TANNIN FILTER
INSTALLATION AND USER GUIDE

BARRIE ● ONTARIO ● CANADA 705.733.8900 WWW.EXCALIBURWATER.COM

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1) INSTALLATION

1.1) Pre-installation instructions

The cycle times, sequence of cycles, salt dose refill time and exchange capacity are preset to by Excalibur. The dealer must guide the installer to change the values according to the day override and time of regeneration.

INLET PARAMETERS

Parameter	Required	Water Sample Test Results
Hardness	< 10 gpg	
Iron	0	
Sulphur	0	
Manganese	0	
pH	0-14	
Turbidity	< 1.0 ppm	
Free Chlorine	< 1.0 ppm	

Note: - Water pre-treatment is required if results are out of required parameters

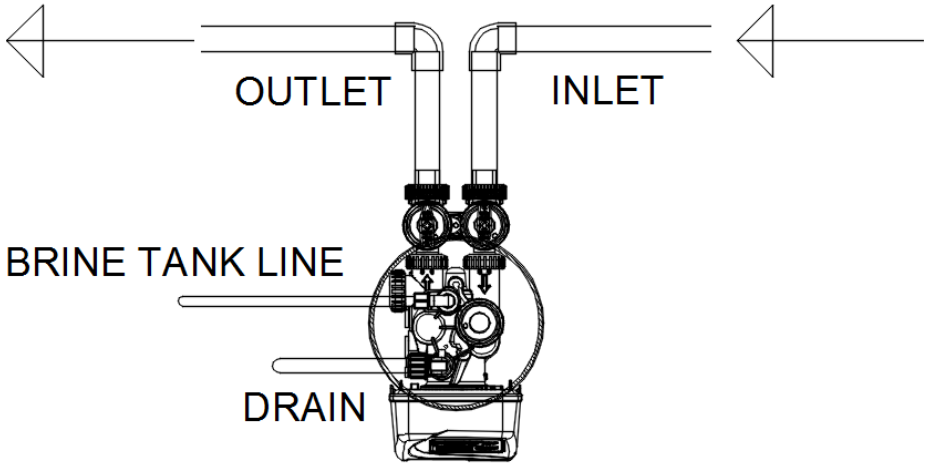
1.2) General Installation and Service Warnings

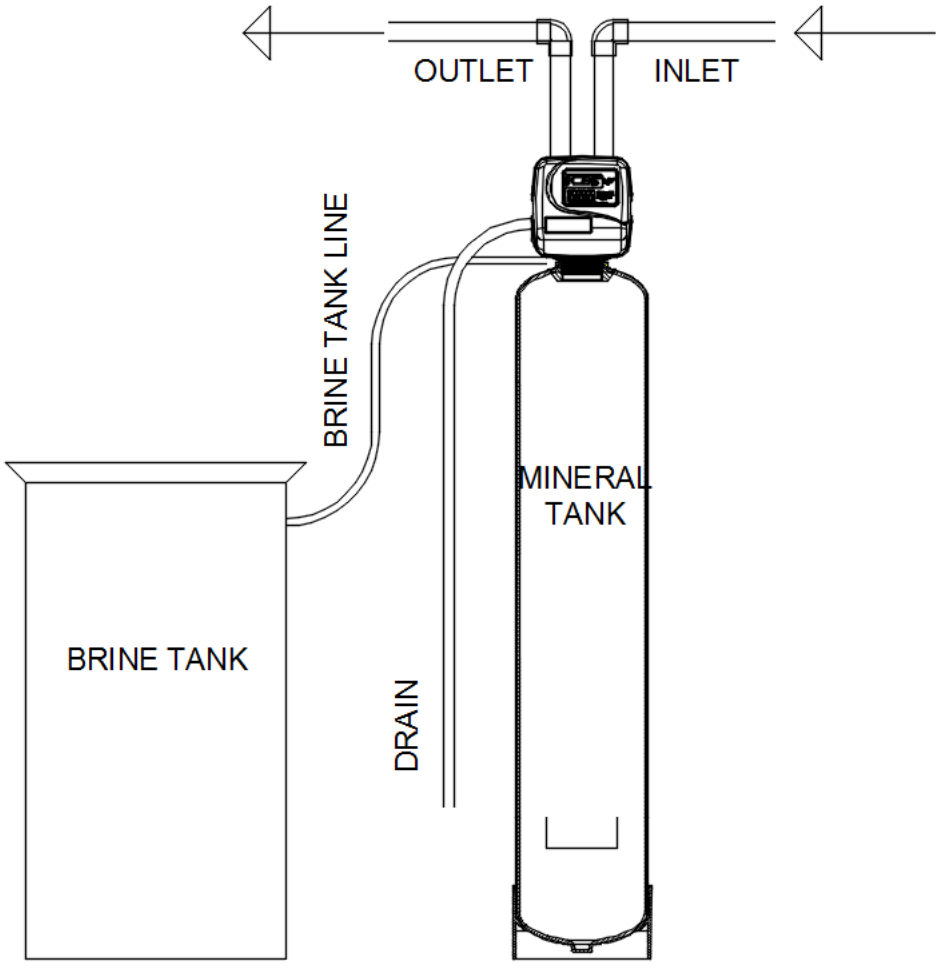
- The filter is designed so that it can be installed easily with minor plumbing changes on previous plumbing.
- The piping must be clamped properly and the weight of the plumbing must not be on the filter.
- Do not use any kind of lubricant including silicone. A silicone based lubricant can be only used 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

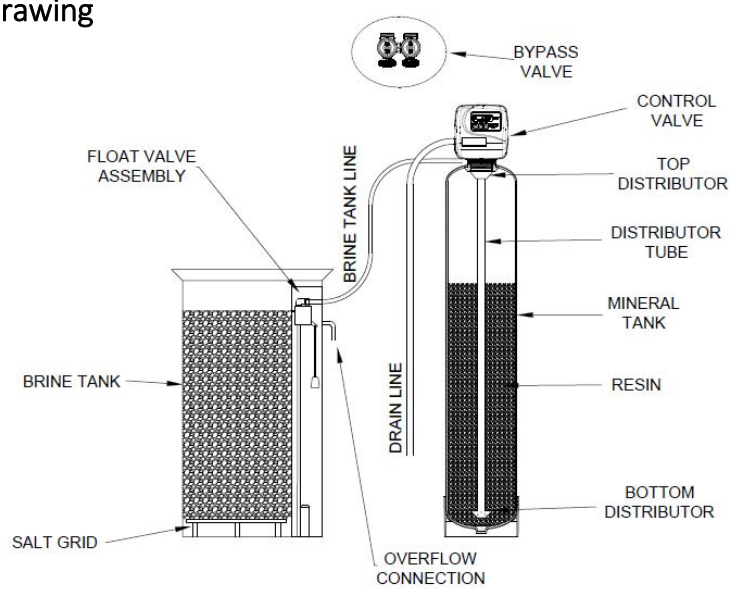
- Water Pressure: - 40-110 psi
- Water Temperature: - 40-110°F (4.4-43°C)
- Electrical- 115/120 V, 60Hz Uninterrupted Outlet
- Current required is 0.5 Amperes with plug-in transformer (dry locations only).
- The tank should be on a firm level surface

1.4) Installation Drawing

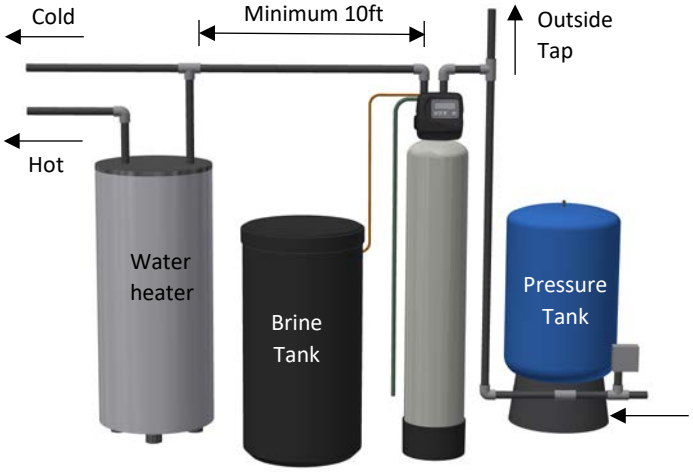




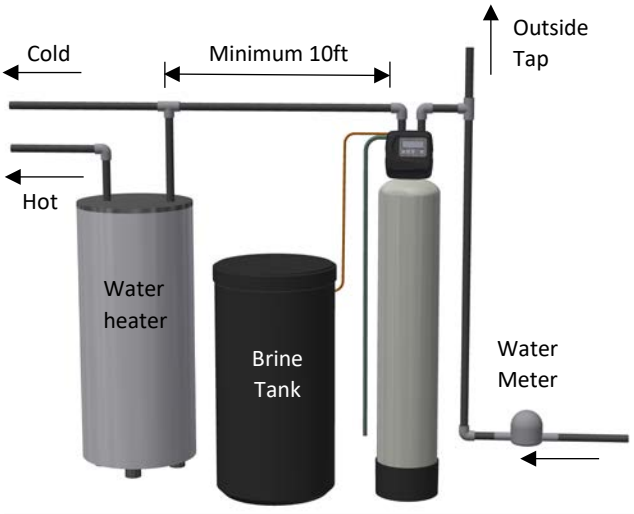
1.5) System Drawing



1.6) Plumbing Instructions



Well Water Installation

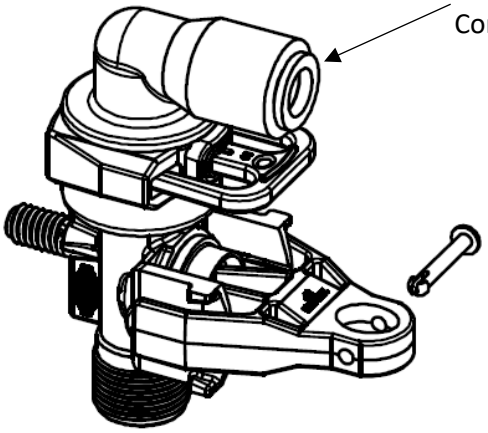


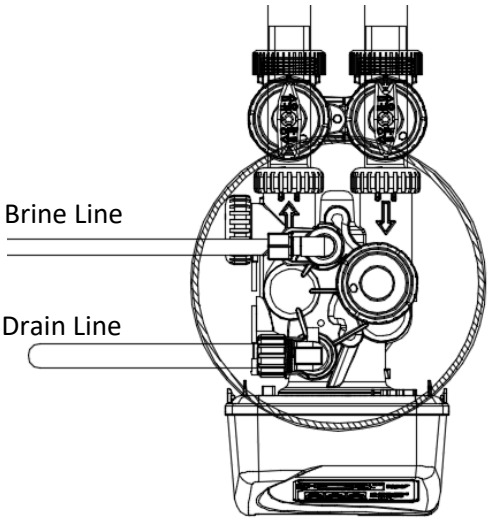
Municipal Installation

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) Brine Line Connection

Install 3/8” O.D. Polyethylene tube according to specification sheet from the brine tank to the control valve.



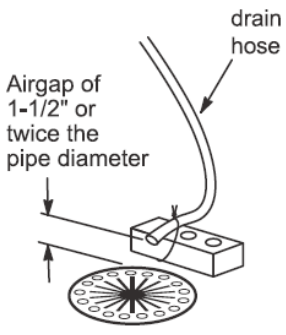


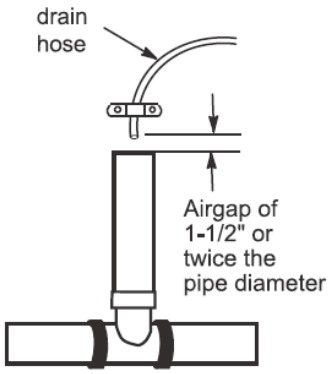
1.8) Overflow Line Connection

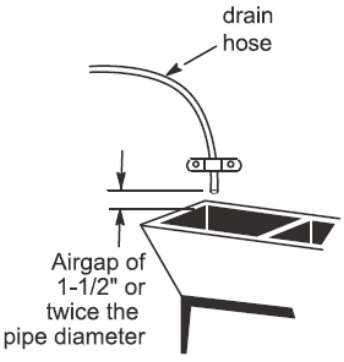
- Only used where brine tank overflow water spillage can damage flooring or structure.
- Brine tank is equipped with safety float valve which prevents the overflow in case if control valve fails to control the refill cycle.
- In case if safety float also fails to stop refill then only the water will come through overflow line connection.

1.9) Drain Line

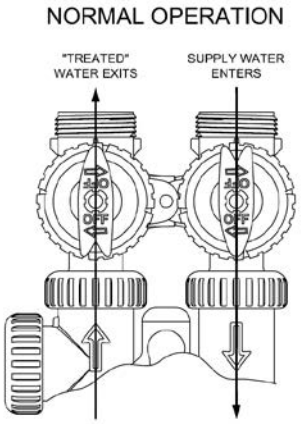
- The ½” tubing must be used for drain line.
- Leave minimum of 6” gap between flow control fitting and solder joints. The gap less than this can damage the flow control.
- If the drain line is elevated and then emptied into the drain below the level the of control valve then 7” loop should make at the 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.





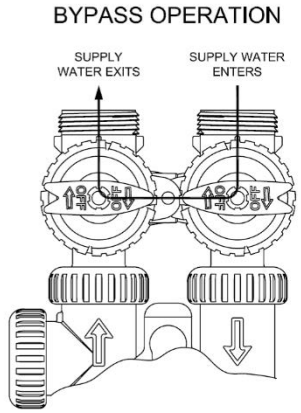


1.10) Bypass Valve



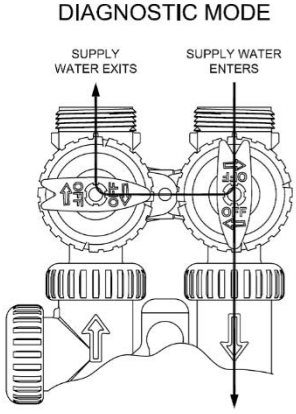
NORMAL OPERATION

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.



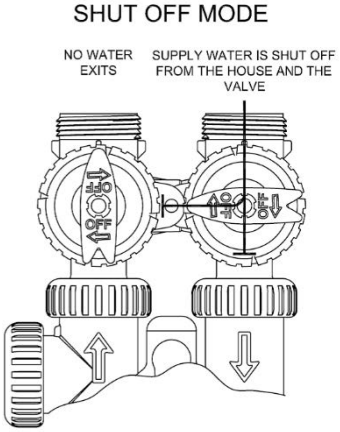
BYPASS OPERATION

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

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

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.

1.11) 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.

- Manually add approximate 6 inches of water to brine tank so that level reaches air check valve.

- 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 resin to drain.

- When the water becomes clear in drain line then press the “UP” or “DOWN” button to advance the regeneration to brine cycle (C2--). Lift off the brine tank lid to check if water is being drawn from brine tank.

- Press “UP” or “DOWN” button to advance the regeneration to 2nd backwash cycle and wait until the countdown begins (C3--).

- Press “UP” or “DOWN” button again to advance the regeneration to rinse cycle (C4--) with water coming through the drain. Allow this process for the full amount of time during the cycle.

- The control valve will automatically advance the regeneration to the fill cycle. Allow the control valve to fill for the full amount of time in this cycle. Once finished the control valve will automatically come to the service position with the time of day or days to next regeneration being displayed.

- Add the salt to Brine Tank.

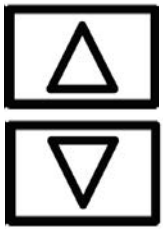
2) CONTROL VALVE PROGRAMMING

2.1) Regeneration Screens

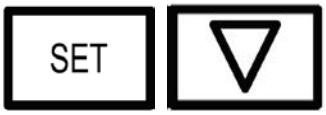
- Displays the cycle sequence number.
- Displays the time remaining in the current cycle.

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

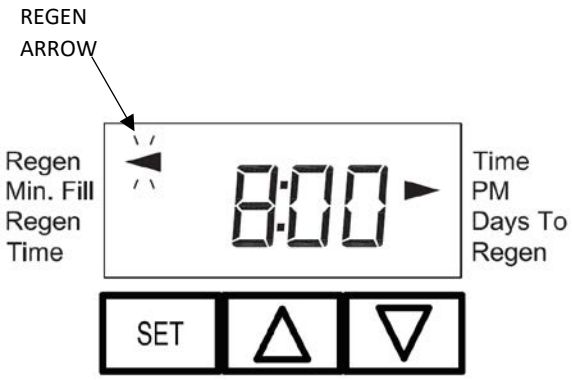


- Change Variable being displayed.
- Scroll to the next display
- Advance the regeneration to next cycle



- Exit programming without saving
- Initiate medium reset

2.3) Manual Regeneration

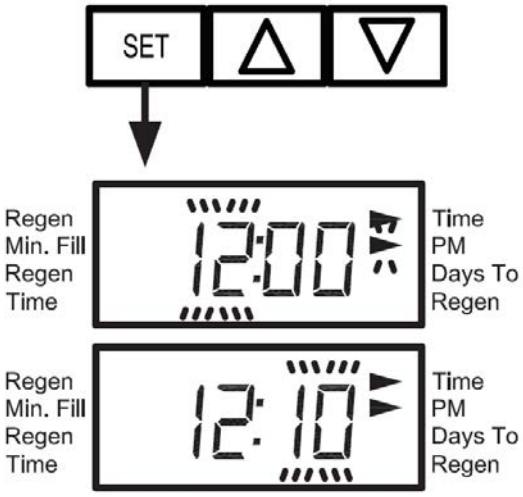


Regeneration Tonight: - Press ▲ and ▼ buttons once and release to schedule a regeneration for preset time. The arrow will point the word REGEN which indicates the regeneration is expected tonight.

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



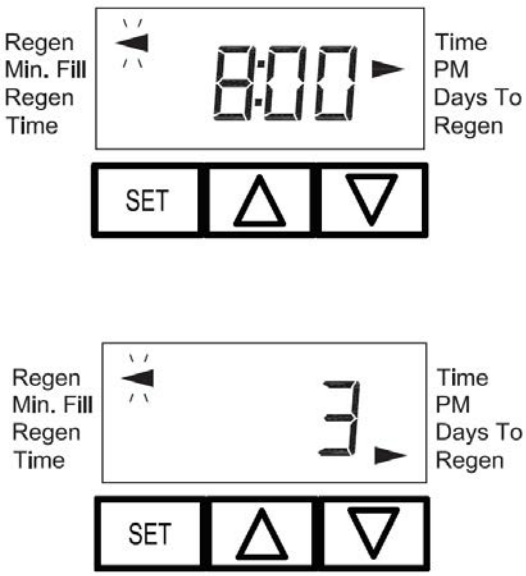
Step #1: - Push “SET” button and hold for 3 seconds.

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.

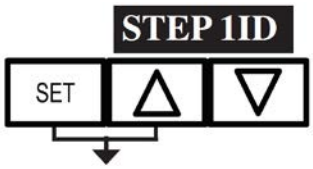
User 1
This user display shows the time of the day.

User 2
Displays the days until the next regeneration.

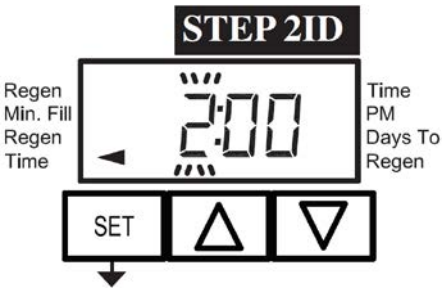
“REGEN” arrow is displayed when the regeneration is supposed to occur at a scheduled time of day.

Return to User Display 1

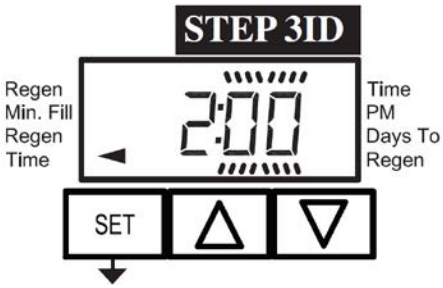
2.6) Installer Display Settings



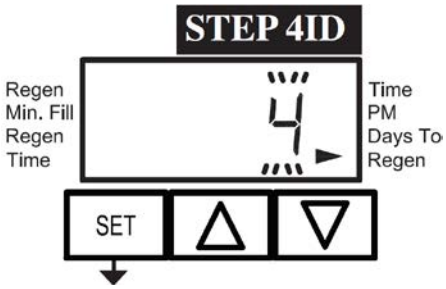
Step #1: - Press and hold “SET” and ▼ buttons for 3 seconds.



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.



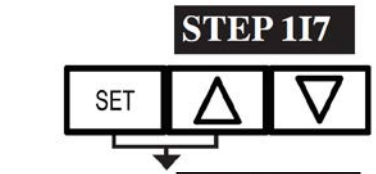
Step #4: - Set the number of days between regenerations using ▲ or ▼ buttons. Press “SET” button to exit Installer display settings.

EXIT INSTALLER DISPLAY SETTINGS

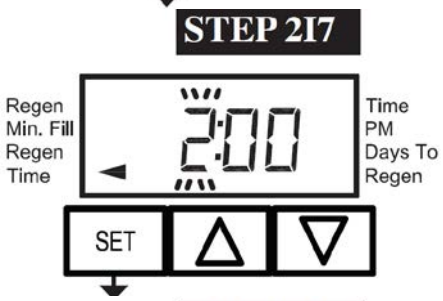
Weekly Installer Display day codes: -

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

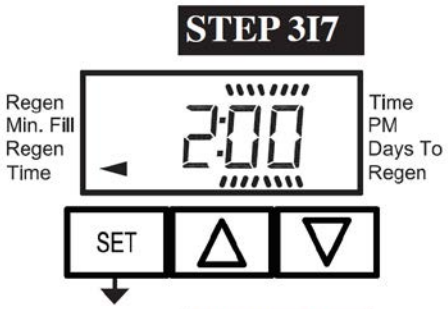
2.7) Installer Display Settings (Weekly)



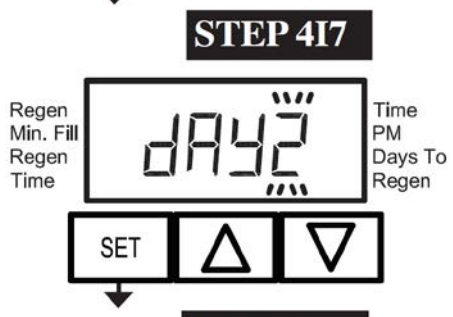
Step 1I7: - Press "SET" and ▲ buttons simultaneously for seconds and release.



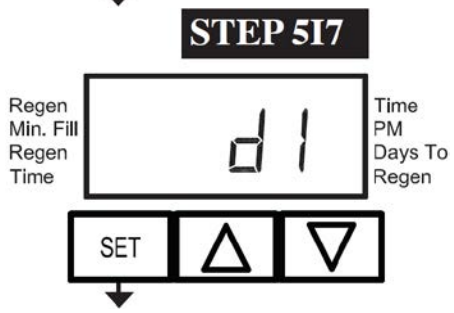
Step 2I7: - Set the regeneration time hour using ▲ or ▼ buttons. Press SET to proceed to step 3I7.



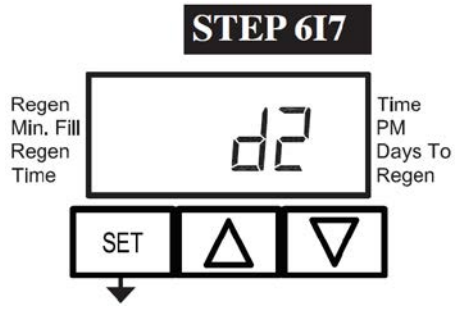
Step 3I7: - Set the regeneration time minutes using ▲ or ▼ buttons. Press SET to proceed to step 4I7.



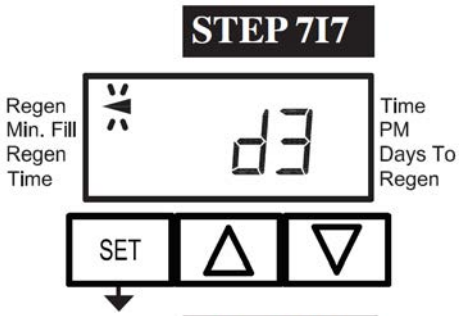
Step 4I7: - Set the current day of the week by using ▲ or ▼ buttons. Refer to the table on previous page. Press SET to go to step 5I7.



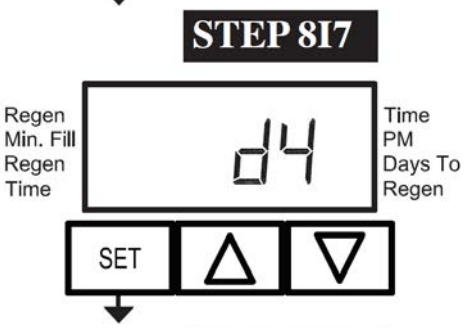
Step 5I7: - Sunday (d1) regeneration: - Use ▲ or ▼ buttons to point the arrow on "REGEN" then Regeneration will occur on Sunday. Press SET to go to step 6I7.



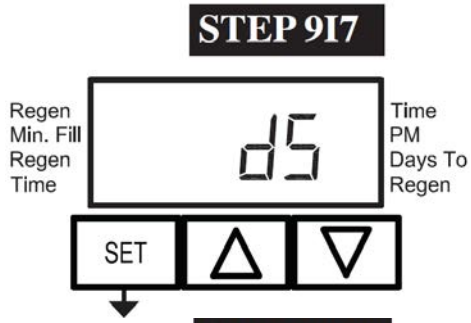
Step 6I7: - Monday (d2) regeneration: - Use ▲ or ▼ buttons to point the REGEN arrow for regeneration on every Monday. Press SET to go to 7I7.



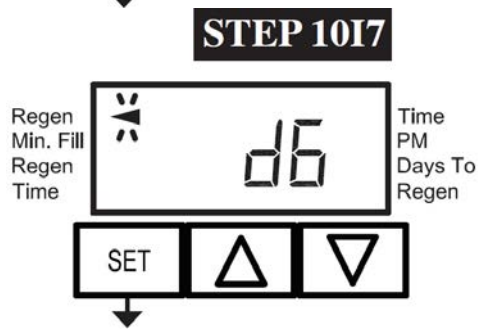
Step 7I7: - Tuesday (d3) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Tuesday.



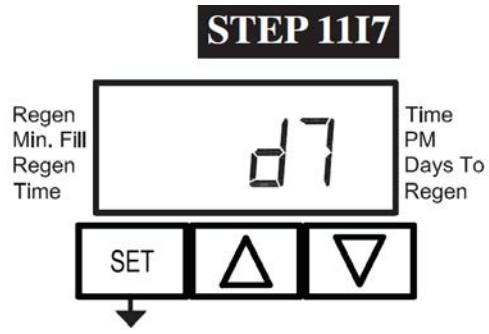
Step 8I7: - Wednesday (d4) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Wednesday. Press SET to proceed to step 9I7.



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



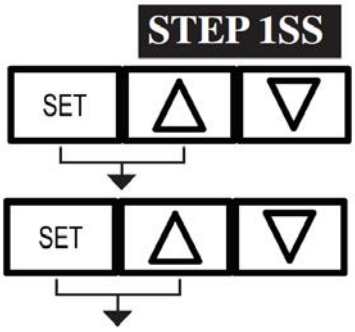
Step 10I7: - Friday (d6) regeneration: - Use ▲ or ▼ button to point the REGEN arrow then regeneration will occur every Friday. Press SET to go to step 11I7.



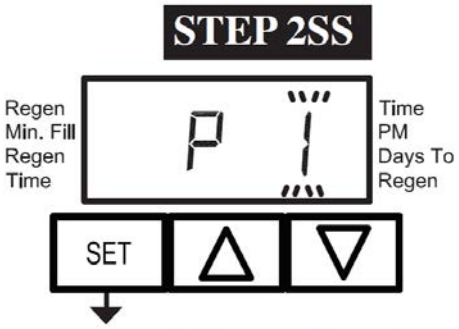
Step 11I7: - Saturday (d7) regeneration: - Use ▲ or ▼ button to point the arrow on “REGEN” then Regeneration will occur on Saturday. Press SET to go to Exit Installer Display Settings (Weekly).

EXIT INSTALLER DISPLAY SETTINGS

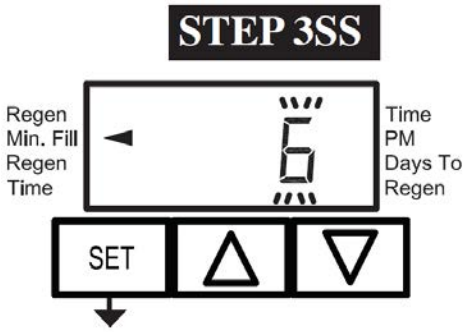
2.8) System Setup



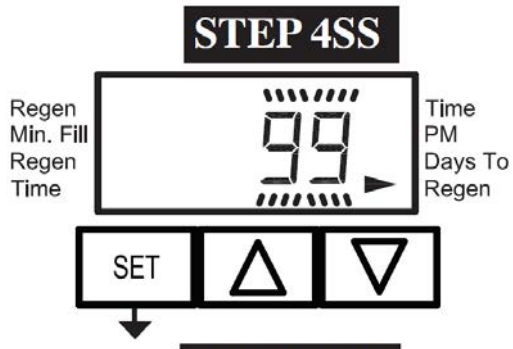
Step 1SS: - Press and hold “SET” and ▲ buttons simultaneously for 3 seconds and release. Again press and hold “SET” and ▲ buttons simultaneously for 3 seconds and release.



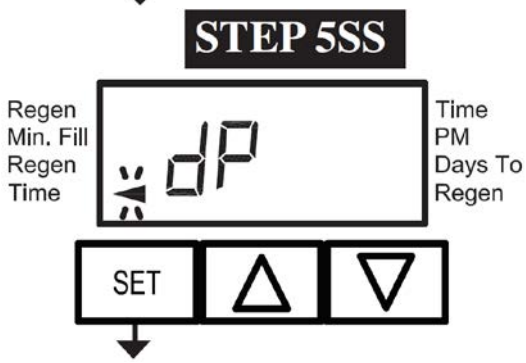
Step 2SS: - Press ▲ or ▼ buttons to select program “P 1”. Press “SET” button to proceed to step 3SS.



Step 3SS: - Select the duration for fill cycle using ▲ or ▼ buttons. Refer to the specifications table. Press “SET” button to proceed to step 4SS.



Step 4SS: - 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 5SS: - 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

3.1) Flow Controls and Injectors

Model[1] Number	Mineral Tank	Brine Tank	Injector		Drain Flow Control	
	Dia X Height (Inch)	(Inch)	Color	Order #	Flow GPM	Order #
EWS TFTN1	9x48	14x14x34 (Length x Width x Height)	Red	CLK V30101D	1.7	CLK V3162017
EWS TFTN1.5	10x54		White	CLK V30101E	2.2	CLK V3162022
EWS TFTN2	12x52	18x33 (Dia x Height)	Blue	CLK V30101F	2.7	CLK V3162027

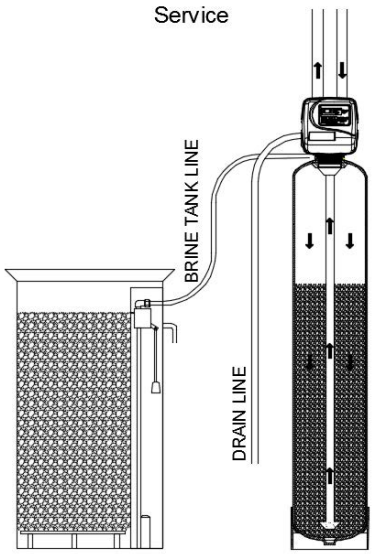
3.2) Specifications

Model Number[1]	Mineral Tank	Resin Quantity	Fill Time[2]	Salt Per[2] Regeneration	Flow (GPM)		Shipping Weight
	Dia X Height	ft^3	Minutes	LBS	Continuous	Peak	LBS
EWS TFTN1	9X48	1.0	7	10	3.0	5.0	100
EWS TFTN1.5	10X54	1.5	10	15	5.0	8.0	130
EWS TFTN2	12X52	2.0	14	20	6.0	10.0	184

1 Include “S” as EWS TFT***S***TN_ for Superior models and Include “P” as EWS TF***P***TN_ for Premium models

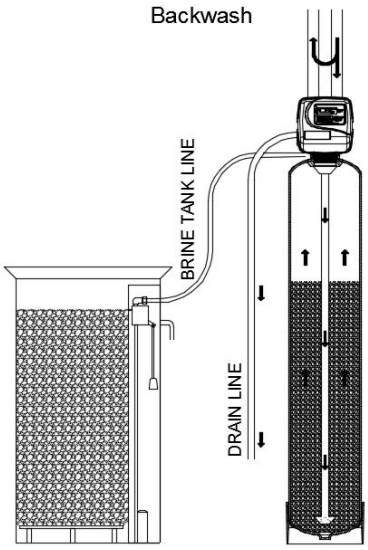
2 Excalibur Tannin Filters are factory programmed to 10lbs/ft^3 default settings

4) CONTROL VALVE CYCLES



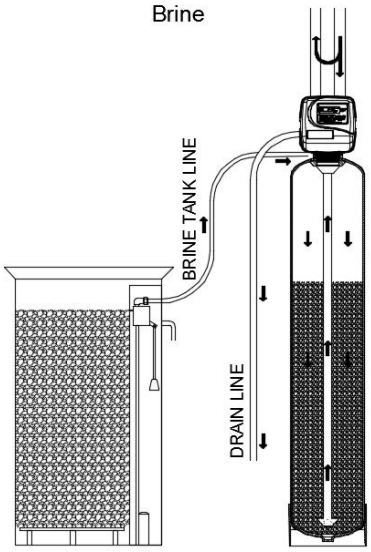
Service Cycle

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



C1 and C3 Cycle

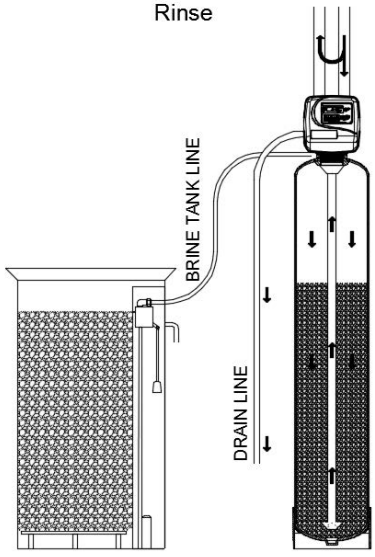
In **Backwash** Cycle water flows in upflow direction, the water enters the tank from bottom distributor and collected by upper basket. This operation lifts the bed and wash the resin. The water goes out through the drain line.



C2 Cycle

In **Brine** Cycle water flows in downflow direction which siphon the brine solution from brine tank and slow rinse water goes to the drain.

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



C4 Cycle

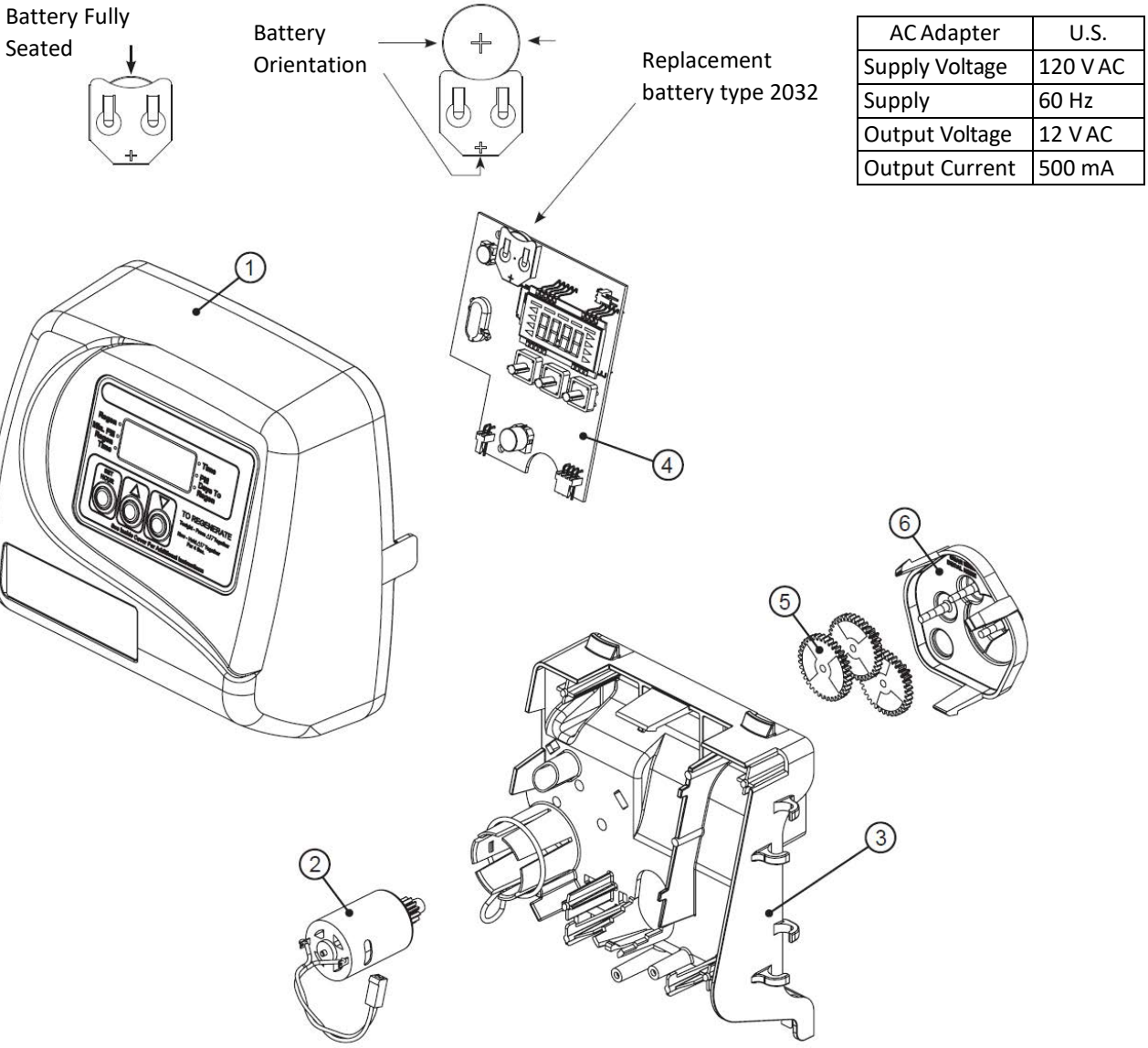
In **Rinse** Cycle water flows rapidly in downflow direction through the resin to the drain. This cycle washes the excess sodium from the resin particles.

Fill Cycle (**C5** Cycle - Not Shown): - The water flow same as Service operation but water also flows to the brine tank for refilling.

5) COMPONENTS OF CONTROL VALVE

5.1) Front Cover and PC Board

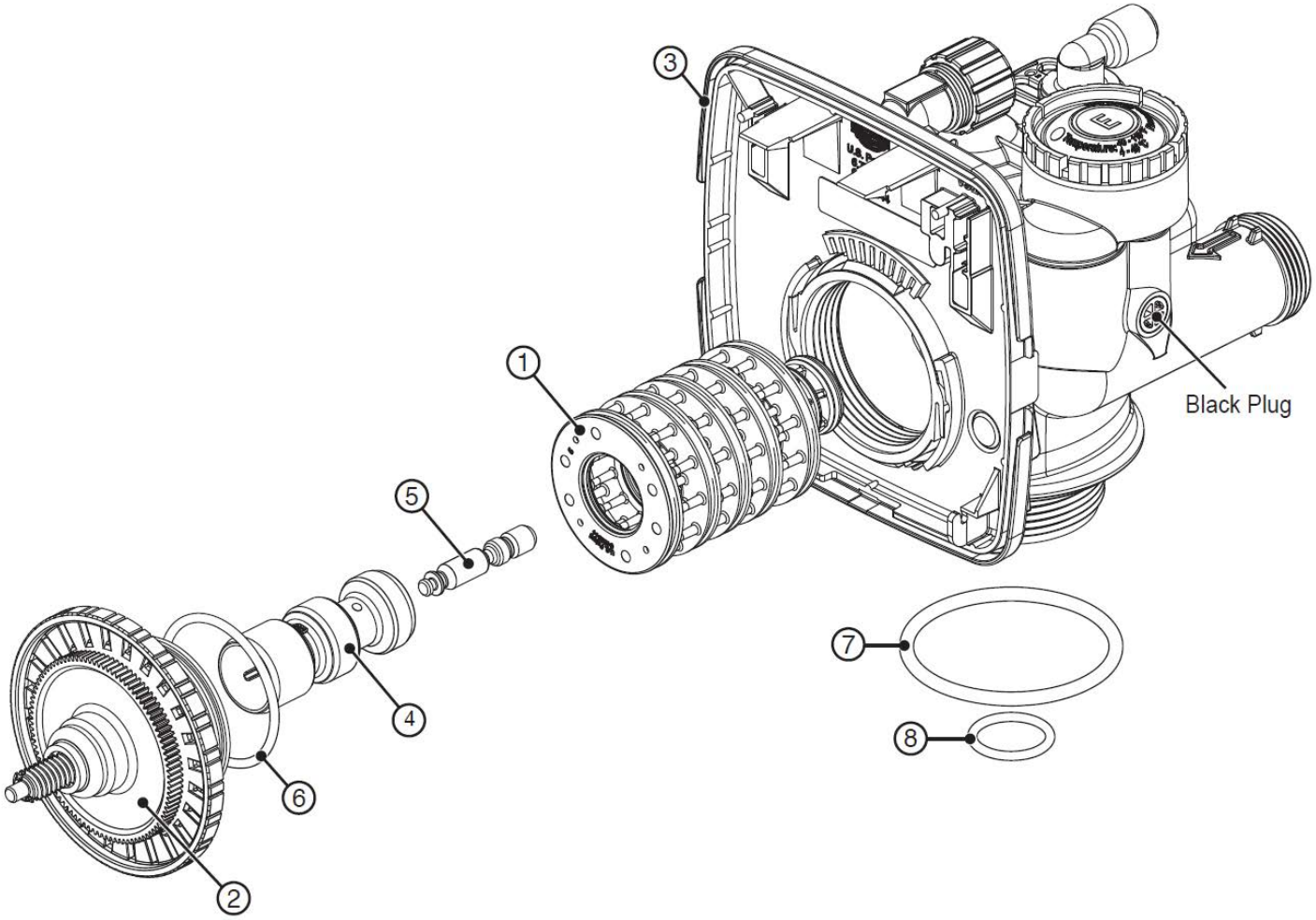
Drawing No.	Order No.	Description	Quantity
1	CLK V3175TC01	WS1TC FRONT COVER ASY	1
2	CLK V310701	WS1 MOTOR ASY	1
3	CLK 310601	WS1 DRIVE BRACKET & SPRING CLIP	1
4	CLK V3818TC	WS1TC PC BOARD 4-DIGIT	1
5	CLK V3110	WS1 DRIVE REDUCING GEAR 12 X 36	3
6	CLK V3109	WS1 DRIVE GEAR COVER	1
Not Shown	CLK V3186	WS1 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	



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

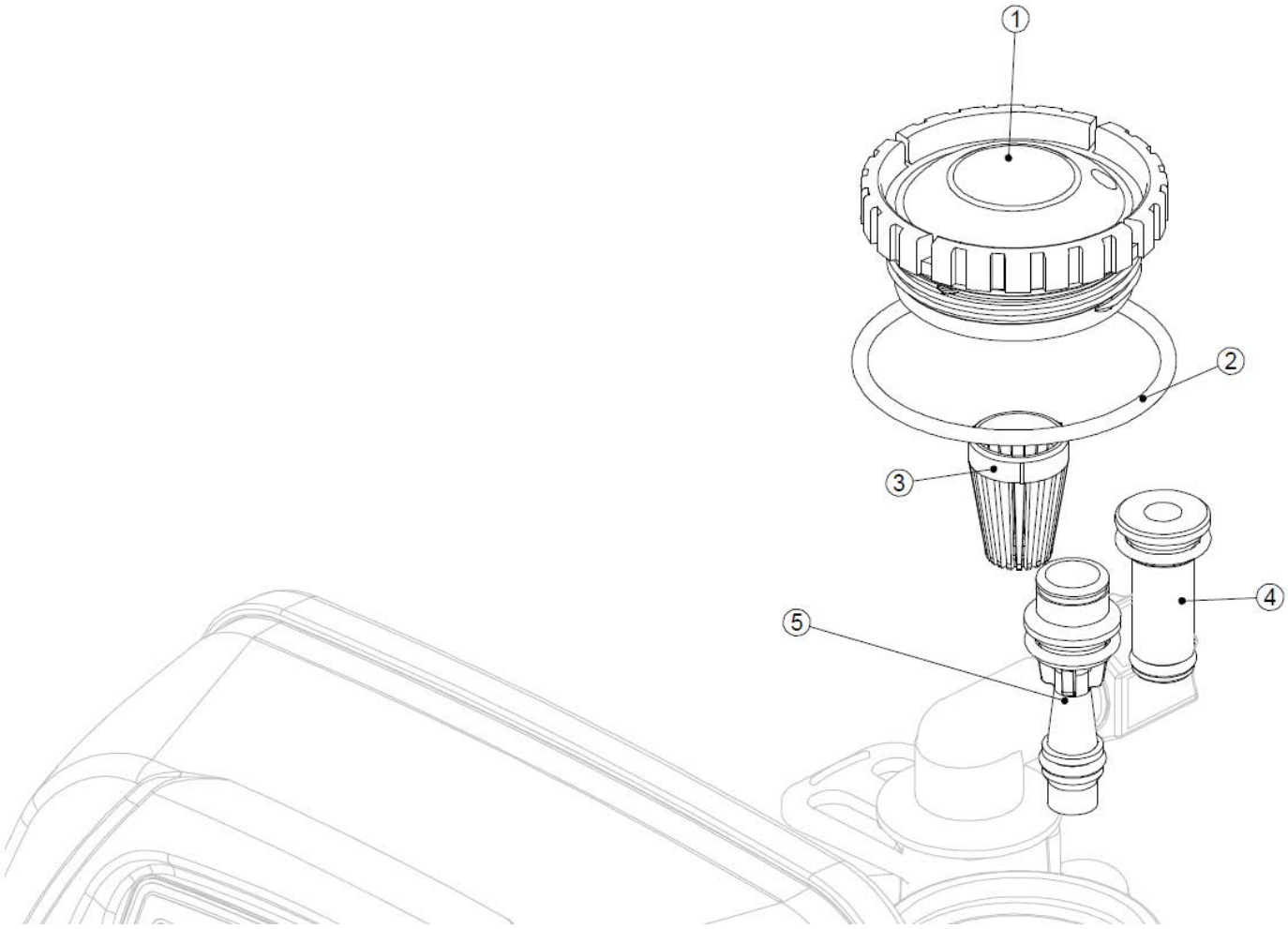
Drawing No.	Order No.	Description	Quantity
1	CLK V3005	WS1 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3178	WS1 Drive Back Plate	1
4	CLK V3011	WS1 Piston Downflow ASY	1
5	CLK V3174	WS1 Regenerant Piston	1
6	CLK V3135	O-ring 228	1
7	CLK V3180	O-ring 337	1
8	CLK V3105	O-ring 215 (Distributor Tube)	1
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 V317701	INJECTOR SCREEN CAGE		1
4	CLK V30101Z	WS1 INJECTOR ASY Z PLUG		1
5	CLK V30101D	WS1 INJECTOR ASY D RED	For 9” Tank	1
	CLK V30101E	WS1 INJECTOR ASY E WHITE	For 10” Tank	
	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

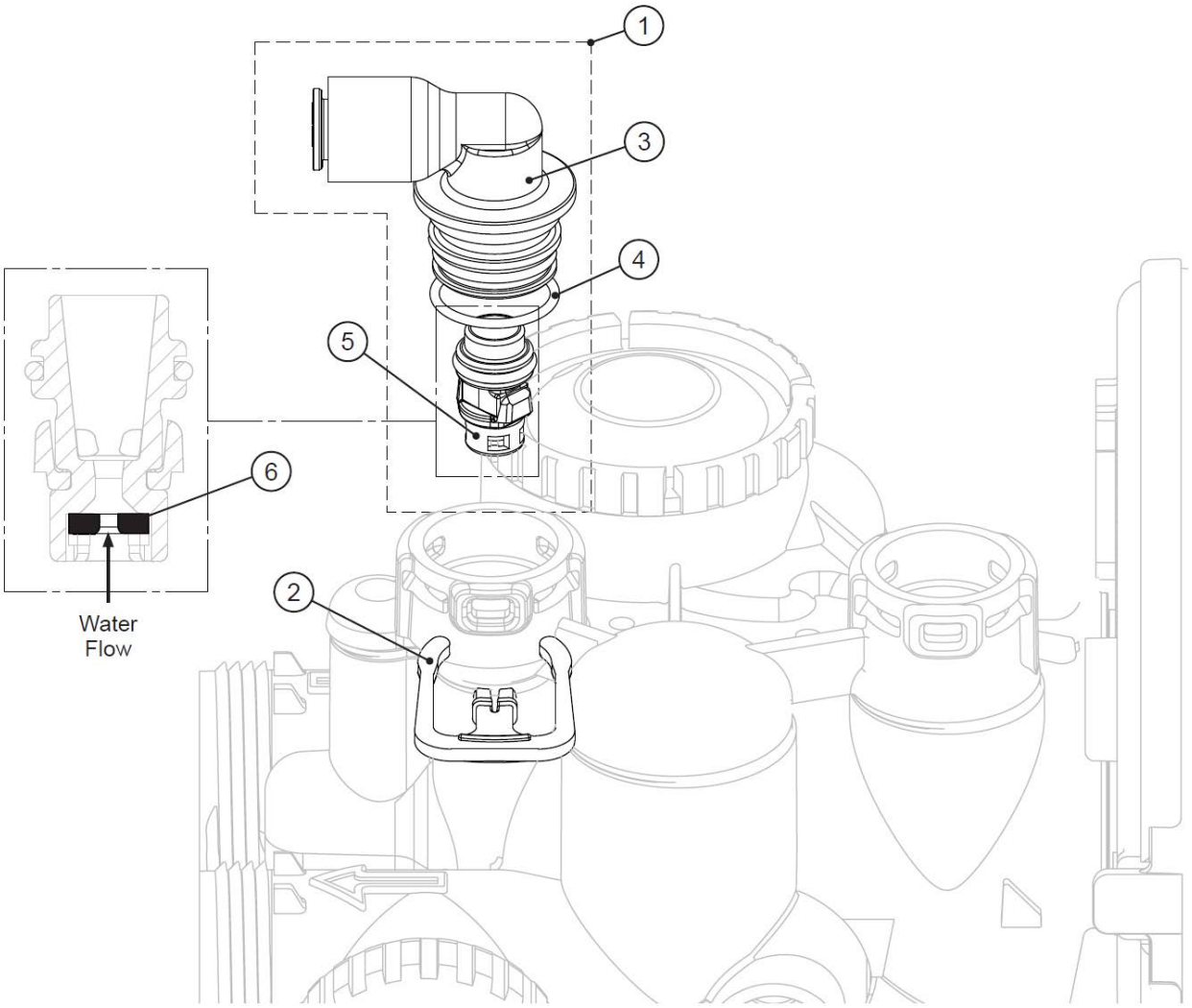
* The injector plug and the injector each contain 011 (lower) and 013 (upper) O-ring.



5.4) Brine Tank Line Flow Control

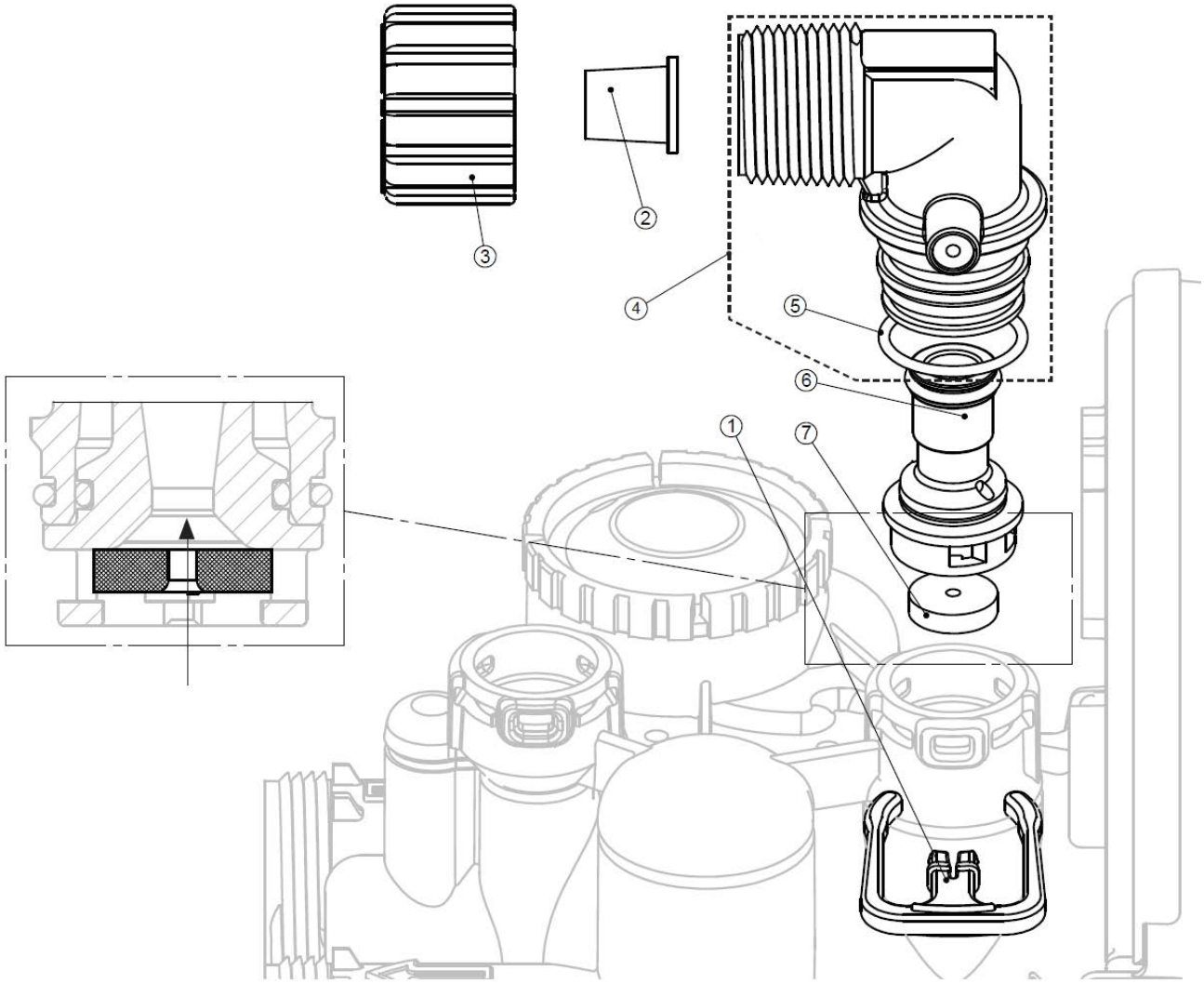
Drawing No.	Order No.	Description	Quantity
1	CLK V414401	Elbow 3/8 Liquifit Asy w/RFC	1
2	CLK H4615	Elbow Locking Clip	1
3	CLK H4628	Elbow 3/8” Liquifit	1
4	CLK V3163	0-ring 019	1
5	CLK V316501	WS1 RFC Retainer Asy (0.5 gpm)	1
6	CLK V3182	WS1 RFC	1
Not Shown	CLK V3552	WS1 Brine Elbow Asy w/RFC	Option
Not Shown	CLK H4650	Elbow ½” with nut and insert	Option

#5 - CLK V316501 Retainer Assembly includes #6 - CLK V3182 Refill flow control



5.5) Drain Line Flow Control Assembly

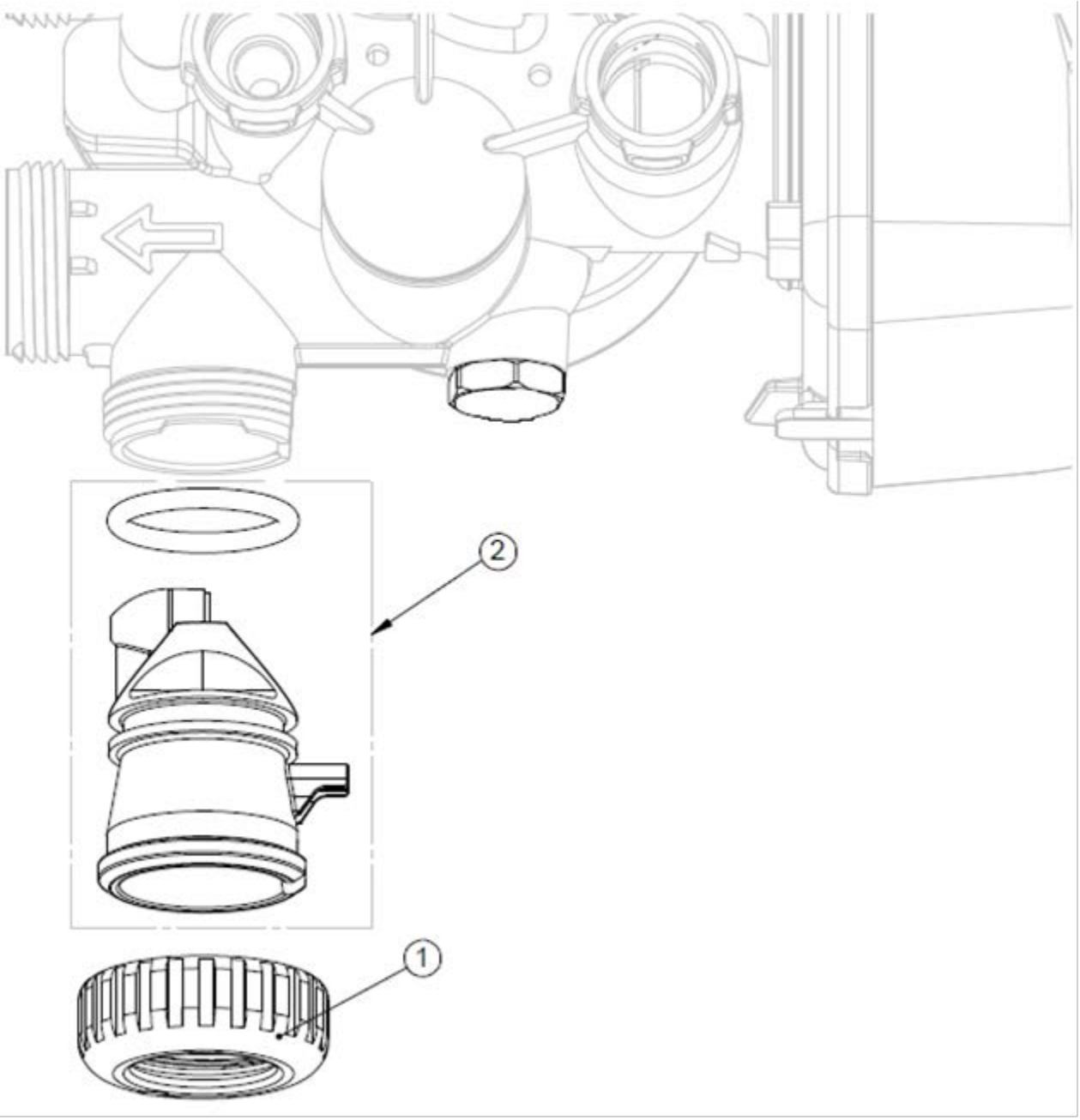
Drain Line ¾”				
Drawing No.	Order No.	Description		Quantity
1	CLK H4615	Elbow Locking Clip		1
2	CLK PKP10TS8BU	Polytube insert 5/8		Option
3	CLK V3192	WS1 Nut ¾ Drain Elbow		Option
4	CLK V315801	WS1 Drain Elbow ¾ Male		1
	CLK V315802	WS1 Drain Elbow ¾ Male No		
5	CLK V3163	O-ring 019		1
6	CLK V315901	WS1 DLFC Retainer ASY		1
7	CLK V3162017	WS1 DLFC 1.7 gpm	9” Tank	One DLFC must be used if ¾ fitting is used
	CLK V3162022	WS1 DLFC 2.2 gpm	10” Tank	
	CLK V3162027	WS1 DLFC 2.7 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

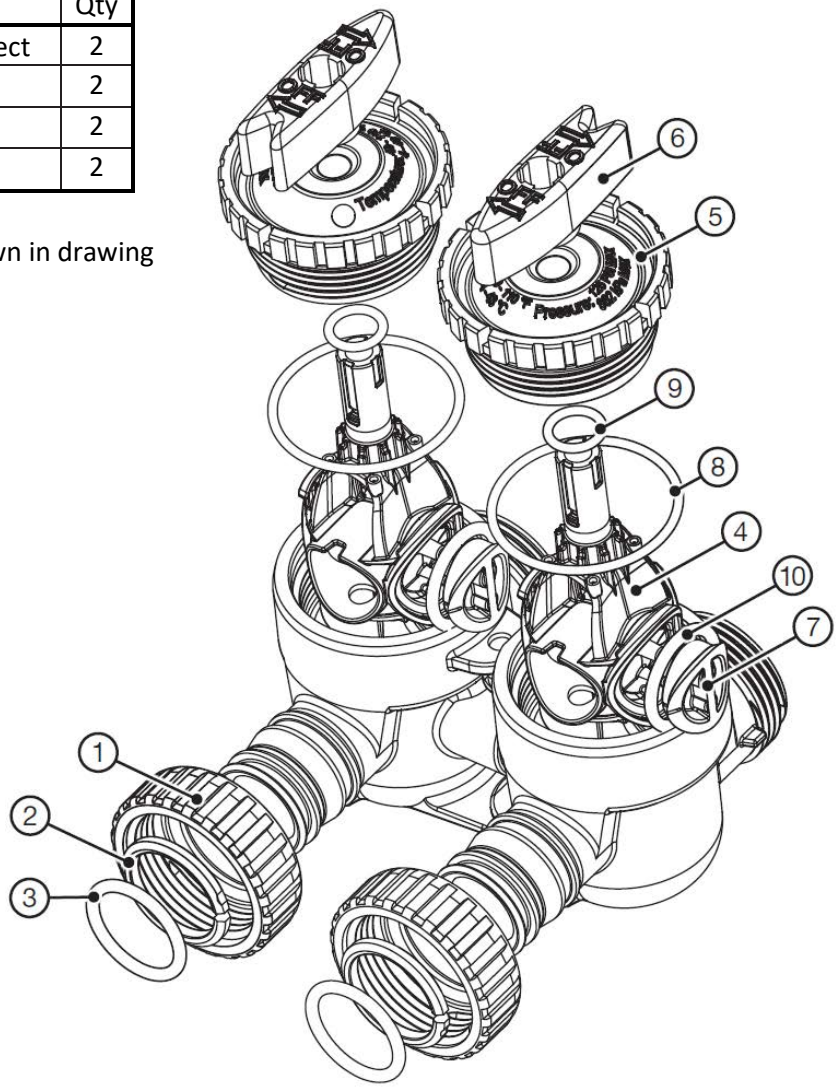


5.7) Bypass Valve Components

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

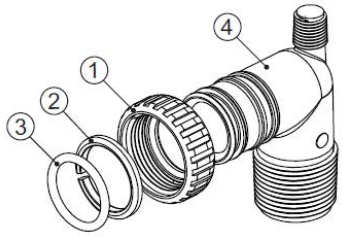
CLK V319101	WS1 Bypass Vertical Asy Adapter	
Order No.	Description	Qty
CLK V3151	WS1 Nut 1” Quick Connect	2
CLK V3150	WS1 Split Ring	2
CLK V3105	O-Ring 215	2
CLK V3191	WS1 Bypass Vertical	2

*Bypass Valve Vertical Adapter not shown in drawing

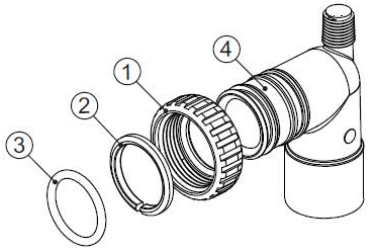


5.8) Installation Fitting Assemblies

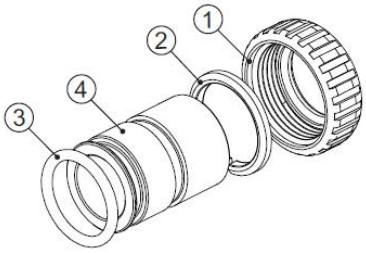
CLK V3007 WS1 Fitting 1” PVC Male NPT Elbow Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3149	WS1 FITTING 1 PVC MALE NPT	2



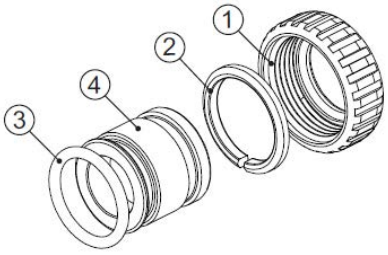
CLK V300701 WS1 Fitting ¾” & 1” PVC Solvent 90º Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3189	WS1 FITTING ¾ & 1 PVC SOLVENT 90	2



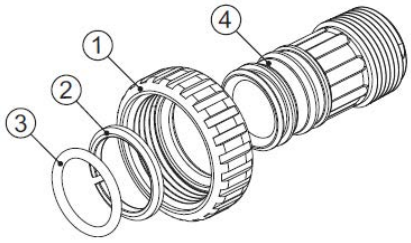
CLK V300702LF WS1 Fitting 1” Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Qty
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3188LF	WS1 FITTING 1 BRASS SWEATASSEMBLY LF	2
Do not install in California.			



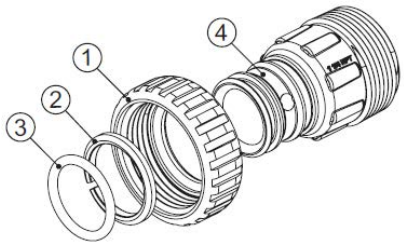
CLK V300703LF WS1 Fitting ¾” Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V318801LF	WS1 FITTING ¾ BRASS SWEAT LF	2
Do not install in California.			



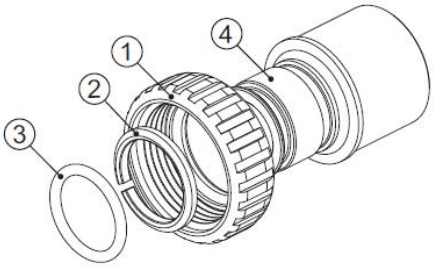
CLK V300704 WS1 Fitting 1” Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3164	WS1 FITTING 1" PLASTIC MALE NPT	2



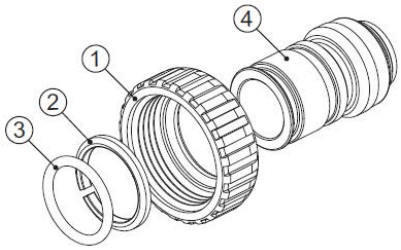
CLK V300705 WS1 Fitting 1-1/4” Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3317	WS1 FITTING 1-¼" PLASTIC MALE NPT	2



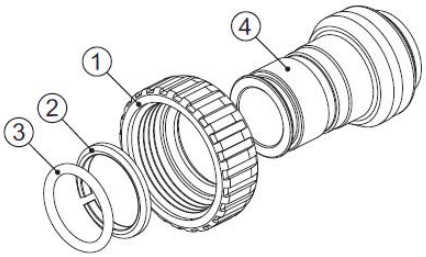
CLK V300709LF WS1 Fitting 1-1/4” & 1-1/2” Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3375LF	WS1 FITTING 1-1/4" & 1-1/2" BRASS	2



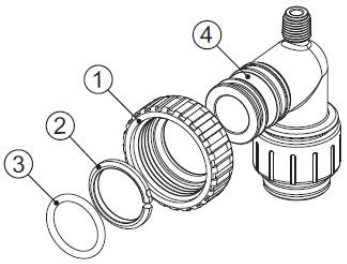
CLK V300712LF WS1 Fitting 3/4” Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3628LF	WS1 FTG 3/4 BRASS SHARKBITE LF	2



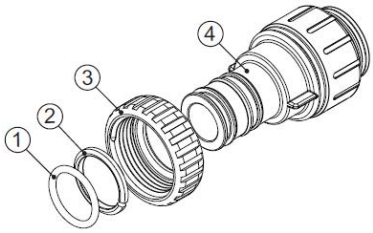
CLK V300713LF WS1 Fitting 1” Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3629LF	WS1 FTG 1” BRASS SHARKBITE LF	2



CLK V300715 WS1 FTG ¾ 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

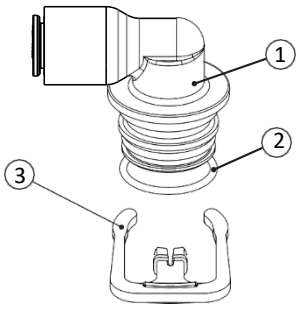


CLK V300717 WS1 FTG 1” JG QC Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3105	O-RING 215	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3151	WS1 NUT 1 QC	2
4	CLK V4045	WS1 FTG 1 INCH QC	2



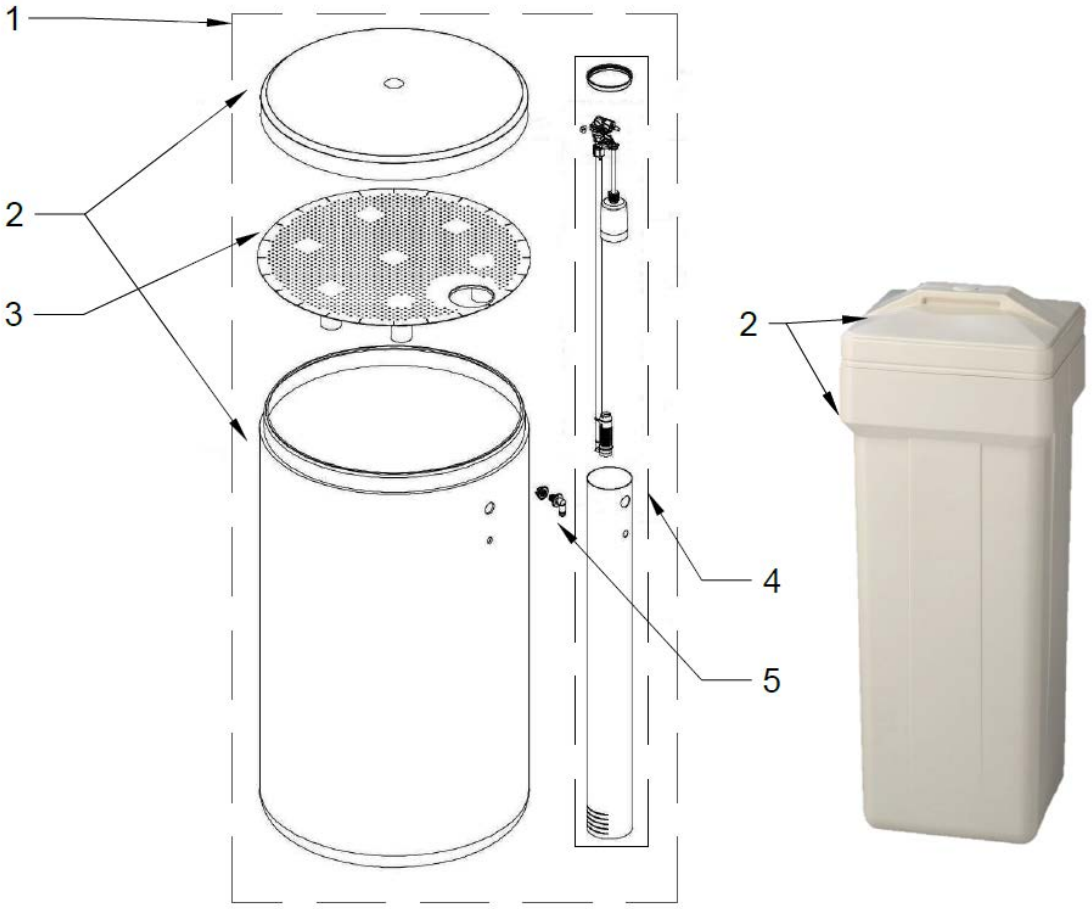
6) BRINE TANK ASSEMBLY

SAFETY FLOAT BRINE ELBOW			
Item No.	**Part No.**	**Description**	**Qty.**
1	CLK H4628	Quick Connect Elbow	1
2	CLK CV3163	O-Ring 019	1
3	CLK CH4615	Elbow locking clip	1



BRINE TANK ASSEMBLY				
Item No.	**Part No.**	**Description**	**Size**	**Qty.**
1*	CLK BT1833C	Black 18”X33” Brine Tank Assembly	Ø18”x33”	1
	CLK BT1434AC	Almond 14”X14”X34” Brine Tank Assembly	14”x14”x34”	
	CLK BT1434BC	Black 14”X14”X34” Brine Tank Assembly	14”x14”x34”	
2	CLK BT1833	Brine Tank Empty with Cover	Ø18”x33”	1
	CLK BT1434AS	Brine Tank Almond Empty with Cover	14”x14”X34”	
	CLK BT1434BS	Brine Tank Black Empty with Cover		
3	CLK H107202	Salt Grid Platform with legs	Ø18”x33”	1
	CLK H106902		14”X14”	
4	CLK H470028	Float Brine Valve Assembly	(Ø18”x33”) & (14”x14”x34”)	1
5	CLK H1018	2 Piece Overflow Set	(Ø18”x33”) & (14”x14”x34”)	1

*Item#1 is a full assembly, contains Item#2,3,4 & 5



7) TROUBLESHOOTING

7.1) 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
4. 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.
5. Control valve does not regenerate when the “UP” and “DOWN” buttons are 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
6. Control valve does not regenerate automatically but **does** when the “UP” and “DOWN” buttons are 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
7. Unfiltered water is being delivered	a. Bypass valve is open or faulty	a. Fully close bypass valve or replace
	b. Resin 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
	d. No regenerant or low level of regenerant in regenerant tank	d. Add proper regenerant to tank
	e. Control fails to draw in regenerant	e. Refer to failed to draw in regenerant troubleshooting
	f. Insufficient regenerant level in regenerant tank	f. Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
	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 resin bed	i. Replace resin bed

Problem	Possible Cause	Solution
8. 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
9. 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
10. 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 assembly
	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
11. 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
12. 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
13. 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

Problem	Possible Cause	Solution
14. 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.
15. 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.
16. 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.

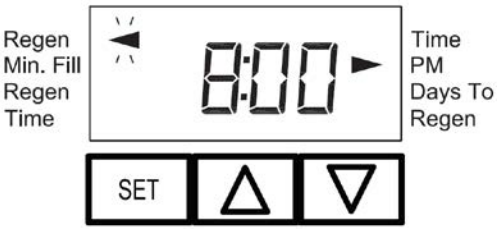
7.2) Possible Error Codes

Possible Errors	
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

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

8) QUICK REFERENCE GUIDE

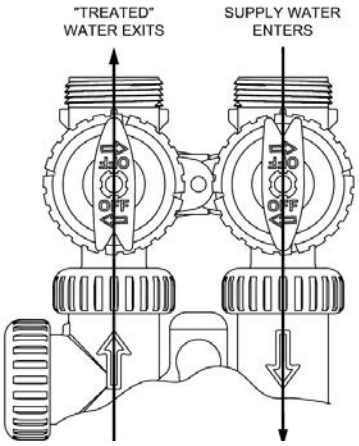
Manual Regeneration



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

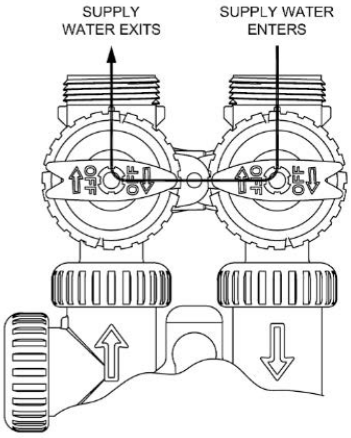
Delayed Regeneration: - Press and release “REGEN” button once the “REGEN TODAY” will be flashing on screen. Now the regeneration will occur tonight at preset time. The delayed regeneration can be cancelled by pressing “REGEN” button again.

NORMAL OPERATION

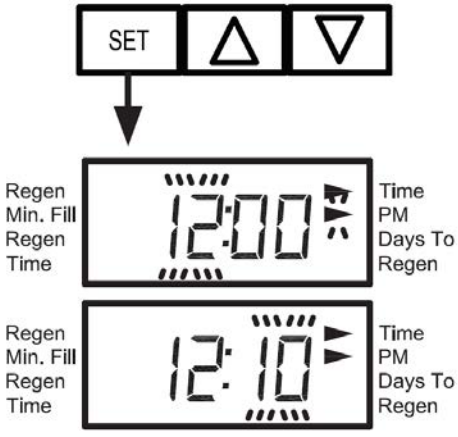


The bypass valve handle must be in the direction of flow and engraved arrows on control valve.

BYPASS OPERATION



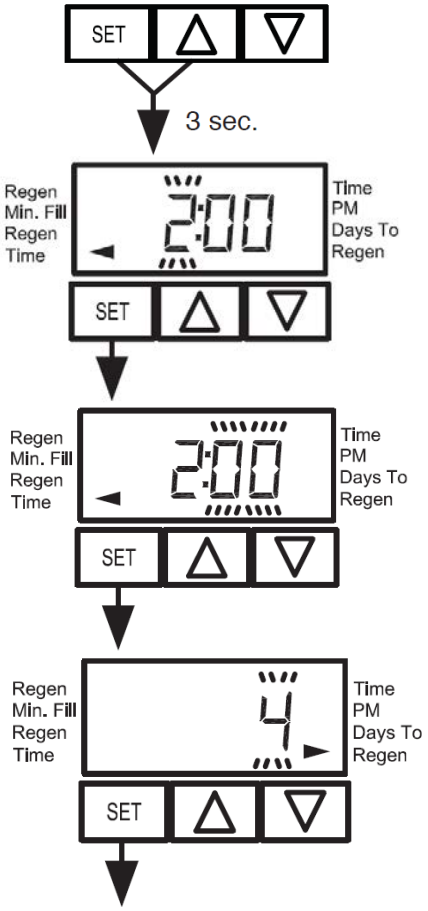
The bypass valve handles must be turned towards the center as shown above



Set Time of Day

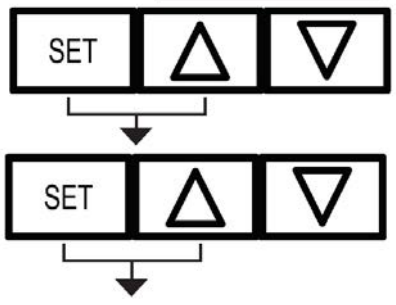
- Press and hold “SET” button for 3 seconds.
- Hours will flash press up or down button to adjust hours to current hour of day. Then press “SET” button.
- By pressing up or down button adjust minutes. Then press “SET” button.
- The time is set and the valve display will return to normal display.

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	**P1**	Programming #1
3SS	**“Fill Minutes”**	Refer to the specifications table
4SS	**4 (Default)**	Number of days between regeneration or weekly
5SS	**Regen Time Arrow**	DP switch trigger for scheduled regeneration

9) WARRANTY

Value Tannin Filter 3 Year Warranty
Superior Tannin Filter 5 Year Warranty
Premium Tannin Filter 7 Year Warranty

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

Warranty ~ Offered

Excalibur Water Systems warranties 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 3, 5 or 7 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 3, 5 or 7 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 SALT TANK and 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 Tannin 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 Tannin Filter is operated at water pressures not exceeding 125psi and at water temperatures not exceeding 120°F; also provided that the Tannin Filter is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the Tannin 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 TANNIN 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 DFEFECTIVE WITHIN THE SPECIFIED TIME PERIOD AND EXCALIBUR WATER SYSTEMS IS NOT LIABLE FOR CONSEQUENTIAL OR INDIDENTAL 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