



FILTERMAX CHEMICAL REMOVAL FILTER INSTALLATION AND USER GUIDE



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1) INSTALLATION

1.1) Pre-installation instructions

The cycle times, sequence of cycles and days between regeneration are preset by Excalibur Water Systems.

WATER TEST

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

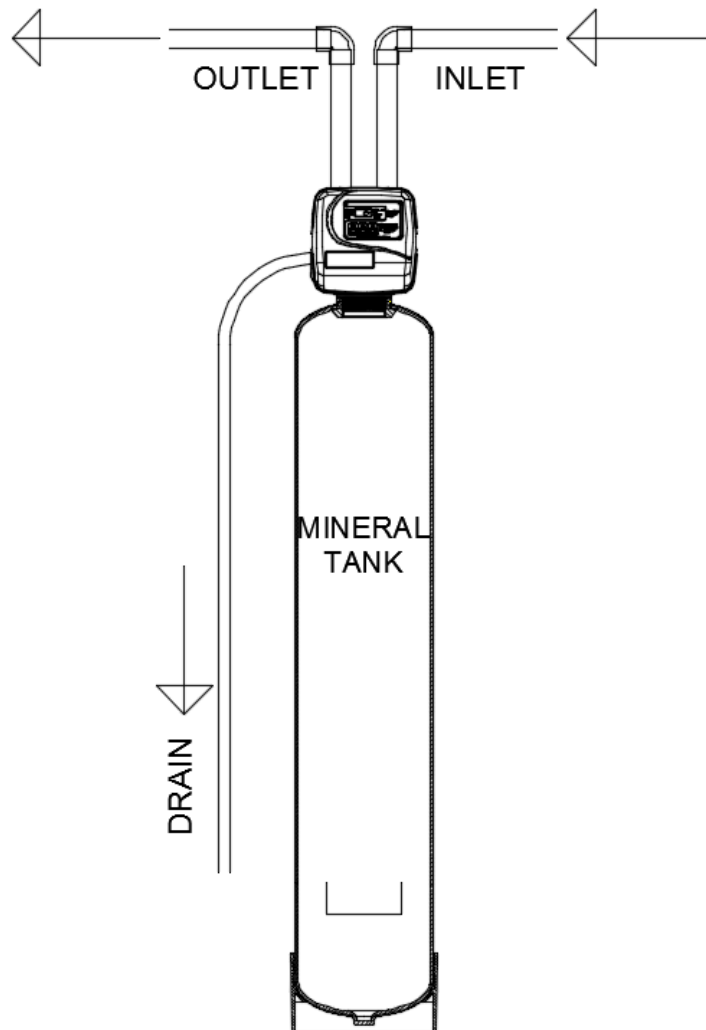
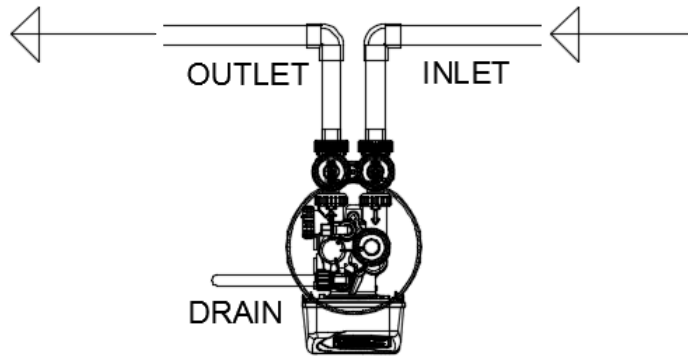
1.2) General Installation and Service Warnings

- 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 black O-Rings but not necessary.
- Do not use pipe dope or other sealant on plastic nuts and caps. Teflon tape must be used only on NPT threads.
- 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.

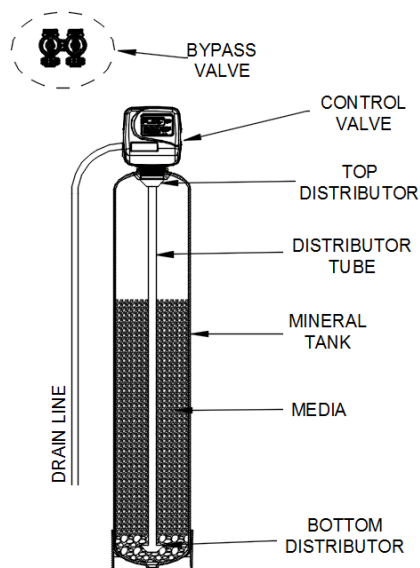
1.3) Site Requirements

- 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 with plug-in transformer (dry locations only).
- The tank should be on a firm level surface

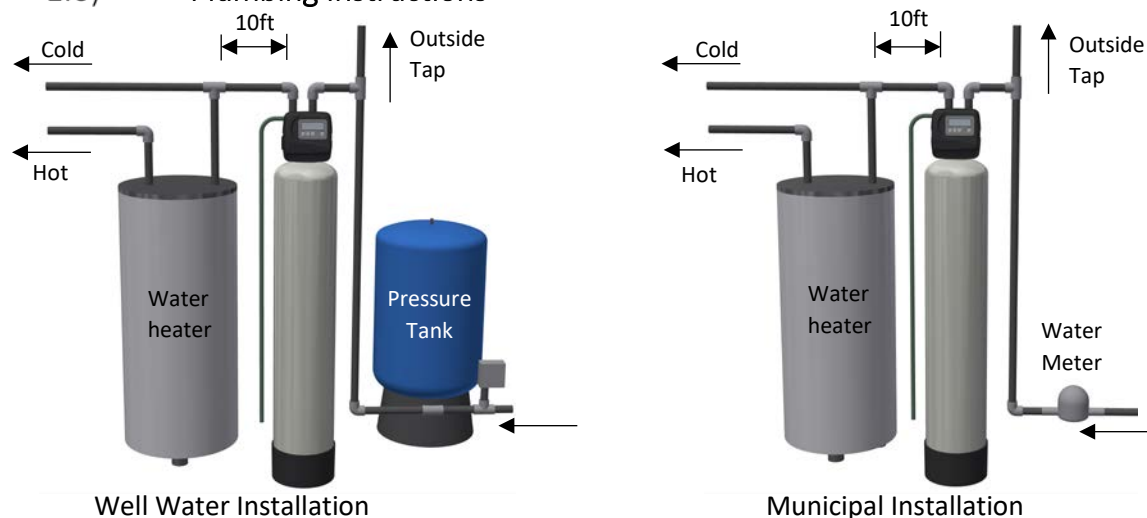
1.4) Installation Drawing



1.5) System Drawing



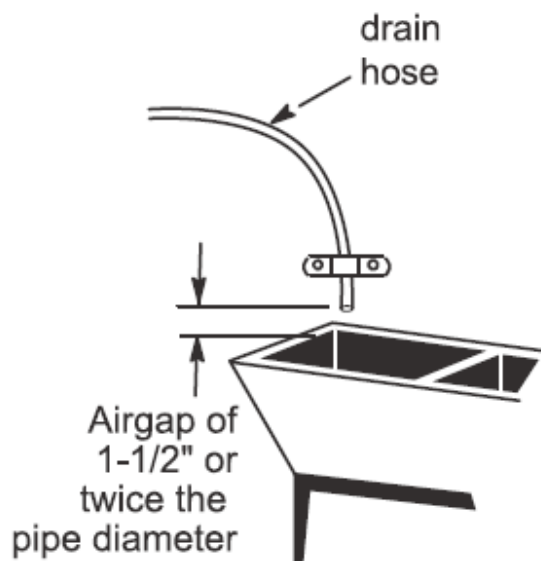
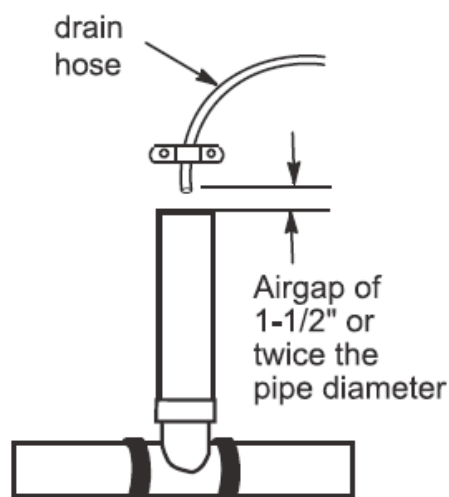
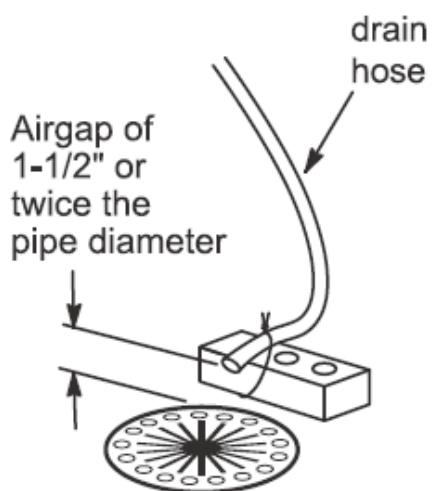
1.6) Plumbing Instructions



- 1) The filter must be located at the closest possible location to drain.
- 2) The water heater's inlet must be at least 10ft away from filter.
- 3) The unit including the drain must be located in a room temperature above 33° F.
- 4) If vacuum occurrence is expected then the vacuum breaker must be installed at the inlet of the filter.
- 5) The bypass valve must be installed on the control valve.
- 6) The outside tap water if possible may be bypassed from the filter.
- 7) The primer, solder or solder flux must not get on the O-rings while installation.
- 8) After soldering the lines must be cooled before installing the O-Rings, nuts and caps.
- 9) If the electrical system is grounded to the plumbing, then a copper strap must be connected between inlet and outlet as shown in figure above.
- 10) The plumbing must be done by following the local plumbing codes.

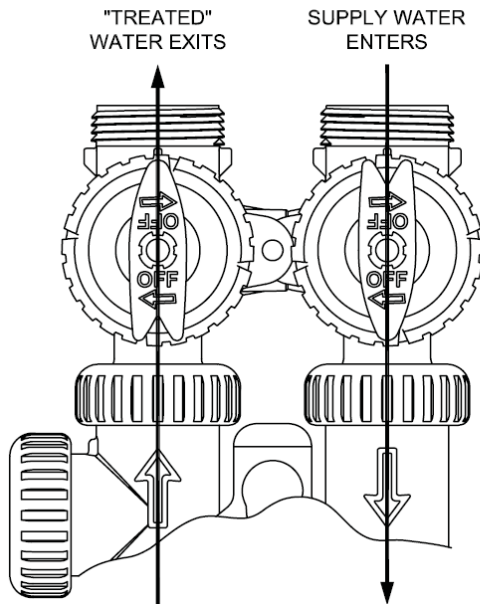
1.7) Drain Line

- The ½" tubing must be used for drain line.
- Leave minimum of 6" gap between flow control fitting and solder joints. The gap less than this can damage the flow control.
- If the drain line is elevated and then emptied into the drain below the level the of control valve then 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 drain line must be clamped or strap tied at the end to secure in position.



1.8) Bypass Valve

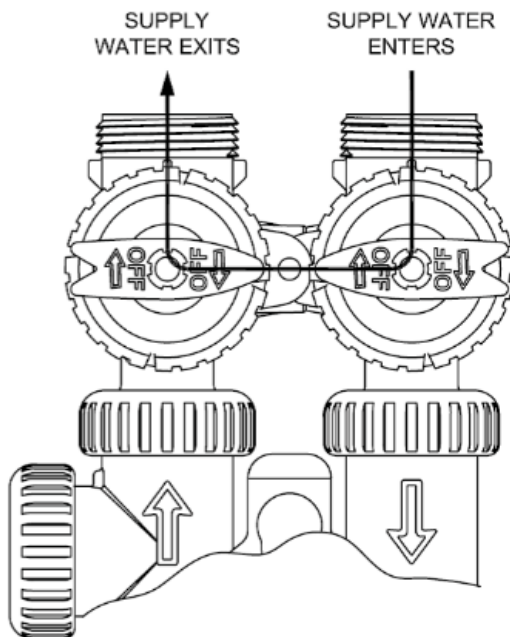
NORMAL OPERATION



NORMAL OPERATION

The inlet and outlet handles of bypass valve should be pointing the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve in normal operation as a water filter.

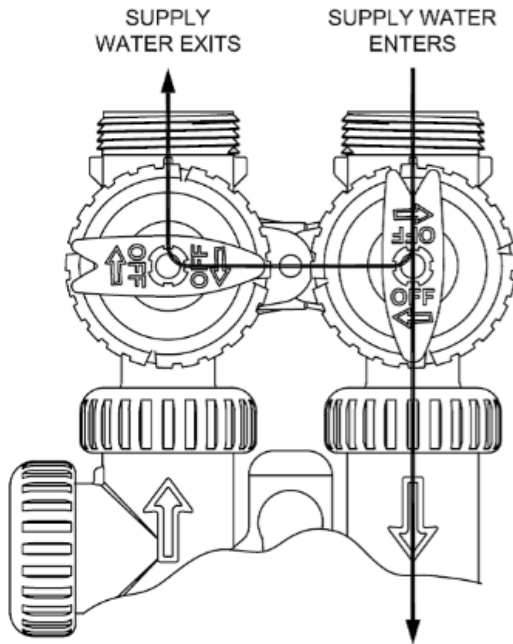
BYPASS OPERATION



BYPASS OPERATION

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

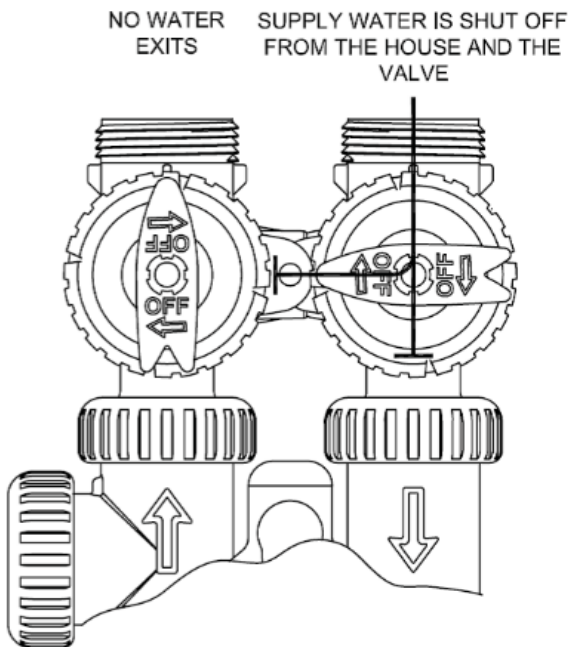
DIAGNOSTIC MODE



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. Unfiltered water is supplied to the house in this position.

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.

1.9) Start Up Instructions

- Keep the bypass valve in bypass operation by moving both handles pointing towards the center of bypass valve. Now the unfiltered water is being supplied to house. 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 “UP” and “DOWN” buttons simultaneously for 3 seconds to start immediate manual regeneration. The drive motor will start to reach backwash cycle and countdown time begins (C1--). Turn the inlet bypass valve handle halfway into the direction of diagnose operation. Once the steady water flows out of drain then fully turn both handles of bypass valve into the direction of service operation.

Caution: - If water flow is too rapidly, there will be a loss of media to drain.

- When the water becomes clear in drain line then press the “UP” or “DOWN” button to advance the regeneration to rinse cycle (C4--). Allow this process for the full amount of time during the cycle.
- Once regeneration is finished the control valve will automatically come to the service position with the time of day or days to next regeneration being displayed.

2) CONTROL VALVE PROGRAMMING

2.1) Regeneration Screens



- Displays the cycle sequence number.
- Displays the time remaining in the current cycle.

2.2) Button Operation



- Sets time of day
- Proceed to next step in settings
- Save changes and Exit to user display from any programming screen



- Change Variable being displayed.
- Scroll to the next display
- Advance the regeneration to next cycle



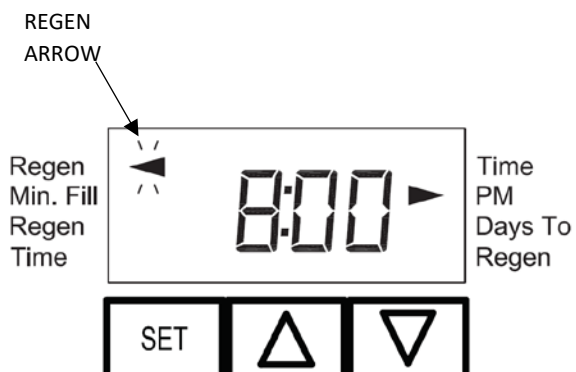
- Exit programming without saving
- Initiate medium reset

2.3) Manual Regeneration



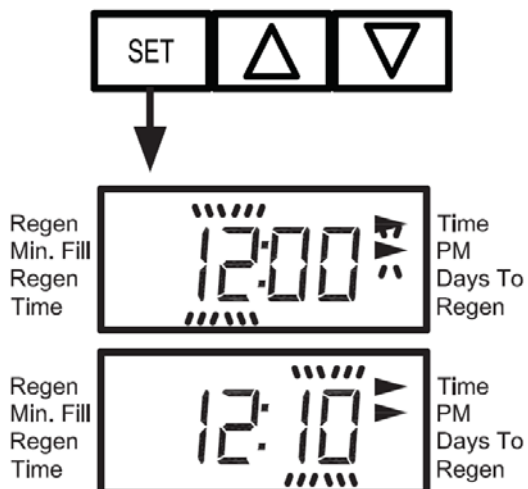
Regeneration Tonight: - Press ▲ and ▼ buttons once and release to schedule a regeneration for preset time. The arrow will point the word REGEN which indicates the regeneration is expected tonight.

Press ▲ and ▼ buttons again to cancel the scheduled regeneration for tonight.



Immediate Regeneration: - Press ▲ and ▼ buttons and hold for 3 seconds until the control valve motor starts.

2.4) Setting Time of Day



Step #1: - Push "SET" button and hold for 3 seconds.

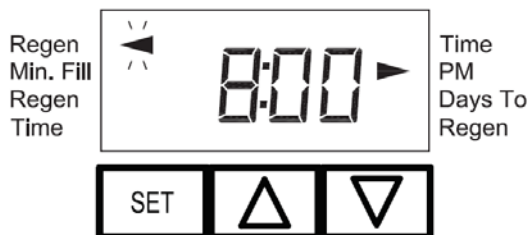
Step #2: - When hour flashes press ▲ or ▼ until the correct hour is displayed. Then press "SET" to proceed to next step.

Step #3: - The minutes will flash. Press ▲ or ▼ until the correct minute is displayed. Press "SET" to return to the User Displays.

Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight saving time begins or ends.

Note: - Timekeeping is 12 hour with 60Hz frequency and 24 hour with 50Hz

2.5) User Displays



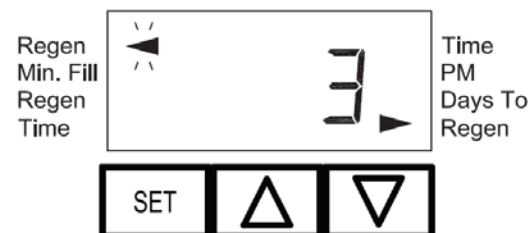
When the system is operating, one of displays given below may be shown. Pressing ▲ or ▼ will alternate between the displays shown below.

User 1

This user display shows the time of the day.

User 2

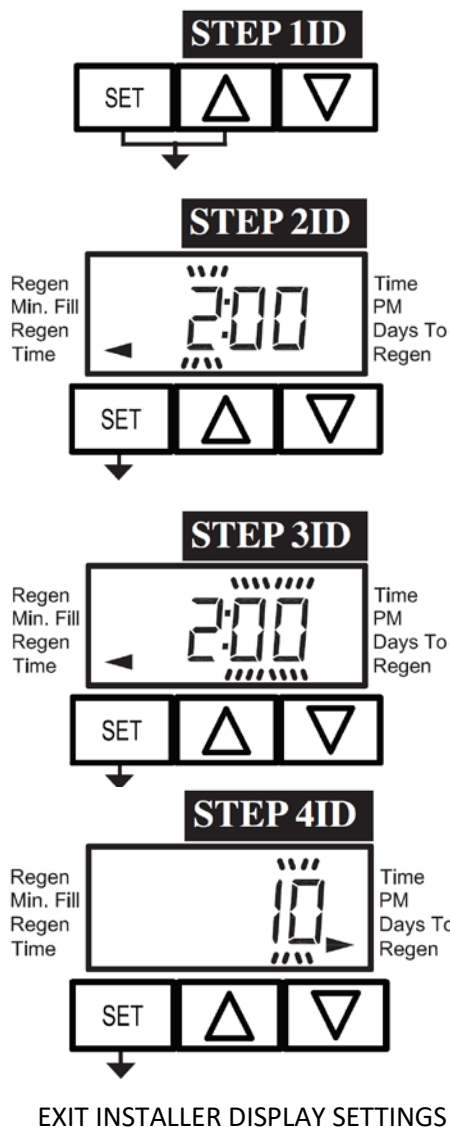
Displays the days until the next regeneration.



"REGEN" arrow is displayed when the regeneration is supposed to occur at a scheduled time of day.

Return to User Display 1

2.6) Installer Display Settings



Step #1: - Press and hold “SET” and ▼ buttons for 3 seconds.

Step #2: - When hour flashes press ▲ or ▼ until the correct hour is displayed. Then press “SET” to proceed to next step.

Step #3: - The minutes will flash. Press ▲ or ▼ until the correct minutes for hour is displayed. Press “SET” to proceed to next step.

Step #4: - Set “10” days between regenerations using ▲ or ▼ buttons. Press “SET” button to exit Installer display settings.

Weekly Installer Display day codes: -

Display	Day of Week
day 1	d1 Sunday
day 2	d2 Monday
day 3	d3 Tuesday
day 4	d4 Wednesday
day 5	d5 Thursday
day 6	d6 Friday
day 7	d7 Saturday

2.7) Installer Display Settings (Weekly)

STEP 1I7

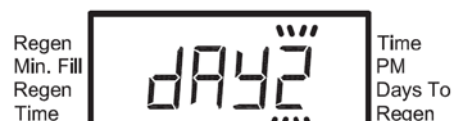
Step 1I7: - Press "SET" and ▲ buttons simultaneously for seconds and release.

STEP 2I7

Step 2I7: - Set the regeneration time hour using ▲ or ▼ buttons. Press SET to proceed to step 3I7.

**STEP 3I7**

Step 3I7: - Set the regeneration time minutes using ▲ or ▼ buttons. Press SET to proceed to step 4I7.

**STEP 4I7**

Step 4I7: - Set the current day of the week by using ▲ or ▼ buttons. Refer to the table on previous page. Press SET to go to step 5I7.

**STEP 5I7**

Step 5I7: - Sunday (d1) regeneration: - Use ▲ or ▼ buttons to point the arrow on "REGEN" then Regeneration will occur on Sunday. Press SET to go to step 6I7.

**STEP 6I7**

Step 6I7: - Monday (d2) regeneration: - Use ▲ or ▼ buttons to point the REGEN arrow for regeneration on every Monday. Press SET to go to 7I7.



STEP 7I7

Regen
Min. Fill
Regen
Time



Time
PM
Days To
Regen



Step 7I7: - Tuesday (d3) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Tuesday.

STEP 8I7

Regen
Min. Fill
Regen
Time



Time
PM
Days To
Regen



Step 8I7: - Wednesday (d4) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Wednesday. Press SET to proceed to step 9I7.

STEP 9I7

Regen
Min. Fill
Regen
Time



Time
PM
Days To
Regen



Step 9I7: - Thursday (d5) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Thursday. Press SET to proceed to step 10I7.

STEP 10I7

Regen
Min. Fill
Regen
Time



Time
PM
Days To
Regen



Step 10I7: - Friday (d6) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Friday. Press SET to go to step 11I7.

STEP 11I7

Regen
Min. Fill
Regen
Time



Time
PM
Days To
Regen



Step 11I7: - Saturday (d7) regeneration: - Use ▲ or ▼ button to point the arrow on "REGEN" then Regeneration will occur on Saturday. Press SET to go to Exit Installer Display Settings (Weekly).

EXIT INSTALLER DISPLAY SETTINGS

2.8) System Setup

STEP 1SS



Step 1SS: - Press and hold "SET" and ▲ buttons simultaneously for 3 seconds and release. Again press and hold "SET" and ▲ buttons simultaneously for 3 seconds and release.



STEP 2SS



Step 2SS: - Press ▲ or ▼ buttons to select program "P 8". Press "SET" button to proceed to step 3SS.



STEP 3SS



Step 3SS: - Use ▲ or ▼ buttons to select "99" number of days between regeneration. Note: - For weekly 7 days regeneration specific scheduled regeneration for each day is required.



STEP 4SS



Step 4SS: - Use ▲ or ▼ buttons to switch between immediate regeneration and scheduled regeneration.

When "Regen Time" arrow is not displayed then regeneration will occur immediately and when "Regen Time" arrow is displayed the regeneration will occur at scheduled time of day when DP switch closes.



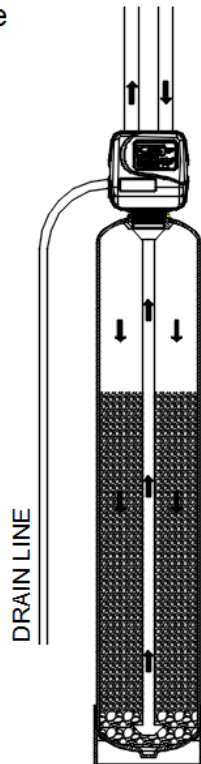
3) MODEL VARIABLE COMPONENTS AND SPECIFICATIONS

Model ¹ Number	Mineral Tank Dia X Height (inch)	Media Quantity ft ³	Flow (GPM)		Drain Flow Control		Shipping Weight LBS
			Continuous	Peak	Flow (GPM)	Order #	
EWS BTCS1	9X48	1.0	5.0	7.0	4.2	CLK V3162042	80
EWS BTCS1.5	10X54	1.5	7.5	10.5	5.3	CLK V3162053	100
EWS BTCS2	12X52	2.0	10.0	14.0	7.5	CLK V3162075	145

1: - Include "S" as EWS BT^SCS_ for Superior models and Include "P" as EWS BT^PCS_ for Premium models

4) CONTROL VALVE CYCLES

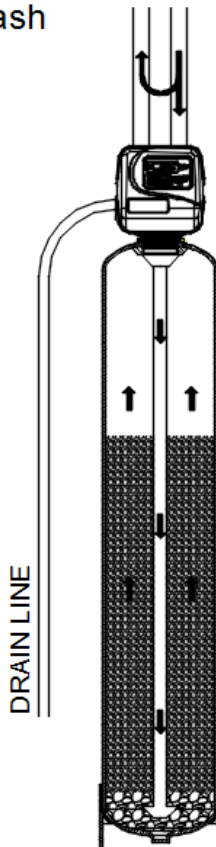
Service



Service Cycle

In **Service** Cycle water flows through the upper basket and flows down to the bottom distributor. In this operation water is filtered downward through Media.

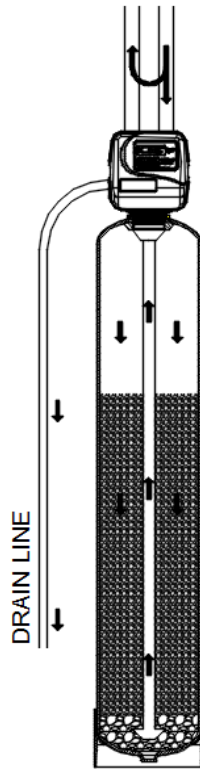
Backwash



C1 Cycle

In **Backwash** Cycle water flows in upflow direction, the water enters the tank from bottom distributor and collected by upper basket. This operation lifts the bed and wash the Media. The water goes out through the drain line.

Rinse

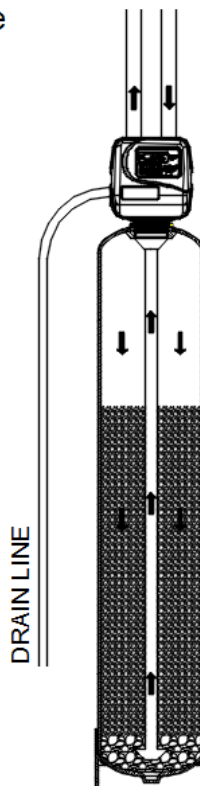


C4 Cycle

In **Rinse** Cycle water flows rapidly in downflow direction through the Media to the drain. This cycle pack the media bed and washes the media particles in downflow direction.

Note: - Backwash and Rinse cycles bypass the supply water to the demand.

Service



Service Cycle

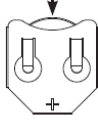
After the end of rinse of cycle the control valve automatically returns to the service operation.

5) COMPONENTS OF CONTROL VALVE

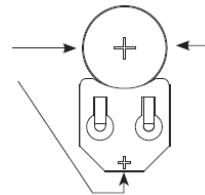
5.1) Front Cover and PC Board

Drawing No.	Order No.	Description	Quantity
1	CLK V3175TC01	WS1TC FRONT COVER ASY	1
2	CLK V310701	WS1 MOTOR ASY	1
3	CLK 310601	WS1 DRIVE BRACKET & SPRING CLIP	1
4	CLK V3818TC	WS1TC PC BOARD 4-DIGIT	1
5	CLK V3110	WS1 DRIVE REDUCING GEAR 12 X 36	3
6	CLK V3109	WS1 DRIVE GEAR COVER	1
Not Shown	CLK V3186	WS1 AC ADAPTER 120V-12V	1
	CLK V3186EU	WS1 AC ADAPTER 220-240V-12V EU	
	CLK V3186UK	WS1 AC ADAPTER 220-240V-12V UK	
	CLK V318601	WS1 AC ADAPTER CORD ONLY	

Battery Fully Seated

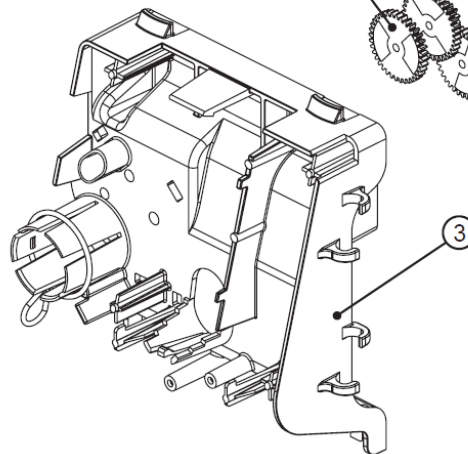
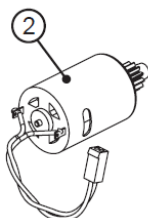
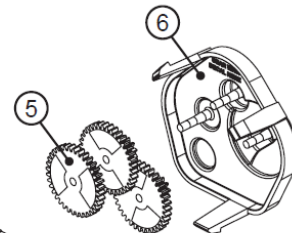
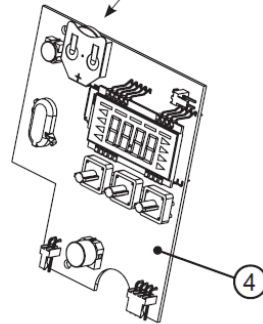
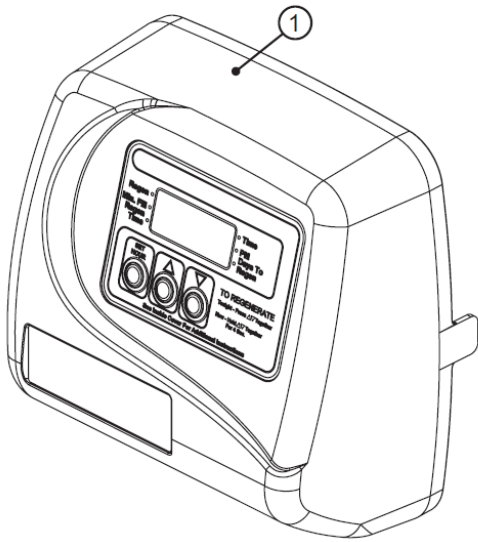


Battery Orientation



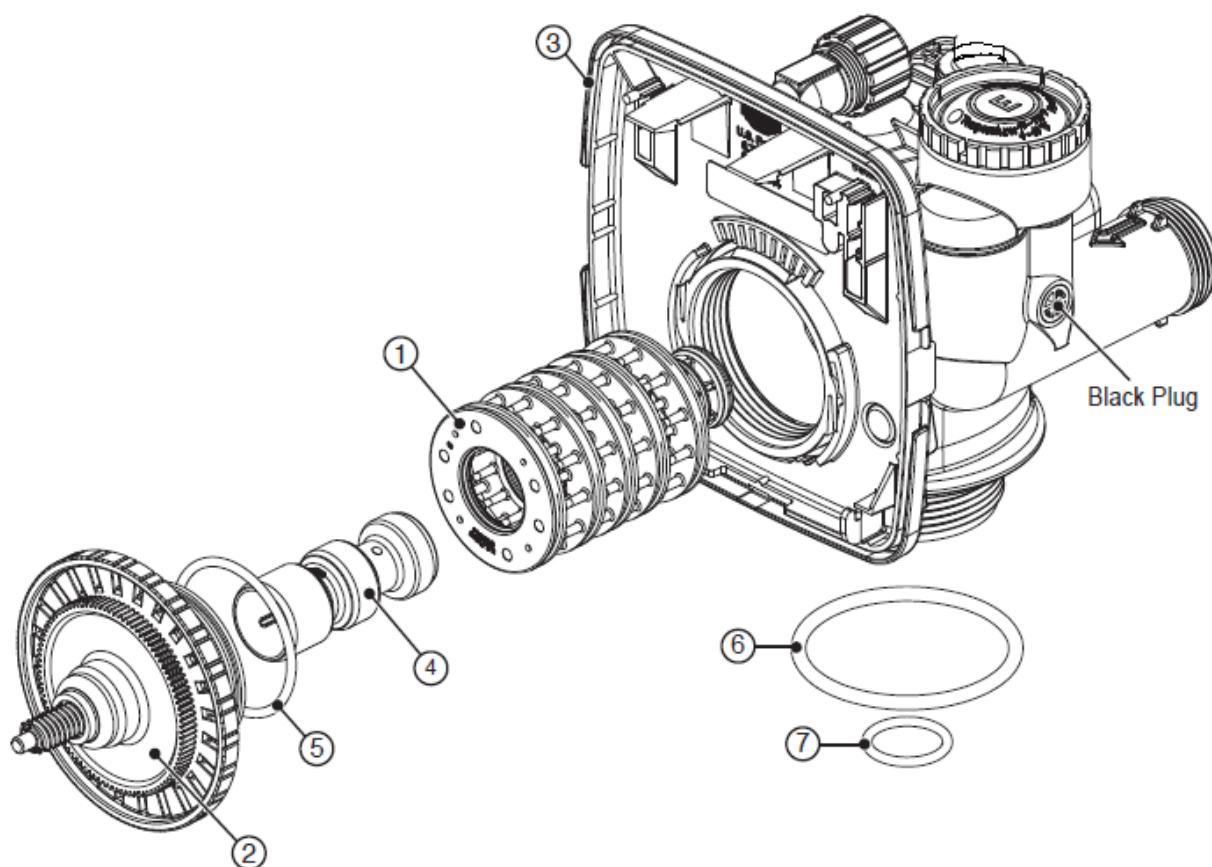
Replacement battery type 2032

AC Adapter	U.S.
Supply Voltage	120 V AC
Supply	60 Hz
Output Voltage	12 V AC
Output Current	500 mA



5.2) Drive assembly, Piston and Spacer stack

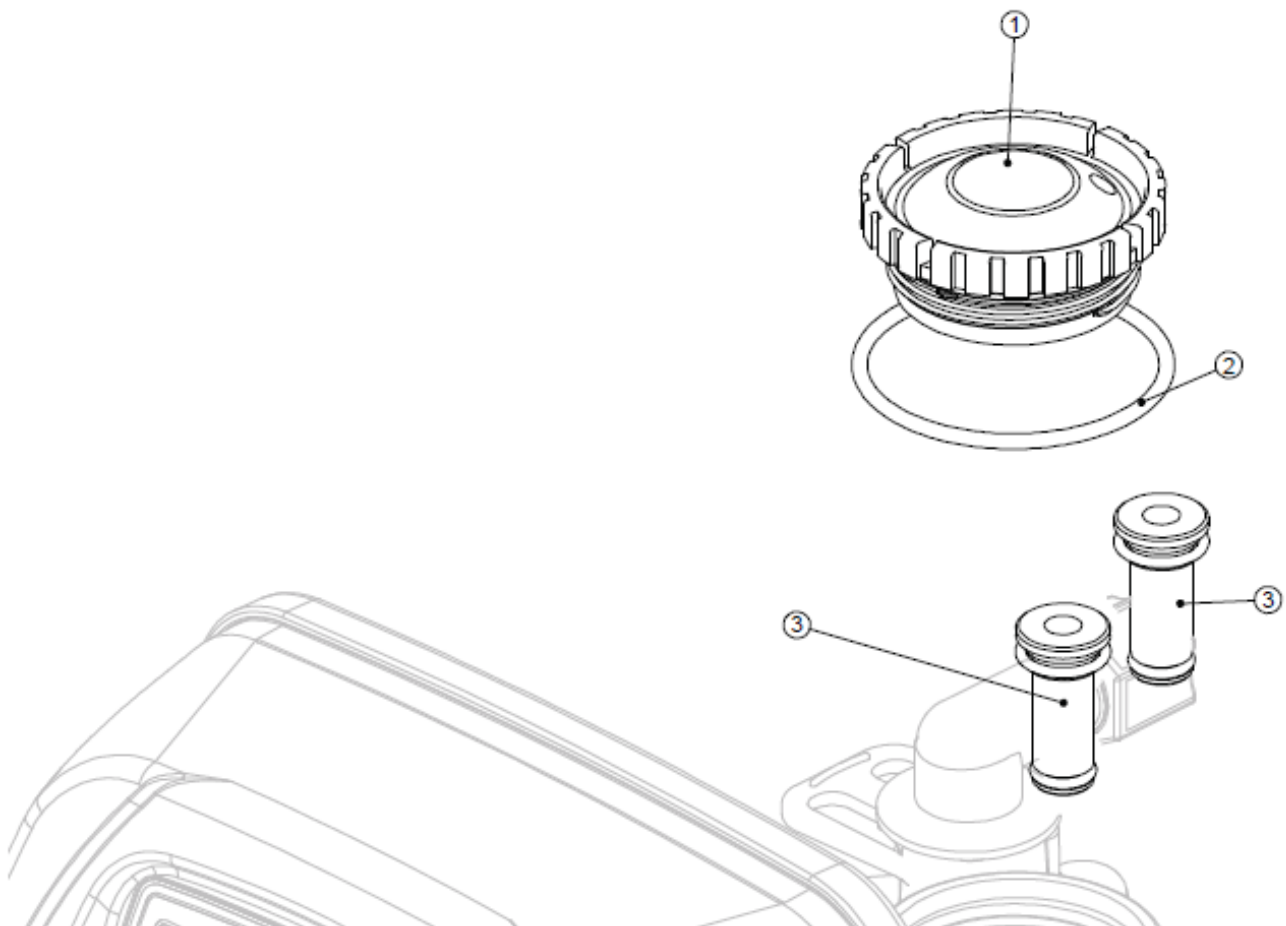
Drawing No.	Order No.	Description	Quantity
1	CLK V3005	WS1 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3178	WS1 Drive Back Plate	1
4	CLK V3011	WS1 Piston Downflow ASY	1
5	CLK V3135	O-ring 228	1
6	CLK V3180	O-ring 337	1
7	CLK V3105	O-ring 215 (Distributor Tube)	1
Not Shown	CLK V3001	WS1 Body ASY Downflow	1



5.3) Injector Assembly

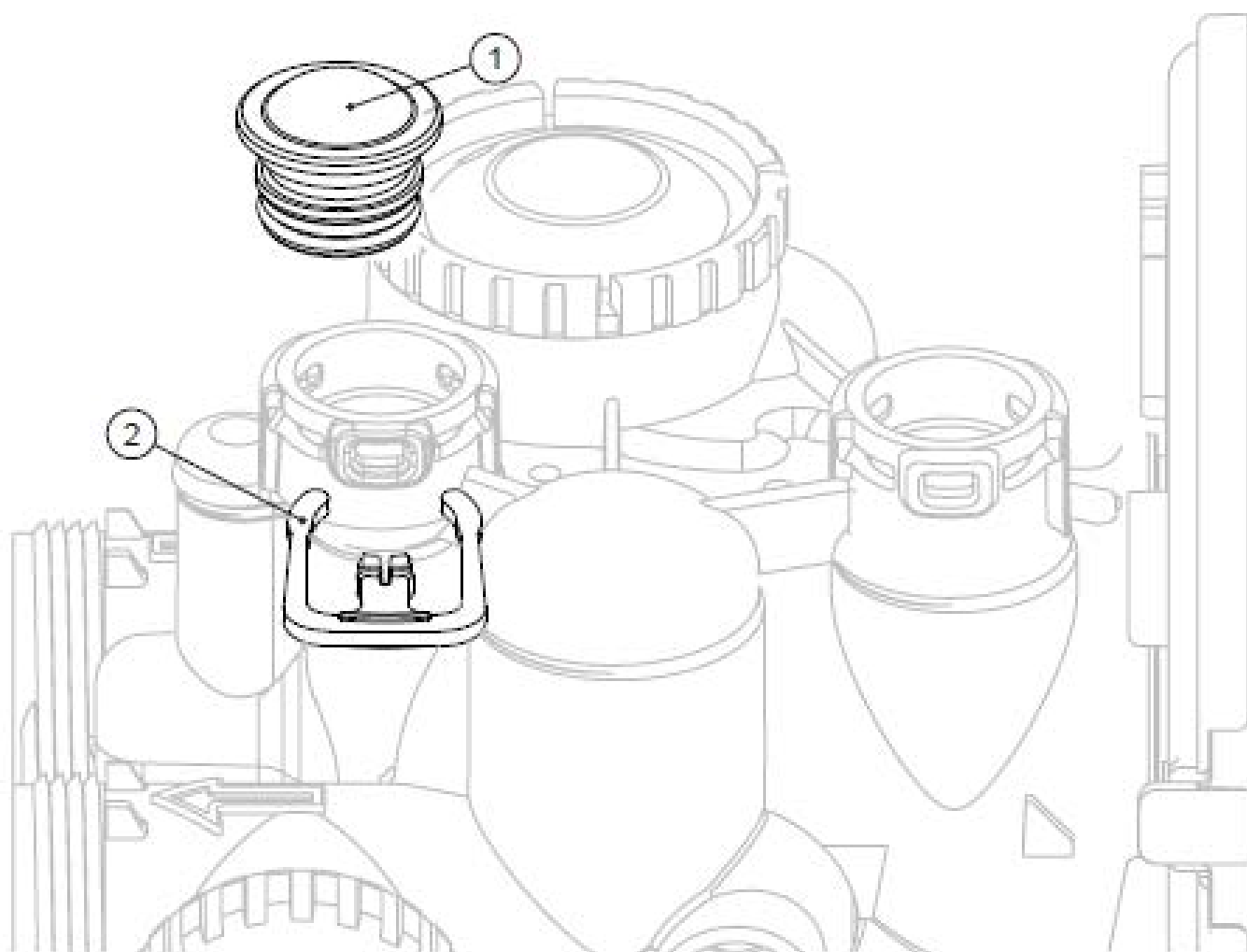
Drawing No.	Order No.	Description	Quantity
1	CLK V3176	INJECTOR CAP	1
2	CLK V3152	O-RING 135	1
3	CLK V30101Z	WS1 INJECTOR ASY Z PLUG	1
Not Shown*	CLK V3170	O-RING 011	1
Not Shown*	CLK V3171	O-RING 013	1

* The injector plug and the injector each contain 011 (lower) and 013 (upper) O-ring.



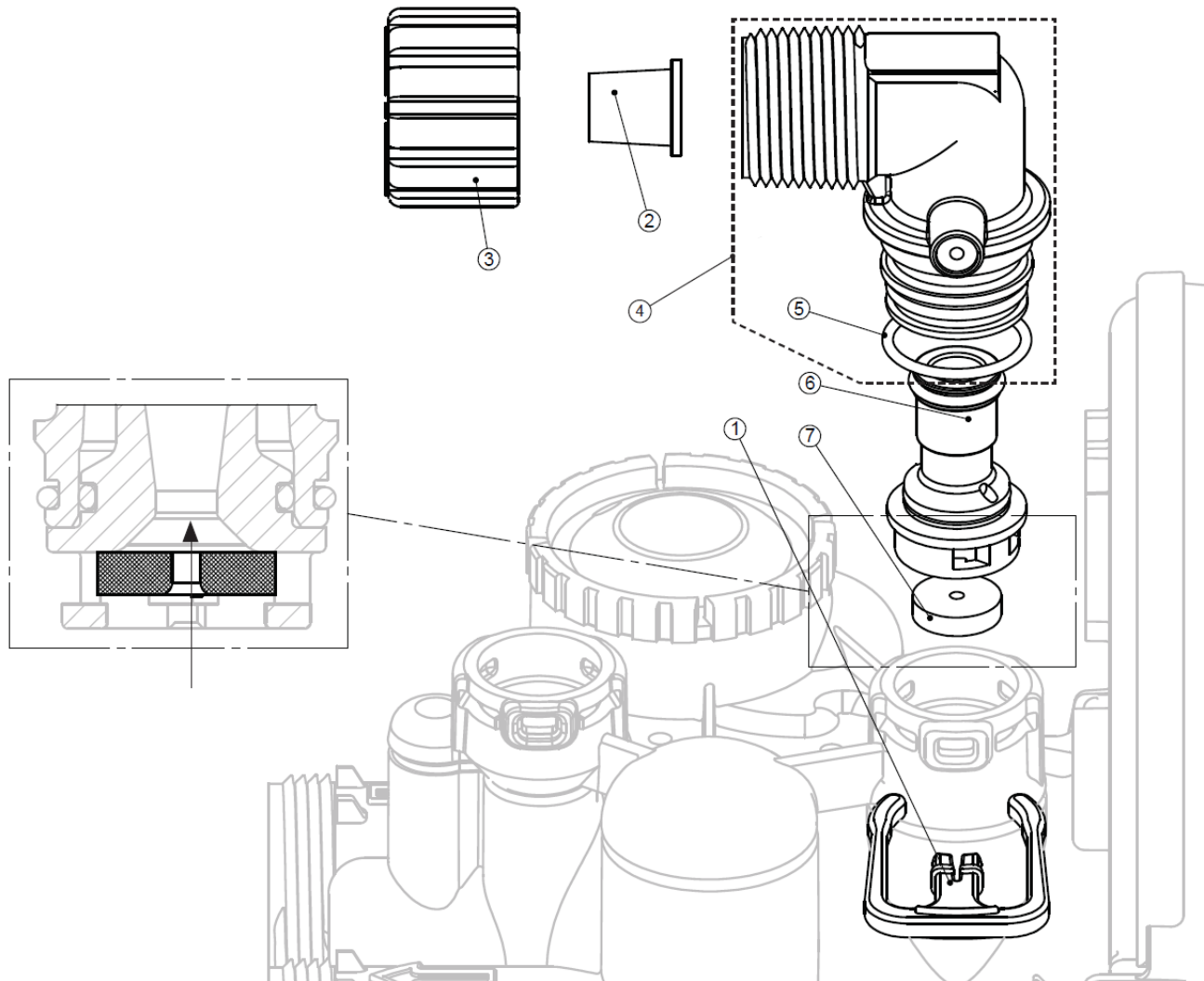
5.4) Brine Tank Port

Drawing No.	Order No.	Description	Quantity
1	CLK V319501	WS1 Refill Port Plug Asy	1
2	CLK H4615	Elbow Locking Clip	1



5.5) Drain Line Flow Control Assembly

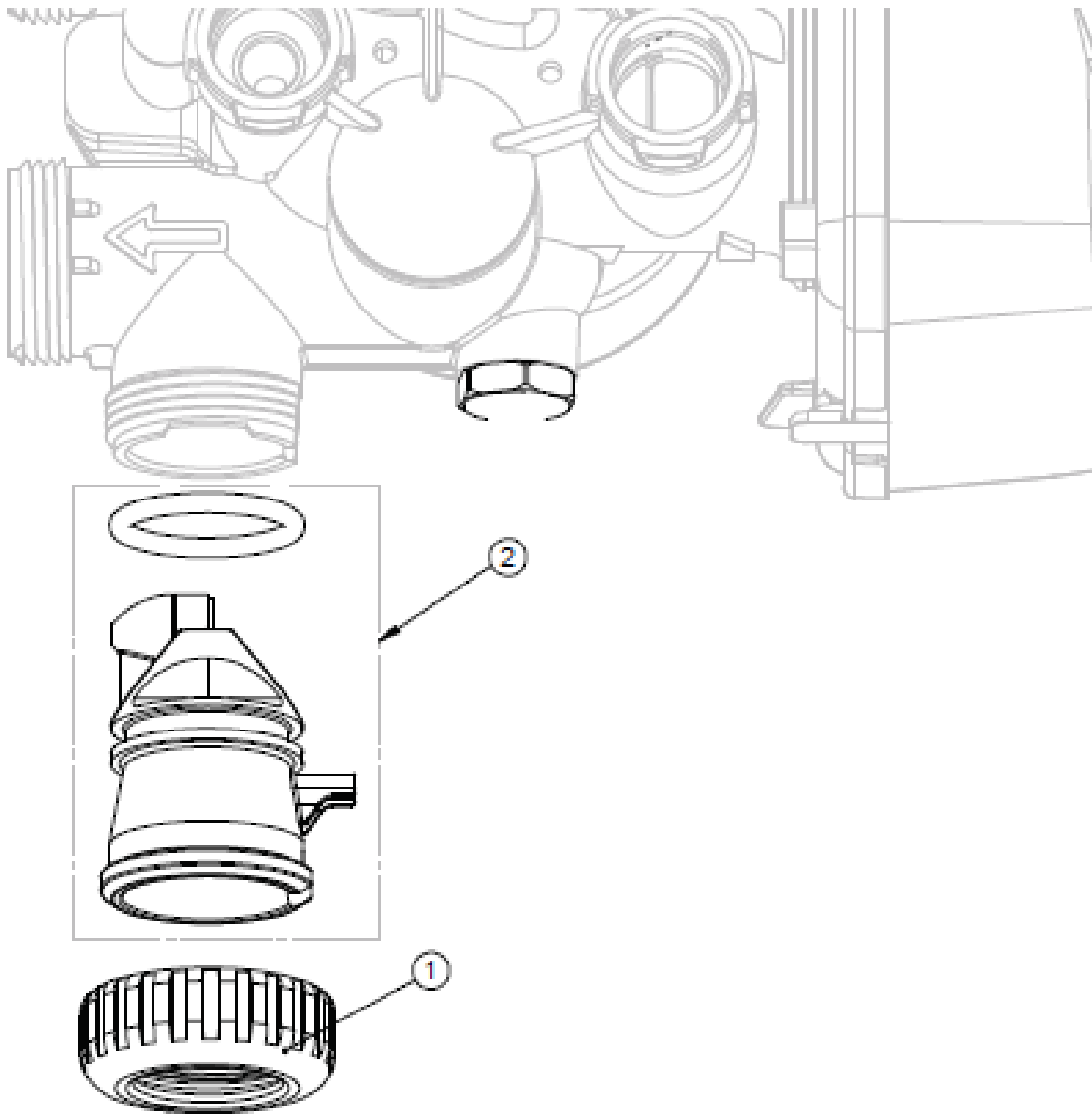
Drain Line 3/4"				
Drawing No.	Order No.	Description		Quantity
1	CLK H4615	Elbow Locking Clip		1
2	CLK PKP10TS8BU	Polytube insert 5/8		Option
3	CLK V3192	WS1 Nut 3/4 Drain Elbow		Option
4	CLK V315801	WS1 Drain Elbow 3/4 Male		1
	CLK V315802	WS1 Drain Elbow 3/4 Male No		
5	CLK V3163	O-ring 019		1
6	CLK V315901	WS1 DLFC Retainer ASY		1
7	CLK V3162042	WS1 DLFC 4.2 gpm	9" Tank	One DLFC must be used if 3/4 fitting is used
	CLK V3162053	WS1 DLFC 5.3 gpm	10" Tank	
	CLK V3162075	WS1 DLFC 7.5 gpm	12" Tank	



5.6) Outlet Meter Port

Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 Nut 1" QC	1
2	CLK V300301	WS1 Meter Plug ASY	1
3	CLK V3105	O-ring 215	1

* CLK V3003 includes CLK V311801 and CLK V3105

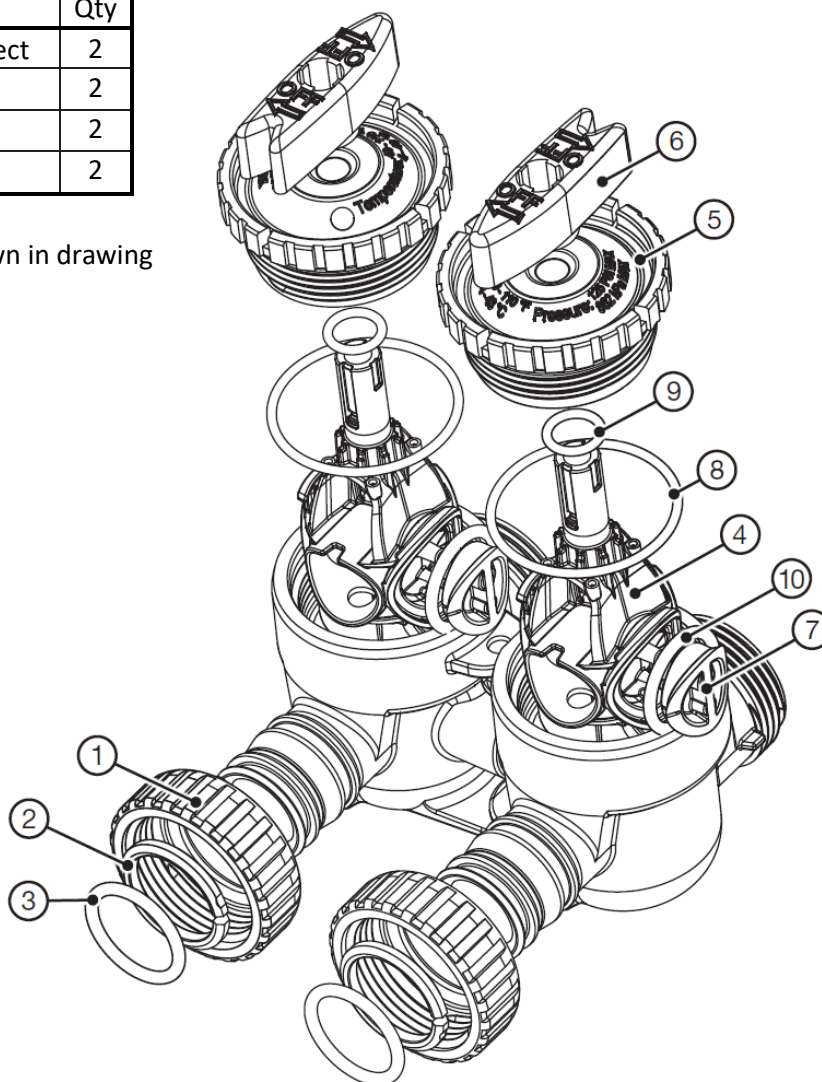


5.7) Bypass Valve Components

CLK V3006		WS1 Bypass Valve 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 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

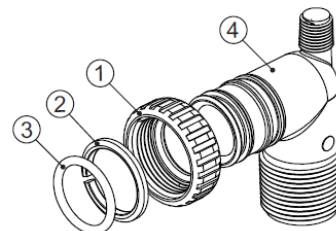
CLK V319101	WS1 Bypass Vertical Asy Adapter	
Order No.	Description	Qty
CLK V3151	WS1 Nut 1" Quick Connect	2
CLK V3150	WS1 Split Ring	2
CLK V3105	O-Ring 215	2
CLK V3191	WS1 Bypass Vertical	2

*Bypass Valve Vertical Adapter not shown in drawing

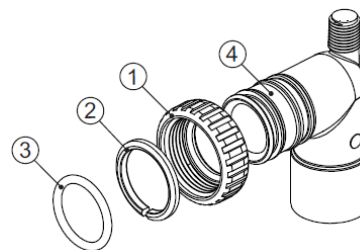


5.8) Installation Fitting Assemblies

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

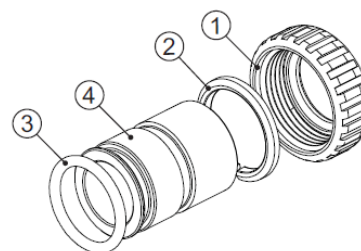


CLK V300701 WS1 Fitting 3/4" & 1" PVC Solvent 90° Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3189	WS1 FITTING 3/4 & 1 PVC SOLVENT 90	2



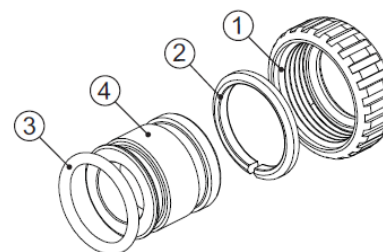
CLK V300702LF WS1 Fitting 1" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Qty
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3188LF	WS1 FITTING 1 BRASS SWEAT ASSEMBLY LF	2

Do not install in California.

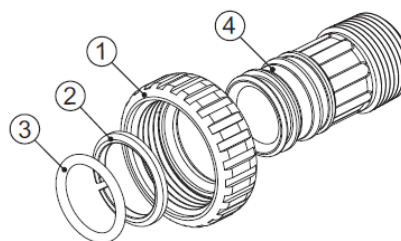


CLK V300703LF WS1 Fitting 3/4" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V318801LF	WS1 FITTING 3/4 BRASS SWEAT LF	2

Do not install in California.

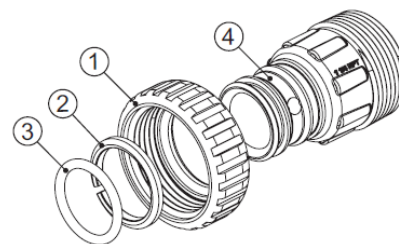


CLK V300704 WS1 Fitting 1" Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3164	WS1 FITTING 1" PLASTIC MALE NPT	2

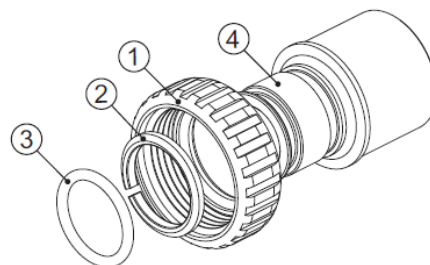


FILTER INSTALLATION AND USER GUIDE

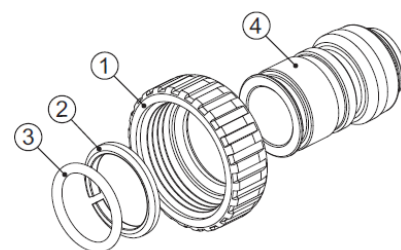
CLK V300705 WS1 Fitting 1-1/4" Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3317	WS1 FITTING 1-1/4" PLASTIC MALE NPT	2



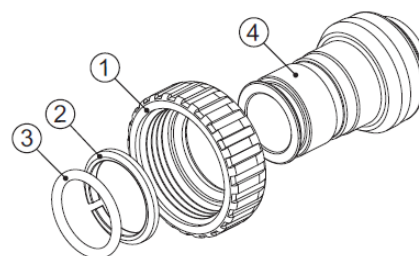
CLK V300709LF WS1 Fitting 1-1/4" & 1-1/2" Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3375LF	WS1 FITTING 1-1/4" & 1-1/2" BRASS	2



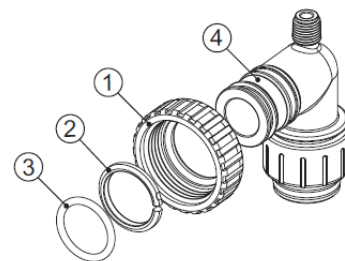
CLK V300712LF WS1 Fitting 3/4" Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3628LF	WS1 FTG 3/4 BRASS SHARKBITE LF	2



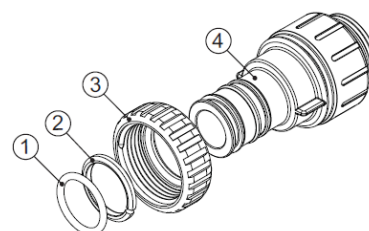
CLK V300713LF WS1 Fitting 1" Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1" QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3629LF	WS1 FTG 1" BRASS SHARKBITE LF	2



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



6) TROUBLESHOOTING

6.1) Troubleshooting Procedures

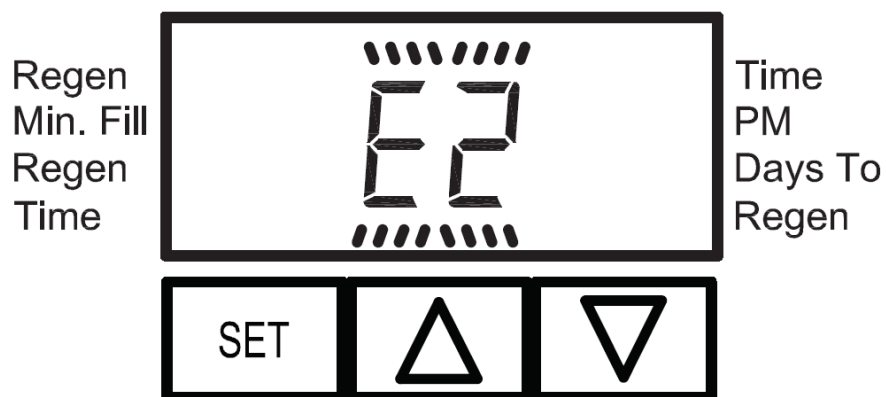
Problem	Possible Cause	Solution
1. No Display on PC Board	a. No power at electric outlet	a. Repair outlet or use working outlet
	b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	b. Plug Power Adapter into outlet or connect power cord end to 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	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. 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
3. 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.
4. Control valve does not regenerate when the correct 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
5. Control valve does not regenerate automatically but does when the REGEN button is depressed and held.	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Incorrect programming	b. Check for programming error
	c. Defective PC Board	c. Replace PC Board
6. 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
	c. Water quality fluctuation	c. Test water and adjust program values accordingly
	g. Damaged seal/stack assembly	g. Replace seal/stack assembly
	h. Control valve body type and piston type mix matched	h. Verify proper control valve body type and piston type match
i. Fouled media bed	i. Replace media bed	
7. Water running to drain	a. Power outage during	a. Upon power being restored control will finish the remaining
	b. Damaged seal/ stack assembly	b. Replace seal/ stack assembly
	c. Piston assembly failure	c. Replace piston assembly
	d. Drive cap assembly not tightened	d. Re-tighten the drive cap assembly

Problem	Possible Cause	Solution
8. E1 = 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
9. E2 = 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.
10. E3 = 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.
11. E4 = 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.

6.2) Possible Error Codes

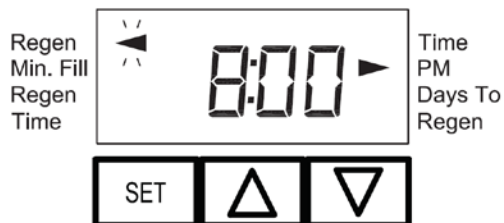
If "E1", "E2", "E3" or "E4" appears on the display Contact Excalibur.

Code	Description
E1	Control unable to sense motor movement
E2	Control Valve motor ran too short
E3	Control Valve motor ran too long and unable to find next cycle
E4	Control Valve ran too long and timed out



7) QUICK REFERENCE GUIDE

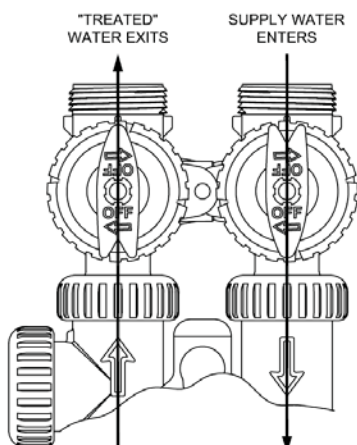
Manual Regeneration



Immediate Regeneration: - Press and hold “UP” and “DOWN” buttons for more than 3 seconds. Press “UP” or “DOWN” button to advance the unit to next cycle in regeneration.

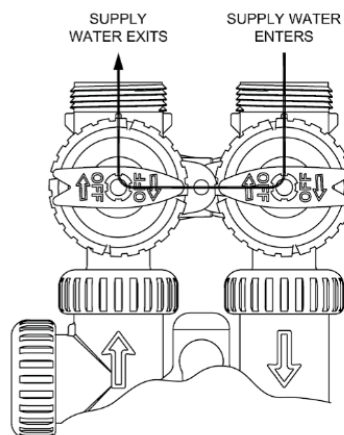
Delayed Regeneration: - Press and release “UP” and “DOWN” buttons once the regen arrow is displayed on screen. Now the regeneration will occur tonight at preset time. The delayed regeneration can be cancelled by pressing “UP” and “DOWN” buttons again.

NORMAL OPERATION



The bypass valve handle must be in the direction of flow and engraved arrows on control valve.

BYPASS OPERATION



The bypass valve handles must be turned towards the center as shown above

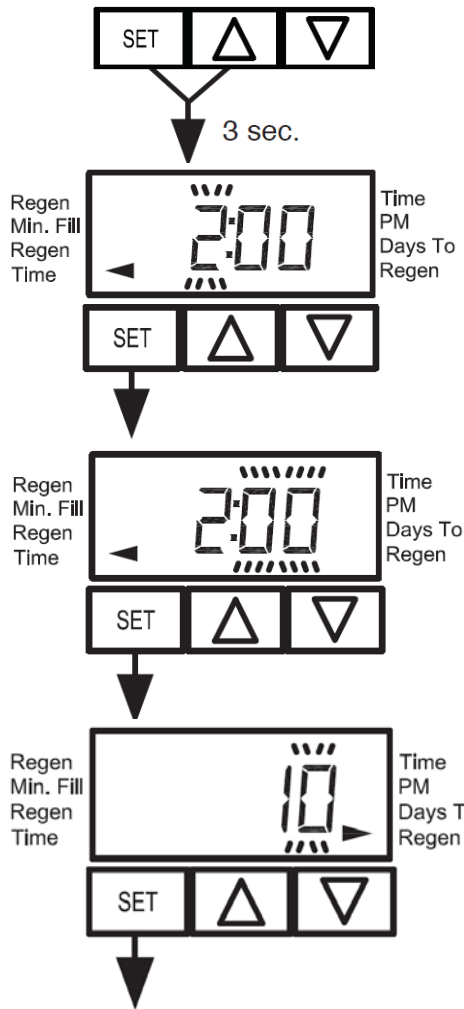


Set Time of Day



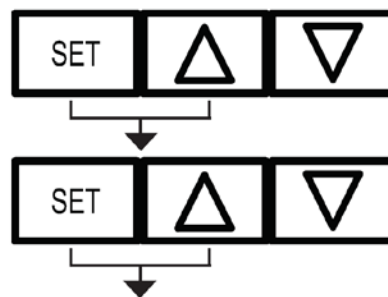
- Press and hold “SET” button for 3 seconds.
- Hours will flash press up or down button to adjust hours to current hour of day. Then press “SET” button.
- By pressing up or down button adjust minutes. Then press “SET” button.
- The time is set and the valve display will return to normal display.

Installer Settings



- Press “SET” and “UP” arrow button simultaneously for 3 seconds.
- Adjust hour of the time of regeneration by using “UP” or “DOWN” button. Press “SET” button.
- Adjust minutes of the time of regeneration by using “UP” or “DOWN” button. Press “SET” button.
- Adjust the days between regeneration (if System Setup 4SS is “7” then refer Installer Settings Weekly).

System Setup



Step #	Value	Description
2SS	P8	Programming Schedule #8
3SS	99	Number of days between regeneration
4SS	Regen Time Arrow	DP switch trigger for scheduled regeneration

8) WARRANTY

Value Chemical Removal Filter 5 Year Warranty Superior Chemical Removal Filter 7 Year Warranty Premium Chemical Removal Filter 10 Year Warranty

Thank you for your purchase of our Chemical Removal Filter. For proof of purchase, please retain your Invoice/Sales Order Copy.

Warranty ~ Offered

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 period of 5, 7 or 10 years, the VALVE BODY to be free of defects in materials and workmanship and to perform its proper functions. To the original owner, a period of 5, 7 or 10 years, the ELECTRONIC CONTROL VALVE 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 TANK will not rust, corrode, leak, burst or in any other form fail to perform their proper functions for a LIFETIME period of 20 YEARS.

Warranty ~ Service

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

General Provisions

The above warranties are effective provided the Chemical Removal Filter is operated at water pressures not exceeding 125psi and at water temperatures not exceeding 120°F; also provided that the Chemical Removal Filter is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the Chemical Removal 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 CHEMICAL REMOVAL 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.

Barrie, ON
Canada

