

# ***AIO OZONE SYSTEM SET-UP OPERATION & MAINTENANCE MANUAL***



***EOG 200 ONE PLUG  
ENHANCED OXYGEN GENERATOR***

### CLACK AIO OZONE CONTROL SET-UP

CLACK AIO OZONE SET-UP USING THE WS1EE CONTROL 10" Tank AIO Set Up			CLACK AIO OZONE SET-UP USING THE WS1EE CONTROL 12" Tank AIO Set Up		
Injector V3010-1K DLFC Button	1 Cubic Foot System	Lt. Green 4.2gpm	Injector V3010-1K DLFC Button	1.5 Cubic Foot System	Lt. Green 5.3gpm
TIMER SETTINGS (FIRST SET TIME)			TIMER SETTINGS (FIRST SET TIME)		
To Start Control Should Be In Softening Mode			To Start Control Should Be In Softening Mode		
Softening Mode:		Default	Softening Mode:		Default
Downflow Brine (DF):		Default	Downflow Brine (DF):		Default
Regeration Post Fill:		Default	Regeration Post Fill:		Default
1 Set Backwash To:		14 Mins	1 Set Backwash To:		14 Mins
2-Set Brine Draw (DF)To:		40 Mins	2-Set Brine Draw (DF)To:		50 Mins
3-Set Second Backwash To:		OFF	3-Set Second Backwash To:		OFF
4-Rinse To:		OFF	4-Rinse To:		OFF
5-Set Fill To:		OFF	5-Set Fill To:		OFF
d-Set System Capatcity To		5.0x1000	d-Set System Capatcity To		5.0x1000
e-Set Regeneration To: (OFF)		Default	e-Set Regeneration To: (OFF)		Default
f-Set Regeneration To: 28 Days		Default	f-Set Regeneration To: 28 Days		Default
g-Set Relay On To: (15:00 Mins)		ON	g-Set Relay On To: (15:00 Mins)		ON
h-Set Relay Off To: (38:00 Mins)		OFF	h-Set Relay Off To: (48:00 Mins)		OFF
Return Back To Time			Return Back To Time		
Now Set Up For Every 3th Day Regeneration			Now Set Up For Every 3th Day Regeneration		

CLACK AIO OZONE SET-UP USING THE WS1EE CONTROL 13" Tank AIO Set Up			CLACK AIO OZONE SET-UP USING THE WS1EE CONTROL 14" Tank AIO Set Up		
Injector V3010-1K DLFC Button	2 Cubic Foot System	Lt. Green 7.5gpm	Injector V3010-1K DLFC Button	2.5 Cubic Foot System	Lt. Green 9.0gpm
TIMER SETTINGS (FIRST SET TIME)			TIMER SETTINGS (FIRST SET TIME)		
To Start Control Should Be In Softening Mode			To Start Control Should Be In Softening Mode		
Softening Mode:		Default	Softening Mode:		Default
Downflow Brine (DF):		Default	Downflow Brine (DF):		Default
Regeration Post Fill:		Default	Regeration Post Fill:		Default
1 Set Backwash To:		14 Mins	1 Set Backwash To:		14 Mins
2-Set Brine Draw (DF)To:		60 Mins	2-Set Brine Draw (DF)To:		80 Mins
3-Set Second Backwash To:		OFF	3-Set Second Backwash To:		OFF
4-Rinse To:		OFF	4-Rinse To:		OFF
5-Set Fill To:		OFF	5-Set Fill To:		OFF
d-Set System Capatcity To		5.0x1000	d-Set System Capatcity To		5.0x1000
e-Set Regeneration To: (OFF)		Default	e-Set Regeneration To: (OFF)		Default
f-Set Regeneration To: 28 Days		Default	f-Set Regeneration To: 28 Days		Default
g-Set Relay On To: (15:00 Mins)		ON	g-Set Relay On To: (15:00 Mins)		ON
h-Set Relay Off To: (58:00 Mins)		OFF	h-Set Relay Off To: (78:00 Mins)		OFF
Return Back To Time			Return Back To Time		
Now Set Up For Every 3th Day Regeneration			Now Set Up For Every 3th Day Regeneration		

Medias That Can Be Used With OZONE AIO Systems

Coconut Shell Carbon, Centaur Catalytic Carbon, CAT-HAC Catalytic Carbon

Filter AG, Aldex CR26 & Katalox-Light And Greensand PLUS

**NOTE: BIRM CAN NOT BE UISED WITH OZONE**

**NOTE:** Above Settings Are Defult Srttings, Please Refer To The WS1EE Manual For Full Programming.



Dear Valued Customer:

Welcome to the Enhanced Oxygen Generator (EOG) User Manual

Congratulations on your purchase of an EOG! This comprehensive user manual is designed to be your ultimate guide to unlocking the full potential of your new EOG. 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 EOG.

### **What's Inside**

In this manual, you'll find clear and concise instructions on how to set up, operate, and maintain your EOG. 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 [iwaterwerks@aol.com](mailto:iwaterwerks@aol.com)**. If you encounter any challenges, please reach out to your local dealer.

Thank you for choosing Ozotech.

# Enhanced Oxidation Generator

## FREQUENTLY ASKED QUESTIONS

### **What would be the ideal situation to try the Ozotech EOG?**

Slight rotten egg odors or metallic tastes that stem from iron, manganese, IRB's or mild H<sub>2</sub>S.

### **Is it a unique solution for a unique issue, or is it enhancing an existing solution?**

The EOG generator is an enhancement of the AIO type systems controlling bacteria build up in the dome area of the tank and reducing odors related to that build up.

### **Who is the target market for the Ozotech EOG?**

The EOG II when added to a Clack AIO system will increase the oxidation process and re-oxidize medias such as Katalox Lite, Greensand Plus or Titanium oxide. It also controls the buildup of iron-related bacteria, nuisance bacteria and aerobic bacteria thus controlling associated tastes and smells.

The typical water analysis would be:

Iron	<5 ppm
Manganese	<1 ppm
pH	>6.5
IRB'S	
Pink Algae	
Biofilm	

With this type of water Katalox lite, Greensand Plus or Titanium oxide All would work well in a 10 x 54 vessel.

### **What filtration media works well with ozone?**

Usually media choice is determined by our OEMs. Some use Katalox Lite, Greensand Plus or titanium oxide. All of these work well with ozone but would be dependent on factors such as pH, organics or turbidity.

### **Does the Ozotech EOG work with the Clack 'filter' valve?**

The EOG requires a Clack valve set up in the AIO configuration and needs an EE board to turn it on.

### **Does the Ozotech EOG help with bacterial iron issues?**

Yes, many of our OEM's report success with not only iron bacteria but all IRB's and nuisance bacteria.

### **Does the Ozotech EOG work well with Birm?**

No. Clack does not recommend the use of Birm with ozone.



## **Introducing the EOG 200 Enhanced Oxygen Generator One Plug Kit for Use Exclusively with Clack® Control Valves**

Upgrade to the best iron filtration on the market with safe, dependable **Ozotech ozone technology**.

We're excited to introduce the new EOG 200 Enhanced Oxygen Generator One Plug Kit—bringing all the proven benefits of ozone to iron filtration systems **at an even lower, competitive price**. By harnessing the power of ozone, this upgraded model delivers a full 220 milligrams per hour (mg/hr) of ozone output—enough to oxidize iron, hydrogen sulfide, and manganese efficiently—while eliminating the need for harsh chemicals or complex maintenance routines.

By focusing on ozone's unmatched oxidation strength and disinfecting power, your customers will enjoy cleaner tanks and media, reduced downtime, and healthier, better-tasting water—all backed by a system that's trusted by professionals around the globe.

### **Benefits of EOG 200 Enhanced Oxygen Generator One Plug Kit:**

- **Superior Oxidation Power**  
Ozone is a stronger oxidizer than chlorine or potassium permanganate. It quickly transforms dissolved iron, hydrogen sulfide, and manganese into filterable particles, keeping your tanks and media cleaner, longer.
- **Seamless One-Plug Integration**  
The new EOG 200 Enhanced Oxygen Generator One Plug Kit makes installation easier—operate your Clack® control valve and ozone generator with one power supply in a few easy steps.
- **Chemical-Free Water Treatment**  
No more handling, storing, or disposing of harsh oxidizing agents. Ozone is generated on demand from oxygen, so you avoid chemical purchase, transport, and safety concerns.
- **Improved Taste, Odor, and Clarity**  
Beyond iron removal, ozone breaks down organic compounds that cause bad taste, unpleasant odors, and turbidity, delivering crisp, refreshing water.
- **Proven, Reliable Performance**  
OEMs worldwide trust Ozotech ozone technology. You get the same 220 mg/hr output and robust build quality you expect from Ozotech technology—now optimized for simpler installation and a more competitive price.

Attached are the following support documents for your review:

- EOG 200 Enhanced Oxygen Generator One Plug Kit Sales Sheet
- Why Ozone for Iron Filtration
- Price Sheet



# Why Use Ozone with Iron Filtration?

Adding ozone to an iron filtration system enhances performance by oxidizing dissolved iron into filterable particles and reducing iron-fouling while extending filter life and improving efficiency. The Enhanced Oxygen Generator (EOG) is designed to enhance an iron filtration system and deliver a seamless treatment solution.

## 1. Enhanced Iron Removal

**Faster Oxidation:** Ozone is much faster at oxidizing iron compared to other oxidants like chlorine or potassium permanganate. This reduces the contact time needed for effective treatment, enabling quicker processing.

**Superior Efficiency:** Ozone makes it easier for filtration media to capture iron particles, extending the useful lifespan of filter media and the filter.

## 2. Chemical-Free Solution

**No Need for Harsh Chemicals:** A powerful alternative to chlorine, potassium permanganate, or other oxidizing agents.

**Environmentally Friendly:** Ozone quickly reverts back into oxygen, leaving no harmful byproducts in the water.



Enhanced Oxygen Generator\*  
\*As shown on a Clack® control valve

## 3. Tackles More Than Just Iron

**Manganese & Sulfur Removal:** Ozone also reduces manganese and hydrogen sulfide, improving taste, odor, and overall quality of water.

## 4. Cost-Effective, On Demand Treatment

**Reduced Filter and Media Replacement:** Pre-oxidizing iron and other contaminants before they reach the filter can reduce fouling and clogging of the filtration media, prolonging its useful lifespan.

**Lower Operating Costs:** Once installed, ozone systems require no ongoing chemical purchases. Since ozone is on demand, there is no shipping, storing, or handling of chemicals.



## Quick Facts About Ozone

- 3,000 times faster at oxidizing iron than chlorine.
- Naturally reverts to oxygen in minutes, leaving no chemical residue.
- Safe and effective when properly applied in water systems.

Transform your water treatment approach with ozone technology—safe, efficient, and sustainable. Contact us today for more information! **Call: 800 426 9375**

**E- Mail: [iwaterwerks@aol.com](mailto:iwaterwerks@aol.com)**

**Web Site: [iwaterwerks.com](http://iwaterwerks.com)**



# Upgrade to the Best Iron Filtration System on the Market with Safe, Dependable Ozone

**OZOTECH™**  
A Clack Corporation Company

Ozotech Enhanced Oxygen Generator (EOG) technology is designed to work exclusively with Clack® control valves with relay drivers. By adding the EOG 200 Enhanced Oxygen Generator One Plug Kit to an iron filtration system, your team will quickly see the positive impact of ozone including **cleaner tanks and valves, more effective filtration, increased customer satisfaction, and longer service cycles**. An ozone clean iron filtration system is a robust iron filtration system.

Proven in-market by water treatment professionals!



## USED EXCLUSIVELY WITH CLACK PRODUCTS

For use with Clack® control boards with relay drivers. Does not affect the warranty of the Clack valve. Major water treatment OEMs are using the EOG with Clack valves.



## EASY TO INSTALL MAINTAIN & SERVICE

In a few simple steps, the EOG 200 kit is designed to mount directly onto the Clack® control valve and includes the patented stainless steel corona discharge cell. **With no chemicals or pumps to maintain, EOG is a cost effective method that provides more robust iron filtration.**



## PROVEN TECHNOLOGY SOLD GLOBALLY

Featuring a patented process and thousands of systems operating in the field with proven results in markets across the United States. A CE certified model is also available and sold globally.



## NO HARMFUL CHEMICALS

Ozone has been proven to reduce bacteria faster than chlorine, virtually eliminating the need for traditional chemicals used to disinfect water. The EOG 200 kit is safe for non-chlorinated water sources.



### Enhanced Oxygen Generator One Plug Kit\*

- Ozone Output: 220 mg/hr
- One Plug Design
- Tank Size: 10", 12", & 13"
- Part Number: 31515
- \*As shown on a Clack® control valve



### Enhanced Oxygen Generator Two Plug Kit\*

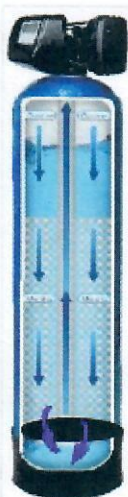
- Ozone Output: 220 mg/hr
- Two Plug Design
- Tank Size: 10", 12", & 13"
- Part Number: 31506
- \*As shown on a Clack® control valve



# How the Enhanced Oxygen Generator (EOG) System Works

As a fully integrated part of a water treatment system, the EOG 200 kit reduces nuisance bacteria within the filter and enhances iron filtration without the use of chemicals.

Water entering the iron filtration tank passes through an ozone layer where impurities are oxidized, deodorized and enlarged so the filter can remove them and hold them until a backwash cycle is initiated. During the regeneration process, impurities are sent to drain and a fresh ozone layer is created.



Service



Backwash



Ozone  
Induction

## Typical Pre-Treatment Water Analysis:

Iron	<5 ppm
Manganese	<1 ppm
pH	>6.5
IRB'S	
Pink Algae	
Bio film	



Clack® Part Number: D1047

## Use with Glass-Filled Air Blocker

- Air Blocker traps water in its chambers, blocking the head of air in the tank from entering the control valve, reducing iron oxidation in the valve.
- Extends service life and cleaning of control valve internals.
- Air Blocker showed no measurable pressure loss in testing.
- Air Blocker designed to twist lock (O-ring seal) into the control valve's threaded base.
- Air Blocker will only work on Clack control valves.
- Patent No. US 11,059,727 B2.

The images demonstrate how effective and efficient the EOG 200 kit is at reducing iron-related bacteria from the stack within the water filter control valve. Photo comparison: after 12-18 months of service.



Without EOG



With EOG



## 1.0 Caution



Read the following safety guidelines thoroughly before attempting to operate or install your equipment.



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



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



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.



**WARNING:** This product contains a chemical known to the State of California to cause cancer. For more information, go to [www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov).

Ozotech, Inc. & International Water Werks, Inc

Assumes no liability for damages or injuries incurred by misuse of this product.

## 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 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.

#### 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.

# 31515 EOG 200 One Plug Design Installation Instructions

## Components Included in 31515 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



K-Injector  
Light Green  
V3010-1K

## Air Blockers

1.050"



D1047

1.320"



D1047-01

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

## Control Valve Preparation Instructions:

WS1-EE or WS1.25-EE 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.





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



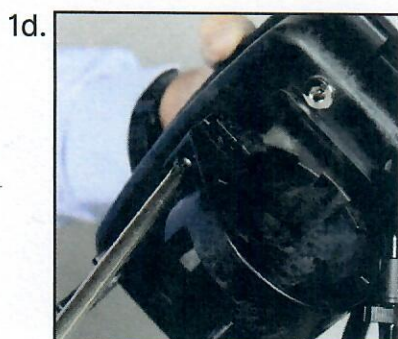
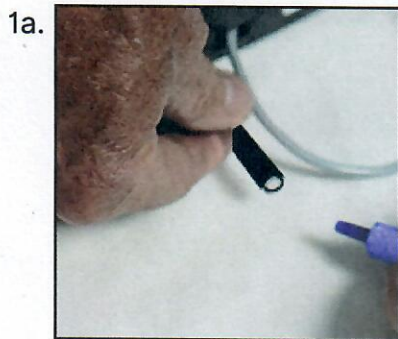
Replace injector with a Clack® K in the DN position.

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

Components Included in the EOG 200 One Plug Kit					Tool Needed
					
EOG 200	Inlet Filter	Clamp Ring	Port Clip	Power Supply	#2 Phillips Screwdriver

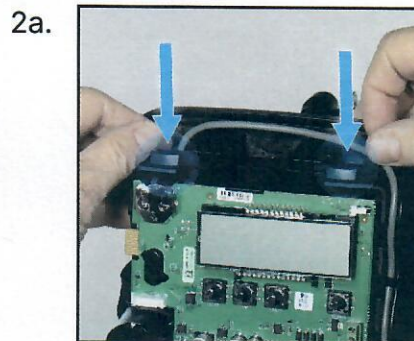
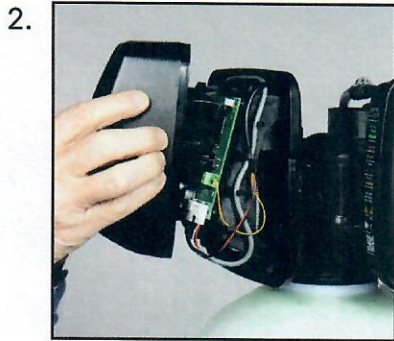
## EOG 200 Kit Installation Instructions:

- 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.

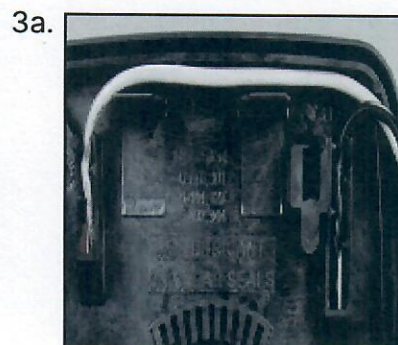
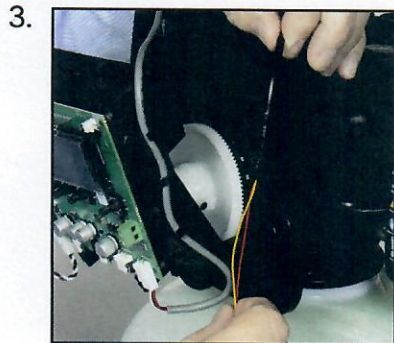




2. Unplug the power supply from the wall outlet. Remove the front cover from the valve backplate and the EOG unit. **2a.** Lift up on the two (2) locking tabs and tilt the drive bracket assembly forward. Remove original power supply from the circuit board and valve backplate if present.

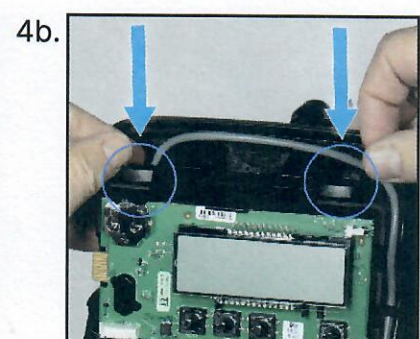
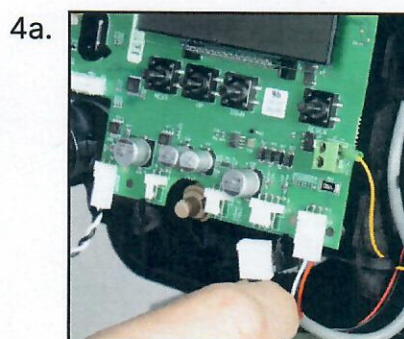
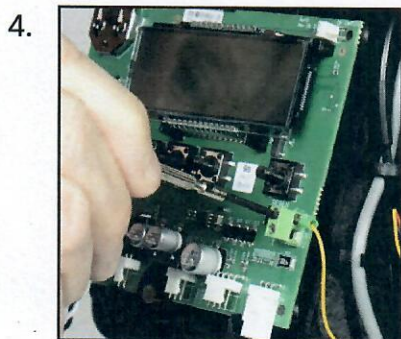


3. Route the black interconnect cable and pilot wire from the EOG through the backside of backplate slot and up through the strain relief channel to keep the wiring in place. **3a.** Leave enough wire length and connect the pilot wire to the relay driver terminal block on the circuit board. Make sure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



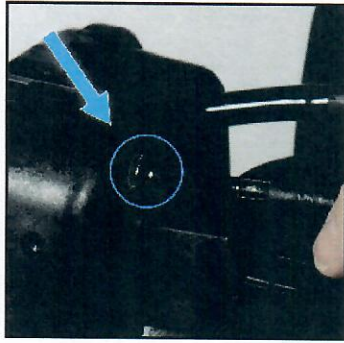
**NOTE:** Pilot Wire In this Case Is **GREEN** Not Yellow As Shown In FIG 4

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





5. 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.



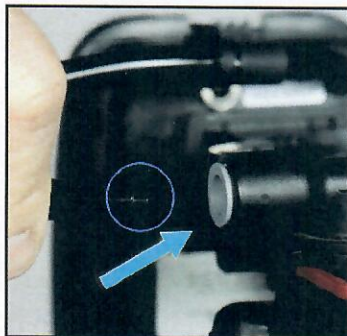
6. Push and hold the red button on the EOG board until the LED light is solid green.



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



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





## 3.0 Maintenance

The EOG 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 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 the EOG 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.

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 following the timer reset instructions below. However, if the cell is serviced or replaced prior to the one-year service signal, a "forced reset" on the timer should be performed.

### 3.2 Maintenance Timer Service Reset Instructions:

Follow these instructions to perform a reset on the EOG board:

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



**Notes:** This feature only applies to EOGs 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.



# Corona Discharge Cell Cleaning Instructions

CD cells within Ozotech products are designed for easy cleaning. Periodic cleaning of the CD cell is important to keep your generator operating effectively and efficiently. The following instructions depict CD cell replacement on an EOG 200. Other ozone generator models follow a similar procedure. The kit is appropriate for the following products: EOG 200, EOG 400, Poseidon 200, Poseidon 400, AIM PCS 200, AIM PCS 400.  
CD Cell Cleaning Kit Part Number: 47044-1



**\*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.

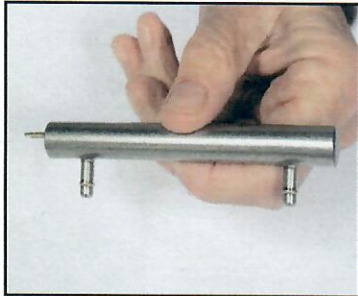
1a.



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.



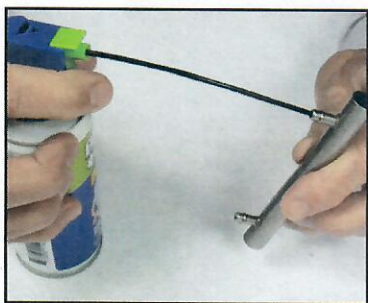
2c.



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.



## 4.0 Spare/Replacement Parts

Part#	Description
33218-R	Replacement CD cell and adapter kit
47049	Ozone resistant in-line check valve* (1)
40067	Wall transformer, 100-240Vac to 14 Vdc/2.1A, regulated (domestic customers only)
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	14Vdc 120/240Vac 50/60Hz switching power supply
Power Consumption	600mA @14 Vdc (7.8 Watts) nominal
Ozone Output	220 mg/hr
Size	6.8" x 4.4" x 5.4"
Shipping Weight	2 lbs.
Enclosure	ABS

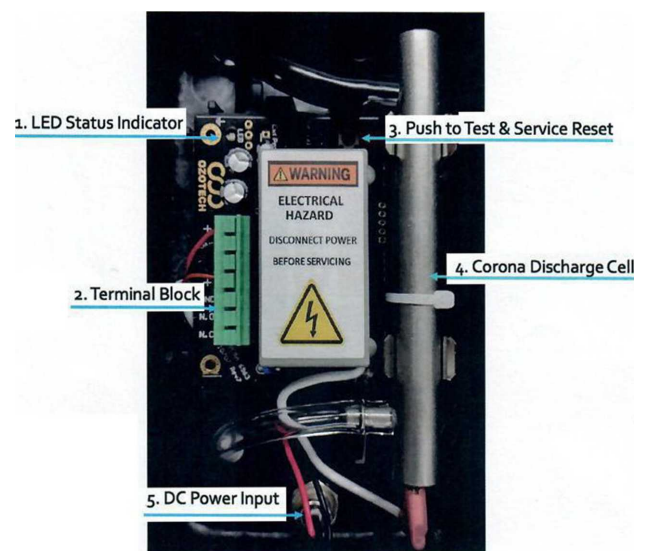


Figure 1: EOG internal layout

### 47049 Ozone Resistant Brine Valve Back Check Assembly

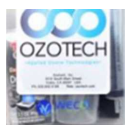


### V3957

### In-Let Back Check Assembly



### 33218-R Replacement Corona Cell



### 47044-1 CD Cell Maintenance Kit



### 40067 Wall Transformer Use With One Plug



### 34054 Standard Air Filter



### 47047-1 OR Optional Intake Air Dryer Kit For High Humidity Areas



## 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. 10, and Figure 1 on pg. 14 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 factory for service.
	Unit is connected to improper power source	Refer to pg. 10 to ensure that unit is plugged into proper voltage outlet.
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(s) and has caused a direct short	Dry CD cell using drying procedure on page 8. Replace CD cell(s).
	Cell is plugged with build-up of nitrous byproducts and particulate matter. Usually caused by the lack of proper air preparation	Refer to section 3.3 on page 8 to clean CD cell. Replace CD cell(s).
	Frequency driver is defective	Contact dealer for service.

## **7.0 Limited Warranty**

OZOTECH, Inc., warrants the EOG ozone generator to be free from defects in parts and workmanship for (12) months from date of invoice, under conditions of normal use. The corona discharge cell is warranted against catastrophic electrical failure for 3 years from date of invoice. All other parts, repaired or replaced, will be warranted only for the remainder of the original warranty period.

OZOTECH, Incorporated will refund the purchase price, perform repairs or replace equipment, at the option of OZOTECH, Incorporated.

The warranty shall be null, void, and non-binding upon OZOTECH, Incorporated if OZOTECH, Incorporated (or authorized service center) determines the cause of malfunction or defect to be a result of:

1. Failure to perform proper maintenance as defined and recommended in this manual.
2. Failure to adhere to and provide proper operating conditions, as defined in this manual, including operation outside of temperature range, operating in wet or dirty environment, operation outside of manufacturer's specifications.
3. Adjustments made by user other than product output flow rate within ranges specified by manufacturer.

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



## 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 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.
- ✓ Provide a description detailing the problem with the unit. Be as specific as possible.
- ✓ After receipt of RMA form, package unit for shipment. Enclose the RMA form with the unit. 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.

## **Maintenance Notes**

Front Cover and Drive Assembly

Drawing No.	Order No.	Description	Quantity
1	V3175EE-01	WS1EE FRONT COVER ASSEMBLY	1
2	V3107-01	WS1 MOTOR	1
3	V3002-A	WS1 DRIVE BRACKET ASY	1
4	V3408EE-13BOARD	WS1THRU/2 EE PCB 5 DIGIT REPL	1
5	V3110	WS1 DRIVE GEAR 12X36	3
6	V3109	WS 1 DRIVE GEAR COVER	1
Not Shown	40067	WS1 POWER SUPPLY US 14 VDC For Use With One Plug Design	1
	V3186-01	WS1 POWER CORD ONLY	
Not Shown	V3178	WS1 DRIVE BACK PLATE	1

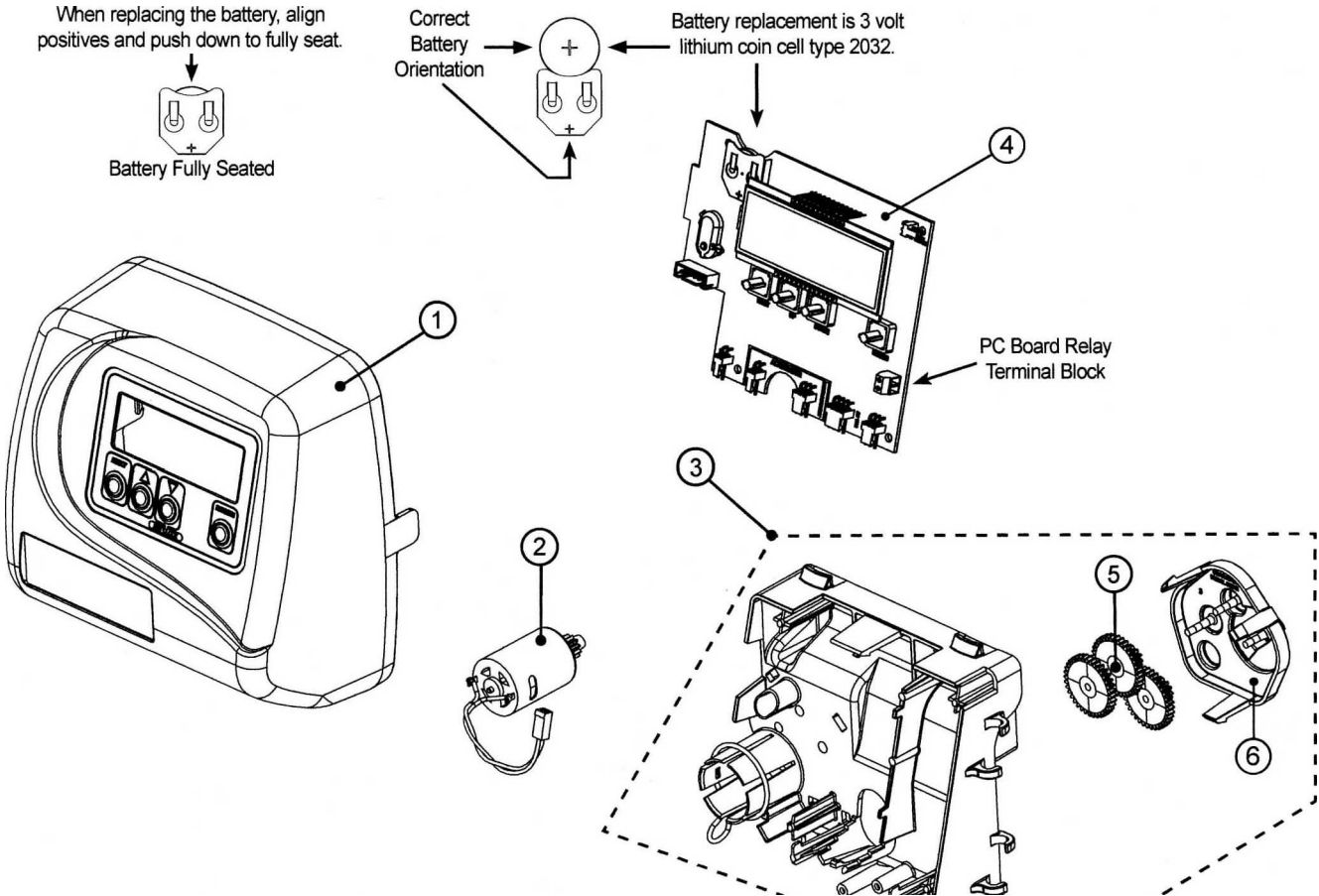
Refer to Control Valve Service Manual for other drawings and part numbers.

For Use With One Plug Design

Power Supply	U.S.	
Supply Voltage	100-120 VAC	
Supply Frequency	50/60 Hz	
Output Voltage	14 VDC	
Output Current	600 mA	

Relay Driver Output Type - Single Solid-State 12VDC “wet” contact - N.O.  
Relay Driver Output Capacity - 12VDC @ 100mA.  
NOTE: Check for proper mounting dimensions on valve backplate prior to mounting an external relay under control cover.

Wiring For Correct On/Off Operation	
PC Board Relay Terminal Block	Relay
RLY 1	Coil +
COM	Coil -



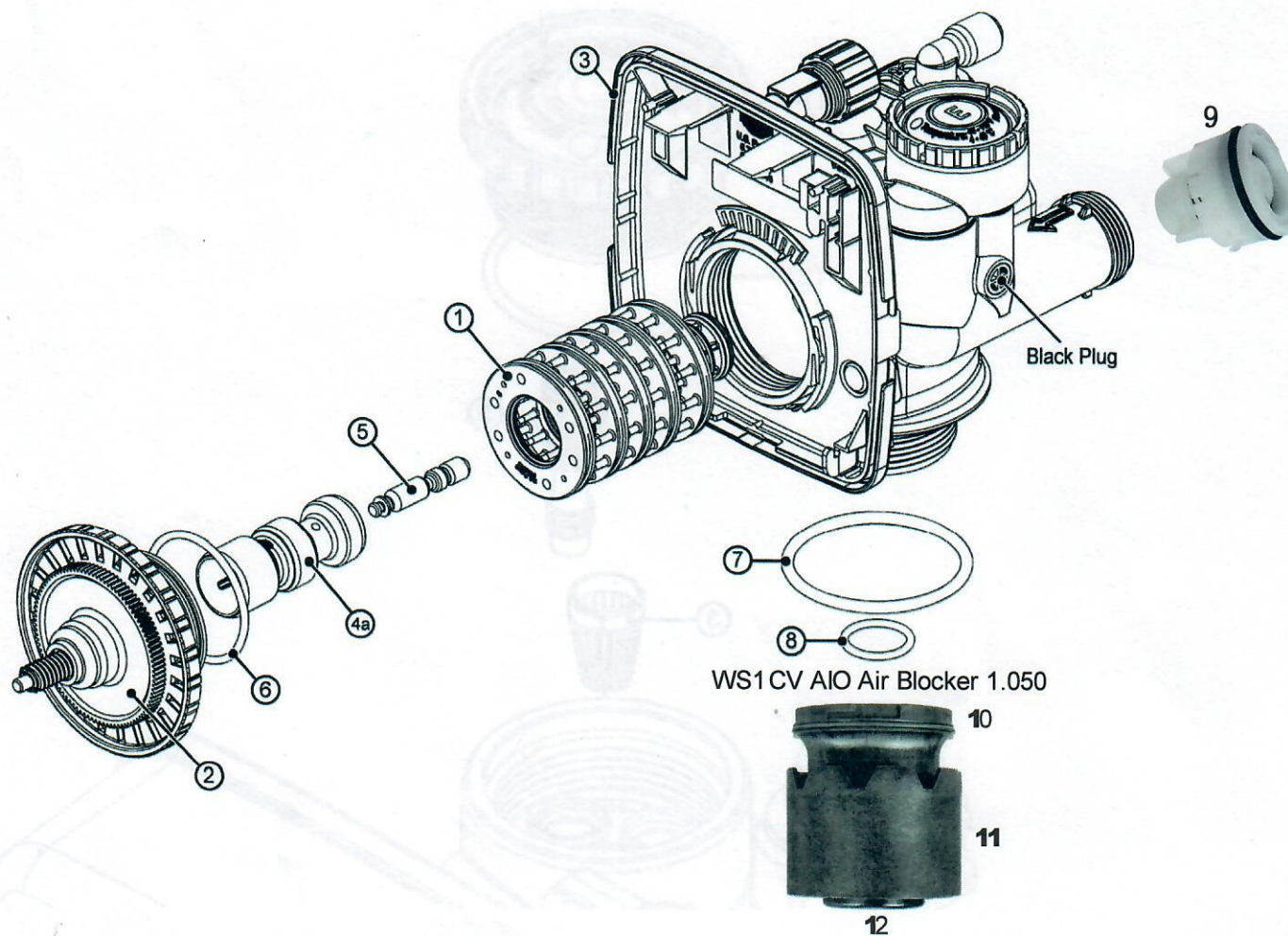


### WSI Drive Cap Assembly, Downflow Piston, Regenerant Piston and Spacer Stack Assembly

Drawing No.	Order No.	Description	Quantity
1	V3005-02	WSI Spacer Stack Assembly	1
2	V3004	Drive Cap ASY	1
3	Back Plate	Refer to Programming and Cover Drawing Manual	1
4a	V3011*	WSI Piston Downflow ASY	1
5	V3174	WSI Regenerant Piston	1
6	V3135	O-ring 228	1
7	V3180	O-ring 337	1
8	V3105	O-ring 215 (Distributor Tube)	1
9	V3957	In-Let Back Check Assy	1
Not Shown			
	V3005-10	WSI Downflow Piston, Seal/Spacer Stack, Regenerant Piston & Silicone Kit	
	V3001	WSI Body ASY Downflow	

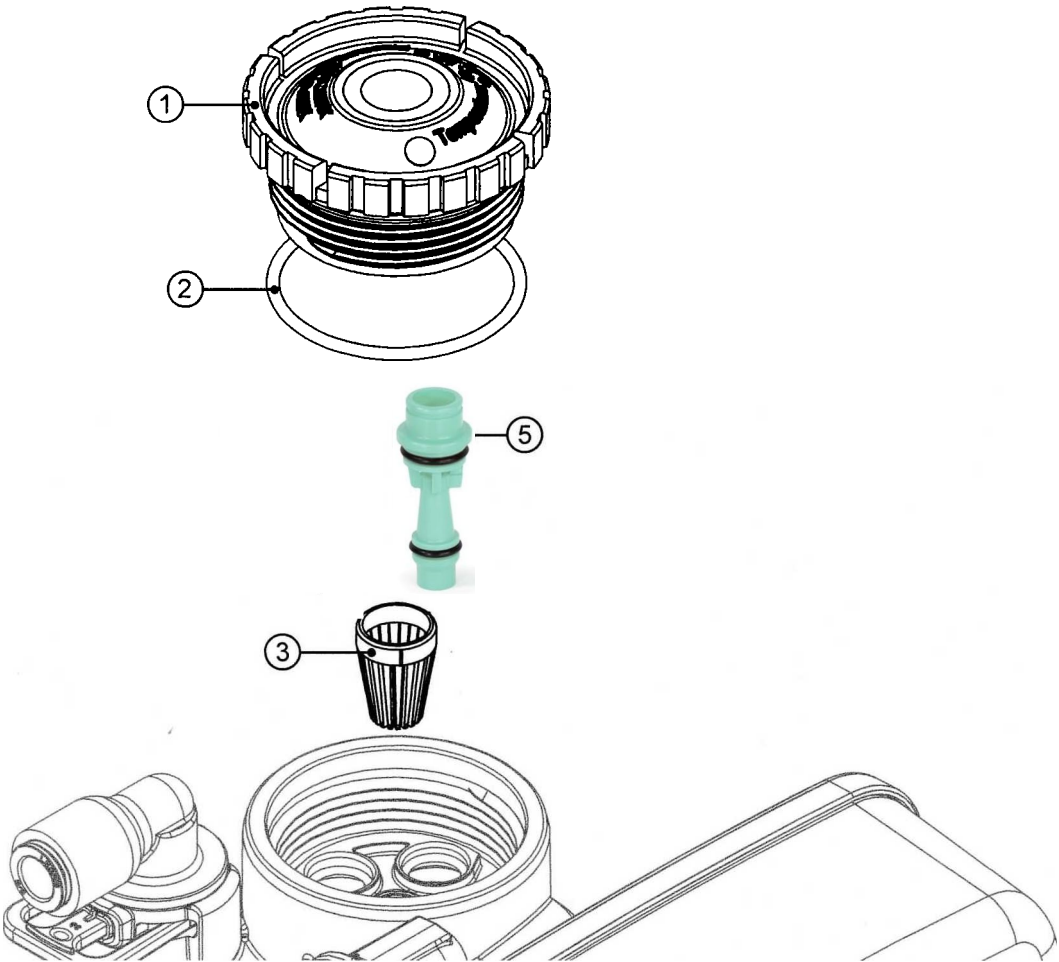
### WS1 CV AIO Air Blocker 1.050

10	D1048	O-ring 035
11	D1047	WS1 CV AIO Air Blocker 1.050
12	V3105	O-ring 215



Injector Cap, Injector Screen, Injector, Plug and O-Ring

Drawing No.	Order No.	Description	Quantity
1	V3176	INJECTOR CAP	1
2	V3152	O-RING 135	1
3	V3177-01	INJECTOR SCREEN CAGE	1
5			Injector Used In System
	V3010-1K	WS1 INJECTOR ASY K Lt. Green	
		Lt. Green Injector Used In All Tank Sizes Other Size Injectors Can Be Apon Request	

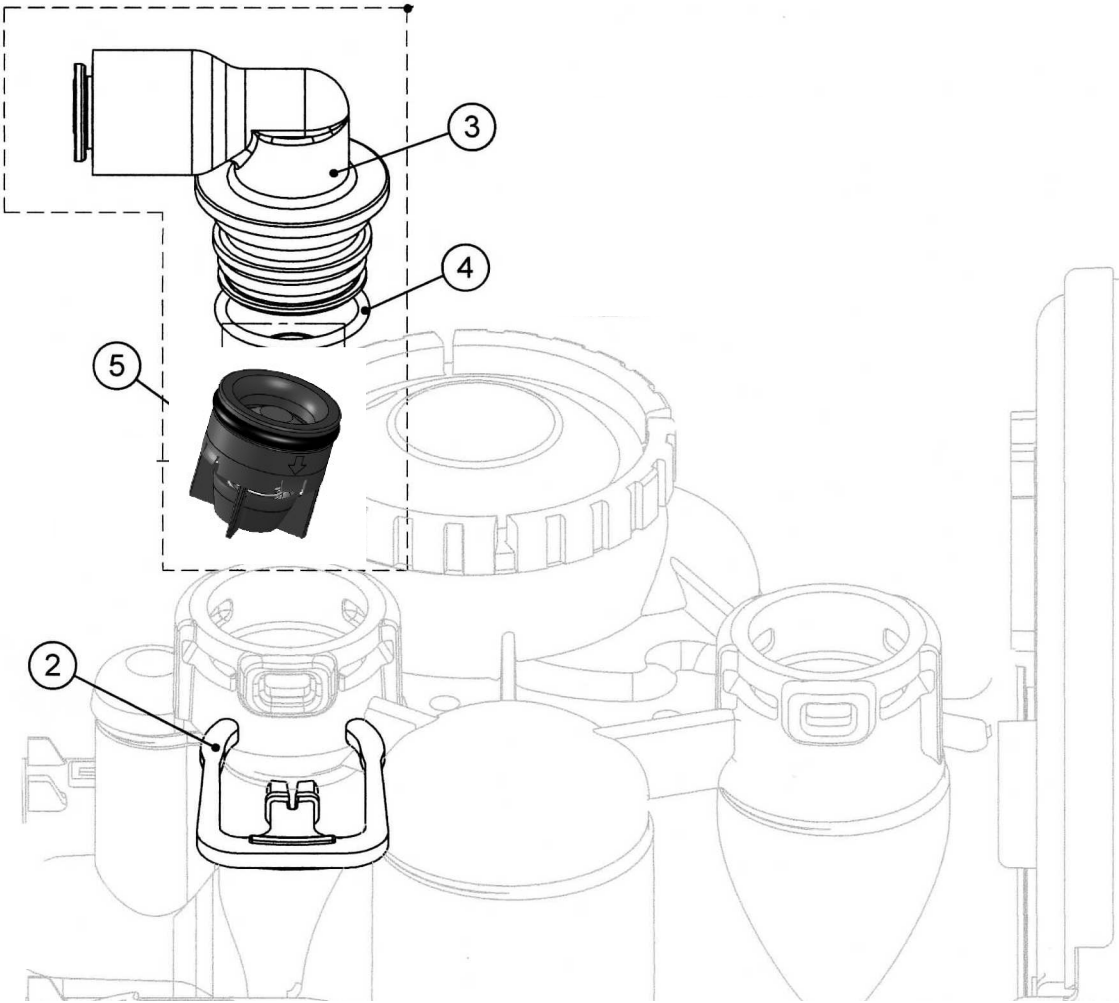




Air intake Flow Control Assembly

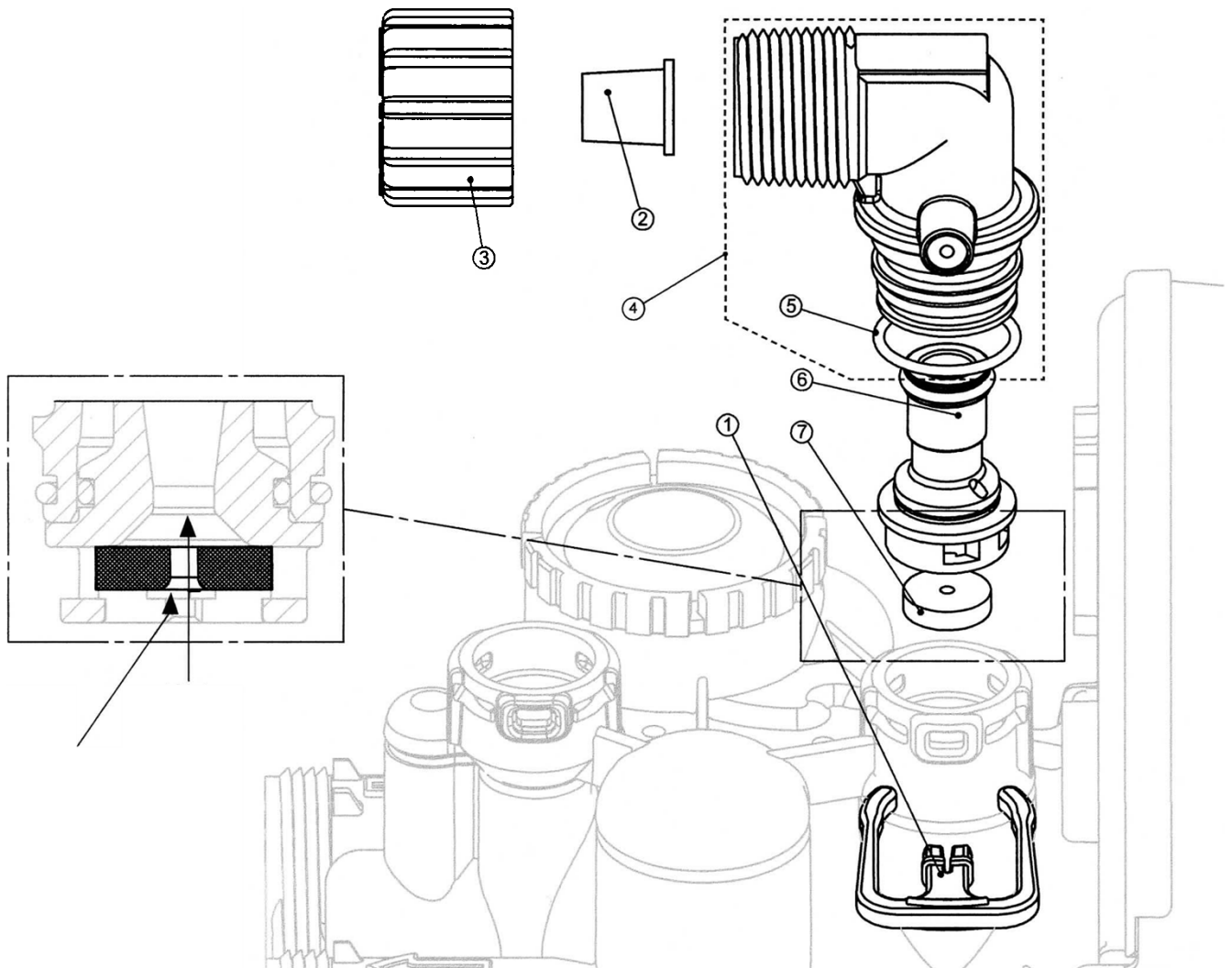
Drawing No.	Order No.	Description	Quantity
1	EOG 200	Enhanced Oxygen Generator	1
2	H4615	Elbow Locking Clip	1
3	H4628	Elbow 3/8 Brine QC	1
4	V3163	O-ring019	1
5	47049	Brine Valve Back Check Assy	1

1



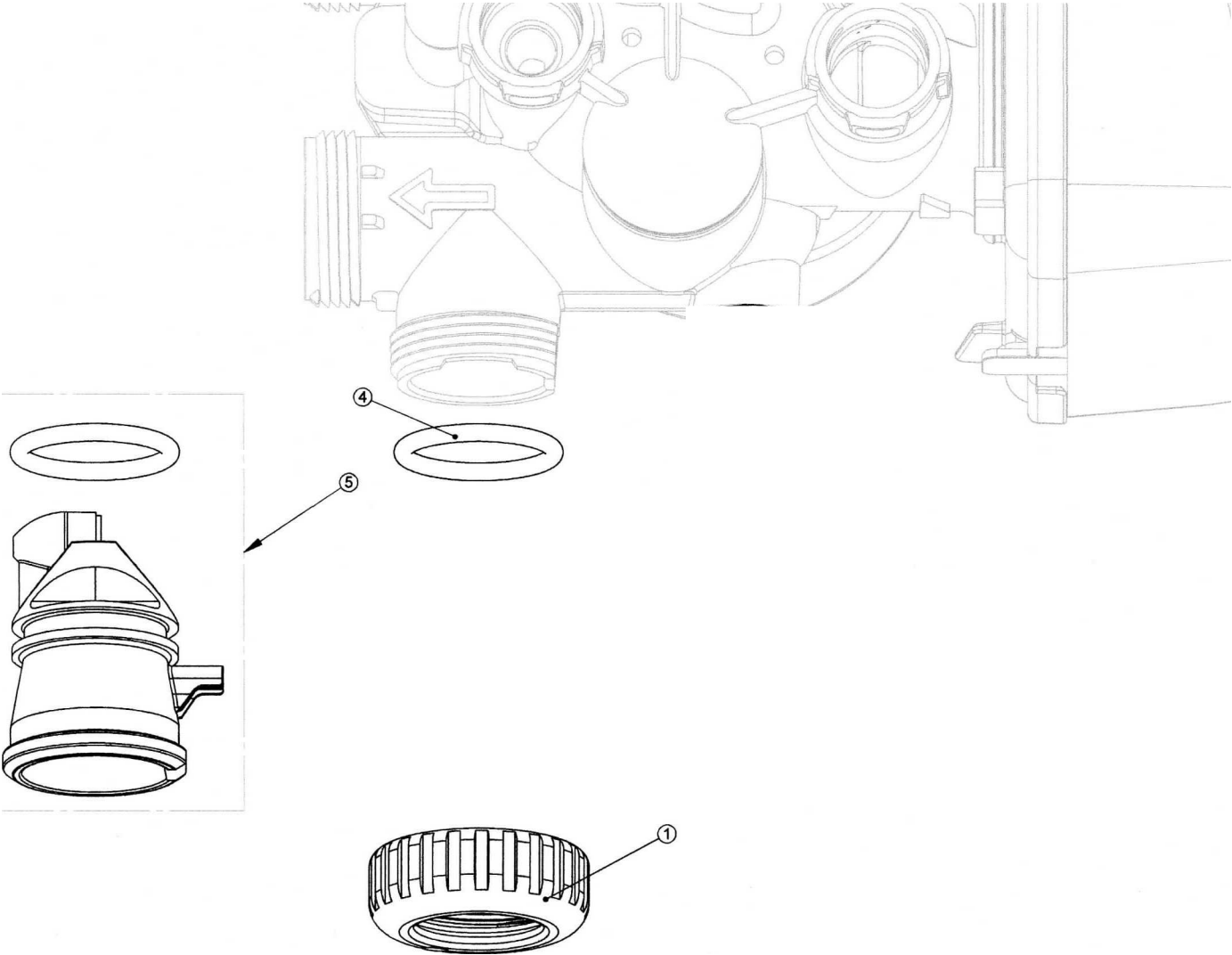
**Drain Line - 3/4"**

Drawing No.	Order No.	Description	Quantity
1	H4615	Elbow Locking Clip	1
2	PKP10TS8-BULK	Polytube insert 5/8	Option
3	V3192	WS1 Nut % Drain Elbow	Option
4	V3158-01	WS1 Drain Elbow % Male w/Silencer	1
5	V3163	O-ring 019	1
6	V3159-01	WS1 DLFC Retainer ASY	1
7			DLFC used In Systems
	V3162-042	WS1 DLFC 4.2 gpm for 10" Tank	
	V3162-053	WS1 DLFC 5.3 gpm for 12" Tank	
	V3162-075	WS1 DLFC 7.5 gpm for 13" Tank	
	V3162-090	WS1 DLFC 9.0 gpm for 14" Tank	





Meter Plug Assembly



Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 Nut 1" QC	1
			1
			1
4	V3105	O-ring 215	1
5	V3003-01	WS1 Meter Plug ASY	1
			Optional

WS1 Bypass Service Manual

Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 Nut 1" Quick Connect	2
2	V3150	WS1 Split Ring	2
3	V3105	O-Ring 215	2
4	V3145	WS1 Bypass 1" Rotor	2
5	V3146	WS1 Bypass Cap	2
6	V3147	WS1 Bypass Handle	2
7	V3148	WS1 Bypass Rotor Seal Retainer	2
8	V3152	O-ring 135	2
9	V3155	O-ring 112	2
10	V3156	O-ring 214	2

(Not Shown) Order No. V3191-01, Description: WS1 Bypass Vertical Adapter Assembly

Order No.	Description	Quantity
V3151	WS1 Nut 1" Quick Connect	2
V3150	WS1 Split Ring	2
V3105	O-Ring 215	2
V3191	WS1 Bypass Vertical Adapter	2

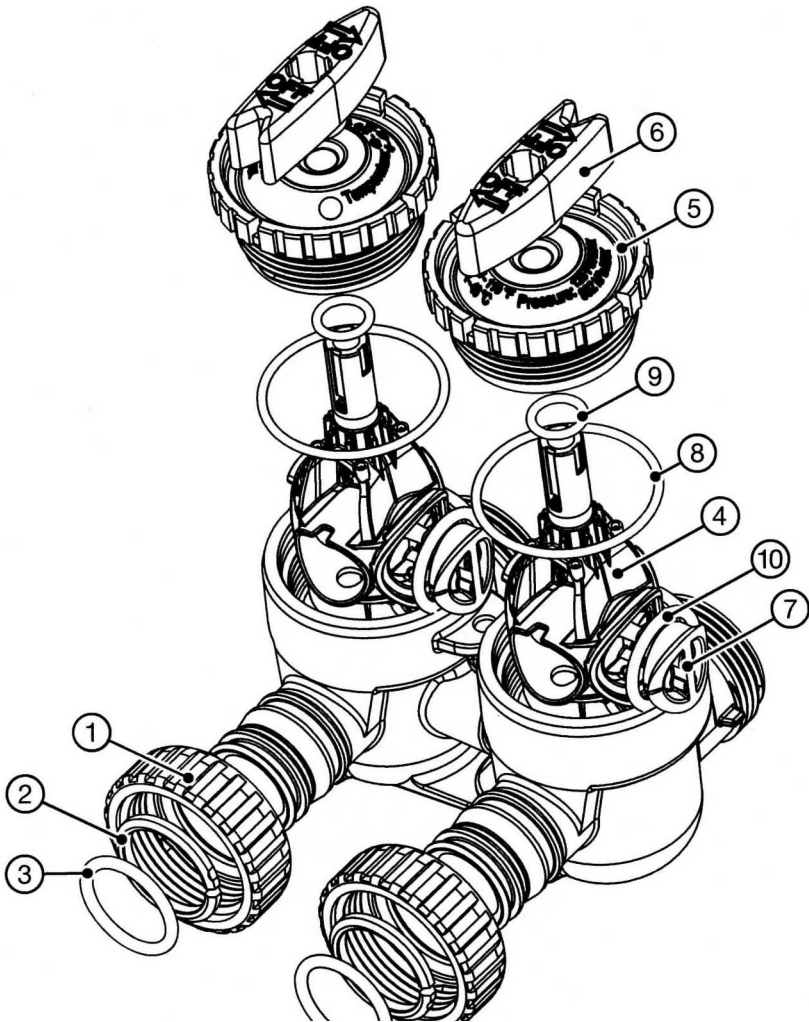




Figure 1

NORMAL OPERATION

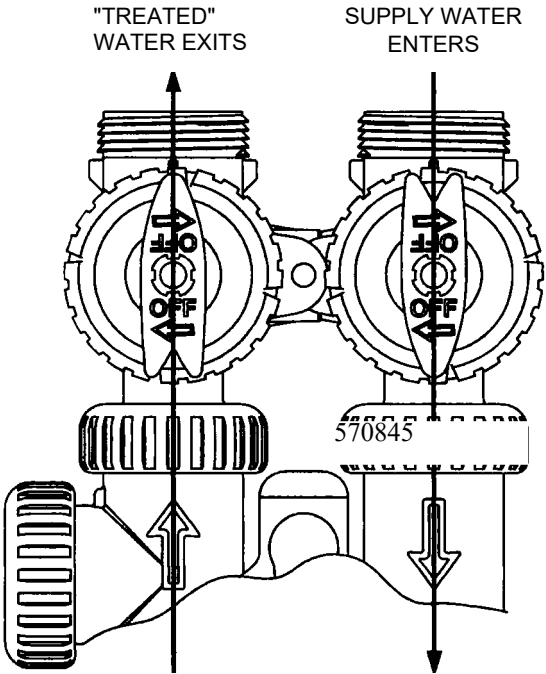


Figure 2

BYPASS OPERATION

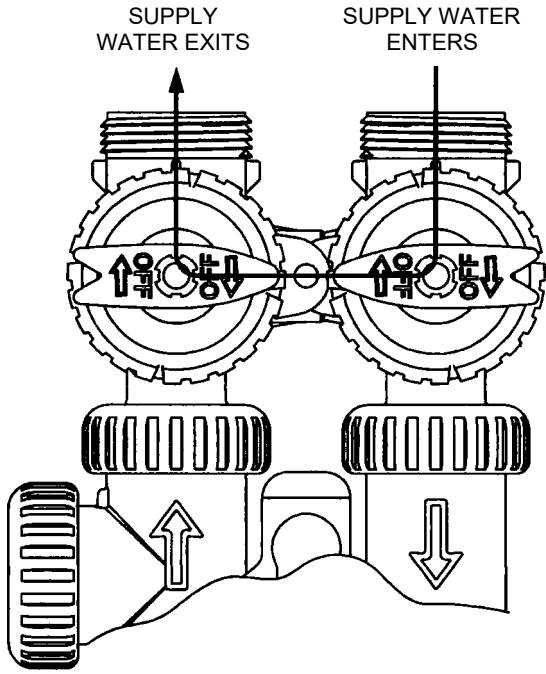


Figure 3

DIAGNOSTIC MODE

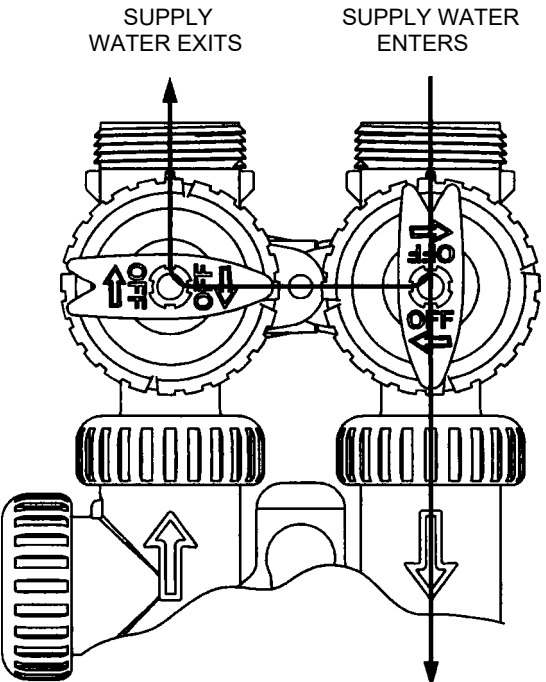
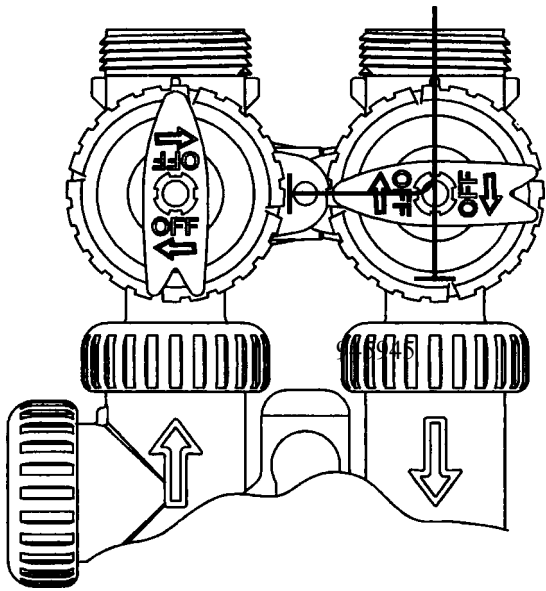


Figure 4

SHUTOFF MODE

NO WATER SUPPLY WATER IS SHUT OFF  
EXITS FROM THE HOUSE AND THE VALVE

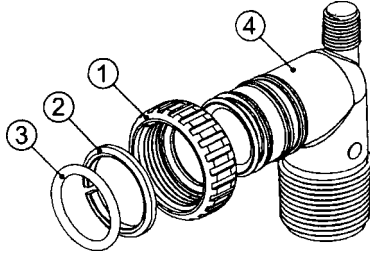


## WS1 INSTALLATION FITTING ASSEMBLIES

Order No: V3007

Description: WS1 Fitting 1" Male NPT Elbow Assembly

Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3149	WSI FITTING 1" MALE NPT ELBOW	2

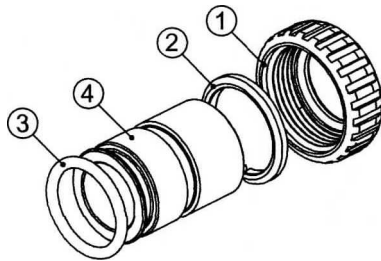


Order No: V3007-02LF

Description: WS1 Fitting 1" Brass Sweat Assembly LF

Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3188-LF	WSI FITTING 1" BRASS SWEAT ASSEMBLY LF	2

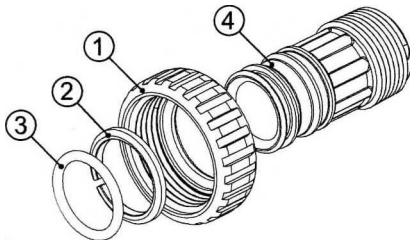
Do not install in California.



Order No: V3007-04

Description: WS1 Fitting 1" Plastic Male NPT Assembly

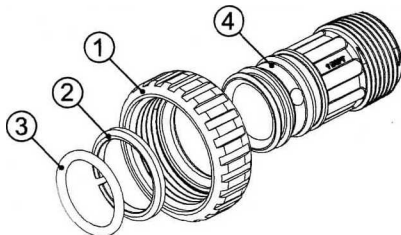
Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3164	WSI FITTING 1" PLASTIC MALE NPT	2



Order No: V3007-06

Description: WS1 Fitting 1" Plastic Male BSPT Assembly

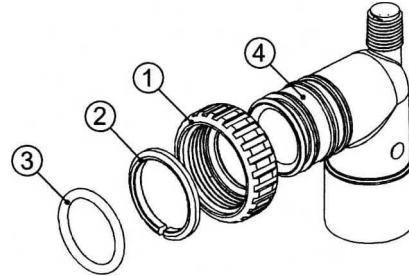
Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3316	WSI FITTING 1" PLASTIC MALE BSPT	2



Order No: V3007-01

Description: WS1 Fitting 3/4" & 1" PVC Solvent 90° ASY

Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3189	WSI FITTING 3/4" & 1" PVC SOLVENT 90° ASY	2

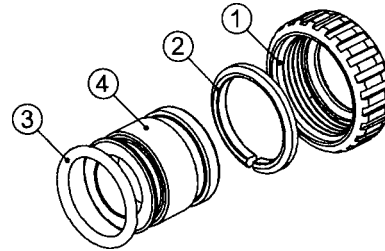


Order No: V3007-03LF

Description: WS1 Fitting 3/4" Brass Sweat Assembly LF

Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3188-0 ILF	WSI FITTING 3/4" BRASS SWEAT ASSEMBLY LF	2

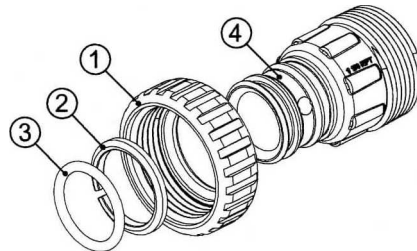
Do not install in California.



Order No: V3007-05

Description: WS1 Fitting 1-1/4" Plastic Male NPT Assembly

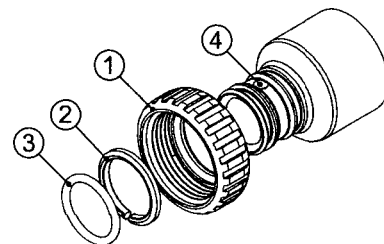
Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3317	WSI FITTING 1-1/4" PLASTIC MALE NPT	2



Order No: V3007-07

Description: WS1 Fitting 1-1/4" & 1-1/2" PVC Solvent Assembly

Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	2
2	V3150	WSI SPLIT RING	2
3	V3105	O-RING 215	2
4	V3352	WSI FITTING 1-1/4" & 1-1/2" PVC SOLVENT	2



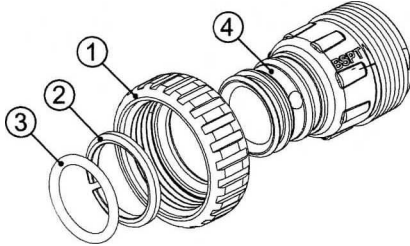


## WS1 INSTALLATION FITTING ASSEMBLIES

Order No. V3007-08

Description: WS1 Fitting 1-1/4" Plastic Male BSPT Assembly

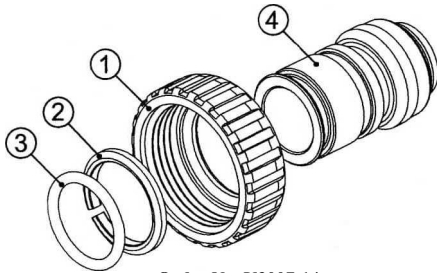
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1" QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3361	WS1 FITTING 1-1/4" PLASTIC MALE BSPT	2



Order No. V3007-12LF

Description: WS1 Fitting 3/4" Brass SharkBite Assembly LF

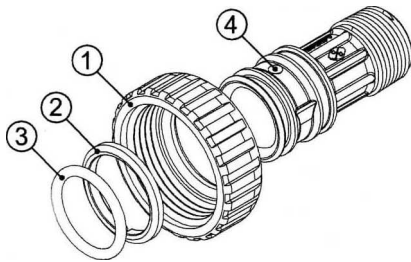
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1"QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3628-LF	WS1 FTG 3/4 BRASS SHARKBITE LF	2



Order No. V3007-14

Description: WS1 Fitting 3/4" Plastic Male BSPT Assembly

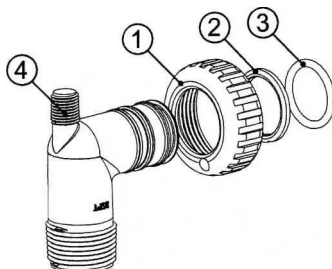
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1" QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3594	WS1 FITTING 3/4" PLASTIC MALE BSPT	2



Order No. V3007-16

Description: WS1 Fitting 1" Male BSPT Elbow Assembly

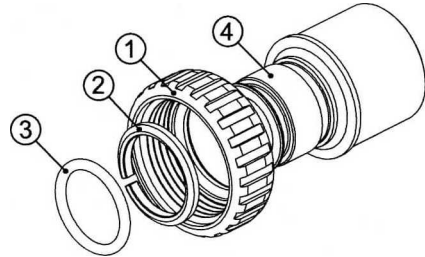
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1" QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3797	WS1 FTG 1" MALE BSPT ELBOW	2



Order No: V3007-09LF

Description: WS1 Fitting 1-1/4" & 1-1/2" Brass Sweat Assembly LF

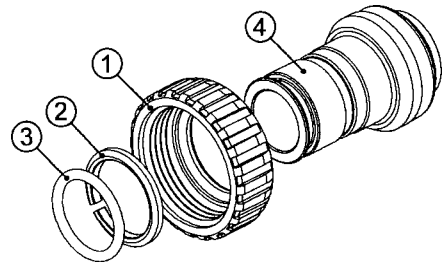
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1 " QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3375-LF	WS1 FITTING 1-1/4" & 1-1/2" BRASS SWEAT LF	2



Order No. V3007-13LF

Description: WS1 Fitting 1" Brass SharkBite Assembly LF

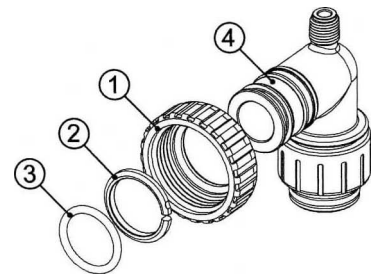
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1"QUICK CONNECT	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3629-LF	WS1 FTG 1" BRASS SHARKBITE LF	2



Order No. V3007-15

Description: WS1 FTG 3/4 JG QC 90 ASY

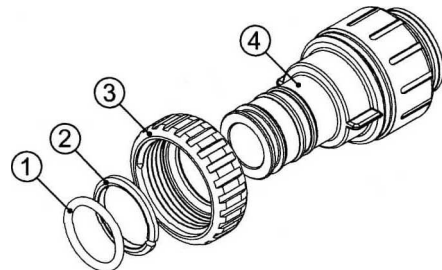
Drawing No.	Order No.	Description	Quantity
1	V3151	WS1 NUT 1 QC	2
2	V3150	WS1 SPLIT RING	2
3	V3105	O-RING 215	2
4	V3790	WS 1 ELBOW 3/4 QC W/STEM	2



Order No. V3007-17

Description: WS1 FTG 1" JG QC ASY

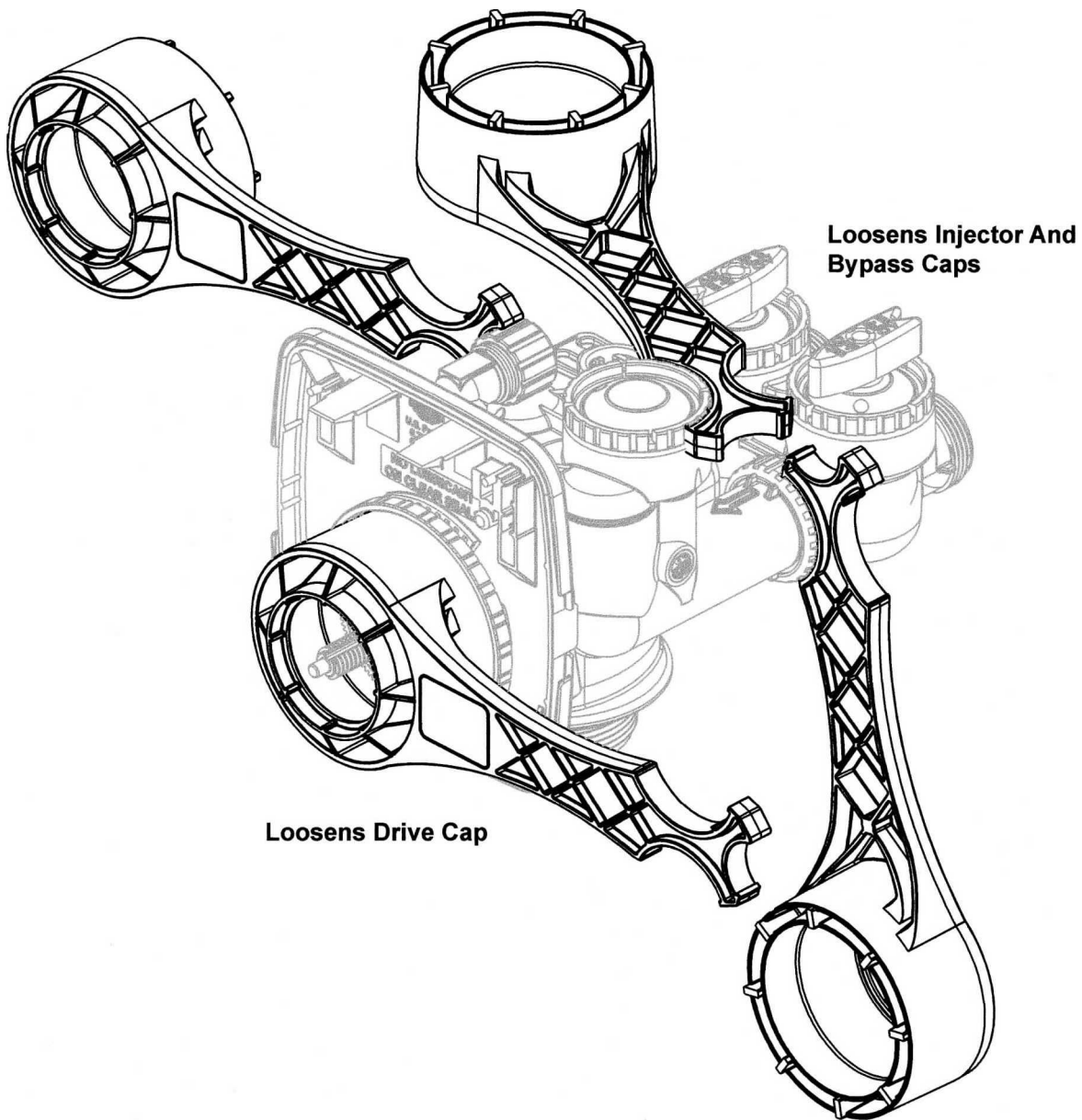
Drawing No.	Order No.	Description	Quantity
1	V3105	O-RING 215	2
2	V3150	WS1 SPLIT RING	2
3	V3151	WS1 NUT 1 QC	2
4	V4045	WS1 FTG 1 INCH QC	2



## **WS1 SERVICE SPANNER WRENCH**

### **WS1 Service Spanner Wrench (Order No. V3193-02)**

Although no tools are necessary to assemble or disassemble the valve, the WS1 wrench (shown in various positions on the valve) may be purchased to aid in assembly or disassembly.



## WS1 TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
1. No Display on PC Board	a. No power at electric outlet	a. Repair outlet or use working outlet
	b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	b. Plug Power Adapter into outlet or connect power cord end to PC Board connection
	c. Improper power supply	c. Verify proper voltage is being delivered to PC Board
	d. Defective Power Adapter	d. Replace Power Adapter
	e. Defective PC Board	e. Replace PC Board
2. PC Board does not display correct time of day	a. Power Adapter plugged into electric outlet controlled by light switch	a. Use uninterrupted outlet
	b. Tripped breaker switch and/or tripped GFI	b. Reset breaker switch and/ or GFI switch
	c. Power outage	c. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	d. Defective PC Board	d. Replace PC Board
4. Control valve regenerates at wrong time of day	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	b. Time of day not set correctly	b. Reset to correct time of day
	c. Time of regeneration set incorrectly	c. Reset regeneration time
5. Time of day flashes on and off	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
6. Control valve does not regenerate automatically when the correct button(s) is depressed and held. For TC valves the buttons are A&V. For all other valves the button is REGEN	a. Broken drive gear or drive cap assembly	a. Replace drive gear or drive cap assembly
	b. Broken Piston Rod	b. Replace piston rod
	c. Defective PC Board	c. Defective PC Board
7. Control valve does not regenerate automatically but does when the correct button(s) is depressed and held. For TC valves the buttons are A&V. For all other valves the button is REGEN	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	g. Defective PC Board	g. Replace PC Board



## WS1 TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
8. Hard or untreated water is being delivered	a. Bypass valve is open or faulty	a. Fully close bypass valve or replace
	b. Media is exhausted due to high water usage	b. Check program settings or diagnostics for abnormal water usage
	d. Water quality fluctuation	d. Test water and adjust program values accordingly
	e. No regenerant or low level of regenerant in regenerant tank	e. Add proper regenerant to tank
	f. Control fails to draw in regenerant	f. Refer to Trouble Shooting Guide number 12
	g. Insufficient regenerant level in regenerant tank	g. Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
	h. Damaged seal/stack assembly	h. Replace seal/stack assembly
	i. Control valve body type and piston type mix matched	i. Verify proper control valve body type and piston type match
	j. Fouled media bed	j. Replace media bed
9. Control valve uses too much regenerant	a. Improper refill setting	a. Check refill setting
	b. Improper program settings	b. Check program setting to make sure they are specific to the water quality and application needs
	c. Control valve regenerates frequently	c. Check for leaking fixtures that may be exhausting capacity or system is undersized
10. Residual regenerant being delivered to service	a. Low water pressure	a. Check incoming water pressure - water pressure must remain at minimum of 25 psi
	b. Incorrect injector size	b. Replace injector with correct size for the application
	c. Restricted drain line	c. Check drain line for restrictions or debris and clean
11. Excessive water in regenerant tank	a. Improper program settings	a. Check refill setting
	b. Plugged injector	b. Remove injector and clean or replace
	c. Drive cap assembly not tightened in properly	c. Re-tighten the drive cap assembly
	d. Damaged seal/ stack assembly	d. Replace seal/ stack
	e. Restricted or kinked drain line	e. Check drain line for restrictions or debris and or un-kink drain line
	f. Plugged backwash flow controller	f. Remove backwash flow controller and clean or replace
	g. Missing refill flow controller	g. Replace refill flow controller
12. Control valve fails to draw in regenerant	a. Injector is plugged	a. Remove injector and clean or replace
	b. Faulty regenerant piston	b. Replace regenerant piston
	c. Regenerant line connection leak	c. Inspect regenerant line for air leak
	d. Drain line restriction or debris cause excess back pressure	d. Inspect drain line and clean to correct restriction
	e. Drain line too long or too high	e. Shorten length and or height
	f. Low water pressure	f. Check incoming water pressure - water pressure must remain at minimum of 25 psi

## WS1 TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
13. Water running to drain	a. Power outage during regeneration	a. Upon power being restored control will finish the remaining regeneration time. Reset time of day.
	b. Damaged seal/ stack assembly	b. Replace seal/ stack assembly
	c. Piston assembly failure	c. Replace piston assembly
	d. Drive cap assembly not tightened in properly	d. Re-tighten the drive cap assembly
14. E1, Err - 1001, Err- 101 = Control unable to sense motor movement	a. Motor not inserted full to engage pinion, motor wires broken or disconnected	a. Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. PC Board not properly snapped into drive bracket	b. Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Missing reduction gears	c. Replace missing gears
15. E2, Err - 1002, Err - 102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	a. Foreign material is lodged in control valve	a. Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Main drive gear too tight	c. Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Improper voltage being delivered to PC Board	d. Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

## WS1 TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
16. E3, Err- 1003, Err- 103 = Control valve motor ran too long and was unable to find the next cycle position	a. Motor failure during a regeneration	a. Check motor connections then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	b. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	c. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
17. Err - 1004, Err — 104 = Control valve motor ran too long and timed out trying to reach home position	a. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	a. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
18. Err-1006, Err-106, Err - 116 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too long and unable to find the proper park position  Motorized Alternating Valve = MAV  Separate Source = SEPS  No Hard Water Bypass = NHBP  Auxiliary MAV = AUX MAV	a. Control valve programmed for ALT A or b, nHbP, SEPS, or AUX MAV with out having a MAV or NHBP valve attached to operate that function	a. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect. Then re-program valve to proper setting
	b. MAV/ NHBP motor wire not connected to PC Board	b. Connect MAV/ NHBP motor to PC Board two pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. MAV/ NHBP motor not fully engaged with reduction gears	c. Properly insert motor into casing, do not force into casing Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	d. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
19. Err - 1007, Err-107, Err - 117 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too short (stalled) while looking for proper park position  Motorized Alternating Valve = MAV  Separate Source = SEPS  No Hard Water Bypass = NHBP  Auxiliary MAV = AUX MAV	a. Foreign material is lodged in MAV/ NHBP valve	a. Open up MAV/ NHBP valve and check piston and seal/ stack assembly for foreign material. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, drive gear interface, and check MAV/ NHBP black drive pinion on motor for being jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.



**CLACK CORPORATION  
SOFTENER AND FILTER CONTROLS  
LIMITED WARRANTY**

Clack Corporation ("Clack") warrants to OEM that its Softener and Filter Control Valves will be free from defects in material and workmanship under normal use and service for a period of five years from the date of shipment of such Valves from Clack's plant in Windsor, Wisconsin when installed and operated within recommended parameters. No warranty is made with respect to defects not reported to Clack within the warranty period and/or defects or damages due to neglect, misuse, alterations, accident, misapplication, physical damage, or damage caused by fire, acts of God, freezing or hot water or similar causes. For outdoor installations where the Softener and Filter Control Valves are not under cover, the weather cover must be utilized for the warranty to be valid.

Clack's obligation to OEM under this Limited Warranty shall be limited, at its option, to replacement or repair of any Softener and Filter Control valve covered by this Limited Warranty. Prior to returning a Control Valve, OEM must obtain a return goods authorization number from Clack and return the Control Valve freight prepaid. If any Control Valve is covered under this Limited Warranty, Clack shall return the Control Valve repaired, or its replacement, prepaid to the original point of shipment.

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