## **Installation Instructions and Owner's Manual**

# XTS Series Water Softening System



Scan the QR code above with a smart phone to view the installation video!

#### Franklin Electric, Co., Inc. Water Treatment

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#### **Pre-installation Instructions**

#### Description of the water softener system

This water softener system includes a brine (salt) tank and a resin (media) tank with a backwashing control valve. Incoming water flows into the control valve and is directed down through the ion exchange softening resin. This resin exchanges the hardness ions for softer ions. The softened water then returns to the control valve where it is directed into the service lines.

Periodically the control valve will go through a regeneration cycle. The frequency of this regeneration process will depend on the size of water softener, incoming water quality and amount of water used. This cycle is factory preset to begin at 2:00 A.M. 90 minutes prior to regeneration the control valve will put fresh water into the salt tank to make brine. Then during regeneration, it will draw the brine solution out of the salt tank and flush both the accumulated hardness and excess salt to the drain.

#### **Water Quality**

The water should be tested to determine the concentration, or levels of the items listed below:

**Hardness** - Hardness in drinking water is defined as those minerals that dissolve in water having a positive electrical charge (cat ions). The primary components of hardness are calcium (Ca++) and magnesium (Mg++) ions. But dissolved iron (Fe++) and manganese (Mn++) also contribute to total "adjusted" hardness. Hardness produces scale, soap scum and white mineral deposits which shorten the life of water using appliances, plumbing and fixtures. Water that has less than 1 grain of hardness is considered to be "soft" water.

**pH** - A measurement of the acidity of the water. pH is reported on a scale from 0 to 14. Neutral water has a pH of 7.0, lower values indicate acidic water. If your pH is below 6.8 you may consider installing an acid neutralizer before the water softener to elevate the pH.

**Iron** - A naturally occurring metallic element. Iron levels in excess of 0.3 milligrams/liter (mg/l) combine with oxygen causing orange or red (rust) stains on plumbing fixtures. Iron exists in some water sources in clear water (ferrous) state, red water (ferric) state or bacterial form. Iron levels that exceed 2.0 mg/l may require special ion exchange resin or an iron filter. If bacterial iron or ferric (red water) iron is present or iron level exceeds 4.0 mg/l, an iron filter must be installed ahead of this water softener.

**Manganese** - A naturally occurring metallic element. Manganese levels as low as 0.05 milligrams/liter (mg/l) can combine with oxygen to cause dark brown or black staining on fixtures. Additionally, manganese can cause an odor in the water similar to a "rotten egg" smell. This water softener may reduce manganese as well as iron; however, an iron filter may be required in some cases.

**Tannin** - A naturally occurring humic acid. Tannin is caused by water passing through decaying vegetation. Coffee and Tea are prime examples of tannin in water. Tannin levels as low as 0.5 milligrams per liter can cause a yellow discoloration in water. Consult your dealer for a system designed to remove both tannin and hardness.

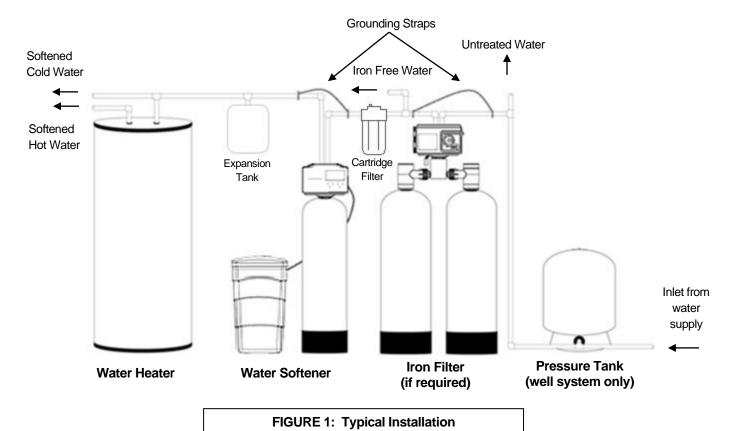
**Hydrogen Sulfide** - A naturally occurring gas. Hydrogen sulfide, more commonly referred to as sulfur gas, causes a distinct odor similar to "rotten eggs." Due to its gaseous nature, hydrogen sulfide must be tested at the well site within 1 minute of drawing the sample. If sulfur is present additional equipment will be required. OXY iron filters can typically treat up to 2 milligrams per liter of sulfur gas if regenerated daily.

## **Pre-installation Instructions (cont.)**

#### **Location Considerations**

The proper location to install the water softener system will ensure optimum performance and satisfactory water quality. The following factors should be considered in selecting the location of the equipment.

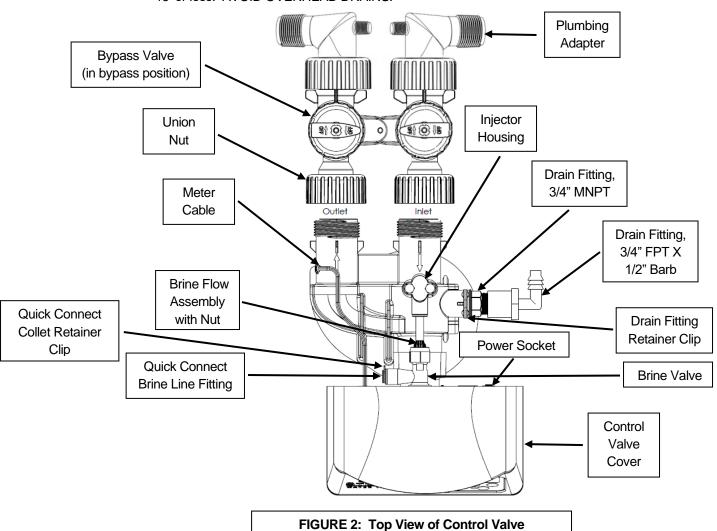
- 1. The water softener should be installed after the pressure tank on a private well system or after the water meter on municipal water. Operating pressure of the softener must be limited to within 30 100 psi range.
- 2. The water softener should be installed as close as possible (preferably within 15') to an adequate floor or laundry drain capable of handling the backwash cycle volume and flow rate (refer to unit specifications).
- 3. All water conditioning equipment should be installed prior to the water heater. Water temperatures exceeding 100°F can damage the internal components of the control valve and filter tank. Install with at least 10' of pipe before the water heater to prevent thermal damage to the equipment. An expansion tank may need to be installed in the line to the water heater in order to allow for thermal expansion and comply with local plumbing codes.
- 4. The water softener should not be subject to freezing temperatures.
- 5. Ensure that any cartridge or in-line type filter installed prior to the water softener does not restrict the water flow and pressure available for backwash and interfere with normal operation.
- 6. Appliances requiring extended periods of continuous or high flow water use (i.e. geothermal heat pumps, swimming pools, lawn irrigation, outside hose bibs, etc.) should bypass the water softener. (see installation diagram Fig. 1).



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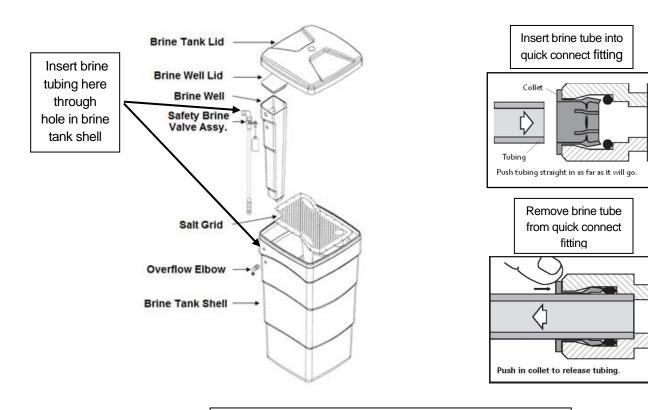
#### **Detailed Installation Instructions**

- **STEP 1:** Carefully remove all components from packaging. DO NOT DISCARD PACKAGING until all water softener components and fittings have been located.
- STEP 2: Using the integrated coupling nuts, attach the bypass valve to the inlet/outlet of the control valve and put handles in the bypass position (Figure 2).
- **STEP 3:** Place unit at desired installation position.
- STEP 4: Shut off water at main supply. Relieve pressure by opening nearest faucet. On private well systems, turn off power to pump and drain pressure tank. SHUT OFF POWER OR FUEL SUPPLY TO WATER HEATER.
- STEP 5: Cut main supply line as required to fit plumbing to inlet and outlet of bypass valve. DO NOT PLUMB INLET AND OUTLET BACKWARDS. Piping should be supported. Do not apply heat to any fitting attached to the bypass or control valve.
- STEP 6: Use the provided polyethylene tubing (NO VINYL TUBING) to run drain line from control valve barbed drain fitting (Figure 2) to floor drain or sump pit capable of handling the backwash rate of the softener (refer to specifications on Page 17). THE DISCHARGE END OF THE DRAIN LINE MUST BE FIRMLY SECURED! There must be an air gap at the end of the drain line to prevent siphoning of wastewater and meet plumbing code. Total length of drain line should be 15' or less. AVOID OVERHEAD DRAINS.



#### **Detailed Installation Instructions (continued)**

STEP 7: Connect one end of the 3/8" brine line to the control valve quick connect brine line fitting (Figure 2, Page 5). Insert the other end of the brine line through the hole in the brine tank and into the quick connect fitting on the safety brine valve (Figure 3). Remove the quick connect collet retainer clip (if included) before inserting the brine line into each fitting, press the tube in very firmly and replace the retainer clip behind the collet. NOTE: THE BRINE TUBING SHOULD BE INSERTED 5/8" INTO THE FITTING. DO NOT PUT SALT INTO THE BRINE TANK AT THIS TIME.



STEP 8: If desired, install overflow tubing (not provided) from overflow elbow on brine tank (Figure 3) to floor drain. Tubing must be lower than the overflow elbow at all times. DO NOT CONNECT DRAIN LINE FROM SOFTENER CONTROL VALVE TO BRINE TANK OVERFLOW. DO NOT CONNECT BRINE TANK DRAIN LINE TO THE SOFTENER DRAIN LINE.

**FIGURE 3: Brine Tank Components** 

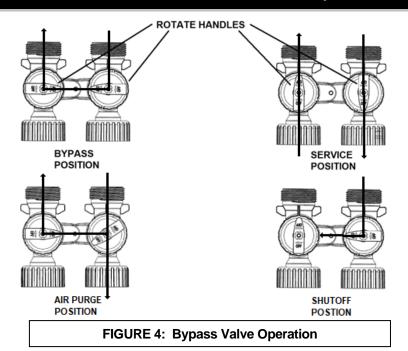
STEP 9: Plug the transformer into an un-switched electrical outlet and insert the power cord plug into the power socket (Figure 2, Page 5) on the back of the control valve. Ensure control valve is in "Service" mode (time of day is displayed on the screen {refer to page 8 for Home Screen Display}).

STEP 10: Place bypass valve in the "Bypass" position (refer to Figure 2, Page 5; Figure 4, Page 7) and open main supply valve or turn on power to pump on private well systems.

STEP 11: Add water in the brine tank to slightly above the top level of the salt grid (approx. 6 gallons).

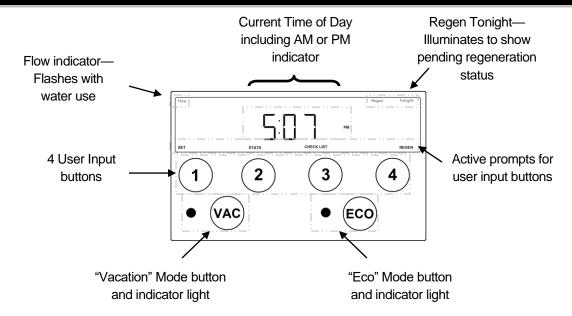
DO NOT ADD SALT TO THE BRINE TANK AT THIS TIME.

#### **Detailed Installation Instructions (continued)**



- STEP 12: Press and hold the REGEN button (4) until the motor starts. Then use the NEXT button (1) to advance the control valve to the backwash position (refer to pages 9 and 10 for details). When the backwash countdown begins, unplug power from the valve.
- Refer to Figure 4 bypass valve operation. Rotate the INLET knob of the bypass valve slightly toward the Service position (just enough to hear water entering the tank) allowing the unit to fill slowly (be patient). Filling the mineral tank with the control valve in the backwash position will purge air from the mineral tank to the drain.
- STEP 14: When all air has been purged from the system and only water is running to the drain, slowly rotate the inlet knob of the bypass valve to the "Service" position and do the same for the outlet knob.
- Plug power back into the control valve. The display will return to the time of day. Then press and hold the REGEN button (4) until the motor starts and advance the control valve to the BRINE DRAW cycle using the NEXT button (1). Verify that the water level in the brine tank is dropping. Allow water level to drop below the top of the salt grid before continuing. If the water level does not drop, refer to page 25 for Troubleshooting. After verifying water level is dropping advance control valve to the time of day using the NEXT button (1).
- **STEP 16:** Check for leaks and correct as necessary.
- **STEP 17:** Turn power or fuel supply back on to water heater.
- STEP 18: Press and hold the CHECKLIST button (3) until the screen changes to set the hardness & iron concentrations on the control valve (refer to Installer Settings, Page 13, for details), then press DONE.
- **STEP 19:** Press the SET button (1) to set the current time of day on the timer (Page 8, note AM and PM).
- STEP 20: Add at least 40 lbs of water softener salt to the brine tank. Any type of water softening salt may be used.

## **Display and Operation - Home Screen**



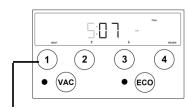
The active prompts displayed at the bottom of the circuit board indicate the function of each user button.

## **Display and Operation - Setting Time**



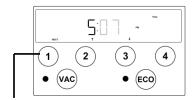
"Home" screen displays current time-of-day.

Press 'SET' button to access time set screen.



Using ' $\uparrow$ ' and ' $\downarrow$ ', set the current time-of day hours. Note the AM and PM indicator and set the time accordingly.

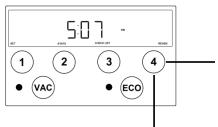
Press 'NEXT' button to set current minutes.



Using ' $\uparrow$ ' and ' $\downarrow$ ', set the current minutes.

Press 'NEXT' button to save changes and return to 'Home' screen.

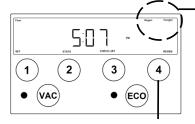
#### **Initiating Regeneration**



Momentarily pressing and releasing the 'REGEN' button will cause the Regen Tonight indicator to illuminate on the top right side of the display. The regeneration process will begin at the next programmed time-of-regeneration (factory preset for 2:00 AM)

Pressing and HOLDING the 'REGEN' button for approximately 3 seconds will initiate an immediate regeneration.

NOTE: The regeneration cycle will disable the 'Regen Tonight' indicator (if illuminated). The regeneration cycle will also reset the gallons remaining until next regeneration and the days override interval. A second (delayed) regeneration may be queued by briefly pressing and releasing the "REGEN" button during a regeneration cycle. "Regen Tonight" will display.



Momentarily pressing and releasing the 'REGEN' button again will cancel the delayed regeneration cycle.

#### **Regeneration Process**

The following regeneration cycles are listed in the factory programmed sequence. Each cycle in the regeneration process may be advanced without waiting for the programmed cycle duration, for installation, troubleshooting, or maintenance purposes.

Cycle: BRINE FILL



Press 'NEXT' button to advance to Service Cycle.

- 1. The Fill and Regen indicators will be illuminated on the display.
- 2. The control valve will advance to the brine fill position and start adding water to the brine tank.
- The cycle duration will begin to count down on the display once the control valve is in the proper position. The cycle duration is dictated by either the programmed salt dosage setting or the ECO calculated salt dosage (if activated).
- 4. This cycle occurs 90 minutes prior to the scheduled regeneration time. (Regeneration is factory preset at 2:00 AM, so Brine Fill cycle would occur at 12:30 AM)
- 5. Treated (soft) water is still available during this cycle.

Cycle: SERVICE

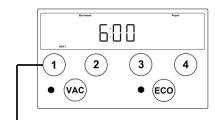


Press 'NEXT' button to advance to Backwash Cycle.

- 1. The Service and Regen indicators will be illuminated on the display.
- 2. The control valve will advance to the Service (Home) position.
- 3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
- 4. This cycle allows the fresh water that has been added to the brine tank sufficient time to dissolve the salt to make saturated brine.
- 5. Treated (soft) water is still available during this cycle.

#### **Regeneration Process (continued)**

#### Cycle: BACKWASH



Press 'NEXT' button to advance to Brine Draw Cycle.

Cycle: DRAW



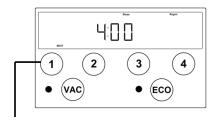
Press 'NEXT' button to advance to Rapid Rinse Cycle.

- The Backwash and Regen indicators will be illuminated on the display.
- 2. The control valve will advance to the Backwash position.
- 3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
- 4. Water will flow up through the resin and out the drain flushing accumulated solids and preparing the resin for the brine cycle.
- 5. Softening systems with a single mineral tank will have an internal bypass to allow untreated (hard) water for service during this cycle.

**NOTE:** The initial fill process should be performed while the control is in the backwash position to prevent air from being trapped in the media tank.

- 1. The Draw and Regen indicators will be illuminated on the display.
- 2. The control valve will advance to the Brine Draw position.
- 3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
- 4. Water will flow through the injector causing suction to draw the brine solution out of the salt tank. The brine solution will flow down through the resin and out the drain.
- 5. Softening systems with a single mineral tank will have an internal bypass to allow untreated (hard) water for service during this cycle.

Cycle: RINSE



Press 'NEXT' button to return control to the HOME position.

- 1. The Rinse and Regen indicators will be illuminated on the display.
- 2. The control valve will advance to the Rapid Rinse position.
- 3. The cycle duration will begin to count down on the display once the control valve is in the proper position.
- 4. Water will flow down through the resin and out the drain flushing the remaining salt from the brine cycle and preparing the resin for the softening process.
- 5. Softening systems with a single mineral tank will have an internal bypass to allow untreated (hard) water for service during this cycle.

## **Display and Operation – Statistics**



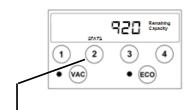
"Home" screen displays current time-of-day.

Press 'STATS' button to advance to the STATS screen.



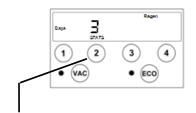
Current "Flow" screen displays current flow (gpm) through the softener.

Press 'STATS' button to advance to the REMAINING CAPACITY screen.



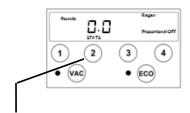
"Remaining Capacity" screen displays the number of gallons that can be treated by the softener before it needs to be regenerated.

Press 'STATS' button to advance to the DAYS REGEN screen.



"Days Regen" screen displays the number of since the last regeneration. '0' indicates the softener regenerated within the current day (12:00 am is considered the beginning of the day).

Press 'STATS' button to advance to the LBS SALT screen.



"Lbs Salt" screen displays the number of lbs of salt used for regeneration within the current day (12:00 am is considered the beginning of the day). '0' indicates the unit did not regenerate in the current day.

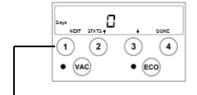
Press 'STATS' button to advance to the peak FLOW screen.



Peak 'Flow' screen displays the highest flow rate which occurred within the last number of days that equals  $\frac{1}{2}$  of the "A" value for days of history to be retained. IE A 56 (default)  $\div$  2 = 28 days.

Press 'STATS' button to advance to the DAYS STATS history screen.

#### **Display and Operation – Statistics (continued)**



'Days Stats' history screen provides access to up to 56 days of historical data including: lbs of salt used (on any day that regeneration occurred), peak flow rate and gallons used for the day number that is selected using ' $\uparrow$ ' and ' $\downarrow$ ' (0 is today, 1 is yesterday, etc.).

Press 'NEXT' button to advance to the POUNDS REGEN screen for the currently selected day number.



'Pounds Regen' history screen displays lbs of salt used (on any day that regeneration occurs). '0.0' indicates the unit did not regenerate on this day.

Press 'NEXT' button to advance to the peak FLOW screen for the currently selected day number.



Peak 'Flow' history screen displays the maximum flow rate that occurred on the selected day.

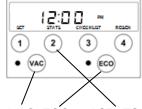
Press 'NEXT' button to advance to the GALLONS used screen for the currently selected day number.



'Gallons' used history screen displays water usage, in gallons, that occurred on the selected day.

Press 'NEXT' button to advance to the DAYS STATS history screen for the day prior to the currently selected day number. Return to the top of this page and repeat the steps as desired or press 'DONE' to return to the 'Home' screen.

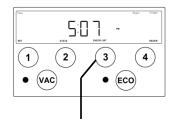
## **Purge History**



History may be cleared by pressing and holding VAC, ECO and STATS simultaneously until the VAC and ECO lights turn off and the time of day is displayed.

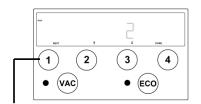
## **Display and Operation – Installer Settings – Cycles**

The installer settings provide access to the water softener cycle times. The factory settings have been programmed for maximum efficiency. Altering the factory programmed cycles will affect the softeners performance. NOTE: Extreme caution must be taken when adjusting the water softener cycles. Decreasing a cycle time or completely deleting the cycle may cause the softener to stop functioning.



"Home" screen displays current time-of-day.

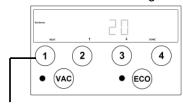
Press and HOLD 'CHECKLIST' button for approximately 3 seconds to access installer settings.



Ensure the **Iron** indicator is illuminated on the left side of the display and using the ' $\uparrow$ ' and ' $\downarrow$ ' buttons set the incoming iron concentration.

NOTE: While a water softener can be reasonably expected to remove small amounts of clear water iron, for best performance an iron filter should be considered.

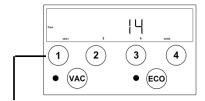
Press 'NEXT' button to set incoming HARDNESS level.



Ensure the **Hardness** indicator is illuminated on the left side of the display and using the ' $\uparrow$ ' and ' $\downarrow$ ' buttons set the incoming hardness level.

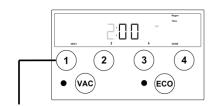
NOTE: This softener is set to calculate hardness as grains per gallon (gpg). If your water hardness is reported in milligrams per liter (mg/l) or parts per million (ppm) divide these results by 17.1 to convert to grains per gallon.

Press 'NEXT' button to set regeneration DAYS OVERRIDE interval



Using '↑' and '↓', set the desired day override interval. The regeneration day override function will cause the softener to regenerate after a designated period of no regeneration cycles. The override interval will reset after every regeneration cycle whether initiated manually or by volume. The day override function will be disabled if the VACATION mode is active.

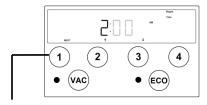
Press 'NEXT' button to set REGENERATION TIME hours.



Ensure the **Regen Time** indicator is illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired time of regeneration hours. Note the AM and PM indicator and set the time accordingly.

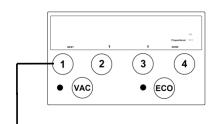
Press 'NEXT' button to set REGENERATION TIME minutes.

#### Display and Operation - Installer Settings - Cycles (continued)



Ensure the **Regen Time** indicator is illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired time of regeneration minutes.

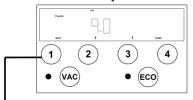
Press 'NEXT' button to set PROPORTIONAL BRINING.



Using ' $\uparrow$ ' and ' $\downarrow$ ', the Proportional Brining function can be set to ON or OFF. This feature can also be manually toggled on or off with the ECO button on the face of the front panel. (See additional information on Proportional Brining in the ECO section of the instruction manual.)

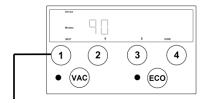
CAUTION: Changing the cycle durations will affect the water softener's performance and efficiency. The following settings should only be altered by a knowledgeable water treatment professional.

Press 'NEXT' button to set cycle #1 duration.



Ensure the **Pounds** and **Fill** indicators are illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired amount of salt to be used during the regeneration cycle.

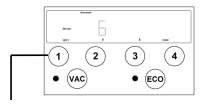
Press 'NEXT' button to set cycle #2 duration.



Ensure the **Service** and **Minutes** indicators are illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired length of time to allow fresh water in brine tank to dissolve salt to make saturated brine.

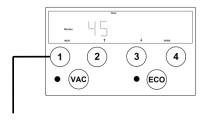
NOTE: Minimum recommended time is 90 minutes.

Press 'NEXT' button to set cycle #3 duration.



Ensure the **Backwash** and **Minutes** indicators are illuminated. Using '↑' and '↓', set the desired length of time for BACKWASH cycle

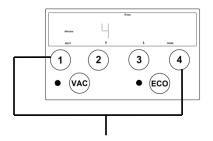
Press 'NEXT' button to set cycle #4 duration.



Ensure the **Draw** and **Minutes** indicators are illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired length of time for BRINE DRAW cycle.

Press 'NEXT' button to set cycle #5 duration.

## Display and Operation - Installer Settings - Cycles (continued)



Ensure the **Rinse** and **Minutes** indicators are illuminated. Using ' $\uparrow$ ' and ' $\downarrow$ ', set the desired length of time for RINSE cycle.

After all cycles have been set press either 'NEXT' or 'DONE' button to return to Home Screen.

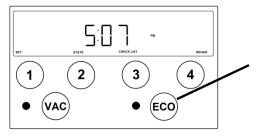
#### **Vacation Mode**

The VACATION mode may be activated or deactivated by pressing the VAC button on the front panel. The red LED light will be illuminated when the vacation mode is activated.

Once activated, the vacation mode will prevent the water softener from regenerating. This may be used if the house will not be occupied for an extended period of time. The vacation mode is initiated by pressing the VAC button on the front panel. There will be a 30 minute delay from the time the button is pressed until the vacation mode is active to allow time for last minute water use.

The vacation mode will automatically deactivate once the water softener detects normal water use.

## **ECO Mode**



The ECO mode may be activated or deactivated by pressing the ECO button on the front panel. The green LED light will be illuminated when the ECO mode is activated.

The revolutionary ECO mode is a forward-looking feature that uses water usage history and a process called proportional brining to ensure adequate softening capacity for future estimated water use. The water softener stores historical daily water use data. If the next day's anticipated water use requires more softening capacity than is currently available, the softener will initiate a regeneration process using a fractional portion of the programmed salt setting. This partial salt regeneration recovers only the depleted portion of the softening capacity. This proportional regeneration will save in both salt consumption and water use by using lower salt settings and fewer regeneration cycles.

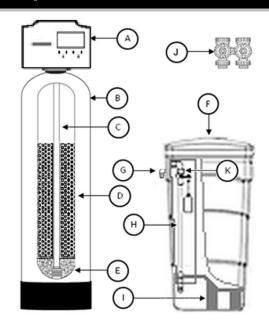
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# Specifications

|   |           | Tv        | wo Tank Mode | els       |           | Cabinet   | Models    | Space Sav | ver Models |
|---|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|------------|
| Description                                     | XTS24     | XTS30     | XTS45        | XTS60     | XTS75     | XTSCC30   | XTSCC40   | XTCS24    | XTCS30     |
| Resin Volume ft <sup>3</sup>                    | 0.75      | 1.0       | 1.5          | 2.0       | 2.5       | 1.0       | 1.3       | 0.75      | 1.0        |
| Capacity, gpg                                   |           |           |              |           |           |           |           |           |            |
| @Factory Salt @ 9lb/ft3                         | 18 ,000   | 24,000    | 36,000       | 48,000    | 60,000    | 24,000    | 32,000    | 18 ,000   | 24,000     |
| @Max. Salt @ 15lb/ft3                           | 22,500    | 30,000    | 45,000       | 60,000    | 75,000    | 30,000    | 40,000    | 22,500    | 30,000     |
| Gravel Underbed, lbs                            | 15        | 15        | 20           | 25        | 30        | 20        | 20        | 20        | 20         |
| Operating Flow Rate, gpm                        |           |           |              |           |           |           |           |           |            |
| Continuous (3 gpm/ft³)                          | 2         | 3         | 5            | 6         | 8         | 3         | 4         | 2         | 3          |
| Service (<=8 gpm/ft <sup>3</sup> , <15psi drop) | 6         | 8         | 10           | 12        | 13        | 8         | 10        | 6         | 8          |
| Peak (<=18 gpm/ft <sup>3</sup> , <20 psi drop)  | 12        | 13        | 13           | 14        | 14        | 14        | 14        | 15        | 14         |
| Regen. Flow Rates, gpm                          |           |           |              |           |           |           |           |           |            |
| Backwash & Rapid Rinse                          | 2.0       | 2.4       | 3.0          | 4.0       | 5.0       | 3.0       | 3.0       | 3.0       | 3.0        |
| Injector  | White     | Blue      | Blue         | Blue      | Blue      | Blue      | Blue      | White     | Blue       |
| Brine Draw - Rinse (@ 50 psi)                   | 0.32-0.35 | 0.42-0.72 | 0.42-0.72    | 0.42-0.72 | 0.42-0.72 | 0.42-0.72 | 0.42-0.72 | 0.32-0.35 | 0.42-0.72  |
| *Service Pipe Size, in.                         | 3/4" & 1" | 3/4" & 1" | 3/4" & 1"    | 3/4" & 1" | 3/4" & 1" | 3/4" & 1" | 3/4" & 1" | 3/4" & 1" | 3/4" & 1"  |
| Factory Regeneration Settings                   |           |           |              |           |           |           |           |           |            |
| Brine Tank Fill (lbs of salt)                   | 6         | 9         | 13.5         | 18        | 22.5      | 9         | 12        | 6         | 9          |
| Softening (minutes dissolving salt)             | 90        | 90        | 90           | 90        | 90        | 90        | 90        | 90        | 90         |
| Backwash (minutes)                              | 5         | 5         | 6            | 6         | 6         | 4         | 5         | 4         | 4          |
| Brine Draw & Rinse (minutes)                    | 40        | 40        | 45           | 55        | 55        | 40        | 40        | 40        | 40         |
| Rapid Rinse (minutes)                           | 6         | 7         | 8            | 8         | 8         | 5         | 7         | 4         | 5          |
| Total Water Used, gallons                       | 38        | 58        | 75           | 97        | 127       | 56        | 66        | 40        | 56         |
| Dimensions in.                                  |           |           |              |           |           |           |           |           |            |
| Mineral Tank, diameter x height                 | 8x44      | 9x48      | 10x54        | 12x48     | 13x54     | 10x35     | 10x44     | 10x35     | 10x35      |
| Brine Tank, width x depth x height              | 18x18x33  | 18x18x33  | 18x18x33     | 18x18x33  | 18x18x33  | -NA-      | -NA-      | 12X12X34  | 12X12X34   |
| Overall, depth x width x height:                |           |           |              |           |           |           |           |           |            |
| (less 90° adapters)                             | 21x28x55  | 21x29x59  | 21x30x65     | 21x30x59  | 21x31x65  | 27x13x47  | 27x13x53  | 21x24x47  | 21x24x47   |
| (with 90° adapters)                             | 18x28x59  | 18x29x63  | 18x30x69     | 18x30x63  | 18x31x69  | 22x13x51  | 22x13x57  | 16x24x51  | 16x24x51   |
| Approximate Ship Wt., lbs.                      | 94        | 110       | 143          | 168       | 219       | 115       | 133       | 101       | 113        |

|  | HE Two Tank Models |           |           |           |           | HE Space Saver Models |           |
|--|--------------------|-----------|-----------|-----------|-----------|-----------------------|-----------|
| Description                                      | XTS24-HE           | XTS30-HE  | XTS45-HE  | XTS60-HE  | XTS75-HE  | XTCS24-HE             | XTCS30-HE |
| Resin Volume ft <sup>3</sup>                     | 0.75               | 1.0       | 1.5       | 2.0       | 2.5       | 0.75                  | 1.0       |
| Capacity, grains                                 |                    |           |           |           |           |                       |           |
| @Factory Salt @ 6lb/ft3                          | 18,000             | 22,000    | 33,000    | 44,000    | 55,000    | 18,000                | 22,000    |
| @Max. Salt @ 15lb/ft3                            | 23,000             | 31,000    | 46,500    | 62,000    | 77,500    | 23,000                | 31,000    |
| Gravel Underbed, lbs                             | 15                 | 15        | 20        | 25        | 30        | 20                    | 20        |
| Operating Flow Rate, gpm                         |                    |           |           |           |           |                       |           |
| Continuous (3 gpm/ft <sup>3</sup> )              | 2                  | 3         | 5         | 6         | 8         | 2                     | 3         |
| Service (<=8 gpm/ft <sup>3</sup> , <15 psi drop) | 6                  | 8         | 10        | 12        | 13        | 6                     | 8         |
| Peak (<=18 gpm/ft <sup>3</sup> , <20 psi drop)   | 12                 | 13        | 13        | 14        | 14        | 15                    | 14        |
| Regen. Flow Rates, gpm                           |                    |           |           |           |           |                       |           |
| Backwash & Rapid Rinse                           | 2.0                | 2.4       | 3.0       | 4.0       | 5.0       | 3.0                   | 3.0       |
| Injector   | White              | Blue      | Blue      | Blue      | Blue      | White                 | Blue      |
| Brine Draw / Rinse (@ 50 psi)                    | 0.32-0.35          | 0.42-0.72 | 0.42-0.72 | 0.42-0.72 | 0.42-0.72 | 0.32-0.35             | 0.42-0.72 |
| *Service Pipe Size, in.                          | 3/4" & 1"          | 3/4" & 1" | 3/4" & 1" | 3/4" & 1" | 3/4" & 1" | 3/4" & 1"             | 3/4" & 1" |
| Factory Regeneration Settings                    |                    |           |           |           |           |                       |           |
| Brine Tank Fill (lbs of salt)                    | 6                  | 6         | 9         | 12        | 15        | 6                     | 6         |
| Softening (minutes dissolving salt)              | 90                 | 90        | 90        | 90        | 90        | 90                    | 90        |
| Backwash (minutes)                               | 5                  | 5         | 6         | 6         | 6         | 4                     | 4         |
| Brine Draw & Rinse (minutes)                     | 40                 | 40        | 40        | 50        | 60        | 40                    | 40        |
| Rapid Rinse (minutes)                            | 6                  | 7         | 8         | 8         | 8         | 4                     | 5         |
| Total Water Used, gallons                        | 38                 | 60        | 74        | 96        | 118       | 40                    | 58        |
| Dimensions in.                                   |                    |           |           |           |           |                       |           |
| Mineral Tank, diameter x height                  | 8x44               | 9x48      | 10x54     | 12x48     | 13x54     | 10x35                 | 10x35     |
| Brine Tank, width x depth x height               | 18x18x33           | 18x18x33  | 18x18x33  | 18x18x33  | 18x18x33  | 12X12X34              | 12X12X34  |
| Overall, depth x width x height:                 |                    |           |           |           |           |                       |           |
| (less opt. 90° adapters)                         | 21x28x55           | 21x29x59  | 21x30x65  | 21x30x59  | 21x31x65  | 21x24x47              | 21x24x47  |
| (with opt. 90° adapters)                         | 18x28x59           | 18x29x63  | 18x30x69  | 18x30x63  | 18x31x69  | 16x24x51              | 16x24x51  |
| Approximate Ship Wt., lbs.                       | 94                 | 110       | 143       | 168       | 219       | 101                   | 113       |

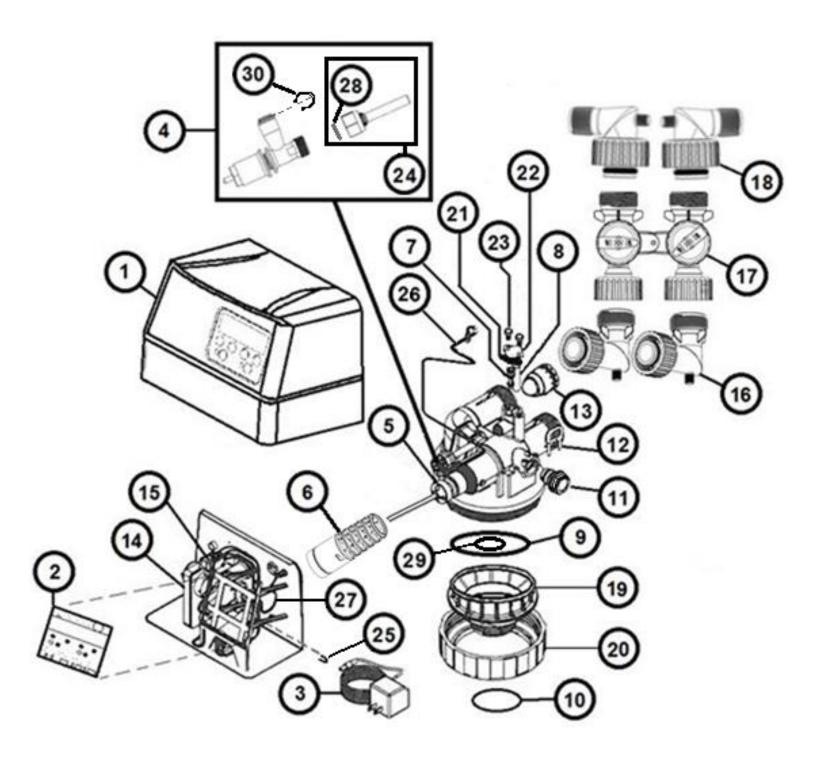
# Component Parts Breakdown



| - ·  |                            |                         | Two Tank Models          |                          |                          |                          |                           | Cabinet Models            |                          | Space Saver Models       |  |
|------|----------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--|
| Ref  | Description                | XTS24                   | XTS30                    | XTS45                    | XTS60                    | XTS75                    | XTSCC30                   | XTSCC40                   | XTCS24                   | XTCS30                   |  |
| Α    | Control Valve<br>L/ bypass | XTS24-VLV-<br>ASSY-L-BP | XTS30-VLV-<br>ASSY- L-BP | XTS45-VLV-<br>ASSY- L-BP | XTS60-VLV-<br>ASSY- L-BP | XTS75-VLV-<br>ASSY- L-BP | XTSCC30-VLV-<br>ASSY-L-BP | XTSCC40-VLV-<br>ASSY-L-BP | XTCS24-VLV-<br>ASSY-L-BP | XTCS30-VLV-<br>ASSY-L-BP |  |
| В    | Mineral Tank               | MTP0844GR               | MTP0948GR                | MTP1054GR                | MTP1248GR                | MTP1354GR                | MTP1035GR                 | MTP1044GR                 | MTP1035GR                | MTP1035GR                |  |
| С    | Distributor                | D100SX-44               | D100SX-48                | D100SX-54                | D100SX-48                | D100SX-54                | D100S-48                  | D100S-48                  | D100SX-48                | D100SX-48                |  |
| D    | Resin                      | Qty 1-1/2 - H05P        | Qty 2 - H05P             | Qty 3 - H05P             | Qty 4 - H05P             | Qty 5 - H05P             | Qty 2 - H05P              | Qty 2.5 - H05P            | Qty 1-1/2 - H05P         | Qty 2 - H05P             |  |
| Е    | 1/4" X 1/8" Gravel         | Qty 1 - QC20            | Qty 1 - QC20             | Qty 1 - QC20             | Qty 1 - QC20             | Qty 1-1/2 - QC20         | Qty 1 - QC20              | Qty 1 - QC20              | Qty 1 - QC20             | Qty 1 - QC20             |  |
| F    | Brine Tank Assy.           | BTSQ1833ASSY            | BTSQ1833ASSY             | BTSQ1833ASSY             | BTSQ1833ASSY             | BTSQ1833ASSY             | BC-1035C                  | BC-1044C                  | BT1234ASSY               | BT1234ASSY               |  |
| G    | Overflow Fitting           | BT-OVERFLO              | BT-OVERFLO               | BT-OVERFLO               | BT-OVERFLO               | BT-OVERFLO               | BT-OVERFLO                | BT-OVERFLO                | BT-OVERFLO               | BT-OVERFLO               |  |
| Н    | Safety Brine VIv.          | SBV14ASSY               | SBV14ASSY                | SBV14ASSY                | SBV14ASSY                | SBV14ASSY                | SBV14ASSY                 | SBV14ASSY                 | SBV14ASSY                | SBV14ASSY                |  |
| 1    | Salt Platform              | BTSG18SQ                | BTSG18SQ                 | BTSG18SQ                 | BTSG18SQ                 | BTSG18SQ                 | -NA-                      | -NA-                      | BTSG12                   | BTSG12                   |  |
| J    | Bypass                     | BP-213                  | BP-213                   | BP-213                   | BP-213                   | BP-213                   | BP-213                    | BP-213                    | BP-213                   | BP-213                   |  |
| K    | Elbow Locking Clip         | FC103                   | FC103                    | FC103                    | FC103                    | FC103                    | FC103                     | FC103                     | FC103                    | FC103                    |  |
| -NA- | Top Screen                 | -NA-                    | -NA-                     | -NA-                     | -NA-                     | -NA-                     | FHS101                    | FHS101                    | -NA-                     | -NA-                     |  |
| -NA- | Distributor Adapter        | -NA-                    | -NA-                     | -NA-                     | -NA-                     | -NA-                     | SA900                     | SA900                     | -NA-                     | -NA-                     |  |

|      |                            |                            | ŀ                           | HE Space Saver Models       |                             |                             |                             |                             |
|------|----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Ref  | Description                | XTS24-HE                   | XTS30-HE                    | XTS45-HE                    | XTS60-HE                    | XTS75-HE                    | XTCS24-HE                   | XTCS30-HE                   |
| Α    | Control Valve<br>L/ bypass | XTS24-HE-VLV-<br>ASSY-L-BP | XTS30-HE-VLV-<br>ASSY- L-BP | XTS45-HE-VLV-<br>ASSY- L-BP | XTS60-HE-VLV-<br>ASSY- L-BP | XTS75-HE-VLV-<br>ASSY- L-BP | XTCS24-HE-VLV-<br>ASSY-L-BP | XTCS30-HE-VLV-<br>ASSY-L-BP |
| В    | Mineral Tank               | MTP0844GR                  | MTP0948GR                   | MTP1054GR                   | MTP1248GR                   | MTP1354GR                   | MTP1035GR                   | MTP1035GR                   |
| С    | Distributor                | D100S-44                   | D100S-48                    | D100S-54                    | D100S-48                    | D100S-54                    | D100S-48                    | D100S-48                    |
| D    | Resin                      | Qty 1-1/2 -<br>UHE05P      | Qty 2 - UHE05P              | Qty 3 - UHE05P              | Qty 4 - UHE05P              | Qty 5 - UHE05P              | Qty 1-1/2 -<br>UHE05P       | Qty 2 - UHE05P              |
| E    | 1/4" X 1/8" Gravel         | Qty 1 - QC20               | Qty 1 - QC20                | Qty 1 - QC20                | Qty 1 - QC20                | Qty 1-1/2 - QC20            | Qty 1 - QC20                | Qty 1 - QC20                |
| F    | Brine Tank Assy.           | BTSQ1833ASSY               | BTSQ1833ASSY                | BTSQ1833ASSY                | BTSQ1833ASSY                | BTSQ1833ASSY                | BT1234ASSY                  | BT1234ASSY                  |
| G    | Overflow Fitting           | BT-OVERFLO                 | BT-OVERFLO                  | BT-OVERFLO                  | BT-OVERFLO                  | BT-OVERFLO                  | BT-OVERFLO                  | BT-OVERFLO                  |
| Н    | Safety Brine VIv.          | SBV14ASSY                  | SBV14ASSY                   | SBV14ASSY                   | SBV14ASSY                   | SBV14ASSY                   | SBV14ASSY                   | SBV14ASSY                   |
| I    | Salt Platform              | BTSG18SQ                   | BTSG18SQ                    | BTSG18SQ                    | BTSG18SQ                    | BTSG18SQ                    | BTSG12                      | BTSG12                      |
| J    | Bypass                     | BP-213                     | BP-213                      | BP-213                      | BP-213                      | BP-213                      | BP-213                      | BP-213                      |
| K    | Elbow Locking<br>Clip      | FC103                      | FC103                       | FC103                       | FC103                       | FC103                       | FC103                       | FC103                       |
| -NA- | Top Screen                 | FHS101                     | FHS101                      | FHS101                      | FHS101                      | FHS101                      | FHS101                      | FHS101                      |
| -NA- | Distributor Adapter        | SA900                      | SA900                       | SA900                       | SA900                       | SA900                       | SA900                       | SA900                       |

# **Control Valve Parts Breakdown**

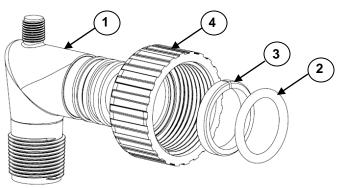


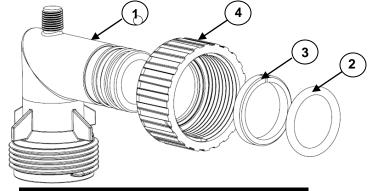
# **Control Valve Parts List**

| REF# | Part Number    | Description  |
|------|----------------|--|
| 1    | FCC-950        | Front Cover  |
| 2    | PCB-3486       | Circuit Board (specify unit model)                   |
| 3    | DC-12          | DC Adaptor with cord                                 |
| 4    | BV910          | Brine Valve Assembly                                 |
| 5    | CAB945         | Piston and Rod Assembly                              |
| 6    | TSS900         | Seal Cartridge Assembly                              |
| 7    | RVS932         | Injector Assembly w/o-rings                          |
| 8    | FS165          | Injector Filter Screen                               |
| 9    | OR342          | Valve to Tank Adaptor O-Ring (replaces OR344)        |
| 10   | OR337          | Tank O-ring  |
| 11   | FC902          | Drain Fitting, 3/4" MNPT (NEW)                       |
| 11   | FC901          | Drain Fitting, 1/2" FPT (OLD)                        |
| 12   | FC103          | Drain Fitting Retainer Clip                          |
| 13   | FM205          | Turbine Flow Meter                                   |
| 14   | MCA945         | Motor and Cam Assembly (includes nut micro switches) |
| 15   | 7779K420-MICRO | Micro Switch (2 required)                            |
| 16   | EBA910         | Optional 90° Close Install Adapter (2 required)      |
| 17   | BP-213         | Bypass Valve   |
|      | EBA975         | ¾" NPT Elbow Assembly (2 req'd)                      |
| 18   | EBA900         | 1" NPT Elbow Assembly (2 req'd)                      |
|      | EBA915         | Optional 1 ½" NPT Elbow Assy (2 req'd)               |

| REF#  | Part Number | Description   |
|-------|-------------|---|
| 19    | TAF131      | Tank Attachment   |
| 20    | TN101       | Tank Nut  |
| 21    | VG145       | Venturi Gasket  |
| 22    | VP145       | Venturi Plate   |
| 23    | VB145       | Venturi Hex Head Bolt,<br>18-8 SS 1/4-20 x 1/2"                     |
| 24    | QCF987      | Quick Connect Flow Assembly   |
| 25    | HPC-075     | Hair Pin Clip   |
| 26    | HEH138      | Hall Effect Sensor Wire Harness                                     |
| 27    | WH137       | Power Wire Harness with Nut & Lock<br>Washer                        |
| 28    | UQS-100     | Seal for Quick Connect Flow Assy                                    |
| 29    | OR255       | O-ring, 255, Pilot Tube O-ring                                      |
| 30    | RO-LC38BL   | QC 3/8" Locking Clip  |
|       | GL463412    | Drain Fitting, Hose Barb, 90° Elbow, 3/4"<br>FPT x 1/2" barb (NEW)  |
|       | 12338       | Drain Fitting, Hose Barb, 90° Elbow, 1/2"<br>MNPT x 1/2" barb (OLD) |
|       | 12087       | 2.0 gpm DLFC washer, XTS24  |
| NOT   | 3600-12088  | 2.4 gpm DLFC washer, XTS30  |
| SHOWN | 12089       | 3.0 gpm DLFC washer, XTCS24, XTCS30, XTSCC30, XTSCC40, XTS45        |
|       | 3600-12091  | 4.0 gpm DLFC washer, XTS60  |
|       | 12092       | 5.0 gpm DLFC washer, XTS75  |
|       | FHS101      | Top Screen (-HE & Cabinets Only)                                    |
|       | SA900       | Distributor Adaptor (-HE & Cabinets Only)                           |

# **Installation Fitting Assemblies**



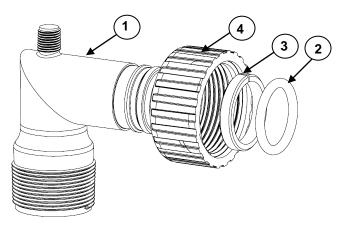


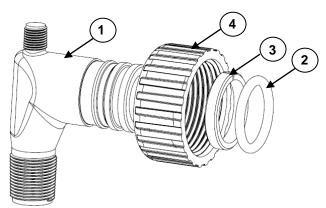
|     | 1" PVC MALE NPT ELBOW |                     |     |  |  |  |
|-----|-----------------------|---------------------|-----|--|--|--|
| Ref | Part #                | Description         | Qty |  |  |  |
|     | EBA900                | 1" Elbow Assembly   | 1*  |  |  |  |
| 1   | EB100                 | 1" Elbow            | 1   |  |  |  |
| 2   | OR323                 | O-ring, -323        | 1   |  |  |  |
| 3   | C-101                 | Split Ring Retainer | 1   |  |  |  |
| 4   | C-102                 | Connector Nut       | 1   |  |  |  |

| 90 DI | 90 DEGREE CLOSE INSTALL ADAPTER |                              |     |  |  |  |
|-------|---------------------------------|------------------------------|-----|--|--|--|
| Ref   | Part #                          | Description                  | Qty |  |  |  |
|       | EBA910                          | 90° Bypass Elbow<br>Assembly | 1*  |  |  |  |
| 1     | EB175                           | Bypass Elbow                 | 1   |  |  |  |
| 2     | OR323                           | O-ring, -323                 | 1   |  |  |  |
| 3     | C-101                           | Split Ring Retainer          | 1   |  |  |  |
| 4     | C-102                           | Connector Nut                | 1   |  |  |  |

(\*2 required)

(\*2 required)





|     | 1-1/2" PVC MALE NPT ELBOW |                       |     |  |  |  |
|-----|---------------------------|-----------------------|-----|--|--|--|
| Ref | Part #                    | Description           | Qty |  |  |  |
|     | EBA915                    | 1-1/2" Elbow Assembly | 1*  |  |  |  |
| 1   | EB150                     | 1.5" Elbow            | 1   |  |  |  |
| 2   | OR323                     | O-ring, -323          | 1   |  |  |  |
| 3   | C-101                     | Split Ring Retainer   | 1   |  |  |  |
| 4   | C-102                     | Connector Nut         | 1   |  |  |  |

|     | 3/4" PVC MALE NPT ELBOW |                     |     |  |  |  |
|-----|-------------------------|---------------------|-----|--|--|--|
| Ref | Part #                  | Description         | Qty |  |  |  |
|     | EBA975                  | 3/4" Elbow Assembly | 1*  |  |  |  |
| 1   | EB750                   | 3/4" Elbow          | 1   |  |  |  |
| 2   | OR323                   | O-ring, -323        | 1   |  |  |  |
| 3   | C-101                   | Split Ring Retainer | 1   |  |  |  |
| 4   | C-102                   | Connector Nut       | 1   |  |  |  |

(\*2 required)

(\*2 required)

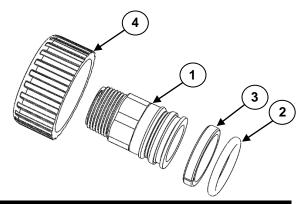
## **Installation Fitting Assemblies**

3

4

C-101

C-102



|     | 1" STRAIGHT NPT FITTING |                                 |     |  |  |  |
|-----|-------------------------|---------------------------------|-----|--|--|--|
| Ref | Part #                  | Description                     | Qty |  |  |  |
|     | TC204-1                 | 1" Straight Fitting<br>Assembly | 1*  |  |  |  |
| 1   | TC101-1                 | 1" Straight Fitting             | 1   |  |  |  |
| 2   | OR323                   | O-ring, -323                    | 1   |  |  |  |
| 3   | C-101                   | Split Ring Retainer             | 1   |  |  |  |
| 4   | C-102                   | Connector Nut                   | 1   |  |  |  |

3/4" PEX ADAPTER Ref Part # **Description** Qty PEX965 3/4" PEX Assembly 1\* PXTS750 1 3/4" PEX Fitting 1 OR323 2 O-ring, -323 1

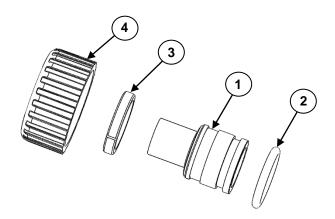
Split Ring Retainer

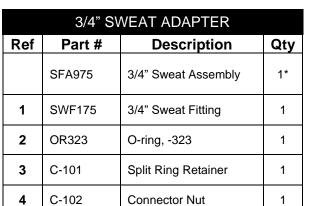
Connector Nut

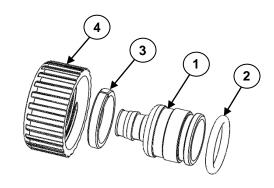
(\*2 required)

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|     | 3/4" UP | ONOR ADAPTER            |     |
|-----|---------|-------------------------|-----|
| Ref | Part #  | Description             | Qty |
|     | UPN985  | 3/4" Uponor<br>Assembly | 1*  |
| 1   | UPNR750 | 3/4" Uponor Fitting     | 1   |
| 2   | OR323   | O-ring, -323            | 1   |
| 3   | C-101   | Split Ring Retainer     | 1   |
| 4   | C-102   | Connector Nut           | 1   |

(\*2 required)

(\*2 required)

# **Installation Fitting Assemblies (cont.)**



|     | 3/4" ( | QUICK CONNECT                  |     |
|-----|--------|--------------------------------|-----|
| Ref | Part # | Description                    | Qty |
|     | QFNCR4 | 3/4" Quick Connect<br>Assembly | 1*  |

(\*2 required)

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# **Troubleshooting**

| PROBLEM                                 | CAUSE  | SOLUTION   |
|---|--|--|
|   | A. Electrical service to unit has been interrupted                 | A. Ensure permanent electrical service to unit (switch, circuit breaker, plug, etc.)   |
| Softener fails to regenerate            | B. Faulty meter or control board                                   | B. Verify meter cable is connected or replace defective component  |
|   | C. Defective drive motor or micro switch                           | C. Verify connections to control board or replace defective component  |
|   | D. Improper unit configuration                                     | D. Verify unit is not bypassed, verify programming   |
|   | A. Bypass valve is open  | A. Close bypass valve  |
|   | B. No salt in brine tank or salt is "bridged"                      | B. Verify salt is not "bridged" and add salt to brine tank and maintain salt level above water level   |
|   | C. Injectors or screen plugged                                     | C. Clean or replace injectors and screen   |
| Softener delivers hard water            | D. Insufficient water flowing into brine tank                      | D. Check brine tank fill time and clean brine line flow control  |
|   | E Leak at distributor tube   | E. Check length of distributor tube and pilot tube o-ring  |
|   | F. Internal valve leak   | F. Replace piston and seals/spacer kit   |
|   | G. Flow meter obstructed   | G. Clean flow meter  |
|   | H. Softener not regenerating                                       | H. See Problem 1 above   |
|   | Flow rate exceeds rated service flow                               | Verify the softener is properly sized  |
| Unit uses too much salt                 | A. Improper configuration  | Verify proper salt setting, verify day override setting, verify adjusted hardness setting  |
|   | B. Excessive water in brine tank                                   | B. See Problem # 7   |
|   | C. Leak in plumbing or fixtures                                    | C. Verify there are no leaks   |
|   | A. Softener too small for application                              | A. Check application requirements and resize water softener as required  |
| Loss of water pressure                  | B. Foreign material buildup in plumbing system or water softener   | B. Clean or replace plumbing, as necessary, additional treatment equipment may be required   |
|   | A. Air in water system   | A1. Check for low water table conditions in well  A2. Check for positive seal on brine line  |
| 5. Loss of resin through drain line     |  | connections and air check  |
|   | B. Drain line flow control is too large                            | B. Ensure proper drain line flow control is installed  |
|   | A. Iron exceeds recommended parameters or iron bacteria is present | A. Test incoming water supply and install OXY Series iron filter prior to softener, as needed  |
| 6. Iron in softened water               | B. Iron fouled resin   | B. Check and lengthen backwash, rinse times. Increase salt setting. Increase frequency of regeneration.     Use resin cleaner in brine tank. |
|   | A. Restricted drain flow control                                   | A. Clean drain line flow control   |
|   | B. Drain line too long or installed                                | B. Verify drain line is not restricted or  |
|   | overhead or restricted   | improperly installed   |
| Excessive water level in brine tank     | C. Vinyl drain line was used                                       | C. Replace drain line with rigid or semi-<br>rigid material with no kinks and as<br>few elbows as possible                                   |
| 7. LACESSIVE WATER REVER IT DITTE LATIK | D. Brine valve leaking (soft water)                                | D. Replace brine valve assembly  |
|   | E. Injector/screen plugged (hard water)                            | E. Clean or replace injectors and screen   |
|   | F. Improper configuration  | F. Verify the salt setting   |
|   | G. Either end of the brine line is not                             | G. Ensure brine line in inserted at least  |
|   | fully inserted into fitting  | 5/8" into fittings   |

# Troubleshooting (continued)

| PROBLEM  | CAUSE  | SOLUTION  |
|--|--|---|
|  | A. Injectors or screen plugged   | A. Clean or replace injectors and screen  |
|  | B. Restricted drain flow control   | B. Clean drain line flow control  |
| Salty water after regeneration                                       | C. Brine valve sticking  | C. Replace brine valve assembly   |
|  | D. Brine tank is overfilled  | D. See Problem # 7  |
|  | E. Rinse cycle too short   | E. Lengthen rinse cycle   |
|  | A. Foreign material in control valve   | A. Remove and inspect piston and seal kit. Replace as necessary   |
| Water leaks to drain continuously                                    | B. Drive motor stopped during regeneration cycle   | B. Check for obstruction in piston and seals. Replace drive motor.  |
|  | C. Control valve continuously cycling  | C. See Problem #10  |
|  | D. Internal valve seal leak  | D. Replace seals and/or piston  |
| 10. Control valve continuously cycling                               | A. Faulty homing switch  | A. Replace homing switch  |
| 11. Resin in service line  | A. Softener installed backwards  | A. Verify supply water is plumbed to inlet of softener by putting inlet bypass handle in the SHUTOFF position (Figure 4, Page 7) and advancing the control valve to a backwash position and unplugging power from the control valve. If the backwash flow rate does not diminish, the unit is plumbed in backwards. |
|  | B. Hot water backed up from water<br>heater has melted internal<br>components                                      | B. Replace all damaged components   |
|  | A. External bypass or cross connect in plumbing  | A. Test for external bypass by putting inlet bypass handle in the SHUTOFF position (Figure 4, Page 7) and open a treated faucet. If it does not trickle to a stop, locate the open bypass or cross connect and correct it.  |
| 12. Meter fails to register flow                                     | B. Meter cable unplugged at meter module or circuit board  | B. Plug in meter cable.   |
|  | C. Meter turbine not securely snapped into meter axel  | C. Remove meter module and snap securely onto axel and reinstall or replace if unable to snap in place.   |
|  | D. Meter module pushed too far into valve body outlet  | D. Pull meter module very slightly back in the valve body outlet.   |
|  | A. Wires for drive motor or microswitches are unplugged  | Verify drive motor and microswitch wires are connected correctly  |
| 13. Call Error   | B. Circuit board needs reset   | B. Turn on both VAC and ECO lights then unplug power for 10 seconds and plug power back in.   |
| 14. Call Error and/or softener stuck in DRAW cycle at 0:00 countdown | A. Defective component in powerhead assembly:     Drive cam, microswitch position, seal & spacer cartridge, piston | Replace powerhead assembly or individual components   |

#### **TEN YEAR LIMITED WARRANTY**

WARRANTY – Franklin Electric Co., Inc.. warrants this water conditioner against any defects that are due to faulty material or workmanship during the warranty period. This warranty does not include damage to the product resulting from accident, neglect, misuse, misapplication, alteration, installation or operation contrary to printed instructions, or damage caused by freezing, fire, flood, or Acts of God. From the original date of consumer purchase, we will repair or replace, at our discretion, any part found to be defective within the warranty period described below. Purchaser is responsible for any shipping cost to our facility and any local labor charges.

- One year on the entire water conditioner
- Five years on the control valve
- Five years on the brine tank
- Ten years on the mineral tank

GENERAL CONDITIONS – Should a defect or malfunction occur, contact Franklin Water Treatment technical services @ (260)693-1972. We will require a full description of the problem, model number, serial number and date of purchase. All warranty part replacements must be authorized by FWT technical service personnel or FWT factory sales representatives.

We assume no warranty liability in connection with this water conditioner other than specified herein. This warranty is in lieu of all other warranties, expressed or implied, including warranties of fitness for a particular purpose. We do not authorize any person or representative to assume for us any other obligations on the sale of this water conditioner.

#### FILL IN AND KEEP FOR YOUR RECORDS

| Original Purchaser     | Date of Purchase | Model # |       |
|------------------------|------------------|---------|-------|
| Address of Original In | stallation       | City    | State |
| Dealer Purchased Fro   | m Dealer Address | City    | State |

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