



# WATER SOFTENER

## INSTALLATION GUIDE & OWNER'S MANUAL

### **FOR MODELS**

- SE-844
- SE-1044
- SE-1054
- SE-1354

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## YOUR SYSTEM:

Installation Date: \_\_\_\_\_

Installer: \_\_\_\_\_

City/State: \_\_\_\_\_

Phone: \_\_\_\_\_

Model: \_\_\_\_\_

Serial #: \_\_\_\_\_

## YOUR WATER RESULTS:

Total Hardness: \_\_\_\_\_ gpg

Iron (Fe): \_\_\_\_\_ ppm

Acidity (pH): \_\_\_\_\_

Total Dissolved  
Solids (TDS): \_\_\_\_\_ ppm

Total Compensated  
Hardness: \_\_\_\_\_ gpg

### PRODUCT WARRANTY

In the unlikely event that your system has defects in material or assembly, the manufacturer will proudly stand behind our products and support the original owner for the following:

**5 YEARS**  
**on Mineral Tank**

**5 YEARS**  
**on Brine Tank**

**5 Years**  
**on All Parts**

System must be installed in accordance with specifications outlined in this manual and local plumbing codes to qualify for the factory warranty. Warranty coverage is limited and will not cover damaged due to accident, fire, flood, freezing, any other "Act of God," change in water conditions, misapplication, neglect, vacuum, lack of maintenance, or equipment installed on a non-potable water source.

# VALVE SETTINGS— USER

## GENERAL OPERATION

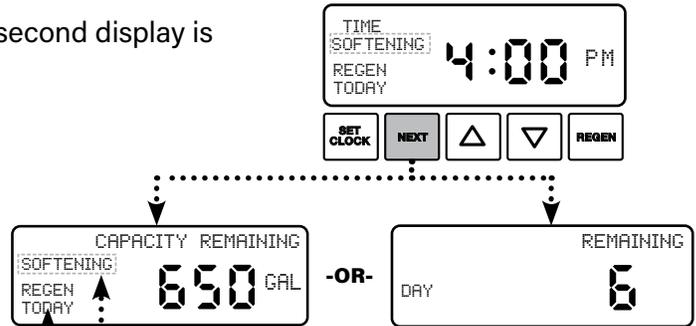
When the system is operating, the screen will show one of the two displays. Pressing **NEXT** will switch to the other available display information.

One of the displays is always the current time of day. The second display is one of the following:

- **Days Remaining**— Number of days left before the system regenerates.
- **Capacity Remaining**— Volume of water that will be treated before the system regenerates.

If the system is scheduled to perform a regeneration based on the preset programming, **REGEN TODAY** ..... will appear on the display.

When water is currently being treated by the system, the operating function flashes on the display (when a ..... water meter is installed).

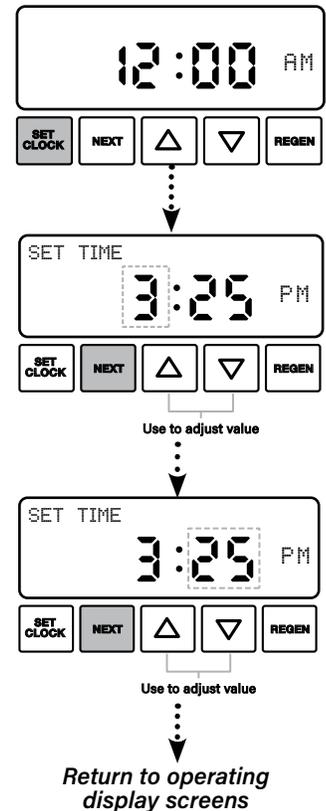


## SET TIME OF DAY

Having an accurate time of day programmed into your system ensures proper operation around your schedule. The clock should only need to be set after extended power outages or when daylight saving time begins or ends.

1. **Press SET CLOCK.**
2. **SET CURRENT HOUR**— Use the  $\Delta$  and  $\nabla$  buttons to select the current hour of the day. The AM/PM designation will change as you scroll past 12.
3. **SET CURRENT MINUTES**— Use the  $\Delta$  and  $\nabla$  buttons to select the current minute of the hour. The AM/PM designation will change as you scroll past 12.

Press **NEXT** to exit SET CLOCK — or — Press **REGEN** to return to previous step.

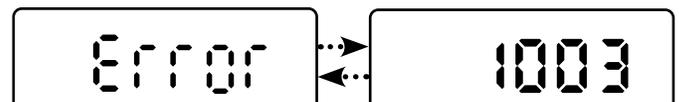


## POWER OUTAGES

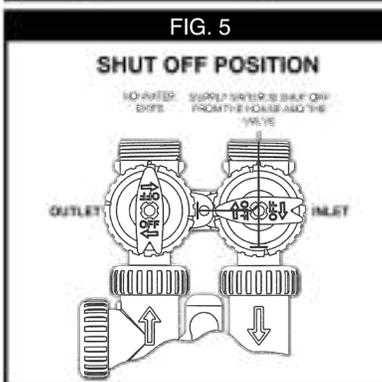
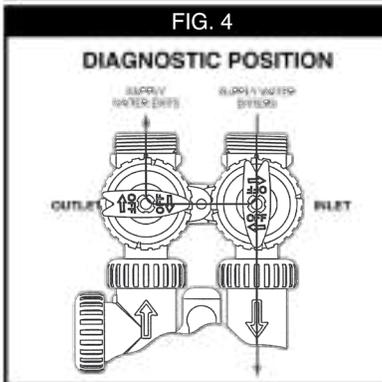
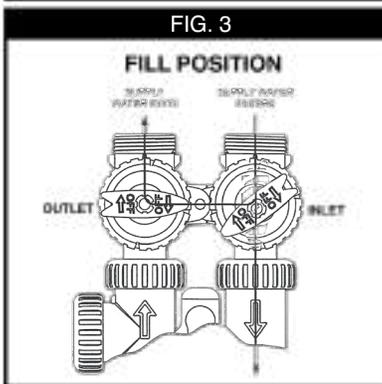
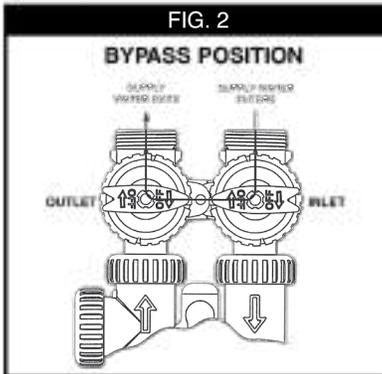
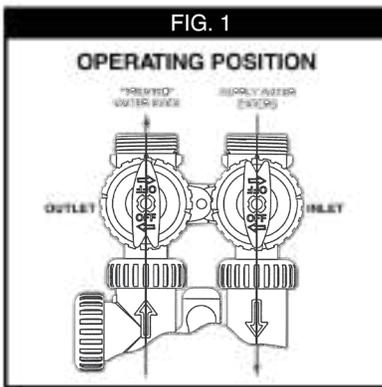
If the power goes out for less than 2 hours, the system will automatically reset itself. If an extended power outage occurs, the time of day will flash on and off which indicates the clock should be reset. The system will remember the rest of the operational programming.

## ERROR MESSAGE

When the word **ERROR** and a number are alternating on your screen, this indicates that the system was unable to function properly. Please contact your water professional for assistance.



# BYPASS VALVE OPERATION



The bypass valve is used to isolate the system's operation from the plumbing system's water pressure in order to perform repairs or maintenance. The bypass provided with your water system is uniquely designed to be versatile with many advanced features. The 1" full flow valve incorporates four positions, including a diagnostic position that allows service personnel to work on a pressurized system while still providing untreated water to the building. It's completely non-metallic design allows for easy serviceability without the needs for tools.

The bypass body and rotors are glass-filled Noryl while the nuts and caps are glass-filled polypropylene. All seals are self-lubricating EPDM to help prevent seizing after long periods of non-use. Internal O-rings can easily be replaced if maintenance is required.

The bypass consists of two interchangeable plug valves that are operated independently by red arrow-shaped handles. The handles will point in the direction of the water flow in any given position. The plug valves enable the bypass valve to operate in multiple positions. See diagrams for details.

- 1. Normal Operating Position—** Inlet handle is turned to have the arrow pointing toward the unit. Water flows through the control valve during normal operation. This position also allows the control valve to isolate the media bed during the regeneration cycle. The outlet handle is pointed away from the unit to allow the flow of treated water to leave the system and enter the building's plumbing system. (See Fig. 1 below)
- 2. Bypass Position—** The inlet and outlet handles point towards each other. This isolates the control valve from the water pressure contained in the plumbing system. Any water drawn from the building while the system is in this position will receive untreated water directly from the source. (See Fig. 2 below)
- 3. Fill Position—** During initial start up, the media tank will need to be filled with water. Slowly open the inlet handle to be partially open; handle arrow should point at a 30°-45° angle from the closed position. The outlet handle should remain closed, pointing toward the center of the bypass. (See Fig. 3 below)
- 4. Diagnostic Position—** The inlet handle arrow points toward the unit to allow water pressure to flow into the control valve. The outlet handle remains closed, pointed toward the center of the bypass. (See Fig. 4 below) This is helpful to have water run through the system without it affecting the rest of the building.
- 5. Shut Off Position—** The inlet handle is closed with the arrow pointing toward the center of the bypass. The outlet handle should point away from the unit. (See Fig. 5 below) This will stop all water flow to the building. If water is still available to the plumbing system in this position, this indicates a plumbing connection somewhere that is going around the unit.

# INSTALLATION INSTRUCTIONS

## PRE-INSTALLATION CHECKLIST

**Plumbing Connections**— All plumbing materials and the installation must adhere to State and Local Plumbing Codes.

**Water Pressure**— Proper operation of the equipment requires:

- A minimum of 25 pounds water pressure.
- A maximum of 100 pounds water pressure.
- A minimum flow rate of 3 gallons per minute.

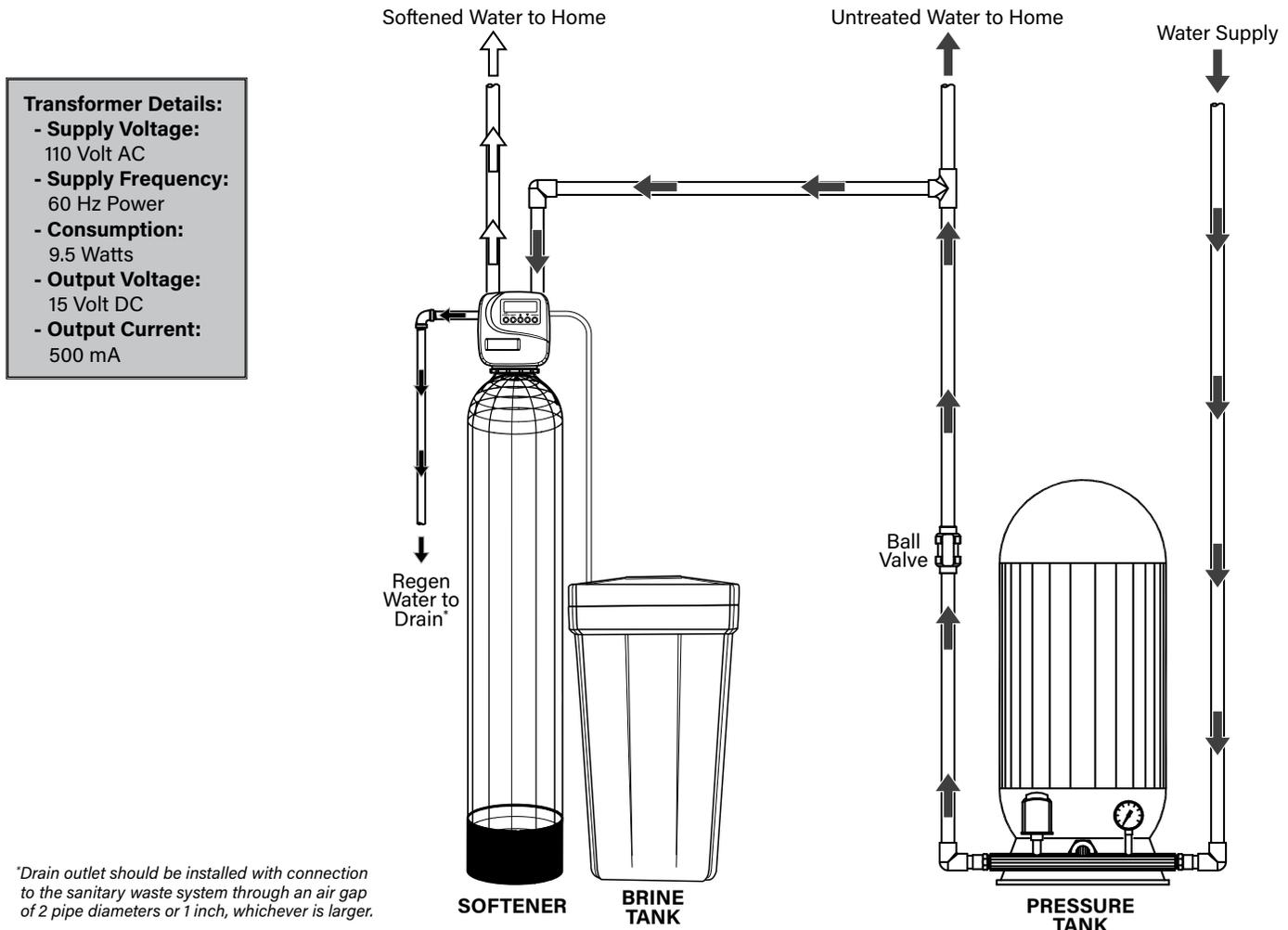
**Electrical Requirements**— A continuous 110 volt 60 hertz AC current is needed for power supply. Ensure power is not on a switched outlet or interrupted in any other way.

**Temperature**— Equipment must not be installed where it will be exposed to temperatures below 40° F or above 100° F.

**Drainage Information**— The unit should be installed as close to the drain and water supply as possible. The connections for inlet and outlet are 1" Sweat copper or 1" NPT made adapter. The drain connector is 3/4" NPT male. Construct the drain outlet to include an air gap of 2 pipe diameters or 1" (whichever is larger).

**Bypass Valve**— The system includes a bypass valve. If the existing plumbing already has a bypass, the one provided may be removed. If you used the bypass provided, a full port ball valve should be installed on the inlet side. The equipment is designed to accommodate minor plumbing misalignments, but is not able to support the weight of the system or plumbing.

## INSTALLATION DIAGRAM



## Post-INSTALLATION CHECKLIST

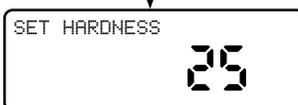


### IMPORTANT—

Do not plug the transformer into an outlet until instructed in the steps below.

- 1. Flush System—** After installation is complete, rotate the bypass valve handles to the bypass position shown in **Fig. 2** on page 4. With water pressure turned on, open a cold water faucet and allow water to clear pipes of debris which may occur during installation. Close cold water faucet.
- 2. Fill Brine Tank—** Manually pour water into brine tank until approximately 2" of water is visible in the tank. Then, add 160-200 lbs. of solar salt to the tank. Always keep salt above the water level in tank.
- 3. Set Time of Day—** Plug power cord into a 120/60 uninterrupted outlet. Press and hold **SET CLOCK** button until hour number is flashing. Use the  $\Delta$  and  $\nabla$  buttons to set correct hour of day (cycle past 12 to change AM/PM). Press the **NEXT** button to advance to the minutes value and use the  $\Delta$  or  $\nabla$  button to set current minute of the hour. Press **NEXT** to exit and save the current time. See page 3.
- 4. Start Up Instructions—**
  - Press and hold **REGEN** button until motor starts. When motor stops, valve will be in **BACKWASH** cycle of regeneration process.
  - **Unplug** power cord from 120/60 outlet. Rotate inlet side of bypass partially open so water enters system slowly, as shown in **Fig. 3** on page 4. Continue to until water is flowing from drain pipe at a steady pace and without any air; this indicated that the media tank is completely full.
  - **Rotate** the inlet side of the bypass to fully open position as shown in **Fig. 4** on page 4.
  - **Plug** the power cord back into a 120/60 outlet. Press **REGEN** button to force motor to advance to **BRINE** position. While system is counting down, press **REGEN** again to advance motor to the **2ND BACKWASH** cycle. While system is counting down, press **REGEN** button a third time to advance the system to the **RINSE** cycle. While system is counting down, press **REGEN** button to advance the system to the **FILL** cycle. While system is counting down, press **REGEN** button a final time to advance motor to **SOFTENING** position. The time of day will return to the screen.
- 5. Release Treated Water—** Slowly turn the outlet side of the bypass valve top open it as shown in **Fig. 1** on page 4. Unit is now providing softened water to the building.

## VALVE SETTINGS— INSTALLER



Use to adjust value

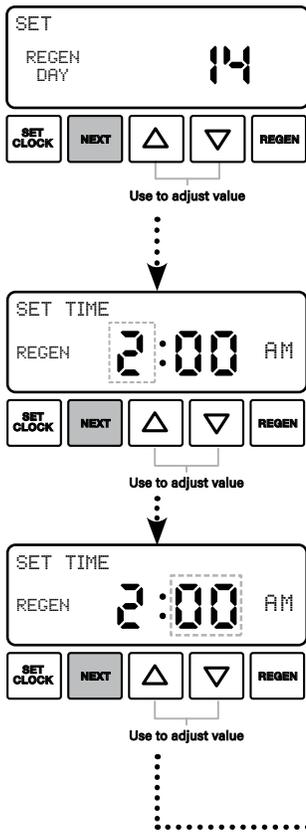
- 1. Access Programming—** Press and hold **NEXT** and the  $\Delta$  button simultaneously for 3 seconds.

- 2. Water Hardness—** Use the  $\Delta$  and  $\nabla$  buttons to set the grains of hardness as  $\text{CaCO}_3$  per gallon. The grains per gallon can be increased if soluble iron needs to be reduced.

- **Range:** 1-150 grains
- This display will read **—NA—** if system is configured as a filter controller.

Press **NEXT** to move on to the next step or press **REGEN** to exit Installer Settings.

.....➔ *Process continued on next page*



**3. Day Override—** If **Volume Capacity** is set to **OFF**, this setting will control the number of days between regenerations. If **Volume Capacity** is set to **AUTO** or a specific number, this will set the **maximum** number of days between regenerations.

Use the  $\Delta$  or  $\nabla$  button to select one of the following options:

- **Days Value:** Set a number (1-28) of days to trigger a regeneration, even if sufficient volume of water has not been used.
- **OFF:** System will only trigger a regeneration based on volume used.

Press **NEXT** to move on to the next step or press **REGEN** to exit Installer Settings.

**4. Regeneration Time—** Use the  $\Delta$  or  $\nabla$  button to set the hour of the day regeneration should begin. The AM/PM designation will change as you scroll past 12. Press **NEXT** to change the minutes value.

- The ideal time will vary based on the owner’s water usage habits. Set a regeneration time when treated water is not necessary.

Press **NEXT** to exit Installer Settings or press **REGEN** to return to the previous step.

## REGENERATION MODE

A system is usually set to regenerate at a time of low water usage (*i.e. when a household is asleep*). If there is a demand for water when the system is regenerating, untreated water will be used.

When the system starts regeneration, the screen information will display the current cycle that is in process and the time remaining for that step to be completed. The system performs each cycle automatically and will return to the operating mode once all regeneration cycles are complete.



## MANUAL REGENERATION

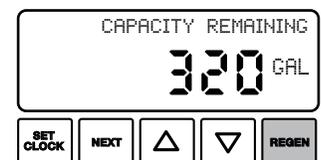
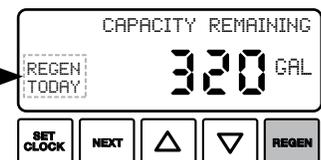
Occasionally, you may need to manually regenerate the system before the programming calls for it, such as after increased water usage due to guests or a heavy laundry day.

To start a manual regeneration at the preset time, press and release the **REGEN** button. **REGEN TODAY** will flash on the display to indicate that the system will regenerate at the preset delayed regeneration time (*default is 2:00 AM*).

- Press **REGEN** again to cancel the request.

**NOTE:** If the **Regeneration Time Option** is set to **“ON 0”**, there is no delayed regeneration time designated in the programming. Therefore **REGEN TODAY** will not activate if **REGEN** is pressed. To initiate a manual regeneration immediately, press and hold **REGEN** for **3 seconds**. The system will begin to regenerate immediately. The request cannot be canceled.

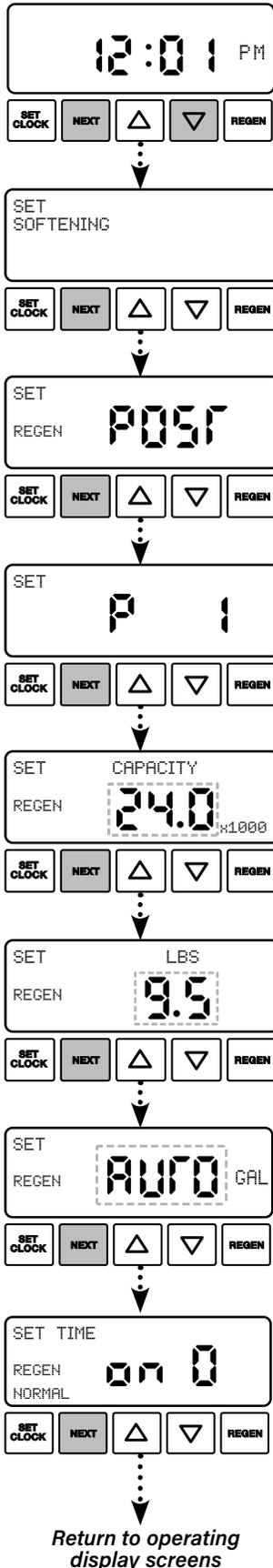
(For softeners, if brine tank does not contain salt, fill with salt and wait at least 2 hours before regenerating.)



Hold 3 sec. for Immediate regen

# OEM SOFTENER SYSTEM SETUP— AT A GLANCE

This is a quick reference setup guide. See Technician's Guide for complete details and available settings.



**1. Access Programming**— Press and hold **NEXT** and the  $\nabla$  button simultaneously for 3 seconds.

**2. Operating Mode**— Use the  $\Delta$  and  $\nabla$  buttons to select SOFTENING. Press **NEXT** to move on to the next step or press **REGEN** to exit OEM Settings.

**3. Refill Option**— Use the  $\Delta$  and  $\nabla$  buttons to select when the brine tank should fill with water from one of the following options:

- **POST:** Brine tank will fill after the final rinse.
- **PRE:** Brine tank will fill 2 hours before the set regeneration time.

Press **NEXT** to move on to the next step or press **REGEN** to return to previous step.

**4. Program Code**— Enter the desired program code from the tables on Page 9-10. Press **NEXT** to move on to the next step or press **REGEN** to return to previous step.

**5. Capacity**— Use the  $\Delta$  and  $\nabla$  buttons to enter the ion exchange capacity in grains of hardness as  $\text{CaCO}_3$  based on water test results.

Press **NEXT** to move on to the next step or press **REGEN** to return to previous step.

**6. Salt Dosage**— Use the  $\Delta$  and  $\nabla$  buttons to enter the pounds of salt per regen.

Press **NEXT** to move on to the next step or press **REGEN** to return to previous step.

**7. Gallons Capacity**— Use the  $\Delta$  and  $\nabla$  buttons to select one of the following options:

- **AUTO:** Reserve capacity and gallons capacity is automatically calculated from grains capacity and water hardness settings.
- **OFF:** Regeneration is based on Day Override setting.
- **SET NUMBER:** Enter number of gallons (Range: 20-50,000). See table on Page 10 for more details.

Press **NEXT** to move on to the next step or press **REGEN** to return to previous step.

**8. Regen Time**— Use the  $\Delta$  and  $\nabla$  buttons to set the regeneration time from one of the following options:

- **NORMAL:** Regen will occur at the time set in Installer Settings process.
- **ON 0:** Regen will occur immediately when gallons capacity reaches 0 (zero), no matter what time of day this happens.
- **NORMAL + ON 0:** Regen will occur at one of the following instances:
  - The preset time when the gallons capacity falls below the reserve or specified number of days between regenerations is reached (whichever happens first).
  - After 10 minutes of no water usage when the gallon capacity reaches 0 (zero).

See table on Page 10 for more details.

Press **NEXT** to exit OEM System Setup or press **REGEN** to return to previous step.

## SOFTENER PROGRAMMING CODES

Program Code	Main Piston	1st Backwash (minutes)	Brine/ Slow Rinse (minutes)	2nd Backwash (minutes)	Fast Rinse (minutes)
P1	Downflow	3	40	3	3
P2	Downflow	3	45	3	3
P3	Downflow	4	45	3	3
P4	Downflow	4	60	4	3
P5	Downflow	5	60	4	4
P6	Downflow	5	60	5	4
P7	Downflow	6	45	4	3
P8	Downflow	6	60	5	4
P9	Downflow	6	60	6	5
P10	Downflow	7	50	5	4
P11	Downflow	7	60	6	6
P12	Downflow	7	65	7	7
P13	Downflow	8	45	5	4
P14	Downflow	8	60	6	6
P15	Downflow	8	60	8	8
P16	Downflow	8	65	8	6
P17	Downflow	8	65	8	7
P18	Downflow	8	75	8	5
P19	Downflow	9	50	5	5
P20	Downflow	9	60	5	4
P21	Downflow	9	65	8	5
P22	Downflow	10	45	4	4
P23	Downflow	10	60	5	4

## SOFTENER PROGRAMMING CODES

Program Code	Main Piston	1st Backwash (minutes)	Brine/ Slow Rinse (minutes)	2nd Backwash (minutes)	Fast Rinse (minutes)
P24	Downflow	10	65	8	8
P25	Downflow	10	65	6	5
P26	Downflow	10	75	7	5
P27	Downflow	12	45	4	4
P28	Downflow	12	60	6	4
P29	Downflow	12	60	8	8
P30	Downflow	12	655	6	6
P31	Downflow	12	65	8	8
P32	Downflow	12	65	12	8
P33	Downflow	12	75	6	6
P34	Downflow	14	45	5	4
P35	Downflow	14	60	6	5
P36	Downflow	14	60	8	8
P37	Downflow	14	65	7	6
P38	Downflow	14	65	8	8
P39	Downflow	14	65	12	8
P40	Downflow	14	75	8	7
P41	Downflow	16	60	7	5
P42	Downflow	16	65	8	6
P43	Downflow	16	65	8	8
P44	Downflow	16	65	12	8
P45	Downflow	16	75	9	7

## SOFTENER SETTING OPTIONS

Gallons Capacity	Regen Time Option	Day Override Option	System Operation Result
AUTO	NORMAL	OFF	Reserve capacity automatically estimated. Regen occurs when gallons capacity falls below the reserve capacity at the next Regen Set Time.
AUTO	NORMAL	Any Number	Reserve capacity automatically estimated. Regen occurs at the next Regen Set Time when gallons capacity falls below the reserve capacity or the specified number of days between regenerations is reached.
Any Number	NORMAL	OFF	Reserve capacity NOT automatically estimated. Regen occurs at the next Regen Set Time when gallons capacity reaches 0 (zero).
OFF	NORMAL	Any Number	Reserve capacity NOT automatically estimated. Regen occurs at the next Regen Set Time when the specified number of days between regenerations is reached.
Any Number	NORMAL	Any Number	Reserve capacity NOT automatically estimated. Regen occurs at the next Regen Set Time when gallons capacity reaches 0 or the specified number of days between regenerations is reached.
AUTO	On 0	OFF	Reserve capacity NOT automatically estimated. Regeneration occurs immediately when gallons capacity reaches 0 (zero). Time of regeneration will not be allowed to be set because regeneration will always occur when gallons capacity reaches 0 (zero).
Any Number	On 0	OFF	Reserve capacity NOT automatically estimated. Regeneration occurs immediately when gallons capacity reaches 0 (zero). Time of regeneration is not allowed to be set because regeneration will always occur on 0 (zero).
AUTO	NORMAL + On 0	OFF	Reserve capacity automatically estimated. Regeneration occurs when gallons capacity falls below the reserve capacity at the next Regen Set Time or regeneration occurs after 10 minutes of no water usage when gallon capacity reaches 0 (zero).
AUTO	NORMAL + On 0	Any Number	Reserve capacity automatically estimated. Regeneration occurs at the next Regen Set Time when gallons capacity falls below the reserve capacity or the specified number of days between regenerations is reached or regeneration occurs after 10 minutes of no water usage when gallon capacity reaches 0 (zero).
Any Number	NORMAL + On 0	Any Number	Reserve capacity NOT automatically estimated. Regeneration occurs at the next Regen Set Time when the specified number of days between regenerations is reached or regeneration occurs after 10 minutes of no water usage when gallon capacity reaches 0 (zero).

## IN-FIELD RESOLUTION GUIDE

Service Issue	Recommended Solution
Screen does not display time of day	<p>Likely caused by a lack of power. Ensure the transformer is plugged into a functioning electrical outlet.</p> <p>If no issues found with power source, you have the option to replace the power adapter and/or the PC board.</p>
Display is showing the wrong Time of Day	<p>Unit has irregular access to power. Check to make sure product is not plugged into an outlet controlled by a light switch or a breaker/GFI was triggered.</p> <p>If no issues found with power source, replace the PC board.</p>
"Softening" is not displayed when system is operating	<p>A flow meter may not be installed. Other possibilities include the unit being in Bypass position, the flow meter is not properly connected to the PC board, or something is lodged inside prohibiting turning of the blades.</p> <p>If no issues are found with the flow meter, it may be defective and should be replaced.</p>
Unit is regenerating at wrong time of day	<p>Ensure the Time of Day is correct and reset as needed by following the product's Installer &amp; Owner's Manual.</p> <p>Check the Time of Regeneration is set correctly and/or that programming setting has NORMAL regeneration selected. (<i>"NORMAL + On 0" or "On 0" will activate at random times.</i>)</p>
Unit is not regenerating automatically when holding down the REGEN button	<p>If the valve cover is not aligned correctly, remove and reattach in proper position. Other reasons include a broken piston rod, broken drive gear, or broken drive cap assembly.</p> <p>If all components appear intact, replace the PC board.</p>
Unit is not regenerating according to the system programming, but <i>will</i> while holding down the REGEN button	<p>The unit may be in the Bypass position or the regeneration settings are not programmed correctly. Other possibilities include the flow meter is not connected to the PC board or something is lodged inside prohibiting turning of the blades.</p> <p>If no issues are found in the items above, you have the option to replace the flow meter and/or the PC board.</p>
Control valve stalled during regeneration	<p>Ensure that there is consistent electrical power to the unit. If the outlet is working properly, it could indicate that the motor was unable to function. Inspect the following items and replace if necessary.</p> <ul style="list-style-type: none"> <li>▪ Transformer</li> <li>▪ Drive Gear/Drive Cap Assembly</li> <li>▪ PC Board</li> <li>▪ Piston Retainer</li> <li>▪ Main or Regenerant Piston</li> </ul>
Water is running to the drain	<p>Please review all of the following scenarios:</p> <ul style="list-style-type: none"> <li>▪ After a power outage, the system will resume an interrupted regeneration process. If system included a battery back up, replace it following instructions on Page 3.</li> <li>▪ Seal, stack assembly, or piston assembly may be damaged and needs to be replaced.</li> <li>▪ Ensure drive cap assembly is tightened properly.</li> </ul>

*Additional common troubleshooting recommendations continue on next page*

## IN-FIELD RESOLUTION GUIDE

Service Issue	Recommended Solution
System is using too much regenerant	<p>Check the valve programming for REFILL setting, water quality setting, and regen frequency to ensure it matches the job site needs.</p> <p>Also ensure there are no leaking fixtures drawing water causing the unit to regenerate more often.</p>
Regenerant is present in treated water	<p>This could be caused by low water pressure entering the system. Ensure there is a minimum of 25 psi at all times. Also check for an incompatible, damaged, or plugged injector, and that the drain line is free from debris.</p>
Unfiltered or hard water is present after passing through the unit	<p>Please review all of the following scenarios:</p> <ul style="list-style-type: none"> <li>▪ Ensure the bypass is in the closed position.</li> <li>▪ Check flow meter to ensure nothing is lodged inside.</li> <li>▪ Media could be exhausted from unusually high water usage or changes in water quality. Test the water and adjust program settings as needed.</li> <li>▪ Regenerant is available during regen cycles. Ensure brine tank has salt and system is able to draw in regenerant. <i>(See Service Issue below for details.)</i></li> <li>▪ Check seals, piston, and stack assembly for damage.</li> <li>▪ Ensure the control valve type and piston type are compatible.</li> <li>▪ The media may be fouled and needs to be replaced.</li> </ul>
Unit does not draw in regenerant	<p>Please review all of the following scenarios:</p> <ul style="list-style-type: none"> <li>▪ Injector is plugged. Remove and replace part.</li> <li>▪ The regenerant piston may be broken. Remove and replace part.</li> <li>▪ Check the regenerant line for air leaks.</li> <li>▪ Check the drain line for material restricting flow and causing excess back pressure.</li> <li>▪ Drain line is too long or too high for proper drainage.</li> <li>▪ Check incoming water pressure to ensure it maintains a minimum of 25 psi.</li> </ul>
There is excessive water in the brine tank	<p>Please review all of the following scenarios:</p> <ul style="list-style-type: none"> <li>▪ Brine line is not fully inserted into connector elbow inside brine tank.</li> <li>▪ Injector is plugged. Remove and replace part.</li> <li>▪ The seal, stack assembly, or piston may be damaged.</li> <li>▪ Check the REFILL setting in programming.</li> <li>▪ Ensure drive cap assembly is tightened properly.</li> <li>▪ Check the drain line for restrictions from debris or kinks in the line.</li> <li>▪ Backwash flow controller is plugged. Remove and replace part.</li> <li>▪ Refill flow controller is missing; replace part.</li> </ul>

## ERROR CODES AND DESCRIPTIONS

Error Code Number	Definition	Description
1001	Unable to recognize start of regeneration	Valve does not sense any movement with motor engaged
1002	Unexpected motor stall	Valve is not able to find the next cycle position
1003	Motor ran too long, timed out	Valve continued running without being able to find the next cycle position
1004	Motor ran too long, timed out	Valve continued running without being able to find the "Home" position

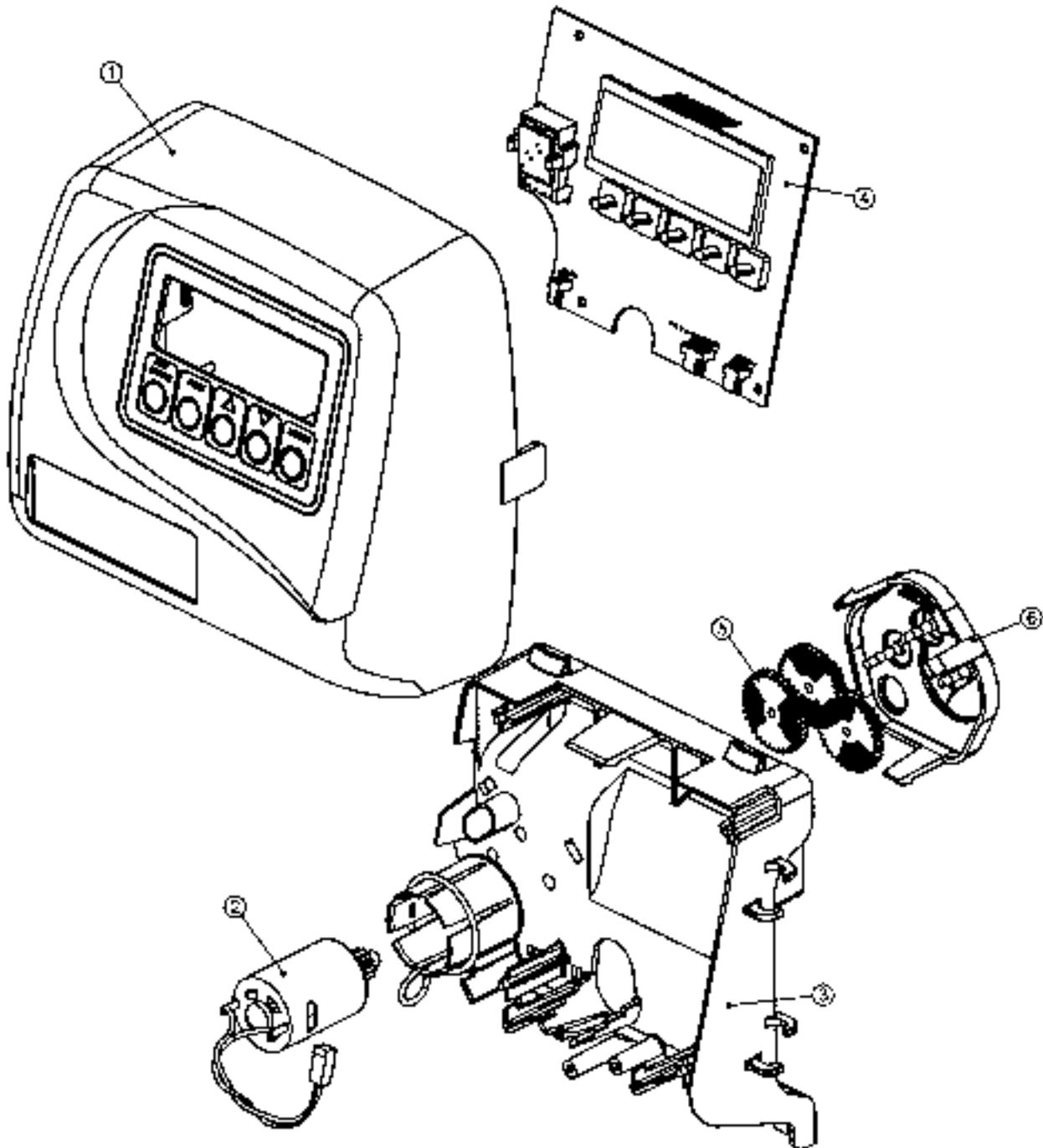
*If a different Error Code displays on your system, please contact your water professional.*

## COMMON SOLUTIONS FOR ERROR CODES

- The control valve has just been serviced. Press **NEXT** and **REGEN** for 3 seconds or unplug the power source and plug back in to reset the system.
- Foreign matter is lodged in the control valve. Check piston and spacer stack for blockage.
- High drive forces on piston. Replace the piston(s) and spacer stack assembly.
- Control valve is not seated in "Home" position. Press **NEXT** and **REGEN** for 3 seconds or unplug the power source and plug back in to reset the system.
- Motor not inserted fully to engage piston, motor wires disconnected, or motor failure. Check the motor and wiring; replace if necessary.
- Drive gear is label dirty or damaged, or the gear is missing or broken. Clean or replace the drive gear.
- Drive bracket incorrectly aligned to back plate. Reseat drive bracket properly.
- PC board is not aligned properly to drive bracket. Ensure PC board is correctly snapped into bracket.
- PC board is defective and needs to be replaced.

# REPLACEMENT PARTS

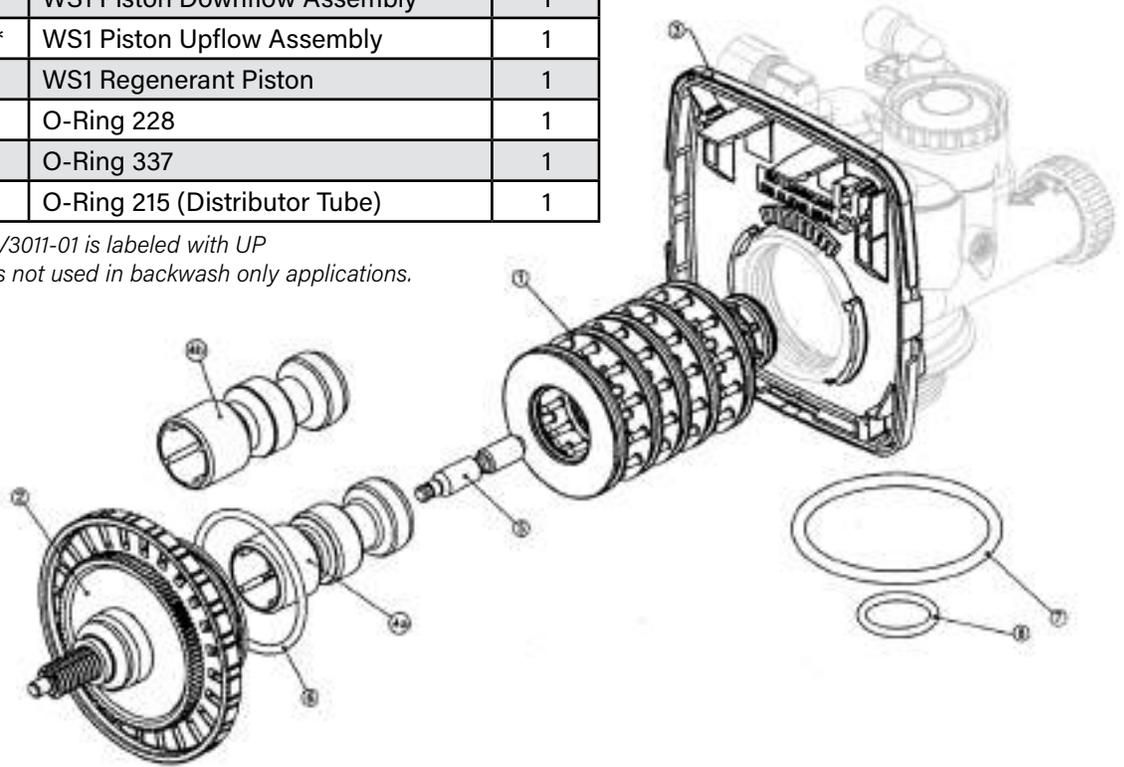
FRONT COVER & DRIVE ASSEMBLY			
DRAWING #	PART #	DESCRIPTION	QTY
1	V3175-01	WS1 Front Cover Assembly	1
2	V3107-01	WS1 Motor	1
3	V3106-01	WS1 Drive Bracket & Spring Clip	1
4	V3108CS	WS1CS PC Board	1
5	V3110	WS1 Drive Gear 12x36	3
6	V3109	WS1 Drive Gear Cover	1
	V3002	WS1 Drive Assembly	*
Not Shown	V3186	WS1 AC Adapter 110V-12V	1



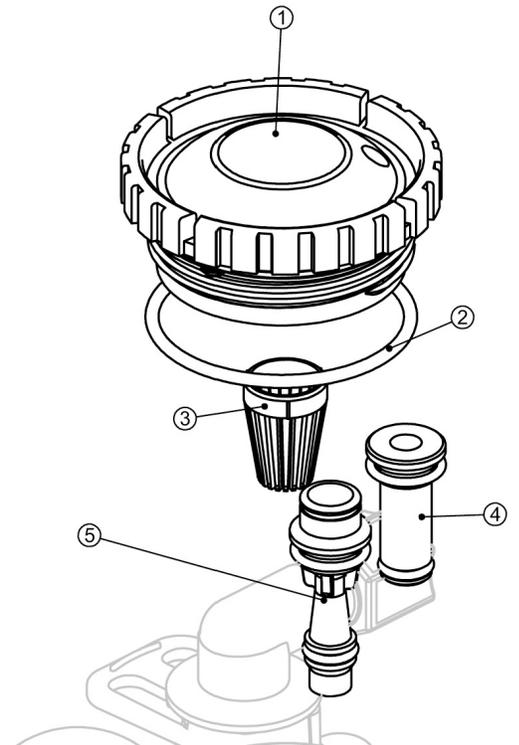
DRIVE CAP ASSEMBLY, PISTONS, & STACK ASSEMBLY			
DRAWING #	PART #	DESCRIPTION	QTY
1	V3005	WS1 Spacer Stack Assembly	1
2	V3004	Drive Cap Assembly	1
3	V3178	WS1 Drive Back Plate	1
4a	V3011*	WS1 Piston Downflow Assembly	1
4b	V3011-01*	WS1 Piston Upflow Assembly	1
5	V3174	WS1 Regenerant Piston	1
6	V3135	O-Ring 228	1
7	V3180	O-Ring 337	1
8	V3105	O-Ring 215 (Distributor Tube)	1

\*V3011 is labeled with DN and V3011-01 is labeled with UP

NOTE: The regenerant piston is not used in backwash only applications.

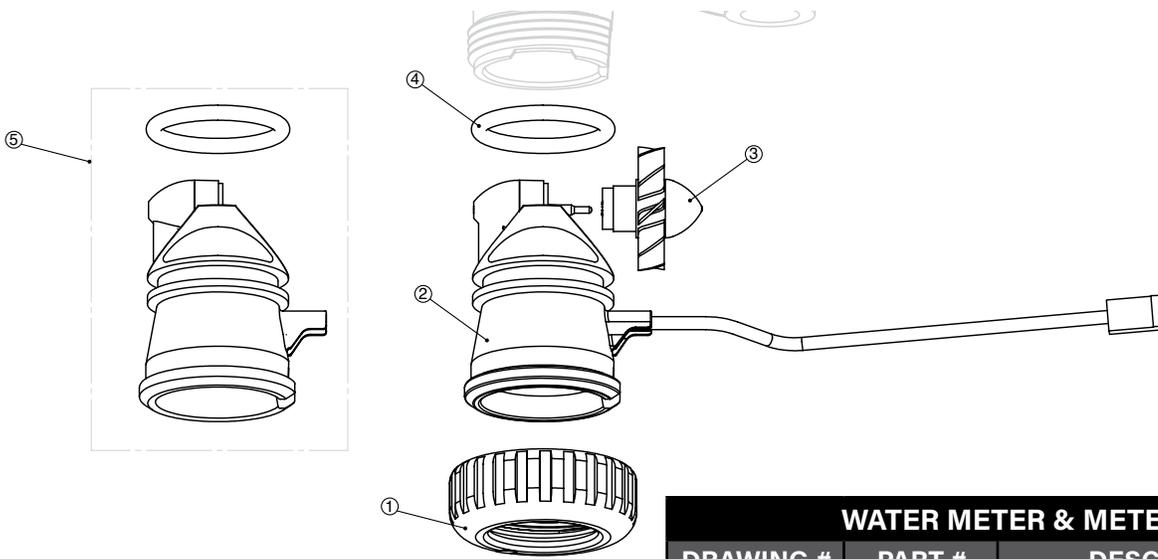


INJECTOR PARTS			
DRAWING #	PART #	DESCRIPTION	QTY
1	V3176	Injector Cap	1
2	V3152	O-Ring 135	1
3	V3177	Injector Screen	1
4	V3010-1Z	WS1 Injector Assembly Z Plug	1
5	V3010-1A	WS1 Injector Assembly A: Black	1
	V3010-1B	WS1 Injector Assembly B: Brown	
	V3010-1C	WS1 Injector Assembly C: Violet	
	V3010-1D	WS1 Injector Assembly D: Red	
	V3010-1E	WS1 Injector Assembly E: White	
	V3010-1F	WS1 Injector Assembly F: Blue	
	V3010-1G	WS1 Injector Assembly G: Yellow	
	V3010-1H	WS1 Injector Assembly H: Green	
	V3010-1I	WS1 Injector Assembly I: Orange	
	V3010-1J	WS1 Injector Assembly J: Light Blue	
V3010-1K	WS1 Injector Assembly K: Light Green		
Not Shown	V3170	O-Ring 011	*
Not Shown	V3171	O-Ring 013	*



\*Injector plug and injectors each contain one 011 (lower) and one 013 (upper) o-ring.

NOTE: For upflow position, injector is located in the up hole and injector plug in the down hole. For a filter that only backwashes, injector plugs are located in both holes.



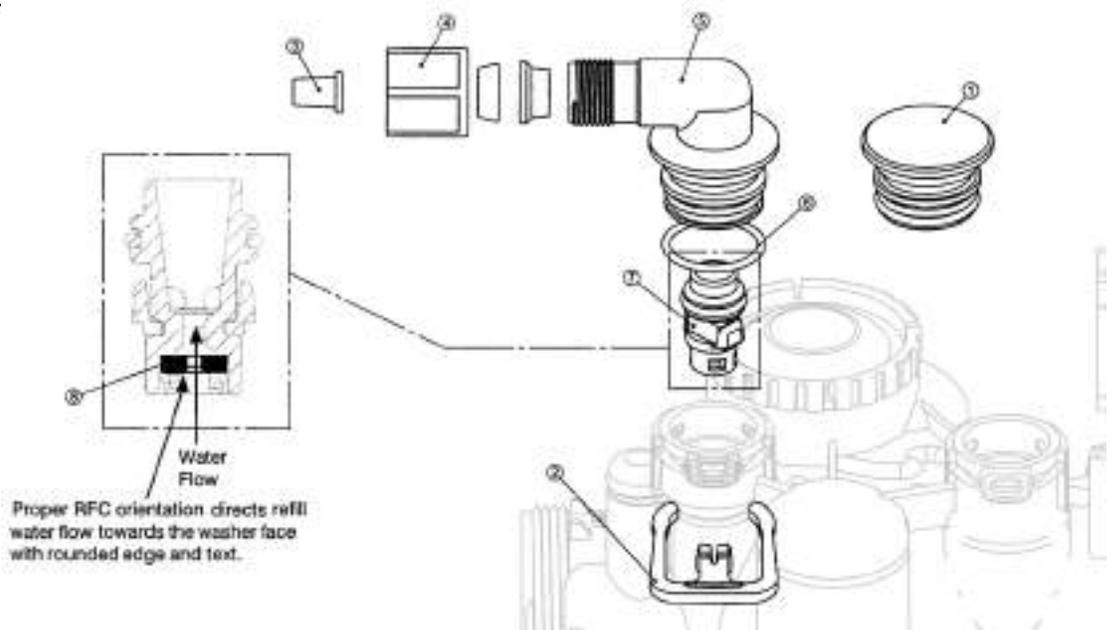
WATER METER & METER PLUG			
DRAWING #	PART #	DESCRIPTION	QTY
1	V3151	WS1 Nut 1" QC	1
2	V3003*	WS1 Meter Assembly	1
3	V3118-01	WS1 Turbine Assembly	1
4	V3105	O-Ring 215	1
5	V3003-01	WS1 Meter Plug Assembly	1

\*Order number V3003 includes V3118-01 and V3105

REFILL FLOW CONTROL & PORT PLUG			
DRAWING #	PART #	DESCRIPTION	QTY
1	V3195-01	WS1 Refill Port Plug Assembly*	1
2	H4615	Elbow Locking Clip	1
3	JCP-P-6	Polytube Insert 3/8	1
4	JCPG-6PBLK	Nut 3/8	1
5	H4613	Elbow Cap 3/8	1
6	V3163	O-Ring 019	1
7	V3165-01**	WS1 RFC Retainer Assembly	1
8	V3182	WS1 RFC	1
Not Shown	H4650	Elbow 1/2" with Nut and Insert	Option

\*This part is required for backw

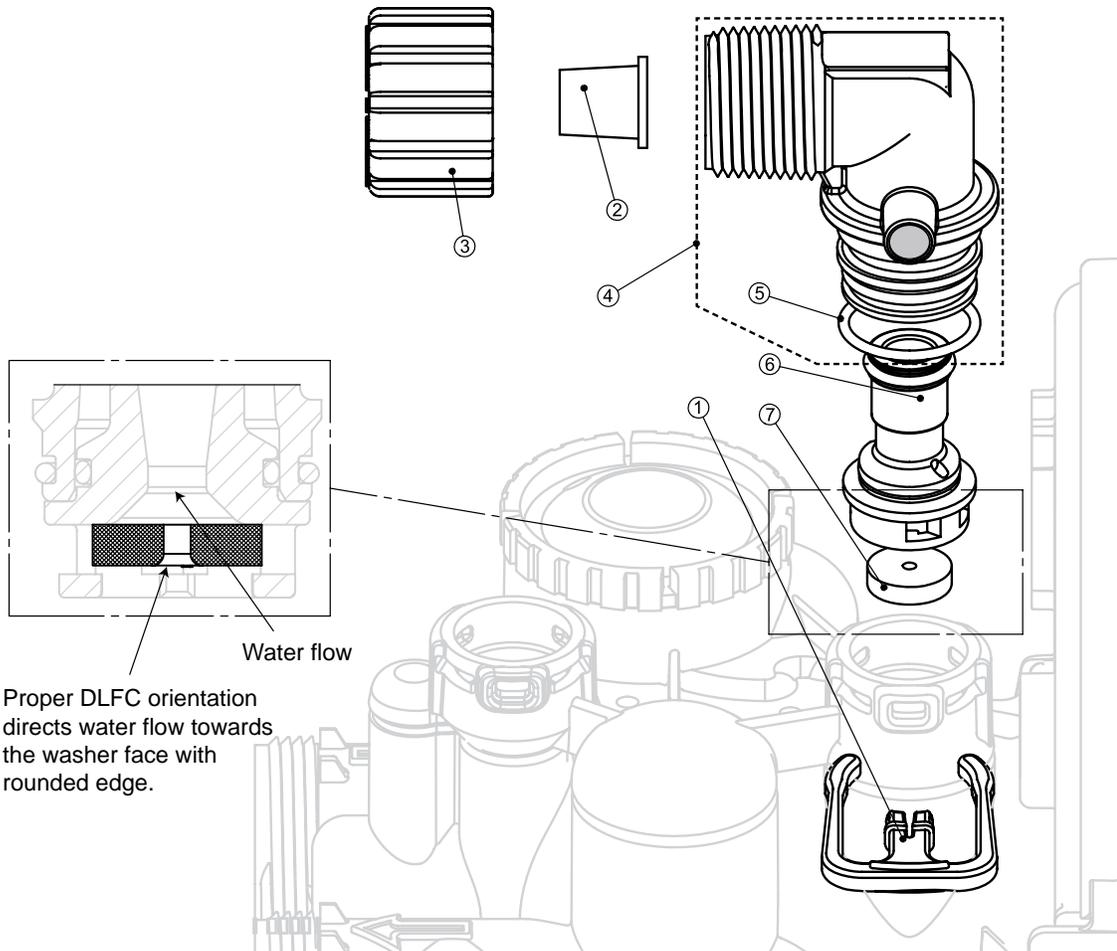
\*\*Assembly includes WS1 RFC



## DRAIN LINE — 3/4"

DRAWING #	PART #	DESCRIPTION	QTY
1	H4615	Elbow Locking Clip	1
2	PKP10TS8-BULK	Polytube Insert 5/8	Option
3	V3192	WS1 Nut 3/4 Drain Elbow	Option
4	V3158-01	WS1 Drain Elbow 1/4 Male Assembly	1
5	V3163	O-Ring 019	1
6	V3159-01	WS1 DLFC Retainer Assembly	1
7	V3162-007	WS1 DLFC 0.7 gpm for 3/4	One DLFC must be used if 3/4" fitting is used
	V3162-010	WS1 DLFC 1.0 gpm for 3/4	
	V3162-013	WS1 DLFC 1.3 gpm for 3/4	
	V3162-017	WS1 DLFC 1.7 gpm for 3/4	
	V3162-022	WS1 DLFC 2.2 gpm for 3/4	
	V3162-027	WS1 DLFC 2.7 gpm for 3/4	
	V3162-032	WS1 DLFC 3.2 gpm for 3/4	
	V3162-042	WS1 DLFC 4.2 gpm for 3/4	
	V3162-053	WS1 DLFC 5.3 gpm for 3/4	
	V3162-065	WS1 DLFC 6.5 gpm for 3/4	
	V3162-075	WS1 DLFC 7.5 gpm for 3/4	
	V3162-090	WS1 DLFC 9.0 gpm for 3/4	
	V3162-100	WS1 DLFC 10.0 gpm for 3/4	

*Valves are shipped without drain line flow control (DLFC) — install DLFC before using. Valves are shipped without 3/4" nut for drain elbow (polytube installation only) and 5/8" polytube insert (polytube installation only).*

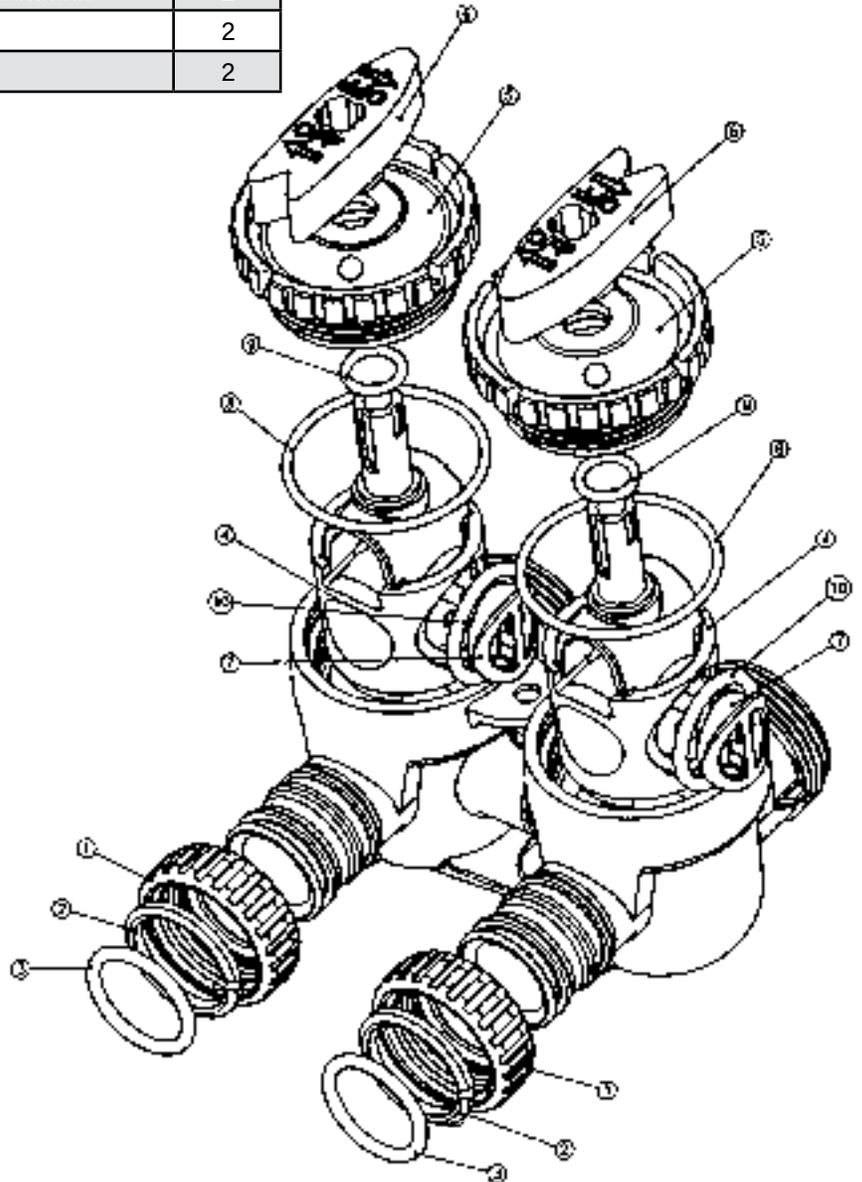


### BYPASS VALVE

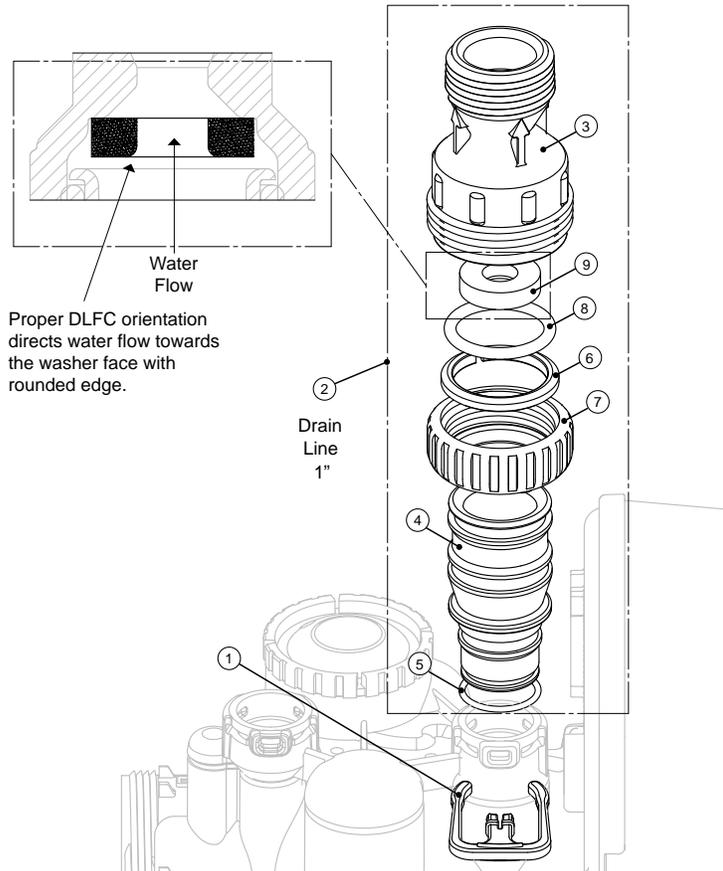
DRAWING #	PART #	DESCRIPTION	QTY
1	V3151	WS1 Nut 1" Quick Connect	2
2	V3150	WS1 Split Ring	2
3	V3105	O-Ring 215	2
4	V3145	WS1 Bypass 1" Rotor	2
5	V3146	WS1 Bypass Cap	2
6	V3147	WS1 Bypass handle	2
7	V3148	WS1 Bypass Rotor Seal Retainer	2
8	V3152	O-Ring 135	2
9	V3155	O-Ring 112	2
10	V3156	O-Ring 214	2

### BYPASS VERTICAL ADAPTER

DRAWING #	PART #	DESCRIPTION	QTY
Not Shown	V3191-01	WS1 Bypass Vertical Adapter Assembly	2
Not Shown	V3151	WS1 Nut 1" Quick Connect	2
Not Shown	V3150	WS1 Split Ring	2
Not Shown	V3105	O-Ring 215	2



DRAIN LINE — 1"			
DRAWING #	PART #	DESCRIPTION	QTY
1	H4615	Elbow Locking Clip	1
2	V3008-02	WS1 Drain FTG 1 Straight	1
3*	V3166	WS1 Drain FTG Body1	1
4*	V3167	WS1 Drain FTG Adapter	1
5*	V3163	O-Ring 019	1
6*	V3150	WS1 Split Ring	1
7*	V3151	WS1 Nut 1" QC	1
8*	V3105	O-Ring 215	1
9	V3190-090	WS1 DLFC 9.0 gpm for 1	One DLFC must be used if 1" fitting is used
	V3190-100	WS1 DLFC 10.0 gpm for 1	
	V3190-110	WS1 DLFC 11.0 gpm for 1	
	V3190-130	WS1 DLFC 13.0 gpm for 1	
	V3190-150	WS1 DLFC 15.0 gpm for 1	
	V3190-170	WS1 DLFC 17.0 gpm for 1	
	V3190-200	WS1 DLFC 20.0 gpm for 1	
	V3190-250	WS1 DLFC 25.0 gpm for 1	



# SPECIFICATIONS

SOFTENER CAPABILITIES				
Model Size:	SE-844	SE-1044	SE-1054	SE-1354
<b>Softening Capacity:</b> (Grains @ Lbs.)				
• Minimum Setting	13,500 @ 3.0	18,000 @ 4.0	27,000 @ 6.0	36,000 @ 8.0
• Medium Setting	21,000 @ 7.0	28,000 @ 9.0	42,100 @ 14.0	56,100 @ 19.0
• Maximum Setting	24,600 @ 11.0	32,800 @ 15.0	48,300 @ 22.5	65,700 @ 30.0
<b>Maximum Hardness</b> (GPG)	25	50	75	100
<b>Maximum Iron</b> (PPM)	2	2	2	2
<b>Maximum Chlorine</b> (PPM)	0.5	0.5	0.5	0.5
<b>Media Included</b> (Cu. Ft.)	Cat-Ion Resin 0.75	Cat-Ion Resin 1.0	Cat-Ion Resin 1.5	Cat-Ion Resin 2.0
<b>Drain Line Flow Control</b>	1.7	2.2	2.7	3.2
<b>Efficiency @ 1 lb. Salt Setting</b> (Grains/Lbs. Salt)	4,500	4,500	4,500	4,500
<b>Max. Service Flow</b> (GPM)	11	12.5	13.1	16.4
<b>Min.-Max. Operating Pressure</b> (PSI)	25-100	25-100	25-100	25-100
<b>Min.-Max. Operating Temp.</b> (°F)	40-100	40-100	40-100	40-100
<b>Electrical Requirements:</b>	110V/15vDC 60Hz	110V/15vDC 60Hz	110V/15vDC 60Hz	110V/15vDC 60Hz
<b>Plumbing Size:</b>	1"	1"	1"	1"
<b>Total Dimensions:</b>				
• Valve & Media Tank (Width x Height)	8"x54"	10"x54"	10"x64"	10"x64"
• Brine Tank (Width x Depth x Height)*	15"x17"x33"	15"x17"x33"	15"x17"x33"	18"x40" (round)

\*Various brine tank sizes are available and may vary from the standard sizes shown in chart above. 18" x 40" round brine tanks only available with SE-1354 models.

