SIMPLEX VALUE WATER SOFTENER
INSTALLATION AND USER GUIDE



MC 301710

DRINKING WATER
CSA B483.1

Point-of-Entry System Tested and Certified by CSA for Materials Safety Requirements and Structural Integrity Requirements Only. Not Certified for Performance or Contaminant Reductions by CSA.

Maximum Rated Pressure: 125 PSI

BARRIE • ONTARIO • CANADA 705.733.8900 WWW.EXCALIBURWATER.COM

TABLE OF CONTENTS

1) Installation 2
1.1) Pre-installation instructions 2
1.2) General Installation and Service Warnings 2
1.3) Site Requirements 2
1.4) Installation Drawing 3
1.5) System Drawing 4
1.6) Plumbing Instructions 4
1.7) Brine Line Connection 5
1.8) Overflow Line Connection 5
1.9) Drain Line 5
1.10) Bypass Valve 6
1.11) Start Up Instructions 7
2) Control Valve Programming 8
2.1) Regeneration Screens 8
2.2) Button Operation 8
2.3) Setting Time of Day 9
2.4) User Displays 9
2.5) Installer Display Settings 10
2.6) Softener System Setup 11
3) Model Variable Components and Specifications 12
3.1) Flow Controls and Injectors 12
3.2) Specifications 12
4) Control Valve Cycles 13
5) Components of Control Valve 15
5.1) Front Cover and PC Board 15
5.2) Drive assembly, Piston and Spacer stack 16
5.3) Injector Assembly 17
5.4) Brine Tank Line Flow Control 18
5.5) Drain Line Flow Control Assembly 19
5.6) Outlet Meter Assembly 20
5.7) Bypass Valve Components 21
5.8) Installation Fitting Assemblies 22
6) Brine Tank Assembly 24
7) Troubleshooting 25
7.1) Possible Error Codes 25
7.2) Troubleshooting Procedures 26
8) Quick Reference Guide 29
9) Warranty 31

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 hardness, day override and time of regeneration.

WATER TEST

Hardness	_____gpg
Iron	_____ppm
pH	_____number
Nitrates	_____ppm
Manganese	_____ppm
Sulphur	_____yes/no
Total Dissolved Solids	_____

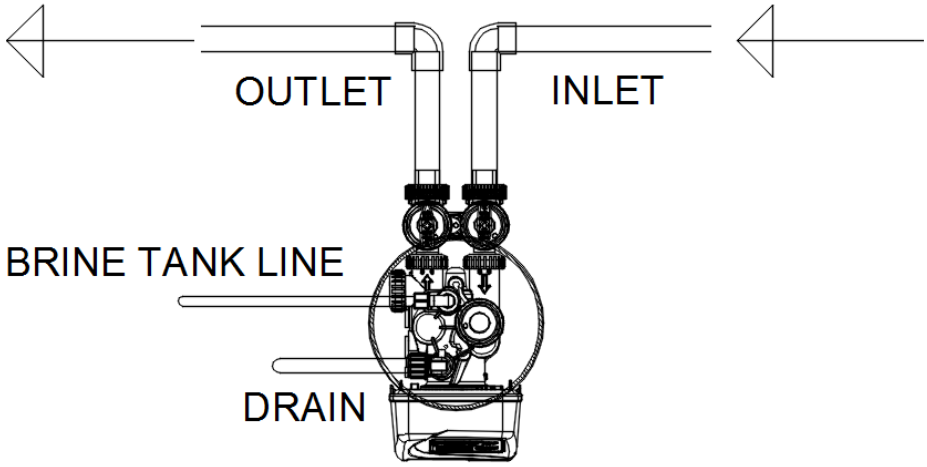
1.2) General Installation and Service Warnings

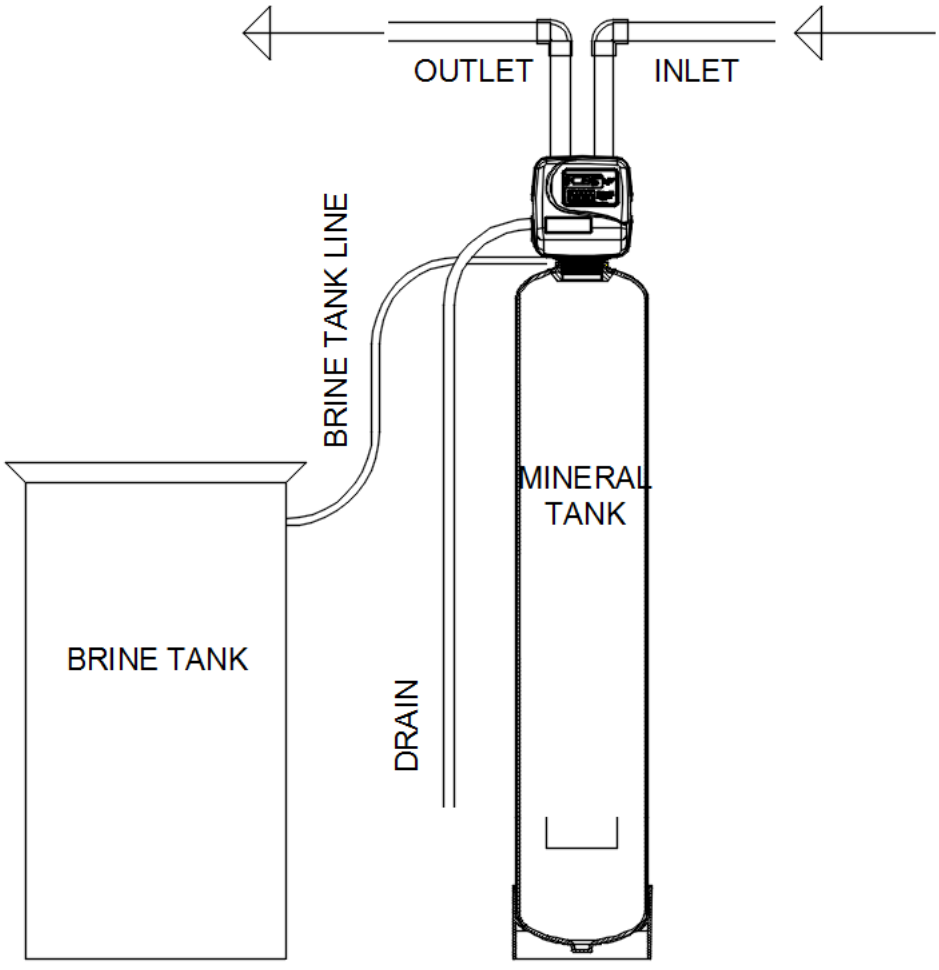
- The softener is designed so that it can be installed easily with minor plumbing changes on previous plumbing.
- The piping must be clamped properly and the weight of the plumbing must not be on the softener.
- Do not use any kind of lubricant including silicone. A silicone based lubricant can be only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

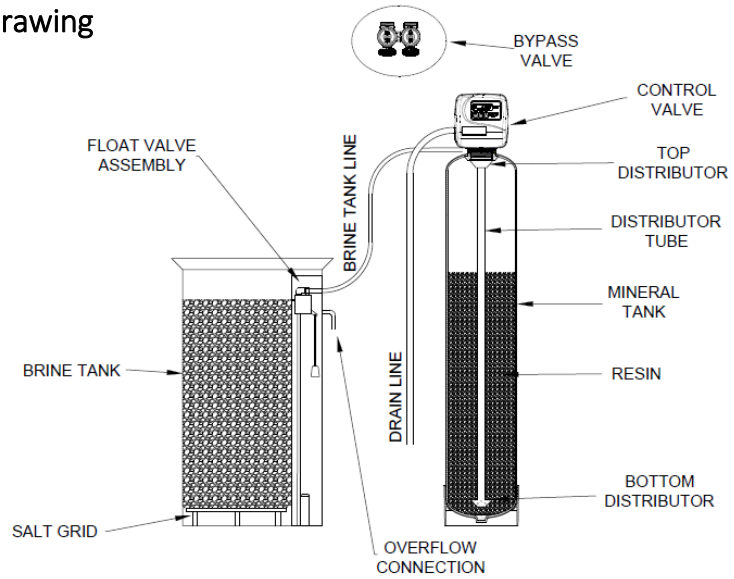
- Water Pressure: - 40-110 psi
- Water Temperature: - 40-110°F (4.4-43°C)
- Electrical- 115/120 V, 60Hz Uninterrupted Outlet
- Current required is 0.5 Amperes with plug-in transformer (dry locations only).
- The tank should be on a firm level surface

1.4) Installation Drawing

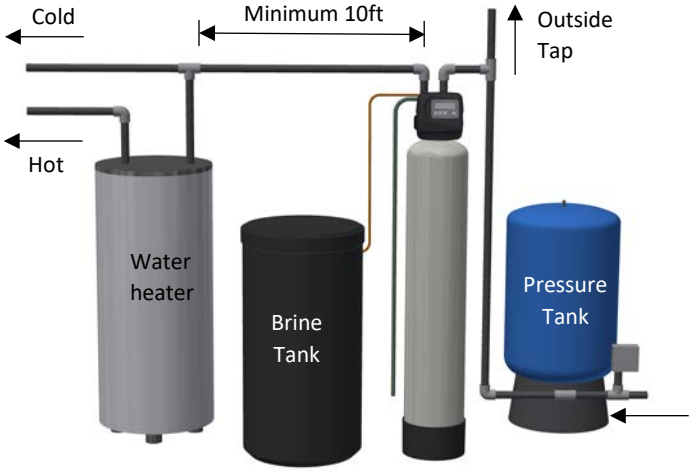




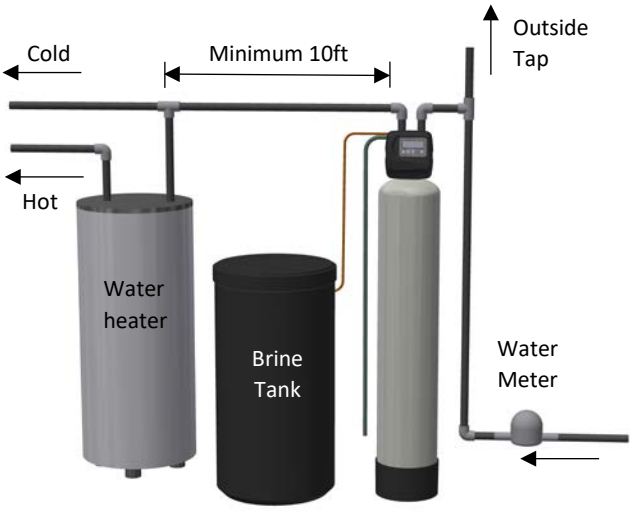
1.5) System Drawing



1.6) Plumbing Instructions



Well Water Installation

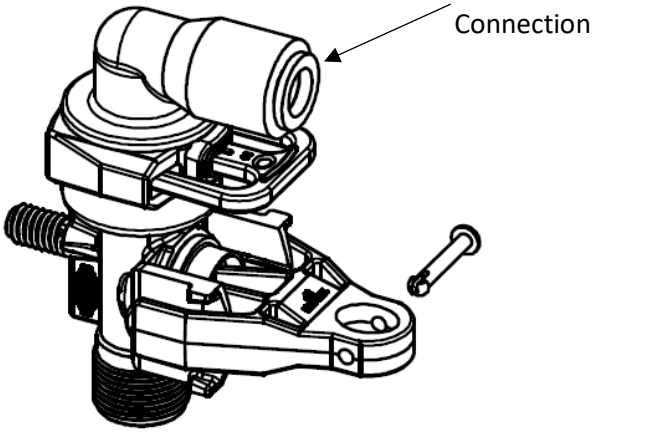


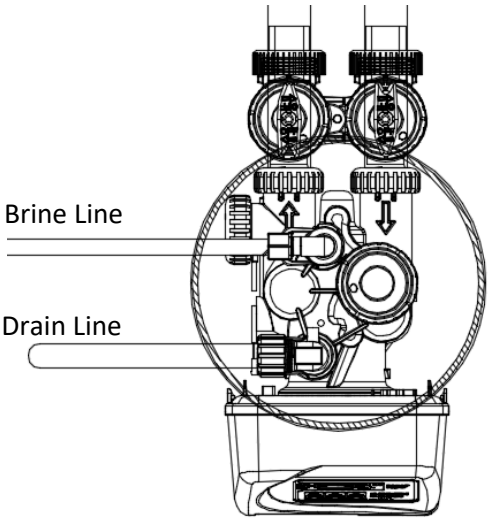
Municipal Installation

1) The softener must be located at the closest possible location to drain.
2) The water heater's inlet must be at least 10ft away from softener.
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 softener.
5) The bypass valve must be installed on the control valve.
6) The outside tap water if possible may be bypassed from the softener.
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.



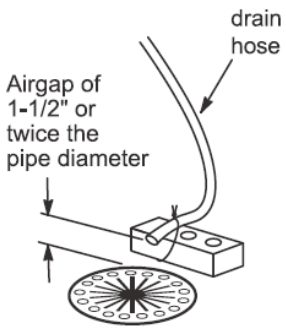


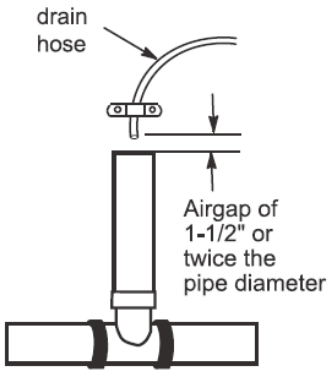
1.8) Overflow Line Connection

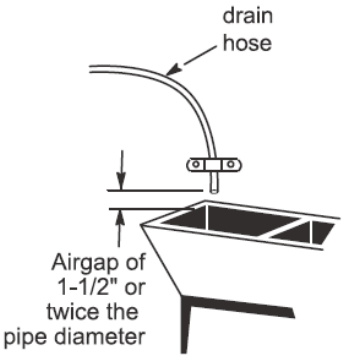
- Only used where brine tank overflow water spillage can damage flooring or structure.
- Brine tank is equipped with safety float valve which prevents the overflow in case if control valve fails to control the refill cycle.
- In case if safety float also fails to stop refill then only the water will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

1.9) Drain Line

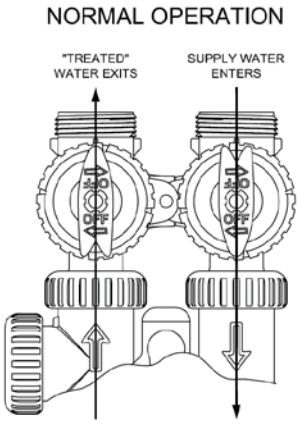
- The ½” tubing must be used for drain line.
- Leave minimum of 6” gap between flow control fitting and solder joints. The gap less than this can damage the flow control.
- If the drain line is elevated and then emptied into the drain below the level the of control valve then 7” loop should make at the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





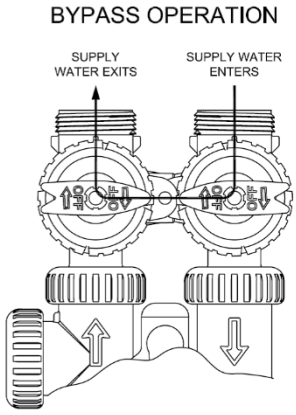


1.10) Bypass Valve



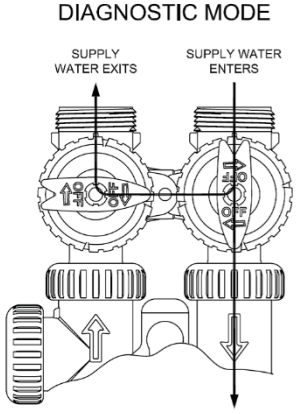
NORMAL OPERATION

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 softener.



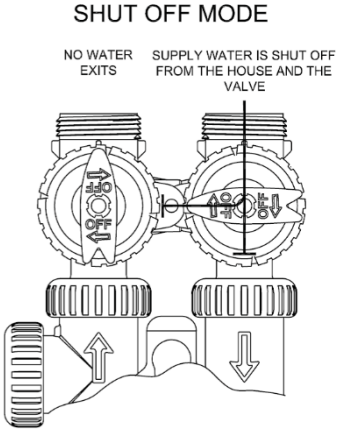
BYPASS OPERATION

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. Untreated 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. Untreated 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 Softener, 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 untreated water is being supplied to house. Open the faucet downstream of the softener 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 "REGEN" button down for 5 seconds to start manual regeneration. The drive motor will start to reach backwash cycle and countdown time begins. 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 become clear in drain line then press the regen button to advance the regeneration to brine cycle. Lift off the brine tank lid to check if water is being drawn from brine tank and shut off the faucet after confirming the brine draw flow.

- Press REGEN button to advance the regeneration to 2nd backwash cycle. Wait until the countdown time starts.

- Press REGEN button again to advance the regeneration to rinse cycle with water coming through the drain. Allow this process for the full amount of time during this cycle.

- The control valve will automatically advance the regeneration to the fill cycle. Allow 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 being displayed.

- Add the salt to Brine Tank.

2) CONTROL VALVE PROGRAMMING

2.1) Regeneration Screens



Regen Screen

- Displays the time remaining in the current cycle.
- Displays the cycle name and sequence number.
- Pressing REGEN advances to the next cycle.

Regeneration occurs automatically if volume capacity drops below the reserve capacity automatically predicted by Control Valve or the has control valve reached 14 number of days since last regeneration.

2.2) Button Operation

SET CLOCK

- Sets time of day
- Save changes and Exit to user display from any programming screen

NEXT

Scrolls to the next display.

REGEN

- Pressing once and releasing will schedule a regeneration at the preset delayed regeneration time.
- Pressing again and releasing will cancel the delayed regeneration.
- Pressing and holding for 3 seconds will initiate an immediate regeneration
- Pressing while in regeneration will advance to the next cycle.
- Pressing in the program levels will go backwards to the previous screen

▽ △

Change Variable being displayed.

NEXT + REGEN

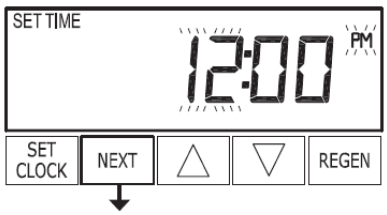
Holding for 3 seconds initiates a control reset. The software version is displayed and the piston returns to the home/service position, resynchronizing the valve.

2.3) Setting Time of Day



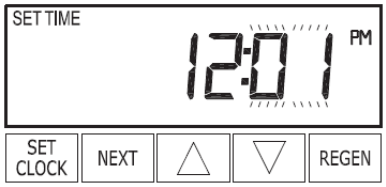
Push SET CLOCK button.

When hour flashes press ▲ or ▼ until the correct hour is displayed. Then press NEXT.



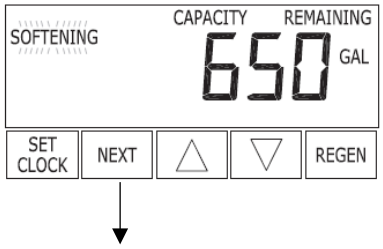
The minutes will flash. Press ▲ or ▼ until the correct minute is displayed. Press NEXT to return to the User Displays.

Time of day should only need to be set 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.

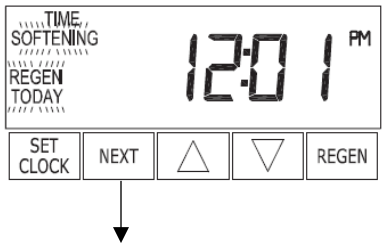


2.4) User Displays

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



User 1
This user display shows the volume capacity remaining.

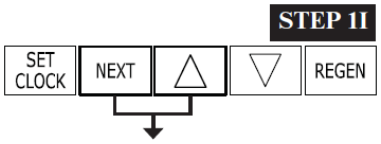


User 2
Displays current time of the day.

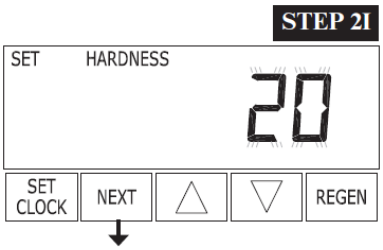
- "SOFTENING" displays when the meter is registering the water.
- "REGEN TODAY" displays when the scheduled regeneration is to occur at a scheduled time of day.

Return to User Display 1

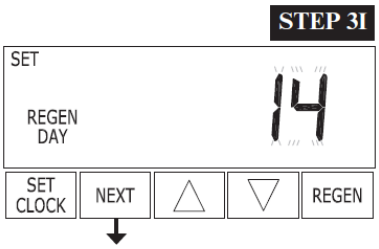
2.5) Installer Display Settings



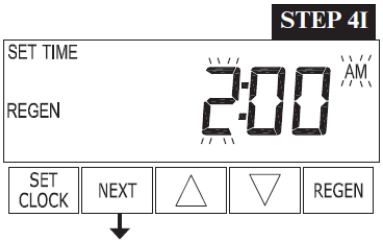
Step 1I - To enter Installer Display press NEXT and ▲ simultaneously for about 5 seconds and release.



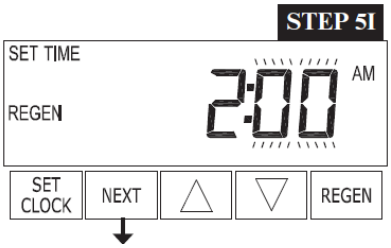
Step 2I – Hardness: Set the amount (gpg) of hardness using ▲ or ▼. Press NEXT to go to step 3I. Press REGEN to exit Installer Display Settings.



Step 3I – Day Override: Set "14" the maximum number of days between regenerations.
Press NEXT to go to step 4I. Press REGEN to return to previous step.



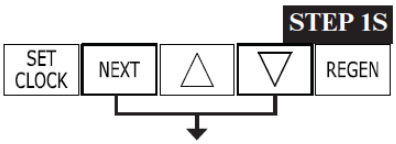
Step 4I – Next scheduled regeneration time (hour): Set the hour of day for regeneration using ▲ or ▼. (Usually 2:00AM or when the predictable flow is minimum)
Press NEXT to go to step 5I. Press REGEN to return to previous step.



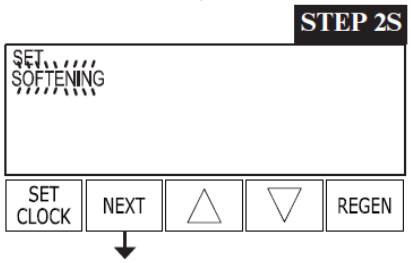
Step 5I – Next scheduled regeneration time (minutes): Set the minutes of day for regeneration using ▲ or ▼.
Press NEXT to exit Installer Display Settings. Press REGEN to return to previous step.

EXIT INSTALLER DISPLAY SETTINGS

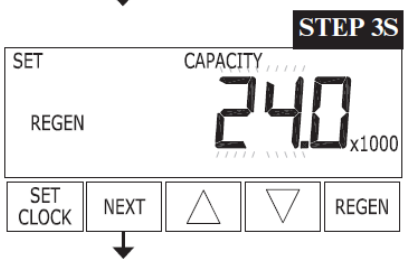
2.6) Softener System Setup



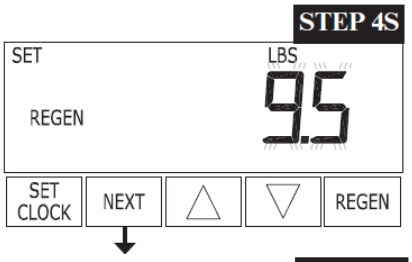
Step 1S - Press NEXT and ▼ simultaneously for 5 seconds and release.



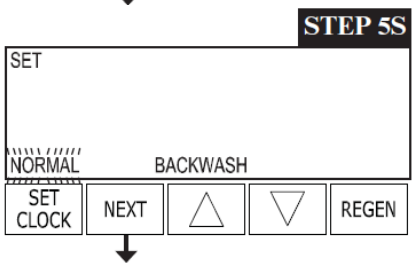
Step 2S – Choose SOFTENING using ▲ or ▼. Press NEXT to go to Step 3S. Press REGEN to exit OEM Softener System Setup.



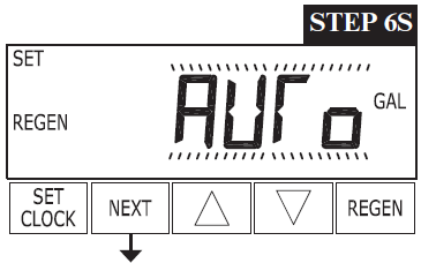
Step 3S – Enter the softening grains capacity given in specification sheet according to the salt usage.



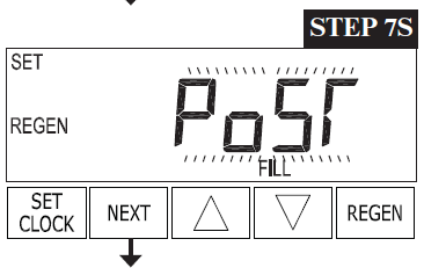
Step 4S – Enter the pounds of salt usage per regeneration. Press NEXT to proceed to Step 5S or Press REGEN to return to previous step.



Step 5S – Select “NORMAL” backwash length. Press NEXT to proceed to Step 6S.

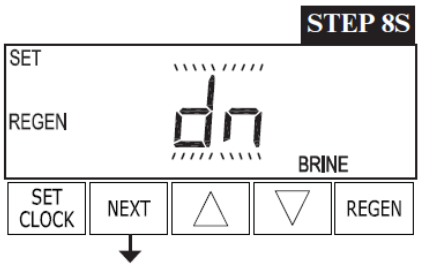


Step 6S – Set “AUTO” for estimating reserve volume capacity and total volume capacity automatically.

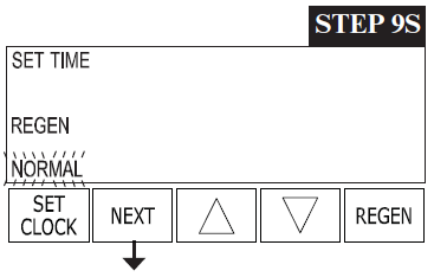


Step 7S – Set “PoST” Refill location using ▲ or ▼ to refill the brine tank immediately after the final rinse.

Press NEXT to go to Step 8S. Press REGEN to return to previous step.



Step 8S – Select "dn" for downflow brine cycle using ▲ or ▼. Press NEXT to go to Step 9S. Press REGEN to return to previous step.



Step 9S – Set "NORMAL" for the regeneration time. Press NEXT to exit Softener System Setup or Press REGEN to return to previous step.

EXIT SOFTENER SYSTEM SETUP

3) MODEL VARIABLE COMPONENTS AND SPECIFICATIONS

3.1) Flow Controls and Injectors

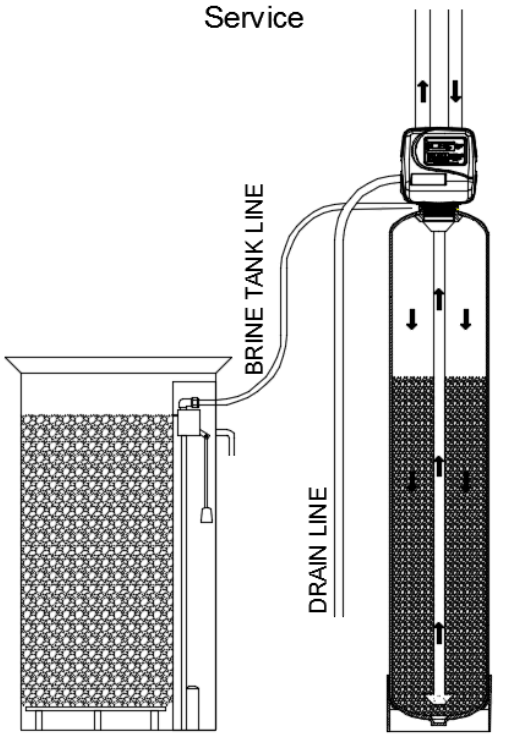
Model Number	Mineral Tank	Brine Tank	Injector		Drain Flow Control	
	Dia X Height (Inch)	(Inch)	Color	Order #	Flow GPM	Order #
EWS S25BF	8x44	14x14x34 (Length x Width x Height)	Violet	CLK V30101C	1.7	CLK V3162017
EWS S30BF	9x48		Red	CLK V30101D	2.2	CLK V3162022
EWS S40BF	10x54		White	CLK V30101E	2.7	CLK V3162027
EWS S50BF	10x54		White	CLK V30101E	2.7	CLK V3162027
EWS S60BF	12x52	18x33 (Dia x Height)	Blue	CLK V30101F	3.2	CLK V3162032

3.2) Specifications

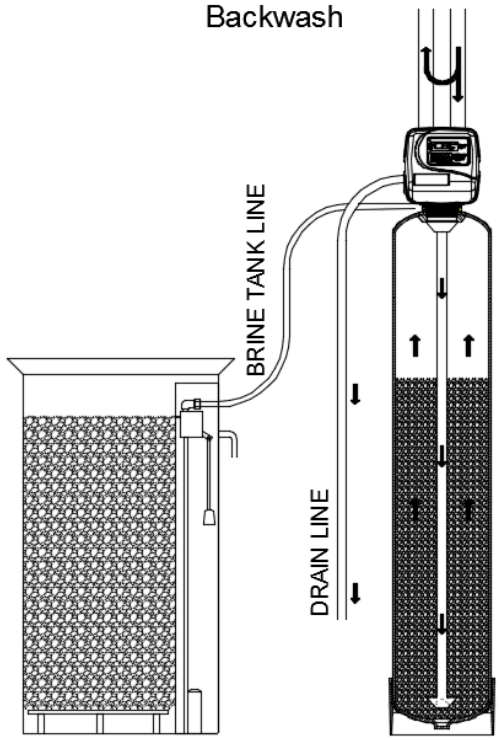
Model Number	Mineral Tank	Resin Quantity	Grains Capacity				Lbs Salt Setting		Flow (GPM)		Shipping Weight
	Dia X Height	ft^3	6 lbs Salt/ft^3		10 lbs Salt/ft^3		15 lbs Salt/ft^3		Continuous	Peak	LBS
EWS S25BF	8X44	0.83	17,000	5	22,000	8.5	25,000	13	4.2	6.6	70
EWS S30BF	9X48	1.00	20,000	6	27,000	10	30,000	15	5.0	8.0	84
EWS S40BF	10X54	1.33	27,000	8	36,000	13	40,000	20	6.7	10.7	106
EWS S50BF	10X54	1.67	33,000	10	45,000	17	50,000	25	8.4	13.4	124
EWS S60BF	12X52	2.00	40,000	12	54,000	20	60,000	30	10.0	16.0	171

* Excalibur Softeners are factory programmed to 10lbs/ft^3 default settings

4) CONTROL VALVE CYCLES

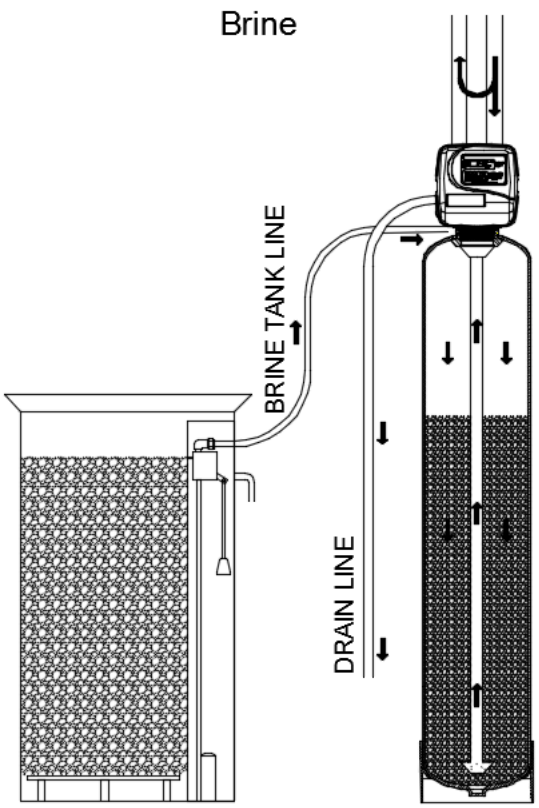


In **Service** Cycle water flows through the upper basket and flows down to the bottom distributor. In this operation hardness of water is removed by resin.

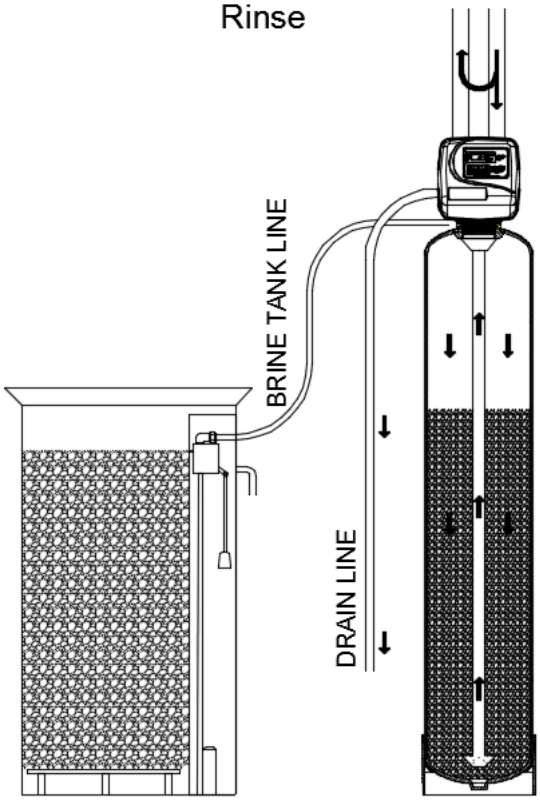


In **Backwash** Cycle water flows in upflow direction, the water enters the tank from bottom distributor and collected by upper basket. This operation lifts the bed and wash the resin. The water goes out through the drain line.

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



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



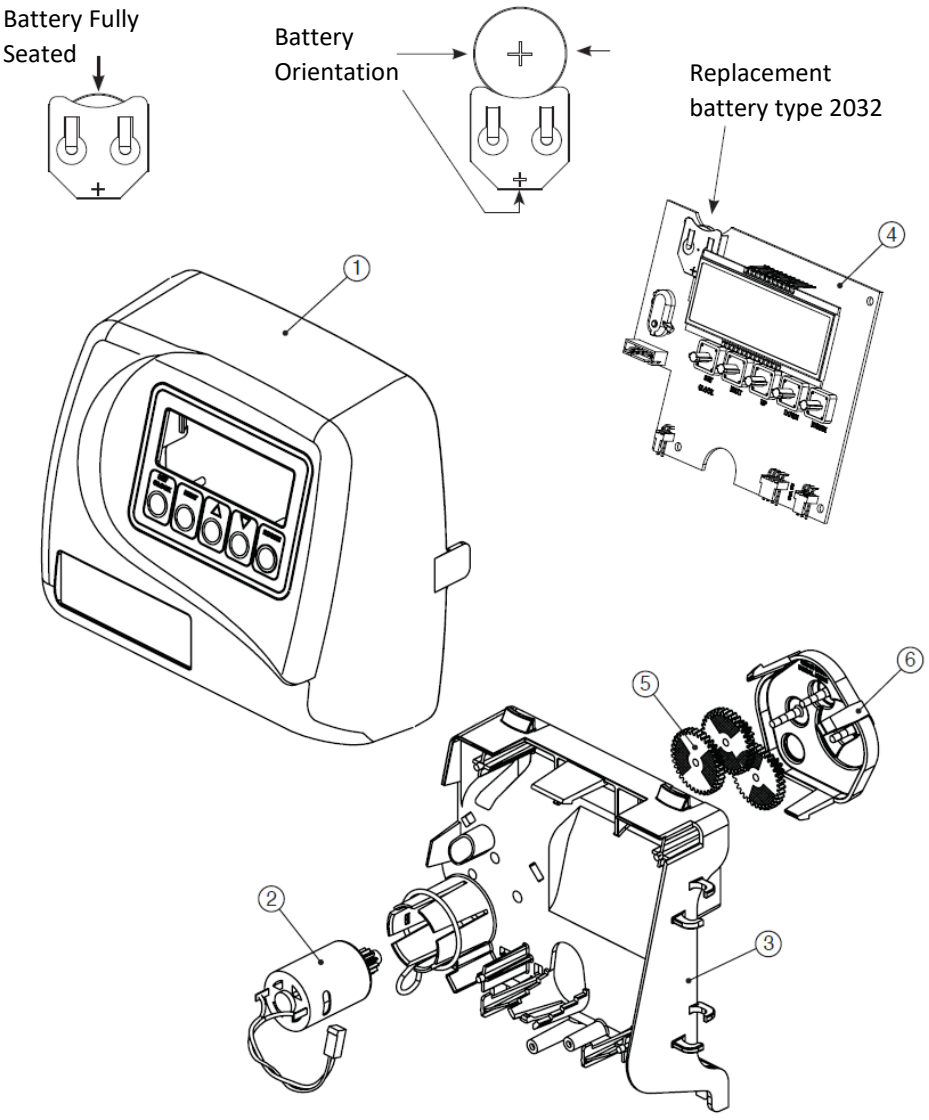
In **Rinse** Cycle water flows rapidly in downflow direction through the resin to the drain. This cycle washes the excess sodium from the resin particles.

Fill Cycle (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

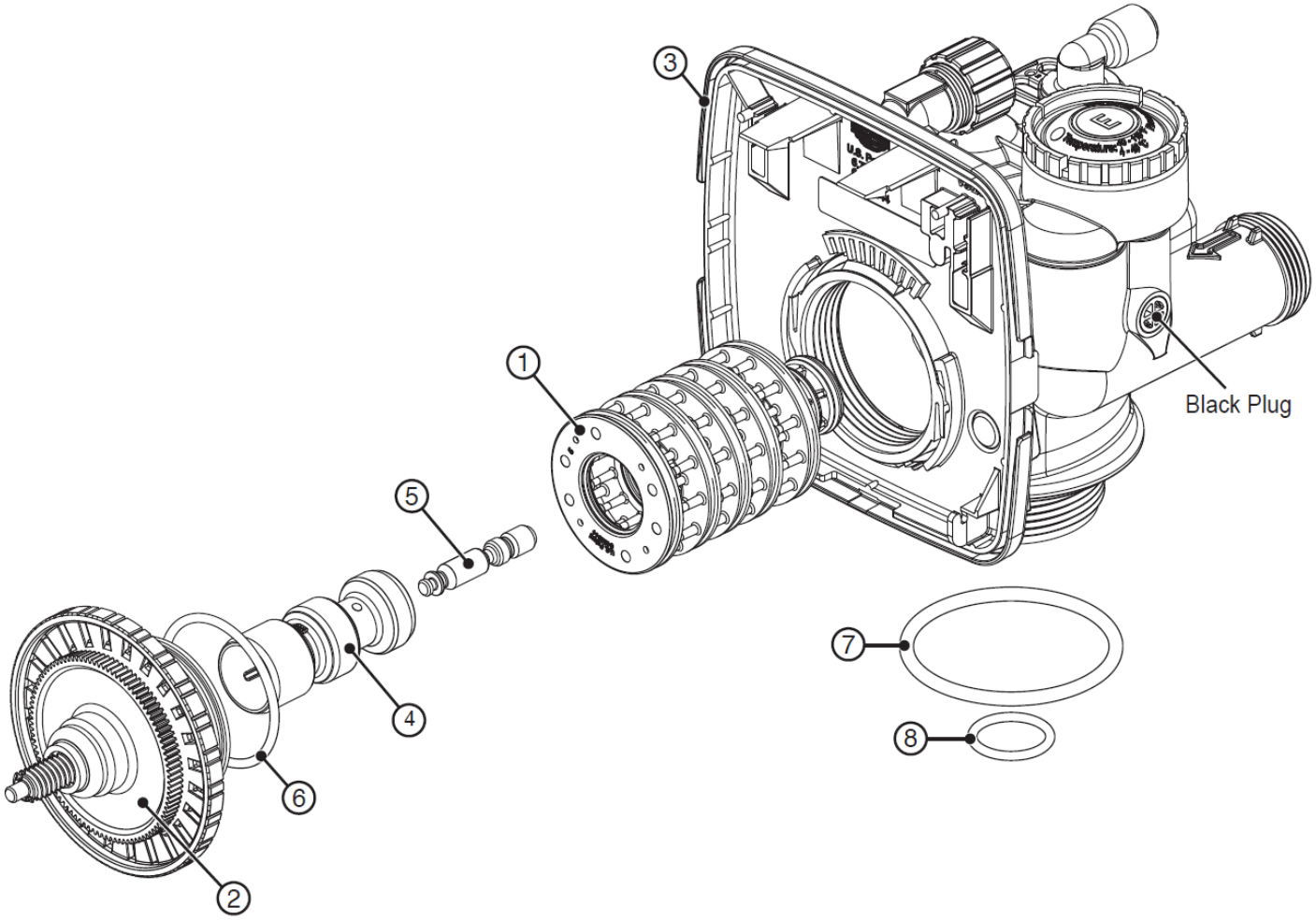
Drawing No.	Order No.	Description	Quantity
1	CLK V317501	WS1 Front Cover ASY	1
2	CLK V310701	WS1 Motor	1
3	CLK V310601	WS1 Drive Bracket & Spring Clip	1
4	CLK V310810BOARD	WS1 PCB XMEGA REPL	1
5	CLK V3110	WS1 Drive Reducing Gear 12x36	3
6	CLK V3109	WS1 Drive Gear Cover	1
Not Shown	CLK V3186	WS1 AC ADAPTER 120V-12V	1
	CLK V3186EU	WS1 AC ADAPTER 220-240V-12V	
	CLK V3186UK	WS1 AC ADAPTER 220-240V-12V	
	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

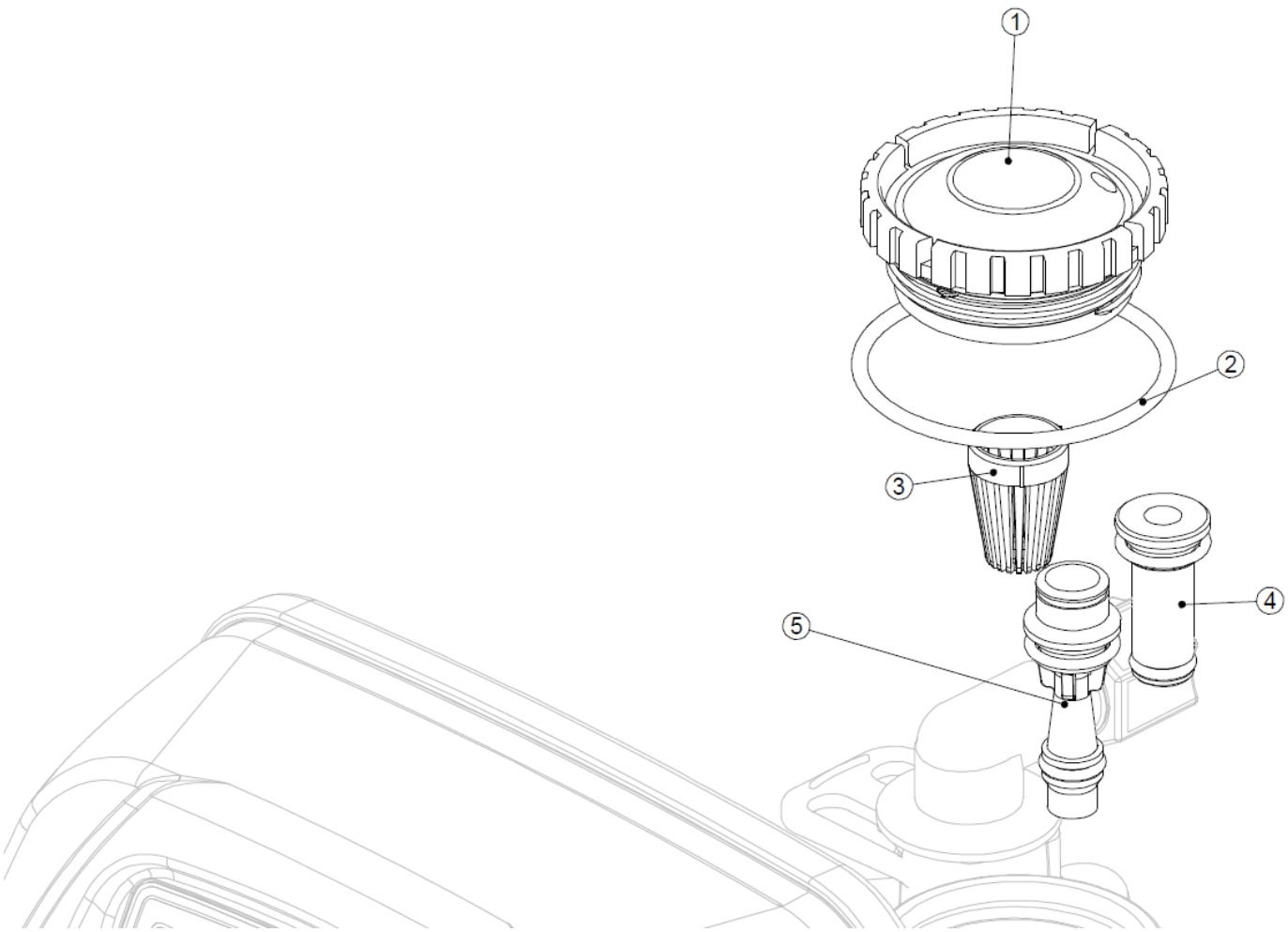
Drawing No.	Order No.	Description	Quantity
1	CLK V3005	WS1 Spacer Stack Assembly	1
2	CLK V3004	Drive Cap ASY	1
3	CLK V3178	WS1 Drive Back Plate	1
4	CLK V3011	WS1 Piston Downflow ASY	1
5	CLK V3174	WS1 Regenerant Piston	1
6	CLK V3135	O-ring 228	1
7	CLK V3180	O-ring 337	1
8	CLK V3105	O-ring 215 (Distributor 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 V30101C	WS1 INJECTOR ASY C VIOLET	For 8” Tank	1
	CLK V30101D	WS1 INJECTOR ASY D RED	For 9” Tank	
	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

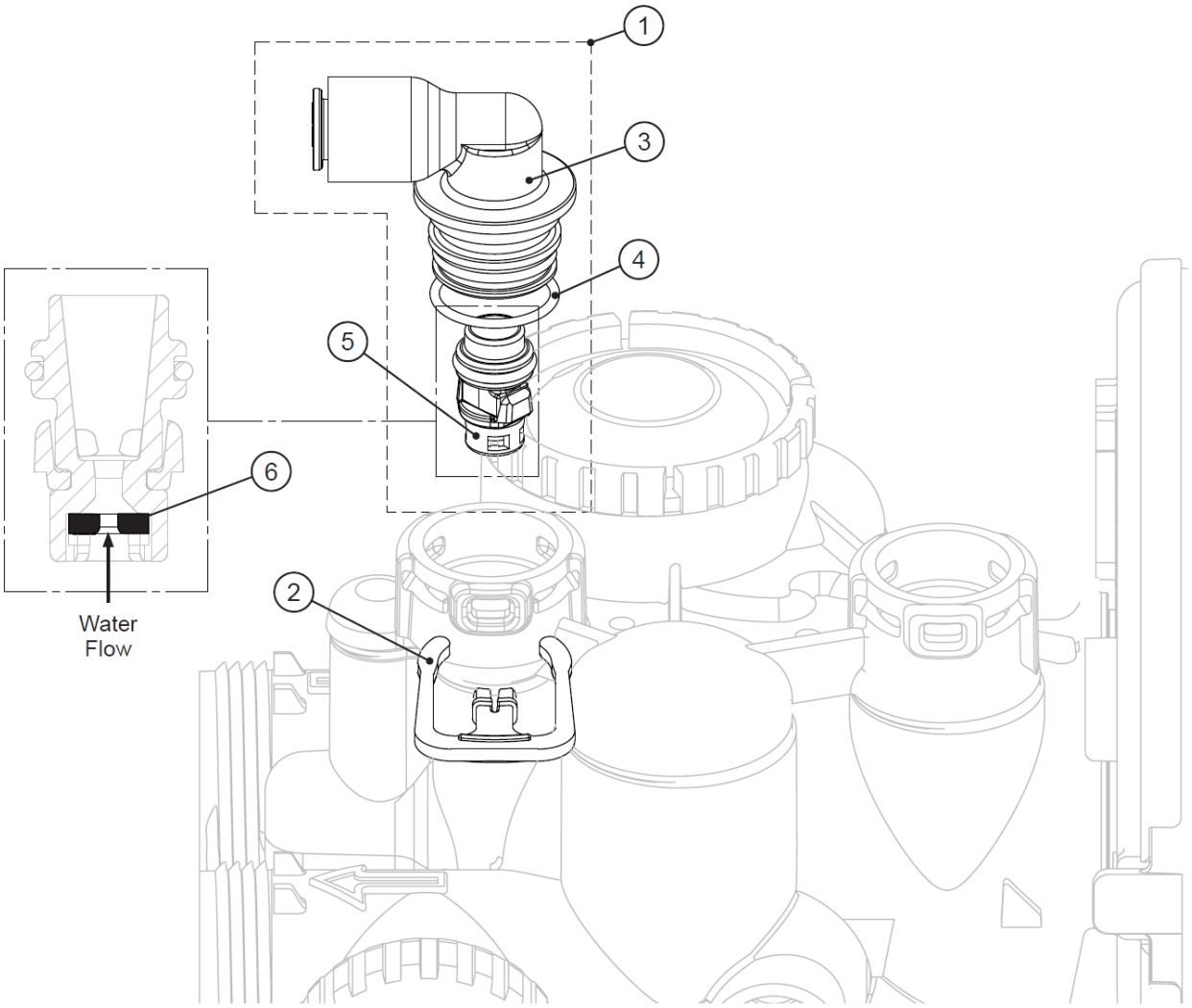
* The injector plug and the injector each contain 011 (lower) and 013 (upper) O-ring.



5.4) Brine Tank Line Flow Control

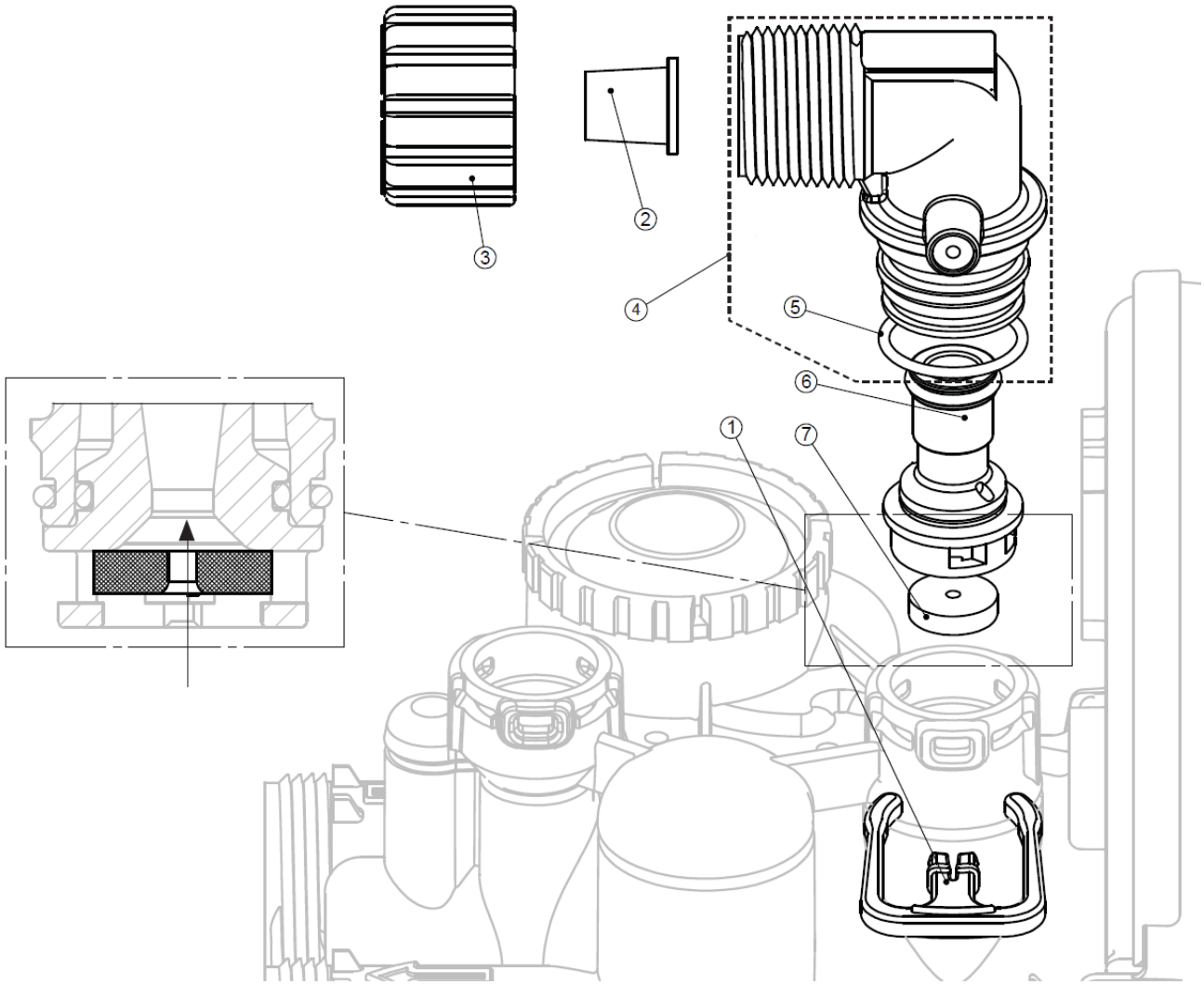
Drawing No.	Order No.	Description	Quantity
1	CLK V414401	Elbow 3/8 Liquifit Asy w/RFC	1
2	CLK H4615	Elbow Locking Clip	1
3	CLK H4628	Elbow 3/8” Liquifit	1
4	CLK V3163	0-ring 019	1
5	CLK V316501	WS1 RFC Retainer Asy (0.5 gpm)	1
6	CLK V3182	WS1 RFC	1
Not Shown	CLK V3552	WS1 Brine Elbow Asy w/RFC	Option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

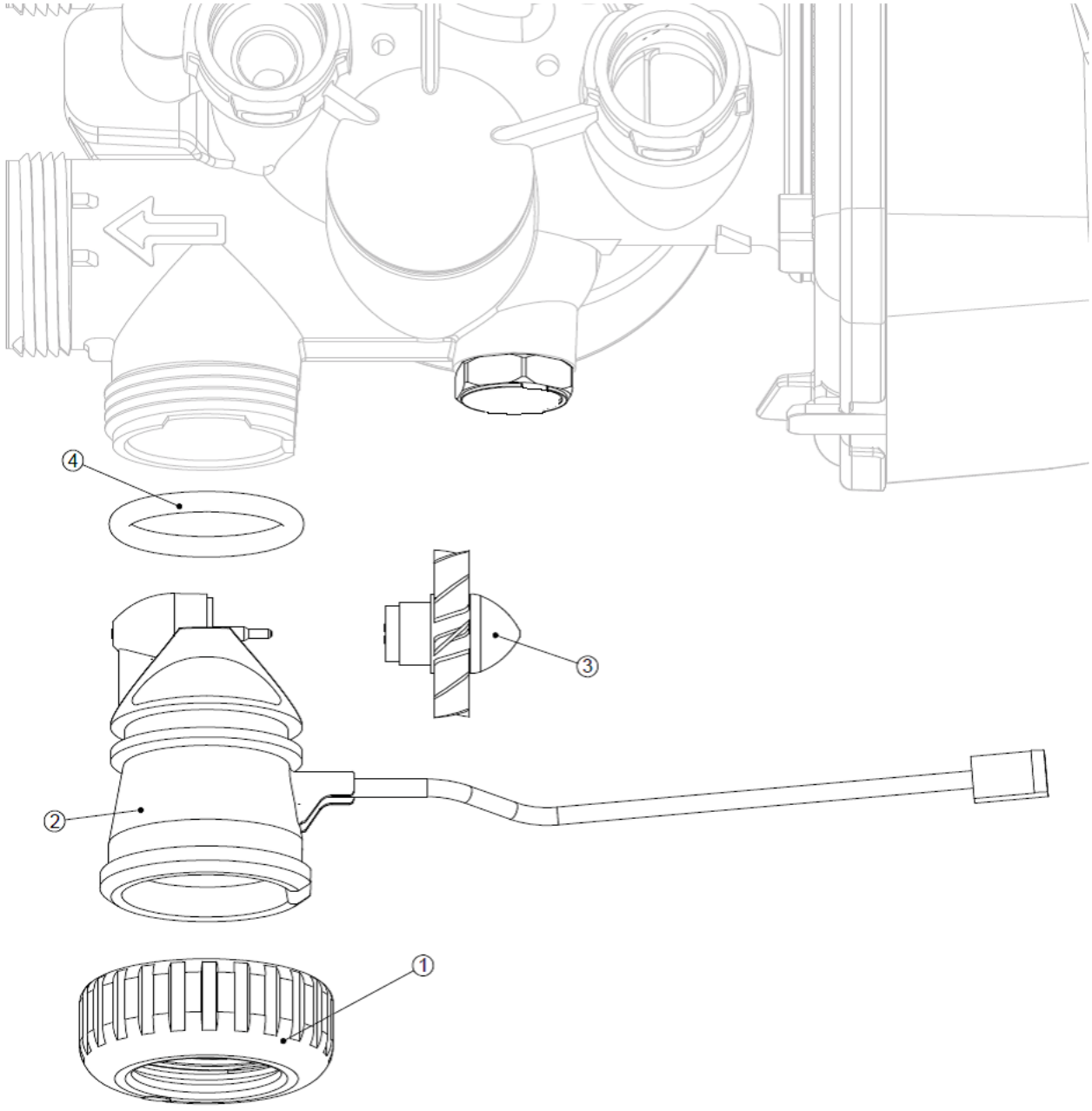
Drain Line ¾”				
Drawing No.	Order No.	Description		Quantity
1	CLK H4615	Elbow Locking Clip		1
2	CLK PKP10TS8BU	Polytube insert 5/8		Option
3	CLK V3192	WS1 Nut ¾ Drain Elbow		Option
4	CLK V315801	WS1 Drain Elbow ¾ Male		1
	CLK V315802	WS1 Drain Elbow ¾ Male No		
5	CLK V3163	O-ring 019		1
6	CLK V315901	WS1 DLFC Retainer ASY		1
7	CLK V3162017	WS1 DLFC 1.7 gpm	8” Tank	One DLFC must be used if ¾ fitting is used
	CLK V3162022	WS1 DLFC 2.2 gpm	9” Tank	
	CLK V3162027	WS1 DLFC 2.7 gpm	10” Tank	
	CLK V3162032	WS1 DLFC 3.2 gpm	12” Tank	



5.6) Outlet Meter Assembly

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

* CLK V3003 includes CLK V311801 and CLK V3105



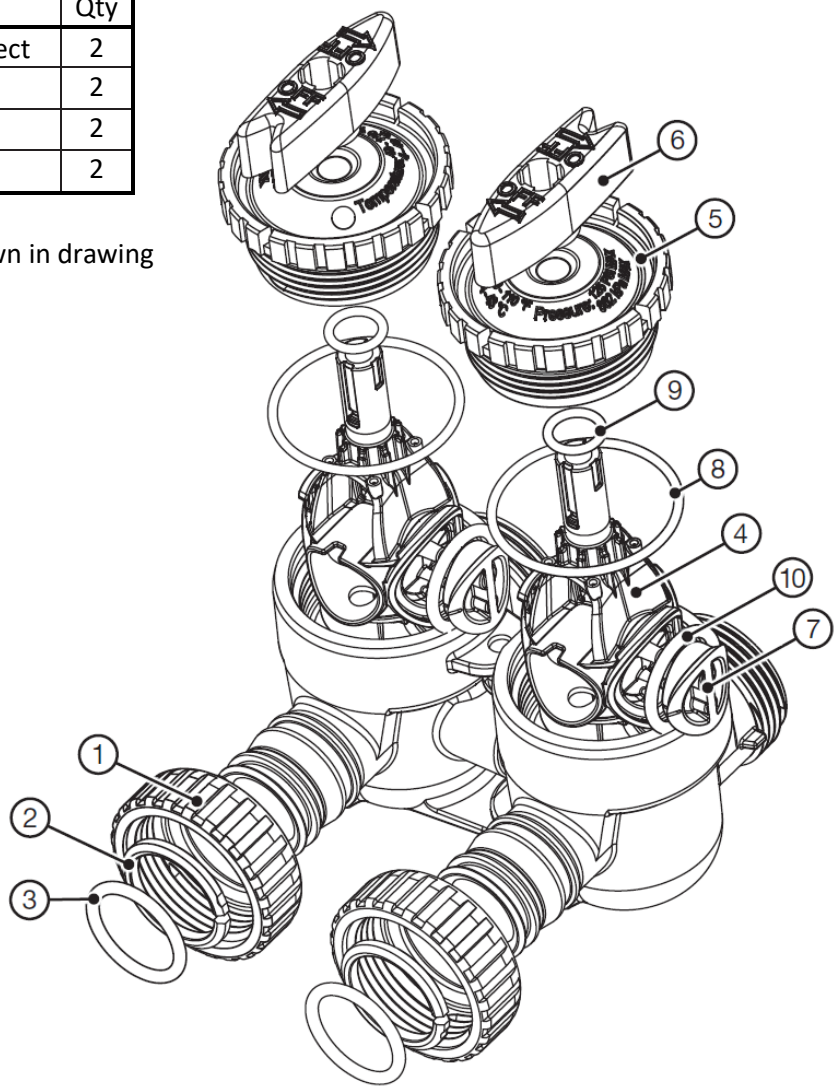
NOTE: - THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL OR HEALTH EFFECT APPLICATIONS.

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

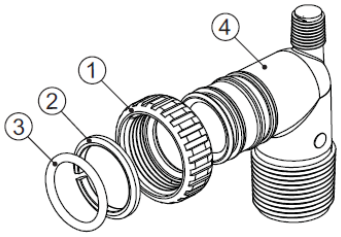
CLK V319101	WS1 Bypass Vertical Asy Adapter	
Order No.	Description	Qty
CLK V3151	WS1 Nut 1” Quick Connect	2
CLK V3150	WS1 Split Ring	2
CLK V3105	O-Ring 215	2
CLK V3191	WS1 Bypass Vertical	2

*Bypass Valve Vertical Adapter not shown in drawing



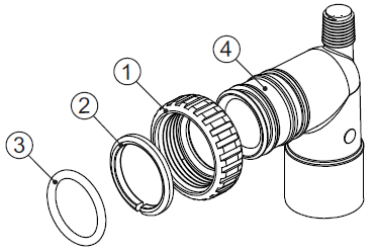
5.8) Installation Fitting Assemblies

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

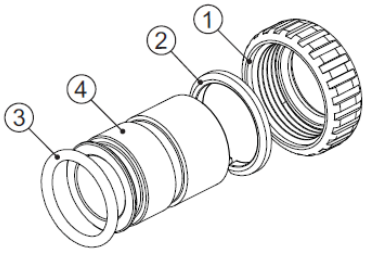


* Water Softener is CSA certified for use with this assembly

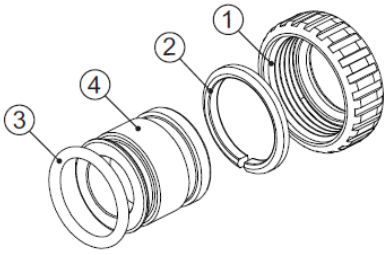
CLK V300701 WS1 Fitting ¾” & 1” PVC Solvent 90º Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3189	WS1 FITTING ¾ & 1 PVC SOLVENT 90	2



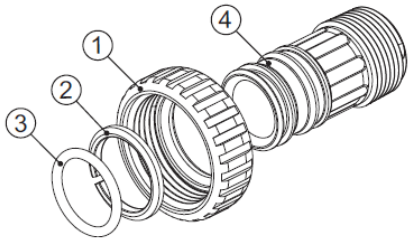
CLK V300702LF WS1 Fitting 1” Brass Sweat Assembly LF			
Drawing No.	Order No.	Description	Qty
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3188LF	WS1 FITTING 1 BRASS SWEATASSEMBLY LF	2
Do not install in California.			



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.			

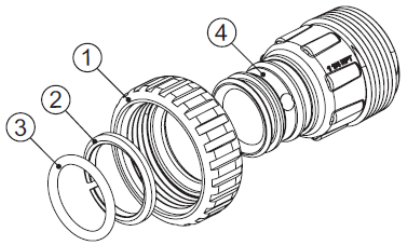


CLK V300704 WS1 Fitting 1” Plastic Male NPT Assembly			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3164	WS1 FITTING 1" PLASTIC MALE NPT	2



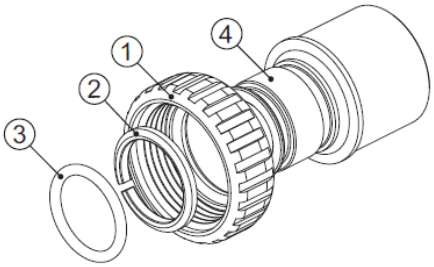
* Water Softener is CSA certified for use with this assembly

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

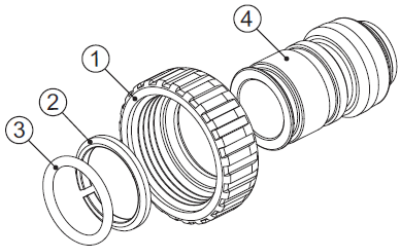


* Water Softener is CSA certified for use with this assembly

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

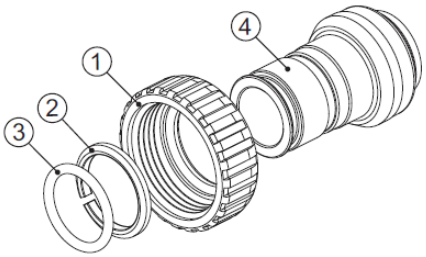


CLK V300712LF WS1 Fitting 3/4” Brass SharkBite Assembly LF			
Drawing No.	Order No.	Description	Quantity
1	CLK V3151	WS1 NUT 1” QUICK CONNECT	2
2	CLK V3150	WS1 SPLIT RING	2
3	CLK V3105	O-RING 215	2
4	CLK V3628LF	WS1 FTG 3/4 BRASS SHARKBITE LF	2



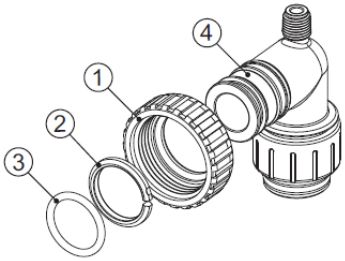
* Water Softener is CSA certified for use with this assembly

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



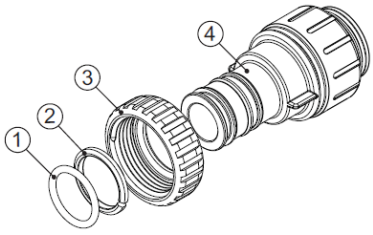
* Water Softener is CSA certified for use with this assembly

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



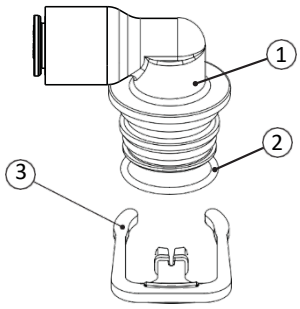
* Water Softener is CSA certified for use with this assembly

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



* Water Softener is CSA certified for use with this assembly

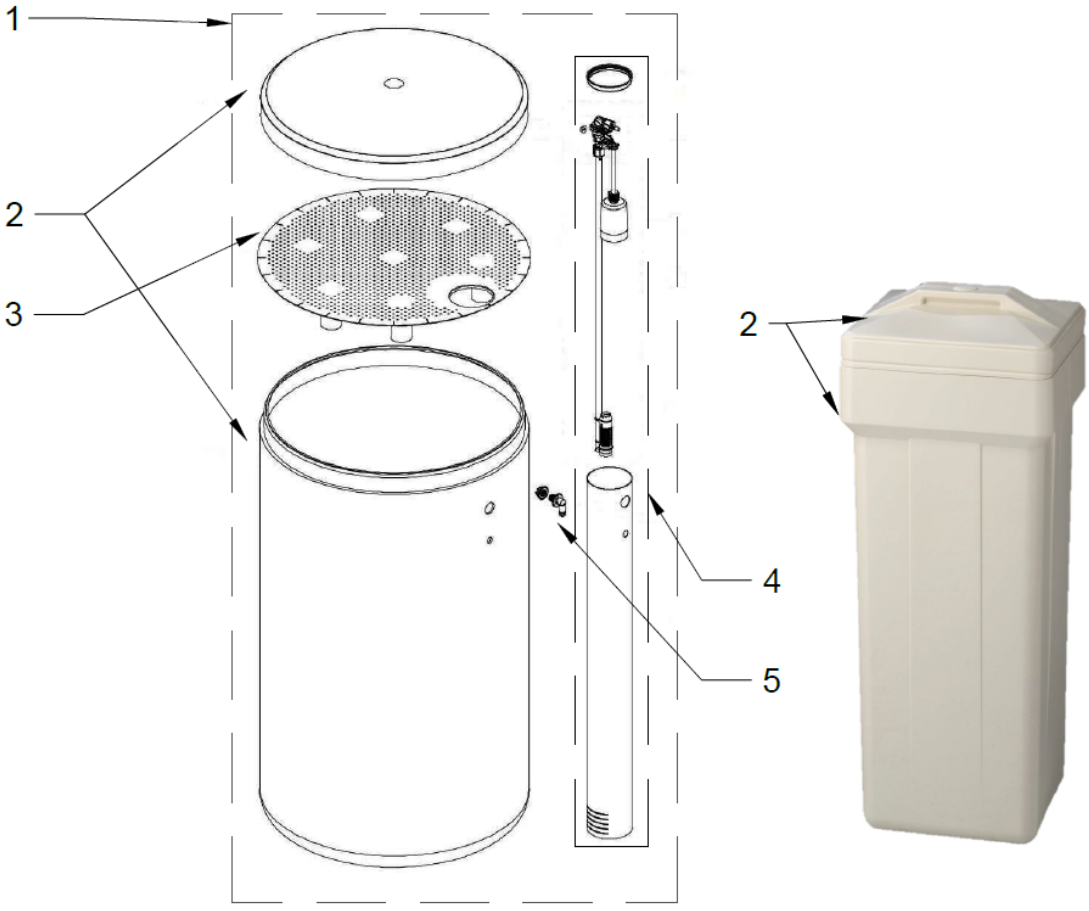
6) BRINE TANK ASSEMBLY



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

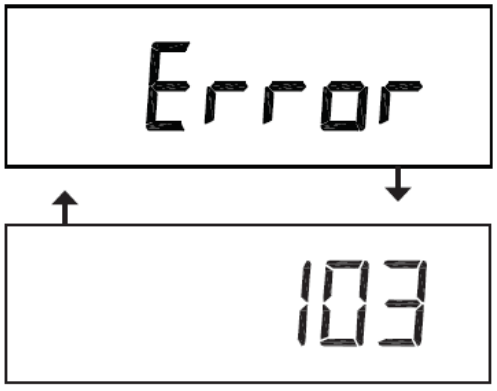
*Item#1 is a full assembly, contains Item#2,3,4 & 5



7) TROUBLESHOOTING

7.1) Possible Error Codes

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



If the word “Error” and number flashes alternatively. Refer to the table given above and

7.2) Troubleshooting Procedures

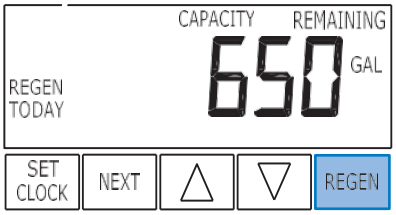
Problem	Possible Cause	Solution
1. No Display on PC Board	a. No power at electric outlet	a. Repair outlet or use working outlet
	b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	b. Plug Power Adapter into outlet or connect power cord end to 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. Display does not indicate that water is flowing. Refer to user instructions for how the display indicates water is flowing	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Meter wire not installed securely into three pin connector	d. Verify meter cable wires are installed securely into three pin connector labeled METER
	e. Defective meter	e. Replace meter
	f. Defective PC Board	f. Replace PC Board
4. 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 REGEN button is depressed and held.	a. Broken drive gear or drive cap assembly	a. Replace drive gear or drive cap assembly
	b. Broken Piston Rod	b. Replace piston rod
	c. Defective PC Board	c. Defective PC Board
6. 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. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted / stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Incorrect programming	d. Check for programming error
	e. Meter wire not installed securely into three pin connector	e. Verify meter cable wires are installed securely into three pin connector labeled METER
	f. Defective meter	f. Replace meter
	g. Defective PC Board	g. Replace PC Board

Problem	Possible Cause	Solution
7. Hard 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. Meter not registering	c. Remove meter and check for rotation or foreign material
	d. Water quality fluctuation	d. Test water and adjust program values accordingly
	e. No regenerant or low level of regenerant in regenerant tank	e. Add proper regenerant to tank
	f. Control fails to draw in	f. Refer to Trouble Shooting Guide number 12
	g. Insufficient regenerant level in regenerant tank	g. Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
	h. Damaged seal/stack assembly	h. Replace seal/stack assembly
	i. Control valve body type and piston type mix matched	i. Verify proper control valve body type and piston type match
	j. Fouled media bed	j. Replace media bed
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	c. Re-tighten the drive cap assembly
	d. Damaged seal/ stack assembly	d. Replace seal/ stack
	e. Restricted or kinked drain line	e. Check drain line for restrictions or debris and or un-kink drain line
	f. Plugged backwash flow controller	f. Remove backwash flow controller and clean or replace
	g. Missing refill flow controller	g. Replace refill flow controller
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

Problem	Possible Cause	Solution
13. E1, Err – 1001, Err – 101 = Control unable to sense motor movement	a. Motor not inserted full to engage pinion, motor wires broken or disconnected	a. Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. PC Board not properly snapped into drive bracket	b. Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Missing reduction gears	c. Replace missing gears
14. E2, Err – 1002, Err – 102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	a. Foreign material is lodged in control valve	a. Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Main drive gear too tight	c. Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Improper voltage being delivered to PC Board	d. Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
15. E3, Err – 1003, Err – 103 = Control valve motor ran too long and was unable to find the next cycle position	a. Motor failure during a regeneration	a. Check motor connections then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	b. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	c. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
16. Err – 1004, Err – 104 = Control valve motor ran too long and timed out trying to reach home position	a. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	a. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

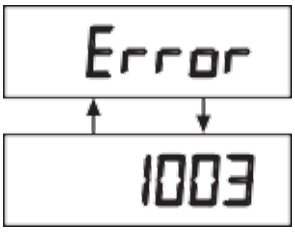
8) QUICK REFERENCE GUIDE

Manual Regeneration



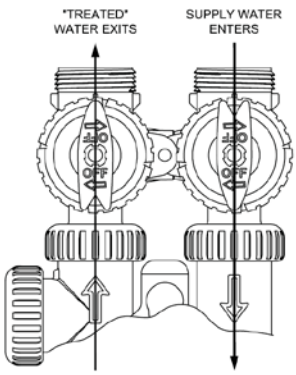
Immediate Regeneration: - Press and hold "REGEN" button for more than 3 seconds. Press "REGEN" button to advance the unit to next cycle in regeneration.

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.



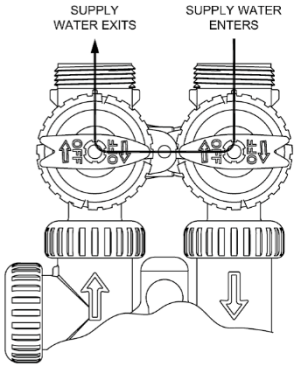
This error screen and error number will toggle. Contact Service Technician or Excalibur to report the error code.

NORMAL OPERATION

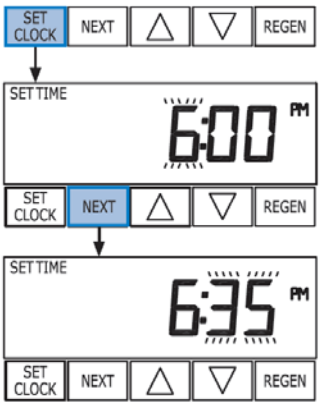


The bypass valve handle must be in the direction of flow and engraved arrows on control valve.

BYPASS OPERATION



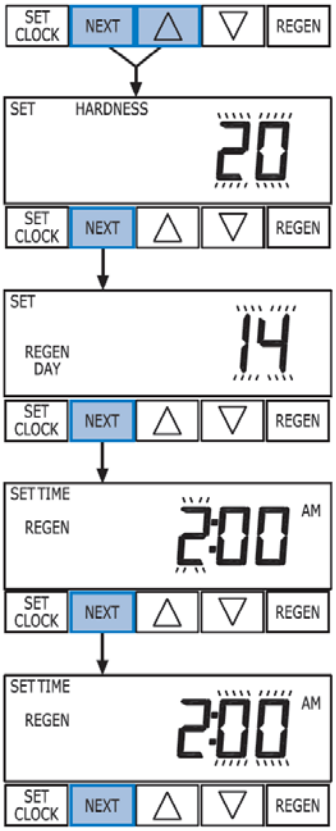
The bypass valve handles must be turned towards the center as shown above



Set Time of Day

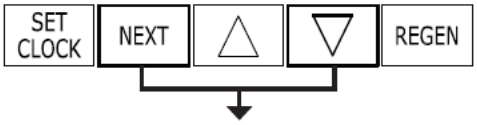
- Press "SET CLOCK" button.
- Hours will flash press up and down buttons to adjust hours to current hour of day. Then press "NEXT" button.
- By pressing up and down buttons adjust minutes. Then press "NEXT" button.
- The time is set and the valve display will return to normal display.

Installer Settings



- Press “NEXT” and “UP” arrow button simultaneously.
- Adjust hardness in grains per gallon
- Adjust “14” days override the maximum number of days between regenerations
- Adjust hour of the time of regeneration by using “UP” and “DOWN” buttons
- Adjust minutes of time of regeneration

Softener System Setup



Step #	Value	Description
2S	**Softening**	Configured as softener
3S	**Grain Capacity**	Refer Page #13
4S	**Lbs of Salt**	Refer Page #13
5S	**Normal**	Backwash and Rinse cycle length
6S	**AUto**	Volume Capacity and Reserve Calculations Automatic
7S	**PoST**	Refill cycle starts immediately after Rinse cycle
8S	**dn**	Downflow brine cycle
9S	**Normal**	Regeneration occurs at next scheduled regen time of day if: - • Volume capacity falls below reserve capacity • The maximum number of days between regenerations has been reached

9) WARRANTY

7 Year Warranty
Lifetime Tank Warranty
Simplex Value Water Softener

Thank you for your purchase of our SIMPLEX VALUE WATER SOFTENER. 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 7 years, the CONTROL BODY to be free of defects in materials and workmanship and to perform its proper functions. To the original owner, a period of 7 years, the ELECTRONIC CONTROL VALVES as well as all parts to be free of defects in materials and workmanship and to perform their normal functions. To the original owner, the SALT TANK and the MINERAL TANKS will not rust, corrode, leak, burst or in any other form fail to perform their proper functions for a LIFETIME period of 20 YEARS.

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

General Provisions
The above warranties are effective provided the WATER SOFTENER is operated at water pressures not exceeding 125psi and at water temperatures not exceeding 120°F; also provided that the water softener is not subject to abuse, misuse, alteration, neglect, freezing, accident or negligence; and provided further that the water softener is not damaged as the result of any unusual force of nature such as, but not limited to flood, hurricane, tornado or earthquake. Excalibur Water Systems is excused if failure to perform its warranty obligations is the result of strikes, government regulation, materials shortages or other circumstances beyond its control.

THERE ARE NO WARRANTIES ON THE WATER SOFTENER 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.

142 Commerce Park Drive
Barrie, Ontario
Canada