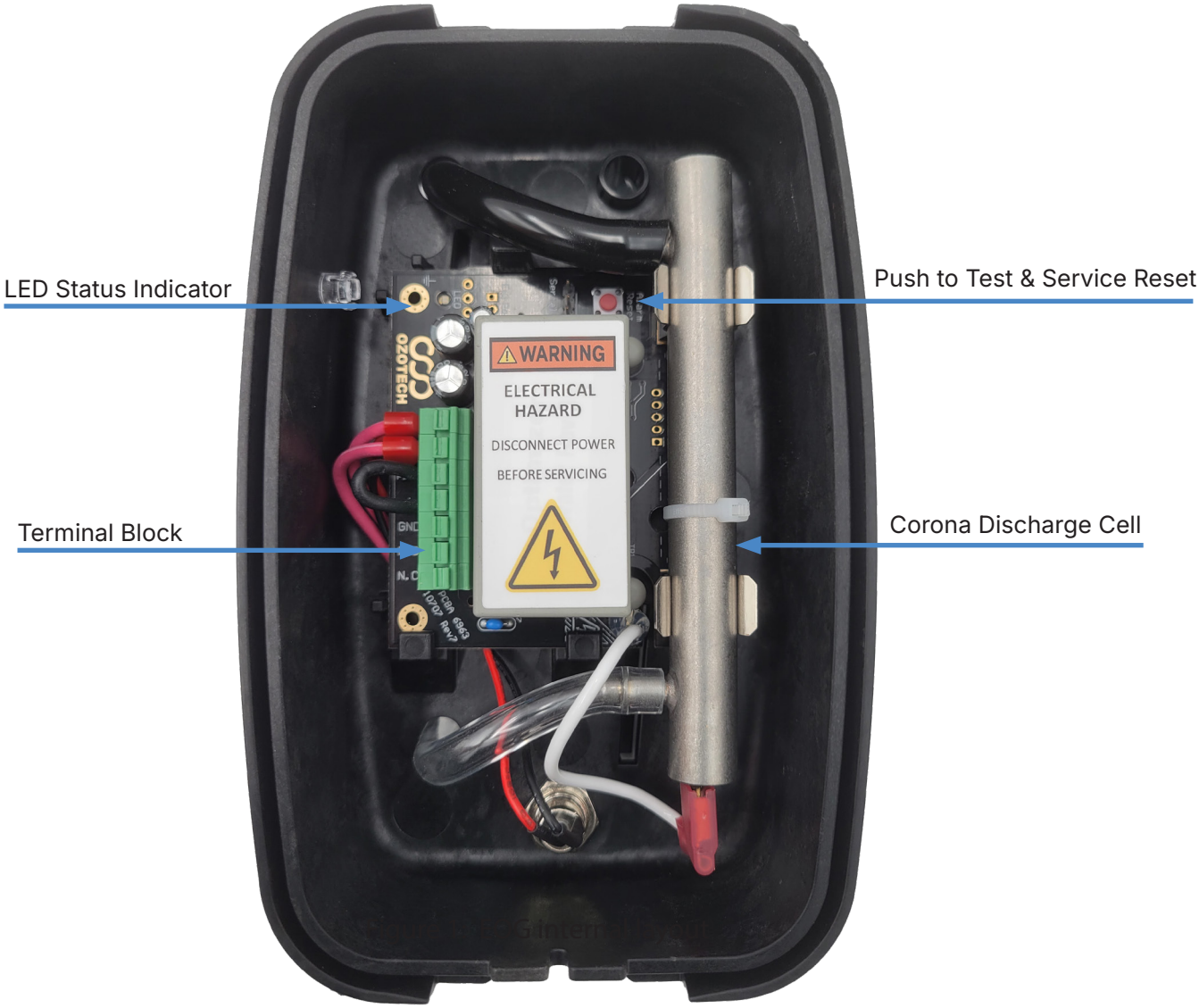


Figure 4.0: Ozone Generator Internal Layout