



OZONE ZENTEC CAPSULATE FILTER INSTALLATION AND USER GUIDE



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1) INSTALLATION

1.1) Pre-installation instructions

The cycle times, sequence of cycles and filtration capacity are preset to default by OEM. The dealer must guide the installer to change the values according to the water quality, day override and time of regeneration.

WATER TEST

Hardness	_____	gpg
Iron	_____	ppm
pH	_____	number
*Nitrates	_____	ppm
Manganese	_____	ppm
Sulphur	_____	yes/no
Total Dissolved Solids	_____	

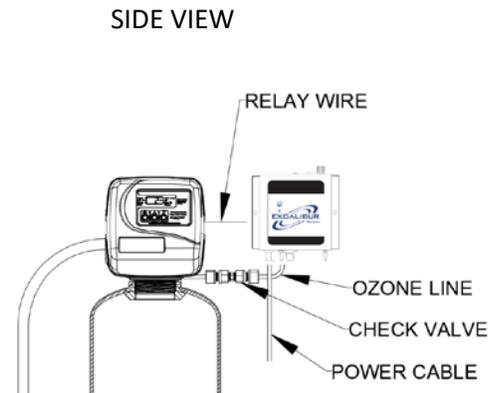
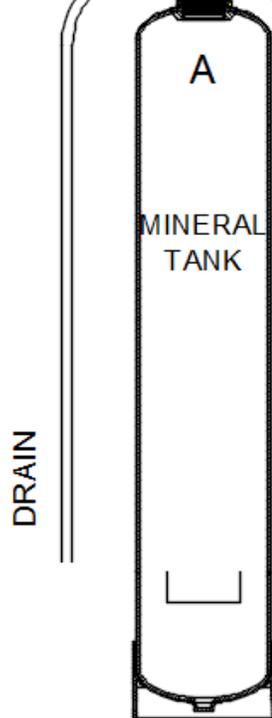
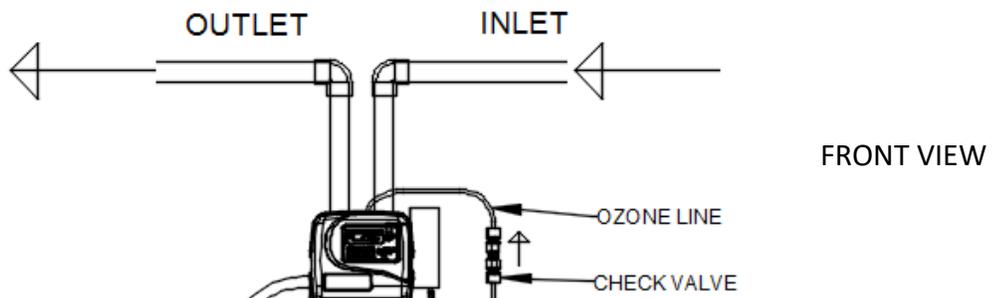
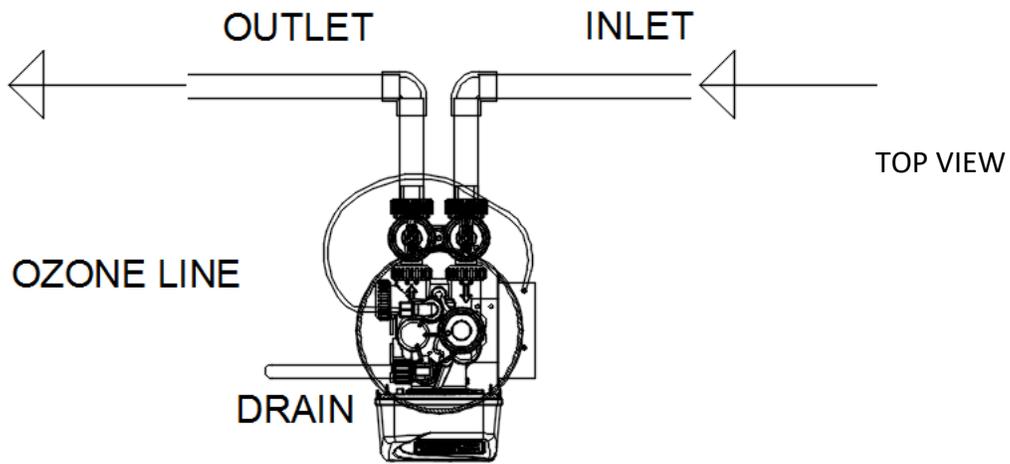
1.2) General Installation and Service Warnings

- The filter is designed so that it can be installed easily with minor plumbing changes on previous plumbing.
- The piping must be clamped properly and the weight of the plumbing must not be on the Filter.
- Do not use any kind of lubricant including silicone. A silicone based lubricant can be only used on O-Rings but not necessary.
- The nuts and caps can be fastened and unfastened by hand or the plastic service wrench. Do not use pipe wrench to tighten the caps and nuts.

1.3) Site Requirements

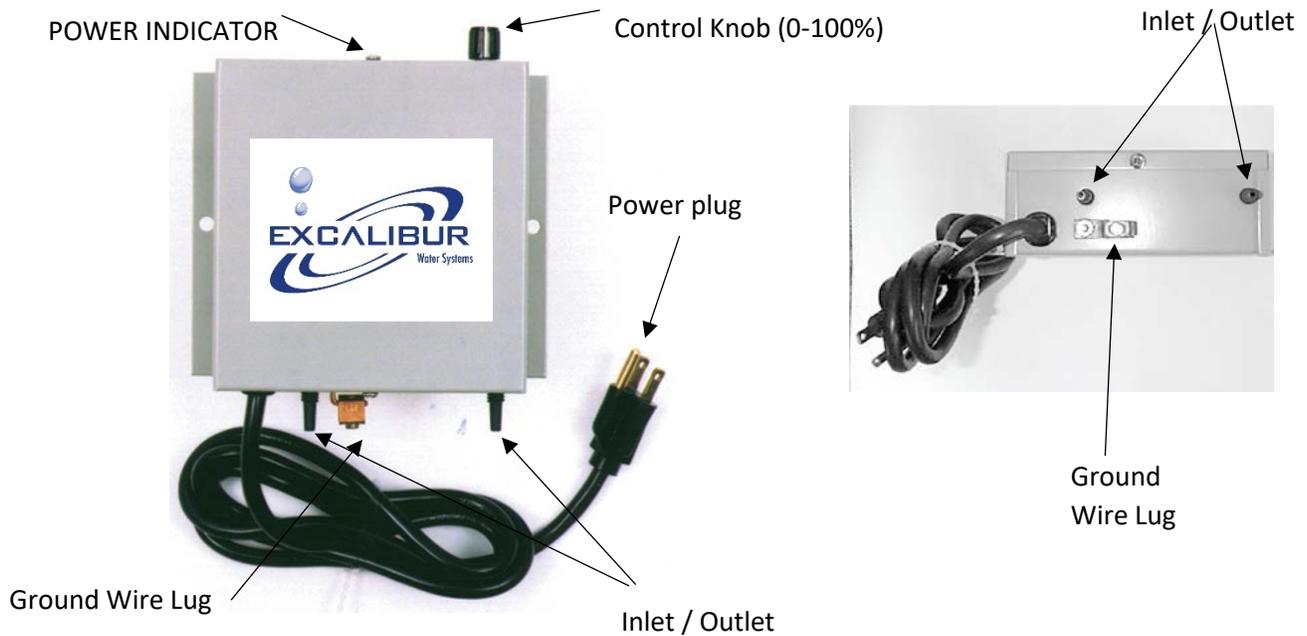
- Water Pressure: - 40-110 psi
- Water Temperature: - 40-110°F (4.4-43°C)
- Electrical- 115/120 V, 60Hz Uninterrupted Outlet
- Current required is 0.5 Amperes
- The plug-in transformer is for dry locations only
- The tank should be on a firm level surface

1.4) Installation Drawing



1.5) Ozone Generator

1.5.1) Description



Specifications: -

Ozone Production: - 0.3 Grams per Hour @ 6 SCFH

Concentration: - 0.20

Current Draw: - 0.14 Amperes @120V/60Hz

Ozone Generator

The compact size ozone generator generates the ozone gas which is transferred to the mineral tank during regeneration. The ozone gas is capsulated in the top of the tank the water travel through the Ozone before getting filtered through the Zentec Media. Ozone Generator must be mounted on Control Valve.

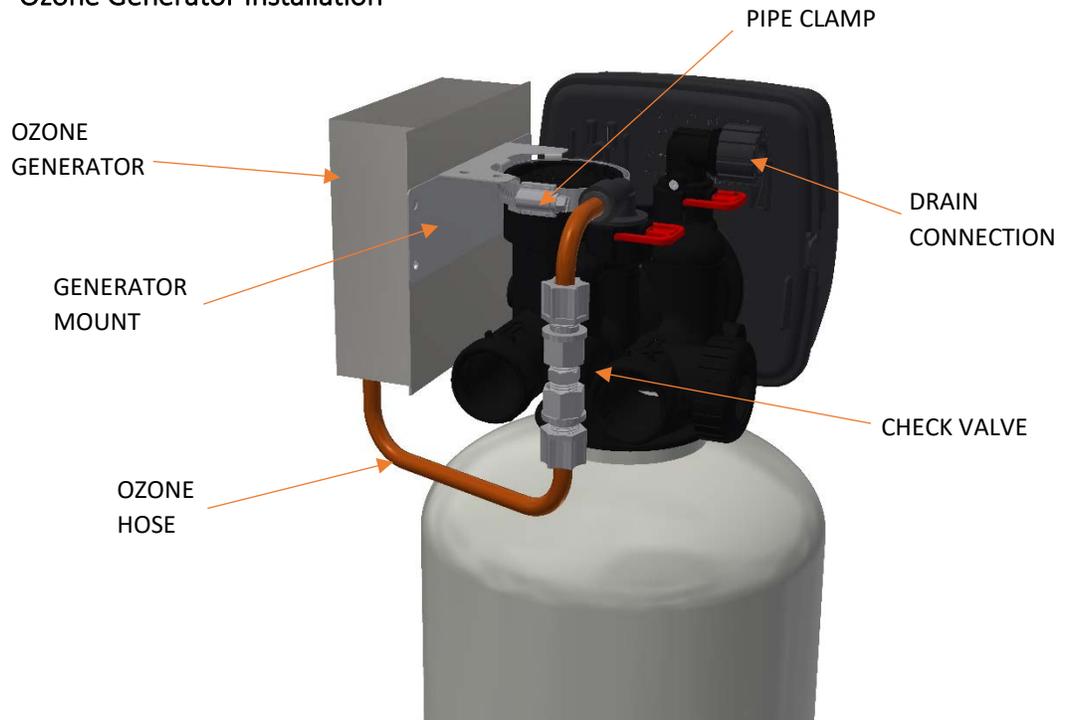
Ozone and Air Hose Connections

The two hose connections on the generator are inlet and outlet. If one connection is connected to control valve, then other connection will act as inlet for ozone generator. The inlet and outlet connections can be exchanged. No air preparation is needed so the inlet connection of Generator should not be connected to anything.

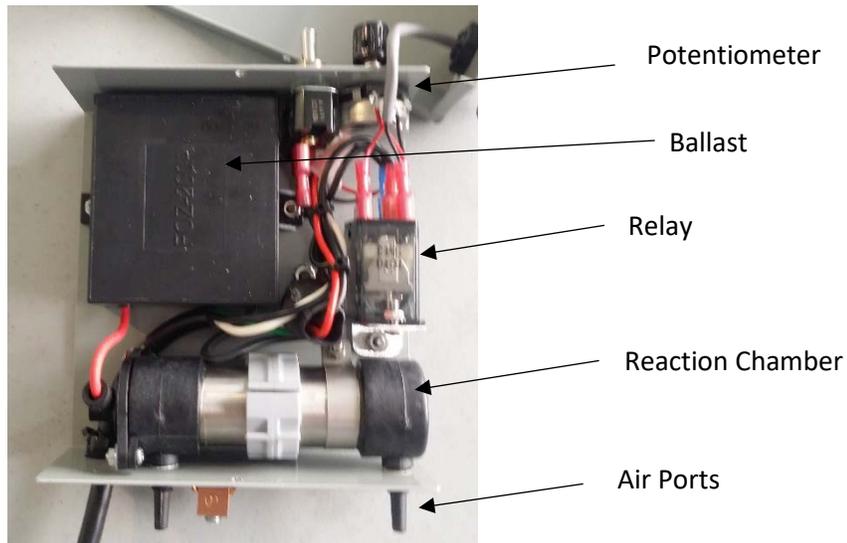
Electrical Connections

The relay connection of Ozone Generator must be connected to the PC Board's relay terminal block. So, that Ozone Generator must be switched on only during the regeneration of filter. Ground lug must be connected to the ground wire.

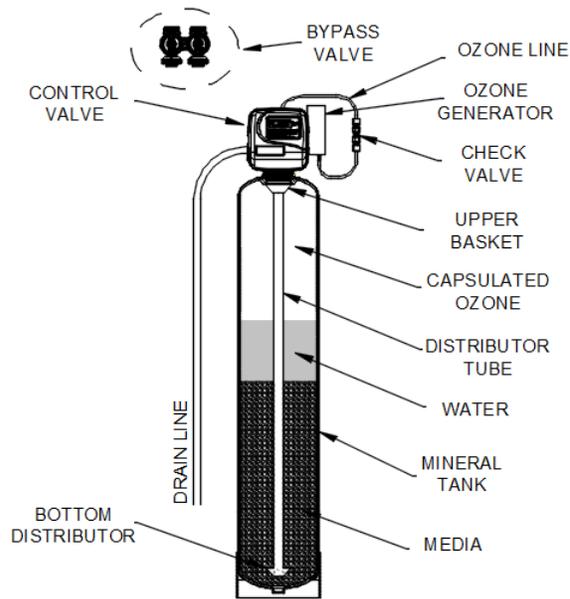
1.5.2) Ozone Generator Installation



1.5.3) Ozone Generator Components



1.6) System Drawing



1.7) Plumbing

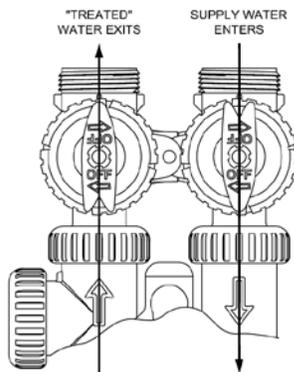
- The system must be close to drain as much as possible.
- The unit including the drain must be located in a room temperature above 33° F.
- The bypass valves must be installed on the control valves.
- The primer, solder or solder flux must not get on the O-rings.
- After soldering the lines must be cooled before installing the O-Rings, nuts and caps.
- If the electrical system is grounded to the plumbing than copper strap must be connected between inlet and outlet as shown in figure above.
- The plumbing must be done by following the local plumbing codes.
- If vacuum occurrence is expected, then install the vacuum breaker at the inlet of control valve.

1.8) Drain Line

- The size of the drain must be according to the specifications.
- Leave minimum of 6" gap between flow control fitting and solder joints. The gap less than this can damage the flow control.
- Use ¾" or 1" tubing for drain line according to the specifications.
- If the drain line is elevated and then emptied into the drain below the level the of control valve the 7" loop should make at the end of drain line.
- The air gap between the drain and the end of the drain line must be twice the diameter of the tube.
- The strap must be tied at the end to secure the line.

1.9) Bypass Valve

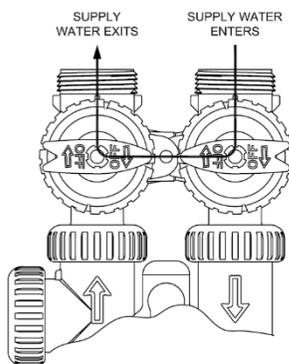
NORMAL OPERATION



NORMAL OPERATION

The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve for normal operation as a water Filter.

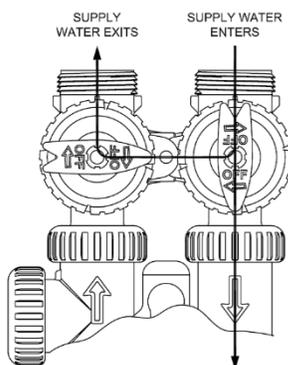
BYPASS OPERATION



BYPASS OPERATION

The inlet and outlet handles point to the center of the bypass. The system is isolated from the water pressure in the plumbing system. Unfiltered water is supplied to the building.

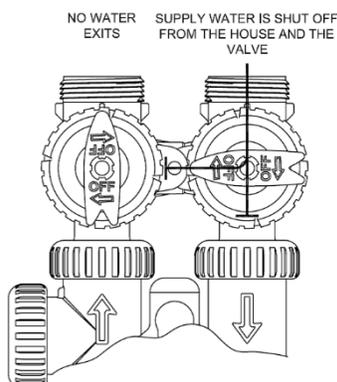
DIAGNOSTIC MODE



DIAGNOSTIC MODE

The inlet handle points in the direction of flow and the outlet handle points to the center of bypass valve, system water pressure is allowed to the control valve and the plumbing system while not allowing water to exit from the control valve to the plumbing.

SHUT OFF MODE



SHUT OFF MODE

The inlet handle points to the center of the bypass valve and the outlet handle points in the direction of flow, the water is shut off to the plumbing system. If water is available on the outlet side of the Filter it is an indication of water bypass around the system (i.e. a plumbing connection somewhere in the building bypasses the system).

1.10) Start Up Instructions

- Keep the bypass valve in bypass operation by moving both the handles into the center direction of the bypass valve. Now the unfiltered water is being supplied. Open the faucet downstream of the filter until water comes clear out of it. The initial water can be dirty because of installation debris. Now inspect the leaks in plumbing.
- Press and hold the “REGEN” button down for 5 seconds to start manual regeneration. The drive motor will start the backwash cycle and countdown time begins. Turn the inlet bypass valve handles halfway into the direction of service operation. Once the steady water flows out of drain then fully open the bypass valve into the direction of service operation.
- Once the water coming from the drain becomes clear, press REGEN button to advance the regeneration to draw (brine) cycle. Allow this process for 5 minutes. The system will draw the ozone into the tank and water will also come out of the drain line.
- Press the “REGEN” button again to end the regeneration cycle. Open the faucet downstream of the filter check if the water is coming clear.

2) CONTROL VALVE PROGRAMMING

2.1) Button Operation



Scrolls to the next display.

- Pressing once and releasing will schedule a regeneration at the preset delayed regeneration time.
- Pressing again and releasing will cancel the regeneration.



- Pressing and holding for 3 seconds will initiate an immediate regeneration
- Pressing while in regeneration will advance to the next cycle.
- Pressing in the program levels will go backwards to the previous screen



Change Variable being displayed.



Left to right key sequence to lock and unlock program settings



Holding for 3 seconds initiates a control reset. The software version is displayed and the piston returns to the home/service position, resynchronizing the valve.

2.2) Regeneration Screens



Regen Screen

Displays the time remaining in the current cycle. Pressing REGEN advances to the next cycle.

2.3) Setting Time of Day



Push NEXT until time of day screen is displayed. Press and hold ▼ until SET TIME is displayed and the hour flashes once. Press ▲ or ▼ until the correct hour is displayed.



Then press NEXT. The minutes will flash. Press ▲ or ▼ until the correct minute is displayed.



Press NEXT to return to the User Displays. Time of day should only need to be set if power outages lasting more than 8 hours, the battery has been depleted or when daylight saving time begins or ends.

2.4) User Displays

When the system is operating, one of five displays may be shown. Pressing NEXT will alternate between the displays shown below.



User 1

Displays number of days to next regeneration.



User 2

Flow Rate.
Displays present flow rate.



User 3

Displays total volume in gallons since last reset. If a meter is not used this display will be shown but 0 will be displayed.
PRESS ▼ FOR 3 SECONDS TO RESET TO 0.



User 4

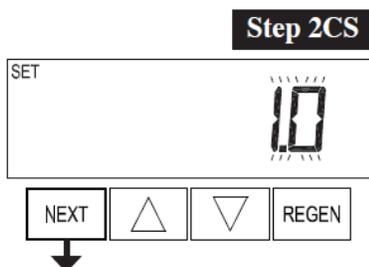
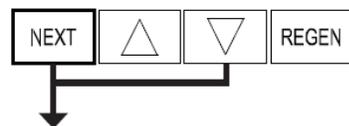
Shows current time.



2.5) Configuration Settings



Step 1CS – Press NEXT and ▼ simultaneously for 5 seconds and release. Press NEXT and ▼ simultaneously for 5 seconds and release. If the screen in Step 2CS does not appear, the lock on the valve is activated.



Step 2CS – Use ▲ or ▼ to select 1.0 for 1" valve.

Note: - Do not select 1.0t for 1.0in simplex Filters.

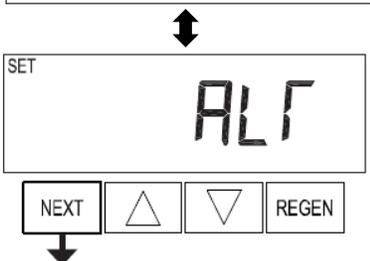
Step 3CS

Step 3CS – Select “dP OFF” so that no outside signal is used to initiate a regeneration.

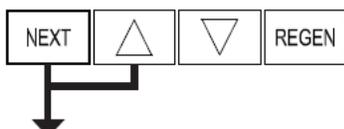
Press NEXT to go to Step 4CS. Press REGEN to return to previous step.

Step 4CS

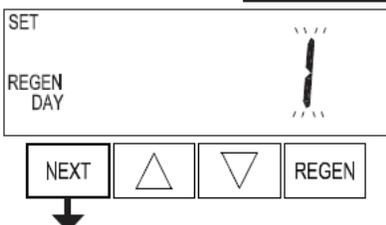
Step 4CS – Select “OFF” when none of features are used using ▲ or ▼ buttons. Press NEXT to exit Configuration Settings. Press REGEN to return to previous step.



2.6) Installer Display Settings

Step 1I

Step 1I - To enter Installer Display press NEXT and ▲ simultaneously for about 5 seconds and release.

Step 2I

Step 2I – Set “1” Day Override the number of days between regenerations. Press NEXT to go to step 3I. Press REGEN to return to previous step.

Step 3I

Step 3I – Next Regeneration Time (hour): Set the hour of day for regeneration using ▲ or ▼. The default time is 2:00. Press NEXT to go to step 4I. Press REGEN to return to previous step.

Step 4I

Step 4I – Next Regeneration Time (minutes): Set the minutes of day for regeneration using ▲ or ▼. Press NEXT to exit Installer Display Settings. Press REGEN to return to previous step.

2.7) Filter System Setup

Step 1S

Step 1S: - Press NEXT and ▼ simultaneously for 5 seconds and release.

Step 2S

Step 2S: - Choose "SOFTENING" using ▲ or ▼. Press NEXT to go to Step 3S. Press REGEN to exit OEM Filter System Setup.

Step 3S

Step 3S: - Choose "dn" for Downflow brining direction using ▲ or ▼. Press NEXT to go to Step 4S. Press REGEN to return to previous step.

Step 4S

Step 4S: - Select "PoST" for post refill location using ▲ or ▼. Press NEXT to go to step 5S.

Step 5S

Step 5S: - Select the time 10-minutes for first/backwash cycle. Press NEXT to go to step 6S or Press REGEN to return to previous step.

Step 6S

Step 6S: - Select 60-minute time for second/Draw (Brine) cycle using ▲ or ▼. Press NEXT to go to step 7S or Press REGEN to return to previous step.

Step 7S

Step 7S: - Select "off" for the third/ 2nd backwash cycle. Press NEXT to go to step 8S or Press REGEN to return to previous step.

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Step 8S

SET
4 OFF MIN
RINSE

NEXT ▲ ▼ REGEN

Step 8S: - Select "oFF" for the fourth/Rinse cycle. Press NEXT to go to step 9S or Press REGEN to return to previous step.

Step 9S

SET
5 OFF LBS
FILL

NEXT ▲ ▼ REGEN

Step 9S: - Select "oFF" for the Fill cycle. Press NEXT to go to step 10S or Press REGEN to return to previous step.

Step 10S

SET
CAPACITY
24.0 x1000

NEXT ▲ ▼ REGEN

Step 10S: - Keep the default capacity of "24,000". Press NEXT to go to step 11S.

Step 11S

SET
REGEN
OFF GAL

NEXT ▲ ▼ REGEN

Step 11S: - Set the volume regeneration trigger "off" using ▲ or ▼. Press NEXT to go to step 12S or Press REGEN to

Step 12S

SET
RELAY

NEXT ▲ ▼ REGEN

SET TIME
ON

Step 12S: - Set relay operation "Set Time on" using ▲ or ▼ buttons. Press NEXT to go to step 13S. Press REGEN to return to previous step.

Step 13S

SET TIME
11:00 MIN

NEXT ▲ ▼ REGEN

Step 13S: - Set "11:00" min so that relay must energize 8 minutes after the starting of regeneration. Press NEXT to go to step 14S.

Step 14S

SET TIME
REMAINING
58:00 MIN

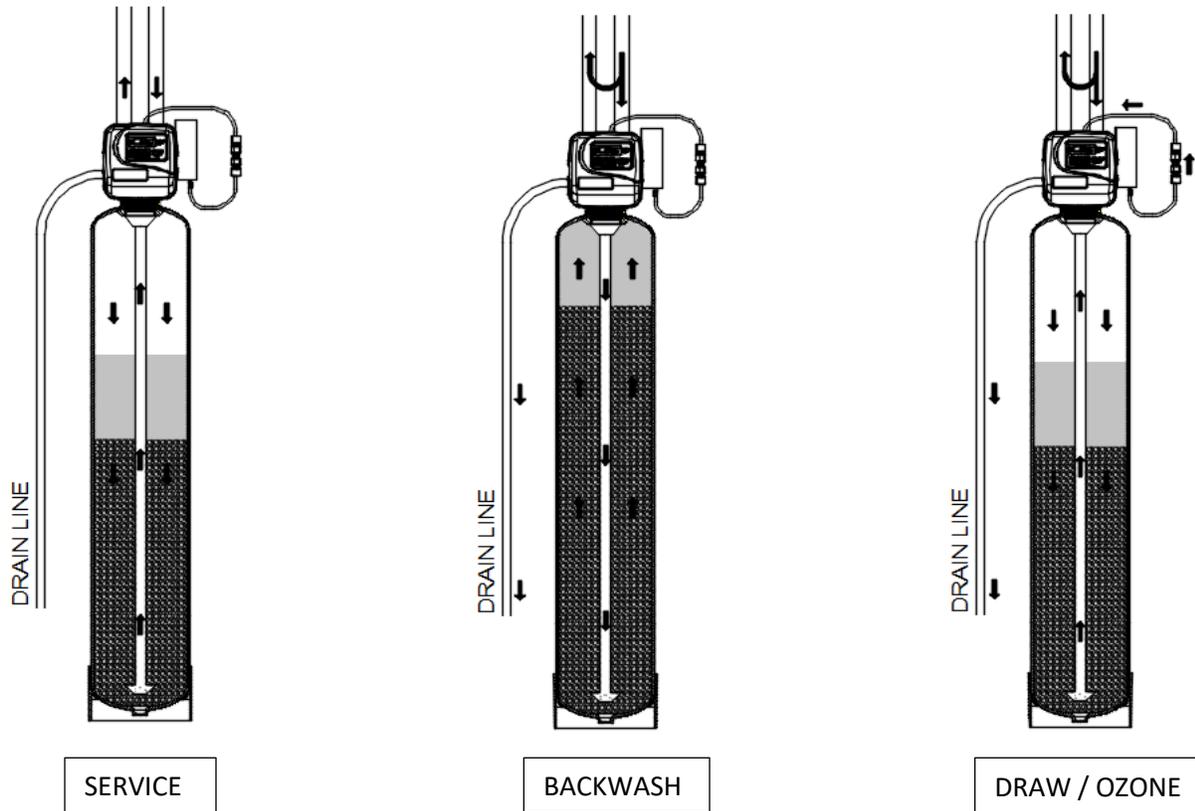
NEXT ▲ ▼ REGEN

Step 14S: - Set "58:00" min so that relay must stay activate for 58 minutes and deactivates after expiring this time duration. Press NEXT to save and exit Filter system setup.

Exit Filter System Setup

3) CONTROL VALVE

3.1) Control Valve Functions and Cycles



Service Operation: - This is the normal cycle when inlet water flows downwards and get filtered after passing through the Ozone gas and Zentec Media.

Backwash Cycle: - In this cycle water flows in reverse (upward) direction to the drain line which expands the media. The backward flowing water washes away the collected iron and other metals.

Draw/Ozone Cycle: - In this cycle ozone gas is siphoned in the mineral tank and water slowly flows through the drain line

3.2) Components of Control Valve

3.2.1) Front Cover and PC Board

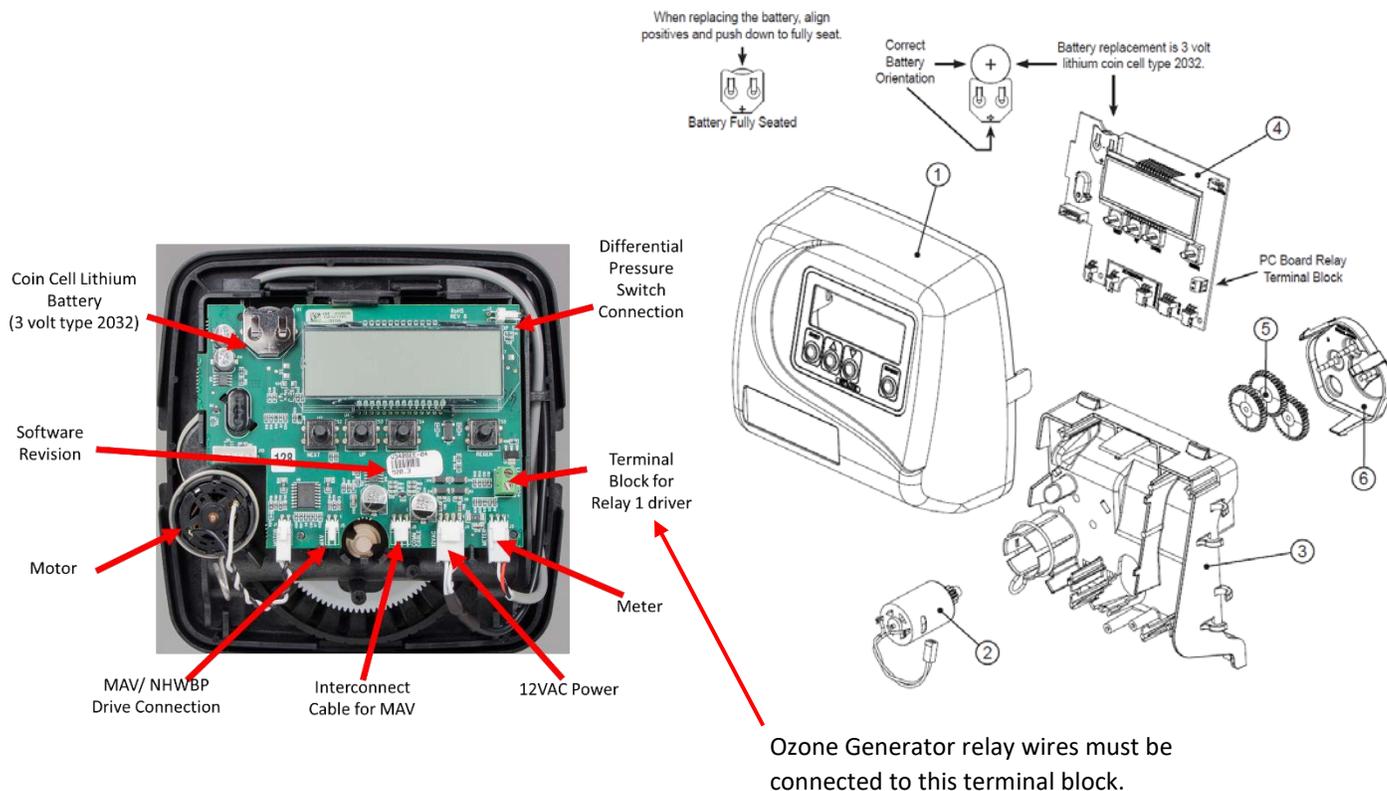
Drawing No.	Order No.	Description	Quantity
1	CLK V3175EE01	WS1EE FRONT COVER ASSEMBLY	1
2	CLK V310701	WS1 MOTOR	1
3	CLK V310601	WS1 DRIVE BRACKET & SPRING CLIP	1
4	CLK V3408EE04BOARD	WS1THRU/2 EE PCB 5 DIGIT REPL	1
5	CLK V3110	WS1 DRIVE GEAR 12X36	3
6	CLK V3109	WS1 DRIVE GEAR COVER	1
Not Shown	CLK V3186	WS1 AC ADAPTER 120V-12V	1
	CLK V318601	WS1 AC ADAPTER CORD ONLY	
Not Shown	CLK V3178	WS1 DRIVE BACK PLATE	1
Not Shown	OZT CD207	OZONE GENERATOR ASY	1

AC Adapter	U.S.	International
Supply Voltage	120 VAC	230V AC
Supply Frequency	60 Hz	50 Hz
Output Voltage	12 VAC	12 VAC
Output Current	500 mA	500 mA

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

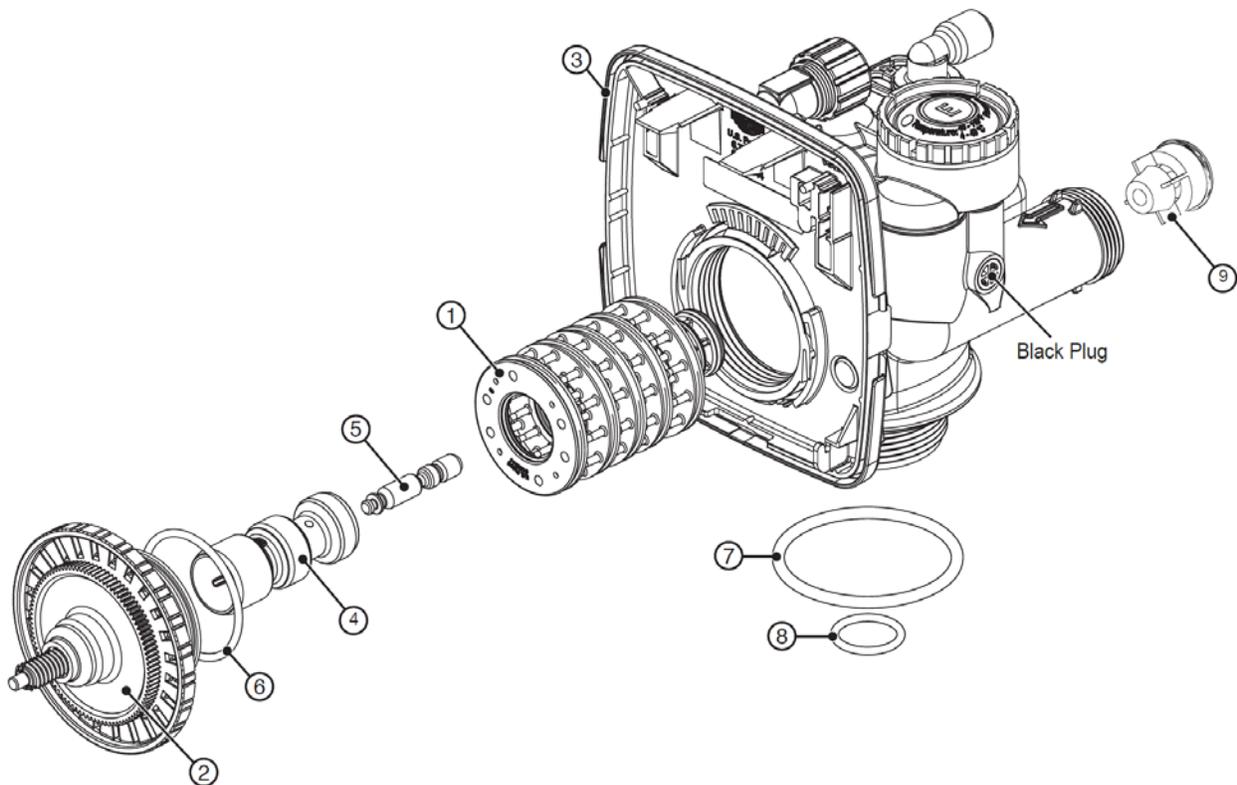
Refer to Control Valve Service Manual for other drawings and part numbers.

Relay Specifications: 12V DC Relay with a coil resistance not less than 80 ohms and current draw should be less than 150 mA. If mounting relay under the cover check for proper mounting dimensions on the backplate.



3.2.2) Drive Cap Assembly, Spacer Stack Assembly and Main body

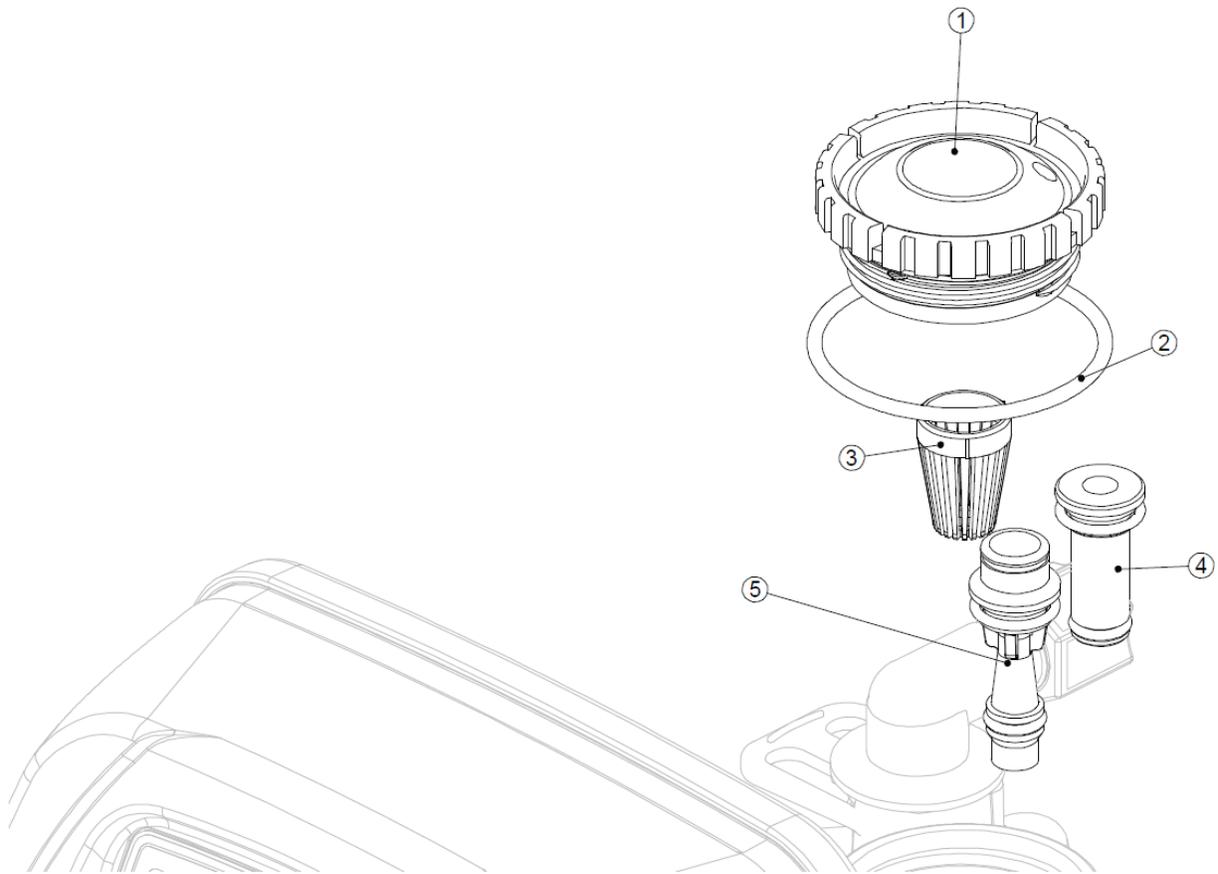
Drawing No.	Order No.	Description	Quantity
1	CLK V300502	WS1 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3178	Back Plate	1
4	CLK V3011	WS1 Piston Downflow ASY	1
5	CLK V3174	WS1 Regenerant Piston	1
6	CLK V3135	O-ring 228	1
7	CLK V3180	O-ring 337	1
8	CLK V3105	O-ring 215 (Distributor Tube)	1
9	1.25CVC	Inlet Check Valve	1
Not Shown	CLK V3001	WS1 Body ASY Downflow	1



3.2.3) Injector Cap, Injector Screen, Injector and O-Ring

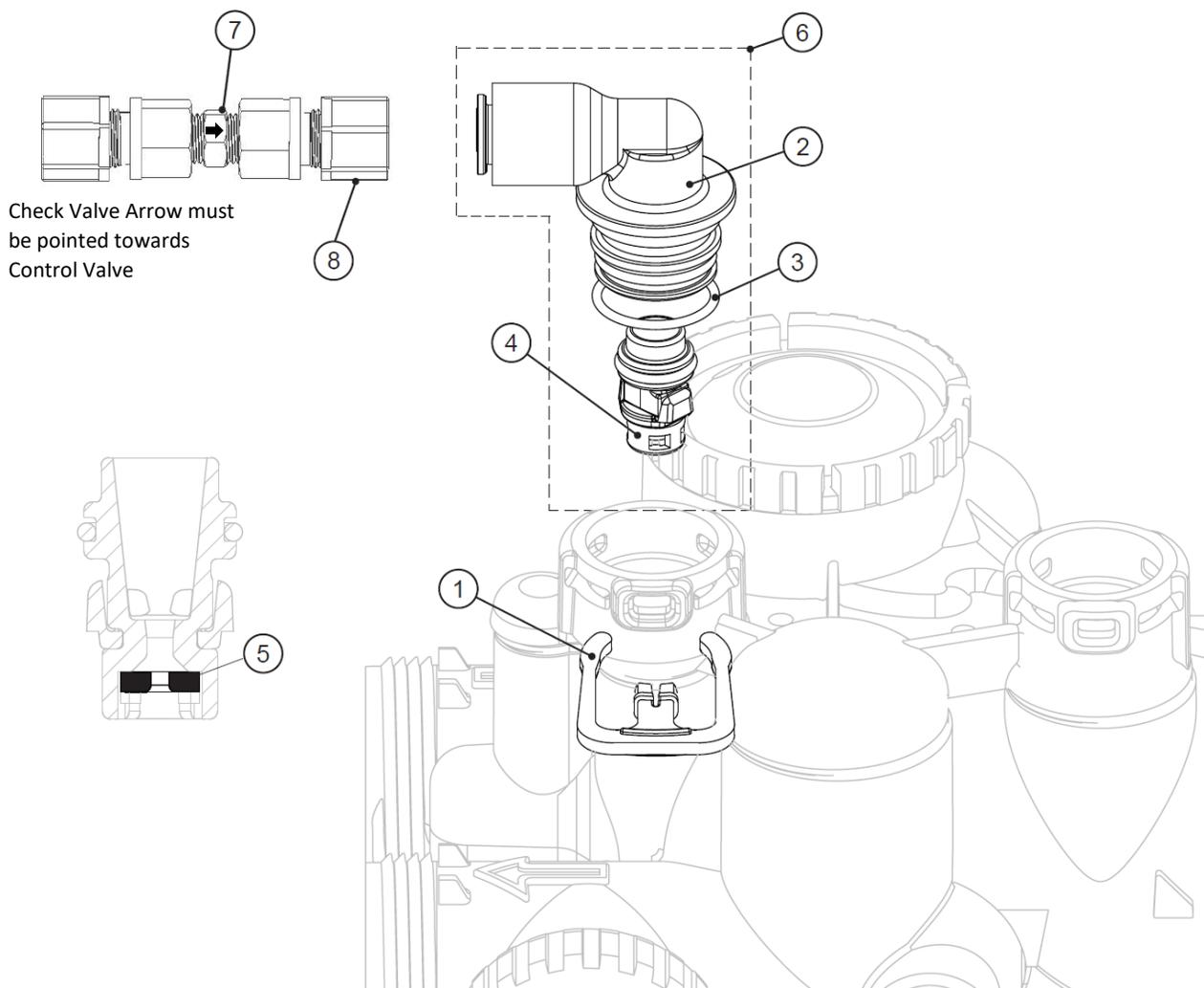
Drawing No.	Order No.	Description	Quantity
1	CLK V3176	INJECTOR CAP	1
2	CLK V3152	O-RING 135	1
3	CLK V317701	INJECTOR SCREEN CAGE	1
4	CLK V30101Z	WS1 INJECTOR ASY Z PLUG	1
5	CLK V30101E	WS1 INJECTOR ASY E WHITE FOR 10" TANK	1
	CLK V30101F	WS1 INJECTOR ASY F BLUE FOR 12" TANK	
Not Shown	CLK V3170*	O-RING 011	1
Not Shown	CLK V3171*	O-RING 013	1

* Injector plug contain both upper and lower O-ring



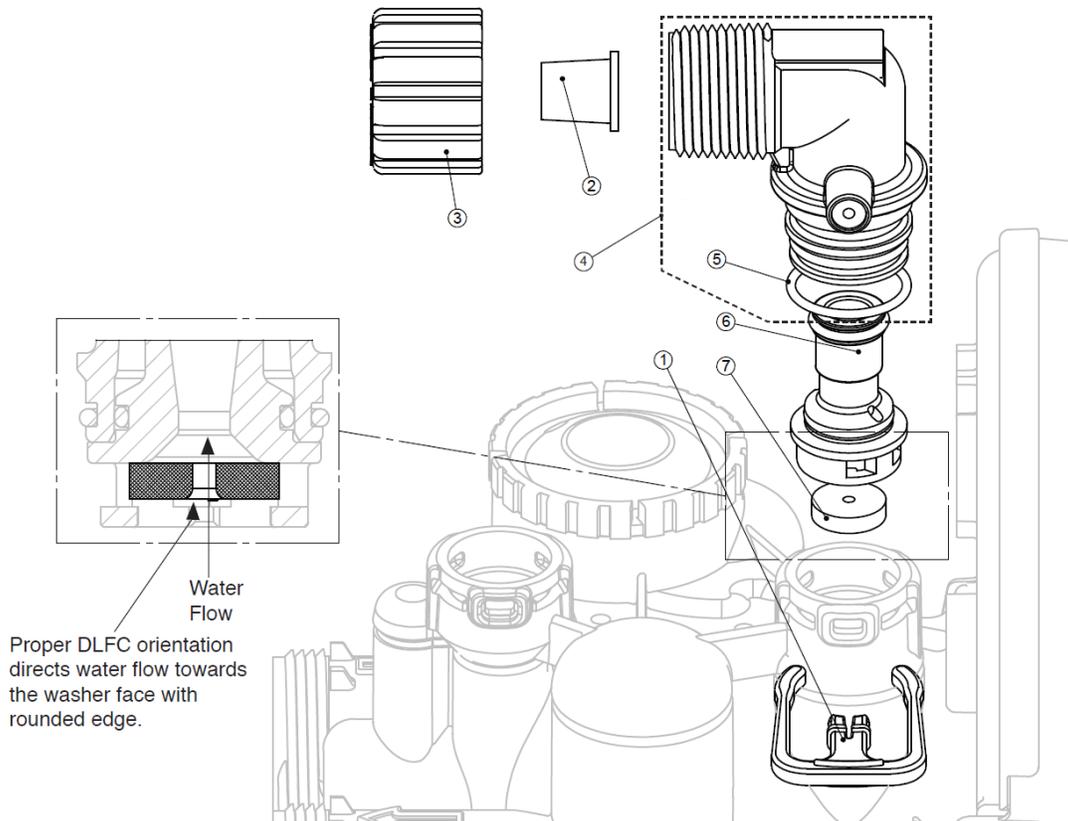
3.2.4) Brine Elbow Assembly

Drawing No.	Order No.	Description	Quantity
1	CLK H4615	Elbow Locking Clip	1
2	CLK H4628	Elbow 3/8" Liquifit	1
3	CLK V3163	O-ring 019	1
4	CLK V316501	WS1 RFC Retainer Asy (0.5 gpm)	1
5	CLK V3182	WS1 RFC	1
6	CLK V414401	Elbow 3/8 Liquifit Asy w/RFC	1
7	JC CV4K	Check Valve (1/4" MNPT)	1
8	JC 2564PPG	3/8" Female Tube X 1/4" FNPT	2
Not Shown	CLK V3552	WS1 Brine Elbow Asy w/RFC	Option
Not Shown	CLK H4650	Elbow 1/2" with nut and insert	Option



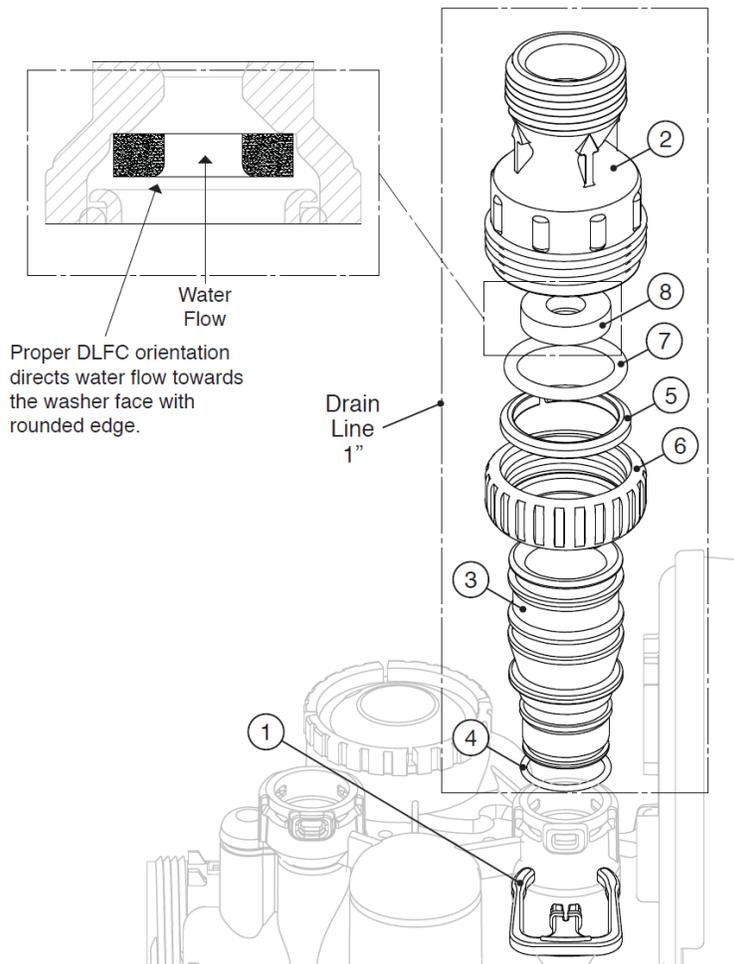
3.2.5) Drain Line Flow Control

Drain Line 3/4"			
Drawing No.	Order No.	Description	Quantity
1	CLK H4615	Elbow Locking Clip	1
2	CLK PKP10TS8BULK	Polytube insert 5/8	Option
3	CLK V3192	WS1 Nut 3/4 Drain Elbow	Option
4	CLK V315801	WS1 Drain Elbow 3/4 Male	1
	CLK V315802	WS1 Drain Elbow 3/4 Male	
5	CLK V3163	O-ring 019	1
6	CLK V315901	WS1 DLFC Retainer ASY	1
7	CLK V3162007	WS1 DLFC 0.7 gpm	One DLFC must be used
	CLK V3162010	WS1 DLFC 1.0 gpm	
	CLK V3162013	WS1 DLFC 1.3 gpm	
	CLK V3162017	WS1 DLFC 1.7 gpm	
	CLK V3162022	WS1 DLFC 2.2 gpm	
	CLK V3162027	WS1 DLFC 2.7 gpm	
	CLK V3162032	WS1 DLFC 3.2 gpm	
	CLK V3162042	WS1 DLFC 4.2 gpm	
	CLK V3162053	WS1 DLFC 5.3 gpm	
	CLK V3162065	WS1 DLFC 6.5 gpm	
	CLK V3162075	WS1 DLFC 7.5 gpm	
	CLK V3162090	WS1 DLFC 9.0 gpm	
CLK V3162100	WS1 DLFC 10.0 gpm		



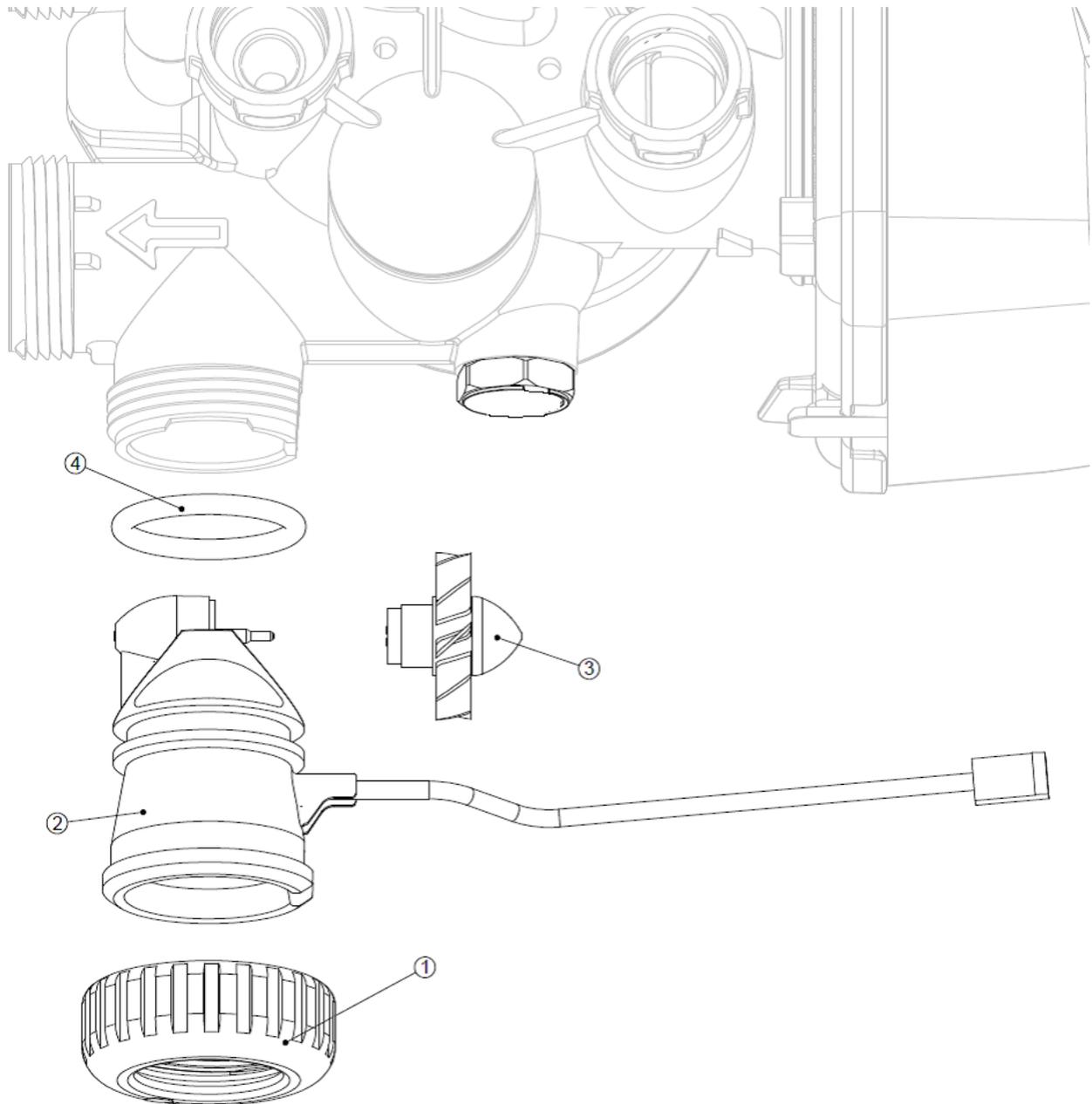
Drain Line 1"			
Drawing No.	Order No.	Description	Quantity
1	CLK H4615	Elbow Locking Clip	1
2*	CLK V3166	WS1 Drain FTG Body 1	1
	CLK V316601	FTG Flow Control Body	
3*	CLK V3167	WS1 Drain FTG Adapter 1	1
4*	CLK V3163	O-ring 019	1
5*	CLK V3150	WS1 Split Ring	1
6*	CLK V3151	WS1 Nut 1" QC	1
7*	CLK V3105	O-ring 215	1
8	CLK V3190090	WS1 DLFC 9.0 gpm	One DLFC must be used
	CLK V3190100	WS1 DLFC 10.0 gpm	
	CLK V3190110	WS1 DLFC 11.0 gpm	
	CLK V3190130	WS1 DLFC 13.0 gpm	
	CLK V3190150	WS1 DLFC 15.0 gpm	
	CLK V3190170	WS1 DLFC 17.0 gpm	
	CLK V3190200	WS1 DLFC 20.0 gpm	
	CLK V3190250	WS1 DLFC 25.0 gpm	

* Can be ordered as a set. Order number V3008-02, description: WS1 Drain FTG 1 Straight.



3.2.6) Outlet Meter Assembly

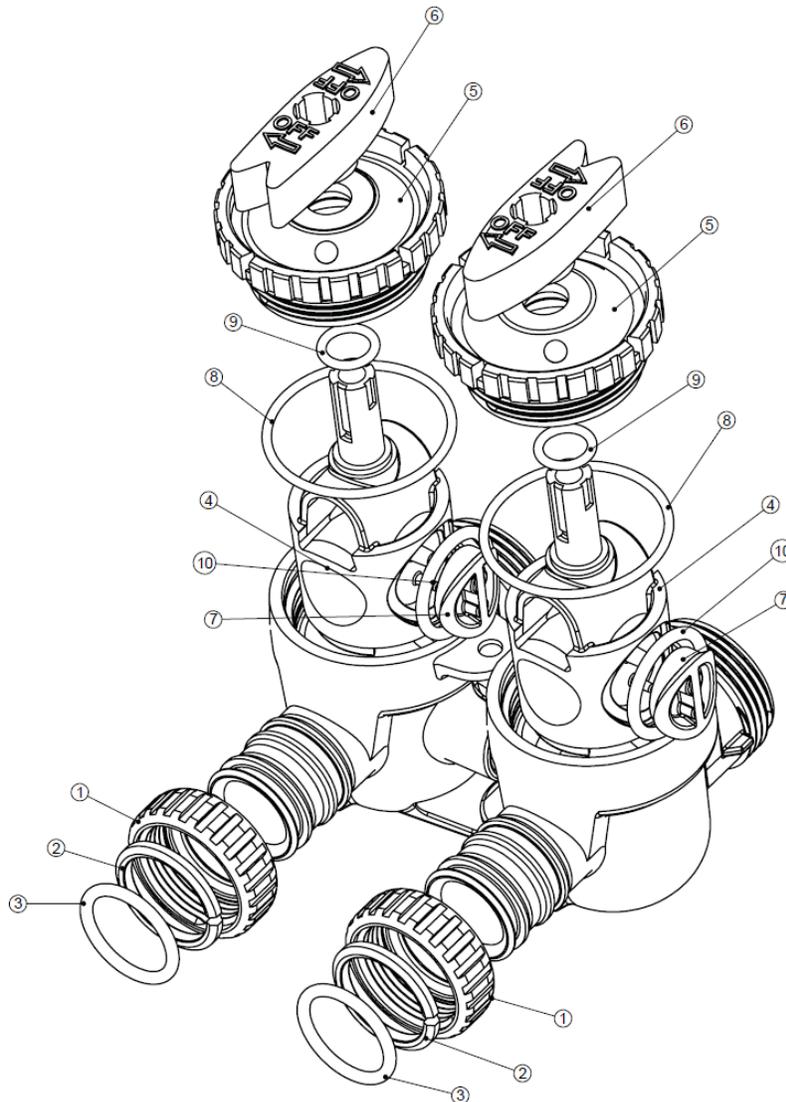
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 Nut 1" QC	1
2	CLK V3003	WS1 Meter ASY	1
3	CLK V311801	WS1 Turbine ASY	1
4	CLK V3105	O-ring 215	1



NOTE: - THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL OR HEALTH EFFECT APPLICATIONS.

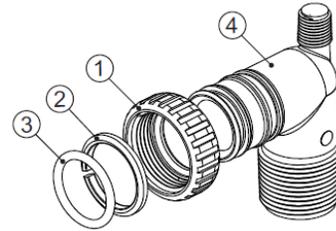
3.2.7) Bypass Valve Components

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

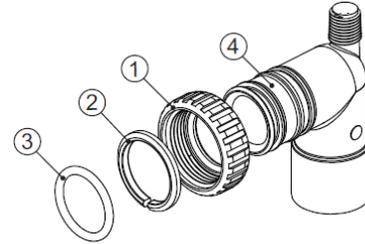


3.2.8) Installation Fitting Assemblies

CLK V3007 WS1 Fitting 1" PVC Male NPT Elbow Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3149	WS1 FITTING 1 PVC MALE NPT	2

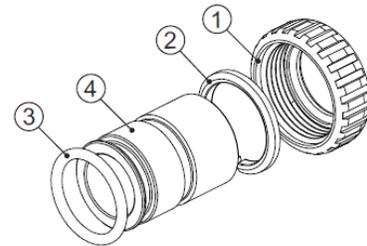


CLK V300701 WS1 Fitting 3/4" & 1" PVC Solvent 90° Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3189	WS1 FITTING 3/4 & 1" PVC SOLVENT 90	2



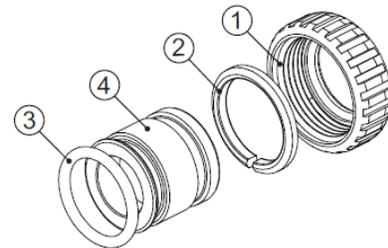
CLK V300702LF WS1 Fitting 1" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3188LF	WS1 FITTING 1 BRASSWEATASSEMBLY	2

Do not install in California.

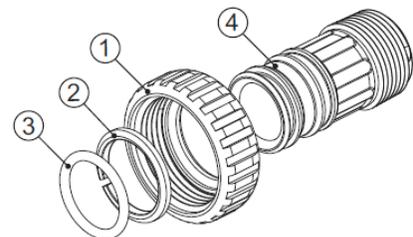


CLK V300703LF WS1 Fitting 3/4" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V318801LF	WS1 FITTING 3/4 BRASS SWEAT LF	2

Do not install in California.

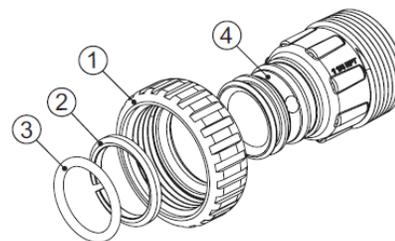


CLK V300704 WS1 Fitting 1" Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3164	WS1 FITTING 1" PLASTIC MALE NPT	2

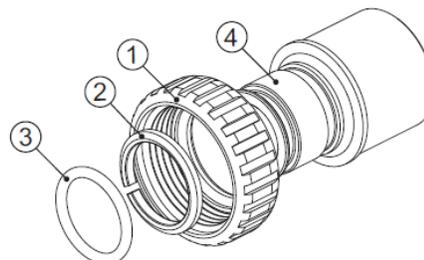


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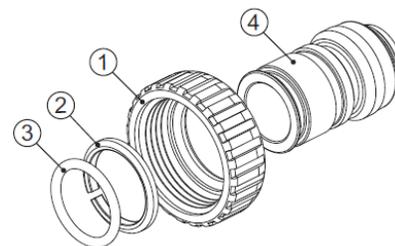
CLK V300705 WS1 Fitting 1-1/4" Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Qty
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3317	WS1 FITTING 1-1/4" PLASTIC MALE NPT	2



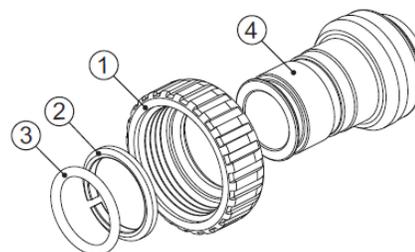
CLK V300709LF WS1 Fitting 1-1/4" & 1-1/2" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3375LF	WS1 FITTING 1-1/4" & 1-1/2" BRASS	2



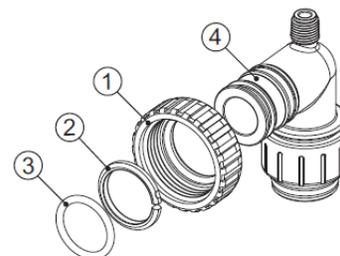
CLK V300712LF WS1 Fitting 3/4" Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3628LF	WS1 FTG 3/4 BRASS SHARKBITE LF	2



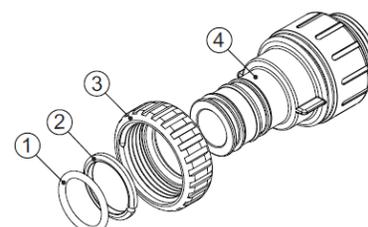
CLK V300713LF WS1 Fitting 1" Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3629LF	WS1 FTG 1" BRASS SHARKBITE LF	2



CLK V300715 WS1 FTG 3/4 JG QC 90 Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1 QC	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3790	WS1 ELBOW 3/4 QC W/STEM	2



CLK V300717 WS1 FTG 1" JG QC Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3105	O-RING 215	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3151	WS1 NUT 1 QC	2
4	CLK V4045	WS1 FTG 1 INCH QC	2



4) TROUBLESHOOTING

4.1) Control Valve Troubleshooting Procedures

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
3. Display does not indicate that water is flowing. Refer to user instructions for how the display indicates water is flowing	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Meter wire not installed securely into three pin connector	d. Verify meter cable wires are installed securely into three pin connector labeled METER
	e. Defective meter	e. Replace meter
	f. Defective PC Board	f. 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	c. Reset regeneration time
	d. Control valve set at "on 0" (immediate regeneration)	d. Check programming setting and reset to NORMAL (for a delayed regen time)
	e. Control valve set at "NORMAL + on 0" (delayed and/ or immediate)	e. Check programming setting and reset to NORMAL (for a delayed regen 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 when the REGEN button is depressed and held.	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

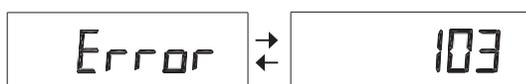
Problem	Possible Cause	Solution
7. Control valve does not regenerate automatically but does when the REGEN button is depressed and held	a. Incorrect programming	a. Check for programming error
	b. Defective PC Board	b. Replace PC Board
8. Unfiltered water is being delivered	a. Bypass valve is open or 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
	f. Control fails to draw in ozone	f. Refer to Trouble Shooting Guide number 12
	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 fails to draw in Ozone	a. Injector is plugged	a. Remove injector and clean or replace
	b. Faulty regenerant piston	b. Replace regenerant piston
	c. Ozone line connection leak	c. Inspect Ozone line for 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
10. 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
11. 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

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Problem	Possible Cause	Solution
12. 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.
13. 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.
14. 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.

4.2) Control Valve Possible Error Codes

Possible Errors	
Code	Description
E1	Control unable to sense motor movement
Err-1001	
Err-101	
E2	Control Valve motor ran too short
Err-1002	
Err-102	
E3	Control Valve motor ran too long and unable to find next cycle
Err-1003	
Err-103	
Err-1004	Control Valve ran too long and timed out
Err-104	
Err-1006	MAV/NHWP motor ran too long
Err-106	
Err-1007	MAV/NHWP motor ran too short and stalled
Err-107	



Error Screen

Alternated flashing Error and error code every 3 seconds.

Clear by disconnecting the power supply at the PC board and reconnecting, or press NEXT and REGEN simultaneously for 3 seconds.

4.3) Ozone Generator Troubleshooting

4.3.1) Testing for Ozone Output

Step #1: - Disconnect the ozone hose which goes from generator to the control valve.

Step #2: - Set the ozone output to maximum by turning the control knob clockwise.

Step #3: - Apply the power to controller.

Step #4: - Cup one hand around the one air port and push air through the other air port.

Step #5: - Do not smell Ozone gas directly just smell your hand. Ozone has sweet and cloying scent.

If you can smell Ozone gas from your hand, then the Ozone output is good.

4.3.2) Potentiometer Testing

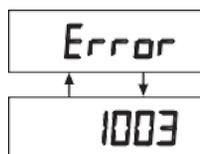
Press and hold the "REGEN" button and press "REGEN" button again to advance the regeneration to brine/draw cycle. Then turn the black control knob from maximum to minimum and listen to the voltage arcing noise. The voltage arcing must decrease as you turn the knob towards minimum. If turning the knob doesn't produce any arcing sound, then control knob potentiometer must be replaced.

5) QUICK REFERENCE GUIDE

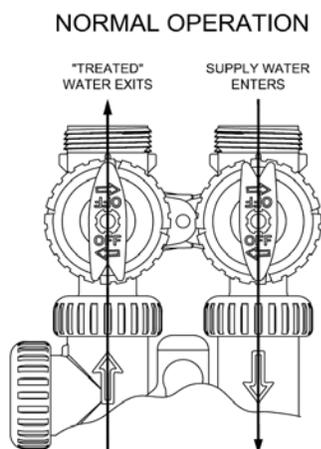
5.1) Regeneration

Immediate Regeneration: - Press and hold "REGEN" button for more than 3 seconds. Press "REGEN" button to advance the unit to next cycle in regeneration.

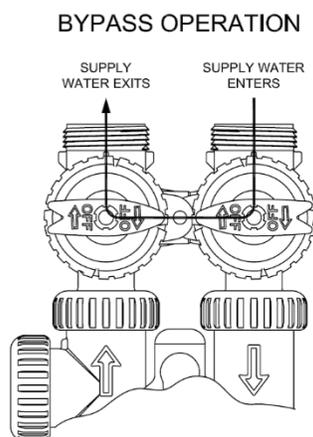
Delayed Regeneration: - Press and release "REGEN" button once the "REGEN TODAY" will be flashing on screen. Now the regeneration will occur tonight at preset time. The delayed regeneration can be cancelled by pressing "REGEN" button again.



This error screen and error number will toggle. Contact Service Technician or OEM and report the error code.

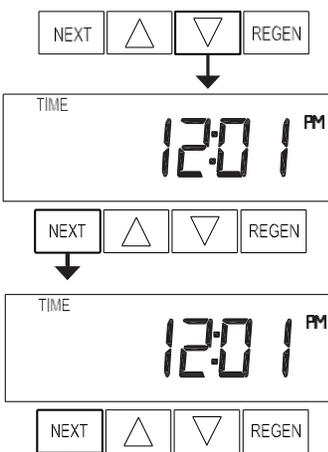


The inlet handle arrow must be in the direction of unit and outlet handle must direct away from the unit as given above.



To shut off supply to the Unit the bypass valve handle must be in direction given above.

5.2) To Set Time of Day



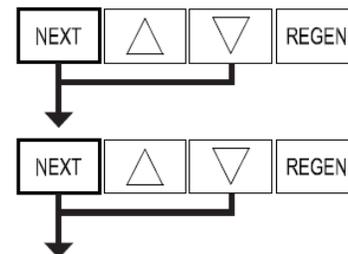
- Push NEXT until time of day screen is displayed.
- Press and hold ▼ until the hour flashes once. Press ▲ or ▼ until the correct hour is displayed. Then press NEXT.
- The minutes will flash. Press ▲ or ▼ until the correct minute is displayed.
- Press NEXT to return to the User Displays.

5.3) Programming Summary

5.3.1) Configuration settings

Press NEXT and ▼ simultaneously for 5 seconds and repeat this step again.

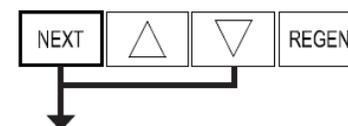
Step #	Value	Description
2CS	1.0	Valve Size
3CS	dp oFF	No outside regeneration signal used
4CS	oFF	No MAV Installed



5.3.2) OEM Filter System Setup

Press NEXT and ▼ simultaneously for 5 seconds.

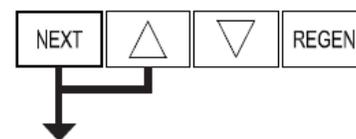
Step #	Value	Description
2S	Softening	Regeneration method
3S	dn	Choose Downflow Brine
4S	Post	Post fill cycle
5S	10:00	Backwash cycle time in minutes
6S	60:00	Draw (Brine) cycle time in minutes
7S	Off	2 nd Backwash cycle off
8S	Off	Rinse cycle off
9S	Off	Fill cycle off
10S	24,000	Default capacity
11S	Off	Regeneration solely by day override
12S	Set Time On	Relay operation by time
13S	11:00	Relay actuation time
14S	58:00	Relay deactivate time



5.3.3) Installer Display Settings

Press NEXT and ▲ simultaneously for 5 Seconds.

Step #	Value	Description
2I	1	1 day between regenerations
3I	Low Demand Hour	Scheduled regeneration hour
4I	Low Demand minutes of hour	Scheduled regeneration minutes



6) WARRANTY

12 or 20 YEARS Warranty for Zentec Ozone Capsulate Filter

Thank you for your purchase of our ZENTEC OZONE CAPSULATE FILTER. For proof of purchase, please retain your Invoice / Sales Order Copy.

Warranties ~ Offered

Premium Zentec Ozone Capsulate Filter: - **20 Years**

Superior Zentec Ozone Capsulate Filter: - **12 Years**

Excalibur Water Systems warrants its products to be free from defect in materials and workmanship to the original owner from the date on the proof of purchase as described below.

Warranty ~ Working Procedures

If during the suitable warranty period, a part is defective, then Excalibur Water Systems will repair or replace that part at no charge to the original owner, with the exception of charges for nominal shipping, service and/or installation.

Warranty ~ Coverage Outlined

Excalibur Water Systems guarantees, to the original owner, a suitable period of warranty, the CONTROL VALVE BODY to be free of defects in materials and workmanship and to perform its proper functions. To the original owner, a suitable period of warranty, the ELECTRONIC CONTROL VALVES as well as all parts to be free of defects in materials and workmanship and to perform their normal functions. To the original owner, the MINERAL TANKS will not rust, corrode, leak, burst or in any other form fail to perform their proper functions for a LIFETIME period of 20 YEARS. Ozone Generator Warranty 1 YEAR.

Warranty ~ Service

In the event, you require service, Excalibur Water Systems Dealer will provide all necessary service and installation for your Water Filter. To obtain warranty service within 30 days of discovery of the defect, notification must be given to Excalibur Water Systems.

General Provisions

The above warranties are effective provided the WATER FILTER is operated at water pressures not exceeding 110 psi and at water temperatures not exceeding 110 °F; also provided that the water Filter is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the water Filter is not damaged as the result of any unusual force of nature such as, but not limited to flood, hurricane, tornado or earthquake. Excalibur Water Systems is excused if failure to perform its warranty obligations is the result of strikes, government regulation, materials shortages or other circumstances beyond its control.

THERE ARE NO WARRANTIES ON THE WATER FILTER BEYOND THOSE SPECIFICALLY DESCRIBED ABOVE. ALL IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE DISCLAIMED TO THE EXTENT THEY MIGHT EXTEND BEYOND THE ABOVE PERIODS. THE SOLE OBLIGATION OF EXCALIBUR WATER SYSTEMS UNDER THESE WARRANTIES IS TO REPLACE OR REPAIR THE COMPONENT OR PART PROVES TO BE DEFECTIVE WITHIN THE SPECIFIED TIME PERIOD AND EXCALIBUR WATER SYSTEMS IS NOT LIABLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES. NO DEALER, AGENT, REPRESENTATIVE OR OTHER PERSON IS AUTHORIZED TO EXTEND OR EXPAND THE WARRANTIES EXPRESSED ABOVE.

Certain provinces or states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damage, therefore limitations and exclusions in this warranty may not apply to you. This warranty extends you specific legal rights as you may have other rights which vary from province to province or state to state.

Excalibur Water Systems is a manufacturer of water treatment products.

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Canada

